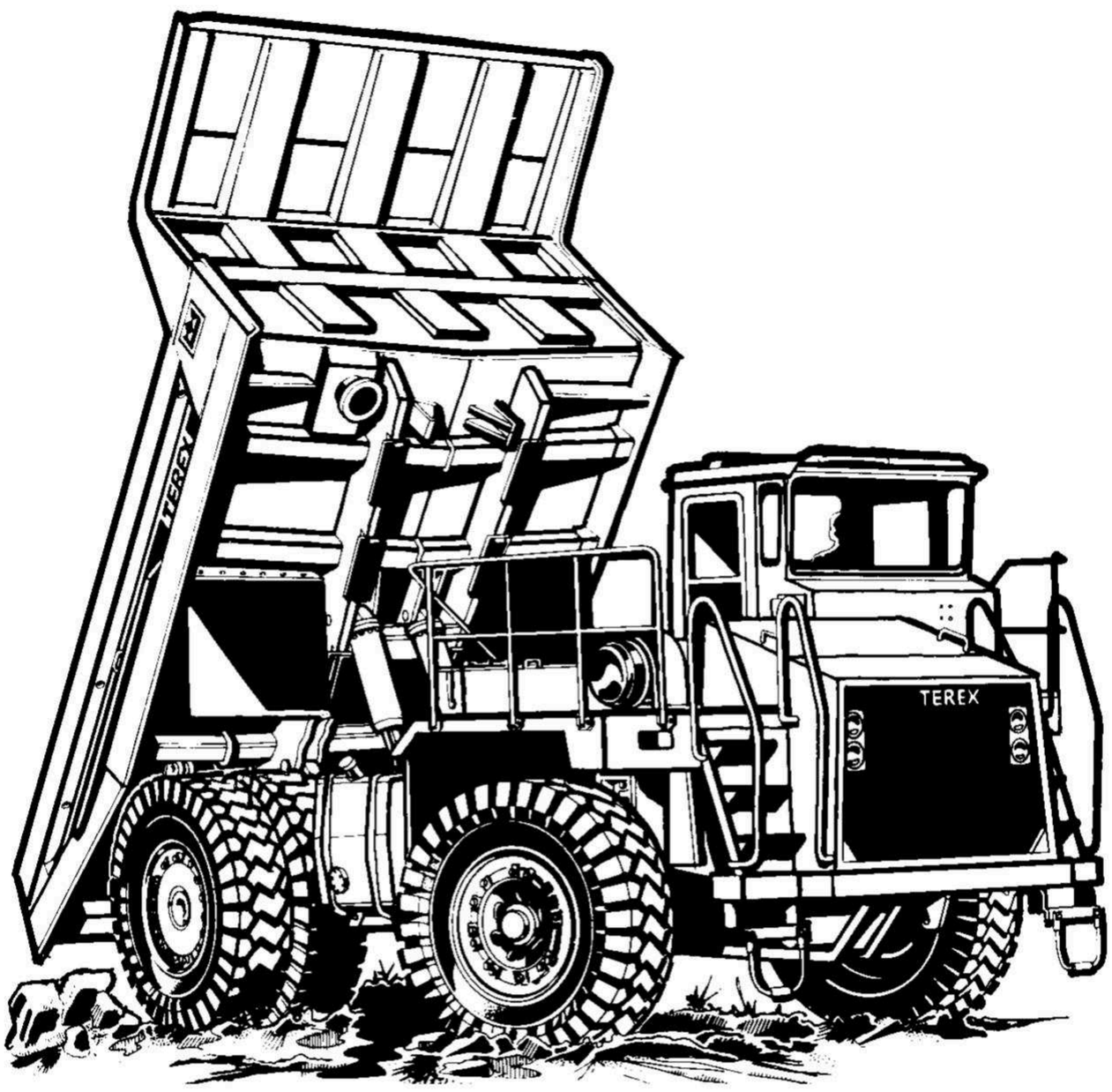
TEREX

TR35
Off-Highway Truck
Maintenance Manual



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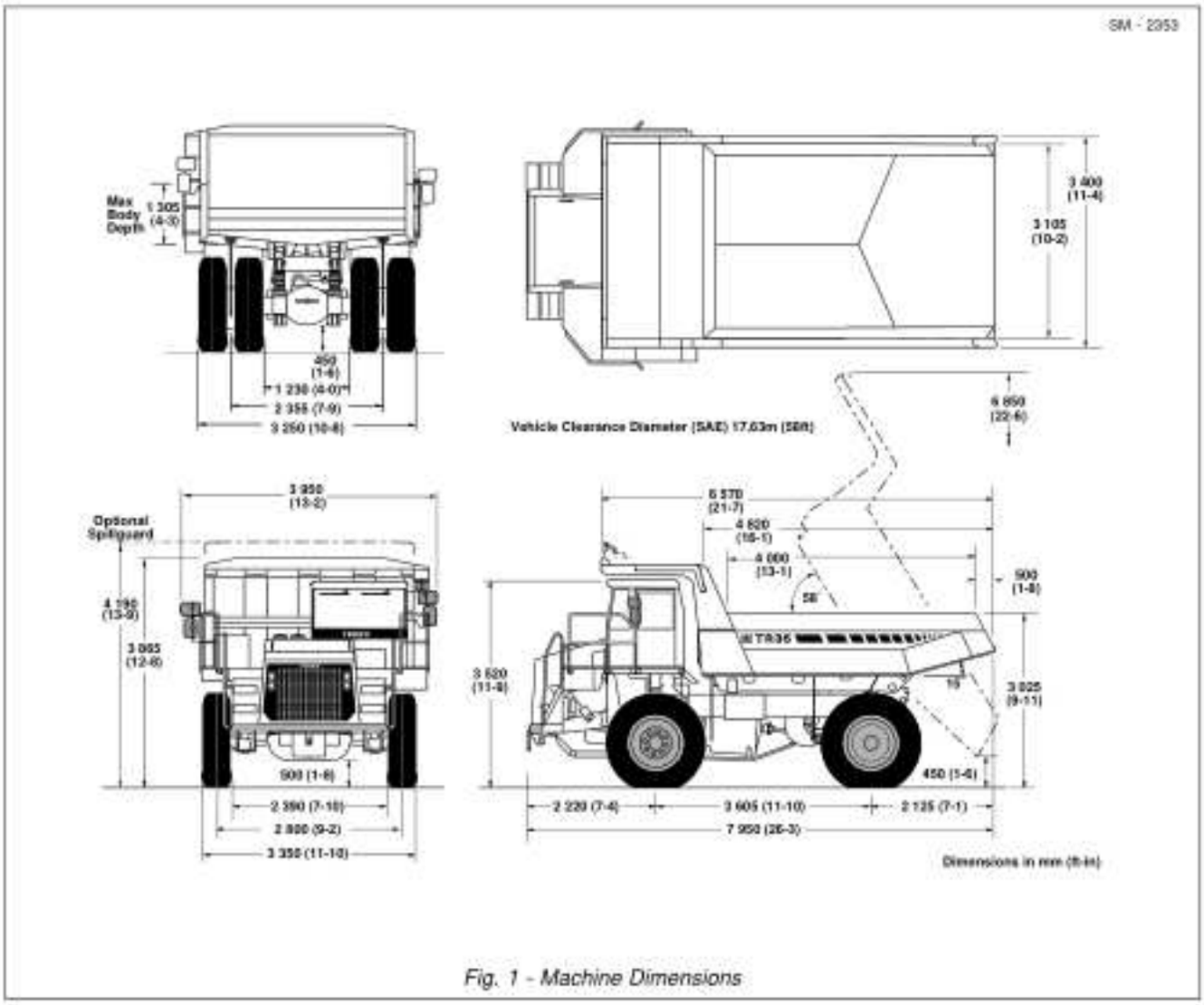


Fig. 1 - Machine Dimensions

ENGINE

Make/Model ..... Cummins MTA11-C350
Type ..... 4 Cycle, low emission, direct injection diesel, water-cooled, turbocharged and aftercooled
Gross Power at 2 100 rev/min ..... 261 kW (350 hp, 355 PS)
Net Power at 2 100 rev/min ..... 238 kW (319 hp, 324 PS)

Note: Gross power rated to SAE J1995 Jun 90. Engine emission meets USA EPA/CARB MOH 40 CFR 89 and EU NRMM (non-road mobile machinery) directive.

