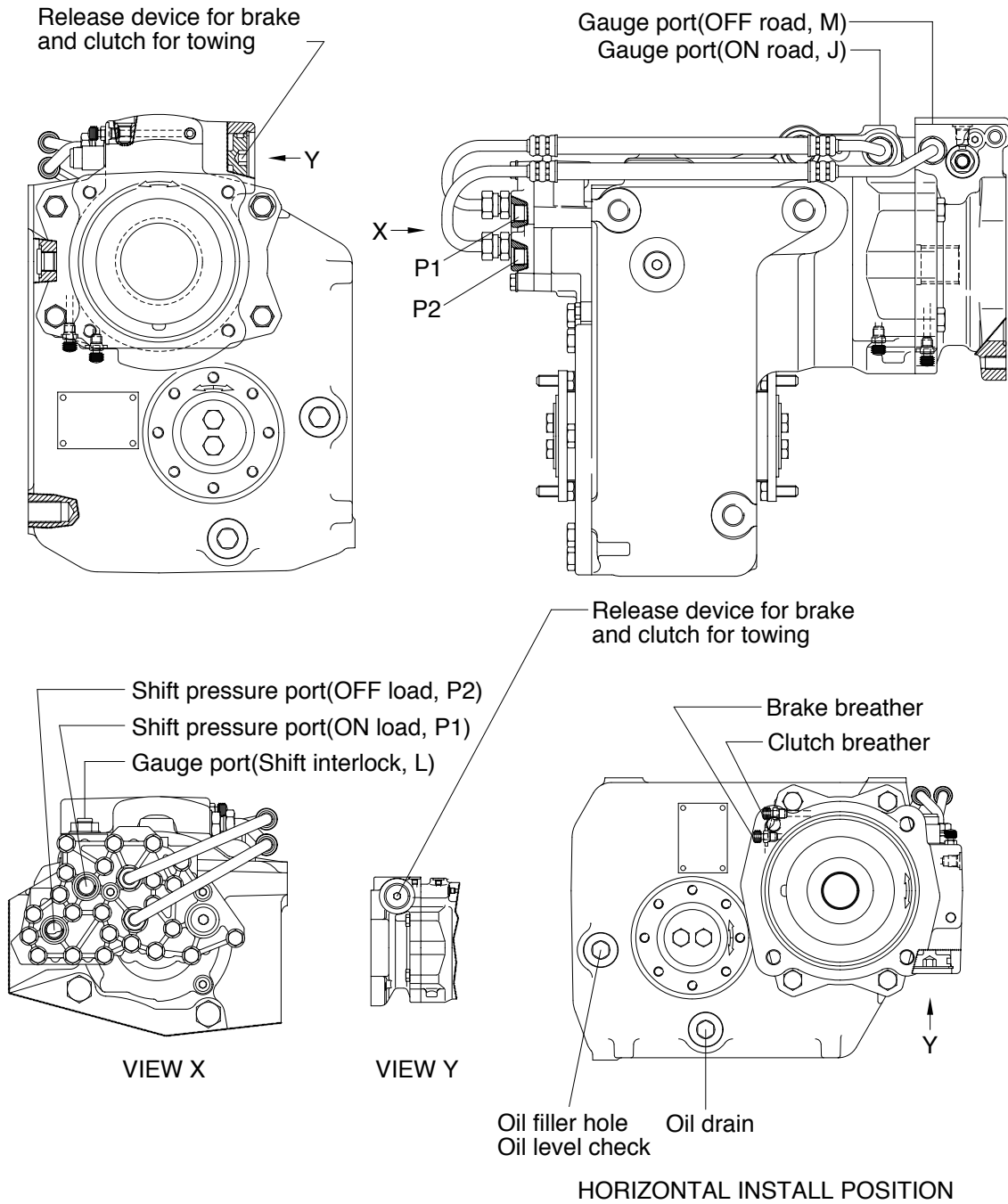
