

VOLVO

- ① QUICK TESTS
- ② TROUBLESHOOTING
- ③ IN-CAR REPAIRS
- ④ REBUILD

OVERDRIVE

AS YOU CAN SEE - THE **ROAD TEST** IS THE MOST IMPORTANT PART OF THE QUICK TESTS.

WE MUST DO THE **MAINTENANCE AND QUICK TESTS** BEFORE WE DO ANYTHING TO THE OVERDRIVE.

RIGHT! THE TROUBLE MAY NOT BE THE OVERDRIVE BUT SOME RELATED FAULT-



Produced By:

Volvo of America Corporation

NATIONAL SERVICE SCHOOL

Overdrive Department
Rockleigh, N.J. 07647

For Additional Copies:

Volvo Dealership Personnel: Contact Service Representative or
Distributor Service Manager

Others: Write address above. Cost \$1.00 each prepaid.
Must order 10 or more.

This book cannot be cited for warranty claims.

TABLE OF CONTENTS

PAGE

1	Maintenance & Quick Tests
3	Troubleshooting Overdrive
5	Introduction to Book Format
6	In-Car Repairs
6	Replacing Solenoid and Operating Valve
7	Replacing Relief Valve
9	Replacing Check Valve
11	Cleaning Fine Filter
14	Tool and Material List
15	Removing Overdrive

PAGE

17	Disassembly
17	Overdrive
18	Clutch Unit
19	Front Casing
21	Rear Casing
24	Inspection Overdrive
26	Assembly
26	Rear Casing
29	Clutch Unit
30	And Fitting Front Casing
33	Installing Overdrive
36	Fold-Out Parts Sheet

MAINTENANCE AND QUICK TESTS

Before rebuilding overdrive you should do the following:

NORMAL MAINTENANCE

Check Oil Level in Gearbox

Oil should be up to filler hole. Add oil as necessary. Use engine oil with viscosity SAE 30 all year round (multi-grade oil SAE20W-40 can be used as an alternative).

Change Oil

Change oil on new or rebuilt units after first 1500 miles. Change oil every 24,000 miles thereafter. Make sure oil is hot before draining.

QUICK TESTS

Road Test Car

- Drive car in 4th gear. Switch on overdrive. Check that indicator light comes on. Check that car shifts into overdrive smoothly.
- Switch off overdrive. Check that indicator goes off. Check that car shifts out of overdrive smoothly.
- Drive car in 3rd gear. Switch on overdrive. Check that car does not shift into overdrive.

Check Visually For Leaks

- Check around base plate.
- Check between gearbox and overdrive unit.
- Check around output shaft.

Pressure Test For Proper Operation

WARNING

This test must be made with car in gear. It should be done on test roller or roadway. It can be done with car jacked up but this should be avoided as it is not safe. Position gauge as far away from car as possible.

- Turn ignition on. Do not start engine. Shift to 4th gear. Turn overdrive on 12 times, then turn overdrive off.
- Get watch with second hand. Connect gauge 2834 to overdrive unit. See page 2 of this book.
- Drive car on direct drive at about 25 mph. Read pressure. It should be 1.5 kp/cm. (21 psi).

- Engage overdrive. Read pressure. It should rise to 32 to 35 kp/cm (455 to 500 psi) on early models or 27 to 30 kp/cm (385 to 425 psi) on late models.

NOTE

In the next step you have to time the change in pressure. Make sure you are ready.

- Disengage overdrive, Check time for pressure to drop to 1.5 kp/cm²(21psi). Time must not exceed 3 seconds.
- Disconnect gauge. Check oil level.

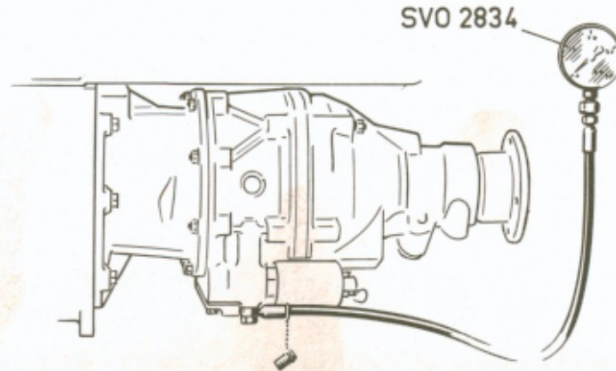
Electrical Test For Proper Operation

- Place gearbox in 4th gear. Switch overdrive on. Check that indicator comes on.
- Switch overdrive off. Check that indicator goes off.

WARNING

In the next step if solenoid has been on for some time it may be hot. Be careful to avoid being burnt when feeling for operation.

- From under car listen and feel for solenoid movement when switch is moved on and off.



TROUBLESHOOTING OVERDRIVE

OVERDRIVE DOES NOT ENGAGE-LIGHT DOES NOT COME ON

1. Check fuse.
2. Check switch for overdrive.

OVERDRIVE DOES NOT ENGAGE-LIGHT COMES ON

1. Check solenoid for movement. (Electrical Test For Proper Operation, page 2).
2. Check pressure. (Pressure Test For Proper Operation, page 1).
3. Check pistons for binding.
4. Check clutch sliding member for binding.

OVERDRIVE DROPS OUT

1. Check pressure. (Pressure Test For Proper Operation, page 1).
2. Check clutch sliding member and brake ring for damage.
3. Check sunwheel and planet gear for damage.

OVERDRIVE HUNTS

1. Check relief valve for leaks and damaged springs.
2. Check pump for leaks and wear.
3. Check clutch sliding member and brake ring for damage.

NOTES

THE COLUMN BELOW ME
ALWAYS **TELLS** IN DETAIL
HOW THE WORK
IS DONE...

AND THIS PHOTO
COLUMN **SHOWS**
HOW TO DO IT.

OPEN THE FOLD-OUT-SHEET
AS YOU DO THE WORK
STEP-BY-STEP. THE
NUMBERED PART IS THE
SAME AS
ON THE
FOLD-OUT-
SHEET.



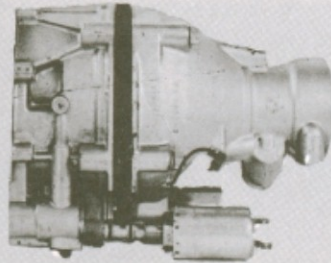
IN-CAR REPAIRS

Numbers in () refer to fold out parts drawings.

These are the only repairs that can be done with the unit in the car.
Any other repair must be done after the unit is removed from the car.

REPLACING SOLENOID AND OPERATING VALVE

- Jack up car. Place supports under car.
- Disconnect wires to solenoid. Remove solenoid (13). Use a **thin 1 inch wrench**.
- Remove O-rings (9,10) and seal (11).



REPLACING SOLENOID AND OPERATING VALVE

Remove solenoid, (13)

1

- Place new O-rings (9,10) and seal (11) on solenoid (13). Coat O-rings with oil.
- Thread solenoid into overdrive unit.
- Torque solenoid at **30 to 40 foot pounds**. Use a **thin 1 inch crowfoot and torque wrench**. Crowfoot may have to be cut to fit.

Install solenoid, (13)
Torque-30 to 40 foot pounds

REPLACING RELIEF VALVE

WARNING

*If car has been driven recently, oil may be hot.
Be careful to avoid contact with oil.*

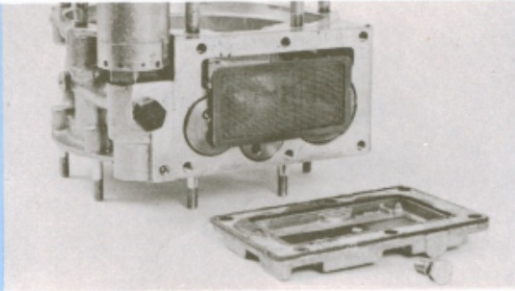
- Jack up car. Place supports under car.

