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MODEL: E-Tech™
 Pre-CCRS,
 CCRS,
 ASET™ AC,
 AI, AMI

(Also applies to Mack Trucks Australia)
 (Supersedes SB214019 dated 07/21/05)

Service Replacement Turbochargers

The following charts outline the service replacement turbochargers. To provide the most durable product available, it is mandatory that the specified replacement turbocharger be used. To ensure the correct replacement turbocharger is used, always check the chassis build records to obtain the part number for the original turbocharger. It is not acceptable to simply install the same part number as the failed turbocharger. Mack Trucks, Inc. is making every effort to stock the following replacement turbocharger part numbers in the parts system, and it is requested that these turbochargers be used as replacements.

NOTE



Before replacing a turbocharger following a failure, it is essential that all items described in service bulletin SB214020, *Turbocharger Failure and Actions Required to Avoid a Repeat Failure*, be followed. Also, if there has been a catastrophic engine failure (such as a dropped or broken valve, etc), be sure to follow the procedures outlined in SB214044, *Cleaning the Exhaust Manifold Following a Catastrophic Engine Failure*.

E-Tech™ Pre-CCRS Engines

Service Replacement Turbocharger Part No.	Application	Turbocharger Being Replaced (May be with or without an "X" at the end of the Part No.)
631GC5173MX	E-Tech™ E7-427 and E7-460 engines	631GC5145M 631GC5145AM 631GC5153M
631GC5174AMX	E-Tech™ E7-300, E7-350, E7-400, E7-310/330, E7-330/350 and E7-355/380 engines	631GC5144M 631GC5144AM 631GC5144M2 631GC5144AM2 631GC5153M4 631GC5153AM4 631GC5144M5 631GC5144AM5 631GC5153M2 631GC5153AM2 631GC5153AM5 631GC5174M 631GC5174AM



Service Replacement Turbocharger Part No.	Application	Turbocharger Being Replaced (May be with or without an "X" at the end of the Part No.)
REV 631GC5174AMX	E-Tech™ EM7-275 and EM7-300 engines	631GC5144M3 631GC5144AM3 631GC5144M6 631GC5144AM6 631GC5153M3 631GC5153AM3 631GC5174M

E-Tech™ CCRS Engines

Service Replacement Turbocharger Part No.	Application	Turbocharger Being Replaced (May be with or without an "X" at the end of the Part No.)
631GC5173M8X* 631GC5173M9X** (wastegate turbo)	E-Tech™ E7-460 engines	631GC5163M 631GC5163M5 631GC5173M5 631GC5173M8 (wastegate turbo)
REV 631GC5173M4X	E-Tech™ E7-427, E7-350, E7-400, E7-355/380 and E7-380/410 engines	631GC5153M4
REV 631GC5174AMX	E-Tech™ E7-300, E7-350, EM7-300, EM7-275, E7-310/330, E7-330/350 and E7-355/380 engines	631GC5164M 631GC5164M2 631GC5153AM2 631GC5174M

* For wastegate turbochargers that have experienced a wastegate diaphragm failure, DO NOT replace the turbocharger. A failed wastegate actuator assembly must be replaced with the current actuator kit part No. 7536-174385. Kit part No, which includes an improved actuator, and replaces the previous actuator kit part Nos. 7536-173566 and 7536-174307.

** Wastegate turbocharger used in the Australian market, with the only difference being the position of the wastegate actuator. Can be used as the replacement on CH model chassis only provided that the existing oil drain tube be replaced with a new tube (part No. 681GC4105) and a longer (53" [1346.2 mm]) length of wastegate actuator hose (part No. 744GB316P4) is used.

ASET™ Engines

To determine the proper replacement turbocharger, find the engine model and part number for the turbocharger being replaced. Then, staying within the same row, use the replacement turbocharger part number for the particular chassis model being serviced as given in the Replacement Turbocharger column.

All turbochargers for ASET™ AC engines have the same turbine housing-to-center bearing housing orientation. The only difference in turbochargers for the CXN, CHN, CX and CH models is the compressor orientation. The ASET™ AC replacement turbochargers within any given boxed-in area of the Service Replacement column of the chart can be substituted for each other by simply reorienting the compressor cover (refer to the section under the heading "Compressor Cover Reorientation"). It is acceptable to reorient an ASET™ AC replacement turbocharger if the turbocharger for a particular chassis model is not available.

ASET™ AC Engines

NOTE

The 631GC5166M and 631GC5166M4 turbochargers are the same except for compressor cover orientation. These turbochargers have been terminated and superseded by the equivalent 631GC5176DM series part numbers. If a 631GC5166M and 631GC5166M4 turbocharger requires replacement, contact Mack Trucks, Inc. Reliability Engineering at 610-709-2662 for further instructions.

