580T
580ST
590ST
695ST
Backhoe Loaders

Service Manual

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CASE CONSTRUCTION

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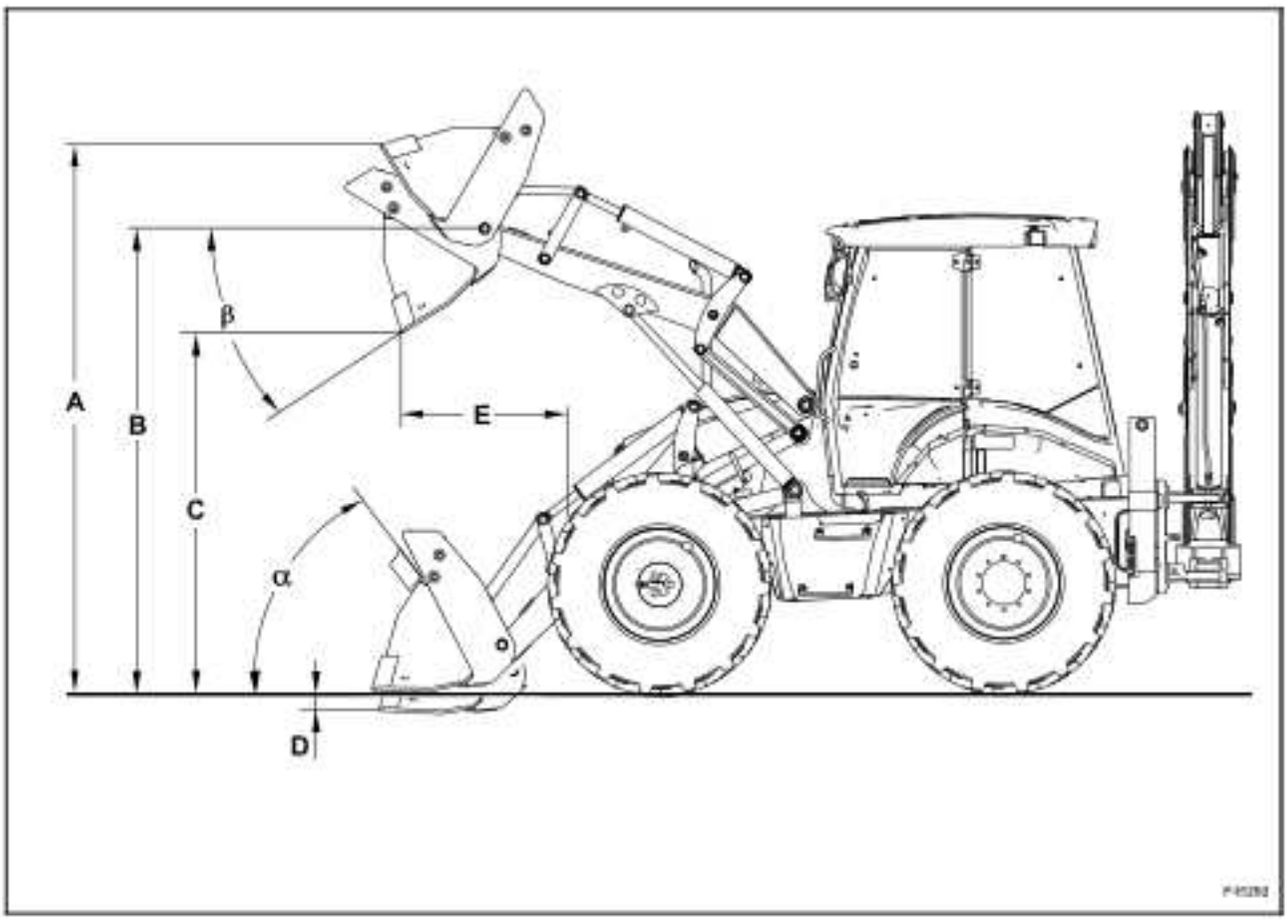
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695ST



