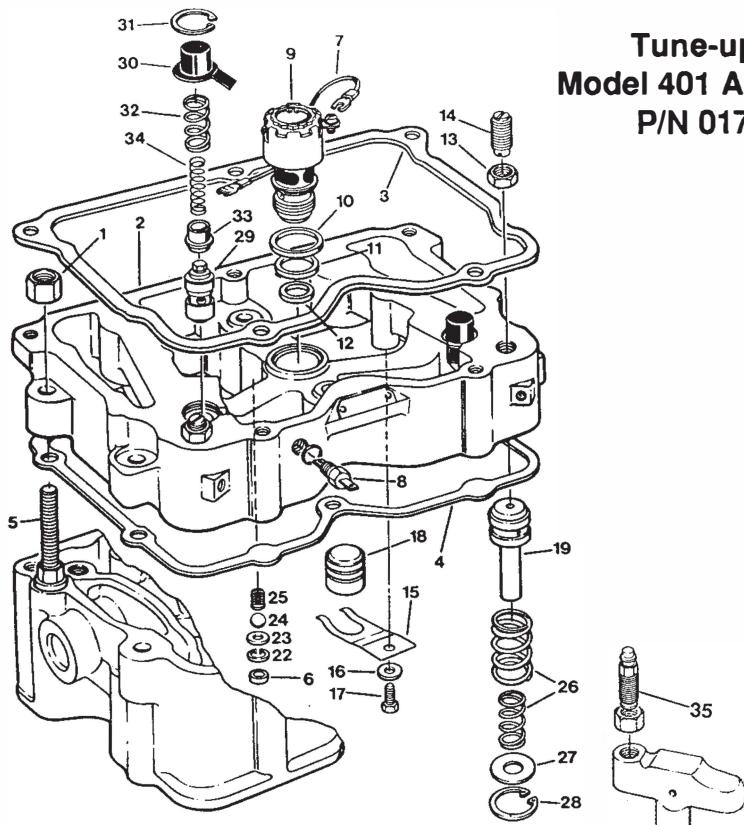


**Tune-up Kit  
Model 401 A, B and C  
P/N 017687**



**Tune-up Kit Model 401 A, B and C Parts List**



**Fig. 1**

Ill. No.	P/N	Description	Qty.
3	013756	Gasket, rocker lever cover	3
4	013294	Gasket, engine brake housing	3
6	010180	Seal ring	3
7	002390	Harness, solenoid	3
8	017657	Terminal assy. w/ o-ring	3
10	001081	Upper seal ring	3
11	001082	Middle seal ring	3
12	001083	Lower seal ring	3
15	007447	Flat spring (401A & C)	6
15	011841	Flat spring (401B)	6
16	001030	Washer	6
17	001492	Capscrew, hex head	6
22	011261	Retaining ring	3
23	011260	Retainer	3
24	011262	Ball	3
25	011259	Spring	3
29	039025	Spool assy., control valve	6
30	011252	Cover, control valve	6
32	011253	Spring, control valve stop	6
33	011251	Control valve collar	6
34	007500	Spring	6
35	014407	Screw and pin assy.	6
NI	016467	Receptacle	3
NI	014646	Gasket, air intake aftercooler	1
NI	017692	Instructions	1

**Instructions**

For additional information on the models 401 A, B and C engine brakes refer to Jacobs Engine Brake Installation Manual P/N 009975.

Use OSHA approved cleaning solvent for cleaning parts. Original parts to be reused should be inspected for wear and replaced as required. Wear safety glasses where indicated.

**Access Engine Brake**

1. Thoroughly clean engine.
2. Remove air intake manifold connection and discard gasket.
3. Disconnect electrical connections to engine brake housings.
4. Remove in this order: rocker lever covers, housing hold-down nuts (1) and engine brake housings (2).
5. Remove and discard engine brake housing gaskets, rocker cover gaskets (3,4) and oil seal rings (6) from bottom of housings.
6. Loosen the locknuts on the six exhaust valve screw and pin assemblies (adjusting screws) (35). Remove and discard the screw and pin assemblies. Save the locknuts.

**Disassemble Housings**

1. Remove solenoid harness (7) and valve (9); discard harness and three seal rings (10, 11, 12).
2. Remove and discard terminal lead out assemblies (8).



**Control valve covers (30) are under tension from control valve springs (32, 34). Remove covers carefully and wear safety glasses.**

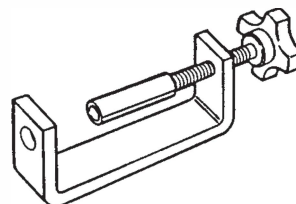
3. Hold down on control valve cover while removing the retaining ring (31). Remove and discard collars (33), springs, and control valves (29).

