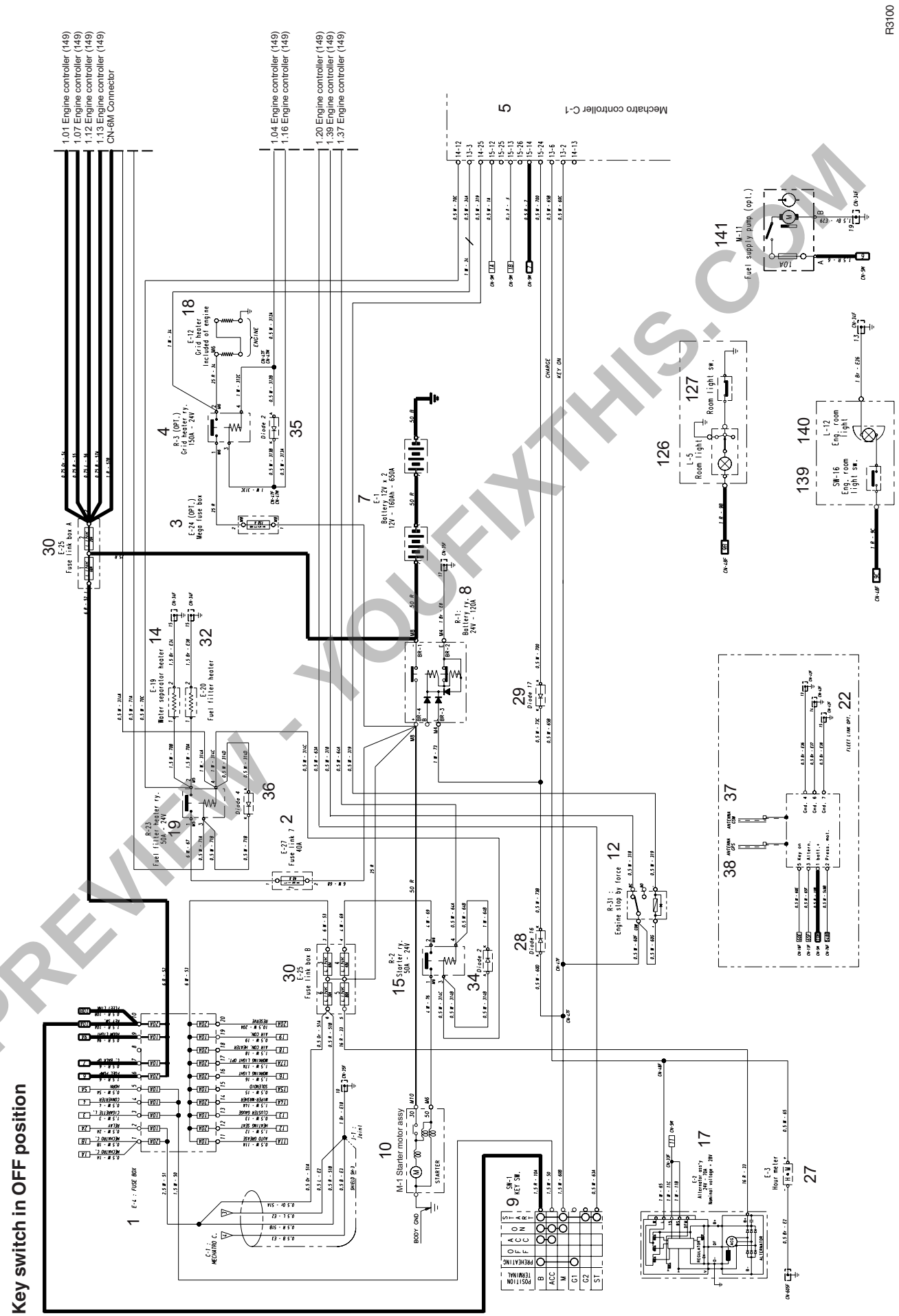
ELECTRICAL SYSTEM

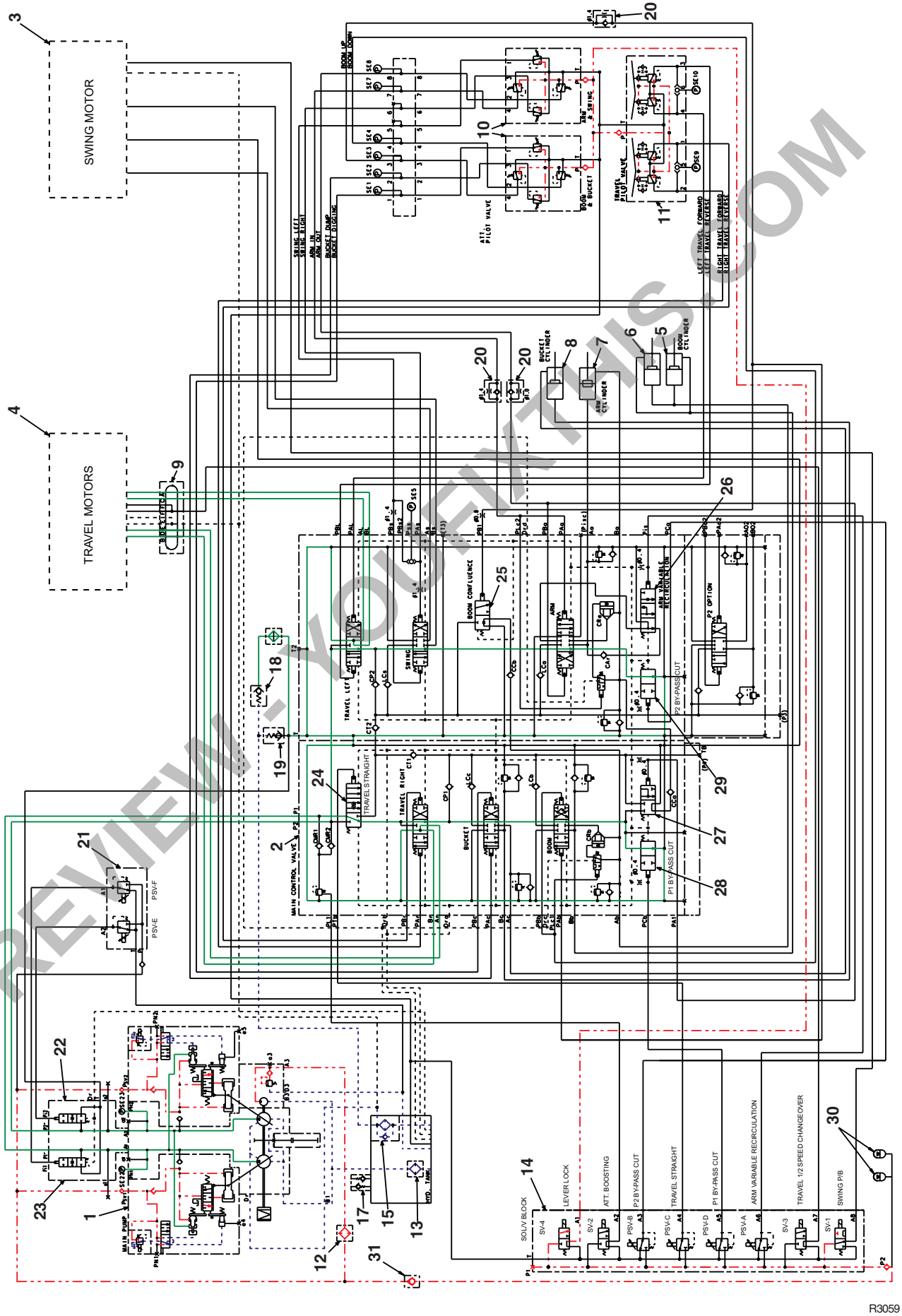


