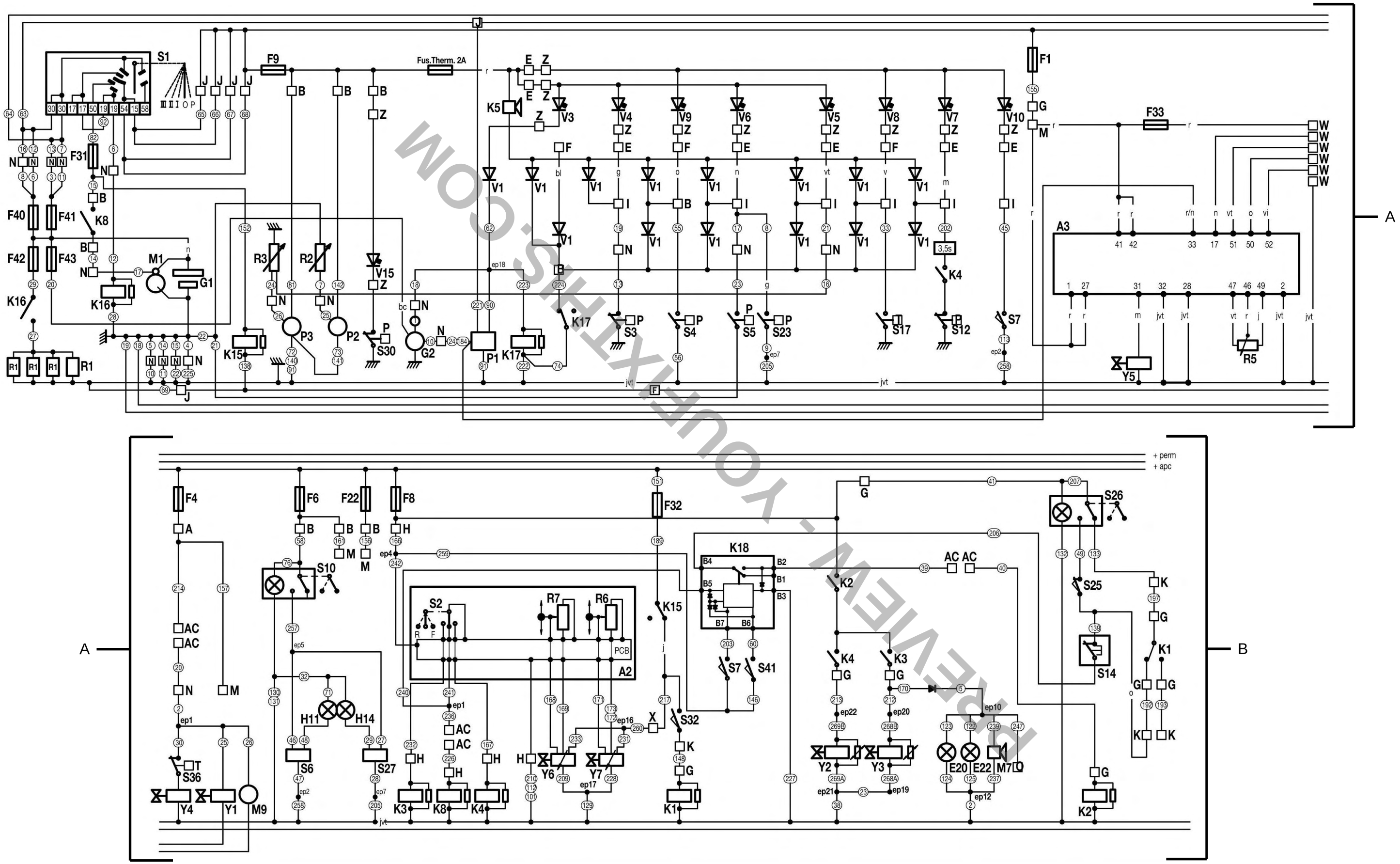
Electrical Schematic

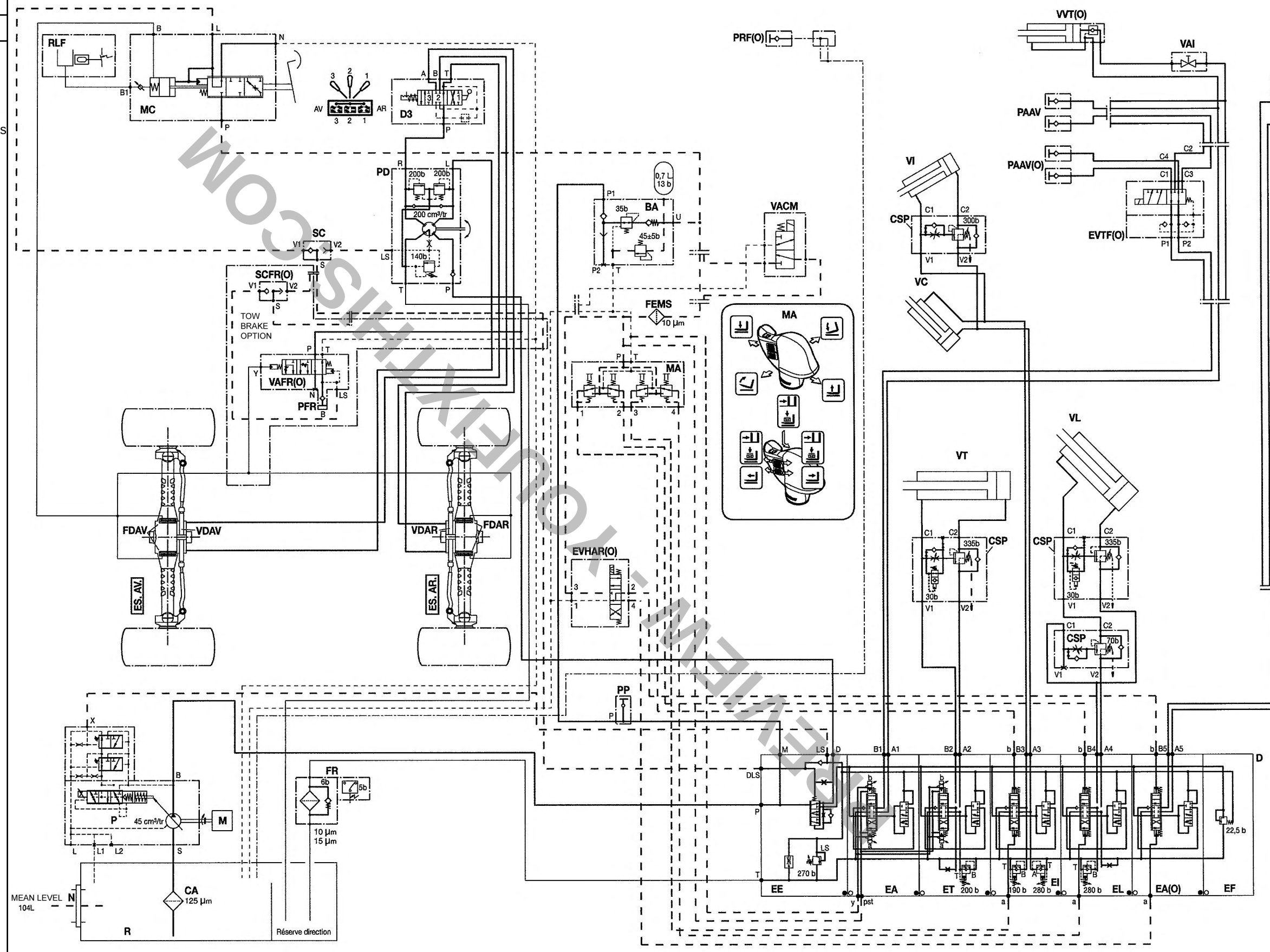


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Hydraulic Schematic

HYDRAULIC DIAGRAM KEY	
ITEM	DESCRIPTION
BA	Power unit + Accumulator
CA	Suction Strainer
CSP	Piloted Safety Valve
CR(O)	Towing Hook (Option)
D	Valve Bank 4 or 5 Sections
EE	Inlet Section
EA(O)	Attachment Section
EL	Lift Section
EI	Tilt Section
EA	Attachment Section
ET	Telescope Section
EF	Closing Section
D3	Steer Valve, 3 position Position 1: 4-wheel Position 2: Front wheel Position 3: Crab
EVHAR(O)	Rear Hyd. Electrovalve
EVTF(O)	Boom Head Electrovalve
FDAV	Front Disc Brake
FDAR	Rear Disc Brake
FEMS	Filter Head
FR	EMS Filter
M	Engine
MA	Joystick
MC	Master Cylinder
N	Level
P	Hydraulic Pump
PAAV	Front Attach. Adptr.
PAAV(O)	Front Attach. Adptr. (opt.)
PAAR(O)	Rear Attach. Adptr. (opt.)
PD	Steering Pump
PFR(O)	Trailor Brake Adptr.
PP	Pressure Point
PRF(O)	Drain-back Adptr. (option)
R	Hydraulic Tank
RLF	Brake Fluid Reservoir
SC	Circuit Selector
SCFR(O)	Trailer Brake Select (opt.)
SCHAR(O)	Rear Hyd. Selector (opt.)
VC	Slave Cylinder DE
VI	Tilt Cylinder DE
VDAV	Front Steer Cylinder DE
VDAR	Rear Steer Cylinder DE
VL	Lift Cylinder
VT	Telescope Cylinder DE
VAFR(O)	Trailer Brake Valve (opt.)
VVT(O)	Carriage Lock Cylinder
VAI	Insulation Valve
VACM(O)	Movement Cut-off Valve



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Torque Specifications

Use these torque values when tightening hardware (excluding: locknuts and self-tapping, thread-forming and metal screws) unless otherwise specified.