REPLACING RELIEF VALVE

Jack up car.

3

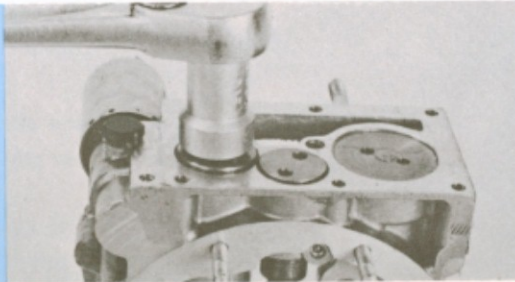
- Remove bolts (80) and washers (81) holding plate (79). Remove plate and pre-filter (76). Use 7/16 inch wrench.
- Drain oil



Remove plate and
pre-filter.
(79,76)

4

- Remove plug (52) for relief valve. Use tool 2836.
- Pull out large piston (54) and spring (50).



Remove plug, large
piston, and spring.
(52,54,50)

5

- Pull out small piston (42). Use pliers with narrow jaws.
- Pull out cylinder (58) and end piece (41). Use loop.
- Remove O-rings. Clean parts in solvent.
- Check parts for wear and damage. Check that pistons run easily in cylinders. Replace faulty parts.



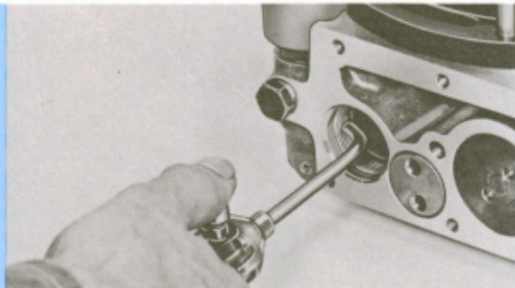
Pull out piston, cylinder, and end piece. (42,58,41)

6

NOTE

The following are available as spares: end piece (41), cylinder (58), small piston (42), large piston (54), adjuster washer (67), low pressure spring (50), plug (52), and O-rings (40,57,51).

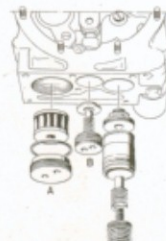
- Blow orifice nozzle to operating valve clean. Use compressed air.



Blow orifice nozzle clean.

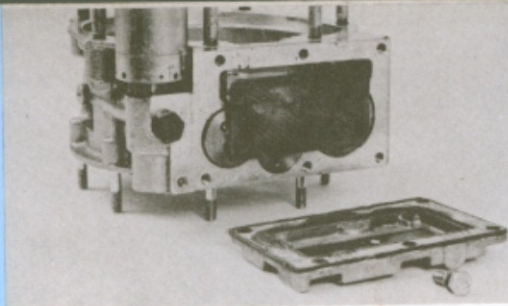
7

- Place new O-rings (40,57,51) on end piece (41), cylinder (58), and plug (52).
- Coat parts with oil.
- See Group C. Install parts in following order: end piece (41), cylinder (58), end plug (52).
- Torque plug to 16 foot pounds. Use tool



Install end piece, cylinder, piston, spring piston, and plug. (41,58,42,50,54,52)
Torque-16 foot-pounds

- Place new gasket (77) on plate. Make sure magnet (78) is in place on plate.
- Install plate (79) and pre-filter (76) with washers (81) and bolts (80). Use 7/16 inch wrench.
- Remove supports. Lower car. Fill gearbox with oil. Road test car.



Install pre-filter, and plate (76,79)
Service gearbox.
Road test car.

9

REPLACING CHECK VALVE

WARNING

If car has been driven recently, oil may be hot. Be careful to avoid contact with oil.

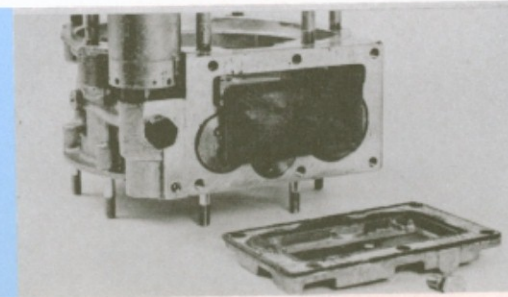
- Jack up car. Place supports under car.

REPLACING CHECK VALVE

Jack up car.

10

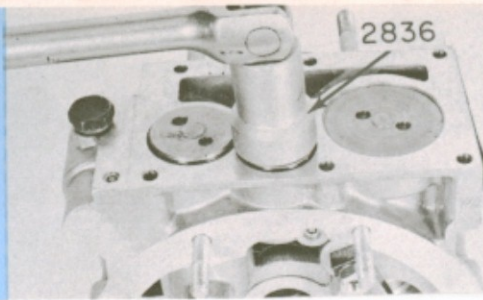
- Remove bolts (80) and washers (81) holding plate (79). Remove plate and pre-filter(76).
- Drain oil.



Remove plate and pre-filter (79,76)

11

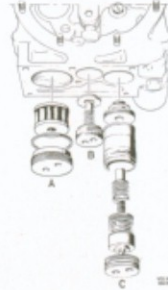
- Remove plug (62) for check valve. Use tool 2836.
- Pull out spring (61), ball (62), and body (63). Remove O-ring (59) from plug.
- Clean parts in solvent. Blow them dry. Use compressed air. Check parts for damage and wear.



Remove plug, spring, ball, and body. (60,61,62,63)

12

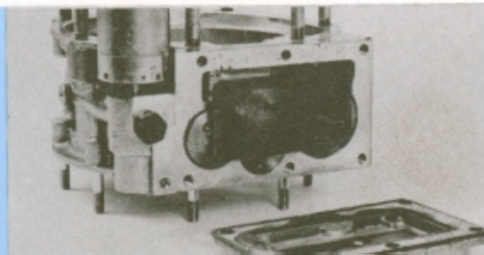
- See group B. Place new O-ring (59) on plug (60). Coat O-ring with oil.
- Place body (63), ball (62), and spring (61) in overdrive unit.
- Thread plug (60) in.
- Torque plug to 16 foot-pounds. Use tool 2836 and torque wrench.



Install body, ball, spring, and plug. (63,62,61,60)
Torque- 16 foot-pounds.

13

- Place new gasket (77) on plate. Make sure magnet (78) is in place on plate.
- Install plate (79) and pre-filter (76) with washers (81) and bolts (80). Use 7/16 inch wrench.
- Remove supports. Lower car.
- Fill gearbox with oil. Road test car.



Install pre-filter and plate. (76,79)
Service gearbox.
Road test car.

CLEANING FINE FILTER

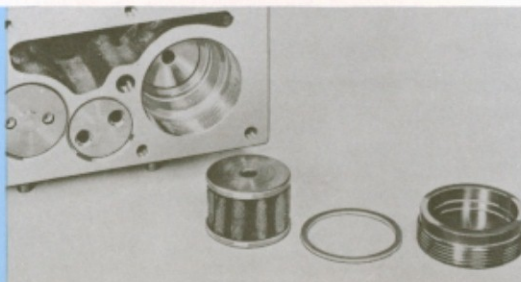
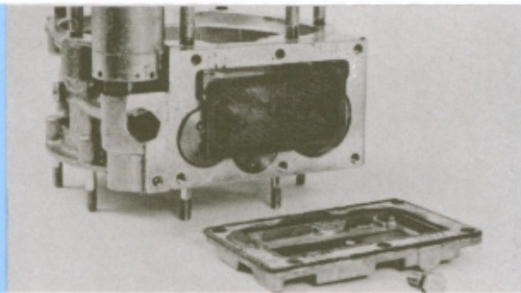
WARNING

*If car has been driven recently, oil may be hot.
Be careful to avoid contact with oil.*

- Jack up car. Place supports under car.

