FLASH FILE CROSS REFERENCE SAVED FROM SIS WEB

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3126E HEUI Flash File Cross Reference
Updated Jan 21, 2004

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Released software to meet 2.09.2 Clean Power Phase II, Adem 2000,
Version 6, 7, & 8 ECM, MY2001 EPA Emission for April 2001
Production with 24 MHz ECM,
Support for 3.5 NOx FEL Truck Consent Decree, and
GM Two Speed Axle Switch Update.

Description	Serial No. Range	Flash Part No.	IC	Release Date
175 HP @ 2200 420 @ 1500 EPA Cert	CKM 1 and up	246-8293	219	NOV03
190 HP @ 2400 420 @ 1500 EPA Cert.	CKM 1 and up	246-8292	229	NOV03
190 HP @ 2300 520 @ 1500 EPA Cert. ***** HIGH PERFORMANCE AT545 *****	CKM 1 and up	246-8291	227	NOV03
210 HP @ 2400 520 @ 1500 EPA Cert. ***** HIGH PERFORMANCE AT545 *****	CKM 1 and up	246-8290	228	NOV03
****** Standard Ratings **********				
210 HP @ 2200 520 @ 1500 EPA Cert.	CKM 1 and up	246-8289	222	NOV03
210 HP @ 2200 605 @ 1500 EPA Cert.	CKM 1 and up	246-8288	223	NOV03
230 HP @ 2200 660 @ 1500 EPA Cert.	CKM 1 and up	246-8287	206	NOV03
250 HP @ 2200 660 @ 1500 EPA Cert.	CKM 1 and up	246-8286	207	NOV03
250 HP @ 2200 800 @ 1500 EPA Cert.	CKM 1 to CKM10423	246-8285	208	NOV03
250 HP @ 2200 800 @ 1500 EPA Cert.	CKM10424 and up	246-8284	205	NOV03
275 HP @ 2200 800 @ 1500 EPA Cert.	CKM 1 and up	246-8283	209	NOV03
275 HP @ 2200 860 @ 1500 EPA Cert.	CKM 1 and up	246-8282	210	NOV03
300 HP @ 2200 800 @ 1500 EPA Cert.	CKM 1 and up	246-8281	211	NOV03
300 HP @ 2200 860 @ 1500 EPA Cert.	CKM 1 and up	246-8280	212	NOV03

********** Emergency Ratings **********

275 HP @ 2200 CKM 1 and up 246-8279 213 NOV03
800 @ 1500 Emergency.

275 HP @ 2200 CKM 1 and up 246-8278 214 NOV03
860 @ 1500 Emergency.

300 HP @ 2200 CKM 1 and up 246-8277 215 NOV03
800 @ 1500 Emergency.

300 HP @ 2200 CKM 1 and up 246-8276 216 NOV03
860 @ 1500 Emergency.

330 HP @ 2400 CKM 1 and up 246-8275 217 NOV03
860 @ 1500 Emergency

********** RV Rating **********

330 HP @ 2400 CKM 1 and up 246-8274 218 NOV03
860 @ 1500 RV

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3116 HEUI Flash File Cross Reference
Updated Jan 22, 2004

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1WM 7LZ 8WL AND 7AS flash files for engine rebuild kits
ADEM II AND ADEM III Low Nox engine rebuild kit flash files
Updated July 6, 2001

********** 3116 Standard Ratings **********

170 HP @ 2200 8WL 1 and up 188-8046 301 JAN00
420 @ 1560 EPA LoNox Cert.

185 HP @ 2200 8WL 1 and up 188-8047 302 JAN00
520 @ 1560 EPA LoNox Cert.

190 HP @ 2300 8WL 1 and up 188-8053 303 JAN00
520 @ 1560 EPA LoNox Cert.

195 HP @ 2200 8WL 1 and up 188-8048 303 JAN00
520 @ 1560 EPA LoNox Cert.

215 HP @ 2200 8WL 1 and up 188-8049 304 JAN00
605 @ 1560 EPA LoNox Cert.

230 HP @ 2200 8WL 1 and up 188-8050 305 JAN00
660 @ 1560 EPA LoNox Cert.

250 HP @ 2200 8WL 1 and up 188-8051 306 JAN00
660 @ 1560 EPA LoNox Cert.

275 HP @ 2200 8WL 1 and up 188-8052 307 JAN00
750 @ 1470 EPA LoNox Cert.

********** 3126 Standard Ratings **********

175 HP @ 2400 420 @ 1440 EPA LoNox Cert.	1WM/7LZ 1 and up	188-8054	301	JAN00
190 HP @ 2200 520 @ 1440 EPA LoNox Cert.	1WM/7LZ/4ES 1 and up	188-8055	302	JAN00
210 HP @ 2400 520 @ 1440 EPA LoNox Cert.	1WM/7LZ 1 and up	188-8056	303	JAN00
210 HP @ 2200 605 @ 1440 EPA LoNox Cert.	1WM/7LZ/4ES 1 and up	188-8057	304	JAN00
230 HP @ 2200 660 @ 1440 EPA LoNox Cert.	1WM/7LZ/4ES 1 and up	188-8058	305	JAN00
250 HP @ 2200 660 @ 1440 EPA LoNox Cert.	1WM/7LZ/4ES 1 and up	188-8059	306	JAN00
250 HP @ 2200 800 @ 1440 EPA LoNox Cert.	1WM/7LZ 1 and up	188-8060	307	JAN00
275 HP @ 2200 800 @ 1440 EPA LoNox Cert.	1WM/7LZ 1 and up	188-8061	308	JAN00
275 HP @ 2200 860 @ 1440 EPA LoNox Cert.	1WM/7LZ 1 and up	188-8062	309	JAN00
300 HP @ 2200 800 @ 1440 EPA LoNox Cert.	1WM/7LZ 1 and up	188-8063	311	JAN00
300 HP @ 2200 860 @ 1440 EPA LoNox Cert.	1WM/7LZ 1 and up	188-8064	310	JAN00
300 HP 860 @ 1440 OWS	1WM1 and Up	130-7832	16	OCT96

********** Emergency Vehicles **********

275 HP @ 2200 800 @ 1440 EPA LoNox Cert.	1WM 1 and up	188-8065	312	JAN00
275 HP @ 2200 860 @ 1440 EPA LoNox Cert.	1WM 1 and up	188-8066	313	JAN00
300 HP @ 2200 800 @ 1440 EPA LoNox Cert.	1WM 1 and up	188-8067	314	JAN00
300 HP @ 2200 860 @ 1440 EPA LoNox Cert.	1WM 1 and up	188-8068	315	JAN00
330 HP @ 2200 860 @ 1440 EPA LoNox Cert.	1WM 1 and up	188-8069	320	JAN00
330 HP @ 2200 860 @ 1440 EPA LoNox Cert.	1WM 1 and up	188-8070	321	JAN00

**********CEC Rating**********

250 HP @ 2200 800 @ 1440 EPA LoNox Cert.	1WM 1 and up	188-8071	319	JAN00

********** Hi-performance AT/MT/HT Rating **********

190 HP @ 2300 1WM/7LZ 1 and up 188-8072 302 JAN00
520 @ 1440 EPA LoNox Cert.

********** 3126B Standard Ratings **********

175 HP @ 2400 7AS 1 and up 246-8248 301 NOV03
420 @ 1440 EPA LoNox Cert.

190 HP @ 2200 7AS 1 and up 246-8247 302 NOV03
520 @ 1440 EPA LoNox Cert.

********** Hi-performance AT/MT/HT Rating **********
190 HP @ 2300 7AS 1 and up 246-8246 302 NOV03
520 @ 1440 EPA LoNox Cert.

210 HP @ 2400 7AS 1 and up 246-8245 332 NOV03
520 @ 1440 EPA LoNox Cert.

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210 HP @ 2200 7AS 1 and up 246-8244 303 NOV03
520 @ 1440 EPA LoNox Cert.

210 HP @ 2200 7AS 1 and up 246-8243 304 NOV03
605 @ 1440 EPA LoNox Cert.

********** DINA Only **********
210 HP @ 2200 7AS 1 and up 246-8242 329 NOV03
605 @ 1440 EPA LoNox Cert.

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230 HP @ 2200 7AS 1 and up 246-8241 305 NOV03
660 @ 1440 EPA LoNox Cert.

250 HP @ 2200 7AS 1 and up 246-8240 306 NOV03
660 @ 1440 EPA LoNox Cert.

250 HP @ 2200 7AS 1 and up 246-8239 307 NOV03
800 @ 1440 EPA LoNox Cert.

275 HP @ 2200 7AS 1 and up 246-8238 308 NOV03
800 @ 1440 EPA LoNox Cert.

275 HP @ 2200 7AS 1 and up 246-8237 309 NOV03
860 @ 1440 EPA LoNox Cert.

300 HP @ 2200 7AS 1 and up 246-8236 310 NOV03
800 @ 1440 EPA LoNox Cert.

300 HP @ 2200 7AS 1 and up 246-8235 311 NOV03
860 @ 1440 EPA LoNox Cert.

********** Emergency Vehicles **********

275 HP @ 2200 7AS 1 and up 246-8234 312 NOV03
800 @ 1440 EPA LoNox Cert.

275 HP @ 2200 860 @ 1440 EPA LoNox Cert.	7AS 1 and up	246-8233	313	NOV03
300 HP @ 2200 800 @ 1440 EPA LoNox Cert.	7AS 1 and up	246-8232	314	NOV03
300 HP @ 2200 860 @ 1440 EPA LoNox Cert.	7AS 1 and up	246-8231	315	NOV03
330 HP @ 2400 860 @ 1440 EPA LoNox Cert.	7AS 1 and up	246-8230	316	NOV03

********** Recreational Vehicles **********

330 HP @ 2400 860 @ 1440 EPA LoNox Cert.	7AS 1 and up	246-8229	317	NOV03

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Updated JAN 29, 2001

********** FMTV Vehicles Only **********

275 HP @ 2200 860 @ 1440 EPA LoNox Cert.	6PZ 1 and up	224-4622	119	SEP02
330 HP @ 2400 860 @ 1440 EPA LoNox Cert.	7JZ 1 and up	224-4623	120	SEP02
350 HP @ 2400 820 @ 1500 EPA LoNox Cert.	1AJ 1 and up	224-4627	45	SEP02

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TEST ECM Primer Software file	188-9579	MAR00

NOTE: Flash this file into ADEM 2000 Test ECM before loading any engine flash file.

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3126B 8YL HEUI Flash File Cross Reference
Updated JAN 29, 2001

The reason for this SEP 00 release was to provide Software features Including:

For all ratings except Euro II:

Released software to meet 2.09 Version 6&7, 4g S.S.NOx MY2000 EPA emission for Sep 2000 production with 24 MHz ECM, support for GM2001i truck, consent decree torque and timing readout, updated idle quality adjustment maps, and modify progressive shift.

For Euro II rating:

Released software to meet 2.09 Version 6&7, 6g S.S.NOx MY2000 EPA emission for Sep 2000 production with 24 MHz ECM, support for GM2001i truck, consent decree torque and timing readout, updated idle quality adjustment maps, and modify progressive shift.

This software update also contains a fix for false logging of injector faults. Revision to Exhaust Brake Special Test. Improvements to reduce ECM Engine software Lock-Up.
Enhancements for vehicles with Allision AT/MT/HT transmission. Combines

Interlock codes for use on GM = IC1 and NON GM = IC2 chassis.

NOTE: Duel Fuel and Steel Piston Parts Service Only files are not in this release.

Description	Serial No. Range	Flash Part No.	IC	IC2	Release Date
********** 175 and 190 HP can be used with Allison AT545 Transmission **********					
175 HP @ 2200 420 @ 1500 EPA Cert	8YL 1 to 8YL34999	246-8273	101	151	NOV03
175 HP @ 2200 420 @ 1500 EPA Cert	8YL35000 and up	246-8272	169	169	DEC03
190 HP @ 2300 520 @ 1500 EPA Cert. ***** HIGH PERFORMANCE AT545 *****	8YL 1 to 8YL34999	246-8271	102	152	NOV03
190 HP @ 2300 520 @ 1500 EPA Cert. ***** HIGH PERFORMANCE AT545 *****	8YL35000 and up	246-8270	170	170	DEC03
****** 210HP Rating with an Allison AT545 ****** Transmission ********** **********					
210 HP @ 2400 520 @ 1500 EPA Cert. ***** HIGH PERFORMANCE AT545 *****	8YL 1 to 8YL34999	246-8269	103	153	NOV03
210 HP @ 2400 520 @ 1500 EPA Cert. ***** HIGH PERFORMANCE AT545 *****	8YL35000 & 9SZ 1 and up	246-8268	171	171	DEC03
****** Standard Ratings **********					
210 HP @ 2200 520 @ 1500 EPA Cert.	8YL 1 to 8YL34999	246-8267	104	154	NOV03
210 HP @ 2200 520 @ 1500 EPA Cert.	8YL35000 & 9SZ 1 and up	246-8266	172	172	DEC03
210 HP @ 2200 605 @ 1500 EPA Cert.	8YL 1 to 8YL34999	246-8265	105	155	NOV03
210 HP @ 2200 605 @ 1500 EPA Cert.	8YL35000 & 9SZ 1 and up	246-8264	173	173	DEC03
230 HP @ 2200 660 @ 1500 EPA Cert.	8YL & 9SZ 1 and up	246-8263	106	156	DEC03
250 HP @ 2200 660 @ 1500 EPA Cert.	8YL 1 TO 8YL68263	246-8262	107	157	NOV03
250 HP @ 2200 660 @ 1500 EPA Cert.	8YL68264 & 9SZ 1 and up	246-8261	187	187	DEC03

250 HP @ 2200 800 @ 1500 EPA Cert.	8YL 1 TO 8YL68263	246-8260	108	158	NOV03
250 HP @ 2200 800 @ 1500 EPA Cert.	8YL68264 & 9SZ 1 and up	246-8259	188	188	DEC03
275 HP @ 2200 800 @ 1500 EPA Cert.	8YL & 9SZ 1 and up	246-8258	109	159	DEC03
275 HP @ 2200 860 @ 1500 EPA Cert.	8YL & 9SZ 1 and up	246-8257	110	160	DEC03
300 HP @ 2200 800 @ 1500 EPA Cert.	8YL & 9SZ 1 and up	246-8256	111	161	DEC03
300 HP @ 2200 860 @ 1500 EPA Cert.	8YL & 9SZ 1 and up	246-8255	112	162	DEc03
********** Emergency Ratings **********					
275 HP @ 2200 800 @ 1500 Emergency.	8YL & 9SZ 1 and up	246-8254	113	163	DEC03
275 HP @ 2200 860 @ 1500 Emergency.	8YL & 9SZ 1 and up	246-8253	114	164	DEC03
300 HP @ 2200 800 @ 1500 Emergency.	8YL & 9SZ 1 and up	246-8252	115	165	DEC03
300 HP @ 2200 860 @ 1500 Emergency.	8YL & 9SZ 1 and up	246-8251	116	166	DEC03
330 HP @ 2400 860 @ 1500 Emergency	8YL & 9SZ 1 and up	246-8250	117	167	DEC03
********** RV Rating **********					
330 HP @ 2400 860 @ 1500	8YL & 9SZ 1 and up RV	246-8249	118	168	DEC03

3126 HEUI (8HW) EURO 2 FLASH File Cross Reference
Updated JAN 29, 2001

Description	Serial NO. Range	FLASH PART NO.	IC	Release Date
190 HP 520 @ 1440	8HW00001 & up	146-9883	22	DEC97
210 HP 605 @ 1440	8HW00001 & up	146-9880	23	DEC97
275 HP 830 @ 1440	8HW00001 & up	187-2097	24	NOV99
300 HP 860 @ 1440	8HW00001 & up	187-2096	25	NOV99

********** FULL FEATURE ECM FILES **********

Description	Serial NO. Range	FLASH PART NO.	IC	IC2	Release Date
190 HP @ 2300 520 @ 1440	8SZ00532 & up	212-4002	125	125	OCT01
210 HP @ 2200 605 @ 1440	8SZ00532 & up	212-4001	126	126	OCT01
250 HP @ 2200 800 @ 1440	8SZ00532 & up	212-4000	127	127	OCT01
275 HP @ 2200 830 @ 1440	8SZ00001 & up	212-3999	128	128	OCT01
300 HP @ 2200 860 @ 1440	8SZ00001 & up	212-3998	129	129	OCT01

********** 3126E HEP Flash File Reference **********
Updated December 6, 2002
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Emergency Vehicle Ratings
Serial No. Range
Part Number
Interlock Code Rating/Application Information
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HEP1 - HEP07579
227-9339 3126 Truck 330HP 860 lb-ft, 2400 RPM ER Date Code SEP02
Interlock Code = 251
Replaced 225-2366

HEP07580 & UP
231-2609 3126 Truck 330HP 860 lb-ft, 2400 RPM ER Date Code OCT02
Interlock Code = 298

HEP1 - HEP07579
227-9341 3126 Truck 300HP 860 lb-ft, 2200 RPM ER Date Code SEP02
Interlock Code = 250
Replaced 225-2368

HEP07580 & UP
230-1562 3126 Truck 300HP 860 lb-ft, 2200 RPM RV Date Code OCT02
Interlock Code = 297

HEP1 - HEP07579
227-9342 3126 Truck 300HP 800 lb-ft, 2200 RPM ER Date Code SEP02
Interlock Code = 249
Replaced 225-2369

HEP07580 & UP
230-1563 3126 Truck 300HP 800 lb-ft, 2200 RPM ER Date Code OCT02
Interlock Code = 296

HEP1 - HEP07579

227-9343 3126 Truck 275HP 860 lb-ft, 2200 RPM ER Date Code SEP02
Interlock Code = 248
Replaced 225-2370

HEP07580 & UP
230-1564 3126 Truck 275HP 860 lb-ft, 2200 RPM ER Date Code OCT02
Interlock Code = 295

HEP1 - HEP07579
227-9344 3126 Truck 275HP 800 lb-ft, 2200 RPM ER Date Code SEP02
Interlock Code = 247
Replaced 225-2371

HEP07580 & UP
230-1565 3126 Truck 275HP 800 lb-ft, 2200 RPM ER Date Code OCT02
Interlock Code = 294

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Recreational Vehicle Ratings

Serial No. Range
Part Number
Interlock Code Rating/Application Information

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HEP1 - HEP07579
227-9340 3126 Truck 330HP 860 lb-ft, 2400 RPM RV Date Code SEP02
Interlock Code = 252
Replaced 225-2367

HEP07580 & UP
230-1561 3126 Truck 330HP 860 lb-ft, 2400 RPM RV Date Code OCT02
Interlock Code = 299

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Truck Ratings

Serial No. Range
Part Number
Interlock Code Rating/Application Information

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HEP1 - HEP07579
227-9345 3126 Truck 300HP 860 lb-ft, 2200 RPM Date Code SEP02
Interlock Code = 246
Replaced 225-2372

HEP07580 & UP
230-1566 3126 Truck 300HP 860 lb-ft, 2200 RPM Date Code OCT02
Interlock Code = 293

HEP1 - HEP07579
227-9346 3126 Truck 300HP 800 lb-ft, 2200 RPM Date Code SEP02
Interlock Code = 245
Replaced 225-2373

HEP07580 & UP
230-1567 3126 Truck 300HP 800 lb-ft, 2200 RPM Date Code OCT02
Interlock Code = 292

HEP1 - HEP07579
227-9347 3126 Truck 275HP 860 lb-ft, 2200 RPM Date Code SEP02
Interlock Code = 244

Replaced 225-2374

HEP07580 & UP
230-1568 3126 Truck 275HP 860 lb-ft, 2200 RPM Date Code OCT02
Interlock Code = 291

HEP1 - HEP07579
227-9348 3126 Truck 275HP 800 lb-ft, 2200 RPM Date Code SEP02
Interlock Code = 243
Replaced 225-2375

HEP07580 & UP
230-1569 3126 Truck 275HP 800 lb-ft, 2200 RPM Date Code OCT02
Interlock Code = 290

HEP1 - HEP07579
227-9349 3126 Truck 250HP 800 lb-ft, 2200 RPM Date Code SEP02
Interlock Code = 242
Replaced 225-2376

HEP07580 & UP
230-1570 3126 Truck 250HP 800 lb-ft, 2200 RPM Date Code OCT02
Interlock Code = 289

HEP1 - HEP07579
227-9350 3126 Truck 250HP 660 lb-ft, 2200 RPM Date Code SEP02
Interlock Code = 241
Replaced 225-2377

HEP07580 & UP
230-1571 3126 Truck 250HP 660 lb-ft, 2200 RPM Date Code OCT02
Interlock Code = 288

HEP1 - HEP07579
227-9351 3126 Truck 230HP 660 lb-ft, 2200 RPM Date Code SEP02
Interlock Code = 240
Replaced 225-2378

HEP07580 & UP
236-2149 3126 Truck 230HP 540 lb-ft, 2300 RPM Date Code MAR03
Interlock Code = 239

HEP07580 & UP
230-1572 3126 Truck 230HP 660 lb-ft, 2200 RPM Date Code OCT02
Interlock Code = 287

HEP1 - HEP07579
227-9352 3126 Truck 210HP 605 lb-ft, 2200 RPM Date Code SEP02
Interlock Code = 257
Replaced 225-2380

HEP07580 & UP
230-1573 3126 Truck 210HP 605 lb-ft, 2200 RPM Date Code OCT02
Interlock Code = 286

HEP1 - HEP07579
227-9353 3126 Truck 210HP 520 lb-ft, 2200 RPM Date Code SEP02
Interlock Code = 256
Replaced 225-2380

HEP07580 & UP

230-1574 3126 Truck 210HP 520 lb-ft, 2200 RPM Date Code OCT02
Interlock Code = 285

HEP1 & UP
227-9354 3126 Truck 210HP 520 lb-ft, 2400 RPM Date Code SEP02
High Performance Interlock Code = 255
Replaced 225-2381

HEP1 & UP
227-9355 3126 Truck 190HP 520 lb-ft, 2300 RPM Date Code SEP02
High Performance Interlock Code = 254
Replaced 225-2382

HEP1 & UP
227-9356 3126 Truck 190HP 420 lb-ft, 2400 RPM Date Code SEP02
Interlock Code = 253
Replaced 225-2383

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C7C9 On-Highway Engine Flash files
Updated December 20, 2010

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IMPORTANT: It is very important to select the CORRECT flash file for the injector part number that is in the engine!!! Engines that have the "factory installed injector p/n" can use the flash file for the s/n range listed. However, for the s/n ranges noted below, if a "single" injector is replaced "all six" injectors MUST be updated to the same part number and the appropriate "flash file" and "etrim" files MUST be installed to match the "new" part number injector!
Please refer to Truck Engine News SEBD6764 dated January 2004
Please check for rerateability using the rerate charts at https://truck.cat.com

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C7 (2007 Emissions A4 ECM) "Mid HP Ratings" 190HP to 300HP:

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C7S0001-up	Date Code	Interlock	Flash File
C7 190HP @ 2500 RPM Replaced 308-5717,309-1838,312-4768,313-9518, 316-7964,319-5927,321-7212,324-7626.326-9115, 328-0693	JUL08	40/140	334-2353
C7 210HP @ 2500 RPM Replaced 308-5718,309-1839,312-4769,313-9519, 316-7965,319-5928,321-7213,324-7627,326-9116, 328-0694,334-2354	Dec10	41/141	348-5528
C7 210HP @ 2500 RPM Replaced 308-5719,309-1840,312-4770,313-9520, 316-7966,319-5929,321-7214,324-7628,326-9117, 328-0695	JUL08	42/142	334-2355
C7 230HP @ 2500 RPM Replaced 308-5720,309-1841,312-4771,313-9521, 316-7967,319-5930,321-7215,324-7629,326-9118, 328-0696	JUL08	43/143	334-2356
C7 230HP @ 2500 RPM Replaced 300-1766,307-8355,309-1842,312-4772 313-9522,316-5997,316-7968,319-5931,321-7216, 324-7630326-9119,328-0697	JUL08	44/144	334-2357
C7 230HP @ 2400 RPM Replaced 300-1768,308-5721,309-1843,312-4773	JUL08	45/145	334-2358

313-9523,316-7969,319-5932,321-7217,324-7631,
326-9120,328-0698

C7 250HP @ 2400 RPM Replaced 308-5722,309-1844,312-4774 313-9524,316-7970,319-5933,321-7218,324-7632, 326-9121,328-0699	JUL08	46/146	334-2359
C7 250HP @ 2400 RPM Replaced 308-5723,309-1845,312-4775 313-9525,316-7971,319-5934,321-7219,324-7633, 326-9122,328-0700	JUL08	47/147	334-2360
C7 275HP @ 2400 RPM Replaced 308-5724,309-1846,312-4776 313-9526,316-7972,319-5935,321-7220,324-7634, 326-9123,328-0701	JUL08	48/148	334-2361
C7 300HP @ 2400 RPM Replaced 300-1776,307-8356,309-1847,312-4777 313-9527,316-7973,319-5936,321-7221,324-7635, 326-9124,328-0702	JUL08	49/149	334-2362
C7 300HP @ 2400 RPM ER Replaced 312-4778,313-9528,316-7974,319-5937 321-7222,324-7636,326-9125,328-0703	JUL08	50/150	334-2363
C7 330HP @ 2400 RPM ER Replaced 312-4779,313-9529,316-7975,319-5938 321-7223,324-7637,326-9126,328-0704	JUL08	51/151	334-2364
C7 350HP @ 2400 RPM ER Replaced 312-4780,313-9530,316-7976,319-5939 321-7224,324-7638,326-9127,328-0705	JUL08	52/152	334-2365
C7 360HP @ 2400 RPM ER Replaced 322-4567,324-7643,326-9132,328-0710	JUL08	57/157	334-2370
C7 300HP @ 2400 RPM RV Replaced 312-4781,313-9531,316-7977,319-5940 321-7225,324-7639,326-9128,328-0706	JUL08	53/153	334-2366
C7 330HP @ 2400 RPM RV Replaced 312-4782,313-9532,316-7978,321-7226, 324-7640,326-9129,328-0707	JUL08	54/154	334-2367
C7 350HP @ 2400 RPM RV Replaced 312-4783,313-9533,316-7979,321-7227, 324-7641,326-9130,328-0708	JUL08	55/155	334-2368
C7 360HP @ 2400 RPM RV Replaced 313-9535,316--7980,321-7228, 324-7642,326-9131,328-0709	JUL08	56/156	334-2369

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C7 (KAL, SAP, WAX) "Low HP Ratings" 190HP to 210HP:

NOTE: C7 "Low HP Ratings" 190HP to 210HP KAL1-07985 were factory built with Injector p/n 233-3536. If a "single" 233-3536 injector is replaced with a 243-4502 injector w/seals (241-3238 p/n on injector... not serviced) then "all six" injectors MUST be updated to the same part number and the appropriate flash file and "etrim" files MUST be installed to match the "new" part number injector! Use list below to determine flash file based on installed injector number!

S/N Range	Injector P/N	Date Code	Interlock	Flash File
C7 KAL 190HP 520 lb-ft ...* Important see note above for complete detail				
KAL 1 - 07985 w/ Factory installed 233-3536 Injectors Replaced 242-8316,243-4420		APR04	IC 1	247-4649
KAL1-07985 w/ "Field installed" 241-3238 Injectors Replaced 248-7461,251-7438, 254-0804,259-5558,265-3311,277-5700,295-2303		SEP06	IC 25	300-0446
KAL07986-UP, SAP1-UP, WAX1-UP w/ "Factory installed" 241-3238 Injectors Replaced 248-7461,251-7438, 254-0804,259-5558,265-3311,277-5700,295-2303		SEP06	IC 25	300-0446
C7 KAL 210HP 520 lb-ft ...* Important see note above for complete detail				
KAL 1 - 07985 w/ Factory installed 233-3536 Injectors Replaced 242-1847,243-4421		APR04	IC 3	247-4648
KAL1-07985 w/ "Field installed" 241-3238 Injectors Replaced 248-7460,251-7439, 254-0805,259-5559,265-3312,277-5701,295-2304		SEP06	IC 26	300-0447
KAL07986-UP, SAP1-UP, WAX1-UP w/ "Factory installed" 241-3238 Injectors Replaced 248-7460,251-7439, 254-0805,259-5559,265-3312,277-5701,295-2304		SEP06	IC 26	300-0447
C7 KAL 210HP 605 lb-ft ...* Important see note above for complete detail				
KAL 1 - 07985 w/ Factory installed 233-3536 Injectors Replaced 242-8317,243-4422		APR04	IC 4	247-4647
KAL1-07985 w/ "Field installed" 241-3238 Injectors Replaced 248-7459,251-7440, 254-0806,259-5560,277-5702,295-2305		SEP06	IC 27	300-0448
KAL07986-UP, SAP1-UP, WAX1-UP w/ "Factory installed" 241-3238 Injectors Replaced 248-7459,251-7440, 254-0806,259-5560,277-5702,295-2305		SEP06	IC 27	300-0448

C7 (KAL, SAP, WAX) "Mid HP Ratings" 230HP to 250HP 660lbft:

NOTE: C7 "Mid HP Ratings" 230HP to 250HP 660lbft KAL1-11870 were factory built with Injector p/n 236-6011. If a "single" 236-6011 injector is replaced with a 243-4503 injector w/seals (241-3239 p/n on injector... not serviced) then "all six" injectors MUST be updated to the same part number and the appropriate flash file and "etrim" files MUST be installed to match the "new" part number injector! Use list below to determine flash file based on installed injector number!

S/N Range	Injector P/N	Date Code	Interlock	Flash File
C7 KAL 230HP 540 lb-ft ...* Important see note above for complete detail				
KAL 1 - 11870 w/ Factory installed 236-6011 Injectors Replaced 242-1845,243-4423		APR04	IC 18	247-4646
KAL1-11870 w/ "Field installed" 241-3239 Injectors Replaced 248-7458,251-7441, 259-5561,265-3314,271-1678,277-5703,295-2306		SEP06	IC 28	300-0449
KAL11871-UP, SAP1-UP, WAX1-UP w/ "Factory installed" 241-3239 Injectors Replaced 248-7458,251-7441, 259-5561,265-3314,271-1678,277-5703,295-2306		SEP06	IC 28	300-0449

C7 KAL 230HP 660 lb-ft ...* Important see note above for complete detail

KAL 1 - 11870 w/ Factory installed 236-6011 Injectors	APR04	IC 5	247-4645
Replaced 242-1844,243-4424			
KAL1-11870 w/ "Field installed" 241-3239 Injectors	SEP06	IC 29	300-0450
Replaced 248-7457,251-7442, 259-5563,265-3315,271-1679,277-5704,295-2307			
KAL11871-UP, SAP1-UP, WAX1-UP w/ "Factory installed" 241-3239 Injectors	SEP06	IC 29	300-0450
Replaced 248-7457,251-7442, 259-5563,265-3315,271-1679			

C7 KAL 250HP 660 lb-ft ...* Important see note above for complete detail

KAL 1 - 11870 w/ Factory installed 236-6011 Injectors	APR04	IC 6	247-4644
Replaced 242-1843,243-4425			
KAL1-11870 w/ "Field installed" 241-3239 Injectors	AUG08	IC 30	335-8257
Replaced 248-7456,251-7443, 259-5564,265-3316,277-5705,295-2308,300-0451			
KAL11871-UP, SAP1-UP, WAX1-UP w/ "Factory installed" 241-3239 Injectors	AUG08	IC 30	335-8257
Replaced 248-7456,251-7443, 259-5564,265-3316,277-5705,295-2308,300-0451			

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C7 (KAL, SAP, WAX) "Hi HP Ratings" 250HP 800lbft to 330HP:

NOTE: C7 "Hi HP Ratings" 250HP 800lbft to 330HP KAL1-12897 were factory built with Injector p/n 233-3535. If a "single" 233-3535 injector is replaced with a 241-3400 injector w/seals (238-8091 p/n on injector... not serviced) then "all six" injectors MUST be updated to the same part number and the appropriate flash file and "etrim" files MUST be installed to match the "new" part number injector! Use list below to determine flash file based on installed injector number!

S/N Range	Injector P/N	Date Code	Interlock	Flash File

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C7 KAL 250HP @ 2200 800 lb-ft ...* Important see note above for complete detail

KAL 1 - 12897 w/ Factory installed 233-3535 Injectors	APR04	IC 7	247-4643
Replaced 245-0834			
KAL1-12897 w/ "Field installed" 238-8091 Injectors	SEP06	IC 41	300-0465
Replaced 248-7641,251-7457, 254-0999,259-5609,265-3334,272-5324,295-2333			
KAL12898-UP, SAP1-UP, WAX1-UP w/ "Factory installed" 238-8091 Injectors	SEP06	IC 41	300-0465
Replaced 248-7641,251-7457, 254-0999,259-5609,265-3334,272-5324,295-2333			

C7 KAL 275HP 800 lb-ft ...* Important see note above for complete detail

KAL 1 - 12897 w/ Factory installed 233-3535 Injectors	APR04	IC 8	247-4642
Replaced 245-0835			
KAL1-12897 w/ "Field installed" 238-8091 Injectors	SEP06	IC 42	300-0464
Replaced 248-7640,251-7456, 254-0998,259-5608,265-3333,272-5323,295-2332			
KAL12898-UP, SAP1-UP, WAX1-UP w/ "Factory installed" 238-8091 Injectors	SEP06	IC 42	300-0464
Replaced 248-7640,251-7456, 254-0998,259-5608,265-3333,272-5323,295-2332			

CARB (California Bus only) MAR04 IC 59 251-6210

C7 KAL 275HP 860 lb-ft ...* Important see note above for complete detail
KAL 1 - 12897 w/ Factory installed 233-3535 Injectors APR04 IC 9 247-4640
Replaced 245-0837

KAL1-12897 w/ "Field installed" 238-8091 Injectors SEP06 IC 43 300-0462
Replaced 248-7638,251-7454,
254-0996,259-5606,265-3331,272-5321,295-2330

KAL12898-UP, SAP1-UP, WAX1-UP
w/ "Factory installed" 238-8091 Injectors SEP06 IC 43 300-0462
Replaced 248-7638,251-7454,
254-0996,259-5606,265-3331,272-5321,295-2330

C7 KAL 300HP 800 lb-ft ...* Important see note above for complete detail
KAL 1 - 12897 w/ Factory installed 233-3535 Injectors APR04 IC 10 247-4638
Replaced 245-0839

KAL1-12897 w/ "Field installed" 238-8091 Injectors SEP06 IC 44 300-0460
Replaced 248-7636,251-7452,
254-0994,259-5604,265-3329,272-5319,295-2328

KAL12898-UP, SAP1-UP, WAX1-UP
w/ "Factory installed" 238-8091 Injectors SEP06 IC 44 300-0460
Replaced 248-7636,251-7452,
254-0994,259-5604,265-3329,272-5319,295-2328

CARB (California Bus only) MAR04 IC 60 251-6209

C7 KAL 300HP @ 2200 860 lb-ft ...* Important see note above for complete detail
KAL 1 - 12897 w/ Factory installed 233-3535 Injectors APR04 IC 11 247-4636
Replaced 245-0841

KAL1-12897 w/ "Field installed" 238-8091 Injectors SEP06 IC 45 300-0458
Replaced 248-7634, 251-7450, 254-0992,259-5602,
265-3326,272-5317,295-2326

KAL12898-UP, SAP1-UP, WAX1-UP
w/ "Factory installed" 238-8091 Injectors SEP06 IC 45 300-0458
Replaced 248-7634, 251-7450, 254-0992,259-5602,
265-3326,272-5317,295-2326

C7 KAL 330HP 860 lb-ft (Truck) ...* Important see note above for complete detail
KAL1-UP w/ "Field installed" 238-8091 Injectors SEP06 IC 53 300-0456
Replaced 248-7645,251-7448,
254-0990,259-5600,265-3323,272-5315,295-2324

KAL12898-UP, SAP1-UP, WAX1-UP
w/ "Factory installed" 238-8091 Injectors SEP06 IC 53 300-0456
Replaced 248-7645,251-7448,
254-0990,259-5600,265-3323,272-5315,295-2324

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********** EMERGENCY RATINGS (ER) **********

S/N Range Injector P/N Date Code Interlock Flash File

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C7 KAL 275HP 800 lb-ft (ER) ...* Important see note above for complete detail
KAL 1 - 12897 w/ Factory installed 233-3535 Injectors APR04 IC 12 247-4641
Replaced 245-0836

KAL1-12897 w/ "Field installed" 238-8091 Injectors SEP06 IC 46 300-0463
Replaced 248-7639,251-7455,

254-0997,259-5607,265-3332,272-5322,295-2331

KAL12898-UP, SAP1-UP, WAX1-UP
w/ "Factory installed" 238-8091 Injectors SEP06 IC 46 300-0463
Replaced 248-7639,251-7455,
254-0997,259-5607,265-3332,272-5322,295-2331

C7 KAL 275HP 860 lb-ft (ER) ...* Important see note above for complete detail
KAL 1 - 12897 w/ Factory installed 233-3535 Injectors APR04 IC 13 247-4639
Replaced 245-0838

KAL1-12897 w/ "Field installed" 238-8091 Injectors SEP06 IC 47 300-0461
Replaced 248-7637,251-7453,
254-0995,259-5605,265-3330,272-5320,295-2329

KAL12898-UP, SAP1-UP, WAX1-UP
w/ "Factory installed" 238-8091 Injectors SEP06 IC 47 300-0461
Replaced 248-7637,251-7453,
254-0995,259-5605,265-3330,272-5320,295-2329

C7 KAL 300HP 800 lb-ft (ER) ...* Important see note above for complete detail
KAL 1 - 12897 w/ Factory installed 233-3535 Injectors APR04 IC 14 247-4637
Replaced 245-0840

KAL1-12897 w/ "Field installed" 238-8091 Injectors SEP06 IC 48 300-0459
Replaced 248-7635,251-7451,
254-0993,259-5603,265-3327,272-5318,295-2327

KAL12898-UP, SAP1-UP, WAX1-UP
w/ "Factory installed" 238-8091 Injectors SEP06 IC 48 300-0459
Replaced 248-7635,251-7451,
254-0993,259-5603,265-3327,272-5318,295-2327

C7 KAL 300HP 860 lb-ft (ER) ...* Important see note above for complete detail
KAL 1 - 12897 w/ Factory installed 233-3535 Injectors APR04 IC 15 247-4635
Replaced 245-0842

KAL1-12897 w/ "Field installed" 238-8091 Injectors SEP06 IC 49 300-0457
Replaced 248-7633,251-7449,
254-0991,259-5601,265-3324,272-5316,295-2325

KAL12898-UP, SAP1-UP, WAX1-UP
w/ "Factory installed" 238-8091 Injectors SEP06 IC 49 300-0457
Replaced 248-7633,251-7449,
254-0991,259-5601,265-3324,272-5316,295-2325

C7 KAL 330HP 860 lb-ft (ER) ...* Important see note above for complete detail
KAL 1 - 12897 w/ Factory installed 233-3535 Injectors APR04 IC 16 247-4634
Replaced 245-0843

KAL1-12897 w/ "Field installed" 238-8091 Injectors SEP06 IC 50 300-0455
Replaced 248-7632,251-7447,
254-0989,259-5599,265-3322,272-5314,295-2323

KAL12898-UP, SAP1-UP, WAX1-UP
w/ "Factory installed" 238-8091 Injectors SEP06 IC 50 300-0455
Replaced 248-7632,251-7447,
254-0989,259-5599,265-3322,272-5314,295-2323

C7 KAL 350HP @ 2400 RPM (ER) SEP06 IC 54 300-0453
Replaced 272-1428,298-7453

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********** RECREATION VEHICLE (RV) **********

S/N Range	Injector P/N	Date Code	Interlock	Flash File
C7 KAL 330HP 860 lb-ft (RV) ...* Important see note above for complete detail				
KAL 1 - 12897 w/ Factory installed 233-3535 Injectors Replaced 245-0844		APR04	IC 17	247-4633
KAL1-12897 w/ "Field installed" 238-8091 Injectors Replaced 248-7631,251-7446, 254-0988,259-5598,265-3321,272-5313,295-2322		SEP06	IC 51	300-0454
KAL12898-UP, SAP1-UP, WAX1-UP w/ "Factory installed" 238-8091 Injectors Replaced 248-7631,251-7446, 254-0988,259-5598,265-3321,272-5313,295-2322		SEP06	IC 51	300-0454
C7 KAL 350HP @ 2400 860 lb-ft (RV) ...* Important see note above for complete detail				
KAL1-UP w/ "Field installed" 238-8091 Injectors Replaced 248-7630,251-7445, 254-0986,259-5597,265-3320,272-5312,295-2321		SEP06	IC 52	300-0452
KAL12898-UP, SAP1-UP, WAX1-UP w/ "Factory installed" 238-8091 Injectors Replaced 248-7630,251-7445, 254-0986,259-5597,265-3320,272-5312,295-2321		SEP06	IC 52	300-0452

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********** Family of Medium Tactical Vehicle (FMTV) **********

S/N Range	Injector P/N	Date Code	Interlock	Flash File
C7 FML 275HP @ 2200 RPM 860 lb-ft (FMTV)				
FML 1-UP w/ "Factory installed" 238-8091 Injectors Replaced 248-7642,259-5595,266-4248,280-3274, 296-0076		NOV09	IC 55	353-8652
C7 FMM 330HP @ 2400 RPM 860 lb-ft (FMTV)				
FMM 1-UP w/ "Factory installed" 238-8091 Injectors Replaced 248-7643,259-5596,266-4249,280-3275, 296-0077		NOV09	IC 56	353-8653
C7 330HP @ 2600 RPM FMM 1-UP Replaced 325-4611		NOV09	IC 82	353-8655
C7 275HP @ 2600 RPM FML 1-UP Replaced 330-4542		NOV09	IC 83	353-8684
C7 350HP @ 2600 RPM JRT 1-UP Replaced 286-5702,303-4272,335-9389,346-5217		NOV09	IC 80	355-2831
C7 350HP @ 2400RPM-261KW (Bronco Tactical Vehicle) Replaced N/A		Mar09	IC 85	344-9633
C7 370HP @ 2600RPM-276KW (Bronco Tactical Vehicle) Replaced 338-3672		Aug09	IC 84	346-3689

EURO III Rating for use in Europe only - not for North America use**********

C7 HORSEPOWER	TORQUE	GOV SPEED	SERIAL NO. RANGE	FLASH FILE	P/M CODE	RELEASE DATE
190 HP 2500 RPM	142 KW-EURO3			331-0117	71	APR08
Replaced 290-0419						
210 HP 2500 RPM	157 KW-EURO3			331-0119	70	APR08
Replaced 290-0418						
210 HP 2500 RPM	157 KW-EURO3			331-0118	72	APR08
Replaced 290-0420						
230 HP 2400 RPM	172 KW-EURO3			331-0120	73	APR08
Replaced 290-0421						
250 HP 2400 RPM	186 KW-EURO3			331-0121	74	APR08
Replaced 290-0422						
275 HP 2400 RPM	205 KW-EURO3			331-0122	75	APR08
Replaced 290-0423						
300 HP 2400 RPM	224 KW-EURO3			331-0123	76	APR08
Replaced 290-0424						
330 HP 2400 RPM	246 KW-EURO3			331-0124	77	APR08
Replaced 290-0425						

********** C9 Files **********

NOTE: C9 335HP and 350HP 9DG 1 -700 were factory built with Injector p/n 233-3534. If a "single" 233-3534 injector is replaced with a 239-6871 Injector w/seals (238-8092 p/n on injector... not serviced) then "all six" injectors must be updated to the same part number and the appropriate flash file and "etrim" Files must be installed to match the "new" part number injector. Use list below to determine flash file based on installed injector number.

Reference Truck Engine News SEBD6774 November 2004

S/N Range	Injector P/N	Date Code	Interlock	Flash File
C9 MTB 285 HP @ 2100 RPM 890 lb-ft (Bus)		JAN05	IC 20	270-9204
Replaced 246-4701,251-7416,265-2873				
C9 MTB 330 HP @ 2100 RPM 1150 lb-ft (Bus)		AUG07	IC 22	319-1842
HEV (Hybrid Electric Vehicle)				
Replaced 255-1178,260-1435,286-9589				
C9 MTB 330 HP @ 2100 RPM 1150 lb-ft (Bus)		SEP04	IC 12	260-1438
MTB00001-00999				
Replaced 242-8332,247-4650				
C9 MTB 330 HP @ 2100 RPM 1150 lb-ft (Bus)		FEB08	IC 21	326-2663
Replaced 246-4700, 251-7415,260-1449, 286-9588,319-1843				
C9 9DG 335 HP @ 2100 RPM 1050 lb-ft (TRUCK)				
9DG1-700 w/factory installed 233-3534 injectors		OCT03	IC 10	247-4652
Replaced 242-1854				
9DG1-700 w/field installed 238-8092 injectors		MAR04	IC 18	252-0028

9DG1000-UP Replaced 251-7420,260-1450,273-3788, 280-9032,292-5521,296-8233		NOV06	IC 23	305-7997
C9 9DG 350 HP @ 2100 RPM 1100 lb-ft (TRUCK) 9DG1-700 w/factory installed 233-3534 injectors Replaced 242-1852		OCT03	IC 11	247-4651
9DG1-700 w/field installed 238-8092 injectors		MAR04	IC 19	252-0029
9DG1000-UP Replaced 251-7419,260-1451,273-3789, 280-9033,286-5300,296-8234,305-7998		JAN08	IC 24	324-7773
C9 9DG 400 HP @ 2300 RPM Replaced 275-2256		NOV09	IC 39	355-2987
C9 9DG 400 HP @ 2200 RPM Replaced N/A		MAY05	IC 40	275-2257
C9 9DG 450 HP @ 2300 RPM **Rating NOT Developed** ~~Replaced 275-2258~~		Nov09	IC 41	~~355-2988~~
C9 9DG 370 HP @ 2100 RPM 1100 lb-ft (RV) Replaced 251-7418		MAR04	IC 30	253-0979
C9 9DG 400 HP @ 2100 RPM 1100 lb-ft (RV) Replaced 249-9196,251-7418,258-2347, 265-2872,282-8992,289-1223,305-7972		SEP07	IC 25	320-0329
C9 9DG 335 HP @ 2300 RPM 1050 lb-ft (ER) Replaced 264-1214,292-5522		JAN07	IC 42	308-4885
C9 9DG 350 HP @ 2300 RPM 1100 lb-ft (ER) Replaced 264-1215		JAN07	IC 43	308-4886
C9 9DG 400 HP @ 2300 RPM 1100 lb-ft (ER) Replaced 258-2348,282-8993,290-9008,305-7973		SEP07	IC 31	320-0330
C9 9DG 350 HP @ 2100 RPM 1100 lb-ft PSO (Parts service only) Replaced 293-4644,299-5079,305-7971		JAN08	IC 44	324-7772
C9 LFR 400 HP @ 2300 RPM 1100 lb-ft Defense and Federal Products Replaced N/A		OCT06	IC 45	303-1504

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C9 (2007 Emissions A4 ECM) "Mid HP Ratings" 300HP to 425HP:

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C9S00001-up	Date Code	Interlock	Flash File
C9 285HP @ 2200 RPM 890lb-ft Replaced 313-2608,313-9567,321-7469,324-7645, 328-0711	JUN08	30/130	334-2371
C9 335HP @ 2200 RPM 1150lb-ft Replaced 313-9568,321-7470,324-7646,328-0712	JUN08	31/131	334-2372
C9 335HP @ 2200 RPM 1150lb-ft	JUN08	32/132	334-2373

Replaced 313-2610,313-9569,321-7471,324-7647,
328-0713

C9 350HP @ 2200 RPM 1250lb-ft JUN08 33/133 334-2374
Replaced 313-2611,313-9570,321-7472,324-7648,
328-0714

C9 365HP @ 2200 RPM 1250lb-ft JUN08 34/134 334-2375
Replaced 313-2612,313-9571,321-7473,324-7649,
328-0715

C9 400HP @ 2300 RPM 1250lb-ft (RV) JUN08 35/135 334-2376
Replaced 313-2613,313-9572,321-5296,321-7474,
324-7650,328-0716

C9 425HP @ 2300 RPM 1250lb-ft (RV) JUN08 37/137 334-2378
Replaced 313-2615,313-9574,321-5298,321-7476,
324-7652,328-0718

C9 425HP @ 2300 RPM 1350lb-ft (RV) JUN08 39/139 334-2380
Replaced 313-2617,313-9576,321-5300,321-7478,
324-7654,328-0720

C9 400HP @ 2300 RPM 1250lb-ft (FT) JUN08 36/136 334-2377
Replaced 313-2614,313-9573,321-5297,321-7475.
324-7651,328-0717

C9 425HP @ 2300 RPM 1250lb-ft (FT) JUN08 38/138 334-2379
Replaced 313-2616,313-9575,321-5299,321-7477,
324-7653,328-0719

C9 425HP @ 2300 RPM 1350lb-ft (FT) JUN08 40/140 334-2381
Replaced 313-2618,313-9577,321-5301,321-7479,
324-7655,328-0721

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C-10/C-12/3176B LOW NOX FLASH FILE CROSS REFERENCE
C-10/C-12/3176B LOW NOX FLASH FILE CROSS REFERENCE
UPDATED December 21, 2000

The Low NOx Software files listed below have the same interlock codes as the Standard rating software for the specified engines with 300 added to the interlock code.

LOW NOX EMISSIONS REBUILD SOFTWARE FOR '98 IRON C-10/C-12 ADEM II
PARTS SERVICE ONLY (PSO)

'98 MY C-10 IRON

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	ITRLCK CODE	RELEASE DATE
305 HP 1150/1050 PT	1800/2100	8YS1 - UP	191-9918	325	OCT 00
305 HP (208.5? FAN-ON TEMP)	1800/2100	8YS1 - UP	191-9919	330	OCT 00

1150/1050 PT					
335 HP	1800/2100	8YS1 - UP	191-9921	326	OCT 00
1250/1350 PT					
335 HP	1800/2100	8YS1 - UP	191-9922	331	OCT 00
(208.5? FAN-ON TEMP) 1250/1350 PT					
335/370HP MT	1800	8YS1 - UP	191-9920	329	OCT 00
1250/1350 PT					
350 HP	1800/2100	8YS1 - UP	191-9923	327	OCT 00
1350 PT					
370 HP	1800	8YS1 - UP	191-9924	328	OCT 00
1350 PT					

'98 MY C-12 IRON

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	ITRLCK CODE	RELEASE DATE
335 HP	2100	9NS1 - UP	191-9926	329	OCT 00
1550 PT					
355 HP	1800/2100	9NS1 - UP	191-9928	324	OCT 00
1350 PT					
355 HP	1800	9NS1 - UP	191-9927	331	OCT 00
(208.5? FAN-ON TEMP) 1350 PT					
355/410 MT	1800/2100	9NS1 - UP	191-9937	327	OCT 00
1350/1450/1550 PT					
380 HP	1800/2100	9NS1 - UP	191-9930	321	OCT 00
1450 PT					
380/410 MT	1800	9NS1 - UP	191-9935	328	OCT 00
1450/1550 PT					
380/430 MT	1800	9NS1 - UP	191-9938	322	OCT 00
1450/1650 PT					
380/430 MT	1800	9NS1 - UP	191-9936	322	OCT 00
(SERVICES 153-8417 - TOP 2 GEARS ONLY - MS CARRIERS CUSTOMER ONLY)					
1450/1650 PT					
395 HP	2100	9NS1 - UP	191-9931	325	OCT 00
1450 PT					
410 HP	1800/2100	9NS1 - UP	191-9932	326	OCT 00
1450/1550 PT					
425 HP	2100	9NS1 - UP	191-9934	330	OCT 00
(EMERGENCY VEHICLE, RV, AND BUS ONLY) 1450/1550 PT					
430 HP	1800/2100	9NS1 - UP	191-9933	316	OCT 00
1650 PT					
455 HP	2100	9NS1 - UP	191-9929	320	OCT 00
(EMERGENCY VEHICLE, RV, AND BUS ONLY) 1550 PT					

LOW NOX REBUILD SOFTWARE - PARTS SERVICE ONLY (PSO)

'97 MY C-10 IRON

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	ITRLCK CODE	RELEASE DATE
280 HP	1800	2PN1 - UP	190-0224	305	DEC 99
280 HP	2100	2PN1 - UP	190-0225	306	DEC 99
305 HP	1800	2PN1 - UP	190-0226	307	DEC 99
305 HP	2100	2PN1 - UP	190-0227	308	DEC 99
305 HP (208.5Œ FAN-ON TEMP)	1800	2PN1 - UP	190-0231	307	DEC 99
325 HP (FIELD UPRATE FOR 280 OR 305 HP IRON)	1800	2PN1 - UP	190-0229	310	DEC 99
325 HP	2100	2PN1 - UP	190-0228	309	DEC 99
335 HP	1800	2PN1 - UP	190-0221	302	DEC 99
335 HP (208.5Œ FAN-ON TEMP)	1800	2PN1 - UP	190-0230	302	DEC 99
335/370HP MT	1800	2PN1 - UP	190-0223	304	DEC 99
350 HP	1800	2PN1 - UP	190-0220	301	DEC 99
370 HP	1800	2PN1 - UP	190-0222	303	DEC 99

LOW NOX REBUILD SOFTWARE - PARTS SERVICE ONLY (PSO)

'97 MY C-12 IRON

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	ITRLCK CODE	RELEASE DATE
335 HP	2100	1YN1 - UP	190-0241	315	DEC 99
355 HP	1800	1YN1 - UP	190-0233	302	DEC 99
355 HP (208.5Œ FAN-ON TEMP)	1800	1YN1 - UP	190-0242	323	DEC 99
355/410HP MT	1800	1YN1 - UP	190-0235	304	DEC 99
360 HP	2100	1YN1 - UP	190-0238	307	DEC 99
380 HP	1800	1YN1 - UP	190-0234	303	DEC 99
380/410HP MT	1800	1YN1 - UP	190-0236	305	DEC 99
390 HP	2100	1YN1 - UP	190-0239	308	DEC 99
410 HP	1800	1YN1 - UP	190-0232	301	DEC 99
410 HP	2100	1YN1 - UP	190-0237	306	DEC 99
425 HP (EMERGENCY VEHICLE, RV, AND BUS ONLY)	2100	1YN1 - UP	190-0240	309	DEC 99

3176B LOW NOX REBUILD SOFTWARE - PARTS SERVICE ONLY (PSO)

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	ITRLCK CODE	RELEASE DATE
275 HP	1800	9CK1 - UP	188-8079 (STANDARD)	304	DEC 99
			188-8091 (208.5ŒF FAN-ON TEMP)	304	DEC 99
300 HP	1800	9CK1 - UP	188-8080	305	DEC 99
325 HP	1800	9CK1-18308	188-8081	302	DEC 99
325 HP	1800	9CK18309-UP	188-8086	326	DEC 99
325/350 HP MULTI TORQUE	1800	9CK18309-UP	188-8087	327	DEC 99
335/365 HP MULTI TORQUE	1800	9CK1 - UP	188-8084	313	DEC 99
342 HP (OIL FIELD ONLY)	1800	9CK1 - UP	188-8085	312	DEC 99
350 HP	1800	9CK1 - UP	188-8082	301	DEC 99
365 HP	1800	9CK1 - UP	188-8083	309	DEC 99
300 HP (2T7318) (FIELD UPRATE ONLY! W/ 275 HP IRON)	1800	9CK1 - UP	188-8088	334	DEC 99
350 HP (2T7314) (FIELD UPRATE ONLY! W/ 325 HP IRON)	1800	9CK1-18308	188-8089	335	DEC 99
365 HP (2T7316) (FIELD UPRATE ONLY! W/ 325 HP OR 350 HP IRON)	1800	9CK18309-UP	188-8090	336	DEC 99

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C-10 TRUCK 2001 MY - CLEAN POWER

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE
305 HP 1050/1150 PT	1800/2100	3CS23000 - UP	215-7354	20	JAN02
335 HP 1250 PT	1800/2100	3CS23000 - UP	215-7355	21	JAN02
350 HP 1350 PT REPLACED 215-7357,237-0713, 241-0760,251-1818	1800/2100	3CS23000 - UP	270-7024	22	APR05
370 HP 1350 PT	1800	3CS23000 - UP	215-7358	23	JAN02
335/370 HP MT	1800	3CS23000 - UP	215-7359	24	JAN02

1250/1350 PT

C-10 TRUCK 2000 MY - EPA CERTIFIED

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE
305 HP	1800/2100	3CS12000 - 22999	270-7006	10	APR05
REPLACED 220-6615,237-0699, 241-0759,251-1761					
335 HP	1800/2100	3CS12000 - 22999	220-6617	11	MAR02
350 HP	1800/2100	3CS12000 - 22999	220-6619	12	MAR02
370 HP	1800	3CS12000 - 22999	220-6620	13	MAR02
335/370 HP MT	1800	3CS12000 - 22999	220-6622	14	MAR02

C-10 TRUCK '99 MY - EPA CERTIFIED

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE
305 HP	1800/2100	3CS1 - 11999	215-7806	6	MAR02
335 HP	1800/2100	3CS1 - 11999	215-7807	2	MAR02
350 HP	1800/2100	3CS1 - 11999	215-7808	4	MAR02
370 HP	1800	3CS1 - 11999	215-7809	5	MAR02
335/370 HP MT	1800	3CS1 - 11999	215-7810	3	MAR02

Note: The LOW NOx FLASH files each have an personality module code which has been incremented by 300, compared to the interlock code of the original production FLASH file it is replacing. For example, FLASH file 185-1177, with a personality module code of 333, replaces the DEC98 PSO FLASH file 170-8128, which had a personality module code of 33.

C-10 TRUCK - EPA CERTIFIED

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE
305 HP	1800/2100	8YS1 - UP	191-9918	325	OCT00
(Replaces 191-2810)					
305 HP	1800/2100	8YS1 - UP	191-9919	330	OCT00
(208.5° FAN-ON TEMP)(Replaces 191-2811)					
335 HP	1800/2100	8YS1 - UP	191-9921	326	OCT00
(Replaces 191-2812)					
335 HP	1800/2100	8YS1 - UP	191-9922	331	OCT00
208.5° FAN-ON TEMP)(Replaces 191-2813)					

335/370HP MT (Replaces 191-2817)	1800	8YS1 - UP	191-9920	329	OCT00
350 HP (Replaces 191-2814)	1800/2100	8YS1 - UP	191-9923	327	OCT00
350 HP (208.5°F FAN-ON TEMP Replaces 191-2815)	1800/2100	8YS1 - UP	191-9925	327	OCT00
370 HP (Replaces 191-2816)	1800	8YS1 - UP	191-9924	328	OCT00

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE
280 HP (Replaces 170-8077)	1800	2PN1 - UP	190-0224	305	DEC99
280 HP (Replaces 170-8078)	2100	2PN1 - UP	190-0225	306	DEC99
305 HP (Replaces 170-8079)	1800	2PN1 - UP	190-0226	307	DEC99
305 HP (Replaces 170-8080)	2100	2PN1 - UP	190-0227	308	DEC99
305 HP (208.5? FAN-ON TEMP)(Replaces 170-8084)	1800	2PN1 - UP	190-0231	307	DEC99
325 HP (FIELD UPRATE FOR 280 OR 305 HP IRON) (Replaces 170-8082)	1800	2PN1 - UP	190-0229	310	DEC99
325 HP (Replaces 170-8081)	2100	2PN1 - UP	190-0228	309	DEC99
335 HP (Replaces 170-8074)	1800	2PN1 - UP	190-0221	302	DEC99
335 HP (208.5? FAN-ON TEMP)(Replaces 170-8083)	1800	2PN1 - UP	190-0230	302	DEC99
335/370HP MT (Replaces 170-8076)	1800	2PN1 - UP	190-0223	304	DEC99
350 HP (Replaces 170-8073)	1800	2PN1 - UP	190-0220	301	DEC99
370 HP (Replaces 170-8075)	1800	2PN1 - UP	190-0222	303	DEC99

C-12 TRUCK 2001 MY - CLEAN POWER

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE
335 HP	2100	2KS72000 - UP	215-7360	50	JAN02

1550 PT

355 HP 1800/2100 2KS72000 - UP 215-7361 51 JAN02
1350 PT

380 HP 1800/2100 2KS72000 - UP 338-5263 52 OCT08
1450 PT
Replaced 215-7362,237-0714,
241-0766,251-1820,270-7026

395 HP 1800/2100 2KS72000 - UP 338-5260 53 OCT08
1450 PT
Replaced 215-7363,236-1023,
241-0765,251-1819,270-7025

355/410 MT 1800/2100 2KS72000 - UP 270-7031 54 APR05
1350/1450/1550 PT
Replaced 215-7364,241-0774,251-1825

380/410 MT 1800 2KS72000 - UP 270-7032 55 APR05
1450/1550 PT
Replaced 215-7365,241-0775,251-1826

410 HP 1800/2100 2KS72000 - UP 338-5262 56 OCT08
1450/1550 PT
Replaced 215-7366,237-9263,
241-0773,251-1824,270-7030,296-6024

425 HP 2100 2KS72000 - UP 215-7367 57 JAN02
1450/1550 PT
(EMERGENCY VEHICLE, RV, AND BUS ONLY)

380/430 MT 1800 2KS72000 - UP 338-5264 58 OCT08
1450/1650 PT
Replaced 215-7368,237-0715,
241-0767,251-1821,270-7027

430 HP 1800/2100 2KS72000 - UP 338-5261 59 OCT08
1650 PT
Replaced 215-7369,237-0716,
241-0768,251-1822,270-7028

455 HP 2100 2KS72000 - UP 215-7370 60 JAN02
1550 PT
EMERGENCY VEHICLE,RV AND BUS ONLY

505 HP 2100 2KS72000 - UP 270-7029 61 APR05
1550 PT
RV/FT
Replaced 215-7373,226-2039,
237-0717,241-0769,251-1823

C-12 TRUCK 2000 MY - EPA CERTIFIED

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE
335 HP	2100	2KS40000 - 71999	220-6623	20	MAR02
355 HP	1800/2100	2KS40000 - 71999	220-6624	21	MAR02

380 HP 1450 PT REPLACED 220-6625,237-0700, 241-0762,251-1766	1800/2100	2KS40000 - 71999	270-7011	22	APR05
395 HP	1800/2100	2KS40000 - 71999	220-6627	23	MAR02
355/410 MT Replaced 220-6629,237-0701, 241-0763,251-1767	1800/2100	2KS40000 - 71999	270-7012	24	APR05
380/410 MT	1800	2KS40000 - 71999	220-6630	25	MAR02
410 HP	1800/2100	2KS40000 - 71999	220-6631	26	MAR02
425 HP (EMERGENCY VEHICLE, RV, AND BUS ONLY)	2100	2KS40000 - 71999	220-6632	27	MAR02
380/430 MT Replaced 220-6633,237-9262, 241-0772,251-1769	1800	2KS40000 - 71999	270-7014	28	APR05
430 HP 1650 PT REPLACED 220-6634,237-0702, 241-0764,251-1768	1800/2100	2KS40000 - 71999	270-7013	29	APR05
455 HP (EMERGENCY VEHICLE, RV, AND BUS ONLY)	2100	2KS40000 - 71999	220-6635	30	MAR02
505 HP 1550 PT RV/FT	2100	2KS40000 - 71999	220-6636	31	MAR02

C-12 TRUCK '99 MY - EPA CERTIFIED

DESCRIPTION	GOV SPEED F	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE
335 HP	2100	2KS1 - 39999	215-7811	11	MAR02
355 HP	1800/2100	2KS1 - 39999	215-7812	12	MAR02
380 HP Replaced 215-7813,241-0776,251-1765	1800/2100	2KS1 - 39999	270-7010	4	APR05
355/410 MT	1800/2100	2KS1 - 39999	215-7817	3	MAR02
380/410 MT	1800	2KS1 - 39999	215-7818	9	MAR02
380/430 MT-4 (STANDARD RATING OR MT-4) Replaced 215-7820,215,241-0771,251-1764	1800	2KS1 - 39999	270-7009	10	APR05
380/430 MT-2 Replaced 215-7819, 241-0770,251-1763	1800	2KS1 - 39999	270-7008	14	APR05
395 HP	1800/2100	2KS1 - 39999	215-7815	6	MAR02

410 HP	1800/2100	2KS1 - 39999	215-7816	7	MAR02
430 HP 1650 PT	1800/2100	2KS1 - 39999	270-7007	8	APR05
REPLACED 215-7822,237-0688,241-0761,251-1762					
425 HP (EMERGENCY VEHICLE, RV, AND BUS ONLY)	2100	2KS1 - 39999	215-7821	15	MAR02
455 HP (EMERGENCY VEHICLE, RV, AND BUS ONLY)	2100	2KS1 - 39999	215-7823	16	MAR02

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE
335 HP (Replaces 191-2818)	2100	9NS1 - UP	191-9926	329	OCT00
355 HP (Replaces 191-2819)	1800/2100	9NS1 - UP	191-9928	324	OCT00
355 HP (208.5? FAN-ON TEMP)(Replaces 191-2820)	1800	9NS1 - UP	191-9927	331	OCT00
355/410 MT (Replaces 191-2827)	1800/2100	9NS1 - UP	191-9937	327	OCT00
380 HP (Replaces 191-2821)	1800/2100	9NS1 - UP	191-9930	321	OCT00
380/410 MT (Replaces 191-2828)	1800	9NS1 - UP	191-9935	328	OCT00
380/430 MT (Replaces 191-3727)	1800	9NS1 - UP	191-9938	322	OCT00
380/430 MT (SERVICES 153-8417 - TOP 2 GEARS ONLY - MS CARRIERS CUSTOMER ONLY) (Replaces 168-7029)	1800	9NS1 - UP	191-9936	322	OCT00
395 HP (Replaces 191-2822)	2100	9NS1 - UP	191-9931	325	OCT00
410 HP (Replaces 191-2823)	1800/2100	9NS1 - UP	191-9932	326	OCT00
425 HP (EMERGENCY VEHICLE, RV, AND BUS ONLY)(Replaces 191-2824)	2100	9NS1 - UP	191-9934	330	OCT00
430 HP (Replaces 191-2825)	1800/2100	9NS1 - UP	191-9933	316	OCT00
455 HP (EMERGENCY VEHICLE, RV, AND BUS ONLY) (Replaces 191-2826)	2100	9NS1 - UP	191-9929	320	OCT00

DESCRIPTION	TORQUE	GOV SPEED	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE
335 HP	1550 LB-FT	2100	1YN1 - UP	190-0241	315	DEC99

Replaced 170-8094

355 HP 1350 LB-FT 1800 1YN1 - UP 190-0233 302 DEC99
Replaced 170-8086

355 HP 1350 LB-FT 1800 1YN1 - UP 190-0242 323 DEC99
(208.5? FAN-ON TEMP)
Replaced 170-8095

355/410HP MT 1800 1YN1 - UP 190-0235 304 DEC99
1350/1450/1550 LB-FT
Replaced 170-8088

360 HP 1350 LB-FT 2100 1YN1 - UP 190-0238 307 DEC99
Replaced 170-8091

380 HP 1450 LB-FT 1800 1YN1 - UP 190-0234 303 DEC99
Replaced 170-8087

380/410HP MT 1800 1YN1 - UP 190-0236 305 DEC99
1450/1550 LB-FT
Replaced 170-8089

390 HP 1450 LB-FT 2100 1YN1 - UP 190-0239 308 DEC99
Replaced 170-8092

410 HP 1800 1YN1 - UP 190-0232 301 DEC99
1450/1550 LB-FT
Replaced 170-8085

410 HP 2100 1YN1 - UP 190-0237 306 DEC99
1450/1550 LB-FT
Replaced 170-8090

425 HP 2100 1YN1 - UP 190-0240 309 DEC99
1450/1550 LB-FT
(EMERGENCY VEHICLE, RV, AND BUS ONLY)
Replaced 170-8093

C-10/C-12 CLEAN POWER WITH AIR INLET SHUTOFF

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE
335 HP 1250 PT	1800/2100	3CS23000 - UP	224-4619	26	AUG02
Replaced 215-7356,224-0816					
410 HP 1450/1550 PT	1800/2100	2KS72000 - UP	215-7371	63	JAN02
410 HP 1450/1550 PT	1800/2100	2KS72000 - UP	224-4620	67	AUG02
Replaced 224-0817					
430 HP 1650 PT	1800/2100	2KS72000 - UP	215-7372	62	JAN02
430 HP 1650 PT REPLACED 224-0818	1800/2100	2KS72000 - UP	224-4621	66	AUG02

C-10/C-12 WITH AIR INLET SHUTOFF

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE
335 HP 1250 PT	1800/2100	3CS12000-22999	220-6618	15	MAR02
335 HP 1250 PT REPLACED 224-0813	1800/2100	3CS12000-22999	224-4616	17	AUG02
410 HP 1450/1550 PT	1800/2100	2KS40000-71999	220-6637	35	MAR02
410 HP 1450/1550 PT REPLACED 224-0814	1800/2100	2KS40000-71999	224-4617	37	AUG02
430 HP 1650 PT	1800/2100	2KS40000-71999	220-6638	34	MAR02
430 HP 1650 PT REPLACED 224-0815	1800/2100	2KS40000-71999	224-4618	36	AUG02

C-12 MTVR

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE
355/410 MT	2100	9SM00001-1499	220-4351	18	APR02
355/410 MT (Clean Power)	2100	9SM01500 - UP	220-4352	65	APR02

C13 TRUCK EURO3 (NOT FOR USE IN THE UNITED STATES)

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE
380 HP Replaced 273-8798,291-2044,295-1536	2100	JAM1 - UP	307-1467	66	DEC06
430 HP Replaced 273-8799,291-2045,295-1537	2100	JAM1 - UP	307-1468	67	DEC06
470 HP Replaced 273-8800,291-2046,295-1538	2100	JAM1 - UP	307-1469	68	DEC06

C-10/C-12 TRUCK EURO II CERTIFIED (NOT FOR USE IN THE UNITED STATES)

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE
325 HP	1900	8YS1 - UP	191-0986	44	MAR 00
365 HP	1900	8YS1 - UP	191-0987	46	MAR 00
335 HP	1900	9NS1 - UP	191-0988	37	MAR 00
380 HP	1900	9NS1 - UP	191-0989	38	MAR 00
410 HP	1900	9NS1 - UP	191-0990	39	MAR 00

C-10/C-12 TRUCK EURO II CERTIFIED (NOT FOR USE IN THE UNITED STATES)

DESCRIPTION	GOV	S/N	FLASH	P/M	RELEASE

	SPEED	RANGE	FILE	CODE	DATE
325 HP	1900	8YS1 - UP	158-9979	33	FEB 98
350 HP	1900	8YS1 - UP	158-9981	34	FEB 98
365 HP	1900	8YS1 - UP	158-9983	35	FEB 98
335 HP	1900	9NS1 - UP	158-2023	32	FEB 98
380 HP	1900	9NS1 - UP	153-9616	33	FEB 98
410 HP	1900	9NS1 - UP	153-9618	34	FEB 98

C-12 TRUCK EURO III CERTIFIED (NOT FOR USE IN THE UNITED STATES)

430 HP	1900		229-2780	47	APR 03
430 HP	1900		250-2988	47	APR 03

For GREECE truck engines

C-10 TRUCK EURO II CERTIFIED (NOT FOR USE IN THE UNITED STATES)

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE
325 HP	1900	2PN1 - UP	120-8935	12	APR 99
350 HP	1900	2PN1 - UP	120-8951	11	APR 99
365 HP	1900	2PN1 - UP	120-8922	13	APR 99

C-10 CNF TRUCK - EPA CERTIFIED

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE
335 HP (2000 MY)	1800/2100	3CS12000-22999	223-9987	11	APR 02
335 HP (1999 MY)	1800/2100	3CS1-11999	223-9986	2	APR 02

C-12 CNF TRUCK 2000 MY - EPA CERTIFIED

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE
355 HP (1999 MY)	1800/2100	2KS00001 - 39999	223-9988	12	APR02
355 HP (2000 MY)	1800/2100	2KS40000 - 71999	223-9989	21	APR02
355 HP (2001 MY)	1800/2100	2KS72000 - UP	223-9992	51	APR02
355/410 HP (1999 MY)	1800/2100	2KS1 - 39999	223-9990	3	APR02
355/410 HP (2000 MY)	1800/2100	2KS40000 -71999	223-9991	24	APR02
355/410 HP (2001 MY)	1800/2100	2KS72000 - UP	223-9993	54	APR02

This Section is Industrail Engine with Truck Software

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE
C13 440HP	2100	EMS1-UP	365-1096	205	Nov10
Replaced 312-3134					
600HP	2100	PRM1-UP	364-9748	206	Nov10
Replaced 340-1103,347-3441,355-9837					

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C-15/C-16/C-18 Flash File Cross Reference
Truck Engines 6NZ and 7CZ and EGH (Gov.)
Updated January 15,2008 AJK

C-15 CLEAN POWER HORSEPOWER	TORQUE	GOV SPEED	SERIAL NO. RANGE	FLASH FILE	P/M CODE	RELEASE DATE
355 HP	1350 LB-FT	1800/2100 RPM	6NZ54000-UP	215-7374	120	JAN02
REPLACED 208-5761						
355 HP	1350/1450 LB-FT	1800/2100 RPM	6NZ54000-UP	215-7375	121	JAN02
MULTITORQUE						
REPLACED 208-5762						
375 HP	1450 LB-FT	1800/2100 RPM	6NZ54000-UP	215-7376	122	JAN02
REPLACED 208-5763						
375 HP	1450/1550 LB-FT	1800/2100 RPM	6NZ54000-UP	215-7377	123	JAN02
MULTITORQUE						
REPLACED 208-5764						
375/435 HP	1450/1550 LB-FT	1800 RPM	6NZ54000-UP	270-7116	124	APR05
MULTITORQUE						
REPLACED 251-1526						
410 HP	1450/1550 LB-FT	1800/2100 RPM	6NZ54000-UP	215-7379	125	JAN02
REPLACED 208-5766						
450 HP	1550/1650 LB-FT	2100 RPM	6NZ54000-UP	215-7383	129	JAN02
REPLACED 208-5770						

C-15 (6NZ) HIGH HP ENGINE RATING INFORMATION	SERIAL NO. RANGE	FLASH FILE	P/M CODE	RELEASE DATE
435 HP 1550/1650 LB-FT 1800/2100 RPM	6NZ54000-UP	270-7115	126	APR05
REPLACED 251-1525				
435HP 1550/1650 LB-FT 1800/2100 RPM	6NZ54000-UP	215-7381	127	JAN02

C-15 (6NZ) LOW HP ENGINE RATING INFORMATION	SERIAL NO. RANGE	FLASH FILE	P/M CODE	RELEASE DATE

MULTITORQUE
REPLACED 208-5768

435/500 HP 1550/1650 LB-FT 2100 RPM 6NZ54000-UP 300-1385 128 SEP06
MT SUPPORT ALLISON OWS 4700 TRANS
REPLACED 251-1533,270-7123

455 HP 1550/1650 LB-FT 1800/2100 RPM 6NZ54000-UP 338-5273 130 OCT08
REPLACED 251-1527,270-7117

455 HP 1550/1650 LB-FT 1800/2100 RPM 6NZ54000-UP 215-7385 131 JAN02
MULTITORQUE
REPLACED 208-5773

455 HP 1550/1750 LB-FT 2100 RPM 6NZ54000-UP 215-7386 132 JAN02
MULTITORQUE
REPLACED 208-5774

455 HP 1550/1750 LB-FT 2100 RPM 6NZ54000-UP 215-7387 133 JAN02
MULTITORQUE BRAKESAVER
REPLACED 208-5775

475 HP 1650/1750 LB-FT 1800/2100 RPM 6NZ54000-UP 338-5268 134 OCT08
REPLACED 251-1528,270-7118

475HP 1650/1750 LB-FT 1800/2100 RPM 6NZ54000-UP 338-5269 135 OCT08
BRAKESAVER
REPLACED 251-1529,270-7119

475/500 HP 1650/1850 LB-FT 2100 RPM 6NZ54000-UP 215-7390 136 JAN02
TOP 2 GEAR MULTITORQUE
REPLACED 208-5778

475/500 HP 1650/1850 LB-FT 2100 RPM 6NZ54000-UP 215-7391 137 JAN02
MULTITORQUE BRAKESAVER
REPLACED 208-5779

475/500 HP 1650/1750 LB-FT 2100 RPM 6NZ54000-UP 215-7392 138 JAN02
TOP 2 GEAR MULTITORQUE
REPLACED 208-5780

475/500HP 1650/1750 LB-FT 2100 RPM 6NZ54000-UP 215-7393 139 JAN02
TOP 2 GEAR MULTITORQUE BRAKESAVER
REPLACED 208-5781

500HP 1650 LB-FT 2100 RPM 6NZ54000-UP 338-5272 140 OCT08
500HP FLEET 1750 LB-FT 2100 RPM
435/500 HP 1550/1650 LB-FT OIL WELL SERVICE
REPLACED 208-5782,215-7394,244-1565,328-1938

500 HP 1650/1750 LB-FT 2100 RPM 6NZ54000-UP 215-7395 141 JAN02
BRAKESAVER
REPLACED 208-5783

500 HP 1850 LB-FT 2300 RPM 6NZ54000-UP 215-7396 142 JAN02
REPLACED 208-5784

500 HP 1850 LB-FT 2300 RPM 6NZ54000-UP 215-7397 143 JAN02
BRAKESAVER
REPLACED 208-5785

500 HP 1750/1850 LB-FT 2100 RPM TOP 2 GEAR MULTITORQUE REPLACED 208-5786		6NZ54000-UP	215-7398	144	JAN02
500 HP 1750/1850 LB-FT 2100 RPM TOP 2 GEAR MULTITORQUE BRAKESAVER REPLACED 208-5787		6NZ54000-UP	215-7399	145	JAN02
500 HP 1850 LB-FT 1800/2100 RPM REPLACED 208-5788,215-7400, 237-0723,241-0788,244-1568		6NZ54000-UP	338-5270	146	OCT08
500 HP 1850 LB-FT 1800/2100 RPM BRAKESAVER REPLACED 208-5789		6NZ54000-UP	215-7401	147	JAN02
550 HP 1850 LB-FT 2100 RPM REPLACED 244-1567,305-2778,320-2698		6NZ54000-UP	338-5274	148	OCT08
550 HP 1850 LB-FT 2100 RPM BRAKESAVER REPLACED 251-1530		6NZ54000-UP	270-7120	149	APR05
550 HP 1850 LB-FT 2100 RPM 2300 RPM TEL FIELD UPRATE ONLY REPLACED 251-1531		6NZ54000-UP	270-7121	150	APR05
550 HP 1850 LB-FT 2100 RPM 2300 RPM TEL FIELD UPRATE ONLY BRAKESAVER REPLACED 251-1532		6NZ54000-UP	270-7122	151	APR05

C-15 (6NZ) LOW HP ENGINE RATING INFORMATION	SERIAL NO. RANGE	FLASH FILE	P/M CODE	RELEASE DATE
355HP 1350PT 1800/2100RPM	6NZ1-53999	220-6640	70	MAR02
355HP 1350/1450PT 1800 RPM 1350/1450PT 2100 RPM MULTITORQUE	6NZ1-53999	220-6641	71	MAR02
375HP 1450PT 1800/2100RPM	6NZ1-53999	220-6642	72	MAR02
375/435HP 1450/1550PT 1800PRM 1450/1650PT 1800 RPM MULTITORQUE	6NZ1-53999	220-6644	55	MAR02
375HP MT 1450/1550PT 1800RPM 1450/1550PT 2100RPM	6NZ1-53999	220-6643	73	MAR02
410HP 1450/1550PT 1800/2100RPM FIELD UPRATE ONLY	6NZ1-53999	220-6645	74	MAR02
450HP 1550/1650PT 2100RPM FIELD UPRATE ONLY	6NZ1-53999	220-6650	78	MAR02

C-15 (6NZ) HIGH HP ENGINE RATING INFORMATION	SERIAL NO. RANGE	FLASH FILE	P/M CODE	RELEASE DATE
435HP 1550/1650PT 1800/2100RPM	6NZ1-53999	270-7073	75	APR05

Replaced 220-6646,241-0793,251-2217				
435HP 1550/1650PT 1800/2100RPM BRAKESAVER	6NZ1-53999	220-6647	76	MAR02
435/500HP 1550/1650 2100RPM MULTITORQUE Replaced 220-6649,241-0794, 251-2218	6NZ1-53999	270-7074	77	APR05
455HP 1550PT 2100RPM OR 1650PT 1800/2100RPM	6NZ1-53999	220-6651	79	MAR02
455HP 1550PT 2100RPM OR 1650PT 1800/2100RPM BRAKESAVER	6NZ1-53999	220-6652	80	MAR02
455HP 1550/1750PT 2100 RPM MULTITORQUE	6NZ1-53999	220-6653	81	MAR02
455HP 1550/1750PT 2100 RPM BRAKESAVER MULTITORQUE	6NZ1-53999	220-6654	82	MAR02
475HP 1650/1750PT 1800/2100RPM REPLACED 220-6655,237-0703, 241-0777,251-2211	6NZ1-53999	270-7067	6	APR05
475HP 1650/1750PT 1800/2100RPM BRAKESAVER REPLACED 220-6657, 2370704, 241-0778,251-2212	6NZ1-53999	270-7068	83	APR05
475/500HP 1650/1850PT 2100 RPM TOP 2 GEAR MULTITORQUE	6NZ1-53999	220-6658	84	MAR02
475/500HP 1650/1850PT 2100 RPM TOP 2 GEAR MULTITORQUE BRAKESAVER	6NZ1-53999	220-6659	85	MAR02
475/500HP 1650/1750PT 2100 RPM TOP 2 GEAR MULTITORQUE	6NZ1-53999	220-6660	86	MAR02
475/500HP 1650/1750PT 2100 RPM TOP 2 GEAR MULTITORQUE BRAKESAVER	6NZ1-53999	220-6661	87	MAR02
500HP 1650PT 2100RPM, 500HP FLEET 1750PT 2100RPM or 435/500HP 1550/1650 OIL WELL SERVICE	6NZ1-53999	220-6662	88	MAR02
500HP 1650PT 2100RPM BRAKESAVER OR 500HP FLEET 1750PT 2100RPM BRAKESAVER	6NZ1-53999	220-6664	89	MAR02
500HP 1850PT 1800/2100RPM 2300RPM TEL FIELD UPRATE ONLY	6NZ1-53999	220-6665	90	MAR02
500HP 1750/1850PT 2100 RPM TOP 2 GEAR MULTITORQUE	6NZ1-53999	220-6667	92	MAR02
500HP 1750/1850PT 2100 RPM TOP 2 GEAR MULTITORQUE BRAKESAVER	6NZ1-53999	220-6668	93	MAR02
500HP 1850PT 1800/2100RPM	6NZ1-53999	220-8235	94	MAR02

500HP 1850PT 1800/2100RPM 6NZ1-53999 220-8236 95 MAR02
BRAKESAVER

500HP 1850PT 1800/2100RPM 6NZ1-53999 220-6666 91 MAR02
BRAKESAVER 2300RPM TEL FIELD UPRATE ONLY

550HP 1850PT 2100RPM 6NZ1-53999 270-7069 7 APR05
REPLACED 220-8237, 237-0705,241-0779,251-2213

550HP 1850PT 2100RPM BRAKESAVER 6NZ1-53999 270-7070 96 APR05
REPLACED 220-8238, 237-0706,
241-0780,251-2214

550HP 1850PT 2100RPM 6NZ1-53999 270-7071 97 APR05
2300RPM TEL FIELD UPRATE ONLY
REPLACED 220-8239, 237-0707,241-0781,251-2215

550HP 1850PT 2100RPM BRAKESAVER 6NZ1-53999 270-7072 98 APR05
2300RPM TEL FIELD UPRATE ONLY
REPLACED 220-8240, 237-0708,241-0782,251-2216

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C-16 CLEAN POWER HORSEPOWER	TORQUE	GOV SPEED	SERIAL NO. RANGE	FLASH FILE	P/M CODE	RELEASE DATE

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575HP 1850PT 2100RPM 7CZ02800-UP 215-7406 152 JAN02
REPLACED 208-5794

575HP 1850PT 2100RPM 7CZ02800-UP 215-7407 153 JAN02
BRAKESAVER REPLACED 208-5795

575HP 1850PT 2100RPM 7CZ02800-UP 215-7408 154 JAN02
REPLACED 208-5796 TEL 2300RPM

575HP 1850PT 2100RPM 7CZ02800-UP 215-7409 155 JAN02
BRAKESAVER REPLACED 208-5797 TEL 2300RPM

575/600HP 1850/2050PT 2100RPM 7CZ02800-UP 215-7410 156 JAN02
MULTITORQUE REPLACED 208-5798

575/600HP 1850/2050PT 2100RPM 7CZ02800-UP 215-7411 157 JAN02
BRAKESAVER MULTITORQUE
REPLACED 208-5799

600HP 2050PT 2100RPM 7CZ02800-UP 338-5275 158 OCT08
REPLACED 208-5800,215-7412,237-0728,
241-0800,251-1534,270-7124

600HP 2050PT 2100RPM 7CZ02800-UP 270-7125 159 APR05
BRAKESAVER
REPLACED 208-5801,215-7413,237-0729,241-0801,251-1535

600HP 2050PT 2100RPM 7CZ02800-UP 270-7126 160 APR05
TEL 2300RPM
REPLACED 208-5802,215-7414,237-0730,
241-0802,251-1536

600HP 2050PT 2100RPM 7CZ02800-UP 270-7127 161 APR05
BRAKESAVER TEL 2300RPM
REPLACED 208-5803,215-7415,237-0731,

241-0803,251-1537

650HP 2050PT 2100RPM 7CZ02800-UP 267-5143 162 JAN05
Aircraft Rescue Firetruck only - Oshkosh
REPLACED 208-0523,251-1626

680HP 1951PT 2100RPM 7CZ02800-UP 267-5143 162 JAN05
Aircraft Rescue Firetruck only - Oshkosh
REPLACED 232-2644,243-0022,251-1626

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C-16 (7CZ) ENGINE RATING INFORMATION	SERIAL NO. RANGE	FLASH FILE	P/M CODE	RELEASE DATE
575HP 1850PT 2100RPM REPLACES 198-3265	7CZ1-02799	220-8241	56	MAR02
575HP 1850PT 2100RPM BRAKESAVER REPLACES 198-3266	7CZ1-02799	220-8242	99	MAR02
575HP 1850PT 2100RPM 2300 RPM TEL FIELD UPRATE ONLY REPLACES 198-3267	7CZ1-02799	220-8243	101	MAR02
575HP 1850PT 2100RPM BRAKESAVER 2300 RPM TEL FIELD UPRATE ONLY REPLACES 198-3268	7CZ1-02799	220-8244	100	MAR02
575/600HP 1850/2050PT 2100RPM REPLACES 198-3269 MULTITORQUE	7CZ1-02799	220-8245	102	MAR02
575/600HP MT 1850/2050PT 2100RPM BRAKESAVER REPLACES 198-3270	7CZ1-02799	220-8246	103	MAR02
600HP 2050PT 2100RPM REPLACES 198-3271,220-8247,237-0709, 241-0796,251-2219	7CZ1-02799	270-7075	8	APR05
600HP 2050PT 2100RPM BRAKESAVER REPLACES 198-3272,220-8248,237-0710, 241-0797,251-2220	7CZ1-02799	270-7076	104	APR05
600HP 2050PT 2100RPM 2300 RPM TEL FIELD UPRATE ONLY REPLACES 198-3273,220-8249,237-0711, 241-0798,251-2221	7CZ1-02799	270-7077	105	APR05
600HP 2050PT 2100RPM BRAKESAVER 2300 RPM TEL FIELD UPRATE ONLY REPLACES 198-3274,220-8250,237-0712, 241-0799,251-2222	7CZ1-02799	270-7078	106	APR05
650HP 2050PT 2100PRM AIRCRAFT/FIRE FIGHTING APPLICATION		220-4294	162	FEB02
650HP 1951PT 2100/2300 TEL REPLACES 232-2643, 235-6399,241-0816	7CZ1-02799	251-1629	163	APR04

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C-18 700HP @2300RPM 1900PT@2100RPM MEP1-UP 241-0817 1 JUN03
Military only
REPLACED 217-3928,224-9318,227-5521,232-2647,
238-2680,239-4147

C-18 700HP @2300RPM 1900PT@2100RPM MEP1-UP 232-2648 1 NOV02
Military only
REPLACED 226-4417,227-5522

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C-16 EGH
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525 HP 1773 LB-FT 2100/2300 TEL 6NZ54000-UP 268-0221 164 APR05
(Government/Military) EGH
REPLACED 251-1628
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2yg & 7lg Personality Module Cross Reference with Chips not Flashfiles

3176 2YG & 7LG PERSONALITY MODULE CROSS REFERENCE
UPDATED 6/22/95

DESCRIPTION	S/N RANGE	PART NUMBER	RE-MAN PART NUMBER	INTERLOCK CODE	RELEASE DATE
250 HP STANDARD	2YG1 - UP	114-6689	0R6891	3	JUL 93
250 HP URBAN BUS	2YG1 - UP	114-6707	0R6895	5	JUL 93
275 HP STANDARD	2YG1 - UP	114-6691	0R6892	4	JUL 93
300 HP STANDARD	2YG1 - UP	114-6694	0R6893	1	JUL 93
325 HP STANDARD	2YG1 - UP	114-6698	0R6894	2	JUL 93
325 TO 350 UPGRADE KIT	2YG1 - UP	113-8969	NOT AVAIL	29	JUL 93

DESCRIPTION	S/N RANGE	PART NUMBER	RE-MAN PART NUMBER	INTERLOCK CODE	RELEASE DATE
250 HP STANDARD	7LG1-07499	112-2074	0R6851	8	JUL 93
250 HP URBAN BUS	7LG1-07499	112-2078	0R6855	13	JUL 93
275 HP STANDARD	7LG1-07499	112-2075	0R6852	9	JUL 93
275 HP J1922	7LG1-07499	112-2082	NOT AVAIL	9	JUL 93

275 HP BULK HAULER	7LG1-07499	112-2079	NOT AVAIL	9	JUL 93
300 HP STANDARD	7LG1-07499	112-2076	0R6853	10	JUL 93
300 HP J1922	7LG1-07499	112-2085	NOT AVAIL	10	JUL 93
300 HP BULK HAULER	7LG1-07499	112-2080	NOT AVAIL	10	JUL 93
325 HP STANDARD	7LG1-07499	112-2077	0R6854	11	JUL 93
325 HP J1922	7LG1-07499	112-2087	0R6856	11	JUL 93
325 HP BULK HAULER	7LG1-07499	112-2081	NOT AVAIL	11	JUL 93
325 TO 350 UPGRADE KIT	7LG1-07499	115-3011	NOT AVAIL	30	JUL 93

DESCRIPTION	S/N RANGE	PART NUMBER	RE-MAN PART NUMBER	INTERLOCK CODE	RELEASE DATE
275 HP STANDARD	7LG07500-15999	112-2072	0R6857	19	JUL 93
275 HP J1922	7LG07500-15999	112-2068	0R6861	19	JUL 93
275 HP BULK HAULER	7LG07500-15999	112-2063	NOT AVAIL	19	JUL 93
300 HP STANDARD	7LG07500-15999	112-2071	0R6858	20	JUL 93
300 HP J1922	7LG07500-15999	112-2067	0R6862	20	JUL 93
300 HP BULK HAULER	7LG07500-15999	112-2062	NOT AVAIL	20	JUL 93
325 HP STANDARD	7LG07500-15999	112-2070	0R6859	16	JUL 93
325 HP J1922	7LG07500-15999	112-2065	0R6863	16	JUL 93
325 HP BULK HAULER	7LG07500-15999	112-2061	NOT AVAIL	16	JUL 93
350 HP STANDARD	7LG07500-15999	112-2069	0R6860	16	JUL 93
350 HP J1922	7LG07500-15999	112-2064	0R6864	16	JUL 93

350 HP BULK HAULER	7LG07500-15999	112-2060	NOT AVAIL	16	JUL 93

DESCRIPTION	S/N RANGE	PART NUMBER	RE-MAN PART NUMBER	INTERLOCK CODE	RELEASE DATE
275 HP STANDARD	7LG16000-UP	111-4156	0R6841	28	JUL 93
275 HP J1922	7LG16000-UP	111-4150	0R6846	28	JUL 93
275 HP BULK HAULER	7LG16000-UP	111-4188	NOT AVAIL	28	JUL 93
300 HP STANDARD	7LG16000-UP	111-4154	0R6842	27	JUL 93
300 HP J1922	7LG16000-UP	111-4148	0R6847	27	JUL 93
300 HP BULK HAULER	7LG16000-UP	111-4186	NOT AVAIL	27	JUL 93
325 HP STANDARD	7LG16000-UP	111-4158	0R6843	26	JUL 93
325 HP J1922	7LG16000-UP	111-4146	0R6848	26	JUL 93
325 HP BULK HAULER	7LG16000-UP	111-4184	NOT AVAIL	26	JUL 93
350 HP STANDARD	7LG16000-UP	111-4152	0R6844	25	JUL 93
350 HP J1922	7LG16000-UP	111-4144	0R6849	25	JUL 93
350 HP BULK HAULER	7LG16000-UP	111-4182	NOT AVAIL	25	JUL 93
360 HP STANDARD	7LG16000-UP	111-4160	0R6845	24	JUL 93
360 HP J1922	7LG16000-UP	111-4173	0R6850	24	JUL 93
360 HP BULK HAULER	7LG16000-UP	111-4162	NOT AVAIL	24	JUL 93

DESCRIPTION	S/N RANGE	PART NUMBER	RE-MAN PART NUMBER	INTERLOCK CODE	RELEASE DATE
325 HP	7LG CHALLENGER	3E5491	OR6573	18	OCT 91

3176B FLASH FILE CROSS REFERENCE

WARNING!!!

The original personality modules in some 3176B and 3406E engines between 9CK1 - 5000 and 5EK1 - 5000 can NOT be flashed with NOV95 or newer software. The Flash program may terminate at 20 to 25% complete when attempting to flash these personality modules with NOV95 or newer software.

Many of the personality modules in the affected serial number range can be flashed with NOV95 or newer software because the original personality module was replaced with a compatible one during an earlier software update or ECM replacement. However, before attempting to flash the personality modules on engines in the affected range, make sure that there is a 106-9184 personality module available. If the flash attempt fails, try again. If both attempts terminate at 20 to 25% complete, replace the personality module with the 106-9184 module and repeat the flash programming.

Since the flash process erases the file from the personality module before programming it, a failure while flashing the personality module in the affected range will render the engine inoperable. Once this occurs, there are two options; 1) replace the personality module with a 106-9184 module and re-flash or 2) flash the original personality module with pre-NOV95 software.

Option 1 is the preferred method since it makes the engine compatible with all future software releases. However, if a new personality module is not available option 2 can be used. The pre-NOV95 files have been put back on the Caterpillar mailbox for downloading. They are listed below along with the current files.

The latest flash files call for default injector codes to be entered. The default injector code for 3176B, C-10, and C-12 engines is 2300.

TRUCK (Factory Ratings)

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH CODE	SERVICE REPLACEMENT	ITRLCK CODE	RELEASE DATE
275 HP	1800	9CK1 - UP	146-9259 (STANDARD)	146-9261	4	MAR 97
			146-9368 (208.5ŒF FAN-ON TEMP)		4	MAR 97
			125-7999 (STANDARD)	125-8001	4	JUN 95
300 HP	1800	9CK1 - UP	146-9262	146-9264	5	MAR 97
			125-8002	125-8004	5	JUN 95
325 HP	1800	9CK1-18308	159-2840		2	FEB 98
			129-2589	129-2591	2	JUN 95
325 HP	1800	9CK18309-UP	159-2838 (STANDARD)		26	FEB 98
			141-9470 (208.5ŒF FAN-ON TEMP)		26	AUG 96
			125-8018 (STANDARD)	125-8021	26	JUN 95
325/350 HP MULTI TORQUE	1800	9CK18309-UP	159-2839		27	FEB 98
			125-8022	125-8024	27	JUN 95

335/365 HP MULTI TORQUE	1800	9CK1 - UP	159-2837 125-8012	125-8014	13 13	FEB 98 JUN 95

TRUCK (Factory Ratings)(cont'd)

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH CODE	SERVICE REPLACEMENT	ITRLCK CODE	RELEASE DATE
342 HP	1800	9CK1 - UP	146-9276	146-9278	12	MAR 97
(OIL FIELD ONLY)			125-8015	125-8017	12	JUN 95
350 HP	1800	9CK1 - UP	159-2835		1	FEB 98
			125-8005	125-8007	1	JUN 95
365 HP	1800	9CK1 - UP	159-2836		9	FEB 98
			125-8008	125-8010	9	JUN 95

* MAR 97 effective with factory built 3176B engine S/N 9CK32702.