NOTE

Casting changes were made to the VTG turbocharger. These changes, which include additional material added to the upper front mounting stud flange and to the spiral section of the turbine housing, were implemented to prevent cracks from developing in the housing. The revised VTG turbocharger (part No. 631GC5176CM) was phased into ASET™ AC engine production during the May 2005 through June 2005 time frame.

NOTE

It is recommended that all four turbocharger mounting studs and nuts be replaced whenever the turbocharger has been removed. When installing a VTG turbocharger, the current mounting studs (part No. 616GC279M) are required. These mounting studs are 60 mm long. Additionally, when installing a 631GC5176(B)(C)(D)M VTG turbocharger, the revised oil drain tube (part No. 681GC544) is required if it has not already been replaced (refer to service bulletin SB214036).

REV

	Service Replacement Turbocharger Part No.	Application	Turbocharger Being Replaced (May be with or without an "X" at the end of the Part No.)
REV	631GC5176DM3X for CH and CHN models 631GC5176DM4X for CX models 631GC5176DM10X for CXN models	ASET™ AC-380/410, AC-400, AC-427, AC-460E and AC-460P engines	631GC5171M 631GC5171AM 631GC5171M2 631GC5171AM2 631GC5171M7 631GC5171AM7 631GC5176M3 631GC5176AM3 631GC5176BM3 631GC5176CM3 631GC5176M4 631GC5176AM4 631GC5176BM4 631GC5176CM4 631GC5176M10 631GC5176AM10 631GC5176BM10 631GC5176CM10
REV	631GC5176DM5X for CH and CHN models 631GC5176DM6X for CX models 631GC5176DM11X for CXN models	ASET™ AC-355/380 engines	631GC5171M3 631GC5171AM3 631GC5171M4 631GC5171AM4 631GC5171M8 631GC5171AM8 631GC5176M5 631GC5176AM5 631GC5176BM5 631GC5176CM5 631GC5176M6 631GC5176AM6 631GC5176BM6 631GC5176CM6 631GC5176M11 631GC5176AM11 631GC5176BM11 631GC5176CM11

Service Replacement Turbocharger Part No.	Application	Turbocharger Being Replaced (May be with or without an "X" at the end of the Part No.)
631GC5176DM7X for CH and CHN models 631GC5176DM8X for CX models 631GC5176DM12X for CXN models	ASET™ AC-310/330, AC-330/350 and AC-350 engines	631GC5171M5 631GC5171AM5 631GC5171M6 631GC5171AM6 631GC5171M9 631GC5171AM9 631GC5176M7 631GC5176AM7 631GC5176BM7 631GC5176CM7 631GC5176M8 631GC5176AM8 631GC5176BM8 631GC5176CM8 631GC5176M12 631GC5176AM12 631GC5176BM12 631GC5176CM12

Compressor Cover Reorientation — ASET™ AC Engines


The following groups of turbochargers are the same except for compressor cover orientation.


- 631GC5171(A)M(X), 631GC5171(A)M2(X) and 631GC5171(A)M7 are the same.
- 631GC5171(A)M3(X), 631GC5171(A)M4(X) and 631GC5171(A)M8 are the same.
- 631GC5171(A)M5(X), 631GC5171(A)M6(X) and 631GC5171(A)M9 are the same.
- 631GC5176(A)(B)(C)(D)M3(X), 631GC5176(A)(B)(C)(D)M4(X) and 631GC5176(A)(B)(C)(D)M10(X) are the same.
- 631GC5176(A)(B)(C)(D)M5(X), 631GC5176(A)(B)(C)(D)M6(X) and 631GC5176(A)(B)(C)(D)M11(X) are the same.
- 631GC5176(A)(B)(C)(D)M7(X), 631GC5176(A)(B)(C)(D)M8(X) and 631GC5176(A)(B)(C)(D)M12(X) are the same.

If required, the above turbochargers can be substituted for each other by reorienting the compressor cover. This is done by removing the VTG position sensor connector and mounting bracket, loosening the compressor cover V-band clamp and then rotating the compressor cover to the desired position. Be sure that the compressor cover is properly seated (not "cocked"), and then tighten the band clamp retaining nut to 90 lb-in (10.2 N•m). Install the wire routing clamp onto the band clamp bolt, then install the retaining washer and nut. Tighten the wire clamp retaining nut to 48 lb-in (5.4 N•m). Take care not to pinch the wires in the clamp. When tightening the clamp retaining nut, ensure that the clamp remains vertical and that the wires do not contact the compressor cover, bearing housing or turbine housing. Reinstall the VTG position sensor connector mounting plate to the three mounting bosses on the outboard side of the compressor cover.

