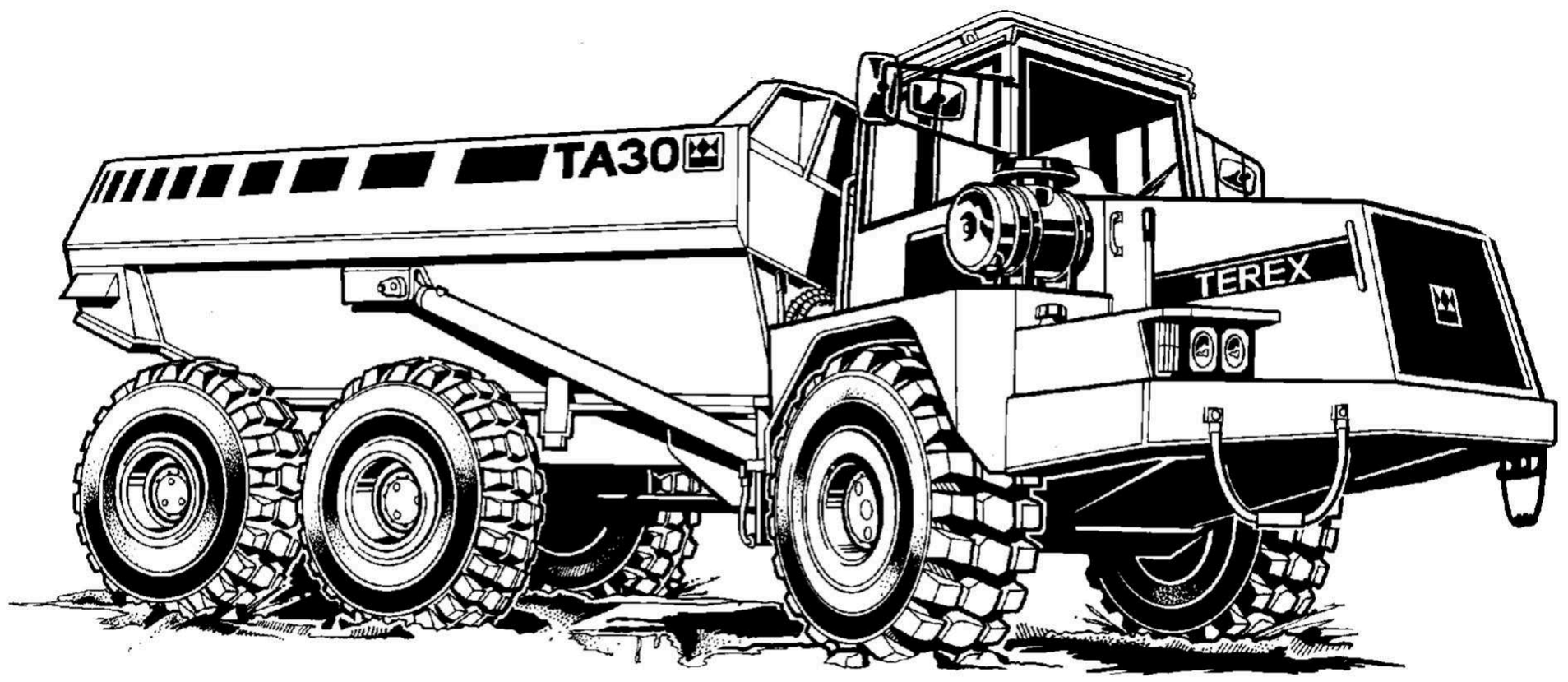
TEREX

TA30
Articulated Dumptruck
Maintenance Manual



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TABLE OF CONTENTS

Section No.	Description		SM No.
000	**GENERAL INFORMATION**		
0000	Technical Data - TA30		1937 Rev 1
100	**CHASSIS**		
0010	Frames		1960
0020	Articulation and Oscillation Pivot - Pre May 2000 Production		1975
0020	Articulation and Oscillation Pivot - From May 2000 Production		1988 Rev 1
0040	Hood and Mounting		1984 Rev 1
0070	Fenders and Mounting		1963
110	**ENGINE**		
0030	Engine and Mounting		1964
0040	Kysor DST Fan		1974
0050	Air Cleaner		1958
120	**TRANSMISSION**		
0010	Transmission and Mounting		1965
130	**DRIVELINES**		
0010	Front and Rear Drivelines		1534 Rev 1
140	**FRONT AXLE GROUP**		
0020	Axle Group (Hub)	(Refer to Section 160-0030)	-
0040	Wheel Rim and Tyre	(Refer to Section 160-0050)	-
0060	Differential Drive Head	(Refer to Section 160-0020)	-
150	**CENTRE AXLE**		
0020	Differential Drive Head		1971
160	**REAR AXLE GROUP**		
0020	Differential Drive Head		1969
0030	Axle Group (Hub)		1968
0050	Wheel Rim and Tyre		1970
165	**BRAKE PARTS**		
0010	Brake Parts - Rear		1962
0020	Brake Parts - Front		1961
170	**PARKING BRAKE**		
0010	Parking Brake and Mounting		1967
180	**SUSPENSION SYSTEM**		
0020	Front Suspension		1979
0021	Air Spring		1480
0022	Levelling Valve		1481
0040	Rear Suspension		1978
190	**ELECTRICAL SYSTEM**		
0000	Circuit Diagrams		1946 Rev 1
0270	Switches and Sensors		1959 Rev 1
200	**FUEL SYSTEM**		
0040	Fuel Tank, Lines and Mounting		1942