TRUCK (Field Uprate Ratings)

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH CODE	SERVICE REPLACEMENT	ITRLCK CODE	RELEASE DATE
300 HP (2T7318)	1800	9CK1 - UP	159-2841		34	FEB 98
			132-9662	132-9664	34	FEB 96
(FIELD UPRATE ONLY! W/ 275 HP IRON)						
350 HP (2T7314)	1800	9CK1-18308	159-2842		35	FEB 98
			132-9666	132-9668	35	FEB 96
(FIELD UPRATE ONLY! W/ 325 HP IRON)						
365 HP (2T7316)	1800	9CK18309-UP	159-2843		36	FEB 98
			132-9671	132-9673	36	FEB 96
(FIELD UPRATE ONLY! W/ 325 HP IRON)						
365 HP (2T7316)	1800	9CK1 - UP	159-2843		36	FEB 98
			132-9671	132-9673	36	FEB 96
(FIELD UPRATE ONLY! W/ 350 HP IRON)						

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3406B/C PEEC, PEEC II, PEEC 2.5, AND ELECTRONIC_PERSONALITY MODULE CROSS REF

3406B/C PEEC, PEEC II, PEEC 2.5, AND ELECTRONIC
PERSONALITY MODULE CROSS-REFERENCE
October 20,1997

ECM	Eng S/N Range	HP Rating	IC	PM
II	8TC1-1412	285 EPA	2	1019291-00
II	8TC1-1412	285 EPA	2	0R6666-00
II	8TC1413-10980	285 EPA	101	1019295-00
II	8TC1413-10980	285 EPA	101	0R6648-00
II	8TC1413-Up	285 CARB	102	1019282-00
II	8TC1413-Up	285 CARB	102	0R6656-00
II	8TC1-1412	310 EPA	2	1019292-00
II	8TC1-1412	310 EPA	2	0R6667-00
II	8TC1413-10980	310 EPA	101	1019296-00
II	8TC1413-10980	310 EPA	101	0R6649-00
II	8TC1413-UP	310 CARB	102	1019283-00

II	8TC1413-UP	310 CARB	102	0R6657-00
II	8TC1413-UP	310 MT Top1 CARB	113	1019307-00
II	8TC1413-UP	310 MT Top1 CARB	113	0R6664-00
II	8TC1413-UP	310 MT Top4 CARB	113	1022492-00
II	8TC1413-UP	310 MT Top4 CARB	113	0R6681-00
II	8TC1413-10980	310 PDCC EPA	108	1019303-00
II	8TC1413-10980	310 PDCC EPA	108	0R6655-00
II	8TC1413-UP	310 PDCC CARB	109	1019290-00
II	8TC1413-UP	310 PDCC CARB	109	0R6665-00
II	2EK1 - UP	310 Std	10	1019248-00
II	2EK1 - UP	310 Std	10	0R6632-00
II	2EK1 - UP	310 MT Top1	11	1019249-00
II	2EK1 - UP	310 MT Top1	11	0R6633-00
II	2EK1 - UP	310 MT Top4	11	1022490-00
II	2EK1 - UP	310 MT Top4	11	0R6679-00
II	2EK1 - UP	310 PDCC	12	1019250-00
II	2EK1 - UP	310 PDCC	12	0R6634-00
II.V	8TC9090 - 10980	310 EPA	101	1019296-00
II.V	8TC9090 - 10980	310 EPA	101	0R6649-00
II.V	8TC10981 - Up	310 CARB	102	1019283-00
II.V	8TC10981 - Up	310 CARB	102	0R6657-00
II.V	8TC10981 - Up	310 MT Top1 CARB	113	1022492-00
II.V	8TC10981 - Up	310 MT Top1 CARB	113	0R6681-00
II.V	2EK1 - UP	310 NAR	10	1019248-00
II.V	2EK1 - UP	310 NAR	10	0R6632-00
II.V	2EK1 - Up	310 MT Top1	11	1019249-00
II.V	2EK1 - Up	310 MT Top1	11	0R6633-00
III	4CK1 - Up	310@1800	10	1457832-00
III	4CK1 - Up	310 MT Top1	11	1457834-00
III	4CK1 - Up	310 MT Top4	11	1457849-00
III	4CK1 - Up	310 PDCC	12	1457851-00
II	8TC1 - 1412	330/350LT EPA	1	1019293-00
II	8TC1 - 1412	330/350LT EPA	1	0R6646-00
II	8TC1413 - 10980	330/350LT EPA	103	1019297-00
II	8TC1413 - 10980	330/350LT EPA	103	0R6650-00
II	8TC8792 - UP	330/350LT NAR LCV	114	1019284-00
II	8TC8792 - UP	330/350LT NAR LCV	114	0R6658-00
II	2EK1 - Up	330@1800	23	1019251-00
II	2EK1 - Up	330@1800	23	0R6635-00
II.V	2EK1 - Up	330@1800	23	1019251-00
II.V	2EK1 - Up	330@1800	23	0R6635-00
III	4CK1 - Up	330@1800	23	1457853-00
II	8TC1 - 1412	350 EPA	1	1019294-00
II	8TC1 - 1412	350 EPA	1	0R6647-00
II	8TC1413 - 10980	350 EPA	103	1019298-00
II	8TC1413 - 10980	350 EPA	103	0R6651-00
II	8TC8792 - UP	350 NAR LCV	114	1019285-00
II	8TC8792 - UP	350 NAR LCV	114	0R6659-00
II	8TC1413 - Up	350 EPA MT Top2	121	1022493-00
II	8TC1413 - Up	350 EPA MT Top2	121	0R6682-00
II	8TC1413 - Up	350 EPA MT Top4	121	1022494-00
II	8TC1413 - Up	350 EPA MT Top4	121	0R6683-00
II	2EK1 - Up	350@2000	13	1019252-00
II	2EK1 - Up	350@2000	13	0R6636-00
II	2EK1 - Up	350@1800	14	1019253-00
II	2EK1 - Up	350@1800	14	0R6637-00
II	2EK1 - Up	350@1800 LT	15	1019255-00
II	2EK1 - Up	350@1800 LT	15	0R6639-00
II	2EK1 - Up	350@1800 MT Top2	16	1019254-00

II	2EK1 - Up	350@1800 MT Top2	16	0R6638-00
II	2EK1 - Up	350@1800 MT Top4	16	1022491-00
II	2EK1 - Up	350@1800 MT Top4	16	0R6680-00
II.V	8TC9090 - 10980	350 EPA	114	1019285-00
II.V	8TC9090 - 10980	350 EPA	114	0R6659-00
II.V	8TC10981 - Up	350 NAR	121	1022493-00
II.V	8TC10981 - Up	350 NAR	121	0R6682-00
II.V	2EK1 - Up	350 Std Hi RPM	13	1019252-00
II.V	2EK1 - Up	350 Std Hi RPM	13	0R6636-00
II.V	2EK1 - Up	350 Std Lo RPM	14	1019253-00
II.V	2EK1 - Up	350 Std Lo RPM	14	0R6637-00
II.V	2EK1 - Up	350 Lo Torque	15	1019255-00
II.V	2EK1 - Up	350 Lo Torque	15	0R6639-00
II.V	2EK1 - Up	350 MT Top2	16	1019254-00
II.V	2EK1 - Up	350 MT Top2	16	0R6638-00
III	4CK1 - Up	350@2000 w/o Brksv	13	1457873-00
III	4CK1 - Up	350@2000 w/Brksv	25	3E9115-00
III	4CK1 - 3413	350@1800	14	1457867-00
III	4CK3414 - Up	350@1800	14	1457856-00
III	4CK1 - 10214	350@1800 LT	15	1457877-00
III	4CK10215 - Up	350@1800 LT	15	1457875-00
III	4CK1 - 3413	350 MT Top2	16	1457879-00
III	4CK 3414 - Up	350 MT Top2	16	1457881-00
III	4CK1 - 3413	350 MT Top4	16	1457884-00
III	4CK 3414 - Up	350 MT Top4	16	1457890-00
III	4CK1 - Up	365 Std w/o Brksv	24	1457899-00
III	4CK1 - Up	365 Std w/Brksv	27	3E9120-00
III	4CK1 - Up	365 MT Top2 w/o Brksv	26	1457911-00
III	4CK1 - Up	365 MT Top2 w/Brksv	28	3E9130-00
III	4CK1 - Up	365 MT Top4 w/o Brksv	26	1457916-00
III	4CK1 - Up	365 MT Top4 w/Brksv	28	1457923-00
III	4CK1 - Up	365 HT MT Top4 w/o Brksv	34	1457935-00
III	4CK1 - Up	365 HT MT Top4 w/Brksv	35	1457941-00
II	8TC1413 - Up	375/400 LT CARB	105	1019286-00
II	8TC1413 - Up	375/400 LT CARB	105	0R6660-00
II	8TC1413 - 10980	375/400 LT EPA	104	1019299-00
II	8TC1413 - 10980	375/400 LT EPA	104	0R6652-00
II	8TC1413 - 10980	400 EPA	104	1019300-00
II	8TC1413 - 10980	400 EPA	104	0R6653-00
II	8TC1413 - Up	400 CARB	105	1019287-00
II	8TC1413 - Up	400 CARB	105	0R6661-00
II	2EK1 - Up	400 Std	17	1019256-00
II	2EK1 - Up	400 Std	17	0R6640-00
II.V	8TC9090 - 10980	400 EPA	104	1019300-00
II.V	8TC9090 - 10980	400 EPA	104	0R6653-00
II.V	8TC10981 - Up	400 CARB	105	1019287-00
II.V	8TC10981 - Up	400 CARB	105	0R6661-00
II.V	2EK1 - Up	400 Std	17	1019256-00
II.V	2EK1 - Up	400 Std	17	0R6640-00
III	4CK1 - Up	400 Std w/o Brksv	17	1457944-00
III	4CK1 - Up	400 Std w/Brksv	26	1457950-00
II	8TC1413 - 10980	425 EPA	106	1019301-00
II	8TC1413 - 10980	425 EPA	106	0R6654-00
II	8TC1413 - Up	425 CARB	107	1019288-00
II	8TC1413 - Up	425 CARB	107	0R6662-00
II	2EK1 - Up	425@2000	18	1019257-00
II	2EK1 - Up	425@2000	18	0R6641-00
II	2EK1 - Up	425@1800	21	1019258-00
II	2EK1 - Up	425@1800	21	0R6642-00

II	2EK1 - Up	425@2000 HT		19	1019259-00
II	2EK1 - Up	425@2000 HT		19	0R6643-00
II	2EK1 - Up	425@1800 HT		22	1019260-00
II	2EK1 - Up	425@1800 HT		22	0R6644-00
II.V	8TC1413 - 10980	425 EPA		106	1019301-00
II.V	8TC1413 - 10980	425 EPA		106	0R6654-00
II.V	8TC1413 - Up	425 CARB		107	1019288-00
II.V	8TC1413 - Up	425 CARB		107	0R6662-00
II.V	2EK1 - Up	425@2000		18	1019257-00
II.V	2EK1 - Up	425@2000		18	0R6641-00
II.V	2EK1 - Up	425@1800		21	1019258-00
II.V	2EK1 - Up	425@1800		21	0R6642-00
II.V	2EK1 - Up	425@2000 HT		19	1019259-00
II.V	2EK1 - Up	425@2000 HT		19	0R6643-00
II.V	2EK1 - Up	425@1800 HT		22	1019260-00
II.V	2EK1 - Up	425@1800 HT		22	0R6644-00
III	4CK1 - Up	425@2000	w/o Brksv	18	1457952-00
III	4CK1 - Up	425@2000	w/Brksv	29	1457954-00
III	4CK1 - 10214	425@1800	w/o Brksv	21	1457975-00
III	4CK10215 - Up	425@1800	w/o Brksv	21	1457971-00
III	4CK1 - 9352	425@2000 HT	w/o Brksv	19	1457958-00
III	4CK9353 - Up	425@2000 HT	w/o Brksv	19	1457956-00
III	4CK1 - 9352	425@2000 HT	w/Brksv	30	1457962-00
III	4CK9353 - Up	425@2000 HT	w/Brksv	30	1457960-00
III	4CK1 - 13151	425@1800 HT	w/o Brksv	22	1457967-00
III	4CK13151 - Up	425@1800 HT	w/o Brksv	22	1457965-00
III	4CK1 - Up	425@1800 HT	w/Brksv	31	1457969-00
II	5YG1 - Up	460@1900		110	1019289-00
II	5YG1 - Up	460@1900		110	0R6663-00
II	2EK1 - Up	460@1900		110	1019261-00
II	2EK1 - Up	460@1900		110	0R6645-00
II.V	2EK1 - Up	460@1900		110	1019261-00
II.V	2EK1 - Up	460@1900		110	0R6645-00
III	4CK1 - Up	460@1900	w/o Brksv	20	1458002-00
III	4CK1 - Up	460@1900	w/Brksv	32	1458004-00
********** METAL TURB0 WHEEL ONLY **********					
III	4CK1 - Up	460@1900	w/o Brksv	20	1457978-00
III	4CK1 - Up	460@1900	w/Brksv	32	1457980-00

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3406E FLASH File Cross Reference - Updated 09/28/95

3406E FLASH FILE CROSS REFERENCE
Updated September 28,1995

Description	Serial No. Range	Flash Part No.	Service Replacement	IC	Release Date
310 HP 1150 PT	5EK00001 & UP	129-0227	129-0232	33	AUG95
310 HP 1250 PT	5EK00001 & UP	129-0236	129-0238	34	AUG95
310 HP 1150/1350PT MULTI-TORQUE	5EK00001 & UP	129-0239	129-0241	35	AUG95
330HP 1350 PT	5EK00001 UP	129-0242	129-0244	36	AUG95
355 HP 1350 PT	5EK00001 - 5EK01820	120-4032	120-4034	6	JAN95

355 HP 1350 PT	5EK01821 & UP	129-0160	129-0162	22	AUG95
355 HP 1350/1450PT MULTI-TORQUE	5EK00001 - 5EK01820	120-4029	120-4031	7	JAN95
355 HP 1350/1450PT MULTI-TORQUE	5EK01821 & UP	129-0163	129-0171	23	AUG95
375 HP 1450 PT	5EK00001 - 5EK01820	120-4023	120-4025	4	JAN95
375 HP 1450 PT	5EK01821 & UP	129-0172	129-0174	20	AUG95
375 HP 1450/1550PT MULTI-TORQUE	5EK00001 - 5EK01820	120-4047	120-4049	10	JAN95
375 HP 1450/1550PT MULTI-TORQUE	5EK01821 - UP	129-0175	129-0177	21	AUG95
410 HP 1450 PT	5EK00001 & UP	129-0203	129-0205	19	AUG95
410 HP 1450 PT BRAKESAVER	5EK00001 & UP	129-0206	129-0210	29	AUG95
410 HP 1550 PT	5EK00001 & UP	129-0211	129-0213	30	AUG95
410 HP 1550 PT BRAKESAVER	5EK00001 & UP	129-0214	129-0216	31	AUG95
435 HP 1450 PT	5EK00549 - 5EK01184	120-4038	120-4040	11	JAN95
435 HP 1550 PT	5EK00549 - 5EK01184	120-4035	120-4037	12	JAN95
435 HP 1550 PT	5EK01185 - 5EK53003	126-4361	126-4363	17	JUN95
435 HP 1550 PT	5EK53004 & UP	129-0251	129-0253	43	AUG95
435 HP 1550 PT BRAKESAVER	5EK01185 - 5EK53003	126-4364	126-4366	18	JUN95
435 HP 1550 PT BRAKESAVER	5EK53004 & UP	129-0254	129-0256	44	AUG95
435 HP 1650 PT	5EK00001 - 5EK00548	120-4020	120-4022	3	JAN95
435 HP 1650 PT	5EK00549 - 5EK01184	120-4044	120-4046	13	JAN95
435 HP 1650 PT	5EK01185 - 5EK53003	126-4368	126-4373	15	JUN95

435 HP 1650 PT	5EK53004 & UP	129-0257	129-0259	45	AUG95
435 HP 1650 PT BRAKESAVER	5EK00001 - 5EK00548	120-4026	120-4028	5	JAN95
435 HP 1650 PT BRAKESAVER	5EK00549 - 5EK01184	120-4041	120-4043	14	JAN95
435 HP 1650 PT BRAKESAVER	5EK01185 - 5EK53003	126-4375	126-4377	16	JUN95
435 HP 1650 PT BRAKDSAVER	5EK53004 & UP	129-0261	129-0263	46	AUG95

********* 435HP 1650 PT HIGH RPM PERFORANCE -- FLASH ONLY **********

435 HP 1650 PT	5EK01185 - 5EK53003	125-3230		15	JUN95
435 HP 1650 PT BRAKESAVER	5EK01185 - 5EK53003	125-3237		16	JUN95
435 HP 1650 PT	5EK53004 & UP	129-2595		45	AUG95
435 HP 1650 PT BRAKESAVER	5EK53004 & UP	129-2598		46	AUG95

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455 HP 1650 PT	5EK00001 - 5EK53003	126-4444	126-4446	27	JUN95
455 HP 1650 PT	5EK53004 & UP	129-0265	129-0269	47	AUG95
455 HP 1650 PT BRAKESAVER	5EK00001 - 5EK53003	126-4447	126-4449	28	JUN95
455 HP 1650 PT BRAKESAVER	5EK53004 & UP	129-0271	129-0276	48	AUG95

********* 455HP 1650 PT HIGH RPM PERFORANCE -- FLASH ONLY **********

455 HP 1650 PT	5EK00001 - 5EK53003	130-8365		27	AUG95
455 HP 1650 PT BRAKESAVER	5EK00001 & UP	130-8367		28	AUG95

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475 HP 1650 PT	5EK00001 & UP	129-0178	129-0181	8	AUG95

475 HP 1650 PT BRAKESAVER	5EK00001 & UP	129-0183	129-0186	24	AUG95
475 HP 1750 PT	5EK00001 & UP	129-0189	129-0192	25	AUG95
475 HP 1750 PT BRAKESAVER	5EK00001 & UP	129-0193	129-0196	26	AUG95

********* 475HP 1750 PT HIGH RPM PERFORANCE -- FLASH ONLY **********

475 HP 1750 PT	5EK00001 & UP	128-6848		25	JUN95
475 HP 1750 PT BRAKESAVER	5EK00001 & UP	128-6851		26	JUN95

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500 1850 PT	5EK00001 & UP	129-0217	129-0219	9	AUG95
500 HP 1850 PT BRAKESAVER	5EK00001 & UP	129-0220	129-0224	32	AUG95

********* 500 HP 1850 PT HIGH RPM PERFORANCE -- FLASH ONLY **********

500 HP 1850 PT	5EK00001 & UP	126-3887		9	JUN95
500 HP 1850 PT BRAKESAVER	5EK00001 & UP	128-6569		32	JUN95

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****** September Availability **********

550 HP 1850 PT	5EK00001 & UP	126-8385	126-8387	41	AUG95
550 HP 1850 PT BRAKESAVER	5EK00001 & UP	126-9517	126-9519	42	AUG95

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OIL WELL SERVICE

435/500 HP 1550/1650 PT	5EK01185 & UP	126-4486	126-4488	38	JUN95

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3406E LOW NOX KIT FLASH FIILE CROSS REFERENCE

Updated February 21, 2001

Note: The LOW NOx FLASH files each have an interlock code which has been

incremented by 300, compared to the interlock code of the original production FLASH file it is replacing. For example, FLASH file 185-1177, with an interlock code of 333, replaces the DEC98 PSO FLASH file 170-8128, which had an interlock code of 33.

ENGINE RATING/ APPLICATION INFORMATION	SERIAL NO. RANGE	FLASH FILE	IC	RELEASE DATE
310 HP 1150 PT	5EK05767 & UP 6TS00001 & UP	185-1177	333	DEC99
310 HP 1250 PT	5EK05767 & UP 6TS00001 & UP	185-1178	334	DEC99
310 HP 1150/1350@1200	5EK05767 & UP 6TS00001 & UP	185-1179	335	DEC99
330 HP 1350 PT	5EK05767 & UP 6TS00001 & UP	185-1180	336	DEC99
355 HP 1350 PT (Still used on steel pistons)	5EK05767 & UP 6TS00001 & UP	185-1181	322	DEC99
355 HP 1350 PT 208.5 Fan On (Still used on steel pistons)	5EK05767 & UP 6TS00001 & UP	185-1182	322	DEC99
355 HP 1350@1200 Aluminum pistons (was 170-8174)	5EK05767-80006	185-1181	322	DEC99
355 HP 1350 PT 208.5 Fan On Aluminum pistons (was 170-8175)	5EK05767-80006	185-1182	322	DEC99
355 HP 1350/1450PT MULTI-TORQUE (Still used on steel pistons)	5EK05767 & UP 6TS00001 & UP	185-1183	323	DEC99
355 HP 1350/1450PT MULTI-TORQUE 208.5 Fan On (Still used on steel pistons)	5EK05767 & UP 6TS00001 & UP	185-1184	323	DEC99
355 HP 1350/1450 PT MULTI-TORQUE Aluminum Pistons (was 170-8173)	5EK05767-80006	185-1184	323	DEC99
355 HP 1350/1450 PT MULTI-TORQUE 208.5 Fan On Aluminum Pistons (was 170-8182)	5EK05767-80006	185-1184	323	DEC99
375 HP 1450 PT PAN WESTERN SPECIAL	5EK05767 & UP 6TS00001 & UP	185-1186	355	DEC99
375 HP 1450@1200 Aluminum pistons (was 170-8177)	5EK05767-80006	185-1185	320	DEC99
375 HP 1450 PT (Still used on steel pistons)	5EK05767 & UP 6TS00001 & UP	185-1185	320	DEC99
375HP 1450@1200 Multi-Torque Aluminum pistons (was 170-8111)	5EK05767-80006	185-1187	321	DEC99
375 HP 1450/1550PT MULTI-TORQUE (Still used on steel pistons)	5EK05767 & UP 6TS00001 & UP	185-1187	321	DEC99

375/435 HP MULTI-TORQUE	5EK67193 & UP 6TS00001 & UP	186-9901	367	DEC99
375/435 HP 1450/1650 Top Gear Only Multi-Torque	5EK67193 & UP 6TS00001 & UP	186-9903	381	DEC99
375/435 HP 1450/1650 PT Multi-Torque	5EK67193 & UP 6TS00001 & UP	186-9902	428	DEC99
410 HP 1450@1200 Aluminum pistons (was 170-8176)	5EK05767-67192	185-1188	319	DEC99
410 HP 1450 PT (Still used on steel pistons)	5EK05767-67192	185-1188	319	DEC99
410 HP Brakesaver 1450@1200 Aluminum pistons (was 170-8179)	5EK05767-67192	185-1189	329	DEC99
410 HP 1450 PT BRAKESAVER (Still used on steel pistons)	5EK05767-67192	185-1189	329	DEC99
410 HP 1550@1200 Aluminum pistons (was 170-8180)	5EK05767-67192	185-1190	330	DEC99
410 HP 1550 PT (Still used on steel pistons)	5EK05767-67192	185-1190	330	DEC99
410 HP Brakesaver 1550@1200 Aluminum pistons (was 170-8181)	5EK05767-67192	185-1191	331	DEC99
410 HP 1550 PT BRAKESAVER (Still used for steel pistons)	5EK05767-67192	185-1191	331	DEC99
410 HP 1450/1550@1200 Aluminum pistons (was 170-8183)	5EK67192&80006	186-9904	368	DEC99
410 HP 1450/1550 (Still used on steel pistons)	5EK67193 & UP 6TS00001 & UP	186-9904	368	DEC99
410 HP Brakesaver 1450/1550@1200 Aluminum pistons (was 170-8184)	5EK67193-80006	186-9905	369	DEC99
410 HP 1450/1550 BRAKESAVER (Still used on steel pistons)	5EK67193 & UP 6TS00001 & UP	186-9905	369	DEC99
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ALLISION AUTO TRANSMISSION:				
435 HP 1450 PT	5EK75900 & UP 6TS00001 & UP	186-9908	377	DEC99
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435 HP 1550 PT	5EK05767-53003	185-1192	317	DEC99
435 HP 1550 PT	5EK53004-67192	185-1198	343	DEC99
435 HP 1550 PT BRAKESAVER	5EK05767-53003	185-1193	318	DEC99
435 HP 1550 PT BRAKESAVER	5EK53004-67192	185-1199	344	DEC99
435 HP 1650 PT	5EK05767-53003	185-1194	315	DEC99
435 HP 1650 PT	5EK53004-67192	185-1200	345	DEC99

435 HP 1550/1650 @ 1800/2100	5EK67193 & UP 6TS00001 & UP	186-9906	359	DEC99
435 HP 1650 PT BRAKESAVER	5EK05767-53003	185-1195	316	DEC99
435 HP 1650 PT BRAKESAVER	5EK53004-67192	185-1201	346	DEC99
435 HP 1550/1650 @ 1800/2100 BRAKESAVER	5EK67193 & UP 6TS00001 & UP	186-9907	360	DEC99
435@1800 Dual HP for PTO 500@2100 or 435@2100	5EK67193 & UP 6TS00001 & UP	185-1204	338	DEC99

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435HP 1650 PT HIGH RPM PERFORMANCE - FIELD UPRATE ONLY, FLASH ONLY:

435 HP 1650 PT	5EK05767-53003	185-1196	315	DEC99
435 HP 1650 PT BRAKESAVER	5EK05767-53003	185-1197	316	DEC99
435 HP 1650 PT	5EK53004-67192	185-1202	345	DEC99
435 HP 1650 PT BRAKESAVER	5EK53004-67192	185-1203	346	DEC99

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455 HP 1650 PT	5EK05767-53003	185-1205	327	DEC99
455 HP 1650 PT	5EK53004-67192	185-1209	347	DEC99
455 HP 1650 PT @ 1800/2100	5EK67193 & UP 6TS00001 & UP	186-9910	357	DEC99
455 HP 1650 PT BRAKESAVER	5EK05767-53003	185-1206	328	DEC99
455 HP 1650 PT BRAKESAVER	5EK53004-67192	185-1210	348	DEC99
455 HP 1650 PT @ 1800/2100 BRAKESAVER	5EK67193 & UP 6TS00001 & UP	186-9911	358	DEC99
455 MT 1550/1750	5EK67193 & UP 6TS00001 & UP	186-9912	379	DEC99
455 MT (BS) 1550/1750 PT	5EK67193 & UP 6TS00001 & UP	186-9913	380	DEC99

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455HP 1650 PT HIGH RPM PERFORMANCE - FIELD UPRATE ONLY, FLASH ONLY:

455 HP 1650 PT	5EK05767-53003	185-1207	327	DEC99
455 HP 1650 PT BRAKESAVER	5EK05767-53003	185-1208	328	DEC99
455 HP 1650 PT	5EK53004-67193	185-1211	347	DEC99
455 HP 1650 PT BRAKESAVER	5EK53004-67193	185-1212	348	DEC99
475 HP 1650 PT	5EK05767-67192	185-1213	308	DEC99
475 HP 1650 PT BRAKESAVER	5EK05767-67192	185-1214	324	DEC99
475 HP 1750 PT	5EK05767-67192	185-1215	325	DEC99
475 HP 1750 PT BRAKESAVER	5EK05767-67192	185-1216	326	DEC99

475 HP 1650/1750 @ 1800/2100	5EK67193 & UP 6TS00001 & UP	186-9914	350	DEC99
475 HP 1650/1750 @ 1800/2100 BRAKESAVER	5EK67193 & UP 6TS00001 & UP	186-9915	351	DEC99

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475HP 1750 PT HIGH RPM PERFORMANCE - FIELD UPRATE ONLY, FLASH ONLY:

475 HP 1750 PT	5EK05767-67192	185-1217	325	DEC99
475 HP 1750 PT BRAKESAVER	5EK05767-67192	185-1218	326	DEC99

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475/500 HP 1650/1850 PT MULTI-TORQUE	5EK67193 & UP 6TS00001 & UP	186-9918	382	DEC99
475/500 HP 1650/1850 PT MULTI-TORQUE BRAKESAVER	5EK67193 & UP 6TS00001 & UP	186-9919	383	DEC99
475/500 HP 1650/1750 TOP TWO GEARS ONLY MULTI-TORQUE FIELD UPRATE ONLY	5EK67193 & UP 6TS00001 & UP	186-9916	436	DEC99
475/500 HP 1650/1750 BRAKESAVER TOP TWO GEARS ONLY MULTI-TORQUE FIELD UPRATE ONLY	5EK67193 & UP 6TS00001 & UP	186-9917	437	DEC99
500 HP 1450 PT MOTORHOME	5EK67193 & UP 6TS00001 & UP	186-9920	354	DEC99
500 HP 1650 PT	5EK67193 & UP 6TS00001 & UP	204-3504	474	FEB01
500 HP 1750 @ 1200 BRAKESAVER FLEET RATING	5EK67193 & UP 6TS00001 & UP	186-9923	395	DEC99

WARNING: ONCE THIS IS FLASHED THE INTERLOCK IS FROZEN AND CANNOT BE CHANGED

500 HP 1750 @ 1200 FLEET RATING	5EK67193 & UP 6TS00001 & UP	186-9922	394	DEC99

WARNING: ONCE THIS IS FLASHED THE INTERLOCK IS FROZEN AND CANNOT BE CHANGED

500 1850 PT	5EK05767-67192	185-1219	309	DEC99
500 1850 PT @ 1800/2100	5EK67193 & UP 6TS00001 & UP	186-9924	361	DEC99
500 1850 PT @ 1800/2100 2300RPM TEL FIELD UPRATE ONLY	5EK67193 & UP 6TS00001 & UP	185-1225	432	DEC99
500 HP 1850 PT BRAKESAVER	5EK05767-67192	185-1220	332	DEC99
500 HP 1850 PT @ 1800/2100 BRAKESAVER	5EK67193 & UP 6TS00001 & UP	186-9925	362	DEC99
500 HP 1850 PT @ 1800/2100 BRKSVR 2300RPM TEL FIELD UPRATE ONLY	5EK67193 & UP 6TS00001 & UP	185-1226	433	DEC99

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500 HP 1850 PT HIGH RPM PERFORMANCE - FIELD UPRATE ONLY, FLASH ONLY:

500 HP 1850 PT	5EK05767-67192	185-1221	309	DEC99
500 HP 1850 PT BRAKESAVER	5EK05767-67192	185-1222	332	DEC99

550 HP 1850 PT @ 2100	5EK05767 & UP 6TS00001 & UP	185-1223	341	DEC99
550 HP 1850 PT @ 2100 2300RPM TEL FIELD UPRATE ONLY	5EK67193 & UP 6TS00001 & UP	186-9926	434	DEC99
550 HP 1850 PT @ 2100 BRAKESAVER	5EK05767 & UP 6TS00001 & UP	185-1224	342	DEC99
550 HP 1850 PT @ 2100 BRKSVR 2300RPM TEL FIELD UPRATE ONLY	5EK67193 & UP 6TS00001 & UP	186-9927	435	DEC99
OIL WELL SERVICE (OWS) 435/500 HP 1550/1650 PT OWS	5EK05767 & UP	185-1204	338	DEC99
435/500 HP OWS	5EK05767 & UP	186-9909	376	DEC99
355 HP 1350PT 1800/2100	1LW00001 & UP	192-5311	399	APR00
355 HP MULTI-TORQUE 1350/1450 1800/2100	1LW00001 & UP	192-5312	401	APR00
375 HP 1450PT 1800/2100	1LW00001 & UP	192-5313	405	APR00
375 HP MULTI-TORQUE 1450/1550 1800/2100	1LW00001 & UP	192-5314	406	APR00
375/435 HP MULTI-TORQUE 1450/1550 PT 1800 1450/1650 PT 1800	1LW00001 & UP	192-5315	409	APR00
375/435 HP 1450/1550 PT 1800 RPM TOP TWO GEARS ONLY MULTI-TORQUE FIELD UPRATE ONLY	1LW00001 & UP	192-5316	459	APR00
375/435 HP 1450/1650PT 1800 MULTI-TORQUE IN TOP GEAR ONLY (ROCKWELL)	1LW00001 & UP	192-5317	410	APR00
410 HP FIELD UPRATE ONLY 1450/1550PT 1800/2100	1LW00001 & UP	192-5318	407	APR00
435 HP 1550/1650PT 1800/2100	1LW00001 & UP	192-5320	411	APR00
435 HP 1550/1650PT 1800/2100 BRAKESAVER	1LW00001 & UP	192-5321	412	APR00
450 HP 1550/1650PT 2100 (FIELD UPRATE ONLY FOR 410HP & BELOW)	1LW00001 & UP	192-5319	452	APR00
455 HP 1550PT 2100	1LW00001 & UP	192-5322	438	APR00
455 HP 1550 PT 2100 BRAKESAVER	1LW00001 & UP	192-5323	439	APR00
455 HP 1650PT 1800/2100	1LW00001 & UP	192-5324	413	APR00
455 HP 1650PT 1800/2100 BRAKESAVER	1LW00001 & UP	192-5325	414	APR00

455 HP MULTI-TORQUE 1550/1750PT 2100	1LW00001 & UP	192-5326	415	APR00
455 HP MULTI-TORQUE 1550/1750PT 2100 BRAKESAVER	1LW00001 & UP	192-5327	416	APR00
475 HP 1650/1750PT 1800/2100	1LW00001 & UP	192-5328	419	APR00
475 HP 1650/1750PT 1800/2100 BRAKESAVER	1LW00001 & UP	192-5329	420	APR00
475/500 HP 1650/1750PT 2100 RPM TOP TWO GEARS ONLY MULTI-TORQUE FIELD UPRATE ONLY	1LW00001 & UP	192-5330	455	APR00
475/500 HP 1650/1750PT 2100 RPM TOP TWO GEARS ONLY MULTI-TORQUE BRAKESAVER FIELD UPRATE ONLY	1LW00001 & UP	192-5331	456	APR00
475/500 HP 1650/1850PT 2100 RPM MULTI-TORQUE TOP 2 GEARS ONLY	1LW00001 & UP	192-5332	417	APR00
475/500 HP 1650/1850PT 2100 RPM MULTI-TORQUE TOP 2 GEARS ONLY BRAKESAVER	1LW00001 & UP	192-5333	418	APR00
500 HP 1650PT 2100 RPM	1LW00001 & UP	192-5334	462	APR00
500 HP FLEET 1750PT 2100 RPM WARNING: ONCE FLASHED THE INTERLOCK IS FROZEN AND CANNOT BE CHANGED	1LW00001 & UP	192-5335	425	APR00
500 HP FLEET 1750PT 2100 RPM BRAKESAVER WARNING: ONCE FLASHED THE INTERLOCK IS FROZEN AND CANNOT BE CHANGED	1LW00001 & UP	192-5336	426	APR00
500 HP 1850PT 1800/2100	1LW00001 & UP	192-5337	421	APR00
500 HP 1850PT 1800/2100 2300 RPM TEL FIELD UPRATE ONLY	1LW00001 & UP	192-5339	441	APR00
500 HP 1850PT 1800/2100 BRAKESAVER	1LW00001 & UP	192-5338	422	APR00
500 HP 1850PT 1800/2100 BRAKESAVER 2300 RPM TEL FIELD UPRATE ONLY	1LW00001 & UP	192-5340	442	APR00
550 HP 1850PT 2100 RPM	1LW00001 & UP	192-5341	423	APR00
550 HP 1850PT 2100 RPM 2300 RPM TEL FIELD UPRATE ONLY	1LW00001 & UP	192-5343	443	APR00
550 HP 1850PT 2100 RPM BRAKESAVER	1LW00001 & UP	192-5342	424	APR00
550 HP 1850PT 2100 RPM BRAKESAVER	1LW00001 & UP	192-5344	444	APR00

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F 3406E/3456/C15/C16/C18 FLASH FILE CROSS REFERENCE

Updated January 15, 2008 ajk

This file covers 3406E Truck engines (5DS/2WS/1LW/1MM), and 3406E/3456/C15/C18 Commercial/Machine applications.

NOTE:

Most of the original flash files for 5EK/6TS/1LW 3406E engines have been removed from SIS Web. They have been replace by Low NOx files. See the Low NOx files text.

WARNING!!!

The original personality modules in some 3176B and 3406E engines between 9CK1 - 5000 and 5EK1 - 5000 can NOT be flashed with NOV95 software. The Flash program may terminate at 20 to 25% complete when attempting to flash these personality modules with NOV95 software.

Many of the personality modules in the affected serial number range can be flashed with NOV95 software because the original personality module was replaced with a compatible REMAN product during an earlier software update or ECM replacement. However, before attempting to flash the personality modules on engines in the affected range, make sure that there is a 106-9184 personality module available. If the flash attempt fails, try again. If both attempts terminate at 20 to 25% complete, replace the personality module with the 106-9184 module and repeat the flash programming.

Since the flash process erases the file from the personality module before programming it, a failure while flashing the personality module in the affected range will render the engine inoperable. Once this occurs, there are two options; 1) replace the personality module with a 106-9184 module and re-flash or 2) flash the original personality module with pre-NOV95 software.

Option 1 is the preferred method since it makes the engine compatible with all future software releases. However, if a new personality module is not available option 2 can be used. The pre-NOV95 files have been put back on the Caterpillar mailbox for downloading. They are listed under the title "3406E FLASH File Cross Reference - Updated 09/28/95".

ENGINE RATING/ APPLICATION INFORMATION	SERIAL NO. RANGE	FLASH FILE	IC	RELEASE DATE
355 HP 1350 PT	5EK00001-01820	170-8096	6	DEC98
355 HP 1450@1200 Multi-Torque Aluminum pistons	5EK00001-01820	170-8185	7	DEC98
355 HP 1350/1450PT MULTI-TORQUE (Still used on steel pistons)	5EK00001-01820	170-8097	7	DEC98
375 HP 1450 PT	5EK00001-01820	170-8098	4	DEC98
375 HP 1450/1550PT MULTI-TORQUE	5EK00001-01820	170-8099	10	DEC98
435 HP 1450 PT	5EK00549-01184	170-8102	11	DEC98
435 HP 1550 PT	5EK00549-01184	170-8103	12	DEC98
435 HP 1650 PT	5EK00001-00548	170-8100	3	DEC98
435 HP 1650 PT	5EK00549-01184	170-8104	13	DEC98

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575 HP 1850PT 2100 RPM 5DS00324 & UP 170-8228 167 DEC98
For use with 159-8542 or 0R-7275 Turbo Group

575 HP 1850PT 2100 RPM BRAKESAVER 5DS00324 & UP 170-8229 168 DEC98
For use with 159-8542 or 0R-7275 Turbo Group

600 HP 2050PT 2100 RPM 5DS00001-00323 170-8230 96 DEC98
For use with 138-3200 or 0R-7176 Turbo Group

600 HP 2050PT 2100 RPM 5DS00324 & UP 170-8232 160 DEC98
For use with 159-8542 or 0R-7275 Turbo Group

600 HP 2050PT 2100 RPM 5DS00001-00323 170-8238 145 DEC98
2300RPM TEL FIELD UPRATE ONLY
For use with 138-3200 or 0R-7176 Turbo Group

600 HP 2050PT 2100 RPM BRAKESAVER 5DS00001-00323 170-8231 97 DEC98
For use with 138-3200 or 0R-7176 Turbo Group

600 HP 2050PT 2100 RPM BRAKESAVER 5DS00324 & UP 170-8233 161 DEC98
For use with 159-8542 or 0R-7275 Turbo Group

600 HP 2050PT 2100 RPM BRAKESAVER 5DS00001-00323 170-8239 146 DEC98
2300RPM TEL FIELD UPRATE ONLY
For use with 138-3200 or 0R-7176 Turbo Group

600 HP 2050PT 2100 RPM 5DS00324 & UP 170-8240 170 DEC98
2300RPM TEL FIELD UPRATE ONLY
For use with 159-8542 or 0R-7275 Turbo Group

600 HP 2050PT 2100 RPM BRAKESAVER 5DS00324 & UP 177-0097 171 DEC98
2300RPM TEL FIELD UPRATE ONLY
For use with 159-8542 or 0R-7275 Turbo Group
****
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14 LITER Lo-HP 2WS ENGINE RATING INFORMATION	SERIAL NO. RANGE	FLASH FILE	IC	RELEASE DATE
355HP 1350PT 1800/2100RPM	2WS00001 & UP	215-7824	14	MAR02
355HP MT 1350/1450PT 1800 RPM 1350/1450PT 2100 RPM	2WS00001 & UP	215-7825	15	MAR02
375HP 1450PT 1800/2100RPM	2WS00001 & UP	215-7826	16	MAR02
375/435HP MT 1450/1550PT 1800PRM 1450/1650PT 1800 RPM	2WS00001 & UP	215-7828	9	MAR02
375HP MT 1450/1550PT 1800RPM 1450/1550PT 2100RPM	2WS00001 & UP	215-7826	17	MAR02
375/435HP 1450/1550PT 1800 RPM TOP 2 GEAR MULTITORQUE	2WS00001 & UP	215-7829	19	MAR02
375/435HP 1450/1650PT 1800 RPM TOP 1 GEAR MULTITORQUE	2WS00001 & UP	215-7830	20	MAR02

14 LITER Hi-HP 2WS ENGINE RATING INFORMATION	SERIAL NO. RANGE	FLASH FILE	IC	RELEASE DATE
410HP 1450/1550PT 1800/2100RPM FIELD UPRATE ONLY	2WS00001 & UP	215-7831	21	MAR02
450HP 1550/1650PT 2100RPM FIELD UPRATE ONLY	2WS00001 & UP	215-7834	22	MAR02
435HP 1550/1650PT 1800/2100RPM	2WS00001 & UP	215-7832	23	MAR02
435HP 1550/1650PT 1800/2100RPM BRAKESAVER	2WS00001 & UP	215-7833	24	MAR02
435/500HP 1550/1650 2100RPM MULTITORQUE	2WS00001 & UP	215-7846	61	MAR02
455HP 1550PT 2100RPM OR 1650PT 1800/2100RPM	2WS00001 & UP	215-7835	25	MAR02
455HP 1550PT 2100RPM OR 1650PT 1800/2100RPM BRAKESAVER	2WS00001 & UP	215-7836	26	MAR02
455HP MT 1550/1750PT 2100 RPM	2WS00001 & UP	215-7837	27	MAR02
455HP MT 1550/1750PT 2100 RPM BRAKESAVER	2WS00001 & UP	215-7838	28	MAR02
475HP 1650/1750PT 1800/2100RPM REPLACED 251-2224	2WS00001 & UP	270-7080	2	APR05
475HP 1650/1750PT 1800/2100RPM BRAKESAVER REPLACED 251-2223	2WS00001 & UP	270-7079	30	APR05
475/500HP 1650/1850PT 2100 RPM TOP 2 GEAR MULTITORQUE	2WS00001 & UP	215-7841	31	MAR02
475/500HP 1650/1850PT 2100 RPM TOP 2 GEAR MULTITORQUE BRAKESAVER	2WS00001 & UP	215-7842	32	MAR02
475/500HP 1650/1750PT 2100 RPM TOP 2 GEAR MULTITORQUE	2WS00001 & UP	215-7843	33	MAR02
475/500HP 1650/1750PT 2100 RPM TOP 2 GEAR MULTITORQUE BRAKESAVER	2WS00001 & UP	215-7844	34	MAR02
500HP 1650PT 2100RPM, 500HP FLEET 1750PT 2100RPM or 435/500HP 1550/1650 OIL WELL SERVICE	2WS00001 & UP	215-7845	35	MAR02
500HP 1650PT 2100RPM BRAKESAVER OR 500HP FLEET 1750PT 2100RPM BRAKESAVER	2WS00001 & UP	215-7848	36	MAR02
500HP 1850PT 1800/2100RPM 2300RPM TEL FIELD UPRATE ONLY	2WS00001 & UP	215-7852	37	MAR02
500HP 1750/1850PT 2100 RPM TOP 2 GEAR MULTITORQUE	2WS00001 & UP	215-7850	39	MAR02
500HP 1750/1850PT 2100 RPM	2WS00001 & UP	215-7851	40	MAR02

TOP 2 GEAR MULTITORQUE BRAKESAVER

500HP 1850PT 1800/2100RPM	2WS00001 & UP	215-7847	59	MAR02
500HP 1850PT 1800/2100RPM BRAKESAVER	2WS00001 & UP	215-7849	60	MAR02
500HP 1850PT 1800/2100RPM BRAKESAVER 2300RPM TEL FIELD UPRATE ONLY	2WS00001 & UP	215-7853	38	MAR02
550HP 1850PT 2100RPM REPLACED 251-2229	2WS00001 & UP	270-7085	41	APR05
550HP 1850PT 2100RPM BRAKESAVER REPLACED 251-2230	2WS00001 & UP	270-7086	42	APR05
550HP 1850PT 2100RPM 2300RPM TEL FIELD UPRATE ONLY REPLACED 251-2225	2WS00001 & UP	270-7081	43	APR05
550HP 1850PT 2100RPM BRAKESAVER 2300RPM TEL FIELD UPRATE ONLY REPLACED 251-2226	2WS00001 & UP	270-7082	44	APR05

16 LITER 1MM ENGINE RATING INFORMATION	SERIAL NO. RANGE	FLASH FILE	IC	RELEASE DATE
575HP 1850PT 2100RPM	1MM00001 & UP	215-7858	45	MAR02
575HP 1850PT 2100RPM BRAKESAVER	1MM00001 & UP	215-7859	46	MAR02
575HP 1850PT 2100RPM 2300RPM TEL FIELD UPRATE ONLY	1MM00001 & UP	215-7861	47	MAR02
575HP 1850PT 2100RPM BRAKESAVER 2300RPM TEL FIELD UPRATE ONLY	1MM00001 & UP	215-7860	48	MAR02
575/600HP MT 1850/2050PT 2100RPM	1MM00001 & UP	215-7862	49	MAR02
575/600HP MT 1850/2050PT 2100RPM BRAKESAVER	1MM00001 & UP	215-7863	50	MAR02
600HP 2050PT 2100RPM REPLACED 215-7864,237-0693, 241-0808,251-2227	1MM00001 & UP	270-7083	4	APR05
600HP 2050PT 2100RPM BRAKESAVER REPLACED 215-7865,237-0694, 241-0809,251-2228	1MM00001 & UP	270-7084	52	APR05
600HP 2050PT 2100RPM 2300RPM TEL FIELD UPRATE ONLY REPLACED 215-7866,237-0697,241-0812,251-2231	1MM00001 & UP	270-7087	53	APR05
600HP 2050PT 2100RPM BRAKESAVER 2300RPM TEL FIELD UPRATE ONLY REPLACED 215-7867,237-0698, 241-0813,251-2232	1MM00001 & UP	270-7088	54	APR05

Heavy-Duty Ratings for October 2002-up Engines

The boxes shown below indicate unique ratings families.
Ratings within these boxes share common iron sets and
can be rerated to another rating within the same box.
Ratings changes are only allowed within a particular box.
All ratings are subject to change without notice.

Adv HP	Max. HP	Peak Torque	Gov Speed	
*C-10 (10.3L MBJ)				
*305	315	1050	2100	
*335	350	1250	2100	
*C-12 (11.9L MBL)				
*****				
*355	370	1350	2100	
*380	395	1450	2100	
*410	425	1450	2100	
*355/410	415	1350/1450	2100	
*335	420	1550	2100	
*410	425	1550	2100	
*430	445	1550	2100	
*380/430	445	1450/1550	2100	
*430	445	1650	2100	
*380/430	445	1450/1650	2100	
*425	425	1550	2100 Firetruck/RV only*	
*455	455	1550	2100 Firetruck/RV only*	
*505	505	1550	2100	RV only *
*C-15 (14.6L MBN)				
*****				
*435	450	1550	2100 Brakesaver avail. *	
*435	450	1650	2100 Brakesaver avail. *	
*475	490	1650	2100 Brakesaver avail. *	
*500	515	1650	2100 Field rerate only *	
*435/500	515	1550/1650	2100	*
*435/500	515	1550/1650	2100 Oil well service *	
*475	490	1750	2100 Brakesaver avail. *	
*500	515	1850	2100 Brakesaver avail. *	
*525	525	1850	2100 Brakesaver avail. *	
*450/515	515	1550/1650	2100	RV only *
* C-18 (MDP / MEP)				
******				
*625	2049	1900		
*700	1900	1900		

The 1500 lb.ft. low torque C-15 has been removed from our lineup. Also, the C-15 515hp (RV only) rating has been changed to a MultiTorque. As stated on the top of the chart, ratings changes are only allowed within a particular box. All ratings are subject to change without notice.

FLASHFILES

C-10 HORSEPOWER	TORQUE	GOV SPEED	SERIAL NO. RANGE	FLASH FILE	P/M CODE	RELEASE DATE
305 HP	1050 LB-FT	2100 RPM	MBJ00001-UP	242-8336	220	AUG03
Replaced 228-8022, 235-1371 (old code 210)						
335 HP	1250 LB-FT	2100 RPM	MBJ00001-UP	272-6461	221	MAR05
Replaced 228-8023,235-1372, 242-8337 (old code 211)						
335 HP	1250 LB-FT	2100 RPM	MBJ00001-UP	242-8338	225	AUG03
Replaced 228-8024, 235-1373 Haliburton IAS (old code 215)						
C-12 MBL00001-00999 Parts Service Only						
355 HP	1350 LB-FT	2100 RPM	MBL1-00999	239-5968	241	Jun03
REFERENCE 224-3448 IC 201						
Replaced 232-3985						
355/410 HP	1350/1450 LB-FT	2100 RPM	MBL1-00999	239-5967	244	Jun03
MULTITORQUE REFERENCE 224-3449 IC 204						
Replaced 232-3986						
380 HP	1450 LB-FT	2100 RPM	MBL1-00999	239-5966	242	Jun03
REFERENCE 224-3450 IC 202						
Replaced 232-3987						
410 HP	1450 LB-FT	2100 RPM	MBL1-00999	239-5964	246	Jun03
REFERENCE 224-3452 IC 206						
Replaced 232-3989						
335 HP	1550 LB-FT	2100 RPM	MBL1-00999	239-5969	240	Jun03
REFERENCE 224-3447 IC 200						
Replaced 232-3984						
380/430 HP	1450/1550 LB-FT 1450/1650 LB-FT	2100 RPM	MBL1-00999	239-5965	248	Jun03
MULTITORQUE REFERENCE 224-3451 IC 208						
Replaced 232-3988						
410 HP	1550 LB-FT	2100 RPM	MBL1-00999	239-5963	247	Jun03
REFERENCE 224-5869 IC 207						
Replaced 232-3990						
430 HP	1550/1650 LB-FT	2100 RPM	MBL1-00999	239-5962	249	Jun03
REFERENCE 216-5006 & 224-3453 IC 209						
Replaced 232-3991						
C-12 MBL01000-up						

****

355 HP 1350 LB-FT 2100 RPM MBL01000-UP 236-8686 221 May03
REPLACED 228-8027, 231-9235,235-1375

355/410 HP 1350/1450 LB-FT 2100 RPM MBL01000-UP 236-8687 224 May03
MULTITORQUE REPLACED 228-8028, 231-9236, 235-1377

380 HP 1450 LB-FT 2100 RPM MBL01000-UP 241-8404 222 Jul03
REPLACED 228-8029, 231-9237, 235-1738, 236-8688

410 HP 1450 LB-FT 2100 RPM MBL01000-UP 241-8403 226 Jul03
REPLACED 228-8031,231-9240,235-1381,236-8691
****
335 HP 1550 LB-FT 2100 RPM MBL01000-UP 272-6464 220 MAR05
REPLACED 228-8026,231-9234,
235-1374,236-8685

380/430 HP 1450/1550 LB-FT 2100 RPM MBL01000-UP 272-6465 235 MAR05
MULTITORQUE
REPLACED 228-8059,231-9238,
235-1379,236-8689

410 HP 1550 LB-FT 2100 RPM MBL01000-UP 272-6467 227 MAR05
REPLACED 228-8032,231-9241,
235-1382,236-8692

410 HP 1550 LB-FT 2100 RPM MBL01000-UP 272-6468 233 MAR05
Haliburton
REPLACED 228-8033,231-9242,
235-1383,236-8693

430 HP 1550 LB-FT 2100 RPM MBL01000-UP 272-6470 237 MAR05
REPLACED 228-8035,231-9244,
235-1385,236-8695
****
380/430 HP 1450/1650 LB-FT 2100 RPM MBL01000-UP 272-6466 236 MAR05
MULTITORQUE
REPLACED 228-8030,231-9239,
235-1380,236-8690

430 HP 1650 LB-FT 2100 RPM MBL01000-UP 272-6471 238 MAR05
REPLACED 229-1634,231-9245,
235-1386,236-8696

430 HP 1650 LB-FT 2100 RPM MBL01000-UP 272-6472 232 MAR05
Haliburton IAS
REPLACED 228-8036,231-9246,
235-1387,236-8697
****
425 HP 1550 LB-FT 2100 RPM MBL01000-UP 272-6469 234 MAR05
Firetruck & RV only
REPLACED 228-8034,231-9243,
235-1384,236-8694

455 HP 1550 LB-FT 2100 RPM MBL01000-UP 272-6473 260 MAR05
Firetrk/RV only (old code 230)
REPLACED 228-8037,231-9247,235-1380,
236-8698,242-8339
****
505 HP 1550 LB-FT 2100 RPM MBL01000-UP 272-6474 261 MAR05

RV only (old code 231)
REPLACED 228-8038,231-9248,
235-1389,236-8699,242-8340
****
450/515 HP 1550/1650 LB-FT 2100 RPM MBL00001-UP 272-6613 210 MAR05
MULTITORQUE/RV ONLY
REPLACED 228-8058,231-9253,
234-7584,236-8704

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C-15
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435 HP 1550/1650 LB-FT 2100 RPM MBN00001-UP 272-6609 206 MAR05
REPLACED 228-8040,231-9249,
234-7580,236-8700

435 HP 1550/1650 LB-FT 2100 RPM MBN00001-UP 272-6610 207 MAR05
BRAKESAVER
REPLACED 228-8041,231-9250,
234-7581,236-8701

435/500 HP 1550/1650 LB-FT 2100 RPM MBN00001-UP 272-6611 208 MAR05
MULTITORQUE
REPLACED 228-8042,231-9251,
234-7582,236-8702

435/500 HP 1550/1650 LB-FT 2100 RPM MBN00001-UP 272-6612 220 MAR05
MULTITORQUE/ (OWS) OIL WELL SERVICE
REPLACED 228-8043,231-9252,
234-7583,236-8703

475 HP 1650 LB-FT 2100 RPM MBN00001-UP 272-6614 212 MAR05
REPLACED 228-8044,231-9254,
234-7585,236-8705,251-3753

475 HP 1650 LB-FT 2100 RPM MBN00001-UP 272-6615 214 MAR05
BRAKESAVER
REPLACED 228-8045,231-9255,
234-7586,236-8706

500 HP 1650 LB-FT 2100/2300 RPM MBN00001-UP 272-6618 221 MAR05
FIELD UPRATE
REPLACED 228-8049,231-9258,
234-7589,236-8709
****
475 HP 1750 LB-FT 2100 RPM MBN00001-UP 272-6616 213 MAR05
REPLACED 228-8046,231-9256,
234-7587,236-8707

475 HP 1750 LB-FT 2100 RPM MBN00001-UP 272-6617 215 MAR05
BRAKESAVER
REPLACED 228-8047,231-9257,
234-7588,236-8708

500 HP 1850 LB-FT 2100 RPM MBN00001-UP 272-6619 226 MAR05
REPLACED 228-8050,231-9259,
234-7590,236-8710

500 HP 1850 LB-FT 2100 RPM MBN00001-UP 272-6620 227 MAR05

BRAKESAVER
REPLACED 228-8051,231-9260,
234-7591,236-8711

525 HP 1850 LB-FT 2100 RPM MBN00001-UP 272-6621 228 MAR05
REPLACED 228-8055,231-9261,
234-7592,236-8712

525 HP 1850 LB-FT 2100 RPM MBN00001-UP 272-6622 230 MAR05
BRAKESAVER
REPLACED 228-8056,231-9262,
234-7593,236-8713

525 HP 1850 LB-FT 2100/2300 RPM MBN00001-UP 272-6623 231 MAR05
FIELD UPRATE
REPLACED 228-8052,231-9263,
234-7594,236-8714

525 HP 1850 LB-FT 2100/2300 RPM MBN00001-UP 272-6624 232 MAR05
BRAKESAVER FIELD UPRATE
REPLACED 228-8053,231-9264
234-7595,236-8715
525 HP 1771 LB-FT 2100 RPM MBN00001-UP 268-0221 164 APR05
SNOWBLOWER
REPLACED 251-1628
****
C-18
****
625 HP 2049 LB-FT 1900 RPM MDP0001-up MEP0001-UP 268-0224 3 APR05
EURO3
REPLACED 184-8094,231-7596,232-2646,
235-6400,241-0814,251-1625

700 HP 1900 LB-FT 2100 RPM MDP0001-up MEP0001-UP 241-0817 1 JUN03
(UK HETT)
REPLACED 227-5521,232-2647,238-2680,239-4147

700 HP 1900 LB-FT 2100 RPM MDP0001-up MEP0001-UP 232-2648 1 NOV02
(Charmichael)
REPLACED 227-5522

700 HP 2000 RPM HWT-533KW CPD ACERT 318-7276 5 AUG07
UK COMMERCIAL DEFENSE PRODUCT-COLD TEST RATING
REPLACED 289-9686
****
European On Highway Truck
****
C-12
****
325 HP 1250 LB-FT 1900 RPM CPD00276-UP 267-5139 42 DEC04
EURO3
REPLACED 224-7278

380 HP 1400 LB-FT 1900 RPM CPD00276-UP 267-5140 43 DEC04
EURO3
REPLACED 224-7279

380/430 HP 1400/1550 LB-FT 1900 RPM CPD00276-UP 267-5141 44 DEC04
EURO3 M/T
REPLACED 224-7280

430 HP 1550 LB-FT 1900 RPM CPD00276-UP 267-5142 45 DEC04
EURO3
REPLACED 224-7281
****
C-16
****
680 HP 1951 LB-FT 2100 RPM 267-5143 162 JAN05
ARFF
REPLACED 251-1626

650 HP 1951 LB-FT 2100 RPM 297-8779 163 JUL06
SNOWBLOWER
REPLACED 251-1629,268-0223

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C11/C13/C15 ACERT Flash File Cross Reference
Updated January 27, 2009 dba
On-Highway Truck Engines

NOTE: C11, C13,and C15 files are serial number range specific

FLASHFILES

C11 HORSEPOWER	TORQUE	GOV SPEED	SERIAL NO. RANGE	FLASH FILE	P/M CODE	RELEASE DATE
305 HP	1050 LB-FT	2100 RPM	KCA1-1456	291-2050	20	MAR06
Replaced 256-6457,264-6355,270-0317						
305 HP	1050 LB-FT	2100 RPM	KCA1457-up	305-4391	30	NOV06
RFT Injectors						
Replaced 256-5727,262-4382,265-9436, 270-0294,271-2914,291-2016						
335 HP	1250 LB-FT	2100 RPM	KCA1-01456	291-2051	21	MAR06
Replaced 256-6458,264-6356,270-0318						
335 HP	1250 LB-FT	2100 RPM	KCA1457-up	305-4392	31	NOV06
RFT Injectors						
Replaced 256-5728,262-4383,270-0295, 271-2915,291-2017						
335 HP	1250 LB-FT	2100 RPM	KCA1-01456	291-2052	24	MAR06
Inlet Air Shutoff						
Replaced 256-6461,264-6357,270-0319						
335 HP	1250 LB-FT	2100 RPM	KCA1457-up	305-4393	34	NOV06
Inlet Air Shutoff						
Replaced 256-5731,262-4384,265-9438, 270-0296,271-2916,291-2018						
350 HP	1350 LB-FT	2100 RPM	KCA1-01456	291-2053	22	MAR06
Replaced 229-4911,249-7596, 251-3555,256-6459,264-6358,270-0321						
350 HP	1350 LB-FT	2100 RPM	KCA1457-up	305-4394	32	NOV06
RFT Injectors						
Replaced 256-5729,262-4385,265-9439, 270-0297,271-2917,291-2019						
350 HP	1350 LB-FT	2100 RPM	KCA1457-up	305-4395	35	NOV06

Inlet Air Shutoff
Replaced 253-9429,262-4386
265-9440,270-0298,271-2918,291-2020

350HP 1450 lb-ft 2100 RPM KCA1-01456 294-4818 26 MAY06
Replaced 256-6462,264-6359,270-0322,
291-2054

350HP 1450 lb-ft 2100 RPM KCA1457-up 305-4396 36 NOV06
RFT Injectors
Replaced 262-4387,265-9441,270-0299,
271-2919,291-2021

370 HP 1350 LB-FT 2100 RPM KCA1-01456 291-2055 23 MAR06
Replaced 247-1273,249-7597,
251-3556,256-6460,264-6360,270-0323

370 HP 1350 LB-FT 2100 RPM KCA1457-up 305-4397 33 NOV06
RFT Injectors
Replaced 256-5730,262-4388,265-9442,
270-0300,271-2920,291-2022

370HP 1450 lb-ft 2100 RPM KCA1457-up 305-4398 37 NOV06
RFT Injectors
Replaced 262-4389,270-0301,271-2921,
291-2023

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C13 HORSEPOWER	TORQUE	GOV SPEED	SERIAL NO. RANGE	FLASH FILE	P/M CODE	RELEASE DATE
335 HP	1550 LB-FT	2100 RPM	KCB00508-6811	291-2056	37	MAR06

With factory installed 239-4908 injectors
Replaced 251-4585,256-5323,264-6684

380 HP 1450 LB-FT 2100 RPM KCB00508-5433* 291-2058 31 MAR06
With factory installed 239-4908 injectors
Replaced 251-4580,256-5324,264-6686,
271-2867

380 HP 1400 LB-FT 2100 RPM KCB00508-6811 291-2057 38 MAR06
With factory installed 239-4908 injectors
Replaced 251-4586,264-6685

410 HP 1450 LB-FT 2100 RPM KCB00508-6811 291-2059 32 MAR06
With factory installed 239-4908 injectors
Replaced 251-4581,256-5325,264-6687,
271-2868

410 HP 1450/1550LB-FT M/T 2100 RPM KCB00508-6811 291-2060 46 MAR06
Oil Well Service (OWS)
With factory installed 239-4908 injectors
Replaced 251-4594,264-6688

410 HP 1450/1650LB-FT M/T 2100 RPM KCB00508-6811 291-2061 43 MAR06
With factory installed 239-4908 injectors
Gear Fast/Run Slow (For Eaton Top 2)
Replaced 251-4591,264-6689

410 HP 1450/1650LB-FT M/T 2100 RPM KCB00508-6811 291-2062 44 MAR06
With factory installed 239-4908 injectors

Replaced 251-4592,264-6690

410 HP 1550 LB-FT 2100 RPM KCB00508-6811 291-2063 39 MAR06
With factory installed 239-4908 injectors
Replaced 251-4587,264-6691

410 HP 1550 LB-FT IAS 2100 RPM KCB00508-6811 291-2069 40 MAR06
With factory installed 239-4908 injectors
Inlet Air Shutoff
Replaced 251-4588,264-6692

430 HP 1550 LB-FT 2100 RPM KCB00508-5433* 291-2065 41 MAR06
With factory installed 239-4908 injectors
Replaced 251-4589,264-6693

430 HP 1550 LB-FT 2100 RPM KCB00508-5433* 291-2069 42 MAR06
With factory installed 239-4908 injectors
Inlet Air Shutoff
Replaced 251-4590,264-6697

430 HP 1550/1750LB-FT M/T 2100 RPM KCB00508-5433* 291-2067 45 MAR06
With factory installed 239-4908 injectors
Replaced 245-5999,249-7599,251-4593,264-6695

430 HP 1650 LB-FT 2100 RPM KCB00508-5433* 291-2068 34 MAR06
With factory installed 239-4908 injectors
Replaced 248-0777,249-7609,251-4582,264-6696

430 HP 1550/1750LB-FT MT 2100 RPM KCB00508-5433* 291-2066 35 MAR06
With factory installed 239-4908 injectors
Gear Fast/Run Slow (Eaton 2)
Replaced 248-0776,249-7608,251-4583,264-6694

470 HP 1650 LB-FT 2100 RPM KCB00508-6811 264-6698 47 OCT04
With factory installed 239-4908 injectors
RV RATING
Replaced 245-6000,251-4596

470 HP 1650 LB-FT 2100 RPM KCB6812-UP 262-4539 85 AUG04
RV RATING
With factory installed 249-0708 injectors
Replaced 251-5700,258-7365

525 HP 1650 LB-FT 2100 RPM KCB00508-2076 249-7606 36 DEC03
RV RATING
With factory installed 244-7695 injectors

525 HP 1650 LB-FT 2100 RPM KCB02077-6862 291-2072 51 MAR06
RV RATING
With factory installed 246-7697 injectors
Replaced 244-7695,256-5321,264-6700

525 HP 1650 LB-FT 2100 RPM KCB06863-UP 291-2076 87 MAR06
RV RATING
With factory installed 249-0697 injectors
Replaced 256-5319,264-6702

525 HP 1650 LB-FT 2100 RPM KCB6812-UP 318-9503 96 AUG07
RV RATING
(Only compatible with 259-8418 or 10R2878 turbo installed)

Replaced 262-4542,265-9579,272-3131,
285-3673,291-2048,307-1471

470/455HP 1650/1550LB-FT MT 2100 RPM KCB00508-6811 291-2071 48 MAR06
With factory installed 239-4908 injectors
FT RATING
Replaced 245-0208,251-4597,264-6699

470/455HP 1650/1550LB-FT M/T 2100 RPM KCB6812-UP 262-4540 86 AUG04
FT RATING
With factory installed 249-0708 injectors
Replaced 251-5702

525/455 HP 1650/1550 LB-FT 2100 RPM KCB00508-6862 249-7607 49 DEC03
FT RATING
With factory installed 223-7478, 246-7842 injectors
Replaced 242-8335,245-0210

525/455 HP 1650/1550 LB-FT 2100 RPM KCB00508-6862 291-2073 52 MAR06
FT RATING
With factory installed 246-7843 injectors
Replaced 249-0120,251-4595,
256-5322,264-6701

525/455 HP 1650 LB-FT 2100 RPM KCB00508-6862 291-2077 88 MAR06
FT RATING
With factory installed 249-0697 injectors
Replaced 256-5320,264-6703

525/455 HP 1650/1550 LB-FT 2100 RPM MT KCB6812- UP 318-9504 97 AUG07
FT RATING
(Only compatible with 259-8418 or 10R2878 turbo installed)
Replaced 259-8899,262-4543,265-9580,
272-3132,291-2049,303-8748,307-1472
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335 HP 1550 LB-FT 2100 RPM KCB5434-UP 346-8821 75 Apr09
Replaced 258-7345,262-4518,265-9556,
272-3110,291-2024,295-1515,303-8722,307-1446,318-9476
335-7791,341-1475

380 HP 1400 LB-FT 2100 RPM KCB5434-UP 335-7792 76 AUG08
Replaced 258-7346,262-4519,265-9557,
272-3111,291-2025,295-1516,303-8723,307-1447,318-9477

380 HP 1450 LB-FT 2100 RPM KCB5434-UP 335-7793 71 AUG08
With factory installed 249-0708 injectors
Replaced 258-7347,262-4520,265-9558,
271-2865,272-3112,291-2026,295-1517,
303-8724,307-1448318-9478

380 HP 1450 LB-FT 2100 RPM KCB5434-UP 335-7794 90 AUG08
Inlet Air Shutoff
Replaced 258-7348,262-4521,265-9559,272-3113,
291-2027,295-1518,303-8725,307-1449,318-9479

410 HP 1450 LB-FT 2100 RPM KCB5434-UP 346-8822 72 Apr09
Replaced 258-7349,262-4522,265-9560,
271-2866,272-3114,291-2028,295-1519,
303-8726,307-1450,318-9480,3357795,341-1479

410 HP 1450/1650LB-FT 2100 RPM KCB5434-UP 346-8825 81 Apr09

Gear Fast/Run Slow (For Eaton Top 2)
Replaced 258-7350,262-4523,265-9562,272-3116,
291-2029,295-1554,303-8727,307-1451,318-9481,
335-7796,341-1480

410 HP 1450/1650LB-FT M/T 2100 RPM KCB5434-UP 346-8826 82 Apr09
Replaced 258-7351,262-4525,265-9563,272-3117,
291-2030,295-1522,303-8729,307-1453,318-9483
335-7798,341-1482

410 HP 1450/1550LB-FT M/T 2100 RPM KCB5434-UP 346-8824 84 Apr09
Oil Well Service file (OWS)
Replaced 258-7352,262-4526,265-9564,272-3118,
291-2031,295-1523,303-8730,307-1454,318-9484,
335-7799,341-1483

410 HP 1450/1550LB-FT M/T 2100 RPM KCB5434-UP 346-8823 98 Apr09
Replaced 262-4524,265-9561,
272-3115,291-2074,295-1521,302-5726,
303-8728,307-1452,318-9482,335-7797,341-1148

410 HP 1550 LB-FT 2100 RPM KCB5434-UP 346-8827 77 Apr09
Replaced 251-5692,258-7353
262-4527,265-9565,272-3119,
291-2032,295-1524,303-8731,307-1455,318-9485,
335-7800,341-1484

410 HP 1550 LB-FT 2100 RPM KCB5434-UP 346-8828 78 Apr09
Inlet Air Shutoff
Replaced 258-7354
262-4528,265-9566,272-3120,291-2033,
295-1525,303-8732,307-1456,318-9486,
335-7801,341-1485

430 HP 1650 LB-FT 2100 RPM KCB5434-UP 346-8833 73 Apr09
With factory installed 249-0708 injectors
Replaced 258-7359,262-4533,265-9571,
272-3125,291-2038,295-1530,303-8737,307-1461,318-9491,
335-7807, 341-1490

430 HP 1550/1750LB-FT 2100 RPM KCB5434-UP 346-8831 74 Apr09
With factory installed 249-0708 injectors
(Eaton GFRS)
Replaced 258-7357,262-4531,265-9569,272-3123,
291-2036,295-1528,303-8735,307-1459,318-9489
335-7805,341-1488

430 HP 1550 LB-FT 2100 RPM KCB5434-UP 346-8829 79 Apr09
With factory installed 249-0708 injectors
Replaced 258-7355,262-4529,265-9567,
271-4488,272-3121,291-2034,295-1526,
303-8733,307-1457,318-9487,335-7802,
341-1486

430 HP 1550 LB-FT 2100 RPM KCB5434-UP 346-8830 89 Apr09
Inlet Air Shutoff RFT Injectors
Replaced 258-7356,262-4530,265-9568,272-3122,
291-2035,295-1527,303-8734,307-1458,318-9488,
335-7804,341-1487

430 HP 1650 LB-FT IAS 2100 RPM KCB5434-UP 346-8834 80 Apr09

Inlet Air Shutoff
With factory installed 249-0708 injectors
Replaced 258-7360,262-4534,265-9572,
272-3126,291-2039,295-1531,303-8738,307-1462,318-9492,
335-7808,341-1491

430 HP 1550/1750LB-FT MT 2100 RPM KCB5434-UP 346-8832 83 Apr09
With factory installed 249-0708 injectors
Replaced 258-7358,262-4532,265-9570,
272-3124,291-2037,295-1529,303-8736,307-1460,318-9490,
335-7806,341-1489

455/485HP 1550/1650LB-FT 2100 RPM KCB5434-UP 345-2372 70 May09
M/T Fire Truck
Replaced 265-3168,265-9578,272-3130,
291-2043,295-1535,303-8742,307-1466,318-9496,335-7812,
341-1495

470 HP 1550 LB-FT 2100 RPM KCB5434-UP 346-8835 91 Apr09
Replaced 254-1626,258-7361
262-4535,265-9573,272-3127,
291-2040,295-1532,303-8739,307-1463,318-9493,
335-7809,341-1492

470 HP 1650LB-FT 2100 RPM KCB5434-UP 346-8837 94 Apr09
Replaced 262-4538,265-9575,272-3129,
291-2042,295-1534,303-8741,307-1465,318-9495,
335-7811,341-1494

470 HP 1550/1650LB-FT M/T 2100 RPM KCB5434-UP 346-8836 99 Apr09
Replaced 262-9713,265-9574,272-3128,
291-2041,295-1533,303-8740,307-1464,318-9494,
335-7810,341-1493

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C13 HORSEPOWER	TORQUE	GOV SPEED	SERIAL NO. RANGE	FLASH FILE	P/M CODE	RELEASE DATE

EURO Rating for use in Europe only - not for North America use

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380 HP 2100 RPM MT-283 KW-EURO3 335-7813 66 AUG08
Replaced 273-8798,291-2044,
295-1536,303-8743,307-1467,318-9497

430 HP 2100 RPM MT-321 KW-EURO3 335-7814 67 AUG08
Replaced 273-8799,291-2045,
295-1537,303-8744,307-1468,318-9498

470 HP 2100 RPM MT-350 KW-EURO3 335-7815 68 AUG08
Replaced 273-8800,291-2046,
295-1538,303-8745,307-1469,318-9499

500 HP 2100 RPM MT-373 KW-EURO3 291-2047 69 MAR06
Replaced N/A

380 HP 2100 RPM 283 KW-EURO3 AISO 335-7816 202 AUG08
Replaced 308-3512,318-9500

430 HP 2100 RPM 321 KW-EURO3 AISO 335-7817 203 AUG08
Replaced 308-3514,318-9501

470 HP 2100 RPM 350 KW-EURO3 AISO 335-7818 204 AUG08
Replaced 308-3516,318-9502

C13 HORSEPOWER	TORQUE	GOV SPEED	FILE	FLASH CODE	P/M DATE	RELEASE
2007 EMISSIONS EURO4 TRUCK						
380 HP@2100/2300 RPM EURO4 Replaced 295-6886,319-4910		S3C00001-UP	330-2021	35/135	JUN08	
430 HP@2100/2300 RPM EURO4 Replaced 295-6887,319-4911		SC300001-UP	330-2022	36/136	JUN08	
470 HP@2100/2300 RPM EURO4 Replaced 295-6888,319-4912		SC300001-UP	330-2023	37/137	JUN08	

C13 HORSEPOWER	TORQUE	GOV SPEED	FILE	FLASH CODE	P/M DATE	RELEASE
2007 EMISSIONS ADEM A4 ECM ON HD ACERT HIGHWAY TRUCK						
305 HP Replaced 311-6968,312-1397,314-3431, 316-1760,318-7028,320-0292,326-3606, 327-4486,333-5970,337-7326,343-5712, 348-4710	1150 LB-FT	2100/2300 RPM	LEE00001-UP	365-1126	40/140	Nov10
335 HP Replaced 311-6987,312-1398,314-3432, 316-1769	1250 LB-FT	2100/2300 RPM	LEE00001-UP	318-7029	41	SEP07
335 HP Replaced 314-3433,316-1762,318-7030, 320-0294,326-3607,327-4487,333-5971, 337-7327,343-5713,348-4711	1250 LB-FT	2100/2300 RPM	LEE00001-UP	365-1127	42/142	Nov10
350 HP Replaced 311-6989,312-1400,314-3434, 316-1763,318-7031,320-0295,326-3608, 327-4488,333-5972,337-7328,343-5714, 348-4712	1350 LB-FT	2100/2300 RPM	LEE00001-UP	365-1128	43/143	Nov10
350 HP Replaced 311-6990,312-1401,314-3435, 316-1764,318-7032,320-0296,326-3609, 327-4489,333-5973,337-7329,343-5715, 348-4713	1450 LB-FT	2100/2300 RPM	LEE00001-UP	365-1129	45/145	Nov10
350 HP Oil Well Service Replaced 314-3436,316-1765,318-7033, 320-0297,326-3610,327-4490,333-5974, 337-7330,343-5716,348-4714	1450 LB-FT	2100/2300 RPM	LEE00001-UP	365-1130	46/146	Nov10
350 HP Replaced 311-6992,312-1403,314-3437, 316-1766,318-7034,320-0298,326-3611, 327-4491,333-5975,337-7331,343-5717, 348-4715	1550 LB-FT	2100/2300 RPM	LEE00001-UP	365-1131	47/147	Nov10
370 HP Replaced 311-6993,312-1404,314-3438,	1350 LB-FT	2100/2300 RPM	LEE00001-UP	365-1132	48/148	Nov10

316-1767,318-7035,320-0299,326-3612,
327-4492,333-5976,337-7332,343-5718,
348-4716

370 HP 1450 LB-FT 2100/2300 RPM LEE00001-UP 365-1133 49/149 Nov10
Replaced 311-6994,312-1405,314-3439,
316-1768,318-7036,320-0300,326-3613,
327-4493,333-5977,337-7333,343-5719,
348-4717

380 HP 1450 LB-FT 2100/2300 RPM LEE00001-UP 365-1135 67/167 Nov10
Supports Optional Pre-cooler
Replaced 314-3441,316-1770,318-7038,
320-0302,326-3615,327-4495,333-5979,
337-7335,343-5721,348-4719

380 HP 1450 LB-FT 2100/2300 RPM LEE00001-UP 365-1136 52/152 Nov10
Replaced 311-6996,312-1407,314-3442,
316-1771,318-7039,320-0303,326-3616,
327-4496,333-5980,337-7336,343-5722,
348-4720

410 HP 1450 LB-FT 2100/2300 RPM LEE00001-UP 365-1137 68/168 Nov10
Supports Optional Pre-cooler
Replaced 314-3443,316-1772,318-7040,
320-0304,326-3617,327-4497,333-5981,
337-7337,343-5723,348-4721

410 HP 1550 LB-FT 2100/2300 RPM LEE00001-UP 337-7334 50/150 Nov10
Replaced 311-6995,312-1406,314-3440,
316-1769,318-7037,320-0301,326-3614,
327-4494,333-5978,337-7334,

410 HP 1450 LB-FT 2100/2300 RPM LEE00001-UP 365-1138 53/153 Nov10
Replaced 311-6997,312-1408,314-3444,
316-1733,318-7041,320-0305,326-3618,
327-4498,333-5982,337-7338,343-5724,
348-4722

410HP 1450/1550 LB-FT 2100/2300 RPM LEE00001-UP 365-1139 69/169 Nov10
Supports Optional Pre-cooler
Multi-torque
Replaced 314-3445,316-1774,318-7042,
320-0306,326-3619,327-4499,333-5983,
337-7339,343-5725,348-4723

410HP 1450/1550 LB-FT 2100/2300 RPM LEE00001-UP 365-1140 54/154 Nov10
Multi-torque
Replaced 311-6998,312-1409,314-3446,
316-1775,318-7043,320-0307,326-3620,
327-4500,333-5984,337-7340,343-5726,
348-4724

410 HP 1450/1650 LB-FT 2100/2300 RPM LEE00001-UP 337-7341 70/170 OCT08
Multi-torque
Replaced 314-3447,316-1776,318-7044,
320-0308,326-3621,327-4501,333-5985

410 HP 1450/1650 LB-FT 2100/2300 RPM LEE00001-UP 337-7342 55/155 OCT08
Multi-torque
Replaced 311-6999,312-1410,314-3448,

316-1777,318-7045,320-0309,326-3622,
327-4502,333-5986

410 HP 1550 LB-FT 2100/2300 RPM LEE00001-UP 337-7343 71/171 OCT08
Supports Optional Pre-cooler
Replaced 314-3449,316-1778,318-7046,
320-0310,326-3623,327-4503,333-5987

410 HP 1550 LB-FT 2100/2300 RPM LEE00001-UP 337-7344 56/156 OCT08
Replaced 311-7000,312-1411,314-3450,
316-1779,318-7047,320-0311,326-3624,
327-4504,333-5988

430 HP 1550/1750 LB-FT 2100/2300 RPM LEE00001-UP 337-7346 58/158 OCT08
GFRS
Replaced 311-7002,312-1413,314-3452,
316-1781,318-7049,320-0314,326-3626,
327-4506,333-5990

430 HP 1550/1750 LB-FT 2100/2300 RPM LEE00001-UP 337-7347 59/159 OCT08
Multi-torque
Replaced 311-7003,312-1414,314-3452,
316-1782,318-7050,320-0315,326-3627,
327-4507,333-5991

430 HP 1550 LB-FT 2100/2300 RPM LEE00001-UP 337-7345 57/157 OCT08
Replaced 311-7001,312-1412,314-3451,
316-1780,318-7048,320-0313,326-3625,
327-4505,333-5989

430 HP 1650 LB-FT 2100/2300 RPM LEE00001-UP 337-7349 60/160 OCT08
Replaced 311-7004,312-1415,314-3454,
316-1784,318-7052,320-0317,326-3629,
327-4509,333-5993

470 HP 1550 LB-FT 2100/2300 RPM LEE00001-UP 337-7350 61/161 OCT08
Replaced 311-7005,312-1416,314-3455,
316-1785,318-7053,320-0318,326-3630,
327-4510,333-5994

470 HP 1650 LB-FT 2100/2300 RPM LEE00001-UP 337-7351 62/162 OCT08
Multi-torque
Replaced 311-70063,12-1417,314-3456,
316-1786,318-7054,320-0319,326-3631,
327-4511,333-5995

470 HP 1650 LB-FT 2100/2300 RPM LEE00001-UP 337-7352 63/163 OCT08
Replaced 312-1418,314-3457,316-1787,
318-7055,320-0320,326-3632,327-4512,
333-5996

455 HP 1550 LB-FT 2100 RPM LEE00001-UP 337-7353 64/164 OCT08
485 HP 1650 LB-FT
Replaced 312-1419,314-3458,316-1788,
318-7056,320-0321,326-3633,327-4413,
333-5997

525 HP 1750 LB-FT 2100 RPM LEE00001-UP 337-7354 65/165 OCT08
RV
Replaced 312-1420,314-3459,315-5890,
316-1789,318-7057,320-0322,326-3634,

327-4514,333-5998

525 HP 1750 LB-FT 2100 RPM LEE00001-UP 337-7355 66/166 OCT08
Replaced 312-1421,314-3460,316-1790,
318-7058,320-0323,326-3635,327-4515,
333-5999

C15 HORSEPOWER	TORQUE	GOV SPEED	SERIAL NO. RANGE	FLASH FILE	P/M CODE	RELEASE DATE
435 HP	1650 LB-FT	2100 RPM	BXS00001-02034	242-1857	34	AUG03
Replaced 241-8405						
435 HP	1650 LB-FT	2100 RPM	BXS2035 -up	305-4511	40	NOV06
Replaced 245-0197, 247-7543, 249-7619,253-6066,255-4933, 262-3727,271-2954,283-5127,291-2083						
435 HP	1550/1750 LB-FT M/T	2100 RPM	BXS00001-02034	242-1856	32	AUG03
Gear Fast/Run Slow (EATON 2) Replaced 237-9213,241-8409						
435 HP	1550/1750 LB-FT M/T	2100 RPM	BXS2035-up	305-4508	44	NOV06
Gear Fast/Run Slow (Eaton 2) Replaced 245-0189,247-7541, 249-7617,253-6070,255-4931, 262-3724,271-2951,283-5124,291-2080						
435 HP	1550/1750 LB-FT M/T	2100 RPM	BXS00001-02034	244-2510	31	AUG03
435 HP	1550/1750 LB-FT	2100 RPM	BXS02035-up	290-2167	20	FEB06
Gear Fast/Run Slow 2004 Iron ADEM 4 ECM only Replaced 253-0038,261-6686, 264-7702,271-1372,283-1179						
435 HP	1550/1650 LB-FT M/T	2100 RPM	BXS2035-up	305-4507	60	NOV06
Replaced 258-6910,262-3723, 271-2950,283-5123,291-2079						
435 HP	1550/1750 LB-FT M/T	2100 RPM	BXS2035-up	305-4509	45	NOV06
Replaced 245-0181,245-0212, 249-7626,253-6071,255-4932, 262-3725,271-2952,283-5125,291-2081						
435 HP	1550 LB-FT	2100 RPM	BXS2035-up	305-4506	48	NOV06
Replaced 245-0195,247-7544, 249-7620,253-6074,255-4930,262-3722, 271-2949,283-5122,291-2078						
435/500HP	1550/1650 LB-FT M/T	2100 RPM	BXS02035-up	305-4510	54	NOV06
Oil Well Service (OWS) Replaced 249-2489,255-1267, 262-3726,271-2953,283-5126,291-2082						
475 HP	1650 LB-FT	2100 RPM	BXS00001-02034	242-1858	35	AUG03
Replaced 239-5256,241-8406						
475 HP	1650 LB-FT	2100 RPM	BXS2035-up	305-4512	41	NOV06
Replaced 245-0183,247-7538,						

249-7614,253-6067,255-4934,
262-3728,271-2955,283-5128,291-2084

475 HP 1650 LB-FT 2100 RPM BXS2035-up 305-4513 50 NOV06
Brakesaver
Replaced 245-0201,249-7622,
253-6076,255-4935,262-3729,
271-2956,283-5129,291-2085

475 HP 1650/1850 LB-FT M/T 2100 RPM BXS2035-up 305-4515 47 NOV06
Replaced 245-0193,245-0213,
249-7869,253-6073,255-4937,
262-3731,271-2958,283-5131,291-2087

475 HP 1650/1850 LB-FT M/T 2100 RPM BXS2035-up 305-4514 46 NOV06
Gear Fast/Run Slow (Eaton 2)
Replaced 245-0191,247-7542,
249-7618,253-6072,255-4936,
262-3730,271-2957,283-5130,291-2086

475 HP 1850 LB-FT 2100 RPM BXS00001-02034 242-1859 36 AUG03
Replaced 239-5257,241-8407

475 HP 1850 LB-FT 2100 RPM BXS2035-up 305-4516 42 NOV06
Replaced 245-0185,247-7539,
249-7615,253-6068,255-4938,
262-3732,271-2959,283-5132,291-2088

475 HP 1850 LB-FT 2100 RPM BXS2035-up 305-4517 51 NOV06
Brakesaver
Replaced 245-0203,249-7623,
253-6077,255-4939,262-3733,
271-2960,283-5133,291-2089

500 HP 1650 LB-FT 2100 RPM BXS02035-up 305-4518 55 NOV06
Replaced 249-2490,262-3734,
271-2961,283-4134,291-2090

500 HP 1850 LB-FT 2100 RPM BXS2035-up 305-4519 49 NOV06
Replaced 245-0199,247-7545,
249-7621,253-6075,255-4940,
262-3735,271-2962,283-5135,291-2091

500 HP 1850 LB-FT 2100 RPM BXS2035-up 305-4520 52 NOV06
Brakesaver
Replaced 245-0205,249-7624,
253-6078,255-4941,262-3736,
271-2963,283-5136,291-2092

500 HP 1850 LB-FT 2300 RPM BXS2035-up 305-4521 56 NOV06
Replaced 249-2491,255-1269,
262-3737,271-2964,283-5137,291-2093

550 HP 1850 LB-FT 2100 PRM BXS00001-02034 242-1860 37 AUG03
Replaced 239-5258,241-8408

550 HP 1850 LB-FT 2100 RPM BXS2035-up 305-4522 43 NOV06
Replaced 245-0187,247-7540,
249-7616,253-6069,255-4942,
262-3738,271-2965,283-5138,291-2094

550 HP 1850 LB-FT 2100 RPM BXS2035-up 305-4523 53 NOV06
Brakesaver
Replaced 245-0207,249-7625,
253-6079,255-4943,262-3739,
271-2966,283-5139,291-2095

550 HP 1850 LB-FT 2300 RPM BXS2035-up 305-4524 57 MAR06
Replaced 249-2492,255-1270,
262-3740,271-2967,283-5140,291-4347

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C15 HORSEPOWER	TORQUE	GOV SPEED	SERIAL NO. RANGE	FLASH FILE	P/M CODE	RELEASE DATE

HEAVY HAUL RATINGS
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475 HP 1650 LB-FT 2100 RPM BXS2035-up 305-4525 61 NOV06
Replaced 288-8535,297-2417
Replaces BXS 291-2084/PM code 41 for use in Heavy Haul applications only

475 HP 1850 LB-FT 2100 RPM BXS2035-up 305-4526 62 NOV06
Replaced 288-8536,297-2418
Replaces BXS 291-2088/PM code 42 for use in Heavy Haul applications only

550 HP 1850 LB-FT 2100 RPM BXS2035-up 305-4527 63 NOV06
Replaced 288-8537,297-2419
Replaces BXS 291-2094/PM code 43 for use in Heavy Haul applications only

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C15 HORSEPOWER	TORQUE	GOV SPEED	SERIAL NO. RANGE	FLASH FILE	P/M CODE	RELEASE DATE
435 HP	1550 LB-FT	2100 RPM	MXS00001-UP NXS00001-UP	329-8532	20	APR08

Replaced 258-8358,264-0064,
264-7700,271-1370,283-1177,
290-2165,308-1274

435 HP 1550/1750 LB-FT 2100 RPM MXS00001-UP NXS00001-UP 329-8536 21 APR08
Replaced 258-8359,264-7703,
271-1374,283-1181,290-2169,308-1278

435 HP 1550/1650 LB-FT M/T 2100 RPM MXS00001-up NXS00001-UP 329-8533 43 APR08
Replaced 269-2109,271-1373,283-1180,
290-2168,308-1275

435/550HP 1550/1850 LB-FT 2100 RPM MXS00001-UP NXS00001-UP 308-1307 46 FEB07
Multi-torque Oil Well Service Only
Replaced 277-3087

435 HP 1650 LB-FT 2100 RPM MXS00001-UP 329-8537 22 APR08

NXS00001-UP

Replaced 258-8360,264-0065,
264-7701,271-1371,283-1178,
290-2166,308-1279,312-5637

435/500HP 1550/1650 LB-FT 2100 RPM MXS00001-UP 329-8534 23 APR08
NXS00001-UP
Multi-torque Oil Well Service Only
Replaced 258-8361,264-7704,
271-1375,283-1182,290-2170,
296-6023,308-1276

435 HP 1550/1750 LB-FT 2100 RPM MXS00001-UP 329-8535 7 APR08
Gear Fast/Run Slow (Eaton 2) NXS00001-UP
Replaced 253-0058,261-6686,
264-7702,283-1179,290-2167,308-1277

475 HP 1650 LB-FT 2100/2300 RPM MXS00001-UP 329-8566 47 APR08
Multi-torque NXS00001-UP
Replaced 277-3088,308-1308

475 HP 1850 LB-FT 2100/2300 RPM MXS00001-UP 329-8567 48 APR08
Multi-torque NXS00001-UP
Replaced 277-3089,308-1309

475 HP 1650 LB-FT 2100 RPM MXS00001-UP 329-8538 24 APR08
NXS00001-UP
Replaced 258-8362,264-7705,
271-1376,283-1183,290-2171,
295-6068,308-1280,312-5638

475 HP 1650 LB-FT 2100 RPM MXS00001-UP 329-8539 25 APR08
Brakesaver NXS00001-UP
Replaced 271-1377,283-1184,
290-2172,295-6069,308-1281

475 HP 1650/1850 LB-FT 2100 RPM MXS00001-UP 329-8540 26 APR08
Gear Fast/Run Slow (Eaton 2) NXS00001-UP
Replaced 258-8364,264-0066,264-7709,
271-1380,283-1187,289-1281,290-2175,
292-6962,301-4633,308-1282

475 HP 1650/1850 LB-FT 2100 RPM MXS00001-UP 329-8541 27 APR08
Multi-torque NXS00001-UP
Replaced 258-8365,264-0067,
264-7710,271-1381,283-1188,
289-1282,290-2176,292-6963,
301-4634,308-1283

475 HP 1850 LB-FT 2100 RPM MXS00001-UP 329-8542 28 APR08
NXS00001-UP
Replaced 258-8366,264-0068,
264-7707,271-1378,283-1185,
290-2173,292-6960,301-4631,308-1284

475 HP 1850 LB-FT 2100/2300 RPM MXS00001-UP 329-8543 29 APR08
Brakesaver NXS00001-UP
Replaced 258-8367,264-7708,
271-1379,283-1186,289-1280,
290-2174,292-6961,301-4632,308-1285

500 HP 1850 LB-FT 2100 RPM MXS00001-UP 329-8545 30 APR08
NXS00001-UP
Replaced 258-8368,264-7711,
271-1382,283-1189,290-2177,308-1287

500 HP 1850 LB-FT 2100 RPM MXS00001-UP 329-8546 31 APR08
Brakesaver NXS00001-UP
Replaced 258-8369,264-7712,
271-1383,283-1190,290-2178,308-1288

550 HP 1850 LB-FT 2100 RPM MXS00001-UP 329-8549 32 APR08
NXS00001-UP
Replaced 258-8370,264-7713,
271-1384,283-1191,290-2179,
308-1291,312-5639

550 HP 1850 LB-FT 2100 RPM MXS00001-UP 329-8550 33 APR08
Brakesaver NXS00001-UP
Replaced 258-8371,264-7714,
271-1385,283-1192,290-2180,308-1292
****
Lower rated engines can not be uprated to 600/625 HP rating
****
600 HP 1850 LB-FT 2100 RPM MXS00001-UP 329-8553 9 APR08
NXS00001-UP
Replaced 256-1368,261-6687,264-7715,
269-0982,271-1386,283-1193,290-2181,
302-8942,307-2259,308-1295

600 HP 1850 LB-FT 2100 RPM MXS00001-UP 329-8554 10 APR08
Brakesaver NXS00001-UP
Replaced 261-6688,264-7716,269-0983,
271-1387,283-1194,290-2182,308-1296

600 HP 1850 LB-FT 2300 RPM MXS00001-UP 323-5866 44 NOV07
MT Military LVSR NXS00001-UP
Replaced 291-0106

625 HP 2050 LB-FT 2100 RPM MXS00001-UP 329-8557 6 APR08
NXS00001-UP
Replaced 253-0037,261-6689,
264-7717,269-0984,271-1388,
283-1195,290-2183,308-1299,312-5640

625 HP 2050 LB-FT 2100 RPM MXS00001-UP 329-8558 8 APR08
Brakesaver NXS00001-UP
Replaced 261-6690,264-7718,
269-0985,271-1389,283-1196,
290-2184,308-1300
****
UPRATE
****
500 HP 1650 LB-FT 2100 RPM MXS00001-UP 308-1286 34 FEB07
UPRATE ONLY NXS00001-UP
Replaced 263-2858,271-1390,
283-1197,290-2185

500 HP 1850 LB-FT 2300 RPM MXS00001-UP 329-8547 35 APR08
UPRATE ONLY NXS00001-UP
Replaced 263-2859,271-1391,
283-1198,290-2186,308-1289

500 HP 1850 LB-FT 2300 RPM MXS00001-UP 329-8548 36 APR08
NXS00001-UP
BRAKESAVER/UPRATE ONLY
Replaced 263-2860,271-1392,
283-1199,290-2187,308-1290

550 HP 1850 LB-FT 2300 RPM MXS00001-UP 329-8551 37 APR08
UPRATE ONLY NXS00001-UP
Replaced 263-2861,271-1393,
283-1200,290-2188,308-1293

550 HP 1850 LB-FT 2300 RPM MXS00001-UP 329-8552 38 APR08
BRAKESAVER/UPRATE ONLY NXS00001-UP
Replaced 263-2862,271-1394,
283-1201,290-2189,308-1294

****
Lower rated engines can not be uprated to 600/625 HP rating
****

600 HP 1850 LB-FT 2300 RPM MXS00001-UP 329-8555 39 APR08
UPRATE ONLY NXS00001-UP
Replaced 263-2863,271-1395,
283-1202,290-2190,308-1297

600 HP 1850 LB-FT 2300 RPM MXS00001-UP 329-8556 40 APR08
UPRATE ONLY NXS00001-UP
BRAKESAVER ONLY
Replaced 263-2864,271-1396,
283-1203,290-2191,308-1298

625 HP 2050 LB-FT 2300 RPM MXS00001-UP 329-8559 41 APR08
UPRATE ONLY NXS00001-UP
Replaced 263-2865,271-1397,
283-1204,290-2192,308-1301

625 HP 2050 LB-FT 2300 RPM MXS00001-UP 329-8560 42 APR08
UPRATE ONLY NXS00001-UP
BRAKESAVER ONLY
Replaced 263-2866,271-1398,283-1205,290-2193,308-1302

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C15 GOV SERIAL NO. FLASH P/M RELEASE
HORSEPOWER TORQUE SPEED RANGE FILE CODE DATE
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HEAVY HAUL RATINGS
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475 HP 1650 LB-FT 2100 RPM MXS00001-UP 329-8561 50 APR08
NXS00001-UP
Replaced 288--8538,291-2013,308-1303
Replaces MXS 290-2171/PM code 24 for use in Heavy Haul applications only

475 HP 1850 LB-FT 2100 RPM MXS00001-UP 329-8562 51 APR08
NXS00001-UP
Replaced 288-8539,291-2014,308-1304
Replaces MXS 290-2173/PM code 28 for use in Heavy Haul applications only

550 HP 1850 LB-FT 2100 RPM MXS00001-UP 308-1305 52 JAN07
NXS00001-UP
Replaced 288-8540,291-2015
Replaces MXS 290-2179/PM code 32 for use in Heavy Haul applications only

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C15 HORSEPOWER	TORQUE	GOV SPEED	FLASH FILE	P/M CODE	RELEASE DATE

2007 EMISSIONS ADEM A4 ECM ON HEAVY DUTY ACERT HIGHWAY TRUCK

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435 HP 1550 LB-FT 2100/2300 RPM SDP00001-UP 365-1160 40/140 Nov10
Replaced 310-8351,311-6957,314-2915,
316-1845,318-6991,320-0362,326-3651,
327-4519,333-5944,334-1287,343-5744,
348-4745

435 HP 1650 LB-FT 2100/2300 RPM SDP00001-UP 365-1161 41/141 Nov10
Replaced 310-8352,311-6958,314-2916,
316-1846,318-6992,320-0363,326-3652,
327-4520,333-5945,334-1288,343-5745,
348-4746

435HP 1550/1750 LB-FT 2100/2300 RPM SDP00001-UP 365-1162 42/142 Nov10
Multi-torque/GFRSS
Replaced 309-1779,310-8353,311-6959,
314-2917,316-1847,318-6993,320-0364,
326-3653,327-4521,333-5946,334-1289,
343-5746,348-4747

435HP 1550/1650 LB-FT 2100/2300 RPM SDP00001-UP 365-1163 43/143 Nov10
Multi-torque
Replaced 310-8354,311-6960,314-2918,
316-1848,318-6994,320-0365,326-3654,
327-4522,333-5947,334-1290,343-5747,
348-4748

435HP 1550/1750 LB-FT 2100/2300 RPM SDP00001-UP 365-1164 44/144 Nov10
Multi-torque
Replaced 310-8355,311-6961,314-2919,
316-1849,318-6995,320-0366,326-3655,
327-4523,333-5948,334-1291,343-5748,
348-4749

435HP 1550/1650 LB-FT 2100/2300 RPM SDP00001-UP 365-1165 45/145 Nov10
Multi-torque/OWS
Replaced 310-8356,311-6962,314-2920,
316-1850,318-1924,318-6996,320-0367,
326-3656,327-4524,333-5949,334-1292,
343-5749,348-4750

475 HP 1650 LB-FT 2100/2300 RPM SDP00001-UP 365-1166 46/146 Nov10
Replaced 310-8357,311-6963,314-2921,
316-1851,318-6997,320-0368,326-3657,

327-4525,333-5950,334-1293,343-5750,
348-4751

475HP 1650/1750 LB-FT 2100/2300 RPM SDP00001-UP 365-1168 48/148 Nov10
Multi-torque
Replaced 310-8359,311-6965,314-2923,
316-1853,318-6999,320-0370,326-3659,
327-4527,333-5952,334-1295,343-5752,
348-4753

475 HP 1850 LB-FT 2100/2300 RPM SDP00001-UP 365-1169 49/149 Nov10
Replaced 310-8360,311-6966,314-2924,
316-1854,318-7000,320-0371,326-3660,
327-4528,333-5953,334-1296,343-5753,
348-4754

475HP 1650/1850 LB-FT 2100/2300 RPM SDP00001-UP 365-1171 51/151 Nov10
Multi-torque/GFRSS
Replaced 310-8362,311-6968,314-2926,
316-1856,318-7002,320-0373,326-3662,
327-4530,333-5955,334-1298,343-5755,
348-4756

475HP 1650/1850 LB-FT 2100/2300 RPM SDP00001-UP 365-1172 52/152 Nov10
Multi-torque
Replaced 310-8363,311-6969,314-2927,
316-1857,318-7003,320-0374,326-3663,
327-4531,333-5956,334-1299,343-5756,
348-4757

500 HP 1850 LB-FT 2100/2300 RPM SDP00001-UP 365-1174 54/154 Nov10
Replaced 310-8365,311-6971,314-2929,
316-1859,318-7005,320-0376,326-3665,
327-4533,333-5958,334-1301,343-5758,
348-4759

550 HP 1850 LB-FT 2100/2300 RPM SDP00001-UP 365-1175 55/155 Nov10
Replaced 310-8366,311-6972,314-2930,
316-1860,318-7006,320-0377,326-3666,
327-4534,333-5959,334-1302,343-5759,
348-4760
****
Lower rated engines can not be uprated to 600/625 HP rating
****
600 HP 1850 LB-FT 2100 RPM SDP00001-UP 365-1177 57/157 Nov10
Replaced 311-6974,314-2932,316-1862,
318-7008,320-0379,326-3668,327-4536,
333-5961,334-1304,343-5761,348-4762

600 HP 1850 LB-FT ARF 2100 RPM SDP00001-UP 365-1178 58/158 Nov10
Replaced 318-7009,320-0380,326-3669,
327-4537,333-5962,334-1305,343-5762,
348-4763

600 HP 1850 LB-FT (RV) 2100 RPM SDP00001-UP 365-1179 59/159 Nov10
Replaced 311-6976,314-2934,315-5873,
316-1864,318-7010,320-0381,326-3670,
327-4538,333-5963,334-1306,343-5763,
348-4764

600 HP 2050 LB-FT 2100 RPM SDP00001-UP 365-1180 60/160 Nov10

Replaced 311-6977,314-2935,316-1865,
318-7011,320-0382,326-3671,327-4539,
333-5964,334-1307,343-5764,348-4765

600 HP 2050 LB-FT (RV) 2100 RPM SDP00001-UP 365-1181 62/162 Nov10
Replaced 311-6979,314-2937,315-5874,
316-1867,318-7013,320-0384,326-3672,
327-4540,333-5965,334-1308,343-5765,
348-4766

625 HP 2150 LB-FT 2100 RPM SDP00001-UP 365-1182 63/163 Nov10
Replaced 310-8374,311-6980,314-2938,
316-1868,318-7014,320-0385,326-3673,
327-4541,333-5966,334-1309,343-5766,
348-4767

625 HP 2050 LB-FT (RV) 2100 RPM SDP00001-UP 365-1183 65/165 Nov10
Replaced 311-6982,314-2940,315-5875,
316-1870,318-7016,320-0387,326-3674,
327-4542,333-5967,334-1310,343-5767,
348-4768

625 HP 1900 LB-FT 2100 RPM SDP00001-UP 365-1184 66/166 Nov10
Replaced 311-6983,314-2941,315-5876,
316-1871,318-7017,320-0388,326-3675,
327-4543,333-5968,334-1311,343-5768,
348-4769

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C15 HORSEPOWER	TORQUE	GOV SPEED	SERIAL NO. RANGE	FLASH FILE	P/M CODE	RELEASE DATE
EURO 4 Rating for use in Europe only - not for North America use						

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500 HP@2100/2300 RPM EURO4 348-6571 35/135 Jun09
Multi-torque
Replaced 295-6883,319-4913,330-2024,
335-6771

550 HP@2100/2300 RPM EURO4 348-6572 36/136 Jun09
Replaced 295-6884,319-4914,330-2025,
335-6772

625 HP@2100/2300 RPM EURO4 348-6573 37/137 Jun09
Replaced 295-6885,319-4915,330-2026,
335-6773

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C15 HORSEPOWER	TORQUE	GOV SPEED	SERIAL NO. RANGE	FLASH FILE	P/M CODE	RELEASE DATE

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HEAVY HAUL RATINGS
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475 HP 1650 LB-FT 2300 RPM SDP1-up 365-1167 47/147 Nov10
Replaced 314-2922,316-1852,318-6998,
320-0369,326-3658,327-4526,333-5951,
334-1294,343-5751,348-4752
For use in Heavy Haul applications only

475 HP 1850 LB-FT 2300 RPM SDP1-up 365-1170 50/150 Nov10
Replaced 314-2925,316-1855,318-7001,
320-0372,326-3661,327-4529,333-5954,
334-1297,343-5754,348-4755
For use in Heavy Haul applications only

550 HP 1850 LB-FT 2300 RPM SDP1-up 365-1176 56/156 Nov10
Replaced 314-2931,316-1861,318-7007,
320-0378,326-3667,327-4535,333-5960,
334-1303,343-5760,348-4761
For use in Heavy Haul applications only

VIMS SOFTWARE-LARGE OFF-HIGHWAY TRUCKS (9.6X LATEST)
A service magazine will appear in December, 2000 describing in detail changes that occur in this release.
VIMS SOFTWARE - LARGE OFF-HIGHWAY TRUCKS (9.6X LATEST)

A service magazine will appear in December 2000 describing in detail changes that occur in this release.
==> CHART

12/15/00 RELEASE OF 9.6X CONFIGURATIONS
LARGE TRUCKS

"B" SERIES TRUCKS 9.6X

MODEL	WIRING DETERMINES VINTAGE	TRACTOR (NO BODY LEVER)	REAR AXLE FLTR	ADEM CTRL COOL FAN	SMART WASTE GATE	STEER TEMP SW	N030	LANG	199-6528 SOURCE CODE CONFIGS (NOTE:)
785B	4 BRK TEMP	X							197-3362
785B	4 BRK TEMP	X	X						197-3363
785B	4 BRK TEMP								197-3360
785B	4 BRK TEMP		X						A:197-3361
785B	4 BRK TEMP		X	X					A:197-3361
785B	4 BRK TEMP							INDO	197-3364
785B	4 BRK TEMP		X					INDO	197-3365
785B	4 BRK TEMP		X					RUSS	A:197-3366
785B	4 BRK TEMP		X	X				RUSS	A:197-3366
785B	4 BRK TEMP		X					FREN	197-3367
785B	4 BRK TEMP		X				X*	FREN	197-3368
789B	4 BRK TEMP								A:197-3369
789B	4 BRK TEMP		X						A:197-3370
789B	4 BRK TEMP			X					A:197-3369
789B	4 BRK TEMP		X	X					A:197-3370
789B	4 BRK TEMP		X					PORT	197-3371
789B	4 BRK TEMP							INDO	197-3372
789B	4 BRK TEMP		X					INDO	197-3373
789B	4 BRK TEMP		X	X				RUSS	197-3374
789B	4 BRK TEMP		X	X				NORW	197-3375
789B	4 BRK TEMP		X					FREN	197-3376
789B	4 BRK TEMP		X				X*	FREN	197-3377
793B	4 BRK TEMP								197-3378
793B	4 BRK TEMP				X				199-5027
793B	4 BRK TEMP		X		X				A:197-3380
793B	4 BRK TEMP		X	X	X				A:197-3380
793B	4 BRK TEMP		X		X	X			A:197-3384
793B	4 BRK TEMP		X	X	X	X			A:197-3384
793B	4 BRK TEMP							SWED	197-3381

793B	4 BRK TEMP				X			SWED	199-5028	
793B	4 BRK TEMP		X		X			SWED	197-3382	
793B	4 BRK TEMP		X	X	X	X		SWED	197-3383	
793B	4 BRK TEMP		X		X			INDO	197-3387	
793B	4 BRK TEMP		X		X		X		A:197-3386	
793B	4 BRK TEMP		X	X	X	X	X		197-3385	
793B	4 BRK TEMP		X	X	X		X		A:197-3386	
793B	4 BRK TEMP		X						199-5029	

NOTE A: THIS CONFIGURATION SUPPORTS MACHINES WITH OR WITHOUT ADEM-CONTROLLED COOLING FAN.