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HYDRAULIC CIRCUIT

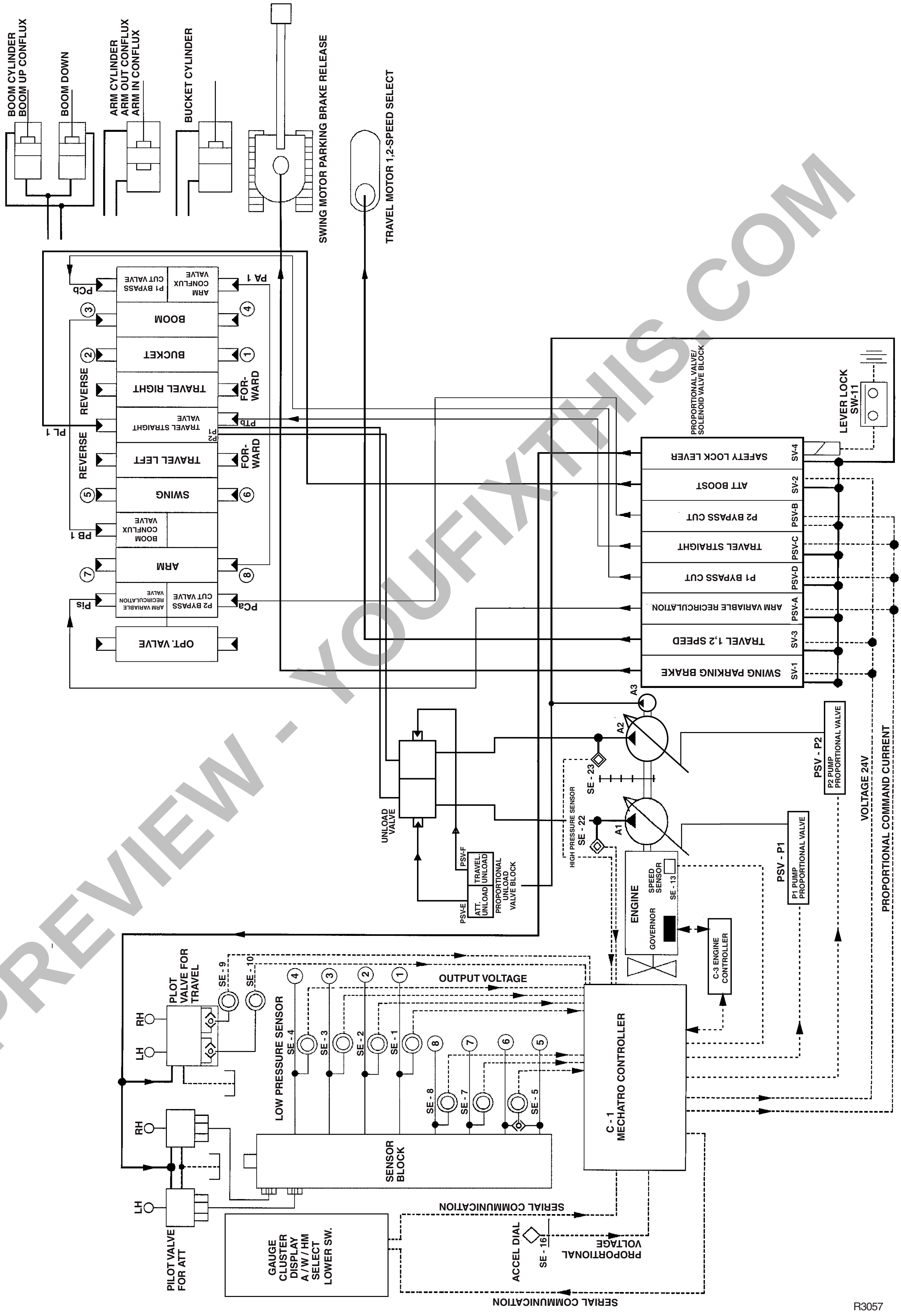
NEUTRAL CIRCUIT: Positive control function at safety lock lever down (unlocked position)