MidWestTech | Terex TA30 Articulated Dump Truck Service Manual | Publication SM_... Order the manual at mid-west-tech.com >

TABLE OF CONTENTS

Section No.	Description		SM No.
210	**COOLING SYSTEM**		
0000	Cooling System		1983
0040	Radiator, Header Tank and Mounting		1987
0060	Transmission Oil Cooler		1977
0100	Hydraulic Oil Cooler		1976
220	**STEERING SYSTEM**		
0000	Steering System Schematic		1943
0050	Steering Pump	(Refer to Section 230-0050)	-
0090	Steering Valve		1986 Rev 1
0105	Priority Valve		1947
0120	Steering Cylinder		1955
0140	Emergency Valve		1944
230	**BODY SYSTEM**		
0000	Body System Schematic		1949 Rev 1
0040	Hydraulic Tank		1950
0050	Main Hydraulic Pump		1951
0060	Body Control Valve		1952
0081	Body Control Joystick		1953 Rev 1
0121	Pilot Supply Valve		1954
0130	Body Cylinder		1956
250	**BRAKING SYSTEM**		
0000	Air Braking System Schematic		1948
0000	Hydraulic Braking System Schematic		1982
0070	Treadle Valve		1939
0170	Air Tanks and Mounting		1941
0190	Park Emergency Control Valve		1940
0200	Air Drier		1985 Rev 1
0260	Pressure Converter		1508
0270	Air Breather		1509
0280	Relay Emergency Valve		1945
0290	Pressure Protection Valve (4 way)		1938
260	**OPERATORS COMPARTMENT**		
0010	Cab and Mounting		1957
0090	Driver Seat and Mounting		1981
0130	Air Conditioning		1966
270	**BODY**		
0010	Body and Mounting		1980
300	**MISCELLANEOUS**		
0020	Lubrication System		1972
0070	Service Tools		1973
0080	Axle Bolt and Nut Torque Specifications		1521
0080	Standard Bolt and Nut Torque Specifications		1238
0090	Unit Storage		1239