Unified National Thread	Grade 2		Grade 5		Grade 8	
	Dry	Lubed	Dry	Lubed	Dry	Lubed
8-32	19*	14*	30*	22*	41*	31*
8-36	20*	15*	31*	23*	43*	32*
10-24	27*	21*	43*	32*	60*	45*
10-32	31*	23*	49*	36*	68*	51*
1/4-20	66*	50*	9	75*	12	9
1/4-28	76*	56*	10	86*	14	10
5/16-18	11	9	17	13	25	18
5/16-24	12	9	19	14	25	20
3/8-16	20	15	30	23	45	35
3/8-24	23	17	35	25	50	35
7/16-14	32	24	50	35	70	55
7/16-20	36	27	55	40	80	60
1/2-13	35	35	75	55	110	80
1/2-20	40	40	90	65	120	90
9/16-12	55	55	110	80	150	110
9/16-18	60	60	120	90	170	130
5/8-11	75	75	150	110	220	170
5/8-18	85	85	180	130	240	180
3/4-10	130	130	260	200	380	280
3/4-16	150	150	300	220	420	320
7/8-9	125	125	430	320	600	460
7/8-14	140	140	470	360	660	500
1-8	190	190	640	480	900	680
1-14	210	210	710	530	1000	740

Metric Course Thread	Grade 8.8		Grade 10.9		Grade 12.9	
	Dry	Lubed	Dry	Lubed	Dry	Lubed
M6-1	8	6	11	7	13.5	10*
24M8-1.25	19	14	27	20	32.5	24*
M10-1.5	37.5	28	53	39	64	47
M12-1.75	65	48	91.5	67.5	111.5	82
M14-2	103.5	76.5	145.5	108	176.5	131
M16-2	158.5	117.5	223.5	165.5	271	200

* *All torque values are in lb-ft, except those marked with an *, which are in lb-in.*
For metric torque values (Nm), multiply lb-ft value x 1.355, or lb-in value x 0.113.

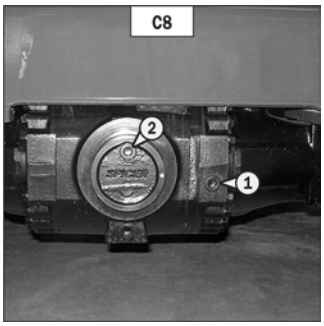
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C8 - FRONT AND REAR AXLE DIFFERENTIAL OIL LEVEL

CHECK

Park the telescopic handler on level ground with the engine stopped.

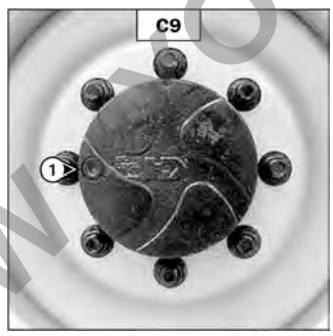


- Remove level plug (1) (fig. C8). The oil should be flush with the edge of the hole.
- If necessary, add oil (see chapter: 6 - MAINTENANCE: LUBRICANTS AND FUEL) at the filler port (2) (fig. C8).
- Replace and tighten the level plug (1) (fig. C8) [tightening torque: 25 to 36 lbs.-ft. (34 to 49 Nm)].
- Repeat the operation for both differentials.

C9 - FRONT AND REAR AXLE PLANETARIES OIL LEVEL

CHECK

Park the telescopic handler on level ground with the engine stopped.



- Check the level on both front axle planetaries.
- Place level plug (1) (fig. C9) in the horizontal position.
- Remove the level plug; the oil should be flush with the edge of the hole.
- If necessary, add oil (see chapter: 6 - MAINTENANCE: LUBRICANTS AND FUEL) through the same hole.
- Replace and tighten the level plug (1) (fig. C9) [tightening torque: 25 to 36 lbs.-ft. (34 to 49 Nm)].
- Repeat the operation on both rear axle planetaries.

D - EVERY 500 HOURS SERVICE

Perform the operations described previously as well as the following operations:

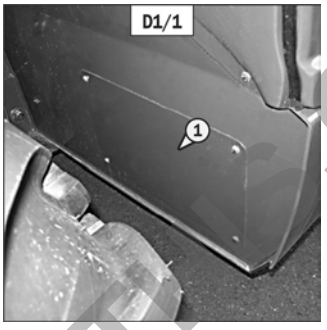
D1 - ENGINE OIL

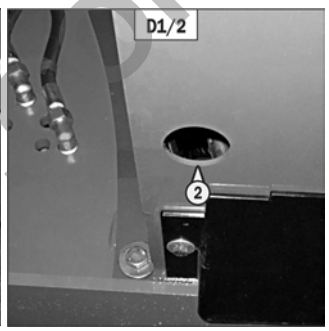
DRAIN

Park the telescopic handler on level ground, let the engine run at idle for a few minutes, and then stop the engine.

