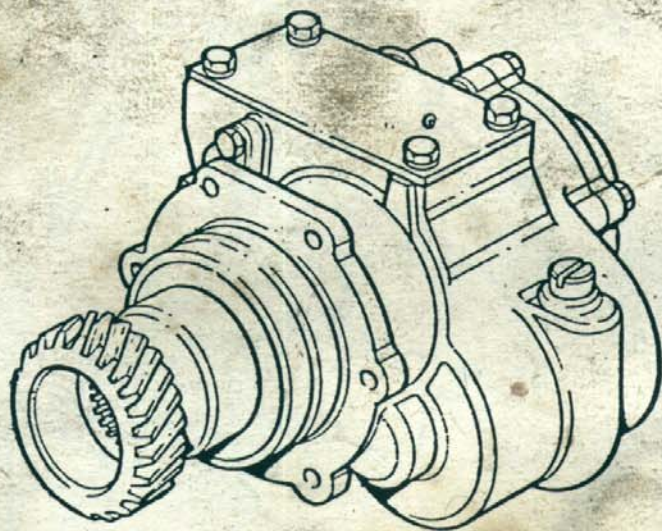




**TORO - OVERDRIVE**

**BEARMACH (LONDON) LTD. TEL. 0222-41313**



**BEARMACH (LONDON) LIMITED**

**MAINDY ROAD, CARDIFF CF2 4XN**

**Manufacturers of Landrover Replacement Parts**

COUNTRY OF REGISTRATION: UK