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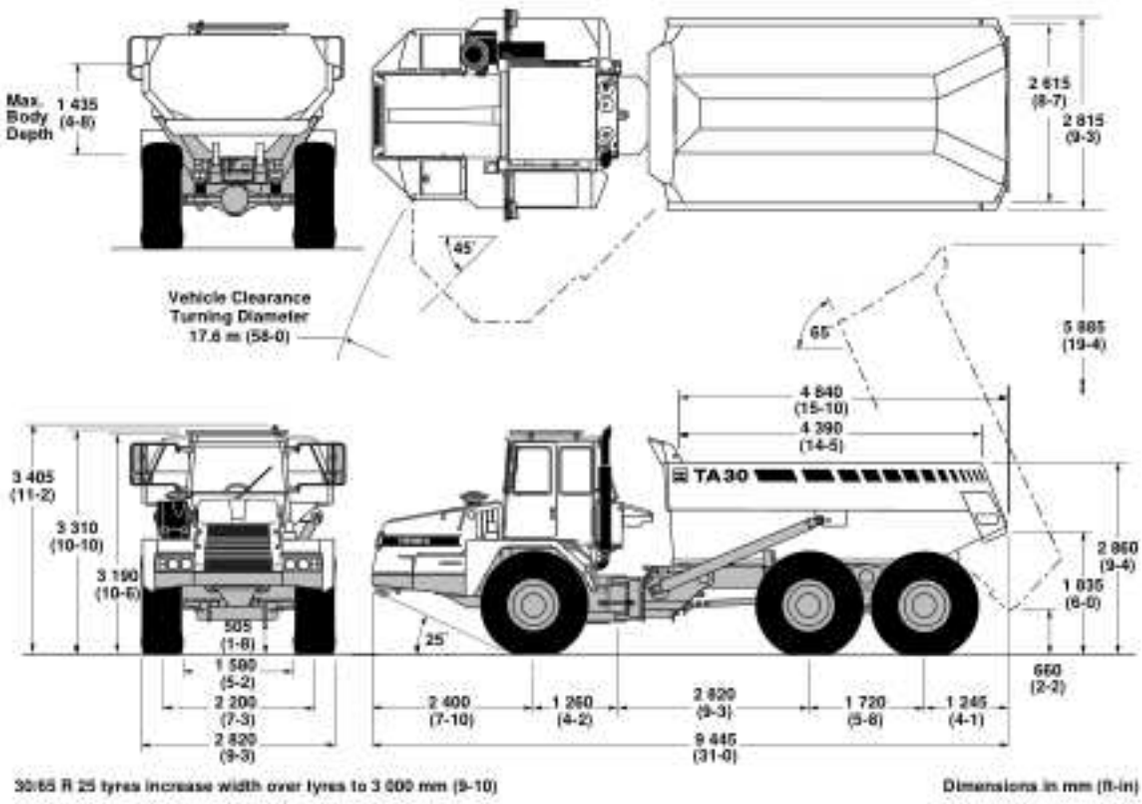


Fig. 1 - Machine Dimensions

ENGINE

Make/Model ..... Cummins MTA11-C300
Type ..... Four cycle, low emission, direct injection diesel, water-cooled, turbocharged and aftercooled.
Gross power at 2 100 rev/min ..... 224 kW (300 hp, 304 PS)
Net power at 2 100 rev/min ..... 214 kW (287 hp, 291 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 ... 1 376 Nm (1 015 lbf ft) at 1 300 rev/min
Number of cylinders/configuration ..... 6, in line
Bore x Stroke ..... 125 x 147 mm (4.92 x 5.79 in)
Total Displacement ..... 10.8 litres (660 in³)
Air cleaner ..... Dry type, double element
Starting ..... Electric
Maximum Speed (No load) ..... 2 450 rev/min
Maximum Speed (Full load) ..... 2 100 rev/min
Idle Speed ..... 675/750 rev/min
Safe Operating Angle ..... 43°/94% Grade

TRANSMISSION

Make/Model ..... ZF 6WG 260 II Automatic with manual override. The transmission assembly consists of a torque converter close-coupled to a countershaft-type gearbox with integral output transfer gearing. Automatic shifting throughout the range, with kickdown feature. Lockup action in all forward gears. A torque proportioning output differential transmits drive permanently to front and rear axles. This differential may be locked by the driver for use in difficult traction conditions. Standard integral hydraulic retarder which is automatically operated should the engine overspeed. Blocked filter indicator and filter bypass system provide valve block with additional protection from unfiltered oil.

Pressures:
Main ..... 16 + 2 bar (232 + 30 lbf/in²)
Lockup (Wk) ..... 14 ± 1 bar (190 ± 15 lbf/in²)
Converter 'IN' ..... 7.6 bar (110 lbf/in²) at 2 300 rev/min
Converter 'OUT' ..... 4.8 bar (70 lbf/in²) at 2 300 rev/min
Converter Relief Valve ..... 8.5 bar (123 lbf/in²)
Retarder ..... 5.5 bar (80 lbf/in²)
Temperatures:
Normal ..... 80° - 110° C (176° - 230° F)
Maximum ..... 120° C (248° F)

Stall Speed ..... 1 655 ± 50 rev/min

Ratios:
Torque Converter 1.84:1
Transmission ..... Refer to table

Forward						
Gear	1	2	3	4	5	6
Ratio	5.35	3.45	2.21	1.42	0.97	0.62
km/h	5.0	8.0	12.5	19.5	29.0	45.0
mile/h	3.0	5.0	8.0	12.0	18.0	28.0
Reverse						
Gear	1	2	3			
Ratio	5.35	2.21	0.97			
km/h	5.0	12.5	29.0			
mile/h	3.0	8.0	18.0			

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OPERATION

EST-37 Automatic Shift Control

The EST-37 transmission is equipped with an electronic control unit (ECU) which continually monitors the transmission and shift system electrical components and warns the operator when a problem develops. It also takes action to prevent damage to the transmission, and provides the serviceman with diagnostic capabilities so that problems can be corrected quickly and easily.