Front and rear tyres 440/80 R28 IT530

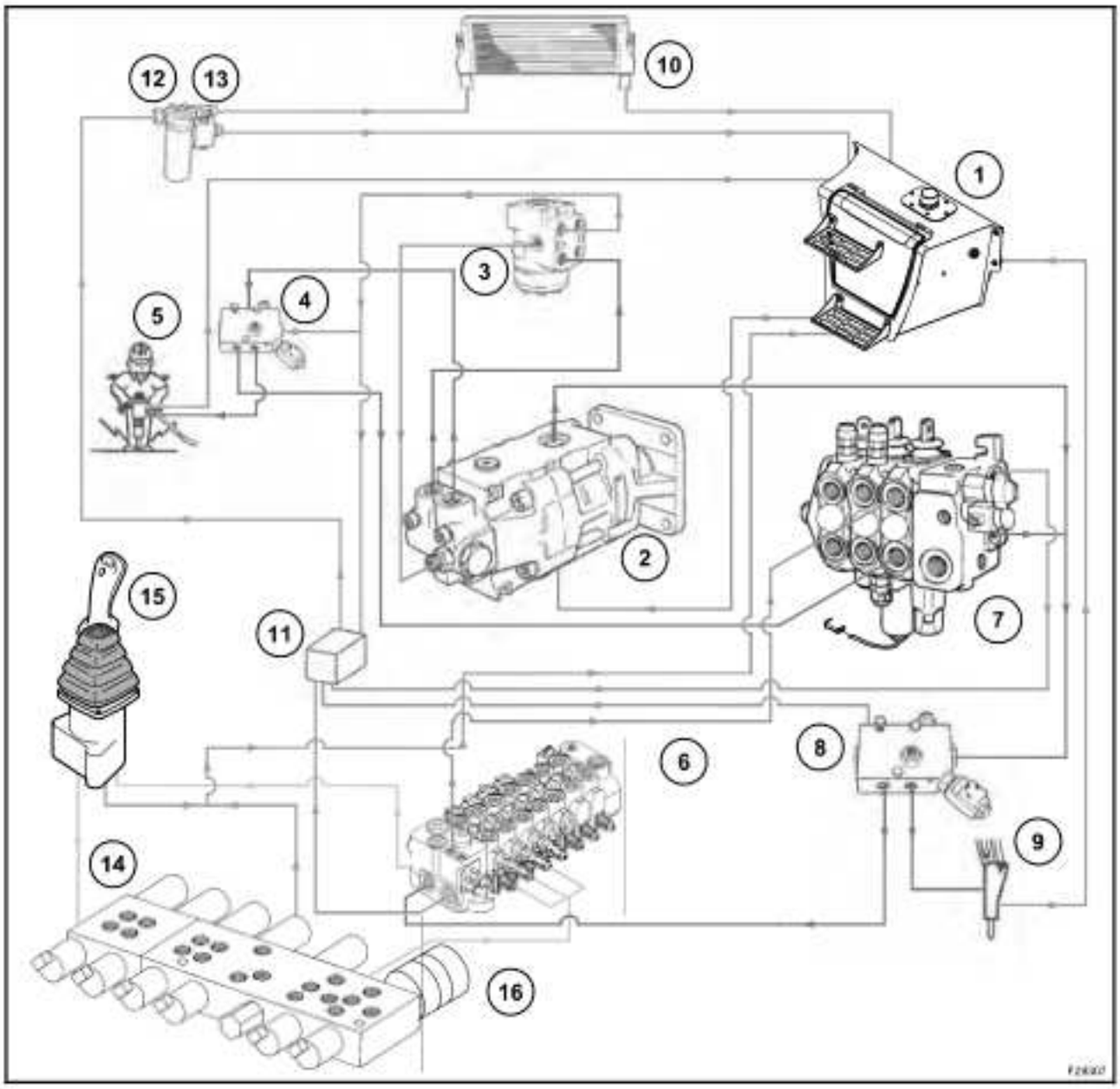
Standard loader bucket ..... 1.15 m^3 (40.61 ft^3)

