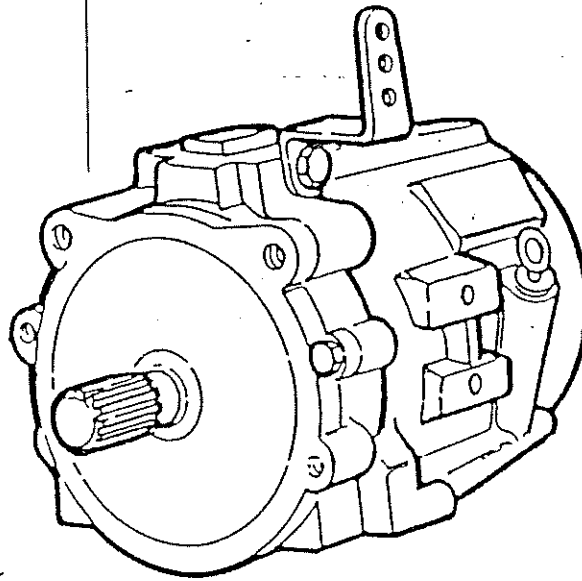


# PCM TRANSMISSION SERVICE MANUAL

IRM 40-A



WORKSHOP MANUAL

## A. GENERAL INFORMATION

This PCM marine gearbox series has been designed especially for high speed crafts and launches such as leisure boats, sport boats, patrol boats, police boats, pilot boats, etc..

First class material and widely dimensioned parts guarantee high reliability and long running life.

The multi-disc clutches employ steel/sinter bronze plates ensuring years of reliable service.

The gearbox is delivered without oil. It can be stored in a dry and temperate environment for 6 months as the internal surfaces are rustproof.

The outer surfaces are painted with antirust lacquer and all fitting surfaces are protected by a strip film.

Oil and water intakes are protected by plastic caps.

All the calibrated devices (clutches and valves) are previously adjusted at the factory

- operating description: the transmission has been designed to operate both in forward and in reverse. The reverse is performed through a planetary gear set.

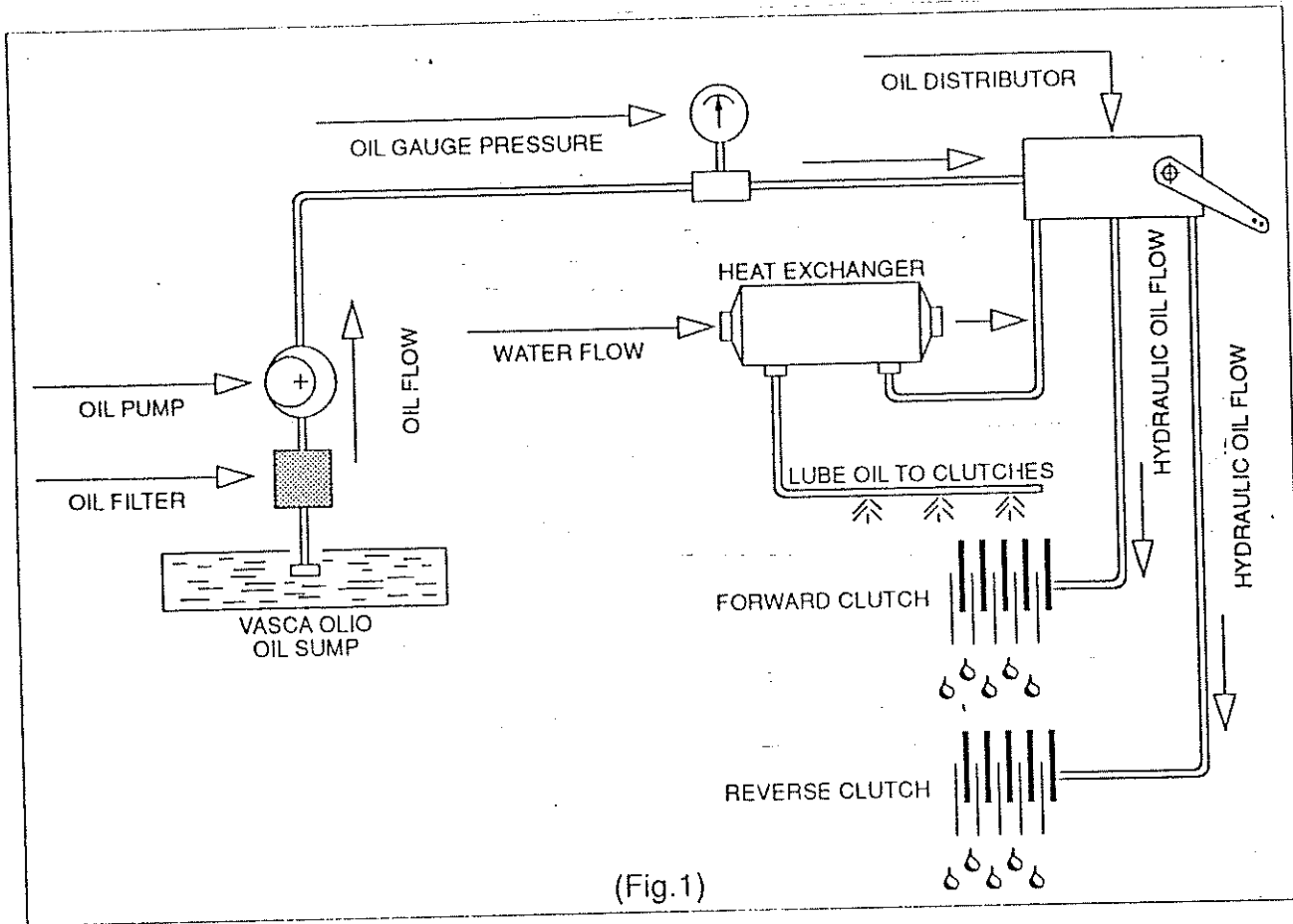
Forward: the forward clutch is applied by the selector valve when this is placed in the forward position. Thus the engaged clutch connects the input shaft to the output shaft. Rotation is transmitted in opposite direction at 1.523/1 or 1.260/1 speed ratio.

Reverse: the reverse clutch is applied by the selector valve when this is placed in the reverse position. The engaged clutch locks

the planetary gear carrier rotation. Input shaft rotation is transmitted to the output shaft ring gear through the three planetary pinions. Output shaft rotation is equal to input shaft and at a 2.285/1 or 1.890/1 speed reduction ratio.

- Oil sump: the transmission case is used as oil sump. A permanent magnet, placed under the separation plate, keeps steel-particles from the oil, maintaining the hydraulic circuit effective.
- Hydraulic circuit: oil enters the pump suction passage and is directed to the distributor, where a pressure regulation valve is placed. This valve reduces oil pressure from the delivery pressure of the pump to the bearings and clutches lubrication value. Low pressure oil is cooled by the oil-cooler before going to use. High pressure oil is used to engage the clutches. Oil deviation is obtained acting on the selector valve. The pressure regulation valve assures oil discharge to sump in case of circuit overpressure. (Fig. 1)

# PCM TRANSMISSION SERVICE MANUAL



## A1) TECHNICAL FEATURES

Total dry weight: kg 27.5 with oil cooler.

Recommened play of axial roller bearings (B4) (B7): mm 0.4 - 0.6.

Teeth radial backlash among tothing (G15) (L13) ratio 1.260/1: mm0.147-0.200

Teeth radial backlash among tothing (G15) (L13) ratio 1.523/1: mm0.144-0.196

## A2) TORQUE VALUE

Pos.	Description	Torque (Nm)
A4	M 8 x 25 - 8.8	22.5
A6	M 8 x 20 - 8.8	22.5
D19	M 8 x 30 - 8.8	22.5
E2	M 8 x 25 - 8.8	22.5

# PCU TRANSMISSION SERVICE MANUAL

<u>PROBLEM</u>	<u>CAUSE</u>	<u>REMEDY</u>
<b><u>LEAKS:</u></b>		
1) Leaks at pump or output shaft seal.	1. Faulty seal. 2. Misalignment. 3. Rough shaft.	- Replace. - Correct. - Replace.
2) Leaks between seal and bore.	1. Rough housing bore.	- Use sealant on O.D. of seal.
3) Leaks at gaskets.	1. Loose bolts. 2. Face(s) not flat.	- Torque bolts properly. - Replace defective part(s).
4) Loss of oil with no trace of missing oil.	1. Oil leakage from oil cooler into the cooling fluid.	- Replace cooler.
5) Oil out of breather.	1. High oil level. 2. Water in oil.	- Correct oil level. - Drain and replace oil-find source of water and correct.
<b><u>MALFUNCTION IN FORWARD AND REVERSE:</u></b>		
1) Low oil pressure.	1. Regulator valve jammed. 2. Internal leakage. 3. Low oil level. 4. Defective pump.	- Clean and polish valve. - Replace defective sealing rings. - Add oil. - Replace pump.
2) No oil pressure.	1. Internal leaks. 2. Pump drive ball omitted. 3. Defective pump. 4. Regulator valve jammed.	- Replace defective parts. - Replace ball. - Replace pump. - Clean and polish valve.
3) High oil temper.	1. Cooler line defective. 2. Regulator valve jammed. 3. Restrictions in cooler lines. 5. Defective cooler.	- Replace defective parts. - Clean and polish valve. - Back flush to remove restrictions. - Replace.
4) Gears not meshed.	1. Defective gear(s) in back portion of case.	- Replace defective parts.
5) No line pressure.	1. Heavy weight oil (90 weight). 2. Suction tube blocked.	- Remove and use proper oil. - Inspect pump suction path.

# PCM TRANSMISSION SERVICE MANUAL

## MALFUNCTION IN REVERSE:

- |                                      |  |  |
|--------------------------------------|--|--|
| 1) Clutch drags or does not release. | 1. Warped clutch plate.<br>2. Mechanical failure.            | - Replace defective parts.<br>- Replace defective parts.     |
| 2) Clutch does not apply.            | 1. Low pressure.<br>2. Defective parts.                      | - See low pressure above.<br>- Replace defective parts.      |
| 3) Harsh engagement.                 | 1. High pressure-sticky valve.<br>2. Engine idling too fast. | - Clean and polish regulator valve.<br>- Adjust engine idle. |
| 4) Soft engagement.                  | 1. Low pressure.   | - See low pressure above.                                    |
| 5) Won't move or sluggish.           | 1. Forward clutch seized.                                    | - Replace defective parts.                                   |

## MALFUNCTION IN FORWARD:

- |                             |   |   |
|-----------------------------|---|---|
| 1) Clutch drags.            | 1. Warped clutch plates.                                | - Replace plates.   |
| 2) Clutch does not release. | 1. Mechanical failure.                                  | - Replace defective parts.                                  |
| 3) Clutch does not apply.   | 1. Defective parts.                                     | - Replace defective parts.                                  |
| 4) Harsh engagement.        | 1. High pressure-sticky valve.<br>2. High engine speed. | - Clean and polish regulator valve.<br>- Reduce engine RPM. |
| 5) Soft engagement.         | 1. Low pressure.  | - See low pressure above.                                   |
| 6) Won't move or sluggish.  | 1. Reverse clutch seized.                               | - Replace defective parts.                                  |

## MISCELLANEOUS PROBLEMS:

- |                                   |   |   |
|-----------------------------------|---|---|
| 1) Hydraulic noise or valve buzz. | 1. Air in hydraulic circuit or low oil level.<br>2. Sticky regulator valve. | - Check oil level and operate engine in neutral at 1200 RPM to remove air.<br>- Clean and polish regulator valve. |
| 2) Gear noise in forward.         | 1. Broken, pitted or cracked gear teeth in back portion of case only.       | - Replace defective switch.   |

# TRANSMISSION SERVICE MANUAL

## MALFUNCTION IN NEUTRAL:

- |   |  |                             |
|---|--|-----------------------------|
| 1) Drives excessively in forward direction.       | 1. Warped forward clutch plates or mechanical failure of clutch. | - Replace defective parts.  |
|   | 2. Exhaust blocked in control valve.                             | - Clean control valve.      |
| 2) Drives excessively in reverse direction.       | 1. Warped reverse clutch plates.                                 | - Replace defective parts.  |
|   | 2. Exhaust blocked in control valve.                             | - Clean control valve.      |
| 3) Oil drains back from cooler into transmission. | 1. Improper cooler hookup.                                       | - See installation drawing. |

# PCM TRANSMISSION SERVICE MANUAL

## A4) MAINTENANCE AND INSPECTIONS

### 1) Oil capacity

OIL	SPECIF.	- VISCOSITY		I.V.	SPECIFICS
SAE 20-20W*	SAE20	6.2 cst (40°C)	8.6 cst (100°C)	109	MIL - L 2104C API CD/SF MIL - L 2104D
MOBIL ATF 200**	ISO 46	45 cst (40°C)	8 cst (100°C)	150	—
MOBIL ATF 220 DEXRON II D**	ISO 32	35.2 cst (40°C)	6.9 cst (100°C)	159	—

\* = recommended

\*\* = alternative

Recommended oil is SAE 20-20W (ATF 220 is also acceptable).

Model	IRM 40-A
Oil quantity [l]	1.9

Max. oil temperature 88°C (190°F)  
Operating oil temperature should be held around 75 ± 5°C (167 ± 9°F).

### 2) Oil pump capacity

Flow rate: 19 litres at 4500 rpm.  
Permissible speed limit: min. 700 rpm/  
max. 4500 rpm.  
For use off the above limits, please consult PCM engineering dpt..

### 3) Pressure values check

Pressure has to be checked at 1500 rpm. input shaft speed and at running temperature; see installation drawing for forward and reverse clutch pressure gauge coupling.

Pressure gauges: FWD. and REV.:

- min 8 bars (114 PSI) at 700 rpm
- 12 bars (at 170 PSI) at 1500 rpm
- max 14+15 bars (200 PSI) at 5000 rpm.

# TRANSMISSION SERVICE MANUAL

## A5) CONVERSION TABLE

S.I. INTERNATIONAL SYSTEM	ALTRI OTHERS
1 [mm]	0.03937 [in]
10 [mm]	0.3937 [in]
25.4 [mm]	1 [in]
6.4516 [cm <sup>2</sup> ]	1 [sq. in]
1 [m <sup>2</sup> ]	1550 [sq. in]
16.387 [cm <sup>3</sup> ]	1 [cu. in]
0.473 [dm <sup>3</sup> ]	1 [U.S. pint]
1 [l]	61.02 [cu. in]
1 [l]	0.2642 [U.S. gal]
1.772 [g]	1 [oz]
0.4536 [kg]	1 [lb]
0.00070308 [kg/mm <sup>2</sup> ]	1 [lb/sq. in]
1 [bar]	14.51 [psi]
1 [kg·m]	7.246 [lb·ft]



# PCM TRANSMISSION SERVICE MANUAL

## B - DISASSEMBLY

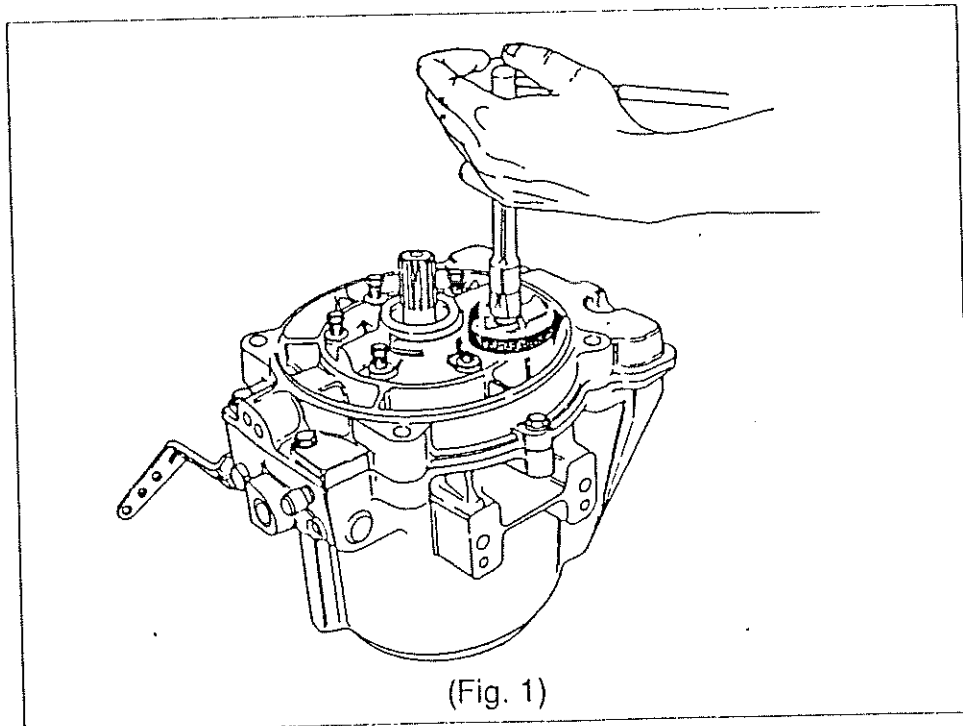
Disassembly and re-assembly operations may be easily carried out on a work bench, without any need of special supports because of gearbox size.

Before starting disassembly operation, drain off lube oil from gearbox. You can find reference numbers in the appendix of the manual; specific numbers are indicated in the text.

