

Service Training
CT series LP Gas Forklift Truck

Linde Material Handling

1313

H25CT, H27CT, H30CT, H32CT

Edition 02/2011

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0 Product Information

Variants and Options 0-1
Mast variants 0-1
Attachments 0-1
System options 0-1
Chassis options 0-1
Cabin options 0-1
Operating environment options 0-2

Scheduled Maintenance 0-4
Maintenance at 1000 hours 0-4
Maintenance at 3000 hours 0-6
Maintenance at 6000 hours 0-8
Sideshifter Maintenance Intervals 0-9
Scheduled Maintenance Summary 0-10

Control System 0-11
Control System Overview 0-11

Fault Display 0-13
Fault Indicator Explanations 0-13

Fluids and Lubricants 0-16
Capacities 0-16
Fuel 0-16
Fluid and Lubricant Specifications 0-16

Towing the Truck 0-18
Towing the Truck 0-18

Truck Specifications 0-22
Specifications 0-22
Mast Heights 0-26

1 Engine

Engine 1-1
Control System Overview 1-1
Engine Specifications 1-2
Air Filter Replacement and Vacuum Switch Check 1-3
Intake and Exhaust System Inspection 1-4
Engine Oil and Filter Replacement 1-5
Spark Plug Replacement 1-7

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Alternator Belt Inspection ... 1-8
Alternator Belt Replacement ... 1-8
Timing Belt Inspection ... 1-8
Timing Belt Removal, Installation, and Tension Adjustment ... 1-10
Cylinder Head Assembly Removal and Installation ... 1-16
Camshaft Removal and Installation ... 1-20
Hydaulic Lifter Testing ... 1-23
Radiator and Hydraulic Oil Cooler Cleaning ... 1-24
Coolant Concentration Measurement ... 1-25
Coolant Draining and Refilling ... 1-26
Thermostat Replacement ... 1-27
Water Pump Replacement ... 1-28
Engine Mount Inspection ... 1-29
Engine Removal and Installation ... 1-30
Drive Line Removal and Installation ... 1-39

Sensors ... 1-48
Crankshaft Speed Sensor 0B2 ... 1-48
Flywheel Speed Sensor 1B1 ... 1-50
Coolant Temperature Sensor 0B1 ... 1-51

Fuel System ... 1-53
Evaporator ... 1-53
Mixer ... 1-55
Lambda Control System ... 1-58
LP System Leak Inspection ... 1-64
LP Filter Replacement ... 1-65
Exhaust Gas CO Level Check ... 1-66

2 Power Transmission

Component Specifications ... 2-1
Drive Component Overview ... 2-1

Hydrostatic Drive Unit ... 2-2
Hydrostatic System Overview ... 2-2
Hydrostatic Unit Components ... 2-3
Troubleshooting the Hydrostatic Unit ... 2-10
Control Piston Initial Delivery Adjustment ... 2-14
Swivel Angle Adjustment ... 2-16
Hydraulic Zero Adjustment ... 2-18

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Drive Axle ... 2-19
Drive Axle Oil Level and Leak Inspection ... 2-19
Wheel Hub Removal and Replacement ... 2-19
Brake Disc Replacement ... 2-20
Brake Piston Repair ... 2-23
Wheel Hub Unit Disassembly ... 2-26
Wheel Hub Unit Assembly ... 2-32
Drive Axle Removal and Replacement ... 2-40
Removing the ring and pinion from the axle housing ... 2-42
Ring and pinion carrier disassembly ... 2-43
Ring and pinion carrier assembly ... 2-49
Ring and Pinion Carrier Installation ... 2-58

3 Chassis

Fasteners ... 3-1
Tightening torques ... 3-1

Brake ... 3-4
Hydraulic brake valve ... 3-4
Adjusting the brake pedal switch ... 3-5
Parking Brake Testing ... 3-5

Wheels ... 3-7
Check wheels and tires ... 3-7

Miscellaneous ... 3-8
Chassis Mechanism Inspection ... 3-8

4 Steering

Steering system ... 4-1
Steering system – Checking ... 4-1
Steering Axle Cleaning and Lubrication ... 4-2
Steering Cylinder and King Pin Fastener Inspection ... 4-2
Steering axle - Design ... 4-4
Steering axle number ... 4-5
Steering axle – Removal and installation ... 4-6
Repairs to the steering axle ... 4-8
Replacing steering cylinder seals ... 4-10
Stub axle ... 4-11
Replacement of wheel bearings ... 4-12
Adjusting the steering stop ... 4-13

