TEREX

TA25 & TA27 Articulated Dumptruck Maintenance Manual



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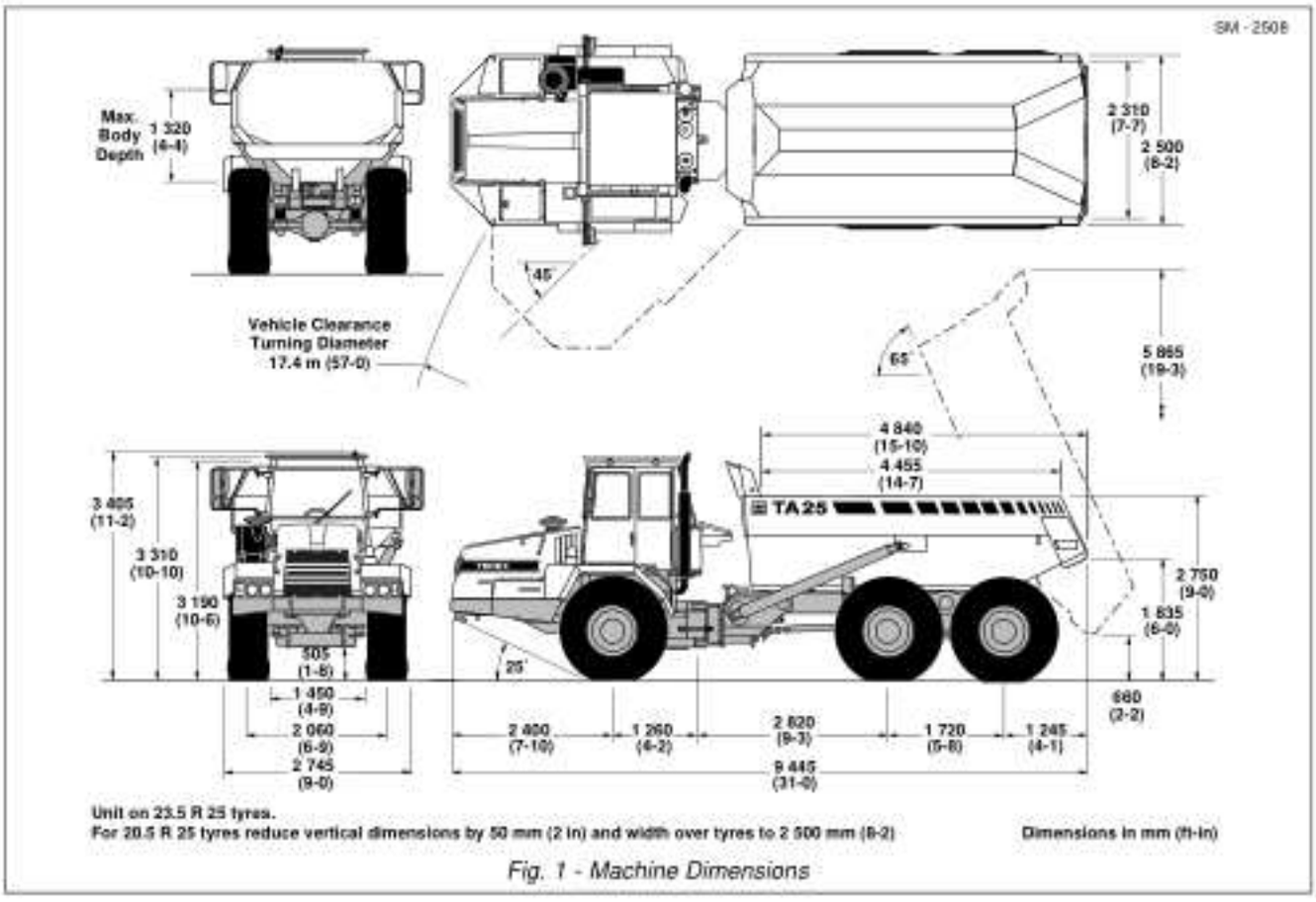


Fig. 1 - Machine Dimensions

ENGINE

Make/Model ..... Cummins 6CTA8.3C
Type ..... Four cycle, low emission, direct injection diesel, water-cooled, turbocharged and aftercooled.