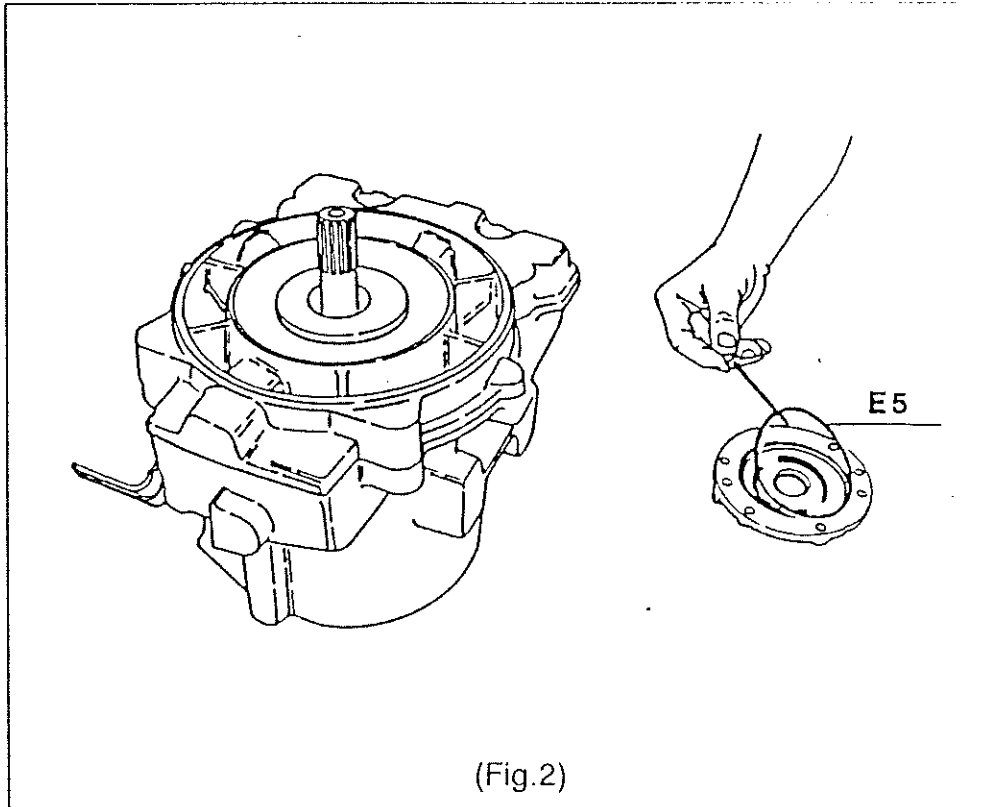
Tools reference numbers refer to their own construction drawings, which are enclosed in the appendix too. The mentioned tools are specially recommended by the Company to assist disassembly and assembly procedures. To purchase tools, you must specify their reference number.

### B1) OIL PUMP DISASSEMBLY

- 1.1 Remove screws (E2) and washers (E3). (Fig.1)



- 1.2 Remove "O" rings (E5) (E7) and oil seal (E1) carefully to prevent damage if they must be reused. (Fig.2)

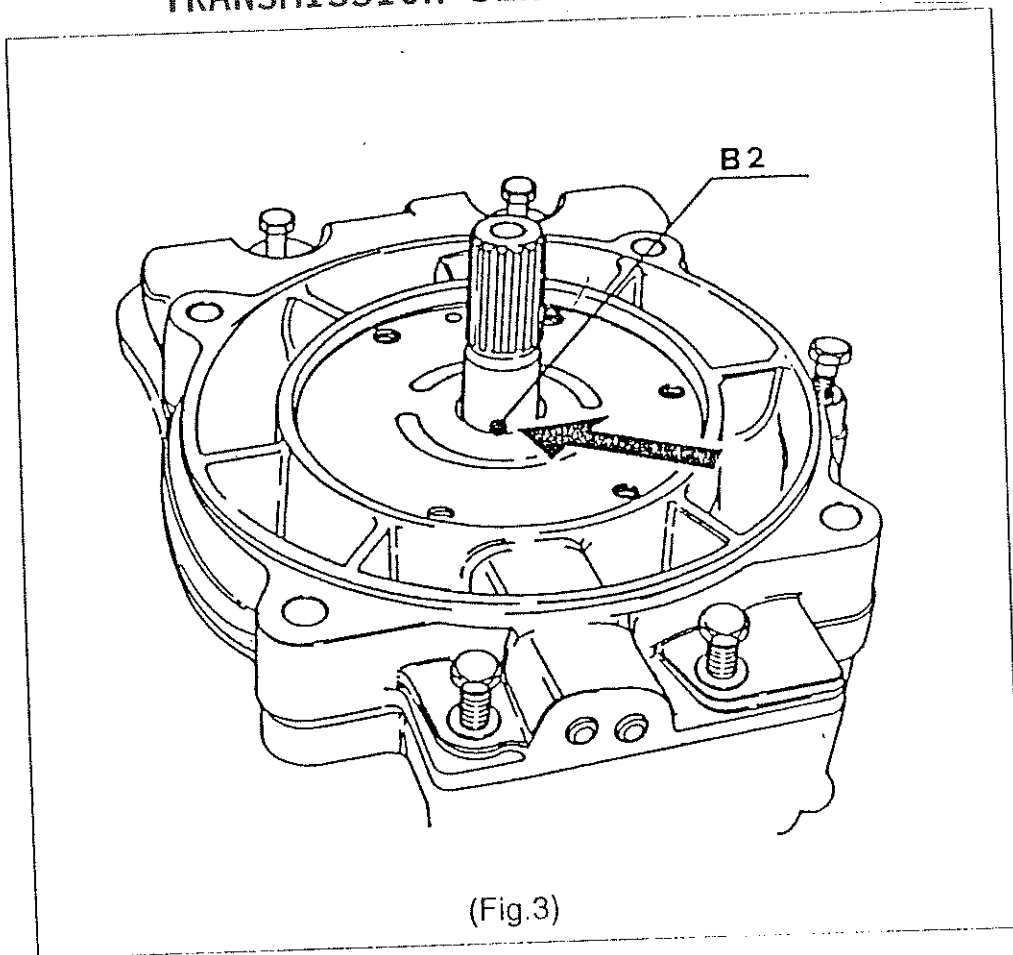


- 1.3 Remove oil pump outer rotor from gearbox cover (E6).

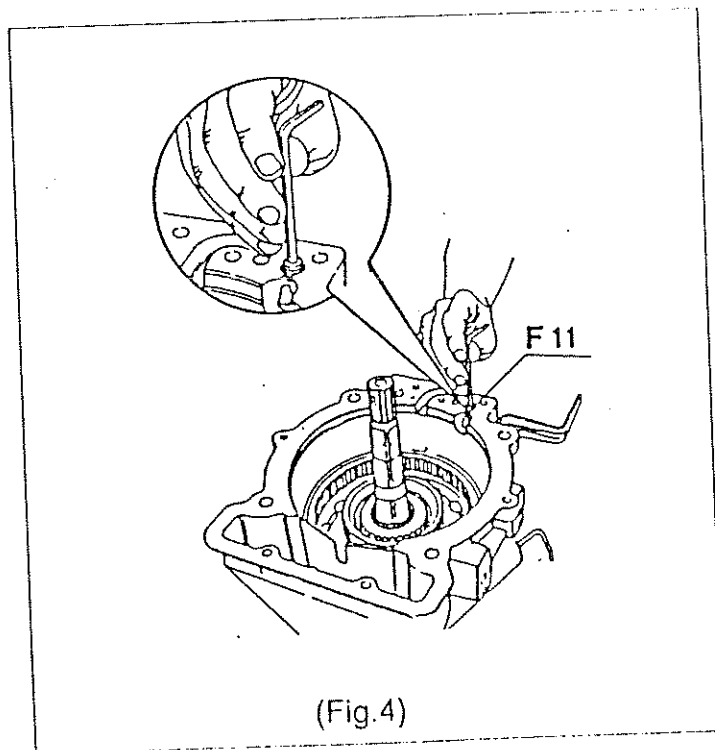
## B2) GEARBOX COVER DISASSEMBLY

- 2.1 Remove ball (B1) from input shaft (B2). (Fig. 3)

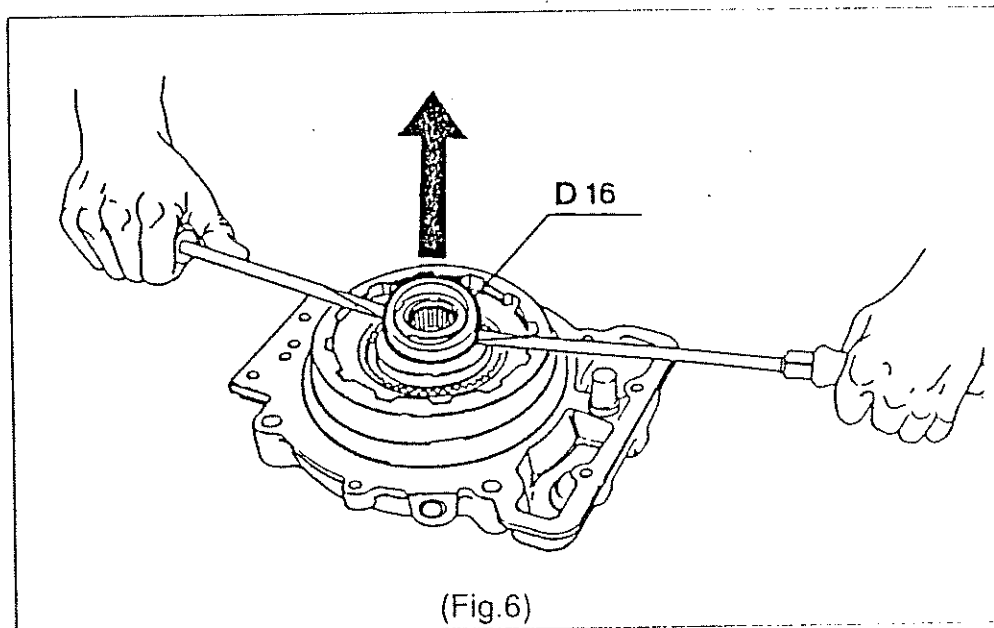
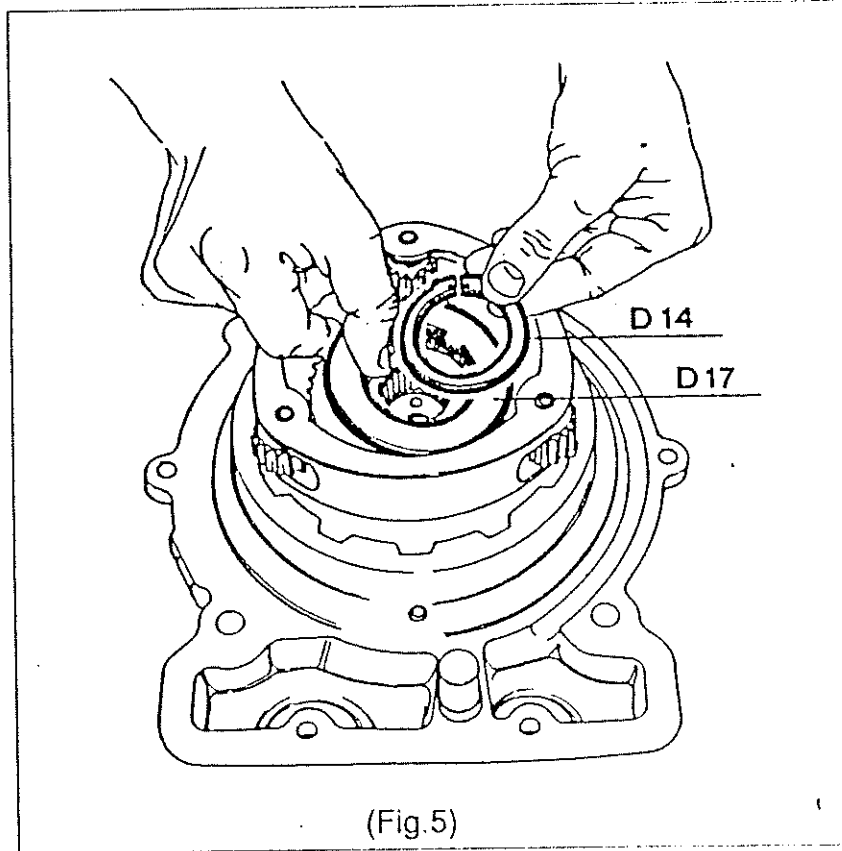
# PCM TRANSMISSION SERVICE MANUAL



- 2.2 Remove screws (D19) and washers (D20).
- 2.3 Remove cover (D1) from gearbox. Remove oil seal (D8) and screw (F11). (Fig.4)

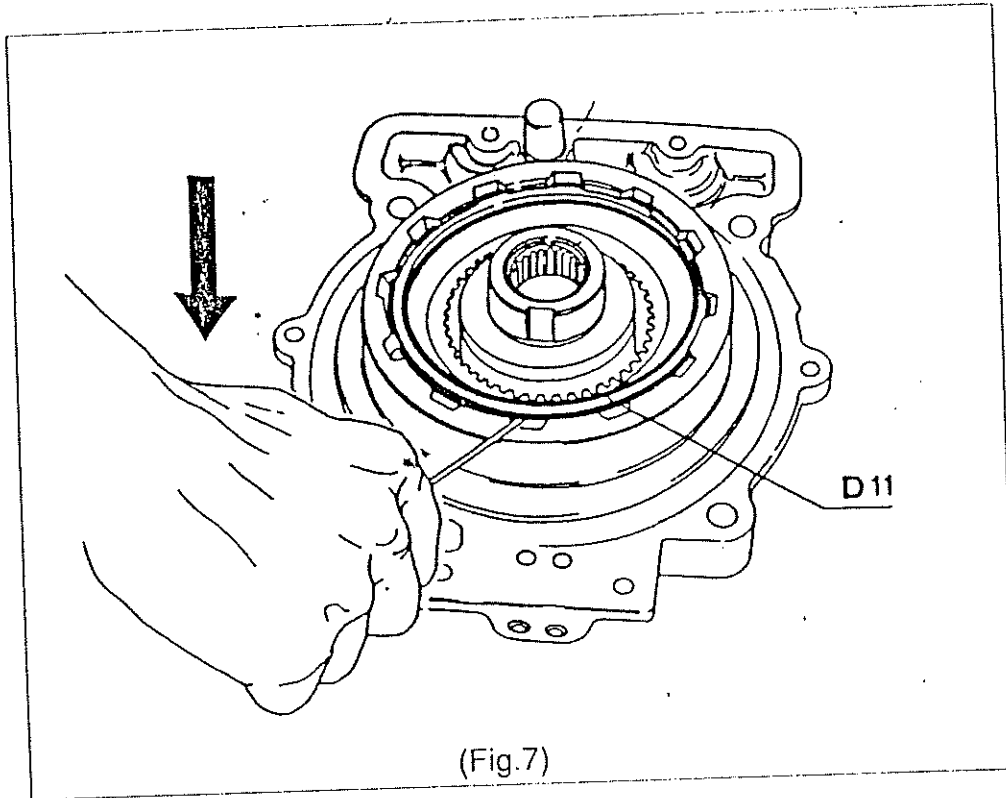


- 2.4 Remove complete planetary carrier. Remove rings (D14), (D17) and spacer (D16). (Fig.5) (Fig.6)