When a fault occurs, a two digit error code will be displayed on the LCD display on the dash panel. The error code is also recorded in the transmission ECU, and can be accessed by the serviceman by plugging in a data reader to extract information relating to the fault. The error code recorded in the ECU memory will remain until it is erased by a technician.

If a major fault is detected, it is the operators responsibility to shut down the machine as soon as it is safe to do so. The machine should not be restarted until the fault has been diagnosed and corrected.

Refer to 'EST-37 Trouble Shooting' table for a list of fault codes and checks.

The EST-37 transmission control has been designed to provide the driver with maximum operational flexibility by allowing the choice of automatic or manual gear selection to optimize vehicle performance under all operating conditions.

The transmission provides six forward gears, three reverse gears and a neutral position. The gear positions are indicated on the LCD display located on the dash panel. The transmission will only operate in the gear selected by the operator in the manual range, or, when the lever is in the automatic range, shifts will occur automatically between 1st and 6th gear, depending on operating requirements. The reverse gears 1st through 3rd are manual mode only.

WARNING

Before any welding is done on a machine equipped with an EST-37 shift system, disconnect battery earth cable, battery supply cable alternator earth cables, alternator supply positive cables and electrical connections at the ECU to avoid damage to electrical components. Turn off battery master switch to isolate the batteries before disconnecting any components.

VTS-3 Shift Controller - Operation: The shift controller has 3 positions the lever can rest in, Forward, Neutral and Reverse. Within each of these positions, the gear can be changed by pushing the lever to the right (+) to upshift or to the left (-) to downshift. In the Neutral position, this can be used to preselect the starting gear (the default being 2nd gear).

The shift controller has a 'Function' button on the top of the lever which is used to switch between automatic and manual modes. Press the function button from 'NEUTRAL' and move the lever forward to select automatic mode, when driving normal upshifting and downshifting will occur. If required, a gear can be held in manual mode by pressing the function button once, to resume full automatic mode the function button should be pressed again. Manual gears can also be selected by pushing the lever to the left for lower gears or to the right for higher gears, again by pressing the function button once automatic mode will be resumed.

Note: The transmission will only allow gearshifting when the predetermined values have been reached.

Note: There is no shift inhibitor in the gear shift control, therefore, no resistance would be felt while moving through the gear ranges.

The gear lever housing sends a signal to the electronic control unit, which in turn will only allow the engine to be started when the gear lever is in the 'NEUTRAL' position. The gear shift lever must always be placed in 'NEUTRAL' and the parking brake applied when starting the engine, or whenever the machine is left unattended.

When shifting from 'NEUTRAL' to start from a standstill, or to reverse direction, decelerate the engine to idle speed before selecting the proper gear. When 'REVERSE' is selected, the 'Reverse Alarm' sounds and the 'Reverse Light' illuminates to warn personnel to the rear of the machine that reverse gear has been selected.

During reversing operations it is recommended to reduce engine speed, use only 1st or 2nd gear and never exceed 10 km/h (6.2 mile/h).

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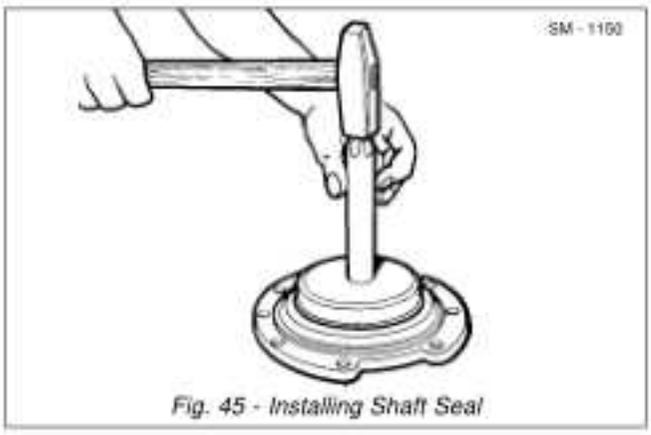