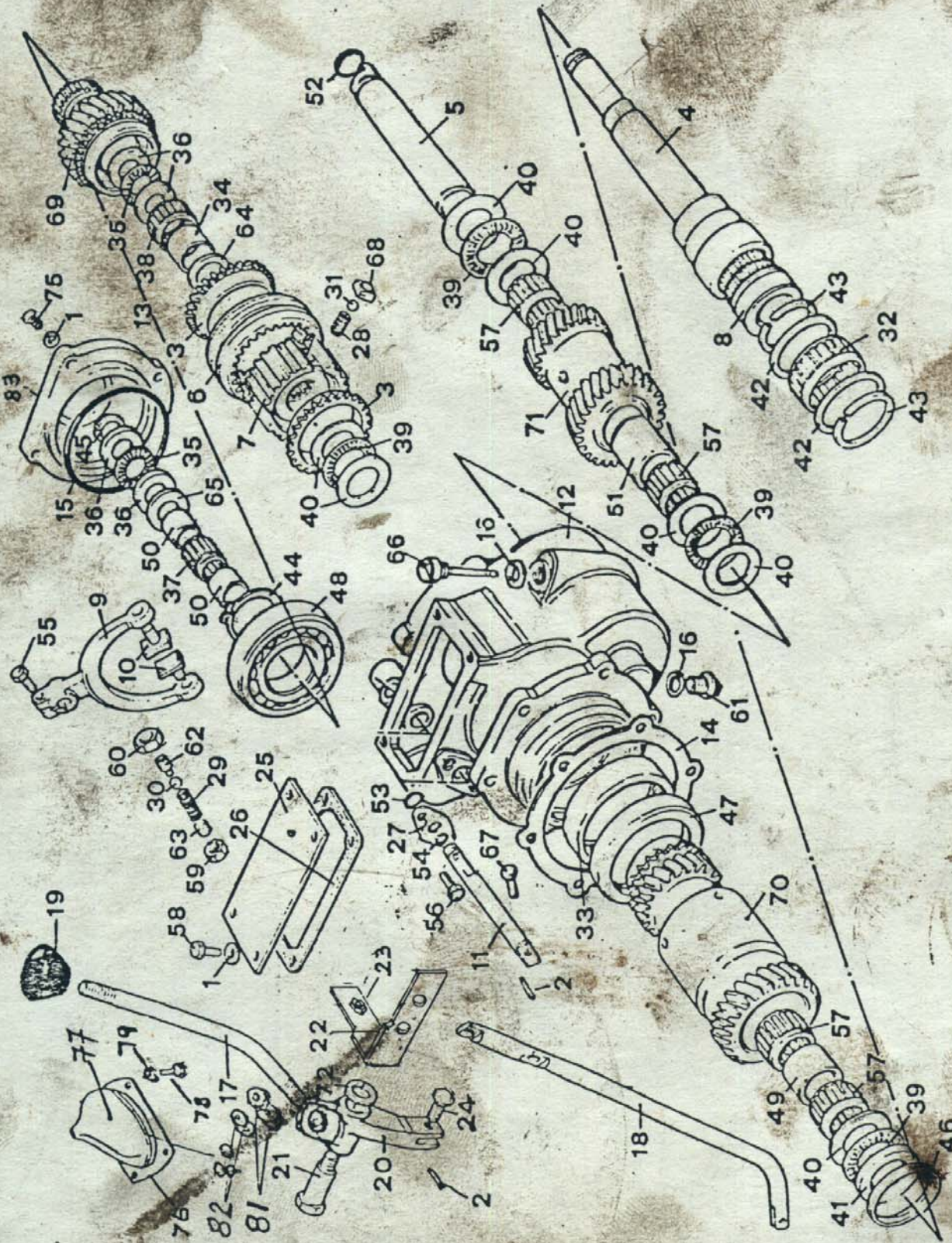
REGISTERED NUMBER: 603417

TELEX: 497580

TELEPHONE: 0222 41313/4/5

CABLES: BEAREXPO CARDIFF



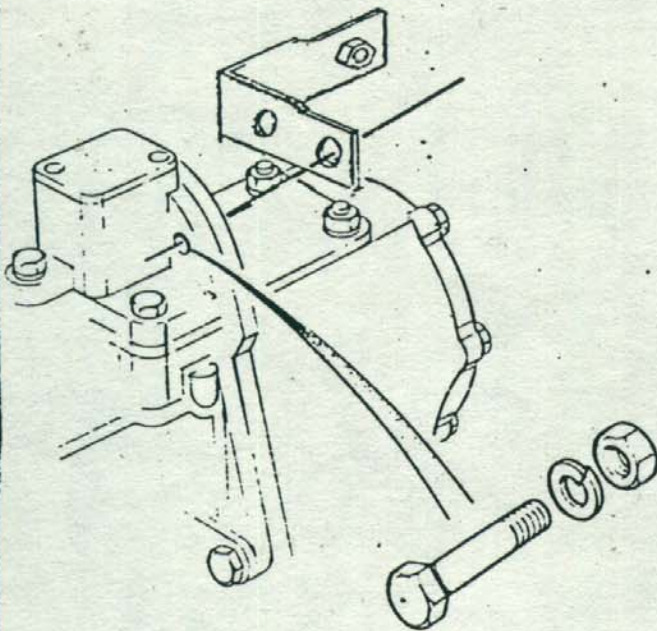


NOTE: ITEM 66 OLD MODELS ONLY.