Gross power at 2 000 rev/min ..... 205 kW (275 hp, 279 PS)
Net power at 2 000 rev/min ..... 197 kW (264 hp, 268 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 ..... 1 123 Nm (828 lbf ft) at 1 300 rev/min
Number of cylinders/configuration ..... 6, in line
Bore x Stroke ..... 114 x 135 mm (4.49 x 5.32 in)
Total Displacement ..... 8.3 litres (505 in³)
Air cleaner ..... Dry type, double element
Starting ..... 24 volt electric
Maximum Speed (No load) ..... 2 420 rev/min
Maximum Speed (Full load) ..... 2 200 rev/min
Idle Speed ..... 1 000 ±25 rev/min
Safe Operating Angle ..... 43°/94% Grade

TRANSMISSION

Make/Model ..... ZF 6WG 210 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.

Pressures:
- Main ..... 16 + 2 bar (232 + 30 lbf/in²)
- Lockup (Wk) ..... 13 ± 1 bar (188 ± 15 lbf/in²)
- Converter 'IN' ..... 9 bar (130 lbf/in²) MAX
- Converter 'OUT' ..... 3.5 bar (51 lbf/in²) MIN
- Converter Relief Valve ..... 9 bar (130 lbf/in²)

Temperatures:
- Normal ..... 80° - 95° C (176° - 203° F)
- Maximum ..... 100° C (212° F)

Stall Speed ..... 1 856 ± 50 rev/min

Ratios:
- Torque Converter 1.54:1
- Transmission ..... Refer to table below

Forward						
Gear	1	2	3	4	5	6
Ratio	5.56	3.62	2.26	1.47	0.94	0.61
km/h	5.2	8.0	13.0	20.0	31.0	52.0
mile/h	3.3	5.0	8.0	12.4	19.2	32.0

Reverse			
Gear	1	2	3
Ratio	5.274	2.138	0.894
km/h	5.5	14.0	32.0
mile/h	3.42	8.7	19.9

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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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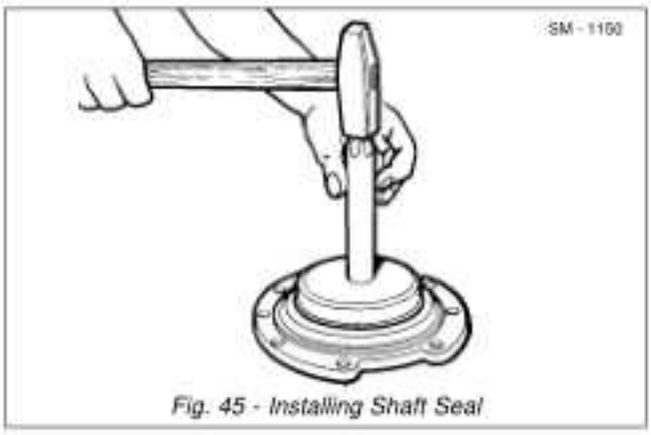


Fig. 45 - Installing Shaft Seal

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

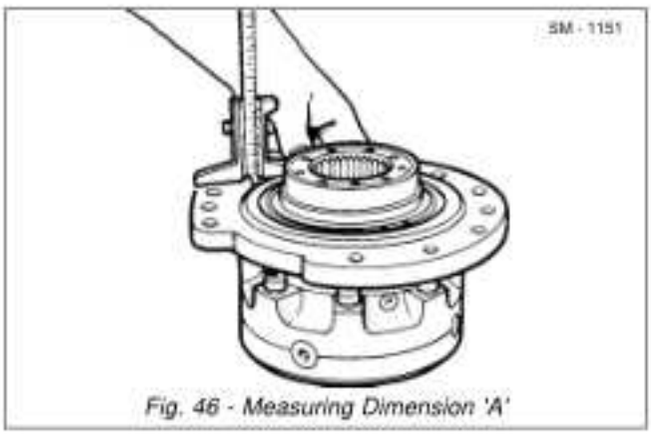


Fig. 46 - Measuring Dimension 'A'

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).

