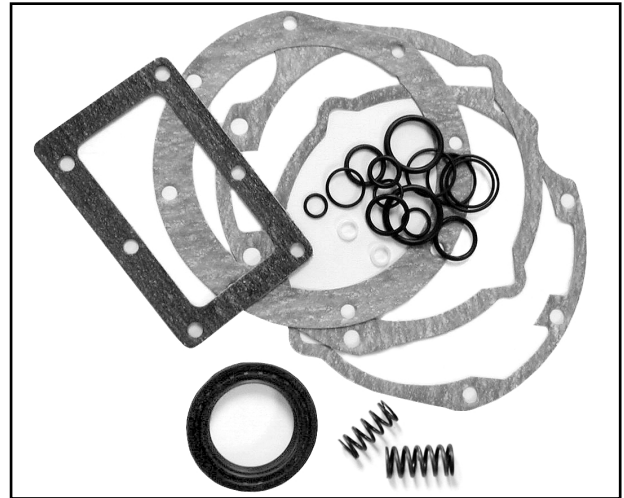


Dedicated to improving vehicle fun, safety & performance

Installation Instructions

Overdrive Mini-Kit for M46 Manual Transmissions 1976-93

ipd #4160



INTRODUCTION

PLEASE READ THESE INSTRUCTIONS THOROUGHLY BEFORE STARTING THE JOB.

These are the general guidelines for installing our J-Type overdrive mini-rebuild kit (#4160) in 1976-93 M46 manual transmissions. Prior to beginning this job relieve torsional stress by driving the car in overdrive and then dis-engaging the overdrive while the clutch pedal is depressed. If the overdrive is not functioning it is not possible to do the above procedure, which in rare cases may make removing the overdrive assembly from the transmission more difficult. It may be necessary to apply considerable force in step 9.

SUGGESTED TOOLS

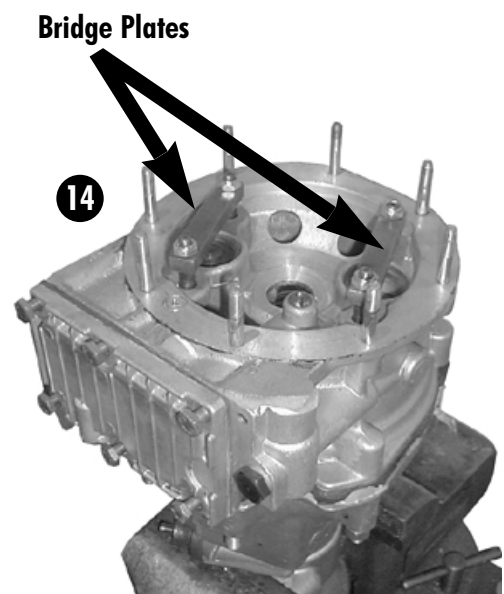
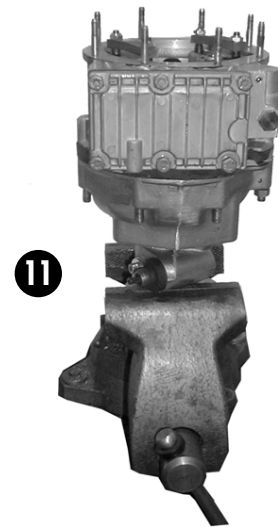
- 1-1/8" socket and **ipd** overdrive combination solenoid wrench / plug wrench # T1400 or similar tools
- Large vice
- Screwdrivers
- Hammer
- Wrench and socket assortment
- Rubber or plastic mallet

INSTALLATION

- 1** Support front and rear of car on jack stands according to workshop manual.
- 2** Drain the transmission and overdrive.
- 3** Disconnect the front driveshaft from the transmission flange.
- 4** Place a jack under transmission case and support.