Fig. 45 - Installing Shaft Seal

32. Using a seal driver, install shaft seal (6) in bearing flange (8) with the seal lip facing down. Refer to Fig. 45.

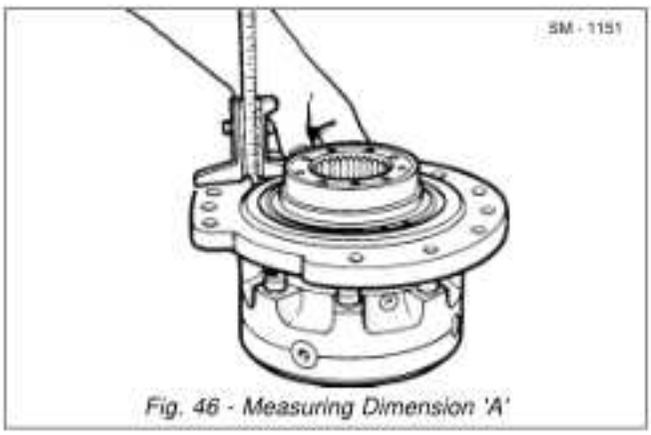


Fig. 46 - Measuring Dimension 'A'

33. Measure the distance ball bearing (10) is above intermediate flange (12) face as shown in Fig. 46. This is dimension 'A'. e.g. 5.0 mm (0.195 in).

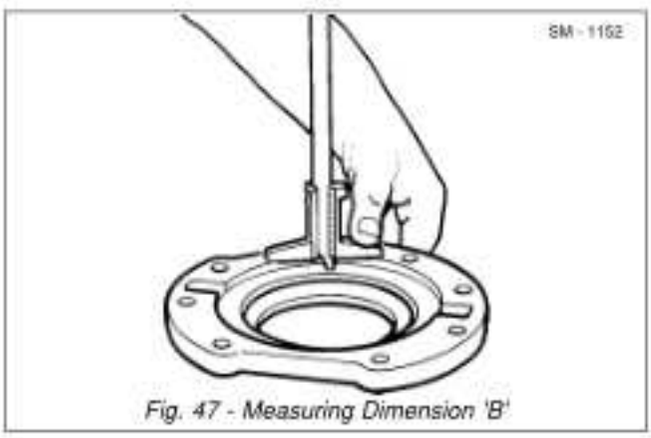


Fig. 47 - Measuring Dimension 'B'

34. Measure the distance from bearing flange (8) face to ball bearing (10) contact face as shown in Fig. 47. This is dimension 'B'. e.g. 6.5 mm (0.240 in).

Dimension 'B'	6.5 mm (0.240 in)
- Dimension 'A'	5.0 mm (0.195 in)
Required Shim	= 1.5 mm (0.045 in)

Place the required shim (9) in bearing flange (8) recess.

