Name_____

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

1) What is the free fall test?

2) What methods are used to retain solenoids to the valve body?

3) What steps are needed to be performed to test solenoids?

4) What are the biggest enemies of valve bodies?

5) What are the commonly performed valve body service procedures?

1) The free fall test is a standard check for a sticking valve. Hold the valve body so the bore is vertical. In this position, a steel valve should fall freely from one end of the bore to the other and it should at least fall through the area of normal valve movement. Any valve that does not fall freely is sticking, which can be a fault of the valve, the bore, or both.
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2) Many units use a cover plate that holds one or more valves. Removal of the retaining screws allows removal of the plate, valve(s), and spring(s). Many valves use a plug or sleeve at the end of each bore. The plug/sleeve is retained with a keeper, which can be a pin, plate, or key. Some valve bodies use a coiled spring pin (roll pin) to hold the valve plug/sleeve in place.
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3) To test a solenoid, perform the following steps:
STEP 1 Disconnect the solenoid connector and connect one ohmmeter lead to each of the solenoid electrical terminals.
STEP 2 Read the resistance, and compare the reading to the specifications.
STEP 3 Move one of the leads to the solenoid body or base to check the ground circuit.
STEP 4 A quick solenoid check is to apply power to the solenoid and listen for a click. This is done by connecting a jumper wire from the solenoid lead to the battery for a single- wire solenoid. A two-wire solenoid will also need to be grounded. The solenoid should click indicating the coil windings are complete and the plunger is moving.
STEP 5 The mechanical operation of a solenoid also should be checked. Because solenoids are basically electromagnets operating in an area that might have some metal debris, they tend to attract metal particles. These can cause sticking or binding of the solenoid plunger or blocking of the fluid passage. Test the solenoid by blowing air into the fluid passage while energizing and de-energizing the coil.
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4) The biggest “enemies” of a valve body include:
1. Dirt (from dirty fluid or dirt getting into the fluid through the dipstick tube or opening). 2. Overheated fluid, which can cause varnish buildup on the valves and bores.
3. Solenoids can fail and, being magnetic, can attract iron and steel particles which can restrict their flow and prevent them from working properly in many cases.
4. All filter screens should be replaced and are usually included in most overhaul kits.
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5) Most valve body service operations consist of the following:
- disassembly
- cleaning
- checking for free movement
- replacing defective solenoids
- replacing all filter screens
- reassembly

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