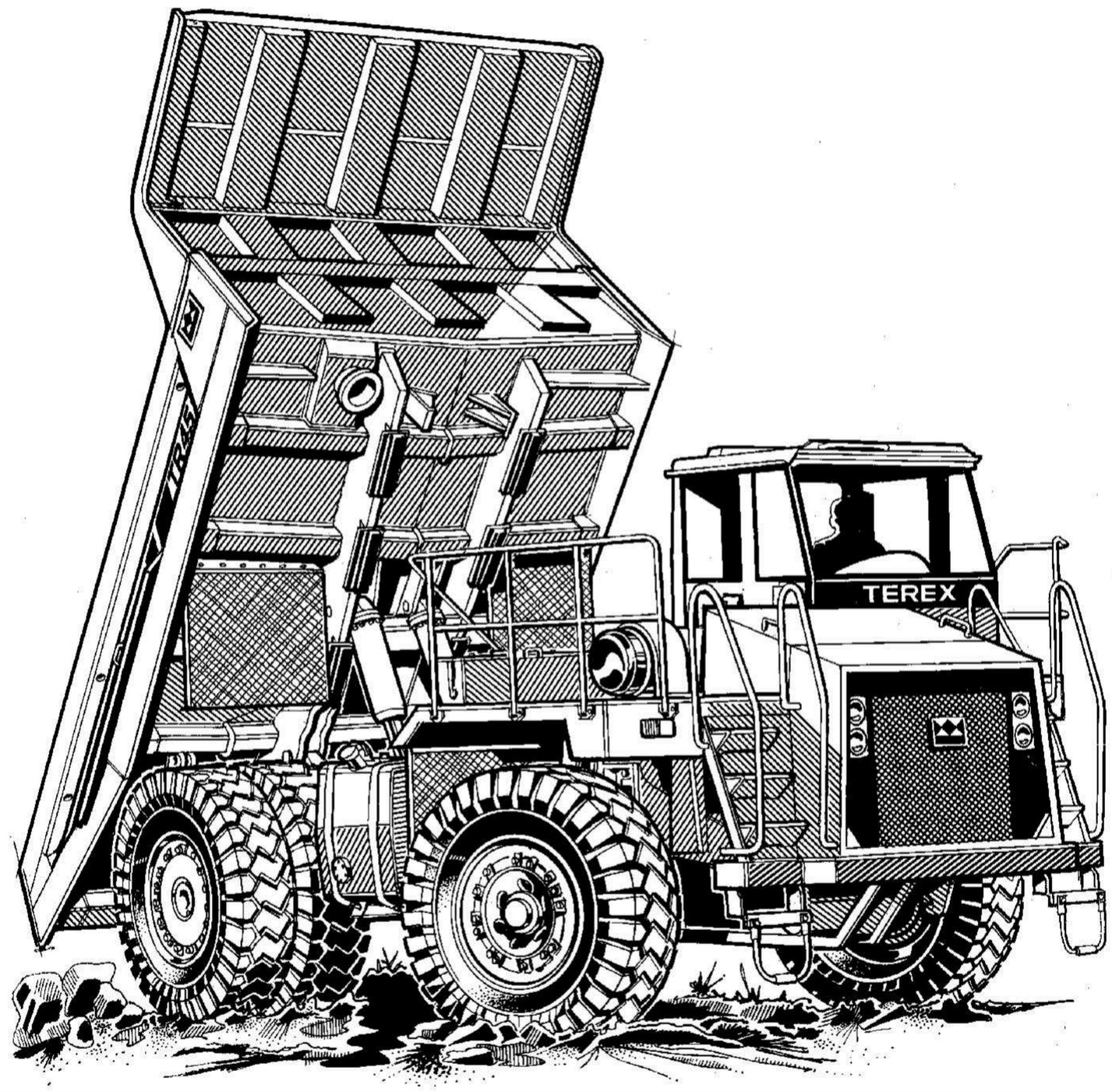
TEREX

TR40
Off-Highway Trucks
Service Manual



TECHNICAL PUBLICATIONS DEPARTMENT
TEREX EQUIPMENT LIMITED,
MOTHERWELL, SCOTLAND, ML1 5RY
REF. NO. SM753/780

SM 1663 1-99

MidWestTech | Terex TR40 Off-Highway Truck Service Manual | Publication SM_1663
Order the manual at mid-west-tech.com >