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MECHATRO CONTROL SYSTEM



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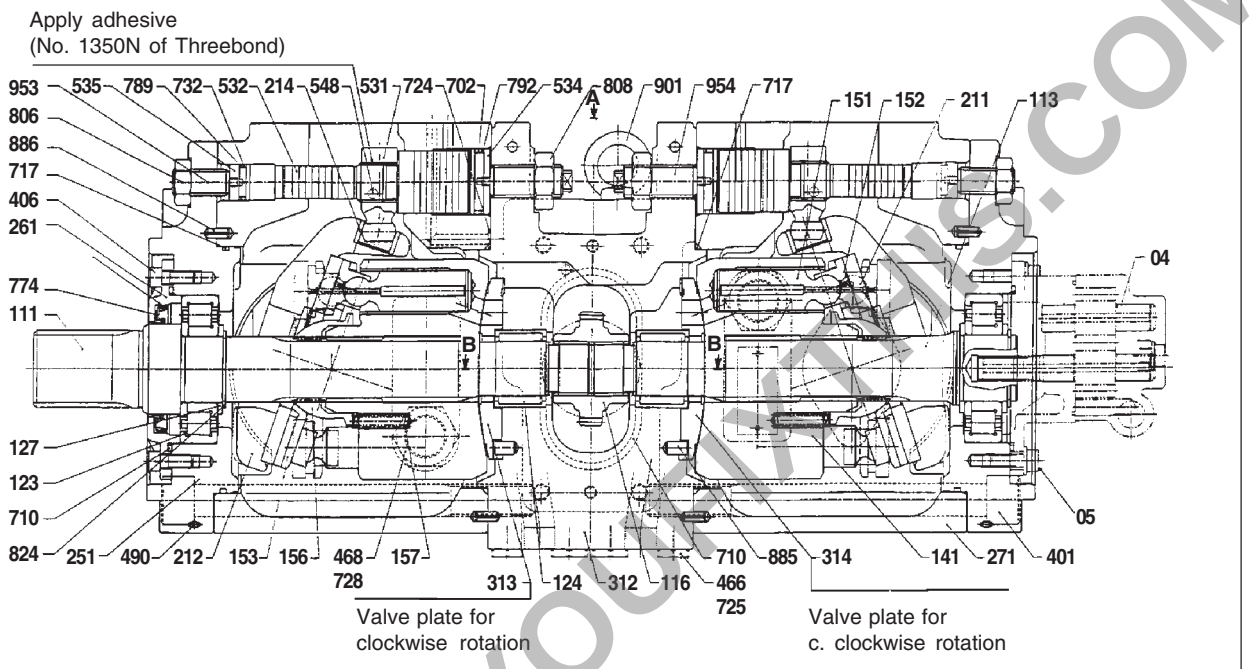
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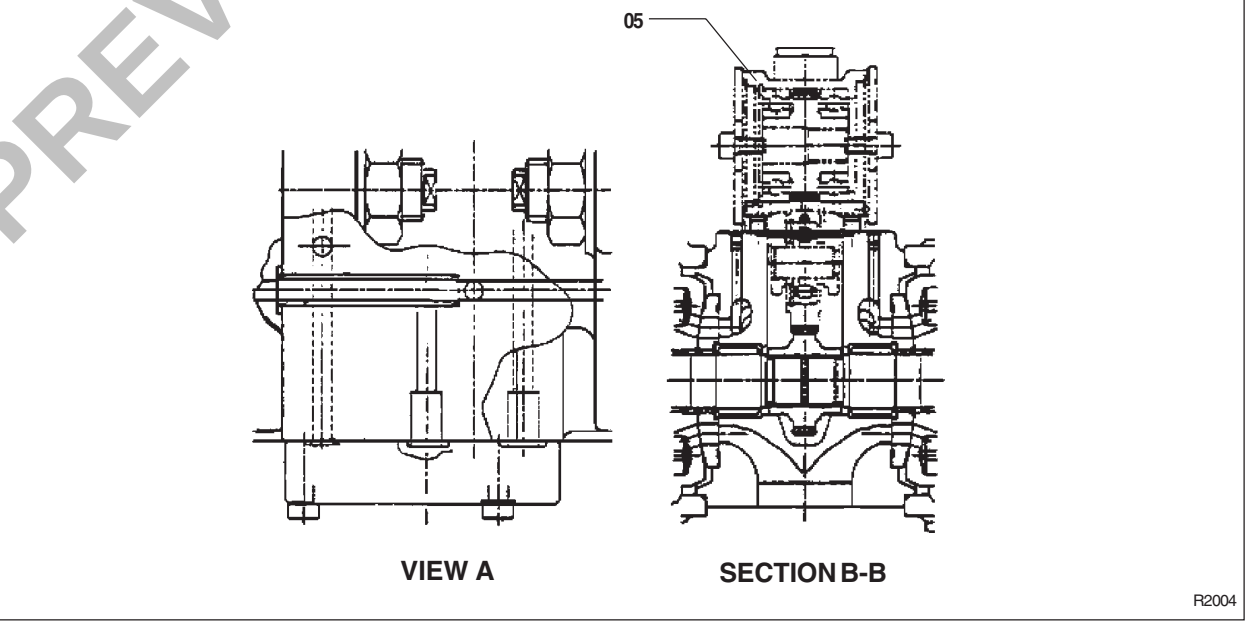
HYDRAULIC PUMP ASSY

