

Service Letter

Service Letter No. 456 November, 1996

SUBJECT: Master Piston Assembly Replacement Program #CAT0496

MODELS AFFECTED: 310, 312 and 317 Series

A new Master Piston Assembly, P/N 021896, was released in late August, 1996, for new production and service parts for the brake models referenced above. Jacobs has determined that some of the assemblies may not function as intended.

On the affected assemblies, the master piston foot retaining ring can come out of its groove. This in turn could allow the master piston foot and retaining ring to separate from the master piston body as the brake housing is being handled. The unseating of the retaining ring will not affect the operation of the engine or the engine brake. The loss of a master piston foot will result in a noticeable loss in braking performance due to the loss of brake function on the cylinder with the missing foot.

Jacobs will replace all Master Piston Assemblies, P/N 021896, with Master Piston Assemblies, P/N 019264, for all service part and production applications to eliminate the possibility of this problem occurring.

PRODUCT AFFECTED

The brake housing assemblies, brake kits and service parts produced during the periods listed below contain the affected master piston assemblies and must be reworked.

Brake Model	Production Dates	Serial Numbers
310A 12 VDC	08/28/96 to 09/19/96	310A 012222 to 012764
310A 24 VDC	08/28/96 to 09/19/96	310A A01163 to A01172
312A 12 VDC	08/27/96 to 09/19/96	312A 005089 to 006015
312A 24 VDC	08/27/96 to 09/19/96	312A A01005 to A01041
317D & 317E	None Produced	(not applicable)
Service Parts	08/27/96 to 09/19/96	(not applicable)

The following Jacobs part numbers in Jacobs Dealer and Distributor inventory should be inspected to determine if they contain Master Piston Assemblies, P/N 021896. All new parts with the affected master piston assemblies should be returned following the normal New Defective Claim Procedure.

Part Number	Master Piston Assembly
019499	Model 310A 12 VDC Housing Assembly
021196	Model 310A 24 VDC Housing Assembly
021078	Model 312A 12 VDC Housing Assembly
022042	Model 312A 24 VDC Housing Assembly
020557	317A Master Piston Upgrade Kit
020641	317A to 317C Upgrade Kit
019539	Model 310A/3176 12 VDC Base Kit
021195	Model 310A/3176 24 VDC Base Kit
021224	Model 310A/C-10 12 VDC Base Kit
022562	Model 310A/C-10 24 VDC Base Kit
021210	Model 312A/C-12 12 VDC Base Kit
021940	Model 312A/C-12 24 VDC Base Kit

(continued)

Engines at Caterpillar had the Master Piston Assemblies, P/N 021896, replaced prior to engine shipment to the vehicle manufacturers. Additional assemblies were replaced at the vehicle manufacturers before the vehicles were shipped to dealers. Engines that have had the master piston assemblies replaced will have "PE" stamped on the engine block next to the engine serial number plate. Engine brake equipped engines within the following serial number ranges that are not marked "PE" will require Master Piston Assembly replacement in the field: 3176B Engines with serial numbers 9CK32478 to 9CK32550; C-10 Engines with serial numbers 2PN02276 to 2PN02443; and C-12 Engines with serial numbers 1YN03117 to 1YN03357.

REPAIR PROCEDURE

The required repair is to replace all Master Piston Assemblies, P/N 021896, with Master Piston Assemblies, P/N 019264. The part numbers are stamped on the master piston stem. If the number is not visible, the parts can be identified by the configuration of the ball and socket at the foot. The affected part (P/N 021896) has the ball on the foot and the socket in the master piston stem. The replacement part (P/N 019264) has the socket on the foot and the ball on the master piston stem.

The replacement will require removal of the brakes from the engine. Instructions for brake housing removal and installation and master piston assembly removal and installation are found in the Jacobs Installation Manual for the brake model in question. The engine brake slave piston lash must be reset following this repair. The table below contains the proper brake slave piston lash for all affected models as listed in Jacobs Service Letters.

The engine should be marked following completion of the repair to indicate the replacement master piston assemblies have been installed. The required marking is to stamp "PE" on the engine block next to the engine serial number plate.

Engine	Engine S/N Prefix	Brake Model(s)	Slave Piston Lash
3176	2YG	317, 317A, 317B, 317D	1.14 mm (0.045")
	7LG07499 and below	317A, 317B	1.27 mm (0.050")
		317D	1.14 mm (0.045")
		317B	1.27 mm (0.050")
	7LG07500 and up 275 to 300 HP	317D	1.14 mm (0.045")
	7LG07500 and up 325 to 350 HP	317C, 317E	0.51 mm (0.020")
3176B	9CK	310 & 310A	0.64 mm (0.025")
C-10	2PN	310A	0.64 mm (0.025")
C-12	1YN	312A	1.14 mm (0.045")

WARRANTY REIMBURSEMENT

All installed Master Piston Assemblies, P/N 021896, must be replaced with Master Piston Assemblies, P/N 019264, for repairs performed under the applicable Jacobs Warranty. The following information should be entered on each warranty claim form:

Brake Serial Numbers:	Individual units within the ranges listed above
Failed Jacobs Part Number:	021896
Replacement Jacobs Part Number:	019264
Parts Price:	Per standard warranty procedures
Standard Repair Time Allowed:	3.0 Hours
Required Comments:	Master Piston Replacement Program #CAT0496
Parts Return:	Parts removed must be returned following the normal Warranty Returned Material Procedure.

If you need additional information on this Service Letter, you may contact the Jacobs Service Desk at (860) 243-7777.