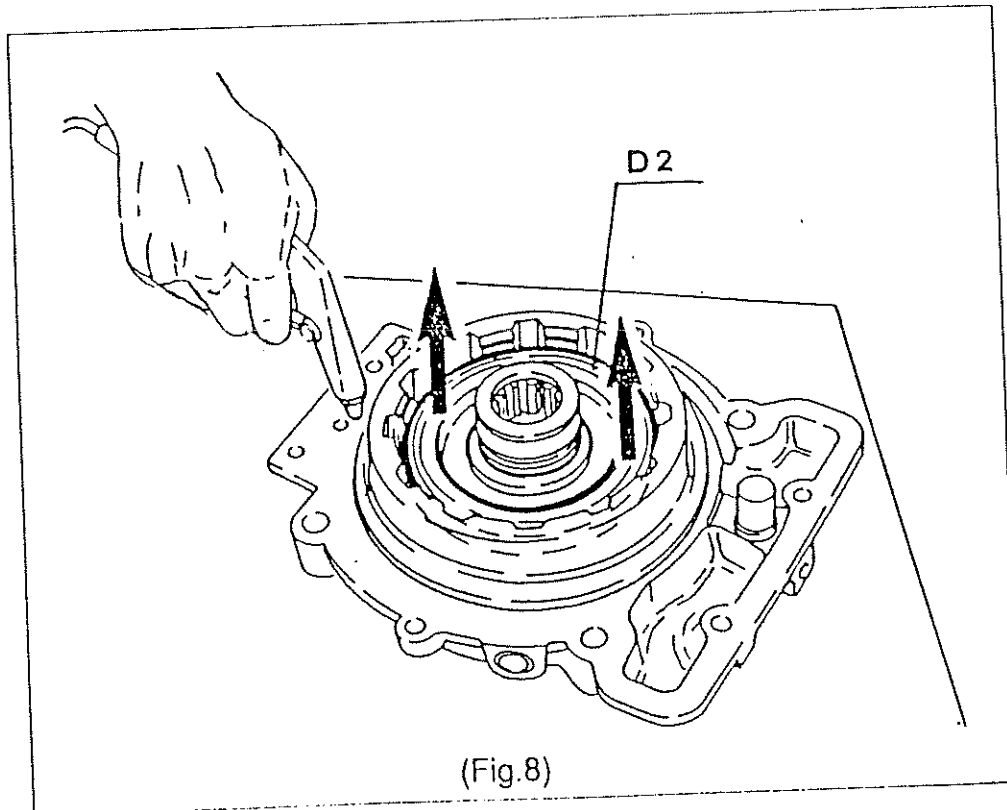


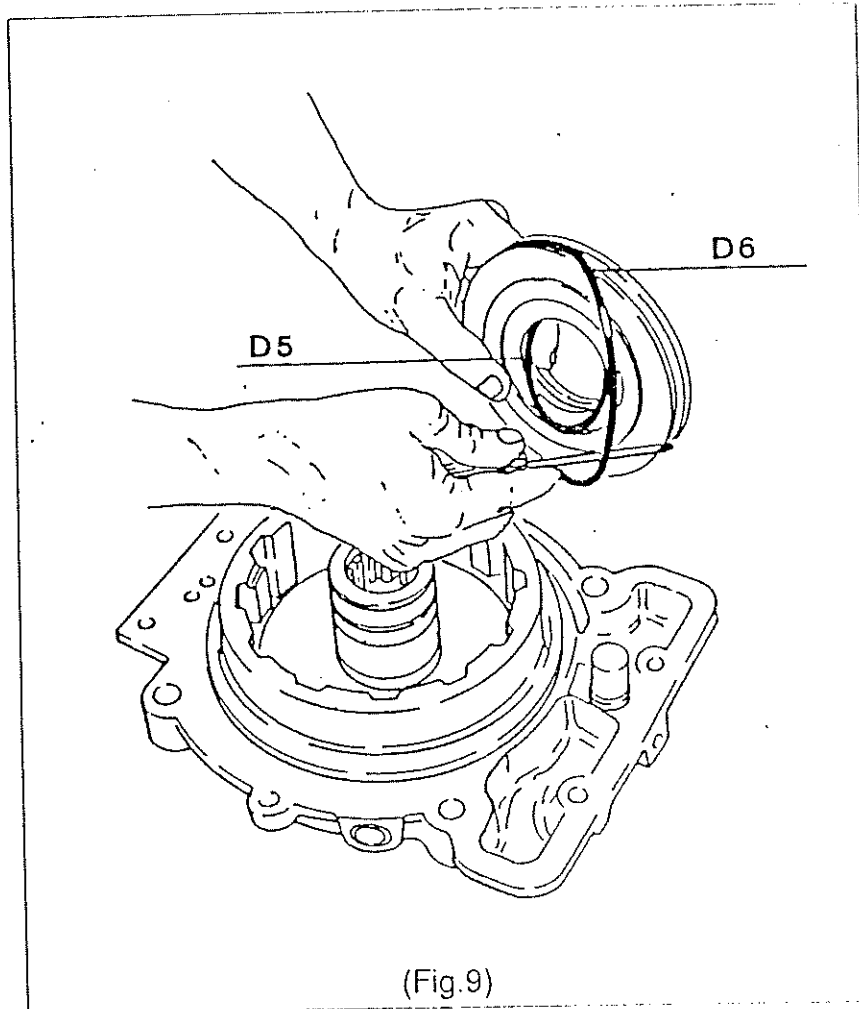
# PCM TRANSMISSION SERVICE MANUAL

2.5 Remove snap ring (D11) and pressure plate (D12). (Fig.7)

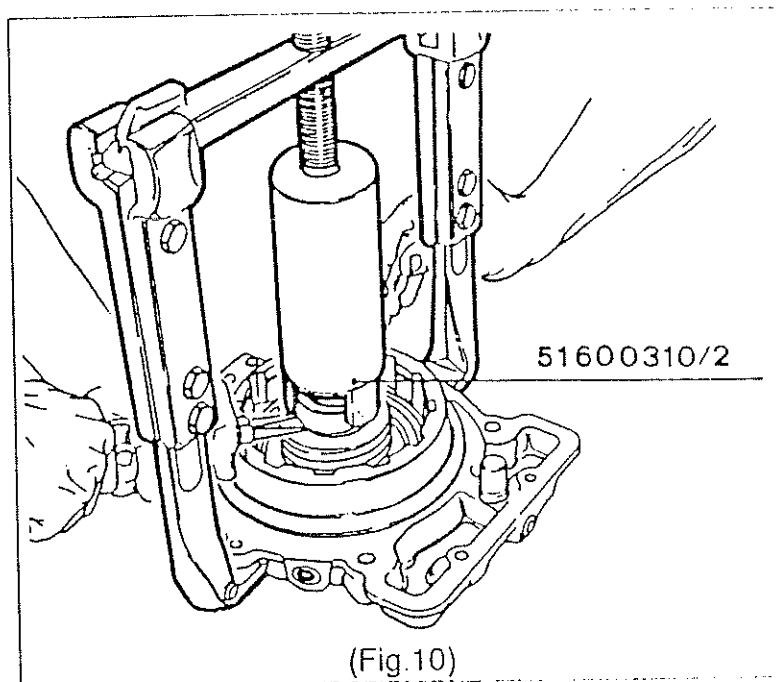


Remove clutch pack. Blow to remove piston (D2), as shown (Fig.8) and remove oil seal rings (D5) (D6) carefully. (Fig.9)





2.6 Press plate (D17) by use of tool 51.60.0310/2 and puller then remove snap ring (D13) and spring (D18). (Fig.10)

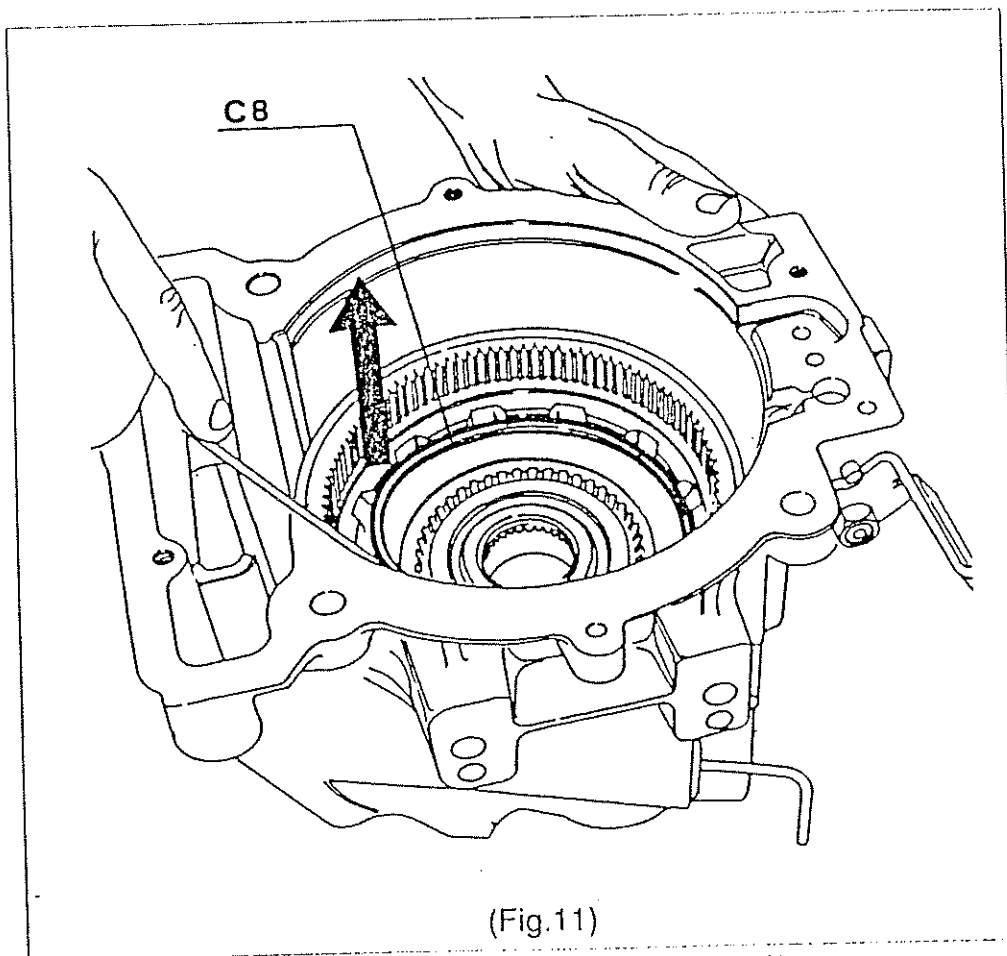


# PCM TRANSMISSION SERVICE MANUAL

- 2.7 Independent replacement of gear (H5) and planetary carrier (H7) is not possible.
- 2.8 Remove needle bearings (D3). Remove of these bearings destroys them.

## B3) GEARBOX HOUSING DISASSEMBLY

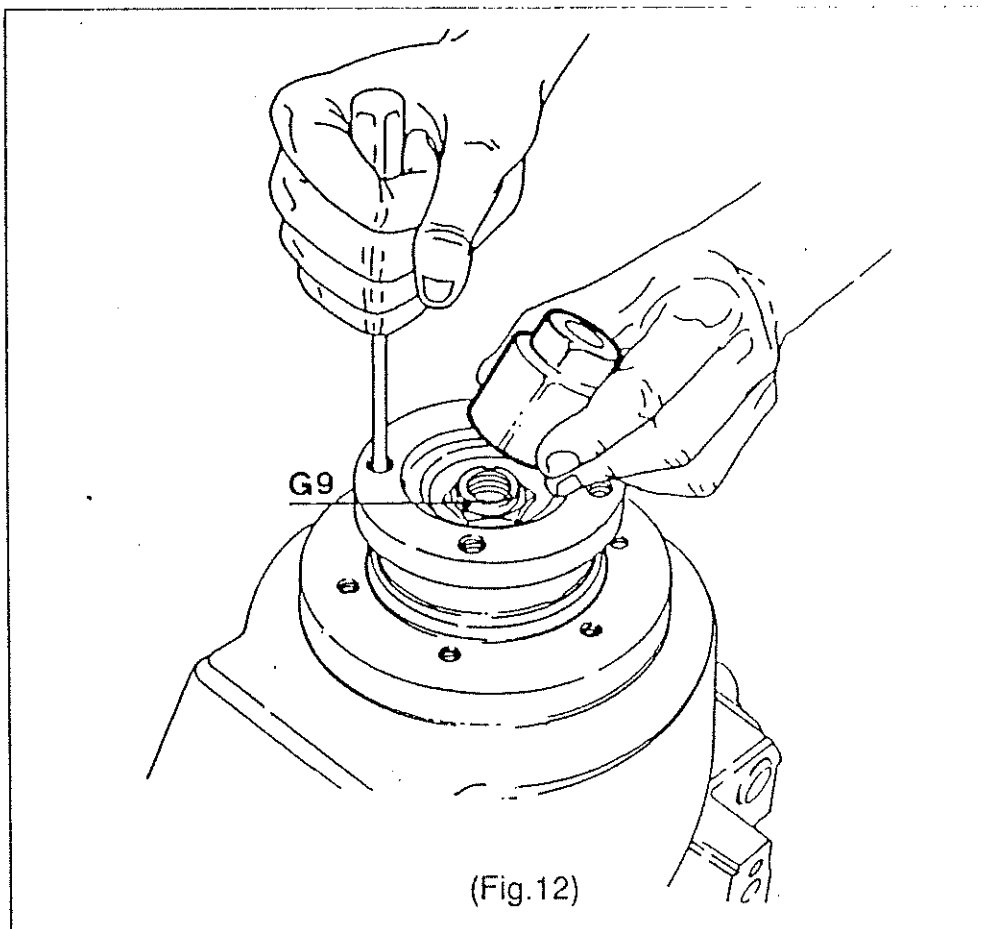
- 3.1 Turn gearbox housing upright and collect needle thrust bearing (B7).
- 3.2 Collect thrust needle bearing (B3).
- 3.3 Remove shaft (B1) and snap ring (B9).
- 3.4 Remove sun gear (B5) and clutch hub (B6).
- 3.5 Slide ring (C8) off the housing and collect pressure plate (D5), then remove clutch pack assembly. (Fig.11)



(Fig.11)

3.6 Press disc (C1) to allow removal of snap ring (C2).  
Collect disk (C1), spring (C4) and piston (C12). Remove oil seal ring (C11) and (C14).

3.7 Lift the locking collar of nut (G9) and untighten. With jawed-puller remove the flange (G10). (Fig. 12)



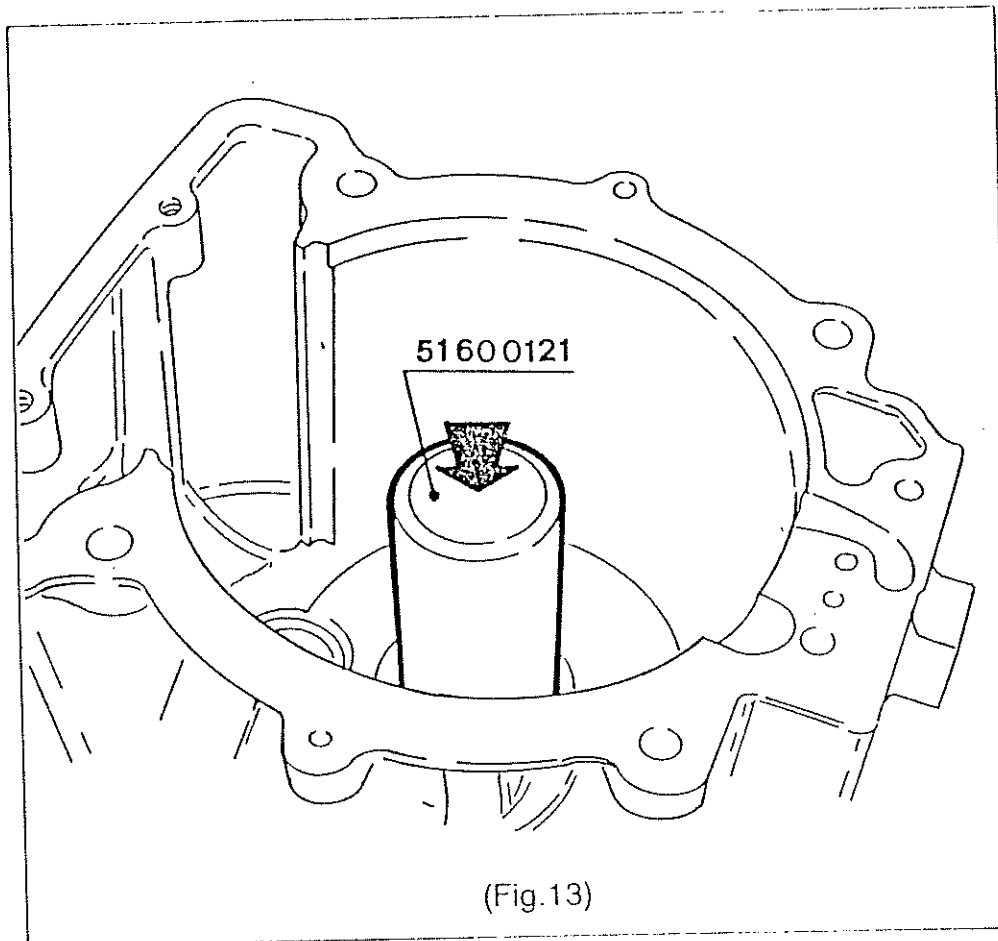
3.8 Unscrew the screws (A6), disassembly the cover (A16), remove the O-ring (A17), remove from flange (A16) the gasket (A18). Remove and take care to keep shims together (G11) (G12) (G13) (G14).

3.9 Untighten the screws (A4) and remove the shaft.



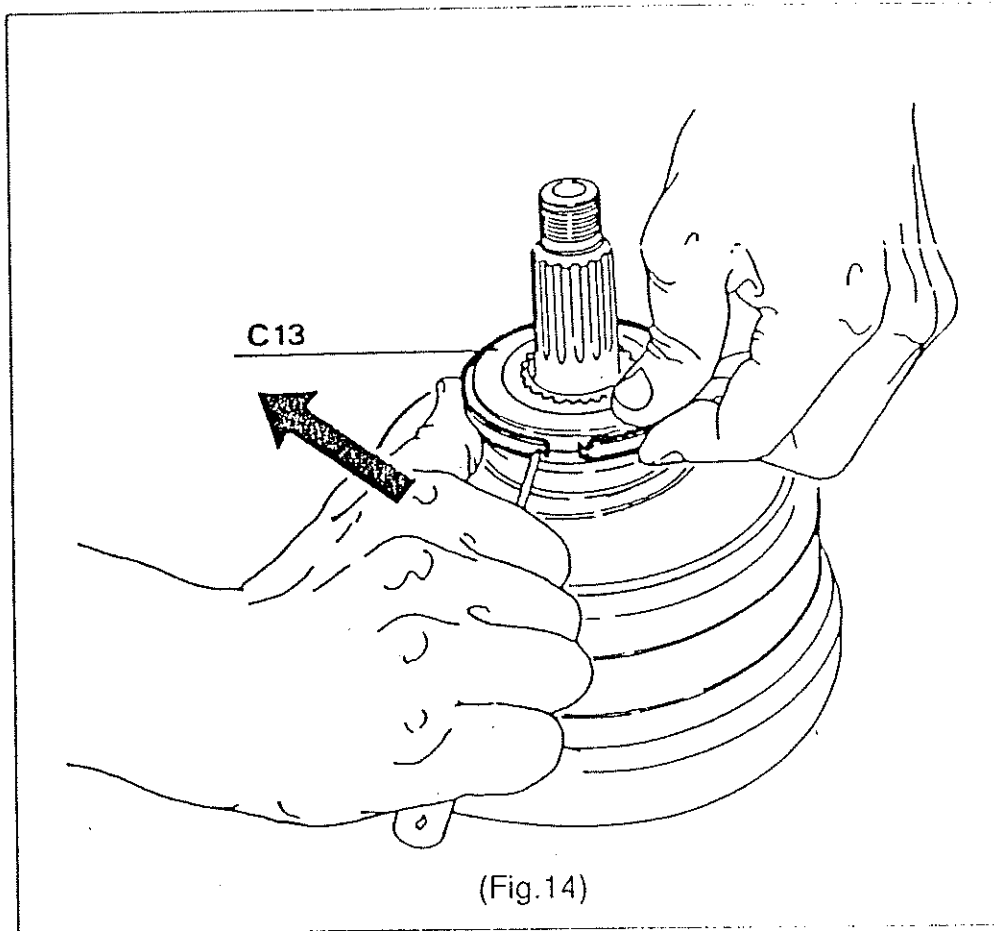
# PCM TRANSMISSION SERVICE MANUAL

- 3.10 Separate the "L" shaft axle from clutch housing (C7) with tool 51.60.0121. (Fig. 13)



- 3.11 Disassembly the bearing cup (L7) and the shims (L8) (L9) (L10) (L11) (L12) from housing (A2) with jawed-puller. Repeat the operation for bearing cup (G6) and shims (G1) (G2) (G3) (G4) disassembly.