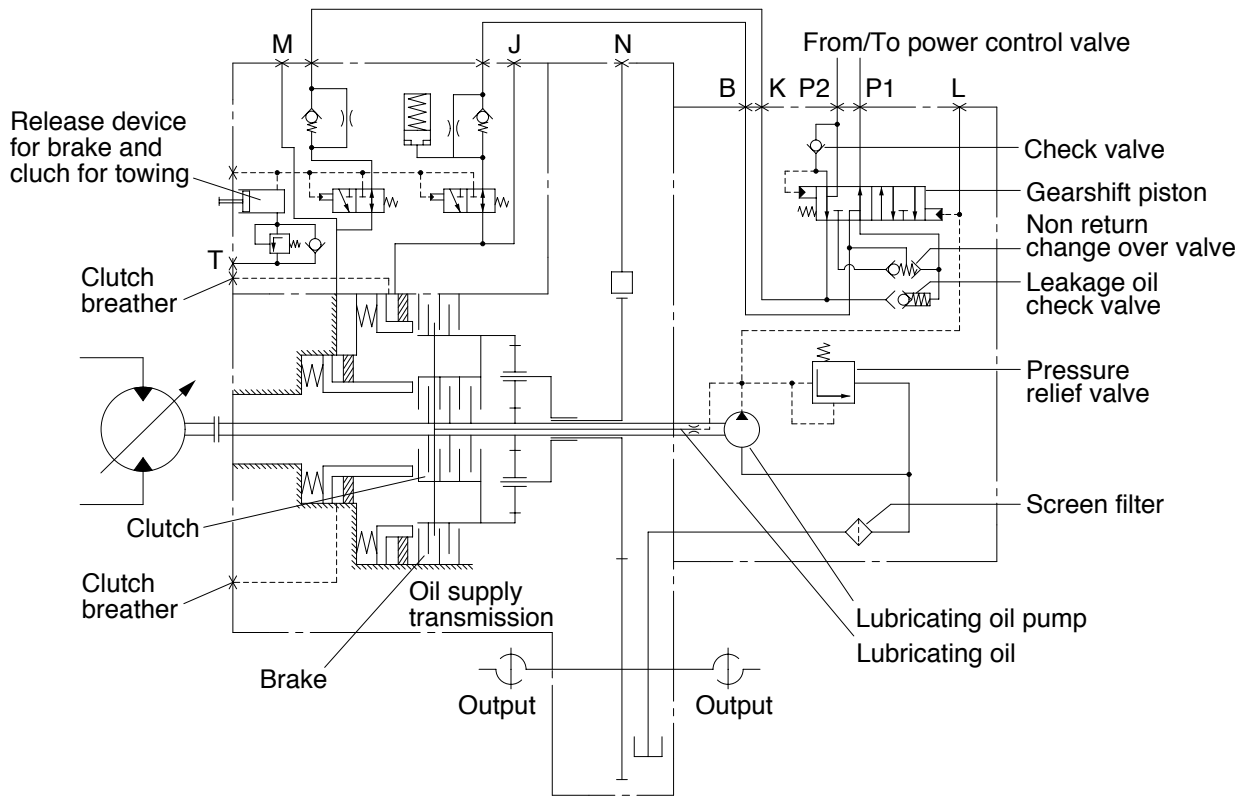