TABLE OF CONTENTS

Section No.	Description	SM No.
000	**GENERAL INFORMATION**	
0000	TR40 Off-Highway Truck	1665
100	**CHASSIS**	
0010	Chassis, Hood and Fenders	1666
110	**ENGINE**	
0030	Engine and Mounting	1667
0050	Air Cleaner	1668
0130	Power Takeoff	1669
120	**TRANSMISSION**	
0010	Transmission and Mounting	1671
0070	Commercial Electronic Control (CEC) Shift System	1680
0090	Power Takeoff	1178
0100	Transmission Oil Filter	1673
130	**DRIVELINE**	
0010	Front Driveline - Pre June 1998 Production	1180
0010	Front Driveline - From June 1998 Production	1682
0020	Rear Driveline - Pre June 1998 Production	1311
0020	Rear Driveline - From June 1998 Production	1683
140	**FRONT AXLE**	
0040	Wheel, Rim and Tyre	1303 Rev 1
160	**REAR AXLE**	
0020	Differential	1298
0030	Axle Group	1299
0050	Wheel, Rim and Tyre	1300 Rev 1
165	**BRAKE PARTS**	
0020	Brake Parts - Front Axle	1186
0030	Brake Parts - Rear Axle	1301
180	**SUSPENSION SYSTEM**	
0030	Ride Cylinder - Front	1584
0050	Ride Cylinder - Rear	1302
190	**CIRCUIT DIAGRAMS**	
0000	Circuit Diagrams	1585
0270	Switches and Sensors	1672
200	**FUEL SYSTEM**	
0010	Fuel Tank and Mounting	1674
210	**COOLING SYSTEM**	
0000	Cooling System	1686
0040	Radiator, Header Tank and Mounting	1677
0050	Disc Brake Oil Cooler	1679
0060	Transmission Oil Cooler	1678

MidWestTech | Terex TR40 Off-Highway Truck Service Manual | Publication SM_1663 Order the manual at mid-west-tech.com >

TABLE OF CONTENTS

Section No.	Description	SM No.
220	**STEERING SYSTEM**	
0000	Steering System Schematic	1591
0040	Steering and Brake Control Tank	1592
0050	Steering Pump	1204
0080	Accumulator	1205
0090	Steering Valve	1206
0110	Double Relief Valve	1208
0120	Steering Cylinder and Linkage	1304
0130	Accumulator Valve	1209
0150	Steering Filter	1593
230	**BODY SYSTEM**	
0000	Body System Schematic	1681
0040	Body and Disc Brake Cooling Tank	1595
0050	Tandem Pump	1213
0060	Body Control Valve	1685
0081	Body Control Joystick	1597
0090	Kick-over Valve	1218
0120	Relief Valve	1598
0121	Pilot Supply Valve	1599
0130	Body Cylinder	1221
250	**BRAKING SYSTEM**	
0000	Braking System Schematic	1222
0050	Brake Manifold Valve	1223
0060	Accumulator	1600
0070	Treadle Valve	1225
0090	Directional Control Valve	1226
0100	Monoblock Brake Valve	1227
0130	Retarder Control Valve	1609
0140	Shuttle Valve	1229
260	**OPERATORS COMPARTMENT**	
0010	Cab and Mounting	1602
0110	Passenger Seat and Mounting	1603
270	**BODY**	
0010	Body and Mounting	1675
300	**MISCELLANEOUS**	
0020	Lubrication System	1670
0070	Service Tools	1684
0080	Standard Bolt and Nut Torque Specifications	1238
0090	Unit Storage	1239

. . . .