A	Maximum height/dimensions	4350 mm (171.26 in)
B	Maximum height of loader bucket pin/pivot	3490 mm (137.40 in)
C	Maximum dumping height	2715 mm (106.89 in)
D	Digging depth	113 mm (4.44 in)
E	Loader attachment reach when raised in dumping position (according to front counterweight)	745 mm (29.33 in)
α	Angle of lowered closed bucket	45°
β	Dumping angle	45°

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SYSTEM DIAGRAM (BACKHOE ATTACHMENT PILOT CONTROLS)



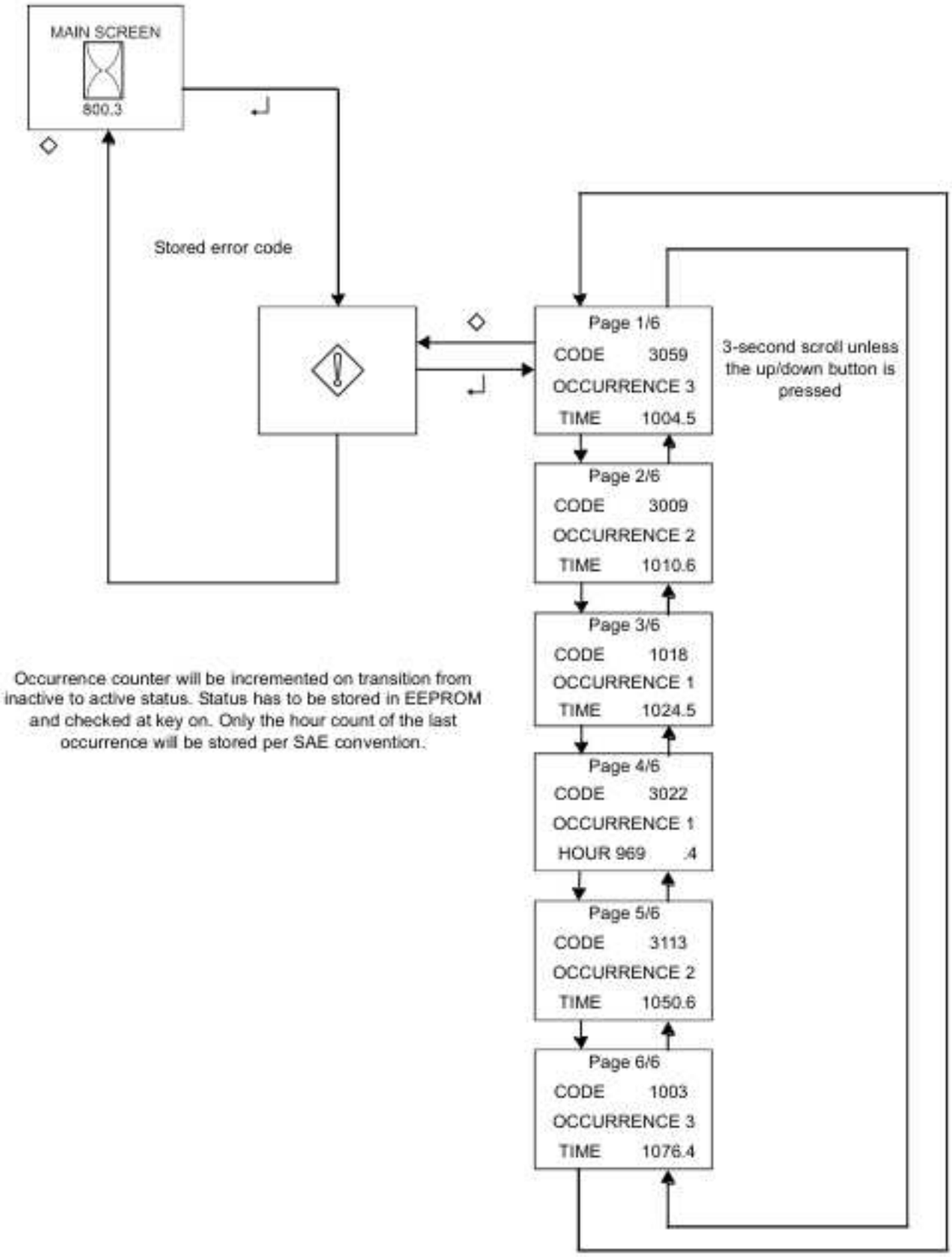
- Hydraulic system oil
- Steering system oil
- Load-sensing line oil
- Suction oil
- Return to oil tank
- Control circuit oil