GROUP 8 TRANSMISSION

1. STRUCTURE



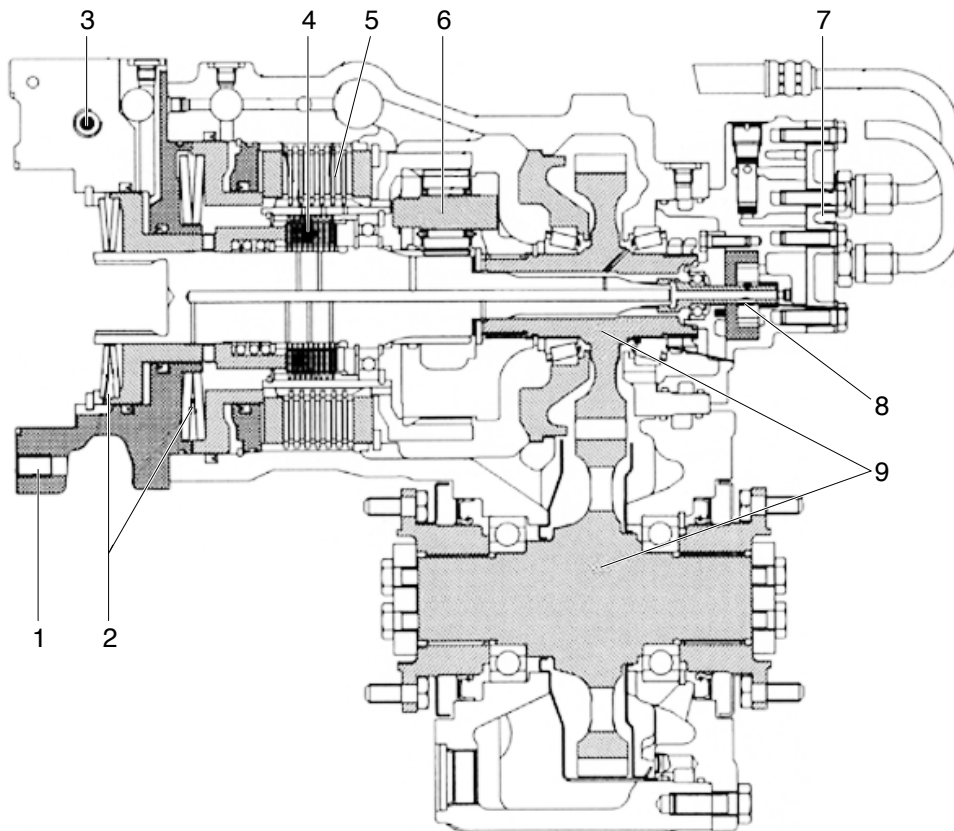
2. TRANSMISSION DIAGRAM



| Port | Name | Size | Port | Name | Size |
|------|-----------------------------|-----------|------|----------------------------------|-----------|
| P1 | Shift pressure, ON road | M16 × 1.5 | M | Gauge port, OFF road | M10 × 1.0 |
| P2 | Shift pressure, OFF road | M16 × 1.5 | N | Connection inductive transmitter | M18 × 1.5 |
| J | Gauge port, ON road | M10 × 1.0 | T | Tank connection release device | M12 × 1.5 |
| L | Gauge port, Shift interlock | M10 × 1.0 | - | - | - |

3. OPERATION OF TRANSMISSION

1) DESCRIPTION



| | | | | | |
|---|-------------------|---|--------------------|---|-----------------|
| 1 | Travel motor | 4 | Disc clutch | 7 | Shift interlock |
| 2 | Cup spring | 5 | Disc brake | 8 | Rotor pump |
| 3 | Disconnect device | 6 | Planetary gear set | 9 | Spur gear drive |

Coaxially-mounted variable displacement travel motor(1) with specific displacement 80cm³/rev.

The 2-speed powershift transmission comprises a planetary gear set(6), a 2-shaft spur gear drive(8) with output flanges to front and rear axle.