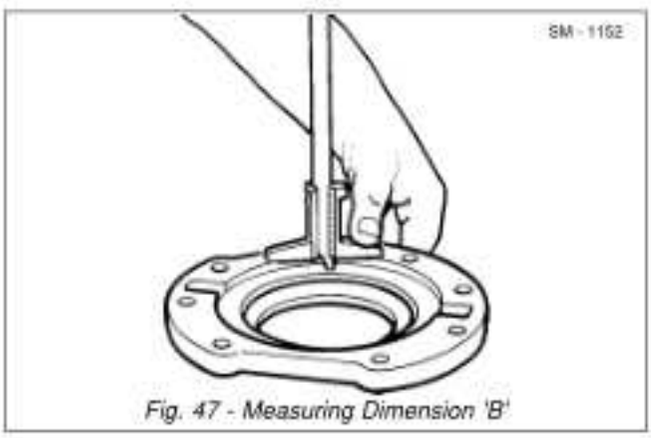


Fig. 47 - Measuring Dimension 'B'

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.

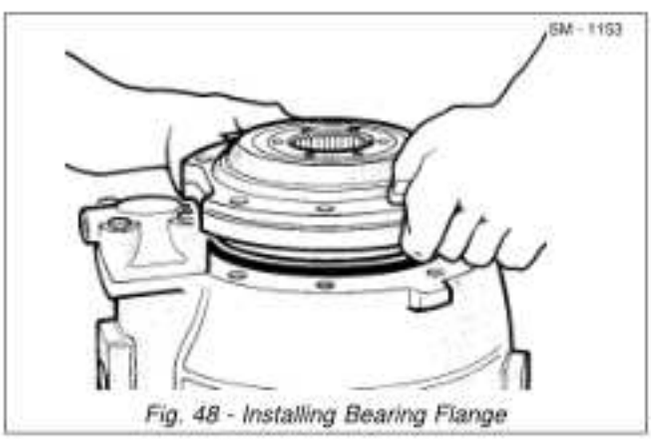


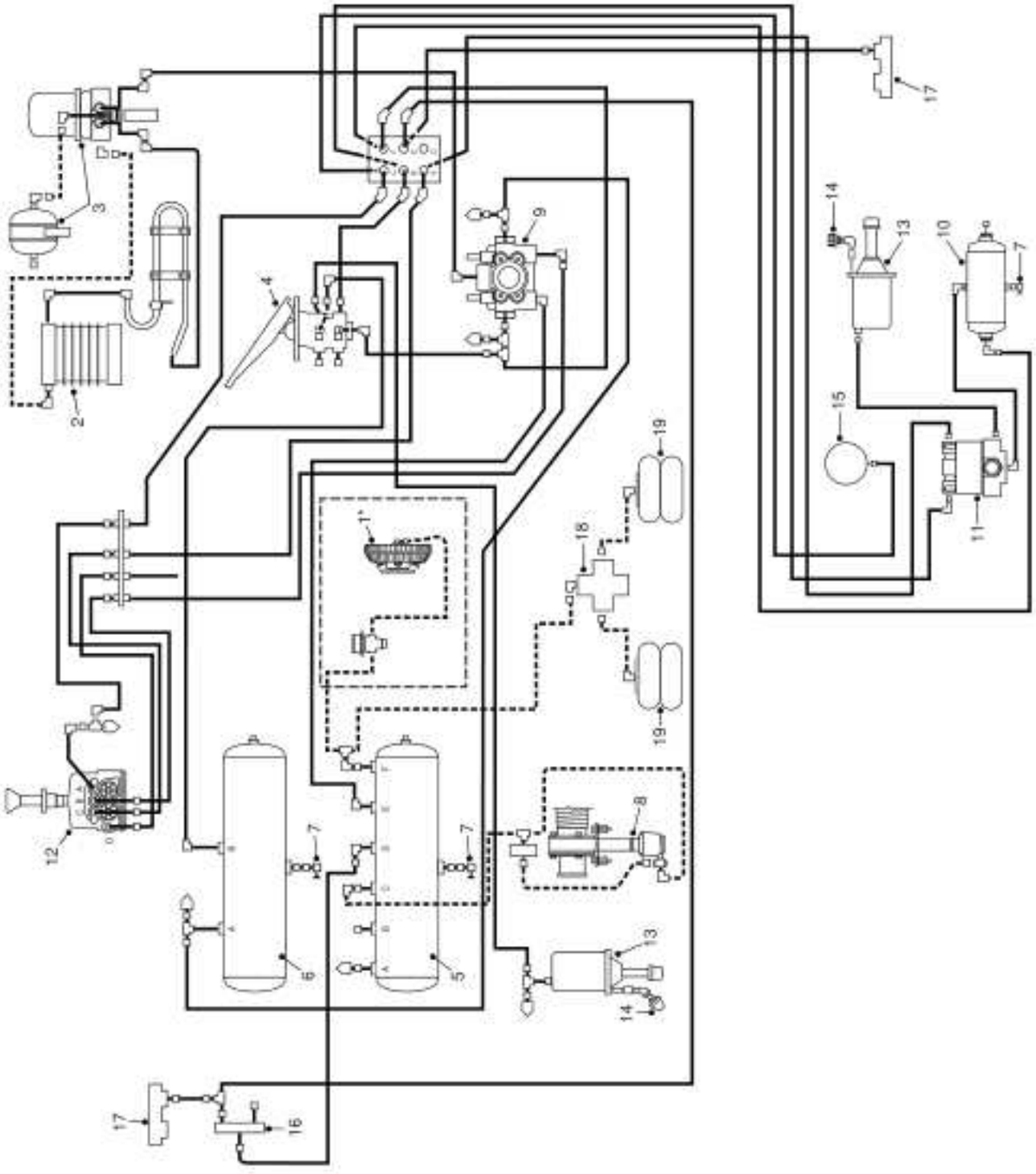
Fig. 48 - Installing Bearing Flange

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 & Purge Tank Kit
4 - Treadle Valve
5 - Primary Tank
6 - Front Brake Tank
7 - Drain Cock
8 - Exhaust Brake
9 - Pressure Protection Valve
10 - Rear Brake Tank
11 - Relay Emergency Valve
12 - Park/Emergency Control Valve
13 - Pressure Converter
14 - Air Breather
15 - Parking Brake Actuator
16 - Solenoid Valve
17 - Differential Lock Cylinder
18 - Levelling Valve
19 - Air Spring

* - From unit Serial Number A8051033

Fig. 1 - Air Braking System Schematic

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SM - 2455A

COMPONENTS

1 - Hydraulic Tank
2 - Main Hydraulic Pump
3 - Emergency Steering Pump
4 - Steering Valve
5 - Priority Valve
6 - Emergency Valve
7 - Steering Cylinder
8 - Oil Pressure Switch