MidWestTech | Terex TR40 Off-Highway Truck Service Manual | Publication SM_1663 Order the manual at mid-west-tech.com >

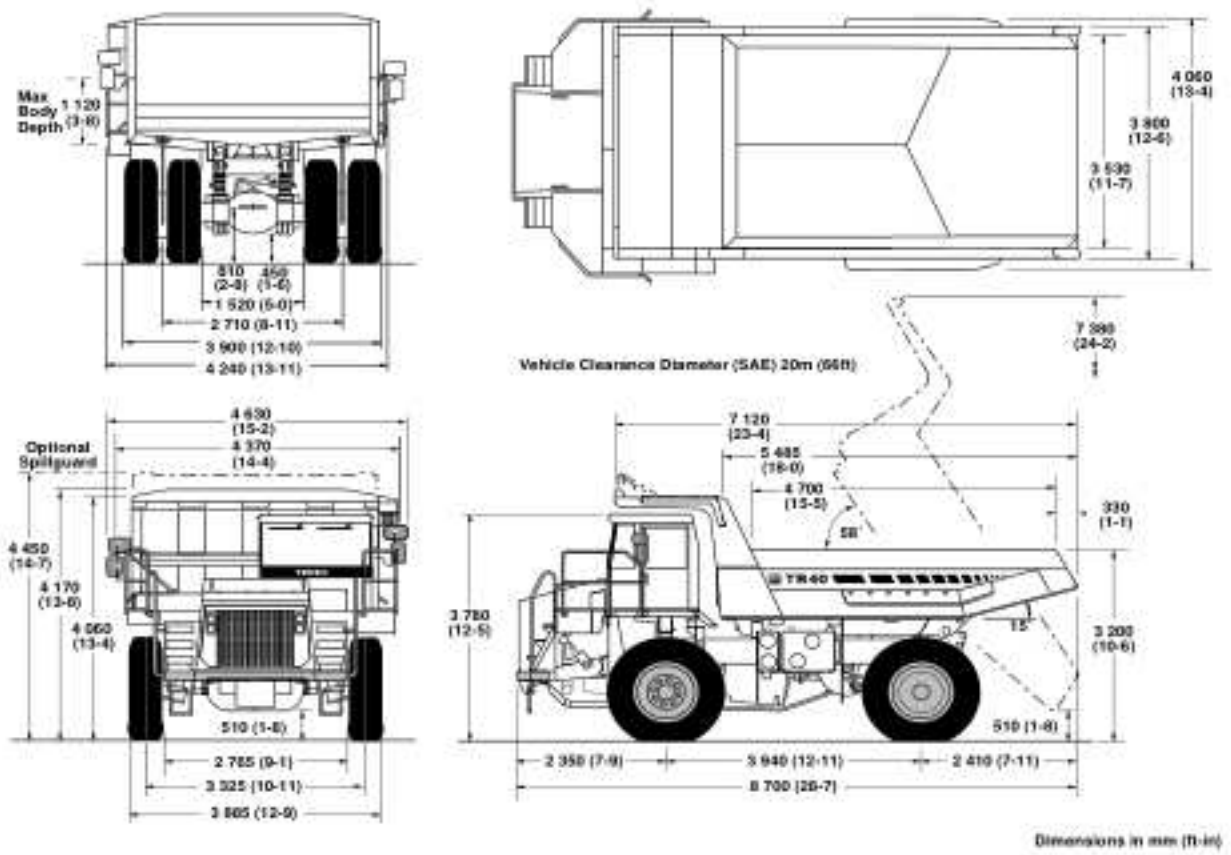


Fig. 1 - Machine Dimensions

ENGINE

Make/Model ..... Cummins N14-C475
Type ..... 4 Cycle Turbocharged/Aftercooled
Gross Power at 2 100 rev/min .....354 kW (475 hp, 481 PS)
Net Power at 2 100 rev/min .....331 kW (444 hp, 450 PS)

Note: Power ratings 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 ..... 2 000 Nm (1 475 lbf ft) at 1 300 rev/min
Number of Cylinders/Configuration .....6, in line
Bore x Stroke ..... 140 x 152 mm (6.25 x 6.25 in)
Total Displacement ..... 14.0 litres (885 in³)
Starting ..... Electric
Maximum Speed, Full Load ..... 2 100 rev/min
Maximum Speed, No Load ..... 2 400 rev/min
Idle Speed ..... 800 (Free) rev/min
Safe Operating Angle ..... 45°/100% Grade

TRANSMISSION

Make/Model ..... Allison M5600 A
Automatic electronic control with soft shift feature. Remote mounted in the frame. Integral torque converter and planetary gearing. Six speeds forward, two reverse. Automatic converter lockup action in all speed ranges. Downshift inhibitor.