- Remove bolts (80) and washer (81) holding plate (79). Remove plate and pre-filter (76).
- Drain oil.

- Remove plug (70) for filter. Use tool 2836.
- Pull fine filter (68) and seal (69) out.
- Clean parts in solvent. Blow parts dry. Use compressed air.
- Place filter (68) and seal (69) in overdrive.
- Thread plug (70) in.
- Torque plug to 16 foot-pounds. Use tool 2836.



CLEANING FINE FILTER

Jack up car.

15

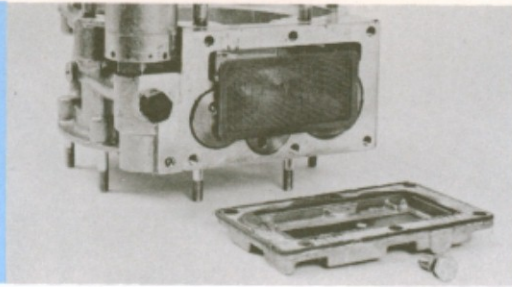
Remove plate and pre-filter. (79,76)

16

Remove, clean, and install plug, filter, and seal. (70,68,69)
Torque- 16 foot-pounds

17

- Place new gasket (77) on plate. Make sure magnet (78) is in place on plate.
- Install plate (79) and pre-filter (76) with washers (81) and bolts (80). Use 7/16 inch wrench.
- Remove supports. Lower car.
- Fill gearbox with oil. Road test car.



Install pre-filter and plate.
(76,79)

18

NOTES



1797



1801



1845



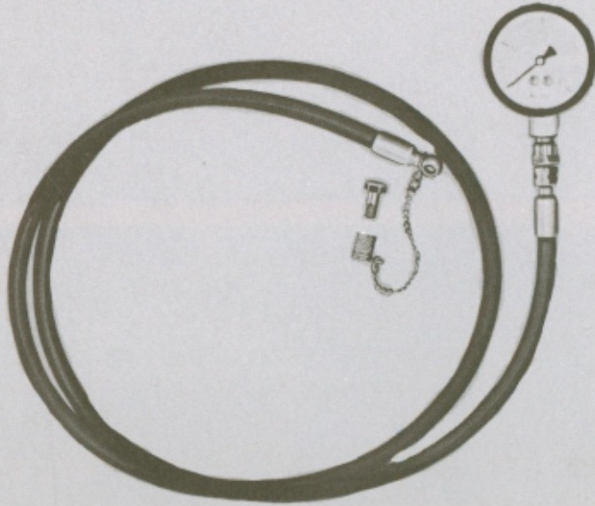
2261



2412



2836



2834



2835



4030

TOOL AND MATERIAL LIST

Special Tools

SVO = 999

999 1797 Drift
999 1801 Standard handle
999 1845 Flange press
999 2261 Flange puller
999 2412 Sleeve drift for output
shaft bearing
999 2835 Centering mandrel
999 2836 Socket for plugs
999 2854 Counter hold for flange
999 2922 Fixture for gearbox

Hand Tools

Vise with copper jaws
Wrench, 7/16", 1/2" and 1"
Copper drift
Hammer
Screwdriver-common, small
Circlip pliers
Shop press
Air nozzle
Ratchet-1/2 inch drive
Pliers with narrow jaws
Socket 1 1/8 inch
Universal bearing puller
12 volt battery
Switch-single pole, single throw
Ammeter
Torque wrench-foot-pounds
Crowfoot-1 inch

Materials

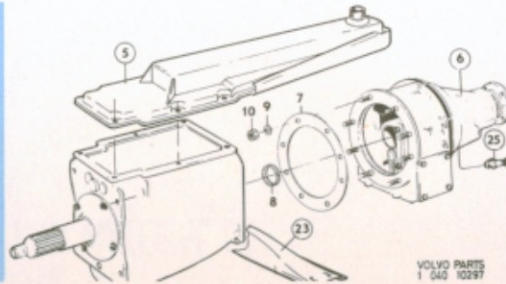
Solvent
Compressed air
Rubber band or
string
Gearbox oil

REMOVING OVERDRIVE

- If oil pressure cannot be obtained, go to page 16.
- If oil pressure can be obtained do the following procedure. Jack up car. Accelerate in 4th gear to 40 mph. Engage overdrive. Then disengage overdrive **with clutch in**. Shut off engine. Turn ignition on. Do not start engine. Shift to 4th gear. Turn overdrive on 12 times, then turn overdrive off.
- Drain oil from gearbox. Disconnect wire to solenoid on overdrive.
- Remove gearbox. See "Removing" in Group 43a of Service Manual.

Numbers in this step refer to this drawing. →

- Remove gearbox cover (5). Remove nuts (10) holding overdrive (6) to intermediate flange.
- Pull overdrive toward rear until unit is free of main shaft.



REMOVING OVERDRIVE

19

Remove gearbox.

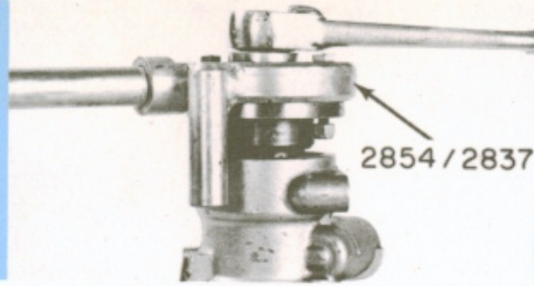
20

Remove overdrive unit from gearbox.

21

If oil pressure cannot be obtained, remove gearbox. See "Removing" in Group 43a of Service Manual.

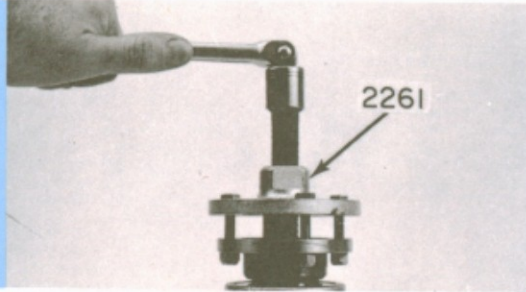
- Place gearbox in fixture 2922.
- Attach tool 2854 or 2837 to flange (116).
- Remove nut (118) and washer (117). Use 1 1/8 inch socket.



Remove gearbox. Remove nut and washer holding flange to output shaft. (117,118)

22

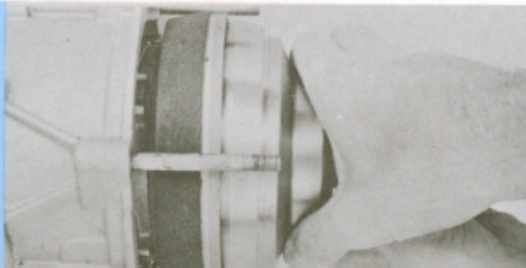
- Install puller 2261 on flange (116). Pull flange off output shaft (110).
- Loosen nuts (91) holding front and rear casing. Use 1/2 inch wrench.
- Remove nuts evenly all around to avoid binding prings. Remove washers.
- Pull rear casing off.



