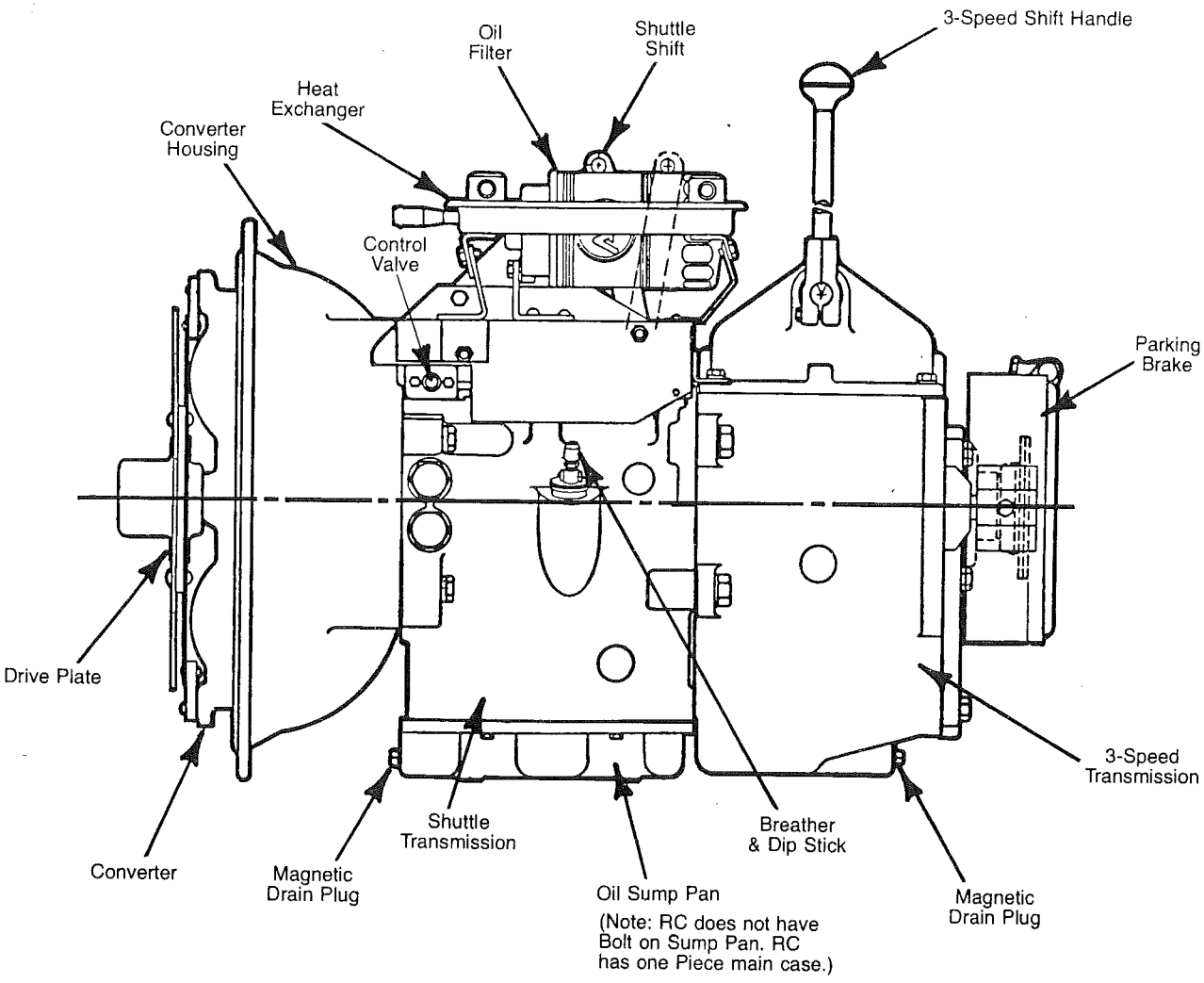
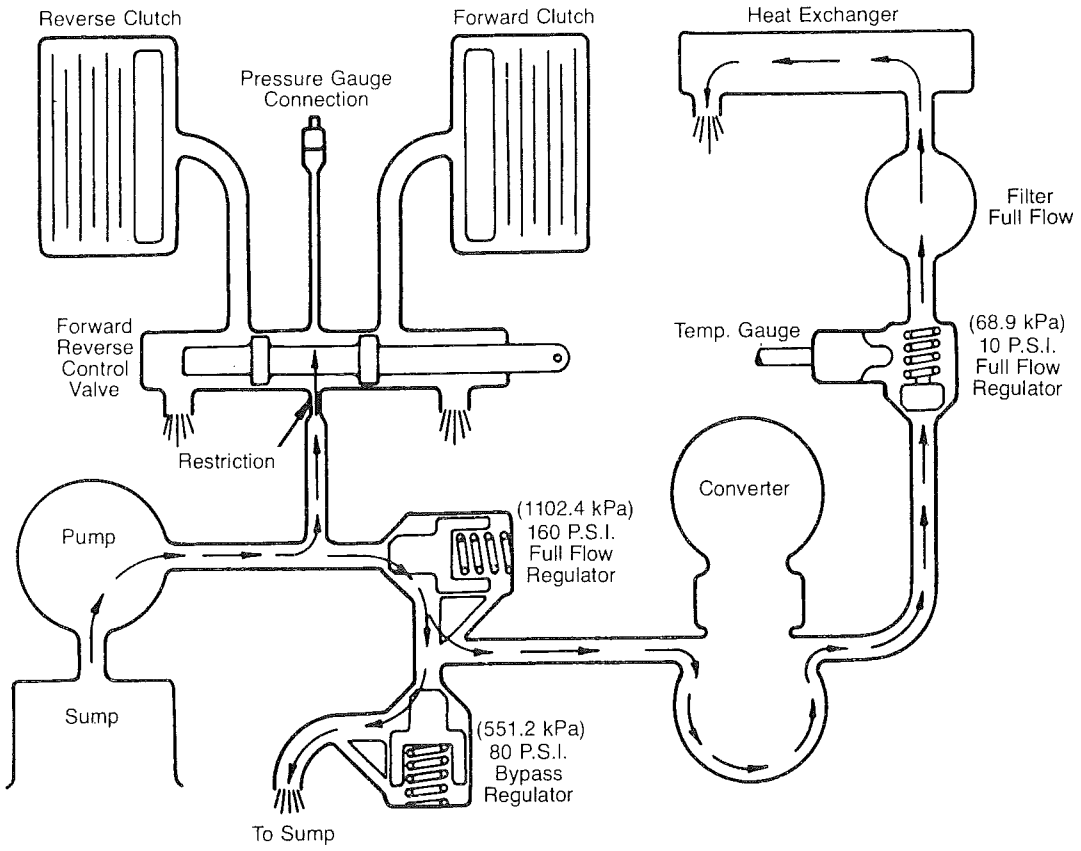