1. Hydraulic tank
2. Pump
3. Power steering
4. Hand hammer control valve
5. Hand hammer
6. Backhoe attachment control valve
7. Loader attachment control valve
8. Backhoe hammer control valve
9. Backhoe hammer
10. Oil cooler
11. Return line distributor block
12. Filter
13. Oil cooler by-pass valve
14. Solenoid valve for piloting backhoe control valve
15. Hydraulic control lever
16. Accumulator

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ON BOARD ERROR CODE RETRIEVAL



Occurrence counter will be incremented on transition from inactive to active status. Status has to be stored in EEPROM and checked at key on. Only the hour count of the last occurrence will be stored per SAE convention.

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Two or more hydraulic systems operating

When two or more hydraulic systems operate, each system operates at a different pressure.

If pump flow to a specific system is not controlled, the system requiring a lower operating pressure will work faster than the system requiring a higher pressure, because the flow will have to overcome less resistance.

To prevent this situation, the pressure compensating valve regulates the oil flow directed to the system operating at a lower load.

When two spools are operated simultaneously pump pressure is applied to the metering element of the pressure compensating valve in both valve sections.

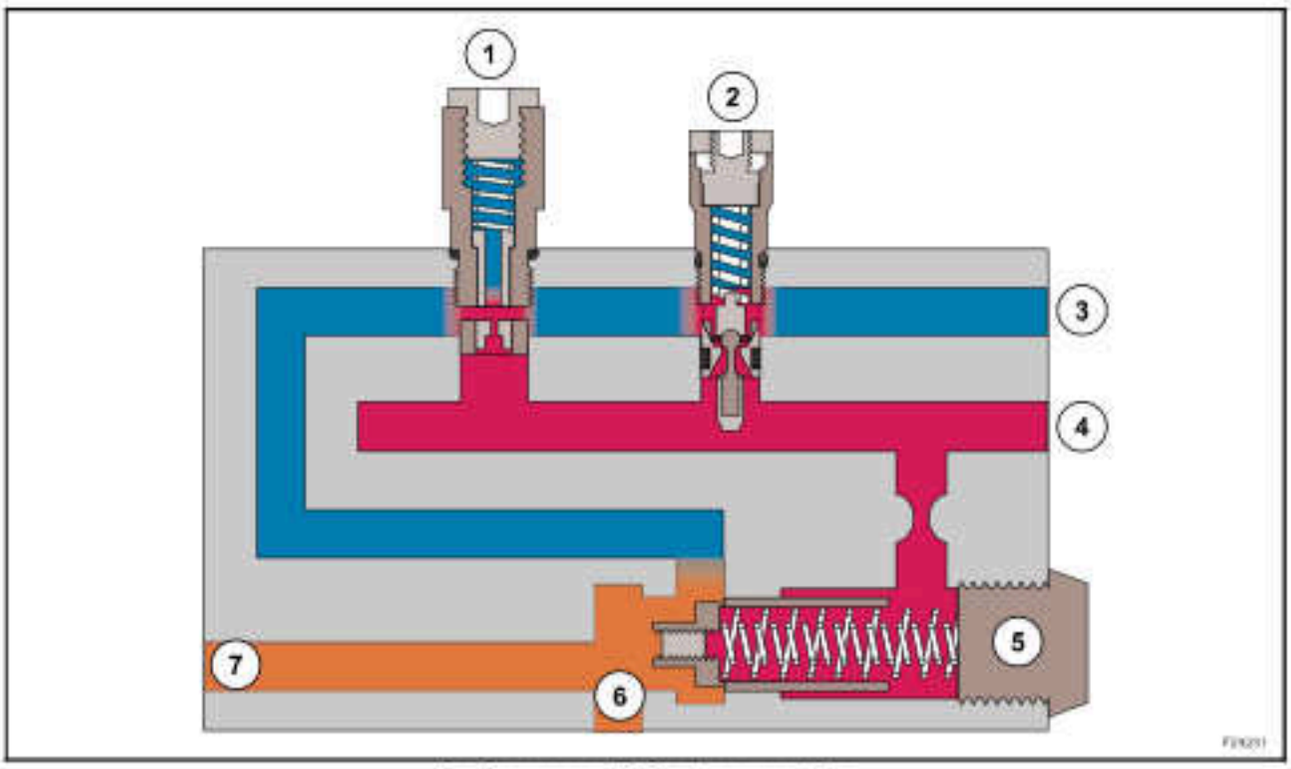
Both metering elements therefore move upwards allowing oil to flow to the load check valves. At the same time, the port in the spool section of the pressure compensating valve is uncovered to allow operating pressure to be sensed in the load-sensing gallery.

