

# Tune Up Kit

## P19848 INSTALLATION INSTRUCTIONS

**ENGINE APPLICATION:  
CUMMINS L10/M11**

**FOR ENGINE BRAKE MODEL:  
JACOBS  
404/404B/404BG/404C  
404D/411/411C**

### REMOVAL OF THE HOUSINGS FROM THE ENGINE

- A)** Thoroughly clean the engine around the valve cover and remove.
- B)** Disconnect the wires from the solenoids to the spacer and discard wires.
- C)** Disconnect oil supply line from the front housing.
- D)** Loosen the slave adjusting screw lock nuts.
- E)** Loosen and remove the hold down nuts and washers, lift the housings from the engine.

### DISASSEMBLY AND ASSEMBLY OF THE BRAKE HOUSINGS

- A)** Place the housings face up on a clean work bench. Note: when removing all parts keep them in order of their original location for installation later.
- B)** Remove the slave piston adjusting screws, inspect the plungers for spring pressure.
- C)** Remove the solenoids (use the proper tool only, adjustable pliers can damage the coil). Remove all seals and discard.
- D)** Remove the control valves (use caution and wear eye protection as the cover is under spring pressure). Apply pressure on the cover then compress the retaining ring and remove both. Remove the springs, collars and control valves. The control valves should slide out easily using needle nose pliers or a magnet, if not, inspect the bore and control valve carefully for damage. Discard retaining rings, springs, collars and control valves.
- E)** Remove plug #14, spring and ball shown in circled area on next page.

- F)** Turn the housings over to remove the master piston return springs. Loosen and remove the capscrews fastening the springs to the housings. The master pistons should slide out easily, if not, carefully check the piston and bore for damage. Discard the capscrews, springs and washers.
- G)** For slave piston removal use caution and wear eye protection as slave return springs are under heavy pressure. Using a "C" clamp and a socket slightly larger than the diameter of the link is the easiest. Position socket over the link, using the "C" clamp, compress the washer just enough to remove the retaining ring. Slowly back off the "C" clamp. Remove the washer, springs, and slave pistons. The slave pistons should slide out easily, if not, inspect the bore and piston carefully for damage. Removal of the slaves is for cleaning and inspection of parts only. Reuse these parts.
- H)** Wash the housings thoroughly in clean OSHA approved solvent, dry with compressed air. Wash all parts in clean solvent, keeping them in relation to their original position.

### IMPORTANT ASSEMBLY NOTES

- Assemble all parts into the housings using clean engine oil in the reverse procedure, making sure all retaining rings are seated in the groove and all pistons move freely in their bore.
- Double check all retaining rings are seated in the groove.
- SOLENOID INSTALLATION: It is important not to twist or cut the solenoid seals. Lubricate seals with clean engine oil and torque 12 point socket applications to 110 lbs. in. and 6 point socket applications to 180 lbs. in.
- Replace seal rings on oil supply tube. Lubricate with clean engine oil and install in front housing.
- Loosely install slave adjusting screws.
- Choose the correct master piston return spring. Model 411 uses PN P17412, model 404D uses PN P16810. Master piston springs must be aligned with both legs centered on the piston. Torque capscrew to 100 lbs. in.
- Control valve collars must be installed with the longer end up. If installed upside down the brake will not function.
- Plug #14 requires a drop of Loctite at reassembly in a clean dry threaded hole
- Install on engine as per manufacturers specifications.

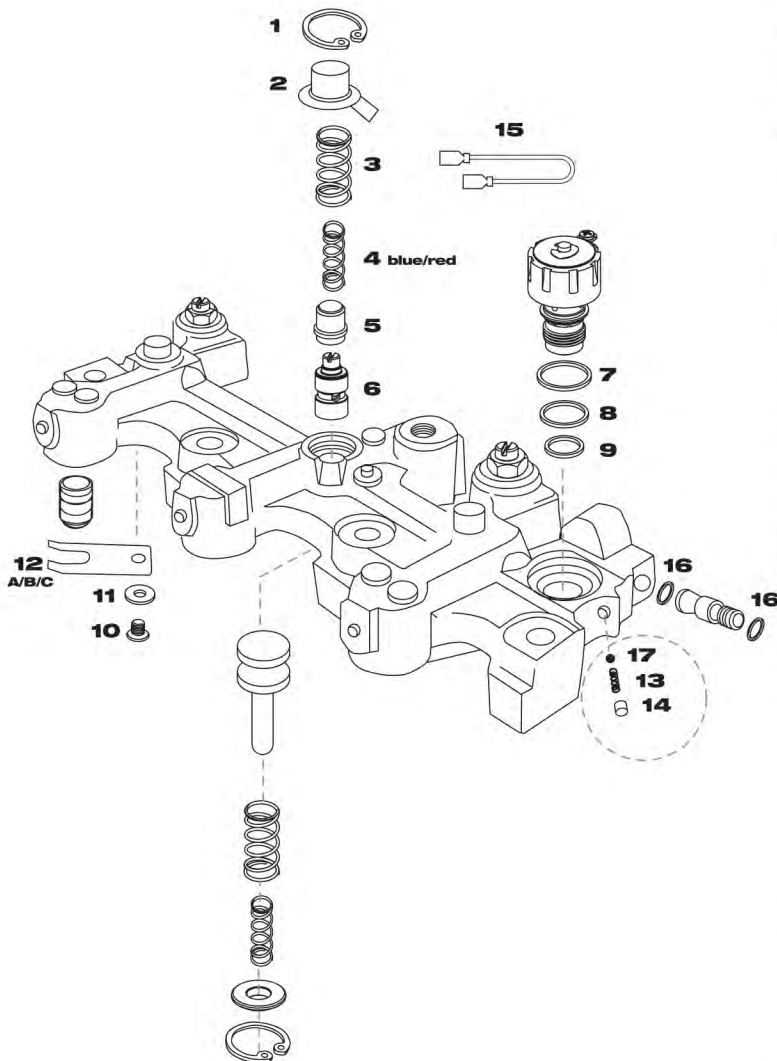
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## P19848 KIT PARTS

ENGINE APPLICATION:  
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**404/404B/404BG/404C**  
**404D/411/411C**



ILLUS.#	PART#	DESCRIPTION	QTY.
1	P11284	CONTROL VALVE SNAP RING	6
2	P11252	CONTROL VALVE CAP	6
3	(NATURAL) P11253	OUTER CONTROL VALVE SPRING	6
*4	(RED) P39100	INNER CONTROL VALVE SPRING	6
*4	(NATURAL) P11823	INNER CONTROL VALVE SPRING	6
5	P11251	COLLAR	6
6	P11283	CONTROL VALVE	6
7	P01081	UPPER SOLENOID VITON SEAL	2
8	P01082	CENTER SOLENOID VITON SEAL	2
9	P01083	LOWER SOLENOID VITON SEAL	2
10	P11544	BUTTONHEAD SCREW	6
11	P38015	WASHER	6
*12A	P17412	MASTER PISTON SPRING	6
*12B	P16810	MASTER PISTON SPRING	6
*12C	P11841	MASTER PISTON SPRING	6
13	P11720	SPRING	2
14	M1003	PLUG	2
15	P21296	SOLENOID WIRE	2
16	P13155	VITON O-RING	2
17	P60040	CHROME STEEL BALL	2

\*4 (RED) 404C/404D/411/411C

\*4 (NATURAL) 404/404B/404BG

\*12A 411/411C

\*12B 404B/404BG/404C/404D

\*12C 404

SEE INSTALLATION INSTRUCTIONS ON REVERSE SIDE.

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