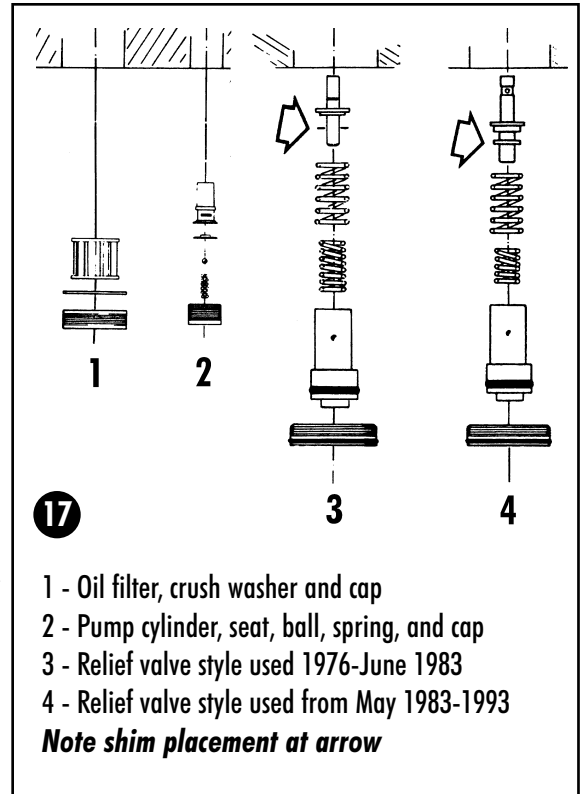
INSTALLATION

- 5 Remove the transmission cross member by removing the four cross member bolts and transmission mount.
- 6 Carefully lower the jack support under the transmission until the transmission is at full droop and then support in this position.
- 7 Disconnect solenoid wires and speedo cable.
- 8 Remove the eight 11mm nuts holding the overdrive to the transmission.
- 9 Carefully pull the overdrive assembly straight off of the transmission until it is free of the main shaft. You may need to use a plastic or rubber hammer to facilitate a stubborn assembly. In rare cases additional force may be needed. Some people have reported that the use of a come-along or similar tool attached to the overdrive housing and rear axle works well.
- 10 Clean the overdrive in preparation for disassembly.
- 11 Mount the overdrive in a vise using soft metal jaws or wood strips to prevent damage to the housing with the flange pointing downwards and the inspection plate facing you for best access.
- 12 Prepare a clean area where you can begin disassembling the overdrive.
- 13 Use the **ipd** wrench #T1400 or similar "thin" 1" open-end wrench to carefully remove the overdrive solenoid, clean and replace o-ring seals. Do not install yet.
- 14 Remove the four 11mm nuts holding the main piston bridges in place and remove bridge plates. Bent bridges should be straightened or replaced and are an indicator of excessive pump pressure caused by incorrect shims or sticking pressure relief valve.
- 15 Use pliers to remove the pistons, clean, inspect and replace o-ring seals. Set aside for now.
Note: If the seals on your pistons are "cupped" one way seals with nylon backers, the overdrive has been replaced with a newer style and you will need to get the newer style seals from your Volvo dealer.
- 16 Remove the six 11mm bolts on the main inspection plate and strainer. Thoroughly clean and set aside.

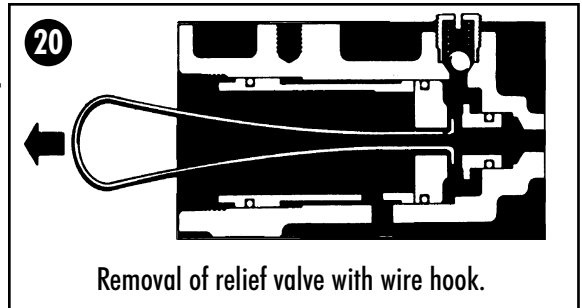


INSTALLATION

- 17 Use the **ipd** plug removal tool #T1400 or suitable tool to remove the 3 plugs. See drawing for a description of each port.
- 18 The large plug covers the oil filter. Remove the filter and clean it very carefully inside and out. This port is sealed with an aluminum crush washer, which is reused.
- 19 The center port houses the pump cylinder assembly (check ball, seat, spring and valve). Remove and clean the parts and set aside.
- 20 The 3rd port houses the pressure relief valve. The inner sleeve, springs and valve will come out easily. The outer cylinder can be removed with a simple extraction tool that can be made from a piece of coat hanger or brazing rod. Insert the tool pick into the hole at the base of the cylinder and then work the cylinder out. (you may need to grip the wire with pliers as oil in the chamber causes strong "stiction") When the cylinder is removed you'll be able to see the seat, which is removed in a similar manner. To form an extraction tool see diagram. We have also used right angle dental picks to accomplish this part of the job. Clean the parts, replace the seals and set aside.



- 21 Remove the speedometer drive retaining bolt and pull the drive assembly out (check for a loose or stripped gear). Replace the seal and reinstall. Install the new outer seal as well.
- 22 At this point, you need to decide whether or not you want to split the front and rear housings. If you have the time and a supporting manual you can clean and inspect the cone clutch assembly, one way clutch and planetary gear set for wear. There are no seals in this area other than the gaskets that seal the front housing to the brake drum and the gasket that seals the brake drum to the rear housing. If you do remove the rear housing, be sure to use the 2 included nylon cone seals on the 2 top fasteners (narrow end of seals goes towards the housing) Torque the nuts in a cross wise fashion to 8-12 ft. lbs.



- 23 Spend some time making sure that all the parts and housings are perfectly clean as even the smallest debris can cause problems in this system. If you don't have access to a parts washer with fairly clean solvent, consider using several cans of brake cleaner. Use compressed air to blow out all the oil passageways.

INSTALLATION

- 24** Begin reassembly by installing the pistons and bridge plates. Oil the seals and piston bores with the proper transmission fluid.
- 25** Install the filter, crush washer and cap.
- 26** Install the pump cylinder, seat ball, spring and plug. A small dab of grease will help keep the spring in place as you assemble the parts.
- 27** Install the check valve assembly using the new inner main spring, refer to diagram for component stack sequence.
- 28** Install the strainer and inspection cover with the new gasket.
- 29** Reinstall the solenoid with crush washer and reconnect the ground wire.
- 30** Reposition the overdrive in the vice so the vice is clamping on the driveline flange and remove the flange nut (1-1/8" socket) to gain access to the rear output shaft seal. Use a seal puller or flat blade screwdriver to pull the old seal out and then carefully tap the new seal into place. Reinstall the flange with a bit of oil to lubricate the new seal and install the nut.
- 31** Carefully align the overdrive up to the transmission and gently slide into place. Rotate the assembly back and forth a bit while sliding into place to aid engagement. It may be necessary to lightly tap the overdrive as well. Once fully seated, install the eight 11mm nuts and re install the trans mount, cross member, driveshaft, speedo cable and electrical connection to solenoid.
- 32** Add the appropriate fluid as described below via the transmission fill port.

Fluid Type and Capacity:

2.4 quarts of Type "F" automatic transmission fluid

Torque Specs:

- Drive line flange nut 120 - 130 ft. lbs.
- Bridge plate nuts 8-12 ft, lbs.
- Port plugs 16-18 ft. lbs.
- Inspection cover 6-8 ft. lbs.
- 11mm nuts holding overdrive to transmission 6-8 ft. lbs.
- Solenoid 32-40 ft. lbs.