Pump pressure will rise until it exceeds the pressure of the check valve of the system operating at the heaviest load and the pressure in the load sensing line has a value similar to that of the high pressure.

The pressure required to operate the system with a lower load is now too high and, if not limited, it will result in this system operating instead of and faster than the system with a higher load.

To compensate for this condition, the load sensing pressure moves the metering element of the pressure compensating valve in the system with a lower load downwards and restricts the flow to the system.

This balancing of flow and pressure according to the load ensures that both systems operate simultaneously and at a balanced flow rate.



Load sense relief valve operating

- Pump pressure at 210 bar (304 psi)
- Load sense pressure at 195 bar (2828 psi)
- Return to oil tank

1. Load sense bleed orifice 1 l/min (0.22 gal/min)
2. Load sense limiter (system relief valve)
3. Return to oil tank
4. Load sense line
5. Pump flow balancer (unload) valve
6. Pump flow IN
7. To backhoe control valves

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COMPRESSOR



The compressor is mounted on the left-hand side of the engine and is belt driven by the crankshaft pulley.

The compressor separates the low and high pressure sides of the system and has two functions:

- raising the coolant temperature by compressing to a higher degree of temperature than the ambient (outside air) temperature;
- circulating the required volume of coolant through the system.

The compressor is a 7-cylinder wobble plate unit, housed in a die-cast aluminium housing.

The drive to the wobble plate comes from the pulley, through the clutch to the main driveshaft.

Attached to the driveshaft, there is a cam rotor which oscillates the wobble plate.

The wobble plate is prevented from rotating by a static gear engaging with teeth formed in the face of the plate.

The seven pistons are connected to the wobble plate by rods located in ball sockets.

Coolant is drawn in on the downward stroke of a piston through the reed valves located either end of the cylinder assembly.

Coolant enters the cylinder assembly through a gallery in the outer circumference of the cylinder assembly.

During the upward stroke, the piston compresses the coolant and expels it through another reed valve into an inner gallery in the cylinder and, from here, out into the coolant system.