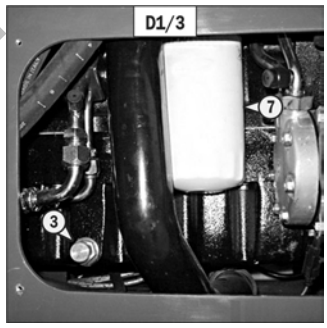
DRAINING THE OIL

- Open the engine cover.
- Remove access panel (1) (fig. D1/1).





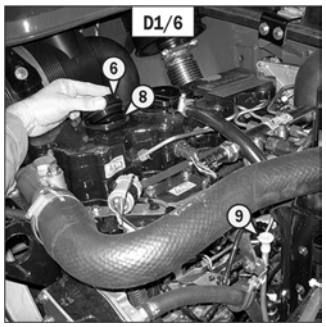
- Place a container under drain plug (2) (fig. D1/2) and unscrew the plug (3) (fig. D1/3).
- Remove the drain hose (4) (fig. D1/4).





- Place one end of the drain hose in the container and tighten the union onto the drain port 5 (fig. D1/5).
- Remove the filler cap (6) (fig. D1/6) to ensure that the oil drains properly





IMPORTANT: *Dispose of the drain oil in an ecological manner.*

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SERVICE SCHEDULE

A = ADJUST C = CHECK D = DESCALE G = GREASE	N = CLEAN P = BLEED R = CHANGE V = DRAIN	After the first 50 hours	Daily or 10 hours	50 hours	250 hours	1 year or 500 hours	1 year or 1000 hours	2000 hours	4000 hours	Periodically
Engine Oil Level			C							
Engine Coolant Level			C							
Fuel Level			C							
Fuel Pre-Filter			C							
Cyclonic Pre-Filter			N							
Transmission Oil Level			C							
Tire Pressures and Wheel Nuts Torque			C							
Boom Wear Pads			C/G*							
General Machine Operation and Condition			C							
Dry Air Filter Element				C/N						
Radiator Core				N						
Air Conditionor Condenser Core				N						
Transmission Universal Joints				G						
Boom				G						
Hydraulic Oil Level				C						
Brake Fluid Level				C						
Windshield Washer Fluid Level				C						
Cab Door				G						
Cab Ventilation Filter				N						
Front and Rear Axle Spindles				G						
Rear Axle Oscillation				G						
Fan Belt Tension		A			C/A					
Alternator Belt Tension		A			C/A					
Air Conditionor Compressor Belt Tension		A			C/A					
Angle Gear Box Oil Level					C					
Parking Brake					C/A					
Cab Ventilation Filter					R					
Heater Control Valve					N					
Front and Rear Axle Differential Oil Level					C					
Front and Rear Axle Planetaries Oil Level					C					
Engine Oil		V				V				
Engine Oil Filter		R				R				
Dry Air Filter Element						R				
Fuel Pre-Filter		R				R				
Fuel Filter Cartridge		R				R				
Transmission Oil Filter		R				R				
Hydraulic Return Oil Filter Cartridge		R				R				
Parking Brake Lever Mechanism						G				
Cab Ventilation Filter						N				
Front and Rear Axle Differential Oil		V				V				
Fuel Tank							N			
Safety Dry Air Filter Element							R			
Transmission Oil		V					V			
Transmission Housing Strainer							N			
Angle gear box oil		V					V			
Hydraulic Oil							V			
Suction Strainer for Hydraulic Tank							N			
Filter Cap for Hydraulic Oil Tank							R			
Distributor Control Head Filter							R			
Seat Belt							C			
Front and Rear Axle Planetaries Oil		V					V			
Adjust the front headlamps							C			
Engine Coolant								V		

(*): Every 10 hours during the first 50 hours, then again every 250 hours.
(**): Consult your dealer.

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ANGLE GEAR-BOX

- Type — Turner

FRONT AXLE

- Differential — Limited-slip

REAR AXLE

- Differential — Non-locking

FRONT AND REAR TIRES

DIMENSIONS	PRESSURE	TIRE LOAD	
460/70 R24 159A8 XMCL TUBELESS MICHELIN	50 PSI	FRONT NO LOAD FRONT FULL LOAD REAR NO LOAD REAR FULL LOAD	3638 lb. 9700 lb. 4189 lb. 1543 lb.