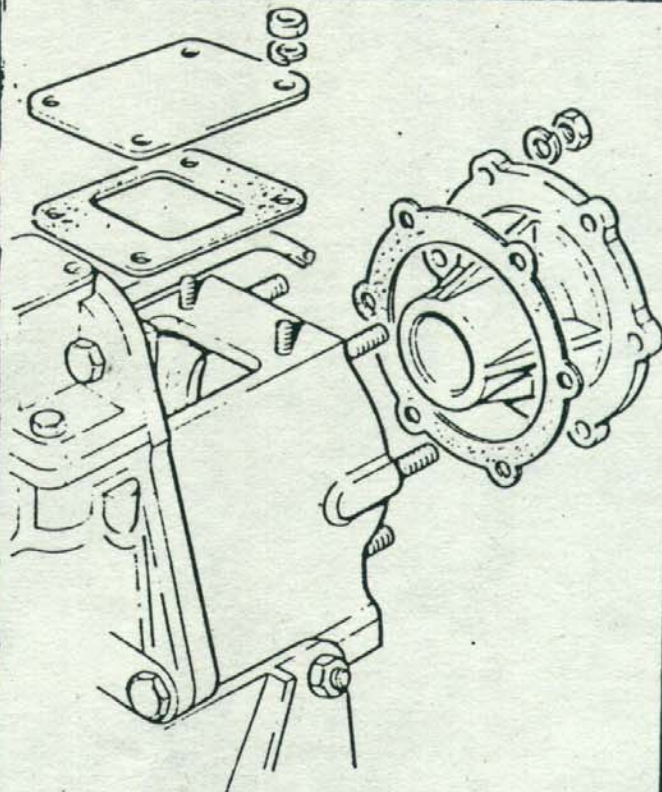








1. Remove centre seat panel. Fit the 'L' shaped bracket to the vertical bolting flange of the transfer box using the replacement fixings.



2. Remove rear bearing housing and top cover plate from transfer box.

3. N.O.T.E.

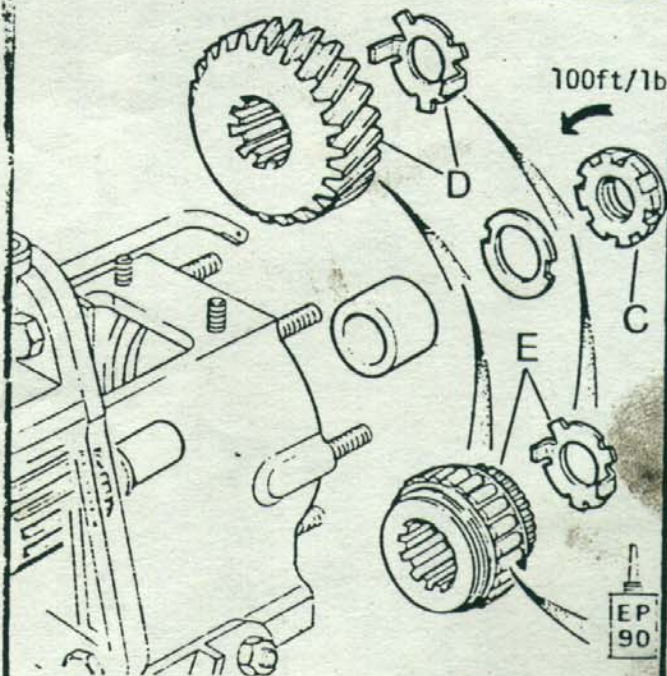
On some Land Rovers six extra long studs have been fitted into the back of the transfer box, where the overdrive is fitted.

If these long studs are fitted, two of them may interfere with the boss, just behind the mounting flange, on the overdrive.

Before tightening the six nuts - securing the overdrive to the transfer box, check that the length of the two relevant studs is not greater than 24mm.

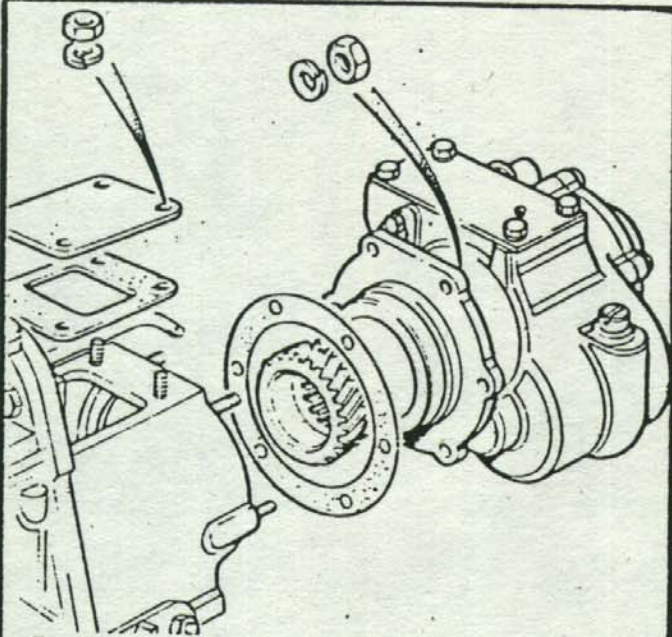
If the two studs are too long - hacksaw them to the correct length.

