



Technical Service Information

G.M. POPPET VALVE CONVERTERS

PROCEDURE

The following procedure is recommended for cleaning and servicing control valves when:

- Diagnosis indicates a stuck or sticking valve(s).
- A transmission/transaxle oil pump or torque converter malfunction results in a complete unit overhaul.

WORKBENCH

- Must be clean and free of any foreign material (dirt, grease or other contaminants).
- Work area should be large enough to allow for the disassembly of the control valve assembly and the layout of each control valve component part.

TOOLS

- Should be cleaned with solvent before and during the disassembly procedures to ensure they are free from any grease or dirt that may contaminate the control valve assembly.

SOLVENT AND PARTS CLEANING TANK

- Must be clean and free of contamination from engine or other components.
- Must be clean and filtered if solvent is re-circulated.

SAFETY EQUIPMENT

- Safety glasses and rubber gloves are minimum requirements to ensure personal safety.

CLEANING PROCEDURES - Tools Required

- Appropriate Service Manual
- Awl
- Micro fine lapping compound
- Tapered #49 drill bit
- Pencil type magnet
- Small flat blade screwdriver
- Small non-abrasive parts cleaning brush

- Cleaning and Disassembly

1. Remove the control valve assembly from the transmission/transaxle following the procedures contained in the appropriate Service Manual.
2. Inspect the attaching bolts and bolt holes. Remove metal chips or foreign material that may be present.
3. Place the control valve assembly in a clean tank and with clean solvent. Thoroughly wash the entire outer surfaces of the valve body.
4. Remove the control valve assembly from the solvent and dry it using compressed air.

5. Inspect the casting and fluid passages for foreign material that may have accumulated in pockets. Remove all foreign material with a small screwdriver or an awl. (Refer to Figure 1).

6. As necessary, repeat the washing and drying procedures as described In steps 3 and 4 until all foreign material is removed.

7. While applying slight pressure with your finger against spring force In the control valve, remove the pin, sleeve or clip that retains the control valve. (Refer to Figure 2).

9. Slowly release pressure on the control valve and remove it from the body. A small flat blade screwdriver may be used to remove the bushing from the bore. (Refer to Figure 3).

DO NOT USE EXCESS FORCE TO REMOVE VALVES OR BUSHINGS

9. Place the control valve on a clean surface in the exact order as it was removed from the valve body. Follow the procedures in steps (7, 9 and 9 to remove all valves and bushings from the valve body. (Layout of the valves, springs and bushings on a Clean, lint free towel will help to keep parts organized).

10. Remove pressure switches, pipe plugs and T.C.C. solenoid, if applicable.

11. Clean one valve assembly at a time by washing the valves, springs and bushings in clean solvent and drying with compressed air.