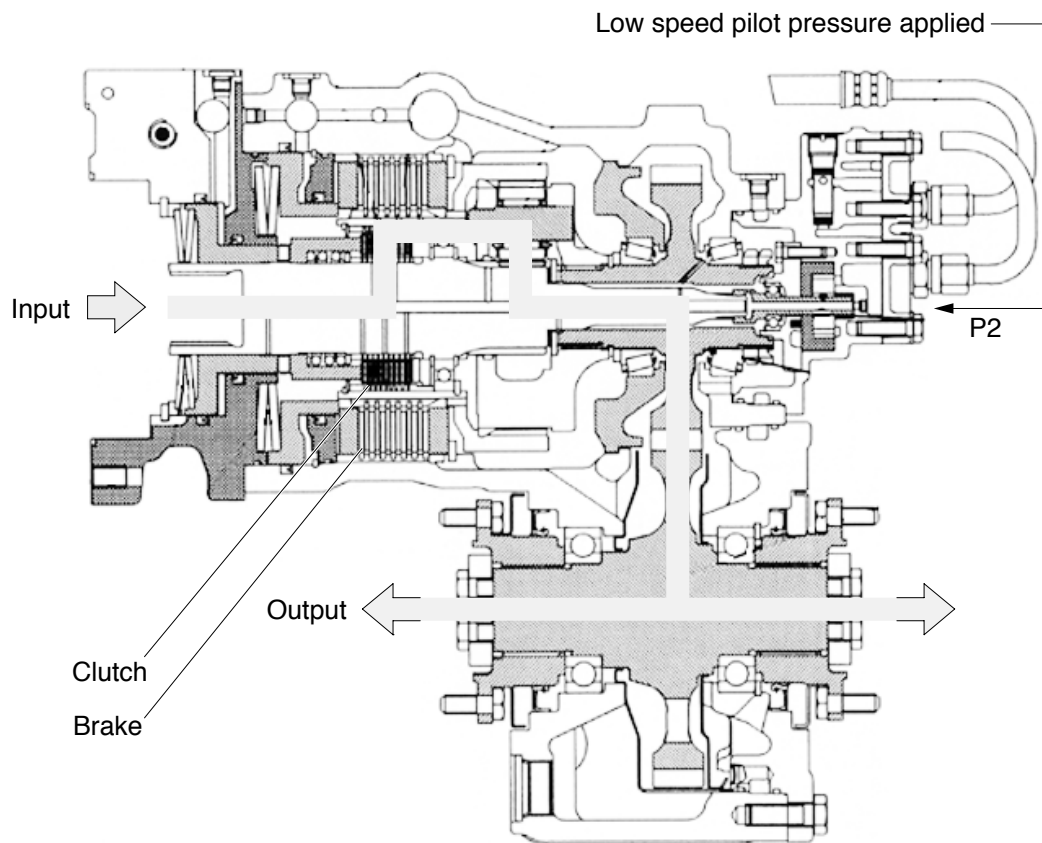
The powershift mechanism for the planet drive comprises a rotating multi-disc clutch(4) underneath a multi-disc brake(5) rigidly connected to the housing. Both are closed by spring pressure(2) and released hydraulically.

In input housing, a disconnect device(3) is provided(Shifting when machine standstill). It is actuated by means of a screw mounted on the input housing, with tightening. This disconnect device interrupts the power drive train between the power shift section and the output. Towing speed max 10km/h. Because there is no transmission lubrication existing, the machine **must not be towed away more than 5km**. When the disconnect device disconnected, the parking brake does not function.

The disconnect device should only be used in emergency in order to remove the machine from a danger zone should power fail or should transmission control pressure not be available.