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General	H25 CT	H27 CT	H30 CT	H32 CT
Manufacturer	Linde	Linde	Linde	Linde
Manufacturer's model designation	H25 CT	H27 CT	H30 CT	H32 CT
Fuel	LP gas	LP gas	LP gas	LP gas
Operation: manual, accompanied, standing, seated, order picking	Seated	Seated	Seated	Seated
Nominal load capacity (Q) (May be downrated for certain masts or attachments. Always refer to vehicle data plate.)	5000 lbs (2268 kg)	5500 lbs (2495 kg)	6000 lbs (2722 kg)	6500 lbs (2949 kg)
Load center of gravity distance (c)	24 in (610 mm)	24 in (610 mm)	24 in (610 mm)	24 in (610 mm)
Load distance (x)	15.5 in (394 mm)	16.5 in (418 mm)	16.8 in (426 mm)	16.8 in (426 mm)
Wheelbase (y)	59.1 in (1500 mm)	59.1 in (1500 mm)	59.1 in (1500 mm)	59.1 in (1500 mm)

Weights	H25 CT	H27 CT	H30 CT	H32 CT
Service weight	Refer to vehicle data plate	Refer to vehicle data plate	Refer to vehicle data plate	Refer to vehicle data plate

Wheels and tires	H25 CT	H27 CT	H30 CT	H32 CT
Tire type, front and rear	Cushion	Cushion	Cushion	Cushion
Tire size, front (cushion)	21x7x15 in	21x8x15 in	21x8x15 in	21x8x15 in
Tire size, rear (cushion)	16x5x10.5 in	16x6x10.5 in	16x6x10.5 in	16x6x10.5 in
Number of wheels, front / rear (x = driven)	2 x / 2	2 x / 2	2 x / 2	2 x / 2
Track width, front (cushion) (b10)	35.0 in (889 mm)	35.7 in (907 mm)	35.7 in (907 mm)	35.7 in (907 mm)
Track width, rear (cushion) (b11)	35.7 in (908 mm)	35.7 in (908 mm)	35.7 in (908 mm)	35.7 in (908 mm)

Dimensions	H25 CT	H27 CT	H30 CT	H32 CT
Tilt angle	See "Mast Heights" table	See "Mast Heights" table	See "Mast Heights" table	See "Mast Heights" table
Mast height, fully lowered (h1)	See "Mast Heights" table	See "Mast Heights" table	See "Mast Heights" table	See "Mast Heights" table
Free lift stroke (h2) or FLH for quad	See "Mast Heights" table	See "Mast Heights" table	See "Mast Heights" table	See "Mast Heights" table
Lift stroke (h3) or MFH for quad	See "Mast Heights" table	See "Mast Heights" table	See "Mast Heights" table	See "Mast Heights" table
Extended height (h4)	See "Mast Heights" table	See "Mast Heights" table	See "Mast Heights" table	See "Mast Heights" table
Height to top of the standard OHG (h6)	83.9 in (2130 mm)	83.9 in (2130 mm)	83.9 in (2130 mm)	83.9 in (2130 mm)
Seat height (h7)	42.0 in (1067 mm)	42.0 in (1067 mm)	42.0 in (1067 mm)	42.0 in (1067 mm)
Coupling height (h10)	23.6 in (600 mm)	23.6 in (600 mm)	23.6 in (600 mm)	23.6 in (600 mm)
Overall length (l1)	132.8 in (3373 mm)	135.1 in (3432 mm)	136.7 in (3472 mm)	137.7 in (3498 mm)

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Steering system

Steering system – Checking

Troubleshooting without measurement of feed pressure and maximum pressure

Test conditions:

- Drive unit must be in working order.

Test	Findings	Evaluation
Start engine, release brakes, actuate forwards or reverse pedal, turn steering wheel.	Steering does not work, truck drives on.	Failure in servostat or steering cylinder.
	Steering does not work, truck remains stationary.	Gear pump (2) faulty.
	Steering works, truck remains stationary.	Troubleshooting as detailed below.

Troubleshooting with measurement of feed pressure and maximum pressure

Test conditions:

- Drive motor and drive unit at operating temperature.
- Front panel removed.
- Brake blocked.
- Forklift truck jacked up so that both drive wheels can freely rotate.

Test

➢ Connect HP pressure gauge with test socket (T-piece) to connection P2 of the tandem pump and a LP pressure gauge to connection F of the traction hydraulic pump.

➢ Start the engine, release the brakes and read off the pressure at F at the lower idling speed.

If the pressure is < 19 bar, carry out troubleshooting under "Hydrostatic drive unit".

If the pressure is ≥ 19 bar, carry out the following test section:

➢ With the engine running at idling speed, turn the steering wheel to the right and the left as far as it will go, hold in place momentarily and assess the function according to the following table:

Test	Findings	Evaluation
1. Steering is heavy	HP < 120 bar. Feed pressure ≥ 19 bar.	Servostat's safety valve is defective, replace.
	HP < 100 bar. Feed pressure < 19 bar.	Gear pump defective, replace.