12. Clean the valve body casting with clean solvent and dry with compressed air.

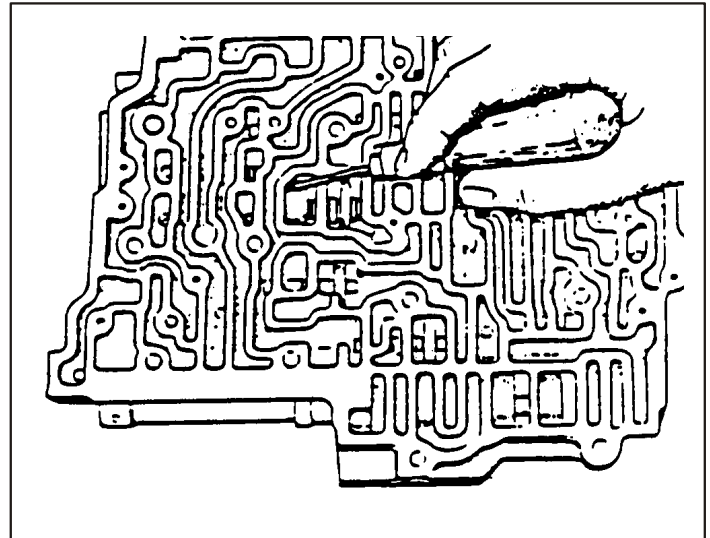


Figure 1

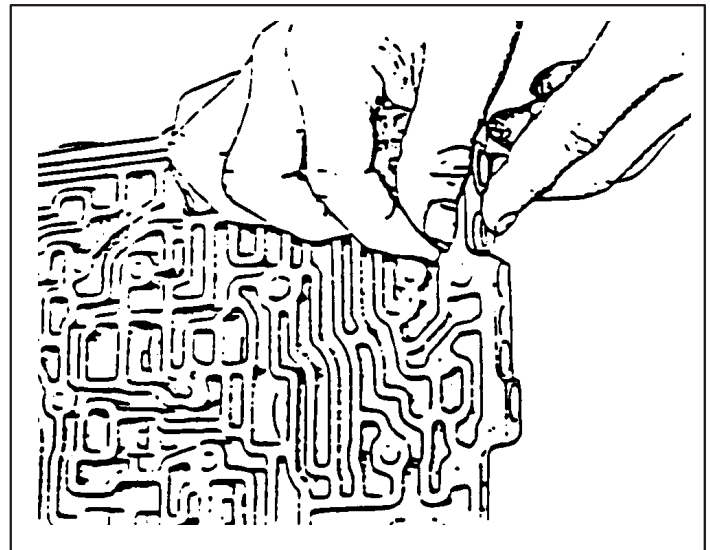


Figure 2

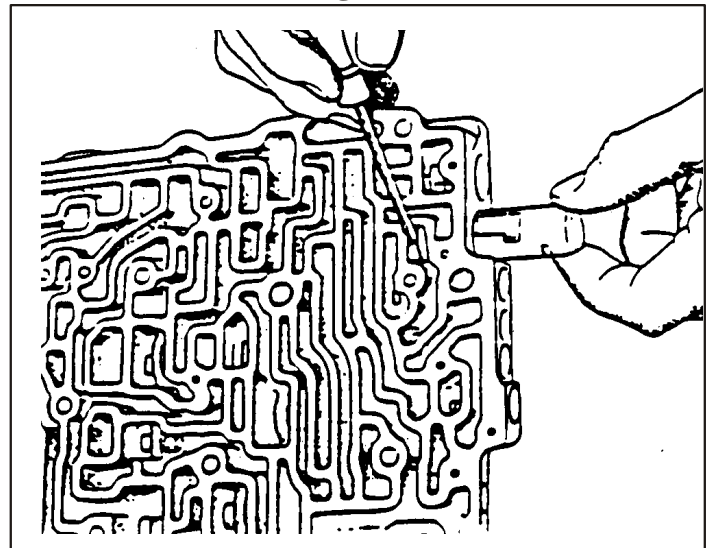


Figure 3

Inspection of Control Valve Assembly Components

1. Inspect the valve body casting for:

Cracks
Porosity
Damaged machined surfaces
Nicks or burrs in valve bores
Flatness of valve body to case mating surface (using a straight edge or by inspecting the gaskets for uniform compression)

2. Inspect valves for:

Burrs
Nicks
Scratches
Scoring

3. Inspect valve bushings for:

Porosity
Burrs
Nicks
Scratches
Scoring

4. Inspect springs for:

Damaged or distorted coils

STUCK VALVE SERVICING

If during disassembly of the control valve assembly, a valve is found to be sticking in a bushing or bore, use the following procedure to service the valve and bushing or bore.

1. Apply a small amount of "Micro fine" lapping compound to the valve lands. (The lapping compound should be 900 grit or finer) Reinsert the valve in the bushing (or bore in the valve body). (Refer to Figure 4).

2. Steel Valves
using a pencil type magnet. rotate the valve while moving it back and forth in the bore. (Refer to Figure 5).