"C" SERIES TRUCKS 9.6X

MODEL	WIRING (SERIAL NO. VINTAGE)		RAXL COOL FAN	ADEM CTRL COOL FAN	N030	LANG	199-6528 SOURCE CODE CONFIGS (NOTE:)
785C	1HW1-UP; 5AZ1-263						A:197-3398
785C	1HW1-UP; 5AZ1-263			X			A:197-3398
785C	1HW1-UP; 5AZ1-263		X				A:197-3398
785C	1HW1-UP; 5AZ1-263		X	X			A:197-3398
785C	1HW1-UP; 5AZ1-263		X	X			RUSS A:198-6911
789C	2BW1-302						A:197-3399
789C	2BW1-302			X			A:197-3399
789C	2BW1-302		X				A:197-3399
789C	2BW1-302		X	X			A:197-3399
789C	2BW1-302		X	X			FREN A:198-6912
793C	4AR1 AND UP						A:197-3389
793C	4AR1 AND UP			X			A:197-3389
793C	4AR1 AND UP			X	X		197-3390
793C	4AR1 AND UP		X				A:197-3389
793C	4AR1 AND UP		X	X			A:197-3389
793C	4AR1 AND UP			X		SWED	197-3391
793C	4AR1 AND UP						INDO A:197-3392
793C	4AR1 AND UP		X	X			INDO A:197-3392
793C	4AR1 AND UP						FREN A:197-3393
793C	4AR1 AND UP			X			FREN A:197-3393
793C	4AR1 AND UP					PORT	197-3395
793C	4AR1 AND UP				X*	FREN	197-3396

793C	4AR1 AND UP			X	X*		197-3394
793C	4GZ1 AND UP (UPDATE)						A:197-3400
793C	4GZ1 AND UP (UPDATE)			X			A:197-3400
793C	4GZ1 AND UP (UPDATE)		X				A:197-3400
793C	4GZ1 AND UP (UPDATE)		X	X			A:197-3400
793C	4GZ1 AND UP (UPDATE)		X	X			INDO|A:203-6561

NOTE ====> STANDARD ITEMS ON "C" SERIES TRUCKS INCLUDE:
REAR AXLE FLTR
STEERING TEMP SENSOR
SMART WASTE GATE (793C ONLY)

NOTE A: THIS CONFIGURATION SUPPORTS MACHINES WITH OR WITHOUT RAXL COOLING AND WITH OR WITHOUT ADEM-CONTROLLED COOLING FAN.

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==== NOTES RELATING TO 9.6X SOFTWARE ==========
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1. CONFIGURATIONS LISTED ABOVE WHICH DO NOT HAVE ADDITIONAL SYSTEMS X'D ARE CONSIDERED TO BE BASELINE CONFIGURATIONS. THAT IS, THEY ARE FOR THE PARTICULAR VINTAGE INDICATED, BUT DO NOT SUPPORT THE LISTED FEATURES.

2. ALL LATEST CONFIGS ARE AVAILABLE AT MORTON PARTS NOW. THEY MAY NOT APPEAR TO BE SET UP AS YET, BUT IF YOU CONTACT YOUR ORDER ANALYST THEY WILL PROCESS YOUR ORDER.

3. MANY OF THE FEATURES THAT PREVIOUSLY REQUIRED SEPARATE CONFIGURATIONS ARE NOW SUPPORTED WITH A SINGLE CONFIGURATION (SEE NOTE A IN ABOVE TABLES). ALSO SEE RAXL COOLING AND ADEM-CONTROLLED COOLING FAN IN 'EXPLANATION OF COLUMN HEADINGS' BELOW.

4. 9.62 SOURCE CODE (199-6528) MUST BE USED WITH 9.6X CONFIGURATIONS.

EXPLANATION OF COLUMN HEADINGS AS SEEN IN ABOVE CHARTS:

WIRING (DETERMINES VINTAGE)

A MACHINE MUST BE EQUIPPED WITH THE FOLOWING TO INSTALL VIMS 9.6X SOFTWARE:
1) FOUR BRAKE TEMPERATURE SENSORS (RF, RR, LF AND LR)
2) AMBIENT AIR TEMPERATURE SENSOR 141-5746.

TRACTOR (NO BODY LEVER)

TRACTOR CONFIGURATIONS DIFFER IN THAT THERE ARE NO BODY UP EVENTS.

REAR AXLE FILTER SYSTEM

VIMS 9.6 CONFIGS DO NOT PROVIDE EVENTS FOR LOW DIFFERENTIAL OIL LEVEL.

EFFECTIVE WITH THE FOLLOWING SERIAL NUMBERS
1HL323
7EK371
6HK523
THE REAR AXLE FILTER SYSTEM BECAME A STANDARD ITEM. THE 130-1643 CONTROL GROUP (IN THE REAR OF THE CAB) USED TO MONITOR THE FILTER SYSTEM DOES HAVE MONITORING CAPABILITY (SILENCED BY JUMPER TO GROUND).

EFFECTIVE WITH THE FOLLOWING SERIAL NUMBERS
4AR1
1HW1
2BW1
4GZ1
THE REAR AXLE FILTER SYSTEM IS A STANDARD ITEM WIRED DIRECTLY INTO A VIMS INTERFACE MODULE. THE 130-1643 CONTROL GROUP IS NOT USED ON THESE TRUCKS.

RAXL COOLING FAN

EFFECTIVE WITH THE FOLLOWING SERIAL NUMBER
4AR122
1HW1
2BW1
4GZ1
AN ATTACHMENT IS AVAILABLE TO PROVIDE COOLING TO THE OIL IN THE REAR AXLE ON "C" SERIES TRUCKS WHERE THE DIFFERENTIAL FILTRATION SYSTEM IS A STANDARD ITEM. "C" SERIES TRUCK VIMS CONFIGURATIONS SUPPORT MACHINES WITH OR WITHOUT THIS RAXL COOLING FAN.

ADEM-CONTROLLED COOLING FAN

EFFECTIVE WITH SERIAL NUMBERS
1HL410
7EK392
6HK525
5RK22
4AR1
AN ADEM CONTROLLED COOLING FAN BECAME AN ATTACHMENT. ADEM-CONTROLLED COOLING FAN IS AUTOMATICALLY MONITORED BY VIMS ONCE ACTIVATED IN THE ENGINE'S ELECTRONIC CONTROL.

SMART WASTE GATE

EFFECTIVE WITH SERIAL NUMBER
1HL313
4AR1
4GZ1
THE SMART WASTE GATE BECAME A STANDARD ITEM. ADEM CHIP CHANGE TO ALLOW THE CONTROL OF THIS SMART WASTE GATE (DEFAULTS TO AUTOMATIC) EFFECTIVE WITH ENGINE SERIAL NUMBER 2PK814. PRIOR TO THIS, THE CONFIGURATIONS MONITORED BOOST AND TRIGGERED AND EVENT FOR HIGH BOOST. WITH ADEM CHIP CHANGE, THE MONITORING OF THE BOOST IS CONTROLLED BY ADEM AND THE CONFIGURATION MEERLY ECHOS BOOST EVENTS AS REPORTED BY ADEM. CONFIGURATIONS WHICH DO NOT HAVE SMART WASTE GATE CAPABILITY WILL CAUSE HIGH BOOST WARNINGS TO OCCUR (NEW ADEM CHIP HOVERS BOOST NEAR NON-SMART CONFIGS EVENT TRIGGER).

STEERING TEMPERATURE SWITCH

EFFECTIVE WITH SERIAL NUMBER
1HL400
4AR1
4GZ1

A NEW STEERING TEMPERATURE SWITCH WAS ADDED AS A STANDARD ITEM. ONLY THOSE CONFIGS WHICH HAVE THIS ADDED CAPABILITY WILL MONITOR THIS SWITCH WHEN IT EXISTS ON THE TRUCK.

N030

AN 'X' IN THIS COLUMN MEANS THAT A CONFIGURATION HAS THE TRANSMISSION LOCKOUT FEATURE AND DOES NOT HAVE THE AUTOLUBE FEATURE. HOWEVER, IF THE 'X' IN THIS COLUMN IS ACCOMPANIED BY A '*', THE CONFIGURATION DOES HAVE THE AUTOLUBE FEATURE.

LANGUAGES

ENGLISH IS THE PRIMARY LANGUAGE WITH SPANISH AS A SECONDARY LANGUAGE. EXCEPTIONS TO THIS ARE SHOWN WITH ONE OF THE FOLLOWING ABBREVIATIONS AS AN INDICATION OF THE SECONDARY LANGUAGE:

RUSS - RUSSIAN
SWED - SWEDISH
PORT - PORTUGESE
INDO - INDONESIAN (BAHASA)
NORW - NORWEGION
FREN - FRENCH

199-6528 SOURCE CODE CONFIGS (NOTE:)

THIS COLUMN CONTAINS THE CONFIGURATION PART NUMBERS TO BE USED WITH 199-6528 SOURCE CODE FOR EACH SPECIFIED MODEL AND GROUP OF FEATURES.

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Small Track Type Tractors

Hystat Power Train - ECM Flash Files

The following is a list of serial numbers that are not available on the "Flash Software Download" web site. If you need software for one of the stated machines use the "Enter Serial Number" to obtain the latest software.

- -

Sales Model	Serial No. Range	Enter following Serial Number to obtain

		latest ECM flash file for the stated range
D3G XL	CFC 1 - 331	CFC00332
D3G LGP	CFF 1 - 343	CFF00344
D4G XL	CFN 1 - 386	CFN00387
D4G LGP	FDC 1 - 291	FDC00292
D5G XL	FDH 1 - 803	FDH00804
D5G LGP	FDW 1- 467	FDW00468

Note: In the configuration screen, it is necessary to make sure the "Product ID" is set to the machine serial number. In addition, it is NOT mandatory to re-calibrate the hand and pedal controls, or pumps & motors after flashing new software.

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Challenger 35/45/55 Flash File Cross Reference - Updated 28 Nov 2000

Challenger 35/45/55 FLASH File Cross Reference

UPDATED 11 June 2000

Current production Flash files for the four Electronic Control Modules (ECMs) used on the Challenger 35,45, and 55 are available by downloading the files from
the Caterpillar Mailbox or SIS. All of the earlier production tractor electronic control modules ›(EDC) Electronic Draft Control module, (EMC) Electronic Monitoring Center module, (ETC) Electronic Transmission Control module, (RHC) Right Hand Controls module| can be flashed with the later software versions. All electronic control modules on a tractor should be updated each time a particular module is flashed in order to take advantage of the added features and improvements.

NOTE!!!

Service personnel should enter Mode 9 in the Electronic Monitoring Center to review current software version levels, Mode 10 to review current transmission clutch calibrations, and Mode 12 to review current tractor features. Service personnel should make a note of each item reviewed.

If Fault Code F205 (Features do not agree) appears after Flash downloading, it will be necessary to reconfigure the tractor in Mode 12.

WARNING!!!

Since the flash process erases the software file from the electronic control module before programming it, a failure while flashing the module will render that module inoperable (cannot communicate with Controller Area Network); and depending on which module is being flashed, the tractor may be inoperable. Once this occurs, there are two options: 1) if failure was due to a loss of communications (cable was pulled loose or battery went dead), reestablish communications with the module and re-flash. Or 2) if failure was due to a corrupt Flash file, flash the electronic control module with any earlier software version.

DESCRIPTION/PREFIX	ECM	FLASH FILE	RELEASE DATE
Challenger 35	EDC	EDC0640.bin	Nov 00
(8DN,8RD,ADK)	EMC	EMC0680.bin	Nov 99
	ETC	ETC0590.bin	Nov 00

	RHC	RHC0330.bin	Nov 99
Challenger 45	EDC	EDC0640.bin	Nov 00
(1DR,ABF,3BK)	EMC	EMC0680.bin	Nov 99
	ETC	ETC0590.bin	Nov 00
	RHC	RHC0330.bin	Nov 99
Challenger 55	EDC	EDC0640.bin	Nov 00
(7DM,AEN,6NN)	EMC	EMC0680.bin	Nov 99
	ETC	ETC0590.bin	Nov 00
	RHC	RHC0330.bin	Nov 99

DESCRIPTION/PREFIX	ECM	FLASH FILE	RELEASE DATE
CLAAS			
Challenger 35	EDC	EDC0640.bin	Nov 00
(9DF,3HS,1TJ)	EMC	EMC0679.bin	Nov 99
	ETC	ETC0590.bin	Nov 00
	RHC	RHC0330.bin	Nov 99
CLAAS			
Challenger 45	EDC	EDC0640.bin	Nov 00
(4DZ,4KW,4YL)	EMC	EMC0679.bin	Nov 99
	ETC	ETC0590.bin	Nov 00
	RHC	RHC0330.bin	Nov 99
CLAAS			
Challenger 55	EDC	EDC0640.bin	Nov 00
(5DK,7TZ,3SM)	EMC	EMC0679.bin	Nov 99
	ETC	ETC0590.bin	Nov 00
	RHC	RHC0330.bin	Nov 99

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Challenger 35/45/55 FLASH File Cross Reference

Challenger 35/45/55 FLASH FILE CROSS REFERENCE

UPDATED 13 March 1997

Current production Flash files for the four Electronic Control Modules (ECMs) used on the Challenger 35,45, and 55 are available by downloading the files from the Caterpillar Mailbox. All of the earlier production tractor electronic control modules □(EDC) Electronic Draft Control module, (EMC) Electronic Monitoring Center module, (ETC) Electronic Transmission Control module, (RHC) Right Hand Controls moduleÙ can be flashed with the later software versions. Individual control modules may be updated. However, to take advantage of the added features and improvements; it is recommended that all control modules be downloaded with the latest Flash files when updating a tractor.

NOTE!!!

Service personnel should enter Mode 9 in the Electronic Monitoring Center to review current software version levels, Mode 10 to review current transmission clutch calibrations, and Mode 12 to review current tractor features. Service personnel should make a note of each item reviewed.

If Fault Code F205 (Features do not agree) appears after Flash downloading, it will be necessary to reconfigure the tractor in Mode 12.

WARNING!!!

Since the flash process erases the software file from the electronic control module before programming it, a failure while flashing the module will render that module inoperable (cannot communicate with Controller Area Network); and depending on which module is being flashed, the tractor may be inoperable. Once this occurs, there are two options: 1) if failure was due to a loss of communications (cable was pulled loose or battery went dead), reestablish communications with the module and re-flash. Or 2) if failure was due to a corrupt Flash file, flash the electronic control module with pre-DEC 95 software version.

Changes made to EDC software 06.00

When in draft mode, the draft function range of the quadrant lever has been expanded to approximately half the normal working range. Previously, the draft function range of the quadrant lever was only about one inch.

EDC06.00 software is effective with Challenger 35 (8DN0620-Up), Challenger 45(1DR1374-Up), and Challenger 55 (7DM0624-Up).

DESCRIPTION	S/N RANGE	CCM	FLASH FILE	RELEASE DATE
Challenger 35	8DN1 - UP	EDC	EDC0600.bin	Mar 97
		EMC	EMC0637.bin	DEC 95
		ETC	ETC0519.bin	DEC 95
		RHC	RHC0307.bin	May 95
Challenger 45	1DR1 - UP	EDC	EDC0600.bin	Mar 97
		EMC	EMC0637.bin	DEC 95
		ETC	ETC0519.bin	DEC 95
		RHC	RHC0307.bin	May 95
Challenger 55	7DM1 - UP	EDC	EDC0600.bin	Mar 97
		EMC	EMC0637.bin	DEC 95
		ETC	ETC0519.bin	DEC 95
		RHC	RHC0307.bin	May 95

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3500 With EUI Option Commercial Engine FLASH File Cross-Reference
Updated 05/24/01

EPG	MARINE AUX	MARINE PROPULSION
5XM1-Up	3TS1-Up	3PS1-Up
3LS1-Up	3WS1-Up	3RS1-Up
6PM1-Up	3XS1-Up	3SS1-Up
3MS1-Up		
7KM1-Up		
3NS1-Up		

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Notes for Using This Document
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Part numbers listed under the "Flash Part No." column are flash file numbers. These are software numbers that can be downloaded from the Caterpillar mailbox or copied from the SIS

Flash Files CD. These numbers can not be ordered from the parts distribution system. Flash files must be used when updating software electronically using Winflash.

A part number listed under the "Service Replacement" column is the part number of the removable chip inside the ECM that contains the flash file software listed in the same row in the table. These "chips" are made available for a very small percentage of service locations that do not have flash capability. These parts must be ordered from the parts distribution system and physically installed in the ECM using the access cover. Most dealers will never order chips from the service replacement column. The flash method of updating software described in the paragraph above is the preferred method.

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Reasons for software change:
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1. Fix to correct Premium EIP problem with Aftercooler temperature gage sealing.
2. Several problems are fixed with this update.
(Removed in reason code 4)
A) Fix for Engine Protection Override Switch (EPOS) problem. Some versions of software do not recognize the (EPOS) and will not allow an engine triggered shutdown to be overridden. See service letter PI1395.
B) Fix for the General Alarm Relay (GAR). Some versions of previous software did not operate the GAR as designed. This relay is used by some installations to relay certain monitoring system events to the vessel control system.
C) Fix for intermittent EMSII "!Stop" light flashing. See 15 July 1998 TIB entitled "Intermittent Engine Monitoring System (EMS) "!Stop" Light Flashing On Marine Propulsion Engines."
D) Fix for Engine Vision Display Error. A negative crankcase pressure value would cause Engine Vision to display "Error". The new software eliminates this problem.
3. Fix for erroneous logging of high crankcase pressure events. New software has improved software filtering of crankcase pressure sensor raw data to stabilize readings and eliminate false event logging.
(Removed in reason code 4)
4. The software released with reason codes 2 & 3 may have a 101-13 crankcase pressure calibration required diagnositc. The diagnostic can be cleared by performing a manual calibration, but it often returns when power to the ECM is cycled. It was necessary to release software that had a vaild fix for the EPOS problem described in reason code 2A above, but the resulting software with an active 101-13 was not acceptable. Therefore this new software with reason code 4 was released. It contains fixes for the EPOS & GAR problems (reason codes 2 A & B). The remaining fixes for reason codes 2 C, D, and 3 were taken out of this new software to avoid the 101-13 problem. PI1395 was revised April 1999 as a result of this issue. The fixes that were removed will be put back into the next software update.
5. A change was made to the 94-02 and 289-02 fuel pressure sensor misinstalled diagnostic strategies to reduce false logging. The diagnostics will no longer activate below 200 RPM. Electronic filtering was also added to the software for the fuel pressure signals for more stable readings. A March 17,

1999 TIB will also help to properly identify the filtered and unfiltered fuel pressure sensor ports.
6. Solutions for Reason Codes 2 C & D and 3 that were removed in Reason Code 4 have been corrected and added back to the software. The false logging of 101-13 has been eliminated.
7. Solution to EMSII 248-02 code and light flashing issue mentioned in Jan 28, 1998 TIB. This issue only affects Marine Propulsion applications equipped with Pilothouse panels.
8. Improved inlet air restriction and oil pressure monitoring. This should help to reduce false high inlet air restriction warnings.
9. Software added dedicated low idle switch input (J1-P26)to ECM. Earlier EPG engines with switchgear conversion panels (Electronic Instrument Panels) would activate a 91-08 Speed Control Output Signal Is Abnormal diagnostic when the low idle switch was activated. The diagnostic became active because the switch was wired in-line with the PWM speed control signal. When a 91-08 diagnostic is active the ECM defaults to low idle so the switch has the intended effect. However, the active diagnostic created problems with certain electronic monitoring systems. The new dedicated low idle switch ECM input allows the switch to request low idle speed without opening the speed control signal and activating the 91-08 diagnostic. This feature can be utilized on all previous 3500B EPG engines by rewiring the low idle switch. The engine uses the speed control signal to determine desired speed when ECM J1-P26 is open. Low idle becomes the desired speed when J1-P26 is grounded. If the switch wiring is not changed on EPG engines when the new software is flashed, the low idle switch will continue to operate as it always has - activating the 91-08 diagnostic. However, Marine Auxiliary engines that are field updated with the new software will need to make a wiring change. ECM J1-P26 on Marine Aux engines currently has circuit 412-BU connecting it to the Electronic Speed Switch (ESS) pin 12. This circuit currently serves no function and can be disconnected by removing the wire from pin 12 of the ESS and tying it back or installing the low idle switch. IF THIS CHANGE IS NOT MADE, THE ENGINE WILL REMAIN AT LOW IDLE. Note: The low idle switch input feature will not eliminate a 91-08 diagnostic code caused by a Woodward Load Share Module that is powered by the generator potential transformers (PTs). This can be eliminating by upgrading to the new 161-0797 24 VDC WLSM. Refer to Special Instruction REHS0532 and August 1999 Engine News article entitled "New Governor Control (Load Share Module) for Generator Set Engines" for details.
10. Speed range adjusted per customer request
11. Improved 94-02 and 289-02 fuel pressure sensor misinstalled diagnostic strategy. The previous change in reason code 5 was only partially successful. The new strategy increases the amount of negative fuel pressure differential required to log the misinstalled codes from -15 kPa to -70 kPa. In addition, the absolute value of the fuel filter differential pressure is now used for display purposes and event logging. This will allow the ECM to monitor differential pressure even if the sensors are installed backward.
12. The percent load calculation has been changed to more accurately reflect engine load. The new percent load calculation also effects the Load Feedback signal ECM output. Be certain to verify that the new software strategy will not adversely effect vessel control systems that utilize this output before flashing the ECM with the new software.
13. The Low Coolant Temperature warning strategy has been improved. This strategy has been improved to reduce low coolant temperature warnings when the engine is lightly loaded. The strategy now uses engine load as well as coolant temperature to determine if the engine is being over cooled. A new Coolant Warning Engine Load Enable Threshold parameter has been added to support this feature. This parameter label will be used in

forthcoming versions of Cat ET. Until then the parameter will show up as Load Warning Set.
14. FLS/FTS power adjustment added. Factory level passwords are required to change FLS and FTS. FLS and FTS may be programmed without passwords once on a new (blank) ECM. This occurs when the tattletale is zero. Cat ET Version 3.2 or later is required to program FLS/FTS.
15. The monitoring system is now disabled when engine speed is zero. It was previously possible for the monitoring system to activate an alarm with no engine speed. This resulted in nuisance alarms in applications where the electrical system is left powered up when the engine is not running.
16. Programmable governor gains added. Engine ECM governor gains may be adjusted if the default gain factors do not provide satisfactory system response characteristics. Default governor gain settings are recommended for almost all applications.
17. Rated Fuel Default to Minimum. When replacing a failed ECM the rated fuel limit parameter will now default to a minimum value. The parameter will need to be programmed after the correct value has been obtained from TMI. Previously, the rated fuel limit parameter defaulted to a maximum value and engine damage could occur if it was not properly programed following an ECM replacement.
18. Altitude derate annunciation supression on EMSII. Altitude derate causes the EMSII "!Stop" light to flash. Many customers knowingly operate in derate mode and the continuous light flashing is a nuisance and may disguise a new diagnostic. For this reason, altitude derate will now cause the EMSII "!Stop" light to flash for 15 seconds. After 15 seconds the light will stop flashing. The derate is still active and can be viewed with Cat ET. Only the annunication of the derate has changed.
19. Minimum oil pressure map for low oil pressure warnings is now 69 kPa at low engine speeds. This value was increased to provide added protection to turbochargers.
20. Torque Limit feature added. Programmable parameter allows engine torque to be limited. Parameter may be programmed to a value between torque at rated speed and peak torque.
21. General alarm relay feature updated. The general alarm relay will now activate for low fuel level and low coolant level. These two conditions did not previously activate the general alarm relay.
22. Injector E-Trim feature has been updated. A 1495-02 "Injector Trim Not Prog" diagnostic code will activate if the injector trim calibration codes have not been entered. Previously the injector trim codes defaulted to 1100 (no adjustment) and no diagnostic was present. The 1495-02 diagnostic will activate when updating software on existing engines containing injectors that do not have trim codes. To fix the problem, go the calibration screen in Cat ET and reprogram all of the codes to 1100. If the injectors in the engine DO have trim codes program those trim codes into Cat ET.

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3508 W/EUI GENSET APPLICATION
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60 HZ, STANDBY, LO BSFC

	Flash Part No.	Service Replacement	Reason
	148-2929	148-2930	
	176-6154	176-6155	5,6,8,9
latest	209-8284		11-22

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3512 W/EUI GENSET APPLICATION
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50 HZ, PRIME +10, LO BSFC

	Flash Part No.	Service Replacement	Reason
	144-3632	144-3633	
	176-6182	176-6183	5,6,8,9
latest	209-8285		11-22

60 HZ, STANDBY, LO BSFC

	Flash Part No.	Service Replacement	Reason
	144-3630	144-3631	
	176-6194	176-6195	5,6,8,9
latest	209-8286		11-22

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3516 W/EUI GENSET APPLICATION

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50 HZ, PRIME +10, LO BSFC

	Flash Part No.	Service Replacement	Reason
	144-3636	144-3637	
	176-6046	176-6047	5,6,8,9
latest	209-8287		11-22

60 HZ, PRIME / STANDBY, LO BSFC

	Flash Part No.	Service Replacement	Reason
	144-3634	144-3635	
	180-1732	180-1733	5,6,8,9
latest	209-9729		11-22

1800 RPM, CONTINOUS, (INDUSTRIAL)

	Flash Part No.	Service Replacement	Reason
	152-5498	154-5499	
	176-9733	176-9734	5,6,8,9
latest	209-9730		11-22

1800 RPM, PRIME, (INDUSTRIAL -COAL AUGER)

	Flash Part No.	Service Replacement	Reason
	149-6144	149-6145	
latest	162-3919	162-3920	10

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3508 W/EUI MARINE AUXILIARY APPLICATION

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3512 W/EUI MARINE AUXILIARY APPLICATION

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1800 RPM, PRIME / STANDBY , LO BSFC

	Flash Part No.	Service Replacement	Reason
	183-7503	183-7504	
latest	209-9731		11-22

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3516 W/EUI MARINE AUXILIARY APPLICATION

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1800 RPM, PRIME / STANDBY , LO BSFC, JWAC

	Flash Part No.	Service Replacement	Reason
	172-6715	172-6716	
	184-3096	184-3097	5,6,8,9
latest	209-8283		11-22

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3508 W/EUI MARINE PROPULSION

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1600 RPM, HEAVY WEIGHT, LO BSFC

	Primary Flash Part No.	Service Replacement	Backup Flash Part No.	Service Replacement	Reason
	144-3654	144-3656	144-3655	144-3657	
	155-1741	155-1743	155-1742	151-1744	1
	168-2001	168-2003	168-2002	168-2004	2, 3
	173-2905	173-2907	173-2906	173-2908	4
	176-5936	176-5938	176-5937	176-5939	5-8
latest	209-8281		209-8282		11-22

1800 RPM, HEAVY WEIGHT, LO BSFC

	Primary Flash Part No.	Service Replacement	Backup Flash Part No.	Service Replacement	Reason
	166-6526	166-6528	166-6527	166-6529	
	176-5948	176-5950	176-5949	176-5951	5-8
latest	209-8279		209-8280		11-22

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3512 W/EUI MARINE PROPULSION

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1600 RPM, HEAVY WEIGHT, LO BSFC

	Primary Flash Part No.	Service Replacement	Backup Flash Part No.	Service Replacement	Reason
	144-3658	144-3660	144-3659	144-3661	
	169-2599	169-2601	169-2600	169-2602	2,3
	176-6000	176-6002	176-6001	176-6003	5-8
latest	209-8275		209-8276		11-22

1800 RPM, HEAVY WEIGHT, LO BSFC

	Primary Flash Part No.	Service Replacement	Backup Flash Part No.	Service Replacement	Reason
	169-8626	169-8628	169-8627	169-8629	
	176-6016	176-6018	176-6017	176-6019	5-8
latest	208-6648		208-6649		11-22

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3516 W/EUI MARINE PROPULSION

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1600 RPM, HEAVY WEIGHT, LO BSFC, 155-0730 TURBO

	Primary Flash Part No.	Service Replacement	Backup Flash Part No.	Service Replacement	Reason
	163-0661	163-0663	163-0662	163-0664	
	168-2237	168-2239	168-2238	168-2240	2, 3
	173-2877	173-2879	173-2878	173-2880	4
	176-6068	176-6070	176-6069	176-6071	5-8
latest	197-3946		197-3947		11-22

1600 RPM, HEAVY WEIGHT, LO BSFC, 132-3647 TURBO

	Primary Flash Part No.	Service Replacement	Backup Flash Part No.	Service Replacement	Reason
	175-5350	175-5352	175-5351	175-5353	
	184-3090		184-3091		
latest	209-8273		209-8274		11-22

1800 RPM, HEAVY WEIGHT, LO BSFC

	Primary Flash Part No.	Service Replacement	Backup Flash Part No.	Service Replacement	Reason
	165-4546	165-4548	165-4547	165-4549	
	176-6096	176-6098	176-6097	176-6099	5-8
latest	208-6659		208-6660		11-22

3500B Commercial Engine (Built < 4/97) FLASH File Cross-Reference
3/26/2001

This software list services engines built before April 1997 that have 7X-6321 Version 'C' ECM's. Latest software services these Serial Numbers back to first production. If your Serial Number is above the ranges on this list, use the list entitled "3500B Commercial Engine (Built > 4/97) FLASH file Cross-Reference."

EPG	MARINE AUX	MARINE PROPULSION
4GM1-211	3DM1-92	2BM1-122
8RM1-199	8EM1-257	7HM1-171
6HN1-155	9AN1-120	7SM1-76
6PN1-284		4TN1-95
6WN1-134		8CN1-143
7RN1-462		8KN1-142

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Notes for Using This Document
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Software is listed by application then number of cylinders. All engines are SCAC (Separate Circuit After Cooled) unless specified.

Part numbers listed under the "Flash Part No." column are flash file numbers. These are software numbers that can be downloaded from the Caterpillar mailbox or copied from the SIS Flash Files CD. These numbers can not be ordered from the parts distribution system. Flash files must be used when updating software electronically using Winflash.

A part number listed under the "Service Replacement" column is the part number of the removable chip inside the ECM that contains the flash file software listed in the same row in the table. These "chips" are made available for a very small percentage of service locations that do not have flash capability. These parts must be ordered from the parts distribution system and physically installed in the ECM using the access cover. Most dealers will never order chips from the service replacement column. The flash method of updating software described in the paragraph above is the preferred method.

* For 3516B 50hz genset engines (continuous/ prime / prime+10, and standby) use the latest software from the column where you find your original software that was on the engine.

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Reasons for software change:
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This section details the reasons why a software revision was made.

Match the "Reason" number (listed to the right of a flash file) to its description below. The reason description is a new feature addition to this cross-reference and reason descriptions are not available for older files.

1. Several problems are fixed with this update.
A) Fix for intermittent EMSII "!Stop" light flashing. See 15 July 1998 TIB entitled "Intermittent Engine Monitoring System (EMS) "!Stop" Light Flashing On Marine Propulsion Engines."
B) Fix for Engine Vision Display Error. A negative crankcase pressure value would cause Engine Vision to display "Error". The new software eliminates this problem.
C) Fix for erroneous logging of high crankcase pressure events. New software has improved software filtering of crankcase pressure sensor raw data to stabilize readings and eliminate false event logging.
D) A change was made to the 94-02 and 289-02 fuel pressure sensor misinstalled diagnostic strategies to reduce false logging. The diagnostics will no longer activate below 200 RPM. Electronic filtering was also added to the software for the fuel pressure signals for more stable readings. A March 17, 1999 TIB will also help to properly identify the filtered and unfiltered fuel pressure sensor ports.
E) Solution to EMSII MID 030 248-02 code and light flashing issue mentioned in Jan 28, 1998 TIB. This issue only affects Marine Propulsion applications equipped with Pilothouse panels.
F) Improved inlet air restriction and oil pressure monitoring. This should help to reduce false high inlet air restriction warnings & derates and stabilize readings.
2. Release to correct unpredictable electrical problems that affect only the 170-3320 & 170-3321 flash files.
3. Software added dedicated low idle switch input (J1-P26)to ECM. Earlier EPG engines with switchgear conversion panels (Electronic Instrument Panels) would activate a 91-08 Speed Control Output Signal Is Abnormal diagnostic when the low idle switch was activated. The diagnostic became active because the switch was wired in-line with the PWM speed control signal. When a 91-08 diagnostic is active the ECM defaults to low idle so the switch has the intended effect. However, the active diagnostic created problems with certain electronic monitoring systems. The new dedicated low idle switch ECM input allows the switch to request low idle speed without opening the speed control signal and activating the 91-08 diagnostic. This feature can be utilized on all previous 3500B EPG engines by rewiring the low idle switch. The engine uses the speed control signal to determine desired speed when ECM J1-P26 is open. Low idle becomes the desired speed when J1-P26 is grounded. If the switch wiring is not changed on EPG engines when the new software is flashed, the low idle switch will continue to operate as it always has - activating the 91-08 diagnostic. However, Marine Auxiliary engines that are field updated with the new software will need to make a wiring change. ECM J1-P26 on Marine Aux engines currently has circuit 412-BU connecting it to the Electronic Speed Switch (ESS) pin 12. This circuit currently serves no function and can be disconnected by removing the wire from pin 12 of the ESS and tying it back or installing the low idle switch. IF THIS CHANGE IS NOT MADE, THE ENGINE WILL REMAIN AT LOW IDLE. Note: The low idle switch input feature will not eliminate a 91-08 diagnostic code caused by a Woodward Load Share Module that is powered by the generator potential transformers (PTs). This can be eliminating by upgrading to the new 161-0797 24 VDC WLSM. Refer to Special Instruction REHS0532 and

August 1999 Engine News article entitled "New Governor Control (Load Share Module) for Generator Set Engines" for details.
4. The Low Coolant Temperature warning strategy has been improved. This strategy has been improved to reduce low coolant temperature warnings when the engine is lightly loaded. The strategy now uses engine load as well as coolant temperature to determine if the engine is being over-cooled. A new Coolant Warning Engine Load Enable Threshold parameter has been added to support this feature. This parameter label will be used in forthcoming versions of Cat ET. Until then the parameter will show up in Cat ET as Load Warning Set.

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3508B GENSET APPLICATION

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50 HZ, CONTINUOUS, EMISSIONS

	Flash Part No.	Service Replacement	Reason

50 HZ, CONTINUOUS, LO BSFC

	Flash Part No.	Service Replacement	Reason
	135-0184	135-0185	
	138-1341	138-1342	
	138-8780	138-8781	
	183-9242	183-9243	1,3
latest	205-7020		4

60 HZ, CONTINUOUS, EMISSIONS

	Flash Part No.	Service Replacement	Reason
	129-6789	129-6790	
	138-1343	138-1344	
	183-9244	183-9245	1,3
latest	205-7021		4

60 HZ, CONTINUOUS, LO BSFC

	Flash Part No.	Service Replacement	Reason
	129-4178	129-4179	
	132-8711	132-8712	
	138-8782	138-8783	
	183-9246	183-9247	1,3
latest	205-7022		4

50 HZ, PRIME/STANDBY, EMISSIONS

	Flash Part No.	Service Replacement	Reason
	128-9515	128-9516	
	132-8715	132-8716	
	138-1347	138-1348	
	138-8784	138-8785	
	140-2442	140-2443	
	176-6166	176-6167	1,3
latest	205-7023		4

50 HZ, PRIME/STANDBY, LO BSFC

	Flash Part No.	Service Replacement	Reason
	129-4189	128-9512	

	132-3747	132-3748	
	138-1349	138-1350	
	138-8786	138-8787	
	176-6168	176-6169	1,3
latest	205-7024		4

50 HZ, PRIME/STANDBY, LO BSFC, JWAC

	Flash Part No.	Service Replacement	Reason
	135-6821	135-6822	
	138-1389	138-1390	
	138-8788	138-8789	
	183-9248	183-9249	1,3
latest	205-7028		4

60 HZ, PRIME/STANDBY, EMISSIONS

	Flash Part No.	Service Replacement	Reason
	130-8000	130-8001	
	138-1353	138-1354	
	176-6162	176-6163	1,3
latest	205-7025		4

60 HZ, PRIME/STANDBY, LO BSFC

	Flash Part No.	Service Replacement	Reason
	127-9871	127-9872	
	129-3094	129-3095	
	132-3745	132-3746	
	138-1355	138-1356	
	138-8790	138-8791	
	176-6170	176-6171	1,3
latest	205-7026		4

60 HZ, PRIME/STANDBY, LO BSFC, JWAC

	Flash Part No.	Service Replacement	Reason
	133-6952	133-6953	
	138-1357	138-1358	
	176-6174	176-6175	1,3
latest	205-7027		4

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3512B GENSET APPLICATION

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60 HZ/ 50HZ, PR, JWAC, DUAL

	60HZ Flash Part No.	Service Replacement	50HZ Flash Part No.	Service Replacement	Reason
	141-1830	141-1832	141-1831	141-1833	
	180-4812	180-4813	180-4814	180-4815	1,3
latest	205-7033		205-7034		4

50 HZ, CNT/PR/SB, EMISSIONS

	Flash Part No.	Service Replacement	Reason
	129-4187	128-6991	
	133-6956	133-6957	
	138-1359	138-1360	
	138-8792	138-8793	
	180-3878	180-3879	1,3
latest	205-7036		4

50 HZ, CNT/PR/SB, LO BSFC

	Flash Part No.	Service Replacement	Reason

	130-2603	130-2604	
	133-4663	133-4664	
	138-1361	138-1362	
	170-8482	170-8483	1,3
latest	205-7035		4

50 HZ, CNT/PR/SB, LO BSFC, JWAC

	Flash Part No.	Service Replacement	Reason
	140-2448	140-2449	
	185-1396	185-1397	1,3
latest	205-7032		4

60 HZ, CNT/PR/SB, EMISSIONS

	Flash Part No.	Service Replacement	Reason
	129-3089	129-3090	
	132-3749	132-3750	
	132-8717	132-8718	
	138-1363	138-1364	
	138-8794	138-8795	
	170-8480	170-8481	1,3
latest	205-7030		4

60 HZ, CNT/PR/SB, LO BSFC

	Flash Part No.	Service Replacement	Reason
	129-6779	129-6780	
	131-5251	131-5252	
	138-1365	138-1366	
	138-8796	138-8797	
	176-6184	176-6185	1,3
latest	205-7031		4

60 HZ, CNT/PR/SB, LO BSFC, JWAC

	Flash Part No.	Service Replacement	Reason
	135-6825	135-6826	
	138-1391	138-1392	
	138-8798	138-8799	
	185-1394	185-1395	1,3
latest	205-7029		4

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3516B GENSET APPLICATION

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50 HZ, CONTINUOUS/PRIME, EMISSIONS *

	Flash Part No.	Service Replacement	Reason
	129-4185	128-2851	
	138-1369	138-1370	
	138-8800	138-8801	
	180-3882	180-3883	1,3
latest	205-7037		4

50 HZ, PRIME/PRIME+10/STANDBY, EMISSIONS *

	Flash Part No.	Service Replacement	Reason
	129-4186	128-6989	
	133-6958	133-6959	
	138-2766	138-2767	
	180-3880	180-3881	1,3
latest	205-7038		4

50 HZ, CONTINUOUS/PRIME/PRIME+10/STANDBY, EMISSIONS *

	Flash Part No.	Service Replacement	Reason

	140-2444	140-2445	
	176-6042	176-6043	1,3
latest	206-8717		4

50 HZ, CONTINUOUS/PRIME, LO BSFC *

	Flash Part No.	Service Replacement	Reason
	130-2606	130-5272	
	132-3798	132-3799	
	138-1371	138-1372	
	138-8802	138-8803	
	180-3884	180-3885	1,3
latest	206-8718		4

50 HZ, PRIME/PRIME+10/STANDBY, LO BSFC *

	Flash Part No.	Service Replacement	Reason
	128-6998	128-6999	
	133-4665	133-4666	
	138-1377	138-1378	
	138-8804	138-8805	
	180-3886	180-3887	1,3
latest	206-8719		4

50 HZ, CONTINUOUS/PRIME/PRIME+10/STANDBY, LO BSFC *

	Flash Part No.	Service Replacement	Reason
	140-2446	140-2447	
	180-3890	180-3891	1,3
latest	206-8720		4

50 HZ, PRIME/STANDBY, LO BSFC, JWAC *

	Flash Part No.	Service Replacement	Reason
	136-7852	136-7853	
	138-1379	138-1380	
	180-3888	180-3889	1,3
latest	206-8721		4

60 HZ, CONTINUOUS, EMISSIONS

	Flash Part No.	Service Replacement	Reason
	129-3091	129-3092	
	130-7994	130-7995	
	132-8713	132-8714	
	133-4661	133-4662	
	138-1373	138-1374	
	180-4618	180-4619	1,3
latest	206-8722		4

60 HZ, CONTINUOUS, LO BSFC

	Flash Part No.	Service Replacement	Reason
	129-4188	129-5987	
	136-5921	136-5922	
	138-1375	138-1376	
	185-1400	185-1401	1,3
latest	206-8723		4

60 HZ, PRIME/STANDBY, EMISSIONS

	Flash Part No.	Service Replacement	Reason
	129-6784	129-6785	
	133-6954	133-6955	
	138-1381	138-1382	
	138-8806	138-8807	
	170-8494	170-8495	1,3
latest	206-8724		4

60 HZ, PRIME/STANDBY, EMISSIONS JWAC

	Flash Part No.	Service Replacement	Reason
	141-1828	141-1829	
	180-3892	180-3893	1,3
latest	206-8725		4

60 HZ, PRIME/STANDBY, LO BSFC

	Flash Part No.	Service Replacement	Reason
	129-6782	129-6783	
	132-3796	132-3797	
	138-1383	138-1384	
	138-8808	138-8809	
	180-3894	180-3895	1,3
latest	206-8726		4

60 HZ, PRIME/STANDBY, LO BSFC, JWAC

	Flash Part No.	Service Replacement	Reason
	135-6823	135-6824	
	138-1385	138-1386	
	185-1398	185-1399	1,3
latest	206-8727		4

3516B SPECIAL SETTINGS

LOCOMOTIVE

	Flash Part No.	Service Replacement	Reason
latest	135-4455	135-4456	

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3508B MARINE AUXILIARY APPLICATION
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50 HZ, EMISSIONS

	Flash Part No.	Service Replacement	Reason

50 HZ, LO BSFC

	Flash Part No.	Service Replacement	Reason
	131-5253	131-5254	
	135-6815	135-6816	
	138-1333	138-1334	
	144-8720	144-8721	
	183-5053	183-5054	1,3
latest	206-8737		4

60 HZ, EMISSIONS

	Flash Part No.	Service Replacement	Reason

60 HZ, LO BSFC

	Flash Part No.	Service Replacement	Reason
	143-7570	143-7571	
	144-8722	144-8723	
	183-5057	183-5058	1,3
latest	206-8736		4

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3512B MARINE AUXILIARY APPLICATION
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50 HZ, EMISSIONS

	Flash Part No.	Service Replacement	Reason
	140-2451	140-2452	
	144-8724	144-8725	
	183-5065	183-5066	1,3
latest	206-8735		4

50 HZ, LO BSFC

	Flash Part No.	Service Replacement	Reason
	140-2440	140-2441	
	144-8726	144-8727	
	183-5067	183-5068	1,3
latest	206-8734		4

60 HZ, EMISSIONS

	Flash Part No.	Service Replacement	Reason
	185-3608	185-3609	
latest	206-8733		4

60 HZ, LO BSFC

	Flash Part No.	Service Replacement	Reason
	129-4190	129-4191	
	135-6819	135-6820	
	138-1335	138-1336	
	144-8728	144-8729	
	183-5069	183-5070	1,3
latest	206-8732		4

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3516B MARINE AUXILIARY APPLICATION

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50 HZ, EMISSIONS

	Flash Part No.	Service Replacement	Reason

50 HZ, LO BSFC

	Flash Part No.	Service Replacement	Reason
	138-2768	138-2769	
	144-8730	144-8731	
	183-4891	183-4892	1,3
latest	206-8731		4

60 HZ, EMISSIONS

	Flash Part No.	Service Replacement	Reason
	135-0182	135-0183	
	138-2760	138-2761	
	138-2771	138-2772	
	144-8732	144-8733	
	183-5055	183-5056	1,3
latest	206-8730		4

60 HZ, LO BSFC

	Flash Part No.	Service Replacement	Reason
	128-6996	128-6997	
	135-6817	135-6818	
	138-1339	138-1340	
	144-5701	144-5702	
	183-4889	183-4890	1,3
latest	206-8729		4

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3508B MARINE PROPULSION

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1600 RPM, HEAVY WEIGHT, LO BSFC

	Primary Flash Part No.	Service Replacement	Backup Flash Part No.	Service Replacement	Reason
	132-4637	132-4639	132-4638	132-4640	
	135-4457	135-4459	135-4458	135-4560	
	138-1275	138-1277	138-1276	132-1278	
	143-7572	143-7574	143-7573	143-7575	
	170-3328	170-3330	170-3329	170-3331	1
latest	206-8742		206-8743		4

1600 RPM, HEAVY WEIGHT, EMISSIONS

	Primary Flash Part No.	Service Replacement	Backup Flash Part No.	Service Replacement	Reason
	135-6831	135-6833	135-6832	135-6834	
	138-1279	138-1281	138-1280	138-1282	
	143-7576	143-7578	143-7577	143-7579	
	170-8472	170-8474	170-8473	170-8475	1
latest	206-8750		206-8751		4

1800 RPM, HEAVY WEIGHT, LO BSFC

	Primary Flash Part No.	Service Replacement	Backup Flash Part No.	Service Replacement	Reason
	133-4653	133-4655	133-4654	133-4656	
	135-5521	135-5523	135-5522	135-5524	
	138-1283	138-1285	138-1284	138-1286	
	143-7580	143-7582	143-7581	143-7583	
	170-3336	170-3338	170-3337	170-3339	1
latest	206-8744		206-8745		4

1800 RPM, HEAVY WEIGHT, EMISSIONS

	Primary Flash Part No.	Service Replacement	Backup Flash Part No.	Service Replacement	Reason
	141-1838	141-1840	141-1839	141-1841	
	143-9878	143-9880	143-9879	143-9881	
	170-8476	170-8478	170-8475	170-8477	1
latest	206-8746		206-8747		4

1735 RPM, LIGHT WEIGHT, A RATING

	Primary Flash Part No.	Service Replacement	Backup Flash Part No.	Service Replacement	Reason

1785 RPM, LIGHT WEIGHT, B RATING

	Primary Flash Part No.	Service Replacement	Backup Flash Part No.	Service Replacement	Reason
	138-1287	138-1289	138-1288	138-1290	
	138-8810	138-8812	138-8811	138-8813	
	143-9882	143-9884	143-9883	143-9885	
	171-2464	171-2466	171-2465	171-2467	1
latest	206-8748		206-8749		4

1835 RPM, LIGHT WEIGHT, C RATING

	Primary Flash Part No.	Service Replacement	Backup Flash Part No.	Service Replacement	Reason
	145-4731	145-4733	145-4732	145-4734	
	171-2472	171-2474	171-2473	171-2475	1
latest	206-8750		206-8751		4

1880 RPM, LIGHT WEIGHT, D RATING

	Primary Flash Part No.	Service Replacement	Backup Flash Part No.	Service Replacement	Reason
	131-2762	131-2764	131-2763	131-2765	
	135-5525	135-5527	135-5526	135-5528	
	138-8814	138-8816	138-8815	138-8817	
	143-9886	143-9888	143-9887	143-9889	
	171-2468	171-2470	171-2469	171-2471	1
latest	206-8752		206-8753		4

1925 RPM, LIGHT WEIGHT, E RATING

	Primary Flash Part No.	Service Replacement	Backup Flash Part No.	Service Replacement	Reason
	143-8720	143-8722	143-8721	143-8723	
	143-9890	143-9892	143-9891	143-9893	
	176-5976	176-5978	176-5977	176-5979	1
latest	206-8754		206-8755		4

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3512B MARINE PROPULSION

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1600 RPM, HEAVY WEIGHT, LO BSFC

	Primary Flash Part No.	Service Replacement	Backup Flash Part No.	Service Replacement	Reason
	131-2766	131-2768	131-2767	131-2769	
	131-5259	132-4643	131-5260	132-4644	
	135-4461	135-4463	135-4462	135-4464	
	136-9014	136-9016	136-9015	136-9017	
	137-8038	137-8040	137-8039	137-8041	
	138-1297	138-1299	138-1298	138-1300	
	138-8818	138-8820	138-8819	138-8821	
	143-9894	143-9896	143-9895	143-9897	
	170-8468	170-8470	170-8469	170-8471	1
latest	206-8756		206-8757		4

1600 RPM, HEAVY WEIGHT, EMISSIONS

	Primary Flash Part No.	Service Replacement	Backup Flash Part No.	Service Replacement	Reason

1800 RPM, HEAVY WEIGHT, LO BSFC

	Primary Flash Part No.	Service Replacement	Backup Flash Part No.	Service Replacement	Reason
	132-4633	132-4635	132-4634	132-4636	
	135-5529	135-5531	135-5530	135-5532	
	138-1301	138-1303	138-1302	138-1304	
	145-3205	145-3207	145-3206	145-3208	
	170-3314	170-3316	170-3315	170-3317	1
latest	206-8758		206-8759		4

1800 RPM, HEAVY WEIGHT, EMISSIONS

	Primary Flash Part No.	Service Replacement	Backup Flash Part No.	Service Replacement	Reason
	140-9598	140-9600	140-9599	140-9601	
	143-9900	143-9902	143-9901	143-9903	
	176-6036	176-6038	176-6037	176-6039	1
latest	206-8760		206-8761		4

1735 RPM, LIGHT WEIGHT, A RATING

	Primary Flash Part No.	Service Replacement	Backup Flash Part No.	Service Replacement	Reason

1785 RPM, LIGHT WEIGHT, B RATING

	Primary Flash Part No.	Service Replacement	Backup Flash Part No.	Service Replacement	Reason

1835 RPM, LIGHT WEIGHT, C RATING

	Primary Flash Part No.	Service Replacement	Backup Flash Part No.	Service Replacement	Reason
	148-2945	148-2947	148-2946	148-2948	
	171-2484	171-2486	171-2485	171-2487	1
latest	206-8766		206-8767		4

1880 RPM, LIGHT WEIGHT, D RATING

	Primary Flash Part No.	Service Replacement	Backup Flash Part No.	Service Replacement	Reason
	135-6835	135-6837	135-6836	135-6838	
	138-1305	138-1307	138-1306	138-1308	
	143-9906	143-9908	143-9907	143-9909	
	171-2480	171-2482	171-2481	171-2483	1
latest	206-8764		206-8765		4

1925 RPM, LIGHT WEIGHT, E RATING

	Primary Flash Part No.	Service Replacement	Backup Flash Part No.	Service Replacement	Reason
	133-3809	133-3811	133-3810	133-3812	
	135-5533	133-5535	135-5534	135-5536	
	137-8042	137-8044	137-8043	137-8045	
	138-1309	138-1311	138-1310	138-1312	
	143-9910	143-9912	143-9911	143-9913	
	171-5648	171-5650	171-5649	171-5651	1
latest	206-8762		206-8763		4

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3516B MARINE PROPULSION

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1600 RPM, HEAVY WEIGHT, LO BSFC

	Primary Flash Part No.	Service Replacement	Backup Flash Part No.	Service Replacement	Reason
	131-2770	131-2768	131-2767	131-2769	
	131-5257	132-4641	131-5258	132-4642	
	135-5537	135-5539	135-5538	135-5540	
	138-8822	138-8824	138-8823	138-8825	
	143-9914	143-9916	143-9915	143-9917	
	170-3320	170-3322	170-3321	170-3323	1
	180-8636	180-8638	180-8637	180-8639	2
latest	207-3605		207-3606		4

1600 RPM, HEAVY WEIGHT, EMISSIONS

	Primary Flash Part No.	Service Replacement	Backup Flash Part No.	Service Replacement	Reason

1800 RPM, HEAVY WEIGHT, LO BSFC

	Primary Flash Part No.	Service Replacement	Backup Flash Part No.	Service Replacement	Reason
	133-6948	133-6950	133-6949	133-6951	
	143-9918	143-9920	143-9919	143-9921	
	176-6120	176-6122	176-6121	176-6123	1
latest	206-8768		206-8769		4

1800 RPM, HEAVY WEIGHT, EMISSIONS

	Primary	Service	Backup	Service	Reason

	Primary Flash Part No.	Service Replacement	Backup Flash Part No.	Service Replacement	Reason
1735 RPM, LIGHT WEIGHT, A RATING					
	133-4657	133-4659	133-4658	133-4660	
	135-5541	135-5543	135-5542	135-5544	
	138-1317	138-1319	138-1318	138-1320	
	143-9922	143-9924	143-9923	143-9925	
	176-6124	176-6162	176-6125	176-6127	1
latest	206-8770		206-8771		4
1785 RPM, LIGHT WEIGHT, B RATING					
	133-4661	133-4663	133-4662	133-4664	
	135-5545	135-5547	135-5546	135-5548	
	138-1321	138-1323	138-1322	138-1324	
	143-9926	143-9928	143-9927	143-9929	
	176-6132	176-6134	176-6133	176-6135	1
latest	206-8772		206-8772		4
1835 RPM, LIGHT WEIGHT, C RATING					
	133-4657	133-4659	133-4658	133-4660	
	135-5541	135-5543	135-5542	135-5544	
	138-1317	138-1319	138-1318	138-1320	
	143-9922	143-9924	143-9923	143-9925	
	176-6124	176-6162	176-6125	176-6127	1
latest	206-8770		206-8771		4
1880 RPM, LIGHT WEIGHT, D RATING					
	131-5255	130-7998	131-5256	130-7999	
	135-6811	135-6813	135-6812	135-6814	
	138-1321	138-1323	138-1322	138-1324	
	143-9926	143-9928	143-9927	143-9929	
	176-6132	176-6134	176-6133	176-6135	1
latest	206-8772		206-8772		4
1925 RPM, LIGHT WEIGHT, E RATING					
	131-5255	130-7998	131-5256	130-7999	
	135-6811	135-6813	135-6812	135-6814	
	138-1321	138-1323	138-1322	138-1324	
	143-9926	143-9928	143-9927	143-9929	
	176-6132	176-6134	176-6133	176-6135	1
latest	206-8772		206-8772		4

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3516B SPECIAL SETTINGS
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	Primary Flash Part No.	Service Replacement	Backup Flash Part No.	Service Replacement	Reason
1855 RPM, LIGHT WEIGHT (D&E maps)					
	132-3741	132-3743	132-3742	132-3744	
	135-5517	135-5519	135-5518	135-5520	
	138-1325	138-1327	138-1326	138-1328	
	143-9930	143-9932	143-9931	143-9933	
	176-6128	176-6130	176-6129	176-6131	1
latest	206-8774		206-8775		4
1800 RPM, HEAVY WEIGHT, LO BSFC, 1600 RPM HW					
	135-6827	135-6829	135-6828	135-6830	
	138-1329	138-1331	138-1330	138-1332	
latest	143-9934	143-9936	143-9935	143-9937	

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3500B Commercial Engine (Built > 4/97) FLASH File Cross-Reference
Updated 20Mar2006

VERSION D - VERSION D - VERSION D - VERSION D - VERSION D

This software list services engines built after April 1997 that have version 'D' ECM's. Latest software services these Serial Numbers back to the first Serial Number listed. If your serial number prefix is listed below, but the serial number is earlier than the ranges below, use the list entitled "3500B Commercial Engine (Built < 4/97) FLASH File Cross-Reference."

EPG	MARINE AUX	MARINE PROPULSION	LOCOMOTIVE
4GM212-UP	3DM93-UP	2BM123-UP	5PS1-UP
8RM200-UP	8EM258-UP	7HM172-UP	3ZW1-UP
6HN156-UP	9AN121-UP	7SM77-UP	6HZ1-UP
6PN285-UP	3DW1-UP	4TN96-UP	
6WN135-UP	1PW1-UP	8CN144-UP	
7RN463-UP	2FW1-UP	8KN143-UP	
2HW1-UP		1TW1-UP	
4AW1-UP		2GW1-UP	
1NW1-UP		3CW1-UP	
1FZ1-UP			
1GZ1-UP			
1HZ1-UP			

NOTE: 3500 with EUI Option Commercial Engine FLASH files are listed in the cross reference entitled "3500 with EUI Option Commercial Engine FLASH File Cross-Reference."

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Notes for Using This Document

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Software is listed by application then number of cylinders. All engines are SCAC (Separate Circuit After Cooled) unless specified.

Part numbers listed under the "Flash Part No." column are flash file numbers. These are software numbers that can be downloaded from the Caterpillar mailbox or SISWeb or copied from the SIS Flash Files CD. These numbers can NOT be ordered from the parts distribution system. Flash files must be used when updating software electronically using Winflash in Cat ET.

A part number listed under the "Chip Version" column is the part number of the removable chip inside the ECM that contains the flash file software listed left of it.

EXAMPLE:

50 HZ, 1500 RPM, CONTINUOUS/PRIME/STANDBY, EMISSIONS

	Flash Part No.	Chip Version	Reason
	159-4667	159-4668	6
latest	176-6148	176-6149	16,18,21,23

In the example above, assume that an engine ECM currently has the 159-4667 flash file in it. The latest flash file available for this engine is 176-6148 as indicated. Most dealers would use Cat ET to flash this 176-6148 flash file into the ECM. If the dealer did not have flash capability, the 176-6149 chip could

be ordered from the parts distribution system and installed into the ECM through the access cover on the back. The 176-6149 chip is pre-flashed with the 176-6148 flash file.

These "chips" are made available for a very small percentage of service locations that do not have flash capability. These parts must be ordered from the parts distribution system and physically installed in the ECM using the access cover. Most dealers will never order chips from the "Chip Version" column. The flash method of updating software described above is the preferred method. The chips will be phased out in the future as dealers around the world upgrade tooling and training for electronic engines.

As of 1/1/2001 the LEC
has stopped making the chip version of software for new releases.
all future software updates will be "flash only" and dealers must have Cat ET and the necessary hardware and training to flash update engines.

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Reasons for software change:
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1. Minor adjustments to torque and timing maps to add B rating.
2. Fix to keep backup ECM from assuming control if engine is restarted via a remote start/stop switch without first cycling power to the ECM. S.L. PI3078
3. Fix to correct Premium EIP problem with Aftercooler temperature gage sealing.
4. Updated programmable monitoring system and raised max altitude derate trip point.
5. Timing map adjustment.
6. Revised timing maps for common turbo.
7. Change to programmable monitoring system and default aftercooler temp raised for JWAC.
8. Torque map adjusted.
9. Torque and timing map changes for Larne low power resolution. Used on SCAC and JWAC engines.
10. Correction to error in FIND-Text.
11. Smoke map revision. Smoke map interfered after rack change in test spec.
12. Interim fix for Woodward Loadshare Module low voltage problem. At low idle the generator may not produce enough voltage to power up the Woodward Load Share Module. Therefore, no PWM speed signal will be sent from the WLSM to the ECM. This causes the engine to remain at low idle with an active 91-8 invalid throttle signal code. The new ECM software allows the low idle speed to be programmed to a higher value. This allows the generator to produce more voltage and power up the WLSM. Suggested low idle setting is 1200 RPM for 1800 RPM engines.
13. Modified torque map for GL witness test. Engine performance in field is unaffected by this change.
14. High idle was adjusted per customer request.
15. Several problems are fixed with this update.
A) Fix for Engine Protection Override Switch (EPOS) problem.

Some versions of software do not recognize the (EPOS) and will not allow an engine triggered shutdown to be overridden. See service letter PI1395.
B) Fix for the General Alarm Relay (GAR). Some versions of previous software did not operate the GAR as designed. This relay is used by some installations to relay certain monitoring system events to the vessel control system.
C) Fix for intermittent EMSII "!Stop" light flashing. See 15 July 1998 TIB entitled "Intermittent Engine Monitoring System (EMS) "!Stop" Light Flashing On Marine Propulsion Engines." (Removed in reason code 17)
D) Fix for Engine Vision Display Error. A negative crankcase pressure value would cause Engine Vision to display "Error". The new software eliminates this problem. (Removed in reason code 17)
16. Fix for erroneous logging of high crankcase pressure events. New software has improved software filtering of crankcase pressure sensor raw data to stabilize readings and eliminate false event logging. (Removed in reason code 17)
17. The software released with reason codes 15 & 16 may have a 101-13 crankcase pressure calibration required diagnositc. The diagnostic can be cleared by performing a manual calibration, but it often returns when power to the ECM is cycled. It was necessary to release software that had a vaild fix for the EPOS problem described in reason code 15 above, but the resulting software with an active 101-13 was not acceptable. Therefore this new software with reason code 17 was released. It contains fixes for the EPOS & GAR problems (reason codes 15 A & B). The remaining fixes for reason codes 15 C, D, and 16 were taken out of this new software to avoid the 101-13 problem. These fixes that were removed will be put back into the next software update along with a few new bug fixes. This update is expected during 2Q 1999.
18. A change was made to the 94-02 and 289-02 fuel pressure sensor misinstalled diagnostic strategies to reduce false logging. The diagnostics will no longer activate below 200 RPM. Electronic filtering was also added to the software for the fuel pressure signals for more stable readings. A March 17, 1999 TIB will also help to properly identify the filtered and unfiltered fuel pressure sensor ports.
19. Solutions for Reason Codes 15 C & D and 16 that were removed in Reason Code 17 have been corrected and added back to the software. The false logging of 101-13 has been eliminated.
20. Solution to EMSII 248-02 code and light flashing issue mentioned in Jan 28, 1998 TIB. This issue only affects Marine Propulsion applications equipped with Pilothouse panels.
21. Improved inlet air restriction and oil pressure monitoring. This should help to reduce false high inlet air restriction warnings.
22. Added Direct Fueling programmable parameter. When the feature is enabled the PWM signal is used by the ECM as a desired rack signal. This allows an external governor to control engine fueling directly. When the feature is disabled the PWM signal is used by the ECM as a desired speed signal and the ECM performs governing functions. The Direct Fueling feature was developed so the petroleum industry SCR systems could more easily interface with 3500B engines. Typically other hardware is required when the direct fueling option is enabled.
23. Software added dedicated low idle switch input (J1-P26)to ECM.

Earlier EPG engines with switchgear conversion panels (Electronic Instrument Panels) would activate a 91-08 Speed Control Output Signal Is Abnormal diagnostic when the low idle switch was activated. The diagnostic became active because the switch was wired in-line with the PWM speed control signal. When a 91-08 diagnostic is active the ECM defaults to low idle so the switch has the intended effect. However, the active diagnostic created problems with certain electronic monitoring systems. The new dedicated low idle switch ECM input allows the switch to request low idle speed without opening the speed control signal and activating the 91-08 diagnostic. This feature can be utilized on all previous 3500B EPG engines by rewiring the low idle switch. The engine uses the speed control signal to determine desired speed when ECM J1-P26 is open. Low idle becomes the desired speed when J1-P26 is grounded. If the switch wiring is not changed on EPG engines when the new software is flashed, the low idle switch will continue to operate as it always has - activating the 91-08 diagnostic. However, Marine Auxiliary engines that are field updated with the new software will need to make a wiring change. ECM J1-P26 on Marine Aux engines currently has circuit 412-BU connecting it to the Electronic Speed Switch (ESS) pin 12. This circuit currently serves no function and can be disconnected by removing the wire from pin 12 of the ESS and tying it back or installing the low idle switch. IF THIS CHANGE IS NOT MADE, THE ENGINE WILL REMAIN AT LOW IDLE. Note: The low idle switch input feature will not eliminate a 91-08 diagnostic code caused by a Woodward Load Share Module that is powered by the generator potential Transformers (PTs). This can be eliminating by upgrading to the new 161-0797 24 VDC WLSM. Refer to Special Instruction REHS0532 and August 1999 Engine News article entitled "New Governor Control (Load Share Module) for Generator Set Engines" for details.

24. Disabled "Butt-Engagement Detection" strategy for starter. Normally this strategy checks for engine rotation during cranking and will de-energize the start motor solenoid if no engine rotation is detected within 3 seconds. However, the strategy may prevent starting if used on engines with air starters and air prelube systems that are initiated by the start motor solenoid. Engines used in petroleum applications commonly have this feature disabled.

25. Improved 94-02 and 289-02 fuel pressure sensor misinstalled diagnostic strategy. The previous change in reason code 18 was only partially successful. The new strategy increases the amount of negative fuel pressure differential required to log the misinstalled codes from -15 kPa to -70 kPa. In addition, the absolute value of the fuel filter differential pressure is now used for display purposes and event logging. This will allow the ECM to monitor differential pressure even if the sensors are installed backward.

26. The percent load calculation has been changed to more accurately reflect engine load. The new percent load calculation also effects the Load Feedback signal ECM output. Be certain to verify that the new software strategy will not adversely effect vessel control systems that utilize this output before flashing the ECM with the new software.

27. The Low Coolant Temperature warning strategy has been improved. This strategy has been improved to reduce low coolant temperature warnings when the engine is lightly loaded. The strategy now uses engine load as well as coolant temperature to determine if the engine is being over cooled. A new Coolant Warning Engine Load Enable Threshold parameter has been added to support this feature. This parameter label will be used in forthcoming versions of Cat ET. Until then the parameter will show up as Load Warning Set.

28. FLS/FTS power adjustment added. Factory level passwords are required to change FLS and FTS. FLS and FTS may be programmed without passwords once on a new (blank) ECM. This occurs when the tattletale is zero. Cat ET Version 3.2 or later is required to program FLS/FTS.

29. The monitoring system is now disabled when engine speed is zero. It was

previously possible for the monitoring system to activate an alarm with no engine speed. This resulted in nuisance alarms in applications where the electrical system is left powered up when the engine is not running.
30. Programmable governor gains added. Engine ECM governor gains may be adjusted if the default gain factors do not provide satisfactory system response characteristics. Default governor gain settings are recommended for almost all applications. If changing gain parameters refer to Special Instruction form REHS1109.
31. Rated Fuel Default to Minimum. When replacing a failed ECM the rated fuel limit parameter will now default to a minimum value. The parameter will need to be programmed after the correct value has been obtained from TMI. Previously, the rated fuel limit parameter defaulted to a maximum value and engine damage could occur if it was not properly programed following an ECM replacement.
32. Altitude derate annunciation supression on EMSII. Altitude derate causes the EMSII "!Stop" light to flash. Many customers knowingly operate in derate mode and the continuous light flashing is a nuisance and may disguise a new diagnostic. For this reason, altitude derate will now cause the EMSII "!Stop" light to flash for 15 seconds. After 15 seconds the light will stop flashing. The derate is still active and can be viewed with Cat ET. Only the annunication of the derate has changed.
33. Minimum oil pressure map for low oil pressure warnings is now 69 kPa at low engine speeds. This value was increased to provide added protection to turbochargers.
34. Torque Limit feature added. Programmable parameter allows engine torque to be limited. Parameter may be programmed to a value between torque at rated speed and peak torque.
35. General alarm relay feature updated. The general alarm relay will now activate for low fuel level and low coolant level. These two conditions did not previously activate the general alarm relay.
36. Injector E-Trim feature has been updated. A 1495-02 "Injector Trim Not Prog" diagnostic code will activate if the injector trim calibration codes have not been entered. Previously the injector trim codes defaulted to 1100 (no adjustment) and no diagnostic was present. The 1495-02 diagnostic will activate when updating software on existing engines containing injectors that do not have trim codes. To fix the problem, go the calibration screen in Cat ET and reprogram all of the codes to 1100. If the injectors in the engine DO have trim codes program those trim codes into Cat ET.
37. 100-hour programmable parameter grace period has been restored. The grace period allows certain parameters to be programmed without factory passwords during the first 100 hours to simplify installation and commissioning. This grace period was inadvertently removed from some flash files.
38. Changed timing map to correct high idle instability issue for PIR E5-01-012.
Unstable engine speed is sometimes seen during high speed, very low load conditions on EPA/IMO certified ratings. Instability goes away when engine load is applied or engine speed is reduced. Certain best BSFC genset ratings are also affected when a cooling fan is NOT used.
39. High idle engine speed was reduced from 2050 rpm down to 1950 rpm in oil well fracturing applications.
40. High idle engine speed was reduced from 2050 rpm down to 1920 rpm in oil well fracturing applications.
41. Hydraulic air shutoff actuation duration time increased to five seconds.
42. Diagnostic lamp capabilities added.
43. High idle was reduced to 1515 rpm.
44. Torque limit feature added.
45. High idle instability fix.
46. 1495-02 (injector trim code not programmed) fix.
47. Starter butt engagement feature disabled.
48. Torque map change
49. Fuel map change
50. Torque limit feature modified lowering the minimum value.
51. Contains wrong high idle

52. Contains correct high idle.
53. Contains injector launch detection strategy.
54. Torque map change enhancing low rpm performance
55. Added shutdown for detection of injector "launch"
56. Revised default governor gains to correct problem with adjustable gains.
57. Allows low idle down to 450 RPM
58. Changes oil pressure diagnostics for cold start-up.
59. Updated template to provide 3 miniute delay on oil pressure at cold startup
60. Updated Torque and timing maps
61. Updated Core map to provide latest default governor gains.
62. Corrected the Core map to update the default governor gains.
63. Adjustable idle from 450 to 1800 RPM depending on engine rating
64. Updated timing maps
65. Updated Torque maps
66. Updated the 94-11 code (fuel pressure dropped below 320 kpa for more than 20 sec.
67. Low idle set to 450 RPM
68. High idle set to 1300RPM

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3508B GENSET APPLICATIoN
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50 HZ, 1000 RPM, CONTINUOUS/PRIME, LO BSFC, JWAC

	Flash Part No.	Chip Version	Reason
	177-3006	177-3007	
	177-3008		
	203-9249	N/A	22, 25-33
	205-6961		37
latest	227-4875		45, 46

50 HZ, 1500 RPM, CONTINUOUS, LO BSFC

	Flash Part No.	Chip Version	Reason
	149-6132	149-6133	
	162-3930	162-3931	5
	176-6150	176-6151	16,18,21,23
	203-9244	N/A	22, 25-33
latest	205-6969		37

50 HZ, 1500 RPM, PRIME/STANDBY, EMISSIONS

	Flash Part No.	Chip Version	Reason
	149-0331	149-0332	
	156-3704	156-3705	4
latest	185-1858	185-1859	16,18,21,23

50 HZ, 1500 RPM, PRIME/PRIME+10/STANDBY, LO BSFC

	Flash Part No.	Chip Version	Reason
	148-2935	148-2936	
	176-6144	176-6145	16,18,21,23
	212-4410	N/A	
latest	227-4873	N/A	46

50 HZ, 1500 RPM, PRIME/STANDBY, LO BSFC, JWAC

	Flash Part No.	Chip Version	Reason
	148-3647	148-3648	
	156-3700	156-3701	4
	176-6144	N/A	
	212-4410	N/A	16,18,21,23
latest	227-4873	N/A	46

50 HZ, 1500 RPM, CONTINUOUS/PRIME/STANDBY, EMISSIONS

	Flash Part No.	Chip Version	Reason
	159-4667	159-4668	6
	176-6148	176-6149	16,18,21,23
	203-9243	N/A	22, 25-33
	205-6970		37
latest	229-0266		45, 46

50 HZ, 1500 RPM, CONTINUOUS/PRIME/STANDBY, LO BSFC, JWAC

	Flash Part No.	Chip Version	Reason
	163-0671	163-0672	6
	176-6150	176-6151	16,18,21,23
	205-6969		
latest	229-0265		45, 46

60 HZ 1200 RPM, Low BSFC

	Flash Part No.	Chip Version	Reason
	201-1668		
latest	229-0267		45, 46

60 HZ, 900 RPM, CONTINUOUS/PRIME, LO BSFC, JWAC

	Flash Part No.	Chip Version

60 HZ, 1200 RPM, CONTINUOUS/PRIME/PRIME+10/STANDBY, EPA CERT

	Flash Part No.	Chip Version	Reason
	185-2953	185-2954	
	204-2498	N/A	22, 25-33
latest	227-4874		45, 46

60 HZ, 1800 RPM, CONTINUOUS, EMISSIONS

	Flash Part No.	Chip Version	Reason
	148-2937	148-2938	
	156-3708	156-3709	4
	162-8201	162-8202	5
	176-6160	176-6161	16,18,21,23
	203-9246	N/A	22, 25-33
	205-6967		37
latest	229-0264		45, 46

60 HZ, 1800 RPM, CONTINUOUS, LO BSFC

	Flash Part No.	Chip Version	Reason
	157-3698	157-3699	10
	157-3702	157-3703	5
	176-6158	176-6159	16,18,21,23
	203-9245	N/A	22, 25-33
	205-6968		
latest	229-0263		45, 46

60 HZ, 1800 RPM, PRIME/PRIME+10/STANDBY, EMISSIONS

	Flash Part No.	Chip Version	Reason
	152-5500	152-5501	
	153-3036	153-3037	5
latest	185-1856	185-1857	16,18,21,23

60 HZ, 1800 RPM, PRIME/PRIME+10/STANDBY, LO BSFC

	Flash Part No.	Chip Version	Reason
	149-0327	149-0328	
latest	176-6146	176-6147	16,18,21,23

60 HZ, 1800 RPM, PRIME/PRIME+10/STANDBY, EPA CERT

	Flash Part No.	Chip Version	Reason
	180-8681	180-8682	
	203-9250	N/A	22, 25-33
	205-6964		37
Latest	227-4872		45, 46

60 HZ, 1800 RPM, CONTINUOUS/PRIME/PRIME+10/STANDBY, LO BSFC, JWAC

	Flash Part No.	Chip Version	Reason
	148-2941	148-2942	
	156-3706	156-3707	4
	163-0673	163-0674	6
	176-6172	176-6173	16,18,21,23
	203-9247	N/A	22, 25-33
	205-6966		37
	209-9741		38
latest	227-4877		45, 46

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3512B GENSET APPLICATION

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50 HZ 1000 RPM, Low BSFC

	Flash Part No.	Chip Version	Reason
	201-1674		
latest	228-5157		45, 46

50 HZ, 1500 RPM, CNT/PR/PR+10/SB, EMISSIONS

	Flash Part No.	Chip Version	Reason
	147-9583	147-9584	
	164-2034	164-2035	9
	176-6192	176-6193	16,18,21,23
	201-1673	N/A	22, 25-33
	205-6943		37
latest	228-5154		45, 46

50 HZ, 1500 RPM, CNT/PR/PR+10/SB, EMISSIONS, REV ROTATION

	Flash Part No.	Chip Version	Reason
	153-3019	153-3020	
	176-6186	176-6187	16,18,21,23
	201-1678	N/A	22, 25-33
	205-6938		37
latest	228-5165		45, 46

50 HZ, 1500 RPM, CNT/PR/PR+10/SB, LO BSFC

	Flash Part No.	Chip Version	Reason
	148-2943	148-2944	
	150-8472	150-8473	
	163-6380	163-6381	9
	180-5070	180-5071	16,18,21,23
	201-1666	N/A	22, 25-33
	205-6941	N/A	37
	227-4882	N/A	46
latest	266-2984		65

50 HZ, 1500 RPM, CNT/PR/PR+10/SB, LO BSFC, REV ROTATION

	Flash Part No.	Chip Version	Reason
	180-0620	180-0621	

	203-9255	N/A	22, 25-33
	205-6937		37
latest	228-5163		45, 46

60 HZ/ 50HZ, PR, JWAC, DUAL

	60HZ Flash Part No.	Chip Replacement	50HZ Flash Part No.	Service Replacement	Reason
	149-3453	149-3454	149-3455	149-3456	
	176-6196	176-6197	176-6198	176-6199	16,18,21,23
	201-1665	N/A			22, 25-33
	205-6940		208-6651		37
latest	228-5164				45, 46

60 HZ 1200 Low BSFC

	Flash Part No.	Chip Version	Reason
	201-1672		
latest	228-5155		45, 46

60 HZ, 900 RPM, CONTINUOUS/PRIME, LO BSFC, JWAC

Flash Part No.	Chip Version

60 HZ, 1200 RPM, CONTINUOUS/PRIME/STANDBY, EMISSIONS

Flash Part No.	Chip Version	Reason
163-6368	163-6369	
176-6180	176-6181	16,18,21,23
204-2492	N/A	22, 25-33
208-6647		37
latest 228-5156		46

60 HZ, 1200 RPM, CONTINUOUS/PRIME/STANDBY, LO BSFC, JWAC

Flash Part No.	Chip Version	Reason
151-7131		
164-2040	164-2041	
180-1730	180-1731	16,18,21,22,23
204-2493	N/A	22, 25-33
208-6650		37
latest 228-5162		46

60 HZ, 1200 RPM, CONTINUOUS/PRIME/STANDBY, EPA CERT

Flash Part No.	Chip Version	Reason
185-2997	185-2998	
204-2494	N/A	22, 25-33
205-6934		37
latest 228-5158		46

60 HZ, 1800 RPM, CNT/PR/PR+10/SB, EMISSIONS

Flash Part No.	Chip Version	Reason
148-2931	148-2932	
164-2038	164-2039	9
176-5990	176-5991	16,18,21,23
201-1676	N/A	22, 25-33
205-6944		37
latest 227-4881		46

60 HZ, 1800 RPM, CNT/PR/PR+10/SB, LO BSFC

Flash Part No.	Chip Version	Reason
147-9585	147-9586	
164-2036	164-2037	9
167-0587	167-0288	12

	176-6040	176-6041	16,18,21,23
	201-1671	N/A	22, 25-33
	205-6942		37
latest	228-5153		46

60 HZ, 1800 RPM, CNT/PR/PR+10/SB, EPA CERT

	Flash Part No.	Chip Version	Reason
	180-8679	180-8680	
	201-1661	N/A	22, 25-33
	205-6945		37
latest	228-5159		45, 46

60 HZ, 1800 RPM, CNT/PR/PR+10/SB, LO BSFC, JWAC

	Flash Part No.	Chip Version	Reason
	148-1963	148-1964	
	155-1747	155-1748	4
	164-2036	164-2037	9
	167-0587	167-0288	12
	176-6040	176-6041	16,18,21,23
	201-1671	N/A	22, 25-33
latest	205-6942		37

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3516B GENSET APPLICATION

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60 HZ, 1800 RPM, CONTINUOUS/PRIME/STANDBY, LO BSFC

	Flash Part No.	Chip Version	Reason
	189-8564		
latest	231-5007		47

50 HZ, 1500 RPM, CONTINUOUS/PRIME/PRIME+10/STANDBY, LO BSFC

	Flash Part No.	Chip Version	Reason
	215-5811		
latest	224-3075		47

60 HZ 1800 RPM Standby (Special Rating)

	180-4616

60 HZ 1800 RPM Standby

	209-9739	
	228-5169	46
	242-5347	53
	251-3191	58
Latest	271-0368	66

60 HZ Low NOX 1200 RPM

	Flash Part No.	Chip Version	Reason
	213-9322		
	228-5179		46
	261-7506		59
Latest	271-0378		66

60 HZ 1200 RPM Low NOX Land Electric

	Flash Part No.	Chip Version	Reason
	212-4417		
	228-5178		46
	261-7505		59
Latest	271-0377		66

60 HZ/50 HZ, PRIME/PRIME+10, LO BSFC, DUAL

	Flash Part No.	Replacement	Flash Part No.	Replacement	Reason
	161-1792	161-1793	161-1794	161-1795	
	180-3405	180-3406	180-3407	180-3408	16,18,21,23
	201-1685	N/A			22, 25-33
latest	205-6997				37

50 HZ, 1000 RPM, CONTINUOUS/PRIME/STANDBY, LO BSFC, JWAC

	Flash Part No.	Chip Version	Reason
	175-5354	175-5355	
latest	204-2487	N/A	22, 25-33

50 HZ, 1500 RPM, CONTINUOUS/PRIME/PRIME+10/STANDBY, EMISSIONS

	Flash Part No.	Chip Version	Reason
	149-6150	149-6151	
	176-6048	176-6049	16,18,21,23
	201-1693	N/A	22, 25-33
	205-7001	N/A	37
	228-5172	N/A	46
	242-5353	N/A	53
	251-3195	N/A	58
Latest	272-2468		66

50 HZ, 1500 RPM, CONTINUOUS/PRIME/PRIME+10/STANDBY, LO BSFC

	Flash Part No.	Chip Version	Reason
	148-3674	148-3675	
	149-0335	149-0336	4
	158-7626	158-7627	6
	169-2607	169-2608	
	176-6050	176-6051	16,18,21,23
	201-1691	n/a	22, 25-33
	205-7000	n/a	37
	228-5176	n/a	46
	251-3194	n/a	58
	242-5350	n/a	53
	261-7507	n/a	59
Latest	272-2466		66

50 HZ, 1500 RPM, CONTINUOUS/PRIME/PRIME+10/STANDBY, LO BSFC, JWAC

	Flash Part No.	Chip Version	Reason
	153-3038	153-3039	
latest	176-6042	176-6043	16,18,21,23

60 HZ, 900 RPM, CONTINUOUS/PRIME, LO BSFC, JWAC

	Flash Part No.	Chip Version	Reason

60 HZ, 1200 RPM, CONTINUOUS/PRIME/STANDBY, LO BSFC, JWAC

	Flash Part No.	Chip Version	Reason
	150-7974	150-7975	
latest	180-1728	180-1729	16,18,21,22,23

60 HZ, 1200 RPM, CONTINUOUS/PRIME/PRIME+10, EPA CERT

	Flash Part No.	Chip Version	Reason
	185-2963	185-2964	
	204-2497	N/A	22, 25-33
latest	228-5168		46

60 HZ, 1800 RPM, PRIME/STANDBY, EMISSIONS

	Flash Part No.	Chip Version	Reason
	149-0337	149-0338	
	154-8117	154-8118	5

latest	183-6927	183-6928	16,18,21,23

60 HZ, 1800 RPM, PRIME/STANDBY, EMISSIONS, JWAC

	Flash Part No.	Chip Version	Reason

60 HZ, 1800 RPM, PRIME/PRIME+10/STANDBY, LO BSFC

	Flash Part No.	Chip Version	Reason
	148-2923	148-2924	
latest	180-3426	180-3427	16,18,21,23

60 HZ, 1800 RPM, CONTINUOUS/PRIME/PRIME+10, EPA CERT

	Flash Part No.	Chip Version	Reason
	180-8677	180-8678	
	200-7886	N/A	22, 25-33
	205-7002		37
	228-5166		45, 46
	242-5349		53
	251-3193	N/A	58
Latest	271-0370		66

60 HZ, 1800 RPM, PRIME/PRIME+10/STANDBY, LO BSFC, JWAC

*********For Rotary UPS ONLY (1750-1850 RPM Throttle rescaling)***************

	Flash Part No.	Chip Version	Reason
	165-9155	165-9156	12
	201-1687	N/A	22, 25-33
latest	205-6994		37

60 HZ, 1800 RPM, CONTINUOUS/PRIME/STANDBY, EMISSIONS

	Flash Part No.	Chip Version	Reason
	151-7166	151-7167	
	163-0669	163-0670	6
	180-1736	180-1737	16,18,21,23
	188-3233	N/A	
	201-1689	N/A	22, 25-33
	205-6999	N/A	37
	228-5171	N/A	45, 46
	242-5351	N/A	55
	251-3189	N/A	58
Latest	271-0367		66

60 HZ, 1800 RPM, CONTINUOUS/PRIME/STANDBY, LO BSFC

	Flash Part No.	Chip Version	Reason	
	148-2921	148-2922		
	156-3702	156-3703	4 155-1725	155-1726
	157-3700	157-3701	6	
	163-6378			
	180-1734	180-1735	16,18,21,23	
	201-1687	N/A	22, 25-33	
	205-6998		37	
	228-5170		45, 46	
	242-5348		53	
	251-3192	N/A	58	
Latest	271-0369		66	

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3508B MARINE AUXILIARY APPLICATION

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50 HZ 1000 RPM, Low BSFC

	Flash Part No.	Chip Version	Reason
	176-6188		
latest	229-0279		45, 46

50 HZ, 1000 RPM, IMO CERT

	Flash Part No.	Chip Version	Reason
	185-2969	185-2970	
	204-2496	N/A	22, 25-33
	205-6977	N/A	37
	205-6989	N/A	34
latest	229-0275	N/A	46

50 HZ, 1500 RPM, EMISSIONS

	Flash Part No.	Chip Version	Reason
	149-6146	149-6147	
	183-5049	183-5050	16,18,21,23
	203-9236	N/A	22, 25-33
	205-6975		35
latest	229-0278		45, 46

50 HZ, 1500 RPM, LO BSFC

	Flash Part No.	Chip Version	Reason
	148-1961	148-1962	
	183-5047	183-5048	16,18,21,23
	203-9241	N/A	22, 25-33
	205-6973		37
latest	229-0277		45, 46

50 HZ, 1500 RPM, IMO CERT

	Flash Part No.	Chip Version	Reason
	185-2973	185-2974	
	204-2495	N/A	22, 25-33
	205-6959		37
latest	229-0271		45, 46

60 HZ, 1200 RPM, CONTINUOUS/PRIME, LO BSFC, JWAC

	Flash Part No.	Chip Version	Reason
	159-4675	159-4676	10
	183-7549	183-7550	16,18,21,23
	203-9238	N/A	22, 25-33
	205-6974		37
latest	229-0276		45, 46

60 HZ, 1200 RPM, IMO CERT

	Flash Part No.	Chip Version	Reason
	185-2971	185-2972	
	203-9242	N/A	22, 25-33
	205-6971		37
latest	229-0274		45, 46

60 HZ, 1800 RPM, EMISSIONS

	Flash Part No.	Chip Version	Reason
	153-3040	153-3041	
	176-6156	176-6157	16,18,21,23
	203-9251	N/A	22, 25-
	205-6963		37
latest	230-9547		45, 46

60 HZ, 1800 RPM, LO BSFC

	Flash Part No.	Chip Version	Reason
	154-8113	154-8114	

	183-5051	183-5052	16,18,21,23
	203-9237	N/A	22, 25-33
	205-6972		37
latest	229-0273		45, 46

60 HZ, 1800 RPM, IMO CERT

	Flash Part No.	Chip Version	Reason
	185-2977	185-2978	
	203-9253	N/A	
	205-6960		22, 37
latest	229-0272		45, 46

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3512B MARINE AUXILIARY APPLICATION

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50 HZ, 1000 RPM, LO BSFC, JWAC

	Flash Part No.	Chip Version	Reason
	162-3916	162-3917	
	183-7501	183-7502	16,18,21,23
	200-7884	N/A	22, 25-33
	205-6954		37
latest	230-9544		45, 46

50 HZ, 1000 RPM, IMO CERT

	Flash Part No.	Chip Version	Reason
	185-2989	185-2990	
	203-9227	N/A	22, 25-33
	205-6951		37
latest	230-9543		45, 46

50 HZ, 1500 RPM, LO BSFC

	Flash Part No.	Chip Version	Reason
	148-2933	148-2934	
	150-8481	150-8482	8
	158-7632	158-7633	4
	183-5059	183-5060	16,18,21,23
	203-9231	N/A	22, 25-33
	205-6950		37
latest	229-0280		45, 46

50 HZ, 1500 RPM, IMO CERT

	Flash Part No.	Chip Version	Reason
	185-2994	185-2995	
	203-9234	N/A	22, 25-33
	205-6947		37
latest	229-0269		45, 46

50 HZ, 1500 RPM, PRIME, LO BSFC, REVERSE ROTATION

	Flash Part No.	Chip Version	
	151-5395	151-5396	
	183-5061	183-5062	16,18,21,23
	203-9232	N/A	22, 25-33
	205-6949		37
latest	229-0283		45, 46

60 HZ, 1200 RPM, CONTINUOUS/PRIME, IMO CERT

	Flash Part No.	Chip Version	Reason
	185-2992	185-2993	
	203-9229	N/A	22, 25-33
	205-6953		37

latest	230-9545		45, 46

60 HZ, 1800 RPM, EMISSIONS

	Flash Part No.	Chip Version	Reason
	173-5887	173-5888	
	184-2507	184-2508	16,18,21,23
	203-9230	N/A	22, 25-33
	205-6952		37
latest	229-0281		45, 46

60 HZ, 1800 RPM, LO BSFC

	Flash Part No.	Chip Version	Reason
	149-0329	149-0330	
	153-3021	153-3022	4
	173-2932	173-2933	18
	183-5063	183-5064	16,18,21,23
	201-1679	N/A	22, 25-33
	205-6939		37
latest	229-0282		45, 46

60 HZ, 1800 RPM, IMO CERT

	Flash Part No.	Chip Version	Reason
	185-2999	185-2930	
	203-9235	N/A	22, 25-33
	205-6946		37
latest	229-0270		45, 46

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3516B MARINE AUXILIARY APPLICATION

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1800 RPM, IMO Cert.