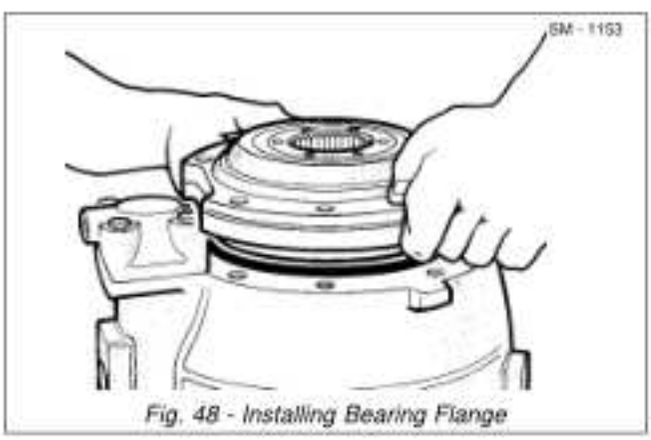


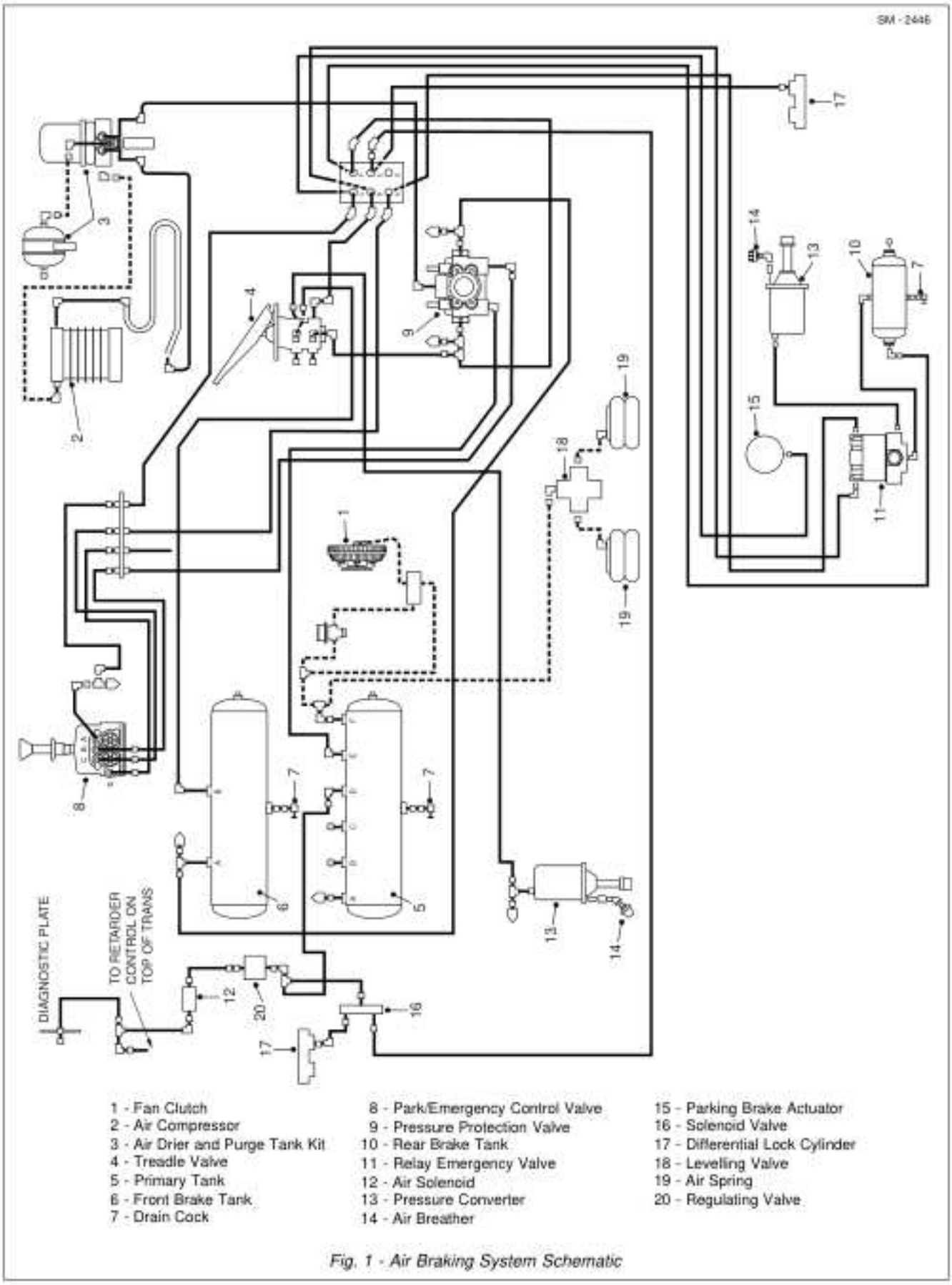
Fig. 48 - Installing Bearing Flange

35. Coat intermediate flange (12) bolt circle with sealing compound, install the size shim (11) determined in Steps 29 and 30 and install bearing flange (8). Bolt the flanges together with bolts (7). Refer to Fig. 48.

36. Install dust cover (2) and seal ring (5) on the splined end of drive flange (1). Align the drive flange splines with the internal splines in differential case half (14) and install the drive flange into the differential case assembly. Thread castle nut (3) onto the threaded end of differential case half (14). Tighten castle nut (3) to a torque of 1 200 Nm (885 lbf ft).