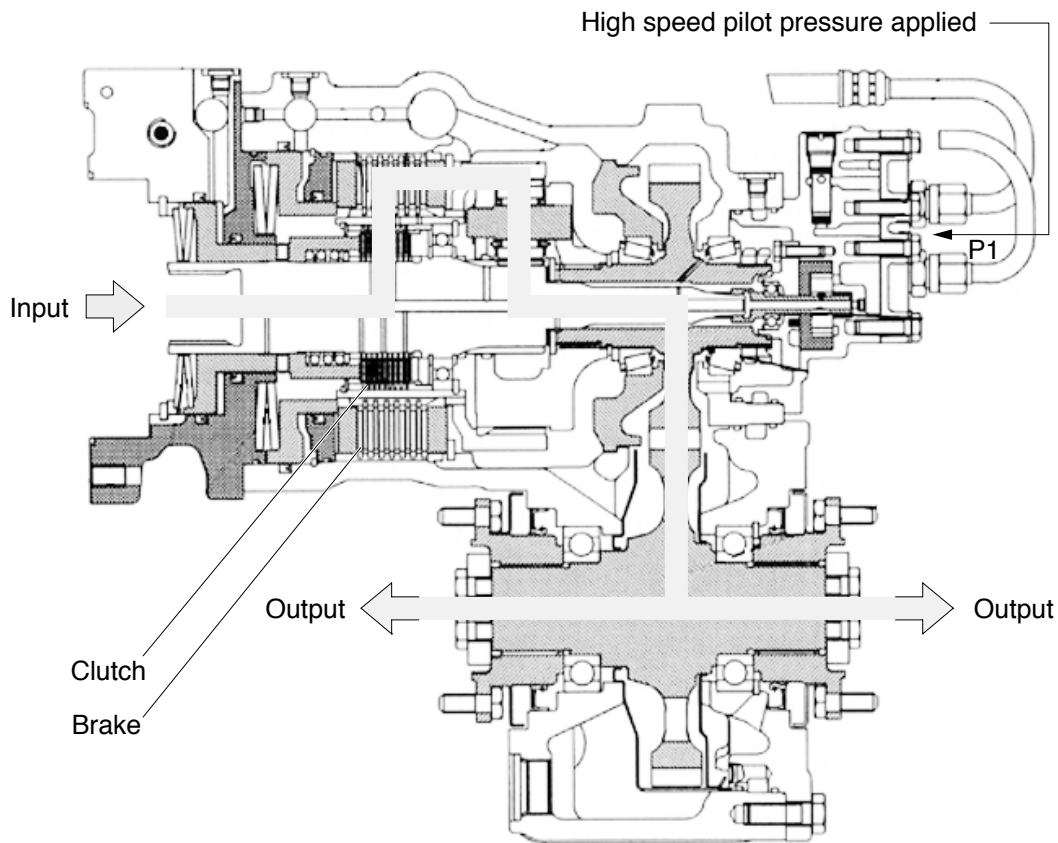
The shift interlock(7) prevents downshifts at high machine speeds and thus prevents over-rotation of the travel motor. If the off-road gear is selected while the on-road gear is engaged and input speed is above approx. 800rpm, The off-road gear shift is inhibited and only performed if input speed is below this limit. With higher viscosity oil(Cold starting), the downshift is performed at a lower input speed. Upshifts are always possible. The speed-dependent interlock is effective in both directions. It does not prevent the possibility of over-rotation when the machine is coasting. For this, a drive brake valve should be fitted to the travel motor.

2) LOW SPEED(OFF ROAD, FORWARD & REVERSE)



In OFF-road operation, the planet drive ring gear is supported on the closed brake fixed to the housing. In this gear, there is no pressure in the brake piston space so spring force acts on the multi-disc pack. Therefore, the clutch is opened.

3) HIGH SPEED(ON ROAD, FORWARD & REVERSE)



