



# Service Letter

## Service Letter No. 457 November, 1996

**SUBJECT: D-Lash™ Assembly Replacement Program #CAT0396**

**MODELS AFFECTED: 310, 312 and 317 Series**

Jacobs recently received some reports of D-Lash slave piston adjusting screws disassembling in the field. In some cases this resulted in engine brake housing and/or engine damage. The problems all occurred early in the service life of the D-Lash Assemblies (less than 25,000 vehicle miles). An investigation of these problems identified the cause as a random manufacturing assembly error that occurred during a particular production period. The external appearance and initial function of the affected D-Lash Assemblies are normal. The possibility of this problem occurring can be eliminated by replacing the D-Lash Assemblies produced during this period.

### PRODUCT AFFECTED

The brake housings produced for factory and aftermarket installation during the period listed below contain the affected D-Lash Assemblies. Service parts are not affected by this program.

Brake Model	Production Dates	Serial Numbers
310A 12 VDC	03/01/96 to 05/31/96	310A 002903 to 310A 005546 310A 010659 to 310A 010800 310A 010900 to 310A 010999
310A 24 VDC	03/01/96 to 05/31/96	310A A01107 to 310A A01152
312A 12 VDC	03/01/96 to 05/31/96	312A 001000 to 312A 002238
317D 12 VDC	03/01/96 to 05/31/96	317D 001063 to 317D 001115
317E 12 VDC	03/01/96 to 05/31/96	317E 001085 to 317E 001129

Caterpillar engines with factory installed engine brakes within the engine serial number ranges listed below incorporate the affected engine brake housings.

Engine Model	Engine Serial Number Range
3176B	9CK30689 to 9CK31914
C-10	2PN01206 to 2PN01736
C-12	1YN01355 to 1YN01985

### REPAIR PROCEDURE

The required repair is to replace all P/N 020477 and 020631 D-Lash Assemblies in the affected brake housings with current production D-Lash Assemblies. The D-Lash Assemblies are identified by the part number stamped on the D-Lash body adjacent to the screw driver slot. The affected D-Lash Assemblies can only be identified by the serial number of the engine brake housings they are installed in. D-Lash Assemblies in housings outside the serial number ranges listed above **do not** require replacement.

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A running change was made in the color coding of the D-Lash assemblies for new production and service parts effective October 16, 1996 as part of this program. Only the **new color** code parts are to be used for this replacement program. This will enable one to determine if an affected housing has had its D-Lash assemblies replaced. Existing inventory of the original color coded parts can continue to be used as replacement parts for product **not** included in this program.

<b>Part Number</b>	<b>Brake Model</b>	<b>Plunger Stroke</b>	<b>Old Color</b>	<b>New Color</b>
020477 (1 Unit) 021492 (6 Pack)	310, 310A, 317C, 317E	0.076"	Orange	Green
020631 (1 Unit) 021406 (6 Pack)	312A, 317, 317A, 317B, 317D	0.106"	Blue	Black

The D-Lash replacement required by this program can be performed without removing the brake housings from the engine. Instructions for brake lash adjusting screw removal and installation are found in the Jacobs Installation Manual for the brake models 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 following checks are not a part of this program. They are service recommendations identified by Jacobs while investigating the field problems which have occurred. They must be performed when an actual D-Lash failure is experienced before reusing any components from the housing that experienced the failure and returning the engine to service.

1. Disassemble the affected brake housing completely and recover **all** pieces of the body, plunger and lock ring of the failed D-Lash assembly.
2. Inspect the housing and all components thoroughly for any signs of damage. This could include bore damage, slave piston retaining ring groove damage, D-Lash internal retaining ring pieces imbedded in slave pistons or inside either control valve, etc. Do not reuse any components showing signs of damage.
3. Inspect the valve actuating screw and pin assembly, the jam nut and the valve bridge of the affected engine cylinder and replace them if there is any evidence of damage.
4. Inspect the engine brake actuated exhaust valve of the affected engine cylinder for damage. Repair as required based on the results of the inspection.

<b>Engine</b>	<b>Engine S/N Prefix</b>	<b>Brake Model</b>	<b>Slave Piston Lash</b>
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")
	7LG07500 and up 275 to 300 HP	317B	1.27 mm (0.050")
		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")

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**WARRANTY REIMBURSEMENT**

D-Lash assembly replacements performed as part of this program and submitted for warranty reimbursement must follow these guidelines. All P/N 020477 and 020631 D-Lash Assemblies installed in the engine brake housings identified above must be replaced with the proper new color code D-Lash Assemblies. The replacement D-Lash Assemblies should be ordered as P/N 021406 or 021492 "6 Packs". 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:      | 021406 or 021492 as applicable   |
| Replacement Jacobs Part Number: | 021406 or 021492 as applicable   |
| Parts Price:                    | Per standard warranty procedures   |
| Standard Repair Time Allowed:   | 2.0 Hours  |
| Required Comments:              | D-Lash Assembly Replacement Program #CAT0396   |
| Parts Return:                   | <b>Parts removed must be returned following the normal Warranty Returned Material Procedure.</b> |

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