- 3.12 Remove the segment ring (C13). (Fig.14)



3.13 Remove the needle bearing (C3) with suitable puller. Remove of these bearing destroys them.

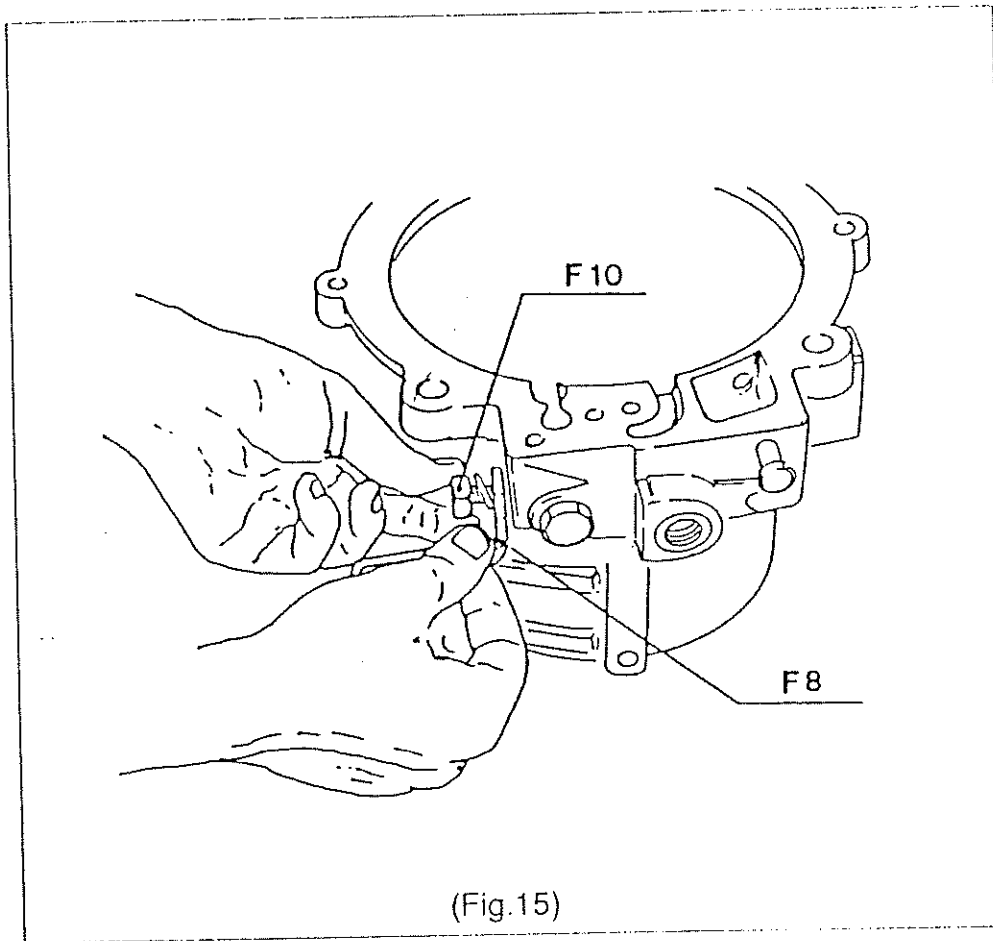
#### B4) SHAFTS DISASSEMBLY

- 4.1 Remove the spacer (L1).  
Disassembly the bearing (L6) (L7) with suitable puller.
- 4.2 With suitable puller remove the bearing (G6) (G7). Remove the washer (G5).

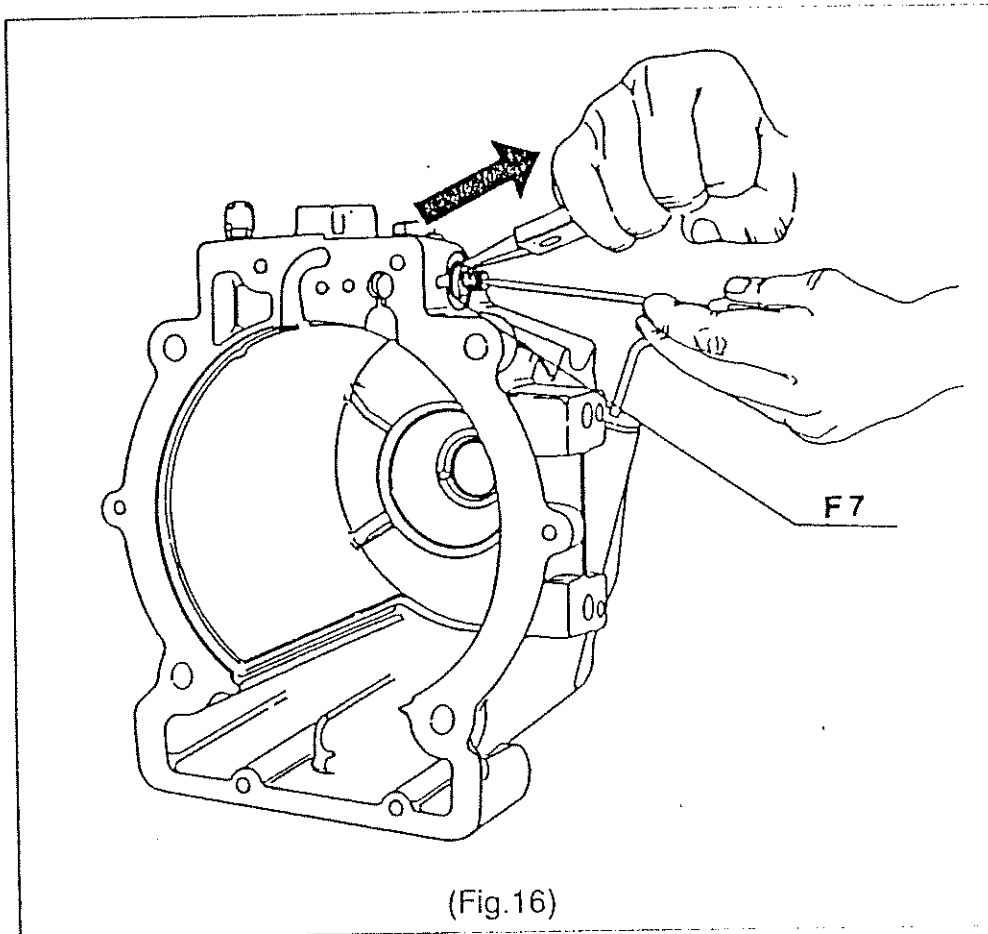
# PCM TRANSMISSION SERVICE MANUAL

## B6) DISTRIBUT. GROUP DISASSEMBLY

- 6.1 Remove nut (F10) and collect washer (F9) and lever (F8). (Fig.15)



- 6.2 Remove snap ring (F7) and take care to prevent control valve (F4) damage.  
Slide bearing race (F6) and needle thrust bearing (F12) off control valve end. (Fig.16)



(Fig.16)

- 6.3 Remove oil seal ring (F5) and regulator valve (F3). Remove spring (F2) and spacer (F1) from gearbox housing.

# PCM TRANSMISSION SERVICE MANUAL

## C - OVERHAUL

### C1) CLEANING

- 1.1 Clean carefully all the moving parts (gears, bearings, ect;) with clean diesel oil or kerosene.
- 1.2 Avoid cleaning with steam or hot water.
- 1.3 Carefully clean all the sealing surfaces, removing completely the remaining layer of sealing agent.
- 1.4 Carefully air blow dry all the parts or use soft rags in order to avoid scratching the surfaces with abrasive residues.
- 1.5 Remember to cover all the surfaces with a light film of lubricating oil to protect them from oxidation.
- 1.6 Clean the oil suction filter cartridge (D20).

### C2) INSPECTIONS

- 2.1 Check carefully all roller bearings and external rings, which should be in their proper places: substitute any bearings which show traces of wear or damage.
- 2.2 Check that all the gears are working properly and do not show any signs of wear to the teeth.
- 2.3 Check that all the splined sections do not show any signs of excessive wear or other damage.
- 2.4 After each disassembly operation, it is good practice to

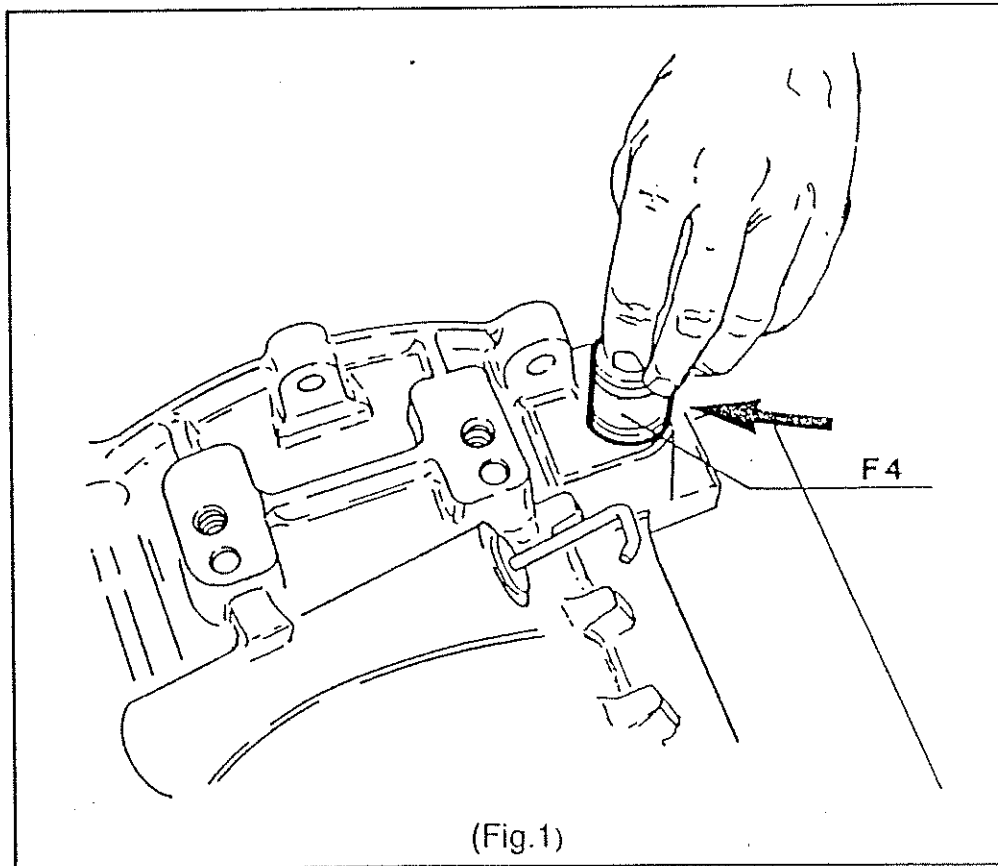
- substitute all the flat seals, the oil seal rings and OR seals and the seals on the rotating shafts.
- 2.5 Check the efficiency of breather on the casing after each wash with diesel oil.
- 2.6 Inspect all castings for cracks, wear or scratches. Replace all parts that cannot be repaired.
- 2.7 Check the threads: repair the damaged ones with a thread cutting machine, using threading of the "Heli-coil" type; replace and threaded parts that cannot be repaired.
- 2.8 Check that all the oil pipes (cooler inlet and outlet oil pipes, oil pump suction pipe) are clean and clear.
- 2.9 Check the seals in the oil circuit and the oil discharge.
- 2.10 Check the sintered clutch disks: change them even if only the minimum part of the original lubricating grooves cannot be seen on the surface of the disks.
- 2.11 Check periodically, the heat exchanger tuyère beam: if it is dirty, scour it with the appropriate metal pigs, if it is corroded, replace the tuyère beam cartridge with a new one (if the cartridge can be dismantled) or substitute the heat exchanger.
- 2.12 Furthermore, check the wear and tear of the zinc bars, screwed into sea water side of the heat exchanger cover and which guarantee galvanic protection: if the bars are too worn, substitute them.

- 2.13 Change all the damaged parts with original spare parts.
- 2.14 If anomalies are found in the functioning of the lubricating pump, it will be necessary to substitute it.

## D - ASSEMBLY PROCEDURES

### D1) SELECTOR VALVE ASSEMBLY

- 1.1 Install spacer (F1) and spring (F2) into the gearbox housing. Install regulator valve (F3) and oil seal ring (F5) onto the control valve (F4). (Fig.1)

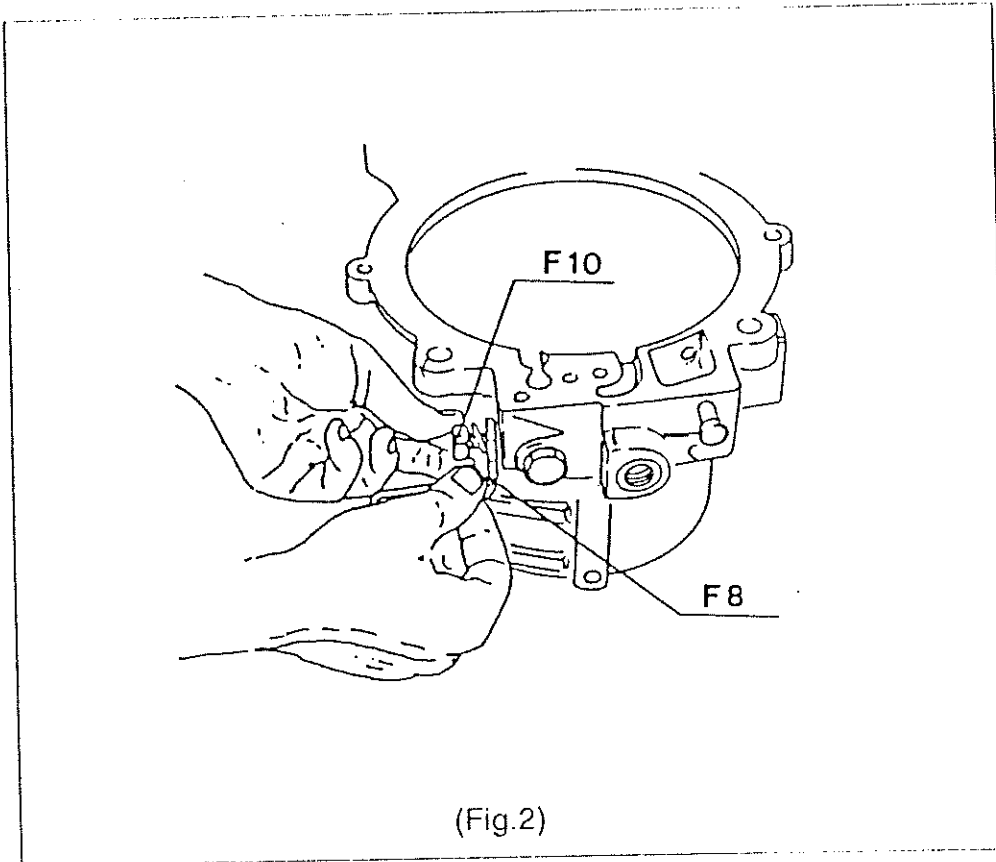


- 1.2 Slide selector valve complete of bearing races (F6) and (F12) into gearbox housing. Press selector valve against spring to allow introduction of snap ring (F7).

NOTE: Do not pass plug (F11) threaded hole with oil seal ring (F5) in order to prevent its damage.

# PCM TRANSMISSION SERVICE MANUAL

- 1.3 Install lever (F8), washer (F9) and nut (F10). (Fig.2)



- 1.4 Install plug (A8).

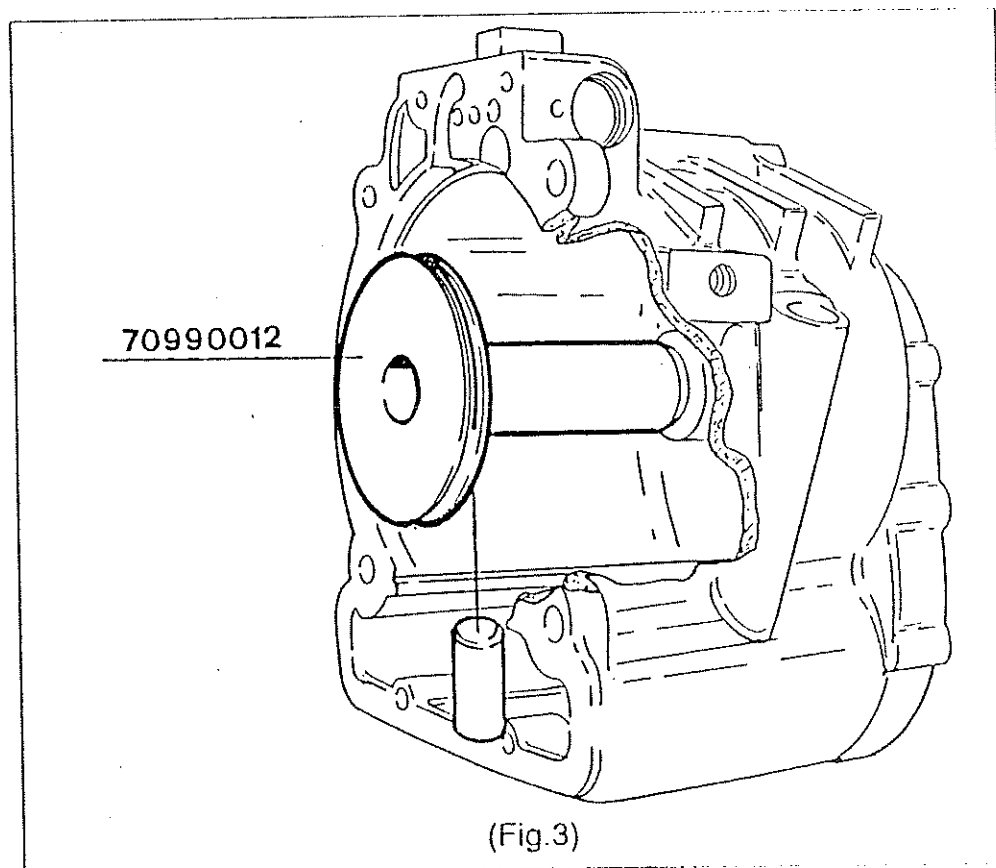
## D2) HOUSING ASSEMBLY

Slightly lubricate parts surfaces before assembly. Prior to assembly, coat each part with transmission oil.