====



4. Using special spanner 600300, remove mainshaft nut C. Withdraw lockwasher and gear D. Fit clutch sleeve and NEW lockwasher E, ensure that the distance piece and shim (if fitted) are re-assembled in the order shown. Tighten mainshaft nut and lock with washer. Cut surplus tabs off lock washer





5. Smear grease on both sides of gasket and fit to transfer box studs. On no account must the anti-scuff paste be wiped from the inside of the overdrive mainshaft. Offer overdrive into transfer gearbox (see special notes 11). Ensure the studs do not foul the overdrive casing and secure with original fixings. Refit cover and gasket to top of transfer box.

## 6. SPECIAL NOTES

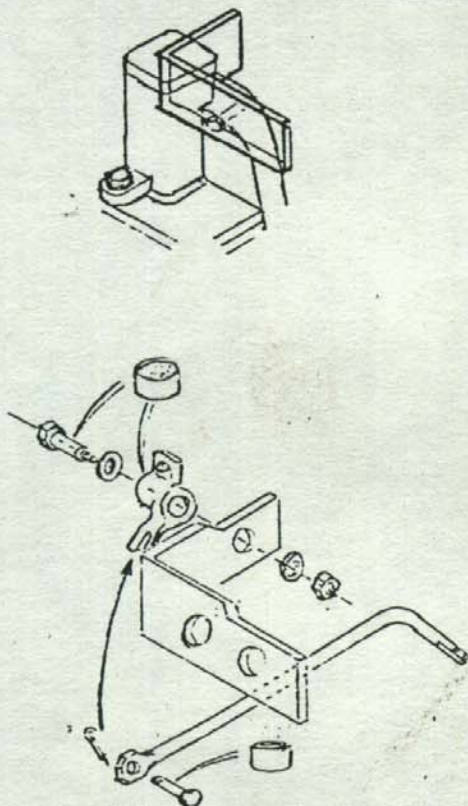
If difficulty is experienced in engaging the overdrive unit with the vehicle gearbox, the following procedures should be adopted.

**A** If the unit protrudes by 25.4mm (1in). Fit the slotted end of the link rod over the selector shaft of the unit and engage the clevis pin.

Taking suitable safety precautions, release the hand brake and rock the vehicle backwards and forwards by turning the transmission brake drum, simultaneously pulling the overdrive lever back to slide the unit forward.

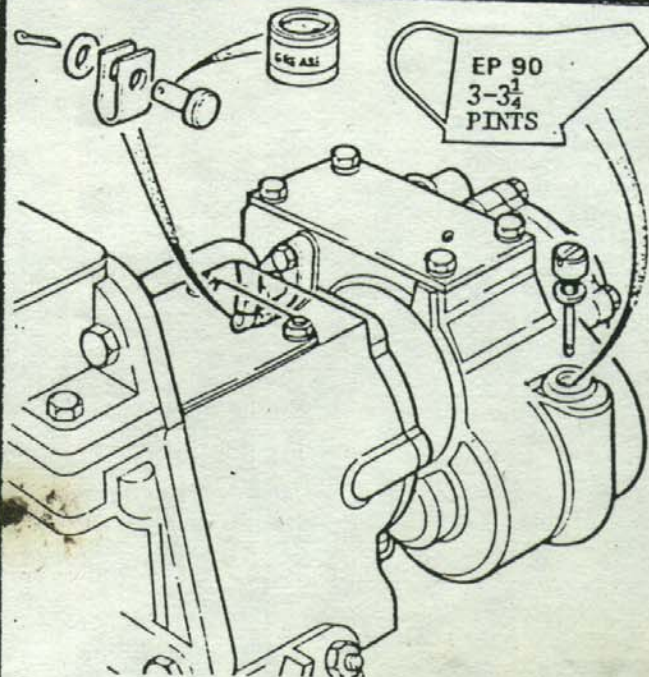
**B** If the unit protrudes by 9.5mm (0.375in) Fit the link rod as detailed in A. Engage first gear. Shift the high-low lever (red knob) to neutral.

Simultaneously pull the overdrive lever back and spin the engine a few times using the starter motor until the unit slides completely forward.