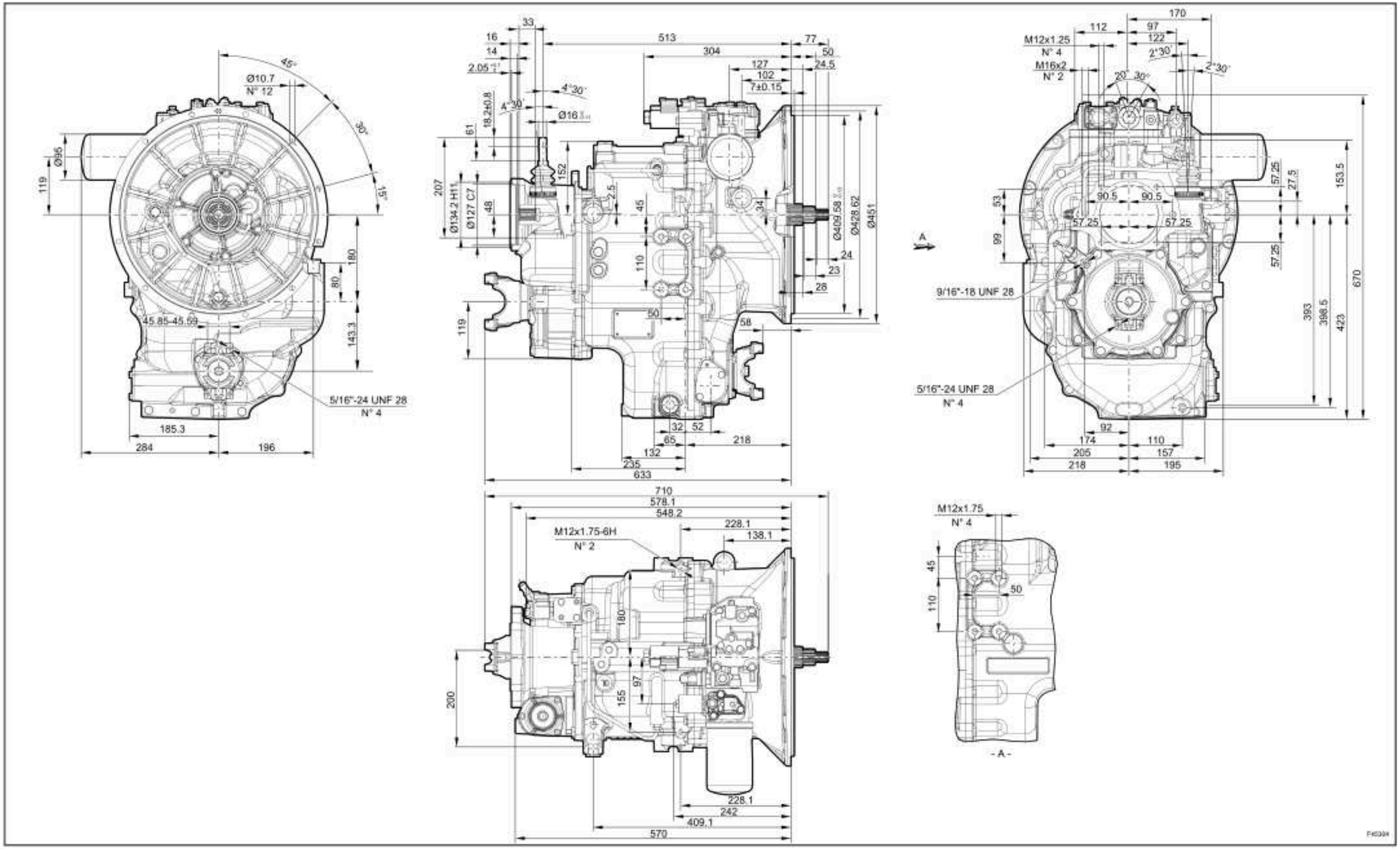
The compressor is lubricated with a Polyalklene Glycol (PAG) oil Type SP20. This oil can be mixed with coolant and is carried around in the coolant system itself.

During the operation of the air conditioning system, the compressor is activated by a clutch which engages or disengages it as required.

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