HYDRAULIC PUMP

Construction

MAIN PUMP





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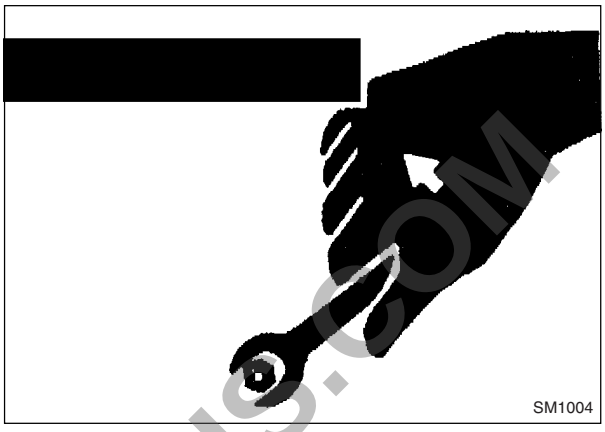
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TIGHTENING TORQUE

TORQUE CHART

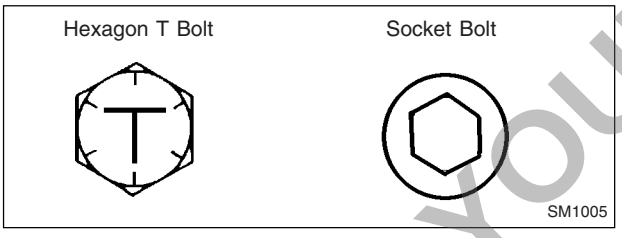
WARNING

Use tools appropriate for the work to be done. Makeshift tools and procedures can create safety hazards. For loosening and tightening nuts and bolts, use the correct tools. Avoid bodily injury caused by slipping wrenches.



Bolt Types

Tighten nuts or bolts correctly to torque specifications. Two kinds of bolts, hexagon bolts T and socket bolt, each made of different material, are used. Make sure to employ the correct bolts and tighten them to specification when assembling the machine or components.