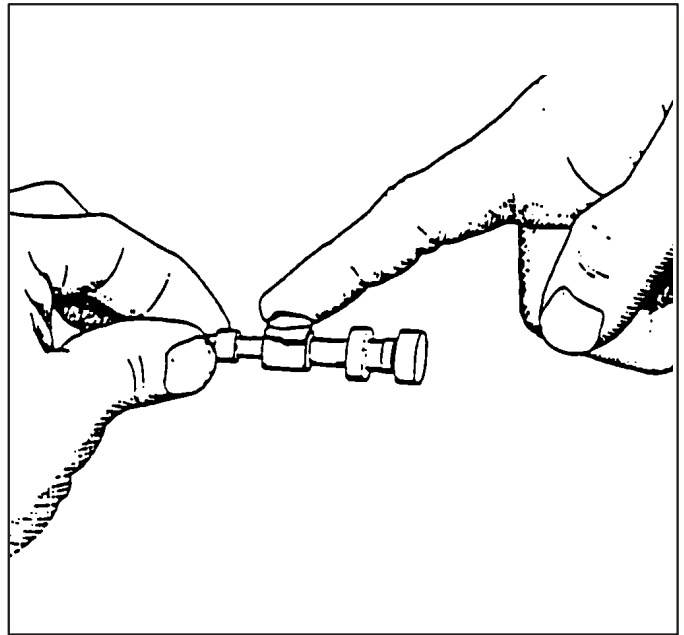


Figure 4

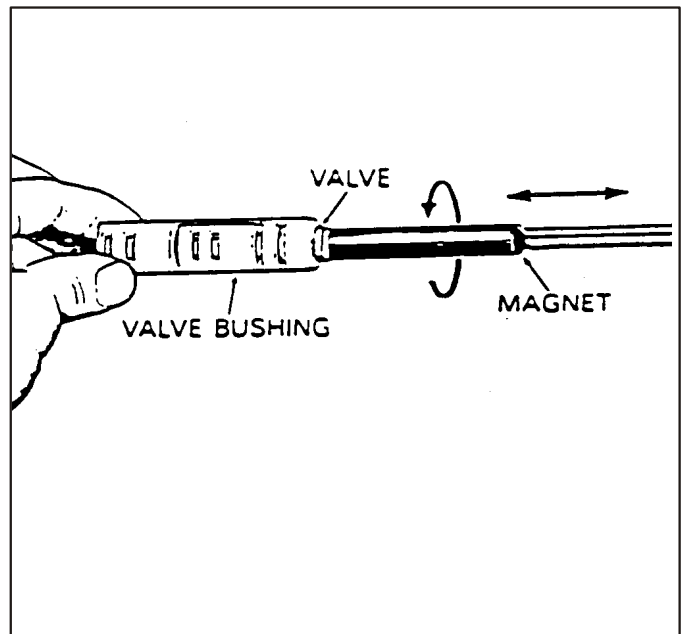


Figure 5



Technical Service Information

Aluminum Valves

Using a small flat blade screwdriver, move the valve back and forth in the bore.

IMPORTANT: Too much “lapping” of a valve will cause excessive clearances and increase the chance of a valve not operating. Clearance between a valve and the sleeve or bore is normally (.001 - .015”).

3 . After lapping a steel valve with a magnet check for magnetism in the valve by holding it near some steel filings or chips. If the valve can pick up the filings, you must demagnetize it by using a “demagnetizing” tool (different types are available at tool stores).

4. Again check the valve for magnetism, and if necessary, demagnetize it following the procedure in step 03. Repeat this procedure until the magnetism has been removed.

5 . Thoroughly clean the valve and bushing (or bore in the valve body) using solvent and dry using compressed air.

6. Place the valve in the bushing (or bore in the valve body) and check for freeness of movement by rocking the bushing (or valve body) back and forth. The valve should travel freely in its bore. If the valve still tends to stick, repeat the lapping procedure.

NOTE: The use of a honing stone, fine sandpaper or crocus cloth is not recommended for servicing stuck valves. All valve lands have sharply machined corners that are necessary for “cleaning” the bore. If these corners are rounded, foreign material could wedge between the valve and bore causing the valve to stick.