4. Remove master piston (18); discard flat spring (15), washer (16) and capscrew (17). Save the master piston.



**Slave pistons (19) are retained by heavy springs (26). To avoid injury when removing the slave piston, use proper tools and wear safety glasses.**

5. Remove locknut (13) from slave piston adjusting screw (reset) (14) and back out screw until the slave piston is fully retracted.
6. Install slave piston clamp tool P/N 017397 (Fig. 2) with the slave piston adjusting screw fitted into the hole in the tool.



**Fig. 2**

7. Compress the slave piston spring and remove the retaining ring (28).
8. Remove the retainer (27), springs, slave piston and adjusting screw.
9. Remove and discard retaining ring (22), retainer (23), ball (24) and spring (25).

**Assemble Housings**

1. Clean housings and all parts in cleaning solvent. Dry with compressed air.
2. Coat all parts to be installed into housings with clean lube oil.

3. Install the original slave piston, reversing the removal procedure.
4. Remove the fixture and install the adjusting screw locknut.
5. Install new control valves, collars and springs. Reinstall original covers and retaining rings.

**NOTE: Install the collar (33) with the stamped sleeve up. If the collar is installed upside down, this brake cylinder will not operate.**

6. Install original master pistons with new flat springs, retainers and capscrews.
- NOTE: When tightening the screw, be sure that spring legs are centered around master piston boss.**

7. Install new spring, ball, retainer and retaining ring (25, 24, 23, 22).
8. Install the lower (smallest) solenoid seal ring in the bottom of the solenoid valve bore and the upper and center seal rings on the solenoid valve. Insert the solenoid valve into the bore. Tighten to 5 lbft. or 60 lbin. (7 N·m).
9. Install a new terminal lead out assembly into each housing. Tighten with a sixpoint box wrench until seated.
10. Connect new wire harness from the solenoid valve to the terminal lead out assembly.

**NOTE: If the wire connector on the solenoid is not the correct type, replace each connector with ones from the kit.**

### Install Engine Brake Housings

1. Install the six new screw and pin assemblies with the original locknuts into the exhaust valve crossheads. Adjust the crossheads as follows:
  - a. With the exhaust valves in the closed position (crossheads loose), hold down on the center pad of the crosshead.
  - b. Turn the adjusting screw in until it contacts the valve stem.
  - c. Hold the adjusting screw in this position and tighten the locknut to 25 lbft. (35 N·m).
  - d. Continue adjustments on crossheads with the exhaust valves closed. Rotate the crankshaft to complete adjustments.
2. Make engine valve and injector adjustments according to Cummins Service information.
3. Install the oil seal ring in the bottom of the housing.
4. Set the engine brake gaskets on the rocker lever housings. Place the engine brake housings on the rocker lever housings.
5. Install the housing hold-down nuts. Tighten the nuts to 60 lbft. (80 N·m), following the sequence shown in Fig. 3.

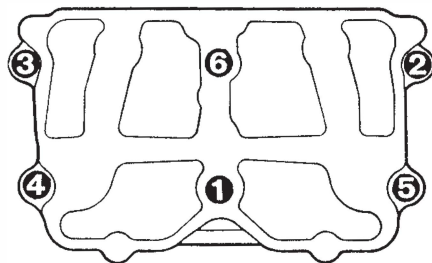
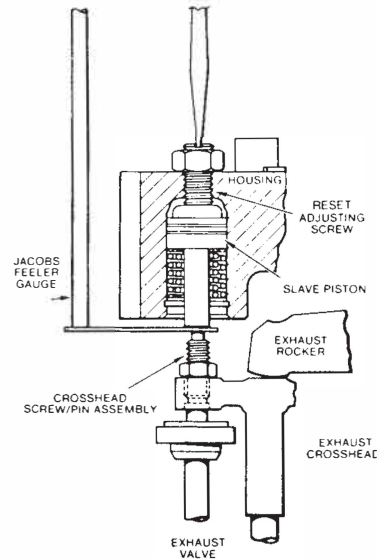


Fig. 3

### Adjust Slave Pistons

**NOTE: Make slave piston adjustments with the engine stopped and cold. Exhaust valves must be in the closed position (crossheads loose).**



Use feeler gauge, P/N 014547 .021 in. (0.53 mm) for BIG CAM IV fixed timing engines.

Use P/N 003087 feeler gauge .018 in. (0.46 mm) for all other engines.

Fig. 4

1. Insert the correct feeler gauge between the crosshead and slave piston. Turn the slave piston adjusting screw (reset) in until a slight drag is felt on the feeler gauge. See Fig. 4.
2. Hold the adjusting screw and torque the locknut to 25 lbft. (35 N·m).
3. Adjust the clearance on the remaining cylinders in firing order.

### Finish Engine Brake Installation

1. Attach the lead wires to the lead out assemblies on the outside of the housings.
2. Install new rocker lever gaskets and rocker lever covers; tighten the screws.