Pull flange off output shaft. Remove rear casing. (113,116)

23

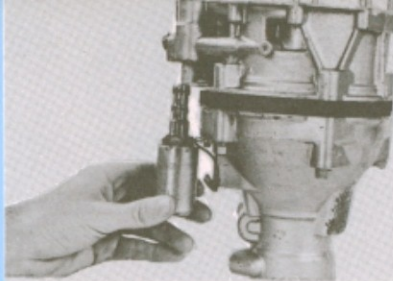
- Tap around sliding member (75) while pulling output shaft out. Use a copper drift.
- Remove front casing from gearbox.



Pull output shaft out. (110)

DISASSEMBLING OVERDRIVE

- Place overdrive unit in vice. Make sure vice has copper jaws.
- Remove solenoid (13) with operating valve. Use **thin 1 inch wrench**. Remove O-rings (9, 10) and seal (11).

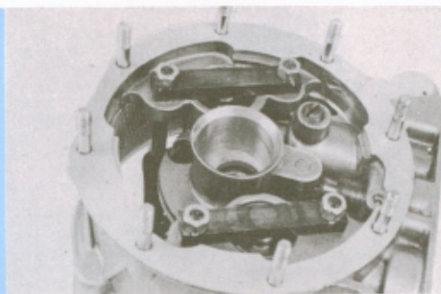


DISASSEMBLING OVERDRIVE

Remove solenoid.
(13)

25

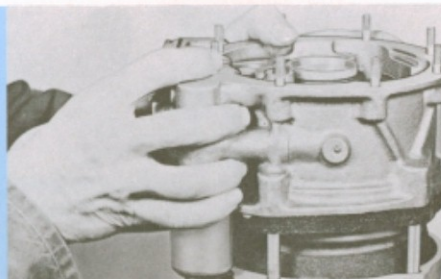
- If locking washers (2) are installed, bend down tabs.
- Remove nuts (1), washers (2), and bridge pieces (3). Use **7/16 inch wrench**.



Remove bridge pieces.
(3)

26

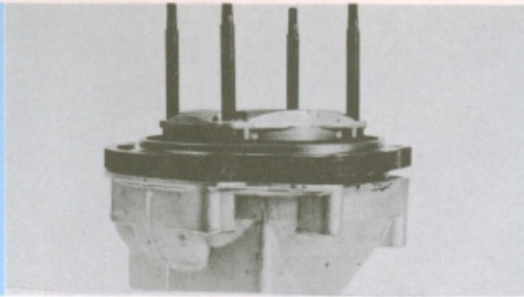
- Loosen nuts (91) holding front and rear casing. Use **1/2 inch wrench**.
- Remove nuts evenly all around to avoid **binding springs**. Remove washers (90).
- Lift front casing (6) and brake rings (8) off casing (113). Remove gasket (12).



Remove front casing
and brake ring.
(6,8)

27

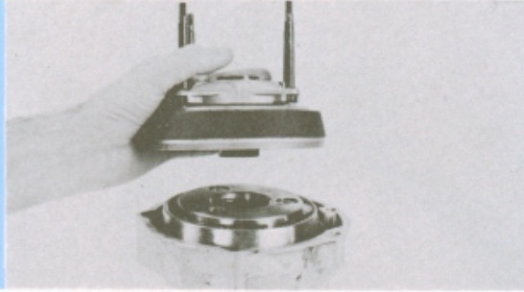
- Tap around brake ring (8) to loosen it from front casing. Use copper drift and hammer.
- Lift ring off casing. Remove gasket (7).



Remove brake ring.
(8)

28

- Remove springs (16) from sliding member.
- Lift out sliding member (75) with bearing and sunwheel.
- Lift out planet carrier (73).

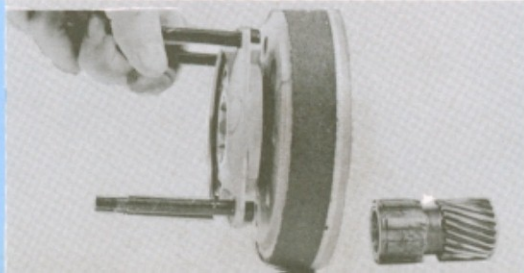


Remove springs, sliding member, and planet carrier.
(16,75,73)

29

DISASSEMBLING CLUTCH UNIT

Pry off circlip (20) holding sunwheel (74). Use small screwdriver. Pull sunwheel out backwards.

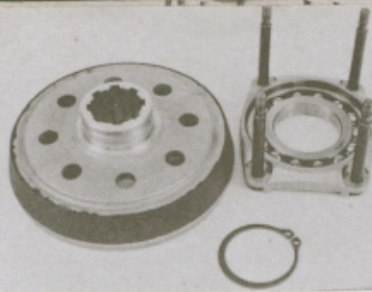


DISASSEMBLING CLUTCH UNIT

Remove sunwheel.
(74)

30

- Remove circlip (19) holding bearing to sliding member (75). Use pliers for circlip.
- Tap sliding member (75) loose. Use rubber mallet.
- Remove circlip (18) holding bearing (17) in retainer (15). Press bearing out of retainer.

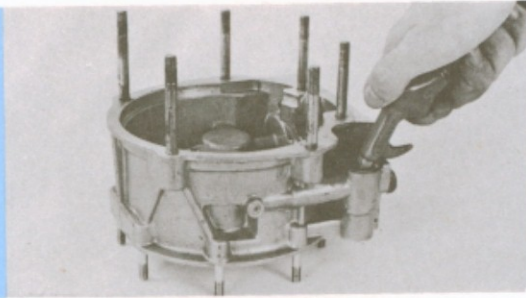


Disassemble sliding member, bearing, and retainer.

31

DISASSEMBLING FRONT CASING

- Place front casing on bench with front end down.
- Apply compressed air to hole for operating valve. Blow out pistons (23). Remove seals (22) from pistons.

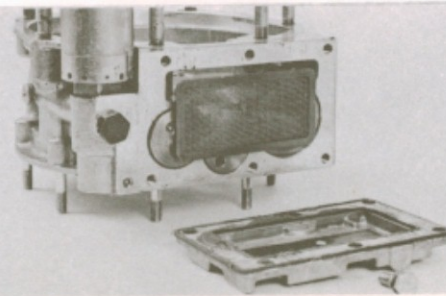


DISASSEMBLING FRONT CASING

Blow out pistons. (23)

32

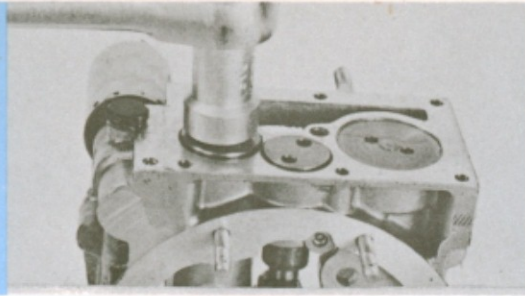
- Remove bolts (80) and washers (81) holding plate (79). Remove plate and pre-filter (76) with magnet (79) and gasket (77).
- Drain oil into container.



Remove plate (79) and pre-filter. (79,76)

33

- Remove plug (52) for relief valve. Use tool 2836 and 1/2 inch drive ratchet.
- Pull large piston (54) and spring (50) out of valve.



Remove plug, large piston, and spring. (52,54,50)

34

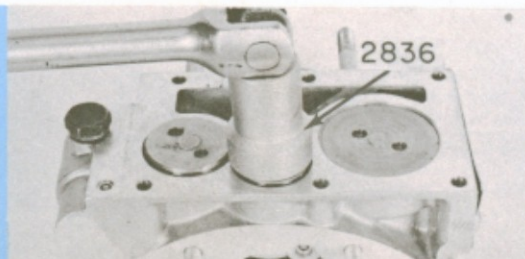
- Pull small piston (42) and spring (44) out. Use narrow jaw pliers.
- Pull cylinder (58) and end piece (41) out. Use loop.