Speeds With Standard Differential						
Forward						
Gear	1	2	3	4	5	6
Ratio	4.00	2.68	2.01	1.35	1.00	0.67
km/h	9.7	14.5	19.3	28.7	38.7	58.0
mile/h	6.0	9.0	12.0	18.0	24.0	36.0
Reverse						
Gear	R1	R2				
Ratio	5.12	3.46				
km/h	7.6	11.2				
mile/h	4.7	7.0				

MidWestTech | Terex TR40 Off-Highway Truck Service Manual | Publication SM_1663 Order the manual at mid-west-tech.com >

6. During the stall check the transmission oil temperature should rise while the engine is under load and drop when the transmission is returned to neutral. Should the temperature fail to drop it indicates that there is a problem with the converter.

7. After making allowances for elevation, a low engine speed may indicate the engine is not delivering full power. Refer to engine service manual for engine repair information.

Electronic Troubleshooting

Refer to Section 120-0070, CEC SHIFT SYSTEM for general electrical troubleshooting. For more detailed electrical troubleshooting refer to the Allison Transmission Commercial Electronic Control (CEC) Troubleshooting Manual SA2712A.

Mechanical Troubleshooting

It is recommended to follow the procedures laid down for mechanical troubleshooting, as outlined in the 'Mechanical Trouble Shooting' charts, before carrying out electrical troubleshooting procedures.

⚠ WARNING
Be sure to apply the parking brake, switch off the engine and block all road wheels before troubleshooting the vehicle. Should it be necessary to run the engine, it is imperative that an operator be present in the cab at all times, even at idle.

SPECIAL TOOLS

There are no special tools required for the procedures outlined in this section. Refer to Section 300-0070, SERVICE TOOLS for part numbers of service tools which should be used in conjunction with procedures outlined in the transmission manufacturers service manual, and general service tools required. These tools are available from your dealer.

MECHANICAL TROUBLESHOOTING CHART

CONDITION	REASON	REMEDY
A - Transmission overheats	High or low oil level	Restore proper oil level
	Aerated (foaming) oil	Refer to condition 'B'
	Vehicle overloaded	Reduce load
	Engine coolant overheated	Correct engine overheating
	Transmission oil cooler or lines kinked or clogged	Clean or replace oil cooler or lines
	Low coolant level	Add coolant, check for leaks
	Oil leaking	Check transmission and lines for leaks
	Low main pressure	Refer to condition 'V'
	Low converter-out pressure	Refer to condition 'U'
	Vehicle brakes dragging	Check parking and service brakes
	Torque converter stator locked	Check for low top speed of vehicle. Check torque converter components.
	Clutch slipping seal rings or clutch plates.	Overhaul transmission. Replace worn piston
B - Oil is aerated (foaming)	Incorrect type of oil used	Change oil. Use only oil specified in Section 300-0020, LUBRICATION SYSTEM.
	High or low oil level	Restore proper oil level
	Air entering suction side of oil pump	Check oil pump bolts and gasket
	Water in oil	Check for source, clean system

MidWestTech | Terex TR40 Off-Highway Truck Service Manual | Publication SM_1663 Order the manual at mid-west-tech.com >