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Step Type	Procedure	Yes (Test)	no (Test)
8 Test	Error logged for operating hydraulics	Go to step 3.	Perform test run. Go to step 9.
9 Test	Error found or recorded in the log	Go to step 3.	General testing of wiring harness and sensors. Go on to step 10.
10 Test	Error found in wiring harness	Go to step 5.	Go to step 11.
11 Test	Error found in sensors / actuators	Go to step 6.	Exchange the controller.

NOTE

For step 11 (No): *Use the diagnostics program to save a log file. Make a note of the voltage and resistance values found during the general testing of wiring harness and sensor. In warranty cases the data from the log file (types and frequency of errors) together with voltage and resistance values found during the general testing of wiring harness and sensor should be stated in the claim text. A print-out of the log file must be included with the defective part when it is sent back.*

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Fasteners

Connection chassis - overhead guard ▷

(3) 195 Nm



Connection counterweight - overhead guard ▷

(4) 195 Nm



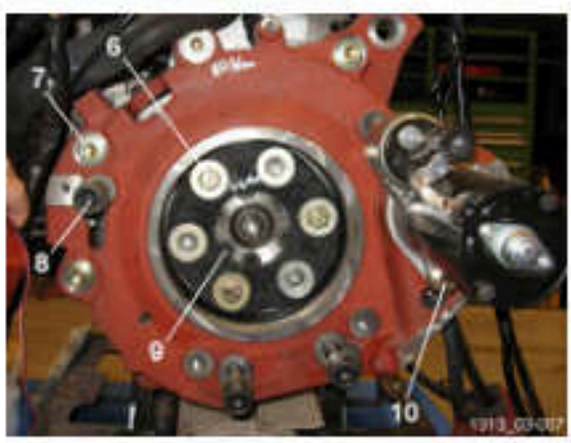
Connection overhead guard front - rear ▷

(5) 80 Nm



Connections drive engine - drive unit ▷

(6)	Coupling - flywheel	46 Nm
(7)	Intermediate housing - drive engine	80 Nm
(8)	Pump (not visible) - intermediate housing	195 Nm
(9)	Flywheel - camshaft	95 Nm
(10)	Intermediate housing - starter motor	80 Nm



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Lift mast

- Retract the cylinder completely and remove the clamp fittings. Tilt the lift cylinder backward and fix with a wedge, if necessary.