Pull small piston, spring, cylinder, and end piece out. (44,58,41)

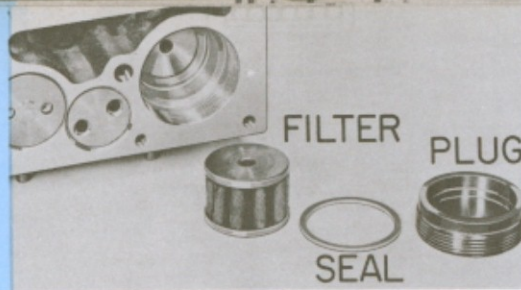
35

- Remove plug (60) for check valve. Use tool 2836 and 1/2 inch drive ratchet.
- Pull out spring (61), ball (62), and body (63).



Remove plug, spring, ball, and body. (60,61,62,63)

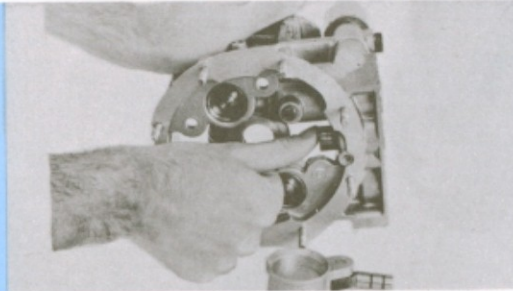
- Remove plug (70) for fine filter. Use tool 2836 and 1/2 inch drive ratchet.
- Pull filter (68) and seal (69) out.



Remove plug, fine filter, and seal. (70,68,69)

37

- Pull connecting rod (24) and pump plunger (66) out towards center of casing.
- Press pump body (65) and non-return body (63) out of check valve port.

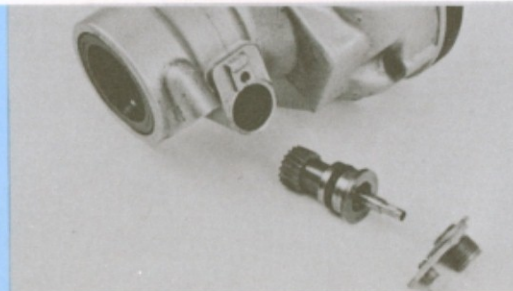


Remove connecting rod, pump plunger, pump body, and non-return body. (24,66,65,63)

38

DISASSEMBLING REAR CASING

- Remove bolt (99) holding retainer (100) for speedometer pinion. Use 7/16 inch wrench.
- Pull out retainer (100), bushing (97), and pinion (95).

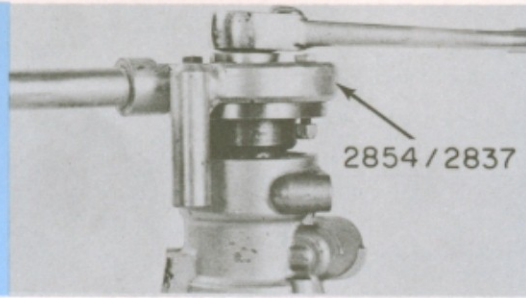


DISASSEMBLING REAR CASING

Remove speedometer retainer, bushing and pinion. (100,97,95)

39

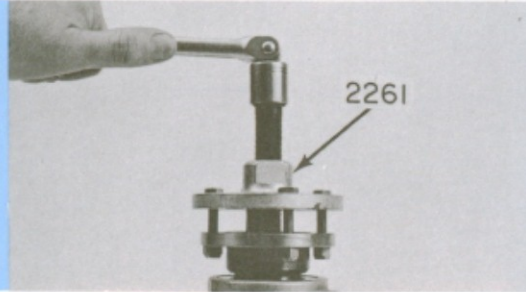
Attach tool 2854 or 2837 to flange (116). Remove nut (118) and washer (117) holding flange to output shaft. Use 1 1/8 inch socket.



Remove nut and washer holding flange to output shaft. (118,117)

40

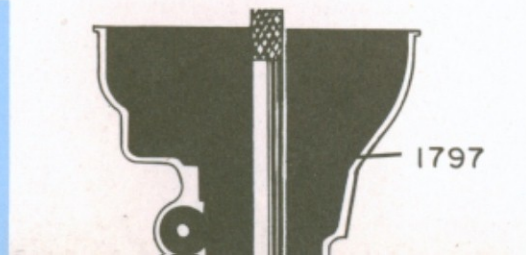
- Install puller 2261 on flange (116). Pull flange off output shaft.
- Place rear casing in press. Press output shaft (110) out.



Pull flange off output shaft. Press output shaft out of rear casing. (116,110)

41

- Remove speedometer gear (106) and spacer (112) from rear casing.
- Place drift 1797 in bearing (114) inside casing. Drive bearing (114) and oil seal (115) out of casing. Use handle 1801.



Remove speedometer gear and spacer from casing. Drive bearing and oil seal out. (106,112,114,115)

- Remove circlip (87) holding oil thrower (86) in output shaft (110).
- Lift out uni-directional clutch (88). Remove thrust washer (85).



Remove circlip, oil thrower, uni-directional clutch, and thrust washer from output shaft. (87,86,88,85)

43

Inspect bushing (84) in output shaft (110) for wear and scores. If bushing has to be removed, replace output shaft.

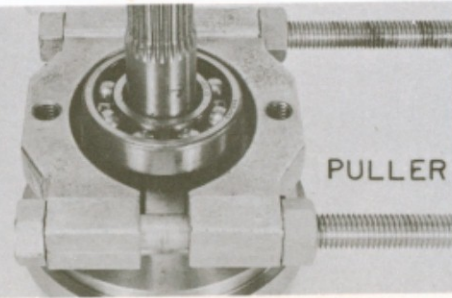
NOTE

A local machine shop may be able to manufacture and replace the bushing. Take output shaft with bushing installed to machine shop.

Inspect bushing in output shaft.

44

Pull bearing (111) off shaft (110). Use a bearing puller.



Remove bearing from shaft. (111)

45

INSPECTING OVERDRIVE

- Clean all parts in solvent. Blow them dry. Use compressed air.
- Make sure filters (68,76) are clean and not damaged.
- Clean oil ways in casing (6).

INSPECTING OVERDRIVE

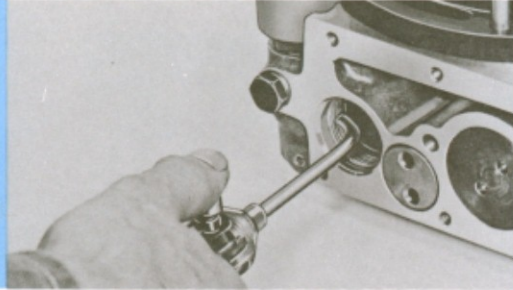
Clean Parts.

46

- Clean nozzle in casing (6). Use compressed air.
- If nozzle cannot be cleaned by compressed air, use a pointed wooden stick.

CAUTION

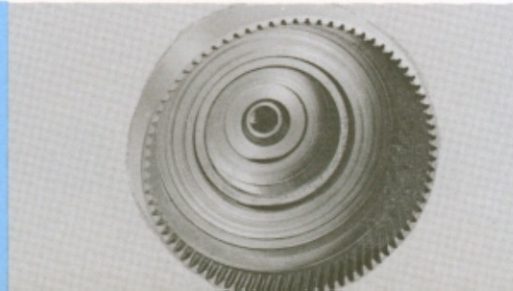
Do not use a hard object. This could damage nozzle.