	Flash Part No.	Chip Version	Reason
	209-9736		
latest	231-5006		45, 46

50 HZ 1500 RPM Low NOX

	Flash Part No.	Chip Version	Reason
	212-4409		
latest	228-5160		45, 46

50 HZ, 1000 RPM, IMO CERT

	Flash Part No.	Chip Version	Reason
	185-3007	185-3008	
	213-9335		
latest	228-5180		45, 46

50 HZ, 1500 RPM, EMISSIONS

	Flash Part No.	Chip Version

50 HZ, 1500 RPM, LO BSFC

	Flash Part No.	Chip Version	Reason
	151-7127	151-7128	
	183-4893	183-4894	16,18,21,23
	205-7005		37
latest	229-0284		45, 46

50 HZ, 1500 RPM, IMO CERT

	Flash Part No.	Chip Version	Reason
	185-3011	185-3012	
	205-6996		37

	209-9734	44
latest	224-3082	45, 46

60 HZ, 1200 RPM, IMO CERT

Flash Part No.	Chip Version	Reason
185-3009	185-3010	
207-3613		22, 25-34
212-4416	N/A	
latest 230-5070		45, 46

60 HZ, 1800 RPM, EMISSIONS

Flash Part No.	Chip Version	Reason
149-6160	149-6161	
176-6152	176-6153	16,18,21,23
201-1690	N/A	22, 25-33
205-7006		
latest 229-0285		45, 46

60 HZ, 1800 RPM, LO BSFC

Flash Part No.	Chip Version	Reason
148-3635	148-3636	
164-2044	164-2045	12
173-2931	N/A	18
183-4895	183-4896	16,18,21,23
201-1680		22, 25-33
205-7007		37
latest 229-0286		45, 46

60 HZ, 1800 RPM, IMO CERT

Flash Part No.	Chip Version	Reason
185-3015	185-3016	
191-8357		
213-9334		
latest 229-0268		45, 46

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3508B MARINE PROPULSION

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1200 RPM, HEAVY WEIGHT, IMO CERT

Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
185-2955	185-2957	185-2956	185-2958	
194-4889				
205-1571		205-1572		25-37
231-4360		231-4361		46
latest 236-2274				

1600 RPM, HEAVY WEIGHT, LO BSFC

Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
149-0315	149-0317	149-0316	149-0318	
151-7154	151-7156	151-7155	151-7157	2
168-8338	168-8340	168-8339	168-8341	
176-5920	176-5922	176-5921	176-5923	18-21
197-0557		197-0558		25-29
latest 227-4861		227-4862		46

1600 RPM, HEAVY WEIGHT, EMISSIONS

Primary	Chip	Backup	Chip	Reason

	Flash Part No.	Version	Flash Part No.	Version	
	155-1731	155-1733	151-1732	151-1734	
	176-5924	176-5926	176-5925	176-5927	18-21
	205-6981		205-6982		25-37
latest	227-4863		227-4864		46

1600 RPM, HEAVY WEIGHT, ABOVE 1000 HP, IMO CERT

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
	185-3025	185-3027	185-3026	185-3028	
	200-2019				
	204-2505		204-2506		25-37
latest	224-3080		224-3081		46

1600 RPM, HEAVY WEIGHT, BELOW 1000 HP, IMO CERT

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
	188-0593	188-0595	188-0594	188-0596	
	197-3986		197-3987		25-29
	205-1569		205-1570		25-37
latest	224-3085		224-3086		46

1800 RPM, HEAVY WEIGHT, LO BSFC

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
	153-1050	153-1052	153-1051	153-1053	
	168-8346	168-8348	168-8347	168-8349	
	176-5952	176-5954	176-5953	176-5955	18-21
	209-9742		209-9743		25-37
latest	227-4859		227-4860		46

1800 RPM, HEAVY WEIGHT, EMISSIONS

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason

1800 RPM, HEAVY WEIGHT, ABOVE 1000 HP, IMO CERT

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
	185-3031	185-3033	185-3032	185-3034	
	205-1567		205-1568		25-37
latest	231-4354		231-4355		46

1800 RPM, HEAVY WEIGHT, BELOW 1000 HP, IMO CERT

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
	185-3036	185-3038	185-3037	185-3039	
	204-2507		204-2508		25-37
latest	231-4356		231-4357		46

1735 RPM, LIGHT WEIGHT, A RATING

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason

1785 RPM, LIGHT WEIGHT, B RATING

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
	159-4663	159-4665	159-4664	159-4666	
	168-6557	168-6559	168-6558	168-6560	15, 16
	173-2913	173-2915	173-2914	173-2916	17
	176-5940	176-5942	176-5941	176-5943	18-21
	205-6987		205-6988		25-37

latest	227-4865		227-4866		46

1785 RPM, LIGHT WEIGHT, B RATING, IMO CERT

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
	185-3048	185-3050	185-3049	185-3051	
	205-1573		205-1574		25-37
latest	231-4358		231-4359		46

1835 RPM, LIGHT WEIGHT, C RATING

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
	161-1788	161-1790	161-1789	161-1791	
	168-2225	168-2227	168-2226	168-2228	15, 16
	173-2917	173-2919	173-2918	173-2920	17
	176-5956	176-5958	176-5957	176-5959	18,19,20,21
	205-6985		205-6986		25-37
	227-4867		227-4868		
latest	232-2635		232-2636		48

1835 RPM, LIGHT WEIGHT, C RATING, IMO CERT

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
	185-3052	185-3054	185-3053	185-3055	
	197-3967		197-3968		25-29
	205-1587		205-1588		51
	208-6655		208-6656		
Latest	231-4352		231-4353		25-37, 52

1880 RPM, LIGHT WEIGHT, D RATING, IMO CERT

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
	185-3040	185-3042	185-3041	185-3043	
latest	205-1589		205-1590		25-37

1925 RPM, LIGHT WEIGHT, E RATING

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
	164-4511	164-4513	164-4512	164-4514	
	168-6561	168-6563	168-6562	168-6564	15, 16
	173-2921	173-2923	173-2922	173-2924	17
	176-5964	176-5966	176-5965	176-5967	18-21
latest	205-6983		205-6984		25-37

1925 RPM, LIGHT WEIGHT, E RATING, IMO CERT

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
	185-3044	185-3046	185-3045	185-3047	
	205-1591	N/A	205-1592	N/A	25-37
latest	232-2631	N/A	232-2632	N/A	46

900 RPM, HEAVY WEIGHT, LO BSFC, JWAC

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason

1200 RPM, HEAVY WEIGHT, LO BSFC, JWAC

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
	151-5939	151-5941	151-5940	151-5942	
	156-9256	156-9258	156-9257	156-9259	7
	168-2005	168-2007	168-2006	168-2008	15, 16

	173-2909	173-2911	173-2910	173-2912	17
	176-5916	176-5918	176-5917	176-5919	18,19,20,21
	207-3618		207-3619		25-37
	208-6648				
latest	227-4857				46

1600 RPM, HEAVY WEIGHT, LO BSFC (Special)

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
	150-7961	150-7963	150-7962	150-7964	
	151-7170	151-7172	151-7171	151-7173	2
latest	176-5932	176-5934	176-5933	176-5935	18-21

1600 RPM, HEAVY WEIGHT, LO BSFC (Special Dredge)

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
	147-0763	147-0765	147-0764	147-0766	
	151-7179	151-7181	151-7180	151-7182	2
latest	176-5928	176-5930	176-5929	176-5931	18-21

1860 RPM, HEAVY WEIGHT, LO BSFC (Special)

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
	149-6134	149-6136	149-6135	149-6137	
	152-5490	152-5492	152-5491	152-5493	2
latest	176-5960	176-5962	176-5961	176-5963	18-21

1600 RPM, HEAVY WEIGHT, (Special - POWER LIMITED)

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
latest	158-7634	158-7636	158-7635	158-7637	

1800 RPM, HEAVY WEIGHT, 883kw, LO BSFC (Special)

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
	151-5391	151-5393	151-5392	151-5394	
latest	176-5944	176-5946	176-5945	176-5947	18-21

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3512B MARINE PROPULSION

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900 RPM, HEAVY WEIGHT, LO BSFC, JWAC

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
	162-8197	162-8199	162-8198	162-8200	
	168-2245	168-2247	162-2246	162-2248	15, 16
	173-2889	173-2891	173-2890	173-2892	17
	176-5980	176-5982	176-5981	176-5983	18,19,20,21
latest	226-2357		226-2358		46

1200 RPM, HEAVY WEIGHT, LO BSFC, JWAC

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
	156-9260	156-9262	156-9261	156-9263	
	168-2241	168-2243	168-2242	168-2244	15, 16
	173-2885	173-2887	173-2886	173-2888	17
	176-5984	176-5986	176-5985	176-5987	18,19,20,2
	197-3948		197-3949		25-29

latest	224-3093		224-3094		46

1200 RPM, HEAVY WEIGHT, ABOVE 1300 HP, IMO CERT

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
	185-3056	185-3058	185-3057	185-3059	
	197-3990		197-3991		25-29
	204-2503		204-2504		30-34
latest	230-5077		230-5078		46

1200 RPM, HEAVY WEIGHT, BELOW 1210 HP, IMO CERT

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
	185-3060	185-3062	185-3061	185-3063	
	192-3727		192-3727		
	197-3999		197-4000		25-29
	205-1549		205-1550		30-37
latest	230-5075		230-5076		46

1600 RPM, HEAVY WEIGHT, LO BSFC

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
	149-0311	149-0313	149-0312	149-0314	
	151-7158	151-7160	151-7159	151-7161	2
	153-3027	153-3029	153-3028	153-3030	8
	168-8350	168-8352	168-8351	168-8353	16
	176-5996	176-5998	176-5997	176-5999	17-21
	197-0567		197-0568		25-29
latest	226-2342		226-2343		46

1600 RPM, HEAVY WEIGHT, EMISSIONS

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
	164-4515	164-4517	164-4516	164-4518	15, 16
	168-6553	168-6555	168-6554	168-6556	
	173-2901	173-2903	173-2902	173-2904	17
	176-5992	176-5994	176-5993	176-5995	18,19,20,21
	205-6925		205-6926		25-37
latest	226-2344		226-2345		46

1600 RPM, HEAVY WEIGHT, ABOVE 1500 HP, IMO CERT

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
	184-4987	184-4989	184-4988	184-4990	
	197-3994		197-3995		bad file
	198-0236		198-0237		25-29
	207-3614		207-3615		30-37
latest	224-3078		224-3079		46

1600 RPM, HEAVY WEIGHT, BELOW 1410 HP, IMO CERT

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
	185-3064	185-3066	185-3065	185-3067	
	197-3885		197-3886		
	209-8277		209-8778		
latest	224-3087		224-3088		46

1800 RPM, HEAVY WEIGHT, LO BSFC

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason

	149-6138	149-6140	149-6139	149-6141	
	153-1054	153-1056	153-1055	153-1057	2
	173-9618	173-9620	173-9619	173-9621	16
	176-6012	176-6014	176-6013	176-6015	17-21
	205-6923		205-6924		25-37
latest	224-3091		224-3092		46

1800 RPM, HEAVY WEIGHT, EMISSIONS

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason

1800 RPM, HEAVY WEIGHT, ABOVE 1500 HP, IMO CERT

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
	185-3068	185-3070	185-3069	185-3071	
	205-1543		205-1544		25-37
latest	230-5073		230-5074		46

1800 RPM, HEAVY WEIGHT, BELOW 1410 HP, IMO CERT

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
	185-3072	185-3074	185-3073	185-3075	
	205-1545		205-1546		25-37
latest	230-5071		230-5072		46

1735 RPM, LIGHT WEIGHT, A RATING

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason

1785 RPM, LIGHT WEIGHT, B RATING

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
	146-6801	146-6803	146-6802	146-6804	
	151-7175	151-7177	151-7176	151-7178	2
	159-8822	159-8824	159-8823	159-8825	8
	169-2603	169-2605	169-2604	169-2606	16
	176-6008	176-6010	176-6009	176-6011	17-21
	205-6979		205-6980		25-37
latest	226-2346		226-2347		46

1785 RPM, LIGHT WEIGHT, B RATING, IMO CERT

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
	185-3080	185-3082	185-3081	185-3083	
	205-1563		205-1564		25-37
latest	230-5081		230-5082		46

1835 RPM, LIGHT WEIGHT, C RATING

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
	156-3696	156-3698	156-3697	156-3699	
	168-8354	168-8356	168-8355	168-8357	15, 16
	176-6024	176-6026	176-6025	176-6028	18,19,20,21
latest	205-6931		205-6932		25-37
latest	226-2348		226-2349		46

1835 RPM, LIGHT WEIGHT, C RATING, IMO CERT

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
	185-3084	185-3086	185-3085	185-3087	
	205-1565		205-1566		25-37

latest	231-4999		231-5000		46

1880 RPM, LIGHT WEIGHT, D RATING

Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
163-6374	163-6376	163-6375	163-6375	
168-6549	168-6551	168-6550	168-6552	15, 16
173-2897	173-2899	173-2898	173-2900	17
176-6028	176-6030	176-6029	176-6031	18,19,20,21
205-6929		205-6930		25-37
latest 226-2350		226-2351		46

1880 RPM, LIGHT WEIGHT, D RATING, IMO CERT

Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
185-3076	185-3078	185-3077	185-3079	
205-1561		205-1562		25-37
latest 231-4997		2312-4998		46

1925 RPM, LIGHT WEIGHT, E RATING

Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
153-1058	153-1060	153-1059	153-1061	
171-5652	171-5654	171-5653	171-5655	17
176-6032	176-6034	176-6033	176-6035	18,19,20,21
205-6927		205-6928		25-37
latest 226-2352		226-2353		46

1925 RPM, LIGHT WEIGHT, E RATING, IMO CERT

Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
183-2266	183-2268	183-2267	183-2269	
205-1559		205-1560		25-37
latest 231-4362		231-4363		46

1600 RPM, HEAVY WEIGHT, LO BSFC (Special - POWER LIMITED)

Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
158-6604	158-6606	158-6605	158-6607	

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3516B MARINE PROPULSION

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900 RPM, Heavy Weight,

Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
179-9319				
latest 226-2369		226-2370		46

1600 RPM, HEAVY WEIGHT, LO BSFC

Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
148-3655	148-3657	148-3656	148-3658	
151-7137	151-7139	151-7138	151-7140	2
162-8192	162-8194	162-8193	162-8195	13
168-1985	168-1987	168-1986	168-1988	15, 16
173-2873	173-2875	173-2874	173-2876	17
176-6056	176-6058	176-6057	176-6059	18-21
196-3687		196-3688		25-29

latest	226-2361		226-2362		46

1600 RPM, HEAVY WEIGHT, EMISSIONS

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
	165-1623	165-1625	165-1624	165-1626	15, 16
	168-1993	168-1995	168-1994	168-1996	
	173-2881	173-2883	173-2882	173-2884	17
	176-6064	176-6066	176-6065	176-6067	18-21
latest	205-1595		205-1596		25-37

1600 RPM, HEAVY WEIGHT, IMO CERT

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
	168-1989		168-1990		
	176-6060		176-6061		
	183-4073	183-4075	183-4074	183-4076	
	205-1535		205-1536		25-37
	224-3089		224-3090		46
latest	251-3187		251-3188		48

1800 RPM, HEAVY WEIGHT, LO BSFC

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
	149-0319	149-0321	149-0320	149-0322	
	149-1991	149-1993	149-1992	149-1994	1
	151-7133	151-7135	151-7134	151-7136	2
	176-6092	176-6094	176-6093	176-6095	18,19,20,21
	205-1593		205-1594		25-37
latest	226-2363		226-2364		46

1800 RPM, HEAVY WEIGHT, IMO CERT

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
	185-3092	185-3094	185-3093	185-3095	
	205-1531		205-1532		25-37
latest	230-5079		230-5080		46

1800 RPM, HEAVY WEIGHT, EMISSIONS (SPECIAL)

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
	162-5343	162-5345	162-5344	162-5346	
	168-2223	168-2225	168-2224	168-2226	15, 16
	173-2869	173-2871	173-2870	173-2872	17
latest	176-6088	176-6090	176-6089	176-6091	18,19,20,21

1735 RPM, LIGHT WEIGHT, A RATING

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason

1785 RPM, LIGHT WEIGHT, B RATING, IMO CERT

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
	185-3108	185-3110	185-3109	185-3111	
	204-2510	N/a	204-2511	N/A	25-37
latest	232-2633	N/A	232-2634	N/A	46

1835 RPM, LIGHT WEIGHT, C RATING

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
	155-1727	155-1729	155-1728	155-1730	

	169-2589	169-2591	169-2590	169-2592	
	176-6100	176-6102	176-6101	176-6103	18,19,20,21
	205-6921		205-6922		25-37
latest	226-2365		226-2366		46

1835 RPM, LIGHT WEIGHT, C RATING, IMO CERT

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
	185-3112	185-3114	185-3113	185-3115	
	207-3611		207-3612		25-37
latest	230-9539		230-9540		46

1880 RPM, LIGHT WEIGHT, D RATING

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
	149-0323	149-0325	149-0324	149-0326	
	151-7162	151-7164	151-7163	151-7165	2
	176-6104	176-6106	176-6105	176-6107	18,19,20,21
	205-6921		205-6922		25-37
latest	226-2367		226-2368		

1880 RPM, LIGHT WEIGHT, D RATING, IMO CERT

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
	185-3100	185-3102	185-3101	185-3103	
	205-1541		205-1541		25-37
latest	230-9537		230-9538		46

1925 RPM, LIGHT WEIGHT, E RATING

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
	157-3690	157-3692	157-3691	157-3693	
	168-2229	168-2231	168-2230	168-2232	15, 16
	174-5187	174-5189	174-5188	171-5190	17
	176-6108	176-6110	176-6109	176-6111	18,19,20,21
	205-1599		205-1600		25-37
latest	230-5083		230-5084		46

1925 RPM, LIGHT WEIGHT, E RATING, IMO CERT

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
	185-3104	185-3106	185-3105	185-3107	
	205-1539		205-1540		25-37
latest	230-9535		230-9536		46

900 RPM, HEAVY WEIGHT, LO BSFC, JWAC

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason

1200 RPM, HEAVY WEIGHT, LO BSFC, JWAC

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
	153-3042	152-3044	153-3043	153-3045	
	155-1737	155-1739	155-1738	155-1740	3
	168-1997	168-1999	168-1998	168-2000	15, 16
	173-2933	173-2935	173-2934	173-2936	17
	176-6052	176-6054	176-6053	176-6055	18-21
	197-0569		197-0570		25-29
latest	226-2359		226-2360		46

1200 RPM, HEAVY WEIGHT, IMO CERT

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
	185-3088	185-3090	185-3089	185-3091	
	205-1537		205-1538		25-37
latest	231-5001		231-5002		46

1785 RPM, HEAVY WEIGHT, LO BSFC (Special)

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
	148-3649	148-3651	148-3650	148-3652	
	151-7146	151-7148	151-7147	151-7149	2
	176-6080	176-6082	176-6081	176-6083	18,19,20,21
	213-9326		213-9327		
latest	227-4853		227-4854		

1600/1800 RPM, HEAVY WEIGHT, LO BSFC (Special)

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
	149-6156	149-6158	149-6157	149-6159	
latest	151-7150	151-7152	151-7151	151-7153	2

1700 RPM, HEAVY WEIGHT, LO BSFC

	Primary Flash Part No.	Chip Version	Backup Flash Part No.	Chip Version	Reason
	146-6462	146-6464	146-6463	146-6465	
	151-7142	151-7144	151-7143	151-7145	2

3500B Commercial Engine (Built > 4/97) FLASH File Cross-Reference
Updated 3/08/2002

latest	176-6076	176-6078	176-6077	176-6079	18,19,20,21

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3508B PETROLEUM
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60 HZ, 1200 RPM, PRIME, LO BSFC, JWAC

	Flash Part No.	Chip Version	Reason
	155-1749	155-1750	
latest	178-9617	178-9618	18-22

60 HZ, 1200 RPM, EPA CERT (LAND Electric Drive)

	Flash Part No.	Chip Version	
	185-2987	185-2988	
	205-6965		
	231-4364		46
latest	251-3198		63

60 HZ, 1200 RPM DITA JWAC (LAND ELEC ENG) MUD PUMPER "SPECIAL"

	Flash Part No.	Chip Version	Reason
	196-3684	NA	
	220-2133		25

60 HZ, 1200 RPM, EPA CERT (LAND Mech. Drive)

	Flash Part No.	Chip Version	
	197-3957		
	213-9329		
	251-3186		57

	272-2472	67
latest	292-7983	68

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3512B PETROLEUM
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60 HZ, 1200 RPM, CONTINUOUS/PRIME, LO BSFC, JWAC

	Flash Part No.	Chip Version	Reason
	154-8115	154-8116	
	180-1730	180-1731	18-22
	208-6650	NA	25-33,37
Latest	228-5162		46

60 HZ, 1200 RPM, CONTINUOUS/PRIME, LO BSFC, JWAC

	Flash Part No.	Chip Version	Reason
	154-8111	154-8112	10
	161-8026	161-8027	11
	180-2994	180-2995	16,18,21-24
latest	230-9546		46

60 HZ, 1200 RPM, EPA CERT (Land)

	Flash Part No.	Chip Version	Reason
	193-3285		
	212-4405		
	231-5010		46
latest	348-0207		64

60 HZ, 1200 RPM, EPA/IMO CERT (OS)

	Flash Part No.	Chip Version	Reason
	193-3284		
	212-4404		
latest	236-2280		47

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3516B PETROLEUM
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60 HZ, 1200 RPM, CONTINUOUS/PRIME, LO BSFC, JWAC

	Flash Part No.	Chip Version	Reason
	153-3023	153-3024	
	153-3047	153-3048	3
latest	178-9164	178-9165	18-22

60 HZ, 1200 RPM, EPA CERT (LAND)

	Flash Part No.	Chip Version	Reason
	185-3017	185-3018	
	209-9737		
	213-9333		
latest	231-5003		46

60 HZ, 1200 RPM, EPA/IMO CERT (OS)

	Flash Part No.	Chip Version
	185-3019	185-3020
	212-4403	

Latest 237-5235 46

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3512B OIL WELL SERVICE (now w/high 1920 idle)
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1900 RPM, EPA CERT

	Flash Part No.	Chip Version	Reason
	177-2384	177-2385	
	192-3721		
	205-6958		
	212-4411	N/A	39
	215-5820	N/A	41, 44
	224-3067	N/A	50
Latest	246-7398	N/A	48

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3512B OIL WELL SERVICE (now w/high 1950 idle) Halliburton
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1900 RPM, EPA CERT

	Flash Part No.	Chip Version	Reason
	177-2384	177-2385	
	205-6958	N/A	
	213-9330	N/A	40
	215-5810	N/A	34,41,42
Latest	245-0546	N/A	54

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3508B LOCOMOTIVE
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3508B 1500 RPM

	Flash Part No.	Chip Version	Reason
	174-2225	174-2226	
	174-3596	174-3597	8,16,18
	207-3608	NA	
latest	249-1801	NA	56

3508B 1573 RPM

	Flash Part No.	Chip Version	Reason
	161-8032	161-8033	
	183-9515	183-9516	16,18
latest	207-3609		

3508B 1800 RPM

	Flash Part No.	Chip Version	Reason
	168-1983	168-1984	
	183-9517	183-9518	16,18
latest	205-7011		

3508B 1800 RPM DIESEL ELECTRIC LOCOMOTIVE

	Flash Part No.	Reason
Latest	261-8311	

3508B 1350 RPM LOCOMOTIVE ENGINE

	Flash Part No.	Reason
Latest	255-9303	

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3512B LOCOMOTIVE (STANDARD)

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3512B 1500 RPM, LO BSFC, HIGH IDLE = 1620 RPM

	Flash Part No.	Chip Version	Reason	
	150-8476	150-8477		
	151-7190	151-7191		11
	184-0800	184-0801	16,18	
latest	205-7012			

3512B 1500 RPM, EMISSIONS

	Flash Part No.	Chip Version	Reason	
	164-4519	164-4520		
	171-5656	171-5657		8
	183-9562	183-9563	16,18	
	205-7013			
	215-5821			43
	224-3074		61	
Latest	261-8313		49	

3512B 1500 RPM, LO BSFC, HIGH IDLE = 1500 RPM

	Flash Part No.	Chip Version	Reason
	164-2042	164-2043	
	184-0802	184-0803	16,18
latest	205-7014		

3512B 1660 RPM, EMISSIONS

	Flash Part No.	Chip Version	Reason
	175-5356	175-5357	
	183-9564	183-9565	16,18
latest	205-7015		

3512B 1750 RPM, EMISSIONS

	Flash Part No.	Chip Version	Reason
	242-5339	N/A	
latest	251-3190	N/A	56

3512B 1800 RPM, EMISSIONS

	Flash Part No.	Chip Version
	175-5358	175-5359
latest	205-7010	

3512B 1800 RPM, EPG, EMISSIONS Reason

	Flash Part No.	Chip Version	
	208-6646		
	237-5244	60	
	242-5340	61	
Latest	266-2770	62	

3512B 1800 RPM, SPECIAL

	Flash Part No.	Chip Version	Reason
	167-0593	167-0594	
	171-5668	171-5669	
	183-9566	183-9567	16,18
	188-7228		
latest	205-7016		

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3512B LOCOMOTIVE (EMD)

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3512B 1800 RPM

	Flash Part No.	Chip Version	Reason
	200-7860	NA	
	215-5824	NA	
Latest	236-2277	49	

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3516B LOCOMOTIVE (STANDARD)

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3516B 1800 RPM

	Flash Part No.	Chip Version
	174-7093	174-7094
latest	205-7017	

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3516B LOCOMOTIVE (EMD)

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3516B 1800 RPM

	Flash Part No.	Chip Version
	200-7863	NA
	215-5825	NA
Latest	236-2276	49

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3508B Industrial

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3508B 1800 RPM, EMISSIONS

	Flash Part No.	Chip Version	Reason
Latest	205-6955		

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3512B Industrial
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3512B 1800 RPM, EMISSIONS

	Flash Part No.	Chip Version	Reason
Latest	205-6956		

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3516B Industrial
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3516B 1800 RPM, EMISSIONS

	Flash Part No.	Chip Version	Reason
	205-6957		
Latest	234-0288	NA	45

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3500B HD (High Displacement) Commercial Engine FLASH File Cross-Reference
Updated 17Nov2005

Use this document for 3500B HD (High Displacement) engines with the following serial number prefixes.

EPG	MARINE PROPULSION
2JW	4BW
5AW	2EZ

NOTE: Software information for 3500B (Standard Displacement) engines can be found in the "3500B Commercial Engine (Built > 4/97) FLASH File Cross-Reference" or the "3500B Commercial Engine (Built < 4/97) FLASH File Cross-Reference." Software information for 3500 with EUI Option Commercial Engine FLASH files is listed in the cross reference entitled "3500 with EUI Option Commercial Engine FLASH File Cross-Reference."

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Notes for Using This Document
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Latest software services 3500B HD engines back to first production. Software is listed by application then number of cylinders. All engines are SCAC (Separate Circuit After Cooled) unless specified.

Part numbers listed under the "Flash Part No." column are flash file numbers. These are software numbers that can be downloaded from the Caterpillar mailbox or SISWeb or copied from the SIS Flash Files CD. These numbers can not be ordered from the parts distribution system. Flash files must be used when updating software electronically using Winflash.

A part number listed under the "Service Replacement" column is the part number of the removable chip inside the ECM that contains the flash file software listed in the same row in the table. These "chips" are made available for a very small percentage of service locations that do not have flash capability. These parts must be ordered from the parts distribution system and physically installed in the ECM using the access cover. Most dealers

will never order chips from the service replacement column. The flash method of updating software described in the paragraph above is the preferred method.

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Reasons for software change:
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1. Fix for intermittent EMSII "!Stop" light flashing. See 15 July 1998 TIB entitled "Intermittent Engine Monitoring System (EMS) "!Stop" Light Flashing On Marine Propulsion Engines."
2. Fix for Engine Vision Display Error. A negative crankcase pressure value would cause Engine Vision to display "Error". The new software eliminates this problem.
3. Fix for erroneous logging of high crankcase pressure events. New software has improved software filtering of crankcase pressure sensor raw data to stabilize readings and eliminate false event logging.
4. A change was made to the 94-02 and 289-02 fuel pressure sensor misinstalled diagnostic strategies to reduce false logging. The diagnostics will no longer activate below 200 RPM. Electronic filtering was also added to the software for the fuel pressure signals for more stable readings. A March 17, 1999 TIB will also help to properly identify the filtered and unfiltered fuel pressure sensor ports.
5. Solution to EMSII 248-02 code and light flashing issue mentioned in Jan 28, 1998 TIB. This issue only affects Marine Propulsion applications equipped with Pilothouse panels.
6. Improved inlet air restriction and oil pressure monitoring. This should help to reduce false high inlet air restriction warnings.
7. Software added dedicated low idle switch input (J1-P26)to ECM. Earlier EPG engines with switchgear conversion panels (Electronic Instrument Panels) would activate a 91-08 Speed Control Output Signal Is Abnormal diagnostic when the low idle switch was activated. The diagnostic became active because the switch was wired in-line with the PWM speed control signal. When a 91-08 diagnostic is active the ECM defaults to low idle so the switch has the intended effect. However, the active diagnostic created problems with certain electronic monitoring systems. The new dedicated low idle switch ECM input allows the switch to request low idle speed without opening the speed control signal and activating the 91-08 diagnostic. This feature can be utilized on all previous 3500B EPG engines by rewiring the low idle switch. The engine uses the speed control signal to determine desired speed when ECM J1-P26 is open. Low idle becomes the desired speed when J1-P26 is grounded. If the switch wiring is not changed when the new software is flashed, the low idle switch will continue to operate as it always has - activating the 91-08 diagnostic. This feature applies to EPG and Marine Auxiliary applications only.
8. Improved 94-02 and 289-02 fuel pressure sensor misinstalled diagnostic strategy. The previous change in reason code 18 was only partially successful.
The new strategy increases the amount of negative fuel pressure differential required to log the misinstalled codes from -15 kPa to -70 kPa. In addition, the absolute value of the fuel filter differential pressure is now used for display purposes and event logging. This will allow the ECM to monitor differential pressure even if the sensors are installed backward.
9. The percent load calculation has been changed to more accurately reflect engine load. The new percent load calculation also effects the Load Feedback signal ECM output. Be

certain to verify that the new software strategy will not adversely effect vessel control systems that utilize this output before flashing the ECM with the new software.
10. The Low Coolant Temperature warning strategy has been improved. This strategy has been improved to reduce low coolant temperature warnings when the engine is lightly loaded. The strategy now uses engine load as well as coolant temperature to determine if the engine is being over cooled. A new Coolant Warning Engine Load Enable Threshold parameter has been added to support this feature. This parameter label will be used in forthcoming versions of Cat ET. Until then the parameter will show up as Load Warning Set.
11. FLS/FTS power adjustment added. Factory level passwords are required to change FLS and FTS. FLS and FTS may be programmed without passwords once on a new (blank) ECM. This occurs when the tattletale is zero. Cat ET Version 3.2 or later is required to program FLS/FTS.
12. The monitoring system is now disabled when engine speed is zero. It was previously possible for the monitoring system to activate an alarm with no engine speed. This resulted in nuisance alarms in applications where the electrical system is left powered up when the engine is not running.
13. Programmable governor gains added. Engine ECM governor gains may be adjusted if the default gain factors do not provide satisfactory system response characteristics. Default governor gain settings are recommended for almost all applications. If changing gain parameters refer to Special Instruction form REHS1109.
14. Rated Fuel Default to Minimum. When replacing a failed ECM the rated fuel limit parameter will now default to a minimum value. The parameter will need to be programmed after the correct value has been obtained from TMI. Previously, the rated fuel limit parameter defaulted to a maximum value and engine damage could occur if it was not properly programed following an ECM replacement.
15. Altitude derate annunciation supression on EMSII. Altitude derate causes the EMSII "!Stop" light to flash. Many customers knowingly operate in derate mode and the continuous light flashing is a nuisance and may disguise a new diagnostic. For this reason, altitude derate will now cause the EMSII "!Stop" light to flash for 15 seconds. After 15 seconds the light will stop flashing. The derate is still active and can be viewed with Cat ET. Only the annunication of the derate has changed.
16. Minimum oil pressure map for low oil pressure warnings is now 69 kPa at low engine speeds. This value was increased to provide added protection to turbochargers.
17. General alarm relay feature updated. The general alarm relay will now activate for low fuel level and low coolant level. These two conditions did not previously activate the general alarm relay.
18. Injector E-Trim feature has been updated. A 1495-02 "Injector Trim Not Prog" diagnostic code will activate if the injector trim calibration codes have not been entered. Previously the injector trim codes defaulted to 1100 (no adjustment) and no diagnostic was present. The 1495-02 diagnostic will activate when updating software on existing engines containing injectors that do not have trim codes. To fix the problem, go the calibration screen in Cat ET and reprogram all of the codes to 1100. If the injectors in the engine DO have trim codes program those trim codes into Cat ET.
19. Torque Limit feature added. Programmable parameter allows engine torque to be limited. Parameter may be programmed to a value between torque at rated speed and peak torque.
20. Software change to be used with 130 degree spray pattern injectors.
21. Allows changes to the configuration with in the first 100 hrs. with a password.
22. 1495-02 (injector E-trim code not programmed) fix.
23. Change to smoke and torque map.
24. Added adjustable gains
25. Revised default governor gains to fix problem with adjustable gains.
26. Updated torque maps
27. Updated template to provide 3 miniute delay on oil pressure at cold startup
28. Updated the 94-11 code (fuel pressure dropped below 320 kpa for more than 20 sec.

****
3512B HIGH DISPLACEMENT GENSET APPLICATION
****

50 HZ, 1500 RPM, PRIME/STANDBY, LO BSFC

	Flash Part No.	Service Replacement	Reason
	156-9266	156-9267	
latest	178-4420	178-4421	3,4,6,7

60 HZ, 1200 RPM, CONT/PRIME/PRIME+10, EPA CERT

	Flash Part No.	Service Replacement	Reason
latest	185-2959	185-2960	

60 HZ, 1800 RPM, PRIME/STANDBY, LO BSFC

	Flash Part No.	Service Replacement	Reason
	156-3696	156-3697	
latest	178-4422	178-4423	3,4,6,7

60 HZ, 1800 RPM, PRIME/STANDBY, EPA CERT

	Flash Part No.	Service Replacement	Reason
latest	185-2961	185-2962	

****
3516B HIGH DISPLACEMENT GENSET APPLICATION
****

50 HZ, 1500 RPM, PRIME/STANDBY, LO BSFC (With 155-0727 injector)

	Flash Part No.	Service Replacement	Reason
	156-9264	156-9265	
	178-4330	178-4331	3,4,6,7
	201-1681		
	209-9738		8-18
	228-5177		22
	255-9314		27
Latest	271-0373		28

50 HZ, 1500 RPM, PRIME/STANDBY, LO BSFC (With 159-8832 injector)

	Flash Part No.	Service Replacement	Reason
	195-0969	NA	20
	201-1677	NA	8-18
	205-6978	NA	21
	228-5173	NA	22
	237-5243	NA	
	237-5248	NA	23
	255-9315	NA	27
Latest	271-0366		28

50 HZ, 1500 RPM, PRIME+10, EMISSIONS

	Flash Part No.	Service Replacement	Reason
	174-7101	174-7102	
	197-0556		
	205-7008		8-18
	228-5174		22
	255-9312		27
Latest	271-0375		28

50 HZ, 1500 RPM, EMISSIONS

	Flash Part No.	Service Replacement	Reason
	197-0556		
	205-7008		8-18
	228-5174		22
Latest	255-9312		59

50 HZ, 1500 RPM, STANDBY, EMISSIONS

	Flash Part No.	Service Replacement	Reason
	208-6653		
	255-9311		27
Latest	271-0376		28

60 HZ, 1200 RPM, CONT/PRIME/P+10, EPA CERT

	Flash Part No.	Service Replacement	Reason
	185-2965	185-2966	
	203-9240		8-18
	228-5175		22
	255-9313		27
Latest	271-0374		28

60 HZ, 1800 RPM, PRIME/STANDBY, LO BSFC

	Flash Part No.	Service Replacement	Reason
	161-1801	161-1802	
latest	178-4540	178-4541	3,4,6,7

60 HZ, 1800 RPM, CONT/PRIME/P+10, EPA CERT

	Flash Part No.	Service Replacement	Reason
Latest	185-2967	185-2968	

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3512B HIGH DISPLACEMENT LOCOMOTIVE APPLICATION

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60HZ, 1800 RPM, LOW EMISSIONS

	Flash Part No.	Service Replacement	Reason
	215-5803	NA	
	245-0556	NA	24
Latest	249-1809	NA	25

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3516B HIGH DISPLACEMENT LOCOMOTIVE APPLICATION

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60HZ, 1800 RPM, LOW EMISSIONS

	Flash Part No.	Service Replacement	Reason
	190-0084	NA	
	237-5249	NA	24
Latest	246-7397	NA	25

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3512B HIGH DISPLACEMENT MARINE PROPULSION APPLICATION

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1600 RPM, HEAVY WEIGHT, IMO CERT

	Primary Flash Part No.	Service Replacement	Backup Flash Part No.	Service Replacement	Reason
	184-6996	184-6998	184-6997	184-6999	
	205-1547		205-1548		8-19
	224-3083		224-3084		22
Latest	242-5341		242-5342		26

1600 RPM, LIGHT WEIGHT, IMO CERT

	Primary Flash Part No.	Service Replacement	Backup Flash Part No.	Service Replacement	Reason
latest	185-2981	185-2983	185-2982	185-2984	

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3516B HIGH DISPLACEMENT MARINE PROPULSION APPLICATION
****

1600 RPM, HEAVY WEIGHT

	Primary Flash Part No.	Service Replacement	Backup Flash Part No.	Service Replacement	Reason
	168-1989	168-1991	168-1990	168-1992	
	176-6060	176-6062	176-6061	176-6063	1-6
Latest	227-4855		228-4856		22

1600 RPM, HEAVY WEIGHT, IMO CERT

	Primary Flash Part No.	Service Replacement	Backup Flash Part No.	Service Replacement	Reason
	185-3096	185-3098	185-3097	185-3099	
	205-1533		205-1534		8-19
Latest	224-3076		224-3077		22

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3500B Machine Engine FLASH file Cross Reference
Updated 6/28/01

Software is listed by machine model. Section 1 shows personality module change history. Section 2 shows the reasons why the software was changed.

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Section 1 - Personality Module Change History
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793C Off Highway Truck 3516B Engine

	Flash Part No.	Service Replacement
	132-6459	132-6461
	146-9358	146-9360
	152-7245	152-2746
	158-7601	158-7602
	168-8620	168-8621
	179-4966	179-4967
	179-8320	179-8321
latest	200-0826	200-0827

793C HD Off Highway Truck Tier I Certified

	Flash Part No.	Service Replacement
	161-8916	161-8917
	194-9640	194-9641
	196-7335	196-7336
	198-0189	198-0190
latest	199-4441	199-4442

793C Off Highway Truck High Altitude 3516B Engine

	Flash Part No.	Service Replacement
	168-8607	168-8608
	169-6262	169-6263
	185-6730	185-6731
	191-9406	191-9407
latest	200-0828	200-0829

789C Off Highway Truck

	Flash Part No.	Service Replacement
	136-1581	136-1583
	187-1256	187-1257
latest	206-2522	206-2523

789C Off Highway Truck Tier I Certified

	Flash Part No.	Service Replacement
	161-8016	161-8017
latest	206-2531	206-2532

785C Off Highway Truck

	Flash Part No.	Service Replacement
	136-1577	136-1579
	194-6588	194-6589
latest	206-2522	206-2523

785C Off Highway Truck Tier I Certified

	Flash Part No.	Service Replacement
	161-8014	161-8015
	206-2526	206-2527
latest	211-0578	

785C Off Highway Truck High Altitude

	Flash Part No.	Service Replacement
	151-1311	151-1312
	151-7064	151-7065
	206-2524	206-2525
latest	211-1857	

776D Tractor, 777D Off Highway Truck (Model RM561) 3508B Engine

	Flash Part No.	Service Replacement
	132-6455	132-6457
	142-0378	142-0380
	151-2155	151-2157
	158-2234	158-2235
	176-0065	176-0066
latest	194-6596	194-6597

777D Off Highway Truck(Model RM636)

	Flash Part No.	Service Replacement
	184-8016	184-8016

777D Off Highway Truck Tier I Certified

	Flash Part No.	Service Replacement
	166-0943	166-0943
	185-8623	185-8624
	188-2771	188-2771
latest	195-6427	195-6428

777D Off Highway Truck - High Altitude 3512B Engine

	Flash Part No.	Service Replacement
	134-3946	134-3948
	175-6461	175-6462
latest	185-3602	185-3603

992G Wheel-Type Loader 3508B Engine

	Flash Part No.	Service Replacement
	139-6027	139-6029
	146-9370	146-9372
	150-1194	150-1196
	163-7212	163-7213
	175-3317	175-3318
	193-4245	193-4246
	193-7131	193-7132
latest	205-4658	205-4659

D11R 9TR1-Up Tractor 3508B Engine

	Flash Part No.	Service Replacement
	136-9332	136-9334
	148-6513	148-6515
	149-8181	149-8183
	161-8000	161-8003
	165-5026	165-5027
	167-0750	167-0751
	175-6453	175-6454
	178-2661	178-2662
latest	200-0084	200-0085

5130B 4CS1-Up Excavator 3508B Engine

	Flash Part No.	Service Replacement
	141-6732	141-6735
	146-5703	146-5705
	159-5221	159-5222
	168-4416	168-4417
	180-9126	180-9127
	186-3141	186-3141
latest	199-1174	199-1175

5130B 4CS1-Up Excavator Tier I Certified

	Flash Part No.	Service Replacement
	151-7083	151-7084
latest	192-1896	192-1897

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Section 2 - Reasons for Personality Module Changes
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793C Changes:
From 146-9358 to 152-7245:
1. Hybrid engine
2. 40% initial current for wastegate
3. Learned wastegate current stored in battery backed RAM
4. 2200 RPM overspeed
5. Low boost warning set to 19.2mm-25mm rack
6. High boost warning set to 17mm-25mm rack
7. Learned speed set to 1350-1750 RPM
8. Low and high boost warning derate to 20%
9. 100 rpm below low idle cold cylinder cutout for kickout
10. No event for negative crankcase pressure
11. Engine speed check for loss of coolant flow
12. Reduce learning time from 30 to 20 seconds
13. New fuel rate map
14. New area map
15. Shutter control
16. Support added for Oil Renewal System (ORS)

From 152-7245 to 158-7601:
1. Addition of 1.0% oil burn feature
2. 2200 RPM engine overspeed
3. Pre-lube trip point set to 3kPa, 17 seconds

From 158-7601 to 168-8620:
1. Added body up lean smoke made for neutral gear
2. Added selectable throttle (default to 75%-90%
   high throttle limits)
3. Removed Oil Renewal System

4. Changed crank case filter factor to 25 PIR
5. Changed engine coolant flow switch debounce from 2 to 10 seconds
6. Changed prelube map (increased kickout time from 15 to 17 seconds and reduced pressure kickout to 3kPa) PIR CMT-98-02

From 168-8620 to 179-4966:
1. New timing map
2. Increased wastegate derate from 20% to 30%
3. Timing changes to 4 ?during high boost event and engine speed > 1200 rpm
4. Wastegate driver preset at 28% (41 bits or 0.56 Amp)
5. Extended wastegate governed region, new range is 1275 to 1800 rpm
6. Engine load check for wastegate is now load > 35% rather than load > 50%
7. Debounce on the oil level switch is now 3 seconds set and 0.5 second to reset
8. Debounce on the coolant level switch is now 3 seconds to set and 0.5 second to reset

From 179-4966 to 179-8320:
1. Support for Oil Renewal System
2. New torque maps

From 179-8320 to 200-0826:
1. Support for True Weight Speed Manager - Keeps transmission from switching gears constantly when weight is being changed.

793C HD Tier I Certified Changes:
From 161-8916 to 194-9640
1. Support for True Weight Speed Manager - Keeps transmission from switching gears constantly when weight is being changed.
2. Support for coolant flow switch

From 194-9640 to 196-7335:
1. New Advance on Acceleration timing map to improve engine performance
2. New High Altitude Advance on Acceleration timing map to improve engine performance

From 196-7335 to 198-0189:
1. Support for Muli- Torque/ DualHP strategy
2. Support for lower case transmission serial numbers
3. 20 hour 'Free Event Clearing' which eliminates need for factory passwords to clear event in the first 20 hours
4. Modified low oil pressure event map (lowered to 69 kPa) to meet 3500B Basic Engine Requirement and protect turbo chargers

From 198-0189 to 199-4441
1. Support for Oil Renewal System

793C High Altitude Changes:
From 168-8607 to 169-6262:
1. Negative timing support
2. Analog inputs are filtered and initialized except TOT
3. Dyno mode - Feature simplifies dyno testing of electronic engines.

Certain diagnostic codes caused by removing the engine from chassis are ignored. Desired engine may be entered through Cat ET. This eliminates the need to connect a throttle position sensor to the engine during testing. This feature require up to date version of Cat ET.

4. Test cell throttle support
5. Exhaust derate increments 2% every 15 seconds
   CMT requested feature changes Jul1999

From 169-6262 to 185-6730:

1. Increased wastegate derate from 20% to 30%
2. Timing changes to 4 ?during high boost event and engine speed > 1200 rpm
3. Wastegate driver preset at 28% (41 bits or 0.56 Amp)
4. Extended wastegate governed region, new range is 1275 to 1800 rpm
5. Engine load check for wastegate is now load > 35% rather than load > 50%
6. Debounce on the oil level switch is now 3 seconds set and 0.5 second to reset
7. Debounce on the coolant level switch is now 3 seconds to set and 0.5 second to reset

From 185-6730 to 191-9406:

1. Support for Oil Renewal System

From 191-9406 to 200-0828:

1. Added to feature True Weight Speed Manager - Keeps transmission from switching gears constantly when weight is being changed.

789C Changes:

From 136-1581 to 187-1256:

1. New torque map
2. New timing map

From 187-1256 to 206-2528:

1. Support for TWSM - Keeps transmission from switching gears constantly when weight is being changed.
2. 10 second debounce on air filter restriction derate
3. Modified low oil pressure event map to meet 3500B Basic Engine Requirement
4. FTS Programming
5. FLS/ FTS default to 'Not Programmed' on a new ECM. 268-02 code activated until parameter is programmed one time.
6. 20 hour 'Free Event Clearing' which eliminates need for factory passwords to clear event in the first 20 hours
7. E- Trim diagnostics were added to meet 3500B Basic Engine Requirement
8. Testcell Throttle
9. Dyno Mode - Feature simplifies dyno testing of electronic engines. Certain diagnostic codes caused by removing the engine from chassis are ignored. Desired engine speed may be entered through Cat ET. This eliminates the need to connect a throttle position sensor to the engine during testing. This feature requires up to date version of Cat ET.

789C Tier I Certified Changes:

From 161-8016 to 206-2531:

1. Support for TWSM - Keeps transmission from switching gears constantly when weight is being changed.
2. 10 second debounce on air filter restriction derate

3. Modified low oil pressure event map to meet 3500B Basic Engine Requirement
4. FLS/ FTS default to 'Not Programmed' on a new ECM. 268-02 code activated until parameter is programmed one time.
5. 20 hour 'Free Event Clearing' which eliminates need for factory passwords to clear event in the first 20 hours
6. E- Trim diagnostics were added to meet 3500B Basic Engine Requirement

785C Changes:
From 136-1577 to 194-6588
1. New 12 degree Master Timing map

From 194-6588 to 206-2522:
1. Support for TWSM - Keeps transmission from switching gears constantly when weight is being changed.
2. 10 second debounce on air filter restriction derate. Reduces false logging of high air filter rest events.
3. Modified low oil pressure event map to meet 3500B Basic Engine Requirement
4. FTS Programming
5. FLS/ FTS default to 'Not Programmed' on a new ECM. 268-02 code activated until parameter is programmed one time.
6. 20 hour 'Free Event Clearing' which eliminates need for factory passwords to clear event in the first 20 hours
7. E- Trim diagnostics were added to meet 3500B Basic Engine Requirement
8. Testcell Throttle
9. Dyno Mode - Feature simplifies dyno testing of electronic engines. Certain diagnostic codes caused by removing the engine from chassis are ignored. Desired engine speed may be entered through Cat ET. This eliminates the need to connect a throttle position sensor to the engine during testing. This feature requires up to date version of Cat Et.

785C Tier I Certified Changes:
From 161-8014 to 206-2526:
1. Support for TWSM - Keeps transmission from switching gears constantly when weight is being changed.
2. 10 second debounce on air filter restriction derate. Reduces false logging of high air filter rest events.
3. Modified low oil pressure event map to meet 3500B Basic Engine Requirement
4. FLS/ FTS default to 'Not Programmed' on a new ECM. 268-02 code activated until parameter is programmed one time.
5. 20 hour 'Free Event Clearing' which eliminates need for factory passwords to clear event in the first 20 hours
6. E- Trim diagnostics were added to meet 3500B Basic Engine Requirement

From 206-2526 to 211-0578:
1. Added support for Oil Renewal System (ORS)

785C High Altitude Changes:
From 151-1311 to 151-7064:
1. New torque map
2. New timing map

From 151-7064 to 206-2524:
1. Support for TWSM - Keeps transmission form switching gears constantly when weight is being changed.

2. 10 second debounce on air filter restriction derate. Reduces false logging of high air filter rest events.
3. Modified low oil pressure event map to meet 3500B Basic Engine Requirement
4. FTS Programming
5. FLS/ FTS default to 'Not Programmed' on a new ECM. 268-02 code activated until parameter is programmed one time.
6. 20 hour 'Free Event Clearing' which eliminates need for factory passwords to clear event in the first 20 hours
7. E- Trim diagnostics were added to meet 3500B Basic Engine Requirement
8. Testcell Throttle
9. Dyno Mode - Feature simplifies dyno testing of electronic engines. Certain diagnostic coeds caused by removing the engine from chassis are ignored. Desired engine speed may be entered through Cat ET. This eliminates the need to connect a throttle position sensor to the engine during testing. This feature requires up to date version of Cat ET.

From 206-2524 to 211-0578:
1. Added support for Oil Renewal System (ORS)

776D & 777D (model RM561) Changes:
From 142-0378 to 151-2155:
1. Water cannon throttle lock
2. Pre-lube override and trup points
3. 2100 RPM engine overspeed
4. Fan clutch rampup
5. Zero out hours and fuel
6. PID for engine status
7. No coolant flow event w/ ground level shutdown
8. 2 second debounce for trup
9. E-trim
10. EEprom clearing for interlock mismatch
11. 100 RPM below low idle cold cylinder cutout disable
12. No event for negative crankcase pressure
13. New fuel rate map
14. Altitude derate 0.75%/kPa at 10,000 ft
15. New torque map

From 151-2155 to 158-2234:
1. Added body up lean smoke make for neutral gear
2. Added selectable throttle (default to 40%-50% high throttle limits)
3. Crank case filter factor to 25 PIR
4. Engine coolant flow switch debounce from 2 to 10 seconds. Reduces false logging of loss of coolant flow events.
5. Prelube map (kickout time 17 seconds and pressure kickout 3 kPA)

From 158-2234 to 176-0065:
1. New torque map (1% increase)

From 176-0065 to 194-6596:
1. New torque map timing map to address valve sticking problem

777D (Model RM636) changes:
Initial Production 184-8016:
1. Added support for Electronic Muffler
2. Set debounce on the oil level switch and coolant level switch to

    3s and the reset debounce to 0.5s
3. Negative timing support
4. All analog inputs are filtered and initialized except TOT
5. Throttle Pedal Configuration default to 75%-90%
6. New 12° timing map (addresses valve sticking problem)
7. Add support for FTS programming
8. FLS and FTS default to 0
9. New interlock code

777D Tier I changes:
Initial Production 166-0943:
1. New torque maps
2. New timing map
3. New fuel rate map
4. Max value for the FARC adjustment is 0 instead of 25. Required for emission certification.
5. Set debounce on the oil level switch and coolant level switch to 3s and the reset debounce to 0.5s
6. Change level in the device ID to $0020
7. Body up smoke
8. Selectable throttle (default to 75-90%)
9. Overspeed raised from 2100 to 2200 RPM
10. Negative timing support
11. All analog inputs are filtered and initialized except TOT
12. Dyno mode support - Feature simplifies dyno testing of electronic engines. Certain diagnostic codes caused by removing the engine from the chassis are ignored. Desired engine speed may be entered through Cat ET. This eliminates the need to connect a throttle position sensor to the engine during testing. This feature requires up to date version of Cat ET.
13. Test cell throttle support
14. Exhaust derate increments 2% every 15 seconds

From 166-0943 to 185-8623:
1. New Torque maps

From 185-8623 to 188-2771:
1. New Torque Maps

From 188-2771 to 195-6427:
1. Added support for True Weight Speed Manager - Keeps transmission from switching gears constantly when weight is being changed.
2. Added support for FTS programming
3. FLS/FTS default to 'Not Programmed' on a new ECM. 268-02 code activated until parameter is programmed one time.
4. Added Free Event Clearing which eliminates need for factory passwords to clear event in the first 20 hours

777D High Altitude Changes:
From 134-3946 to 175-6461:
1. Fixed crank case pressure sensor autocal
2. Added body-up smoke feature
3. Added selectable throttle
4. Added negative timing support
5. Added coolant flow 10 second debounce. Reduces false logging of loss of coolant flow events.
6. Added filters for all pressure sensors (except TOT)
7. New torque map (1% increase over full range)
8. Raised prelube map to 3 kPa or 17 seconds to avoid prelube timeout logged diagnostics.
9. Changed tran control diagnostic from CID 248 to 296

10. Fixed Etrim map
11. Fixed torque map parameters in ET
12. Removed throttle lock so engine can't be locked to one speed

992G Changes:
From 139-6027 to 146-9370:
1. Changed torque map
2. Changed oil pressure scaling in the hardware file.

From 146-9370 to 150-1194:
1. Changed torque map
2. Changed timing map
3. Changed fuel rate map
4. Changed VIMS map

From 150-1194 to 163-7212:
1. Cold cylinder cutout de-activates if engine speed drops 100 RPM below low idle (was 50 RPM)
2. Added cold cylinder cutout Enable/Disable via service tool. Default is on.
3. Added cold cylinder cutout status display to Service Tool.
4. Changed crankcase pressure sensor filter to 25 from 225. This change causes high frequency noise on this signal to be ignored.
5. Suppress logging crankcase pressure event when crankcase pressure goes negative.
6. Software written for ADEM II 16 D control. Version C control not supported. Cat Data Link Flashing is supported
7. Added axle protection derate override in ECAP and ET version 2.3
8. Coolant flow event is disabled if ground level shutdown switch causes a shutdown or engine speed is 50 or more RPM below low idle.
9. Coolant flow status on Service Tool Status Screens is updated regardless of whether or not engine is running. Loss of coolant flow event logging still requires engine to be running.
10. EEprom clearing occurs when a Personality Module Interlock mismatch code occurs and the interlock code is cleared via Factory Passwords.
11. Added fuel correction factor programmable parameter to allow customer to fine-tune engine control's calculation of fuel used.
12. Added ability to program hours and total fuel via ET.
13. Added 1.67 degree timing/second ramp when control switches between warm and cold modes.
14. Added Product ID Programmable Parameter.
15. Disabled logging Event ID 265. User defined shutdown when implement control requests shutdown over Cat Data Link.
16. Removed Equipment ID from the required list of parameters needed to be programmed to avoid getting a 268-02 Check Programmable Parameters diagnostic.

From 163-7212 to 175-3317:
1. New torque map (2% increase)
2. Corrected enable/disable function of cold cylinder cutout
3. Changed filter factors for pressure sensors which affected auto calibration

From 175-3317 to 193-4245:
1. Master timimng map change

From 193-4245 to 193-7131:
1. New tourque map

From 193-7131 to 205-4658:
1. New torque map
2. New timing map

D11R Changes:
From Experperimental to 136-9332:
1. Add hydraulic retarding strategy.
2. Correct crankcase pressure warning work negative pressures.

From 136-9332 to 148-6513:
1. Add Cat Data Link communications to determine if
   implement control is on machine and if the minimum
   fan pump pressure should be modified.

From 148-6513 to 149-8181:
1. Added PING for VIDS (using MID $33 instead of $31)
   to determine whether to drive "Service Required" and
   "High Exhaust Temperature" lamps.
2. Modified smoke map, fuel rate map, timing map and torque map.
3. Added "Ramped Elevated Low Idle"
4. Modified "Service Required" lamp support to enable off of
   "fuel filter event" not the switch status as in "apr97" release.

From 149-8181 to 161-8000:
1. Changed the crank case pressure sensor filtering factor to 41%.
2. Changed nominal fan pump pressure from 2900 kPa to 3800 kPa.
3. Disabled Engine lugging from the demand fan control strategy.
4. Added diagnostics for the Overspeed Retarder Solenoid.
5. Increased the coolant flow warning and event debounce to 10 sec.
6. Changed the Cold Cylinder Cutout feature to deactivate for
   ten minutes whenever engine speed drops 100 RPM (currently
   50 RPM) below low idle.

From 161-8000 to 165-5026:
1. Modified minimum fan pump pressure from 3800 kPa to
   1169 kPa for the D11R-B only.
2. Changed the crank case pressure sensor filtering factor
   from 41% to 25%.
3. Changed the overspeed retarder solenoid pinging from
   180 msec to 120 msec

From 165-5026 to 167-0750:
1. Changed the torque map.
2. Changed the crank case pressure sensor filter factor
   from 25% to 10%.
3. Changed the overspeed retarder solenoid pinging from
   120 msec to 180 msec.
4. Added check engine (PID $F803) and Service Code (PID $PID $F192)
   lamps support for the hydraulic retarder.

From 167-0750 to 175-6453:
1. New torque map (2% increase)
2. Corrected injector E-trim table errors
3. Added 10 second delay to high air filter restriction event

From 175-6453 to 178-2661:
1. Changed the Torque map for new BTL-75 Turbos.

2. Changed the Timing map.
3. Dyno Mode - Feature simplifies dyno testing of electronic engines. Certain diagnostic codes caused by removing the engine from chassis are ignored. Desired engine speed may be entered through Cat ET. This eliminates the need to connect a throttle position sensor to the engine during testing. This feature requires up to date version of Cat ET.
4. Different minimum on acceleration fan pump pressure for D11Rb & Carry Dozer

From 178-2661 to 200-0084:
1. New timing map
2. New cold mode elevated idle strategy - Added hysteresis to prevent frequent changes in engine speed. New stategy remains at constant engine speed for at least 1 minute regardless of coolant temperature. Engine speed will remain constant for at least 10 minutes at the lowest speed before dropping to low idle.

5130B Changes:
From 141-6732 to 146-5703:
1. Add capability to zero out ECM hours.
2. Add capablility to zero out fuel consumed
3. Change exhaust temp from level 1 warning to level 3 warning after 5 occurances.
4. Add PID to display engine cold cylinder cutout status data on service tool and VIMS.
5. EEprom clearing on personality module mismatch override
6. Crankcase pressure event should not be logged when pressure goes negative.
7. Coolant flow event is disabled when ground level or user defined shutdown is enabled.
8. Coolant flow event is disabled when engine speed is 50 or more RPM below low idle.
9. Coolant flow event activation debounce time of 2 sec. Deactivation time of 0.5 sec.

From 146-5703 to 159-5221:
1. Fix user defined shutdown.
2. Fix default values for monitoring system.
3. Perform complete software module test.

From 159-5221 to 168-4416:
1. High altitude software support.
2. Attachment oil renewal system.
3. Attachment ECM controlled prelube system.

From 168-4416 to 180-9126:
1. New torque map to increase power in order to reduce HP variability seen in LEC test cell
2. New Torque Map Request for 5130B to increase engine power for power variability problems

From 180-9126 to 186-3141:
1. 5130B Programmable Monitoring System refresh fix. This is the same type of fix that went into 159-5221, but was not set up correctly in the next release. If the PMS trigger values become corrupted, there is no way to refresh them to the defaults with the current s/w.

From 186-3141 to 199-1174:
1. Change torque map to new KLC map that raises power at rated speed by 3.4%

2. Change E-Trim map to 3500B baseline map
3. Cool Engine Elevated Idle - Added hysteresis to prevent frequent changes in engine speed. New stategy remains at constant engine speed for at least 1 minute regardless of coolant temperature. Engine speed will remain constant for at least 10 minutes at the lowest speed before dropping to low idle.
4. Fix Exhaust Temp Derate - 1. Derate % PID does not indicate correct value when derate is latched 2. Sensor fault does not cause derate
5. 100-13 Engine Oil Pressure Cal Required - needs to be changed to 543-13
6. Fix update on the override screen for Fan Bypass override. The fan speed was being overridden, but the display on the ET overrides screen was not updating.
7. Generate a diagnostic code "1495-2" when the E-Trim codes are set to the default value of 0000 (no correction). E-Trim would be set on 0000 on a blank/new ECm or when the EEPROM is cleared with an interlock and application ID mismatch.
8. Change minimum low oil pressure setting to 69 kPa. For the 5130B applications, the minimum low oil pressure is set to 44 kPa at 650 RPM and below and ramps up to 250 kPa at 1500 RPM.

5130B Tier I Certified changes:
From original to 151-7083:
1. Change Universal Broadcast timeout for VIMS from 3 tries to 6 tries
2. Include support for Test Cell Throttle PWM input (SRN000029)
3. Fix known problems -
4. Include 2000 Cert maps -
5. New Interlock = 16, per RJL
6. New Fan Control Strategy - incorporate SCAC temp sensor
7. Replace PWM PS Pressure Sensor with Analog PS Pressure Sensor
8. NO PS solenoid change
9. Do NOT remove coolant flow switch
10. Add support for FTS to engine s/w and the ET configuration screen
11. New smoke map with FRC range from -25 to 0

From 151-7083 to 192-1896:
1. Change torque map to new KLC map with lower torque at peak torque to retarget tourque map.
2. Change E-Trim map to 3500B baseline map
3. Add analog PS Pressure filtering and change Underspeed cal tolerance to +/- 40 kPa like 5130B HAA
4. Fix Cool Engine Elevated Idle - Added hysteresis to prevent frequent changes in engine speed. New stategy remains at constant engine speed for at least 1 minute regardless of coolant temperature. Engine speed will remain constant for at least 10 minutes at the lowest speed before dropping to low idle.
5. Fix Exhaust Temp Derate - 1. Derate % PID does not indicate correct value when derate is latched 2. Sensor faults do not cause derate
6. Default FLS/FTS to "not programmed"
7. Change to Version D software
8. Fix update on the override screen for Fan Bypass override - (library update). The fan speed was being overridden, but the display on the ET overrides screen was not updating.

==========

3500B Commercial Engines Equipped with A3 ECM, FLASH File Cross-Reference
Updated July 10, 2006

A3 ECM - A3 ECM - A3 ECM - A3 ECM - A3 ECM - A3 ECM - A3 ECM - A3 ECM

Use this document for 3500B HD (High Displacement) engines
with the following serial number prefixes.

EPG MARINE PROPULSION
2JW 4BW
5AW 2EZ

This software list services engines built after Oct 2003
that have A3 ECM's. Latest software services these
Serial Numbers back to the first Serial Number listed.

FLASH File Cross-Reference."

MARINE AUX	MARINE PROPULSION
S2A1-UP	S2D1-UP
S2B1-UP	S2E1-UP
S2G1-UP	S2F1-UP
S2H1-UP	S2J1-UP
S2P1-UP	S2K1-UP
S2R1-UP	S2L1-UP
	S2M1-UP
	S2N1-UP
	S2S1-UP
	S2T1-UP
	S2W1-UP
	S2X1-UP
	S2Y1-UP

****

Notes for Using This Document
****

Software is listed by application then number of cylinders.

Part numbers listed under the "Flash Part No." column are
flash file numbers. These are software numbers that can be
downloaded from the Caterpillar mailbox or SISWeb or copied from
the SIS Flash Files CD. These numbers can NOT be ordered from the
parts distribution system. Flash files must be used when updating
software electronically using Winflash in Cat ET.

EXAMPLE:

3516 Propulsion Series II Marine (A3 ECM) - IMO Cert

	Primary	Secondary	Reason Code
	238-5175	238-5176	
Latest	247-6320	247-6321	1,2

In the example above, assume that an engine ECM currently has the
238-5175 flash file in it. The latest flash file available for
this engine is 247-6320 as indicated.

****

Reasons for software change:
****

1:To change from Air Shutoff configuration to air shutoff switch detection
2:To eliminate undesired starter engagement on off/reset
3:To eliminate a erroneous air shutoff detect event
4:Updated torque, monitoring and core maps with the 1835 rpm version.
5:Eliminate the nuisance event, unable to clear E2088 (1) Air Intake Shutoff Detection. Various bug fixes.
6:Updated with latest clack test software
7:Updates with Rack Stop
8:Programmable Sensors, Boost derate, J1939 Improvements, Prelube logic change, ORS support
9:Eliminate the nuisance event for Low Coolant Level and Air Shutoff Closed Events on J1939
10:Udate Jacket water toggle Yes or No
11:Fixed the PWM Throttle Failure Mode
12:Torque maps modified to add turbo surge margin and extend the scaling cutoff down to a "B" rating for Fast Ferries.
13:CPI 94859 File modified to eliminate premature cranking cycle abort
14:CPI 108202 Eliminate E198 code "low fuel pressure" on shutdown
15:CPI 105958 Overspeed verify available over J1939
16:Improvements made to reduce starting time. Delay from start of cranking to injection enable reduced.
   Delay from time EMCPII receives remote start signal to engagement of starters reduced.
17:New configuration parameter added to enable or disable the "Air Shutoff Control" for engines with one air shutoff
   Note: To avoid nuisance fault codes, engines without air shutoff's need to have configuration changed to "Disabled or Off".
18:Primary Speed Timing Sensor will now log a 190-8 if speed signal is lost while engine is operating.
19:Overcrank event added when engine fails to start after cranking cycle is exceeded. CDL EID 225, WCI 3,
   J1939 SPN 1664, FMI 31
20:Boost pressure is limited to positive values (CAT datalink)
21:Low coolant level and low aftercooler level events can now be activated without engine running.
22:Additional J1939 parameter support added for the following; SCAC Temperature, SCAC Level Warning or JW Level Warning
   are now communicated via low coolant message, Air Inlet Shutoff (driver status), Crankcase Pressure, Left and Right
   Air Filter Differential Pressure, Overspeed Verify, Unfiltered Oil Pressure and Turbo Inlet Pressure changed from
   absolute to gauge, Fuel Rate Scaling corrected, Boost Pressure limited to positive values, Overcrank Event added
   (SPN 1664/FMI 31).
23:General Alarm Relay feature added; Synchronization Driver (J2-29) will activate for any active diagnostic or event,
   Feature is optional but not configurable, No diagnostics are supported on driver.
24:Load Feedback Feature adds the following; Provides 4 to 20 mA output that corresponds to 0% to 100% load on engine,
   Feature must be calibrated with ET Service Tool before use, Load Feedback +: J1-44, Load Feedback -:J1-45, Feature is
   optional but not configurable, No diagnostics are supported on output.
25:Direct Rack available.
26:Continuous Prelube feature added the following; Periodic prelube routine when run/stop input is in the stop position,
   Two new configurable parameters in ET (Engine Prelube System/Automatic or Continuous, Engine Continuous Prelube Interval),
   Engine Prelube Duration (Duration = 0 still disables prelube), Need switch to ground input added to ECM (J1-64) (no
   configuration in ET for this), To use the "Continuous" feature, configure prelube to "Continuous" and activate the

switch input, If configured to the "Automatic" or if configured to "Continuous" but the switch is inactive (open) the
prelube will function the same as before, No configuration change is required when flashing over existing software.
27.Rating performance monitoring added.
28:Altitude derate is now incremental and "Check Engine" indicator will light for only 15 seconds when altitude derate event
is active.
29:Add Air Shutoff relay diagnostic to resolve nuisance relay diagnostic.
30:Modified Air Shutoff Driver enable time
31:Add Air Throttle Feature.
32:Modified the Load Feed Back Calibration Strategy for three point calibration (software allows calibration of the
intermediate point instead of a fixed value. Note Full support with ET 2006A.

****

3508B GENSET APPLICATIoN EQUIPPED WITH A3 ECM
****

3508 EPG 1200 RPM (A3 ECM)

	Primary	Reason Code
	245-1952	
	259-8329	6
	261-7515	7
	266-2732	9
	267-1855	10
Latest	267-7137	11
Latest	273-9063	13-27

3508 EPG 1200 RPM (A3 ECM)

	Primary	Reason Code
	245-1953	
	259-8330	6
	261-7516	7
	266-2733	9
	267-1856	10
	267-7138	11
Latest	273-9064	13-27

3508 EPG 1200 RPM (A3 ECM)

	Primary	Reason Code
	245-1990	
	259-8391	6
	261-8306	7
	266-2761	9
	267-1884	10
	267-7166	11
Latest	273-9092	13-27

3508 EPG 1200 RPM (A3 ECM) Certified

	Primary	Reason Code
	245-1960	
	259-8368	6
	261-7519	7
	266-2738	9
	267-1862	10
Latest	267-7144	11

3508 EPG 1500 RPM (A3 ECM)

	Primary	Reason Code
	245-1988	
	259-8389	6
	266-2759	9
	267-1882	10
Latest	267-7164	11

3508 EPG 1500 RPM (A3 ECM)

	Primary	Reason Code
	245-1989	
	259-8390	6
	266-2760	9
	267-1883	10
	267-7165	11
Latest	273-9091	13-27

3508 EPG 1500 RPM (A3 ECM) Certified

	Primary	Reason Code
	245-1997	
	259-8335	6
	266-2737	9
	267-1861	10
Latest	267-7143	11

50 EPG HZ, 1500 RPM, CONTINUOUS/PRIME/STANDBY, LO BSFC, JWAC - A3 software

	Flash Part No.	Chip Version	Reason
Latest	257-6268	Original A3 flasfile made from 229-0265 A2	

3508 EPG 1800 RPM (A3 ECM)

	Primary	Reason Code
	245-1987	
	259-8388	6
	266-2758	9
	267-1881	10
	267-7163	11
Latest	273-9089	13-27

3508 EPG 1800 RPM (A3 ECM) (Field Test File Only)

	Primary	Reason Code
	245-1985	
	266-5940	9
	267-1893	10
Latest	267-7175	11

3508 EPG 1800 RPM (A3 ECM) (Field Test File only)

	Primary	Reason Code
	245-1954	
	266-5941	9
	267-1894	10
Latest	267-7176	11

3508 EPG 1800 RPM (A3 ECM) Certified

	Primary	Reason Code
	245-1958	
	259-8334	6
	266-2736	9
	267-1860	10
	267-7142	11
Latest	273-9068	13-27

3508 EPG 1200 RPM (A3 ECM) Certified

	Primary	Reason Code
	245-1948	
	259-8387	6
	266-2757	9
	267-1880	10
	267-7162	11
Latest	273-9088	13-27

****

3512B GENSET APPLICATIoN EQUIPPED WITH A3 ECM

****

3512 EPG 1000 RPM (A3 ECM)

	Primary	Reason Code
	245-1966	
	259-8374	6
	261-8300	7
	266-2744	9
	267-1868	10
	267-7150	11
Latest	273-9076	13-27

3512 EPG 1200 RPM (A3 ECM)

	Primary	Reason Code
	245-1951	
	259-8331	6
	261-7517	7
	266-2734	9
	267-1857	10
Latest	267-7139	11
Latest	273-9065	13-27

3512 EPG 1200 RPM (A3 ECM)

	Primary	Reason Code
	245-1965	
	259-8373	6
	261-7520	7
	266-2743	9
	267-1867	10
	267-7149	11
Latest	273-9075	13-27

3512 EPG 1200 RPM (A3 ECM)

	Primary	Reason Code
	245-1974	
	259-8380	6
	261-8302	7
	266-4750	9
	267-1874	10
Latest	267-7156	11
Latest	273-9082	13-27

3512 EPG 1200 RPM (A3 ECM)

	Primary	Reason Code
	261-8315	
	266-2977	9
	267-1895	10
Latest	267-7177	11

3512 EPG 1200 RPM (A3 ECM) Certified

	Primary	Reason Code
	245-1967	
	259-8375	6
	261-8301	7
	266-2745	9
	267-1869	10
	267-7151	11
Latest	273-9077	13-27

3512 HD EPG 1200 RPM (A3 ECM)

	Primary	Reason Code
	245-1957	
	259-8333	6
	266-2751	9
	267-1859	10
	267-7141	11
Latest	273-9067	13-27

3512 EPG 1500 RPM (A3 ECM)

	Primary	Reason Code
	245-1964	
	259-8372	6
	266-2742	9
	267-1866	10
Latest	267-7148	11

3512 EPG 1500 RPM (A3 ECM) Certified

	Primary	Reason Code
	245-1998	
	259-8370	6
	266-2740	9
	267-1864	10
	267-7146	11
Latest	273-9072	13-27

3512 EPG 50 HZ, 1500 RPM, CNT/PR/PR+10/SB, LO BSFC

	Flash Part No.	Chip Version	Reason
latest	257-6265		Original A3 flasfile made from 266-2984 A2

3512 EPG 50 HZ, 1500 RPM, CNT/PR/PR+10/SB, EMISSIONS - A3 software

	Flash Part No.	Chip Version	Reason
Latest	257-6266		Original A3 flasfile made from 228-5154 A2

3512 HD EPG 1500 RPM (A3 ECM)

	Primary	Reason Code
	245-1973	
	259-8379	6
	266-4749	9
	267-1873	10
	267-7155	11
Latest	273-9081	13-27

3512 HD EPG 1500 RPM (A3 ECM)

	Primary	Reason Code
	245-1971	

	259-8378	6
	266-4748	9
	267-1872	10
	267-7154	11
Latest	273-9080	13-27

3512 HD EPG 1500 RPM (A3 ECM)

	Primary	Reason Code
	245-1970	
	259-8377	6
	266-2747	9
	267-1871	10
	267-7153	11
Latest	273-9079	13-27

3512 EPG 1800 RPM (A3 ECM)

	Primary	Reason Code
	245-1961	
	259-8369	6
	266-2739	9
	267-1863	10
	267-7145	11
Latest	273-9071	13-27

3512 EPG 1800 RPM (A3 ECM) Certified

	Primary	Reason Code
	245-1949	
	259-8371	6
	266-2741	9
	267-1865	10
	267-7147	11
Latest	273-9073	13-27

3512 EPG 1800 RPM (A3 ECM)

	Primary	Reason Code
	245-1968	
	259-8376	6
	266-2746	9
	267-1870	10
	267-7152	11
Latest	273-9078	13-27

****

3516B GENSET APPLICATIoN EQUIPPED WITH A3 ECM

****

3516 EPG 1200 RPM (A3 ECM)

	Primary	Reason Code
	245-1955	
	259-8328	6
	261-7514	7
	266-2731	9
	267-1854	10
	267-7136	11
Latest	273-9062	13-27

3516 EPG 1200 RPM (A3 ECM)

	Primary	Reason Code

	245-1983	
	259-8385	6
	261-8304	7
	266-2755	9
	267-1878	10
Latest	267-7160	11
Latest	273-9086	13-27

3516 EPG 1200 RPM (A3 ECM)

	Primary	Reason Code
	245-1984	
	259-8386	6
	261-8305	7
	266-2756	9
	267-1879	10
Latest	267-7162	11

3516 HD EPG 1200 RPM (A3 ECM)

	Primary	Reason Code
	245-1956	
	259-8332	6
	261-7518	7
	266-2735	9
	267-1858	10
	267-7140	11
Latest	273-9066	13-27

3516 HD EPG 1200 RPM (A3 ECM) Certified

	Primary	Reason Code
	245-1980	
	259-8383	6
	261-8303	7
	266-2753	9
	267-1876	10
	267-7158	11
Latest	273-9084	13-27

3516 EPG 1500 RPM (A3 ECM) Certified

	Primary	Reason Code
	245-1950	
	259-8396	6
	266-2766	9
	267-1889	10
	267-7171	11
Latest	273-9097	13-27

3516 EPG 1500 RPM (A3 ECM)

	Primary	Reason Code
	245-1978	
	259-8398	6
	266-2768	9
	267-1891	10
	267-7173	11
Latest	273-9099	13-27

3516 EPG 1500 RPM (A3 ECM)

	Primary	Reason Code
	245-1950	
	259-8399	6
	266-2769	9
	267-1892	10

Latest	267-7174	11

3516 HD EPG 1500 RPM (A3 ECM)

	Primary	Reason Code
	245-1979	
	259-8382	6
	266-2752	9
	267-1875	10
	267-7157	11
Latest	273-9083	13-27

3516 HD EPG 1500 RPM (A3 ECM)

	Primary	Reason Code
	245-1992	
	259-8392	6
	266-2762	9
	267-1885	10
	267-7167	11
Latest	273-9093	13-27

3516 HD EPG 1600 RPM (A3 ECM)

	Primary	Reason Code
	245-1982	
	259-8384	6
	266-2754	9
	267-1877	10
	267-7159	11
Latest	273-9085	13-27

3516 EPG 1800 RPM (A3 ECM)

	Primary	Reason Code
	245-1975	
	259-8393	6
	266-2763	9
	267-1886	10
	267-7168	11
Latest	273-9094	13-27

3516 EPG 1800 RPM (A3 ECM) Certified

	Primary	Reason Code
	245-2007	
	259-8394	6
	266-2764	9
	267-1887	10
	267-7169	11
Latest	273-9095	13-27

3516 EPG 1800 RPM (A3 ECM) Certified

	Primary	Reason Code
	245-1972	
	259-8395	6
	266-2765	9
	267-1888	10
	267-7170	11
Latest	273-9096	13-27

3516 EPG 1800 RPM (A3 ECM)

	Primary	Reason Code
	245-1977	
	259-8397	6
	266-2767	9

	267-1890	10	
	267-7172	11	
Latest	273-9098	13-27	

****

3508B SERIES II MARINE PROP. ENGINES EQUIPPED WITH AN A3 ECM

****

3508 Propulsion Series II Marine (A3 ECM) - IMO Cert

	Primary	Secondary	Reason Code
	231-9927	231-9928	
	247-6322	247-6323	1,2
Latest	259-8272	259-8273	8

3508 Propulsion Series II Marine (A3 ECM) - IMO Cert

	Primary	Secondary	Reason Code
	231-9929	231-9930	
	247-6324	247-6325	1,2
	250-1402	250-1403	3
Latest	259-8274	259-8275	8

3508 Propulsion Series II Marine (A3 ECM) - IMO Cert

	Primary	Secondary	Reason Code
	231-9931	231-9932	
	247-6326	247-6327	1,2
Latest	259-8276	259-8277	8

3508 Propulsion Series II Marine (A3 ECM) - IMO Cert

	Primary	Secondary	Reason Code
	231-9933	231-9934	
	247-6328	247-6329	1,2
Latest	259-8278	259-8279	8

3508 Propulsion Series II Marine (A3 ECM) - IMO Cert

	Primary	Secondary	Reason Code
	231-9935	231-9936	
	247-6330	247-6331	1,2
Latest	259-8280	259-8281	8

3508 Propulsion Series II Marine (A3 ECM) - IMO Cert

	Primary	Secondary	Reason Code
	231-9937	231-9938	
	247-6332	247-6333	1,2
Latest	259-8282	259-8283	8

3508 Propulsion Series II Marine (A3 ECM) - IMO Cert

	Primary	Secondary	Reason Code
	231-9939	231-9940	
	247-6334	247-6335	
	254-0062	254-0063	4
Latest	259-8284	259-8285	8

3508 Propulsion Series II Marine (A3 ECM) - IMO Cert

	Primary	Secondary	Reason Code
	231-9991	231-9992	
	247-6374	247-6375	1,2
	250-1412	250-1413	3
Latest	259-8286	259-8287	8

3508 Propulsion Series II Marine (A3 ECM) - IMO Cert

	Primary	Secondary	Reason Code
	231-9985	231-9986	
	247-6368	247-6369	1,2
	250-1408	250-1409	3
Latest	259-8288	259-8289	8

3508 Propulsion Series II Marine (A3 ECM) - IMO Cert

	Primary	Secondary	Reason Code
	231-9997	231-9998	
	247-6380	247-6381	1,2
Latest	259-8290	259-8291	8

****

3512B SERIES II MARINE PROP. ENGINES EQUIPPED WITH AN A3 ECM

****

3512 Propulsion Series II Marine (A3 ECM) - IMO Cert

	Primary	Secondary	Reason Code
	231-9951	231-9952	
	247-6342	247-6343	1,2
Latest	259-8248	259-8249	8

3512 Propulsion Series II Marine (A3 ECM) - IMO Cert

	Primary	Secondary	Reason Code
	231-9965	231-9966	
	247-6352	247-6353	1,2
Latest	259-8250	259-8251	8

3512 Propulsion Series II Marine (A3 ECM) - IMO Cert

	Primary	Secondary	Reason Code
	231-9967	231-9968	
	247-6354	247-6355	1,2
Latest	259-8252	259-8253	8

3512 Propulsion Series II Marine (A3 ECM) - IMO Cert

	Primary	Secondary	Reason Code
	231-9969	231-9970	
	247-6356	247-6357	1,2
	250-1406	250-1407	3
Latest	259-8254	259-8255	8

3512 Propulsion Series II Marine (A3 ECM) - IMO Cert

	Primary	Secondary	Reason Code
	231-9971	231-9972	
	247-6358	247-6359	1,2
Latest	259-8256	259-8257	8

3512 Propulsion Series II Marine (A3 ECM) - IMO Cert

	Primary	Secondary	Reason Code
	231-9973	231-9974	
	247-6360	247-6361	1,2
Latest	259-8258	259-8259	8

3512 Propulsion Series II Marine (A3 ECM) - IMO Cert

	Primary	Secondary	Reason Code
	231-9975	231-9976	
	247-6362	247-6363	1,2
Latest	259-8258	259-8259	8

3512 Propulsion Series II Marine (A3 ECM) - IMO Cert

	Primary	Secondary	Reason Code
	231-9977	231-9978	
	247-6364	247-6365	1,2
Latest	259-8262	259-8263	8

3512 Propulsion Series II Marine (A3 ECM) - IMO Cert

	Primary	Secondary	Reason Code
	231-9983	231-9984	
	247-6366	247-6367	
Latest	259-8264	259-8264	8

3512 Propulsion Series II Marine (A3 ECM) - IMO Cert

	Primary	Secondary	Reason Code
	231-9987	231-9988	
	247-6370	247-6371	1,2
	250-1410	250-1411	3
Latest	259-8266	259-8267	8

3512 Propulsion Series II Marine (A3 ECM) - IMO Cert

	Primary	Secondary	Reason Code
	231-9989	231-9990	
	247-6372	247-6373	1,2
Latest	259-8268	259-8269	8

3512 Propulsion Series II Marine (A3 ECM) - IMO Cert

	Primary	Secondary	Reason Code
	237-9024	237-9025	
	247-6382	247-6383	1,2
Latest	259-8270	259-8271	8

3512 Propulsion Series II Marine (A3 ECM) - IMO Cert

	Primary	Secondary	Reason Code
	244-1708	244-1709	
Latest	259-8296	259-8297	8

3512 HD Propulsion Series II Marine (A3 ECM) - IMO Cert

	Primary	Secondary	Reason Code
	231-9925	231-9926	
Latest	261-8309	261-8310	8

****

3512C SERIES II MARINE PROP. ENGINES EQUIPPED WITH AN A3 ECM

****

3512C HD 1800 RPM C/D Propulsion Series II Marine Uprate (A3 ECM) - IMO Cert

	Primary	Secondary	Reason Code
	245-1131	245-1132	
Latest	277-7542	277-7543	12

****

3516B SERIES II MARINE PROP. ENGINES EQUIPPED WITH AN A3 ECM

****

3516 Propulsion Series II Marine (A3 ECM) - IMO Cert

	Primary	Secondary	Reason Code
	238-5175	238-5176	
	247-6320	247-6321	1,2
	250-1400	250-1401	3
Latest	259-8228	259-8229	8

3516 Propulsion Series II Marine (A3 ECM) - IMO Cert

	Primary	Secondary	Reason Code
	231-9945	231-9946	
	247-6336	247-6337	1,2
Latest	259-8230	259-8231	8

3516 Propulsion Series II Marine (A3 ECM) - IMO Cert

	Primary	Secondary	Reason Code
	231-9947	231-9948	
	247-6338	247-6339	1,2
Latest	259-8232	259-8233	8

3516 Propulsion Series II Marine (A3 ECM) - IMO Cert

	Primary	Secondary	Reason Code
	238-5177	238-5178	
	247-6340	247-6341	1,2
	250-1404	250-1405	3
Latest	259-8234	259-8235	8

3516 Propulsion Series II Marine (A3 ECM) - IMO Cert

	Primary	Secondary	Reason Code
	231-9953	231-9954	
	247-6344	247-6345	1,2
Latest	259-8236	259-8237	8

3516 Propulsion Series II Marine (A3 ECM) - IMO Cert

	Primary	Secondary	Reason Code
	231-9955	231-9956	
	247-6346	247-6347	1,2
Latest	259-8238	259-8239	8

3516 Propulsion Series II Marine (A3 ECM) - IMO Cert

	Primary	Secondary	Reason Code
	231-9957	231-9958	
	247-6348	247-6349	
Latest	259-8340	259-8241	8

3516 Propulsion Series II Marine (A3 ECM) - IMO Cert

	Primary	Secondary	Reason Code
	231-9959	231-9960	
	247-6350	247-6351	1,2
Latest	259-8242	259-8243	8

3516 Propulsion Series II Marine (A3 ECM) - IMO Cert

	Primary	Secondary	Reason Code
	231-9995	231-9996	
	247-6378	247-6379	1,2
	250-1414	250-1415	3
Latest	259-8244	259-8245	8

3516 Propulsion Series II Marine (A3 ECM) - IMO Cert

	Primary	Secondary	Reason Code
	231-9993	231-9994	

	247-6376	247-6377	1,2
Latest	259-8246	259-8247	8

****

3516C SERIES II MARINE PROPULSION ENGINES EQUIPPED WITH AN A3 ECM

****

3516C HD 1800 RPM C/D Propulsion Series II Marine Uprate (A3 ECM) - IMO Cert

	Primary	Secondary	Reason Code
	245-1125	245-1126	
Latest	277-7544	277-7545	12

****

3508B SERIES II MARINE AUXILIARY. ENGINES EQUIPPED WITH AN A3 ECM

****

3508 Auxiliary Series II Marine (A3 ECM) - IMO Cert

	Primary	Reason Code
	231-9941	
	254-8112	5
	260-3777	6
Latest	261-7508	7

3508 Auxiliary Series II Marine (A3 ECM) - IMO Cert

	Primary	Reason Code
	231-9942	
	254-8113	5
	260-3778	6
Latest	261-7509	7
Latest	273-9057	13-27

3508 Auxiliary Series II Marine (A3 ECM) - IMO Cert

	Primary	Reason Code
	231-9943	
	254-8114	5
	260-3779	6
Latest	273-9058	13-27

3508 Auxiliary Series II Marine (A3 ECM) - IMO Cert

	Primary	Reason Code
	231-9944	
	254-8115	5
	260-3780	6
Latest	273-9059	13-27

****

3512B SERIES II MARINE AUXILIARY. ENGINES EQUIPPED WITH AN A3 ECM

****

3512 Auxiliary Series II Marine (A3 ECM) - IMO Cert

	Primary	Reason Code
	231-9979	
	254-8120	5

	260-3785	6
Latest	261-7512	7

3512 Auxiliary Series II Marine (A3 ECM) - IMO Cert

	Primary	Reason Code
	231-9980	
	254-8121	5
	260-3786	6
	261-7513	7
Latest	273-9053	13-27

3512 Auxiliary Series II Marine (A3 ECM) - IMO Cert

	Primary	Reason Code
	231-9981	
	254-8122	5
	260-3787	6
Latest	273-9054	13-27

3512 Auxiliary Series II Marine (A3 ECM) - IMO Cert

	Primary	Reason Code
	231-9982	
	254-8123	5
	260-3788	6
Latest	273-9055	13-27

****

3516B SERIES II MARINE AUXILIARY. ENGINES EQUIPPED WITH AN A3 ECM

****

3516 Auxiliary Series II Marine (A3 ECM) - IMO Cert

	Primary	Reason Code
	231-9961	
	254-8116	5
	260-3781	6
Latest	261-7510	7

3516 Auxiliary Series II Marine (A3 ECM) - IMO Cert

	Primary	Reason Code
	231-9962	
	254-8117	5
	260-3782	6
	261-7511	7
Latest	273-9049	13-27

3516 Auxiliary Series II Marine (A3 ECM) - IMO Cert

	Primary	Reason Code
	231-9963	
	254-8118	5
Latest	260-3783	6
Latest	273-9050	13-27

3516 Auxiliary Series II Marine (A3 ECM) - IMO Cert

	Primary	Reason Code
	231-9964	
	254-8119	5
	260-3784	6
Latest	273-9051	13-27

****

3508B Petroleum ENGINES EQUIPPED WITH AN A3 ECM

****

3508 Petroleum 60 HZ, 1200 RPM, EPA CERT (LAND Mech. Drive) - A3 software

	Flash Part No.	
Latest	254-5605	original A3 flashfile made from 251-3186 A2 file

3508 Petroleum 60 HZ, 1200 RPM, EPA CERT (LAND Electric Drive) - A3 software

	Flash Part No.	
Latest	254-5606	original A3 flashfile made from 275-5243 A2 file

****

3512B Petroleum ENGINES EQUIPPED WITH AN A3 ECM

****

3512 Petroleum 60 HZ, 1200 RPM, EPA CERT (Land) - A3 software

	Flash Part No.	Chip Version	Reason
Latest	254-5604		Original A3 flasfile made from 275-5244 A2 File

****

3516B Petroleum ENGINES EQUIPPED WITH AN A3 ECM

****

3516 Petroleum 60 HZ, 1200 RPM, EPA CERT (LAND)

	Flash Part No.	Chip Version	Reason
latest	254-5608		Original A3 flasfile made from 213-9333 A2 File

****
3512B OIL WELL SERVICE (now w/high 1950 idle) Halliburton - A3
****
1900 RPM, EPA CERT

	Flash Part No.	Chip Version	Reason
Latest	253-8004		Original A3 made from 245-0546 A2 file

****
3508B Industrial Engines Equipped with an A3 ECM
****

3508B IND 1800 RPM, EMISSIONS - A3

	Flash Part No.	Chip Version	Reason
Latest	254-5609		Original A3 made from 205-6955 A2 file

****
3512B Industrial Engines Equipped with an A3 ECM
****

3512B IND 1800 RPM, EMISSIONS - A3

	Flash Part No.	Chip Version	Reason
Latest	254-5610		Original A3 made from 205-6956 A2 file

****
3516B Industrial Engines Equipped with an A3 ECM
****

3516B 1800 RPM, EMISSIONS - A3

	Flash Part No.	Chip Version	Reason
Latest	254-5611		Original A3 made from 234-0288 A2 file

****
3508B LOCOMOTIVE - A3
****

3508B 1500 RPM

	Flash Part No.	Reason
Latest	255-5574	Original A3 flashfile made from 249-1801

3508B 1573 RPM

	Flash Part No.	Reason
latest	254-5575	Original A3 flashfile made from 207-3609

3508B 1800 RPM

	Flash Part No.	Reason
latest	254-5577	Original A3 flashfile made from 205-7011

3508B 1800 RPM, ERRI Certified

	Flash Part No.	Reason
latest	254-5572	Original A3 flashfile made from 249-1812

****
3512B LOCOMOTIVE (STANDARD) - A3
****

3512B 1500 RPM, LO BSFC, HIGH IDLE = 1620 RPM

	Flash Part No.	Reason
latest	254-5581	Original A3 flashfile made from 205-7012

3512B 1500 RPM, EMISSIONS

	Flash Part No.	Reason
Latest	278-8327	Original A3 flashfile made from 261-8313

3512B 1660 RPM, EMISSIONS

	Flash Part No.	Reason
latest	254-5580	Original A3 flashfile made from 205-7015

3512B 1750 RPM, EMISSIONS

	Flash Part No.	Reason
latest	278-8320	Original A3 flashfile made from 251-3190

3512B 1800 RPM, EMISSIONS

	Flash Part No.	Reason
latest	254-5583	Original A3 flashfile made from 205-7010

3512B 1800 RPM, EPG, EMISSIONS

	Flash Part No.	Reason
latest	277-9445	Original A3 flashfile made from 242-5340

3512B 1800 RPM, SPECIAL

	Flash Part No.	Reason
latest	254-5579	Original A3 flashfile made from 205-7016

3512B 1845 RPM, SPECIAL 1% High Idle

	Flash Part No.	Reason
latest	254-5578	Original A3 flashfile made from 249-1811

****
3516B LOCOMOTIVE (EMD) - A3
****

3516B 1800 RPM

	Flash Part No.	Reason
Latest	277-9447	Original A3 flashfile created from 236-2276

****
3512B HIGH DISPLACEMENT LOCOMOTIVE APPLICATION
****

60HZ, 1800 RPM, LOW EMISSIONS

	Flash Part No.	Reason
Latest	278-8318	Original A3 flashfile created from 249-1809

==========
LTTT DriveTrain Flash Files
FLASH SOFTWARE NOW AVAILABLE FOR TRACK TYPE
TRACTOR MODELS

D10R (3KR)
D11R (8ZR, 9TR, 9XR, 7PZ, AAF)

Reference:
Special Instruction, REHS0494, Accessing Flash Software for Machines;
SENR8367, Power Train Electronic Control System for Track Type
Tractors

Description of Change:
Flash software is now available for the drivetrain controller on the track
type tractor models listed above. The feature enhancements of this new
software are described below:

Removes 248F09 Fault Code
No longer allows flash programming if the parking brake is released.
Accommodates the new 1/2" solenoid valves
Implementation of solenoid diagnostic and driver control changes to
keep drivers off, when they are commanded off
VIDS calibration security functionality added for 7PZ and AAF prefix
D11R tractors
Manual brake touch-up calibration functionality added for 7PZ and AAF
prefix D11R tractors

Note: When flashing software, always be sure to use the latest software
release available.

Adaptable To:
The new software is directly adaptable to the track type tractors listed above.

Model	New Part
D10R	183-7424
D11R	183-7424

==========

Machine Flash file part numbers
The following document contains a listing of flash files for basic MAC-14 applications AND a listing of available pre-programmed ECMs for premium MAC-14 applications.

CHART "A" contains flash files applicable to basic MAC-14 ECMs only.
CHART "B" contains a listing of pre-programmed premium ECMs.

Please refer to and read all notes at the bottom of each list.

NOTICE:
SOME MAC-14 MACHINE CONTROLS MAY CONTAIN PREMIUM SOFTWARE. THESE PREMIUM CONTROLS INCLUDE AUTOSHIFT TRANSMISSION ECMs FOR MOTORGRADERS, ARC CONTROLS FOR SMALL OFF-HIGHWAY TRUCKS, AND INTEGRATED BRAKE CONTROLS FOR SMALL OFF-HIGHWAY TRUCKS. THE FLASH FILES FOR THESE CONTROLS ARE NOT AVAILABLE TO THE FIELD. FLASHING A PREMIUM BOX WITH A BASIC FLASH FILE WILL RESULT IN LOST FUNCTIONALITY.

CHART A: BASIC MAC-14 APPLICATIONS - FLASH FILES

Machine	Application / Description (notes)	Flash File
938G	traction control	170-4871
IT38G	traction control	170-4871
950G	transmission control	192-9953
962G	transmission control	192-9953
IT62G	transmission control	192-9953
966G	transmission control	192-9953
972G	transmission control	192-9953
950G	implement control	187-8499
962G	implement control	187-8499
966G	implement control	187-8499
972G	implement control	187-8499
980G	transmission control	196-1262
824G	transmission control	185-8099
825G	transmission control	185-8099
826G	transmission control	185-8099
980G	implement control	175-0228
824G	implement control	186-2954
825G	implement control	186-2954
826G	implement control	186-2954
988G	transmission control	174-6077
988G	implement control	174-6079
992G	transmission control	174-9009
992G	implement control	174-9007
854G	transmission control	178-4215
994D	transmission control	188-4503
525B	transmission control	172-4623
535B	transmission control	172-4623
545	transmission control	172-4623
D5M	drivetrain control	191-5019
D6M	drivetrain control	191-5019
D6R	drivetrain control	191-5019
D7R	drivetrain control	191-5019
D8R	drivetrain control	199-0928
572R	drivetrain control	191-5021
D10R	drivetrain control	183-7424
D11R	drivetrain control	183-7424

953C	drivetrain control	199-7184
963C	drivetrain control	199-7184
973C	drivetrain control	199-7184
5130A	machine control	186-5154
5130B	machine control	196-7827
5230A	machine control	196-7825
12H	transmission control - basic	190-8457
120H	transmission control - basic	190-8457
130H	transmission control - basic	190-8457
135H	transmission control - basic	190-8457
140H	transmission control - basic	190-8457
160H	transmission control - basic	190-8457
143H	transmission control - basic	190-8457
163H	transmission control - basic	190-8457
24H	transmission control	161-2019
12H	transmission control - basic - homologation (1)	190-8462
120H	transmission control - basic - homologation (1)	190-8462
130H	transmission control - basic - homologation (1)	190-8462
135H	transmission control - basic - homologation (1)	190-8462
140H	transmission control - basic - homologation (1)	190-8462
160H	transmission control - basic - homologation (1)	190-8462
143H	transmission control - basic - homologation (1)	190-8462
163H	transmission control - basic - homologation (1)	190-8462
D250E II	powertrain control	198-2810
D300E II	powertrain control	198-2810
D350E II	powertrain control	198-2810
D400E II	powertrain control	198-2810
769D	transmission control	201-4703
771D	transmission control	201-4703
773D	transmission control	201-4703
775D	transmission control	201-4703
776D	transmission control	201-4703
777D	transmission control	201-4703
784C	transmission control	201-4703
785C	transmission control	201-4703
789C	transmission control	201-4703
793C	transmission control	201-4703
769D	traction control system	184-4622
771D	traction control system	184-4622
773D	traction control system	184-4622
775D	traction control system	184-4622
776D	traction control system	184-4622
777D	traction control system	184-4622
784C	integrated brake control	199-5076
785C	integrated brake control	199-5076
789C	integrated brake control	199-5076
793C	integrated brake control	199-5076

NOTES:

(1) Homologation refers to a limited road speed version of motorgrader sold in Italy.

CHART B: PREMIUM MAC-14 APPLICATIONS - PRE PROGRAMMED ECMS

Machine	Application / Description (notes)	Pre-prog ECM
12H	transmission control - AUTOSHIFT	190-8461
120H	transmission control - AUTOSHIFT	190-8461

130H	transmission control - AUTOSHIFT	190-8461
135H	transmission control - AUTOSHIFT	190-8461
140H	transmission control - AUTOSHIFT	190-8461
160H	transmission control - AUTOSHIFT	190-8461
143H	transmission control - AUTOSHIFT	190-8461
163H	transmission control - AUTOSHIFT	190-8461
12H	transmission control - AUTOSHIFT homologation (1)	190-8465
120H	transmission control - AUTOSHIFT homologation (1)	190-8465
130H	transmission control - AUTOSHIFT homologation (1)	190-8465
135H	transmission control - AUTOSHIFT homologation (1)	190-8465
140H	transmission control - AUTOSHIFT homologation (1)	190-8465
160H	transmission control - AUTOSHIFT homologation (1)	190-8465
143H	transmission control - AUTOSHIFT homologation (1)	190-8465
163H	transmission control - AUTOSHIFT homologation (1)	190-8465
769D	integrated brake control	184-5116
771D	integrated brake control	184-5116
773D	integrated brake control	184-5116
775D	integrated brake control	184-5116
776D	integrated brake control	184-5116
777D	integrated brake control	184-5116
769D	automatic retarder control (ARC)	184-5110
771D	automatic retarder control (ARC)	184-5110
773D	automatic retarder control (ARC)	184-5110
775D	automatic retarder control (ARC)	184-5110
776D	automatic retarder control (ARC)	184-5110
777D	automatic retarder control (ARC)	184-5110

NOTES:

(1) Homologation refers to a limited road speed version of motorgrader sold in Italy.

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191-5019 d/t s/w for MTTT
191-5019

MTTT Flash Software Now Available

SMCS Code: 7620

Track-Type Tractor:
- D5M
- D6M
- D6R
- D7R

Reference: Special Instruction REHS0494, "Accessing Flash Software for Machines".

Reference: Systems Operation, Testing and Adjusting, SENR8367.

Description of Change: Flash software is now available for the drive train controller. The following enhancements have been made to the software:

Support for both older 5/8", and newer 1/2", ECPC transmission valves

To install the software, perform the following operations in this order.
1 -- Install the new software
2 -- Bring the transmission up to operating temperature

3 -- Perform the clutch engagement and fill calibrations
(submodes 31-35, 40)

Perform all calibrations per the Systems Operation, Testing and Adjusting Manual. Do not attempt to reload values from previous software versions as they are not valid with the new software.

Note: Verify that you are using the latest software release that is available whenever you flash software.

Machine Adaptability:

Model	Part Number
D5M	191-5019
D6M	191-5019
D6R	191-5019
D7R	191-5019

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191-5021 d/t s/w for 572R pipelayer
191-5021

PL Flash Software Now Available

SMCS Code: 7620

Pipelayers:
572R

Reference: Special Instruction REHS0494, "Accessing Flash Software for Machines".

Reference: Systems Operation, Testing and Adjusting, SENR8367.

Description of Change: Flash software is now available for the drive train controller. The following enhancements have been made to the software:

Support for both older 5/8", and newer 1/2", ECPC transmission valves

To install the software, perform the following operations in this order.
1 -- Install the new software
2 -- Bring the transmission up to operating temperature
3 -- Perform the clutch engagement and fill calibrations
(submodes 31-35, 40)

Perform all calibrations per the Systems Operation, Testing and Adjusting Manual. Do not attempt to reload values from previous software versions as they are not valid with the new software.

Note: Verify that you are using the latest software release that is available whenever you flash software.

Machine Adaptability:

Model	Part Number
572R	191-5021

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C-Series Excavators 320, 322, 325, and 330 Flash File Cross Reference
March 29, 2004

Revision 3

Current production Flash files for the ECM used on the following C-Series machines 320, 322, 325, and 330 are available by downloading the files from SIS Web. All ECM's on a tractor should be updated each time a particular module is flashed in order to take advantage of the added features and improvements.

NOTE !!!
Service personnel should go into SERVICE OPTIONS from the MAIN MENU to access software version. Following are the steps and parameters to follow for accessing software version:

At Main Display, hit MENU button
Scroll down to SERVICE OPTIONS
Press OK key
First line should say SERVICE and second line ECM SUMMARY
Go down and highlight the third line
Use right or left arrow key to change third line to parameter 006
Parameter is for Standard controller software
Use right or left arrow key change third line to parameter 105
Parameter is for Attachment controller software
Exit SERVICE OPTIONS mode

Service personnel should make a note of each parameter reviewed.

If 'STD - ATT NOT COMPATIBLE' or 'STD - MON NOT COMPATIBLE' appears on the monitor display screen, use the steps above to understand what software is currently flashed in the controllers.

ADEM controller software is not available via the monitor.
To view ADEM software version, Electronic Technician (ET) should be used.

WARNING!!!
Since, the flash process erases the software file from the ECM before programming it, a failure while flashing the module will render that module inoperable (loss communication); and depending on which module is being flashed could render the tractor inoperable. Once this occurs, there are two options: 1) if failure was due to loss of communication (CDL wires pulled or battery went dead), reestablish communications with the module and re-flash. Or 2) if failure was due to a corrupt Flash file, flash the ECM with any earlier software version.

320C

STD Controller Software		Attachment Controller Software	Release Reason
Normal	High Ambient		
191-6922	191-6866	191-6879	Fix Fluid/Filter "0 Hour" display problem
195-8835	195-8839	195-8837	ET 3.2 Compatible
195-8918	195-8923	195-8837	Tier II Engine Introduction

			2Pump Flow Simultaneous Operation Improvement Overload Warning Device switch logic fix
195-9017	195-9019	195-9021	2Pump Flow Simultaneous Operation Improvement Change engine speed dial setting and hydraulic output dial setting of throttle position 1,2,3 Overload warning device switch logic fix
211-5557	211-5561	211-5559	AEC Stage 0 Elimination ET2001B Compatible 1Pump Flow Simultaneous Operation Improvement Improve engine speed display Service Function Improve communication function of key switch turning with short interval

320C Tier II STD Controller Software		Attachment Controller Software	Release Reason
Normal	High Ambient		
227-7626	227-7630	211-5559	Add engine stopping function (backup of governor actuator failure).

322C Tier I STD Controller Software		Attachment Controller Software	Release Reason
Normal	High Ambient		
195-8920	195-8925	185-2493	First Production
195-8968	195-8925	195-8970	2Pump Flow Simultaneous Operation Improvement
211-5503	211-5505	195-8970	Overload warning device switch logic fixed
211-5563	211-5565	211-5567	AEC Stage 0 Elimination ET2001B Compatible 1Pump Flow Simultaneous Operation Improvement Improve engine speed display of Service function Improve communication function of key switch

turning with short

interval.

Change detecting time

of low engine oil pressure.

322C Tier II

STD Controller Software		Attachment Controller Software	Release Reason
Normal	High Ambient		
211-5653	211-5655	211-5567	First Production ET2001B Compatible 1Pump Flow Simultaneous Operation Improvement
227-7600	227-7606	211-5567	Change '590-12' error code to '590-09 error code, which will indicate loss of communication with engine ECM. All engine error codes should be viewed on the engine ECM via ET.

325C

STD Controller Software		Attachment Controller Software	Release Reason
Normal	High Ambient		
195-8988	195-8903 (175 HP)	191-6847	First Production
195-8988	195-8903 (175 HP)	195-8994	2Pump Flow Simultaneous Operation Improvement Overload Warning Device switch logic fix
211-5569	211-5571 (175 HP)	211-5577	AEC Stage O Elimination ET2001B Compatible 1Pump Flow Simultaneous Operation Improvement Improve engine speed display of Service Function Improve communication function of key switch turning with short interval. Correspond to 'Individual Clear' and 'All Clear' of diagnostic codes of ADEM 3 High Ambient: reverse bug of Straight Travel solenoid control.

227-7602	227-7610	(175 HP)	211-5577	Change '590-12' error code to '590-09' error code, which will indicate loss of communication with engine ECM. All engine related error codes should be viewed on the engine ECM via ET.

325C

STD Controller Software			Attachment Controller Software	Release Reason
Normal	High Ambient			
195-8938	191-6849	(190 HP)	191-6847	First Production
195-8990	195-8992	(190 HP)	195-8944	2Pump Flow Simultaneous Operation Improvment Overload Warning Device switch logic fix
211-5573	211-5575	(190 HP)	211-5577	AEC Stage 0 Elimination ET2001B Compatible 1Pump Flow Simultaneous Operation Improvement Improve engine speed display of Service Function Improve communication function of key switch turning with short interval. Correspond to 'Individual Clear' and 'All Clear' of diagnostic codes of ADEM 3
227-7608	227-7612	(190 HP)	211-5577	Change '590-12' error code to '590-09' error code, which will indicate loss of communication with engine ECM. All engine related error codes should be viewed on the engine ECM via ET.

330C

STD Controller Software		Attachment Controller Software	Release Reason
Normal	High Ambient		
195-8996	191-6855	195-8929	First Production 2Pump Flow Simultaneous Operation Improvement Overload Warning Device switch logic fix

			AEC Stage 0 Elimination
211-5550	191-6855	211-5552	ET2001B Compatible 1Pump Flow Simultaneous Operation Improvement
227-7604	227-7614	211-5552	Change '590-12' error code to '590-09' error code, which will indicate loss of communication with engine ECM. All engine related error codes should be viewed on the engine ECM via ET.

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C-Series Excavator 320, 322, 325, and 330 Monitor
Flash File Cross Reference

March 29, 2004
Revision 3

Current production Flash files for the monitor used on the following C-Series machines 320, 322, 325, and 330 are available by downloading the files from SIS Web.
All ECM's on a tractor should be updated each time a particular module is flashed in order to take advantage of added features and improvements.

NOTE !!!
If 'STD - MON NOT COMPATIBLE' appears on the monitor display screen then software versions for the monitor and machine need to be. verified by Service Personnel.

To verify the monitor software version use Winflash via Electronic Technician.

To verify the machine software version, use the following steps:

At Main Display, hit MENU key
Scroll down to SERVICE OPTIONS
Press OK key
First line should say SERVICE and second line ECM SUMMARY
Go down and highlight the third line
Use right or left arrow key to change third line to parameter 006
Parameter is for Standard controller software
Use right or left arrow key change third line to parameter 105
Parameter is for Attachment controller software

WARNING !!!
Since, the flash process erases the software file from the ECM before programming it, a failure while flashing the module will render that module inoperable (loss communication); and depending on which module is being flashed could render the tractor

inoperable.
Once this occurs, there are two options: 1) if failure was due to loss of communication (CDL wires pulled or battery went dead), reestablish communications with the module and re-flash. Or 2) if failure was due to a corrupt Flash file, flash the ECM with any earlier software version.

Monitor Software Packages
South Europe (used on all machines in NACD)
*Supported languages: English, French, German, Italian, Japanese, Spanish, and Portuguese

	Software versions:	Release Reason
Old	177-7690	First Production C-Series - 320C (24 Hour clock)
	195-8866	Changed to agree with machine software changes (24 Hour clock)
	211-5522	Add 12 Hour clock Improve precision of display time
	211-5617	Improve datalink communication (24/12 Hour clock)
	221-8750	Fixed function of 12 Hour clock (24/12 Hour clock)
	221-8840	Add retry process for software download (24/12 Hour clock)
New	247-5140	Improved software for download using ET or PSPS (24/12 Hour clock)

Only monitor software 195-8866 and higher is compatible with all C-Series Software. Software 177-7690 is only compatible with First Production 320C.

West Europe
*Supported languages: English, Dutch, French, German, and Italian

	Software versions:	Release Reason
Old	177-7687	First Production C-Series - 320C (24 Hour clock)
	195-8864	Changed to agree with machine software changes (24 Hour clock)
	211-5528	Add 12 Hour clock Improve precision of display time
	211-5615	Improve datalink communication (24/12 Hour clock)
	221-8756	Fixed function of 12 Hour clock (24/12 Hour clock)

	221-8839	Add retry process for software download (24/12 Hour clock)
New	247-5142	Improved software for download using ET or PSPS (24/12 Hour clock)

Only monitor software 195-8864 and higher is compatible with all C-Series Software.
Software 177-7687 is only compatible with First Production 320C.

East Europe

*Supported languages: English, Czech, German, Greek, Russian, and Turkish

	Software versions:	Release Reason
Old	177-7684	First Production C-Series - 320C (24 Hour clock)
	195-8862	Changed to agree with machine software changes (24 Hour clock)
	211-5525	Add 12 Hour clock Improve precision of display time
	211-5613	Improve datalink communication (24/12 Hour clock)
	221-8754	Fixed function of 12 Hour clock (24/12 Hour clock)
	221-8838	Add retry process for software download (24/12 Hour clock)
New	247-5143	Improved software for download using ET or PSPS (24/12 Hour clock)

Only monitor software 195-8862 and higher is compatible with all C-Series Software.
Software 177-7684 is only compatible with First Production 320C.

North Europe

*Supported languages: English, Danish, Finnish, Icelandic, Norwegian, and Swedish

	Software versions:	Release Reason
Old	177-7681	First Production C-Series - 320C (24 Hour clock)
	195-8860	Changed to agree with machine software changes (24 Hour clock)
	211-5531	Add 12 Hour clock Improve precision of display time
	211-5611	Improve datalink communication (24/12 Hour clock)
	221-8752	Fixed function of 12 Hour clock (24/12 Hour clock)
New	221-8837	Add retry process for software download

(24/12 Hour clock)

Only monitor software 195-8860 and higher is compatible with all C-Series Software.
Software 177-7681 is only compatible with First Production 320C.

Asia

*Supported languages: English, Indonesian, Japanese, Chinese, and Thai

	Software versions:	Release Reason
Old	185-2525	First Production C-Series - 320C (24 Hour clock)
	195-8868	Changed to agree with machine software changes (24 Hour clock)
	211-5534	Add 12 Hour clock Improve precision of display time
	211-5619	Improve datalink communication (24/12 Hour clock)
	221-8758	Fixed function of 12 Hour clock (24/12 Hour clock)
	221-8841	Add retry process for software download (24/12 Hour clock)
New	247-5144	Improved software for download using ET or PSPS (24/12 Hour clock)

Only monitor software 195-8868 and higher is compatible with all C-Series Software.
Software 185-2525 is only compatible with First Production 320C.

Norwegian

*Supported languages: English, Danish, Finnish, Icelandic, Norwegian, and Swedish

	Software versions:	Release Reason
Old	227-7568	Released to provide Norwegian language package (24/12 Hour clock)
New	247-5141	Improved software for download using ET or PSPS (24/12 Hour clock)

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3126E HEUI Flash File Cross Reference
Updated Jan 21, 2004

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Released software to meet 2.09.2 Clean Power Phase II, Adem 2000,
Version 6, 7, & 8 ECM, MY2001 EPA Emission for April 2001
Production with 24 MHz ECM,
Support for 3.5 NOx FEL Truck Consent Decree, and
GM Two Speed Axle Switch Update.