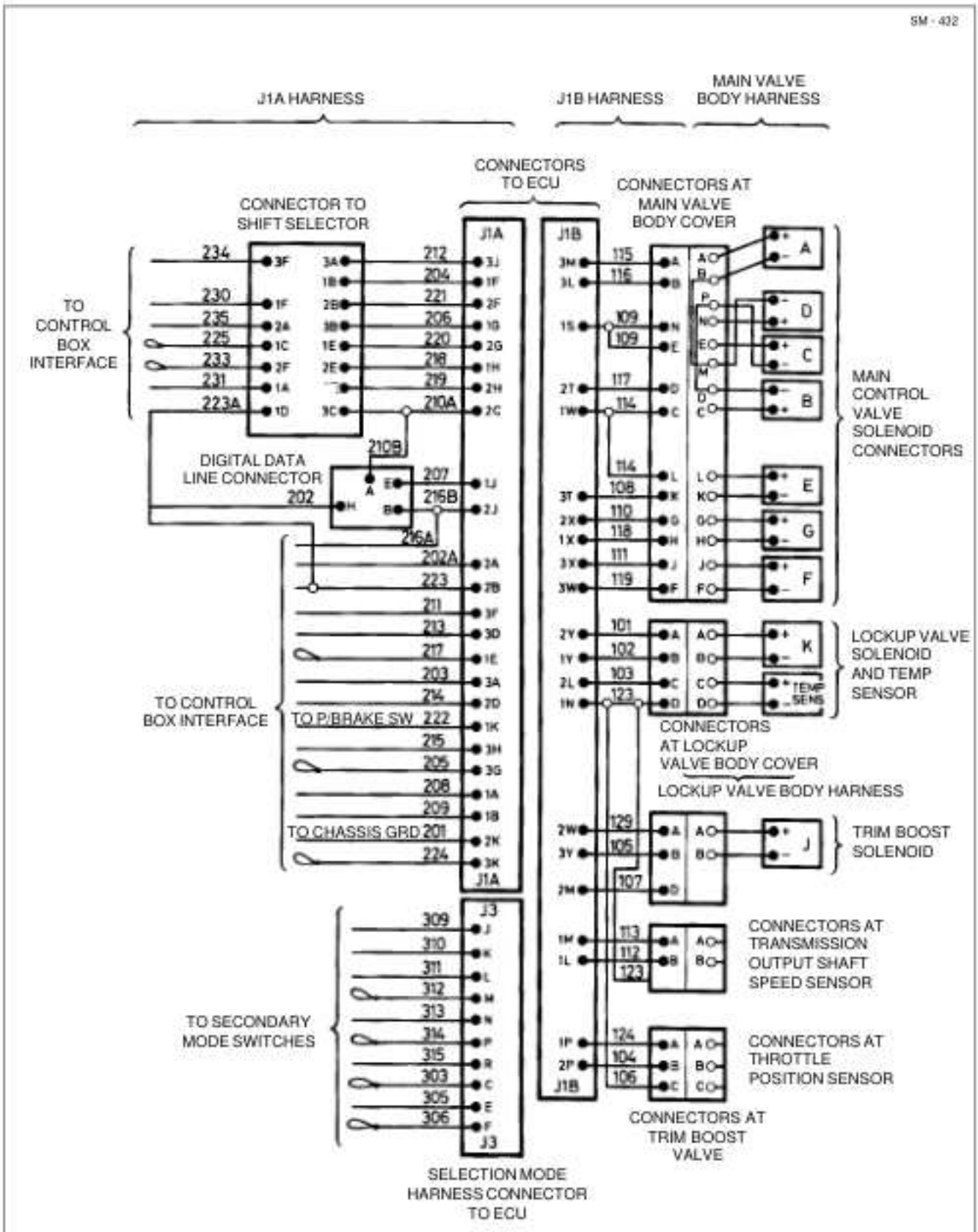


Fig. 21 - Electrical Circuit - J1A, J1B and J3 Harnesses

MidWestTech | Terex TR40 Off-Highway Truck Service Manual | Publication SM_1663
Order the manual at mid-west-tech.com >

for correct oil level and, Section 300-0020, LUBRICATION SYSTEM for oil specification.

8. Remove wheel blocks from all road wheels and start the engine. Operate the steering and check hydraulic lines for leaks. Tighten lines and fittings as required.

9. Re-check oil level in the steering and brake control tank and add oil if necessary.

ALIGNMENT

Numbers in parentheses refer to Fig. 1.

Correct front end alignment is dependent on three basic fundamentals:

a. Caster - Forward and rearward tilt of the axle assembly.

b. Camber - Outward tilt of the top of the front wheels.