Maximum Torque ..... 1 559 Nm (1 150 lbf ft) at 1 300 rev/min
Number of Cylinders/Configuration ..... 6, in line
Bore x Stroke ..... 125 x 147 mm (4.9 x 5.8 in)
Total Displacement ..... 10.8 litres (661 in³)
Starting ..... Electric
Maximum Speed, Full Load ..... 2 100 rev/min
Maximum Speed, No Load ..... 2 450 rev/min
Idle Speed ..... 750 rev/min
Safe Operating Angle ..... 45°/100% Grade

TRANSMISSION

Make/Model ..... Allison CBLT-754 Automatic
Remote mounted in the frame with integral torque converter, hydraulic retarder and planetary gearing. Five speeds forward, one reverse. Automatic shifting within ranges 2 to 5. Downshift and reverse inhibitors. Automatic converter lockup action in all speed ranges.

Speeds With Standard Planetary					
Forward					
Gear	1	2	3	4	5
Ratio	5.20	3.20	2.00	1.40	1.00
km/h	10.7	17.4	27.5	40.1	55.5
mile/h	6.7	10.8	17.1	24.9	34.5
Reverse					
Gear	1				
Ratio	4.70				
km/h	11.8				
mile/h	7.3				

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5. Set shims (16) in place against flange of bearing cage (15).

6. Position bearing cage (15) on carrier housing (19), keeping slot in flange of bearing cage in upright position. Install mounting bolts (14) and torque tighten to 80 Nm (58 lbf ft).

7. Lubricate and press a new seal (6) into seal retainer (8) with the oil lip (larger lip of the two, with the spring behind it) facing inward. Lubricate and fit a new 'O' ring (9) into the groove in seal retainer (8) and secure seal retainer (8) to bearing cage (15) with bolts (7). Do not tighten bolts (7) at this time.

8. Install yoke flange (4) to pinion gear (17) spline until it contacts pinion outboard cone (10). DO NOT pound on yoke flange.

9. Install gasket (3) and pinion shaft nut (1) on pinion gear (17) spline. Torque tighten pinion shaft nut (1) to 940 Nm (695 lbf ft).

10. Insert cotter pin (2) to lock nut (1) in place. DO NOT back off nut to align cotter pin holes. Advance nut to next slot and align with hole in pinion gear shaft and insert cotter pin.

11. Tighten seal retainer bolts (7) of seal retainer (8) to ensure a positive seal around yoke flange (4). Torque tighten bolts (7) to 80 Nm (58 lbf ft).

12. Place a flat bar approximately 450 mm (18 in) long across the two bearing bores of carrier housing (19), as shown in Figs. 8 & 9. The bar must lie perfectly level between the flats; therefore, make sure that the flat surfaces are free of burrs and dirt.

13. Use an inside micrometer and measure the distance from the centre of pinion shaft (17) to the bottom surface of the bar as shown in Fig. 9. When measuring this distance, make sure that the micrometer does not lift the bar off the flat surfaces. Record this measurement and compare it to the dimension 'etched' on the face of the end bearing journal of the pinion shaft (17).