7.

Assemble the link rod to the operating pivot and place in position. Refit the 'L' shaped bracket to the transfer box, and secure the operating pivot to the bracket.

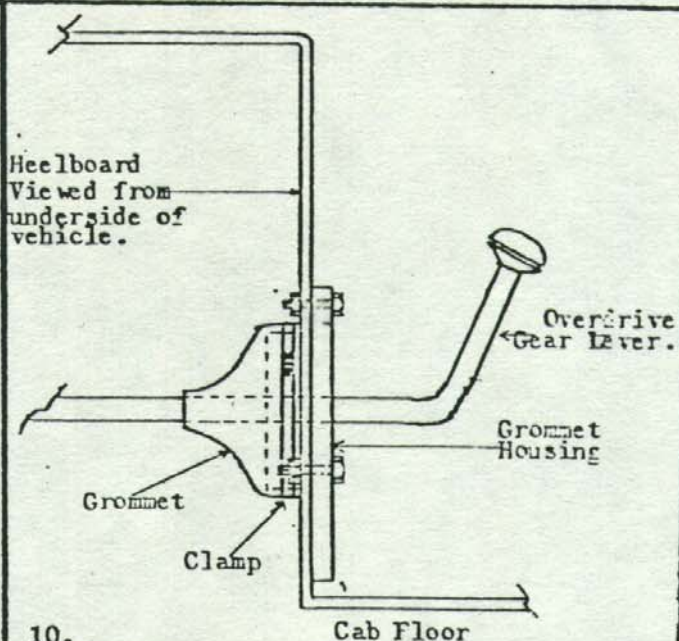


8. Connect link rod to selector shaft. Fill unit with oil. Dipstick reading should be obtained by screwing fully into place. Refit centre seat panel, affix clutch warning label. Adjust the operating lever to a suitable position and road test operation of unit.



9. INSTRUCTIONS FOR FITTING OVERDRIVE GEAR LEVER GROMMET HOUSING.

Fit overdrive and selector cam. Engage overdrive into neutral position. Using top hole on cam, slide long rod through it and mark kick plate - using this as center, mark grommet plate either side and cut out.



10. SIDE VIEW OF GEAR LEVER AND GROMMET ASSEMBLY INSTALLED.

IMPORTANT: Please note that the position shown here is only approximate, since variation is likely to occur in the linkage entry position, due to factors such as wear on mountings etc.

11. SPECIAL NOTE:

- (1) It has been noticed that Bearmach - Overdrive owners have a tendency to overfill the sump with the EP.90 gear oil. Thus creating overflow when operating.
- (2) If the quantity we state in this instruction manual, from 3 to 3 1/4 pints is strictly adhered to, this problem will be eliminated.
- (3) The oil level mark on the dipstick varies from vehicle to vehicle - so is unreliable as a true reading of oil level.

NOTE:

ON LATER MODELS THE DIPSTICK HAS BEEN ELIMINATED. OIL FILLER PLUG HOLE IS NOW SITUATED AT REAR OF SUMP AND IS NOW THE OIL LEVEL INDICATOR. FILL TO LEVEL HOLE, REPLACE PLUG, THEN ADD 1/4 PINT OF OIL.



TECHNICAL DATA

Overdrive ratio .782:1

See tables for comparisons - figures in brackets are without overdrive.

TOP GEAR - HIGH RATIO	
88" FITTED WITH 600 x 16 TYRES	38" and 109" FITTED WITH 750 x 16 TYRES
MPH/1000 RPM: 19.17 (15)	21.1 (16.5)
KPH/1000 RPM: 30.8 (24.1)	34 (26.6)

TOP GEAR - LOW RATIO	
88" FITTED WITH 600 x 16 TYRES	38" and 109" FITTED WITH 750 x 16 TYRES
MPH/1000 RPM: 9.2 (7.2)	10.2 (8)
KPH/1000 RPM: 14.8 (11.6)	16.5 (12.9)

OPERATING INSTRUCTIONS

The overdrive unit is fitted with a sychromesh gearchange unit and should be treated as an extra gearbox.