- 2.1 Install clutch disc (C9) into clutch housing with sintered surface towards clutch discs assembly. Slide alternatively clutch discs (C10) and (C9) into clutch housing. Verify that last clutch disc is one-sintered surface type with sintered surface positioned towards clutch discs assembly. Install ring (C5) and snap ring (C8).

# TRANSMISSION SERVICE MANUAL

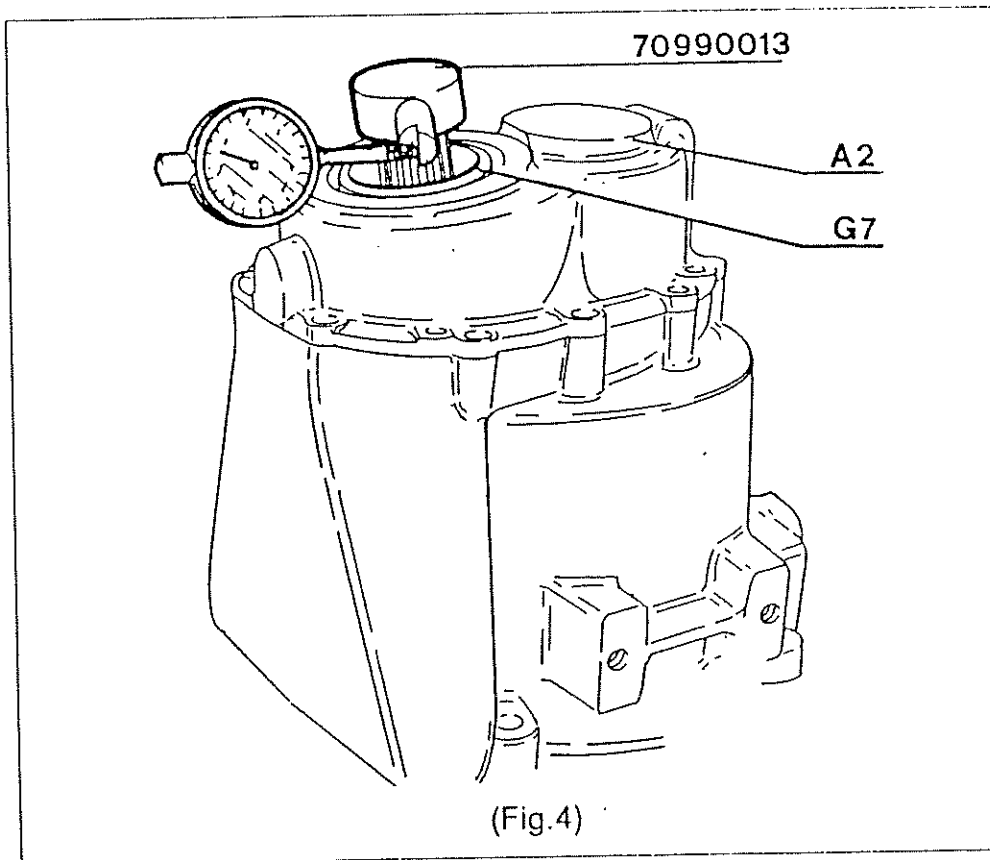
- 2.2 Assemble oil seal rings (C1) (C14) to grooves in clutch piston (C12) in clutch housing. Install spring (C4) and retainer (C1) onto the clutch cylinder. Press spring (C4) and retainer (C1) until snap ring (C2) groove is exposed. Assemble snap ring (C2) in groove.
- 2.3 Place on the gearbox housing (A2) the shims (L2) (L3) (L4) (L5) with same total thickness as the removed for disassembly.
- 2.4 Heat the bearings (L6) or (L7) up to 100 °C and fit on the gear (L13) or (L14). Place on the gearbox housing (A2) the shims (L8) (L9) (L10) (L11) (L12) with same total thickness as the removed for disassembly. Fit the outer bearing ring (L7).
- 2.5 Fit the rear housing (A2) on gearbox housing. Fit the tool 70.99.0012 on gear (L13) or (L14) as show in fig. 3. 0.125 Nm must be the rotation torque.





# PCM TRANSMISSION SERVICE MANUAL

- 2.6 Whenever the above mentioned values are not obtained, increase or decrease the depth of the shims (L2) (L3) (L4) (L5) or (L8) (L9) (L10) (L11) (L12).
- 2.7 Place on the gearbox housing (A2) the shims (G1) (G2) (G3) (G4) (G5) with same total thickness as the removed for disassembly, fit the outer bearing ring (G6).
- 2.8 Heat the bearings (G6) or (G7) up to 100 °C and fit on the gear (G15) or (G16).
- 2.9 Fit output shaft and the housing rear (A2). Fit the outer bearing ring (G7) and the tool 70.99.0013 as show in fig. 4.

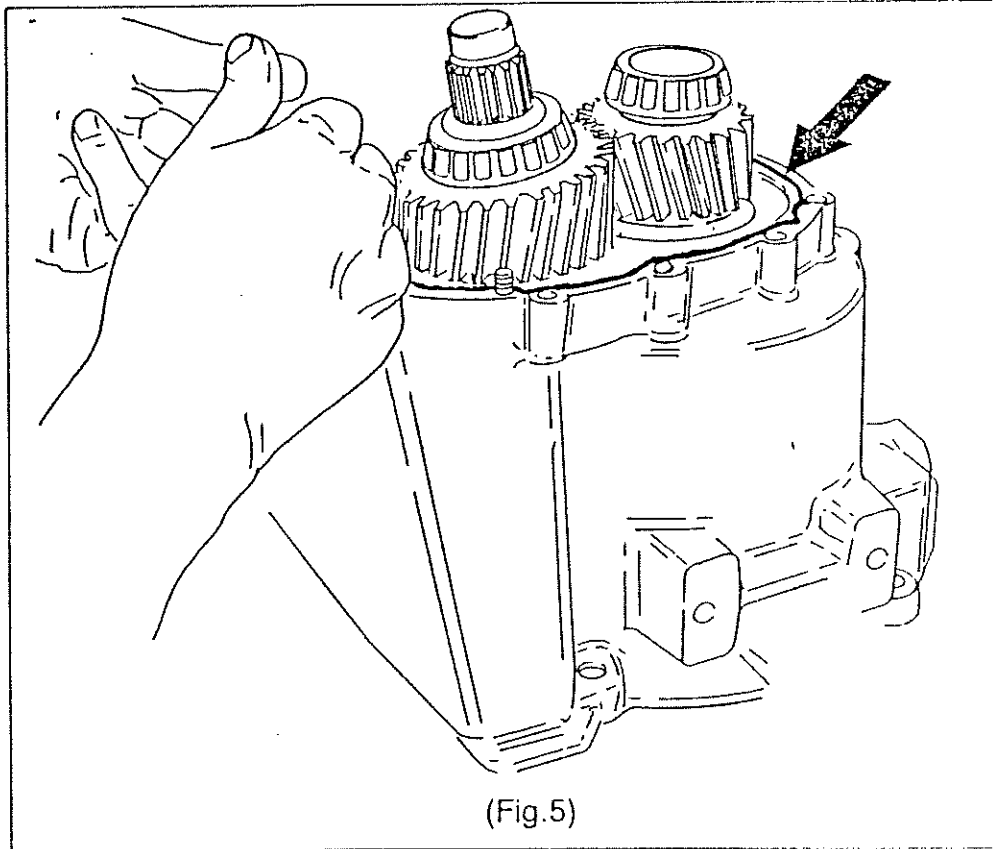


- 2.10 The teeth radial backlash must be indicate in the technical features. If the teeth radial backlash is inferior, increase the shims (G1) (G2) (G3) (G4) (G5).

# TRANSMISSION SERVICE MANUAL

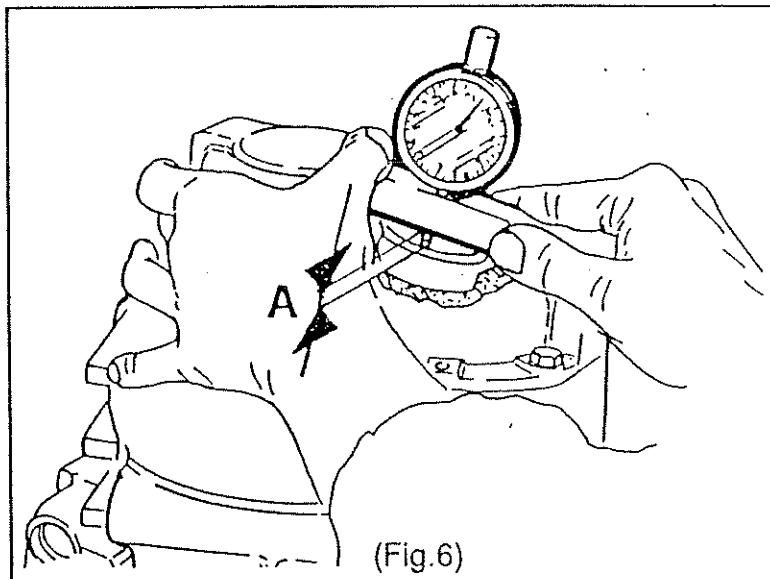
Decrease the shims if the radial backlash is excessive.

- 2.11 Spread the sealer, type RHODORSIL Caf 1, on the gearbox housing (A2) surface as show in fig. 5.



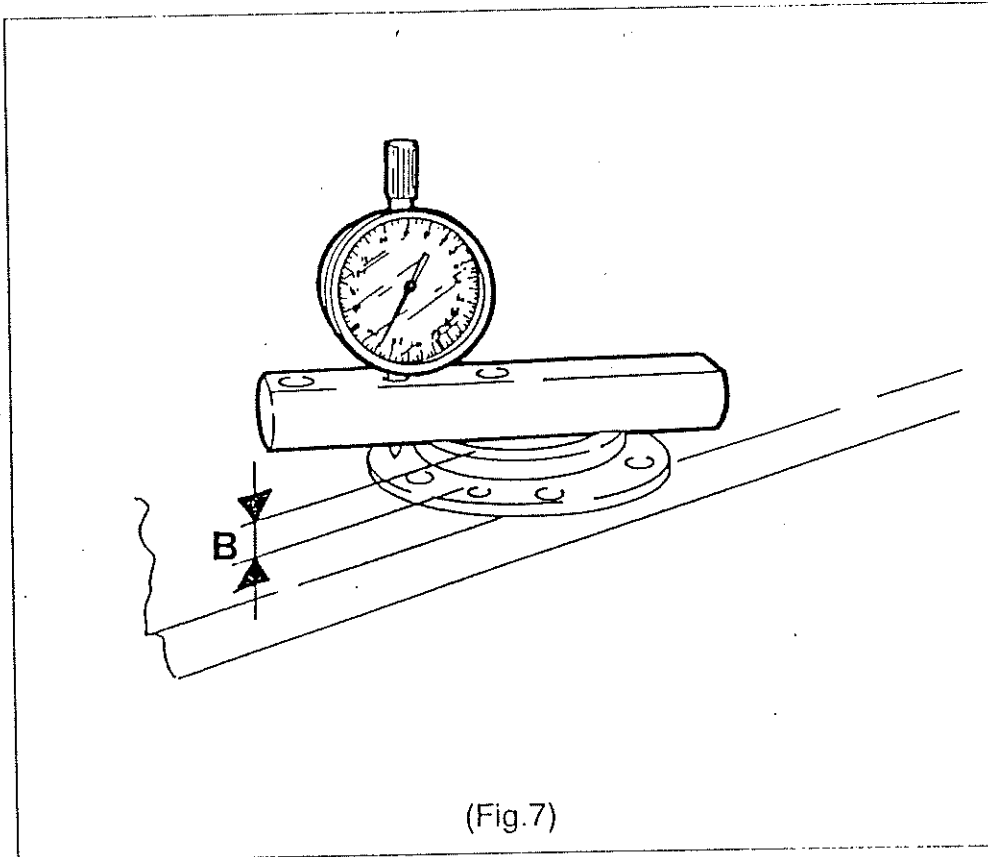
- 2.12 Tighten the screws (A4) to 22.5 Nm torque value.

- 2.13 By use a dial measure size "A". (Fig. 6).



# PCM TRANSMISSION SERVICE MANUAL

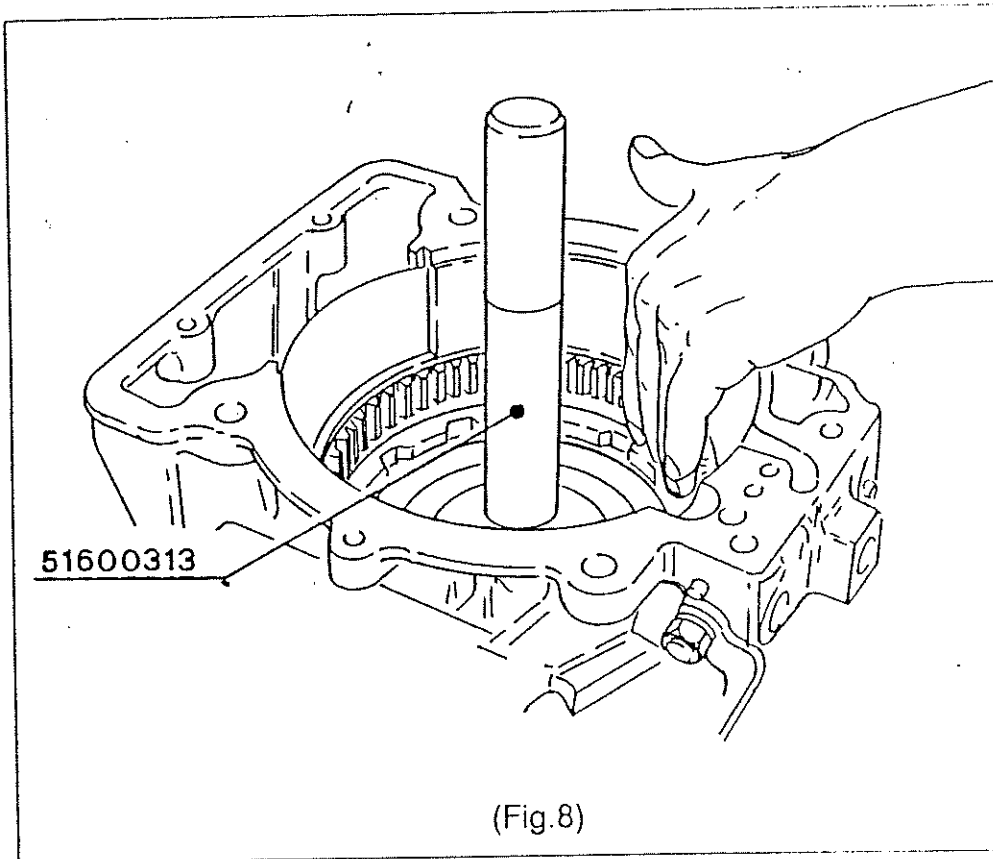
2.14 Measure the size "B". Fig. 7.



- 2.15 Carry out the following operations:  $A-B=X$  where  
A = measured value  
B = measured value  
X = thickness to obtain with the shims (G11) (G12) (G13) (G14).
- 2.16 Fit on the flange (A16), the gasket (A18) and O-ring seal (A17). Fit the flange (A16) and tighten the screws (A6) to 22.5 Nm torque value.
- 2.17 Fit the flange (G10), the washer (G8). Tighten the nut (G9) to 353 Nm value torque. Peen collar of nut.
- 2.18 Install piston ring (C13) on clutch housing, fit the ring (L1). Then mount clutch housing into gearbox housing.  
Press clutch housing (G7) on shaft (L13) (L14) by use of tool

51.60.0313.

Install snap ring (G3). (Fig.8).



- 2.19 Press needle bearing (C3) into gearbox housing with tool 51.60.0067.