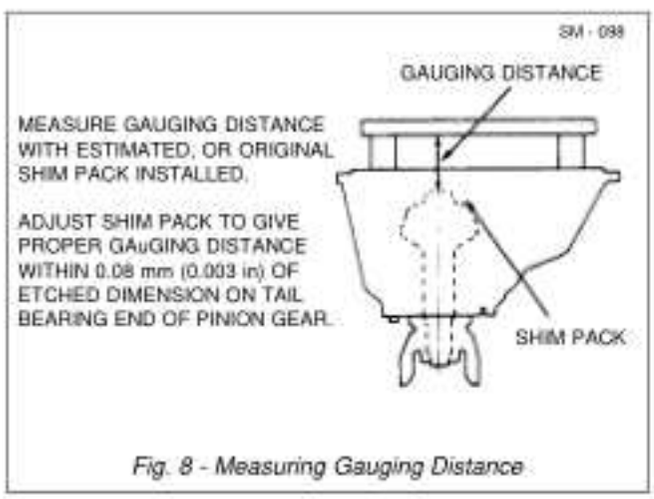


Fig. 8 - Measuring Gauging Distance

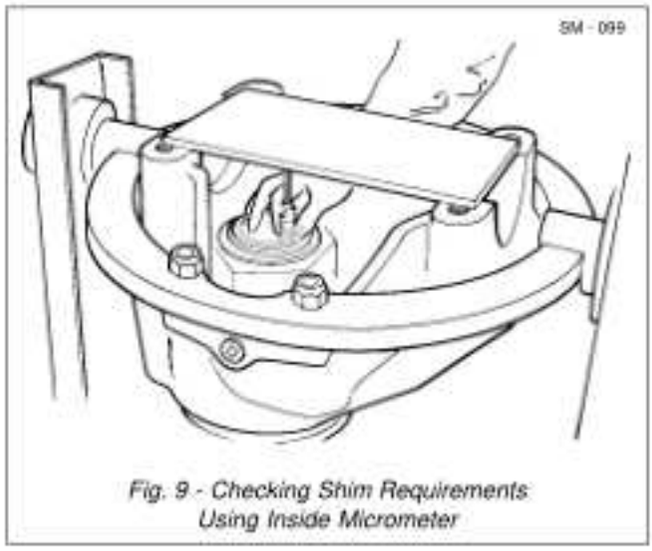


Fig. 9 - Checking Shim Requirements Using Inside Micrometer

14. When the micrometer measured dimension is smaller than the 'etched' dimension, the difference indicates the amount of shims (16) to be added.

15. When the micrometer measured dimension is larger than the 'etched' dimension, the difference indicates the amount of shims (16) to be removed.

16. If a lesser amount of shimming is required (removing shims), loosen bolts (14) and pull shims (16) from between bearing cage (15) flange and carrier housing (19) with a pair of needle-nosed pliers. Torque tighten bolts (14) to 80 Nm (58 lbf ft).

17. The pinion-to-plate micrometer (measured) dimension must be checked and compared to the 'etched' dimension every time a shim is added or removed.

Note: The adding and removing of shims (16), as determined by comparing the micrometer and 'etched' dimensions, should not be regarded as a final adjustment.

This procedure is used to establish a good 'Starting point' and may be changed as described in 'Ring Gear Assembly to Carrier Housing'.

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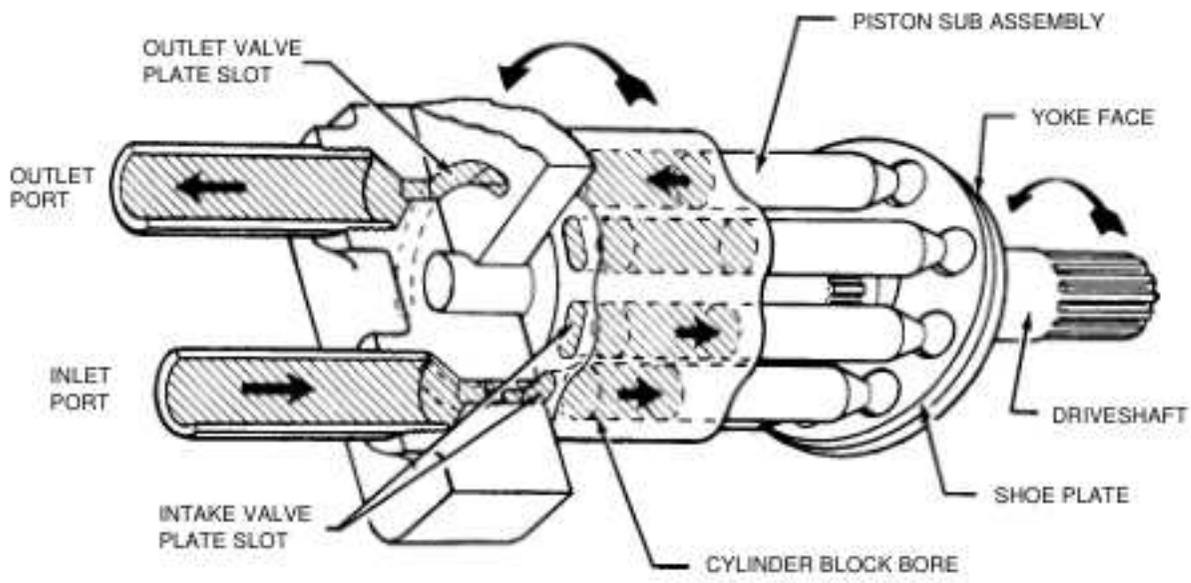


Fig. 2 - Pump Rotation and Oil Flow

OPERATION

Refer to Fig. 3 for hydraulic schematic of steering pump operation.

Rotation of the pump driveshaft causes the cylinder block, shoe plate and pistons to rotate. See Fig. 2. The piston shoes are held against the yoke face by the shoe plate. The angle of the yoke face imparts a reciprocating motion to each piston within the cylinder block. Inlet and outlet ports connect to a kidney slotted wafer plate. As the pistons move out of the cylinder block, a vacuum is created and fluid is forced into the void by atmospheric pressure. The fluid moves with the cylinder block, past the intake kidney slot, to the outlet (pressure) kidney slot. The motion of the piston reverses and fluid is pushed out of the cylinder block into the outlet port.