Description	Serial No.Range	Flash Part No.	IC	Release Date

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175 HP @ 2200 CKM 1 and up 246-8293 219 NOV03
420 @ 1500 EPA Cert

190 HP @ 2400 CKM 1 and up 246-8292 229 NOV03
420 @ 1500 EPA Cert.

190 HP @ 2300 CKM 1 and up 246-8291 227 NOV03
520 @ 1500 EPA Cert. ***** HIGH PERFORMANCE AT545 *****

210 HP @ 2400 CKM 1 and up 246-8290 228 NOV03
520 @ 1500 EPA Cert. ***** HIGH PERFORMANCE AT545 *****

****** Standard Ratings ***************

210 HP @ 2200 CKM 1 and up 246-8289 222 NOV03
520 @ 1500 EPA Cert.

210 HP @ 2200 CKM 1 and up 246-8288 223 NOV03
605 @ 1500 EPA Cert.

230 HP @ 2200 CKM 1 and up 246-8287 206 NOV03
660 @ 1500 EPA Cert.

250 HP @ 2200 CKM 1 and up 246-8286 207 NOV03
660 @ 1500 EPA Cert.

250 HP @ 2200 CKM 1 to CKM10423 246-8285 208 NOV03
800 @ 1500 EPA Cert.

250 HP @ 2200 CKM10424 and up 246-8284 205 NOV03
800 @ 1500 EPA Cert.

275 HP @ 2200 CKM 1 and up 246-8283 209 NOV03
800 @ 1500 EPA Cert.

275 HP @ 2200 CKM 1 and up 246-8282 210 NOV03
860 @ 1500 EPA Cert.

300 HP @ 2200 CKM 1 and up 246-8281 211 NOV03
800 @ 1500 EPA Cert.

300 HP @ 2200 CKM 1 and up 246-8280 212 NOV03
860 @ 1500 EPA Cert.

******************** Emergency Ratings ****************************

275 HP @ 2200 CKM 1 and up 246-8279 213 NOV03
800 @ 1500 Emergency.

275 HP @ 2200 CKM 1 and up 246-8278 214 NOV03
860 @ 1500 Emergency.

300 HP @ 2200 CKM 1 and up 246-8277 215 NOV03
800 @ 1500 Emergency.

300 HP @ 2200 CKM 1 and up 246-8276 216 NOV03
860 @ 1500 Emergency.

330 HP @ 2400 CKM 1 and up 246-8275 217 NOV03
860 @ 1500 Emergency

********** RV Rating **********

330 HP @ 2400 CKM 1 and up 246-8274 218 NOV03
860 @ 1500 RV

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3116 HEUI Flash File Cross Reference
Updated Jan 22, 2004

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1WM 7LZ 8WL AND 7AS flash files for engine rebuild kits
ADEM II AND ADEM III Low Nox engine rebuild kit flash files
Updated July 6,2001

********** 3116 Standard Ratings **********

170 HP @ 2200 8WL 1 and up 188-8046 301 JAN00
420 @ 1560 EPA LoNox Cert.

185 HP @ 2200 8WL 1 and up 188-8047 302 JAN00
520 @ 1560 EPA LoNox Cert.

190 HP @ 2300 8WL 1 and up 188-8053 303 JAN00
520 @ 1560 EPA LoNox Cert.

195 HP @ 2200 8WL 1 and up 188-8048 303 JAN00
520 @ 1560 EPA LoNox Cert.

215 HP @ 2200 8WL 1 and up 188-8049 304 JAN00
605 @ 1560 EPA LoNox Cert.

230 HP @ 2200 8WL 1 and up 188-8050 305 JAN00
660 @ 1560 EPA LoNox Cert.

250 HP @ 2200 8WL 1 and up 188-8051 306 JAN00
660 @ 1560 EPA LoNox Cert.

275 HP @ 2200 8WL 1 and up 188-8052 307 JAN00
750 @ 1470 EPA LoNox Cert.

********** 3126 Standard Ratings **********

175 HP @ 2400 1WM/7LZ 1 and up 188-8054 301 JAN00
420 @ 1440 EPA LoNox Cert.

190 HP @ 2200 1WM/7LZ/4ES 1 and up 188-8055 302 JAN00
520 @ 1440 EPA LoNox Cert.

210 HP @ 2400 1WM/7LZ 1 and up 188-8056 303 JAN00
520 @ 1440 EPA LoNox Cert.

210 HP @ 2200 1WM/7LZ/4ES 1 and up 188-8057 304 JAN00
605 @ 1440 EPA LoNox Cert.

230 HP @ 2200 1WM/7LZ/4ES 1 and up 188-8058 305 JAN00
660 @ 1440 EPA LoNox Cert.

250 HP @ 2200 1WM/7LZ/4ES 1 and up 188-8059 306 JAN00

660 @ 1440 EPA LoNox Cert.

250 HP @ 2200 1WM/7LZ 1 and up 188-8060 307 JAN00
800 @ 1440 EPA LoNox Cert.

275 HP @ 2200 1WM/7LZ 1 and up 188-8061 308 JAN00
800 @ 1440 EPA LoNox Cert.

275 HP @ 2200 1WM/7LZ 1 and up 188-8062 309 JAN00
860 @ 1440 EPA LoNox Cert.

300 HP @ 2200 1WM/7LZ 1 and up 188-8063 311 JAN00
800 @ 1440 EPA LoNox Cert.

300 HP @ 2200 1WM/7LZ 1 and up 188-8064 310 JAN00
860 @ 1440 EPA LoNox Cert.

300 HP 1WM1 and Up 130-7832 16 OCT96
860 @ 1440 OWS

********** Emergency Vehicles **********

275 HP @ 2200 1WM 1 and up 188-8065 312 JAN00
800 @ 1440 EPA LoNox Cert.

275 HP @ 2200 1WM 1 and up 188-8066 313 JAN00
860 @ 1440 EPA LoNox Cert.

300 HP @ 2200 1WM 1 and up 188-8067 314 JAN00
800 @ 1440 EPA LoNox Cert.

300 HP @ 2200 1WM 1 and up 188-8068 315 JAN00
860 @ 1440 EPA LoNox Cert.

330 HP @ 2200 1WM 1 and up 188-8069 320 JAN00
860 @ 1440 EPA LoNox Cert.

330 HP @ 2200 1WM 1 and up 188-8070 321 JAN00
860 @ 1440 EPA LoNox Cert.

**********CEC Rating**********
250 HP @ 2200 1WM 1 and up 188-8071 319 JAN00
800 @ 1440 EPA LoNox Cert.

********** Hi-performance AT/MT/HT Rating **********

190 HP @ 2300 1WM/7LZ 1 and up 188-8072 302 JAN00
520 @ 1440 EPA LoNox Cert.

********** 3126B Standard Ratings **********

175 HP @ 2400 7AS 1 and up 246-8248 301 NOV03
420 @ 1440 EPA LoNox Cert.

190 HP @ 2200 7AS 1 and up 246-8247 302 NOV03
520 @ 1440 EPA LoNox Cert.

********** Hi-performance AT/MT/HT Rating **********
190 HP @ 2300 7AS 1 and up 246-8246 302 NOV03
520 @ 1440 EPA LoNox Cert.

210 HP @ 2400 7AS 1 and up 246-8245 332 NOV03
520 @ 1440 EPA LoNox Cert.

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210 HP @ 2200 7AS 1 and up 246-8244 303 NOV03
520 @ 1440 EPA LoNox Cert.

210 HP @ 2200 7AS 1 and up 246-8243 304 NOV03
605 @ 1440 EPA LoNox Cert.

********** DINA Only **********
210 HP @ 2200 7AS 1 and up 246-8242 329 NOV03
605 @ 1440 EPA LoNox Cert.

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230 HP @ 2200 7AS 1 and up 246-8241 305 NOV03
660 @ 1440 EPA LoNox Cert.

250 HP @ 2200 7AS 1 and up 246-8240 306 NOV03
660 @ 1440 EPA LoNox Cert.

250 HP @ 2200 7AS 1 and up 246-8239 307 NOV03
800 @ 1440 EPA LoNox Cert.

275 HP @ 2200 7AS 1 and up 246-8238 308 NOV03
800 @ 1440 EPA LoNox Cert.

275 HP @ 2200 7AS 1 and up 246-8237 309 NOV03
860 @ 1440 EPA LoNox Cert.

300 HP @ 2200 7AS 1 and up 246-8236 310 NOV03
800 @ 1440 EPA LoNox Cert.

300 HP @ 2200 7AS 1 and up 246-8235 311 NOV03
860 @ 1440 EPA LoNox Cert.

********** Emergency Vehicles **********

275 HP @ 2200 7AS 1 and up 246-8234 312 NOV03
800 @ 1440 EPA LoNox Cert.

275 HP @ 2200 7AS 1 and up 246-8233 313 NOV03
860 @ 1440 EPA LoNox Cert.

300 HP @ 2200 7AS 1 and up 246-8232 314 NOV03
800 @ 1440 EPA LoNox Cert.

300 HP @ 2200 7AS 1 and up 246-8231 315 NOV03
860 @ 1440 EPA LoNox Cert.

330 HP @ 2400 7AS 1 and up 246-8230 316 NOV03
860 @ 1440 EPA LoNox Cert.

********** Recreational Vehicles **********

330 HP @ 2400 7AS 1 and up 246-8229 317 NOV03
860 @ 1440 EPA LoNox Cert.

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Updated JAN 29, 2001

********** FMTV Vehicles Only **********

275 HP @ 2200 860 @ 1440 EPA LoNox Cert.	6PZ 1 and up	224-4622	119	SEP02
330 HP @ 2400 860 @ 1440 EPA LoNox Cert.	7JZ 1 and up	224-4623	120	SEP02
350 HP @ 2400 820 @ 1500 EPA LoNox Cert.	1AJ 1 and up	224-4627	45	SEP02

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TEST ECM Primer Software file 188-9579 MAR00

NOTE: Flash this file into ADEM 2000 Test ECM before loading any engine flash file.

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3126B 8YL HEUI Flash File Cross Reference
Updated JAN 29, 2001

The reason for this SEP 00 release was to provide Software features including:

For all ratings except Euro II:

Released software to meet 2.09 Version 6&7, 4g S.S.NOx MY2000 EPA emission for Sep 2000 production with 24 MHz ECM, support for GM2001i truck,consent decree torque and timing readout, updated idle quality adjustment maps,and modify progressive shift.

For Euro II rating:

Released software to meet 2.09 Version 6&7, 6g S.S.NOx MY2000 EPA emission for Sep 2000 production with 24 MHz ECM, support for GM2001i truck, consent decree torque and timing readout,updated idle quality adjustment maps, and modify progressive shift.

This software update also contains a fix for false logging of injector faults.
Revision to Exhaust Brake Special Test.Improvements to reduce ECM Engine software Lock-Up.
Enhancements for vehicles with Allision AT/MT/HT transmission.Combines

Interlock codesfor use on GM = IC1 and NON GM = IC2 chassis.

NOTE: Duel Fuel and Steel Piston Parts Service Only files are not in this release.

Description	Serial No.Range	Flash Part No.	IC	IC2	Release Date
**********	175 and 190 HP can be used with Allison AT545 Transmission		**********	**********	

175 HP @ 2200 8YL 1 to 8YL34999 246-8273 101 151 NOV03
420 @ 1500 EPA Cert

175 HP @ 2200 8YL35000 and up 246-8272 169 169 DEC03
420 @ 1500 EPA Cert

190 HP @ 2300 8YL 1 to 8YL34999 246-8271 102 152 NOV03
520 @ 1500 EPA Cert. ***** HIGH PERFORMANCE AT545 *****

190 HP @ 2300 8YL35000 and up 246-8270 170 170 DEC03
520 @ 1500 EPA Cert. ***** HIGH PERFORMANCE AT545 *****

****** 210HP Rating with an Allison AT545 **********
****** Transmission **********

210 HP @ 2400 8YL 1 to 8YL34999 246-8269 103 153 NOV03
520 @ 1500 EPA Cert. ***** HIGH PERFORMANCE AT545 *****

210 HP @ 2400 8YL35000 & 9SZ 1 and up 246-8268 171 171 DEC03
520 @ 1500 EPA Cert. ***** HIGH PERFORMANCE AT545 *****

****** Standard Ratings **********

210 HP @ 2200 8YL 1 to 8YL34999 246-8267 104 154 NOV03
520 @ 1500 EPA Cert.

210 HP @ 2200 8YL35000 & 9SZ 1 and up 246-8266 172 172 DEC03
520 @ 1500 EPA Cert.

210 HP @ 2200 8YL 1 to 8YL34999 246-8265 105 155 NOV03
605 @ 1500 EPA Cert.

210 HP @ 2200 8YL35000 & 9SZ 1 and up 246-8264 173 173 DEC03
605 @ 1500 EPA Cert.

230 HP @ 2200 8YL & 9SZ 1 and up 246-8263 106 156 DEC03
660 @ 1500 EPA Cert.

250 HP @ 2200 8YL 1 TO 8YL68263 246-8262 107 157 NOV03
660 @ 1500 EPA Cert.

250 HP @ 2200 8YL68264 & 9SZ 1 and up 246-8261 187 187 DEC03
660 @ 1500 EPA Cert.

250 HP @ 2200 8YL 1 TO 8YL68263 246-8260 108 158 NOV03
800 @ 1500 EPA Cert.

250 HP @ 2200 8YL68264 & 9SZ 1 and up 246-8259 188 188 DEC03
800 @ 1500 EPA Cert.

275 HP @ 2200 8YL & 9SZ 1 and up 246-8258 109 159 DEC03
800 @ 1500 EPA Cert.

275 HP @ 2200 8YL & 9SZ 1 and up 246-8257 110 160 DEC03
860 @ 1500 EPA Cert.

300 HP @ 2200 8YL & 9SZ 1 and up 246-8256 111 161 DEC03
800 @ 1500 EPA Cert.

300 HP @ 2200 8YL & 9SZ 1 and up 246-8255 112 162 DEc03
860 @ 1500 EPA Cert.

********** Emergency Ratings **********

275 HP @ 2200 800 @ 1500 Emergency.	8YL & 9SZ 1 and up	246-8254	113	163	DEC03
275 HP @ 2200 860 @ 1500 Emergency.	8YL & 9SZ 1 and up	246-8253	114	164	DEC03
300 HP @ 2200 800 @ 1500 Emergency.	8YL & 9SZ 1 and up	246-8252	115	165	DEC03
300 HP @ 2200 860 @ 1500 Emergency.	8YL & 9SZ 1 and up	246-8251	116	166	DEC03
330 HP @ 2400 860 @ 1500 Emergency	8YL & 9SZ 1 and up	246-8250	117	167	DEC03

********** RV Rating **********

330 HP @ 2400 860 @ 1500	8YL & 9SZ 1 and up RV	246-8249	118	168	DEC03

3126 HEUI (8HW) EURO 2 FLASH File Cross Reference
Updated JAN 29,2001

Description	Serial NO. Range	FLASH PART NO.	IC	Release Date
190 HP 520 @ 1440	8HW00001 & up	146-9883	22	DEC97
210 HP 605 @ 1440	8HW00001 & up	146-9880	23	DEC97
275 HP 830 @ 1440	8HW00001 & up	187-2097	24	NOV99
300 HP 860 @ 1440	8HW00001 & up	187-2096	25	NOV99

********** FULL FEATURE ECM FILES **********

Description	Serial NO. Range	FLASH PART NO.	IC	IC2	Release Date
190 HP @ 2300 520 @ 1440	8SZ00532 & up	212-4002	125	125	OCT01
210 HP @ 2200 605 @ 1440	8SZ00532 & up	212-4001	126	126	OCT01
250 HP @ 2200 800 @ 1440	8SZ00532 & up	212-4000	127	127	OCT01
275 HP @ 2200 830 @ 1440	8SZ00001 & up	212-3999	128	128	OCT01
300 HP @ 2200 860 @ 1440	8SZ00001 & up	212-3998	129	129	OCT01

3126B Marine Flash file reference
3126B HEUI MARINE Flash File Cross Reference
Updated Jan 29,2001

Description	Serial No.Range	Flash Part No.	IC	Release Date
420 HP	3GS 1 and Up	203-4002	11	DEC OO
450 HP	3GS 1 and Up	203-4003	1	DEC OO

********** 3126E HEP Flash File Reference **********
Updated December 6, 2002

Emergency Vehicle Ratings

Serial No.Range
Part Number
Interlock Code — Rating/Application Information

HEP1 - HEP07579
227-9339 3126 Truck 330HP 860 lb-ft, 2400 RPM ER Date Code SEP02
Interlock Code = 251
Replaced 225-2366

HEP07580 & UP
231-2609 3126 Truck 330HP 860 lb-ft, 2400 RPM ER Date Code OCT02
Interlock Code = 298

HEP1 - HEP07579
227-9341 3126 Truck 300HP 860 lb-ft, 2200 RPM ER Date Code SEP02
Interlock Code = 250
Replaced 225-2368

HEP07580 & UP
230-1562 3126 Truck 300HP 860 lb-ft, 2200 RPM RV Date Code OCT02
Interlock Code = 297

HEP1 - HEP07579
227-9342 3126 Truck 300HP 800 lb-ft, 2200 RPM ER Date Code SEP02
Interlock Code = 249
Replaced 225-2369

HEP07580 & UP
230-1563 3126 Truck 300HP 800 lb-ft, 2200 RPM ER Date Code OCT02
Interlock Code = 296

HEP1 - HEP07579
227-9343 3126 Truck 275HP 860 lb-ft, 2200 RPM ER Date Code SEP02
Interlock Code = 248
Replaced 225-2370

HEP07580 & UP
230-1564 3126 Truck 275HP 860 lb-ft, 2200 RPM ER Date Code OCT02

Interlock Code = 295

HEP1 - HEP07579
227-9344 3126 Truck 275HP 800 lb-ft, 2200 RPM ER Date Code SEP02
Interlock Code = 247
Replaced 225-2371

HEP07580 & UP
230-1565 3126 Truck 275HP 800 lb-ft, 2200 RPM ER Date Code OCT02
Interlock Code = 294

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Recreational Vehicle Ratings

Serial No.Range
Part Number
Interlock Code Rating/Application Information

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HEP1 - HEP07579
227-9340 3126 Truck 330HP 860 lb-ft, 2400 RPM RV Date Code SEP02
Interlock Code = 252
Replaced 225-2367

HEP07580 & UP
230-1561 3126 Truck 330HP 860 lb-ft, 2400 RPM RV Date Code OCT02
Interlock Code = 299

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Truck Ratings

Serial No.Range
Part Number
Interlock Code Rating/Application Information

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HEP1 - HEP07579
227-9345 3126 Truck 300HP 860 lb-ft, 2200 RPM Date Code SEP02
Interlock Code = 246
Replaced 225-2372

HEP07580 & UP
230-1566 3126 Truck 300HP 860 lb-ft, 2200 RPM Date Code OCT02
Interlock Code = 293

HEP1 - HEP07579
227-9346 3126 Truck 300HP 800 lb-ft, 2200 RPM Date Code SEP02
Interlock Code = 245
Replaced 225-2373

HEP07580 & UP
230-1567 3126 Truck 300HP 800 lb-ft, 2200 RPM Date Code OCT02
Interlock Code = 292

HEP1 - HEP07579
227-9347 3126 Truck 275HP 860 lb-ft, 2200 RPM Date Code SEP02
Interlock Code = 244
Replaced 225-2374

HEP07580 & UP
230-1568 3126 Truck 275HP 860 lb-ft, 2200 RPM Date Code OCT02
Interlock Code = 291

HEP1 - HEP07579
227-9348 3126 Truck 275HP 800 lb-ft, 2200 RPM Date Code SEP02
Interlock Code = 243
Replaced 225-2375

HEP07580 & UP
230-1569 3126 Truck 275HP 800 lb-ft, 2200 RPM Date Code OCT02
Interlock Code = 290

HEP1 - HEP07579
227-9349 3126 Truck 250HP 800 lb-ft, 2200 RPM Date Code SEP02
Interlock Code = 242
Replaced 225-2376

HEP07580 & UP
230-1570 3126 Truck 250HP 800 lb-ft, 2200 RPM Date Code OCT02
Interlock Code = 289

HEP1 - HEP07579
227-9350 3126 Truck 250HP 660 lb-ft, 2200 RPM Date Code SEP02
Interlock Code = 241
Replaced 225-2377

HEP07580 & UP
230-1571 3126 Truck 250HP 660 lb-ft, 2200 RPM Date Code OCT02
Interlock Code = 288

HEP1 - HEP07579
227-9351 3126 Truck 230HP 660 lb-ft, 2200 RPM Date Code SEP02
Interlock Code = 240
Replaced 225-2378

HEP07580 & UP
236-2149 3126 Truck 230HP 540 lb-ft, 2300 RPM Date Code MAR03
Interlock Code = 239

HEP07580 & UP
230-1572 3126 Truck 230HP 660 lb-ft, 2200 RPM Date Code OCT02
Interlock Code = 287

HEP1 - HEP07579
227-9352 3126 Truck 210HP 605 lb-ft, 2200 RPM Date Code SEP02
Interlock Code = 257
Replaced 225-2380

HEP07580 & UP
230-1573 3126 Truck 210HP 605 lb-ft, 2200 RPM Date Code OCT02
Interlock Code = 286

HEP1 - HEP07579
227-9353 3126 Truck 210HP 520 lb-ft, 2200 RPM Date Code SEP02
Interlock Code = 256
Replaced 225-2380

HEP07580 & UP
230-1574 3126 Truck 210HP 520 lb-ft, 2200 RPM Date Code OCT02
Interlock Code = 285

HEP1 & UP
227-9354 3126 Truck 210HP 520 lb-ft, 2400 RPM Date Code SEP02
High Performance Interlock Code = 255

Replaced 225-2381

HEP1 & UP
227-9355 3126 Truck 190HP 520 lb-ft, 2300 RPM Date Code SEP02
High Performance Interlock Code = 254
Replaced 225-2382

HEP1 & UP
227-9356 3126 Truck 190HP 420 lb-ft, 2400 RPM Date Code SEP02
Interlock Code = 253
Replaced 225-2383

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C7C9 On-Highway Engine Flash files
Updated December 20, 2010

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IMPORTANT: It is very important to select the CORRECT flash file for the injector part number that is in the engine!!! Engines that have the "factory installed injector p/n" can use the flash file for the s/n range listed. However, for the s/n ranges noted below, if a "single" injector is replaced "all six" injectors MUST be updated to the same part number and the appropriate "flash file" and "etrim" files MUST be installed to match the "new" part number injector!
Please refer to Truck Engine News SEBD6764 dated January 2004
Please check for rerateability using the rerate charts at https://truck.cat.com

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C7 (2007 Emissions A4 ECM) "Mid HP Ratings" 190HP to 300HP:

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C7S0001-up	Date Code	Interlock	Flash File
C7 190HP @ 2500 RPM Replaced 308-5717,309-1838,312-4768,313-9518, 316-7964,319-5927,321-7212,324-7626.326-9115, 328-0693	JUL08	40/140	334-2353
C7 210HP @ 2500 RPM Replaced 308-5718,309-1839,312-4769,313-9519, 316-7965,319-5928,321-7213,324-7627,326-9116, 328-0694,334-2354	Dec10	41/141	348-5528
C7 210HP @ 2500 RPM Replaced 308-5719,309-1840,312-4770,313-9520, 316-7966,319-5929,321-7214,324-7628,326-9117, 328-0695	JUL08	42/142	334-2355
C7 230HP @ 2500 RPM Replaced 308-5720,309-1841,312-4771,313-9521, 316-7967,319-5930,321-7215,324-7629,326-9118, 328-0696	JUL08	43/143	334-2356
C7 230HP @ 2500 RPM Replaced 300-1766,307-8355,309-1842,312-4772 313-9522,316-5997,316-7968,319-5931,321-7216, 324-7630326-9119,328-0697	JUL08	44/144	334-2357
C7 230HP @ 2400 RPM Replaced 300-1768,308-5721,309-1843,312-4773 313-9523,316-7969,319-5932,321-7217,324-7631, 326-9120,328-0698	JUL08	45/145	334-2358
C7 250HP @ 2400 RPM Replaced 308-5722,309-1844,312-4774	JUL08	46/146	334-2359

313-9524,316-7970,319-5933,321-7218,324-7632,
326-9121,328-0699

C7 250HP @ 2400 RPM JUL08 47/147 334-2360
Replaced 308-5723,309-1845,312-4775
313-9525,316-7971,319-5934,321-7219,324-7633,
326-9122,328-0700

C7 275HP @ 2400 RPM JUL08 48/148 334-2361
Replaced 308-5724,309-1846,312-4776
313-9526,316-7972,319-5935,321-7220,324-7634,
326-9123,328-0701

C7 300HP @ 2400 RPM JUL08 49/149 334-2362
Replaced 300-1776,307-8356,309-1847,312-4777
313-9527,316-7973,319-5936,321-7221,324-7635,
326-9124,328-0702

C7 300HP @ 2400 RPM ER JUL08 50/150 334-2363
Replaced 312-4778,313-9528,316-7974,319-5937
321-7222,324-7636,326-9125,328-0703

C7 330HP @ 2400 RPM ER JUL08 51/151 334-2364
Replaced 312-4779,313-9529,316-7975,319-5938
321-7223,324-7637,326-9126,328-0704

C7 350HP @ 2400 RPM ER JUL08 52/152 334-2365
Replaced 312-4780,313-9530,316-7976,319-5939
321-7224,324-7638,326-9127,328-0705

C7 360HP @ 2400 RPM ER JUL08 57/157 334-2370
Replaced 322-4567,324-7643,326-9132,328-0710

C7 300HP @ 2400 RPM RV JUL08 53/153 334-2366
Replaced 312-4781,313-9531,316-7977,319-5940
321-7225,324-7639,326-9128,328-0706

C7 330HP @ 2400 RPM RV JUL08 54/154 334-2367
Replaced 312-4782,313-9532,316-7978,321-7226,
324-7640,326-9129,328-0707

C7 350HP @ 2400 RPM RV JUL08 55/155 334-2368
Replaced 312-4783,313-9533,316-7979,321-7227,
324-7641,326-9130,328-0708

C7 360HP @ 2400 RPM RV JUL08 56/156 334-2369
Replaced 313-9535,316--7980,321-7228,
324-7642,326-9131,328-0709

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C7 (KAL, SAP, WAX) "Low HP Ratings" 190HP to 210HP:

NOTE: C7 "Low HP Ratings" 190HP to 210HP KAL1-07985 were factory built with Injector p/n 233-3536. If a "single" 233-3536 injector is replaced with a 243-4502 injector w/seals (241-3238 p/n on injector... not serviced) then "all six" injectors MUST be updated to the same part number and the appropriate flash file and "etrim" files MUST be installed to match the "new" part number injector! Use list below to determine flash file based on installed injector number!

****

S/N Range	Injector P/N	Date Code	Interlock Flash File

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********************************************************************************
C7 KAL  190HP 520 lb-ft ...* Important see note above for complete detail
   KAL 1 - 07985 w/ Factory installed 233-3536 Injectors    APR04     IC  1   247-4649
   REplaced 242-8316,243-4420
   KAL1-07985 w/ "Field installed" 241-3238 Injectors       SEP06     IC 25   300-0446
   Replaced 248-7461,251-7438,
   254-0804,259-5558,265-3311,277-5700,295-2303

   KAL07986-UP, SAP1-UP, WAX1-UP
   w/ "Factory installed" 241-3238 Injectors                SEP06     IC 25   300-0446
   Replaced 248-7461,251-7438,
   254-0804,259-5558,265-3311,277-5700,295-2303

C7 KAL  210HP 520 lb-ft ...* Important see note above for complete detail
   KAL 1 - 07985 w/ Factory installed 233-3536 Injectors    APR04     IC  3   247-4648
   Replaced 242-1847,243-4421
   KAL1-07985 w/ "Field installed" 241-3238 Injectors       SEP06     IC 26   300-0447
   Replaced 248-7460,251-7439,
   254-0805,259-5559,265-3312,277-5701,295-2304

   KAL07986-UP, SAP1-UP, WAX1-UP
   w/ "Factory installed" 241-3238 Injectors                SEP06     IC 26   300-0447
   Replaced 248-7460,251-7439,
   254-0805,259-5559,265-3312,277-5701,295-2304

C7 KAL  210HP 605 lb-ft ...* Important see note above for complete detail
   KAL 1 - 07985 w/ Factory installed 233-3536 Injectors    APR04     IC  4   247-4647
   Replaced 242-8317,243-4422
   KAL1-07985 w/ "Field installed" 241-3238 Injectors       SEP06     IC 27   300-0448
   Replaced 248-7459,251-7440,
   254-0806,259-5560,277-5702,295-2305

   KAL07986-UP, SAP1-UP, WAX1-UP
   w/ "Factory installed" 241-3238 Injectors                SEP06     IC 27   300-0448
   Replaced 248-7459,251-7440,
   254-0806,259-5560,277-5702,295-2305
********************************************************************************
C7 (KAL, SAP, WAX) "Mid HP Ratings" 230HP to 250HP 660lbft:

NOTE: C7 "Mid HP Ratings" 230HP to 250HP 660lbft KAL1-11870 were factory built with
Injector p/n 236-6011. If a "single" 236-6011 injector is replaced with a 243-4503
injector w/seals (241-3239 p/n on injector... not serviced) then "all six" injectors
MUST be updated to the same part number and the appropriate flash file and "etrim"
files MUST be installed to match the "new" part number injector! Use list below to
determine flash file based on installed injector number!

        S/N Range                Injector P/N           Date Code  Interlock  Flash File
********************************************************************************
C7 KAL  230HP 540 lb-ft ...* Important see note above for complete detail
   KAL 1 - 11870 w/ Factory installed 236-6011 Injectors    APR04    IC 18    247-4646
   Replaced 242-1845,243-4423

   KAL1-11870 w/ "Field installed" 241-3239 Injectors       SEP06    IC 28    300-0449
   Replaced 248-7458,251-7441,
   259-5561,265-3314,271-1678,277-5703,295-2306

   KAL11871-UP, SAP1-UP, WAX1-UP
   w/ "Factory installed" 241-3239 Injectors                SEP06    IC 28    300-0449
   Replaced 248-7458,251-7441,
   259-5561,265-3314,271-1678,277-5703,295-2306
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C7 KAL 230HP 660 lb-ft ...* Important see note above for complete detail
KAL 1 - 11870 w/ Factory installed 236-6011 Injectors APR04 IC 5 247-4645
Replaced 242-1844,243-4424

KAL1-11870 w/ "Field installed" 241-3239 Injectors SEP06 IC 29 300-0450
Replaced 248-7457,251-7442,
259-5563,265-3315,271-1679,277-5704,295-2307

KAL11871-UP, SAP1-UP, WAX1-UP
w/ "Factory installed" 241-3239 Injectors SEP06 IC 29 300-0450
Replaced 248-7457,251-7442,
259-5563,265-3315,271-1679

C7 KAL 250HP 660 lb-ft ...* Important see note above for complete detail
KAL 1 - 11870 w/ Factory installed 236-6011 Injectors APR04 IC 6 247-4644
Replaced 242-1843,243-4425

KAL1-11870 w/ "Field installed" 241-3239 Injectors AUG08 IC 30 335-8257
Replaced 248-7456,251-7443,
259-5564,265-3316,277-5705,295-2308,300-0451

KAL11871-UP, SAP1-UP, WAX1-UP
w/ "Factory installed" 241-3239 Injectors AUG08 IC 30 335-8257
Replaced 248-7456,251-7443,
259-5564,265-3316,277-5705,295-2308,300-0451

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C7 (KAL, SAP, WAX) "Hi HP Ratings" 250HP 800lbft to 330HP:

NOTE: C7 "Hi HP Ratings" 250HP 800lbft to 330HP KAL1-12897 were factory built with Injector p/n 233-3535. If a "single" 233-3535 injector is replaced with a 241-3400 injector w/seals (238-8091 p/n on injector... not serviced) then "all six" injectors MUST be updated to the same part number and the appropriate flash file and "etrim" files MUST be installed to match the "new" part number injector! Use list below to determine flash file based on installed injector number!

S/N Range Injector P/N Date Code Interlock Flash File

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C7 KAL 250HP @ 2200 800 lb-ft ...* Important see note above for complete detail
KAL 1 - 12897 w/ Factory installed 233-3535 Injectors APR04 IC 7 247-4643
Replaced 245-0834

KAL1-12897 w/ "Field installed" 238-8091 Injectors SEP06 IC 41 300-0465
Replaced 248-7641,251-7457,
254-0999,259-5609,265-3334,272-5324,295-2333

KAL12898-UP, SAP1-UP, WAX1-UP
w/ "Factory installed" 238-8091 Injectors SEP06 IC 41 300-0465
Replaced 248-7641,251-7457,
254-0999,259-5609,265-3334,272-5324,295-2333

C7 KAL 275HP 800 lb-ft ...* Important see note above for complete detail
KAL 1 - 12897 w/ Factory installed 233-3535 Injectors APR04 IC 8 247-4642
Replaced 245-0835

KAL1-12897 w/ "Field installed" 238-8091 Injectors SEP06 IC 42 300-0464
Replaced 248-7640,251-7456,
254-0998,259-5608,265-3333,272-5323,295-2332

KAL12898-UP, SAP1-UP, WAX1-UP
w/ "Factory installed" 238-8091 Injectors SEP06 IC 42 300-0464
Replaced 248-7640,251-7456,

254-0998,259-5608,265-3333,272-5323,295-2332

CARB (California Bus only) MAR04 IC 59 251-6210

C7 KAL 275HP 860 lb-ft ...* Important see note above for complete detail
KAL 1 - 12897 w/ Factory installed 233-3535 Injectors APR04 IC 9 247-4640
Replaced 245-0837

KAL1-12897 w/ "Field installed" 238-8091 Injectors SEP06 IC 43 300-0462
Replaced 248-7638,251-7454,
254-0996,259-5606,265-3331,272-5321,295-2330

KAL12898-UP, SAP1-UP, WAX1-UP
w/ "Factory installed" 238-8091 Injectors SEP06 IC 43 300-0462
Replaced 248-7638,251-7454,
254-0996,259-5606,265-3331,272-5321,295-2330

C7 KAL 300HP 800 lb-ft ...* Important see note above for complete detail
KAL 1 - 12897 w/ Factory installed 233-3535 Injectors APR04 IC 10 247-4638
Replaced 245-0839

KAL1-12897 w/ "Field installed" 238-8091 Injectors SEP06 IC 44 300-0460
Replaced 248-7636,251-7452,
254-0994,259-5604,265-3329,272-5319,295-2328

KAL12898-UP, SAP1-UP, WAX1-UP
w/ "Factory installed" 238-8091 Injectors SEP06 IC 44 300-0460
Replaced 248-7636,251-7452,
254-0994,259-5604,265-3329,272-5319,295-2328

CARB (California Bus only) MAR04 IC 60 251-6209

C7 KAL 300HP @ 2200 860 lb-ft ...* Important see note above for complete detail
KAL 1 - 12897 w/ Factory installed 233-3535 Injectors APR04 IC 11 247-4636
Replaced 245-0841

KAL1-12897 w/ "Field installed" 238-8091 Injectors SEP06 IC 45 300-0458
Replaced 248-7634, 251-7450, 254-0992,259-5602,
265-3326,272-5317,295-2326

KAL12898-UP, SAP1-UP, WAX1-UP
w/ "Factory installed" 238-8091 Injectors SEP06 IC 45 300-0458
Replaced 248-7634, 251-7450, 254-0992,259-5602,
265-3326,272-5317,295-2326

C7 KAL 330HP 860 lb-ft (Truck) ...* Important see note above for complete detail
KAL1-UP w/ "Field installed" 238-8091 Injectors SEP06 IC 53 300-0456
Replaced 248-7645,251-7448,
254-0990,259-5600,265-3323,272-5315,295-2324

KAL12898-UP, SAP1-UP, WAX1-UP
w/ "Factory installed" 238-8091 Injectors SEP06 IC 53 300-0456
Replaced 248-7645,251-7448,
254-0990,259-5600,265-3323,272-5315,295-2324

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********** EMERGENCY RATINGS (ER) **********

S/N Range	Injector P/N	Date Code	Interlock	Flash File

****

C7 KAL 275HP 800 lb-ft (ER) ...* Important see note above for complete detail

KAL 1 - 12897 w/ Factory installed 233-3535 Injectors APR04 IC 12 247-4641
Replaced 245-0836

KAL1-12897 w/ "Field installed" 238-8091 Injectors SEP06 IC 46 300-0463
Replaced 248-7639,251-7455,
254-0997,259-5607,265-3332,272-5322,295-2331

KAL12898-UP, SAP1-UP, WAX1-UP
w/ "Factory installed" 238-8091 Injectors SEP06 IC 46 300-0463
Replaced 248-7639,251-7455,
254-0997,259-5607,265-3332,272-5322,295-2331

C7 KAL 275HP 860 lb-ft (ER) ...* Important see note above for complete detail
KAL 1 - 12897 w/ Factory installed 233-3535 Injectors APR04 IC 13 247-4639
Replaced 245-0838

KAL1-12897 w/ "Field installed" 238-8091 Injectors SEP06 IC 47 300-0461
Replaced 248-7637,251-7453,
254-0995,259-5605,265-3330,272-5320,295-2329

KAL12898-UP, SAP1-UP, WAX1-UP
w/ "Factory installed" 238-8091 Injectors SEP06 IC 47 300-0461
Replaced 248-7637,251-7453,
254-0995,259-5605,265-3330,272-5320,295-2329

C7 KAL 300HP 800 lb-ft (ER) ...* Important see note above for complete detail
KAL 1 - 12897 w/ Factory installed 233-3535 Injectors APR04 IC 14 247-4637
Replaced 245-0840

KAL1-12897 w/ "Field installed" 238-8091 Injectors SEP06 IC 48 300-0459
Replaced 248-7635,251-7451,
254-0993,259-5603,265-3327,272-5318,295-2327

KAL12898-UP, SAP1-UP, WAX1-UP
w/ "Factory installed" 238-8091 Injectors SEP06 IC 48 300-0459
Replaced 248-7635,251-7451,
254-0993,259-5603,265-3327,272-5318,295-2327

C7 KAL 300HP 860 lb-ft (ER) ...* Important see note above for complete detail
KAL 1 - 12897 w/ Factory installed 233-3535 Injectors APR04 IC 15 247-4635
Replaced 245-0842

KAL1-12897 w/ "Field installed" 238-8091 Injectors SEP06 IC 49 300-0457
Replaced 248-7633,251-7449,
254-0991,259-5601,265-3324,272-5316,295-2325

KAL12898-UP, SAP1-UP, WAX1-UP
w/ "Factory installed" 238-8091 Injectors SEP06 IC 49 300-0457
Replaced 248-7633,251-7449,
254-0991,259-5601,265-3324,272-5316,295-2325

C7 KAL 330HP 860 lb-ft (ER) ...* Important see note above for complete detail
KAL 1 - 12897 w/ Factory installed 233-3535 Injectors APR04 IC 16 247-4634
Replaced 245-0843

KAL1-12897 w/ "Field installed" 238-8091 Injectors SEP06 IC 50 300-0455
Replaced 248-7632,251-7447,
254-0989,259-5599,265-3322,272-5314,295-2323

KAL12898-UP, SAP1-UP, WAX1-UP
w/ "Factory installed" 238-8091 Injectors SEP06 IC 50 300-0455

Replaced 248-7632,251-7447,
254-0989,259-5599,265-3322,272-5314,295-2323

C7 KAL 350HP @ 2400 RPM (ER) SEP06 IC 54 300-0453
Replaced 272-1428,298-7453

****
********** RECREATION VEHICLE (RV) **********
S/N Range Injector P/N Date Code Interlock Flash File
****

C7 KAL 330HP 860 lb-ft (RV) ...* Important see note above for complete detail
KAL 1 - 12897 w/ Factory installed 233-3535 Injectors APR04 IC 17 247-4633
Replaced 245-0844

KAL1-12897 w/ "Field installed" 238-8091 Injectors SEP06 IC 51 300-0454
Replaced 248-7631,251-7446,
254-0988,259-5598,265-3321,272-5313,295-2322

KAL12898-UP, SAP1-UP, WAX1-UP
w/ "Factory installed" 238-8091 Injectors SEP06 IC 51 300-0454
Replaced 248-7631,251-7446,
254-0988,259-5598,265-3321,272-5313,295-2322

C7 KAL 350HP @ 2400 860 lb-ft (RV) ...* Important see note above for complete detail
KAL1-UP w/ "Field installed" 238-8091 Injectors SEP06 IC 52 300-0452
Replaced 248-7630,251-7445,
254-0986,259-5597,265-3320,272-5312,295-2321

KAL12898-UP, SAP1-UP, WAX1-UP
w/ "Factory installed" 238-8091 Injectors SEP06 IC 52 300-0452
Replaced 248-7630,251-7445,
254-0986,259-5597,265-3320,272-5312,295-2321

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********** Family of Medium Tactical Vehicle (FMTV) **********
S/N Range Injector P/N Date Code Interlock Flash File
****

C7 FML 275HP @ 2200 RPM 860 lb-ft (FMTV)
FML 1-UP w/ "Factory installed" 238-8091 Injectors NOV09 IC 55 353-8652
Replaced 248-7642,259-5595,266-4248,280-3274,
296-0076

C7 FMM 330HP @ 2400 RPM 860 lb-ft (FMTV)
FMM 1-UP w/ "Factory installed" 238-8091 Injectors NOV09 IC 56 353-8653
Replaced 248-7643,259-5596,266-4249,280-3275,
296-0077

C7 330HP @ 2600 RPM FMM 1-UP NOV09 IC 82 353-8655
Replaced 325-4611

C7 275HP @ 2600 RPM FML 1-UP NOV09 IC 83 353-8684
Replaced 330-4542

C7 350HP @ 2600 RPM JRT 1-UP NOV09 IC 80 355-2831
Replaced 286-5702,303-4272,335-9389,346-5217

C7 350HP @ 2400RPM-261KW (Bronco Tactical Vehicle) Mar09 IC 85 344-9633
Replaced N/A

C7 370HP @ 2600RPM-276KW (Bronco Tactical Vehicle) Aug09 IC 84 346-3689

Replaced 338-3672

*******EURO III Rating for use in Europe only - not for North America use**********

C7 HORSEPOWER	TORQUE	GOV SPEED	SERIAL NO. RANGE	FLASH FILE	P/M CODE	RELEASE DATE
190 HP 2500 RPM	142 KW-EURO3		331-0117	71	APR08	
Replaced 290-0419						
210 HP 2500 RPM	157 KW-EURO3		331-0119	70	APR08	
Replaced 290-0418						
210 HP 2500 RPM	157 KW-EURO3		331-0118	72	APR08	
Replaced 290-0420						
230 HP 2400 RPM	172 KW-EURO3		331-0120	73	APR08	
Replaced 290-0421						
250 HP 2400 RPM	186 KW-EURO3		331-0121	74	APR08	
Replaced 290-0422						
275 HP 2400 RPM	205 KW-EURO3		331-0122	75	APR08	
Replaced 290-0423						
300 HP 2400 RPM	224 KW-EURO3		331-0123	76	APR08	
Replaced 290-0424						
330 HP 2400 RPM	246 KW-EURO3		331-0124	77	APR08	
Replaced 290-0425						

********** C9 Files **********

NOTE: C9 335HP and 350HP 9DG 1 -700 were factory built with Injector p/n 233-3534. If a "single" 233-3534 injector is replaced with a 239-6871 Injector w/seals (238-8092 p/n on injector... not serviced) then "all six" injectors must be updated to the same part number and the appropriate flash file and "etrim" Files must be installed to match the "new" part number injector. Use list below to determine flash file based on installed injector number.

Reference Truck Engine News SEBD6774 November 2004

S/N Range	Injector P/N	Date Code	Interlock	Flash File
C9 MTB 285 HP @ 2100 RPM 890 lb-ft (Bus)		JAN05	IC 20	270-9204
Replaced 246-4701,251-7416,265-2873				
C9 MTB 330 HP @ 2100 RPM 1150 lb-ft (Bus)		AUG07	IC 22	319-1842
HEV (Hybrid Electric Vehicle)				
Replaced 255-1178,260-1435,286-9589				
C9 MTB 330 HP @ 2100 RPM 1150 lb-ft (Bus)		SEP04	IC 12	260-1438
MTB00001-00999				
Replaced 242-8332,247-4650				
C9 MTB 330 HP @ 2100 RPM 1150 lb-ft (Bus)		FEB08	IC 21	326-2663
Replaced 246-4700, 251-7415,260-1449, 286-9588,319-1843				
C9 9DG 335 HP @ 2100 RPM 1050 lb-ft (TRUCK)				
9DG1-700 w/factory installed 233-3534 injectors		OCT03	IC 10	247-4652
Replaced 242-1854				

9DG1-700 w/field installed 238-8092 injectors	MAR04	IC 18	252-0028
9DG1000-UP Replaced 251-7420,260-1450,273-3788, 280-9032,292-5521,296-8233	NOV06	IC 23	305-7997
C9 9DG 350 HP @ 2100 RPM 1100 lb-ft (TRUCK)			
9DG1-700 w/factory installed 233-3534 injectors Replaced 242-1852	OCT03	IC 11	247-4651
9DG1-700 w/field installed 238-8092 injectors	MAR04	IC 19	252-0029
9DG1000-UP Replaced 251-7419,260-1451,273-3789, 280-9033,286-5300,296-8234,305-7998	JAN08	IC 24	324-7773
C9 9DG 400 HP @ 2300 RPM Replaced 275-2256	NOV09	IC 39	355-2987
C9 9DG 400 HP @ 2200 RPM Replaced N/A	MAY05	IC 40	275-2257
C9 9DG 450 HP @ 2300 RPM Replaced 275-2258	Nov09	IC 41	355-2988
C9 9DG 370 HP @ 2100 RPM 1100 lb-ft (RV) Replaced 251-7418	MAR04	IC 30	253-0979
C9 9DG 400 HP @ 2100 RPM 1100 lb-ft (RV) Replaced 249-9196,251-7418,258-2347, 265-2872,282-8992,289-1223,305-7972	SEP07	IC 25	320-0329
C9 9DG 335 HP @ 2300 RPM 1050 lb-ft (ER) Replaced 264-1214,292-5522	JAN07	IC 42	308-4885
C9 9DG 350 HP @ 2300 RPM 1100 lb-ft (ER) Replaced 264-1215	JAN07	IC 43	308-4886
C9 9DG 400 HP @ 2300 RPM 1100 lb-ft (ER) Replaced 258-2348,282-8993,290-9008,305-7973	SEP07	IC 31	320-0330
C9 9DG 350 HP @ 2100 RPM 1100 lb-ft PSO (Parts service only) Replaced 293-4644,299-5079,305-7971	JAN08	IC 44	324-7772
C9 LFR 400 HP @ 2300 RPM 1100 lb-ft Defense and Federal Products Replaced N/A	OCT06	IC 45	303-1504

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C9 (2007 Emissions A4 ECM) "Mid HP Ratings" 300HP to 425HP:

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C9S0001-up	Date Code	Interlock	Flash File
C9 285HP @ 2200 RPM 890lb-ft Replaced 313-2608,313-9567,321-7469,324-7645, 328-0711	JUN08	30/130	334-2371
C9 335HP @ 2200 RPM 1150lb-ft Replaced 313-9568,321-7470,324-7646,328-0712	JUN08	31/131	334-2372

C9 335HP @ 2200 RPM 1150lb-ft Replaced 313-2610,313-9569,321-7471,324-7647, 328-0713	JUN08	32/132	334-2373
C9 350HP @ 2200 RPM 1250lb-ft Replaced 313-2611,313-9570,321-7472,324-7648, 328-0714	JUN08	33/133	334-2374
C9 365HP @ 2200 RPM 1250lb-ft Replaced 313-2612,313-9571,321-7473,324-7649, 328-0715	JUN08	34/134	334-2375
C9 400HP @ 2300 RPM 1250lb-ft (RV) Replaced 313-2613,313-9572,321-5296,321-7474, 324-7650,328-0716	JUN08	35/135	334-2376
C9 425HP @ 2300 RPM 1250lb-ft (RV) Replaced 313-2615,313-9574,321-5298,321-7476, 324-7652,328-0718	JUN08	37/137	334-2378
C9 425HP @ 2300 RPM 1350lb-ft (RV) Replaced 313-2617,313-9576,321-5300,321-7478, 324-7654,328-0720	JUN08	39/139	334-2380
C9 400HP @ 2300 RPM 1250lb-ft (FT) Replaced 313-2614,313-9573,321-5297,321-7475. 324-7651,328-0717	JUN08	36/136	334-2377
C9 425HP @ 2300 RPM 1250lb-ft (FT) Replaced 313-2616,313-9575,321-5299,321-7477, 324-7653,328-0719	JUN08	38/138	334-2379
C9 425HP @ 2300 RPM 1350lb-ft (FT) Replaced 313-2618,313-9577,321-5301,321-7479, 324-7655,328-0721	JUN08	40/140	334-2381

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Skid Steer Loader / Multi Terrain Loader

SSL / MTL Auxiliary ECM flash file reference, updated April 24, 2003

Sales Model	Serial No. Range	Flash File Part No.	Release Date
216	4NZ1-up	228-3168	10/2002
226	5FZ1-UP	228-3168	10/2002
228	6BZ1-UP	228-3168	10/2002
236	4YZ1-UP	228-3168	10/2002
246	5SZ1-UP	228-3168	10/2002
248	6LZ1-UP	228-3168	10/2002
232	CAB1-UP	228-3168	10/2002
252	FDG1-UP	228-3168	10/2002
262	CED1-UP	228-3168	10/2002
242	CMB1-UP	228-3168	10/2002
247	CML1-UP	228-3168	10/2002
257	CMM1-UP	228-3168	10/2002
267	CMP1-UP	228-3168	10/2002
277	CNC1-UP	228-3168	10/2002
287	CNY1-UP	228-3168	10/2002

Instructions:
Flash the ECM with the latest software using the Datalink port in the engine compartment. In the configuration screen, it is necessary to set the following perameters to the proper values:
SALES MODEL NUMBER (select the sales model of the machine)

TWO SPEED MOTOR INSTALLATION STATUS (select 'installed' if the machine has the two speed option, select 'not installed' if the machine does not have the two speed option)

HYDRAULIC AUXILIARY JOYSTICK CONFIGURATION (select 'PWM' if the machine has a proportional handle, select 'switch to ground' if the machine has an on/off handle, select 'off' if the machine is not equipped with auxiliary control)

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C-10/C-12/3176B LOW NOX FLASH FILE CROSS REFERENCE

C-10/C-12/3176B LOW NOX FLASH FILE CROSS REFERENCE

UPDATED December 21, 2000

The Low Nox Software files listed below have the same interlock codes as the sta
ndard rating software for the specified engines with 300 added to the interlock code.

LOW NOX EMISSIONS REBUILD SOFTWARE FOR '98 IRON C-10/C-12 ADEM II
PARTS SERVICE ONLY (PSO)

'98 MY C-10 IRON

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	ITRLCK CODE	RELEASE DATE
305 HP 1150/1050 PT	1800/2100	8YS1 - UP	191-9918	325	OCT 00
305 HP (208.5? FAN-ON TEMP) 1150/1050 PT	1800/2100	8YS1 - UP	191-9919	330	OCT 00
335 HP 1250/1350 PT	1800/2100	8YS1 - UP	191-9921	326	OCT 00
335 HP (208.5? FAN-ON TEMP) 1250/1350 PT	1800/2100	8YS1 - UP	191-9922	331	OCT 00
335/370HP MT 1250/1350 PT	1800	8YS1 - UP	191-9920	329	OCT 00
350 HP 1350 PT	1800/2100	8YS1 - UP	191-9923	327	OCT 00
370 HP 1350 PT	1800	8YS1 - UP	191-9924	328	OCT 00

'98 MY C-12 IRON

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	ITRLCK CODE	RELEASE DATE
335 HP 1550 PT	2100	9NS1 - UP	191-9926	329	OCT 00

355 HP	1800/2100	9NS1 - UP	191-9928	324	OCT 00
1350 PT					
355 HP	1800	9NS1 - UP	191-9927	331	OCT 00
(208.5? FAN-ON TEMP) 1350 PT					
355/410 MT	1800/2100	9NS1 - UP	191-9937	327	OCT 00
1350/1450/1550 PT					
380 HP	1800/2100	9NS1 - UP	191-9930	321	OCT 00
1450 PT					
380/410 MT	1800	9NS1 - UP	191-9935	328	OCT 00
1450/1550 PT					
380/430 MT	1800	9NS1 - UP	191-9938	322	OCT 00
1450/1650 PT					
380/430 MT	1800	9NS1 - UP	191-9936	322	OCT 00
(SERVICES 153-8417 - TOP 2 GEARS ONLY - MS CARRIERS CUSTOMER ONLY)					
1450/1650 PT					
395 HP	2100	9NS1 - UP	191-9931	325	OCT 00
1450 PT					
410 HP	1800/2100	9NS1 - UP	191-9932	326	OCT 00
1450/1550 PT					
425 HP	2100	9NS1 - UP	191-9934	330	OCT 00
(EMERGENCY VEHICLE, RV, AND BUS ONLY) 1450/1550 PT					
430 HP	1800/2100	9NS1 - UP	191-9933	316	OCT 00
1650 PT					
455 HP	2100	9NS1 - UP	191-9929	320	OCT 00
(EMERGENCY VEHICLE, RV, AND BUS ONLY) 1550 PT					

LOW NOX REBUILD SOFTWARE - PARTS SERVICE ONLY (PSO)

'97 MY C-10 IRON

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	ITRLCK CODE	RELEASE DATE
280 HP	1800	2PN1 - UP	190-0224	305	DEC 99
280 HP	2100	2PN1 - UP	190-0225	306	DEC 99
305 HP	1800	2PN1 - UP	190-0226	307	DEC 99
305 HP	2100	2PN1 - UP	190-0227	308	DEC 99
305 HP	1800	2PN1 - UP	190-0231	307	DEC 99
(208.5Œ FAN-ON TEMP)					
325 HP	1800	2PN1 - UP	190-0229	310	DEC 99
(FIELD UPRATE FOR 280 OR 305 HP IRON)					
325 HP	2100	2PN1 - UP	190-0228	309	DEC 99
335 HP	1800	2PN1 - UP	190-0221	302	DEC 99
335 HP	1800	2PN1 - UP	190-0230	302	DEC 99
(208.5Œ FAN-ON TEMP)					

335/370HP MT	1800	2PN1 - UP	190-0223	304	DEC 99
350 HP	1800	2PN1 - UP	190-0220	301	DEC 99
370 HP	1800	2PN1 - UP	190-0222	303	DEC 99

LOW NOX REBUILD SOFTWARE - PARTS SERVICE ONLY (PSO)

'97 MY C-12 IRON

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	ITRLCK CODE	RELEASE DATE
335 HP	2100	1YN1 - UP	190-0241	315	DEC 99
355 HP	1800	1YN1 - UP	190-0233	302	DEC 99
355 HP (208.5Œ FAN-ON TEMP)	1800	1YN1 - UP	190-0242	323	DEC 99
355/410HP MT	1800	1YN1 - UP	190-0235	304	DEC 99
360 HP	2100	1YN1 - UP	190-0238	307	DEC 99
380 HP	1800	1YN1 - UP	190-0234	303	DEC 99
380/410HP MT	1800	1YN1 - UP	190-0236	305	DEC 99
390 HP	2100	1YN1 - UP	190-0239	308	DEC 99
410 HP	1800	1YN1 - UP	190-0232	301	DEC 99
410 HP	2100	1YN1 - UP	190-0237	306	DEC 99
425 HP (EMERGENCY VEHICLE, RV, AND BUS ONLY)	2100	1YN1 - UP	190-0240	309	DEC 99

3176B LOW NOX REBUILD SOFTWARE - PARTS SERVICE ONLY (PSO)

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	ITRLCK CODE	RELEASE DATE
275 HP	1800	9CK1 - UP	188-8079 (STANDARD)	304	DEC 99
			188-8091 (208.5ŒF FAN-ON TEMP)	304	DEC 99
300 HP	1800	9CK1 - UP	188-8080	305	DEC 99
325 HP	1800	9CK1-18308	188-8081	302	DEC 99
325 HP	1800	9CK18309-UP	188-8086	326	DEC 99
325/350 HP MULTI TORQUE	1800	9CK18309-UP	188-8087	327	DEC 99
335/365 HP MULTI TORQUE	1800	9CK1 - UP	188-8084	313	DEC 99

342 HP (OIL FIELD ONLY)	1800	9CK1 - UP	188-8085	312	DEC 99
350 HP	1800	9CK1 - UP	188-8082	301	DEC 99
365 HP	1800	9CK1 - UP	188-8083	309	DEC 99
300 HP (2T7318) (FIELD UPRATE ONLY! W/ 275 HP IRON)	1800	9CK1 - UP	188-8088	334	DEC 99
350 HP (2T7314) (FIELD UPRATE ONLY! W/ 325 HP IRON)	1800	9CK1-18308	188-8089	335	DEC 99
365 HP (2T7316) (FIELD UPRATE ONLY! W/ 325 HP OR 350 HP IRON)	1800	9CK18309-UP	188-8090	336	DEC 99

RUCK, MACHINE, AND COMMERCIAL ENGINES
Updated January 15, 2008 ajk

C-10 TRUCK 2001 MY - CLEAN POWER

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE
305 HP 1050/1150 PT	1800/2100	3CS23000 - UP	215-7354	20	JAN02
335 HP 1250 PT	1800/2100	3CS23000 - UP	215-7355	21	JAN02
350 HP 1350 PT REPLACED 215-7357,237-0713, 241-0760,251-1818	1800/2100	3CS23000 - UP	270-7024	22	APR05
370 HP 1350 PT	1800	3CS23000 - UP	215-7358	23	JAN02
335/370 HP MT 1250/1350 PT	1800	3CS23000 - UP	215-7359	24	JAN02

C-10 TRUCK 2000 MY - EPA CERTIFIED

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE
305 HP REPLACED 220-6615,237-0699, 241-0759,251-1761	1800/2100	3CS12000 - 22999	270-7006	10	APR05
335 HP	1800/2100	3CS12000 - 22999	220-6617	11	MAR02
350 HP	1800/2100	3CS12000 - 22999	220-6619	12	MAR02
370 HP	1800	3CS12000 - 22999	220-6620	13	MAR02
335/370 HP MT	1800	3CS12000 - 22999	220-6622	14	MAR02

C-10 TRUCK '99 MY - EPA CERTIFIED

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE
305 HP	1800/2100	3CS1 - 11999	215-7806	6	MAR02
335 HP	1800/2100	3CS1 - 11999	215-7807	2	MAR02
350 HP	1800/2100	3CS1 - 11999	215-7808	4	MAR02
370 HP	1800	3CS1 - 11999	215-7809	5	MAR02
335/370 HP MT	1800	3CS1 - 11999	215-7810	3	MAR02

Note: The LOW NOx FLASH files each have an personality module code which has been incremented by 300, compared to the interlock code of the original production FLASH file it is replacing. For example, FLASH file 185-1177,
with a personality module code of 333, replaces the DEC98 PSO FLASH file 170-8128, which had a personality module code of 33.

C-10 TRUCK - EPA CERTIFIED

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE
305 HP (Replaces 191-2810)	1800/2100	8YS1 - UP	191-9918	325	OCT00
305 HP (208.5° FAN-ON TEMP)(Replaces 191-2811)	1800/2100	8YS1 - UP	191-9919	330	OCT00
335 HP (Replaces 191-2812)	1800/2100	8YS1 - UP	191-9921	326	OCT00
335 HP 208.5° FAN-ON TEMP)(Replaces 191-2813)	1800/2100	8YS1 - UP	191-9922	331	OCT00
335/370HP MT (Replaces 191-2817)	1800	8YS1 - UP	191-9920	329	OCT00
350 HP (Replaces 191-2814)	1800/2100	8YS1 - UP	191-9923	327	OCT00
350 HP (208.5°F FAN-ON TEMP Replaces 191-2815)	1800/2100	8YS1 - UP	191-9925	327	OCT00
370 HP (Replaces 191-2816)	1800	8YS1 - UP	191-9924	328	OCT00

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE
280 HP (Replaces 170-8077)	1800	2PN1 - UP	190-0224	305	DEC99
280 HP (Replaces 170-8078)	2100	2PN1 - UP	190-0225	306	DEC99

305 HP	1800	2PN1 - UP	190-0226	307	DEC99
(Replaces 170-8079)					
305 HP	2100	2PN1 - UP	190-0227	308	DEC99
(Replaces 170-8080)					
305 HP	1800	2PN1 - UP	190-0231	307	DEC99
(208.5? FAN-ON TEMP)(Replaces 170-8084)					
325 HP	1800	2PN1 - UP	190-0229	310	DEC99
(FIELD UPRATE FOR 280 OR 305 HP IRON) (Replaces 170-8082)					
325 HP	2100	2PN1 - UP	190-0228	309	DEC99
(Replaces 170-8081)					
335 HP	1800	2PN1 - UP	190-0221	302	DEC99
(Replaces 170-8074)					
335 HP	1800	2PN1 - UP	190-0230	302	DEC99
(208.5? FAN-ON TEMP)(Replaces 170-8083)					
335/370HP MT	1800	2PN1 - UP	190-0223	304	DEC99
(Replaces 170-8076)					
350 HP	1800	2PN1 - UP	190-0220	301	DEC99
(Replaces 170-8073)					
370 HP	1800	2PN1 - UP	190-0222	303	DEC99
(Replaces 170-8075)					

C-12 TRUCK 2001 MY - CLEAN POWER

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE
335 HP 1550 PT	2100	2KS72000 - UP	215-7360	50	JAN02
355 HP 1350 PT	1800/2100	2KS72000 - UP	215-7361	51	JAN02
380 HP 1450 PT Replaced 215-7362,237-0714, 241-0766,251-1820,270-7026	1800/2100	2KS72000 - UP	338-5263	52	OCT08
395 HP 1450 PT Replaced 215-7363,236-1023, 241-0765,251-1819,270-7025	1800/2100	2KS72000 - UP	338-5260	53	OCT08
355/410 MT 1350/1450/1550 PT Replaced 215-7364,241-0774,251-1825	1800/2100	2KS72000 - UP	270-7031	54	APR05
380/410 MT 1450/1550 PT Replaced 215-7365,241-0775,251-1826	1800	2KS72000 - UP	270-7032	55	APR05

410 HP 1450/1550 PT Replaced 215-7366,237-9263, 241-0773,251-1824,270-7030,296-6024	1800/2100	2KS72000 - UP	338-5262	56	OCT08
425 HP 1450/1550 PT (EMERGENCY VEHICLE, RV, AND BUS ONLY)	2100	2KS72000 - UP	215-7367	57	JAN02
380/430 MT 1450/1650 PT Replaced 215-7368,237-0715, 241-0767,251-1821,270-7027	1800	2KS72000 - UP	338-5264	58	OCT08
430 HP 1650 PT Replaced 215-7369,237-0716, 241-0768,251-1822,270-7028	1800/2100	2KS72000 - UP	338-5261	59	OCT08
455 HP 1550 PT EMERGENCY VEHICLE,RV AND BUS ONLY	2100	2KS72000 - UP	215-7370	60	JAN02
505 HP 1550 PT RV/FT Replaced 215-7373,226-2039, 237-0717,241-0769,251-1823	2100	2KS72000 - UP	270-7029	61	APR05

C-12 TRUCK 2000 MY - EPA CERTIFIED

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE
335 HP	2100	2KS40000 - 71999	220-6623	20	MAR02
355 HP	1800/2100	2KS40000 - 71999	220-6624	21	MAR02
380 HP 1450 PT REPLACED 220-6625,237-0700, 241-0762,251-1766	1800/2100	2KS40000 - 71999	270-7011	22	APR05
395 HP	1800/2100	2KS40000 - 71999	220-6627	23	MAR02
355/410 MT Replaced 220-6629,237-0701, 241-0763,251-1767	1800/2100	2KS40000 - 71999	270-7012	24	APR05
380/410 MT	1800	2KS40000 - 71999	220-6630	25	MAR02
410 HP	1800/2100	2KS40000 - 71999	220-6631	26	MAR02
425 HP (EMERGENCY VEHICLE, RV, AND BUS ONLY)	2100	2KS40000 - 71999	220-6632	27	MAR02
380/430 MT Replaced 220-6633,237-9262, 241-0772,251-1769	1800	2KS40000 - 71999	270-7014	28	APR05

430 HP 1650 PT REPLACED 220-6634,237-0702, 241-0764,251-1768	1800/2100	2KS40000 - 71999	270-7013	29	APR05
455 HP (EMERGENCY VEHICLE, RV, AND BUS ONLY)	2100	2KS40000 - 71999	220-6635	30	MAR02
505 HP 1550 PT RV/FT	2100	2KS40000 - 71999	220-6636	31	MAR02

C-12 TRUCK '99 MY - EPA CERTIFIED

DESCRIPTION	GOV SPEED F	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE
335 HP	2100	2KS1 - 39999	215-7811	11	MAR02
355 HP	1800/2100	2KS1 - 39999	215-7812	12	MAR02
380 HP Replaced 215-7813,241-0776,251-1765	1800/2100	2KS1 - 39999	270-7010	4	APR05
355/410 MT	1800/2100	2KS1 - 39999	215-7817	3	MAR02
380/410 MT	1800	2KS1 - 39999	215-7818	9	MAR02
380/430 MT-4 (STANDARD RATING OR MT-4) Replaced 215-7820,215,241-0771,251-1764	1800	2KS1 - 39999	270-7009	10	APR05
380/430 MT-2 Replaced 215-7819, 241-0770,251-1763	1800	2KS1 - 39999	270-7008	14	APR05
395 HP	1800/2100	2KS1 - 39999	215-7815	6	MAR02
410 HP	1800/2100	2KS1 - 39999	215-7816	7	MAR02
430 HP 1650 PT REPLACED 215-7822,237-0688,241-0761,251-1762	1800/2100	2KS1 - 39999	270-7007	8	APR05
425 HP (EMERGENCY VEHICLE, RV, AND BUS ONLY)	2100	2KS1 - 39999	215-7821	15	MAR02
455 HP (EMERGENCY VEHICLE, RV, AND BUS ONLY)	2100	2KS1 - 39999	215-7823	16	MAR02

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE
335 HP (Replaces 191-2818)	2100	9NS1 - UP	191-9926	329	OCT00
355 HP (Replaces 191-2819)	1800/2100	9NS1 - UP	191-9928	324	OCT00

355 HP 1800 9NS1 - UP 191-9927 331 OCT00
(208.5? FAN-ON TEMP)(Replaces 191-2820)

355/410 MT 1800/2100 9NS1 - UP 191-9937 327 OCT00
(Replaces 191-2827)

380 HP 1800/2100 9NS1 - UP 191-9930 321 OCT00
(Replaces 191-2821)

380/410 MT 1800 9NS1 - UP 191-9935 328 OCT00
(Replaces 191-2828)

380/430 MT 1800 9NS1 - UP 191-9938 322 OCT00
(Replaces 191-3727)

380/430 MT 1800 9NS1 - UP 191-9936 322 OCT00
(SERVICES 153-8417 - TOP 2 GEARS ONLY - MS CARRIERS CUSTOMER ONLY)
(Replaces 168-7029)

395 HP 2100 9NS1 - UP 191-9931 325 OCT00
(Replaces 191-2822)

410 HP 1800/2100 9NS1 - UP 191-9932 326 OCT00
(Replaces 191-2823)

425 HP 2100 9NS1 - UP 191-9934 330 OCT00
(EMERGENCY VEHICLE, RV, AND BUS ONLY)(Replaces 191-2824)

430 HP 1800/2100 9NS1 - UP 191-9933 316 OCT00
(Replaces 191-2825)

455 HP 2100 9NS1 - UP 191-9929 320 OCT00
(EMERGENCY VEHICLE, RV, AND BUS ONLY) (Replaces 191-2826)

DESCRIPTION	TORQUE	GOV SPEED	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE
335 HP	1550 LB-FT	2100	1YN1 - UP	190-0241	315	DEC99
Replaced 170-8094						
355 HP	1350 LB-FT	1800	1YN1 - UP	190-0233	302	DEC99
Replaced 170-8086						
355 HP	1350 LB-FT	1800	1YN1 - UP	190-0242	323	DEC99
(208.5? FAN-ON TEMP)						
Replaced 170-8095						
355/410HP MT	1350/1450/1550 LB-FT	1800	1YN1 - UP	190-0235	304	DEC99
Replaced 170-8088						
360 HP	1350 LB-FT	2100	1YN1 - UP	190-0238	307	DEC99
Replaced 170-8091						
380 HP	1450 LB-FT	1800	1YN1 - UP	190-0234	303	DEC99
Replaced 170-8087						
380/410HP MT	1450/1550 LB-FT	1800	1YN1 - UP	190-0236	305	DEC99
Replaced 170-8089						

390 HP 1450 LB-FT	2100	1YN1 - UP	190-0239	308	DEC99
Replaced 170-8092						
410 HP 1450/1550 LB-FT	1800	1YN1 - UP	190-0232	301	DEC99
Replaced 170-8085						
410 HP 1450/1550 LB-FT	2100	1YN1 - UP	190-0237	306	DEC99
Replaced 170-8090						
425 HP 1450/1550 LB-FT	2100	1YN1 - UP	190-0240	309	DEC99
(EMERGENCY VEHICLE, RV, AND BUS ONLY)						
Replaced 170-8093						

C-10/C-12 CLEAN POWER WITH AIR INLET SHUTOFF

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE
335 HP 1250 PT	1800/2100	3CS23000 - UP	224-4619	26	AUG02
Replaced 215-7356,224-0816					
410 HP 1450/1550 PT	1800/2100	2KS72000 - UP	215-7371	63	JAN02
410 HP 1450/1550 PT	1800/2100	2KS72000 - UP	224-4620	67	AUG02
Replaced 224-0817					
430 HP 1650 PT	1800/2100	2KS72000 - UP	215-7372	62	JAN02
430 HP 1650 PT REPLACED 224-0818	1800/2100	2KS72000 - UP	224-4621	66	AUG02

C-10/C-12 WITH AIR INLET SHUTOFF

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE
335 HP 1250 PT	1800/2100	3CS12000-22999	220-6618	15	MAR02
335 HP 1250 PT REPLACED 224-0813	1800/2100	3CS12000-22999	224-4616	17	AUG02
410 HP 1450/1550 PT	1800/2100	2KS40000-71999	220-6637	35	MAR02
410 HP 1450/1550 PT REPLACED 224-0814	1800/2100	2KS40000-71999	224-4617	37	AUG02
430 HP 1650 PT	1800/2100	2KS40000-71999	220-6638	34	MAR02
430 HP 1650 PT REPLACED 224-0815	1800/2100	2KS40000-71999	224-4618	36	AUG02

C-12 MTVR

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE
355/410 MT	2100	9SM00001-1499	220-4351	18	APR02
355/410 MT (Clean Power)	2100	9SM01500 - UP	220-4352	65	APR02

C13 TRUCK EURO3 (NOT FOR USE IN THE UNITED STATES)

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE
380 HP	2100	JAM1 - UP	307-1467	66	DEC06
Replaced 273-8798,291-2044,295-1536					
430 HP	2100	JAM1 - UP	307-1468	67	DEC06
Replaced 273-8799,291-2045,295-1537					
470 HP	2100	JAM1 - UP	307-1469	68	DEC06
Replaced 273-8800,291-2046,295-1538					

C-10/C-12 TRUCK EURO II CERTIFIED (NOT FOR USE IN THE UNITED STATES)

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE
325 HP	1900	8YS1 - UP	191-0986	44	MAR 00
365 HP	1900	8YS1 - UP	191-0987	46	MAR 00
335 HP	1900	9NS1 - UP	191-0988	37	MAR 00
380 HP	1900	9NS1 - UP	191-0989	38	MAR 00
410 HP	1900	9NS1 - UP	191-0990	39	MAR 00

C-10/C-12 TRUCK EURO II CERTIFIED (NOT FOR USE IN THE UNITED STATES)

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE
325 HP	1900	8YS1 - UP	158-9979	33	FEB 98
350 HP	1900	8YS1 - UP	158-9981	34	FEB 98
365 HP	1900	8YS1 - UP	158-9983	35	FEB 98
335 HP	1900	9NS1 - UP	158-2023	32	FEB 98
380 HP	1900	9NS1 - UP	153-9616	33	FEB 98
410 HP	1900	9NS1 - UP	153-9618	34	FEB 98

C-12 TRUCK EURO III CERTIFIED (NOT FOR USE IN THE UNITED STATES)

430 HP	1900		229-2780	47	APR 03
430 HP For GREECE truck engines	1900		250-2988	47	APR 03

C-10 TRUCK EURO II CERTIFIED (NOT FOR USE IN THE UNITED STATES)

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE
325 HP	1900	2PN1 - UP	120-8935	12	APR 99
350 HP	1900	2PN1 - UP	120-8951	11	APR 99
365 HP	1900	2PN1 - UP	120-8922	13	APR 99

C-10 CNF TRUCK - EPA CERTIFIED

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE
335 HP (2000 MY)	1800/2100	3CS12000-22999	223-9987	11	APR 02
335 HP (1999 MY)	1800/2100	3CS1-11999	223-9986	2	APR 02

C-12 CNF TRUCK 2000 MY - EPA CERTIFIED

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE
355 HP (1999 MY)	1800/2100	2KS00001 - 39999	223-9988	12	APR02
355 HP (2000 MY)	1800/2100	2KS40000 - 71999	223-9989	21	APR02
355 HP (2001 MY)	1800/2100	2KS72000 - UP	223-9992	51	APR02
355/410 HP (1999 MY)	1800/2100	2KS1 - 39999	223-9990	3	APR02
355/410 HP (2000 MY)	1800/2100	2KS40000 -71999	223-9991	24	APR02
355/410 HP (2001 MY)	1800/2100	2KS72000 - UP	223-9993	54	APR02

This Section is Industrail Engine with Truck Software

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE
C13 440HP	2100	EMS1-UP	365-1096	205	Nov10
Replaced 312-3134					
600HP	2100	PRM-Prefix	364-9748	206	Nov10
Replaced 340-1103,347-3441,355-9837					

C-12 MT835/845 CHALLENGER

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE
349 HP	2100	BAM00001 - UP	228-3277	16	DEC02
REPLACED 224-5838					
390 HP	2100	BBP00001 - UP	228-3278	17	DEC02
REPLACED 224-5839					

349 HP	2100	Retrofit	240-8451	34	NOV04

CHALLENGER AGRICULTURAL TRACTOR

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE
CH75D 340 HP	2100	7ZR1 - UP	126-0591	40	AUG96
CH85D 340/375 340/370/380 HP	2100	6AR1 - UP	189-2131	39	MAR00
CH65E 320 HP	2100	7ZR1 - UP	203-6416	16	DEC00
CH75E 350 HP	2100	7ZR1 - UP	203-6417	14	DEC00
CH85E 350/385 HP	2100	6AR1 - UP	180-7277	14	AUG99
CH95E 350/385/420 HP	2100	6AR1 - UP	180-7279	12	OCT99
CH95E 350/385/420 HP	2100	6AR1937 - UP	180-7278	36	OCT99

CLAAS CHALLENGER AGRICULTURAL TRACTOR

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE
CH65E 320 HP	2100	7ZR1 - UP	203-6418	16	DEC00
CH75E 350 HP	2100	7ZR1 - UP	203-6419	14	DEC00
CH85E 350/385 HP	2100	6AR1 - UP	180-7282	14	AUG99
CH95E 350/385/420 HP	2100	6AR1 - UP	180-7284	12	OCT99
CH95E 350/385/420 HP	2100	6AR1937- UP	180-7283	36	OCT99

HYDRAULIC EXCAVATOR

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE
345B 312 HP REPLACED 198-3337	2000	7ZR1 - UP	235-1784	37	FEB03
345B II 344 HP REPLACED 205-3143	2000	7ZR1 - UP	235-1785	51	FEB03
345B II 365 HP (CIPI Drill App.)	2000	7ZR1 - UP	164-4574	52	NOV01
C13 345C ACERT STD 342 HP @ 1800 RPM Replaced 235-8221,248-4824,255-0904 258-4514,264-1083,266-6525,271-8699 439-7180			447-0877	3	AUG13

C13 345C ACERT STD-LRC 447-0874 17 AUG13
342 HP @ 1800 RPM
Replaced 257-7696,266-6526,283-1957
439-7178

C13 345C ACEDRT HIHP 447-0873 1 AUG13
371 HP @ 1800 RPM
Replaced 220-5005,236-0583,248-4825,255-0905
258-4515,266-6527,271-8700,439-7177

C13 MACH - 345C ACERT-HIHP-LRC 447-0878 19 AUG13
371HP@1800RPM
Replaced 284-5475,439-7182

C13 MACH-345C DRILL APPL 439-7181 24 AUG13
440HP@1800RPM
Replaced 288-0330

365B 412 HP 2000 6AR1 - UP 235-1786 3 FEB03
REPLACED 174-9138

C13 MACH-349E HEX 449-5536 3 SEP13
428HP@1800RPM
Replaces 381-4853

C13 MACH-349E HEX
428HP 1800 451-2438 20 NOV13
Replaced 349-3007,360-0061,366-4350,379-6579,
384-4445,394-7218,421-8966

C6.4 MACH 323D HEX PSO 441-0463 7 SEP13
157hp 1800rpm
Replaces

C6.4 MACH 320D HEX PSO 441-0512 8 SEP13
147hp 1800rpm
Replaces

3176C ADEM II MARINE

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE
450 HP	2300	6BW1 - UP	227-3826	42	OCT02
REPLACED 216-2915					
525 HP	2300	6BW1 - UP	227-3827	43	OCT02
REPLACED 216-2916					
570 HP	2300	6BW1 - UP	227-3828	23	OCT02
REPLACED 216-2917					
600 HP	2300	6BW1 - UP	227-3829	22	OCT02
REPLACED 216-2918					

3196 ADEM II MARINE

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE

340 HP	1800	2XR1 - UP	227-3831	2	OCT02
REPLACED 216-2919					
385 HP	1800	2XR1 - UP	227-3832	1	OCT02
REPLACED 216-2920					
450 HP	2100	2XR1 - UP	227-3833	48	OCT02
REPLACED 216-2921					
490 HP	2300	2XR1 - UP	227-3834	45	OCT02
REPLACED 216-2922					
570 HP	2300	2XR1 - UP	227-3835	42	OCT02
REPLACED 216-2923					
600 HP	2300	2XR1 - UP	227-3836	44	OCT02
REPLACED 216-2924					
660 HP	2300	2XR1 - UP	227-3837	38	OCT02
REPLACED 216-2925					

C12 ADEM III "C" TIER, TIER II MEUI MARINE

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE
340 HP	1800	9HP1 - UP	246-1141	26	MAR05
REPLACED 215-1498, 229-5802, 234-4956,243-0700					
385 HP	1800	9HP1 - UP	246-1142	27	MAR05
REPLACED 215-1499, 229-5803, 234-4957,243-0701					
450 HP	2100	9HP1 - UP	270-1823	28	FEB04
REPLACED 215-1500,229-5804, 234-4958,243-0702,246-1143					
490 HP	2300	9HP1 - UP	246-1159	29	MAR05
REPLACED 215-1501,229-5805,234-4959					
570 HP	2300	9HP1 - UP	246-1160	30	MAR05
REPLACED 215-1502,229-5806,234-4960					
600 HP	2300	9HP1 - UP	246-1161	31	MAR05
REPLACED 215-1503,229-5807,234-4961					
660 HP	2300	9HP1 - UP	234-4962	32	AUG03
REPLACED 215-1504,229-5808					
700 HP	2300	9HP1 - UP	263-2561	33	MAR05
REPLACED 208-8511,229-5809, 234-4963,246-1162					
705 HP	2300		286-5623	37	DEC05
REPLACED 273-7308					

C18 Marine-465BKW 60HZ 389-7967 182 AUG12
624 HP 1800
Replaced 370-1566

GENSET ENGINES

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE
C9 EP-60Hz TIERIII/LOW-E		422-8047			OCT13
398 HP	1800			12	
480 HP	1800			14	
REPLACED 268-6639,277-5708,268-6640,317-0727 343-7228,383-8631,421-9060					
C9 EP-REG ACERT			422-8049		OCT13
0HP@1500RPM				146	
0HP@1800RPM				50	
Replaces 268-6642,295-0018,345-8879,348-8768					
C9 EP-REG ACERT			422-8048		OCT13
0HP@1500RPM				49	
0HP@1800RPM					
Replaces 268-6641,295-0019,345-8880					
C9 MAR 50HZ-GENSET			394-5050	82	MAY13
0HP@1500RPM					
Replaces 266-6499,308-5101,313-1947, 343-7083					
C9 MAR-175EKW 60HZ-GEN SET			394-5051	83	MAY13
0HP@1800RPM					
Replaced 266-6500,282-5095,292-2223 308-5110,343-7084					
C9 MAR 60HZ-GENSET			394-5052	84	MAY13
0HP@1800RPM					
Replaces 266-6501,282-5096,292-2224 308-5111,343-7085					
C9 MAR 60HZ-GENSET			394-5053	85	MAY13
0HP@1800RPM					
Replaced 266-6502,282-5097,292-2225 308-5112,343-7086					
C9 MAR-250EKW 60HZ AUX			394-5059	55	MAY13
0HP@1800RPM					
Replaces 242-7154,257-3280,288-1204 292-2228,308-5118,343-7092					
C9 MAR-200EKW 50HZ-AUX			394-5056	52	MAY13
0HP@1500RPM					
Replaces 242-7151,257-5173,308-5115 313-1948,343-7089					
C9 MAR-175EKW 60HZ AUX			394-5057	53	MAY13
0HP@1800RPM					
Replaces 242-7152,257-5174,288-2750 292-2226,308-5116,343-7090					
C9 MAR-215EKW 60HZ AUX			394-5058	54	MAY13

0HP@1800RPM
Replaced 242-7153,257-5175,288-5925
292-2227,308-5117,343-7091

C13 EPG LOW BSFC 60HZ ENGINE 421-5509 94 MAR13
0HP @ 0RPM
Replaced

C13 EP LOW BSFC 50HZ 421-5507 93 MAR13
0HP @ 0RPM
Replaced

C13 EP-424KW 446-9469 113 OCT13
503HP@1800RPM
570HP@1800RPM
Replaced 422-8209,440-0161

C13 EP 50HZ INDIA
552HP@1500RPM

INDUSTRIAL ENGINES

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE
3176C INDUSTRIAL					
310 HP	2100	2AW1 - UP	165-1741	17	SEP98
325 HP	2100	2AW1 - UP	198-3090	32	AUG00
365 HP	2100	2AW1 - UP	213-8434	20	SEP01
REPLACED 183-7199					
365 HP	2100	2AW1 - UP	187-0840	24	JAN00
400 HP	2100	2AW1 - UP	168-8832	49	MAR99
3196 INDUSTRIAL					
420 HP	2100	1DW1 - UP	213-8435	18	SEP01
Replaced 180-6036					
C9 MACH-336D HEX LRC			445-4922	193	AUG13
258HP@1600RPM, 286HP@1800RPM					
Replaces 432-1199,442-8059					
C9 HEX 336D ENGINE.			447-0860	91	JUL13
258 1600					
286 1800					
Replaced 223-9021,286-3114,291-2103,295-0583					
310-7886,368-3881,377-0005,439-7155					
C9 MACH-336D HEX			445-4972	194	SEP13
259HP@1600RPM					
286HP@1800RPM					
Replaced 439-2721					
C9 HEX 336D ENGINE			447-0861	89	JUL13
259 1600					
286 1800					
Replaces 272-9620,275-5871,283-1725,289-2222					
294-8712,310-7704,368-3024,399-6876,434-9481					

C9 MACH-336D HEX LRC PSO 452-4772 185 JAN14
286hp @ 1800rpm
Replaced

C9 MACH-586 FP 454-0310 77 JAN14
350HP@1880RPM
Replaced 378-8239,387-5633,396-5543

C9 IND-261KW 448-4922 100 SEP13
350HP@1800RPM
Replaces 287-1746,307-9701,341-8283,360-8843
371-8849,379-4901

C9 IND-A/B TIER PSO 443-3006 OCT13
275 1800 171
275 2200 172
300 2200
Replaced

C9 IND-360HP LEXION 420-4251 163 DEC12
360HP@1900RPM
Replaced 357-1717,365-9494,366-7964,378-7532
385-1163,395-1106

C-9 MACH-973C 282-9433 9 AUG13
252HP@2000RPM
Replaces 201-1621,235-0976,246-1613
248-7629,257-7955,265-7894

C9.3 Industrial Claas Lexion Tier 4i 423-7016 75 DEC12
300HP 2200
Replaced 371-7705,378-3619,383-7685,385-1159
395-1105,420-4254

C9.3 Industrial Class Lexion Tier 4i 378-7530 164 Jul11
320HP 1900
Replaced 366-7961

C9 IND MEC A-B-C TIER 442-9426 SEP13
300HP@2200RPM 6
325HP@2200RPM 7
350HP@2200RPM 8
Replaces 380-9629,423-7836, 432-8397,440-3130

C9.3 IND-A/B/C TIER 434-6396 FEB13
300HP 2200 168
325HP 2200 169
350HP 2200 170
Replaced 422-6161,340-3618,362-1195,364-6433
365-1589,366-8310,375-2376,379-0975
378-7542,385-1166,395-1103,420-4249

C9.3 IND-A/B/C TIER 423-6599 DEC12
300HP 2200 165
325HP 2200 166
350HP 2200 167
Replaced 366-8306,360-6821,366-5104,373-3687
378-7359,385-1165,395-1102,420-4248

C9.3 IND D TIER 442-9544 9 SEP13

389HP@2200RPM
C9 IND-320HP CLAAS LEXION 419-6686 164 DEC12
320HP@1900RPM
Replaces 419-4835,431-1977,440-3138

Repaced 349-8891,350-1812,366-5963,366-7961
378-7530,383-7676,385-1160,395-1104

C9 IND-A/B/C TIER 442-8689 165 AUG13
300HP@2200RPM 166
325HP@2200RPM 167
350HP@2200RPM
Replaced 366-8306,360-6821,366-5104,373-3687
378-7539,385-1165,395-1102,420-4248,423-6599

C-10 INDUSTRIAL " A & B" RATED, ADEM III,TIER II EMISSIONS
310/335 HP 2100 CRJ1 - UP 249-7373 10 JUN04
REPLACED 215-3236,229-0413,239-6847

C-10 INDUSTRIAL "C" RATED, ADEM III,WATER COOLED EXHAUST
MANIFOLD TIER II EMISSIONS
325 HP 2100 CRJ1 - UP 249-7377 13 JUN04
REPLACED 215-3240,229-0417

C-10 INDUSTRIAL "C" RATED, ADEM III,WATER COOLED EXHAUST
MANIFOLD TIER II EMISSIONS
335 HP 2100 CRJ1 - UP 249-7379 16 JUN04
REPLACED 215-3243,229-0419

C-10 INDUSTRIAL "C,D, & E" RATED, ADEM III,TIER II EMISSIONS
365/425 HP 2100 CRJ1 - UP 265-4273 11 SEP05
REPLACED 215-3237,229-0414,
239-6848,249-7374

C-10 INDUSTRIAL "C" RATED, ADEM III,AGRICULTURE,
TIER II EMISSIONS
365 HP 2100 CRJ1 - UP 249-7375 12 JUN04
REPLACED 215-3238,229-0415

C-10 INDUSTRIAL "D" RATED ADEM III,WATER COOLED EXHAUST
MANIFOLD, TIER II EMISSIONS
365 HP 2100 CRJ1 - UP 249-7378 14 JUN04
REPLACED 215-3241,229-0418

C-10 INDUSTRIAL "D" RATED ADEM III,AG CHEM,
TIER II EMISSIONS
400 HP 2100 CRJ1 - UP 249-7376 12 JUN04
REPLACED 215-3239,229-0416

3196 ADEM II INDUSTRIAL
420 HP 2100 1DW1 - UP 213-8435 18 SEP01
1200/1275/1350/1450/1575 PT

C-12 TQG-EP MILITARY ADEM III, TIER II EMISSIONS
292 HP 1800 BCY1 - UP 268-4723 20 DEC04
REPLACED 199-6931,213-1038,220-4578

C-12 INDUSTRIAL "A & B" RATED, ADEM III, TIER II EMISSIONS
370/400 HP 2100 BDL1 - UP 249-9780 18 JUN04
REPLACED 215-3242,229-0421

C-12 INDUSTRIAL "C,D,& E" RATED, ADEM III, TIER II EMISSIONS
425/505 HP 2100 BDL1 - UP 249-7381 19 JUN04
REPLACED 215-3243,229-0420,239-6849

C-12 INDUSTRIAL AGRICULTURE "C" RATED ADEM III,
TIER II EMISSIONS
425 HP 2100 BDL1 - UP 261-3285 21 JUL04
REPLACED 215-3244,229-0422,249-7382

C11 INDUSTRIAL ACERT
325 HP 1800 328-3912 10 MAR08
350 HP 1800 328-3912 11 MAR08
385 HP 1800 328-3912 4 MAR08
REPLACED 243-0453,282-9906

C11 INDUSTRIAL ACERT
420 HP 1800 282-9907 12 NOV05
450 HP 1800 282-9907 9 NOV05
REPLACED 253-3735,254-9997

C11 INDUSTRIAL ACERT
364 HP 2100 280-3519 8 SEP05
REPLACED 254-9998,266-4361

C11 MACH-MD5150 Track Drill
385 HP @ 1800RPM 445-8849 36 JUL13
Replaced by 417-0134,424-2438

C11 MACH - R1600H Load Haul Dump 444-0364 34 AUG13
279HP@1800RPM
Replaces 389-3152,418-0276,439-4534

C13 EP-350EKW 421-1570 21 DEC12
503HP@1800RPM, 568HP@1800RPM
Replaced 367-1998, 385-0319, 395-3684

C13 A IRON T4F A5:E2 AFT. 450-5585 N/A SEP13
0hp at 0 rpm
Replaces 387-4541,419-7839,444-0684,448-0034

C13 IND DE TIER, T4I PROD 6.0.7 PSO 449-1665 79 AUG13
475hp 2100rpm 80
520hp 2100rpm

C13 IND DE TIER 4F 442-9710 SEP13
475HP@2100RPM, 110
520HP@2100RPM 111
Replaces 392-3473,434-1881,440-2368

C13 IND ABC TIER 4F 442-9597 SEP13
385HP@2100RPM 107
416HP@2100RPM 108
440HP@2100RPM 109
Replaces 392-3471,434-0512,439-0508

C13 INDUSTRIAL ACERT
385 HP 1800 316-7313 11 JUN07
415 HP 1800 316-7313 12 JUN07
440 HP 1800 316-7313 4 JUN07
REPLACED 254-9989,267-3421,
282-9908,296-4327,312-1163

C13 IND-287/310/328KW ACERT

385 HP	2100	367-8486	85	Nov10
415 HP	2100	367-8486	86	Nov10
440 HP	2100	367-8486	87	Nov10

Replaced N/A

C13 IND-354 KW ACERT

475 HP	1800	320-8753	10	SEP07
520 HP	1800	320-8753	13	SEP07

REPLACED 253-1952,254-9990,282-9909

C13 IND-354 KW ACERT

475 HP	2100	367-8484	83	Nov10
520 HP	2100	367-8484	84	Nov10

REPLACED N/A

C13 INDUSTRIAL CLAAS ACERT

463 HP	2100	295-6288	6	JUN06

REPLACED 277-7524

C13 INDUSTRIAL CLAAS ACERT

463 HP	2100	276-3691	8	JUN05

REPLACED 254-9991,267-3422

C13 INDUSTRIAL CLAAS ACERT

400 HP	2100	276-5461	14	AUG05

REPLACED 254-9992,267-3423

C13 INDUSTRIAL AGCO ACERT

425 HP	2100	311-2457	9	MAR07

REPLACED 254-9993,267-3424,
271-5706,276-3692,282-0620,283-5807

C13 INDUSTRIAL CLAAS ACERT

425 HP	2100	295-6285	15	JUN06

REPLACED 254-9994,267-3425,
271-5707,276-3693,282-0621

C13 INDUSTRIAL CLAAS ACERT

425 HP	1900	309-8658	40	FEB07

REPLACED N/A

C13 INDUSTRIAL CLAAS ACERT

385 HP	2100	282-0622	16	SEP05

REPLACED 254-9995,274-4292

C13 INDUSTRIAL CLAAS LEXION Tier4i

443 HP	1900	420-4243	82	DEC12

REPLACED 366-7944,378-7544,350-1816,364-6745
384-9983,395-1110

C13 INDUSTRIAL CLAAS LEXION Tier4i

500 HP	1900	420-4244	81	DEC12

REPLACED 366-7942,378-7545,384-9981,395-1111

C13 INDUSTRIAL-A/B/C TIER4i

385 HP	2100	442-8691	76	DEC12
415 HP	2100		77	DEC12
440 HP	2100		78	DEC12

REPLACED 366-7821,373-3690,377-9505,378-7547

349-1367,359-8980,362-0219,366-3098,384-9573
395-1109,419-6671

C13 INDUSTRIAL-ABC TIER4i
475 HP 2100 434-6956 79 FEB13
520 HP 2100 80 FEB13
REPLACED 419-6212,366-7823,373-3689,378-7548,384-9979,350-4444
366-9532,394-0321

C13 Tier 4F Claas Lexion 503 HP 455-8557 101 JAN14
503HP@1900RPM
Replaces 379-2108,396-8919,399-6879
420-3307,431-1979,442-9980,449-9208

C13 IND-456HP CLAAS LEXION 455-1769 106 JAN14
456HP@1900RPM
Replaced 392-1725,399-6880,431-1980,443-0006
449-9209

C13 IND - 300KW 455-8558 105 JAN14
402HP@1900RPM
Replaced 391-8584,431-1999,443-0007,449-9220

C-10 UNDERGROUND MINING

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE
310 HP	2100	2AW1 - UP	165-1741	17	SEP98
250/270 MT Replaced 177-4902	2100	2AW1 - UP	222-9279	5	DEC02
270 HP	2100	2AW1 - UP	159-5259	37	JUN02
310 HP	2100	2AW1 - UP	159-5261	38	JUN98
335 HP	2100	2AW1 - UP	159-5263	39	JUN98

MACHINE ENGINES

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH FILE	P/M CODE	RELEASE DATE
3176C 163H 257 HP REPLACED 234-1220	2000		310-0996	8	MAR07
3176C D7R SII 285 HP REPLACED 252-4725,269-9416,282-1919	2100		309-9698	19	APR07
3176C CLAAS COMBINE 480/485 365 HP	2100	7ZR00269 - UP	207-4671	21	MAY01
C7 MG TIER III 12M 217HP@2000RPM Replaces 398-2107			444-2010	89	AUG13
C7 MACH 950H MWL 219hp @ 1800rpm Replaces 279-3462,288-2584,307-3086,314-8476			437-8307	30	JUL13

325-6444,353-2729,383-0726

C7 MACH-962H-ACERT 434-9488 5 JUL13
233hp @ 1800rpm
Replaces 247-0832,248-6218,276-8523,285-8780
286-7265,301-5244,314-8475,325-6445,353-2730,383-0727

C7 MACH-950K MWL 448-8825 51 OCT13
218HP@2150RPM
Replaces

C7 MACH-962K MWL 448-8826 52 OCT13
240HP@2150RPM
Replaces

C7 MACH - 950K MWL
218 HP 2150 438-7276 15 MAY13
Replaced 361-2200,363-5897,386-1363
394-7077

C7 MACH-950H 434-9487 6 JUL13
219hp @ 1800rpm
Replaced 247-0830,248-6217,276-8522,285-8779
286-7264,301-5234,314-8474,325-6255,353-2728,383-0725

C7 MACH-962K MWL 438-7277 16 MAY13
240HP@2150RPM
Replaced 361-2203,363-5842,386-1407
394-7078

C7.1 MACH CPPI AP10XX 452-8536 14 OCT13
249HP@2200RPM
Replaces

C7.1 IND-184KW 447-8672 28 OCT13
247HP@1800RPM
Replaces 364-5815,393-4670

C7.1 MACH-545/555 WSK FP 450-8062 13 OCT13
249HP@2200RPM
Replaces 433-2731

C7.1 WSK 545/555 T4F 448-8828 JAN14
249HP@1800RPM 7
275HP@1800RPM 8
Replaces 416-7109

C7.1 MACH 324/329D2_Tier II 453-7838 NOV13
197HP@1800RPM 16
213HP@1800RPM 17
Replaced 434-5893,451-0600

C7.1 MACH-950 MWL 448-5066 5 OCT13
225HP@2200RPM
Replaces

C7.1 MACH-950 MWL 448-5042 5 JUNE13
225HP@2200RPM
Replaces 441-3720

C7 MACH-573 WFB FP 445-4973 25 JAN14

241HP @ 1800RPM
Replaced 366-7959,367-3834,382-0353,384-3720,388-6389
393-9372,421-1610,422-1043,432-8846

C4.4 IND-81.5KW	448-5592	20	OCT13
109HP@1800RPM			
Replaces 378-4569,394-7075			
C4.4 1204E-E4 IND-129.1KW	448-5595	21	Oct13
173HP@1800RPM			
Replaces 378-4575			
C4.4 IND-129.1KW	448-5594	21	OCT13
173HP@1800RPM			
Replaced 378-4573			
C4.4 IND-81.5KW	448-5593	20	OCT13
109HP@1800RPM			
Replaced 378-4571,394-7076			
C4.4 EP GENSET	440-9719	27	JUL13
130HP@1500RPM, 157HP@1800RPM			
Replaces 394-1493,301-7825,317-2540,322-8263			
328-8421,340-4962,364-0525,374-2548,394-1493			
C4.4 MACH 312/314F HEX	447-8240	7	SEP13
99HP@2000RPM			
Replaces			
C4.4 MACH-316E HEX	445-9591	5	OCT13
121HP@1950RPM			
Replaces 370-8760,371-1134,380-7277,383-9946			
393-1081,393-1596,417-4481			
C4.4 MACH 320F HEX	451-2156	17	JAN14
164HP@1800RPM			
Replaces			
C4.4 MACH-CPPI	442-7982	101	SEP13
99HP@2200RPM			
Replaced			
C4.4 MACH CPPI 96KW	442-1347	76	June13
129HP@2200RPM			
Replaced 388-9342			
C4.4 MACH-CPPI 82.1KW	442-1348	75	June13
110HP@2200RPM			
Replaced 390-3317,434-3979			
C4.4 MACH CPPI 96KW ENGINE	442-1349	85	July13
129HP@2200RPM			
Replaces 421-1636,426-2688			
C4.4 MACH-CPPI 106KW	446-0265	14	OCT13
142HP@2200RPM			
Replaces			
C4.4 MACH-CPPI 129KW	443-6612	9	SEP13
173HP@2200RPM			
Replaces			

C4.4 MACH-CPPI ACOM	448-8841	5	SEP13
142HP@2200RPM			
Replaces			
C6.6 MACH-D6K TTT MLIT	443-8412	117	AUG13
152HP@2100RPM			
Replaced 320-3720,344-2758,368-1460			
C6.6 MACH-D6N TTT	453-1519	26	NOV13
173HP@2200RPM			
Replaced 361-8083,374-2622,377-1481			
389-7502,394-9578,417-2964,433-2152			
C6.6 MACH D6N TTT	443-8410	114	AUG13
173HP@2200RPM			
Replaces 344-7210,351-4529,354-1336			
368-1462			
C6.6 MACH D6N TTT	443-8409	110	AUG13
173HP@2200RPM			
Replaces 321-5968,328-5405,344-7209			
351-4530,354-1337,368-1461			
C6.6 MACH CPPI	441-5014	131	June13
156HP@2200RPM			
Replaces 388-9333			
C6.6 MACH 129KW	442-1346	132	JUN13
173HP@2200RPM			
Replaces 388-9342			
C6.6 MACH-117KW CPPI	443-8404	46	AUG13
157HP@2200RPM			
Replaces 313-3403,352-6524			
C6.6 MACH-129KW CPPI	443-8405	47	AUG13
173HP@2200RPM			
Replaced 313-1985,352-6516			
C6.6 MACH-938/930/924 SWL	438-9599		MAY13
147HP@1800RPM		17	
160HP@1800RPM		19	
173HP@1800RPM		20	
Replaces 371-4258,374-8047,382-2737,385-4846			
387-6748,390-9119,418-1332,420-1689			
C6.6 MACH- 930 SWL	443-8399	52	AUG13
152HP@2300RPM			
Replaces 334-0404,334-7701,337-9428			
348-9180,358-3240			
C6.6 MACH-D6N	443-8407	18	AUG13
173HP@2200RPM			
Replaces 289-2174,294-0059,301-8684			
304-8417,307-0528,308-4282,320-3719			
324-3308,368-3627			
C6.6 MACH-D6N MLIT	443-8408	111	AUG13
173HP@2200RPM			
Replaced 320-8754,344-2790,368-3628			

C6.6 MACH-930 MLIT SWL 152HP@2300RPM Replaces 297-1561,308-8422,316-6333,319-1673 333-7604,348-9179,358-3239	443-8400	70	AUG13
C6.6 MACH-924 MLIT-SWL 98HP@2300RPM Replaces 334-0403,337-0491,348-9178,358-3238	443-8401	93	AUG13
C6.6 MACH-924 SWL 132HP@2300RPM Replaces 303-9437,293-2368,308-4225,316-6327 333-7605,348-9177,358-3232,417-8571	443-8402	67	AUG13
C6.6 MACH - 120M MG 142HP@2000RPM 148HP@2000RPM 152HP@2000RPM 157HP@2000RPM Replaces 371-8817	443-8403	122	AUG13
C6.6 MACH-953D TTL 0HP@0RPM Replaces 309-6963,320-3721,344-2664,364-3636	443-8415	3	AUG13
C6.6 MACH-963D TTL 220HP@2000RPM Replaced 291-1269,293-9935,305-0567 320-3722,344-2665,364-3635,386-9390	443-8413	4	AUG13
C6.6 MACH-963 AB&T TTL 224HP@2000RPM Replaces370-1729,395-1902	443-8414	121	AUG13
C6.6 MACH 938 MWL ENGINE 197HP@2100RPM Replaces 310-8864,334-1285,352-2417,356-7407 417-3523	443-8397	94	JUL13
C6.6 938 AB&T MWL T3 197HP@2100RPM Replaces 370-9202,392-3468	443-8398	123	JUL13
C6.6 EP-SABRE MARINE TAG2 217HP@1800RPM Replaces 318-0623,343-2978,350-3443, 374-2532,388-6449,416-8991	440-9716	105	AUG13
C7.1 MACH-120M3 MG 168HP@2000RPM Replaces	450-3934	20	OCT13
C7.1 MACH SWL_Tier4f 153HP@1800RPM 164HP@1800RPM 88HP@1800RPM Replaces 424-0781,433-8149,451-0007	451-6680	 10 11 12	NOV13
C7.1 MACH 924/930/938 SWL	451-1959		SEP13

141HP 1800 1
160HP 1800 2
188HP 1800 3
Replaced 418-6757,424-0779,437-5735,446-1295

C7.1 MACH SWL_Tier4i_LRC 450-9932 SEP13
140HP@1800RPM 22
159HP@1800RPM 23
187HP@1800RPM 24
Replaces 446-8283

