3-2 [M10A0] 10. AWD Transfer System

MECHANISM AND FUNCTION

10. AWD Transfer System A: OUTLINE

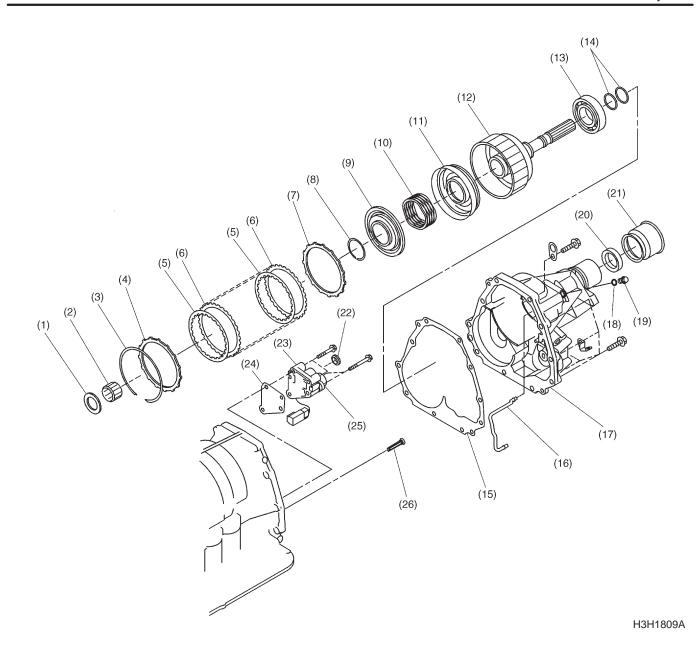
This is the electronically controlled MP-T (multi-plate transfer) type AWD transfer system, originally designed for SUBARU, consisting of a transfer hydraulic pressure control unit incorporating a vehicle speed sensor, control unit, and duty solenoid and a transfer clutch (hydraulic multi-plate clutch).

The control unit stores optimum transfer clutch torque data for a variety of driving conditions. When actual driving conditions (vehicle speed, throttle opening, gear range, wheel slip, etc.) are detected by various sensors, the control unit selects a duty ratio most suitable to the given condition from the memory. It then controls the operation of the transfer clutch by means of the hydraulic pressure which controls the duty solenoid and provides optimum rear torque distribution.

Various sensors and the control unit also serve as gear shift control, lock-up control and hydraulic pressure control.

MECHANISM AND FUNCTION

[M10A0] 3-2 10. AWD Transfer System



- (2) Needle bearing
- (3) Snap ring
- (4) Pressure plate
- (5) Drive plate
- (6) Driven plate
- (7) Pressure plate
- (8) Snap ring
- (9) Transfer piston seal

- (10) Return spring
- (11) Transfer clutch piston
- (12) Rear drive shaft
- (13) Ball bearing
- (14) Seal ring
- (15) Gasket
- (16) Transfer clutch pipe
- (17) Extention case
- (18) O-ring

- (19) Plug
- (20) Oil seal
- (21) Dust cover
- (22) Transfer clutch seal
- (23) Transfer clutch valve
- (24) Transfer valve plate
- (25) Transfer duty solenoid
- (26) Inlet filter

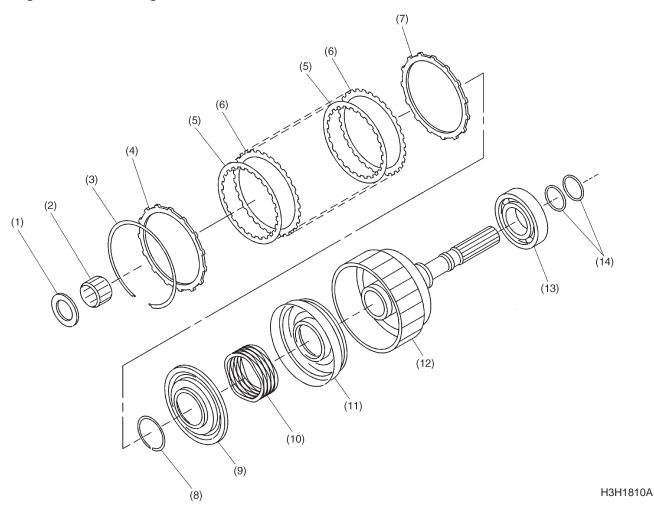
MECHANISM AND FUNCTION

B: TRANSFER CLUTCH (MULTI-PLATE CLUTCH)

The transfer unit consists of a hydraulic multi-plate clutch and a transfer hydraulic control system incorporating a transfer duty solenoid, rear drive shaft, etc.

The transmission control unit has duty ratios memorized in advance according to running conditions. In order to obtain the optimum transfer torque for the running condition, the oil pressure that is applied to the drive plates and driven plates is controlled by applying oil pressure to the transfer piston from the transfer oil pressure control device including the duty solenoid.

Also, the transfer clutch drum and rear drive shaft are joined to each other by welding. The rear drive shaft has drilled oil passages for transfer clutch control and also for lubrication of extension bushing and ball bearing in it.



- (1) Thrust bearing
- (2) Needle bearing
- (3) Snap ring
- (4) Pressure plate
- (5) Drive plate

- (6) Driven plate
- (7) Pressure plate
- (8) Snap ring
- (9) Transfer piston seal
- (10) Return spring

- (11) Transfer clutch piston
- (12) Rear drive shaft
- (13) Ball bearing
- (14) Seal ring

MECHANISM AND FUNCTION

C: TRANSFER OIL PRESSURE CONTROL DEVICE

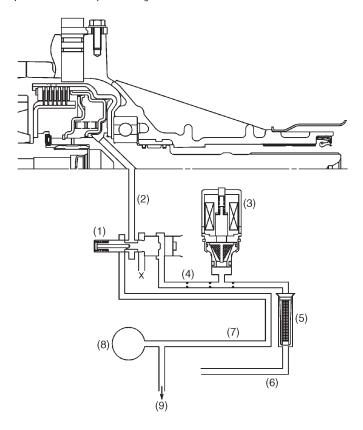
The transfer control valve body is bolted the rear end of transmission case through transfer valve plate.

Hydraulic pressure used in the transfer valve body (line pressure and pilot pressure) are supplied from the transmission control valve body through the transmission case.

The transfer duty solenoid modulates the pilot pressure into the transfer duty pressure depending on the signals from transmission control module (TCM).

The transfer duty pressure in turn modulates the line pressure into the transfer clutch pressure before it is sent to the transfer control valve.

The transfer clutch pressure puts the transfer clutch into engagement depending on the driving conditions so that the optimum torque may be distributed to the rear wheels.



B3H0912A

- (1) Transfer control valve
- (2) Transfer clutch pressure
- (3) Transfer duty solenoid
- (4) Transfer pressure
- (5) Filter
- (6) Pilot pressure

- (7) Line pressure
- (8) Oil pump
- (9) Control valve