Specified Tightening Torque Chart

Bolt Dia.	Wrench Size	Hexagon Wrench Size	T Bolt, Socket bolt (Nm)
M8	13	6	29.5
M10	17	8	64
M12	19	10	108
M14	22	12	175
M16	24	14	265
M18	27	14	390
M20	30	17	540
M22	32	17	740
M24	36	19	930
M27	41	19	1 370
M30	46	22	1 910
M33	50	24	2 550
M36	55	27	3 140

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REMOVAL AND INSTALLATION OF CAB

Removal of cab

1. Remove the operator's seat complete with longitudinal travel slide, removing securing screws (**12**) (Q.ty 4) complete with spring washers. Disconnect the seat heater switch cable.

   : 6 mm

2. Remove securing screws (**16**) (Q.ty 4) complete with washers and lift hooks (**14**) to remove panels (**17** and **19**) to reach the conditioner unit.

3. Disconnect the connectors of loudspeakers (**5**) from panels (**17** and **19**), from power outlet (**15**) and pressure discharge button (**18**).

4. Disconnect connections (**9** and **10**) of the monitor, ceiling light (**7**) and wiper interlock switch (**8**). Disconnect connections of the engine controller.

5. Disconnect the ground wires from the cab structure loosening securing screw (**6**).

   : 10 mm

6. Remove securing screws (**4**) (q.ty 3) complete with washers to remove panel (**2**). Disconnect the connectors from hourmeter (**3**).

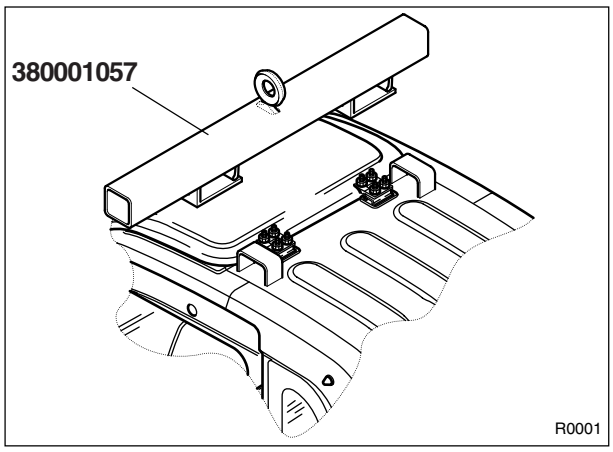
7. Disconnect washer liquid hose (**11**).

8. Extract air duct (**13**) pushing it toward the rear side of the cab until it is free from the mounting and remove it.

9. Install tool no. **380001057** with two C profiles arranged on the cab structure.

WARNING

Approximate mass of the cab: 270 kg



10. Remove screws (**1**) (Q.ty 8).

    : 19 mm

11. Lift carefully the cab from the operator's compartment.

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TROUBLE DIAGNOSIS (HYDRAULIC SYSTEM)

