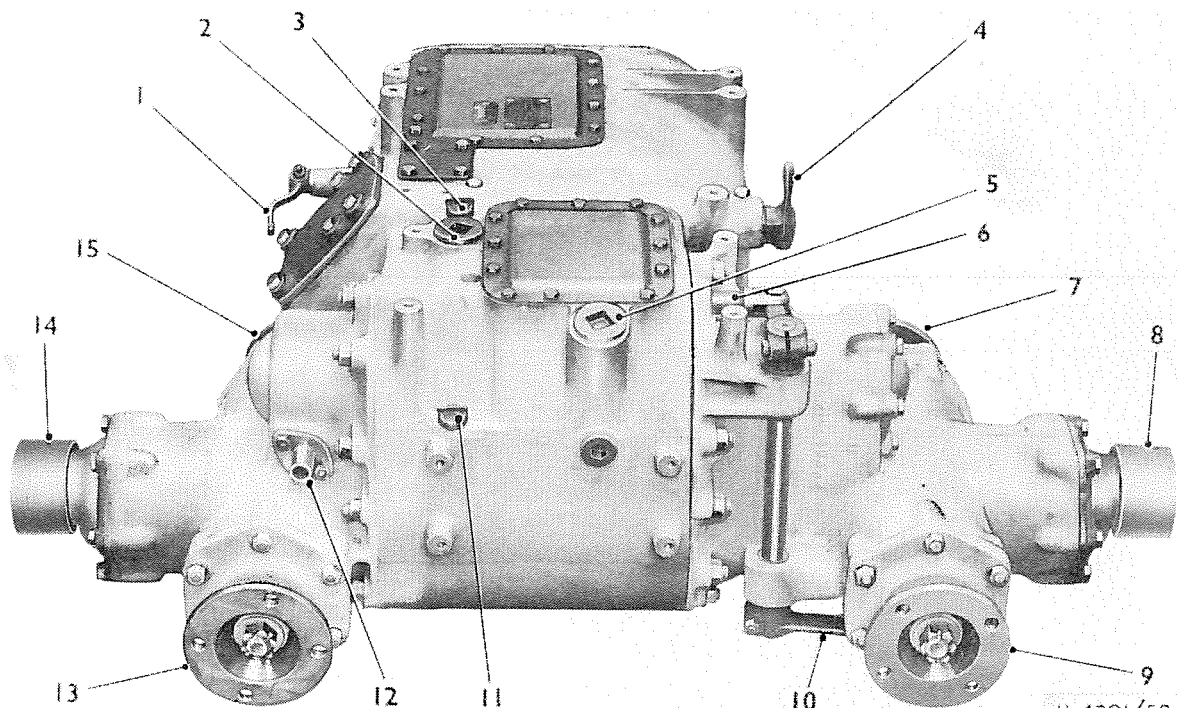


SECTION 17 - TRANSFER BOX

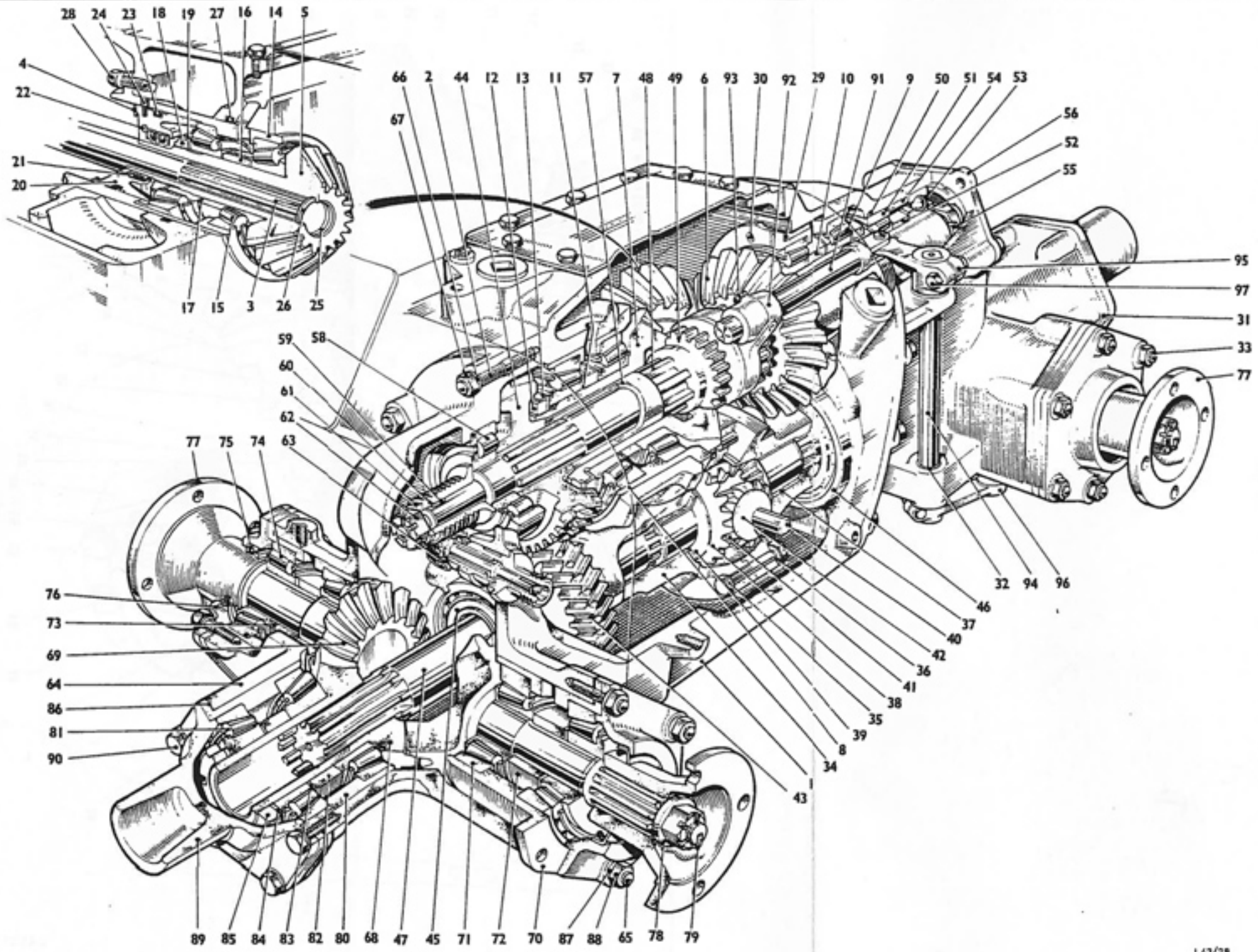
DESCRIPTION

1. The transfer box is attached to the front of the gearbox by which it is driven, and is supported in trunnion brackets on the bottom plate of the hull.
2. The upper half of the box (Fig 47) contains two directional gears in constant mesh with a driving bevel on the output shaft of the gearbox. Positioned coaxially with the directional gears is the mainshaft assembly; a sliding dog splined to the mainshaft enables the drive to be taken from one or the other of the directional gears to obtain a forward or reverse motion of the shaft. If the sliding dog is in the midway position, neutral is obtained. A selector fork engaged with the sliding dog is actuated by a lever in the left of the driver's compartment.
3. A double helical pinion splined to the right end of the mainshaft is meshed with a similar pinion on the differential assembly in the lower half of the box. The right end of the mainshaft also drives the speedometer. Half shafts connect the differential with the output bevels and propeller shafts. The transfer box is provided with a filler plug, combined dipstick and breather, and a drain plug.



- | | |
|--------------------------------|-------------------------------|
| 1 Gear selector lever | 7 Rear left drive coupling |
| 2 Gearbox oil filler plug | 8 Mounting trunnion |
| 3 Gearbox oil dipstick | 9 Front left drive coupling |
| 4 Gear change lever | 10 Forward/reverse lever |
| 5 Transfer box oil filler plug | 11 Transfer box oil dipstick |
| 6 Forward/reverse selector rod | 12 Speedometer drive |
| | 13 Front right drive coupling |
| | 14 Mounting trunnion |
| | 15 Rear right drive coupling |

Fig 47 Gearbox and transfer box



4. The transfer box has a capacity of approximately 6 pints. The filler plug and dipstick are accessible after opening the gearbox access cover under the gunner's seat.
5. A drain plug is fitted to the bottom of the box and is accessible through the drain access plate (Fig 11(5)). THE BRONZE PLUG IN THE FRONT FACE OF THE TRANSFER BOX MUST NOT BE REMOVED.