Clean nozzle in casing.

47

- Check that groove inside output shaft (110) is clean.
- Inspect gears, spline, and threads on shaft for damage and wear.



Check output shaft.

48

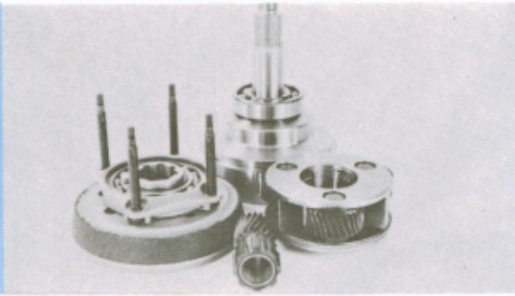
- Inspect pistons (23,42,54), valves, pump plunger (66), bodies (65,41), and cylinder (58) for scratches and wear.
- Inspect springs (44,50,61) for damage.



Inspect pistons, valves, pump plunger, bodies and cylinders. Inspect springs for damage. (23,42,54,66,64,41,50,44,58,61)

49

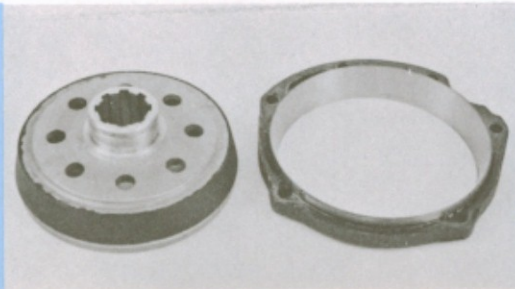
- Inspect all gears and bearing for cracks and wear.
- Inspect bushing inside sunwheel (74) for wear or damage. **If bushing needs replacing, replace sunwheel.**



Inspect gears and bearings. Inspect bushing in sunwheel.

50

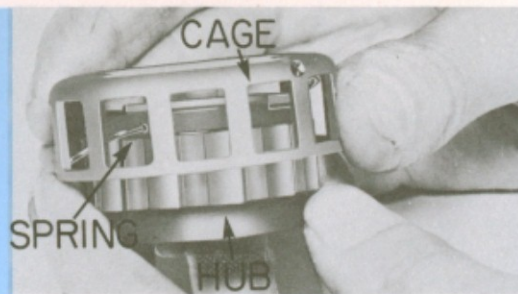
- Inspect brake ring (8) for abrasion, cracks or wear.
- Check lining on clutch sliding member (75) for burns and wear.



Inspect brake ring and clutch sliding member. (8,75)

51

- Inspect spring for uni-directional clutch (88) for damage. Inspect cage for cracks or damage.
- Inspect rollers for scratches or damage.
- Inspect clutch hub for damage.

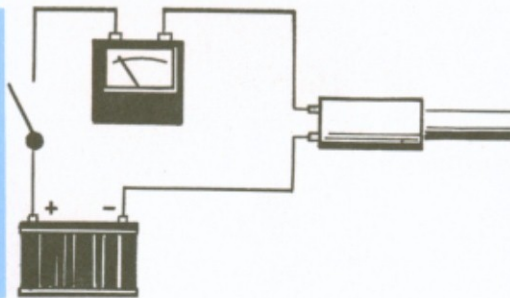


Inspect uni-directional clutch. (88)

52

Inspect solenoid (13) for operation as follows:

- Connect 12 volt battery, switch, and ammeter to solenoid as shown.
- Set switch on. Check that valve moves.
- **Check that current draw is about 2 amperes.**
- Set switch off. Check that valve moves back.
- Disconnect circuit.



Inspect solenoid for operation and current draw. Current draw- 2 amperes.

53

ASSEMBLING REAR CASING

Press bearing (111) on shaft (110). Use tool 2412. Make sure bearing is seated.

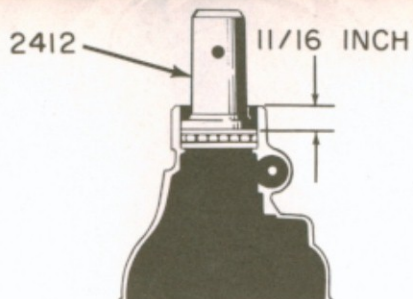


ASSEMBLING REAR CASING

Press bearing on shaft. (111)

54

Press bearing (114) into rear of casing (113). Use tool 2412. Make sure top of bearing is about 11/16 inch from end of casing.



Press bearing into rear of casing. (114)

55

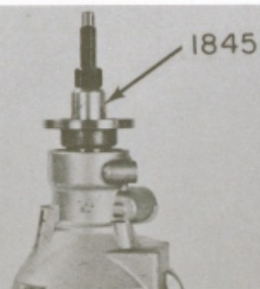
- Place output shaft on wooden block.
- Place speedometer gear (106) and spacer (112) on shaft (110).
- Press rear casing (113) on shaft. Use tool 2412.
- Make sure shaft protrudes about 13/16 inch out of casing.



Install speedometer gear and spacer on shaft. (106,112)
Press casing onto shaft. (113)

56

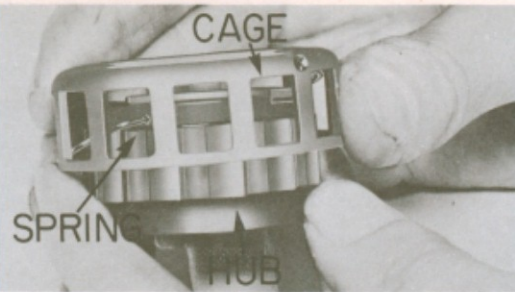
- Press oil seal (115) into casing. Use tool 2412.
- Press flange (116) on shaft. Use tool 1845.
- Place washer (117) and nut (118) on shaft. Torque nut at 80 to 100 foot-pounds.
- Use tool 2854 or 2837 to hold flange while torquing nut. Use 1 1/8 inch socket and torque wrench.



Install oil seal, flange, washer and nut in casing. (115,116,117,118)
Torque- 80 to 100 foot-pounds.

57

Assemble uni-directional clutch (88) as follows:
Place one end of spring in hole in cage.
Place other end in hole in clutch hub.
Turn hub and press it into cage.



Assemble uni-directional clutch.
(88)

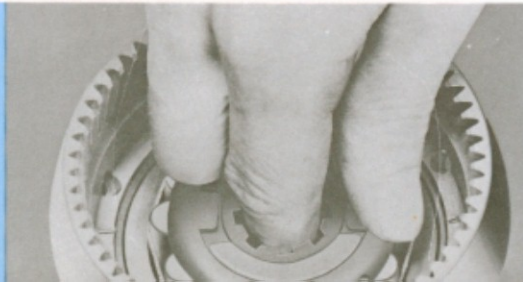
58

- Turn hub as far as it will go. Place a key between hub and cage.
- Place rollers in cage. Hold rollers in place with rubber band or string.



59

- Place thrust washer (85) in shaft.
- Place clutch (88) in shaft. Remove band and key.



Install thrust washer
and clutch in shaft.
(85,88)

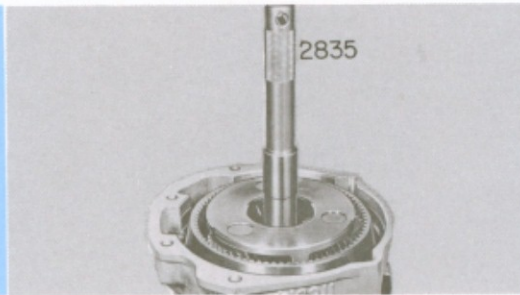
60

- Place oil thrower (86) in shaft. Install circlip (87).
- Place speedometer pinion (95) in casing.
- Place new O-ring (96) on bushing (97). Place bushing in casing.
- Place retainer (100) over pinion. Install bolt (99).



