

# Tune Up Kit

## P19502 INSTALLATION INSTRUCTIONS

**ENGINE APPLICATION:  
CATERPILLAR C-10/C-12**

**FOR ENGINE BRAKE MODEL:  
JACOBS 310A-312A**

### REMOVAL OF THE HOUSINGS FROM THE ENGINE

- A)** Thoroughly clean the engine around all three valve covers and remove.
- B)** Mark the housings position 1, 2 and 3 so they can be installed in their original position on the engine.
- C)** Disconnect the wires from the solenoids.
- D)** Loosen all 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 (in order, facing 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.
- 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 washer is under spring pressure). Apply pressure on the washer then compress the retaining ring and remove both. Remove the springs 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, washers, springs and control valves.
- E)** Remove the accumulators (use caution and wear eye protection as the washer is under heavy spring pressure). Apply pressure on the washer then compress the retaining ring and remove both. Remove springs and accumulators. The accumulators should slide out easily using a magnet, if not, inspect the bore and accumulator

carefully for damage. Discard the retaining rings, washers and springs.

- F)** Turn the housings over to remove the master piston assemblies. Compress retaining ring and remove. The master piston assemblies should slide out easily, if not, carefully check the piston and bore for damage. Check foot on master piston link for wear. Discard the retaining ring and springs.
- 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, links 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.
- 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 bs. in. and 6 point socket applications to 180 lbs. in.
- Install slave piston adjusting screws loosely.
- Install master piston cone spring with large end facing towards retaining ring washer.
- Double check all retaining rings are seated in the groove.
- Install on engine as per manufacturers specifications.

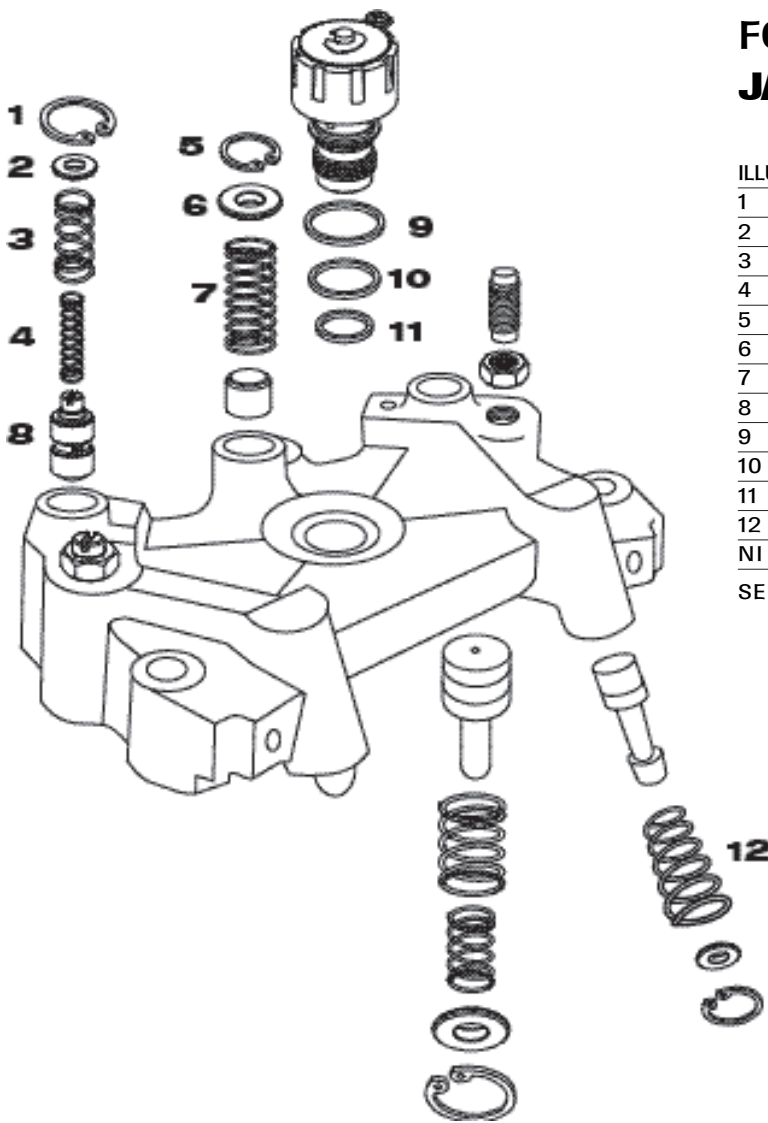
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## P19502 KIT PARTS

ENGINE APPLICATION:  
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ILLUS. #	PART#	DESCRIPTION	QTY.
1	P15561	CONTROL VALVE SNAP RING	6
2	P14928	CONTROL VALVE WASHER	6
3	P11434	OUTER CONTROL VALVE SPRING	6
4	P11823	INNER CONTROL VALVE SPRING	6
5	P12991	ACCUMULATOR RETAINER RING	9
6	P16505 (P01030)	ACCUMULATOR WASHER	3
7	P12990	ACCUMULATOR SPRING	3
8	P11283	CONTROL VALVE	6
9	P01081	UPPER SOLENOID VITON SEAL	3
10	P01082	CENTER SOLENOID VITON SEAL	3
11	P01083	LOWER SOLENOID VITON SEAL	3
12	P19353	MASTER PISTON SPRING	6
NI	P15906	SPACER GASKET	3

SEE INSTALLATION INSTRUCTIONS ON REVERSE SIDE

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