Important: *Should the vehicle have to be towed, the transfer box must be in neutral in order to avoid damage to the gearbox (Section 16). The towing speed should not exceed 20 mile/h. If there is a mechanical defect, consult REME before towing.*

OPERATION OF THE TRANSFER BOX

6. The drive is taken to either directional bevel gear as desired. The double-helical gear splined to the right-hand end of the mainshaft is meshed with a mating gear on the differential assembly in the lower half of the box. This gear causes the small differential pinion to revolve, with the differential casing, thereby driving the differential gears and, at the same time, making provision for the vehicle cornering. Halfshafts connect the differential gears with the output pinions which, in turn, transmit the drive to the four bevel gears and thence to the propeller shafts. The transfer box provides the same ratio, both forward and reverse.

OPERATION OF CONTROLS

Forward and reverse lever

7. The forward/reverse lever (Fig 56(19)) is located in a quadrant to the left of the driver's seat. When in the forward position (Mk 1 and 2 VEHICLES) FORWARD gear is engaged; the central position gives NEUTRAL, and when the lever is in the rear position REVERSE gear is engaged. On Mk 3, 4 and 5 VEHICLES, however, the lever positions are reversed: The FORWARD position gives REVERSE, central position remains NEUTRAL and REAR position gives FORWARD gear. (The operation of the transfer gearbox is identical for all marks of vehicle; the reason for the reverse sequence of forward/reverse selection between marks is; the hub reduction gear direction of output in the Mk 1 and 2 vehicles is opposite to the output direction of the wheel gearing provided on the Mk 3, 4 and 5 vehicles. See Section 18).

To engage forward or reverse gear

8. The vehicle must be stationary, gearbox in neutral and the parking brake on. Move the lever to the required position. If the gear will not engage, start the engine, if not already running, and select 1st gear in the gearbox. Depress the gear change pedal and move the forward/reverse lever quickly to the required position. Select neutral in the gearbox.

SERVICING

Control linkage

9. The linkage should be inspected, and the pivot and link pins lubricated with engine oil.

To check and top up transfer box oil level

10. (1) Remove the gunner's seat by sliding it out of its runners.
- (2) Open the gearbox access cover.
- (3) Clean the area around the dipstick (Fig 47(11)).
- (4) Check that the oil is up to the FULL mark on the dipstick.
- (5) Top up, if necessary, by first cleaning the area around the filler plug (5), then removing the plug and joint washer and filling with the approved lubricant to the correct level on the dipstick.
- (6) Replace the filler plug with joint washer and tighten up.
- (7) Close the access cover and replace the gunner's seat.

Note: When checking the gearbox and transfer box oil levels, an increase in one level with a corresponding decrease in the other, should be reported.

To change the transfer box oil

11. (1) While the oil is warm, after a run, drive the vehicle on to level ground.
- (2) Remove the transfer box drain plug access plate (Fig 11(5)).
- (3) Remove the gunner's seat by sliding it out of its runners.
- (4) Open the gearbox access cover.
- (5) Clean the area around the filler plug (Fig 47(5)) and dipstick (11), then remove the plug and joint washer.
- (6) Place a container under the bottom access hole, remove the drain plug from the transfer box and allow the oil to drain completely.
- (7) Ensure that the joint washer is in position and replace and tighten the drain plug.
- (8) Refill with the approved lubricant to the correct level indicated on the dipstick. On Mk 3, 4 and 5 vehicles, mix $\frac{3}{4}$ pint of OX-320 with the approved lubricant at the initial servicing and when a new assembly is fitted.
- (9) Replace the filler plug with joint washer and tighten up.
- (10) Drive the vehicle for a few minutes to assist the oil to penetrate to all parts of the transfer box.
- (11) Check the oil level and top up, if necessary.
- (12) Close and fasten the access cover and replace the gunner's seat.
- (13) Check the drain plug for leaks, then replace the drain plug access plate.