Install oil thrower and circlip. (86,87)
 Install speedometer pinion, bushing, retainer, and bolt in casing. (95,97,100,99)

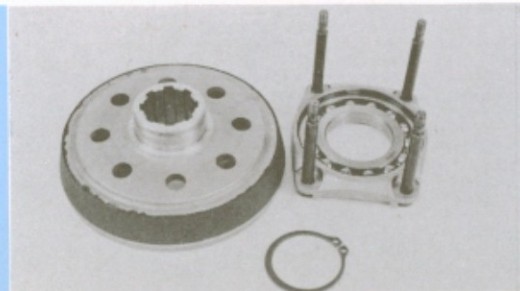
Place planet carrier (73) in shaft. Line up splines of carrier and clutch. Use drift 2835. Remove drift.



Install planet carrier in shaft. Line up splines. (73)

ASSEMBLING CLUTCH UNIT

- Press bearing (17) into retainer (15). Install circlip (48).
- If bolts (14) were removed, press them into retainer.
- Press bearing with retainer on sliding member (75). Install circlip (19).

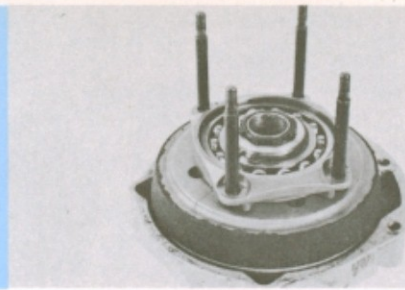


ASSEMBLING CLUTCH UNIT
 Press bearing in retainer. Press retainer on sliding member. (17,15,75)

62

63

- Place sunwheel (74) in sliding member. Install circlip (20).
- Place clutch unit in output shaft (110).
- Place springs (16) on bolts (14) thru retainer.

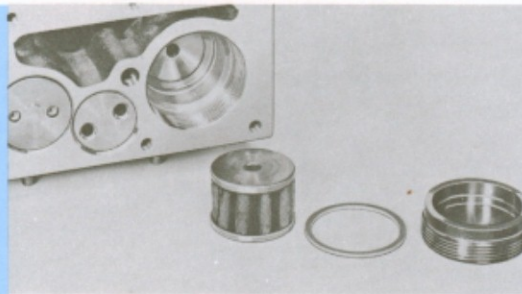


Install sunwheel.
Install clutch unit in shaft.
(74)

64

ASSEMBLING AND FITTING FRONT CASING

- Place fine filter (68) and new seal (69) in casing (6).
- Thread plug (70) into casing.
- Torque plug to 16 foot-pounds. Use tool 2836.



ASSEMBLING AND FITTING FRONT CASING

Install filter, seal and plug in casing.
(68,69,70)

Torque- 16 foot-pounds
65

- See group C. Place new O-rings (40,57,51) on end piece (41), cylinder (58), and plug (52). Coat parts with oil.
- Place end piece, cylinder, small piston (42) spring (50), and large piston in casing.
- Thread plug into casing. Torque plug to 16 foot-pounds. Use tool 2836.

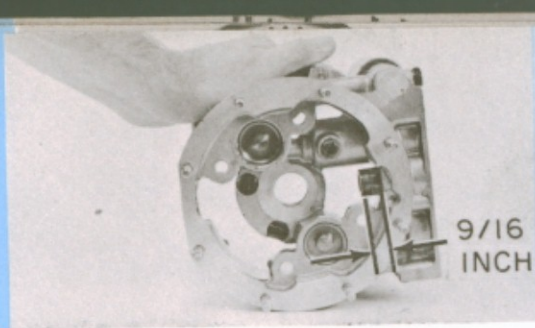


Install end piece, cylinder, small piston, spring, piston, and plug.
(41,58,42,50,54,52)

Torque- 16 foot-pounds

66

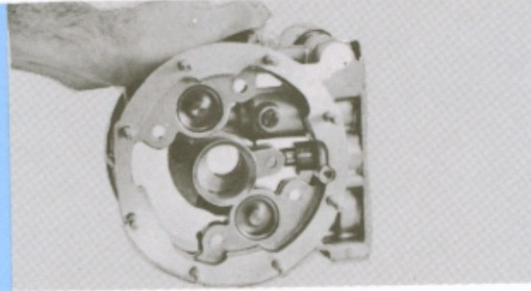
- Place new O-rings (64,59) on pump body (65) and plug (60). Coat parts with oil.
- Push body into casing. Check that body protrudes about 9/16 inch into center of casing.
- Place body, ball (62), and spring (61) in casing.
- Thread plug into casing. Torque plug to 16 foot-pounds. Use tool 2836.



Install pump body, body, ball, spring, and plug. (65,63,62,61,60)
Torque- 16 foot-pounds.

67

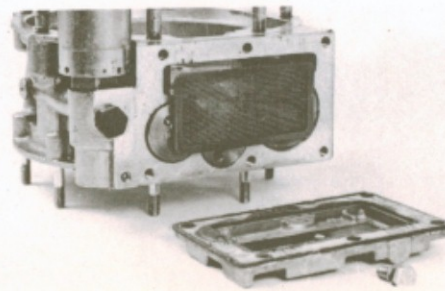
- Place pump plunger (66) with connecting rod (24) in pump body from center of casing.
- Place new O-rings (22) on pistons (23).
- Place pistons in their cylinders.



Install pump plunger with connecting rod. Install pistons. (66,24,23)

68

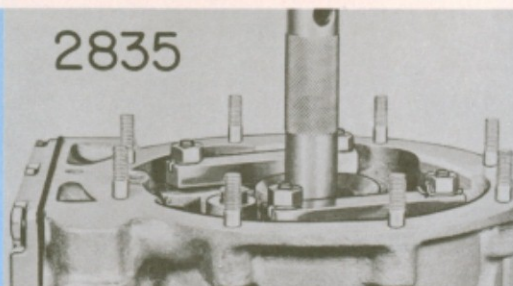
- Make sure magnet (78) is in place on plate. Place new gasket (77) on plate.
- Install plate (79) and pre-filter (76) with washers (81) and bolts (80). Use 7/16 inch wrench.



Install pre-filter and plate. (76,79)

69

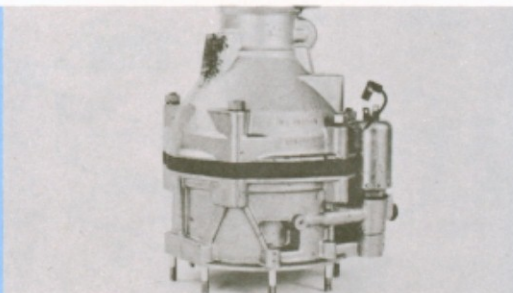
- Place new gasket (7) on front casing (6).
- Place brake ring (8) and new gasket (12) on casing.
- Place front casing on rear casing (113).
- Align bolts (14 thru retainer with holes in front casing.
- Line up splines. Use drift 2835.



Assemble front casing, brake ring, and rear casing.

70

- Place electric connector on stud next to solenoid port. Place copper washers (90) on studs on side opposite valves.
- Thread nuts (91) and washers (90) on studs.
- Tighten nuts evenly a little at a time until they are tight evenly all around.