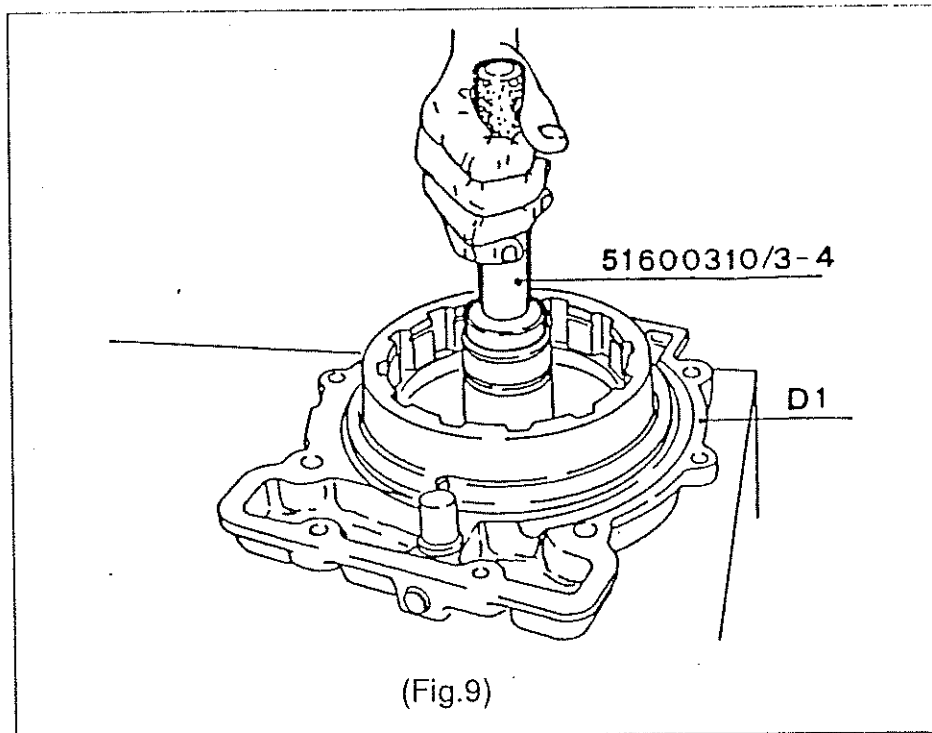
X  
D3)

## COVER AND HOUSING ASSEMBLY

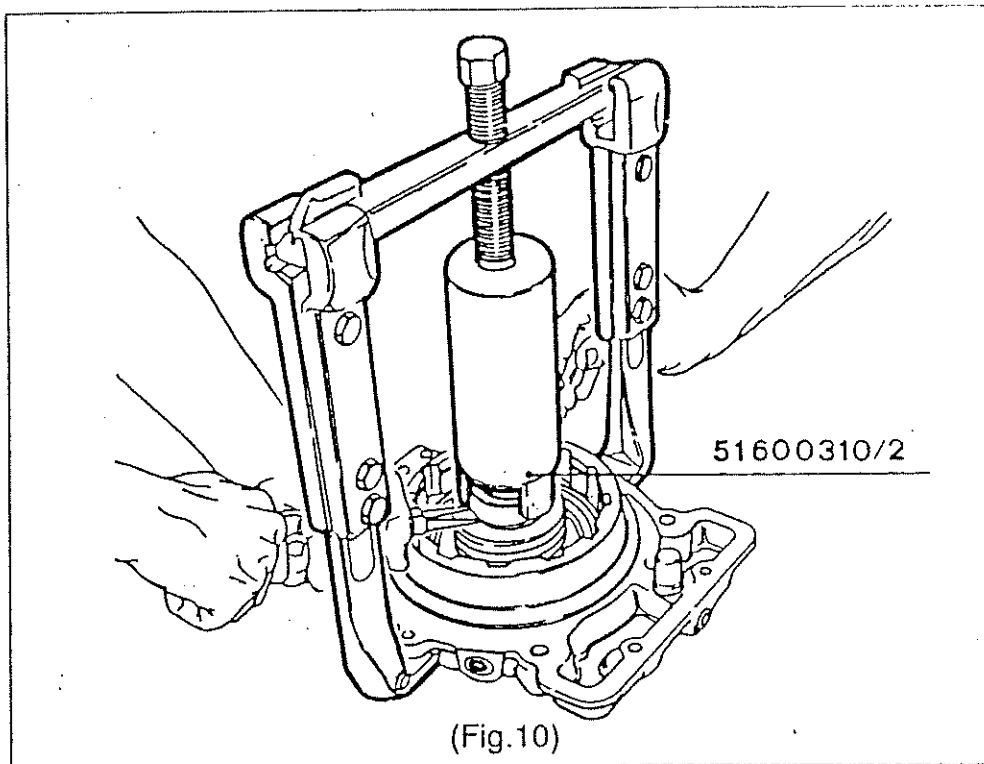
- 3.1 Assemble clutch hub (B5) and sun gear (B6), snap ring (B9) on input shaft (B1).
- 3.2 Turn gearbox housing upright. Place bearing race (B8) and needle thrust bearing (B7) on input shaft. Install input shaft (B1) in clutch cylinder rotating back and forth to engage clutch hub (B6) with clutch plate teeth. Install bearing race (B4) and thrust needle bearing (B3) on input shaft.

# PCM TRANSMISSION SERVICE MANUAL

- 3.3 Press needle bearing (D3) into gearbox cover (D1) with tools 51.60.0310/4 and 51.60.0310/3. (Fig.9)

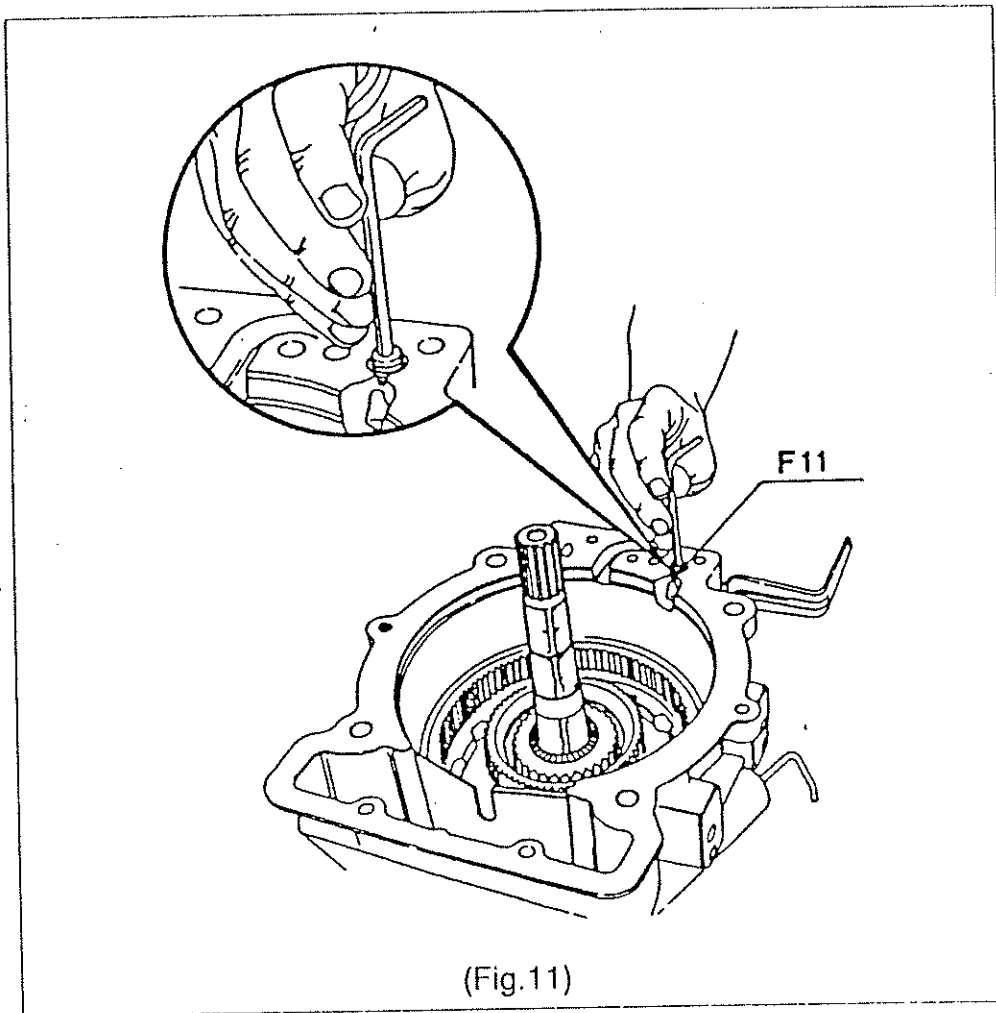


- 3.4 Assemble oil seal rings (D5) and (D6) in grooves on clutch piston (D2). Install clutch piston (D2) into gearbox cover.
- 3.5 Install spring (D18) and retainer (D17) over clutch piston. Press retainer (D17) with tool 51.60.0310/2 until snap ring groove is exposed. Assemble snap ring (D13) in groove. (Fig.10)



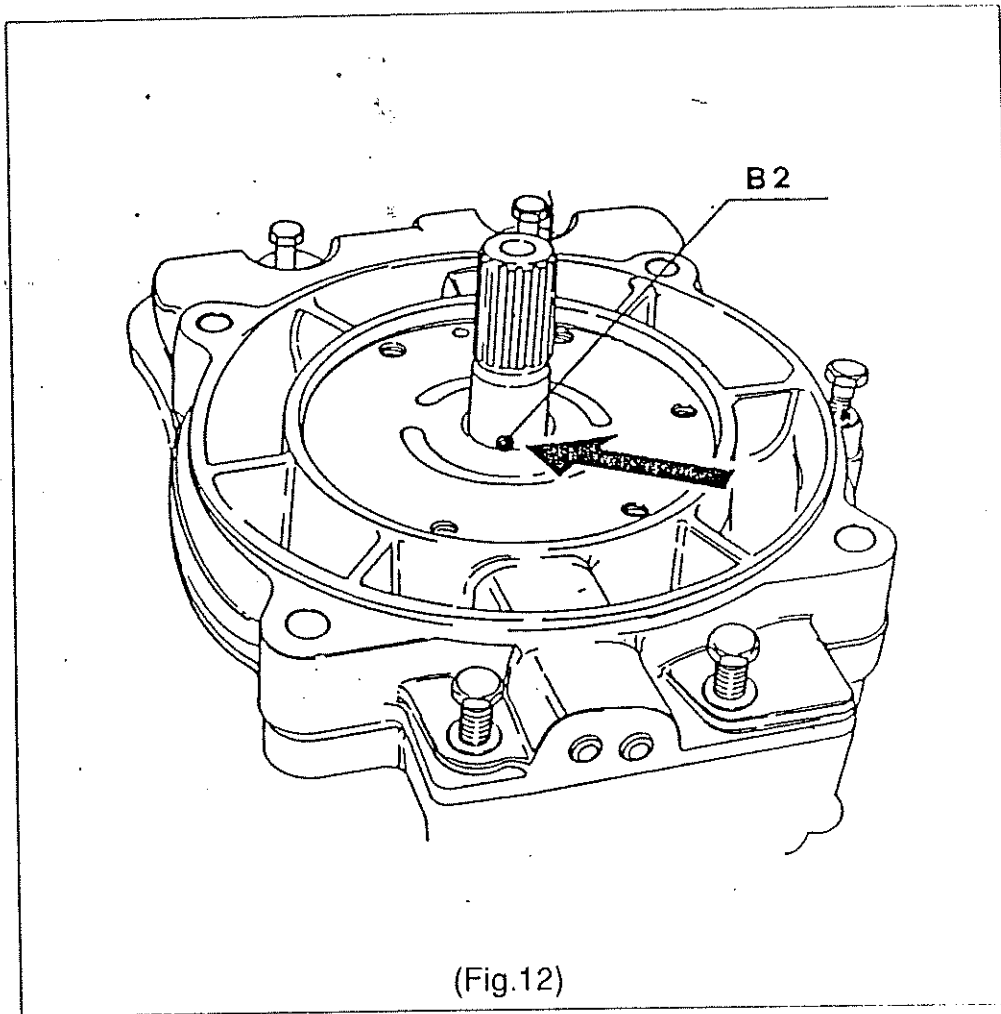
- 3.6 Install clutch disk (D10) on gearbox cover with sintered surface towards clutch discs assembly. Slide alternately clutch discs (D9) and (D10) into clutch housing. Verify that last clutch disc is one-sintered surface type and positioned towards clutch discs assembly. Install clutch plate (1D12) and snap ring (D11).
- 3.7 Install spacer (D16), clutch hub (H1) and planetary carrier (H7) and snap ring (D14) in transmission cover. Rotate clutch hub (H1) back and forth to engage it with clutch inner discs.
- 3.8 Install screw (F11). (Fig.11)

# PCM TRANSMISSION SERVICE MANUAL



(Fig.11)

- 3.9 Slide gearbox cover onto shaft (B1) then verify that correct contact between planet gear (H5), ring gear (C6) and sun gear (B4) is procured. Tighten bolts (D19) and relative washers (D20) to 22.5 Nm torque value.
- 3.10 Place dial indicator on input shaft (B1) end. Slide input shaft axially and verify that clearance is within  $0.4 \pm 0.6$  mm value.
- 3.11 Install steel ball (B2) on input shaft. (Fig.12)



(Fig.12)

## D4) OIL PUMP ASSEMBLY

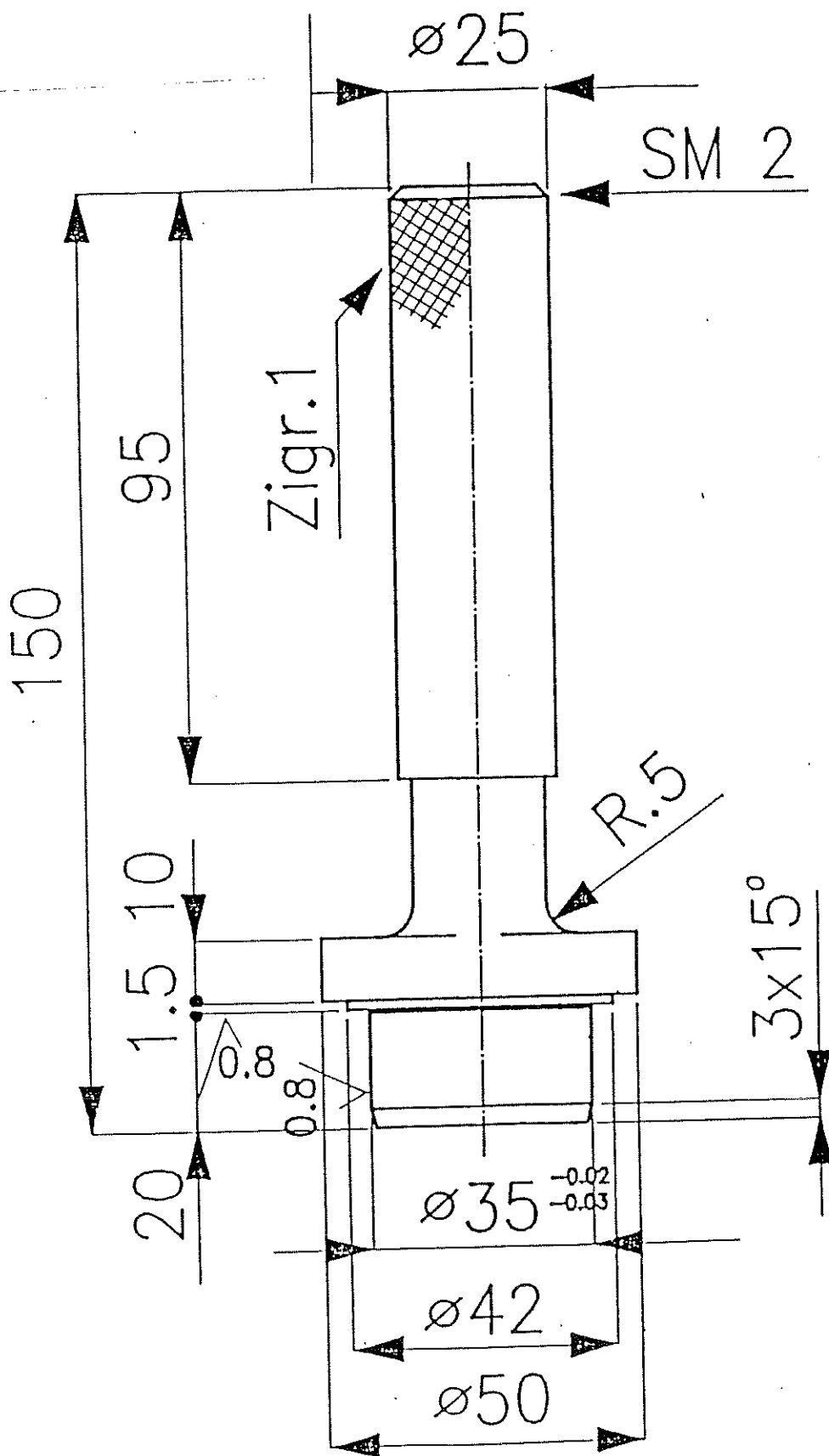
- 4.1 Install pump rotor in oil pump housing. Measure value between oil pump housing and rotor surfaces with a dial indicator. Verify that correct value mm  $0.01 \pm 0.03$  mm. is procured.
- 4.2 Cover input shaft splined end with adhesive tape to avoid oil seal damage during assembly (E1).
- 4.3 Install oil seal rings (E5) and (E7) then press oil seal (E1) into oil pump housing with tool 51.60.0310/1.  
Mount oil pump housing (E4) on gearbox cover (D1) then tighten bolts (E2) to torque 22.5 Nm value.