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CLICK HERE FOR HORIZONTAL DRAWING



1 - Fan Clutch
2 - Air Compressor
3 - Air Drier and Purge Tank Kit
4 - Treadle Valve
5 - Primary Tank
6 - Front Brake Tank
7 - Drain Cock
8 - Park/Emergency Control Valve
9 - Pressure Protection Valve
10 - Rear Brake Tank
11 - Relay Emergency Valve
12 - Air Solenoid
13 - Pressure Converter
14 - Air Breather
15 - Parking Brake Actuator
16 - Solenoid Valve
17 - Differential Lock Cylinder
18 - Levelling Valve
19 - Air Spring
20 - Regulating Valve

Fig. 1 - Air Braking System Schematic

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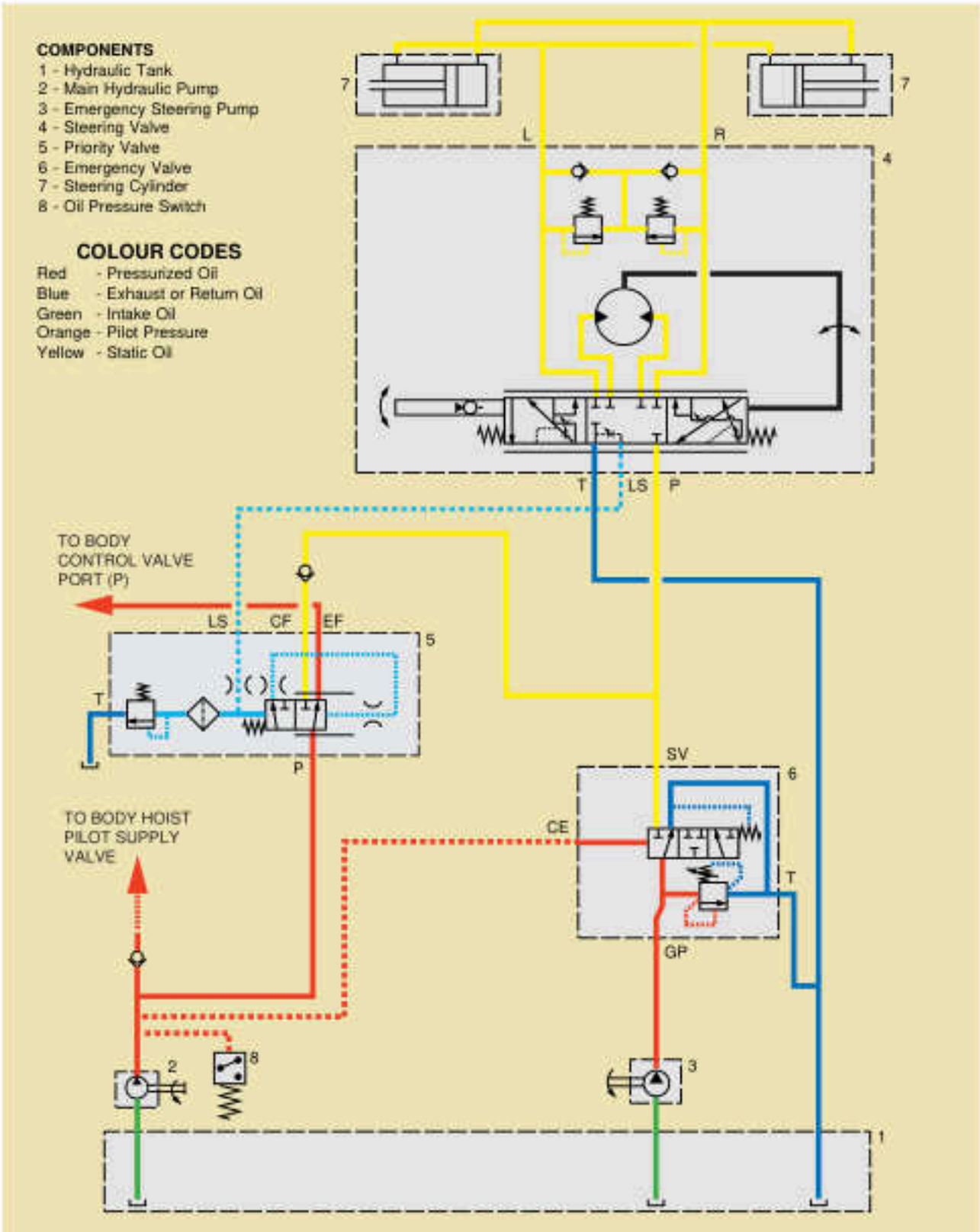