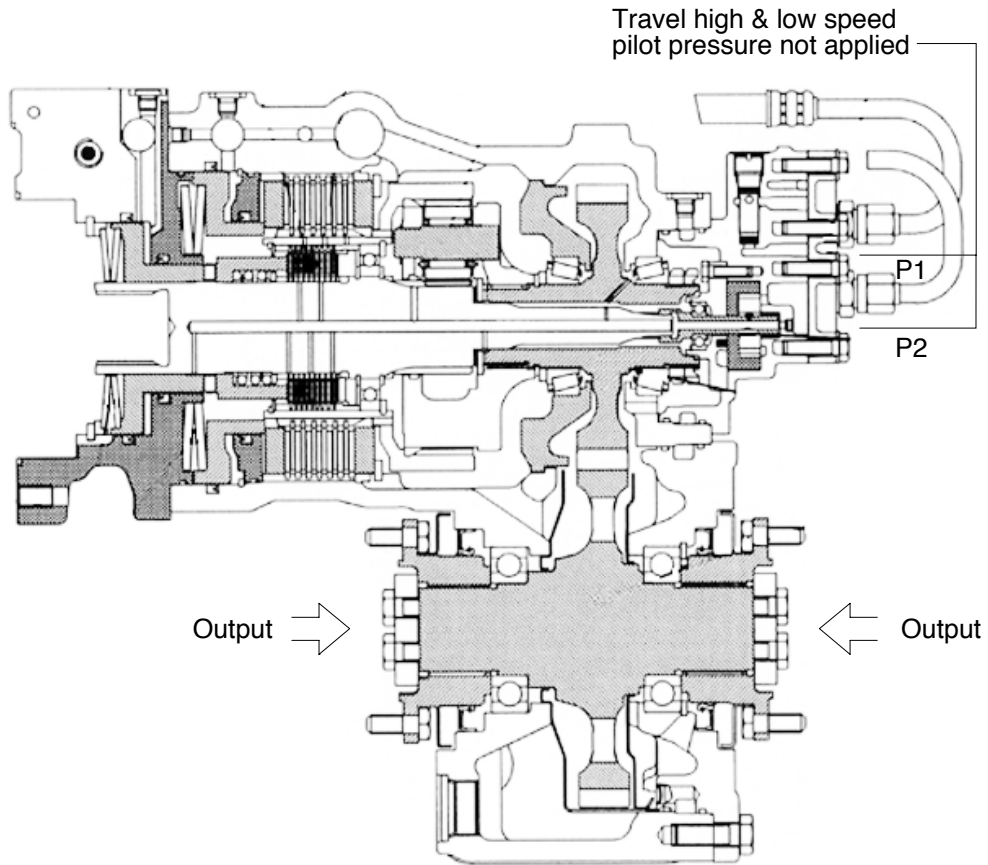
In ON-road operation, the clutch is held closed under spring pressure and the brake is hydraulically opened.

When a gear shift occurs-for example from ON-road to OFF-road gear- the oil from the brake piston space is fed back to the tank. At the same time the clutch is filled with oil and opened. Required oil flow is necessary for the transmission control to ensure the clutch is open before the brake begins to transmit torque.

A spring accumulator is also integrated in the transmission. This modulates the pressure sequence at the brake during a downshift in order to achieve good shift quality.

The gear shift equipment also has the function of a parking brake. When the brake is operated-for example with ON-road gear engaged-the clutch is closed and is statically loaded.

4) BRAKES



When the travel high/low speed pilot pressure is not applied in the piston space, the piston compress against the multi disc pack due to the spring force. Thus the parking brake is engaged.

4. TECHNICAL DATA

1) GENERAL DATA

- (1) Max input power : 60kW
- (2) Max input torque : 53.0kgf · m
- (3) Max input speed : 4500rpm
- (4) Hydraulic motor : 107cm³/rev
- (5) Transmission ratio
 - OFF-road gear : 5.00
 - ON-road gear : 1.29
- (6) Shift interlock
Downshift possible at operating temperature with input speed 800rpm.(Downshift point lower when oil temperature cold)
- (7) Disconnection device
For towing away machine auxiliary release device for parking brake
- (8) Brake
Parking brake. Necessary brake deceleration by controlled locking of planetary drive. Braking torque depends on opening pressure set at brake valve(13bar).
- (9) Output flange
Bolts for propshaft connection : M10 × 1.0(Class 10.9)
- (10) Transmission weight : 110kg

2) TRANSMISSION CONTROL

Following data are valid for oil temperature 30°C to 40°C in hydraulic tank, measured at connections at powershift transmission(See Structure and Diagram).

- (1) Control pressure
At connection P1 and P2 at Low/High engine speed : 33+1kgf/cm²
Definition of lubricants : API CE, CF, SG, SF, SAE 10W-30, 15W-40
- (2) Oil flow
Min oil flow at 24+1kg/cm² counter pressure(Low engine speed) : 5.5 /min
- (3) Residual pressure
Max residual pressure in control line to tank connection P1 respectively P2 : 1.0kgf/cm²
- (4) Leakage oil transmission control
Pressure in input housing connection(E) max. : 1.0kgf/cm²
Max oil flow(OFF road actuated) : 1 /min