COLOUR CODES

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

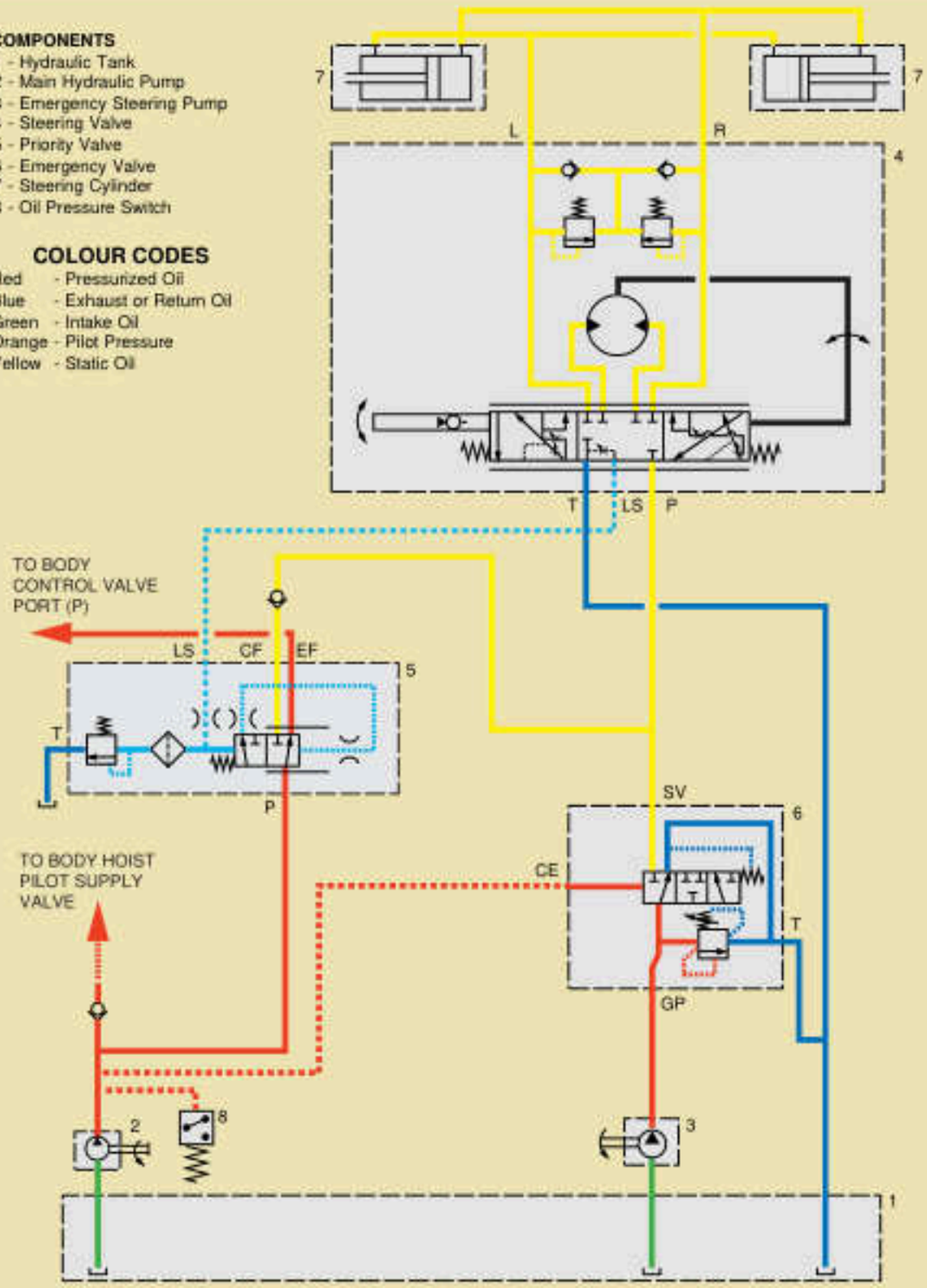
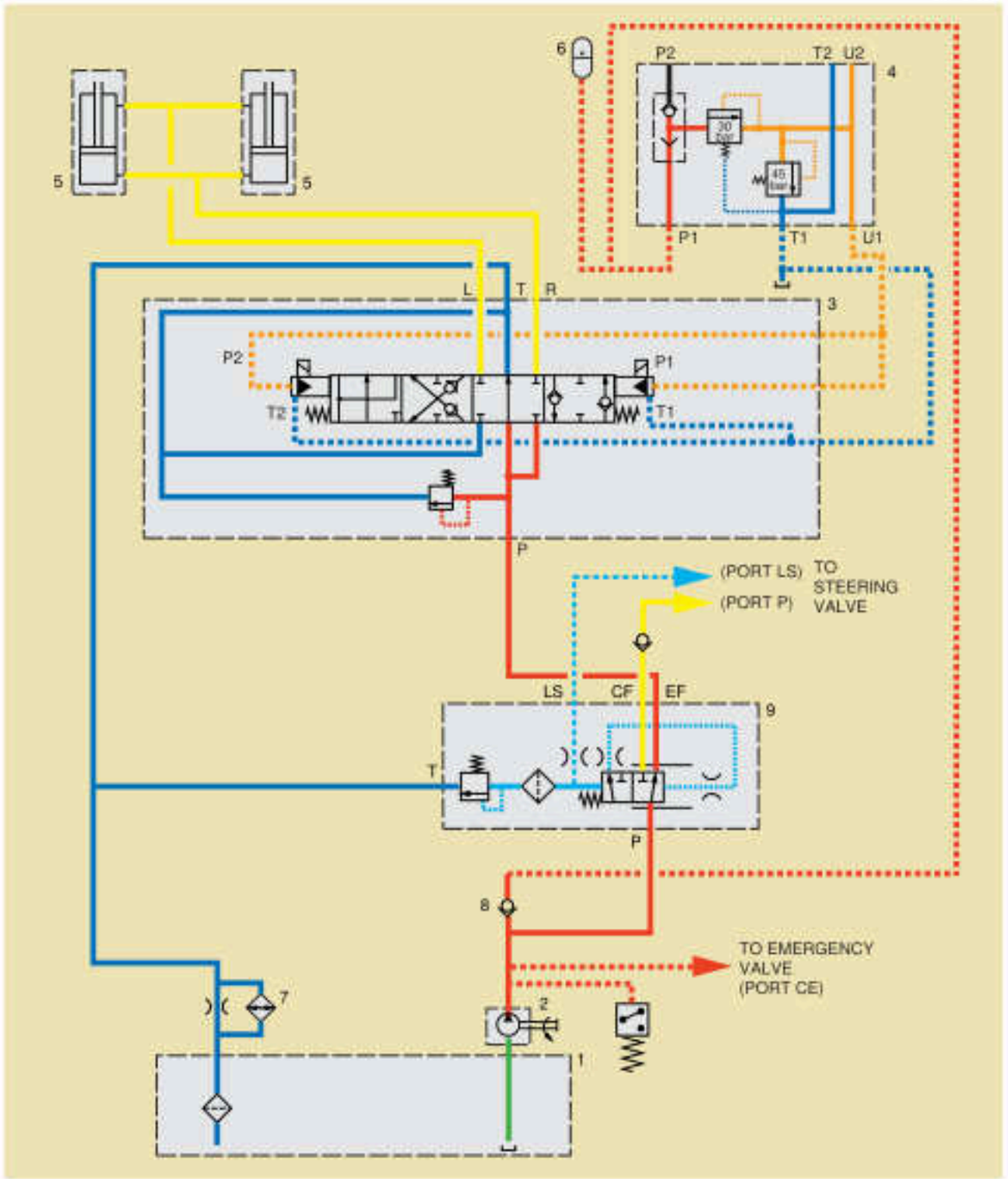