3-Speed Shift Handle
Oil Filter
Shuttle Shift
Heat Exchanger
Converter Housing
Control Valve
Parking Brake
Drive Plate
3-Speed Transmission
Converter
Magnetic Drain Plug
Shuttle Transmission
Breather & Dip Stick
Oil Sump Pan
(Note: RC does not have Bolt on Sump Pan. RC has one Piece main case.)
Magnetic Drain Plug

REVERS-O-MATIC™ HYDRAULIC FLOW DIAGRAM



OIL SYSTEM
50000 AND RC

OPERATING PRESSURES

Clutch Operating Pressure	160 P.S.I. (1102.4 kPa)
Converter Charge Pressure	80 P.S.I. (551.2 kPa)
Converter Out Pressure	10 P.S.I. (68.9 kPa)

OPERATING TEMPERATURE ..... Maximum 250°F. (121°C.)

OIL CAPACITY	**50000**	**RC**
Without Selective Speed Transmission	10 Qts. (9.464 l)	9 Qts. (8.517 l)
With Selective Speed Transmission	14 Qts. (13.249 l)	13 Qts. (12.303 l)

LUBRICATION

Revers-O-Matic	Splash Lubricated
Selective Speed Transmission	Splash Lubricated

OPERATION

Like all mechanical equipment, the Funk Revers-O-Matic™ Drive will need attention and servicing. Routine checks will help prevent down-time. The operator can aid in preventive maintenance by occasionally reading the instrument panel gauges and keeping a watchful eye; reporting weak, borderline malfunctioning.

Because the unit operates "IN" oil and "BY" oil, most of the maintenance is concerned with oil replenishment and oil cleanliness.

RULES OF OPERATION

1. Check oil level daily, stopping engine before checking.

   Make sure area around oil fill is clean before removing dipstick. A drain cock or plug is provided on the oil fill side of the unit at oil level. If working conditions are severe, it is recommended that the oil level be checked using the drain cock; that is, if oil starts to drip out when opening the drain a proper oil level is being maintained. This method of checking the oil is especially desirable on units operating in mines, sand and gravel pits, etc. where it is highly possible to have foreign material packed around the oil fill where it could fall into the unit when the dipstick is removed.

2. Always shift the Revers-O-Matic to neutral before starting engine, or when the vehicle is parked and the engine is running.

   To move the vehicle, select the speed range desired by shifting the transmission behind the shuttle box and then engage the directional clutch (forward or reverse) in the Revers-O-Matic.

3. Engage forward and reverse clutches at idle speed only.

4. Use brakes to slow vehicle before applying the opposite clutch.

5. Pay particular attention to the instrument panel to monitor clutch pressure and oil temperature.

6. The oil pressure gauges should read approximately 160 P.S.I. (1102.4 kPa) with the engine running above 1200 R.P.M. If pressure varies more than 15 P.S.I. (103.35 kPa) from the above, check per "IRREGULAR OIL PRESSURE" section on a later page. At engine idle speeds, and/or when the hydraulic clutches are engaged, the pressure will momentarily drop, but should return to normal as soon as the engine speed is increased.