C7.1 MACH-CPPI AP6XX 451-7973 19 NOV13
202HP@2200RPM
Replaces 443-4197

C7.1 MACH - AP10xx Asphalt Paver Tier 4i
225 HP 2200 383-8633 21 JUL11
Replaced 360-7469,362-5278,367-3832,
373-4827,380-3098,380-8225

C7.1 MACH - AP10XX Asphalt Paver Tier4f
225HP 2200 448-9277 14 SEP13
Replaced 418-6738

C9 MACH-973D TTL 444-5241 103 OCT13
307HP@1900RPM
Replaces 293-4414,312-4407,333-6442
340-9850,362-3207,378-8068

C-12 CLAAS COMBINE 480/485
440 HP 2100 BDL00001 - UP 222-8533 23 MAY02

C-10 CLAAS COMBINE 470
365 HP 2100 231-9232 17 APR03

3176C R1700G LHD
335 HP 2100 8XZ00001 - UP 220-0137 41 FEB02

3176C R1700G LHD
310/335 HP 2100 293-9655 56 JUN06

C11 MACH UGM R1700G 446-9470 22 DEC13
324 HP @ 1800RPM
Replaces 365-8995,434-3221

C11 UGM R1700G II ACERT 446-8421 14 DEC13
324HP@1800RPM, 353HP@1800RPM
Replaces 270-0390,282-5105,300-7676
422-7455

-
C11 MACH - R1700G LHD 446-7675 30 DEC13
353HP@1800RPM
Replaces 382-6771,417-8566,422-7453

3176C R1600 LHD
270 HP - 2100 9EW00001 - UP 245-7323 41 NOV03
REPLACED 177-4902,222-9279

C9.3 A IRONSET AFT 452-4782 N/A Jan14
0HP@0RPM

Replaces

C9 966 MWL Tier 4i 423-1460 72 SEP12
274 HP 2200
Replaced 367-5132,374-2624,386-1738
390-3132,395-1074,399-2820

C9 MACH-966/972 MWL 452-0407 JAN14
298HP@2200RPM 21
300HP@2200RPM 22
Replaced 375-6360,450-7651

C9 972 MWL TIER 4
299 HP 2200 391-9930 74 Dec11
Replaced 367-5130,374-2625,349-4474
360-9616,360-9618,362-8141,386-1739,

C9 MACH-966K CVT MWL tier 4i
302HP 1850 423-1463 73 SEP12
Replaced 377-0198, 395-1076, 399-2823

C7 MACH-120K MG parts service only 452-2378 67 JAN14
138 HP 2000
148 HP 2000
158 HP 2000
Replaced 330-9442,353-9918,366-1927
437-2256

C7 MACH-120K MG 422-4609 67 Oct12
138 HP 2000
148 HP 2000
158 HP 2000
Replaced 366-1927, 353-9918, 330-9442

C7 MACH-120K INDIA MG 441-5016 81 APR13
158hp @ 2000 rpm parts service only
Replaces 437-2257,438-1279,365-7757,383-0730

C7 MACH-120K MG INDIA
158 HP 2000 422-4610 81 Oct12
Replaced 365-7757, 383-0730

C7.1 MACH-120M2 MG 433-3371 19 APR13
172HP@2100RPM
192HP@2100RPM
212HP@2100RPM
Replaced 361-1780,362-5042,372-5395,382-1434,386-0434,361-1782,362-5051,372-5394,382-1433

C7.1 EPG-239KW TAG 5 432-1892 26 JUL13
321HP@1800RPM
Replaces 364-5813,375-2632,380-9621,393-4668
399-8631

C7.1 MACH - 329E HEX 445-2643 23 JUL13
241HP@1800RPM
Replaces 360-7464,362-7966,373-3688,379-5802
380-6225,384-5085,387-9514,393-1597,395-3301
417-2968,433-4177

1206E-E70TTA EPG-184KW TAG 3 447-8673 28 JUL13
247HP@1800RPM

Replace 364-5816,393-4671

C7.1 1206E-E70TTA EPG - 239KW TAG 5 447-8671 26 OCT13
321HP@1800RPM
Replaces 364-5814,380-9622,393-4669

C7.1 MACH D6N T4F TTT 454-4966 17 DEC13
173HP@2200RPM
Replaces 424-2089

C7.1 MACH-D5R TTT 453-1439 4 DEC13
173HP@2200RPM
Replaces 440-1727

C7.1 MACH-D6K2 TTT 451-8455 8 OCT13
156HP@2200RPM
Replaces 431-0685

C7.1 MACH 323D2 454-0711 18 NOV13
158HP@1800RPM
Replaces 447-8303,450-5580

C7 MACH MG ENGINES, FOR PARTS SERVICE ONLY 452-2377 66 JAN14
158hp @ 2000rpm
168hp @ 2000rpm
178hp @ 2000rpm
Replaces 330-9440,354-6879,366-2062
437-2255

C7 MACH-120K MG INDIA 452-2379 81 JAN14
158HP@2000RPM
Replaces 365-7757,383-0730,437-2257
438-1279,441-5016

C7 MACH-140K/160K MG parts service only 452-2380 47 JAN14
188 HP 2000 48
198 HP 2000
202 HP 2000
208 HP 2000
213 HP 2000
223 HP 2000
Replaced by 313-4695,340-4697,350-7675
357-9965,366-2063,383-0729,437-2258

C7 MACH-563 WFB FP 436-2755 APR13
202hp @ 2200rpm 16
225hp @ 2200rpm 18
Replaces 420-0945

C7.1 MACH - 563 WFB 444-5944 18 JAN14
204HP@1800RPM
Replaces 365-3493,382-0355,384-3719
388-6388,393-9371,421-1150,422-1050

C7.1 MACH -316/318/322 WEX 453-9217 6 JAN13
173HP@2000RPM
Replaces

C7 MACH-324D ACERT STD 436-3860 3 AUG13
174HP@1800RPM
Replaced 235-8225,260-0843,269-8275,277-6554

283-2471,291-1275,295-1172,377-5677

C7 MACH-324D LRC-STD 436-3861 11 AUG13
174HP@1800RPM
Replaces 270-7511,283-2526,291-1274,295-1171
378-0309

C7 MACH-325D HEX 436-3856 4 AUG13
197HP@1800RPM
Replaced 235-8227,260-0845,266-6521,272-1676
277-6961,283-2470,291-4778,295-1098,377-5223

C7 MACH-325D LRC STD 436-3858 12 AUG21
197HP@1800RPM
Replaced 270-7513,283-2527,295-0752,378-0305

C7 MACH-325D-LRC 436-3859 14 AUG13
216HP@1800RPM
Replaces 270-7515,283-2472,295-0582,378-0288
392-5124

C7 MACH-325D HEX 434-9480 1 AUG13
216HP@1800RPM
Replaces 236-0581,260-0846,269-0899,277-6960
283-2467,291-4784,295-0755,332-7579,377-5708

C7 MACH 325D TIER 3 436-3855 19 Aug13
250HP@1800RPM
Replaces 274-7525,292-1918,302-6782,322-2453
329-3010

C9.3 MACH-12M2 Motor Grader 422-3621 78 Sep12
202 HP 2150
220 HP 2150
Replaced 383-4274,386-2530, 395-1126

C9.3 MACH 12M3 TIER 4F MG 452-1718 25 OCT13
232hp 2000rpm
253hp 2000rpm
Replaces 384-9580,448-7888

C9 MACH- 140M2 Motor Grader 422-3619 71 Sep12
225 HP 2100
245 HP 2100
265 HP 2100
Replaced 364-1580,371-8893,374-6346, 395-1127

C9 MACH-140M Motor Grader 436-3786 148 APR13
217 HP 2000
223 HP 2000
228 HP 2000
233 HP 2000
237 HP 2000
243 HP 2000
248 HP 2000
253 HP 2000
273 HP 2000
Replaced 351-1721,352-4695,363-8089,383-2681,392-5432,422-4613

C9 MACH-160M Motor Grader 392-5433 10 Jan12

217 HP 2000
223 HP 2000
228 HP 2000
233 HP 2000
237 HP 2000
243 HP 2000
248 HP 2000
253 HP 2000
273 HP 2000
Replaced 231-0314,263-5843,271-5449
281-2878,300-9470,327-5934,348-3276
352-4697,363-8091,383-2028

C9 MACH-160M2 Motor Grader 422-3556 70 SEP12
246 HP 2100
266HP 2100
286 2100
Replaced 395-1128,374-6348,371-8892,360-7455,358-1199,3516658

C9 MACH-637G WTS 451-8554 4 DEC13
286HP@2000RPM
303HP@2000RPM
Replaced 293-9658,305-3461,339-0928

C9 MACH-627 WTS 447-8668 19 SEP13
207HP@2250RPM
Replaces 387-5635

C9 MACH-627H WTS LRC 381-9598 39 JUL11
299 HP 2000
Replaced 355-9296

C9 814-816F WL ENGINE. 447-0872 9 JUL13
254 2100
Replaces 226-4732,265-4395,301-7288,359-9485
434-9492

C-10 966GII MEDIUM WHEEL LOADER
206 HP 2100 AXJ00001 - UP 301-5171 9 SEP06
REPLACED 226-2015,236-9946,256-7310

C11 RM300 RECLAIMER MIXER ACERT
350 HP 1800 1185 LB-FT 276-9837 5 JUN05
REPLACED 253-9593,261-7858

C11 966H MEDIUM WHEEL LOADER ACERT
268HP@1800RPM, 286HP@1800RPM 434-9499 4 JUL13
REPLACED 235-7510,238-4762,
276-5453,283-1438,284-1190,
305-2748,315-4987,325-9413,
353-2732,367-7565

C11 966H MLIT
268HP@1800RPM, 286HP@1800RPM 439-7183 19 JUL13
REPLACED 292-4606,302-6817,
308-6227,315-5034,325-9414,
353-2733,367-7566

C9 MACH-972K PS MWL
297HP 2200 423-1466 74 SEP12
Replaced 399-2824,395-1077,391-9930,386-1739,

362-8141,360-9618,360-9616,349-4474,374-2625,367-5130

C12 972G II MEDIUM WHEEL LOADER
283 HP 2100 AXC00001 - UP 303-6285 2 NOV06
REPLACED 218-2848, 226-2016,
236-9947,256-7311

3196 972G II MEDIUM WHEEL LOADER
304 HP 2100 303-6285 2 NOV06
REPLACED 256-7311

C13 345D DUAL RATING - TIER 3
371/409 HP 1800 RPM 447-0876 1 AUG13
REPLACED 300-1124,311-2942,319-3219,346-7518
434-9479

C13 345D DUAL RATING - LRC
371/409 HP 1800 RPM 313-5624 19 JUN07
REPLACED 299-9621

C13 972H MEDIUM WHEEL LOADER ACERT
311 HP 1800 305-2769 2 JAN07
REPLACED N/A

C13 972H MEDIUM WHEEL LOADER ACERT
311 HP 1800 358-7844 2 APR10
REPLACED 273-7596,283-1439,317-6940
325-9411,353-2734

C13 972H ACERT MLIT
311 HP 1800 RPM 358-7845 25 APR10
REPLACED 302-7121,308-6228,315-4986
325-9412,353-2735

C13 980K PS 399-2827 24 May12
381 HP 2100 RPM
REPLACED 366-4935,350-1032,362-8142
386-1740,395-1078

C13 MACH-980/982 MWL 450-5582 OCT13
420HP@1700RPM 6
430HP@1700RPM 7
Replaces 383-6130,
C13 MACH-980/982L MWL 416-4854 6,7 SEP12
406HP 1800
Replaced 349-8989

C13 MACH-980/982L MWL 416-4852 4,5 SEP12
406HP 1800
Replaced 349-8990

C13 D8N ACERT
311 HP 1800 RPM 311-2464 39 MAR07
REPLACED N/A

3176C 725 ARTICULATED DUMP TRUCK
300 HP 2200 AFX00001 - UP 316-9921 2 JUL07
REPLACED 220-0127,265-4263

300 HP 2200 Tier II 316-9921 18 JUL07
Replaced 245-0214,251-7234,265-4263

C11 725 ARTICULATED DUMP TRUCK
308 HP 1800 ACERT 453-3110 2 NOV13
REPLACED 233-1768,257-5802,
268-8084,275-0630,325-8442
434-9493

C9.3 A IRONSET AFT 452-7696 N/A JAN14
0HP@0RPM
Replaces

3196 730 ARTICULATED DUMP TRUCK
321 HP 2200 AGF00001 - UP 316-9922 1,35 JUL07
Replaced 257-5797,265-4264

C11 730 ARTICULATED DUMP TRUCK
325 HP 1800 ACERT 453-3111 3 NOV13
REPLACED 233-1770,248-5022,257-5803,
268-8085,275-0631,325-8441,370-0407
434-9500

C13 MACH-730 AT HRC 452-1399 22 DEC13
370HP@1800RPM
Replaces 365-6658,334-3664,347-6379
358-8979,361-2435,363-0240,381-2705
385-8109,397-4042,422-8397

C13 MACH 730C AFT. 455-1736 N/A JAN14
0HP@0RPM
Replaced 452-4759

C11 MACH-730 AT ENGINE 443-1562 29 DEC13
325hp @ 1800rpm
Replaced 369-6646

C11 14M MOTORGRADER
320 HP 1800 ACERT 363-8090 7 JUl10
REPLACED 231-0316,270-1685,276-7448,
295-7833,309-0794,335-6770,349-2782,
352-4698

C13 MACH-730 AT HRC 455-2532 33 JAN14
370HP@1800RPM
Replaces 381-4864,435-9864
447-7381,452-1399

C13 MACH-14M3 MG 385-6867 5 APR13
307HP @ 1850RPM
Replaces

C13 16M MOTORGRADER ACERT TIER 3
304 HP 2000 370-1071 7 Nov10
310 HP 2000
314 HP 2000
319 HP 2000
325 HP 2000
330 HP 2000
334 HP 2000
339 HP 2000
REPLACED 231-0310,294-7756,300-7655,309-8640,363-8092

C13 MACH-16M3 MG 398-1368 3 MAY13
359HP@2000RPM
Replaces

C13 MACH-730 AT 450-7604 26 NOV13
370HP@1800RPM
Replaced 381-4866,444-9755

C13 MACH-730 AT 450-7605 27 NOV13
375HP@1800RPM
Replaces 381-4870,444-9788

C18 24M MOTORGRADER ACERT TIER 3 422-3782 145 AUG12
REPLACED 329-9557,360-1781,366-6155
392-6571

14H/16H MOTORGRADER
222 HP 2000 3PD1 - UP 295-0119 5 JUN06
REPLACED 222-2012, 226-5039,233-8687

257 HP 2000 3PD1 - UP 330-8167 3 APR08
REPLACED 221-9703,233-8688

237 HP 2000 3PD1 - UP 310-0907 7 MAR07
REPLACED 234-1218

C6.6 MACH D6K TTT 437-8736 27 APR13
156HP @ 2200RPM
Replaces 362-3923,383-2023,389-7483,419-4204

C6.6 MACH-D6K TTT 443-8411 1 AUG13
141HP@2200RPM
Replaces 265-4400,283-9816,287-6094,297-2564
304-8425,306-9220,308-4281,313-7221,328-3918
355-8520

C9.3 MACH-D6T Tier4i 452-0479 64 NOV13
223HP 2000
REPLACED:364-1920,374-7138,385-8110,
390-1820,397-4039,398-8358,422-8380

C9.3 MACH-D6T TTT 451-0602 20 OCT13
156HP@2080RPM
Replaces 389-1924,443-6919,447-9790

C9.3 mach-725 at hrc 455-7839 79 JAN14
316HP@1800RPM
Replaces 388-9344,435-9866,449-9064
452-7694

C9 MACH-D6T TTT 447-0871 96 JUL13
228HP@1850RPM
Replaced 292-4593,302-3835,311-1900,
377-7308,415-9384,418-7887,421-1664,434-9483

C9 MACH-D6T TTT 434-9519 97 JUL13
213HP@1850RPM
Replaces 292-4596, 302-3928,377-8388

C9 MACH-D6T TTT 228HP@1850RPM Replaces 282-9938,292-4595,302-3920, 311-1902,377-7310	434-9485	98	JUL13
C9 MACH-D6T TTT 228HP@1850RPM Replaces 302-3905,311-1901,377-7309, 415-9387,418-7888,434-9484	447-0870	104	JUL13
C9 MACH-D6T TTT 213HP@1850RPM Replaces 292-4597,302-3929,377-8389 434-9486	447-0864	105	JUL13
C9 D6 TTT ENGINE. 228 1850 Replaces 310-5205,379-9457,439-7156	447-0865	117	JUL13
C9 D6 TTT ENGINE. 228 1850 Replaced 310-5207,379-9458,439-7157	447-0866	118	JUL13
C9 D6R 170 KW TTT 228hp@1850rpm Replaces 310-5209,379-9459	439-7158	119	JUL13
C9 D6R 159 KW TTT 213hp@1850 rpm Replaces 310-5211,379-9460	439-7159	120	JUL13
C9 MACH-D7R CHINA TTT 258HP@2100RPM Replaces 361-2442,378-6485,388-2263	439-7162	138	JUL13
C9 MACH-D7R CHINA TTT 258HP 2100 Replaced		159	
C9 MACH-D7R CHINA TTT 258HP 2100 Replaced		158	
C9 MACH-D7R CHINA TTT 258HP@2100RPM Replaces 361-2440,378-6484,388-2262	439-7161	139	JUL13
C9 MACH-DR6III ACERT 213HP@1850RPM Replaces 310-5213,379-9461,439-7160	447-0867	121	JUL13
C9 A IRONSET AFTERTREATMENT 0HP@0RPM Replaced 395-2116,419-7856,448-0040	450-5768	N/A	SEP13
C9 MACH-336E HEX 319HP@1800RPM Replaced 357-8471,359-3083,360-0062 369-6046,364-1584,384-4443,388-6399 394-7217,421-8965	452-2405	65	NOV13

C9 MACH-336E HEX HYBRID 452-2515 82 NOV13
321HP@1800RPM
Replaced 423-7702,433-0977

C9.3 MACH-336F HEX 451-2139 10 OCT13
314HP@1800RPM
Replaces 381-2336,448-1256

C9.3 B IRONSET AFTERTREATMENT 447-3081 N/A SEP13
0HP@0RPM
Replaced 387-4539,426-1832,441-8393

C9.3 A IRONSET T4F A5:E2 450-5764 N/A SEP13
0 hp 0rpm
Replaces 387-4535,394-7110,419-7855,448-0039

C9.3 MACH D7 Century TTT DEC13
297HP 2200 452-0478 69
Replaced:327-0807,348-3019,367-3082,372-1291,381-6321,
385-8165,397-4045,422-8381

C9 MACH-D7 TTT 448-6940 23 OCT13
312HP@1800RPM
Replaces 399-6875

C9 MACH-160M MG 436-3829 10 APR13
217HP@2000RPm
223HP@2000RPM
228HP@2000RPm
233HP@2000RPM
237HP@2000RPM
243HP@2000RPM
248HP@2000RPM
253HP@2000RPM
273HP@2000RPM
Replaces 321-0314,263-5843,271-5449,281-2878,300-9470,327-5934,348-3276
352-4697,363-8091,383-2028,392-5433,422-4614,

C9 MACH-627H WTSf
271HP 2150 454-2827 76 DEC13
Replaced 364-1819,382-2741,385-1864,396-8295
422-3861,452-2407

C9 MAR-175EKW 50HZ AUX 394-5055 51 Jul13
253HP@1500RPM
Replaces 242-7150,257-5172,308-5114,343-7088

C9 MAR 50HZ-GEN SET 394-5048 80 JUL13
0HP@1500RPM
Replaced 266-6496,308-5098,343-7081

C9 MAR 50HZ-GEN SET 394-5049 81 JUL13
0HP@1500RPM
Replaces 266-6497,308-5099,343-7082

C9 MAR-150EKW 50HZ AUX 394-5054 50 Jul13
217HP@1500RPM
Replaces 242-7149,257-5171,308-5113,343-7087

C13 MACH-620 WTS
378HP 2000 452-2345 23 OCT13
Replaced 372-5204,352-5151,363-8053,
366-0236,385-1854,396-8296,421-7794

C13 MACH-620 WTS LRC 452-2346 16 OCT13
410HP@1900RPM
Replaced 339-5292,381-9612,424-7895

C13 MACH-621/623/627 WTS 447-8669 29 SEP13
323HP@2100RPM
Replaces 381-9639

C4.4 MACH-432/444 BHL 426-3534 15 SEP12
110HP 2200

C4.4 MACH CPPI 441-5013 74 MAY13
131HP@2200RPM
Replaced 388-3680,

C4.4 MACH 416_Tier4i 437-0051 13 MAY13
94HP@2200RPM
Replaces 368-4481,381-9425,389-1925,392-9053

C4.4 MACH BHL_Mid_Pwr_Tier4i 441-6550 15 JUL13
100 HP @ 2200 RPM 32
110 HP @ 2200 RPM
Replaces 435-1326

C4.4 MACH BHL_Low_Pwr_Tier4i 441-6549 13 JUL13
100 HP @ 2200RPM 37
94 HP @ 2200 RPM
Replaces 435-1397

C4.4 MACH CPPI 442-7979 100 AUG13
137HP@2200RPM
Replaces

C4.4 MACH CPPI 442-7977 99 AUG13
142HP@2200RPM
Replaces

C4.4 MACH 420_Tier4i 437-0396 15 MAY13
100HP@2200RPM
Replaces 368-4479,373-2443,381-9591,390-7466,392-9039

C4.4 MACH 430_Tier4i 441-7247 14 JUL13
115HP@2200RPM
Replaces 368-4477,373-2445,381-9597,388-6398,392-9070
437-0103

C4.4 MACH 450_Tier4i 441-9411 28 JUL13
142HP@2200RPM
Replaces 397-5091,437-0397

C4.4 MACH-D3/D4/D5 STTT 443-8406 15 AUG13
0HP@0RPM
Replaces 316-9767,323-5769,348-9182

C4.4 MACH TTT D3/D4/D4/D5 447-2929 OCT13
101HP@2200RPM 2

110HP@2200RPM			3	
89HP@2200RPM			4	
Replaced				
C4.4 MACH-CPPI 98KW		445-9614	12	SEP13
131HP@2200RPM				
Replaced				
C4.4 MACH -CPPI 117KW		446-0257	13	SEP13
157HP@2200RPM				
Replaced				
C6.6-320E HEX		445-1332	24	SEP13
152HP@1800RPM				
164HP@1800RPM			25	
Replaced 362-4729,363-8126,373-3691,380-7276				
381-4861,383-6860,386-3132,394-4391,417-4334				
C6.6 MACH-938H MWL		443-8396	41	JUL13
197HP@2100RPM				
Replaced 301-4619,308-3383,313-4536,327-4474				
352-2393,356-7387,385-8676				
C6.6 MACH-559/579 KBL FP		454-6742	31	JAN14
173HP@2200RPM				
Replaced				
C13 B IRONSET AFTERTREATMENT		444-8205	N/A	JUL13
Ohp Orpm				
Replaced 387-4544,419-7841,424-2437,426-1824				
441-8386				
C13 B IRONSET AFT		455-1740	N/A	JAN14
0HP@0RPM				
Replaces				
C13 B IRONSET AFT		455-1749	N/A	JAN14
0HP@0RPM				
Replaced				
C13 B IRONSET AFT		455-1747	N/A	JAN14
0HP@0RPM				
Replaced				
C13 MACH-345D 305/277KW-LRC		447-0875	19	JUL13
371HP@1800RPM, 409HP@1800RPM				
Replaces 299-9621,313-5624,380-1970,439-7179				

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C-15/C-16/C-18 Flash File Cross Reference
Truck Engines 6NZ and 7CZ and EGH (Gov.)
Updated January 15,2008 AJK

C-15 CLEAN POWER HORSEPOWER	TORQUE	GOV SPEED	SERIAL NO. RANGE	FLASH FILE	P/M CODE	RELEASE DATE

C-15 (6NZ) LOW HP ENGINE RATING INFORMATION	SERIAL NO. RANGE	FLASH FILE	P/M CODE	RELEASE DATE

355 HP 1350 LB-FT 1800/2100 RPM 6NZ54000-UP 215-7374 120 JAN02
REPLACED 208-5761

355 HP 1350/1450 LB-FT 1800/2100 RPM 6NZ54000-UP 215-7375 121 JAN02
MULTITORQUE
REPLACED 208-5762

375 HP 1450 LB-FT 1800/2100 RPM 6NZ54000-UP 215-7376 122 JAN02
REPLACED 208-5763

375 HP 1450/1550 LB-FT 1800/2100 RPM 6NZ54000-UP 215-7377 123 JAN02
MULTITORQUE
REPLACED 208-5764

375/435 HP 1450/1550 LB-FT 1800 RPM 6NZ54000-UP 270-7116 124 APR05
MULTITORQUE
REPLACED 251-1526

410 HP 1450/1550 LB-FT 1800/2100 RPM 6NZ54000-UP 215-7379 125 JAN02
REPLACED 208-5766

450 HP 1550/1650 LB-FT 2100 RPM 6NZ54000-UP 215-7383 129 JAN02
REPLACED 208-5770

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C-15 (6NZ) HIGH HP ENGINE RATING INFORMATION	SERIAL NO. RANGE	FLASH FILE	P/M CODE	RELEASE DATE

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435 HP 1550/1650 LB-FT 1800/2100 RPM 6NZ54000-UP 270-7115 126 APR05
REPLACED 251-1525

435HP 1550/1650 LB-FT 1800/2100 RPM 6NZ54000-UP 215-7381 127 JAN02
MULTITORQUE
REPLACED 208-5768

435/500 HP 1550/1650 LB-FT 2100 RPM 6NZ54000-UP 300-1385 128 SEP06
MT SUPPORT ALLISON OWS 4700 TRANS
REPLACED 251-1533,270-7123

455 HP 1550/1650 LB-FT 1800/2100 RPM 6NZ54000-UP 338-5273 130 OCT08
REPLACED 251-1527,270-7117

455 HP 1550/1650 LB-FT 1800/2100 RPM 6NZ54000-UP 215-7385 131 JAN02
MULTITORQUE
REPLACED 208-5773

455 HP 1550/1750 LB-FT 2100 RPM 6NZ54000-UP 215-7386 132 JAN02
MULTITORQUE
REPLACED 208-5774

455 HP 1550/1750 LB-FT 2100 RPM 6NZ54000-UP 215-7387 133 JAN02
MULTITORQUE BRAKESAVER
REPLACED 208-5775

475 HP 1650/1750 LB-FT 1800/2100 RPM 6NZ54000-UP 338-5268 134 OCT08
REPLACED 251-1528,270-7118

475HP 1650/1750 LB-FT 1800/2100 RPM 6NZ54000-UP 338-5269 135 OCT08
BRAKESAVER
REPLACED 251-1529,270-7119

475/500 HP 1650/1850 LB-FT 2100 RPM 6NZ54000-UP 215-7390 136 JAN02

TOP 2 GEAR MULTITORQUE
REPLACED 208-5778

475/500 HP 1650/1850 LB-FT 2100 RPM 6NZ54000-UP 215-7391 137 JAN02
MULTITORQUE BRAKESAVER
REPLACED 208-5779

475/500 HP 1650/1750 LB-FT 2100 RPM 6NZ54000-UP 215-7392 138 JAN02
TOP 2 GEAR MULTITORQUE
REPLACED 208-5780

475/500HP 1650/1750 LB-FT 2100 RPM 6NZ54000-UP 215-7393 139 JAN02
TOP 2 GEAR MULTITORQUE BRAKESAVER
REPLACED 208-5781

500HP 1650 LB-FT 2100 RPM 6NZ54000-UP 338-5272 140 OCT08
500HP FLEET 1750 LB-FT 2100 RPM
435/500 HP 1550/1650 LB-FT OIL WELL SERVICE
REPLACED 208-5782,215-7394,244-1565,328-1938

500 HP 1650/1750 LB-FT 2100 RPM 6NZ54000-UP 215-7395 141 JAN02
BRAKESAVER
REPLACED 208-5783

500 HP 1850 LB-FT 2300 RPM 6NZ54000-UP 215-7396 142 JAN02
REPLACED 208-5784

500 HP 1850 LB-FT 2300 RPM 6NZ54000-UP 215-7397 143 JAN02
BRAKESAVER
REPLACED 208-5785

500 HP 1750/1850 LB-FT 2100 RPM 6NZ54000-UP 215-7398 144 JAN02
TOP 2 GEAR MULTITORQUE
REPLACED 208-5786

500 HP 1750/1850 LB-FT 2100 RPM 6NZ54000-UP 215-7399 145 JAN02
TOP 2 GEAR MULTITORQUE BRAKESAVER
REPLACED 208-5787

500 HP 1850 LB-FT 1800/2100 RPM 6NZ54000-UP 338-5270 146 OCT08
REPLACED 208-5788,215-7400,
237-0723,241-0788,244-1568

500 HP 1850 LB-FT 1800/2100 RPM 6NZ54000-UP 215-7401 147 JAN02
BRAKESAVER
REPLACED 208-5789

550 HP 1850 LB-FT 2100 RPM 6NZ54000-UP 338-5274 148 OCT08
REPLACED 244-1567,305-2778,320-2698

550 HP 1850 LB-FT 2100 RPM 6NZ54000-UP 270-7120 149 APR05
BRAKESAVER
REPLACED 251-1530

550 HP 1850 LB-FT 2100 RPM 6NZ54000-UP 270-7121 150 APR05
2300 RPM TEL FIELD UPRATE ONLY
REPLACED 251-1531

550 HP 1850 LB-FT 2100 RPM 6NZ54000-UP 270-7122 151 APR05
2300 RPM TEL FIELD UPRATE ONLY
BRAKESAVER

REPLACED 251-1532

C-15 (6NZ) LOW HP ENGINE RATING INFORMATION	SERIAL NO. RANGE	FLASH FILE	P/M CODE	RELEASE DATE
355HP 1350PT 1800/2100RPM	6NZ1-53999	220-6640	70	MAR02
355HP 1350/1450PT 1800 RPM 1350/1450PT 2100 RPM MULTITORQUE	6NZ1-53999	220-6641	71	MAR02
375HP 1450PT 1800/2100RPM	6NZ1-53999	220-6642	72	MAR02
375/435HP 1450/1550PT 1800PRM 1450/1650PT 1800 RPM MULTITORQUE	6NZ1-53999	220-6644	55	MAR02
375HP MT 1450/1550PT 1800RPM 1450/1550PT 2100RPM	6NZ1-53999	220-6643	73	MAR02
410HP 1450/1550PT 1800/2100RPM FIELD UPRATE ONLY	6NZ1-53999	220-6645	74	MAR02
450HP 1550/1650PT 2100RPM FIELD UPRATE ONLY	6NZ1-53999	220-6650	78	MAR02

C-15 (6NZ) HIGH HP ENGINE RATING INFORMATION	SERIAL NO. RANGE	FLASH FILE	P/M CODE	RELEASE DATE
435HP 1550/1650PT 1800/2100RPM Replaced 220-6646,241-0793,251-2217	6NZ1-53999	270-7073	75	APR05
435HP 1550/1650PT 1800/2100RPM BRAKESAVER	6NZ1-53999	220-6647	76	MAR02
435/500HP 1550/1650 2100RPM MULTITORQUE Replaced 220-6649,241-0794, 251-2218	6NZ1-53999	270-7074	77	APR05
455HP 1550PT 2100RPM OR 1650PT 1800/2100RPM	6NZ1-53999	220-6651	79	MAR02
455HP 1550PT 2100RPM OR 1650PT 1800/2100RPM BRAKESAVER	6NZ1-53999	220-6652	80	MAR02
455HP 1550/1750PT 2100 RPM MULTITORQUE	6NZ1-53999	220-6653	81	MAR02
455HP 1550/1750PT 2100 RPM BRAKESAVER MULTITORQUE	6NZ1-53999	220-6654	82	MAR02
475HP 1650/1750PT 1800/2100RPM REPLACED 220-6655,237-0703, 241-0777,251-2211	6NZ1-53999	270-7067	6	APR05
475HP 1650/1750PT 1800/2100RPM BRAKESAVER REPLACED 220-6657, 2370704, 241-0778,251-2212	6NZ1-53999	270-7068	83	APR05

475/500HP 1650/1850PT 2100 RPM TOP 2 GEAR MULTITORQUE	6NZ1-53999	220-6658	84	MAR02
475/500HP 1650/1850PT 2100 RPM TOP 2 GEAR MULTITORQUE BRAKESAVER	6NZ1-53999	220-6659	85	MAR02
475/500HP 1650/1750PT 2100 RPM TOP 2 GEAR MULTITORQUE	6NZ1-53999	220-6660	86	MAR02
475/500HP 1650/1750PT 2100 RPM TOP 2 GEAR MULTITORQUE BRAKESAVER	6NZ1-53999	220-6661	87	MAR02
500HP 1650PT 2100RPM, 500HP FLEET 1750PT 2100RPM or 435/500HP 1550/1650 OIL WELL SERVICE	6NZ1-53999	220-6662	88	MAR02
500HP 1650PT 2100RPM BRAKESAVER OR 500HP FLEET 1750PT 2100RPM BRAKESAVER	6NZ1-53999	220-6664	89	MAR02
500HP 1850PT 1800/2100RPM 2300RPM TEL FIELD UPRATE ONLY	6NZ1-53999	220-6665	90	MAR02
500HP 1750/1850PT 2100 RPM TOP 2 GEAR MULTITORQUE	6NZ1-53999	220-6667	92	MAR02
500HP 1750/1850PT 2100 RPM TOP 2 GEAR MULTITORQUE BRAKESAVER	6NZ1-53999	220-6668	93	MAR02
500HP 1850PT 1800/2100RPM	6NZ1-53999	220-8235	94	MAR02
500HP 1850PT 1800/2100RPM BRAKESAVER	6NZ1-53999	220-8236	95	MAR02
500HP 1850PT 1800/2100RPM BRAKESAVER 2300RPM TEL FIELD UPRATE ONLY	6NZ1-53999	220-6666	91	MAR02
550HP 1850PT 2100RPM REPLACED 220-8237, 237-0705,241-0779,251-2213	6NZ1-53999	270-7069	7	APR05
550HP 1850PT 2100RPM BRAKESAVER REPLACED 220-8238, 237-0706, 241-0780,251-2214	6NZ1-53999	270-7070	96	APR05
550HP 1850PT 2100RPM 2300RPM TEL FIELD UPRATE ONLY REPLACED 220-8239, 237-0707,241-0781,251-2215	6NZ1-53999	270-7071	97	APR05
550HP 1850PT 2100RPM BRAKESAVER 2300RPM TEL FIELD UPRATE ONLY REPLACED 220-8240, 237-0708,241-0782,251-2216	6NZ1-53999	270-7072	98	APR05

C-16 CLEAN POWER HORSEPOWER	TORQUE	GOV SPEED	SERIAL NO. RANGE	FLASH FILE	P/M CODE	RELEASE DATE
575HP REPLACED 208-5794	1850PT	2100RPM	7CZ02800-UP	215-7406	152	JAN02
575HP	1850PT	2100RPM	7CZ02800-UP	215-7407	153	JAN02

BRAKESAVER REPLACED 208-5795

575HP 1850PT 2100RPM 7CZ02800-UP 215-7408 154 JAN02
REPLACED 208-5796 TEL 2300RPM

575HP 1850PT 2100RPM 7CZ02800-UP 215-7409 155 JAN02
BRAKESAVER REPLACED 208-5797 TEL 2300RPM

575/600HP 1850/2050PT 2100RPM 7CZ02800-UP 215-7410 156 JAN02
MULTITORQUE REPLACED 208-5798

575/600HP 1850/2050PT 2100RPM 7CZ02800-UP 215-7411 157 JAN02
BRAKESAVER MULTITORQUE
REPLACED 208-5799

600HP 2050PT 2100RPM 7CZ02800-UP 338-5275 158 OCT08
REPLACED 208-5800,215-7412,237-0728,
241-0800,251-1534,270-7124

600HP 2050PT 2100RPM 7CZ02800-UP 270-7125 159 APR05
BRAKESAVER
REPLACED 208-5801,215-7413,237-0729,241-0801,251-1535

600HP 2050PT 2100RPM 7CZ02800-UP 270-7126 160 APR05
TEL 2300RPM
REPLACED 208-5802,215-7414,237-0730,
241-0802,251-1536

600HP 2050PT 2100RPM 7CZ02800-UP 270-7127 161 APR05
BRAKESAVER TEL 2300RPM
REPLACED 208-5803,215-7415,237-0731,
241-0803,251-1537

650HP 2050PT 2100RPM 7CZ02800-UP 267-5143 162 JAN05
Aircraft Rescue Firetruck only - Oshkosh
REPLACED 208-0523,251-1626

680HP 1951PT 2100RPM 7CZ02800-UP 267-5143 162 JAN05
Aircraft Rescue Firetruck only - Oshkosh
REPLACED 232-2644,243-0022,251-1626

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C-16 (7CZ) ENGINE RATING INFORMATION	SERIAL NO. RANGE	FLASH FILE	P/M CODE	RELEASE DATE
575HP 1850PT 2100RPM REPLACES 198-3265	7CZ1-02799	220-8241	56	MAR02
575HP 1850PT 2100RPM BRAKESAVER REPLACES 198-3266	7CZ1-02799	220-8242	99	MAR02
575HP 1850PT 2100RPM 2300 RPM TEL FIELD UPRATE ONLY REPLACES 198-3267	7CZ1-02799	220-8243	101	MAR02
575HP 1850PT 2100RPM BRAKESAVER 2300 RPM TEL FIELD UPRATE ONLY REPLACES 198-3268	7CZ1-02799	220-8244	100	MAR02
575/600HP 1850/2050PT 2100RPM REPLACES 198-3269 MULTITORQUE	7CZ1-02799	220-8245	102	MAR02

575/600HP MT 1850/2050PT 2100RPM BRAKESAVER REPLACES 198-3270	7CZ1-02799	220-8246	103	MAR02
600HP 2050PT 2100RPM REPLACES 198-3271,220-8247,237-0709, 241-0796,251-2219	7CZ1-02799	270-7075	8	APR05
600HP 2050PT 2100RPM BRAKESAVER REPLACES 198-3272,220-8248,237-0710, 241-0797,251-2220	7CZ1-02799	270-7076	104	APR05
600HP 2050PT 2100RPM 2300 RPM TEL FIELD UPRATE ONLY REPLACES 198-3273,220-8249,237-0711, 241-0798,251-2221	7CZ1-02799	270-7077	105	APR05
600HP 2050PT 2100RPM BRAKESAVER 2300 RPM TEL FIELD UPRATE ONLY REPLACES 198-3274,220-8250,237-0712, 241-0799,251-2222	7CZ1-02799	270-7078	106	APR05
650HP 2050PT 2100PRM AIRCRAFT/FIRE FIGHTING APPLICATION		220-4294	162	FEB02
650HP 1951PT 2100/2300 TEL REPLACES 232-2643, 235-6399,241-0816	7CZ1-02799	251-1629	163	APR04
C-18				
C-18 700HP @2300RPM 1900PT@2100RPM MEP1-UP Military only REPLACED 217-3928,224-9318,227-5521,232-2647, 238-2680,239-4147		241-0817	1	JUN03
C-18 700HP @2300RPM 1900PT@2100RPM MEP1-UP Military only REPLACED 226-4417,227-5522		232-2648	1	NOV02
C-16 EGH				
525 HP 1773 LB-FT 2100/2300 TEL (Government/Military) EGH REPLACED 251-1628	6NZ54000-UP	268-0221	164	APR05

2yg & 7lg Personality Module Cross Reference

3176 2YG & 7LG PERSONALITY MODULE CROSS REFERENCE
UPDATED 6/22/95

DESCRIPTION	S/N RANGE	PART NUMBER	RE-MAN PART NUMBER	INTERLOCK CODE	RELEASE DATE
250 HP STANDARD	2YG1 - UP	114-6689	OR6891	3	JUL 93
250 HP	2YG1 - UP	114-6707	OR6895	5	JUL 93

URBAN BUS

275 HP STANDARD	2YG1 - UP	114-6691	OR6892	4	JUL 93
300 HP STANDARD	2YG1 - UP	114-6694	OR6893	1	JUL 93
325 HP STANDARD	2YG1 - UP	114-6698	OR6894	2	JUL 93
325 TO 350	2YG1 - UP	113-8969	NOT AVAIL	29	JUL 93

UPGRADE KIT

DESCRIPTION	S/N RANGE	PART NUMBER	RE-MAN PART NUMBER	INTERLOCK CODE	RELEASE DATE
250 HP STANDARD	7LG1-07499	112-2074	OR6851	8	JUL 93
250 HP URBAN BUS	7LG1-07499	112-2078	OR6855	13	JUL 93
275 HP STANDARD	7LG1-07499	112-2075	OR6852	9	JUL 93
275 HP J1922	7LG1-07499	112-2082	NOT AVAIL	9	JUL 93
275 HP BULK HAULER	7LG1-07499	112-2079	NOT AVAIL	9	JUL 93
300 HP STANDARD	7LG1-07499	112-2076	OR6853	10	JUL 93
300 HP J1922	7LG1-07499	112-2085	NOT AVAIL	10	JUL 93
300 HP BULK HAULER	7LG1-07499	112-2080	NOT AVAIL	10	JUL 93
325 HP STANDARD	7LG1-07499	112-2077	OR6854	11	JUL 93
325 HP J1922	7LG1-07499	112-2087	OR6856	11	JUL 93
325 HP BULK HAULER	7LG1-07499	112-2081	NOT AVAIL	11	JUL 93
325 TO 350	7LG1-07499	115-3011	NOT AVAIL	30	JUL 93

UPGRADE KIT

DESCRIPTION	S/N RANGE	PART NUMBER	RE-MAN PART NUMBER	INTERLOCK CODE	RELEASE DATE
275 HP STANDARD	7LG07500-15999	112-2072	OR6857	19	JUL 93

275 HP J1922	7LG07500-15999	112-2068	OR6861	19	JUL 93
275 HP BULK HAULER	7LG07500-15999	112-2063	NOT AVAIL	19	JUL 93
300 HP STANDARD	7LG07500-15999	112-2071	OR6858	20	JUL 93
300 HP J1922	7LG07500-15999	112-2067	OR6862	20	JUL 93
300 HP BULK HAULER	7LG07500-15999	112-2062	NOT AVAIL	20	JUL 93
325 HP STANDARD	7LG07500-15999	112-2070	OR6859	16	JUL 93
325 HP J1922	7LG07500-15999	112-2065	OR6863	16	JUL 93
325 HP BULK HAULER	7LG07500-15999	112-2061	NOT AVAIL	16	JUL 93
350 HP STANDARD	7LG07500-15999	112-2069	OR6860	16	JUL 93
350 HP J1922	7LG07500-15999	112-2064	OR6864	16	JUL 93
350 HP BULK HAULER	7LG07500-15999	112-2060	NOT AVAIL	16	JUL 93

DESCRIPTION	S/N RANGE	PART NUMBER	RE-MAN PART NUMBER	INTERLOCK CODE	RELEASE DATE
275 HP STANDARD	7LG16000-UP	111-4156	OR6841	28	JUL 93
275 HP J1922	7LG16000-UP	111-4150	OR6846	28	JUL 93
275 HP BULK HAULER	7LG16000-UP	111-4188	NOT AVAIL	28	JUL 93
300 HP STANDARD	7LG16000-UP	111-4154	OR6842	27	JUL 93
300 HP J1922	7LG16000-UP	111-4148	OR6847	27	JUL 93
300 HP BULK HAULER	7LG16000-UP	111-4186	NOT AVAIL	27	JUL 93
325 HP STANDARD	7LG16000-UP	111-4158	OR6843	26	JUL 93
325 HP J1922	7LG16000-UP	111-4146	OR6848	26	JUL 93

325 HP BULK HAULER	7LG16000-UP	111-4184	NOT AVAIL	26	JUL 93
350 HP STANDARD	7LG16000-UP	111-4152	OR6844	25	JUL 93
350 HP J1922	7LG16000-UP	111-4144	OR6849	25	JUL 93
350 HP BULK HAULER	7LG16000-UP	111-4182	NOT AVAIL	25	JUL 93
360 HP STANDARD	7LG16000-UP	111-4160	OR6845	24	JUL 93
360 HP J1922	7LG16000-UP	111-4173	OR6850	24	JUL 93
360 HP BULK HAULER	7LG16000-UP	111-4162	NOT AVAIL	24	JUL 93

DESCRIPTION	S/N RANGE	PART NUMBER	RE-MAN PART NUMBER	INTERLOCK CODE	RELEASE DATE
325 HP	7LG CHALLENGER	3E5491	OR6573	18	OCT 91

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3176B FLASH FILE CROSS REFERENCE

3176B FLASH FILE CROSS REFERENCE
UPDATED 5/21/98

WARNING!!!

The original personality modules in some 3176B and 3406E engines between 9CK1 - 5000 and 5EK1 - 5000 can NOT be flashed with NOV95 or newer software. The Flash program may terminate at 20 to 25% complete when attempting to flash these personality modules with NOV95 or newer software.

Many of the personality modules in the affected serial number range can be flashed with NOV95 or newer software because the original personality module was replaced with a compatible one during an earlier software update or ECM replacement. However, before attempting to flash the personality modules on engines in the affected range, make sure that there is a 106-9184 personality module available. If the flash attempt fails, try again. If both attempts terminate at 20 to 25% complete, replace the personality module with the 106-9184 module and repeat the flash programming.

Since the flash process erases the file from the personality module before programming it, a failure while flashing the personality module in the affected range will render the engine inoperable. Once this occurs, there are two options; 1) replace the personality module with a 106-9184 module and re-flash or 2) flash the original personality module with pre-NOV95 software.

Option 1 is the preferred method since it makes the engine compatible with all future software releases. However, if a new personality module is not available option 2 can be used. The pre-NOV95 files have been put back on the Caterpillar mailbox for downloading. They are listed below along with the current files.

The latest flash files call for default injector codes to be entered. The default injector code for 3176B, C-10, and C-12 engines is 2300.

TRUCK (Factory Ratings)

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH CODE	SERVICE REPLACEMENT	ITRLCK CODE	RELEASE DATE
275 HP	1800	9CK1 - UP	146-9259 (STANDARD)	146-9261	4	MAR 97
			146-9368 (208.5ŒF FAN-ON TEMP)		4	MAR 97
			125-7999 (STANDARD)	125-8001	4	JUN 95
300 HP	1800	9CK1 - UP	146-9262	146-9264	5	MAR 97
			125-8002	125-8004	5	JUN 95
325 HP	1800	9CK1-18308	159-2840		2	FEB 98
			129-2589	129-2591	2	JUN 95
325 HP	1800	9CK18309-UP	159-2838 (STANDARD)		26	FEB 98
			141-9470 (208.5ŒF FAN-ON TEMP)		26	AUG 96
			125-8018 (STANDARD)	125-8021	26	JUN 95
325/350 HP MULTI TORQUE	1800	9CK18309-UP	159-2839		27	FEB 98
			125-8022	125-8024	27	JUN 95
335/365 HP MULTI TORQUE	1800	9CK1 - UP	159-2837		13	FEB 98
			125-8012	125-8014	13	JUN 95

TRUCK (Factory Ratings)(cont'd)

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH CODE	SERVICE REPLACEMENT	ITRLCK CODE	RELEASE DATE
342 HP (OIL FIELD ONLY)	1800	9CK1 - UP	146-9276	146-9278	12	MAR 97
			125-8015	125-8017	12	JUN 95
350 HP	1800	9CK1 - UP	159-2835		1	FEB 98
			125-8005	125-8007	1	JUN 95
365 HP	1800	9CK1 - UP	159-2836		9	FEB 98
			125-8008	125-8010	9	JUN 95

* MAR 97 effective with factory built 3176B engine S/N 9CK32702.

TRUCK (Field Uprate Ratings)

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH CODE	SERVICE REPLACEMENT	ITRLCK CODE	RELEASE DATE
300 HP (2T7318) (FIELD UPRATE ONLY! W/ 275 HP IRON)	1800	9CK1 - UP	159-2841		34	FEB 98
			132-9662	132-9664	34	FEB 96

350 HP (2T7314)	1800	9CK1-18308	159-2842		35	FEB 98
			132-9666	132-9668	35	FEB 96
(FIELD UPRATE ONLY! W/ 325 HP IRON)						
365 HP (2T7316)	1800	9CK18309-UP	159-2843		36	FEB 98
			132-9671	132-9673	36	FEB 96
(FIELD UPRATE ONLY! W/ 325 HP IRON)						
365 HP (2T7316)	1800	9CK1 - UP	159-2843		36	FEB 98
			132-9671	132-9673	36	FEB 96
(FIELD UPRATE ONLY! W/ 350 HP IRON)						

CHALLENGER AGRICULTURAL TRACTOR

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH CODE	SERVICE REPLACEMENT	ITRLCK CODE	RELEASE DATE
CH75C 335 HP	2100	43Z772 - UP	154-8639	154-8640	8	OCT 97
CH85C 335/365	2100	43Z772 - UP	154-8641	154-8642	3	OCT 97

3176B INDUSTRIAL

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH CODE	SERVICE REPLACEMENT	ITRLCK CODE	RELEASE DATE
310 HP	2100	3NL1 - UP	137-9548	137-9550	19	AUG 96
335 HP	2100	3NL1 - UP	137-9551	137-9553	18	AUG 96
342 HP	1800	3NL1 - UP	146-9276	146-9277	12	MAR 97
365 HP	2100	3NL1 - UP	137-9554	137-9556	7	AUG 96
390 HP	2100	3NL1 - UP	137-9557	137-9559	16	AUG 96
400 HP	2100	3NL1 - UP	137-9560	137-9562	20	AUG 96
425 HP	2100	3NL1 - UP	137-9563	137-9565	17	AUG 96

UNDERGROUND MINING

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH CODE	SERVICE REPLACEMENT	ITRLCK CODE	RELEASE DATE
310 HP	2100	3NL1 - UP	141-5584	141-6067	41	AUG 96

MARINE

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH CODE	SERVICE REPLACEMENT	ITRLCK CODE	RELEASE DATE
450 HP	2300	9WK1 - UP	143-6737	143-6739	10	NOV 96
525 HP	2300	9WK1 - UP	143-6740	143-6742	11	NOV 96
600 HP	2300	9WK1 - UP	143-6743	143-6745	6	NOV 96
600 HP	2300	9WK1 - UP	154-6829**	154-8350	47	OCT 97

* NOV 96 MARINE SOFTWARE IS FACTORY INSTALLED EFFECTIVE WITH 9WK00782
** USE ONLY WITH INJECTOR PART NO. 142-9975

EURO II CERTIFIED TRUCK ENGINES (Not for use in United States):

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH CODE	SERVICE REPLACEMENT	ITRLCK CODE	RELEASE DATE
325 HP	1900	9CK1 - UP	119-5947	119-5949	22	FEB 97
350 HP	1900	9CK1 - UP	119-5943	119-5945	23	FEB 97
365 HP	1900	9CK1 - UP	119-5951	119-5953	24	FEB 97

GENERATOR SET

DESCRIPTION	GOV SPEED	S/N RANGE	FLASH CODE	SERVICE REPLACEMENT	ITRLCK CODE	RELEASE DATE
265 HP	1200	3NL1 - UP	116-2842	116-2854	14	MAR 94

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3406B/C PEEC, PEEC II, PEEC 2.5, AND ELECTRONIC_PERSONALITY MODULE CROSS REF

3406B/C PEEC, PEEC II, PEEC 2.5, AND ELECTRONIC
PERSONALITY MODULE CROSS-REFERENCE
October 20,1997

ECM	Eng S/N Range	HP Rating	IC	PM
II	8TC1-1412	285 EPA	2	1019291-00
II	8TC1-1412	285 EPA	2	0R6666-00
II	8TC1413-10980	285 EPA	101	1019295-00
II	8TC1413-10980	285 EPA	101	0R6648-00
II	8TC1413-Up	285 CARB	102	1019282-00
II	8TC1413-Up	285 CARB	102	0R6656-00
II	8TC1-1412	310 EPA	2	1019292-00
II	8TC1-1412	310 EPA	2	0R6667-00
II	8TC1413-10980	310 EPA	101	1019296-00
II	8TC1413-10980	310 EPA	101	0R6649-00
II	8TC1413-UP	310 CARB	102	1019283-00
II	8TC1413-UP	310 CARB	102	0R6657-00
II	8TC1413-UP	310 MT Top1 CARB	113	1019307-00
II	8TC1413-UP	310 MT Top1 CARB	113	0R6664-00
II	8TC1413-UP	310 MT Top4 CARB	113	1022492-00
II	8TC1413-UP	310 MT Top4 CARB	113	0R6681-00
II	8TC1413-10980	310 PDCC EPA	108	1019303-00
II	8TC1413-10980	310 PDCC EPA	108	0R6655-00
II	8TC1413-UP	310 PDCC CARB	109	1019290-00
II	8TC1413-UP	310 PDCC CARB	109	0R6665-00
II	2EK1 - UP	310 Std	10	1019248-00
II	2EK1 - UP	310 Std	10	0R6632-00
II	2EK1 - UP	310 MT Top1	11	1019249-00
II	2EK1 - UP	310 MT Top1	11	0R6633-00
II	2EK1 - UP	310 MT Top4	11	1022490-00
II	2EK1 - UP	310 MT Top4	11	0R6679-00
II	2EK1 - UP	310 PDCC	12	1019250-00
II	2EK1 - UP	310 PDCC	12	0R6634-00
II.V	8TC9090 - 10980	310 EPA	101	1019296-00
II.V	8TC9090 - 10980	310 EPA	101	0R6649-00
II.V	8TC10981 - Up	310 CARB	102	1019283-00
II.V	8TC10981 - Up	310 CARB	102	0R6657-00
II.V	8TC10981 - Up	310 MT Top1 CARB	113	1022492-00
II.V	8TC10981 - Up	310 MT Top1 CARB	113	0R6681-00
II.V	2EK1 - UP	310 NAR	10	1019248-00
II.V	2EK1 - UP	310 NAR	10	0R6632-00
II.V	2EK1 - Up	310 MT Top1	11	1019249-00

II.V	2EK1 - Up	310 MT Top1	11	0R6633-00
III	4CK1 - Up	310@1800	10	1457832-00
III	4CK1 - Up	310 MT Top1	11	1457834-00
III	4CK1 - Up	310 MT Top4	11	1457849-00
III	4CK1 - Up	310 PDCC	12	1457851-00
II	8TC1 - 1412	330/350LT EPA	1	1019293-00
II	8TC1 - 1412	330/350LT EPA	1	0R6646-00
II	8TC1413 - 10980	330/350LT EPA	103	1019297-00
II	8TC1413 - 10980	330/350LT EPA	103	0R6650-00
II	8TC8792 - UP	330/350LT NAR LCV	114	1019284-00
II	8TC8792 - UP	330/350LT NAR LCV	114	0R6658-00
II	2EK1 - Up	330@1800	23	1019251-00
II	2EK1 - Up	330@1800	23	0R6635-00
II.V	2EK1 - Up	330@1800	23	1019251-00
II.V	2EK1 - Up	330@1800	23	0R6635-00
III	4CK1 - Up	330@1800	23	1457853-00
II	8TC1 - 1412	350 EPA	1	1019294-00
II	8TC1 - 1412	350 EPA	1	0R6647-00
II	8TC1413 - 10980	350 EPA	103	1019298-00
II	8TC1413 - 10980	350 EPA	103	0R6651-00
II	8TC8792 - UP	350 NAR LCV	114	1019285-00
II	8TC8792 - UP	350 NAR LCV	114	0R6659-00
II	8TC1413 - Up	350 EPA MT Top2	121	1022493-00
II	8TC1413 - Up	350 EPA MT Top2	121	0R6682-00
II	8TC1413 - Up	350 EPA MT Top4	121	1022494-00
II	8TC1413 - Up	350 EPA MT Top4	121	0R6683-00
II	2EK1 - Up	350@2000	13	1019252-00
II	2EK1 - Up	350@2000	13	0R6636-00
II	2EK1 - Up	350@1800	14	1019253-00
II	2EK1 - Up	350@1800	14	0R6637-00
II	2EK1 - Up	350@1800 LT	15	1019255-00
II	2EK1 - Up	350@1800 LT	15	0R6639-00
II	2EK1 - Up	350@1800 MT Top2	16	1019254-00
II	2EK1 - Up	350@1800 MT Top2	16	0R6638-00
II	2EK1 - Up	350@1800 MT Top4	16	1022491-00
II	2EK1 - Up	350@1800 MT Top4	16	0R6680-00
II.V	8TC9090 - 10980	350 EPA	114	1019285-00
II.V	8TC9090 - 10980	350 EPA	114	0R6659-00
II.V	8TC10981 - Up	350 NAR	121	1022493-00
II.V	8TC10981 - Up	350 NAR	121	0R6682-00
II.V	2EK1 - Up	350 Std Hi RPM	13	1019252-00
II.V	2EK1 - Up	350 Std Hi RPM	13	0R6636-00
II.V	2EK1 - Up	350 Std Lo RPM	14	1019253-00
II.V	2EK1 - Up	350 Std Lo RPM	14	0R6637-00
II.V	2EK1 - Up	350 Lo Torque	15	1019255-00
II.V	2EK1 - Up	350 Lo Torque	15	0R6639-00
II.V	2EK1 - Up	350 MT Top2	16	1019254-00
II.V	2EK1 - Up	350 MT Top2	16	0R6638-00
III	4CK1 - Up	350@2000 w/o Brksv	13	1457873-00
III	4CK1 - Up	350@2000 w/Brksv	25	3E9115-00
III	4CK1 - 3413	350@1800	14	1457867-00
III	4CK3414 - Up	350@1800	14	1457856-00
III	4CK1 - 10214	350@1800 LT	15	1457877-00
III	4CK10215 - Up	350@1800 LT	15	1457875-00
III	4CK1 - 3413	350 MT Top2	16	1457879-00
III	4CK 3414 - Up	350 MT Top2	16	1457881-00
III	4CK1 - 3413	350 MT Top4	16	1457884-00
III	4CK 3414 - Up	350 MT Top4	16	1457890-00
III	4CK1 - Up	365 Std w/o Brksv	24	1457899-00

III	4CK1 - Up	365 Std w/Brksv	27	3E9120-00
III	4CK1 - Up	365 MT Top2 w/o Brksv	26	1457911-00
III	4CK1 - Up	365 MT Top2 w/Brksv	28	3E9130-00
III	4CK1 - Up	365 MT Top4 w/o Brksv	26	1457916-00
III	4CK1 - Up	365 MT Top4 w/Brksv	28	1457923-00
III	4CK1 - Up	365 HT MT Top4 w/o Brksv	34	1457935-00
III	4CK1 - Up	365 HT MT Top4 w/Brksv	35	1457941-00
II	8TC1413 - Up	375/400 LT CARB	105	1019286-00
II	8TC1413 - Up	375/400 LT CARB	105	0R6660-00
II	8TC1413 - 10980	375/400 LT EPA	104	1019299-00
II	8TC1413 - 10980	375/400 LT EPA	104	0R6652-00
II	8TC1413 - 10980	400 EPA	104	1019300-00
II	8TC1413 - 10980	400 EPA	104	0R6653-00
II	8TC1413 - Up	400 CARB	105	1019287-00
II	8TC1413 - Up	400 CARB	105	0R6661-00
II	2EK1 - Up	400 Std	17	1019256-00
II	2EK1 - Up	400 Std	17	0R6640-00
II.V	8TC9090 - 10980	400 EPA	104	1019300-00
II.V	8TC9090 - 10980	400 EPA	104	0R6653-00
II.V	8TC10981 - Up	400 CARB	105	1019287-00
II.V	8TC10981 - Up	400 CARB	105	0R6661-00
II.V	2EK1 - Up	400 Std	17	1019256-00
II.V	2EK1 - Up	400 Std	17	0R6640-00
III	4CK1 - Up	400 Std w/o Brksv	17	1457944-00
III	4CK1 - Up	400 Std w/Brksv	26	1457950-00
II	8TC1413 - 10980	425 EPA	106	1019301-00
II	8TC1413 - 10980	425 EPA	106	0R6654-00
II	8TC1413 - Up	425 CARB	107	1019288-00
II	8TC1413 - Up	425 CARB	107	0R6662-00
II	2EK1 - Up	425@2000	18	1019257-00
II	2EK1 - Up	425@2000	18	0R6641-00
II	2EK1 - Up	425@1800	21	1019258-00
II	2EK1 - Up	425@1800	21	0R6642-00
II	2EK1 - Up	425@2000 HT	19	1019259-00
II	2EK1 - Up	425@2000 HT	19	0R6643-00
II	2EK1 - Up	425@1800 HT	22	1019260-00
II	2EK1 - Up	425@1800 HT	22	0R6644-00
II.V	8TC1413 - 10980	425 EPA	106	1019301-00
II.V	8TC1413 - 10980	425 EPA	106	0R6654-00
II.V	8TC1413 - Up	425 CARB	107	1019288-00
II.V	8TC1413 - Up	425 CARB	107	0R6662-00
II.V	2EK1 - Up	425@2000	18	1019257-00
II.V	2EK1 - Up	425@2000	18	0R6641-00
II.V	2EK1 - Up	425@1800	21	1019258-00
II.V	2EK1 - Up	425@1800	21	0R6642-00
II.V	2EK1 - Up	425@2000 HT	19	1019259-00
II.V	2EK1 - Up	425@2000 HT	19	0R6643-00
II.V	2EK1 - Up	425@1800 HT	22	1019260-00
II.V	2EK1 - Up	425@1800 HT	22	0R6644-00
III	4CK1 - Up	425@2000 w/o Brksv	18	1457952-00
III	4CK1 - Up	425@2000 w/Brksv	29	1457954-00
III	4CK1 - 10214	425@1800 w/o Brksv	21	1457975-00
III	4CK10215 - Up	425@1800 w/o Brksv	21	1457971-00
III	4CK1 - 9352	425@2000 HT w/o Brksv	19	1457958-00
III	4CK9353 - Up	425@2000 HT w/o Brksv	19	1457956-00
III	4CK1 - 9352	425@2000 HT w/Brksv	30	1457962-00
III	4CK9353 - Up	425@2000 HT w/Brksv	30	1457960-00
III	4CK1 - 13151	425@1800 HT w/o Brksv	22	1457967-00
III	4CK13151 - Up	425@1800 HT w/o Brksv	22	1457965-00

III	4CK1 - Up	425@1800 HT w/Brksv	31	1457969-00
II	5YG1 - Up	460@1900	110	1019289-00
II	5YG1 - Up	460@1900	110	0R6663-00
II	2EK1 - Up	460@1900	110	1019261-00
II	2EK1 - Up	460@1900	110	0R6645-00
II.V	2EK1 - Up	460@1900	110	1019261-00
II.V	2EK1 - Up	460@1900	110	0R6645-00
III	4CK1 - Up	460@1900 w/o Brksv	20	1458002-00
III	4CK1 - Up	460@1900 w/Brksv	32	1458004-00
********** METAL TURB0 WHEEL ONLY **********				
III	4CK1 - Up	460@1900 w/o Brksv	20	1457978-00
III	4CK1 - Up	460@1900 w/Brksv	32	1457980-00

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3406E FLASH File Cross Reference - Updated 09/28/95

3406E FLASH FILE CROSS REFERENCE
Updated September 28,1995

Description	Serial No. Range	Flash Part No.	Service Replacement	IC	Release Date
310 HP 1150 PT	5EK00001 & UP	129-0227	129-0232	33	AUG95
310 HP 1250 PT	5EK00001 & UP	129-0236	129-0238	34	AUG95
310 HP 1150/1350PT MULTI-TORQUE	5EK00001 & UP	129-0239	129-0241	35	AUG95
330HP 1350 PT	5EK00001 UP	129-0242	129-0244	36	AUG95
355 HP 1350 PT	5EK00001 - 5EK01820	120-4032	120-4034	6	JAN95
355 HP 1350 PT	5EK01821 & UP	129-0160	129-0162	22	AUG95
355 HP 1350/1450PT MULTI-TORQUE	5EK00001 - 5EK01820	120-4029	120-4031	7	JAN95
355 HP 1350/1450PT MULTI-TORQUE	5EK01821 & UP	129-0163	129-0171	23	AUG95
375 HP 1450 PT	5EK00001 - 5EK01820	120-4023	120-4025	4	JAN95
375 HP 1450 PT	5EK01821 & UP	129-0172	129-0174	20	AUG95
375 HP 1450/1550PT MULTI-TORQUE	5EK00001 - 5EK01820	120-4047	120-4049	10	JAN95
375 HP 1450/1550PT MULTI-TORQUE	5EK01821 - UP	129-0175	129-0177	21	AUG95
410 HP 1450 PT	5EK00001 & UP	129-0203	129-0205	19	AUG95
410 HP 1450 PT BRAKESAVER	5EK00001 & UP	129-0206	129-0210	29	AUG95

410 HP 1550 PT	5EK00001 & UP	129-0211	129-0213	30	AUG95
410 HP 1550 PT BRAKESAVER	5EK00001 & UP	129-0214	129-0216	31	AUG95
435 HP 1450 PT	5EK00549 - 5EK01184	120-4038	120-4040	11	JAN95
435 HP 1550 PT	5EK00549 - 5EK01184	120-4035	120-4037	12	JAN95
435 HP 1550 PT	5EK01185 - 5EK53003	126-4361	126-4363	17	JUN95
435 HP 1550 PT	5EK53004 & UP	129-0251	129-0253	43	AUG95
435 HP 1550 PT BRAKESAVER	5EK01185 - 5EK53003	126-4364	126-4366	18	JUN95
435 HP 1550 PT BRAKESAVER	5EK53004 & UP	129-0254	129-0256	44	AUG95
435 HP 1650 PT	5EK00001 - 5EK00548	120-4020	120-4022	3	JAN95
435 HP 1650 PT	5EK00549 - 5EK01184	120-4044	120-4046	13	JAN95
435 HP 1650 PT	5EK01185 - 5EK53003	126-4368	126-4373	15	JUN95
435 HP 1650 PT	5EK53004 & UP	129-0257	129-0259	45	AUG95
435 HP 1650 PT BRAKESAVER	5EK00001 - 5EK00548	120-4026	120-4028	5	JAN95
435 HP 1650 PT BRAKESAVER	5EK00549 - 5EK01184	120-4041	120-4043	14	JAN95
435 HP 1650 PT BRAKESAVER	5EK01185 - 5EK53003	126-4375	126-4377	16	JUN95
435 HP 1650 PT BRAKDSAVER	5EK53004 & UP	129-0261	129-0263	46	AUG95

********* 435HP 1650 PT HIGH RPM PERFORANCE -- FLASH ONLY **********

435 HP 1650 PT	5EK01185 - 5EK53003	125-3230		15	JUN95
435 HP 1650 PT BRAKESAVER	5EK01185 - 5EK53003	125-3237		16	JUN95

435 HP 1650 PT	5EK53004 & UP	129-2595		45	AUG95
435 HP 1650 PT BRAKESAVER	5EK53004 & UP	129-2598		46	AUG95
455 HP 1650 PT	5EK00001 - 5EK53003	126-4444	126-4446	27	JUN95
455 HP 1650 PT	5EK53004 & UP	129-0265	129-0269	47	AUG95
455 HP 1650 PT BRAKESAVER	5EK00001 - 5EK53003	126-4447	126-4449	28	JUN95
455 HP 1650 PT BRAKESAVER	5EK53004 & UP	129-0271	129-0276	48	AUG95

********* 455HP 1650 PT HIGH RPM PERFORANCE -- FLASH ONLY ***********

455 HP 1650 PT	5EK00001 - 5EK53003	130-8365		27	AUG95
455 HP 1650 PT BRAKESAVER	5EK00001 & UP	130-8367		28	AUG95
475 HP 1650 PT	5EK00001 & UP	129-0178	129-0181	8	AUG95
475 HP 1650 PT BRAKESAVER	5EK00001 & UP	129-0183	129-0186	24	AUG95
475 HP 1750 PT	5EK00001 & UP	129-0189	129-0192	25	AUG95
475 HP 1750 PT BRAKESAVER	5EK00001 & UP	129-0193	129-0196	26	AUG95

********* 475HP 1750 PT HIGH RPM PERFORANCE -- FLASH ONLY ***********

475 HP 1750 PT	5EK00001 & UP	128-6848		25	JUN95
475 HP 1750 PT BRAKESAVER	5EK00001 & UP	128-6851		26	JUN95
500 1850 PT	5EK00001 & UP	129-0217	129-0219	9	AUG95
500 HP 1850 PT BRAKESAVER	5EK00001 & UP	129-0220	129-0224	32	AUG95

********* 500 HP 1850 PT HIGH RPM PERFORANCE -- FLASH ONLY ***********

500 HP 1850 PT	5EK00001 & UP	126-3887		9	JUN95
500 HP 1850 PT BRAKESAVER	5EK00001 & UP	128-6569		32	JUN95

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****** September Availability **************************************

550 HP 1850 PT	5EK00001 & UP	126-8385	126-8387	41	AUG95
550 HP 1850 PT BRAKESAVER	5EK00001 & UP	126-9517	126-9519	42	AUG95

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OIL WELL SERVICE

435/500 HP 1550/1650 PT	5EK01185 & UP	126-4486	126-4488	38	JUN95

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3406E LOW NOX KIT FLASH FIILE CROSS REFERENCE
Updated February 21, 2001

Note: The LOW NOx FLASH files each have an interlock code which has been incremented by 300, compared to the interlock code of the original production FLASH file it is replacing. For example, FLASH file 185-1177, with an interlock code of 333, replaces the DEC98 PSO FLASH file 170-8128, which had an interlock code of 33.

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ENGINE RATING/ APPLICATION INFORMATION	SERIAL NO. RANGE	FLASH FILE	IC	RELEASE DATE
310 HP 1150 PT	5EK05767 & UP 6TS00001 & UP	185-1177	333	DEC99
310 HP 1250 PT	5EK05767 & UP 6TS00001 & UP	185-1178	334	DEC99
310 HP 1150/1350@1200	5EK05767 & UP 6TS00001 & UP	185-1179	335	DEC99
330 HP 1350 PT	5EK05767 & UP 6TS00001 & UP	185-1180	336	DEC99
355 HP 1350 PT (Still used on steel pistons)	5EK05767 & UP 6TS00001 & UP	185-1181	322	DEC99
355 HP 1350 PT 208.5 Fan On (Still used on steel pistons)	5EK05767 & UP 6TS00001 & UP	185-1182	322	DEC99

355 HP 1350@1200 Aluminum pistons (was 170-8174)	5EK05767-80006	185-1181	322	DEC99
355 HP 1350 PT 208.5 Fan On Aluminum pistons (was 170-8175)	5EK05767-80006	185-1182	322	DEC99
355 HP 1350/1450PT MULTI-TORQUE (Still used on steel pistons)	5EK05767 & UP 6TS00001 & UP	185-1183	323	DEC99
355 HP 1350/1450PT MULTI-TORQUE 208.5 Fan On (Still used on steel pistons)	5EK05767 & UP 6TS00001 & UP	185-1184	323	DEC99
355 HP 1350/1450 PT MULTI-TORQUE Aluminum Pistons (was 170-8173)	5EK05767-80006	185-1184	323	DEC99
355 HP 1350/1450 PT MULTI-TORQUE 208.5 Fan On Aluminum Pistons (was 170-8182)	5EK05767-80006	185-1184	323	DEC99
375 HP 1450 PT PAN WESTERN SPECIAL	5EK05767 & UP 6TS00001 & UP	185-1186	355	DEC99
375 HP 1450@1200 Aluminum pistons (was 170-8177)	5EK05767-80006	185-1185	320	DEC99
375 HP 1450 PT (Still used on steel pistons)	5EK05767 & UP 6TS00001 & UP	185-1185	320	DEC99
375HP 1450@1200 Multi-Torque Aluminum pistons (was 170-8111)	5EK05767-80006	185-1187	321	DEC99
375 HP 1450/1550PT MULTI-TORQUE (Still used on steel pistons)	5EK05767 & UP 6TS00001 & UP	185-1187	321	DEC99
375/435 HP MULTI-TORQUE	5EK67193 & UP 6TS00001 & UP	186-9901	367	DEC99
375/435 HP 1450/1650 Top Gear Only Multi-Torque	5EK67193 & UP 6TS00001 & UP	186-9903	381	DEC99
375/435 HP 1450/1650 PT Multi-Torque	5EK67193 & UP 6TS00001 & UP	186-9902	428	DEC99
410 HP 1450@1200 Aluminum pistons (was 170-8176)	5EK05767-67192	185-1188	319	DEC99
410 HP 1450 PT (Still used on steel pistons)	5EK05767-67192	185-1188	319	DEC99
410 HP Brakesaver 1450@1200 Aluminum pistons (was 170-8179)	5EK05767-67192	185-1189	329	DEC99
410 HP 1450 PT BRAKESAVER (Still used on steel pistons)	5EK05767-67192	185-1189	329	DEC99
410 HP 1550@1200 Aluminum pistons (was 170-8180)	5EK05767-67192	185-1190	330	DEC99
410 HP 1550 PT (Still used on steel pistons)	5EK05767-67192	185-1190	330	DEC99

410 HP Brakesaver 1550@1200 Aluminum pistons (was 170-8181)	5EK05767-67192	185-1191	331	DEC99
410 HP 1550 PT BRAKESAVER (Still used for steel pistons)	5EK05767-67192	185-1191	331	DEC99
410 HP 1450/1550@1200 Aluminum pistons (was 170-8183)	5EK67192&80006	186-9904	368	DEC99
410 HP 1450/1550 (Still used on steel pistons)	5EK67193 & UP 6TS00001 & UP	186-9904	368	DEC99
410 HP Brakesaver 1450/1550@1200 Aluminum pistons (was 170-8184)	5EK67193-80006	186-9905	369	DEC99
410 HP 1450/1550 BRAKESAVER (Still used on steel pistons)	5EK67193 & UP 6TS00001 & UP	186-9905	369	DEC99
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ALLISION AUTO TRANSMISSION:				
435 HP 1450 PT	5EK75900 & UP 6TS00001 & UP	186-9908	377	DEC99
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435 HP 1550 PT	5EK05767-53003	185-1192	317	DEC99
435 HP 1550 PT	5EK53004-67192	185-1198	343	DEC99
435 HP 1550 PT BRAKESAVER	5EK05767-53003	185-1193	318	DEC99
435 HP 1550 PT BRAKESAVER	5EK53004-67192	185-1199	344	DEC99
435 HP 1650 PT	5EK05767-53003	185-1194	315	DEC99
435 HP 1650 PT	5EK53004-67192	185-1200	345	DEC99
435 HP 1550/1650 @ 1800/2100	5EK67193 & UP 6TS00001 & UP	186-9906	359	DEC99
435 HP 1650 PT BRAKESAVER	5EK05767-53003	185-1195	316	DEC99
435 HP 1650 PT BRAKESAVER	5EK53004-67192	185-1201	346	DEC99
435 HP 1550/1650 @ 1800/2100 BRAKESAVER	5EK67193 & UP 6TS00001 & UP	186-9907	360	DEC99
435@1800 Dual HP for PTO 500@2100 or 435@2100	5EK67193 & UP 6TS00001 & UP	185-1204	338	DEC99
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435HP 1650 PT HIGH RPM PERFORMANCE - FIELD UPRATE ONLY, FLASH ONLY:				
435 HP 1650 PT	5EK05767-53003	185-1196	315	DEC99
435 HP 1650 PT BRAKESAVER	5EK05767-53003	185-1197	316	DEC99
435 HP 1650 PT	5EK53004-67192	185-1202	345	DEC99
435 HP 1650 PT BRAKESAVER	5EK53004-67192	185-1203	346	DEC99
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455 HP 1650 PT	5EK05767-53003	185-1205	327	DEC99
455 HP 1650 PT	5EK53004-67192	185-1209	347	DEC99

455 HP 1650 PT @ 1800/2100	5EK67193 & UP 6TS00001 & UP	186-9910	357	DEC99
455 HP 1650 PT BRAKESAVER	5EK05767-53003	185-1206	328	DEC99
455 HP 1650 PT BRAKESAVER	5EK53004-67192	185-1210	348	DEC99
455 HP 1650 PT @ 1800/2100 BRAKESAVER	5EK67193 & UP 6TS00001 & UP	186-9911	358	DEC99
455 MT 1550/1750	5EK67193 & UP 6TS00001 & UP	186-9912	379	DEC99
455 MT (BS) 1550/1750 PT	5EK67193 & UP 6TS00001 & UP	186-9913	380	DEC99

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455HP 1650 PT HIGH RPM PERFORMANCE - FIELD UPRATE ONLY, FLASH ONLY:

455 HP 1650 PT	5EK05767-53003	185-1207	327	DEC99
455 HP 1650 PT BRAKESAVER	5EK05767-53003	185-1208	328	DEC99
455 HP 1650 PT	5EK53004-67193	185-1211	347	DEC99
455 HP 1650 PT BRAKESAVER	5EK53004-67193	185-1212	348	DEC99
475 HP 1650 PT	5EK05767-67192	185-1213	308	DEC99
475 HP 1650 PT BRAKESAVER	5EK05767-67192	185-1214	324	DEC99
475 HP 1750 PT	5EK05767-67192	185-1215	325	DEC99
475 HP 1750 PT BRAKESAVER	5EK05767-67192	185-1216	326	DEC99
475 HP 1650/1750 @ 1800/2100	5EK67193 & UP 6TS00001 & UP	186-9914	350	DEC99
475 HP 1650/1750 @ 1800/2100 BRAKESAVER	5EK67193 & UP 6TS00001 & UP	186-9915	351	DEC99

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475HP 1750 PT HIGH RPM PERFORMANCE - FIELD UPRATE ONLY, FLASH ONLY:

475 HP 1750 PT	5EK05767-67192	185-1217	325	DEC99
475 HP 1750 PT BRAKESAVER	5EK05767-67192	185-1218	326	DEC99

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475/500 HP 1650/1850 PT MULTI-TORQUE	5EK67193 & UP 6TS00001 & UP	186-9918	382	DEC99
475/500 HP 1650/1850 PT MULTI-TORQUE BRAKESAVER	5EK67193 & UP 6TS00001 & UP	186-9919	383	DEC99
475/500 HP 1650/1750 TOP TWO GEARS ONLY MULTI-TORQUE FIELD UPRATE ONLY	5EK67193 & UP 6TS00001 & UP	186-9916	436	DEC99
475/500 HP 1650/1750 BRAKESAVER TOP TWO GEARS ONLY MULTI-TORQUE FIELD UPRATE ONLY	5EK67193 & UP 6TS00001 & UP	186-9917	437	DEC99

500 HP 1450 PT MOTORHOME	5EK67193 & UP 6TS00001 & UP	186-9920	354	DEC99
500 HP 1650 PT	5EK67193 & UP 6TS00001 & UP	204-3504	474	FEB01
500 HP 1750 @ 1200 BRAKESAVER FLEET RATING	5EK67193 & UP 6TS00001 & UP	186-9923	395	DEC99
WARNING: ONCE THIS IS FLASHED THE INTERLOCK IS FROZEN AND CANNOT BE CHANGED				
500 HP 1750 @ 1200 FLEET RATING	5EK67193 & UP 6TS00001 & UP	186-9922	394	DEC99
WARNING: ONCE THIS IS FLASHED THE INTERLOCK IS FROZEN AND CANNOT BE CHANGED				
500 1850 PT	5EK05767-67192	185-1219	309	DEC99
500 1850 PT @ 1800/2100	5EK67193 & UP 6TS00001 & UP	186-9924	361	DEC99
500 1850 PT @ 1800/2100 2300RPM TEL FIELD UPRATE ONLY	5EK67193 & UP 6TS00001 & UP	185-1225	432	DEC99
500 HP 1850 PT BRAKESAVER	5EK05767-67192	185-1220	332	DEC99
500 HP 1850 PT @ 1800/2100 BRAKESAVER	5EK67193 & UP 6TS00001 & UP	186-9925	362	DEC99
500 HP 1850 PT @ 1800/2100 BRKSVR 2300RPM TEL FIELD UPRATE ONLY	5EK67193 & UP 6TS00001 & UP	185-1226	433	DEC99
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500 HP 1850 PT HIGH RPM PERFORMANCE - FIELD UPRATE ONLY, FLASH ONLY:				
500 HP 1850 PT	5EK05767-67192	185-1221	309	DEC99
500 HP 1850 PT BRAKESAVER	5EK05767-67192	185-1222	332	DEC99
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550 HP 1850 PT @ 2100	5EK05767 & UP 6TS00001 & UP	185-1223	341	DEC99
550 HP 1850 PT @ 2100 2300RPM TEL FIELD UPRATE ONLY	5EK67193 & UP 6TS00001 & UP	186-9926	434	DEC99
550 HP 1850 PT @ 2100 BRAKESAVER	5EK05767 & UP 6TS00001 & UP	185-1224	342	DEC99
550 HP 1850 PT @ 2100 BRKSVR 2300RPM TEL FIELD UPRATE ONLY	5EK67193 & UP 6TS00001 & UP	186-9927	435	DEC99
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OIL WELL SERVICE (OWS) 435/500 HP 1550/1650 PT OWS	5EK05767 & UP	185-1204	338	DEC99
435/500 HP OWS	5EK05767 & UP	186-9909	376	DEC99
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355 HP 1350PT 1800/2100	1LW00001 & UP	192-5311	399	APR00
355 HP MULTI-TORQUE 1350/1450 1800/2100	1LW00001 & UP	192-5312	401	APR00
375 HP 1450PT 1800/2100	1LW00001 & UP	192-5313	405	APR00
375 HP MULTI-TORQUE 1450/1550	1LW00001 & UP	192-5314	406	APR00

1800/2100				
375/435 HP MULTI-TORQUE 1450/1550 PT 1800 1450/1650 PT 1800	1LW00001 & UP	192-5315	409	APR00
375/435 HP 1450/1550 PT 1800 RPM TOP TWO GEARS ONLY MULTI-TORQUE FIELD UPRATE ONLY	1LW00001 & UP	192-5316	459	APR00
375/435 HP 1450/1650PT 1800 MULTI-TORQUE IN TOP GEAR ONLY (ROCKWELL)	1LW00001 & UP	192-5317	410	APR00
410 HP FIELD UPRATE ONLY 1450/1550PT 1800/2100	1LW00001 & UP	192-5318	407	APR00
435 HP 1550/1650PT 1800/2100	1LW00001 & UP	192-5320	411	APR00
435 HP 1550/1650PT 1800/2100 BRAKESAVER	1LW00001 & UP	192-5321	412	APR00
450 HP 1550/1650PT 2100 (FIELD UPRATE ONLY FOR 410HP & BELOW)	1LW00001 & UP	192-5319	452	APR00
455 HP 1550PT 2100	1LW00001 & UP	192-5322	438	APR00
455 HP 1550 PT 2100 BRAKESAVER	1LW00001 & UP	192-5323	439	APR00
455 HP 1650PT 1800/2100	1LW00001 & UP	192-5324	413	APR00
455 HP 1650PT 1800/2100 BRAKESAVER	1LW00001 & UP	192-5325	414	APR00
455 HP MULTI-TORQUE 1550/1750PT 2100	1LW00001 & UP	192-5326	415	APR00
455 HP MULTI-TORQUE 1550/1750PT 2100 BRAKESAVER	1LW00001 & UP	192-5327	416	APR00
475 HP 1650/1750PT 1800/2100	1LW00001 & UP	192-5328	419	APR00
475 HP 1650/1750PT 1800/2100 BRAKESAVER	1LW00001 & UP	192-5329	420	APR00
475/500 HP 1650/1750PT 2100 RPM TOP TWO GEARS ONLY MULTI-TORQUE FIELD UPRATE ONLY	1LW00001 & UP	192-5330	455	APR00
475/500 HP 1650/1750PT 2100 RPM TOP TWO GEARS ONLY MULTI-TORQUE BRAKESAVER FIELD UPRATE ONLY	1LW00001 & UP	192-5331	456	APR00
475/500 HP 1650/1850PT 2100 RPM MULTI-TORQUE TOP 2 GEARS ONLY	1LW00001 & UP	192-5332	417	APR00
475/500 HP 1650/1850PT 2100 RPM MULTI-TORQUE TOP 2 GEARS ONLY BRAKESAVER	1LW00001 & UP	192-5333	418	APR00

500 HP 1650PT 2100 RPM	1LW00001 & UP	192-5334	462	APR00
500 HP FLEET 1750PT 2100 RPM	1LW00001 & UP	192-5335	425	APR00
WARNING: ONCE FLASHED THE INTERLOCK IS FROZEN AND CANNOT BE CHANGED				
500 HP FLEET 1750PT 2100 RPM BRAKESAVER	1LW00001 & UP	192-5336	426	APR00
WARNING: ONCE FLASHED THE INTERLOCK IS FROZEN AND CANNOT BE CHANGED				
500 HP 1850PT 1800/2100	1LW00001 & UP	192-5337	421	APR00
500 HP 1850PT 1800/2100 2300 RPM TEL FIELD UPRATE ONLY	1LW00001 & UP	192-5339	441	APR00
500 HP 1850PT 1800/2100 BRAKESAVER	1LW00001 & UP	192-5338	422	APR00
500 HP 1850PT 1800/2100 BRAKESAVER 2300 RPM TEL FIELD UPRATE ONLY	1LW00001 & UP	192-5340	442	APR00
550 HP 1850PT 2100 RPM	1LW00001 & UP	192-5341	423	APR00
550 HP 1850PT 2100 RPM 2300 RPM TEL FIELD UPRATE ONLY	1LW00001 & UP	192-5343	443	APR00
550 HP 1850PT 2100 RPM BRAKESAVER	1LW00001 & UP	192-5342	424	APR00
550 HP 1850PT 2100 RPM BRAKESAVER	1LW00001 & UP	192-5344	444	APR00

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F 3406E/3456/C15/C16/C18 FLASH FILE CROSS REFERENCE

Updated January 15, 2008 ajk

This file covers 3406E Truck engines (5DS/2WS/1LW/1MM), and 3406E/3456/C15/C18 Commercial/Machine applications.

NOTE:

Most of the original flash files for 5EK/6TS/1LW 3406E engines have been removed from SIS Web. They have been replace by Low NOx files. See the Low NOx files text.

WARNING!!!

The original personality modules in some 3176B and 3406E engines between 9CK1 - 5000 and 5EK1 - 5000 can NOT be flashed with NOV95 software. The Flash program may terminate at 20 to 25% complete when attempting to flash these personality modules with NOV95 software.

Many of the personality modules in the affected serial number range can be flashed with NOV95 software because the original personality module was replaced with a compatible one during an earlier software update or ECM replacement. However, before attempting to flash the personality modules on engines in the affected range, make sure that there is a 106-9184 personality module available. If the flash attempt fails, try again. If both attempts terminate at 20 to 25% complete, replace the personality module with the 106-9184 module and repeat the flash programming.

Since the flash process erases the file from the personality module before programming it, a failure while flashing the personality module

in the affected range will render the engine inoperable. Once this occurs, there are two options; 1) replace the personality module with a 106-9184 module and re-flash or 2) flash the original personality module with pre-NOV95 software.

Option 1 is the preferred method since it makes the engine compatible with all future software releases. However, if a new personality module is not available option 2 can be used. The pre-NOV95 files have been put back on the Caterpillar mailbox for downloading. They are listed under the title "3406E FLASH File Cross Reference - Updated 09/28/95".