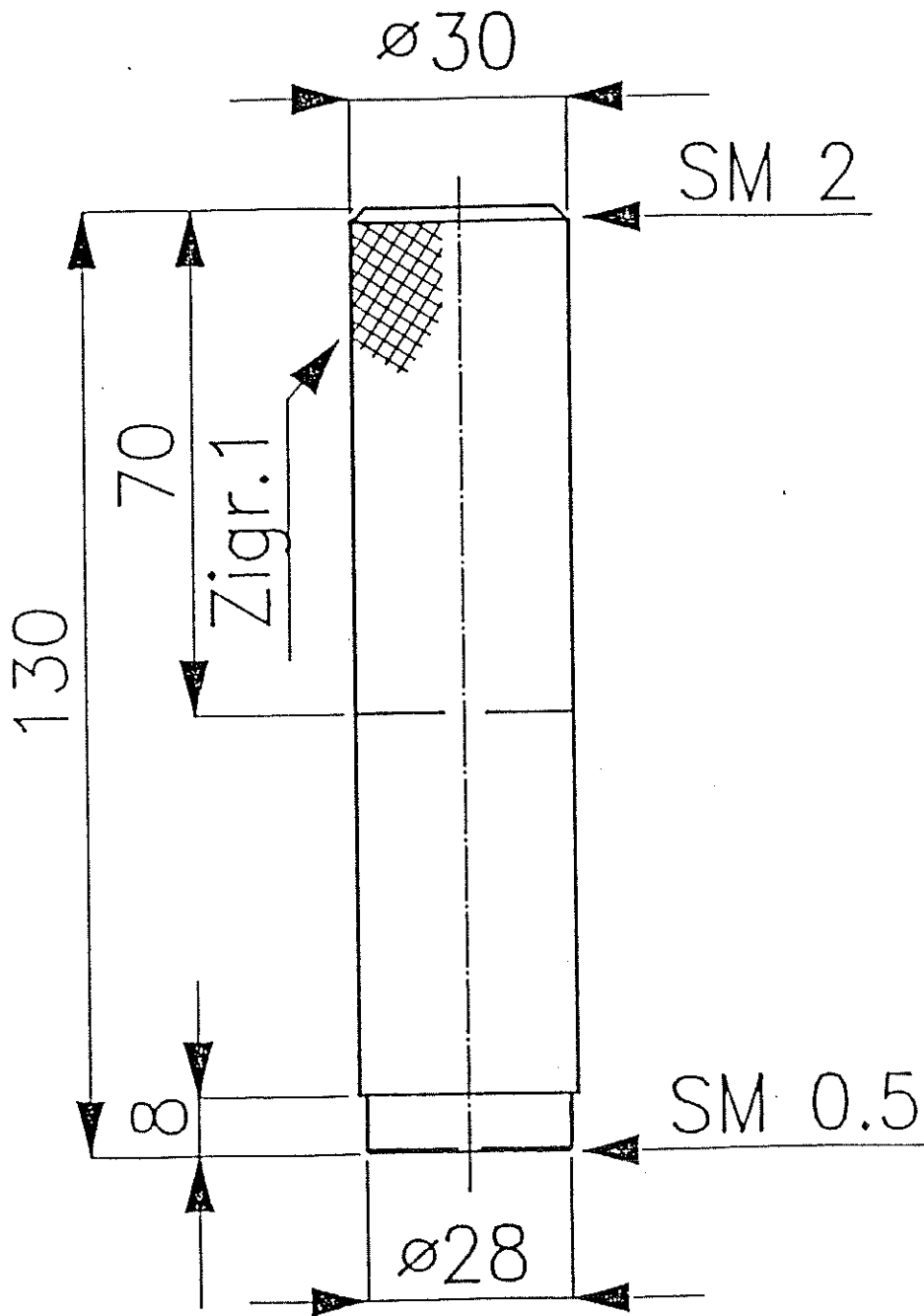
PCM  
TRANSMISSION SERVICE MANUAL

E - SPECIAL TOOLS

tool: 51.60.0067

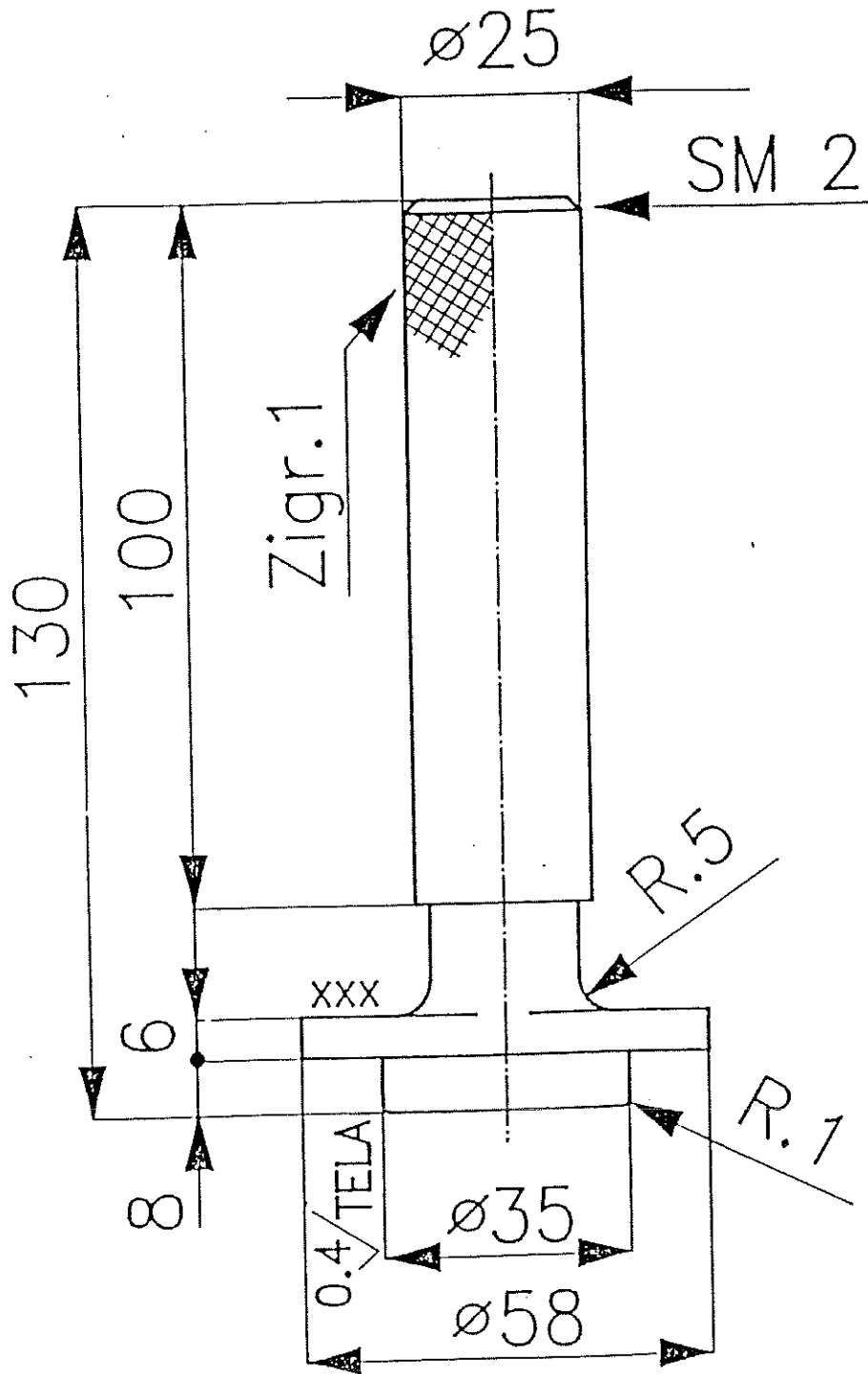


tool: 51.60.0121

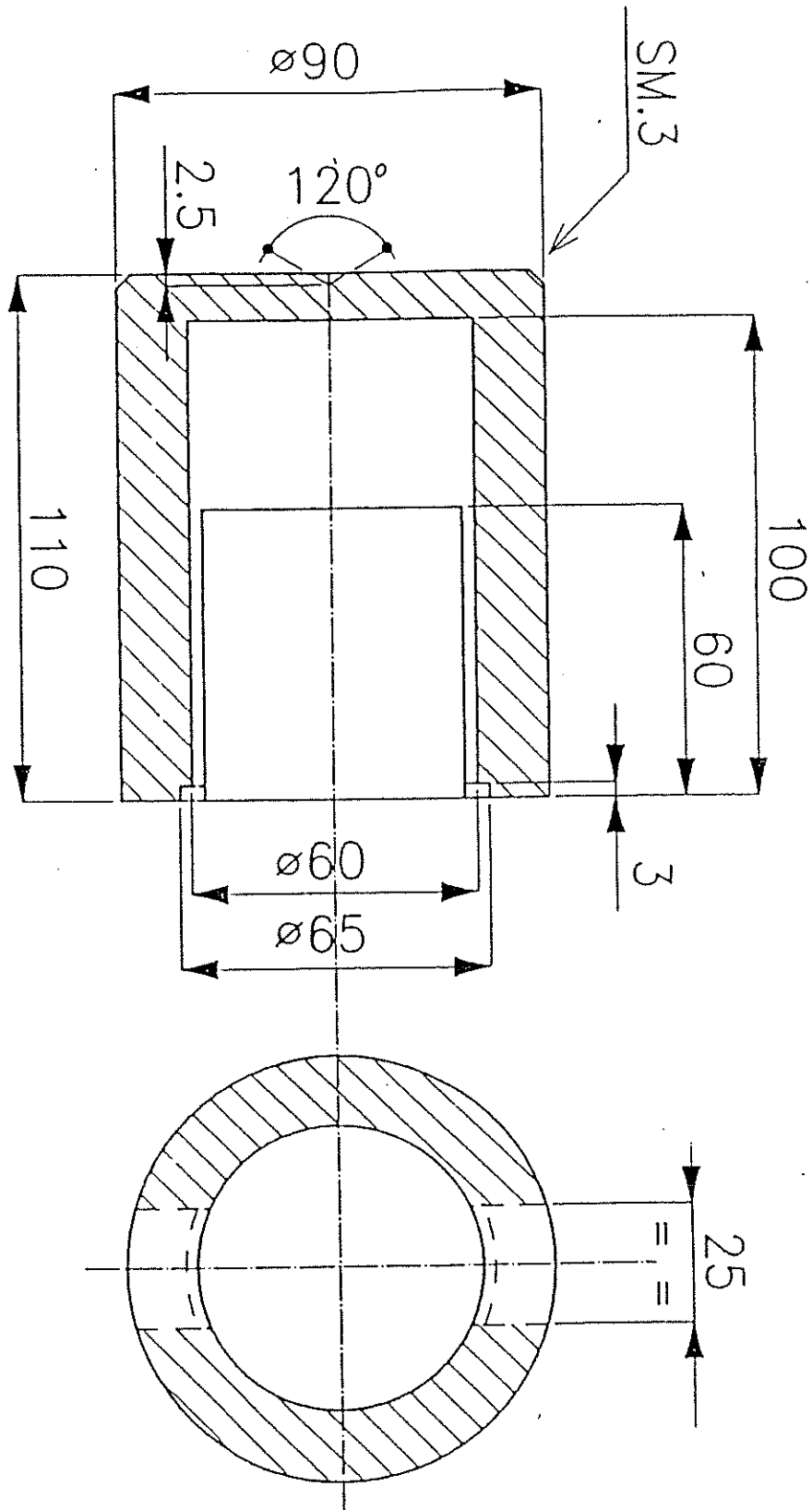


# PCM TRANSMISSION SERVICE MANUAL

tool: 51.60.0310/1

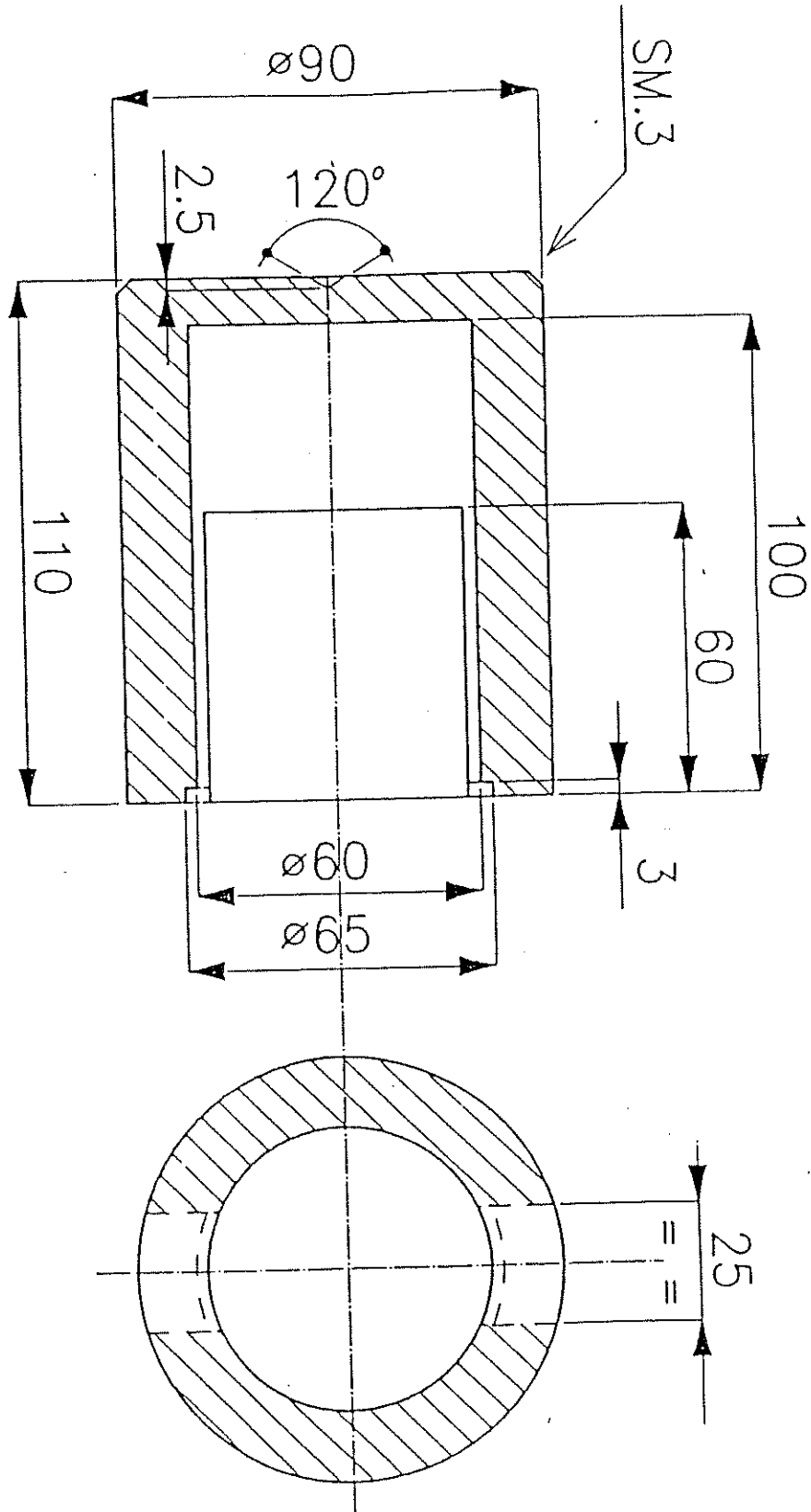


tool: 51.60.0310/2



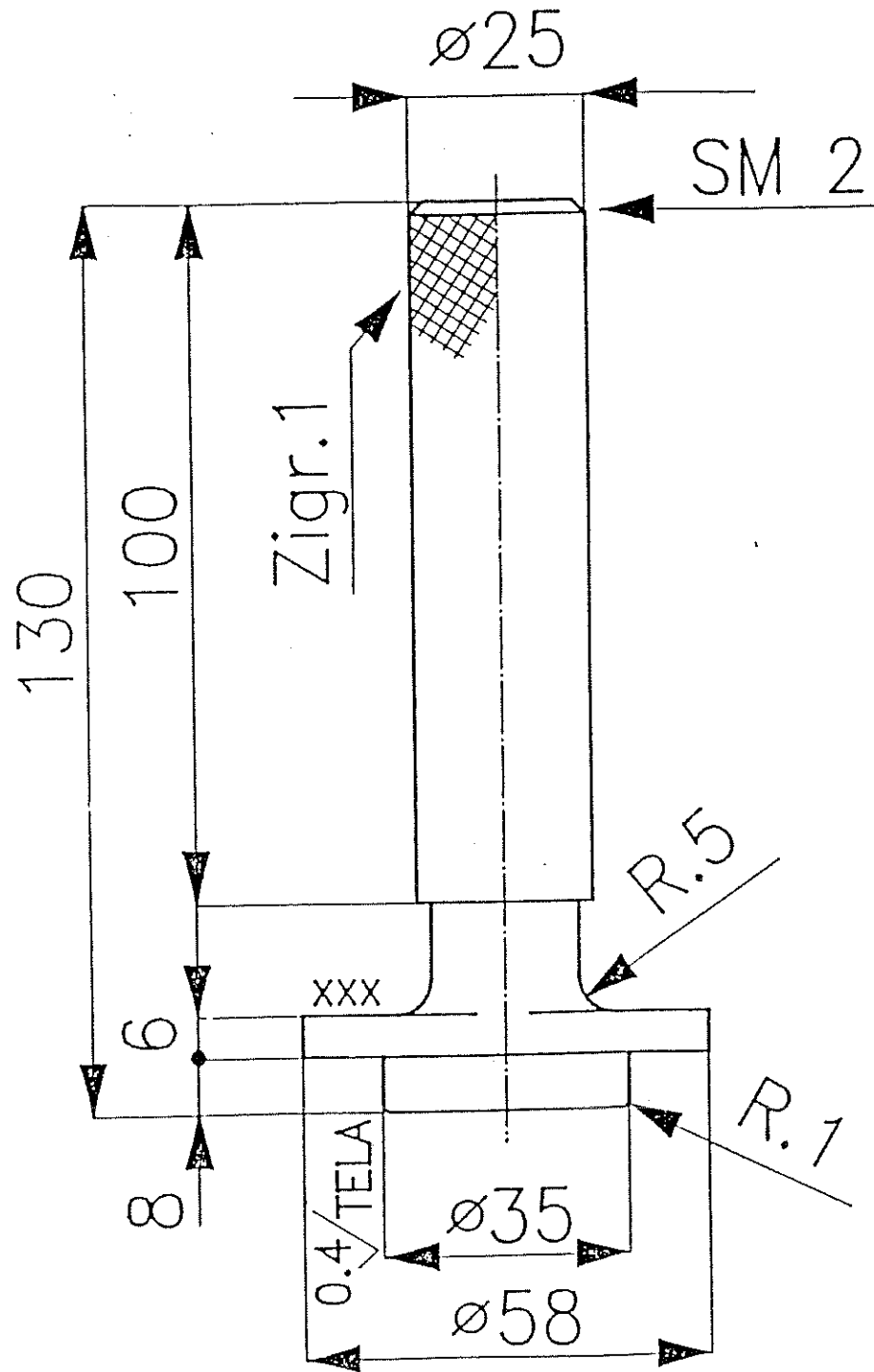
# TRANSMISSION SERVICE MANUAL

tool: 51.60.0310/2



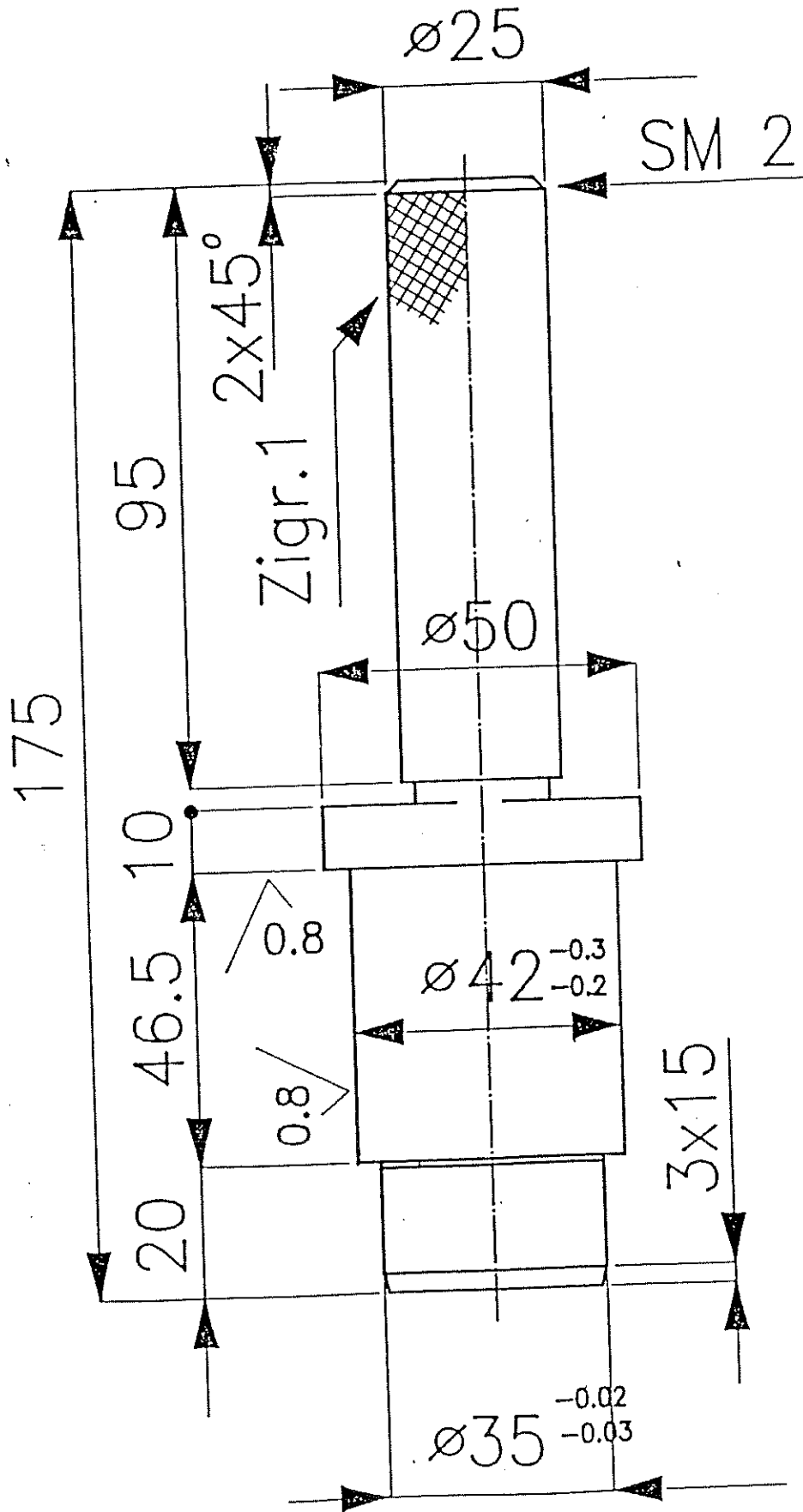
# PCM TRANSMISSION SERVICE MANUAL

tool: 51.60.0310/1