Since the overdrive gearchange is mechanical, the clutch must be used when changing into or out of overdrive just the same as when changing gear in the gearbox. There are three lever positions, overdrive in, neutral, and overdrive out.

To engage

Simultaneously press the clutch and release the accelerator pedal.  
Move the overdrive operating lever forward. Simultaneously release the clutch and press the accelerator.

To disengage

Simultaneously press the clutch and release the accelerator pedal.  
Move the overdrive operating lever backward. Simultaneously release the clutch and press the accelerator.

Running in

To allow the overdrive unit to bed in correctly, it is most important that for the first 500 miles, the Land Rover should be driven conservatively. Do not be disturbed if you feel that the unit is noisy, as the unit will quieten down after approx' 2,000 miles.

MAINTENANCE INSTRUCTIONS.

LUBRICATION:

After the first 250 miles, drain the oil from the overdrive unit and refill with the same grade of hypoid oil as used in the gearbox. Thenceforth change the oil every 250 miles for a total of 1000 miles and every 3000 miles thereafter.

IMPORTANT: DO NOT OVERFILL OR UNDERFILL.

The overdrive lubrication system is completely separate from the Landrover gear-box and transfer box. It is therefore extremely important that the oil level in the overdrive is checked once per week. Also it is important to ensure that the overdrive is not overfilled. To achieve correct oil level, run the unit for some time (until hot) and drain off any excess oil from the filler plug.



T R O U B L E    S H O O T I N G .  
-----

PROBLEM 1).    OVERDRIVE DOES NOT GO ALL THE WAY HOME BUT STICKS OUT  $\frac{1}{2}$ " .

CHECK 1a).    TAKE OVERDRIVE OUT COMPLETELY AND INSURE SURPLUS TABS ON  
LOCK WASHER ARE REMOVED.                    ONCE THIS IS DONE-  
ADOPT THE FOLLOWING PROCEDURE:-

- 1a)    IF THE UNIT WILL STILL NOT SLIDE FULLY FORWARD, ADOPT THE FOLLOWING  
PROCEDURE.
- 1b)    CONTINUE PUSHING THE OVERDRIVE INTO POSITION.
- 1c)    ENGAGE FIRST GEAR IN THE MAIN GEARBOX.
- 1d)    SHIFT THE HIGH/LOW RATIO LEVER TO NEUTRAL.
- 1e)    SPIN THE ENGINE A FEW TIMES UNTIL THE OVERDRIVE SLIDES INTO POSITION.

PROBLEM 2)    OIL COMES OUT OF THE BREATHER HOLE.

- CHECK 2a)    TOO MUCH OIL IN OVERDRIVE ( LATER MODELS WITH FILLER PLUG IN LIEU OF  
DIPSTICK) OBSERVE INSTRUCTIONS ON PAGE 5.
- 2b)    COVER PLATE (TRO 25) PLACED WRONG WAY ROUND ( LATER MODELS WITH  
LOCATING PEG.).
- 2c)    COVER PLATE DISTORTED ALLOWING AIR TO ENTER AND PRESSURISE THE  
UNIT. THEREFORE ENLARGE TO  $\frac{3}{8}$ " THE BREATHER HOLE AND DRILL THROUGH  
THE BAFFLE ALSO. ALTERNATIVELY SEND THE COVER PLATE BACK TO US  
FOR MODIFICATION.

PROBLEM 3)    DIFFICULTY ENGAGING GEAR.

CHECK 3a)    SELECTOR FORK IS IN THE NEUTRAL POSITION ON SELECTOR ROD WITH  
OVERDRIVE IN NEUTRAL. CAN BE CHECKED BY SLACKING OFF PINCH BOLTS  
AND MOVING FORK UNTIL SYNCHRO RINGS CAN BE SEEN EQUAL DISTANCE  
EITHER SIDE OF SYNCHRO HUB.

IF FURTHER PROBLEMS ARE EXPERIENCED, BEFORE RETURNING UNIT TO  
SUPPLIER, PLEASE HAVE NO HESITATIONS IN TELEPHONING OUR SERVICE