⚠ CAUTION


Incorrect wire routing will result in premature failure.

 Whenever a 631GC5171(A)M series turbocharger is replaced with the current production part number 631GC5176(B)(C)(D)M on an ASET™ AC step 3/3a engine (EECU software part Nos. 1MS368 or 1MS368A), it will be necessary to flash the EECU with software part No. 1MS387 and reprogram with engine data file part No. 1MS5183P- (for proper P number variation, refer to the chart below). Before the files can be downloaded, call MACK OneCall™ at 1-800-866-1177 to have the data file and software part numbers activated. For information on file downloads and reprogramming procedures, refer to the most current V-MAC® Support Software User's Guide, 8-358.




Data File Application	
Engine Model	Data File Part No.
ASET™ AC-350	1MS5183P6
ASET™ AC-400	1MS5183P7
ASET™ AC-427	1MS5183P8
ASET™ AC-460P	1MS5183P9
ASET™ AC-330/350	1MS5183P11
ASET™ AC-310/330	1MS5183P12
ASET™ AC-355/380	1MS5183P13
ASET™ AC-460E	1MS5183P23
ASET™ AC-380/410	1MS5183P24

NOTE

 Use software part No. 1MS387 on ASET™ AC step 3/3a engines (EECU software part Nos. 1MS368 and 1MS368A) only. DO NOT use the 1MS383 software on step 4 engines (having engine data file 1MS5161P-).

NOTE

 If the engine is equipped with a 631GC5176(A)(B)(C)(D)M turbocharger, 1MS378 software AND a 1MS5173P- series data file, the EECU must be reflashed with software part No. 1MS387 and reprogrammed with the proper 1MS5178 series data file.
 If the engine is equipped with a 631GC5176(A)(B)(C)M turbocharger and software part Nos. 1MS368 or 1MS368A, the EECU must be reflashed with software part No. 1MS387 and reprogrammed with the proper 1MS5183 series data file.

ASET™ AI and AMI Engines

ASET™ AI/AMI turbochargers have different turbine housing-to-compressor housing orientations for MR and LE chassis models as compared to all other chassis models. Some of these turbochargers can be reoriented to substitute for the equivalent turbocharger that differs only by orientation, but these must be determined on a case-by-case basis.

	Service Replacement Turbocharger Part No.	Application	Turbocharger Being Replaced (May be with or without an "X" at the end of the Part No.)
	631GC5170AMX for CV, RB and RD models 631GC5170AM8X for MR models	ASET™ AI-460 engines	631GC5170M7 631GC5170AM7 631GC5170M8 631GC5170AM8
REV	631GC5172AM5X for CV, RB, RD and DM models 631GC5172AM6X for MR models	ASET™ AI-460 engines (prior to October 2003, with Boost Pressure Relief Valve [BRV])	631GC5172M5 631GC5172M6
REV	631GC5172AM3X for CV, RB, RD and DM models 631GC5172AM4X for MR models	ASET™ AI-460 engines (October 2003 and later, without BRV)	631GC5172M3 631GC5172M4
	631GC5170AMX for CV, RB and RD models	ASET™ AI-427 engines	631GC5170M 631GC5170AM
REV	631GC5172AM7X for CV, RB, RD and DM models 631GC5172AM8X for MR models	ASET™ AI-427 engines (prior to October 2003, with BRV)	631GC5172M7 631GC5172M8
REV	631GC5172AM5X for CV, RB and RD models 631GC5172AM6X for MR models	ASET™ AI-427 engines (October 2003–December 2003, without BRV)	631GC5172M5 631GC5172M6
REV	631GC5172AM5X for CV, RB, RD and DM models 631GC5172AM6X for MR models	ASET™ AI-427 engines (with redesigned front end having AC-style water pump, January 2004 and later)	631GC5172M3 631GC5172M4 631GC5172M5 631GC5172M6
REV	631GC5172AM5X for CV, RB, RD and DM models 631GC5172AM6X for MR models	ASET™ AMI-370 engines	631GC5172M5 631GC5172M6
	631GC5170AM2X for CV, RB and RD models 631GC5170AM5X for MR and LE models	ASET™ AI-300A, AMI-300, AMI-335, AMI-370, AI-350 and AI-400 engines	631GC5170M2 631GC5170AM2 631GC5170M5 631GC5170AM5

Service Replacement Turbocharger Part No.	Application	Turbocharger Being Replaced (May be with or without an "X" at the end of the Part No.)
REV 631GC5172AM7X for CV, RB, RD and DM models	ASET™ AI-300A, AMI-300, AMI-335, AI-350 and AI-400 engines	631GC5172M7 631GC5172M8
REV 631GC5172AM8 for MR and LE models		