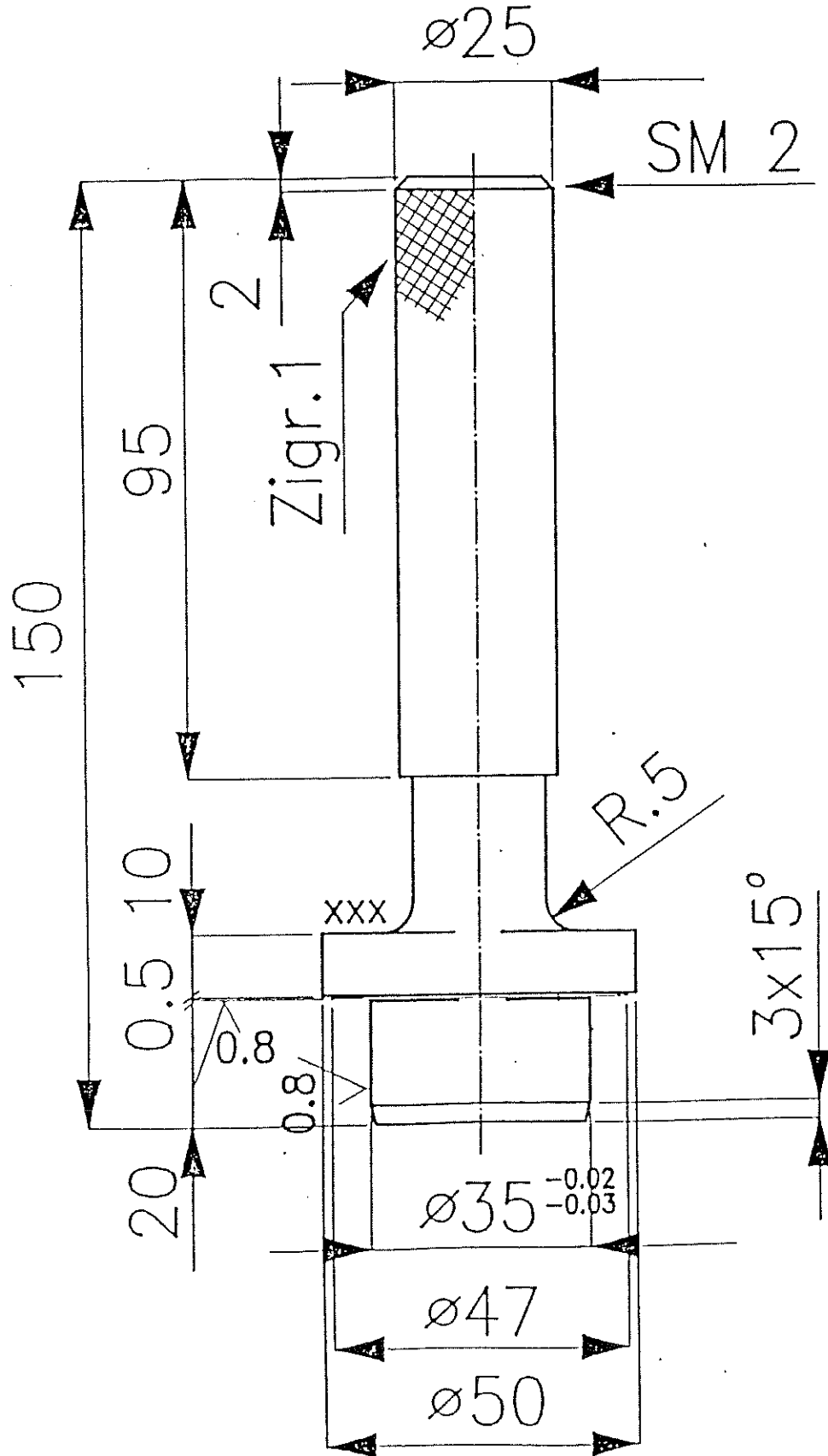
# TRANSMISSION SERVICE MANUAL

tool: 51.60.0310/4



# PCM TRANSMISSION SERVICE MANUAL

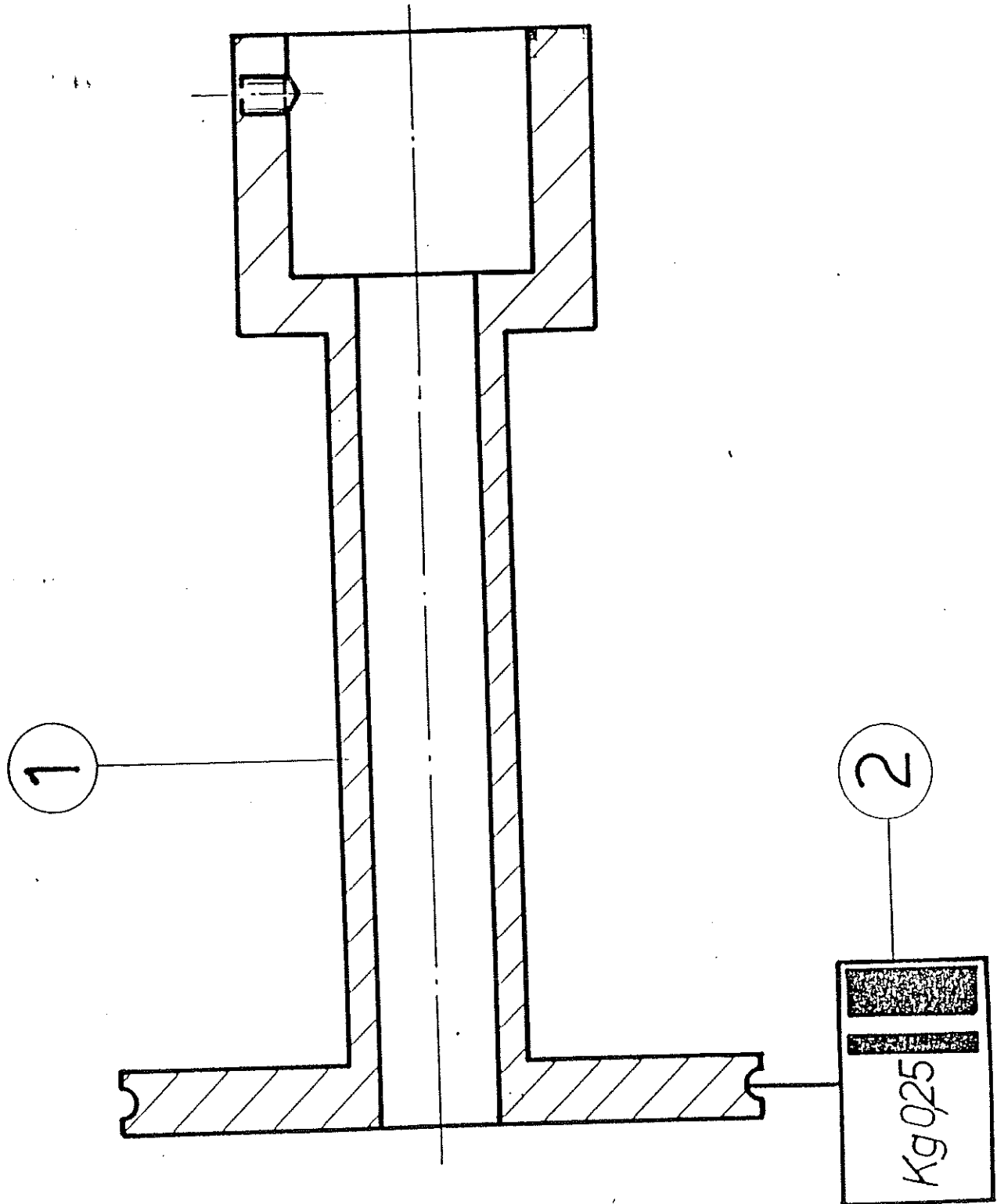
tool: 51.60.0310/3





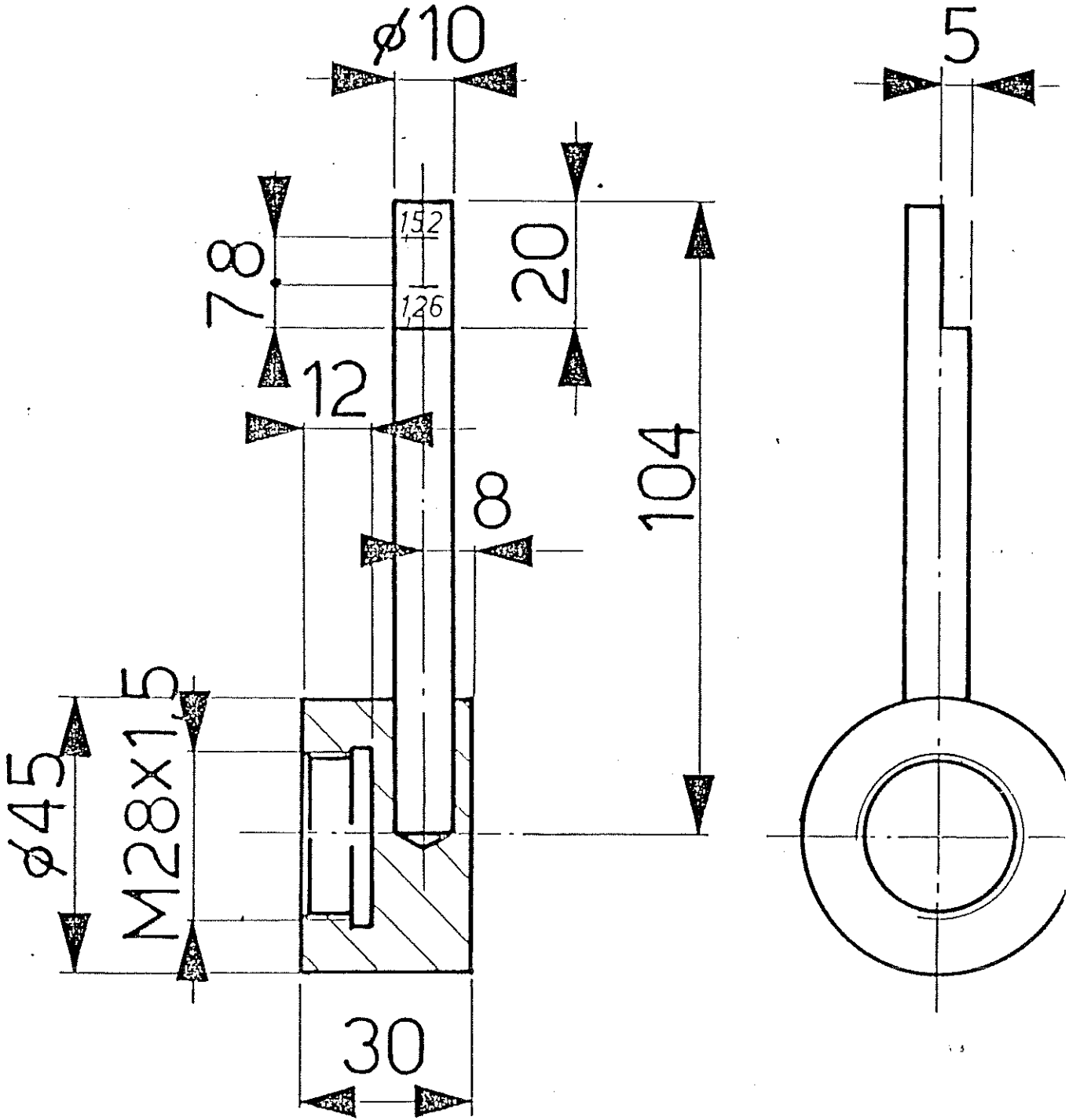
# TRANSMISSION SERVICE MANUAL

tool: 70.99.0012



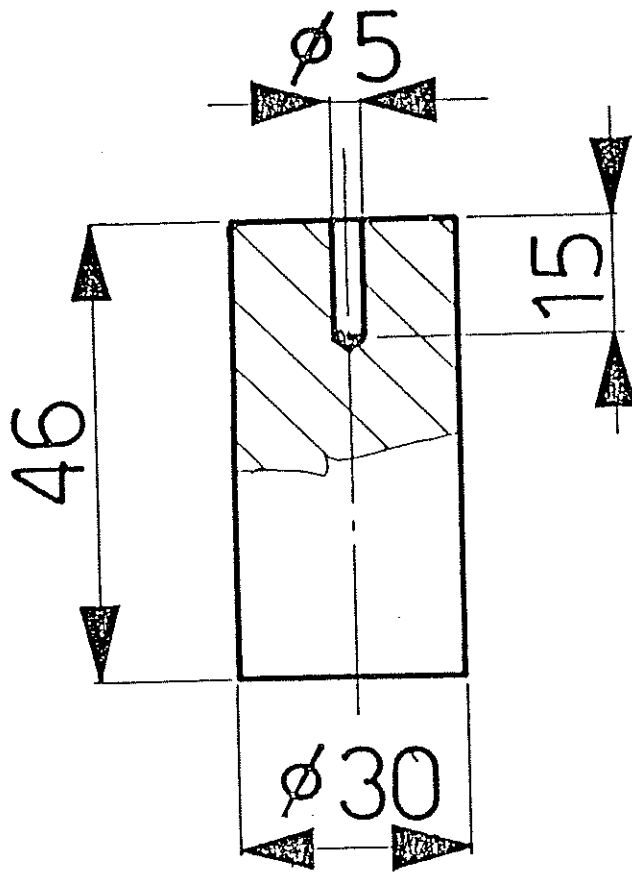
# PCM TRANSMISSION SERVICE MANUAL

tool: 51.60.0313



TRANSMISSION SERVICE MANUAL

tool: 70.99.0012/2



# PCM TRANSMISSION SERVICE MANUAL

tool: 70.99.0012/1