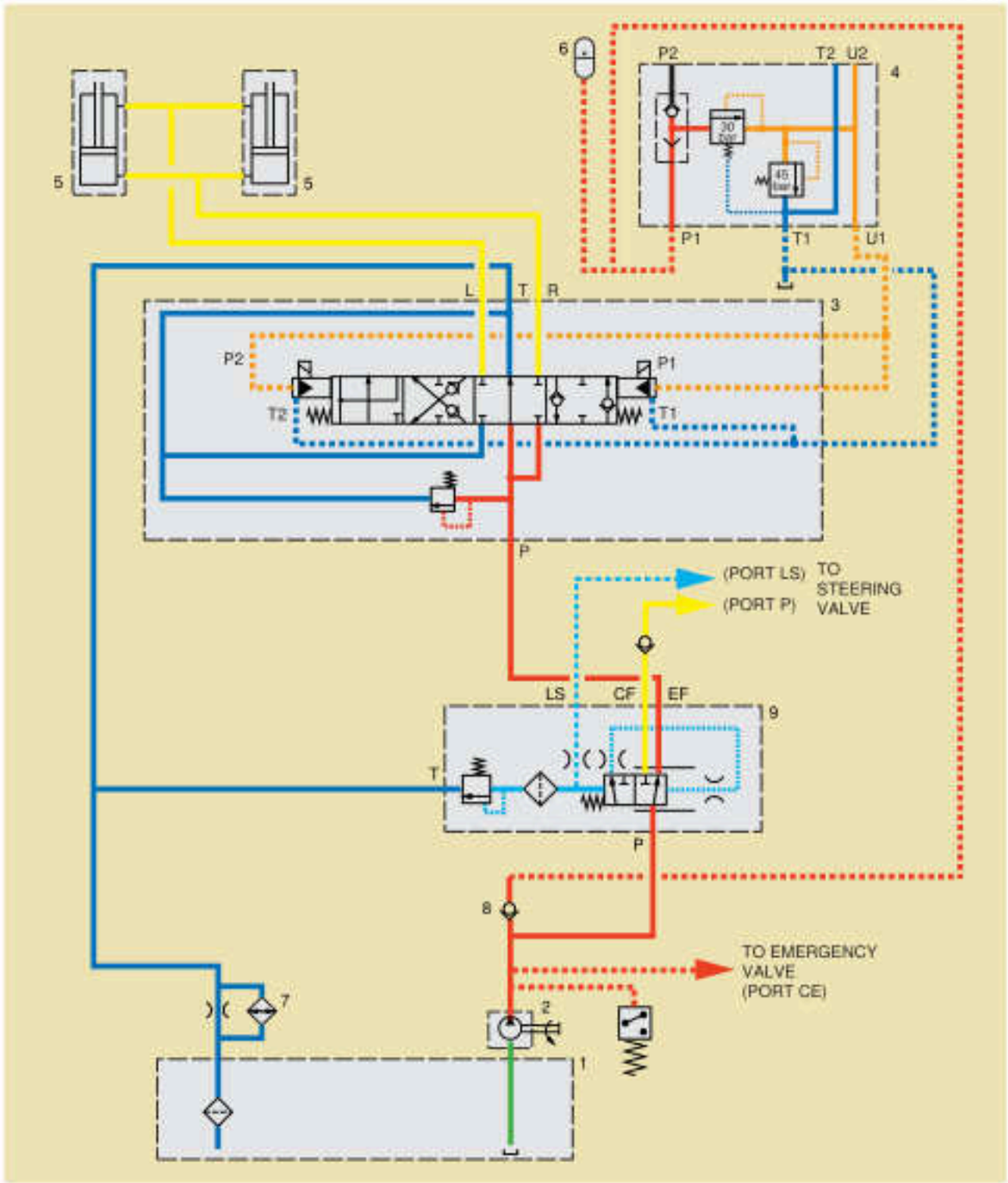


Fig. 2 - Steering System Schematic Diagram - Engine Running, Steering Valve Neutral

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COMPONENTS

1 - Hydraulic Tank
2 - Main Hydraulic Pump
3 - Body Control Valve
4 - Pilot Supply Block
5 - Body Cylinder
6 - Accumulator
7 - Hydraulic Oil Cooler
8 - Check Valve
9 - Priority Valve

COLOUR CODES

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

Fig. 4 - Body Hoist System Schematic - Body Control Valve in the 'Hold' Position

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