Printed in England

SEPTEMBER 1963

TSD 2042

SECTION 17 — SELECTOR POSITIONS

Valve movement in the following selector positions is similar in principal to that described in 'Section 16 — Valve Operation'.

Range 3

When range '3' is selected, main pressure is directed to the 3–4 shift valve via the 3–4 shuttle valve and the 3–4 regulator valve plug, where it assists T.V. pressure in holding the 3–4 shift valve in the third gear position. Main oil pressure is also directed to the 3–4 governor plug where it resists governor pressure and prevents an up-change to fourth gear except at high speed.

The up-change to fourth gear requires the operation of the overspeed valve. If the car is driven at about 78 m.p.h. to 80 m.p.h. with full throttle, G2 pressure lifts the overspeed valve and substitutes G1 pressure for G2 pressure, thus increasing the thrust on the 3–4 governor plug and forcing the shift valve to change to fourth gear.

The 2–3 valve works in the same way in range '3' as in range '4,' the up and down change points being the same in either selector position.

Range 2

When range '2' is selected, main pressure is directed to oppose governor pressure acting on the 2–3 governor plug, locking the 2–3 valve group in the low speed position to prevent the gearbox from changing up beyond second gear. Main pressure is also directed to 1–2 detent plug, which moves the 1–2 shift valve group, against spring and T.V. pressure, to prevent the gearbox changing down to first gear.

Reverse

When the selector lever is moved into the reverse position, main pressure is directed to the rear band release piston, the compensator valve and the reverse cone clutch. It also acts on the reverse plug in the pump pressure control valve and raises main pressure to about 195 lb./sq. in. which ensures that the rear clutch is engaged quickly and securely. The main pressure acting on the compensator valve shuts off compensator pressure and this, together with use of a clutch to engage Reverse, permits instant change from forward to reverse drive and back again when necessary, but a safety blocker piston, operated by governor pressure, prevents Reverse from being selected at more than 8 m.p.h. to 10 m.p.h.

Parking

When parking the car, the transmission can be locked by engaging Reverse. This locks the gearbox by a spring-loaded pawl which engages with teeth around the outer diameter of the reverse annulus gear. The parking pawl is disengaged when Neutral is selected for the engine to be started. It cannot then be re-engaged when the engine is running or when the car is moving because, oil pressure from either of the pumps, will cause a parking blocker piston to emerge and hold the pawl out of engagement. When the pumps stop, the main exhaust valve allows the pressure to drop immediately, so retracting the blocker piston and allowing the parking pawl to engage when Reverse is selected.

Neutral

When the selector lever is moved into the neutral position it disengages the parking pawl; starting the engine causes the front pump to build up oil pressure. The rear band is released by oil pressures acting on the servo spring; the front servo and front clutch remain released (no oil pressure) therefore the drive is disconnected in both front and rear epicyclic units.

Slight drag on the bands and clutches may transmit a small amount of torque through the fluid coupling to the road wheels, but this is negligible when the bands are thoroughly bedded in.