BRAKE SYSTEM

- Service brake — Hydraulic power brake
  - Type of brake — Multi-disc brake immersed in oil
  - Type of control — Foot-operated for the front and rear axles
- Parking brake — Mechanical
  - Type of brake — Disc on gear-box output
  - Type of control — Manual operated hand lever

ELECTRICAL SYSTEM

- Ground — Negative
- Battery — 12-V, 135 Ah - 850 A
- Alternator — 12-V, 85 A
  - Type — Denso Ai115
- Starter — 12-V, 3.2 kW
  - Type — AZE

SOUND LEVELS

- Sound Pressure (in cab) — 76 dB(A)
- Sound Power environment
  - 104 dB(A) measured
  - 105 dB(A) guaranteed

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F - OPERATING THE TELESCOPIC HANDLER

⚠ WARNING

Operators must always consider the risks involved in using the telescopic handler, in particular:

- Risk of losing control

- Risk of losing side or front stability of the telescopic handler

The operator must remain in control of the telescopic handler at all times.

In the event of the telescopic handler overturning, do not try to leave the cabin during the incident. THE BEST PROTECTION IS TO STAY IN THE CABIN, AND LEAN AWAY FROM THE FALL.

- Do not perform operations that exceed the capacities of the telescopic handler or attachments.
- Always drive the telescopic handler with the forks or attachment in the transport position, i.e., 1 foot (300 mm) from the ground, the boom retracted and the carriage tilted rearward.
- Only carry loads that are balanced and properly anchored to avoid any risk of a load falling off.
- Ensure that pallets, cases, banding, etc. are in good condition and suitable for the load to be lifted.
- Familiarize yourself with the telescopic handler on the terrain where it will be used.
- Ensure that the service brakes are working properly.
- The loaded telescopic handler must not travel at speeds in excess of 7 mph (12 km/h).
- Drive smoothly at an appropriate speed for the operating conditions (terrain, load on the telescopic handler).
- Do not use the hydraulic boom controls when the telescopic handler is moving.
- Do not move the telescopic handler with the boom in the raised position unless under exceptional circumstances, and then with extreme caution, at very low speed and using gentle braking. Ensure that visibility is adequate.
- Drive around turns slowly.
- In all circumstances make sure you are in control of your speed.
- On damp, slippery or uneven terrain, drive slowly, and brake gently, never abruptly.
- Only use the telescopic handler's forward/reverse lever from a stationary position and never do so abruptly.
- Do not drive with your foot on the brake pedal or with the parking brake on.
- Always remember that hydrostatic steering is very sensitive to movement of the steering wheel, so turn it gently and smoothly.
- Never leave the engine running when the telescopic handler is unattended.
- Do not leave the cab when the telescopic handler has a raised load.
- Look where you are going and always make sure you have good visibility along the route.
- Use the rear-view mirrors frequently.
- Drive around, not over, obstacles.
- Never drive along the edge of a ditch or a steep slope.
- It is hazardous to use two telescopic handlers simultaneously to handle heavy or large loads, because this operation requires particular precautions to be taken. It must only be used when no other option is available and after risk analysis.
- Engage the gear required (see chapter: 5 - INSTRUMENTS AND CONTROLS: 16 - SHIFT LEVER AND TRANSMISSION CUT-OFF).
- Select the steering mode appropriate for its use and working conditions.
- Shift the forward/reverse lever to the selected direction of travel.
- Release the parking brake and accelerate gradually.

G - STOPPING THE TELESCOPIC HANDLER

- Never leave the ignition key in the telescopic handler during the operator's absence.
- When the telescopic handler is stationary, or if the operator has to leave the cab (even for a moment), place the forks or attachment on the ground, apply the parking brake and put the forward/reverse lever in neutral.

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DESCRIPTION

1 - Operator's Seat
2 - Seat Belt
3 - Control and Signal Lamp Panel
4 - Switch Panels
5 - Light Switch, Horn and Turn Indicator Switch
6 - Front and Rear Windshield Wiper Switch
7 - Ignition Switch
8 - Brake Fluid Reservoir and Windshield Washer Reservior Access Panel
9 - Brake Fluid Reservoir
10 - Windshield Washer Reservoir
11 - Armrest and Storage
12 - Storage Tray (Optional Radio)
13 - Fuse and Relay in the Cab
14 - Fuses and Relays under the Engine Cover
15 - Accelerator Pedal
16 - Service Brake and Transmission Cutoff Pedal
17 - Shift Lever and Transmission Cutoff
18 - Forward / Neutral / Reverse Switch
19 - Parking Brake Lever
20 - Steering Mode Selector Lever
21 - Hydraulic Controls and Transmission Cutoff*
22 - Function Controls / Load Charts
23 - Air Conditioner / Heater Controls
24 - Cab Air Filter
25 - Windshield Defroster Vents
26 - Heating Vents
27 - Door Lock
28 - Lock Handle for Upper Half Door
29 - Release Button for Upper Half Door
30 - Handle for Rear Window Opening
31 - Manual Holder
32 - Front Lights
33 - Rear Lights
34 - Steering Wheel Position Adjustment Handle
35 - Inclinometer
36 - Sun Visor (Roof and Windshield)
37 - Cab Interior Light
38 - Clothes Hook
39 - Cigar Lighter and 12-VDC Accessory Outlet
40 - Engine Block Heater
41 - Hydraulic Attachment Locking
42 - Attachment Hydraulic Control for Continous Operation and Flow Control

TOW PIN (Not shown on page 32. See page 48).