Fig. 2 - Steering System Schematic Diagram - Engine Running, Steering Valve Neutral

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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

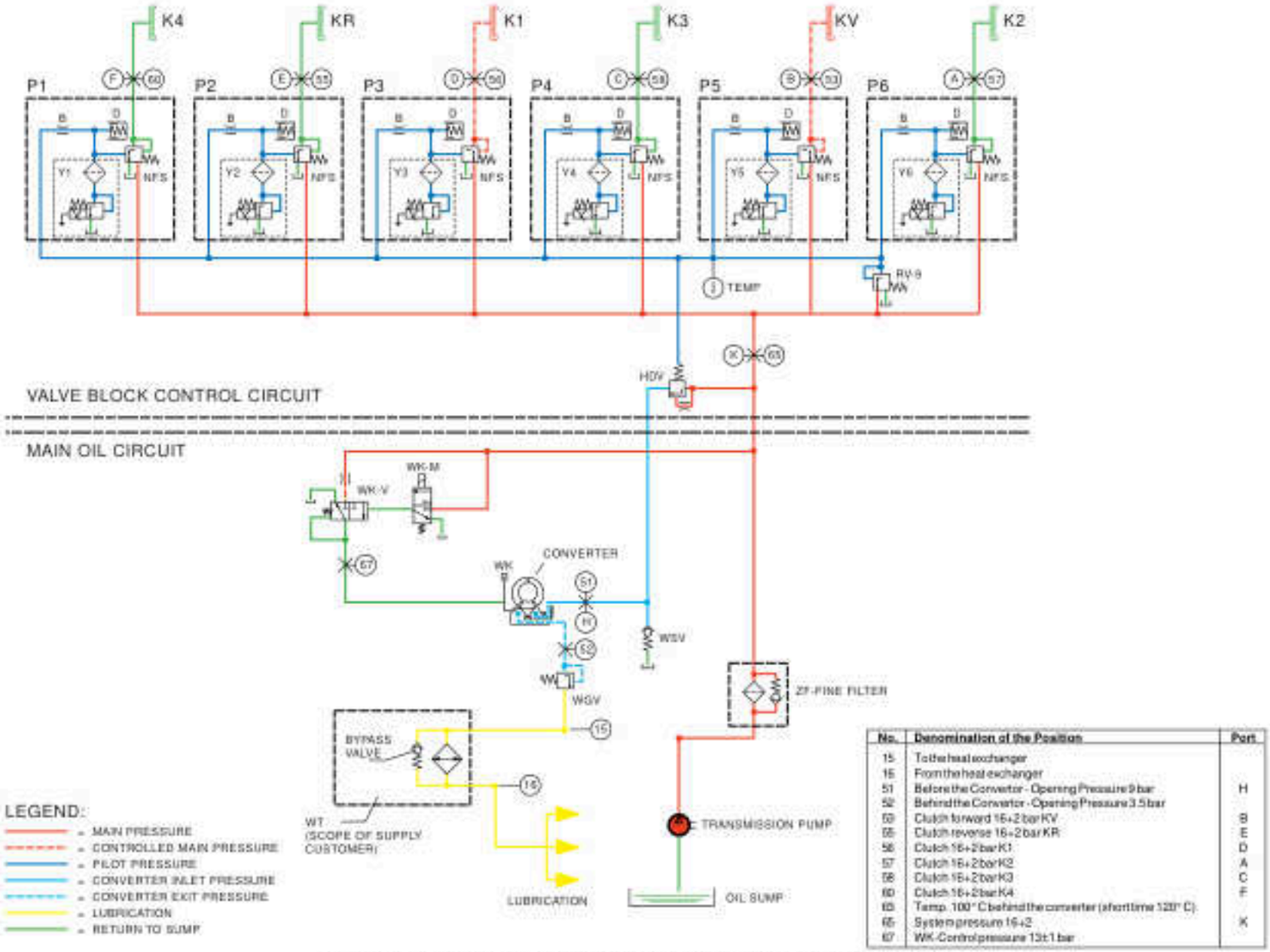
COLOUR CODES

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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SM - 1930



No.	Denomination of the Position	Port
15	To the heat exchanger	
16	From the heat exchanger	
51	Before the Converter - Opening Pressure 9 bar	H
52	Behind the Converter - Opening Pressure 3.5 bar	
53	Clutch forward 16+2 bar KV	B
55	Clutch reverse 16+2 bar KR	E
56	Clutch 16+2 bar K1	D
57	Clutch 16+2 bar K2	A
58	Clutch 16+2 bar K3	C
60	Clutch 16+2 bar K4	F
65	Temp. 100° C behind the converter (short time 120° C)	
66	System pressure 16+2	K
67	WK-Control pressure 13±1 bar	

Fig. 6 - Oil Circulation Diagram for Typical Transmission with Lockup Clutch

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