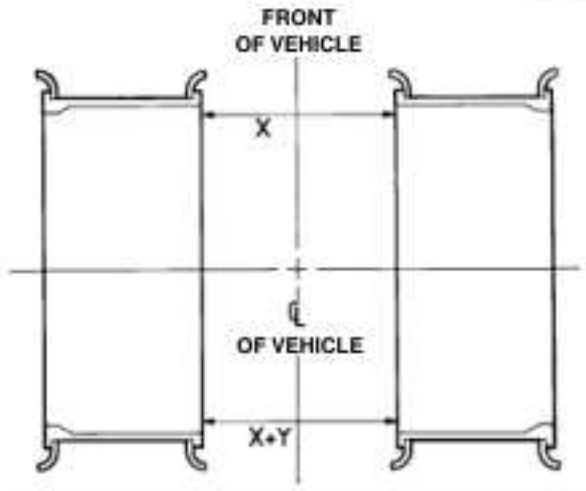
c. Toe-in - Inward turning of the front wheels.

Note: Caster and camber are built into the vehicle and are not adjustable.

Check for toe-in only when the truck is empty and bellcrank (10) is centred. Use a slide bar attached to the wheel rim edge to make this check.

If adjustment is necessary, loosen nuts (45) and bolts (44) at each end of tie rod (35) assemblies. Turn tie rods (35) with a pipe wrench until correct toe-in dimension is obtained. Refer to Fig. 3.

When tie rod (35) lengths have been established, secure socket assemblies (36 & 37) to tie rods (35) with bolts (44) and nuts (45).



Wheel Alignment (Toe-in) Dimensions	
TYRE TYPE	DIMENSION 'Y'
Cross-ply	10 - 16 mm (0.38 - 0.62 in)
Radial	0 - 10 mm (0 - 0.38 in)

Fig. 3 - Plan View of Wheel Alignment

MAINTENANCE

Every 50 Hours - Lubricate steering cylinders and steering pivot pin with grease specified in Section 300-0020, LUBRICATION SYSTEM.

SPECIAL TOOLS

There are no special tools required for procedures outlined in this section. Refer to Section 300-0070, SERVICE TOOLS, for part numbers of general service tools required. These tools are available from your dealer.

SPECIAL TORQUE SPECIFICATIONS

FIG. NO.	ITEM NO.	ITEM NAME	TORQUE	
			Nm	lbf ft
1	16	Nut	245 - 300	180 - 220
1	24	Castle Nut	1 560 - 1 630	1 150 - 1 200
1	40 & 43	Castle Nut	1 150 - 1 290	850 - 950
2	4	Nut	75 - 81	55 - 60
2	13	Nut	350 - 393	260 - 290

MidWestTech | Terex TR40 Off-Highway Truck Service Manual | Publication SM_1663
Order the manual at mid-west-tech.com >