A - Tow Pin
B - Trailer Electric Connector

OPTIONS (Not shown on page 32. See page 49).

1 - Boom Ride Control
2 - Reversible Fan
3 - Second Auxiliary Hydraulic Circuit with Hydraulic Attachment Locking
4 - Boom Mounted Work Lights
5 - Windshield Protection Grill
6 - AM/FM Radio
7 -Rear Window De-icing

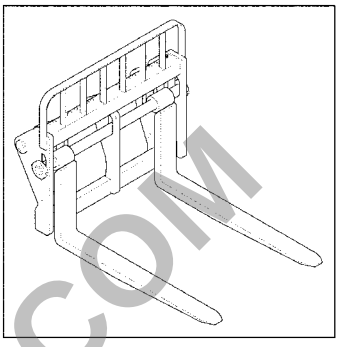
*** NOTE:** *If the hydraulic functions do not operate, turn the steering wheel to recharge the hydraulic control accumulator and hydraulic functions should be restored.*

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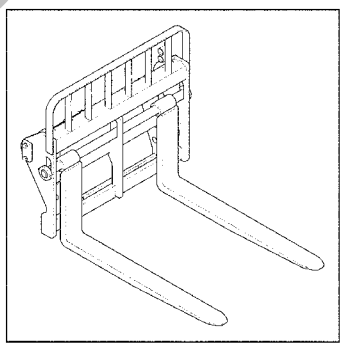
TECHNICAL SPECIFICATIONS OF ATTACHMENTS

MASONRY AND FRAMERS CARRIAGE



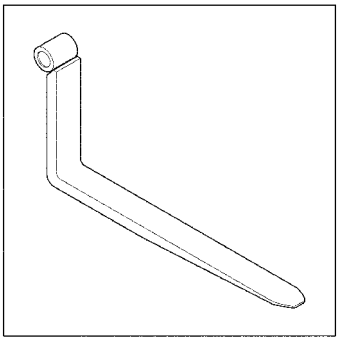
MASONRY	**STOCK NUMBER:**	**820269**
	Nominal load capacity:	7,000 lbs. (3175 kg)
	Width:	48”
	Weight:	541 lbs. (245 kg)
FRAMERS	**STOCK NUMBER:**	**820270**
	Nominal load capacity:	7,000 lbs. (3175 kg)
	Width:	60”
	Weight:	645 lbs. (293 kg)

MASONRY AND FRAMERS ROTATING CARRIAGE



MASONRY	**STOCK NUMBER:**	**820271**
	Nominal load capacity:	7,000 lbs. (3175 kg)
	Width:	48”
	Weight:	820 lbs. (372 kg)
FRAMERS	**STOCK NUMBER:**	**820272**
	Nominal load capacity:	7,000 lbs. (3175 kg)
	Width:	60”
	Weight:	880 lbs. (400 kg)

FORK SETS



	STOCK NUMBER:	**809498**
	Section:	5” x 1 3/4” x 48”
	Weight:	300 lbs. (136 kg)
	Rated Capacity:	8,500 lbs. (3856 kg)
	STOCK NUMBER:	**809502**
	Section:	4” x 2” x 48”
	Weight:	260 lbs. (118 kg)
	Rated Capacity:	8,400 lbs. (3810 kg)
	STOCK NUMBER:	**809499**
	Section:	2” x 2” x 48”
	Weight:	160 lbs. (73 kg)
	Rated Capacity:	4,200 lbs. (1905 kg) (requires two sets)
	STOCK NUMBER:	**809501**
	Section:	2” x 5” x 60”
	Weight:	390 lbs. (177 kg)
	Rated Capacity:	10,500 lbs. (4763 kg)

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LOADING THE TELESCOPIC HANDLER ON A TRAILER

WARNING

Ensure that the safety instructions for the trailer are followed before loading the telescopic handler, and that the driver of the truck knows the dimensions and the weight of the telescopic handler (see chapter: 1 - SPECIFICATIONS: SPECIFICATIONS).

WARNING

Ensure that the trailer has the size and load capacity sufficient for transporting the telescopic handler.