ENGINE RATING/ APPLICATION INFORMATION	SERIAL NO. RANGE	FLASH FILE	IC	RELEASE DATE
355 HP 1350 PT	5EK00001-01820	170-8096	6	DEC98
355 HP 1450@1200 Multi-Torque Aluminum pistons	5EK00001-01820	170-8185	7	DEC98
355 HP 1350/1450PT MULTI-TORQUE (Still used on steel pistons)	5EK00001-01820	170-8097	7	DEC98
375 HP 1450 PT	5EK00001-01820	170-8098	4	DEC98
375 HP 1450/1550PT MULTI-TORQUE	5EK00001-01820	170-8099	10	DEC98
435 HP 1450 PT	5EK00549-01184	170-8102	11	DEC98
435 HP 1550 PT	5EK00549-01184	170-8103	12	DEC98
435 HP 1650 PT	5EK00001-00548	170-8100	3	DEC98
435 HP 1650 PT	5EK00549-01184	170-8104	13	DEC98
575 HP 1850PT 2100 RPM For use with 159-8542 or 0R-7275 Turbo Group	5DS00324 & UP	170-8228	167	DEC98
575 HP 1850PT 2100 RPM BRAKESAVER For use with 159-8542 or 0R-7275 Turbo Group	5DS00324 & UP	170-8229	168	DEC98
600 HP 2050PT 2100 RPM For use with 138-3200 or 0R-7176 Turbo Group	5DS00001-00323	170-8230	96	DEC98
600 HP 2050PT 2100 RPM For use with 159-8542 or 0R-7275 Turbo Group	5DS00324 & UP	170-8232	160	DEC98
600 HP 2050PT 2100 RPM 2300RPM TEL FIELD UPRATE ONLY For use with 138-3200 or 0R-7176 Turbo Group	5DS00001-00323	170-8238	145	DEC98
600 HP 2050PT 2100 RPM BRAKESAVER For use with 138-3200 or 0R-7176 Turbo Group	5DS00001-00323	170-8231	97	DEC98
600 HP 2050PT 2100 RPM BRAKESAVER For use with 159-8542 or 0R-7275 Turbo Group	5DS00324 & UP	170-8233	161	DEC98
600 HP 2050PT 2100 RPM BRAKESAVER	5DS00001-00323	170-8239	146	DEC98

2300RPM TEL FIELD UPRATE ONLY
For use with 138-3200 or 0R-7176 Turbo Group

600 HP 2050PT 2100 RPM 5DS00324 & UP 170-8240 170 DEC98
2300RPM TEL FIELD UPRATE ONLY
For use with 159-8542 or 0R-7275 Turbo Group

600 HP 2050PT 2100 RPM BRAKESAVER 5DS00324 & UP 177-0097 171 DEC98
2300RPM TEL FIELD UPRATE ONLY
For use with 159-8542 or 0R-7275 Turbo Group

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14 LITER Lo-HP 2WS ENGINE RATING INFORMATION	SERIAL NO. RANGE	FLASH FILE	IC	RELEASE DATE
355HP 1350PT 1800/2100RPM	2WS00001 & UP	215-7824	14	MAR02
355HP MT 1350/1450PT 1800 RPM 1350/1450PT 2100 RPM	2WS00001 & UP	215-7825	15	MAR02
375HP 1450PT 1800/2100RPM	2WS00001 & UP	215-7826	16	MAR02
375/435HP MT 1450/1550PT 1800PRM 1450/1650PT 1800 RPM	2WS00001 & UP	215-7828	9	MAR02
375HP MT 1450/1550PT 1800RPM 1450/1550PT 2100RPM	2WS00001 & UP	215-7826	17	MAR02
375/435HP 1450/1550PT 1800 RPM TOP 2 GEAR MULTITORQUE	2WS00001 & UP	215-7829	19	MAR02
375/435HP 1450/1650PT 1800 RPM TOP 1 GEAR MULTITORQUE	2WS00001 & UP	215-7830	20	MAR02
410HP 1450/1550PT 1800/2100RPM FIELD UPRATE ONLY	2WS00001 & UP	215-7831	21	MAR02
450HP 1550/1650PT 2100RPM FIELD UPRATE ONLY	2WS00001 & UP	215-7834	22	MAR02

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14 LITER Hi-HP 2WS ENGINE RATING INFORMATION	SERIAL NO. RANGE	FLASH FILE	IC	RELEASE DATE
435HP 1550/1650PT 1800/2100RPM	2WS00001 & UP	215-7832	23	MAR02
435HP 1550/1650PT 1800/2100RPM BRAKESAVER	2WS00001 & UP	215-7833	24	MAR02
435/500HP 1550/1650 2100RPM MULTITORQUE	2WS00001 & UP	215-7846	61	MAR02
455HP 1550PT 2100RPM OR 1650PT 1800/2100RPM	2WS00001 & UP	215-7835	25	MAR02
455HP 1550PT 2100RPM OR 1650PT 1800/2100RPM BRAKESAVER	2WS00001 & UP	215-7836	26	MAR02
455HP MT 1550/1750PT 2100 RPM	2WS00001 & UP	215-7837	27	MAR02
455HP MT 1550/1750PT 2100 RPM	2WS00001 & UP	215-7838	28	MAR02

BRAKESAVER				
475HP 1650/1750PT 1800/2100RPM REPLACED 251-2224	2WS00001 & UP	270-7080	2	APR05
475HP 1650/1750PT 1800/2100RPM BRAKESAVER REPLACED 251-2223	2WS00001 & UP	270-7079	30	APR05
475/500HP 1650/1850PT 2100 RPM TOP 2 GEAR MULTITORQUE	2WS00001 & UP	215-7841	31	MAR02
475/500HP 1650/1850PT 2100 RPM TOP 2 GEAR MULTITORQUE BRAKESAVER	2WS00001 & UP	215-7842	32	MAR02
475/500HP 1650/1750PT 2100 RPM TOP 2 GEAR MULTITORQUE	2WS00001 & UP	215-7843	33	MAR02
475/500HP 1650/1750PT 2100 RPM TOP 2 GEAR MULTITORQUE BRAKESAVER	2WS00001 & UP	215-7844	34	MAR02
500HP 1650PT 2100RPM, 500HP FLEET 1750PT 2100RPM or 435/500HP 1550/1650 OIL WELL SERVICE	2WS00001 & UP	215-7845	35	MAR02
500HP 1650PT 2100RPM BRAKESAVER OR 500HP FLEET 1750PT 2100RPM BRAKESAVER	2WS00001 & UP	215-7848	36	MAR02
500HP 1850PT 1800/2100RPM 2300RPM TEL FIELD UPRATE ONLY	2WS00001 & UP	215-7852	37	MAR02
500HP 1750/1850PT 2100 RPM TOP 2 GEAR MULTITORQUE	2WS00001 & UP	215-7850	39	MAR02
500HP 1750/1850PT 2100 RPM TOP 2 GEAR MULTITORQUE BRAKESAVER	2WS00001 & UP	215-7851	40	MAR02
500HP 1850PT 1800/2100RPM	2WS00001 & UP	215-7847	59	MAR02
500HP 1850PT 1800/2100RPM BRAKESAVER	2WS00001 & UP	215-7849	60	MAR02
500HP 1850PT 1800/2100RPM BRAKESAVER 2300RPM TEL FIELD UPRATE ONLY	2WS00001 & UP	215-7853	38	MAR02
550HP 1850PT 2100RPM REPLACED 251-2229	2WS00001 & UP	270-7085	41	APR05
550HP 1850PT 2100RPM BRAKESAVER REPLACED 251-2230	2WS00001 & UP	270-7086	42	APR05
550HP 1850PT 2100RPM 2300RPM TEL FIELD UPRATE ONLY REPLACED 251-2225	2WS00001 & UP	270-7081	43	APR05
550HP 1850PT 2100RPM BRAKESAVER 2300RPM TEL FIELD UPRATE ONLY REPLACED 251-2226	2WS00001 & UP	270-7082	44	APR05

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16 LITER 1MM ENGINE RATING INFORMATION	SERIAL NO. RANGE	FLASH FILE	IC	RELEASE DATE

575HP 1850PT 2100RPM	1MM00001 & UP	215-7858	45	MAR02
575HP 1850PT 2100RPM BRAKESAVER	1MM00001 & UP	215-7859	46	MAR02
575HP 1850PT 2100RPM 2300RPM TEL FIELD UPRATE ONLY	1MM00001 & UP	215-7861	47	MAR02
575HP 1850PT 2100RPM BRAKESAVER 2300RPM TEL FIELD UPRATE ONLY	1MM00001 & UP	215-7860	48	MAR02
575/600HP MT 1850/2050PT 2100RPM	1MM00001 & UP	215-7862	49	MAR02
575/600HP MT 1850/2050PT 2100RPM BRAKESAVER	1MM00001 & UP	215-7863	50	MAR02
600HP 2050PT 2100RPM REPLACED 215-7864,237-0693, 241-0808,251-2227	1MM00001 & UP	270-7083	4	APR05
600HP 2050PT 2100RPM BRAKESAVER REPLACED 215-7865,237-0694, 241-0809,251-2228	1MM00001 & UP	270-7084	52	APR05
600HP 2050PT 2100RPM 2300RPM TEL FIELD UPRATE ONLY REPLACED 215-7866,237-0697,241-0812,251-2231	1MM00001 & UP	270-7087	53	APR05
600HP 2050PT 2100RPM BRAKESAVER 2300RPM TEL FIELD UPRATE ONLY REPLACED 215-7867,237-0698, 241-0813,251-2232	1MM00001 & UP	270-7088	54	APR05

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3406E/3456/C-15/C18 INDUSTRIAL ENGINE FILE CROSS REFERENCE:

ENGINE/ APPLICATION	FLASH FILE	SERVICE MODULE	RELEASE DATE
3406E/IND INTERLOCK CODE=78 325 to 450 HP Ratings REPLACED 166-8300,177-2395	185-7544	NONE	NOV99
3406E/IND INTERLOCK CODE=78 Low HP/1800 REPLACED 193-4641	194-9708	NONE	APR01
3406E/IND INTERLOCK CODE=56 325 to 575 HP Ratings REPLACED 177-2396	185-7545	NONE	NOV99
3406E/IND INTERLOCK CODE=56 High HP/2100 REPLACED 193-4642	194-9709	NONE	APR01
3406E/IND INTERLOCK CODE=56 HIGH HP/2100 For engine serial numbers 6BR00583 and below Parts service only; Single speed timing sensor REPLACED 193-4643, 185-7546,177-2397,166-8302, 154-8354,150-8405	194-9710	NONE	APR01

3406E/IND INTERLOCK CODE=10 425 HP/2100 REPLACED 213-4874,209-1601,204-7775, 201-4641, 215-3245,229-0423	249-7271	NONE	JUN04
3406E/IND INTERLOCK CODE=11 525 HP/2100 REPLACED 211-0159,209-1602,204-7776, 201-4642, 215-3246,229-0424	249-7272	NONE	JUN04
3406E/IND INTERLOCK CODE=13 475 HP/2100 REPLACED 213-4891,215-3285,229-0427	249-7275	NONE	JUN04
3406E/IND INTERLOCK CODE=9 525 HP/2100 REPLACED 213-4875,209-1603, 201-4643, 215-3247,229-0425,249-7273	265-4272	NONE	AUG05
3456/IND Interlock Code: 3 500/515/525/550HP @ 1800 RPM REPLACED 189-3378,185-7550, 177-4634,155-5522	193-4646	NONE	APR01
3456/IND Interlock Code: 4 500HP @ 1800 RPM REPLACED 189-3377,185-7549, 177-4633,155-5524	193-4645	NONE	APR01
3456/IND Interlock Code: 6 575HP @ 2100 RPM REPLACED 189-3379,185-7551, 177-4635,155-5528	193-4647	NONE	APR01
3456/IND Interlock Code: 9 525/550HP @ 2100 RPM REPLACED 189-3382,185-7555, 177-4638,155-5534	193-4650	NONE	APR01
3456/EPG Interlock Code: 22 500eKW/kVA 576 KW @ 1800RPM REPLACED N/A	302-7427	NONE	SEP06
3456/EPG Interlock Code: 26 300eKW/kVA 282kw/1500RPM 360kw/1800RPM REPLACED 204-7204	262-8907	NONE	NOV04
3456/EPG Interlock Code: 28 300eKW/kVA 282kw/1500RPM 360kw/1800RPM REPLACED 204-7206	262-8909	NONE	NOV04
3456/EPG Interlock Code: 27 350eKW/kVA 324kw/1500RPM 408kw/1800RPM REPLACED 212-8249	262-8908	NONE	NOV04
3456/EPG Interlock Code: 30	262-8906	NONE	NOV04

300EkW XQ300
360kW/1800RPM
REPLACED 203-3259

3456/EPG Interlock Code: 29 262-8910 NONE NOV04
350EkW/kVA
408kW/1800RPM
REPLACED 212-8250

3456/EPG Interlock Code: 17 262-8914 NONE NOV04
450eKW/kVA Certified
412kw/1500RPM 516kw/1800RPM
REPLACED 192-4854,250-8497

3456/EPG Interlock Code: 18 262-8911 NONE NOV04
616HP @ 1800 RPM XQ400
REPLACED 224-6815,250-8494

3456/EPG Interlock Code: 18 262-8912 NONE NOV04
400eKW/kVA Certified
368k/1500RPM 459kw/1800RPM
REPLACED 192-4852,250-8495

3456/EPG Interlock Code: 19 262-8919 NONE NOV04
500ekW/kVA Non-Certified
457kw/1500RPM 576KW/1800
REPLACED 201-0390,250-8502

3456/EPG Interlock Code: 19 262-8920 NONE NOV04
500ekW/kVA Non-Certified XQ500
457kw/1500RPM 576KW/1800
REPLACED 207-3726,250-8503

3456/EPG Interlock Code: 20 262-8915 NONE NOV04
450eKW/kVA Non-Certified
412kw/1500RPM 516kw/1800RPM
REPLACED 192-4860,250-8498

3456/EPG Interlock Code: 21 262-8913 NONE NOV04
400eKW/kVA Non-Certified
368kw/1500RPM 459kw/1800RPM
REPLACED 192-4858,250-8496

3456/EPG Interlock Code: 22 262-8918 NONE NOV04
500ekW Certified
576kw/1800RPM
REPLACED 192-2717,250-8501

3456/EPG Interlock Code: 23 262-8917 NONE NOV04
500kVA Certified
457kw/1500RPM
REPLACED 192-4856,250-8500

3406E/3456/IND Interlock Code: 24 205-8850 NONE FEB01
605/625/630/660HP @ 2100 RPM
REPLACED 203-3211,193-4648

3406E/IND INTERLOCK CODE=8 249-7274 NONE JUN04
500 HP/2100
REPLACED 209-1604, 215-3286,229-0426

3456/IND Interlock Code: 7 515/600HP @ 2100 RPM REPLACED 189-3381,185-7554, 177-4637,174-7919	193-4649	NONE	APR01
3406E/IND INTERLOCK CODE=129 525 HP/2100 REPLACED 193-4644,185-7547, 183-1994,166-8303,157-1443, 154-8220,149-8955	194-9711	NONE	APR01
3456/IND INTERLOCK CODE=1 500-660 HP/2100 REPLACED 211-0160,209-1605, 204-7777,215-3287,229-0428	249-7276	NONE	JUN04
3456/IND INTERLOCK CODE=3 600 HP @ 2100 RPM REPLACED 213-4876,209-1606, 204-7778,201-4872, 215-3288,229-0429	249-7277	NONE	JUN04
C15/IND INTERLOCK CODE=146 425/450 HP @ 2100 RPM Replaced 229-0423	215-7425	-----	JUN03
C15/IND INTERLOCK CODE=10 540 HP @ 1800 RPM Replaced 256-3707,267-3419,271-7215, 280-3501,285-3510,294-7320	316-7381	-----	JUN07
C15/IND INTERLOCK CODE=20 580 HP @ 1800 RPM Replaced 256-3707,267-3419,271-7215, 280-3501,285-3510,294-7320	316-7381	-----	JUN07
C15/IND INTERLOCK CODE=21 595 HP @ 1800 RPM Replaced 256-3707,267-3419,271-7215, 280-3501,285-3510,294-7320	316-7381	-----	JUN07
C15/IND INTERLOCK CODE=18 440 HP @ 2100 RPM Replaced 254-7444,271-7213, 280-3499,285-3508	302-2371	-----	OCT06
C15/IND INTERLOCK CODE=105 ACERT 475 HP @ 2100 RPM Replaced N/A	311-2932	-----	MAR07
C15/IND INTERLOCK CODE=126 354Kw 475 HP @ 2100 RPM Replaced N/A	339-0023	-----	OCT08
C15/IND INTERLOCK CODE=103 ACERT 540 HP @ 2100 RPM Replaced 310-5416	321-5925	-----	OCT07
C15/IND INTERLOCK CODE=24	254-7449	-----	JUL04

ACERT
529 HP @ 2100 RPM
Replaced N/A

C15/IND INTERLOCK CODE=19 302-2372 ----- OCT06
475 HP @ 1800 RPM
Replaced 254-7445,271-7214,
280-3500,285-3509

C15 IND TIER 3 CDE ENGINE 397-7270 Jan13
540 HP @ 2100 150
580 HP @ 2100 151
595 HP @ 2011 152

C15 PETRO-MARINE IMO 399-1693 180 JUL13
536HP@1800RPM
Replaced

C15 IND INTERLOCK CODE=148/149 Tier4i 452-1422 ----- NOV13
540 HP @ 2100 RPM
580 HP @ 2100 RPM
Replaced 366-7948,373-6691,378-7551,340-3525
366-5916,366-9965,385-1168,395-1115,419-6672

C15/IND INTERLOCK CODE=150,151,152 367-0750 ----- Oct10
CX TRANSMISSION ON C15
CDE TIER PETROLEUM ONLY!
40HP@2100RPM,580HP@2100RPM,
595HP@2100RPM
Replaced N/A

C15 EP-GENSET 60HZ 421-1571 29 DEC12
790HP@1800RPM
Replaced 367-1996, 371-5969, 378-3256, 385-1167,
395-3685, 351-4775, 360-4075, 364-3930

C16/DPGDS IND INTERLOCK CODE=10 325-5735 ----- MAR08
561HP @ 1500 RPM
669HP @ 1800 RPM
Replaced 234-6098,288-1195,316-7398

C16/IND INTERLOCK CODE=20 273-9198 ----- MAY05
500/550/600/630/660 HP @ 2100 RPM
Replaced 252-4872

C18/IND INTERLOCK CODE=25 275-2167 ----- MAY05
525 HP @ 2100 RPM
Replaced 254-7443,258-7109

C18/IND INTERLOCK CODE=21 267-3417 ----- NOV04
575 HP @ 1800 RPM
Replaced 254-7440

C18/IND INTERLOCK CODE=8 267-3417 ----- NOV04
630 HP @ 1800 RPM
Replaced 254-7440

C18/IND ACERT INTERLOCK CODE=9 280-3528 ----- SEP05
588 HP @ 2100 RPM
Replaced 240-9679,254-7442,
275-2166,276-2679

C18/IND Tier ABC Tier4i 600 HP @ 1900 RPM 630 HP @ 1900 RPM Replaced 375-8515	381-4871	IC 205/206 207	AUG11
C18/IND ACERT INTERLOCK CODE=10 630 HP @ 2100 RPM Replaced N/A	254-7450	-----	JUL04
C18/IND INTERLOCK CODE=12 700 HP @ 1800 RPM Replaced 256-1389,267-3418,290-0410	296-2721	-----	JUN06
C18/IND INTERLOCK CODE=157 700 HP @ 2100 RPM Replaced N/A	365-6497	-----	Nov10
C18/IND C2 Tier4i INTERLOCK CODE=201 755 HP @ 1900 RPM Replaced 372-8631,	N/A	-----	JUL11
C18/IND C3 Tier4i INTERLOCK CODE=200 755 HP @ 1900 RPM Replaced 372-8631,380-8327	380-8365	-----	AUG11
C18/IND C/D Tier4i 755 HP @ 1800 RPM 800 HP @ 1800 RPM Replaced 367-3048,380-5958,384-9574, 397-5097	419-6678	IC 166 169	DEC12
C18 IND-700HP ACERT 700HP@1750RPM 700HP@1900RPM 700HP@2100RPM Replaces 455-6518	455-3951	217	JAN14
C18 IND-700HP ACERT 700HP@1750RPM 700HP@1900RPM 700HP@2100RPM Replaces 445-6519	455-3952	218	JAN14
C18 EP - 50Hz LOW BSFC 728HP@1500RPM 793HP@1500RPM 838HP@1500RPM Replaces 306-4144,324-0651,377-4460	445-4918	 42 43 68	AUG13
C18/IND INTERLOCK CODE=33 852 HP @ 1500 RPM Replaced 255-6265	267-4622	-----	DEC04
C18 IND-C3 TIER 755HP@1900RPM Replaces	419-1648	215	JUL13

EP ENGINE RATING APPLICATION INFORMATION	FLASH FILE	RELEASE IC	DATE

C15 EP-REG 50Hz ACERT	294-8086		JUN06
365 HP/1500 RPM		37	
365 HP/1500 RPM		42	
377 HP/1500 RPM		51	
377 HP/1500 RPM		52	
410 HP/1500 RPM		38	
410 HP/1500 RPM		43	
455 HP/1500 RPM		39	
455 HP/1500 RPM		44	
500 HP/1500 RPM		40	
500 HP/1500 RPM		45	
Replaced 257-3202,264-1223,289-2221			
C15 EP-REG 50Hz ACERT	320-2697		Sept10
590 HP/1500 RPM			
643 HP/1500 RPM		174	
708 HP/1500 RPM		175	
Replaced N/A			
C15 EP-REG 60Hz ACERT	367-7390		Feb11
568 HP/1800 RPM		26	
643 HP/1800 RPM		27	
713 HP/1800 RPM		28	
787 HP/1800 RPM		29	
Replaced 259-6240,282-8301, 291-8568,292-6701,292-9628, 337-5387			
C15 EP-REG 60Hz ACERT	288-5930		JAN06
568 HP/1800 RPM		26	
643 HP/1800 RPM		27	
713 HP/1800 RPM		28	
787 HP/1800 RPM		29	
865 HP/1800 RPM		30	
Replaced N/A			
C15 EP-REG 60Hz ACERT	419-9355	29, 30	DEC12
597HP@1400RPM, 671HP@1400RPM, 738HP@1400RPM			
Replaced 264-1209,265-7436, 274-9579,282-8302,293-7378, 337-5385,367-7426,377-1480, 388-6444			
C15 EP-REG 60Hz ACERT	265-4271	30	OCT05
865 HP/1800 RPM			
Replaced N/A			
C15 EP 50Hz LOW EMIS ACERT	310-7890		MAR07
365 HP/1500 RPM		37	
377 HP/1500 RPM		51	
410 HP/1500 RPM		38	
455 HP/1500 RPM		39	
500 HP/1500 RPM		40	
Replaced 287-1743			
C15 EP-REG 60Hz LOW BFSC ACERT	290-8052		MAR06
320 HP/1800 RPM		31	
365 HP/1800 RPM		32	
410 HP/1800 RPM		33	
455 HP/1800 RPM		34	

500 HP/1800 RPM Replaced 257-3200		35		
C15 Petro-Genset 60HZ 787 HP/1800 RPM Replaced 367-3831 Replaced 367-3831,380-5434,385-7866,397-3922		421-8968	30	DEC12
C15 EP-REG 60Hz SWITCH ACERT 624 HP/1800 RPM Replaced 293-5082		359-4790	46	Nov10
C18 EP-REG 60Hz 861 HP/1800 RPM Replaced 252-9278		265-8974	6	OCT04
C18 EP-REG 60Hz 923 HP/1800 RPM Replaced 252-9278		265-8974	7	OCT04
C18 EP-NREG 60Hz 861 HP/1800 RPM Replaced 252-9279		265-8975	8	OCT04
C18 EP-NREG 60Hz 923 HP/1800 RPM Replaced 252-9279		265-8975	9	OCT04
C18 EP-REG 50Hz 683 HP/1500 RPM Replaced 252-9280		265-8976	10,44	OCT04
C18 EP-REG 50Hz 735 HP/1500 RPM Replaced 252-9280		265-8976	11,45	OCT04
C18 EP-REG 50Hz 794 HP/1500 RPM Replaced 252-9280		265-8976	12,46	OCT04
C18 EP-REG 50Hz 852 HP/1500 RPM Replaced 252-9280		265-8976	13	OCT04
C18 EP-REG 50Hz 700 HP/1500 RPM ACERT Replaced N/A		294-4602	68	AUG06
C18 EP-50HZ 550 HP/1800 RPM ACERT 600 HP/1800 RPM Replaced 277-8085		337-1976	39,40	AUG08
C18 EPG-50HZ 650 HP/ 700 RPM 2806 ACERT 700KVA LOW BSFC 50HZ TO PROVIDE HOT TEST FOR 2806 Replaced N/A		294-4602	68	AUG06
C18 EP-60HZ 550 HP/1800 RPM ACERT 600 HP/1800 RPM Replaced 277-8083,302-1866,359-8983 377-4462,		377-4664	34,35	JUN12
C18 EPG-60HZ 550 HP/ 600 RPM 2806 ACERT 600EKW LOW E 60HZ EPG TO PROVIDE HOT TEST FOR 2806 Replaced N/A		294-4604	37	AUG06
C18 EP-IND 765 HP/1800 RPM ACERT 785 HP/1800 RPM		254-7441	22,23	JUL04

Replaced N/A

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3406E/3456/C-15/C-16/C-18 MACHINE ENGINE FILE CROSS REFERENCE:

ENGINE RATING/ APPLICATION INFORMATION	SERIAL NO. RANGE	FLASH FILE	IC	RELEASE DATE
3406E D8R TTT Track-type Tractor REPLACED 188-2024,195-6933,201-7240,206-1993	6YZ	211-1833	163	JUN01
3406E D350E Series II ARTICULATED TRUCK	2XW00001 & UP	174-4884	147	MAR99
3406E D400E Series II ARTICULATED TRUCK REPLACED 149-5385,150-4718	8PS/9AP	174-4885	88	MAR99
C15 365C ACERT STD 433 HP/1800 RPM Replaced 235-8223,248-4826,255-0906,258-4516, 266-6522,283-3538,361-5083,439-7188		447-0881	3	AUG13
C15 365C ACERT LRC 433 HP/1800 RPM Replaced 257-7698,266-6523,283-3539,361-5134 439-7189,		447-0882	25	AUG13
C15 IND-A/B TIER 475HP@2100RPM Replaced 366-7946, 378-7550, 384-9982, 395-1113		420-4245	146, 147	DEC12
C15 IND-403KW/433KW 540HP@2100RPM 581HP@2100RPM Replaces 392-3632,431-1975,440-2369		443-0009	40 41	SEP13
C15 365D HEX LRC 433HP@1800RPM, 512HP@1800RPM Replaced 292-2237,349-8622,380-1971,439-7187		447-0880	81	AUG13
C15 374D/ 365C HEX ENGINE 433HP@1800RPM, 512HP@1800RPM Replaced 302-5880,349-8621,434-9489,		447-0879	82	AUG13
C15 MACH-770 OHT T4F 487HP@1900RPM Replaces 379-6641, 441-8432,445-7796		449-5537	3	OCT13
C15 MACH-374F HEX 488HP@1700RPM Replaced 379-5057,433-9005		448-2837	2	OCT13
C15 MACH-374F HEX 484HP@1600RPM Replaces 423-7011,448-0045		435-7156	4	JAN14
C15 620E WTS 359/394 HP/1800 RPM Replaced N/A		313-3620	113	MAY07

C15 657G WTS ACERT 473 HP/1800 RPM Replaced 235-2805,276-7526,302-8858		451-8555	17	NOV13
C11 ACERT 725 308 HP @ 1800 RPM ARTICULATED TRUCK Replaced 233-1768,257-5802		268-8084	2	JAN05
3406E 735 394 HP/2100 RPM ARTICULATED TRUCK ADEM III REPLACED 303-8706		316-9924	6	JUL07
3406E 735 394 HP/2100 RPM ARTICULATED TRUCK ADEM III Replaced 303-8706		316-9924	29	JUL07
C15 735 408 HP/1700 RPM ARTICULATED TRUCK Tier 3 ADEM 4 REPLACED 237-9483,247-7765, 257-5804,265-7890,272-9654		275-0632	5	JUN05
C15 735 410 HP/2000RPM ARTICULATED TRUCK Tier 4 Replaced 347-5497,362-3266,359-9479,366-5919, 377-1483,381-6323,386-2956,395-2118,421-8933		451-6167	25	NOV13
C15 ACERT 735 436 HP/1700 RPM ARTICULATED TRUCK REPLACED 299-5262,306-5125		310-7055	97	MAR07
3406E 740 ARTICULATED TRUCK REPLACED 283-8475	AXM/AYZ/AZZ	316-9923	7	JUL07
3406E 740 440 HP/2100 RPM ARTICULATED TRUCK ADEM III Replaced 283-8475		316-9923	30	JUL07
C15 740 444 HP/2000 RPM ARTICULATED TRUCK Tier 4 Replaced N/A		366-5962	26	Mar11
C15 740 469 HP/1800 RPM ARTICULATED TRUCK Tier 3 ADEM 4 REPLACED 247-7766,257-5805, 265-7891,272-9653		275-0633	6	JUN05
C15 740 469 HP/1800 RPM ARTICULATED TRUCK Tier 3 REPLACED 320-9657		336-3521	116	May09
C15 MACH 740 AT ENGINE PSO 444hp @ 2000rpm Replaces		452-1574	26	OCT13
C15 MACH-824/825/826 CMP 426HP@1800RPM Replaces 415-5355		451-2154	7	OCT13

C15 IND-HWT ACERT	280-8987		APR13
C15 740B 444HP/2000RPM ARTICULATED TRUCK Tier 4i Replaced 347-4142,358-4057,361-5912, 359-9269,366-5962,377-1482,381-6322, 386-2955,395-2117,421-8931,446-6675	451-6168	26	NOV13
C15 MACH-770 LRC OHT 511HP@1800RPM Replaces 377-3163,386-4242,393-7445	437-4231	4	JUL13
C15 770 OHT ACERT 460/511 HP/1800 RPM REPLACED 322-9256,337-6843	377-1605	117	May11
C15 770 OHT ACERT 460/511 HP/1800 RPM REPLACED 217-7750,230-9781, 282-9920,295-4646	330-9713	9	MAY08
C15 MACH-770 LRC OHT Tier3 511 HP/1800RPM Replaced 366-1378,386-6751,388-7332	439-7395	1	JUL13
3406E 980G WHEEL LOADER 345/2000 RPM REPLACED 210-4628	213-9084	1	SEP01
3406E 980G WHEEL LOADER 345/2000 RPM REPLACED 214-3397, 218-2849,226-9692,248-1411	265-8922	1	DEC04
C-15 980GIII WHEEL LOADER 350/1800 RPM Replaced 226-8791	250-0871	1	FEB04
C15 986H LARGE WHEEL LOADER 449 HP/1800RPM REPLACED 384-3419,417-9679	423-4330	36	SEP12
3456 988G WHEEL LOADER 520/1900 RPM REPLACED 167-9620, 198-8516	223-6513	11	MAY03
3456 988G WHEEL LOADER 520/1900 RPM REPLACED 191-7678, 211-8711, 217-4159	222-0531	9	NOV02
3456 834G/836G COMPACTOR 520/1900 RPM REPLACED 211-8711,217-4158 (previous file 165-3805 IC 2)	222-0530	9	MAY02
3456 385B/5090B HEX 552 HP/1800 RPM REPLACED 169-6286,190-8822,210-6088	218-4403	12	DEC01
3456 651/7B & 660 WTS Scraper Retrofit 550 HP/2100 RPM Replaced 253-5291	271-5704	19	FEB05
C-18 ACERT 834/836H 538 HP/1900 RPM Replaced 227-1399,249-7370	261-1560	1	NOV04

C15 MACH-82XH LWL 401 HP/1800 RPM Replaced 242-7007,249-7371, 261-1559,276-8521,303-9556, 338-1926,357-4656,398-4821	434-9494	2	JUL13
3406C MACH 82XC II Retrofit 380 HP/2000 RPM Replaced 263-3720	265-4398	41	OCT05
C15 MACH 82XC II ACERT 362 HP/1800 RPM Replaced N/A	312-7672	111	APR07
C-15 MT865 Challenger 512HP/2100 RPM REPLACED 185-9791, 224-5841	228-3280	2	DEC02
C15 Mach-980G Tier3 Repower 345HP @ 1800RPM Replaced N/A	343-4085	130	Apr10
C15 ACERT 980H 354 HP/1800 RPM Replaced 260-5493,270-9280,283-0057, 315-4121	353-2737	1	APR10
C15 ACERT 980H II ACERT 393 HP/1800 RPM Replaced NA	289-4178	67	MAR06
C15 ACERT 980H MLIT 354 HP/1800 RPM Replaced 282-2076,299-1886 307-6103	355-1031	1	APR10
C15 ACERT 980H MLIT 363 HP/1800 RPM Replaced 320-6138,330-4553,332-1441	353-2736	104	JUL12
C18 ACERT 988H 523/555 HP/1800 RPM Replaced 249-7369,259-6720,266-6517, 289-8580,313-3626	332-9423	3	MAY08
C18 AD55 650HP 2000 RPM Replaces 229-2777	246-8295	6	NOV03
C18 AD55X RHX00824-UP 650HP 2000 RPM Replaced N/A	253-8992	30	JAN05
C18 385C Hex 552 HP/1800 RPM Replaced 248-4827,255-0907,258-4517	265-8994	4	NOV04
C18 MACH - 834K LRC 571HP@1700RPM Replaces 380-6224,445-1991	449-9771	3	AUG13
C18 988K T4F LRC 527HP@1700RPM Replaces 380-6205,445-1983	449-9753	1	AUG13

C18 MACH 385C ACERT TT 552 HP/1800 RPM Replaced 268-3701,306-6864,326-1108 337-6857	416-4662	31	JUN12
C18 MACH 385C ACERT LRC TT Hex 552 HP/1800 RPM Replaced 268-3702	306-6851	32	NOV06
C15 MT855 Challenger 462HP/2100 RPM Replaced 185-9790,224-5840	228-3279	5	DEC02
C18 772E ACERT 598 HP/1800 RPM Replaced 219-7187,230-9782,282-9921, 295-4647,317-6046	377-1606	7	May11
C15 Reclaimer/Mixer ACERT 540 HP/2100 RPM Replaced 255-5468,261-7857,273-9193	288-7107	8	DEC05
3406E ELPH AD30 400HP/2200RPM Replaced 213-4693	245-7327	12	JAN04
3406E MACH 620G WTS 393 HP/1800 RPM Replaced 230-1559,235-1848,326-3094	339-7731	178	OCT08
C15 ACERT 620G WTS 359/394 HP/1800 RPM Replaced 261-1589,268-3892,274-4291, 302-6321,312-2917,328-6012,344-0928	348-2671	12	May09
C15 ACERT MT835 Challenger 361HP/2100 RPM REPLACED 254-7448,258-7111, 275-2170,276-2683	280-3524	23	SEP05
C15 ACERT MT835 ACERT 361HP/2100 RPM REPLACED 301-2206,313-7644	317-5506	95	AUG07
C15 ACERT MT845 Challenger 412HP/2100 RPM REPLACED 254-7447,258-7110, 275-2169,276-2682	280-3525	22	SEP05
C15 ACERT MT845 ACERT 412HP/2100 RPM REPLACED N/A	301-2209	96	SEP06
C15 MT835 AGCO 361HP/2100 RPM REPLACED 329-0336	341-7346	119	NOV08
C15 MT845/MT945 AGCO 412HP/2100 RPM REPLACED 329-0338	341-7347	120	NOV08
C15 MT855/MT955 AGCO 474HP/2100 RPM REPLACED 329-0340	341-7348	121	NOV08
C15 ACERT MT855 Challenger 474HP/2100 RPM REPLACED 245-6374,254-7446,275-2168	276-2681	13	JUN05
C15 ACERT MT945 Challenger 443HP/2100 RPM	330-8556	73	APR08

REPLACED 264-1227,319-3897

C15 ACERT AD30 II 409 HP/1800 RPM 422-7462 14 APR13
Replaced 250-2816,263-2560,283-3458,336-0965

C15 ACERT PM150 500 HP/1900 RPM 271-7805 69 JUN05
Replaced N/A

C18 ACERT PM201 650 HP/2100 RPM 328-1652 16 MAR08
Replaced 261-1597,266-3709,280-1580

C18 ACERT PM200 575 HP/1900 RPM 293-4851 17 APR06
Replaced 262-8056,273-3889

C18 ACERT PM200 575 HP/1900 RPM 305-5543 66 NOV06
With new injectors
Replaced 300-7641

C18 ACERT AD45B ADT 589 HP/2100 RPM 360-9937 19 APR10
Replaced 250-2818,269-8296,272-5530
323-2034

C18 631G/637G WTS 339-0927 13 NOV08
488/526 HP/1800 RPM
Replaced 227-1401,261-1588,
317-3218,327-1003

C18 657G WTS ACERT 276-7525 20 SEP05
625 HP/1800 RPM
Replaced 227-1403

C18 657G WTS ACERT 295-6949 61 AUG06
592/632 HP/1800 RPM
Replaced N/A

C18 MACH 657E Retrofit 292-2231 APR06
575 HP/2100 RPM 50
600 HP/2100 RPM 51
630 HP/2100 RPM 52
Replaced 283-7241

C-15 R2900GII ACERT 422-7461 15 MAY13
430HP@1900RPM, 436HP@1900RPM, 447HP@1800RPM 68
Replaced 250-2825,255-6215,
261-1598,266-3535,268-4473,283-3427,283-7229

3406E UGM R2900G 378 HP/2100 RPM 283-7228 177 NOV05
PSO (part service only)
Replaced 261-1599,268-4471

3406E MACH-62XD WTS 358 HP/1800 RPM 270-4372 182 FEB05
RETROFIT
Replaced 230-9779

C18 A4 D8T EU config 259KW/1850 RPM 283-1501 16 NOV05
Replaced 238-9189

C15 MACH-D8T TTT NACD 447-0883 4 NOV13
348 HP & 1850RPM
Replaced 390-5245,219-1000,260-5880,264-0451

271-7413,278-0389,298-8545,311-6855,434-3929

C15 MACH-D8T TTT 444-9757 4 OCT13
356HP@1700RPM
Replaced 381-9648,432-8395

C15 MACH-D8T TTT Tier4I 451-0605 31 DEC13
316 HP @ 2000RPM
Replaced 366-5660,367-8634,375-4171
381-2706,386-3186,397-4043,422-8398

C15 MACH-D8T TTT Tier4I 451-0604 25 DEC13
316 HP @ 2000RPM
Replaced 365-6658,381-2705,385-8109
397-4042,422-8397

C15 D8T EU ACERT 447-0884 16 NOV13
348 HP @ 1850 RPM
Replaced 253-5150,260-5881,264-0452,
271-7414,277-9742,298-8548,311-6856
390-5246

C15 A4 D8T NACD config 259KW/1850 RPM 219-1000 4 FEB04
Replaced 217-7932

C15 D8T NACD ACERT 311-6855 4 MAR07
348 HP @ 1850 RPM
Replaced 260-5880,264-0451,
271-7413,278-0389,298-8545

C15 MACH 583T ACERT 293-8254 70 APR06
360 HP @ 1850 RPM
Replaced 271-7412,277-9744,291-1618

C15 MACH 587T ACERT 291-1620 53 FEB06
383 HP @ 1850 RPM
Replaced 262-8067,277-9743

C-18 MACH D9T ACERT NACD 311-6857 5 MAR07
464 HP @ 1800 RPM
Replaced 260-5882,267-8346,278-1864,
299-1769

C-18 MACH D9T SS ACERT EU 311-6858 15 MAR07
464 HP @ 1800 RPM
Replaced 260-5883,267-8347,299-1768

C6.6 MACH-559/579 KBL FP 437-0031 13 APR13
173HP@2200RPM
Replaces 367-8633,382-4616,418-6787

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3406E/Underground Mining 6BR00001-00607 156-9472 84 MAY98
425@2100/400@2100/360@2100

3406E/Underground Mining 6BR00755 & UP 153-6329 85 OCT97
500@2100/490@2000/
475@2100/450@2100

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3406E EPG (GENSET) 60Hz 492KW@1800 134-8462 86 JUL96

3406E EPG SER North America 660HP@1800, 535HP@1500	149-9175	150	MAR98
3456 EPG DPGDS 561HP@1500RPM 669HP/1800RPM REPLACES 200-8621	211-5162	10	AUG01

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3406E/C15/C18 Marine Engine FLASH Files

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3406E Marine E Tier 800 HP @ 2300 RPM REPLACED 198-7491,208-1302, 227-3843,234-4970,248-8771	271-8690	40	MAY05
3406E Marine D Tier 700 HP @ 2200 RPM REPLACED 198-7490, 208-1301, 227-3842, 234-4969,248-8770	271-8689	72	MAY05
3406E Marine C Tier 600 HP @ 2100 RPM REPLACED 198-7489, 208-1300, 227-3841, 234-4968,248-8769	271-8688	73	MAY05
3406E Marine B Tier 550 HP @ 2100 RPM/475 HP @ 1800 RPM REPLACED 198-7488, 208-1299, 227-3840, 234-4967,248-8768	271-8687	74	MAY05
3406E Marine A Tier 450 HP @ 2100 RPM REPLACED 198-7487, 208-1298, 227-3839, 234-4966,248-8767	271-8686	75	MAY05
3406E Marine E Tier W/ACERT HEAD 800 HP @ 2300 RPM REPLACED 248-8781	271-8685	40	MAY05
3406E Marine D Tier W/ACERT HEAD 700 HP @ 2200 RPM REPLACED 248-8780	271-8684	72	MAY05
3406E Marine C Tier W/ACERT HEAD 600 HP @ 2100 RPM REPLACED 248-8779	271-8683	73	MAY05
3406E Marine B Tier W/ACERT HEAD 550 HP @ 2100 RPM 475 HP @ 1800 RPM REPLACED 248-8778	271-8682	74	MAY05
3406E Marine A Tier W/ACERT HEAD 450 HP @ 2100 RPM REPLACED 248-8777	271-8681	75	MAY05
3406E Marine E Tier 800 HP @ 2300 RPM REPLACED N/A	262-1969	35	OCT04
3406E Marine E Tier PSO	307-9876	35	JAN07

800 HP @ 2300 RPM REPLACED 293-7540			
3406E Marine D Tier 700 HP @ 2200 RPM REPLACED 262-1970,293-7539	307-9877	36	JAN07
3406E Marine C Tier 600 @ 2100 RPM REPLACED 262-1971,293-7538	307-9878	37	JAN07
3406E Marine B Tier 550 @ 2100 RPM REPLACED 262-1972,293-7537	307-9879	38	JAN07
3406E Marine B Tier 550 @ 1800 RPM REPLACED 262-1973,293-7536	307-9880	39	JAN07
3406E Marine A Tier 450 @ 1800 RPM REPLACED 262-1974,293-7535	307-9881	40	JAN07
C15 Marine E Tier 800 HP @ 2300 RPM REPLACED 297-6818	307-9965	44	JAN07
C15 Marine E Tier 850 HP @ 2300 RPM REPLACED 270-5395,297-6816	307-9964	43	JAN07
C15 Marine E Tier 800 HP @ 2300 RPM REPLACED 284-8387,297-6814	307-9963	52	JAN07
C15 B IRONSET AFT 0HP@0RPM Replaces 387-4548,426-1826,441-8394	447-1555	N/A	SEP13
C15 A IRONSET AFT 0HP@0RPM Replaced 387-4546,394-4389,419-7844,442-5631,447-5638	450-5765	N/A	SEP13
C15 Marine E Tier 850 HP @ 2300 RPM REPLACED 284-8388,297-6809	307-9962	51	JAN07
C18 Marine 460 HP @ 1800 RPM Replaced 244-3524	271-8701	20	SEP05
C18 MAR-470HP PROP 470HP@1800RPM Replaced 383-3506	432-5961	196	APR13
C18 MAR-670.5 HP PROP 670HP@1800RPM Replaced 383-3510	432-5965	193	APR13
C18 Marine 875 HP @ 2200 RPM Replaced 234-4964	271-8708	5	SEP05

C18 Marine 1000 HP @ 2300 RPM Replaced 234-4965	250-0577	2	OCT05
C-18 Marine 1015 HP @ 2300RPM Replaced N/A	337-9873	126	Feb09
C18 Marine 1000/1150 HP @ 2300 RPM Replaced N/A	312-3381	45	JUL08
C18 Marine D Prim ECM 822 HP @ 2200 RPM Replaced 254-6000,261-7253,273-2201	310-7690	38	MAR07
C18 Marine D BKUP ECM 822 HP @ 2200 RPM Replaced 254-6000,261-7254,273-2202	310-7691	42	MAR07
C18 Marine B Prim ECM 617 HP @ 1800 RPM Replaced 254-5998,264-0190,273-2203	310-7692	37	MAR07
C18 Marine B BKUP ECM 617 HP @ 1800 RPM Replaced 254-5998,264-0191,273-2204	310-7693	43	MAR07
C18 Marine Prim Tier II 618 HP @ 1800 RPM Replaced N/A	313-7563	104	JUN07
C18 Marine BKUP Tier II 618 HP @ 1800 RPM Replaced N/A	313-7564	105	JUN07
C18 MEUI Marine 725 HP @ 2100 RPM Replaced 244-3512	271-8707	14	SEP05
C18 MEUI Marine 485 HP @ 1800 RPM Replaced 244-3514	271-8706	15	SEP05
C18 MEUI Marine 560 HP @ 2100 RPM Replaced 244-3516	271-8705	16	SEP05
C18 MEUI Marine 608 HP @ 1800 RPM Replaced 244-3518	271-8704	17	SEP05
C18 MEUI Marine 680 HP @ 2100 RPM Replaced 244-3520	271-8703	18	SEP05
C18 MEUI Marine 595 HP @ 1800 RPM Replaced 244-3522	271-8702	19	SEP05

C18 Marine D-Tier Primary 822 HP @ 2200 RPM Replaced 284-8573	310-7688	51	MAR07
C18 Marine D-Tier Back up 822 HP @ 2200 RPM Replaced 284-8574	310-7689	52	MAR07
C18 Marine D-Tier 875 HP @ 2200 RPM Replaced N/A	284-8389	49	OCT05
C18 Marine E-Tier 1000 HP @ 2200 RPM Replaced N/A	284-8390	50	OCT05
C18 Marine Aux. EPG 301bKW 50HZ 404HP@1800RPM Replaced 244-3483,272-0672,278-5568,308-7226	440-9720	21	JUL13
C18 Marine Aux. EPG 301bKW 50HZ 404HP@1800RPM Replaced 262-8532,272-0680,278-5576,308-7234	440-9728	21	JUL13
C18 Marine Aux. EPG 383bKW 50 HZ 514HP@1500RPM Replaced 244-3485,272-0673,278-5569,308-7227	440-9721	22	JUL13
C18 Marine Aux. EPG 383bKW 50 HZ 514HP@1500RPM Replaced 262-8534,272-0681,278-5577,308-7235	440-9729	22	JUL13
C18 Marine Aux. EPG XQ400 438bKW 50 HZ 587 HP@1500RPM Replaced 244-3487,272-0674,278-5570,308-7228	440-9722	23	JUL13
C18 Marine Aux. EPG XQ400 438bKW 50 HZ 587 HP@1500RPM Replaced 262-8536,272-0682,278-5578,308-7236	440-9730	23	JUL13
C18 Marine Aux. EPG 492bKW 50HZ 660HP@1800RPM Replaced 244-3489,272-0675,278-5571,308-7229	440-9723	24	JUL13
C18 Marine Aux. EPG 492bKW 50HZ 660HP@1800RPM Replaced 262-8538,272-0683,278-5579,308-7237	440-9731	24	JUL13
C18 Marine Aux. EPG 372bKW 60 HZ 499HP@1800RPM Replaced 244-3491,272-0676,278-5572,308-7230	440-9724	25	JUL13
C18 Marine Aux. EPG 372bKW 60 HZ 499HP@1800RPM Replaced 262-8540,272-0684,278-5580,308-7238	440-9732	25	JUL13
C18 Marine Aux. EPG 465bKW 60HZ 624HP@1800RPM	440-9725	26	JUL13

Replaced 247-4656,272-0677,278-5573,308-7231

C18 Marine Aux. EPG 440-9733 26 JUL13
465bKW 60HZ 624HP@1800RPM
Replaced 262-8542,272-0685,278-5581,308-7239

C18 MAR-AUX 326-9069 119 Feb09
500EKW 60HZ SECONDARY 670HP@1800 RPM
Replaced N/A

C18 Marine Aux. EPG 440-9726 27 JUL13
547bKW 60HZ 733HP@1800RPM
Replaced 244-3495,272-0678,278-5574,308-7232

C18 Marine Aux. EPG 440-9734 27 JUL13
547bKW 60HZ 733HP@1800RPM
Replaced 262-8544,272-0686,278-5582,308-7240

C18 Marine Aux. EPG 440-9727 28 JUL13
601bKW 60 HZ 806HP@1800RPM
Replaced 244-3497,272-0679,278-5575,308-7233

C18 Marine Aux. EPG 433-9245 28 JUL13
601bKW 60 HZ 806HP@1800RPM
Replaced 262-8546,272-0687,278-5583,308-7241

C18 EPG 2806C-E18 267-4622 33 DEC04
640bKW @ 1500 RPM
Replaced 250-1390,255-6265

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228 1850 3408E/3412E/C18/C27/C32,3500 Machine & Commercial Engine FLASH File Cross Reference

Upated February 03, 2009 dba

SEE SPECIAL INSTRUCTIONS REHS1385 FOR DETAILS ON INJECTOR INFORMATION

ENGINE RATING/ APPLICATION	INFORMATION	FLASH FILE	SERVICE MODULE	IC	RELEASE DATE
MACHINE					
AD40/AE40 3408E	365 HP/2000 REPLACED 191-6548,207-4672,222-9256	236-5572	--------	18	MAR03
AD40/AE40 3408E	365 HP/2000 FOR USE WITH NEW STYLE INJECTORS (198-4752) REPLACED 214-3385 SEE REHS1385	239-4149	--------	76	APR03
AD45/AE45 3408E	380 HP/2000 FOR USE WITH FORMER STYLE INJECTORS (174-7526) REPLACED 195-3837,207-4609,222-9255 SEE REHS1385	236-5571	--------	48	MAY03

AD40/AE40 3408E 510 HP/2000 FOR USE WITH NEW STYLE INJECTORS (198-4752) REPLACED 214-3383,239-4148 SEE REHS1385	275-5870	--------	75	JUN05
Trucks sold in France only 769D/3408E (5TR1 - 1054) 771D/3408E (6JR1 - 309) FOR USE WITH NEW STYLE INJECTORS (198-4752) REPLACED 214-3377 SEE REHS1385	237-0733	--------	64	APR03
Trucks sold in France only 773D/3412E (7ER1 - UP) FOR USE WITH FORMER STYLE INJECTORS (174-7526) REPLACED 177-5370 (IC 20), 222-9258 (IC 12) SEE REHS1385	236-5596	--------	12	MAY03
Trucks sold in France only 773D/3412E (7ER1 - UP) FOR USE WITH NEW STYLE INJECTORS (198-4752) REPLACED 214-3389 SEE REHS1385	239-1414	--------	115	APR03
769C Retrofit/3408E 474 HP/2000 RPM Replaced 221-2917	246-1555	--------	92	MAY03
All trucks except sold in France 769D/3408E (5TR1 - UP) (5SS1 - UP) 771D/3408E (6JR1 - UP) FOR USE WITH FORMER STYLE INJECTORS (174-7526) (6YS1 - UP) 69D /3408E (9SS1 - UP) TIER II REPLACED 188-7053,177-5368,222-9235 SEE REHS1385	236-5581	--------	3	APR03
All trucks except sold in France 769D/3408E (5TR1 - UP) (5SS1 - UP) 771D/3408E (6JR1 - UP) (6YS1 - UP) TIER 1 FOR USE WITH NEW STYLE INJECTORS (198-4752) REPLACED 214-3375 SEE REHS1385	237-0732	--------	63	APR03
All trucks except sold in France 69D /3408E (9SS1 - UP) TIER 1 FOR USE WITH NEW STYLE INJECTORS (198-4752) REPLACED 214-3379 SEE REHS1385	239-4155	--------	65	APR03
All trucks except sold in France 769D/3408E (5TR1 - UP) (5SS1 - UP) 771D/3408E (6JR1 - UP) FOR USE WITH NEW STYLE INJECTORS (198-4752) (6YS1 - UP) TIER II 69D /3408E (9SS1 - UP) REPLACED 211-8764 SEE REHS1385	238-1011	--------	57	APR03
769D/3408E UNDER GROUND MINING	169-3699	--------	42	JUN99
773B/3412E 682HP/2000 RPM Retrofit (California Emissions Credit) FOR USE WITH NEW STYLE INJECTORS (198-4752) REPLACES 212-6930,246-1554 SEE REHS1385	317-5254	--------	145	JUL07

773D/3412E (7ER1 - UP) (7CS1 - UP) FOR USE WITH NEW STYLE INJECTORS (198-4752) REPLACED 177-5372(IC 12),214-3347, 239-1413 (SEE REHS1385)	310-1883	--------	114	MAR07
773D/3412E (7ER1 - UP) (7CS1 - UP) FOR USE WITH NEW STYLE INJECTORS (232-1175) REPLACED 177-5372,222-9257 SEE REHS1385	236-5595	--------	12	APR03
773E/3412E Tier II 710 HP/2000 REPLACED 197-4785, 211-876 5	238-1014	--------	61	APR03
73D /3412E (1GW1 - UP) FOR USE WITH FORMER STYLE INJECTORS (174-7526) REPLACED 207-0848, 222-9260 SEE REHS1385	236-5598	--------	22	MAY03
73D /3412E (1GW1 - UP) FOR USE WITH NEW STYLE INJECTORS (198-4752) REPLACED 207-0848, 214-3356 SEE REHS1385	239-4163	--------	116	MAY03
775D/3412E (6KR1 - UP) (8AS1 - UP) FOR USE WITH NEW STYLE INJECTORS (198-4752) REPLACED 214-3349 SEE REHS1385	239-1415	--------	121	APR03
775E/3412E Tier II 760 HP/2000 REPLACED 208-3006,211-8766, 231-9077,235-8806	314-2910	--------	60	MAY07
773F/C27 ACERT 714/730 HP/1800 RPM 697/719 HP/2000 RPM REPLACED 251-3806,292-4603,297-4746, 301-5308	330-6542	--------	4	Apr09
775F/C27 ACERT 777 HP/1800 RPM 777 HP/2000 RPM REPLACED 251-3807,292-4604,295-6120, 301-5323	330-6065	--------	5	Apr09
C27 MACH 775_Tier4f 813HP@1800RPM Replaced	541-0603		11	NOV13
C27 OHT 773G TIER 4F PROD 7 763hp @ 1800rpm Replaced	450-9934		10	NOV13
777D/3508B Tier I 920/1000 HP/1750RPM REPLACED 243-0004,257-8915	306-4183	--------	17	JAN07
777D/3508B Tier I GT47	306-4153	--------	30	JAN07

920/1000 HP/1750RPM
REPLACED 281-2879

777D/3508B GT47 325-4681 -------- 33 JAN08
410/920 @ HP/1750RPM
REPLACED 291-3881

C27 IND CDE TIER ENGINE PSO 450-5743 SEP13
1050 2100 26
1150 2100 27
950 2100 28

C32 IND BCDE TIER ENGINE PSO 447-8055 JUL13

C32 MACH 777_Tier4f 451-0606 10 NOV13
1011HP@1800RPM
Replaces

777F/C32 ACERT 326-8166 -------- 3 MAY08
969/1016 HP@1750RPM
REPLACED 269-9085,291-8545,
295-4732,301-5708,319-1823

777F/C32 ACERT 344-8246 -------- 102 Apr09
970/1016 HP@1750RPM
REPLACED 330-0654

785C/3516B HAA 317-3355 -------- 11 JUL07
1380/1450 HP@1750RPM
REPLACED 243-0006

785C/3512B HD Tier I 306-4193 -------- 12 JAN07
1380/1450 HP@1750RPM
REPLACED 237-6372,277-7209

785F/3512C Tier II 335-6779 -------- 19 JUL08
1380/1450 HP@1750RPM
REPLACED 311-8506

789C/3516B Tier I 325-0578 -------- 19 JAN08
1800/1900 HP@1750RPM
REPLACED 243-0009,257-5918,306-4394

789C/3516B HAA 329-2606 -------- 28 JUN08
1800/1900 HP@1750RPM
REPLACED 246-9317,252-4860,317-6516

793D/3516B 332-1113 -------- 7 AUG08
2160/2270/2415 HP/1750RPM
REPLACED 253-1546,265-4389,
300-4965,302-1235,329-0100

992K/854K C32 TIER4 FINAL 451-2152 -------- 5 JAN14
921 HP/1750RPM
REPLACED 347-7072,377-1608,380-8673
388-5366,390-5015,393-1599,422-4885

992K/854K/C32 ACERT 359-9483 -------- 36 OCT11
943 HP/1750RPM
REPLACED 282-8750,315-6209,334-3711
345-7711

992K/C32 ACERT 345-7710 -------- 2 May09
1050 HP/1900RPM
REPLACED 246-1559,277-5564,295-6058,
334-3263

69D /3408E ELPHINSTONE 236-5580 --------- 65 MAY03
FOR USE WITH FORMER STYLE INJECTORS (174-7526)
SEE REHS1385
REPLACED 151-7061,206-7741,222-9241

631G/637G/3408E 236-5570 -------- 47 MAY03
517HP/2000 FOR USE WITH FORMER STYLE INJECTORS (174-7526)
SEE REHS1385
REPLACED 189-1041,198-1116,222-9237

631G/637G/3408E 238-1010 -------- 62 APR03
517HP/2000 AWK1-272, AXT1-316
FOR USE WITH NEW STYLE INJECTORS (198-4752)
SEE REHS1385
REPLACED 198-1116,214-3343

631E/3408E (1AB1640 - UP) 236-5577 -------- 6 MAY03
(1NB1390 - UP).
633E/3408E (2PS0290 - UP)
637E/3408E (1FB0660 - UP)
FOR USE WITH FORMER STYLE INJECTORS (174-7526)
SEE REHS1385
REPLACED 177-5376,222-9244

631E/3408E (1AB1640 - UP) 239-4152 -------- 68 APR03
(1NB1390 - UP)
633E/3408E (2PS0290 - UP)
637E/3408E (1FB0660 - UP) FOR USE WITH NEW STYLE INJECTORS (198-4752)
REPLACED 214-3362 SEE REHS1385

631G/637G 3408E (CLR1-UP,CEH1-UP) 230-1557 -------- 93 NOV02
USED WHEN SCRAPER ENGINE IS ELECTRONIC C9

65xB/3408E Scraper Retrofit 221-2921 -------- 83 May03
550HP/1900 rpm Retrofit (California Emissions Credit)
FOR USE WITH NEW STYLE INJECTORS (198-4752)
REPLACES N/A SEE REHS1385
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RETROFIT
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D8L/3408E NP Retrofit 270-4369 -------- 96 FEB05
358HP/1900 RPM
Replaced 230-9771

D9N/3408E TTT Retrofit 286-7263 -------- 85 NOV05
401HP/1900 RPM
Replaced 212-6924

D10N/3412E NP Retrofit 273-5839 -------- 150 APR05
557HP/1900 RPM
Replaced 230-9777

D10N TIER III/C27 Retrofit 597 HP @ 1800RPM Replaced 317-1542	365-5930		40	Oct10
D10R TIER III/C27 Retrofit 646 HP @ 1800 RPM Replaced 329-4334	365-5929		68	Oct10
f				
620B WTS/C15 Tier 3 Retrofit 359/394 HP @ 1800 REPLACED N/A	312-8795	---------	92	MAY07
C15 MACH-621G WTS 359HP @ 1800RPM, 394HP @ 1800RPM Replaced 365-4213, 368-9107	428-9447		143	DEC12
834B/3408E Retrofit 487HP/2100 RPM Replaced N/A	215-7423	--------	87	MAY03
63XE/3408E WTS Retrofit 475HP/2000 RPM Replaced N/A	221-2907	--------	89	MAY03
988F/3408E WHL Retrofit 429HP/2000 RPM Replaced N/A	221-2911	--------	90	APR03
988F/3408E WHL Retrofit 458HP/2000 RPM Replaced N/A	263-3741	--------	102	DEC04
988B/3408E Retrofit 410HP/2100 RPM Replaced 221-2913,230-9780	286-9811	--------	91	DEC05
992C/3412E MACH Retrofit 725HP/2000 RPM Replaced N/A	296-2765	--------	146	JUL06
772B/3412E Retrofit 689HP/2000 RPM Replaced 220-4572	276-3446	--------	152	MAY05
777B/3508B Retrofit 920HP/1750 RPM Replaced N/A	294-8717	--------	36	AUG06
777C/3508B Retrofit 920HP/1750 RPM Replaced N/A	294-4943	--------	35	AUG06
777G/C32 LRC Tier4f 1022HP/1800 RPM Replaced N/A	381-8109	--------	9	Mar12
793B/3516B MACH-HD Retrofit 2160HP/1750 RPM Replaced N/A	303-1920	--------	31	OCT06

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650E/3408E WTS Scraper VHP 239-4154 -------- 70 MAY03
457/1900 rpm
FOR USE WITH NEW STYLE INJECTORS (198-4752)
REPLACED 214-3365 SEE REHS1385

657E/3408E Non-Dual HP Scraper 236-5578 -------- 11 MAY03
(7KR202-250)
FOR USE WITH FORMER STYLE INJECTORS (174-7526)
REPLACED 164-4632, 222-9245 SEE REHS1385

657E/3408E Non-Dual HP Scraper 239-4153 -------- 69 APR03
(7KR202-250) FOR USE WITH NEW STYLE INJECTORS (198-4752)
REPLACED 164-4632, 214-3363 SEE REHS1385

657E/3408E Dual HP Scraper 236-5579 -------- 23 MAY03
(7KR251 - UP),(6PR104 - UP)
FOR USE WITH FORMER STYLE INJECTORS (174-7526)
REPLACED 177-5386,222-9246 SEE REHS1385

657E/3408E Dual HP Scraper
(7KR251 - UP) 239-4154 -------- 70 APR03
(6PR104 - UP) FOR USE WITH NEW STYLE INJECTORS (198-4752)
REPLACED 177-5386, 214-3365 SEE REHS1385

65xE/3412E Scraper Retrofit 212-6928 -------- 147 MAY03
577HP/1900 RPM Retrofit (California Emissions Credit)
FOR USE WITH NEW STYLE INJECTORS (198-4752)
REPLACES N/A SEE REHS1385

650E/3412E WTS Tractor VHP 239-4161 -------- 120 MAY03
576hp/1900 rpm
FOR USE WITH NEW STYLE INJECTORS (198-4752)
REPLACED 214-3354 SEE REHS1385

657E/3412E Dual HP Tractor 236-5594 -------- 21 MAY03
(5YR258 - UP), (6TR208 - UP)
FOR USE WITH FORMER STYLE INJECTORS (174-7526)
REPLACED 177-5388, 222-9269 SEE REHS1385

657E/3412E Dual HP Tractor
(5YR258 - UP) 239-4161 -------- 120 APR03
(6TR208 - UP)
FOR USE WITH NEW STYLE INJECTORS (198-4752)
REPLACED 177-5388, 214-3354 SEE REHS1385

651E/3412E (4YR188 - UP) 239-4160 -------- 119 APR03
657E/3412E (5YR212-257)
657E/3412E (6TR199-207) Non-Dual HP Tractor.
FOR USE WITH NEW STYLE INJECTORS (198-4752)
REPLACED 164-3805, 214-3352 SEE REHS1385

651E/3412E (4YR188 - UP) 236-5593 -------- 7 MAY03
657E/3412E (5YR212-257)
657E/3412E (6TR199-207) Non-Dual HP Tractor.
FOR USE WITH FORMER STYLE INJECTORS (174-7526)
REPLACED 164-3805, 222-9268 SEE REHS1385

834B/836/3408E (7BR1 - UP) 236-5583 -------- 12 MAY03
(7FR001-263 w/o PS8971 update)

FOR USE WITH FORMER STYLE INJECTORS (174-7526)
REPLACED 177-5378, 222-9250 SEE REHS1385

834B/836/3408E (7BR1 - UP) 237-0737 -------- 59 APR03
(7FR001-263) FOR USE WITH NEW STYLE INJECTORS (198-4752)
REPLACED 214-3369 SEE REHS1385

836 /3408E (7FR00264 - UP) 236-5585 -------- 21 MAY03
(7FR1-263 w/ PS8971 update)
FOR USE WITH FORMER STYLE INJECTORS (174-7526)
REPLACED 177-5380,222-9252 SEE REHS1385

836/3408E 525HP 2100HP 237-0739 ------- 61 APR03
(7FR264-478)
FOR USE WITH NEW STYLE INJECTORS (198-4752)
REPLACED 214-3373 SEE REHS1385

834B/3408E sold in Spain only 236-5584 -------- 24 MAY03
FOR USE WITH FORMER STYLE INJECTORS (174-7526)
REPLACED 177-5382, 222-9251 SEE REHS1385

834B/3408E sold in Spain only 237-0738 -------- 60 APR03
FOR USE WITH NEW STYLE INJECTORS (198-4752)
REPLACED 214-3371 SEE REHS1385

C18 MACH 988_Tier 4F_LRC 445-1981 2 JAN14
526HP@1700RPM
Replaces 380-6203,393-5770

C18 988K T4F LRC 455-2530 1 SEP13
535HP@1700RPM
Replaces 380-6205,445-1983,449-9753

C18 MACH-988K TIER4F 452-3336 3 JUL13
530HP@1700RPM
Replaces 376-7073,393-5766,442-4761,446-0317,449-7724

C18 MACH - 834K LRC 445-2751 4 JAN14
581HP@1700RPM
Replaces 380-6229

C18 MACH - 834K LRC 455-2531 3 JAN14
571HP@1700RPM
Replaces 380-6224,445-1991,449-9771

C18 MACH-24M MG 441-7516 212 Jun13
542HP@1800RPM
544HP@1700RPM
Replaces 433-6929

C18 MACH-834K CMP 449-7725 4 JUL13
362HP@2120RPM
Replaced 376-8076,393-5767,442-4769

C18 MACH-24M MG 433-6931 211 APR13
542HP@1800RPM
544HP@1700RPM

C18 MACH 24M MG 437-7379 145 APR13
542HP@1800RPM

Replaces 360-1781,219-7185,309-9653
326-9557,366-6155,392-6571,422-3782

C18 MACH 24M MG 437-7387 176 APR13
542HP@1800RPM
Replaces 373-9815,394-1151,422-3820

AD45B ADT C18 MACH ACERT TT 272-5530 --------- 19 APR05
589 HP @ 2000
REPLACED 269-8296

C18 MACH-D9T TTT NACD LRC 445-0534 3 SEP13
464HP@1800RPM
Replaced 364-2782, 372-3326,381-2711,387-8444

C18 MACH-D9T TTT 439-7193 144 AUG13
464HP@1800RPM
Replaces 361-8115

C18 MACH-D9T TTT 452-0476 8 JAN14
463HP@1800RPM
Replaced 381-9641,438-9610,444-9758
451-0601

C18 F IRONSET AFT 452-4757 N/A JAN14
0HP@0RPM
Replaced

C18 MACH-AD45 UNDERGROUND AT 422-7469 19 MAY13
589HP@2000RPM
Replaces 250-2818,269-8296,272-5530
323-2034,360-9937

AD55X/C18 MACH ACERT TT 375-3398 --------- 44 Jun13
650 HP @ 2000
REPLACED 229-2777,246-8295,256-6773,266-3536,
283-3431,324-6836

772/C18 MACH ACERT Tier 3 317-6046 --------- 7 AUG07
557/598 HP @ 1800
REPLACED 219-7187,230-9782,
282-9921,295-4647

C18 MACH-772 OHT 445-7797 9 OCT13
571HP@1900RPM
Replaced 379-2106,441-9490,445-7797

C18 MACH-D9T TTT NACD STD LRC 445-0535 5 JUL13
464HP@1800RPM
Replaces 371-2802,381-2710,387-8446

24M/C18 MACH MG ACERT 326-9557 --------- 18 FEB08
542 HP @ 1800
REPLACED 219-7185,309-9653

385C/C18 MACH ACERT Tier 3 313-7642 --------- 27 MAY07
700 HP @ 1820
REPLACED 263-2086

385C/C18 MACH Ti ACERT 337-6857 --------- 31 Mar09
553 HP @ 1800

REPLACED 263-3701,306-6864,
326-1108

385C/C18 MACH Ti LRC ACERT 326-1107 --------- 32 FEB08
552 HP @ 1800
REPLACED 268-3702,306-6851

834/836H/C18 MACH ACERT 313-4135 --------- 1 MAY07
554 HP @ 1800
REPLACED 268-5715,291-4790,303-9541

834/836H/C18 MACH ACERT 265-3288 --------- 29 JAN05
554 HP @ 1800
REPLACED NA

C18 MACH - 836 CMP 447-3920 5 SEP13
523HP@1800RPM
554HP@1800RPM
Replaces 378-3258,442-4763

C18 MACH-988H LWL 434-9506 183 AUG13
523HP@1800RPM, 555HP@1800RPM
Replaces 370-6161

C32 MACH-992K/854K LWL 434-9497 36 AUG13
943HP@1750RPM
Replaces 282-8750,315-6209,334-3711
345-7711, 359-9483

C32 MACH-993K LWL 451-2153 8 JAN14
1072HP@1800RPM
Replaces 349-7717,370-1541,377-1609
422-4886

C32 MACH - 993K LWL 434-9498 2 AUG13
1050HP@1900RPM
Replaces 246-1559,277-5564,315-4189,295-6058
334-3263,345-7710,359-9484

C27 MACH-990H LWL 434-9496 1 AUG13
686HP@2000RPM
Replaced 226-4736,250-8294,261-1558
284-2349,288-5926,337-0921,359-9482

MT865/C18 MACH ACERT 280-3527 --------- 25 MAY07
525 HP @ 2100
REPLACED 275-2167,276-2680

MT865/C18 MACH ACERT 305-3318 --------- 83 DEC06
525 HP @ 2100
REPLACED N/A

630G WTS/C18 MACH ACERT 439-7194 --------- 13 AUG13
488 HP @ 1800
REPLACED 227-1401,261-1588,317-3218
327-1003,339-0927,397-5326

637E WTS/C18 MACH ACERT 318-2878 --------- 67 AUG07
488 HP @ 1800
REPLACED 303-8132

657G WTS/C18 MACH ACERT 434-9490 --------- 61 AUG13
596/632 HP @ 1800
REPLACED 295-6949,317-3217,327-2227
397-5327

988F/3408E (2ZR00001-00699) 236-5586 -------- 1 MAY03
FOR USE WITH FORMER STYLE INJECTORS (174-7526)
REPLACED 177-5361,222-9247 SEE REHS1385

988F/3408E (2ZR00001-00699) 237-0734 -------- 78 APR03
FOR USE WITH NEW STYLE INJECTORS (198-4752)
REPLACED 211-1655 SEE REHS1385

988F/3408E (2ZR00700-01631) 236-5587 -------- 20 MAY03
FOR USE WITH FORMER STYLE INJECTORS (174-7526)
REPLACED 173-5597,222-9248 SEE REHS1385

988F/3408E (2ZR00700-01631) 237-0735 -------- 79 APR03
FOR USE WITH NEW STYLE INJECTORS (198-4752)
REPLACED 212-5087 SEE REHS1385

988FII/3408E (2ZR01632 - UP) 236-5588 -------- 45 MAY03
FOR USE WITH FORMER STYLE INJECTORS (174-7526)
REPLACED 169-6300,222-9249 SEE REHS1385

988FII/3408E (2ZR01632 - UP) 237-0736 -------- 58 APR03
FOR USE WITH NEW STYLE INJECTORS (198-4752)
REPLACED 214-3367 SEE REHS1385

988FII/3408E UNDER GROUND MINING 177-5363 -------- 25 SEP99
Replaced N/A

980H/C15 MACH MWL EPA/MLIT 332-1441 -------- 104 MAY08
332/362/363/393@1800RPM
Replaced 320-6138,330-4553

988H/C18 MACH ACERT 332-9423 --------- 3 JUN08
555 HP @ 1800
REPLACED 266-6517,289-8580,
301-7010,313-3626

990/844/3412E (4FR1 - UP) 236-5599 -------- 2 MAY03
FOR USE WITH FORMER STYLE INJECTORS (174-7526)
REPLACED 177-5364,222-9266 SEE REHS1385

990/844/3412E (4FR1 - UP) 239-4164 -------- 113 MAY03
675HP/2000 rpm
FOR USE WITH NEW STYLE INJECTORS (198-4752)
REPLACED 177-5364, 214-3345 SEE REHS1385

990 Tier II 680 HP 2000 RPM 238-1015 -------- 73 APR03
FOR USE WITH NEW STYLE INJECTORS (198-4752)
REPLACED 197-6431,221-4505,228-7127 SEE REHS1385

990 3412E Retrofit 215-7425 -------- 146 MAY03
660 HP 2000 RPM

990/844 Tier II 3412E Retrofit 226-8793 -------- 154 JAN05
675 HP 2000 RPM

992G MACH 3508B GT47 272-8014 -------- 29 MAR05

880 HP 1750 RPM

D9L/3412E TTT	215-7419	--------	143	MAY03
492HP/1900 RPM Retrofit (California Emissions Credit)				
FOR USE WITH NEW STYLE INJECTORS (198-4752)				
REPLACES N/A				
D9R/3408E (8BL830-1380)	133-1440		6	DEC95
CLUTCH BRAKE				
Replaced 173-5599				
D9R/3408E CLUTCH BRAKE.	236-5573	--------	44	MAY03
(8BL1381-UP)				
FOR USE WITH FORMER STYLE INJECTORS (174-7526)				
REPLACED 169-6303,222-9242 SEE REHS1385				
D9R/3408E (8BL1381- UP)	239-4150	--------	66	APR03
CLUTCH BRAKE				
FOR USE WITH NEW STYLE INJECTORS (198-4752)				
REPLACED 169-6303,214-3358 SEE REHS1385				
D9R/3408E (7TL557-1037)	173-5601	173-5602	6	JUL99
DIFFERENTIAL STEER				
D9R/3408E (7TL1038 - UP)	236-5574	--------	44	MAY03
FOR USE WITH FORMER STYLE INJECTORS (174-7526)				
REPLACED 169-6305,222-9243 SEE REHS1385				
D9R/3408E (7TL1038 - UP)	239-4151	--------	67	APR03
FOR USE WITH NEW STYLE INJECTORS (198-4752)				
REPLACED 169-6305,214-3360 SEE REHS1385				
D9R/3408E Phase III	236-5569	--------	44	MAY03
475 HP @ 1800 ABK1-708, ACL1-853				
FOR USE WITH FORMER STYLE INJECTORS (174-7526) SEE REHS1385				
REPLACED 199-4437,196-5013,186-4920,				
209-2017,211-4991,222-9236				
D9R/3408E Phase III	238-1009	--------	56	APR03
475 HP @ 1800				
FOR USE WITH NEW STYLE INJECTORS (198-4752)				
211-4991,214-3341 SEE REHS1385				
D9T/C18 MACHINE SS ACERT NACD	434-9504	--------	5	AUG13
464 HP @ 1800				
REPLACED 243-3420,260-5882,267-8346,				
278-1864,299-1769,311-6857,325-3642				
390-5243				
D9T/C18 MACHINE SS ACERT EU	439-7191	--------	15	AUG13
464 HP @ 1800				
REPLACED 244-8690,260-5883,267-8347				
278-1211,299-1768,311-6858,325-4459				
390-5244				
C18 MACH-D9T TTT NACD	439-7192		184	AUG13
464HP@1800RPM				
Replaces 374-2612				
PM200/C18 COLD PLANER ACERT	293-4851	--------	17	APR06
575 HP @ 1900				

REPLACED 273-3889

PM200/C18 COLD PLANER ACERT 325-3635 -------- 66 JAN08
575 HP @ 1900
REPLACED 300-7641,305-5543

PM201/C18 COLD PLANER ACERT 328-1652 -------- 69 APR08
575 HP @ 1900
REPLACED 266-3709,261-1597,
247-2777,280-1580

C18 MACH-390F HEX 449-8569 2 OCT13
543HP@1900RPM
Replaces 379-5058,420-3495
433-9292

PM565B/3408E (8GS131-153) 173-5603 19 AUG99
REPLACED 152-7173,173-5604

PM565B (8GS1- 226) 236-5575 -------- 46 MAY03
FOR USE WITH FORMER STYLE INJECTORS (174-7528)
REPLACED 169-6307,222-9253 SEE REHS1385

PM565B (8GS1- 226) 237-2056 -------- 74 MAY03
FOR USE WITH NEW STYLE INJECTORS (198-4752)
REPLACED 225-4335 SEE REHS1385

PM565B (8GS227-up) 237-2057 -------- 82 MAY03
FOR USE WITH NEW STYLE INJECTORS (198-4752)
REPLACED 214-3381 SEE REHS1385

PM565 /3408E (3TK113-115,117-UP) 236-5576 -------- 13 MAY03
FOR USE WITH FORMER STYLE INJECTORS (174-7526)
REPLACED 150-3437,222-9254 SEE REHS1385

PM565 /3408E (3TK113-123) 239-5973 -------- 77 MAY03
FOR USE WITH NEW STYLE INJECTORS
REPLACED 218-1944 SEE REHS1385

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24H/3412E (7KK1 - UP) 236-5591 -------- 6 MAY03
FOR USE WITH FORMER STYLE INJECTORS (174-7526)
REPLACED 177-5384,222-9267 SEE REHS1385

24H/3412E (7KK1 - UP) 270-0354 -------- 118 FEB05
540HP/2000 rpm
FOR USE WITH NEW STYLE INJECTORS (198-4752)
SEE REHS1385
REPLACED 177-5384,214-3351,239-4158,244-7591

5110/3412E 236-5592 -------- 38 MAY03
FOR USE WITH FORMER STYLE INJECTORS (174-7526)
REPLACED 151-7095,222-9265 SEE REHS1385

5110B/3412E 757 HP 1800 RPM 239-4159 -------- 107 MAY03
757HP/1800 RPM
FOR USE WITH NEW STYLE INJECTORS (198-4752)
REPLACED 208-2923 SEE REHS1385

AD55B/C27 MACH ACERT 295-4694 --------- 39 MAY06
805 HP @ 2000
REPLACED N/A

D10R/3412E 161-4176 30 JAN99
(3KR1-558,560,567,727)

D10R/3412E 236-5589 -------- 31 MAY03
(3KR562-566,568-726,728-UP)
FOR USE WITH FORMER STYLE INJECTORS (174-7526)
REPLACED 151-7073,161-0567,201-7440,
222-9261 SEE REHS1385

D10R/3412E EEC SOUND 236-5590 -------- 32 MAY03
FOR USE WITH FORMER STYLE INJECTORS (174-7526)
REPLACED 201-9913,222-9262 SEE REHS1385
D10R FOR EUROPE ONLY WITH EEC SOUND ATTACHMENT GROUP 153-1227

D10R/3412E 236-5590 25 MAY03
(3KR996-1115,1117,1118,
1125-UP)
REPLACED 161-0571,161-0572,201-9913

D10R/3412E Phase III Test 209-2020 -------- 51 MAY01
661 HP @ 1800
REPLACED 190-4188

D10R/3412E Phase III NACD 253-8993 --------- 111 NOV04
661 HP @ 1800
FOR USE WITH NEW STYLE INJECTORS (198-4752)
SEE REHS1385
REPLACED 214-3387,221-9335,
238-1012,246-5945,247-4586

D10R/3412E Phase III EU 253-8994 --------- 112 NOV04
661 HP @ 1800
SOUND SUPPRESSION NEW STYLE INJECTORS (198-4752)
SEE REHS1385
REPLACED 214-3392,221-9336,
238-1013,246-5946,247-4588

D10R/3412E IM SI 243-5439 --------- 103 AUG03
613 HP @ 1900
FOR USE WITH NEW STYLE INJECTORS (198-4752)
REPLACED 208-5805,213-6416,222-9263, 239-4156 SEE REHS1385

D10R/3412E EEC IM SI 243-5440 -------- 104 AUG03
613 HP @ 1900
FOR USE WITH NEW STYLE INJECTORS (198-4752)
REPLACED 208-5808,213-6418,222-9264, 239-4157 SEE REHS1385

D10T/C27 NACD ACERT RATAAC 434-9517 --------- 3 AUG13
646 HP @ 1800
REPLACED 223-3266,229-2682,269-8815,282-0786, 354-4954, 374-4609,426-1841

D10T/C27 EU ACERT RATAAC 434-9518 --------- 6 AUG13
646 HP @ 1800
REPLACED 229-2768,282-0787, 354-4955, 374-4608
426-1840

C27 MACH-D10T TTT EU ACERT 434-9516 --------- 34 AUG13
646 HP @ 1800
REPLACED 278-0173,298-8564,313-4535, 344-8245, 359-5139, 374-4607
425-0572

C27 MACH-D10T TTT LRC 451-5514 16 NOV13
752HP@1800RPM
Replaces 380-5973,424-4398

D10T/C27 NACD ACERT 434-9501 --------- 32 AUG13
646 HP @ 1800
REPLACED 276-5460,278-0770,298-8561,
313-4534, 344-8244, 359-5138, 374-4606,425-0571

D10T/C27 378-3285 1 SEP11
752 HP @ 1800
REPLACED N/A

D11T/C32 NACD ACERT 434-9508 --------- 30 AUG13
922 HP @ 1800
REPLACED 231-0302,295-9910,307-0540,
312-4341,326-8128, 344-1769, 373-9182,425-0604

C32 MACH-D11T LRC TTT 424-4397 3 DEC12
923HP @ 1800RPM
Replaced 357-5314, 380-3664, 386-1517, 398-4824

C32 MACH-D11T2 TTT 450-9237 12 NOV13
927HP @ 1800RPM
Replaced 354-1241, 376-8070, 379-3838, 385-7867, 396-8387
424-4396

C32 MACH-D11T2 TTT 436-3872 Parts Service Only APR13

D11RB/3508B MACH GT47 265-4288 --------- 31 AUG05
936 HP @ 2000
REPLACED N/A

990H/C27 MACH ACERT 337-0921 --------- 1 May09
686 HP @ 2000
REPLACED 250-8294,261-1558,284-2349,
288-5926

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3408E & 3412E INDUSTRIAL ENGINE RATING INFORMATION	FLASH FILE	SERVICE MODULE	IC	RELEASE DATE
3408E JWAC HIGH POWER	154-4634	154-4635	14	NOV97
3408E JWAC HIGH POWER 525/550/575 HP @ 2100 REPLACED 160-9959	203-3207	--------	14	JAN01
3408E JWAC HIGH POWER 400/425/450/475/500/525 HP @ 1800 with 172-0802 ECM REPLACED 160-9958,211-0761,221-9304	225-9211	--------	15	JUN02
3408E JWAC HIGH POWER 400/425/450/475/500/525 HP @ 1800 with 156-7172 ECM REPLACED 160-9958,211-0761,221-9320	225-9215	--------	15	JUN02
3408E JWAC HIGH POWER 525/550/575 HP @ 2100 with 172-0802 ECM REPLACED 160-9959,203-3207,207-5402,221-9301	225-9208	--------	52	JUN02

3408E JWAC HIGH POWER 525/550/575 HP @ 2100 with 156-7172 ECM REPLACED 160-9959,203-3207,207-5402,221-9317	225-9212	--------	52	JUN02
3408E JWAC HIGH POWER 625/650/675 HP @ 2100 with 172-0802 ECM REPLACED 203-3208,207-5414,211-0759,221-9302	225-9209	--------	53	JUN02
3408E JWAC HIGH POWER 625/650/675 HP @ 2100 with 156-7172 ECM REPLACED 203-3208,207-5414,211-0759,221-9318	225-9213	--------	53	JUN02
3408E JWAC HIGH POWER 600/625/650/675/700/725/750 HP @ 2100 with 172-0802 ECM REPLACED 160-9960,203-3210,208-0829,211-0760,221-9303	225-9210	--------	54	JUN02
3408E JWAC HIGH POWER 600/625/650/675/700/725/750 HP @ 2100 with 156-7172 ECM REPLACED 160-9960,203-3210,208-0829,211-0760,221-9319	225-9214	--------	54	JUN02
3412E JWAC DITA LOW POWER 475 HP @ 1200/645 HP @ 1500	213-4886	--------	131	MAR02
3412E JWAC 650 HP @ 1800 for use with 172-0802 ECM REPLACED 160-9961,203-3205,208-1046,211-0764	221-9289	--------	93	JUN02
3412E JWAC 650 HP @ 1800 for use with 156-7172 ECM REPLACED 160-9961,203-3205, 208-1046,211-0764, 221-9307	241-1770	--------	93	JUN03
3412E JWAC 650/680/700/730/750 HP @ 2000 for use with 172-0802 ECM REPLACED 160-9961,203-3206, 208-1047,211-0765	221-9290	--------	94	JUN02
3412E JWAC 650/680/700/730/750 HP @ 2000 for use with 156-7172 ECM REPLACED 160-9961,203-3206, 208-1047,211-0765	221-9308	--------	94	JUN02
3412E JWAC LOW POWER 760 HP @ 2100 for use with 172-0802 ECM REPLACED 188-8709,211-0770,208-9585	221-9295	--------	109	JUN02
3412E JWAC LOW POWER 760 HP @ 2100 for use with 156-7172 ECM REPLACED 188-8709,211-0770,208-9585, 221-9312	241-1773	--------	109	AUG03
3412E JWAC LOW POWER 800 HP @ 2100 for use with 172-0802 ECM REPLACED 188-8709,211-0770,200-1768	221-9296	--------	110	JUN02

3412E JWAC LOW POWER 241-1774 -------- 110 AUG03
800 HP @ 2100 for use with 156-7172 ECM
REPLACED 188-8709,211-0770,200-1768, 221-9313

3412E JWAC LOW POWER 221-9294 -------- 108 JUN02
820/860 HP @ 2100 for use with 172-0802 ECM
REPLACED 188-8709,211-0770,214-3461

3412E JWAC LOW POWER 241-1772 -------- 108 AUG03
820/860 HP @ 2100 for use with 156-7172 ECM
REPLACED 188-8709,211-0770,214-3461, 231-9311

3412E JWAC HIGH POWER 221-9314 -------- 54 JUN02
900/950/1000/1050 HP @ 2100 for use with Non-Prime injectors
REPLACED 188-8710,211-0772

3412E JWAC HIGH POWER 221-9298 -------- 54 MAY02
900/950/1000/1050 HP @ 2100 for use with Prime Injectors
REPLACED 188-8710,211-0772

3412E JWAC 203-3203 -------- 28 JAN01
425/500/575 @ 1800
REPLACED 160-9965

3412E JWAC 203-3204 -------- 28 JAN01
625 @ 1800
REPLACED 160-9965

3412E JWAC 221-9287 -------- 95 JUN02
425/500/575 HP @ 1200 for use with 172-0802 ECM
REPLACED 160-9965,203-3203,208-1044,211-0762

3412E JWAC 221-9305 -------- 95 MAY02
425/500/575 HP @ 1200 for use with 156-7172 ECM
REPLACED 160-9965,203-3203,208-1044,211-0762

3412E JWAC 240-0299 -------- 141 JUN03
451/485/522/548 HP @ 1800
522/559 HP @ 2000
559 HP @ 1800
522/559 HP @ 2100
REPLACED 221-9334

3412E DITA JWAC LSP PETRO/IND 297-4821 -------- 139 JUL06
425 HP @ 1200
500 HP @ 1200
575 HP @ 1300
REPLACED N/A

3412E JWAC 221-9288 -------- 96 JUN02
625 HP @ 1400 for use with 172-0802 ECM
REPLACED 211-0763,208-1045,203-3204,214-3393

3412E JWAC 221-9306 -------- 96 MAY02
625 HP @ 1400 for use with 156-7172 ECM
REPLACED 211-0763,208-1045,203-3204,214-3393

3412E JWAC DITTA LOW POWER 241-1771 -------- 16 JUN03
600/650/700/735/750 HP @ 1800
for use with 156-7172 ECM

REPLACED 160-9963,208-1043,210-2017, 221-9309

3412E JWAC DITA HIGH POWER 700 HP @ 2100/2101 @ 1400 750 HP @ 2100/2250 @ 1400	161-4030	161-4031	10	APR98
3412E JWAC DITTA LOW POWER	154-4642	154-4643	16	NOV97
3412E JWAC DITA HIGH POWER 800 HP @ 2100 for use with 156-7172 ECM & NEW STYLE INJECTORS REPLACED 205-8722,226-5085	237-0318	--------	102	MAR03
3412E JWAC DITA HIGH POWER 800 HP @ 2100 for use with 172-0802 ECM REPLACED 205-8722,226-5630	237-0319	--------	102	MAR03
3412E JWAC DITTA HIGH POWER 800/850 HP 2100 HP for use with 172-0802 ECM REPLACED 160-9964,154-4644,211-0768	221-9292	--------	17	JUN02
3412E JWAC DITTA HIGH POWER 800/850 HP 2100 HP for use with 156-7172 ECM REPLACED 160-9964,154-4644,211-0768	221-9310	--------	17	JUN02
3408E ATAAC 600 HP @ 2100/1437 @ 1400 625 HP @ 2100/1497 @ 1400	159-5266	159-5267	16	FEB98
3412E JWAC DITTA LOW POWER Fe-Al Piston	154-4646	154-4647	18	NOV97
3412E JWAC DITTA HIGH POWER Fe-Al Piston	154-4648	154-4649	15	NOV97
3412E JWAC DITTA LOW SPEED LOCOMOTIVE for use with 172-0802 ECM 641 HP @ 1500 644 HP @ 1400 REPLACED 149-7149,211-0773	221-9300	--------	27	JUN02
3412E JWAC DITTA LOW SPEED LOCOMOTIVE for use with 156-7172 ECM 641 HP @ 1500 644 HP @ 1400 REPLACED 211-0773	221-9316	--------	27	MAY02
3412E Petro JWAC DITTA LOW SPEED LOCOMOTIVE 425/500 HP @ 1200 575 HP @ 1300 625 HP @ 1400	149-9173	149-9174	28	MAY98
3412E Industrial 1050 HP @ 2100 HI POWER FE-AL PIST REPLACED 221-9293,249-0075	263-4047	--------	134	OCT04
3412E Industrial 1050 HP @ 2100 HI POWER FE-AL PIST NP	263-4031	--------	134	OCT04

REPLACED 249-1227

3412E Industrial 860 HP @ 2100 LO POWER FE-AL PIST REPLACED 221-9321,249-0076	263-4048	--------	136	OCT04
3412E Industrial 860 HP @ 2100 LO POWER FE-AL PIST NP REPLACED 249-1228	263-4032	--------	136	OCT04
3412E Industrial 760 HP @ 2100 LO POWER FE-AL PIST REPLACED 221-9322,249-0077	263-4049	--------	137	OCT04
3412E Industrial 760 HP @ 2100 LO POWER FE-AL PIST NP REPLACED 249-1229	263-4033	--------	137	OCT04
3412E Industrial 800 HP @ 2100 LO POWER FE-AL PIST REPLACED 221-9323,249-0078	263-4050	--------	138	OCT04
3412E Industrial 800 HP @ 2100 LO POWER FE-AL PIST NP REPLACED 249-1230	263-4034	--------	138	OCT04
3412E Industrial 575 HP @ 1300 JWAC LSP PETRO/IND REPLACED 221-9324,249-0079	263-4051	--------	139	OCT04
3412E Industrial 575 HP @ 1300 JWAC LSP PETRO/IND REPLACED 249-1231	263-4035	--------	139	OCT04
3412E Industrial 625 HP @ 1400 JWAC LSP PETRO/IND REPLACED 221-9325,249-0080	263-4052	--------	140	OCT04
3412E Industrial 625 HP @ 1400 JWAC LSP PETRO/IND REPLACED 249-1232	263-4036	--------	140	OCT04
3412E Industrial JWAC LOW POWER 750 HP @ 2100 REPLACED 221-9326,249-0081	263-4053	--------	141	OCT04
3412E Industrial JWAC LOW POWER 750 HP @ 2100	263-4037	--------	141	OCT04

REPLACED 249-1233

3412E Industrial 263-4054 -------- 144 OCT04
800 HP @ 2100
JWAC HIGH POWER
REPLACED 221-9337,249-0082

3412E Industrial 263-4038 -------- 144 OCT04
800 HP @ 2100
JWAC HIGH POWER
REPLACED 249-1234

3512C Industrial 315-2659 -------- 13 MAR07
1501 HP @ 1800
REPLACED 291-3969,310-6026

3512C HD MARINE AUX 1800RPM 451-5847
2079HP@1800RPM 30 OCT13
2280HP@1800RPM 31
Replaced 348-9871, 322-8545

3512C HD MARINE AUX 1800RPM 451-5848 OCT13
2447HP@1800RPM 20
2682HP@1800RPM 21
Replaced 3035955**********

REPLACED 303-5955,317-5988,342-0501
391-9018

C18/C27/C32 INDUSTRIAL ENGINE RATING INFORMATION	FLASH FILE	SERVICE MODULE	IC	RELEASE DATE
C18 Ind ACERT MT875 Challenger 588 @ 2100 RPM REPLACED 254-7442,275-2166,276-2679	280-3528	--------	9	SEP05
C18 Ind ACERT MT875 Challenger 588 @ 2100 RPM REPLACED N/A	305-3320	--------	84	DEC06
C18 Ind ACERT 575 @ 1800 RPM 600 @ 1800 RPM 630 @ 1800 RPM REPLACED 254-7440,267-3417, 271-7211,280-3502,284-0589 285-6552	330-9357	--------	 21 8 33	NOV11
C18 IND-ABC1 TIER 575HP@2000RPM 599HP@2000RPM 630HP@2000RPM Replaces 392-4149,420-1864,432-1669,440-2370	443-0011		 209 210 211	SEP13
C18 IND-TIER A, B, C 600HP@1900RPM 630HP@1900RPM Replaced 375-8515,381-4871,384-9572,394-0320,419-6675	434-6957		205 206 207	DEC12
C18 IND- C2 Tier	437-1277		201	APR13

700HP@1900RPM
Replaced 374-5316,380-5956,384-9575,395-1117,419-6674

C18 IND-C3 Tier 435-2098 200 MAR13
755HP@1900RPM
Replaced 372-8631,380-8327,380-8365,384-9984
397-5092,419-6676

C18 IND ABC1 TIER PSO 449-2121 205 AUG13
600hp 1900rpm 206
630hp 1900 rpm 207

C18 MACH 988K AFT. 452-4771 NA DEC13
0HP@0RPM
Replaces

C18 F IRONSET AFT 450-5766 NA SEP13
0HP@0RPM
Replaces 387-4558,399-3913,419-7854
426-1831,448-0041

C18 B IRONSET AFTERTREATMENT 447-1536 N/A SEP13
0HP@0RPM
Replaces 387-4552,423-9431,426-1828
441-8395

C18 Ind 470 kW ACERT 312-1153 -------- 10 JAN08
630 @ 1800 RPM
REPLACED 254-7450

C18 Ind ACERT 290-0410 -------- 12 MAR06
700 @ 1800 RPM
REPLACED 267-3418,271-7212,280-3503

C18 Ind 522 KW Acert 351-7365 -------- 90 July09
Terex O&K Shovel
700 @ 1800 RPM
Replaced 350-1809

C18 IND TIER 4I ABC1 TIER ENGINE (PSO) 440-0788 205 MAY13
206
207
C18 Ind C2 Tier4i 435-2100 203 MAR13
700 @ 1900 RPM
Replaced 375-2380, 380-5961,387-3053,395-1118,420-4247,434-0864

C18 Ind ACERT 283-9378 -------- 14 NOV05
700 @ 2100 RPM
REPLACED N/A

C18 Ind 522 kW ACERT 329-6720 -------- 90 JUN08
700 @ 2100 RPM
REPLACED 283-7581,308-5693

C18 IND 522 KW 340-3646 -------- 89 Mar09
700 @ 1800RPM
Replaced: N/A

C18 Ind ACERT 302-2371 -------- 18 OCT06
440 @ 2100 RPM
REPLACED 254-7444,271-7213,

280-3499,285-3508

C18 Ind ACERT 302-2372 -------- 19 OCT06
440 @ 2100 RPM
REPLACED 271-7214,280-3500,285-3509

C18 Ind ACERT 302-1866 -------- OCT06
550 @ 1800 RPM 34
600 @ 1800 RPM 35
REPLACED 277-8083

C18 Ind ACERT 305-4485 -------- DEC06
765 @ 2100 RPM 22
800 @ 2100 RPM 23
REPLACED 254-7441

C18 Ind ACERT 306-4013 -------- DEC06
440 @ 2100 RPM 85
500 @ 2100 RPM 86
REPLACED N/A

C18 IND-597KW ACERT 455-4772 219 JAN14
800HP@1750RPM
800HP@1900RPM
800HP@2100RPM
Replaces 445-2050

C18 IND-597KW ACERT 455-4776 220 JAN14
800HP@1750RPM
800HP@1900RPM
800HP@2100RPM
Replaces 445-2051

C18 EPG MAR/AUX ENGINE PSO 451-2053 32 DEC13
0hp 1500
0hp 1800
Replaced 451-2053

C18 EP-60HZ-PETRO-HEP-RAIL 311-2724 -------- DEC07
550 @ 1500 RPM 34
600 @ 1500 RPM 35
REPLACED N/A

C18 PETRO-C/D TIER 437-3645 -------- 166 APR13
755HP@1800RPM 169
800HP@1800RPM
Replaces 367-3048,380-5958,3849574,397-5097,419-6678

C18 EP-60HZ-LOW-E 314-5421 -------- MAY07
861 @ 1800 RPM 6
923 @ 1800 RPM 7
REPLACED 265-8974

C18 EP-60HZ-LOW-BSFC 314-5422 -------- MAY07
861 @ 1800 RPM 8
923 @ 1800 RPM 9
REPLACED 265-8975

C18 EP-50HZ-LOW-E 314-5423 -------- MAY07
683 @ 1800 RPM 10
735 @ 1800 RPM 11

794 @ 1800 RPM 12
852 @ 1800 RPM 13
REPLACED 265-8976

C18 EP-50HZ-LOW-BSFC 314-5423 -------- MAY07
683 @ 1800 RPM 44
735 @ 1800 RPM 45
794 @ 1800 RPM 46
REPLACED 265-8976

C18 EP-60HZ-LOW-BSFC 324-0653 -------- DEC07
373 @ 1800 RPM 36
447 @ 1800 RPM 37
REPLACED 308-1470

C18 EP-50HZ-LOW-BSFC 324-0651 -------- DEC07
737 @ 1500 RPM 42
804 @ 1500 RPM 43
851 @ 1500 RPM 68
REPLACED 306-4144

C18 A IRONSET AFTERTREATMENT 449-9668 N/A SEP13
ohp orpm
Replaces 387-4550,394-4390,419-7853
442-5646,443-5386,445-9381

C27 IND-C,D,E Tier ACERT PSO 450-5743 SEP13
1050hp 2100rpm 26
1150hp 2100rpm 27
950hp 2100rpm 28
Replaced

C27 IND-PETRO 450-0340 NOV13
875HP@1800RPM 3
950HP@1800RPM 4
Replaces 392-9052,424-6008,445-6700

C27 IND AB Tier PSO 439-3721 MAY13
800 hp @ 2100 77
875 hp @ 2100 78

C18 T4I IND C3 PROD 5.5 ENGINE
755 @ 1900 428-9771 200 NOV12

C27 Ind-A, B Tier ACERT 343-9945 -------- Mar09
750 @ 1800 RPM 29
830 @ 1800 RPM 30
REPLACED 264-9808,286-9941

C27 Ind-A,B Tier ACERT 367-9438 -------- Jan11
800 @ 2100 RPM 77
875 @ 2100 RPM 78
REPLACED N/A

C27 Ind-C,D,E Tier ACERT 452-5978 -------- NOV13
1050 @ 1800 RPM 28
1150 @ 1800 RPM 26
950 @ 1800 RPM 27
REPLACED 264-9810,286-9942,316-4388
344-9240,391-9927

C27 Ind-ABCD Tier4i 424-8963 APR13
800 @ 2100 RPM 43
875 @ 2100 RPM 73
950 @ 2100 RPM 74
1050 @ 2100 RPM 76
Replaced 351-9792,361-2906,369-1211,384-3417,396-3855
376-1346,377-6972,379-0983,380-3663

C27 RAIL LOCO EU PSO 450-2701 5 SEP13
947hp 1800rpm

C27 Ind- Locomotive EU IIIB PROD 6 450-3075 5 NOV13
947hp @ 1800 RPM
REPLACED 393-0889,422-2792,424-8956,439-2401

C27 LOCOMOTIVE EU IIIB, T4I PROD 6 RAIL (PSO)
947hp @ 1800Rpm 437-0402 5 APR13

C27 IND-A/B Tier O&K SHOVEL RATING
765 @ 1800 RPM 361-1821 -------- 42 NOV11
REPLACED 350-2032

C27 PETRO-WELLFRAC DRY NARROW 447-9762 -------- 9 NOV13
800 @ 1800 RPM
REPLACED 351-8712,368-1424,369-7112
378-4085,380-3099,386-3933,393-2673
424-8960

C27 PETRO WELL FRAC A-NARROW, T4F PROD 6 ENGINE (PSO)
800hp @ 1800rpm 437-3092 9 APR13

C27 PETRO BC NARROW, T4F PROD 6 ENGINE (PSO)
875hp @ 1800rpm 437-3093 3 APR13
950hp @ 1800rpm 4

C27 EP-650EKW 60HZ ACERT 345-9194 -------- JUL09
997 @ 1800 RPM 7
1068 @ 1800 RPM 8
1140 @ 1800 RPM 9
1214 @ 1800 RPM 10
REPLACED 268-4730,294-4926,331-1725

C27 EP-650EKW 60HZ ACERT 345-9195 -------- JUL09
925 @ 1800 RPM 12
976 @ 1800 RPM 13
1140 @ 1800 RPM 14
1213 @ 1800 RPM 15
REPLACED 268-4731,294-4927,333-1723

C27 EP-50HZ Low-E/BSFC 333-1722 -------- JUN08
750 KVA @ 1500 RPM 17
800 KVA @ 1500 RPM 18
680 KVA @ 1500 RPM 20
725 KVA @ 1500 RPM 21
REPLACED 268-4732

C27 EP-60HZ LOW-BSFC 441-9216 85 JUn13
0HP@0RPM 86
Replaces 385-9200,416-5246

C27 EP-60HZ TIER II PSO 360-0092 -------- APR10
 792HP @ 1800RPM 69
 852HP @ 1800RPM 69
 872HP @ 1800RPM 70
 912HP @ 1800RPM 70
 939HP @ 1800RPM 71
 972HP @ 1800RPM 71
1006HP @ 1800RPM 72
1073HP @ 1800RPM 72
Replaced 341-2296,351-2471

C27 EP-60HZ TIER II 441-9215 83
0HP@0RPM 84
Replaced 385-9198,416-5245

C27 EP-50/60HZ POWER MODULE TIER4 421-6479 18 APR13
900 @ 1800RPM-
REPLACED 351-4546,360-5052,365-8410
370-1542,373-3692,378-7525,390-5012,396-7438

C27 EP Petro 60HZ 371-1708 17 JUN12
1207 @ 1800RPM
Replaced

C27-EP PETRO GENSET 423-0398 17 APR13
0HP@0RPM
Replaced 371-1708,398-7439,418-5533
C27 EP-60HZ OPEN GENSET Tier4 421-6481 19 APR13
1223 @ 1800RPM
REPLACED 351-3664,360-5053,365-8411
370-1543,375-6362,378-7523,390-4644,396-7440

C27 IND-HEP 60HZ 319-7907 -------- SEP07
 925 @ 1800 RPM 35
 976 @ 1800 RPM 36
1041 @ 1800 RPM 37
1105 @ 1800 RPM 38
REPLACED 289-9486

C27 990K/844K LWL TIER 4 ENGINE 415-4938 1 Sep12
 766HP @ 1800RPM

C27 990K/884K LWL TIER 4 ENGINE 382-8085 2 SEP12

C27 MACH 844H LWL 452-9592 92 NOV13
740hp @ 1800rpm
Replaces

C32 Ind ACERT 345-1103 -------- Mar09
 950 @ 1800 RPM 19
1125 @ 1800 RPM 31
1200 @ 1800 RPM 32
1350 @ 1800 RPM 33
REPLACED 263-6357,279-5262,286-9943
316-4346

C32 IND BCD RATING TIER4i 424-8929 -------- APR13
 950 @ 2100 RPM 133
1125 @ 2100 RPM 131
1200 @ 2100 RPM 132

REPLACED 357-7619,370-4529,372-7171
379-0985,384-5467,395-4290

C32 EP Tier II 60HZ ACERT 446-1310 -------- OCT13
910 EKW @ 1800 RPM 72
REPLACED 304-4176,324-6827,333-1727
375-0616

C32 EP 50HZ LRC 445-6214 5 NOV13
1372HP@1500RPM
1525HP@1500RPM
Replaces

C32 EP Tier II 60HZ ACERT 446-1311 -------- OCT13
715 EKW @ 1800 RPM 73
REPLACED 304-4178,324-6828
333-1728,375-0617

C32 EP Tier II 60HZ ACERT 446-1312 -------- OCT13
625 EKW @ 1800 RPM 74
REPLACED 304-4180,324-6829
333-1729,375-0618

C32 EP Tier II 50HZ ACERT 446-1313 -------- OCT13
800 EKW @ 1800 RPM 75
REPLACED 304-4182,324-6830
333-1730, 375-0619

C32 EP Tier II 50HZ ACERT 446-1314 -------- OCT13
630 EKW @ 1800 RPM 76
REPLACED 304-4184,324-6831
333-1731,375-0620

C32 EP Tier II 50HZ ACERT 446-1315 -------- OCT13
540 EKW @ 1800 RPM 77
REPLACED 304-4186,324-6832
333-1732,375-0621

C32 EP Tier II 50HZ ACERT 446-1316 72 OCT13
1466hp @ 1800rpm
Replaces 356-5220,375-0623

C32 EP Tier II 50HZ ACERT 446-1317 73 OCT13
1152hp @ 1800rpm
Replaces 356-5224,375-0624

C32 EP Tier II 50HZ ACERT 446-1318 75 OCT13
HP RPM
1288 1500
Replaced 356-5222, 375-0625

C32 EP Tier II 50HZ ACERT 446-1319 77 OCT13
HP RPM
870 1500
Replaced 360-0094, 375-0626

C32 EP Tier II 50HZ ACERT PSO 446-1321 144 OCT13
1007hp @ 1800rpm

Replaced 369-1254

C32 Ind ACERT 345-0805 29 May09
800 @ 2100RPM
Replaced 264-9812

C32 Ind ACERT 345-1123 -------- Mar09
1016 @ 1750 RPM 38
REPLACED 289-9488

C32 Ind ACERT 344-9567 -------- May09
1110 @ 2100 RPM 70
1225 @ 2100 RPM 71
Replaced 297-4882,314-4037

C32 Ind ACERT Petroleum 345-0806 -------- 20 MAY09
1500 @ 2100 RPM
REPLACED 267-2124,282-9569,294-2398

C32 EPG Tier II 60Hz ACERT 303-1612 -------- SEP06
910 EKW @ 1800 RPM 4
810 EKW @ 1800 RPM 7
830 EKW @ 1800 RPM 21
740 EKW @ 1800 RPM 23
REPLACED 256-7791,262-8566,291-8571

C32 EP Tier II 60Hz ACERT 326-2695 -------- FEB08
910 EKW @ 1800 RPM 86
810 EKW @ 1800 RPM 87
830 EKW @ 1800 RPM 88
740 EKW @ 1800 RPM 89
Replaced N/A

C32 EPG Tier I 60Hz ACERT 326-5980 -------- MAY08
910 EKW @ 1800 RPM 4
810 EKW @ 1800 RPM 7
830 EKW @ 1800 RPM 21
740 EKW @ 1800 RPM 23
REPLACED 256-7791,262-8566,287-8177,303-1613

C32 EP 50 HZ LOW BSFC ACERT 310-2191 -------- MAY07
1136 @ 1500 RPM 17
REPLACED N/A

C32 EPG BSFC 60HZ ACERT 302-6503 -------- SEP06
1502 @ 1800 RPM 6
1357 @ 1800 RPM 22
1257 @ 1800 RPM 9
1126 @ 1800 RPM 24
REPLACED 262-8568,291-8572

C32 EP LOW BSFC 60HZ ACERT 326-5981 -------- MAY08
740 EKW @ 1800 RPM 24
810 EKW @ 1800 RPM 9
830 EKW @ 1800 RPM 22
1000 EKW @ 1800 RPM 6
REPLACED 318-0594

C32 EP LOW BSFC 60HZ ACERT 326-2694 -------- MAR08
740 EKW @ 1800 RPM 93
810 EKW @ 1800 RPM 91

830 EKW @ 1800 RPM 92
910 EKW @ 1800 RPM 90
REPLACED N/A

C32 EP Tier II 60HZ ACERT 326-5979 -------- MAY08
740 EKW @ 1800 RPM 23
810 EKW @ 1800 RPM 7
830 EKW @ 1800 RPM 21
1000 EKW @ 1800 RPM 4
REPLACED 318-0592

C32 EPG 50HZ ACERT 336-6693 -------- AUG08
910 KVA Prime 1000 KVA Standby @ 1500 Low E 10
1000 KVA Prime 1100 KVA Standby @ 1500 Low E 13
910 KVA Prime 1000 KVA Standby @ 1500 Low BSFC 12
1000 KVA Prime 1100 KBA Standby @ 1500 Low BSFC 15
830 KVA continous @ 1500 Low E 25
910 KVA Continous @ 1500 Low E 27
830 KVA continous @ 1500 Low BSFC 26
910 KVA Continous @ 1500 Low BSFC 28
REPLACED 262-8570,291-8573,303-1614,326-5982

C32 EPG Tier II 60HZ ACERT 439-4662 -------- MAY13
910 EKW @ 1800 RPM 29
1000 KVA @ 1500 RPM 29
830 EKW @ 1800 RPM 65
910 KVA @ 1500 RPM 65
REPLACED 295-0079,303-1615,316-7396
326-2696,345-9216

C32 IND Tier II PILOT ACERT 344-9568 -------- MAY09
800 HP @ 1800 RPM 66
860 HP @ 1800 RPM 67
920 HP @ 1800 RPM 68
1000 HP @ 1800 RPM 69
REPLACED 297-4880,314-4036

C32 T4 Prod 6.0.3 Tier 4 Petro C-Tier 1 A/T (PSO)
1125Hp at 1800RPM 437-2066 134 APR13

C32 PETRO-1125HP C TIER 450-2463 139 NOV13
1125HP@1800Rpm
Replaces 366-8312,379-9462,380-8337,397-2123
424-8935

C32 IND-1125HP ACERT 447-9764 134 NOV13
1125HP@1800RPM
Replaces 360-2558,369-1223,371-2803,383-0732,385-4682
423-9652

C32 PETRO C TIER, T4F PROD 6 ENGINE (PSO)
1125hp @ 1800rpm 437-2786 139 APR13

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3408E & 3412E MARINE ENGINE RATING INFORMATION | FLASH FILE | SERVICE MODULE | IC | RELEASE DATE
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3412E Marine A LOW SPD 218-7492 40 MAR02
425/475 HP @ 1200

REPLACED 190-7381

3412E Marine A MID RANGE 218-7487 46 MAR02
503/540 HP @ 1800
REPLACED 186-4986,189-5699,194-4981

3412E Marine A MID RANGE 255-7344 76 APR04
503/540 HP @ 1800 with new style injectors
REPLACED 218-7500,235-6131

3412E Marine A MID RANGE 269-6929 88 JAN05
650/720 HP @ 1800 HI HP with new style injectors
REPLACED 235-6132,255-7345

3412E Marine A PRIME ECM 210-9631 89 JUN01
296 HP @ 1500
REPLACED 200-1114

3412E Marine A BACKUP ECM 210-9632 90 JUN01
296 HP @ 1500
REPLACED 200-1115

3412E Marine A PRIME ECM 210-9633 91 JUN01
425/475 HP @ 1200 LOW SPD
REPLACED 198-7515

3412E Marine A BACKUP ECM 210-9634 92 JUN01
425/475 HP @ 1200 LOW SPD
REPLACED 198-7516

3412E Marine A PRIME ECM 210-9621 67 JUN01
503/540 HP @ 1800 LOW HP
REPLACED 194-1836, 198-7505

3412E Marine A BACKUP ECM 210-9622 68 JUN01
503/540 HP @ 1800 LOW HP
REPLACED 194-1841, 198-7506

3412E Marine A PRIME ECM 210-9623 64 JUN01
650/720 HP @ 1800 HI HP
REPLACED 194-1837, 198-7507

3412E Marine A BACKUP ECM 210-9624 69 JUN01
650/720 HP @ 1800 HI HP
REPLACED 194-7508, 198-7508

3412E Marine A PRIME ECM 210-9625 65 JUN01
600/615/635 HP @ 1800
REPLACED 194-1838, 198-7509

3412E Marine A BACKUP ECM 210-9626 70 JUN01
600/615/635 HP @ 1800
REPLACED 194-1843, 198-7510

3412E Marine B PRIME ECM 210-9627 66 JUN01
624/671 HP @ 1800
REPLACED 194-1839, 198-7511

3412E Marine B BACKUP ECM 210-9628 71 JUN01
624/671 HP @ 1800
REPLACED 194-1844, 198-7512

3412E Marine C PRIME ECM 764 HP @ 2100 REPLACED 194-1840, 198-7513	210-9629	63	JUN01
3412E Marine C BACKUP ECM 764 HP @ 2100 REPLACED 194-1845, 198-7514	210-9630	62	JUN01
3412E Marine A MID RANGE 600/615/635 HP @ 1800 REPLACED 186-4988,189-5701,194-4983	218-7489	50	MAR02
3412E Marine A MID RANGE 600/615/635 HP @ 1800 with new style injectors REPLACED 235-6133,255-7346	269-6930	77	JAN05
3412E Marine E 1200/1250/1300/1350/1400 HP @ 2300 REPLACED 194-4989	218-7496	36	MAR02
3412E Marine E 1200/1250/1300/1350/1400 HP @ 2300 Replaced 218-2970,235-6140	255-7353	100	APR04
3412E Marine E 1550/1600 HP @ 2300 REPLACED 225-3165	227-3845	105	SEP02
3412E Marine D 900/950/1000/1050/1100 HP @ 2100 REPLACED 194-4988	218-7495	42	MAR02
3412E Marine D 900/950/1000/1050/1100 HP @ 2100 with new style injectors REPLACED 235-6139 IC 127	255-7352	42	APR04
3412E Marine D Fast Craft 1200 HP @ 2300 REPLACED 194-4992	218-7499	44	MAR02
3412E Marine D Fast Craft 1200 HP @ 2300 with new style injectors REPLACED 235-6144 IC 130	255-7356	44	APR04
3412E Marine C 750/825 HP @ 2100 REPLACED 194-4986	218-7493	48	MAR02
3412E Marine C 750/825 HP @ 2100 with new style injectors REPLACED 218-7506,235-6137	255-7350	125	APR04
3412E Marine C 750/800/850/900 HP @ 2300 REPLACED 194-4987	218-7494	41	MAR02
3412E Marine C 750/800/850/900 HP @ 2300 with new style injectors REPLACED 218-7507,235-6138	255-7351	126	APR04
3412E Marine C Fast Craft	218-7498	49	MAR02

1000/1100 HP @ 2100
REPLACED 194-4991

3412E Marine C Fast Craft 255-7355 129 APR04
1000/1100 HP @ 2100 with new style injectors
REPLACED 218-7510,235-6143

3412E Marine B Mid Range 218-7490 47 MAR02
671/624 HP @ 1800
REPLACED 156-8241, 186-4989, 189-5702, 194-4984

3412E Marine B Mid Range 255-7347 78 APR04
671/624 HP @ 1800 with new style injectors
REPLACED 198-7495, 218-7503,235-6134

3412E Marine C 218-7491 39 MAR02
764 HP @ 2100
REPLACED 156-8239, 186-4990, 189-5703, 194-4985

3412E Marine C 255-7348 79 APR04
764 HP @ 2100 with new style injectors
REPLACED 218-7504,235-6135

3412E Marine B Fast Craft 218-7497 43 MAR02
750/850/925 HP @ 2100
REPLACED 194-4990

3412E Marine B Fast Craft 255-7354 128 APR04
750/850/925 HP @ 2100 with new style injectors
REPLACED 218-7509,235-6142