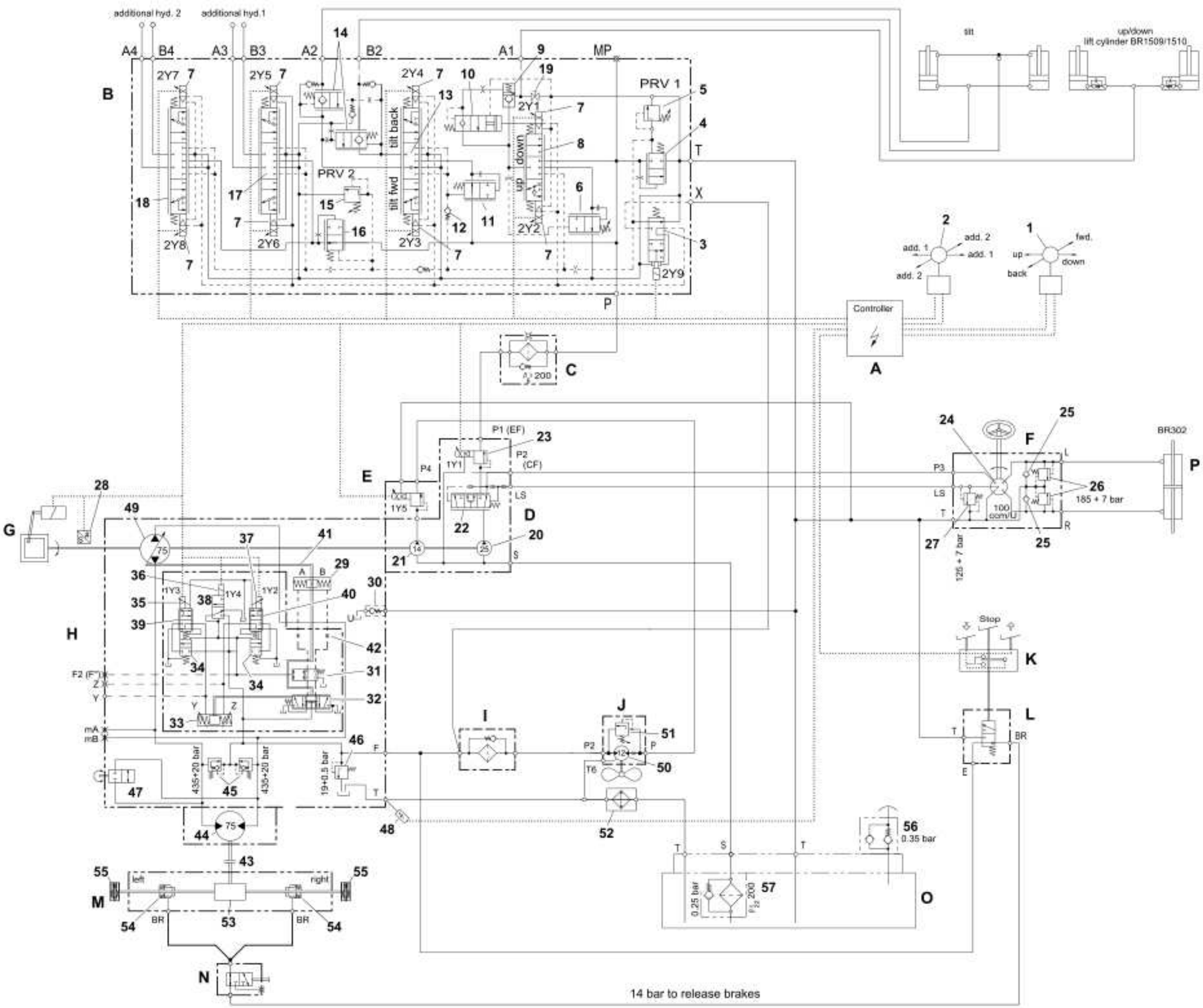


Removal of slide pads - triplex mast

- If an hydraulic attachment is fitted, the outer guide must be removed (hoses can remain in the guide). Fasten the guide to the cross member of the outer mast.



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A Lift-Traction Controller
- 1 Joystick – Lift/Lower and Tilt
- 2 Joystick – Auxiliary hydraulics

B Working Hydraulics Control Valve
- 3 Safety Valve (2Y9)
- 4 Pressure Balance Valve
- 5 Pressure Relief Valve – Lift and Tilt
- 6 Proportional Flow Control (2/2 directional control valve)
- 7 Solenoid Valves (2Y1 to 2Y8)
- 8 Lift Spool
- 9 Non-return Valve
- 10 Load Holding Valve
- 11 Proportional Flow Control (2/2 directional control valve)
- 12 Non-return Valve
- 13 Tilt Spool
- 14 Tilt Brake Valves
- 15 Pressure Relief Valve Auxiliary Hydraulics
- 16 Proportional Flow Control (2/2 directional control valve)
- 17 Auxiliary Hydraulics Spool 1
- 18 Auxiliary Hydraulics Spool 2
- 19 Emergency Lowering Valve

C Pressure Filter Working Hydraulics

D Feed Pump Group
- 20 Gear Pump - working hydraulics and steering (25 cc/rev)
- 21 Gear Pump - feed pump (F pressure) (14 cc/rev)
- 22 Priority Valve for Steering (3/3 directional control valve)
- 23 Retarder Valve 1 (1Y1)

E Retarder Valve 2 (1Y5)

F Steering Control Valve
- 24 Servostat (orbital)
- 25 Suction Valve
- 26 Hose Safety Valve (185 bar +7)
- 27 Steering Relief Valve (125 bar +7)

G Internal Combustion Engine
- 28 Actual Value (flywheel) Speed Sensor (1B1)

H Hydrostatic Unit (Traction)
- 29 Control Piston
- 30 Pressure Relief Valve (1 bar)
- 31 Throttle Valve
- 32 Pilot Valve
- 33 Servo Piston
- 34 Anti-Stall Valves
- 35 Reverse Proportional Solenoid (1Y3)
- 36 Safety Release Solenoid (1Y4)
- 37 Forward Proportional Solenoid (1Y2)
- 38 Release Valve
- 39 Reverse Proportional Valve
- 40 Forward Proportional Valve
- 41 Swash Plate Linkage
- 42 Restrictors / Nozzles
- 43 Driveshaft
- 44 Fixed Displacement Hydraulic Motor (75 cc/rev)
- 45 High-pressure Relief Valves (435 bar +20)
- 46 Feed Pressure Valve (19.5 bar)
- 47 Short Circuit Valve (for towing)
- 48 Hydraulic Temperature Sensor
- 49 Variable Displacement Hydraulic Pump (75 cc/rev max)

I Low Pressure Filter (for F pressure)

J Fan Drive
- 50 Hydraulic Fan Motor (12cc/rev)
- 51 Relief Valve
- 52 Hydraulic Oil Cooler

K Travel Pedal Assembly

L Brake Valve

M Drive Axle (Total Ratio 1:12.62)
- 53 Differential Unit
- 54 Multiple Disc Brake
- 55 Drive Wheels and Reduction Housing

N By Pass Valve for Towing

O Oil Reservoir
- 56 Breather Filter With Pressure Valve 0.35 bar
- 57 Suction Filter With By-Pass Valve

P Steer Cylinder

1313 Hydraulic Diagram

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