7. If the oil temperature gauge which is the converter oil "OUT" temperature rises above 250°F. (121°C.), stop the vehicle immediately. Shift Revers-O-Matic to neutral and run the engine at 1000-1200 R.P.M. The temperature should drop rapidly to the engine water temperature within (3) three to (4) four minutes. If the temperature does not drop, trouble is indicated. The cause of trouble should be determined before further operation of the vehicle; refer to "TROUBLE SHOOTING" instructions to be found elsewhere in this manual.

   Generally when overheating does occur, it is due to rapid reversals in the higher gear ratios. Shifting to a lower gear will help eliminate overheating due to this cause.

8. When towing the vehicle, always disconnect the drive shaft. The standard transmissions do not have towable features.

   NOTE: The right or left hand side is determined by viewing from rear of unit, looking forward to the engine flywheel.

SERIES RC & 50000 PERFORMANCE CHECK

Attach a tachometer to the engine with the transmission in neutral. Holding the forward pedal or lever wide open, the engine speed should increase to the top governor R.P.M. as shown in the specification sheet. If the R.P.M. is less than this, check the control and governor linkage to make sure that the governor is being held wide open, or tune up the engine. Check the R.P.M. with the reverse pedal or lever fully depressed. The engine speed should be the same as above.

Next, place the transmission in high gear and lock the brakes. Holding the forward pedal or lever wide open, the engine speed should increase to the minimum static R.P.M. as shown on the specification sheet. If the R.P.M. is less than this, tune up the engine. If the engine speed is over the maximum static R.P.M. as shown on the specification sheet, the torque converter or hydraulic clutches in the Revers-O-Matic are slipping. Repeat the test, using the reverse pedal or lever.

If a check indicates that the converter or the Revers-O-Matic are at fault, first check the oil level of the unit. Next, check the control oil pressure. Install a 200 P.S.I. (1378.0 kPa) pressure gauge in the pipe fitting located on top of the control valve and at the front end of the Revers-O-Matic Drive. With the engine speed at approximately 1500 R.P.M. the pressure should read 150 P.S.I. (1033.5 kPa) minimum. If less than this, remove and clean the pressure regulator valves as follows:

1. Remove the upper regulator cap on the left hand side of the unit near the front end of the case. Remove the spring, valve, and guide pin. Thoroughly clean the valve port as well as the various parts of the valve. Set the parts of the upper regulator valve aside so they will not be mixed with other parts later on.
2. Install the upper regulator cap only in the upper regulator valve port.
3. Remove the lower regulator cap, spring, valve and guide pin. Thoroughly clean the valve port as well as the various parts of the valve.
4. Reassemble the lower regulator valve completely, being sure that the valve slides freely in the valve port.
5. A pressure reading can now be taken on the lower regulator valve, using the gauge previously installe The lower regulator should be set at 75 to 80 P.S.I. (516.75 to 551.2 kPa).
6. The pressure of the regulators can be adjusted by adding or removing washers under the springs in the regulator caps.
7. Remove the upper regulator cap and reassemble the upper regulator valve completely, being sure that the valve slides freely in the valve port.
8. The upper regulator valve should now be set at 160 to 170 P.S.I. (1102.4 to 1171.3 kPa) at 1800 R.P.M. in neutral. However, the pressure will drop momentarily below 100 P.S.I. (689 kPa) when the clutches are engaged. With the engine idling, the regulator should read approximately 100 P.S.I. (689 kPa).
9. With new oil in the unit, the pressure regulator valves may buzz. This is due to a foaming of the oil. Do not read the pressure gauge when the regulator valves are buzzing. Idle the engine for several minutes, then increase the speed and read the pressure gauge.
10. The 10 P.S.I. (68.9 kPa) pressure regulator valve located on the right hand side of the unit is rarely a source of service problems. However, if the valve should require cleaning, follow the steps described above for the regulator valves.

JERKING STARTS

If unit starts with a jerk, check the engine idle speed which is recommended to be 450 to 550 R.P.M. If idle speed is lower than this, unit will die too easily in rapid reversals, and if higher, the converter will transmit too much torque for smooth starts. Maladjustment of the control system caused by excessive friction or external interference may cause the clutches to engage after the engine has started to accelerate. The control valve should be completely open before the engine speed increases. This is mandatory for smooth starts.

SLUGGISHNESS

Check engine for proper operating performance (refer to performance check). Adjust the rod from the control system to the governor so the engine speed increases immediately after the control valve is opened.

All Interferences that limit top R.P.M. should be remedied.

CLUTCH FAILING TO RELEASE

First check for high oil level. Internally inspect the clutch affected for burned, damaged, or worn parts, and replace as necessary. If the output shaft exerts a turning force of 30 inch pounds (3.4 Nm) of torque or more with the unit in neutral, corrective measures should be taken. This would require disassembly of the unit and inspection of all parts.

OVERHEATING

First check for high oil level. Shifting to a lower gear will help eliminate the tendency to overheat. Inspect the heat exchanger and oil filter lines for obstructions and clean or replace as necessary. The possibility of insufficient oil flow to the heat exchanger caused by a worn or damaged oil pump should be checked. Inspect the oil filter for clogging.

NOISY CONVERTER

First, check for low oil level. Inspect the converter for worn or damaged parts. Check for damaged oil pump and replace if necessary.