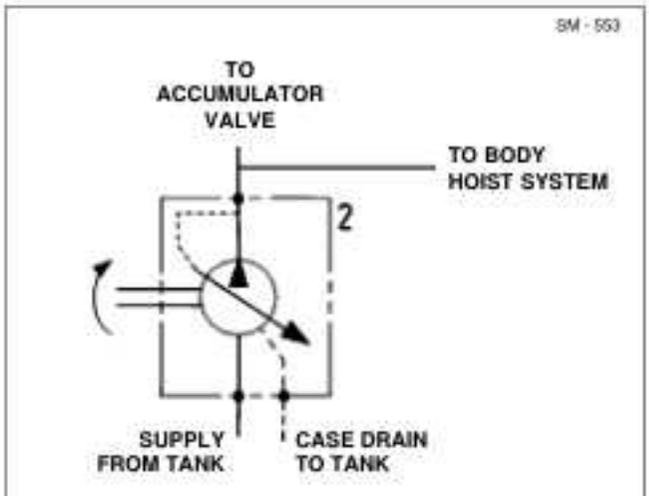


Fig. 3 - Hydraulic Schematic of Steering Pump Operation

Oil flows from the outlet (pressure) port to the accumulator valve which supplies steering circuit pressure. Pressure is tapped off from a tee to supply body hoist circuit pressure.

Internal pump leakage oil is returned to tank through a line at the case drain port on the steering pump.

Variable Displacement

Variable displacement is effected by altering the angularity between the shoe plate and driveshaft axes, as shown by views 'A', 'B' and 'C' in Fig. 4.

During pump operation load or system pressure is continually fed to the bias piston and the compensator spool chamber.

The operation of the compensator is such that when the system pressure (pump outlet) reaches the compensator spring setting the valve spool moves to meter fluid to the pump control piston.

As the force produced by the control piston overcomes the force of the bias piston the shoe plate

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BRAKING SYSTEM DIAGNOSIS (Continued)		
CONDITION	REASON	REMEDY
Air pressure rises to normal reading too slowly	Excessive leakage	Trace brake lines by referring to Fig. 1. Install a test gauge at various points in the system to determine location of trouble. Test operation of faulty component as outlined in air brake control component sections. Repair or replace, as recommended. Check brake air lines for leaks.
	Engine speed too slow	Correct condition. Refer to ENGINE MAINTENANCE MANUAL.
	Compressor discharge valves leaking	Repair or replace. Refer to ENGINE MAINTENANCE MANUAL.
	Worn compressor	Repair or replace. Refer to ENGINE MAINTENANCE MANUAL.
	Excessive carbon in compressor cylinder head or discharge line.	Clean the head and lines. Refer to ENGINE MAINTENANCE MANUAL.
Safety valve 'blows off'	Safety valve out of adjustment	Adjust as recommended in Section 250-0120, SAFETY VALVE.
	Air pressure in system above normal	Check governor. Refer to Section 110-0180, AIR COMPRESSOR GOVERNOR or check unloading valve; refer to ENGINE MAINTENANCE MANUAL.
Excessive oil or water in the system	Compressor passing excessive oil	Service compressor as recommended in ENGINE MAINTENANCE MANUAL.
	Air drier not performing adequately	Check dessicant cartridge, replace if required.
	Air tanks not being drained often enough	Drain all air tanks.
Air pressure drops quickly with engine stopped and brakes fully applied	One or more faulty air control components in brake air lines, or leak in lines	Trace brake lines by referring to Fig. 1. Install test gauge at various points in the system to determine location of trouble. Test operation of faulty component as outlined in air control component sections. Repair or replace, as recommended. Check brake air lines for leaks.
	Leaking brake chamber diaghragm	Replace diaphragm as recommended in Section 250-0250, 250-0260, SAFETY CHAMBER.
Safety chamber lock lines not charging or venting	Defective syncro valve	Repair or replace faulty component as recommended in Section 250-0300, SYNCRO VALVE.
	Defective park/emergency control valve	Repair or replace faulty component as recommended in Section 250-0190, PARK/ EMERGENCY CONTROL VALVE.

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