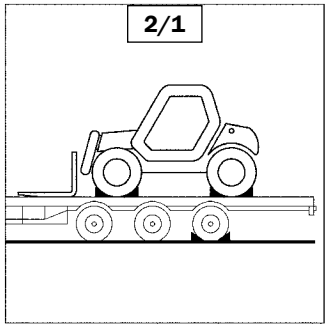
IMPORTANT: *For telescopic handlers equipped with a turbocharged engine, block off the exhaust outlet to avoid rotation of the turbocharger without lubrication when transporting the machine.*

LOADING THE TELESCOPIC HANDLER

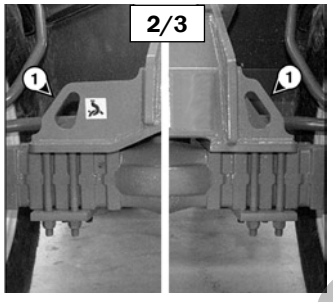
- Block the wheels of the trailer.
- Attach the loading ramps to obtain an angle as low as possible to load the telescopic handler.
- Load the telescopic handler parallel to the trailer.
- Stop the telescopic handler (see chapter: 4 - OPERATING AND SAFETY INSTRUCTIONS: OPERATOR INSTRUCTIONS).

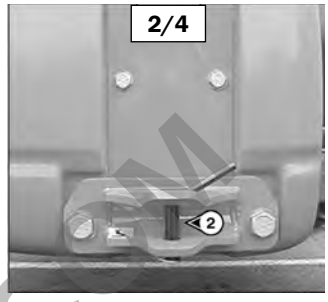
TYING DOWN THE TELESCOPIC HANDLER

- Insert wheel chocks to the trailer at the front and back of each tire (fig. 2/1).

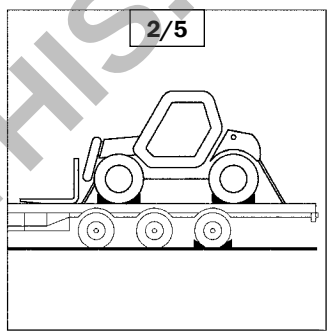


- Tie down the telescopic handler on the trailer with chains and binders, at the front of the telescopic handler, at the tie-down points (1) (fig. 2/3), and at the back, at the tow pin (2) (fig. 2/4).





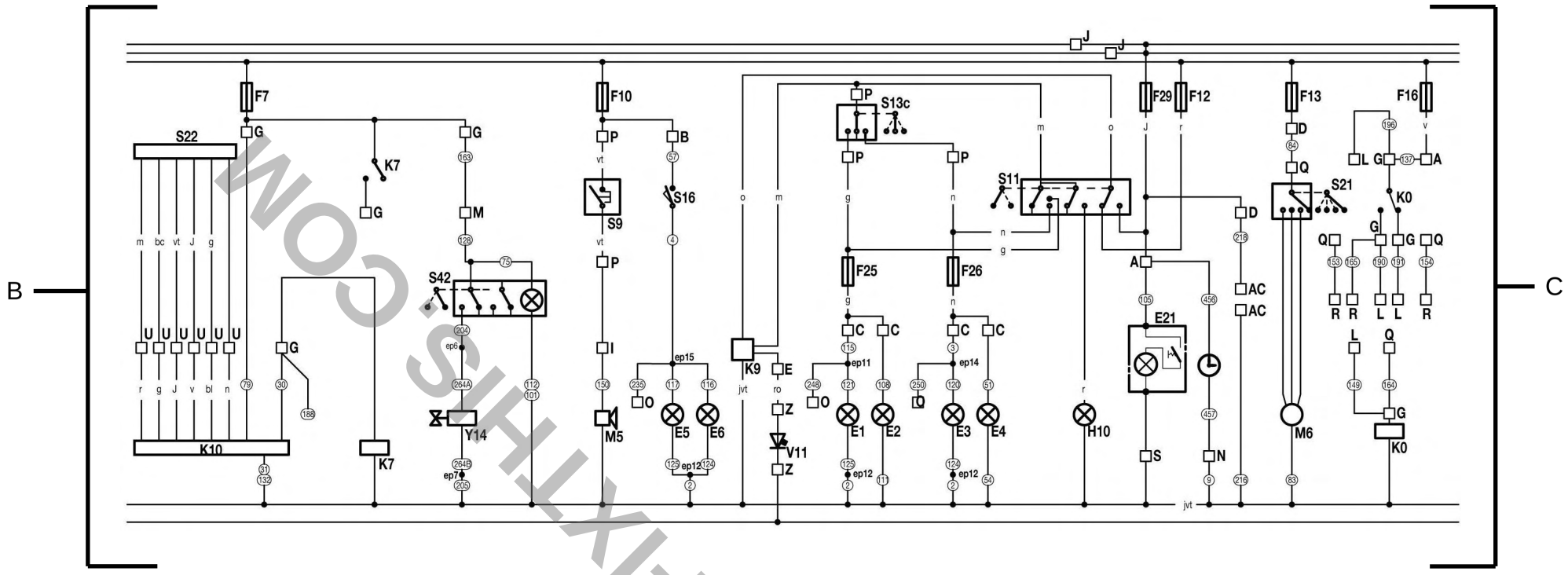
- Tighten the chains and binders (fig. 2/5).