3412E Marine A 255-7349 123 APR04
425/475 HP @ 1200 with new style injectors
REPLACED 218-7492,218-7505,235-6136

3412E Marine A High Power 218-7488 26 MAR02
650/720 HP @ 1800
REPLACED 194-4982

C18 MAR-AUX 500EKW 60HZ PRIMARY 454-5458 118 DEC13
670HP@1800RPM
Replaced 326-9068,357-2241,453-3704

C18 MAR-AUX 500EKW 60HZ SECONDARY 454-5459 119 DEC13
670HP@1800RPM
Replaces 326-9069,357-2242

C18 MAR- 50HZ 447-2918 201 SEP13
662HP@1500RPM
Replaces 384-2775

C18 MAR-465BKW 60HZ 447-2914 182 SEP13
624HP@1800RPM
Replaces 370-1566,389-7967,428-7988

C18 MAR-AUX SCAC 50HZ 447-2916 199 SEP13
513HP@1500RPM
Replaces 384-2771

C18-MAR-AUX SCAC 50HZ 447-2917 200 SEP13
587HP@1500RPM

Replaces 384-2773

C18-MAR AUX SCAC 60HZ 447-2919 181 SEP13
499HP@1800RPM
Replaces 384-2777

C18-MAR-AUX SCAC 50HZ 447-2923 200 SEP13
587HP@1500RPM
Replaces 384-2785

C18-MAR-AUX SCAC 60HZ 447-2920 182 SEP13
624HP@1800RPM
Replaces 384-2779

C18 MAR- AUX SCAC 50HZ 447-2921 198 SEP13
402HP@1500RPM
Replaces 384-2781

C18 mar-aux SCAC 50hz 447-2922 199 SEP13
513HP@1500RPM
Replaces 384-2783

C18 MAR-AUX SCAC 50HZ 447-2924 201 SEP13
662HP@1500RPM
Replaces 384-2787

C18 Marine 460 A Tier 293-3857 60 SEP06
453 HP @ 2100 RPM
REPLACED N/A

C18 Marine 485 B Tier 307-9739 58 JAN07
478 HP @ 2100 RPM
REPLACED 293-3847

4451991 Marine PRIM 310-7692 37 MAR07
617 HP @ 1800 RPM
REPLACED 273-2203,290-6507

C18 MAR-470HP PROP 447-2896 196 NOV13
470HP@1800RPM
Replaces 383-3506,432-5961

C18 MAR-600HP PROP 447-2897 197 NOV13
600HP@1800RPM
Replaces 386-6351,432-5962

C18 MAR-TIER3 447-2898 195 NOV13
624HP@1800RPM
Replaced 398-7430,432-5963

C18 MAR-624HP AUX 447-2899 195 NOV13
624HP@1800RPM
Replaces 383-3508,432-5964

C18 MAR-670.5 HP PROP 453-5959 193 NOV13
670HP@1800RPM
Replaces 383-3510,432-5965,447-2900

C18 MAR-715HP PROP 453-5960 194 NOV13
715HP@1800RPM
Replaced 386-6353,432-5966,447-2901

C18 MAR-803HP AUX 803HP@1800RPM Replaced 383-1251,432-5968	447-2903	191	NOV13
C18 MAR-TIER3 803HP@1800RPM Replaces 398-7432,432-5967	447-2902	191	NOV13
C18 MAR-1015HP PROP 1015HP@2300RPM Replaces 383-1255,432-5970	447-2905	189	NOV13
C18 MAR-1136HP PROP 1136HP@2300RPM Replaces 386-6355,432-5971	447-2906	190	OCT13
C18 Marine 725 C Tier 715 HP @ 2100 RPM REPLACED 293-3845,330-9831,364-5979	392-9850	54	APR12
C18 Marine 680 B Tier 670 HP @ 2100 RPM REPLACED N/A	293-3853	55	SEP06
C18 Marine 560 B Tier 552 HP @ 2100 RPM REPLACED 293-3849,330-9828,364-5976	392-9847	57	APR12
C18 Marine PRIM 822 HP @ 2200 RPM REPLACED 284-8573	310-7688	51	MAR07
C18 Marine D Tier PRIM 822 HP @ 2200 RPM REPLACED 261-7253,273-2201	310-7690	38	MAR07
C18 Marine D Tier BKUP 822 HP @ 2200 RPM REPLACED 261-7254,273-2202	310-7691	42	MAR07
C18 Marine SEC 617 HP @ 1800 RPM Replaced 273-2204,290-6508	310-7693	43	MAR07
C18 Marine SEC 822 HP @ 2200 RPM REPLACED 284-8574	310-7689	52	MAR07
C18 EP-50HZ Marine Aux 404 HP @ 1500 RPM Replaced 299-5791	353-7990	72	OCT09
C18 EP-50HZ Marine Aux Package 404 HP @ 1500 RPM Replaced 300-5340	353-7997	72	OCT09
C18 EP-50HZ Marine Aux 514 HP @ 1500 RPM Replaced 299-5793	353-7991	73	OCT09

C18 EP-50HZ Marine Aux Package 514 HP @ 1500 RPM Replaced 300-5341	353-7998	73	OCT09
C18 EP-50HZ Marine Aux 587 HP @ 1500 RPM Replaced 299-5795	353-7992	74	OCT09
C18 EP-50HZ Marine Aux Package 587 HP @ 1500 RPM Replaced 300-5342	353-7999	74	OCT09
C18 EP-50HZ Marine Aux 660 HP @ 1500 RPM Replaced 299-5797	353-7993	75	OCT09
C18 EP-50HZ Marine Aux Package 660 HP @ 1500 RPM Replaced 300-5343	353-8000	75	OCT09
C18-MAR AUX SCAC 60HZ 499HP @ 1800RPM	384-2777	181	APR13
C18 EP-60HZ Marine Aux 499 @ 1800 RPM REPLACED 299-5799,314-9288 332-6650	353-7994	76	OCT09
C18 EP-60Hz Marine Aux Package 499 @ 1800 RPM Replaced 300-5344,321-3871 345-3692	353-8001	76	OCT09
C18 EP-60HZ Marine Aux 624 @ 1800 RPM REPLACED 299-5801,321-3875 332-6651,345-3689	352-8507	77	SEP09
C18 EP-60HZ Marine Aux Package 624 @ 1800 RPM REPLACED 300-5345,321-3872 345-3693	352-8508	77	SEP09
C18 EP-60HZ Marine Aux 733 @ 1800 RPM REPLACED 299-5803,321-3876 332-6652,345-3690	353-7995	78	OCT09
C18 EP-60HZ Marine Aux Package 733 @ 1800 RPM Replaced 300-5346,321-3873 345-3694	353-8002	78	OCT09
C18 EP-60HZ Marine Aux 806 @ 1800 RPM REPLACED 299-5805,321-3877 322-6635,345-3691	353-7996	79	OCT09
C18 EP-60HZ Marine Aux Package 806 @ 1800 RPM Replaced 300-5347,321-3874	353-8003	79	OCT09

345-5347

C18 Marine PRIM 822 HP @ 2200 RPM REPLACED 313-7560	325-1731	102	JAN08
C18 Marine BKUP 822 HP @ 2200 RPM REPLACED 313-7561,325-1732	327-0236	103	MAR08
C18 Marine PRIM 618 HP @ 1800 RPM REPLACED 313-7563	325-1733	104	JAN08
C18 Marine SEC 618 HP @ 1800 RPM REPLACED 313-7564,325-1734	327-0237	105	MAR08
C18 MAR-PROP SCAC 600HP@1800RPM Replaces 370-1552,396-6420	447-2910	178	SEP13
C30 Marine High Power 1500/1550 HP @ 2300 Replaced 235-6145	255-7341	105	APR04
C18 MAR-PROP SCAC 715HP@2100RPM Replaces 370-1556,396-6422,447-2912	455-0148	180	DEC13
C18 MAR-PROP SCAC 671HP@2100RPM Replaces 370-1554,396-6421	447-2911	179	SEP13
C18 MAR-AUX SCAC 50HZ 662HP@1500RPM Replaces	384-2787	201	APR13
C18-MAR-AUX SCAC 50HZ 587HP@1500RPM Replaces	384-2773	200	APR13
C18-MAR-AUX SCAC 50HZ 513HP@1500RPM Replaces	384-2771	199	APR13
C18-MAR-AUX SCAC 50HZ 624HP@1800RPM Replaces	384-2779	182	APR13
C18-MAR-AUX SCAC 50HZ 402HP@1500RPM Replaces	384-2781	198	APR13
C18-MAR-AUX SCAC 50HZ 513HP@1500RPM Replaces	384-2783	199	APR13
C18-MAR-AUX SCAC 50HZ 587HP@1500RPM Replaces	384-2785	200	APR13

C18 MAR-465BKW 60HZ 624HP@1800RPM Replaces	428-7988	182	APR13
C18 MAR-479BHP A-TIER 479HP@1800RPM Replaces 384-2762	447-2908	204	SEP13
C18 MAR-553BHP B-TIER 553HP@2100RPM Replaces 384-2764,	447-2909	205	SEP13
C18 MAR-454BHP A-TIER 454HP@1800RPM Replaces 384-2760	447-2907	203	SEP13
C18 MAR-803HP PROP 803HP@2100RPM Replaces 383-1253,432-5969	447-2904	188	NOV13
C30 Marine High Power 1550/1652 HP @ 2300 REPLACED 239-4118	239-5982	149	NOV03
C32 MAR-PRIM ENGINE 1300HP@1800RPM 1300HP@2100RPM 1450HP@2300RPM Replaced 419-7823	452-2414	 175 176 177	DEC13
C32 Marine E Tier ACERT 1825 HP @ 2300 RPM Replaced 262-9182,268-9505, 274-7619,280-2817,286-9669	300-2958	1	Mar09
C32 Marine-C Tier ACERT 1450 HP @ 2300 RPM Replaced 295-8790,328-5422,359-1976 368-1864,374-6685,376-2296,379-9481	392-5064	43	NOV13
C32 Marine ACERT PRIM 1300 HP @ 1800 RPM REPLACED 295-8794,311-0211,328-5424 343-4615,359-2871,374-6683,376-2294	378-7821	44	SEP13
C32 Marine B Tier ACERT 1300 HP @ 2100 RPM REPLACED 295-8798,311-0213,328-5426 359-1971,374-6681,376-2292	378-7819	45	SEP13
C32 Marine ACERT PRIM 950 HP @ 1600 RPM REPLACED 295-8807.311-0216,328-5428 359-1967,374-6675,376-2286	392-5059	47	DEC13
C32 Marine-A Tier ACERT 1000 HP @ 1800 RPM Replaced 295-8815,328-5432,359-1969 374-6677,376-2288	379-9479	49	SEP13

C32 Marine-A Tier ACERT 850 HP @ 1600 RPM Replaced 295-8829,328-5434,359-1963 374-6671,376-2282,379-9477	392-5057	50	DEC13
C32 Marine-A Tier ACERT 120hp @ 2100rpm Replaces 359-1957,374-6679 376-2290,378-7817	392-5061	46	DEC13
C32 Marine-A Tier ACERT 750 HP @ 1800 RPM Replaced 295-8833,328-5436,359-1961 374-6669,376-2280	392-5056	51	DEC13
C32 Marine-A Tier ACERT 1600rpm @ 2300rpm REplaced 295-8782,328-5420 359-1978,368-1866,374-6687 376-2298,379-9483	392-5065	41	DEC13
C32 Marine-A Tier ACERT 1700hp @ 2300rpm Replaced 332-4000,359-1980 374-6689,376-2300	392-5066	103	DEC13
C32 Marine-A Tier ACERT 1600hp @ 2300rpm Replaces 335-8260,359-2873 368-1868,374-6691,376-2302 379-9485	392-5067	105	DEC13
C32 Marine-A Tier ACERT 1450hp @ 2300rpm Replaced 335-8264,359-1985 368-1870,374-6693,376-2304 379-9487	392-5068	107	DEC13
C32 Marine-A Tier ACERT 1800hp @ 2300rpm Replaced 332-1177,343-9922 359-1989,374-6695,376-2306	392-5069	35	DEC13
C32 Marine-A Tier ACERT 1900hp @ 2300rpm Replaces 364-1217,343-7079 343-9924,359-2875,374-6697 376-2308	392-5071	34	DEC13
C32 Marine-C Tier ACERT 1450 HP @ 2300 RPM Replaced 295-8791,328-5423,359-1977 368-1865,374-6686,376-2297,379-9482	452-8352	55	NOV13
C32 Marine ACERT SEC 1300 HP @ 1800 RPM REPLACED 295-8795	311-0212	56	APR07

C32 Marine B Tier ACERT 1300 HP @ 2100 RPM REPLACED 295-8799	311-0214	57	APR07
C32 Marine ACERT SEC 950 HP @ 1600 RPM REPLACED 295-8808	311-0217	59	APR07
C32 Marine-A Tier ACERT 1000 HP @ 1800 RPM Replaced N/A	295-8816	61	SEP06
C32 Marine-A Tier ACERT 850 HP @ 1600 RPM Replaced N/A	295-8830	62	SEP06
C32 Marine-A Tier ACERT 750 HP @ 1800 RPM Replaced N/A	295-8834	63	SEP06
C32 Marine-A Tier ACERT 660 HP @ 1800 RPM Replaced N/A	295-8921	64	SEP06
C32 Marine ACERT PRIM 950 HP @ 1600 RPM REPLACED 311-0220,328-5430,359-1965 374-6673,376-2284	392-5058	82	DEC13
C32 Marine ACERT SEC 950 HP @ 1600 RPM REPLACED N/A	311-0221	83	APR07
C32 Marine-E Tier 1550/1652 HP @ 2300 RPM Replaced 239-4118,239-5982,255-7343	284-3109	148	OCT05
C32 Marine High Power 1400 HP @ 2300 RPM Replaced 245-3636	255-7342	149	APR04
C32 Marine PROP 660hp @ 1800rpm Replaced 295-8920,328-5438,359-1959 374-6667,376-2278	392-5055	52	DEC13
C32 Marine-Prop 1550 HP @ 2300 RPM Replaced 264-1229	332-9398	155	JUN08
C32 MAR-1800RPM-AUX 1047HP@1800RPM 1333HP@1800RPM Replaces 379-9467	433-3603	151 152	AUG13
C32 Marine Tier 3 1600 HP @ 2300 RPM 1800 HP @ 2300 RPM 1900 HP @ 2300 RPM Replaced 370-4865,379-9475,419-0049,431-9761,433-3607	453-9933	156 157 158	Oct13

443-5269,452-5989

C32 Marine Prop Tier 3	443-5266		
1000 HP @ 1800 RPM			145 DEC13
750 HP @ 1800 RPM			146 DEC13
850 HP @ 1600 RPM			147 DEC13
850 HP @ 1800 RPM			149 DEC13
Replaced 417-1481, 378-1572			
419-0047,433-3601			
C32 MAR-2100RPM-PROP	443-5268		DEC13
1450HP@2100RPM		150	
Replaces 379-9473,433-3606			
C32 MAR-1800RPM-PROP	443-5267		DEC 13
1200HP@1800RPM		154	
1300HP@1800RPM		155	
Replaces 379-9471,419-0048,433-3605			
C32 MAR-1600RPM-PROP	433-3601		MAY13
1000HP@1800RPM		145	
750HP@1600RPM		146	
850HP@1600RPM		147	
850HP@1800RPM		149	
Replaces 378-1572,417-1481,419-0047			
C32 PROP SCAC TIER 2 MARINE	419-7819		APR13
660HP@1800RPM,		169	
750HP@1800RPM,		170	
850HP@1800RPM,		172	
950HP@1600RPM		173	
1000HP@1800RPM		168	
C32 MAR-PROP ACERT PRIMARY	419-7821	174	APR13
1200hp@2000rpm			
C32 MAR-PRIM ENGINE	419-7823		APR13
1300HP@1800RPM		175	
1300HP@2100RPM		176	
1450HP@2300RPM		177	
C32 MAR-AUX 60HZ	396-8923	184	SEP13
1074HP@1800RPM		185	
916HP@1800RPM			
C32 MAR-AUX 50HZ	396-8925	189	SEP13
1172HP@1500RPM			
C32 MAR-AUX 50HZ	396-8927	187	SEP13
791HP@1500RPM		188	
923HP@1500RPM			
C32 MAR-AUX 60HZ	396-8921	186	SEP13
1333HP@1800RPM			

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C18 Progress Rail ENGINE RATING INFORMATION	FLASH FILE	SERVICE MODULE	RELEASE IC DATE

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C18 IND-556KW PRS 348-5736 112 APR10
745HP @ 1900RPM
Replaced 3226-2261,332-2769

GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG

GAS 3500 3600

G3508B ULB 0.5G NOX1400RPM 451-7186 N/A NOV13
690hp @ 1400rpm
Replaced 338-5467,388-7224

G3508 ULB 1400 RPM 1.OGM 451-7187 N/A NOV13
690hp @ 1400rpm
Replaced 338-5468,391-3083

G3512B 451-7182 N/A Nov13
1035hp @ 1400rpm
Replaced 370-8762,389-1926

G3512B ULB 1400RPM 1.0GM NOX 451-7183 N/A NOV13
1035hp @ 1400rpm
Replaces 370-8764,391-3098

G3520B-ULB 0.5G NOX 451-7248 N/A nov13
1725hp @ 1400rpm
Replaces 390-1254,416-2184,422-9365

G3520B PHASE II - ULB 1.0GM NOX 451-7249 N/A NOV13
1725hp @ 1400rpm
Replaces 390-1256,416-2183

G3520B - ULB 0.5G NOX 451-7250 N/A NOV13
1478hp @ 1200rpm
Replaces 394-0303,415-3933

G3520B -ULB 1.0G NOX 451-7251 N/A NOV13
1478hp @ 1200rpm
Replaces 394-0305,415-3932

3512C WELLFRAC-1900RPM 455-9537 6 JAN14
2250HP@1900RPM
Replaces 448-1169,453-0432

3512c wellfrac 1900rpm 456-0314 2 JAN14
2250HP@1900RPM
Replaced 452-1900

3512c wellfrac 1900rpm 456-0315 2 JAN14
2250HP@1900RPM
Replaced 452-1902

3512C WELLFRAC-1900RPM DGB 455-9198 3 JAN14
2500HP@1900RPM
Replaced 451-7387,452-4012

3512C-HD- 1900RPM WELL FRAC 455-9202 8 JAN14
2500HP@1900RPM
Replaces 425-0607

3512C-HD- 1900RPM WELL FRAC DGB 2500HP@1900RPM Replaced 448-4927	455-9538	7	JAN14	
3516C RAIL LOCO 3000HP@1800RPM Replaces	448-1944	17	DEC13	
FLASH A4-ISM 0HP@0RPM Replaces 376-9431,381-8830 381-8820,381-8821	451-5846	N/A	OCT13	
C175 EP-50HZ PETRO -sec 0HP@0RPM Replaces	394-8301	73	OCT13	
C175 EP-50HZ PETRO -PRIM 0HP@0RPM Replaces	394-8300	72	OCT13	
C175-16 MACH 793F HAA 2270HP@1750RPM 2650HP@1750RPM Replaces	452-4129	71	NOV13	
C175-16 LOCO - RAIL 2100HP@1800RPM Replaced 351-0658,417-4482 423-4184	449-2893	15	JAN14	
3516C RAIL-LOCO PR30C SCR 0HP@0RPM Replaced 367-9075	423-5920	N/A	DEC13	
3516C IND-SD 40 RAIL 3004HP@1800RPM Replaced 330-6025,367-5135	450-2468	17	DEC13	
3516 RAIL LOCO 0HP@1800RPM Replaced	399-2220	61	DEC13	
3516C HD MAR-DEP 1800RPM 0HP@1800RPM Replaces 449-0187	451-6170	106	OCT13	
C280-12 MAR-3800/3460BKW 4640HP@900RPM 5096HP@900RPM Replaces 380-1185,426-1907,433-6664	451-4714	 18 19	NOV13	
C280-12 MARINE - DEP 60HZ 4640HP@1800RPM 5096HP@1800RPM Replaces 380-1176,426-1903	451-4710	16	NOV13	
C280-16 MAR AUX 60HZ 7684HP@900RPM Replaces 439-3709,443-9586	449-9825	35	Nov13	

C280-16 MAR AUX-60HZ	451-4708	24	NOV13
6169HP@900RPM			
6786HP@900RPM			
Replaces 380-1172,426-1901,435-1109			
C280-16 MAR-AUX 60HZ	450-7515	16	DEC13
6826HP@900RPM			
7510HP@900RPM			
Replaced 368-1872,423-3545			
C280-16 MAR AUX-50HZ	451-4709	25	DEC13
6598HP@1000RPM			
7268HP@1000RPM			
Replaced 380-1174,426-1902,435-1110			
C280-16 MAR DEP-50HZ	451-4713	27	DEC13
6598HP@1000RPM			
7268HP@1000RPM			
Replaces 380-1182,426-1906,435-1112			
C280-16 MAR DEP-60HZ	451-4712	26	DEC13
6169HP@900RPM			
6786HP@900RPM			
Replaced 380-1180,426-1905,435-1111			
C280-12 MAR-4060/3700BKW	451-4715		DEC13
4962HP@1000RPM		20	
5444HP@1000RPM		21	
Replaced 380-1187,426-1908			
C280-16 MAR-5060/4600BKW	451-4716		DEC13
6169HP@900RPM		28	
6785HP@900RPM		29	
Replaces 380-1189,426-1909,			
C280-16 MAR-5650BKW	451-4718	32	DEC13
7577HP@1000RPM			
Replaces 380-1193,426-1911			
C280-16 MAR-5420/4920BKW	451-4717		DEC13
6598HP@1000RPM		30	
7268HP@1000RPM		31	
Replaced 380-1191,426-1910			

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C-10/C-12/C-15/C-16/C-18 October 02 Flash File Cross Reference
Updated July 24,2008 AJK

Heavy-Duty Ratings for October 2002-up Engines

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The boxes shown below indicate unique ratings families.
Ratings within these boxes share common iron sets and
can be rerated to another rating within the same box.
Ratings changes are only allowed within a particular box.

All ratings are subject to change without notice.

Adv HP	Max. HP	Peak Torque	Gov Speed	
C-10 (10.3L)				
305	315	1050	2100	
335	350	1250	2100	
C-12 (11.9L)				
355	370	1350	2100	
380	395	1450	2100	
410	425	1450	2100	
355/410	415	1350/1450	2100	
335	420	1550	2100	
410	425	1550	2100	
430	445	1550	2100	
380/430	445	1450/1550	2100	
430	445	1650	2100	
380/430	445	1450/1650	2100	
425	425	1550	2100	Firetruck/RV only*
455	455	1550	2100	Firetruck/RV only*
505	505	1550	2100	RV only
C-15 (14.6L)				
435	450	1550	2100	Brakesaver avail.*
435	450	1650	2100	Brakesaver avail.*
475	490	1650	2100	Brakesaver avail.*
500	515	1650	2100	Field rerate only*
435/500	515	1550/1650	2100	
435/500	515	1550/1650	2100	Oil well service
475	490	1750	2100	Brakesaver avail.*
500	515	1850	2100	Brakesaver avail.*
525	525	1850	2100	Brakesaver avail.*
450/515	515	1550/1650	2100	RV only
C-18				
625		2049	1900	
700		1900	1900	

The 1500 lb.ft. low torque C-15 has been removed from our lineup. Also, the C-15 515hp (RV only) rating has been changed to a MultiTorque. As stated on the top of the chart, ratings changes are only allowed within a particular box. All ratings are subject to change without notice.

FLASHFILES

C-10 HORSEPOWER	TORQUE	GOV SPEED	SERIAL NO. RANGE	FLASH FILE	P/M CODE	RELEASE DATE

305 HP 1050 LB-FT 2100 RPM MBJ00001-UP 242-8336 220 AUG03
Replaced 228-8022, 235-1371 (old code 210)

335 HP 1250 LB-FT 2100 RPM MBJ00001-UP 272-6461 221 MAR05
Replaced 228-8023,235-1372,
242-8337 (old code 211)

335 HP 1250 LB-FT 2100 RPM MBJ00001-UP 242-8338 225 AUG03
Replaced 228-8024, 235-1373 Haliburton IAS (old code 215)
****
****
C-12 MBL00001-00999 Parts Service Only
****

355 HP 1350 LB-FT 2100 RPM MBL1-00999 239-5968 241 Jun03
REFERENCE 224-3448 IC 201
Replaced 232-3985

355/410 HP 1350/1450 LB-FT 2100 RPM MBL1-00999 239-5967 244 Jun03
MULTITORQUE REFERENCE 224-3449 IC 204
Replaced 232-3986

380 HP 1450 LB-FT 2100 RPM MBL1-00999 239-5966 242 Jun03
REFERENCE 224-3450 IC 202
Replaced 232-3987

410 HP 1450 LB-FT 2100 RPM MBL1-00999 239-5964 246 Jun03
REFERENCE 224-3452 IC 206
Replaced 232-3989
****
335 HP 1550 LB-FT 2100 RPM MBL1-00999 239-5969 240 Jun03
REFERENCE 224-3447 IC 200
Replaced 232-3984

380/430 HP 1450/1550 LB-FT 2100 RPM MBL1-00999 239-5965 248 Jun03
          1450/1650 LB-FT
MULTITORQUE REFERENCE 224-3451 IC 208
Replaced 232-3988

410 HP 1550 LB-FT 2100 RPM MBL1-00999 239-5963 247 Jun03
REFERENCE 224-5869 IC 207
Replaced 232-3990

430 HP 1550/1650 LB-FT 2100 RPM MBL1-00999 239-5962 249 Jun03
REFERENCE 216-5006 & 224-3453 IC 209
Replaced 232-3991

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C-12 MBL01000-up
****

355 HP 1350 LB-FT 2100 RPM MBL01000-UP 236-8686 221 May03
REPLACED 228-8027, 231-9235,235-1375

355/410 HP 1350/1450 LB-FT 2100 RPM MBL01000-UP 236-8687 224 May03
MULTITORQUE REPLACED 228-8028, 231-9236, 235-1377

380 HP 1450 LB-FT 2100 RPM MBL01000-UP 241-8404 222 Jul03
REPLACED 228-8029, 231-9237, 235-1738, 236-8688

410 HP 1450 LB-FT 2100 RPM MBL01000-UP 241-8403 226 Jul03

REPLACED 228-8031,231-9240,235-1381,236-8691
****
335 HP 1550 LB-FT 2100 RPM MBL01000-UP 272-6464 220 MAR05
REPLACED 228-8026,231-9234,
235-1374,236-8685

380/430 HP 1450/1550 LB-FT 2100 RPM MBL01000-UP 272-6465 235 MAR05
MULTITORQUE
REPLACED 228-8059,231-9238,
235-1379,236-8689

410 HP 1550 LB-FT 2100 RPM MBL01000-UP 272-6467 227 MAR05
REPLACED 228-8032,231-9241,
235-1382,236-8692

410 HP 1550 LB-FT 2100 RPM MBL01000-UP 272-6468 233 MAR05
Haliburton
REPLACED 228-8033,231-9242,
235-1383,236-8693

430 HP 1550 LB-FT 2100 RPM MBL01000-UP 272-6470 237 MAR05
REPLACED 228-8035,231-9244,
235-1385,236-8695
****
380/430 HP 1450/1650 LB-FT 2100 RPM MBL01000-UP 272-6466 236 MAR05
MULTITORQUE
REPLACED 228-8030,231-9239,
235-1380,236-8690

430 HP 1650 LB-FT 2100 RPM MBL01000-UP 272-6471 238 MAR05
REPLACED 229-1634,231-9245,
235-1386,236-8696

430 HP 1650 LB-FT 2100 RPM MBL01000-UP 272-6472 232 MAR05
Haliburton IAS
REPLACED 228-8036,231-9246,
235-1387,236-8697
****
425 HP 1550 LB-FT 2100 RPM MBL01000-UP 272-6469 234 MAR05
Firetruck & RV only
REPLACED 228-8034,231-9243,
235-1384,236-8694

455 HP 1550 LB-FT 2100 RPM MBL01000-UP 272-6473 260 MAR05
Firetrk/RV only (old code 230)
REPLACED 228-8037,231-9247,235-1380,
236-8698,242-8339
****
505 HP 1550 LB-FT 2100 RPM MBL01000-UP 272-6474 261 MAR05
RV only (old code 231)
REPLACED 228-8038,231-9248,
235-1389,236-8699,242-8340
****

C-15
****

435 HP 1550/1650 LB-FT 2100 RPM MBN00001-UP 272-6609 206 MAR05
REPLACED 228-8040,231-9249,
234-7580,236-8700

435 HP 1550/1650 LB-FT 2100 RPM MBN00001-UP 272-6610 207 MAR05
BRAKESAVER
REPLACED 228-8041,231-9250,
234-7581,236-8701

435/500 HP 1550/1650 LB-FT 2100 RPM MBN00001-UP 272-6611 208 MAR05
MULTITORQUE
REPLACED 228-8042,231-9251,
234-7582,236-8702

435/500 HP 1550/1650 LB-FT 2100 RPM MBN00001-UP 272-6612 220 MAR05
MULTITORQUE/ (OWS) OIL WELL SERVICE
REPLACED 228-8043,231-9252,
234-7583,236-8703

475 HP 1650 LB-FT 2100 RPM MBN00001-UP 272-6614 212 MAR05
REPLACED 228-8044,231-9254,
234-7585,236-8705,251-3753

475 HP 1650 LB-FT 2100 RPM MBN00001-UP 272-6615 214 MAR05
BRAKESAVER
REPLACED 228-8045,231-9255,
234-7586,236-8706

500 HP 1650 LB-FT 2100/2300 RPM MBN00001-UP 272-6618 221 MAR05
FIELD UPRATE
REPLACED 228-8049,231-9258,
234-7589,236-8709
****
475 HP 1750 LB-FT 2100 RPM MBN00001-UP 272-6616 213 MAR05
REPLACED 228-8046,231-9256,
234-7587,236-8707

475 HP 1750 LB-FT 2100 RPM MBN00001-UP 272-6617 215 MAR05
BRAKESAVER
REPLACED 228-8047,231-9257,
234-7588,236-8708

500 HP 1850 LB-FT 2100 RPM MBN00001-UP 272-6619 226 MAR05
REPLACED 228-8050,231-9259,
234-7590,236-8710

500 HP 1850 LB-FT 2100 RPM MBN00001-UP 272-6620 227 MAR05
BRAKESAVER
REPLACED 228-8051,231-9260,
234-7591,236-8711

525 HP 1850 LB-FT 2100 RPM MBN00001-UP 272-6621 228 MAR05
REPLACED 228-8055,231-9261,
234-7592,236-8712

525 HP 1850 LB-FT 2100 RPM MBN00001-UP 272-6622 230 MAR05
BRAKESAVER
REPLACED 228-8056,231-9262,
234-7593,236-8713

525 HP 1850 LB-FT 2100/2300 RPM MBN00001-UP 272-6623 231 MAR05
FIELD UPRATE
REPLACED 228-8052,231-9263,
234-7594,236-8714

525 HP 1850 LB-FT 2100/2300 RPM MBN00001-UP 272-6624 232 MAR05
BRAKESAVER FIELD UPRATE
REPLACED 228-8053,231-9264
234-7595,236-8715
525 HP 1771 LB-FT 2100 RPM MBN00001-UP 268-0221 164 APR05
SNOWBLOWER
REPLACED 251-1628
****
450/515 HP 1550/1650 LB-FT 2100 RPM MBL00001-UP 272-6613 210 MAR05
MULTITORQUE/RV ONLY
REPLACED 228-8058,231-9253,
234-7584,236-8704
****
C-18
****
625 HP 2049 LB-FT 1900 RPM MDP0001-up MEP0001-UP 268-0224 3 APR05
EURO3
REPLACED 184-8094,231-7596,232-2646,
235-6400,241-0814,251-1625

700 HP 1900 LB-FT 2100 RPM MDP0001-up MEP0001-UP 241-0817 1 JUN03
(UK HETT)
REPLACED 227-5521,232-2647,238-2680,239-4147

700 HP 1900 LB-FT 2100 RPM MDP0001-up MEP0001-UP 232-2648 1 NOV02
(Charmichael)
REPLACED 227-5522

700 HP 2000 RPM HWT-533KW CPD ACERT 318-7276 5 AUG07
UK COMMERCIAL DEFENSE PRODUCT-COLD TEST RATING
REPLACED 289-9686
****
European On Highway Truck
****
C-12
****
325 HP 1250 LB-FT 1900 RPM CPD00276-UP 267-5139 42 DEC04
EURO3
REPLACED 224-7278

380 HP 1400 LB-FT 1900 RPM CPD00276-UP 267-5140 43 DEC04
EURO3
REPLACED 224-7279

380/430 HP 1400/1550 LB-FT 1900 RPM CPD00276-UP 267-5141 44 DEC04
EURO3 M/T
REPLACED 224-7280

430 HP 1550 LB-FT 1900 RPM CPD00276-UP 267-5142 45 DEC04
EURO3
REPLACED 224-7281
****
C-16
****
680 HP 1951 LB-FT 2100 RPM 267-5143 162 JAN05
ARFF
REPLACED 251-1626

650 HP 1951 LB-FT 2100 RPM 297-8779 163 JUL06
SNOWBLOWER
REPLACED 251-1629,268-0223

C11/C13/C15 ACERT Flash File Cross Reference
Updated January 27, 2009 dba
On-Highway Truck Engines

NOTE: C11, C13,and C15 files are serial number range specific

FLASHFILES

C11 HORSEPOWER	TORQUE	GOV SPEED	SERIAL NO. RANGE	FLASH FILE	P/M CODE	RELEASE DATE
305 HP	1050 LB-FT	2100 RPM	KCA1-1456	291-2050	20	MAR06
Replaced 256-6457,264-6355,270-0317						
305 HP	1050 LB-FT	2100 RPM	KCA1457-up	305-4391	30	NOV06
RFT Injectors Replaced 256-5727,262-4382,265-9436, 270-0294,271-2914,291-2016						
335 HP	1250 LB-FT	2100 RPM	KCA1-01456	291-2051	21	MAR06
Replaced 256-6458,264-6356,270-0318						
335 HP	1250 LB-FT	2100 RPM	KCA1457-up	305-4392	31	NOV06
RFT Injectors Replaced 256-5728,262-4383,270-0295, 271-2915,291-2017						
335 HP	1250 LB-FT	2100 RPM	KCA1-01456	291-2052	24	MAR06
Inlet Air Shutoff Replaced 256-6461,264-6357,270-0319						
335 HP	1250 LB-FT	2100 RPM	KCA1457-up	305-4393	34	NOV06
Inlet Air Shutoff Replaced 256-5731,262-4384,265-9438, 270-0296,271-2916,291-2018						
350 HP	1350 LB-FT	2100 RPM	KCA1-01456	291-2053	22	MAR06
Replaced 229-4911,249-7596, 251-3555,256-6459,264-6358,270-0321						
350 HP	1350 LB-FT	2100 RPM	KCA1457-up	305-4394	32	NOV06
RFT Injectors Replaced 256-5729,262-4385,265-9439, 270-0297,271-2917,291-2019						
350 HP	1350 LB-FT	2100 RPM	KCA1457-up	305-4395	35	NOV06
Inlet Air Shutoff Replaced 253-9429,262-4386 265-9440,270-0298,271-2918,291-2020						
350HP	1450 lb-ft	2100 RPM	KCA1-01456	294-4818	26	MAY06
Replaced 256-6462,264-6359,270-0322, 291-2054						
350HP	1450 lb-ft	2100 RPM	KCA1457-up	305-4396	36	NOV06
RFT Injectors Replaced 262-4387,265-9441,270-0299, 271-2919,291-2021						

370 HP 1350 LB-FT 2100 RPM KCA1-01456 291-2055 23 MAR06
Replaced 247-1273,249-7597,
251-3556,256-6460,264-6360,270-0323

370 HP 1350 LB-FT 2100 RPM KCA1457-up 305-4397 33 NOV06
RFT Injectors
Replaced 256-5730,262-4388,265-9442,
270-0300,271-2920,291-2022

370HP 1450 lb-ft 2100 RPM KCA1457-up 305-4398 37 NOV06
RFT Injectors
Replaced 262-4389,270-0301,271-2921,
291-2023

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C13 HORSEPOWER	TORQUE	GOV SPEED	SERIAL NO. RANGE	FLASH FILE	P/M CODE	RELEASE DATE

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335 HP 1550 LB-FT 2100 RPM KCB00508-6811 291-2056 37 MAR06
With factory installed 239-4908 injectors
Replaced 251-4585,256-5323,264-6684

380 HP 1450 LB-FT 2100 RPM KCB00508-5433* 291-2058 31 MAR06
With factory installed 239-4908 injectors
Replaced 251-4580,256-5324,264-6686,
271-2867

380 HP 1400 LB-FT 2100 RPM KCB00508-6811 291-2057 38 MAR06
With factory installed 239-4908 injectors
Replaced 251-4586,264-6685

410 HP 1450 LB-FT 2100 RPM KCB00508-6811 291-2059 32 MAR06
With factory installed 239-4908 injectors
Replaced 251-4581,256-5325,264-6687,
271-2868

410 HP 1450/1550LB-FT M/T 2100 RPM KCB00508-6811 291-2060 46 MAR06
Oil Well Service (OWS)
With factory installed 239-4908 injectors
Replaced 251-4594,264-6688

410 HP 1450/1650LB-FT M/T 2100 RPM KCB00508-6811 291-2061 43 MAR06
With factory installed 239-4908 injectors
Gear Fast/Run Slow (For Eaton Top 2)
Replaced 251-4591,264-6689

410 HP 1450/1650LB-FT M/T 2100 RPM KCB00508-6811 291-2062 44 MAR06
With factory installed 239-4908 injectors
Replaced 251-4592,264-6690

410 HP 1550 LB-FT 2100 RPM KCB00508-6811 291-2063 39 MAR06
With factory installed 239-4908 injectors
Replaced 251-4587,264-6691

410 HP 1550 LB-FT IAS 2100 RPM KCB00508-6811 291-2069 40 MAR06
With factory installed 239-4908 injectors
Inlet Air Shutoff
Replaced 251-4588,264-6692

430 HP 1550 LB-FT 2100 RPM KCB00508-5433* 291-2065 41 MAR06
With factory installed 239-4908 injectors

Replaced 251-4589,264-6693

430 HP 1550 LB-FT 2100 RPM KCB00508-5433* 291-2069 42 MAR06
With factory installed 239-4908 injectors
Inlet Air Shutoff
Replaced 251-4590,264-6697

430 HP 1550/1750LB-FT M/T 2100 RPM KCB00508-5433* 291-2067 45 MAR06
With factory installed 239-4908 injectors
Replaced 245-5999,249-7599,251-4593,264-6695

430 HP 1650 LB-FT 2100 RPM KCB00508-5433* 291-2068 34 MAR06
With factory installed 239-4908 injectors
Replaced 248-0777,249-7609,251-4582,264-6696

430 HP 1550/1750LB-FT MT 2100 RPM KCB00508-5433* 291-2066 35 MAR06
With factory installed 239-4908 injectors
Gear Fast/Run Slow (Eaton 2)
Replaced 248-0776,249-7608,251-4583,264-6694

470 HP 1650 LB-FT 2100 RPM KCB00508-6811 264-6698 47 OCT04
With factory installed 239-4908 injectors
RV RATING
Replaced 245-6000,251-4596

470 HP 1650 LB-FT 2100 RPM KCB6812-UP 262-4539 85 AUG04
RV RATING
With factory installed 249-0708 injectors
Replaced 251-5700,258-7365

525 HP 1650 LB-FT 2100 RPM KCB00508-2076 249-7606 36 DEC03
RV RATING
With factory installed 244-7695 injectors

525 HP 1650 LB-FT 2100 RPM KCB02077-6862 291-2072 51 MAR06
RV RATING
With factory installed 246-7697 injectors
Replaced 244-7695,256-5321,264-6700

525 HP 1650 LB-FT 2100 RPM KCB06863-UP 291-2076 87 MAR06
RV RATING
With factory installed 249-0697 injectors
Replaced 256-5319,264-6702

525 HP 1650 LB-FT 2100 RPM KCB6812-UP 318-9503 96 AUG07
RV RATING
(Only compatible with 259-8418 or 10R2878 turbo installed)
RFT Injectors
Replaced 262-4542,265-9579,272-3131,
285-3673,291-2048,307-1471

470/455HP 1650/1550LB-FT MT 2100 RPM KCB00508-6811 291-2071 48 MAR06
With factory installed 239-4908 injectors
FT RATING
Replaced 245-0208,251-4597,264-6699

470/455HP 1650/1550LB-FT M/T 2100 RPM KCB6812-UP 262-4540 86 AUG04
FT RATING
With factory installed 249-0708 injectors
Replaced 251-5702

525/455 HP 1650/1550 LB-FT 2100 RPM KCB00508-6862 249-7607 49 DEC03
FT RATING
With factory installed 223-7478, 246-7842 injectors
Replaced 242-8335,245-0210

525/455 HP 1650/1550 LB-FT 2100 RPM KCB00508-6862 291-2073 52 MAR06
FT RATING
With factory installed 246-7843 injectors
Replaced 249-0120,251-4595,
256-5322,264-6701

525/455 HP 1650 LB-FT 2100 RPM KCB00508-6862 291-2077 88 MAR06
FT RATING
With factory installed 249-0697 injectors
Replaced 256-5320,264-6703

525/455 HP 1650/1550 LB-FT 2100 RPM MT KCB6812- UP 318-9504 97 AUG07
FT RATING
(Only compatible with 259-8418 or 10R2878 turbo installed)
RFT Injectors
Replaced 259-8899,262-4543,265-9580,
272-3132,291-2049,303-8748,307-1472

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335 HP 1550 LB-FT 2100 RPM KCB5434-UP 346-8821 75 Apr09
RFT Injectors
Replaced 258-7345,262-4518,265-9556,
272-3110,291-2024,295-1515,303-8722,307-1446,318-9476
335-7791,341-1475

380 HP 1400 LB-FT 2100 RPM KCB5434-UP 335-7792 76 AUG08
RFT injectors
Replaced 258-7346,262-4519,265-9557,
272-3111,291-2025,295-1516,303-8723,307-1447,318-9477

380 HP 1450 LB-FT 2100 RPM KCB5434-UP 335-7793 71 AUG08
With factory installed 249-0708 injectors
Replaced 258-7347,262-4520,265-9558,
271-2865,272-3112,291-2026,295-1517,
303-8724,307-1448318-9478

380 HP 1450 LB-FT 2100 RPM KCB5434-UP 335-7794 90 AUG08
Inlet Air Shutoff RFT Injectors
Replaced 258-7348,262-4521,265-9559,272-3113,
291-2027,295-1518,303-8725,307-1449,318-9479

410 HP 1450 LB-FT 2100 RPM KCB5434-UP 346-8822 72 Apr09
RFT injectors
Replaced 258-7349,262-4522,265-9560,
271-2866,272-3114,291-2028,295-1519,
303-8726,307-1450,318-9480,3357795,341-1479

410 HP 1450/1650LB-FT 2100 RPM KCB5434-UP 346-8825 81 Apr09
RFT injectors
Gear Fast/Run Slow (For Eaton Top 2)
Replaced 258-7350,262-4523,265-9562,272-3116,
291-2029,295-1554,303-8727,307-1451,318-9481,
335-7796,341-1480

410 HP 1450/1650LB-FT M/T 2100 RPM KCB5434-UP 346-8826 82 Apr09
RFT injectors

Replaced 258-7351,262-4525,265-9563,272-3117,
291-2030,295-1522,303-8729,307-1453,318-9483
335-7798,341-1482

410 HP 1450/1550LB-FT M/T 2100 RPM KCB5434-UP 346-8824 84 Apr09
RFT injectors
OWS
Replaced 258-7352,262-4526,265-9564,272-3118,
291-2031,295-1523,303-8730,307-1454,318-9484,
335-7799,341-1483

410 HP 1450/1550LB-FT M/T 2100 RPM KCB5434-UP 346-8823 98 Apr09
RFT injectors
Replaced 262-4524,265-9561,
272-3115,291-2074,295-1521,302-5726,
303-8728,307-1452,318-9482,335-7797,341-1148

410 HP 1550 LB-FT 2100 RPM KCB5434-UP 346-8827 77 Apr09
RFT injectors
Replaced 251-5692,258-7353
262-4527,265-9565,272-3119,
291-2032,295-1524,303-8731,307-1455,318-9485,
335-7800,341-1484

410 HP 1550 LB-FT 2100 RPM KCB5434-UP 346-8828 78 Apr09
RFT injectors
Inlet Air Shutoff
Replaced 258-7354
262-4528,265-9566,272-3120,291-2033,
295-1525,303-8732,307-1456,318-9486,
335-7801,341-1485

430 HP 1650 LB-FT 2100 RPM KCB5434-UP 346-8833 73 Apr09
With factory installed 249-0708 injectors
Replaced 258-7359,262-4533,265-9571,
272-3125,291-2038,295-1530,303-8737,307-1461,318-9491,
335-7807, 341-1490

430 HP 1550/1750LB-FT 2100 RPM KCB5434-UP 346-8831 74 Apr09
With factory installed 249-0708 injectors
(Eaton GFRS)
Replaced 258-7357,262-4531,265-9569,272-3123,
291-2036,295-1528,303-8735,307-1459,318-9489
335-7805,341-1488

430 HP 1550 LB-FT 2100 RPM KCB5434-UP 346-8829 79 Apr09
With factory installed 249-0708 injectors
Replaced 258-7355,262-4529,265-9567,
271-4488,272-3121,291-2034,295-1526,
303-8733,307-1457,318-9487,335-7802,
341-1486

430 HP 1550 LB-FT 2100 RPM KCB5434-UP 346-8830 89 Apr09
Inlet Air Shutoff RFT Injectors
Replaced 258-7356,262-4530,265-9568,272-3122,
291-2035,295-1527,303-8734,307-1458,318-9488,
335-7804,341-1487

430 HP 1650 LB-FT IAS 2100 RPM KCB5434-UP 346-8834 80 Apr09
Inlet Air Shutoff
With factory installed 249-0708 injectors

Replaced 258-7360,262-4534,265-9572,
272-3126,291-2039,295-1531,303-8738,307-1462,318-9492,
335-7808,341-1491

430 HP 1550/1750LB-FT MT 2100 RPM KCB5434-UP 346-8832 83 Apr09
With factory installed 249-0708 injectors
Replaced 258-7358,262-4532,265-9570,
272-3124,291-2037,295-1529,303-8736,307-1460,318-9490,
335-7806,341-1489

455/485HP 1550/1650LB-FT 2100 RPM KCB5434-UP 345-2372 70 May09
M/T Fire Truck
RFT injectors
Replaced 265-3168,265-9578,272-3130,
291-2043,295-1535,303-8742,307-1466,318-9496,335-7812,
341-1495

470 HP 1550 LB-FT 2100 RPM KCB5434-UP 346-8835 91 Apr09
RFT injectors
Replaced 254-1626,258-7361
262-4535,265-9573,272-3127,
291-2040,295-1532,303-8739,307-1463,318-9493,
335-7809,341-1492

470 HP 1650LB-FT 2100 RPM KCB5434-UP 346-8837 94 Apr09
RFT injectors
Replaced 262-4538,265-9575,272-3129,
291-2042,295-1534,303-8741,307-1465,318-9495,
335-7811,341-1494

470 HP 1550/1650LB-FT M/T 2100 RPM KCB5434-UP 346-8836 99 Apr09
RFT injectors
Replaced 262-9713,265-9574,272-3128,
291-2041,295-1533,303-8740,307-1464,318-9494,
335-7810,341-1493

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C13 HORSEPOWER	TORQUE	GOV SPEED	SERIAL NO. RANGE	FLASH FILE	P/M CODE	RELEASE DATE

EURO Rating for use in Europe only - not for North America use

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380 HP 2100 RPM MT-283 KW-EURO3 335-7813 66 AUG08
Replaced 273-8798,291-2044,
295-1536,303-8743,307-1467,318-9497

430 HP 2100 RPM MT-321 KW-EURO3 335-7814 67 AUG08
Replaced 273-8799,291-2045,
295-1537,303-8744,307-1468,318-9498

470 HP 2100 RPM MT-350 KW-EURO3 335-7815 68 AUG08
Replaced 273-8800,291-2046,
295-1538,303-8745,307-1469,318-9499

500 HP 2100 RPM MT-373 KW-EURO3 291-2047 69 MAR06
Replaced N/A

380 HP 2100 RPM 283 KW-EURO3 AISO 335-7816 202 AUG08
Replaced 308-3512,318-9500

430 HP 2100 RPM 321 KW-EURO3 AISO 335-7817 203 AUG08
Replaced 308-3514,318-9501

470 HP 2100 RPM 350 KW-EURO3 AISO 335-7818 204 AUG08
Replaced 308-3516,318-9502

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C13 HORSEPOWER	TORQUE	GOV SPEED	FILE	FLASH CODE	P/M DATE	RELEASE
2007 EMISSIONS EURO4 TRUCK						

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380 HP@2100/2300 RPM EURO4 S3C00001-UP 330-2021 35/135 JUN08
Replaced 295-6886,319-4910

430 HP@2100/2300 RPM EURO4 SC300001-UP 330-2022 36/136 JUN08
Replaced 295-6887,319-4911

470 HP@2100/2300 RPM EURO4 SC300001-UP 330-2023 37/137 JUN08
Replaced 295-6888,319-4912

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C13 HORSEPOWER	TORQUE	GOV SPEED	FILE	FLASH CODE	P/M DATE	RELEASE
2007 EMISSIONS ADEM A4 ECM ON HD ACERT HIGHWAY TRUCK						

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305 HP 1150 LB-FT 2100/2300 RPM LEE00001-UP 365-1126 40/140 Nov10
Replaced 311-6968,312-1397,314-3431,
316-1760,318-7028,320-0292,326-3606,
327-4486,333-5970,337-7326,343-5712,
348-4710

335 HP 1250 LB-FT 2100/2300 RPM LEE00001-UP 318-7029 41 SEP07
Replaced 311-6987,312-1398,314-3432,
316-1769

335 HP 1250 LB-FT 2100/2300 RPM LEE00001-UP 365-1127 42/142 Nov10
Replaced 314-3433,316-1762,318-7030,
320-0294,326-3607,327-4487,333-5971,
337-7327,343-5713,348-4711

350 HP 1350 LB-FT 2100/2300 RPM LEE00001-UP 365-1128 43/143 Nov10
Replaced 311-6989,312-1400,314-3434,
316-1763,318-7031,320-0295,326-3608,
327-4488,333-5972,337-7328,343-5714,
348-4712

350 HP 1450 LB-FT 2100/2300 RPM LEE00001-UP 365-1129 45/145 Nov10
Replaced 311-6990,312-1401,314-3435,
316-1764,318-7032,320-0296,326-3609,
327-4489,333-5973,337-7329,343-5715,
348-4713

350 HP 1450 LB-FT 2100/2300 RPM LEE00001-UP 365-1130 46/146 Nov10
Oil Well Sevice
Replaced 314-3436,316-1765,318-7033,
320-0297,326-3610,327-4490,333-5974,
337-7330,343-5716,348-4714

350 HP 1550 LB-FT 2100/2300 RPM LEE00001-UP 365-1131 47/147 Nov10
Replaced 311-6992,312-1403,314-3437,
316-1766,318-7034,320-0298,326-3611,
327-4491,333-5975,337-7331,343-5717,
348-4715

370 HP 1350 LB-FT 2100/2300 RPM LEE00001-UP 365-1132 48/148 Nov10
Replaced 311-6993,312-1404,314-3438,
316-1767,318-7035,320-0299,326-3612,
327-4492,333-5976,337-7332,343-5718,
348-4716

370 HP 1450 LB-FT 2100/2300 RPM LEE00001-UP 365-1133 49/149 Nov10
Replaced 311-6994,312-1405,314-3439,
316-1768,318-7036,320-0300,326-3613,
327-4493,333-5977,337-7333,343-5719,
348-4717

380 HP 1450 LB-FT 2100/2300 RPM LEE00001-UP 365-1135 67/167 Nov10
Supports Optional Pre-cooler
Replaced 314-3441,316-1770,318-7038,
320-0302,326-3615,327-4495,333-5979,
337-7335,343-5721,348-4719

380 HP 1450 LB-FT 2100/2300 RPM LEE00001-UP 365-1136 52/152 Nov10
Replaced 311-6996,312-1407,314-3442,
316-1771,318-7039,320-0303,326-3616,
327-4496,333-5980,337-7336,343-5722,
348-4720

410 HP 1450 LB-FT 2100/2300 RPM LEE00001-UP 365-1137 68/168 Nov10
Supports Optional Pre-cooler
Replaced 314-3443,316-1772,318-7040,
320-0304,326-3617,327-4497,333-5981,
337-7337,343-5723,348-4721

410 HP 1550 LB-FT 2100/2300 RPM LEE00001-UP 337-7334 50/150 Nov10
Replaced 311-6995,312-1406,314-3440,
316-1769,318-7037,320-0301,326-3614,
327-4494,333-5978,337-7334,

410 HP 1450 LB-FT 2100/2300 RPM LEE00001-UP 365-1138 53/153 Nov10
Replaced 311-6997,312-1408,314-3444,
316-1733,318-7041,320-0305,326-3618,
327-4498,333-5982,337-7338,343-5724,
348-4722

410HP 1450/1550 LB-FT 2100/2300 RPM LEE00001-UP 365-1139 69/169 Nov10
Supports Optional Pre-cooler
Multi-torque
Replaced 314-3445,316-1774,318-7042,
320-0306,326-3619,327-4499,333-5983,
337-7339,343-5725,348-4723

410HP 1450/1550 LB-FT 2100/2300 RPM LEE00001-UP 365-1140 54/154 Nov10
Multi-torque
Replaced 311-6998,312-1409,314-3446,
316-1775,318-7043,320-0307,326-3620,
327-4500,333-5984,337-7340,343-5726,
348-4724

410 HP 1450/1650 LB-FT 2100/2300 RPM LEE00001-UP 337-7341 70/170 OCT08
Multi-torque
Replaced 314-3447,316-1776,318-7044,
320-0308,326-3621,327-4501,333-5985

410 HP 1450/1650 LB-FT 2100/2300 RPM LEE00001-UP 337-7342 55/155 OCT08

Multi-torque
Replaced 311-6999,312-1410,314-3448,
316-1777,318-7045,320-0309,326-3622,
327-4502,333-5986

410 HP 1550 LB-FT 2100/2300 RPM LEE00001-UP 337-7343 71/171 OCT08
Supports Optional Pre-cooler
Replaced 314-3449,316-1778,318-7046,
320-0310,326-3623,327-4503,333-5987

410 HP 1550 LB-FT 2100/2300 RPM LEE00001-UP 337-7344 56/156 OCT08
Replaced 311-7000,312-1411,314-3450,
316-1779,318-7047,320-0311,326-3624,
327-4504,333-5988

430 HP 1550/1750 LB-FT 2100/2300 RPM LEE00001-UP 337-7346 58/158 OCT08
GFRS
Replaced 311-7002,312-1413,314-3452,
316-1781,318-7049,320-0314,326-3626,
327-4506,333-5990

430 HP 1550/1750 LB-FT 2100/2300 RPM LEE00001-UP 337-7347 59/159 OCT08
Multi-torque
Replaced 311-7003,312-1414,314-3452,
316-1782,318-7050,320-0315,326-3627,
327-4507,333-5991

430 HP 1550 LB-FT 2100/2300 RPM LEE00001-UP 337-7345 57/157 OCT08
Replaced 311-7001,312-1412,314-3451,
316-1780,318-7048,320-0313,326-3625,
327-4505,333-5989

430 HP 1650 LB-FT 2100/2300 RPM LEE00001-UP 337-7349 60/160 OCT08
Replaced 311-7004,312-1415,314-3454,
316-1784,318-7052,320-0317,326-3629,
327-4509,333-5993

470 HP 1550 LB-FT 2100/2300 RPM LEE00001-UP 337-7350 61/161 OCT08
Replaced 311-7005,312-1416,314-3455,
316-1785,318-7053,320-0318,326-3630,
327-4510,333-5994

470 HP 1650 LB-FT 2100/2300 RPM LEE00001-UP 337-7351 62/162 OCT08
Multi-torque
Replaced 311-70063,12-1417,314-3456,
316-1786,318-7054,320-0319,326-3631,
327-4511,333-5995

470 HP 1650 LB-FT 2100/2300 RPM LEE00001-UP 337-7352 63/163 OCT08
Replaced 312-1418,314-3457,316-1787,
318-7055,320-0320,326-3632,327-4512,
333-5996

455 HP 1550 LB-FT 2100 RPM LEE00001-UP 337-7353 64/164 OCT08
485 HP 1650 LB-FT
Replaced 312-1419,314-3458,316-1788,
318-7056,320-0321,326-3633,327-4413,
333-5997

525 HP 1750 LB-FT 2100 RPM LEE00001-UP 337-7354 65/165 OCT08
RV

Replaced 312-1420,314-3459,315-5890,
316-1789,318-7057,320-0322,326-3634,
327-4514,333-5998

525 HP 1750 LB-FT 2100 RPM LEE00001-UP 337-7355 66/166 OCT08
Replaced 312-1421,314-3460,316-1790,
318-7058,320-0323,326-3635,327-4515,
333-5999

C15 HORSEPOWER	TORQUE	GOV SPEED	SERIAL NO. RANGE	FLASH FILE	P/M CODE	RELEASE DATE
435 HP	1650 LB-FT	2100 RPM	BXS00001-02034	242-1857	34	AUG03

Replaced 241-8405

435 HP 1650 LB-FT 2100 RPM BXS2035 -up 305-4511 40 NOV06
Replaced 245-0197, 247-7543,
249-7619,253-6066,255-4933,
262-3727,271-2954,283-5127,291-2083

435 HP 1550/1750 LB-FT M/T 2100 RPM BXS00001-02034 242-1856 32 AUG03
Gear Fast/Run Slow (EATON 2)
Replaced 237-9213,241-8409

435 HP 1550/1750 LB-FT M/T 2100 RPM BXS2035-up 305-4508 44 NOV06
Gear Fast/Run Slow (Eaton 2)
Replaced 245-0189,247-7541,
249-7617,253-6070,255-4931,
262-3724,271-2951,283-5124,291-2080

435 HP 1550/1750 LB-FT M/T 2100 RPM BXS00001-02034 244-2510 31 AUG03

435 HP 1550/1750 LB-FT 2100 RPM BXS02035-up 290-2167 20 FEB06
Gear Fast/Run Slow
2004 Iron ADEM 4 ECM only
Replaced 253-0038,261-6686,
264-7702,271-1372,283-1179

435 HP 1550/1650 LB-FT M/T 2100 RPM BXS2035-up 305-4507 60 NOV06
Replaced 258-6910,262-3723,
271-2950,283-5123,291-2079

435 HP 1550/1750 LB-FT M/T 2100 RPM BXS2035-up 305-4509 45 NOV06
Replaced 245-0181,245-0212,
249-7626,253-6071,255-4932,
262-3725,271-2952,283-5125,291-2081

435 HP 1550 LB-FT 2100 RPM BXS2035-up 305-4506 48 NOV06
Replaced 245-0195,247-7544,
249-7620,253-6074,255-4930,262-3722,
271-2949,283-5122,291-2078

435/500HP 1550/1650 LB-FT M/T 2100 RPM BXS02035-up 305-4510 54 NOV06
Oil Well Service (OWS)
Replaced 249-2489,255-1267,
262-3726,271-2953,283-5126,291-2082

475 HP 1650 LB-FT 2100 RPM BXS00001-02034 242-1858 35 AUG03
Replaced 239-5256,241-8406

475 HP 1650 LB-FT 2100 RPM BXS2035-up 305-4512 41 NOV06
Replaced 245-0183,247-7538,
249-7614,253-6067,255-4934,
262-3728,271-2955,283-5128,291-2084

475 HP 1650 LB-FT 2100 RPM BXS2035-up 305-4513 50 NOV06
Brakesaver
Replaced 245-0201,249-7622,
253-6076,255-4935,262-3729,
271-2956,283-5129,291-2085

475 HP 1650/1850 LB-FT M/T 2100 RPM BXS2035-up 305-4515 47 NOV06
Replaced 245-0193,245-0213,
249-7869,253-6073,255-4937,
262-3731,271-2958,283-5131,291-2087

475 HP 1650/1850 LB-FT M/T 2100 RPM BXS2035-up 305-4514 46 NOV06
Gear Fast/Run Slow (Eaton 2)
Replaced 245-0191,247-7542,
249-7618,253-6072,255-4936,
262-3730,271-2957,283-5130,291-2086

475 HP 1850 LB-FT 2100 RPM BXS00001-02034 242-1859 36 AUG03
Replaced 239-5257,241-8407

475 HP 1850 LB-FT 2100 RPM BXS2035-up 305-4516 42 NOV06
Replaced 245-0185,247-7539,
249-7615,253-6068,255-4938,
262-3732,271-2959,283-5132,291-2088

475 HP 1850 LB-FT 2100 RPM BXS2035-up 305-4517 51 NOV06
Brakesaver
Replaced 245-0203,249-7623,
253-6077,255-4939,262-3733,
271-2960,283-5133,291-2089

500 HP 1650 LB-FT 2100 RPM BXS02035-up 305-4518 55 NOV06
Replaced 249-2490,262-3734,
271-2961,283-4134,291-2090

500 HP 1850 LB-FT 2100 RPM BXS2035-up 305-4519 49 NOV06
Replaced 245-0199,247-7545,
249-7621,253-6075,255-4940,
262-3735,271-2962,283-5135,291-2091

500 HP 1850 LB-FT 2100 RPM BXS2035-up 305-4520 52 NOV06
Brakesaver
Replaced 245-0205,249-7624,
253-6078,255-4941,262-3736,
271-2963,283-5136,291-2092

500 HP 1850 LB-FT 2300 RPM BXS2035-up 305-4521 56 NOV06
Replaced 249-2491,255-1269,
262-3737,271-2964,283-5137,291-2093

550 HP 1850 LB-FT 2100 PRM BXS00001-02034 242-1860 37 AUG03
Replaced 239-5258,241-8408

550 HP 1850 LB-FT 2100 RPM BXS2035-up 305-4522 43 NOV06
Replaced 245-0187,247-7540,
249-7616,253-6069,255-4942,

262-3738,271-2965,283-5138,291-2094

550 HP 1850 LB-FT 2100 RPM BXS2035-up 305-4523 53 NOV06
Brakesaver
Replaced 245-0207,249-7625,
253-6079,255-4943,262-3739,
271-2966,283-5139,291-2095

550 HP 1850 LB-FT 2300 RPM BXS2035-up 305-4524 57 MAR06
Replaced 249-2492,255-1270,
262-3740,271-2967,283-5140,291-4347

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C15 HORSEPOWER	TORQUE	GOV SPEED	SERIAL NO. RANGE	FLASH FILE	P/M CODE	RELEASE DATE

HEAVY HAUL RATINGS
Please note the heavy haul production files are an enhancement for specific heavy load applications. The files were not created to correct a problem with engine performance in heavy haul applications. Previous heavy haul software meets all specifications pertaining to performance. This software is basically an improvement that may augment performance, engine response and fuel economy if utilized correctly. The most effective improvement is driver training.

475 HP 1650 LB-FT 2100 RPM BXS2035-up 305-4525 61 NOV06
Replaced 288-8535,297-2417
Replaces BXS 291-2084/PM code 41 for use in Heavy Haul applications only

475 HP 1850 LB-FT 2100 RPM BXS2035-up 305-4526 62 NOV06
Replaced 288-8536,297-2418
Replaces BXS 291-2088/PM code 42 for use in Heavy Haul applications only

550 HP 1850 LB-FT 2100 RPM BXS2035-up 305-4527 63 NOV06
Replaced 288-8537,297-2419
Replaces BXS 291-2094/PM code 43 for use in Heavy Haul applications only

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C15 HORSEPOWER	TORQUE	GOV SPEED	SERIAL NO. RANGE	FLASH FILE	P/M CODE	RELEASE DATE

435 HP 1550 LB-FT 2100 RPM MXS00001-UP 329-8532 20 APR08
NXS00001-UP
Replaced 258-8358,264-0064,
264-7700,271-1370,283-1177,
290-2165,308-1274

435 HP 1550/1750 LB-FT 2100 RPM MXS00001-UP 329-8536 21 APR08
NXS00001-UP
Replaced 258-8359,264-7703,
271-1374,283-1181,290-2169,308-1278

435 HP 1550/1650 LB-FT M/T 2100 RPM MXS00001-up 329-8533 43 APR08
NXS00001-UP
Replaced 269-2109,271-1373,283-1180,
290-2168,308-1275

435/550HP 1550/1850 LB-FT 2100 RPM MXS00001-UP 308-1307 46 FEB07
NXS00001-UP
Multi-torque Oil Well Service Only
Replaced 277-3087

435 HP 1650 LB-FT 2100 RPM MXS00001-UP 329-8537 22 APR08
NXS00001-UP
Replaced 258-8360,264-0065,
264-7701,271-1371,283-1178,
290-2166,308-1279,312-5637

435/500HP 1550/1650 LB-FT 2100 RPM MXS00001-UP 329-8534 23 APR08
NXS00001-UP
Multi-torque Oil Well Service Only
Replaced 258-8361,264-7704,
271-1375,283-1182,290-2170,
296-6023,308-1276

435 HP 1550/1750 LB-FT 2100 RPM MXS00001-UP 329-8535 7 APR08
Gear Fast/Run Slow (Eaton 2) NXS00001-UP
Replaced 253-0058,261-6686,
264-7702,283-1179,290-2167,308-1277

475 HP 1650 LB-FT 2100/2300 RPM MXS00001-UP 329-8566 47 APR08
Multi-torque NXS00001-UP
Replaced 277-3088,308-1308

475 HP 1850 LB-FT 2100/2300 RPM MXS00001-UP 329-8567 48 APR08
Multi-torque NXS00001-UP
Replaced 277-3089,308-1309

475 HP 1650 LB-FT 2100 RPM MXS00001-UP 329-8538 24 APR08
NXS00001-UP
Replaced 258-8362,264-7705,
271-1376,283-1183,290-2171,
295-6068,308-1280,312-5638

475 HP 1650 LB-FT 2100 RPM MXS00001-UP 329-8539 25 APR08
Brakesaver NXS00001-UP
Replaced 271-1377,283-1184,
290-2172,295-6069,308-1281

475 HP 1650/1850 LB-FT 2100 RPM MXS00001-UP 329-8540 26 APR08
Gear Fast/Run Slow (Eaton 2) NXS00001-UP
Replaced 258-8364,264-0066,264-7709,
271-1380,283-1187,289-1281,290-2175,
292-6962,301-4633,308-1282

475 HP 1650/1850 LB-FT 2100 RPM MXS00001-UP 329-8541 27 APR08
Multi-torque NXS00001-UP
Replaced 258-8365,264-0067,
264-7710,271-1381,283-1188,
289-1282,290-2176,292-6963,
301-4634,308-1283

475 HP 1850 LB-FT 2100 RPM MXS00001-UP 329-8542 28 APR08
NXS00001-UP
Replaced 258-8366,264-0068,
264-7707,271-1378,283-1185,
290-2173,292-6960,301-4631,308-1284

475 HP 1850 LB-FT 2100/2300 RPM MXS00001-UP 329-8543 29 APR08
Brakesaver NXS00001-UP
Replaced 258-8367,264-7708,
271-1379,283-1186,289-1280,

290-2174,292-6961,301-4632,308-1285

500 HP 1850 LB-FT 2100 RPM MXS00001-UP 329-8545 30 APR08
NXS00001-UP
Replaced 258-8368,264-7711,
271-1382,283-1189,290-2177,308-1287

500 HP 1850 LB-FT 2100 RPM MXS00001-UP 329-8546 31 APR08
Brakesaver NXS00001-UP
Replaced 258-8369,264-7712,
271-1383,283-1190,290-2178,308-1288

550 HP 1850 LB-FT 2100 RPM MXS00001-UP 329-8549 32 APR08
NXS00001-UP
Replaced 258-8370,264-7713,
271-1384,283-1191,290-2179,
308-1291,312-5639

550 HP 1850 LB-FT 2100 RPM MXS00001-UP 329-8550 33 APR08
Brakesaver NXS00001-UP
Replaced 258-8371,264-7714,
271-1385,283-1192,290-2180,308-1292
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Lower rated engines can not be uprated to 600/625 HP rating
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600 HP 1850 LB-FT 2100 RPM MXS00001-UP 329-8553 9 APR08
NXS00001-UP
Replaced 256-1368,261-6687,264-7715,
269-0982,271-1386,283-1193,290-2181,
302-8942,307-2259,308-1295

600 HP 1850 LB-FT 2100 RPM MXS00001-UP 329-8554 10 APR08
Brakesaver NXS00001-UP
Replaced 261-6688,264-7716,269-0983,
271-1387,283-1194,290-2182,308-1296

600 HP 1850 LB-FT 2300 RPM MXS00001-UP 323-5866 44 NOV07
MT Military LVSR NXS00001-UP
Replaced 291-0106

625 HP 2050 LB-FT 2100 RPM MXS00001-UP 329-8557 6 APR08
NXS00001-UP
Replaced 253-0037,261-6689,
264-7717,269-0984,271-1388,
283-1195,290-2183,308-1299,312-5640

625 HP 2050 LB-FT 2100 RPM MXS00001-UP 329-8558 8 APR08
Brakesaver NXS00001-UP
Replaced 261-6690,264-7718,
269-0985,271-1389,283-1196,
290-2184,308-1300
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UPRATE
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500 HP 1650 LB-FT 2100 RPM MXS00001-UP 308-1286 34 FEB07
UPRATE ONLY NXS00001-UP
Replaced 263-2858,271-1390,
283-1197,290-2185

500 HP 1850 LB-FT 2300 RPM MXS00001-UP 329-8547 35 APR08
UPRATE ONLY NXS00001-UP

Replaced 263-2859,271-1391,
283-1198,290-2186,308-1289

500 HP 1850 LB-FT 2300 RPM MXS00001-UP 329-8548 36 APR08
NXS00001-UP
BRAKESAVER/UPRATE ONLY
Replaced 263-2860,271-1392,
283-1199,290-2187,308-1290

550 HP 1850 LB-FT 2300 RPM MXS00001-UP 329-8551 37 APR08
UPRATE ONLY NXS00001-UP
Replaced 263-2861,271-1393,
283-1200,290-2188,308-1293

550 HP 1850 LB-FT 2300 RPM MXS00001-UP 329-8552 38 APR08
BRAKESAVER/UPRATE ONLY NXS00001-UP
Replaced 263-2862,271-1394,
283-1201,290-2189,308-1294

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Lower rated engines can not be uprated to 600/625 HP rating
****

600 HP 1850 LB-FT 2300 RPM MXS00001-UP 329-8555 39 APR08
UPRATE ONLY NXS00001-UP
Replaced 263-2863,271-1395,
283-1202,290-2190,308-1297

600 HP 1850 LB-FT 2300 RPM MXS00001-UP 329-8556 40 APR08
UPRATE ONLY NXS00001-UP
BRAKESAVER ONLY
Replaced 263-2864,271-1396,
283-1203,290-2191,308-1298

625 HP 2050 LB-FT 2300 RPM MXS00001-UP 329-8559 41 APR08
UPRATE ONLY NXS00001-UP
Replaced 263-2865,271-1397,
283-1204,290-2192,308-1301

625 HP 2050 LB-FT 2300 RPM MXS00001-UP 329-8560 42 APR08
UPRATE ONLY NXS00001-UP
BRAKESAVER ONLY
Replaced 263-2866,271-1398,283-1205,290-2193,308-1302

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C15 GOV SERIAL NO. FLASH P/M RELEASE
HORSEPOWER TORQUE SPEED RANGE FILE CODE DATE
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HEAVY HAUL RATINGS
Please note the heavy haul production files are an enhancement for specific heavy load applications.
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This software is basically an improvement that may augment performance, engine response and fuel economy if utilized correctly. The most effective improvement is driver training.

475 HP 1650 LB-FT 2100 RPM MXS00001-UP 329-8561 50 APR08
NXS00001-UP

Replaced 288--8538,291-2013,308-1303
Replaces MXS 290-2171/PM code 24 for use in Heavy Haul applications only

475 HP 1850 LB-FT 2100 RPM MXS00001-UP 329-8562 51 APR08
NXS00001-UP
Replaced 288-8539,291-2014,308-1304
Replaces MXS 290-2173/PM code 28 for use in Heavy Haul applications only

550 HP 1850 LB-FT 2100 RPM MXS00001-UP 308-1305 52 JAN07
NXS00001-UP
Replaced 288-8540,291-2015
Replaces MXS 290-2179/PM code 32 for use in Heavy Haul applications only

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C15 HORSEPOWER	TORQUE	GOV SPEED		FLASH FILE	P/M CODE	RELEASE DATE
2007 EMISSIONS ADEM A4 ECM ON HEAVY DUTY ACERT HIGHWAY TRUCK						
435 HP	1550 LB-FT	2100/2300 RPM	SDP00001-UP	365-1160	40/140	Nov10
Replaced 310-8351,311-6957,314-2915, 316-1845,318-6991,320-0362,326-3651, 327-4519,333-5944,334-1287,343-5744, 348-4745						
435 HP	1650 LB-FT	2100/2300 RPM	SDP00001-UP	365-1161	41/141	Nov10
Replaced 310-8352,311-6958,314-2916, 316-1846,318-6992,320-0363,326-3652, 327-4520,333-5945,334-1288,343-5745, 348-4746						
435HP 1550/1750 LB-FT		2100/2300 RPM	SDP00001-UP	365-1162	42/142	Nov10
Multi-torque/GFRSS Replaced 309-1779,310-8353,311-6959, 314-2917,316-1847,318-6993,320-0364, 326-3653,327-4521,333-5946,334-1289, 343-5746,348-4747						
435HP 1550/1650 LB-FT		2100/2300 RPM	SDP00001-UP	365-1163	43/143	Nov10
Multi-torque Replaced 310-8354,311-6960,314-2918, 316-1848,318-6994,320-0365,326-3654, 327-4522,333-5947,334-1290,343-5747, 348-4748						
435HP 1550/1750 LB-FT		2100/2300 RPM	SDP00001-UP	365-1164	44/144	Nov10
Multi-torque Replaced 310-8355,311-6961,314-2919, 316-1849,318-6995,320-0366,326-3655, 327-4523,333-5948,334-1291,343-5748, 348-4749						
435HP 1550/1650 LB-FT		2100/2300 RPM	SDP00001-UP	365-1165	45/145	Nov10
Multi-torque/OWS Replaced 310-8356,311-6962,314-2920, 316-1850,318-1924,318-6996,320-0367, 326-3656,327-4524,333-5949,334-1292, 343-5749,348-4750						
475 HP	1650 LB-FT	2100/2300 RPM	SDP00001-UP	365-1166	46/146	Nov10

Replaced 310-8357,311-6963,314-2921,
316-1851,318-6997,320-0368,326-3657,
327-4525,333-5950,334-1293,343-5750,
348-4751

475HP 1650/1750 LB-FT 2100/2300 RPM SDP00001-UP 365-1168 48/148 Nov10
Multi-torque
Replaced 310-8359,311-6965,314-2923,
316-1853,318-6999,320-0370,326-3659,
327-4527,333-5952,334-1295,343-5752,
348-4753

475 HP 1850 LB-FT 2100/2300 RPM SDP00001-UP 365-1169 49/149 Nov10
Replaced 310-8360,311-6966,314-2924,
316-1854,318-7000,320-0371,326-3660,
327-4528,333-5953,334-1296,343-5753,
348-4754

475HP 1650/1850 LB-FT 2100/2300 RPM SDP00001-UP 365-1171 51/151 Nov10
Multi-torque/GFRSS
Replaced 310-8362,311-6968,314-2926,
316-1856,318-7002,320-0373,326-3662,
327-4530,333-5955,334-1298,343-5755,
348-4756

475HP 1650/1850 LB-FT 2100/2300 RPM SDP00001-UP 365-1172 52/152 Nov10
Multi-torque
Replaced 310-8363,311-6969,314-2927,
316-1857,318-7003,320-0374,326-3663,
327-4531,333-5956,334-1299,343-5756,
348-4757

500 HP 1850 LB-FT 2100/2300 RPM SDP00001-UP 365-1174 54/154 Nov10
Replaced 310-8365,311-6971,314-2929,
316-1859,318-7005,320-0376,326-3665,
327-4533,333-5958,334-1301,343-5758,
348-4759

550 HP 1850 LB-FT 2100/2300 RPM SDP00001-UP 365-1175 55/155 Nov10
Replaced 310-8366,311-6972,314-2930,
316-1860,318-7006,320-0377,326-3666,
327-4534,333-5959,334-1302,343-5759,
348-4760

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Lower rated engines can not be uprated to 600/625 HP rating

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600 HP 1850 LB-FT 2100 RPM SDP00001-UP 365-1177 57/157 Nov10
Replaced 311-6974,314-2932,316-1862,
318-7008,320-0379,326-3668,327-4536,
333-5961,334-1304,343-5761,348-4762

600 HP 1850 LB-FT ARF 2100 RPM SDP00001-UP 365-1178 58/158 Nov10
Replaced 318-7009,320-0380,326-3669,
327-4537,333-5962,334-1305,343-5762,
348-4763

600 HP 1850 LB-FT (RV) 2100 RPM SDP00001-UP 365-1179 59/159 Nov10
Replaced 311-6976,314-2934,315-5873,
316-1864,318-7010,320-0381,326-3670,
327-4538,333-5963,334-1306,343-5763,
348-4764

600 HP 2050 LB-FT 2100 RPM SDP00001-UP 365-1180 60/160 Nov10
Replaced 311-6977,314-2935,316-1865,
318-7011,320-0382,326-3671,327-4539,
333-5964,334-1307,343-5764,348-4765

600 HP 2050 LB-FT (RV) 2100 RPM SDP00001-UP 365-1181 62/162 Nov10
Replaced 311-6979,314-2937,315-5874,
316-1867,318-7013,320-0384,326-3672,
327-4540,333-5965,334-1308,343-5765,
348-4766

625 HP 2150 LB-FT 2100 RPM SDP00001-UP 365-1182 63/163 Nov10
Replaced 310-8374,311-6980,314-2938,
316-1868,318-7014,320-0385,326-3673,
327-4541,333-5966,334-1309,343-5766,
348-4767

625 HP 2050 LB-FT (RV) 2100 RPM SDP00001-UP 365-1183 65/165 Nov10
Replaced 311-6982,314-2940,315-5875,
316-1870,318-7016,320-0387,326-3674,
327-4542,333-5967,334-1310,343-5767,
348-4768

625 HP 1900 LB-FT 2100 RPM SDP00001-UP 365-1184 66/166 Nov10
Replaced 311-6983,314-2941,315-5876,
316-1871,318-7017,320-0388,326-3675,
327-4543,333-5968,334-1311,343-5768,
348-4769

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C15 HORSEPOWER	TORQUE	GOV SPEED	SERIAL NO. RANGE	FLASH FILE	P/M CODE	RELEASE DATE
EURO 4 Rating for use in Europe only - not for North America use						

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500 HP@2100/2300 RPM EURO4 348-6571 35/135 Jun09
Multi-torque
Replaced 295-6883,319-4913,330-2024,
335-6771

550 HP@2100/2300 RPM EURO4 348-6572 36/136 Jun09
Replaced 295-6884,319-4914,330-2025,
335-6772

625 HP@2100/2300 RPM EURO4 348-6573 37/137 Jun09
Replaced 295-6885,319-4915,330-2026,
335-6773

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C15 HORSEPOWER	TORQUE	GOV SPEED	SERIAL NO. RANGE	FLASH FILE	P/M CODE	RELEASE DATE

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Please note the heavy haul production files are an enhancement for specific heavy load applications. The files were not created to correct a problem with engine performance in heavy haul applications. Previous heavy haul software meets all specifications pertaining to performance. This software is basically an improvement that may augment performance, engine response and fuel economy if utilized correctly. The most effective improvement is driver training.

475 HP 1650 LB-FT 2300 RPM SDP1-up 365-1167 47/147 Nov10
Replaced 314-2922,316-1852,318-6998,
320-0369,326-3658,327-4526,333-5951,

334-1294,343-5751,348-4752
For use in Heavy Haul applications only

475 HP 1850 LB-FT 2300 RPM SDP1-up 365-1170 50/150 Nov10
Replaced 314-2925,316-1855,318-7001,
320-0372,326-3661,327-4529,333-5954,
334-1297,343-5754,348-4755
For use in Heavy Haul applications only

550 HP 1850 LB-FT 2300 RPM SDP1-up 365-1176 56/156 Nov10
Replaced 314-2931,316-1861,318-7007,
320-0378,326-3667,327-4535,333-5960,
334-1303,343-5760,348-4761
For use in Heavy Haul applications only

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Flash File 158-1275
158-1275 is the current powertrain (steering and transmission) control software for D10R, AND D11R track type tractors. See service magazine articles for further information or contact Ross Williams at (309) 675-9675.

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PRODUCT: UPS Series 300

DATE OF RELEASE: November 4, 2002

SUBJECT: UPS 2.45 FIRMWARE UPDATE

BRIEF DESCRIPTION:
Firmware, 2.45, has been released for CAT UPS 250, 300, 500, 600, 750 and 900 Series Product.

THE CURRENT UPS 300 SERIES PRODUCT REQUIRES PERIODIC ENGINEERING UPGRADES TO THE SYSTEM FIRMWARE. THESE UPGRADES ARE ESSENTIAL IN MAINTAINING THE PERFORMANCE REQUIREMENTS OF THE MACHINE. THE UPGRADES MAY ALSO INCORPORATE OPERATIONAL ENHANCEMENT FEATURES.

If the 201-2187 Controller (APS), the 201-2189 Board Assembly (PCC), or the 229-8307 Board Assembly (ZZC) are replaced in a UPS system, All UPS modules within the line-up must have their Firmware updated.

For reference, instructions regarding the firmware updating procedure can be found in: RENR2476 (Systems Operation, Testing and Adjusting).

AFFECTED MODEL(S) AND SERIAL NUMBER(S):

Model Numbers	Applicable Serial Number Prefix
UPS 250I	APZ00225 and UP
UPS 250IE	CNM00224 and UP
UPS 300	CNJ00176 and UP
UPS 300E	CPZ00302 and UP
UPS 500	CSE00103 and UP
UPS 600	CTX00210 and UP
UPS 750	CPM00147 and UP
UPS 900	CRY00271 and UP
Expansion MMU	CSY00192 and UP

FIRMWARE UPDATE HISTORY:
Rev. 2.45 Enhancements

- Removed the following operating parameters: Cast Iron Housings, Invert K1 K2 Status, No Buzzer Dialog, AVR Seed, Start Volts: Warn Level, Discharge VAC Offset, and Frequency Track Window. AVR enable, AHC enable and AHC gain were moved from the Neutral Connected group into the tuning parameters group since it is a more logical location for them.
- Changed the modem Auto Answer number of rings to 3.
- Merged the functionality of Disable Auto Start and Disable Auto Load On operating parameters into a new operating parameter called Auto Load and Start which will hopefully be less confusing.
- Added an Event Log message indication every time the Bypass contactor opens or closes.
- Using a version of the viewing software, a Ctrl-D (event log dump) will now also include information from Ctrl-N (revision information) and Alt-Z (operating parameter settings) as well.
- The remote access jumper now has no effect on the remote output contacts.
- Upon reentry into discharge, added Event Log messages to report what caused it.
- Started using a generic boot monitor that is able to prevent UPS150 and Series 300 firmware clashes.
- Added Output PN Voltage Limit operating parameter.
- Added Load Cell Startup Lower Limit operating parameter.
- Added Load Cell Offset operating parameter.
- Added loss of lock reset capability to the Power PC to deal with the unlikely event of a phase lock loss causing the PowerPC to potentially lock up.
- A trace address dump capability has been added to give the last 1024 addresses accessed by the PPC before it went away.
- Added operating parameter called Stepped Phase Match to allow the unit to either ramp or step the phase in.
- A Ctrl-Z (dump set points) command is now allowed over modem.
- Added 4 remote input contacts for GSO status.
- Improved frequency slew limit operation by preventing the Phase-Locked Loop from making any instantaneous frequency steps. This has the adverse affect of lengthening phase match timing, so a parameter (Stepped Phase Match) was added for problematic installations to disable the improvement and use the old phase match. Also corrected a bug causing phase matching to work at 2x the slew-rate setting.
- Added a timeout to detect if the PowerPC stops accessing memory for an extended period of time, and reset it if this occurs. Also added a memory trace buffer.
- Phase-Neutral Over-voltage is now detected and will cause a shut-down of the UPS. This is intended to prevent any possible failure of 4-wire circuitry from surging the output Phase-Neutral voltage.
- UPSNet was susceptible to losing communications on both networks in specific failure conditions. This has been improved so that any single failure will not prevent proper communication. This is accomplished by the receive logic only monitoring one network at a time. The network in use is selected based on bad packet rates of both networks from each MMU.
- Implemented minimum on and off timers for the IGBT gating signals. This prevents any switching period smaller than 6 micro-seconds from actually gating the IGBT modules. This is to avoid certain possible failure modes of the gate driver boards.
- Removed support for MMU's with a node ID greater than 4.

Rev. 2.45 Program Corrections

- Correct the occasional nuisance messages for MMU input current overloads at start or end of motoring.
- Correct the problem where the bypass unavailable LED would remain lit when bypass range checking was turned off.
- Correct a problem where the notice LED would get stuck on if both a notice and an alarm occurred and cleared
before they were acknowledged.
- Removed a program error where the discharge lockout would not work in certain states thus allowing discharge to
continue to occur.
- Added support for detecting an open static switch or fuse on phase C of the input.
- Correct a problem when the bypass static switch fuse failed on an SMS, K4 would open but, when the fuse failure
cleared it would not re-close.
- Changed the valid minimum for the CAN node ID from zero to one in order to prevent problems with the viewing
software not receiving telemetry correctly.
- Adjusted the tuning of the sharing controller to minimize inter-MMU power fluctuations during discharge on 50 Hz
Multi-Module systems.
- Added a timer to overlap the Line path with the Bypass during the transition to bypass following a deadline timeout
or memory access timeout. This guarantees a make-before-break transfer.
- Removed a program error where the engineering preheat workaround does not restart with the shorter duration if the
system is in RPS calibration.
- Ctrl-I no longer defaults the load cell offset operating parameter.
- Correct the problem where disabling overload warning messages would prevent the unit from ever clearing
an overload that timed out. The user would have to restart the APC or enable overload warning messages to
get it to clear.
- Correct the program to prevent the calibration factors from being corrupted on a nonstandard exit from
calibration (i.e. not saved or aborted).
- Increased the limit for a bypass frequency difference error from 0.1Hz to 0.5Hz to eliminate false errors.
- Made single display LEDs behave as system LEDs and have them remain lit when any MMU has a notice or
alarm.
- Correct the problem where the PPC would not tell the FPGA bypass was unavailable for 2 seconds after it
went into discharge if the bypass was available before going into discharge.
- Correct the program to allow the following condition to work only once if, the bypass range checking was
off and using the external sync.
- Correct the problem where if just the bypass input is powered On at startup, K3 could be forced open.

- During calibration of the field coils or hall probes the field coil temperatures would not cause an error and
shutdown. Corrected for condition to allow system reporting.
- Correct a problem where short discharges could sometimes cause the RMS task to be incomplete which,
would cause a MMU in a MMS to do an erroneous unannounced shutdown.
- Correct the problem when trying to do the new Load cell calibration after a three phase calibration (voltage
or current) a deadline timeout would occur.
- Correct a problem with Voltage Matching utilizing the On generator remote input contact.

- Correct the issue with slave MMUs not closing their static switches on extremely short walk-ins from the
discharge mode.
- Correct the problem introduced in 2.44 where an unbalanced load on the output of an SMS would prevent it
from coming online.

Rev. 2.45 Parameter Changes (Default Values)
This table contains the operating parameter changes (additions, deletions, changes in name/functionality or default) from
the table for 2.43 and 2.44 in the revision history below.

Number	Parameter	Default Value
10	Disable Auto Load On	NA
19	Discharge VAC Offset	NA
21	Auto Load and Start	1
56	Cast Iron Housings	NA
59	Start Volts: Warn Level	NA
60	AVR Seed	NA
66	Invert K1 K2 status	NA
74	Frequency Track Window	NA
78	No Buzzer Dialog	NA
130	Load Cell Offset	0
131	Load Cell Startup Low Limit	550
132	Output PN Voltage Limit	510
133	Stepped Phase Match	Cleared

Corrective Action: The firmware update is mandatory at commissioning or for machines in operation, at the
next service call. When performing the update it is necessary to place the system into bypass, perform the
update, adjust the Frequency Slew Rate (see Frequency Slew Rate Adjustment), and place the system back
on line. This update can be accomplished with no parts.

Software Files Required:
UPSView24.exe (If this is a New Installation – The Dealer Must purchase this software.)
UPSView24Update.exe (Upgrade for existing software – 222-3478.exe)

Files 222-3478.exe, 2065418.exe, 2065410.exe and 2298308.exe are self-extracting .zip files that contain the
needed files to update the UPS firmware to version 2.45. Files 222-3478.exe, 2065418.exe, 2065410.exe and
2298308.exe are located on the flash file directory of SIS Web.

In order to complete the Firmware Update you will be required to obtain a Temporary High Level "Password"
from the Active Power Customer Service Center. You will need to state the unit's Serial Number and the
technician's name that will perform the update, at the time you place the call. The following contact
information is provided:

Active Power Customer Service
Phone: (512) 744-9286 (8:00am to 4:00pm Central)
Phone: (800) 288-5081 (24 hour Hot-Line)

Caterpillar Customer Support
Phone: (770) 233-3911

After completing the Software download from SIS, "run" the .exe file or UnZip the file to a directory in your
Laptop. Then confirm the content of the directory it should contain the following data files:

APSBoot3_ 12. mot
apc_ 110. ttf
APSLI_ COMPRESS_ 2_ 45. mot
APSLI_ internal_ 1_ 17. mot
pcc_ 110. ttf
zzc_ 102. ttf
gsc1_ 0. ttf

Upon confirmation of the directory contents you may proceed with to the Firmware Update Procedure.

Firmware Update Procedure:

1. Install UPS VIEW 2.4 on your laptop computer. This must be installed before you continue with this
procedure.
2. Place the UPS key switch in the bypass position. If this is a MMS place the System key switch in the bypass
position.
3. On a SMS if possible isolate (maintenance wraparound bypass) and power down the system.
4. Connect the laptop to the RS232 connector on the System I/ O board on a SMS and apply power. In a MMS
connect the laptop to the PCI and select the appropriate MMU via the rotary selector switch.
5. Start UPS View.
6. Select "Enter Password".
7. Type in the user name and password.
8. Click "OK"
9. Perform an Alt< Z> and write down the parameters that are not default.
10. From the "File" menu select "Update Firmware".
11. If this is a single module system (SMS) it is not equipped with a PCC and therefore no update is
required for the PCC.
12. Proceed by selecting "Serial Flash ZZC FPGA " for the target. (4- wire systems only)
13. Click Browse, find and select/ click the file zzc_ 102. ttf. This file is either on a floppy disk or on your hard
drive where it was saved.
14. Click "Open"
15. Click "Program"
16. The message "Programming the Flash" will appear on the left of the progress bar. The bar will move from
left to right and display a number in % that will increase form 0% to 100% as the bar moves right.
Simultaneously the message "Code update: receiving data" will appear in UPS View. After the progress bar
reaches 100% the next message in UPS View will be "Code update: updating flash." When the progress bar
has reset to 0% it will begin again with the message "Read Back Flash Program" to the left of it. When the
progress bar has reached 100% then read back checking has finished. The progress bar will reset to 0 and
display the message "completed with no errors" on the left of it. UPS View will display the message "Code
update: successful." If an error has occurred then press Program to retry the process.
17. Next, proceed by selecting "Serial Flash PCC FPGA" for the target.

18. Click Browse, find and select/ click the file pcc_ 109. ttf. This file is either on a floppy disk or on your hard
drive where it was saved.
19. Click "Open"
20. Click "Program"
21. The message "Programming the Flash" will appear on the left of the progress bar. The bar will move from
left to right and display a number in % that will increase form 0% to 100% as the bar moves right.
Simultaneously the message "Code update: receiving data" will appear in UPS View. After the progress bar
reaches 100% the next message in UPS View will be "Code update: updating flash." When the progress bar
has reset to 0% it will begin again with the message "Read Back Flash Program" to the left of it. When the
progress bar has reached 100% then read back checking has finished. The progress bar will reset to 0 and
display the message "completed with no errors" on the left of it. UPS View will display the message "Code
update: successful." If an error has occurred then press Program to retry the process.
22. Press "Reload Device" to reset the PCC without cycling power.
23. Next, proceed by selecting "Serial Flash GSC FPGA " for the target.
24. Click Browse, find and select/ click the file gsc1_ 0. ttf. This file is either on a floppy disk or on your hard
drive where it was saved.
25. Click "Open"
26. Click "Program"
27. The message "Programming the Flash" will appear on the left of the progress bar. The bar will move from
left to right and display a number in % that will increase form 0% to 100% as the bar moves right.
Simultaneously the message "Code update: receiving data" will appear in UPS View. After the progress bar
reaches 100% the next message in UPS View will be "Code update: updating flash." When the progress bar
has reset to 0% it will begin
again with the message "Read Back Flash Program" to the left of it. When the progress bar has reached 100%
then read back checking has finished. The progress bar will reset to 0 and display the message "completed
with no errors" on the left of it. UPS View will display the message "Code update: successful." If an error has
occurred then press Program to retry the process.
28. Next, proceed by selecting "Byte- wide Flash PowerPC" as the target.
29. Click Browse, find and select/ click the file APSBoot3_ 12. mot. This file is either on a floppy disk or on
your hard drive where it was saved.
30. Click "Open"
31. Click "Program"
32. The message "Programming the Flash" will appear on the left of the progress bar. The bar will move from
left to right and display a number in % that will increase form 0% to 100% as the bar moves right.
Simultaneously the message "Code update: receiving data" will appear in UPS View. After the progress bar
reaches 100% the next message in UPS View will be "Code update: updating flash." When the progress bar
has reset to 0% it will begin again with the message "Read Back Flash Program" to the left of it. When the
progress bar has reached 100% then read back checking has finished. The progress bar will reset to 0 and

display the message "completed with no errors" on the left of it. UPS View will display the message "Code
update: successful." If an error has occurred then press Program to retry the process.
33. Reset the processor. Press Ctrl< R> and "Y" to confirm.
34. There will only be a few seconds to perform this step. During the boot process wait for the message
"Pausing for operator input" to appear then, perform a Ctrl< I>.
35. This will stop the booting process. If the processor continues to boot then wait until it finishes and reboot
the processor again. Then pause the process by performing a (Ctrl< I>).
36. Next, proceed by selecting "Serial FPGA 20k" for the target.
37. Click Browse, find and select/ click the file apc_ 110. ttf. This file is either on a floppy disk or on your hard
drive where it was saved.
38. Click "Open"
39. Click "Program"
40. The message "Programming the Flash" will appear on the left of the progress bar. The bar will move from
left to right and display a number in % that will increase form 0% to 100% as the bar moves right.
Simultaneously the message "Firmware update: receiving data" will appear in UPS View. After the progress
bar reaches 100% the next message in UPS View will be "Firmware update: updating flash." When the
progress bar has reset to 0% it will begin again with the message "Read Back Flash Program" to the left of it.
When the progress bar has reached 100% then read back checking has finished. The progress bar will reset
to 0 and display the message "completed with no errors" on the left of it. UPS View will display the message
"Firmware update: successful." If an error has occurred then press Program to retry the process.
41. Next, proceed by selecting "Compressed PowerPC Application" as the target.
42. Click Browse, find and select/ click the file APSLI_ COMPRESS_ 2_ 44. mot. This file is either on a floppy
disk or on your hard drive where it was saved.
43. Click "Open"
44. Click "Program"
45. The message "Programming the Flash" will appear on the left of the progress bar. The bar will move from
left to right and display a number in % that will increase form 0% to 100% as the bar moves right.
Simultaneously the message "Firmware update: receiving data" will appear in UPS View. After the progress
bar reaches 100% the next message in UPS View will be "Firmware update: updating flash." When the
progress bar has reset to 0% it will begin again with the message "Read Back Flash Program" to the left of it.
When the progress bar has reached 100% then read back checking has finished. The progress bar will reset
to 0 and display the message "completed with no errors" on the left of it. UPS View will display the message
"Firmware update: successful." If an error has occurred then press Program to retry the process.
46. Next, proceed by selecting "Internal MPC555 Flash" as the target
47. Click Browse, find and select/ click the file APSLI_ internal_ 1_ 17. mot. This file is either on a floppy disk
or on your hard drive where it was saved.
48. Click "Open"
49. Click "Program"

50. The message "Programming the Flash" will appear on the left of the progress bar. The bar will move from
left to right and display a number in % that will increase form 0% to 100% as the bar moves right.
Simultaneously the message "Code update: receiving data" will appear in UPS View. After the progress bar
reaches 100% the next message in UPS View will be "Code update: updating flash." When the progress bar
has reset to 0% it will begin again with the message "Read Back Flash Program" to the left of it. When the
progress bar has reached 100% then read back checking has finished. The progress bar will reset to 0 and
display the message "completed with no errors" on the left of it. UPS View will display the message "Code
update: successful." If an error has occurred then press Program to retry the process.
51. Reset the processor. Press Ctrl< R> and "Y" to confirm.
52. Press "EXIT"
53. Monitor UPS View during the boot process and correct any "bad values" that occur during boot.
54. Press CNTL< N>. This will display your current firmware versions.
55. Press ALT< Z> and compare the list that was made at the beginning of this procedure to the list displayed
in UPS view and correct all discrepancies.

Current Revisions:
PPC: 2.44
IFLASH: 1.17
APC FPGA: 1.10
DSP: 20
PCC: 1.09
ZZC: 1.02 (4- wire systems only)
GSC FPGA: 1.00 (GSC equipped systems only)

56. The firmware is now updated for the SMS or a Single MMU. Stop here and reset the program parameters.
57. For a multiple module system disconnect UPS View and select the next MMU via the selector switch in the
System cabinet. Reconnect UPS View and repeat the procedure with the next MMU. It is not necessary to
update the PCC or ZZC again.

Frequency Slew Rate Adjustment:
In 2.45 firmware the algorithm for Frequency Slew Rate has changed. In pre- 2.45 firmware the value
that was entered was doubled (i. e. 0.3 = 0.6). When updating firmware to 2.45, the frequency Slew Rate
should be checked and changed to obtain similar operational characteristics prior to the update. If it is less
than 1Hz/ s then the parameter should be doubled at a minimum. If it equals 1Hz/ s then the parameter could
be left unchanged or increased.
During a discharge and when the UPS does not have a valid input or bypass source, its output
frequency is maintained by the controller but is not synchronized to any source. Once the UPS has a valid
input source, (generator or utility) it will make its output voltage match the source's frequency and phase
angle. A phase match must be achieved before the UPS can begin to transfer the load from the flywheel to the
source.

Prior to the firmware version 2.45, the phase match algorithm would 'step' to the slew rate and maintain this rate until a phase match was achieved. While this method is functional for most applications, induction motors and DC drives require that this step be reduced to a very small number. In version 2.45, a ramped version of the phase match has been implemented. While the ramped phase match will provide smaller phase shifts per cycle, it will take longer to obtain a phase match for a given Frequency Slew Rate setting.

The firmware has provisions to perform either method of phase match. The default settings will be:
Frequency Slew Rate: 1.0 Hz/ Sec.
Stepped Phase Match: 0 {ramped}

To change to the stepped method change the 'Stepped Phase Match' parameter to 1.

The following table displays the average time, in seconds, between the 2 methods for a 180° phase match.

Freq. Slew Rate (hz/second)	Ramped (secs)	Stepped (secs)
0.3	3.50	1.95
0.5	2.40	1.35
1.0(default)	1.90	0.90
1.5	1.66	0.80
2.0	1.46	0.75

The following parameters were added in this version of firmware.

Operating Parameter	Status	New Operating Parameter
Disable Autostart	Combined/Renamed	Auto Load and Start
Disable Auto Load on	Combined/Renamed	Auto Load and Start
Discharge VAC Offset	Removed	n/a
Cast Iron Housings	Removed	n/a
Start Volts: Warn Level	Removed	n/a
AVR Seed	Removed	n/a
Invert K1, K2 Status	Removed	n/a
Frequency Track Window	Removed	n/a
No Buzzer Dialog	Removed	n/a

When updating form 2.44 to 2.45 these parameters must be re-sent via UPS View after the firmware has been updated. If updating from firmware older than 2.44 to 2.45 it will be necessary to re- send additional parameters that appear in the boot process.

Operating Parameter	Definition	Default Value
Auto Load and Start	0=no autoload and no autostart 1=autoload and no autostart 2=autoload and auto start	1*
Load Cell Offset	Sets load cell zero pound offset (mV) if known	0

Load Cell Startup Low Limit	Sets minimum load cell measured weight that must exist for flywheel to be motored or discharged	550
Output PN Voltage Limit	Sets the output voltage phase to neutral limit that is used to detect a non-firing neutral static switch	510
Stepped Phase Match	0=ramped, 1= stepped	0

*If Disable Autostart was set to 1 prior to the firmware update it will be necessary to set Auto Load to
2 afterthe firmware update.

UPGRADE TIME ESTIMATE

The following outlines the estimated labor hours to complete upgrade:

Model	Serial Number	Time (Hours)	
UPS 250I	APZ	1.0	
UPS 250IE	CNM	1.0	
UPS 300	CNJ	1.0	
UPS 300E	CPZ	1.0	
UPS 500	CSE	2.0	
UPS 600	CRY	3.0	
UPS 750	CPM	3.0	
UPS 900	CTX	4.0	
Expandable	CSY	1.0	(This unit is part of the UPS 250IE and UPS 300E Line-Up Configuration)
UPS 500 N+1		3.0	
UPS 600 N+1		4.0	
UPS 750 N+1		4.0	
UPS 900 N+1		5.0	