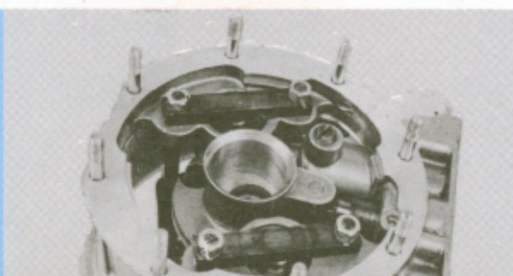
Install nuts and washers holding casings together. (91,90)

71

Place bridge pieces (3) on bolts (14). Install new lock washers and nuts or self locking nuts. Tighten nuts. **If installed, bend lock washers to lock nuts.**

NOTE

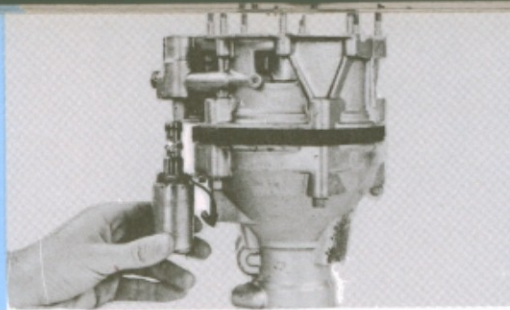
On early models, lock washers were used. On later models self locking nuts replace lock washers.



Install bridge pieces, Lock washers and nuts or self locking nuts. **If installed, bend washers to lock nuts.** (3,14,1)

72

- Place new O-rings (9,10) and seal (11) on solenoid and operating valve.
- Thread solenoid (13) into casing.
- Torque solenoid at 30 to 40 foot-pounds. Use a thin 1 inch crowfoot and torque wrench. Crowfoot will have to be cut to fit on solenoid.



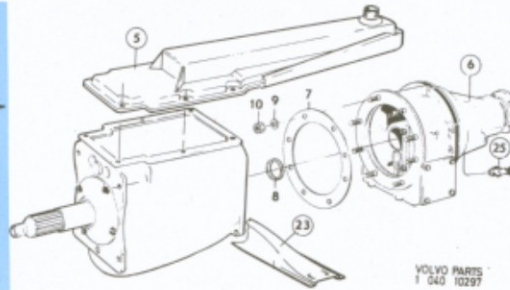
Install solenoid. (13)
Torque- 30 to 40 foot-pounds.

73

INSTALLING OVERDRIVE

Numbers in this step refer to this drawing. →

- Install new gasket (7) on overdrive (6).
- Place overdrive unit over main shaft of transmission.
- Thread nuts (10) and washers (9) on sutds. Tighten nuts evenly all around.

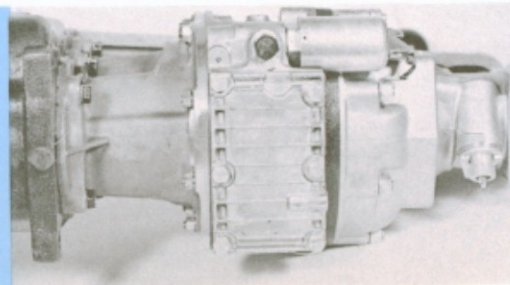


INSTALLING OVERDRIVE

Install overdrive on transmission.

74

- Install new cover gasket .
- Place covers (5) over transmission.
- Install transmission. See Group 43a of Service Manual.



Install transmission.

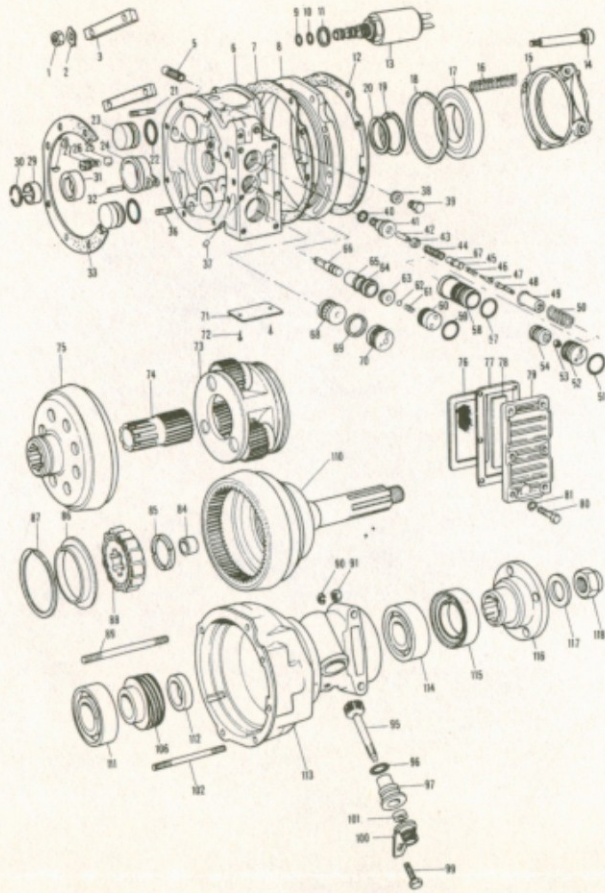
75

- Connect wires to solenoid.
- Fill gearbox with oil. Road test car.
- Check oil level in gearbox. Check overdrive for leaks.

Connect electrical system Service transmission. Road test car.

76

NOTES



NOTE

This parts drawing is not from Parts Book. To find part numbers refer to the Latest Parts Book.

- | | | | | |
|-----------------------------|--------------------------------------|--------------------|-----------------------------|-------------------------------|
| 1. Nut | } Replaced by
Self Locking
Nut | 28. Key | 58. Cylinder | 86. Oil thrower |
| 2. Lock washer | | 29. Resilient ring | 59. O-ring | 87. Circlip |
| 3. Bridge Piece | | 30. Circlip | 60. Plug | 8. Unidirectional clutch |
| 5. Breather | | 31. Eccentric | 61. Spring | 89. Stud |
| 6. Front casing | | 32. Piston Pin | 62. Ball | 90. Resilient washer |
| 7. Gasket | | 33. Gasket | 63. Non-return body | 91. Nut |
| 8. Brake ring | | 36. Stud | 64. O-ring | 95. Speedometer pinion |
| 9. O-ring | | 37. Orifice nozzle | 65. Pump body | 96. O-ring |
| 10. O-ring | | 38. Seal | 66. Pump Plunger | 97. Bushing |
| 11. Seal | | 39. Plug | 67. Washer | 99. Bolt |
| 12. Gasket | | 40. O-ring | 68. Fine filter | 100. Retainer |
| 13. Solenoid | | 41. End piece | 69. Seal | 101. Oil seal |
| 14. Bolt | | 42. Piston | 70. Plug | 102. Stud |
| 15. Thrust bearing retainer | | 43. Washer | 71. Data plate | 106. Speedometer driving gear |
| 16. Spring | | 44. Spring | 72. Screw | 110. Output shaft |
| 17. Thrust bearing | | 45. Retainer | 73. Planet gear and carrier | 111. Ball bearing |
| 18. Circlip | | 46. Spring | 74. Sunwheel | 112. Spacer |
| 19. Circlip | | 47. Screw | 75. Clutch sliding member | 113. Rear casing |
| 20. Circlip | | 48. Screw | 76. Pre-filter | 114. Ball bearing |
| 21. Stud | | 49. Holder | 77. Gasket | 115. Oil seal |
| 22. Piston seal | | 50. Spring | 78. Magnet | 116. Flange |
| 23. Piston | | 51. O-ring | 79. Base plate | 117. Washer |
| 24. Connecting rod | | 52. Plug | 80. Bolt | 118. Nut |
| 25. Non-return ball | | 53. Nut | 81. Washer | |
| 26. Non-return valve spring | | 54. Piston | 84. Bushing | |