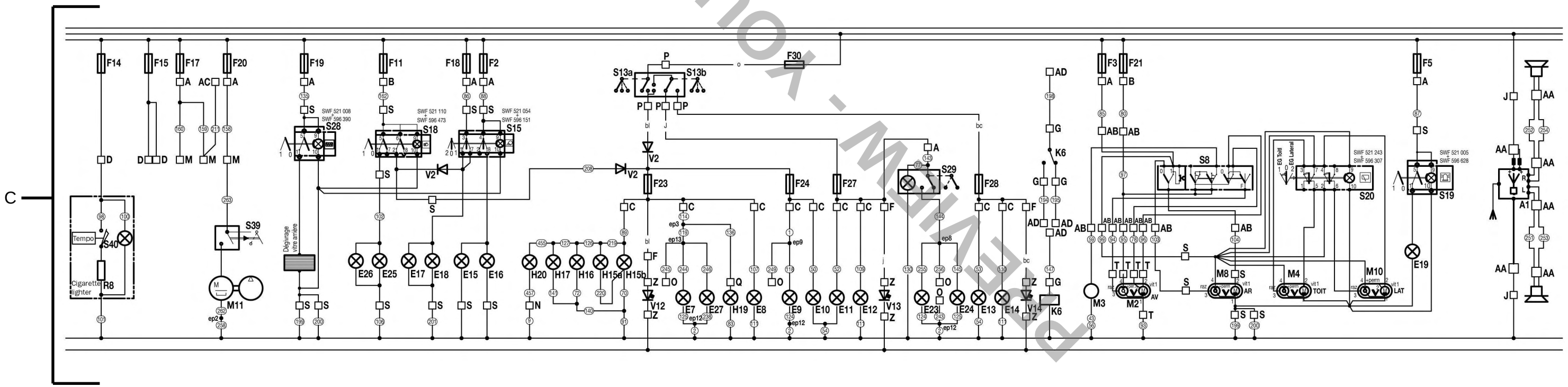


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Electrical Schematic





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HYDRAULIC CIRCUIT

Type of pump . . . . . .Variable-Displacement, Piston
- Capacity/rev . . . . . .2.75 cu. in. (45 cc)
- Pump flow rate . . . . . .28.5 gpm (108 L/min)

Filtration
- Return . . . . . .15 micron
- Suction . . . . . .125 micron

Maximum service pressure . . . . . .3916 psi (270 bar)
- Telescoping circuit . . . . . .2900 / 3916 psi (200 / 270 bar)
- Lifting circuit . . . . . .3916 / 3916 psi (270 / 270 bar)
- Tilt circuit . . . . . .2756 / 3916 psi (190 / 270 bar)
- Attachment circuit . . . . . .3916 psi (270 bar)
- Steering circuit . . . . . .2030 psi (140 bar)

HYDRAULIC TIMES

Lifting times (boom retracted)
- No load, lifting . . . . . .7.1 seconds
- Rated load, lifting . . . . . .8.3 seconds
- No load, lowering . . . . . .5.3 seconds
- Rated load, lowering . . . . . .5.4 seconds

Telescoping times
- No load, extending . . . . . .8.2 seconds
- Rated load, extending . . . . . .8.2 seconds
- No load, retracting . . . . . .6.3 seconds
- Rated load, retracting . . . . . .6.6 seconds

Rearward tilt time, no load . . . . . .3.2 seconds

Forward tilt time, no load . . . . . .2.7 seconds

SPECIFICATIONS AND WEIGHTS

Travel Speed maximum (standard configuration on level ground)
- Forward, no load . . . . . .20 mph (32.5 km/h)
- Reverse, no load . . . . . .20 mph (32.5 km/h)

Standard lift height . . . . . .22’7” (6.90 m)

Rated capacity (with standard attachment) . . . . . .7000 lbs. (3175 kg)

Load center . . . . . .24” (610 mm)

Weight of standard attachment . . . . . .210 lbs. (95 kg)

Weight of forks (each) . . . . . .159 lbs. (72 kg)

Operating weight with standard attachment . . . . . .15,565 lbs. (7060 kg)

Axle weight with attached equipment (transport position)
- Front, no load . . . . . .7231 lbs. (3280 kg)
- Front, rated load . . . . . .19,379 lbs. (8790 kg)
- Rear, no load . . . . . .8333 lbs. (3780 kg)
- Rear, rated load . . . . . .3020 lbs. (1370 kg)

Drawbar pull, rated load . . . . . .18705 lbf. (83.2 kN)

Breakout force on bucket teeth with tilt cylinder (ISO 14397-2) . . .12,702 lbf. (56.5 kN)

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