SM - 1591A

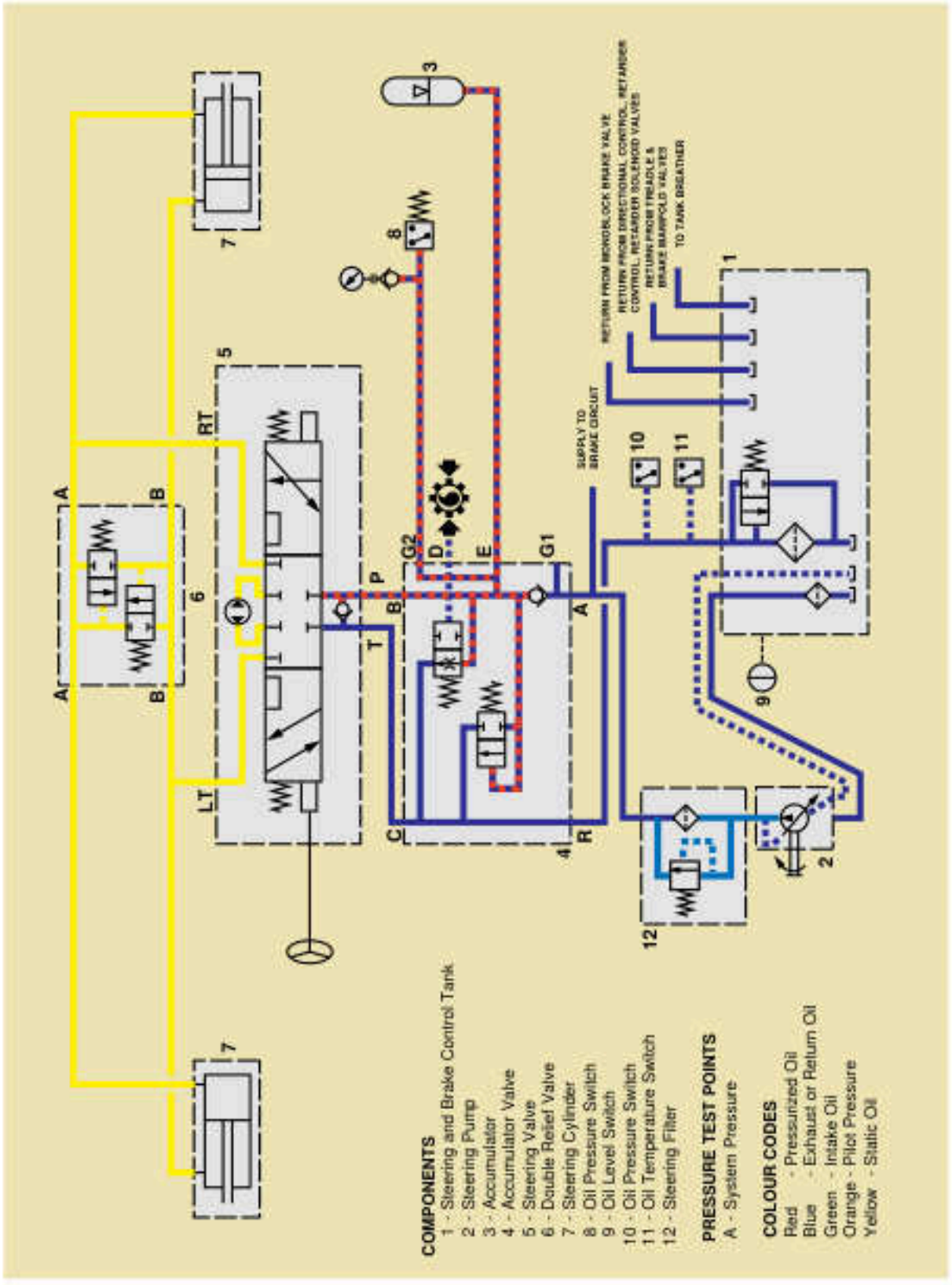


Fig. 2 - Steering System Schematic - Engine Shutdown

MidWestTech | Terex TR40 Off-Highway Truck Service Manual | Publication SM_1663

Order the manual at mid-west-tech.com >

CLICK HERE FOR HORIZONTAL DRAWING

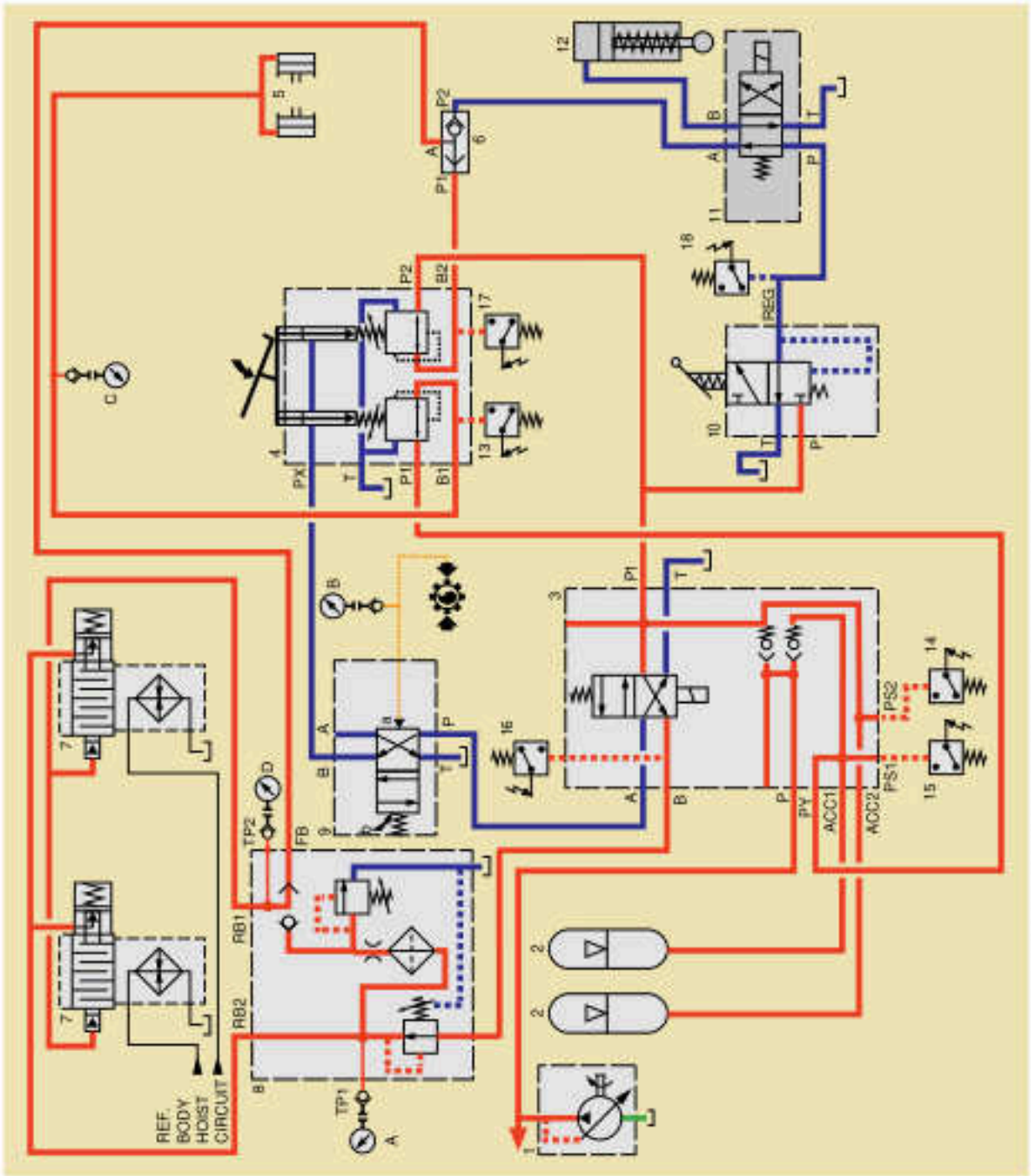


Fig. 4 - Braking System Schematic - Engine Running, Service Brake Applied

COMPONENTS

1 - Steering Pump
2 - Accumulators
3 - Brake Manifold Valve
4 - Treadle Valve
5 - Front Brake Callipers
6 - Shuttle Valve
7 - Oil Cooled Disc Brakes
8 - Monoblock Brake Valve
9 - Directional Control Valve
10 - Retarder Control Valve
*11 - Directional Control Valve
*12 - Transmission Retarder Cylinder
13 - Stop Light Pressure Switch
14 - Rear Brake Accumulator Pressure Switch
15 - Front Brake Accumulator Pressure Switch
16 - Parking Brake Pressure Switch
17 - Lockup Drop Out Pressure Switch
18 - Retarder Light Pressure Switch

* - Optional Components

PRESSURE TEST POINTS

A - Park Brake Pressure
B - Transmission Pressure
C - Front Service Brake Pressure
D - Rear Service Brake Pressure, Residual Brake Pressure and Retarder Pressure.

COLOUR CODES

Red - Pressurized Oil
Blue - Exhaust or Return Oil
Green - Intake Oil
Orange - Pilot Pressure
Yellow - Static Oil

MidWestTech | Terex TR40 Off-Highway Truck Service Manual | Publication SM_1663

Order the manual at mid-west-tech.com >