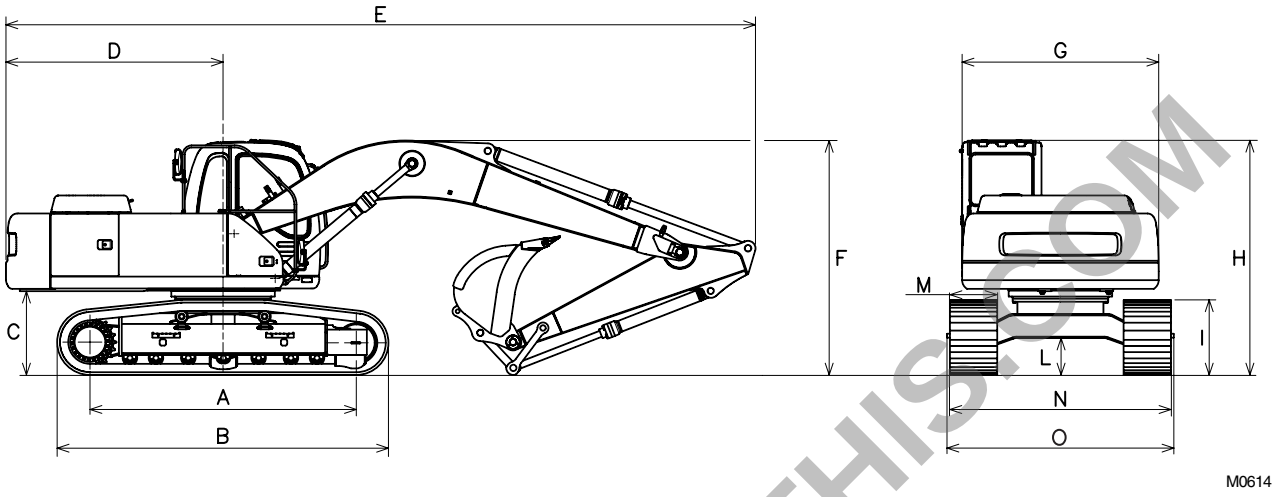
Classification		Group No.	Trouble			Component	Hydraulic												
								Pump					Control valve						
							E/G revolution	P1 pump	P2 pump	Pilot pump	Pilot relief valve	Travel straight spool	Travel spool	Swing spool	Boom spool	Arm spool	Bucket spool	Boom conflux spool valve	Arm conflux spool valve
						Device No.	1					2							
Hydraulic systems	Attachment operation	1	No operation is possible				○	○	○	○	○								
			Machine moves unexpectedly when lever is at neutral										○	○	○	○	○	○	○
		2	Speed is low	All actions			○	○	○	○	○	○							
				Bucket digging and dump			○	○	○		○	○					○		
				Boom		Down	○	○			○				○				
						Up	○	○	○		○	○			○			○	
				Arm in conflux			○	○	○		○	○				○			
				Arm out conflux			○	○	○		○	○				○			
		3	Power lacks	All motions			○	○	○	○	○	○							
				Bucket digging			○	○			○						○		
				Boom		Down	○	○			○				○				
						Up	○	○	○		○				○			○	
				Arm in and out			○	○	○		○					○			
		4	Fine operation impossible	Bucket digging and dump			○	○			○						○		
				Boom		Down					○				○				
						Up	○	○	○		○				○			○	
				Arm in and out			○	○	○		○					○			
	Travel operation	5	Travel 1, 2 speed change impossible								○								
		6	Travel independent speed is low				○	○	○		○	○	○						
		7	Travel power is low				○	○	○		○	○	○						
		8	Machine cannot travel straight or deviates in one direction or zigzags				○	○	○		○	○	○						
		9	Machine does not stop still on a slope										○						
	Swing operation	10	Swing motion does not work				○		○					○					
		11	Swing speed is low				○		○					○					
		12	Swing power is low				○		○					○					
			Swing drifts very large											○					
		13	Fine operation impossible				○		○					○					
			Swing parking brake is not held on a slope																
			Abnormal noise at swing						○										

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SPECIFICATIONS

TRANSPORTING DIMENSIONS E265
(Monoblock Version)



M0614

VERSIONS	A	B	C	D	E	F	G	H	I	L
E265EL	3 846	4 660	1 118	2 950	(1) 10 200 (2) 10 170 (3) 10 120 (4) 10 100	(1) 3 390 (2) 3 320 (3) 3 140 (4) 3 140	2 950	3 050	970	488
E265LC	3 846	4 660	1 118	2 950	(1) 10 200 (2) 10 170 (3) 10 120 (4) 10 100	(1) 3 390 (2) 3 320 (3) 3 140 (4) 3 140	2 950	3 050	970	488

Arm:
(1) 2 160 mm
(2) 2 500 mm
(3) 2 980 mm
(4) 3 660 mm

(Dimensions in mm)

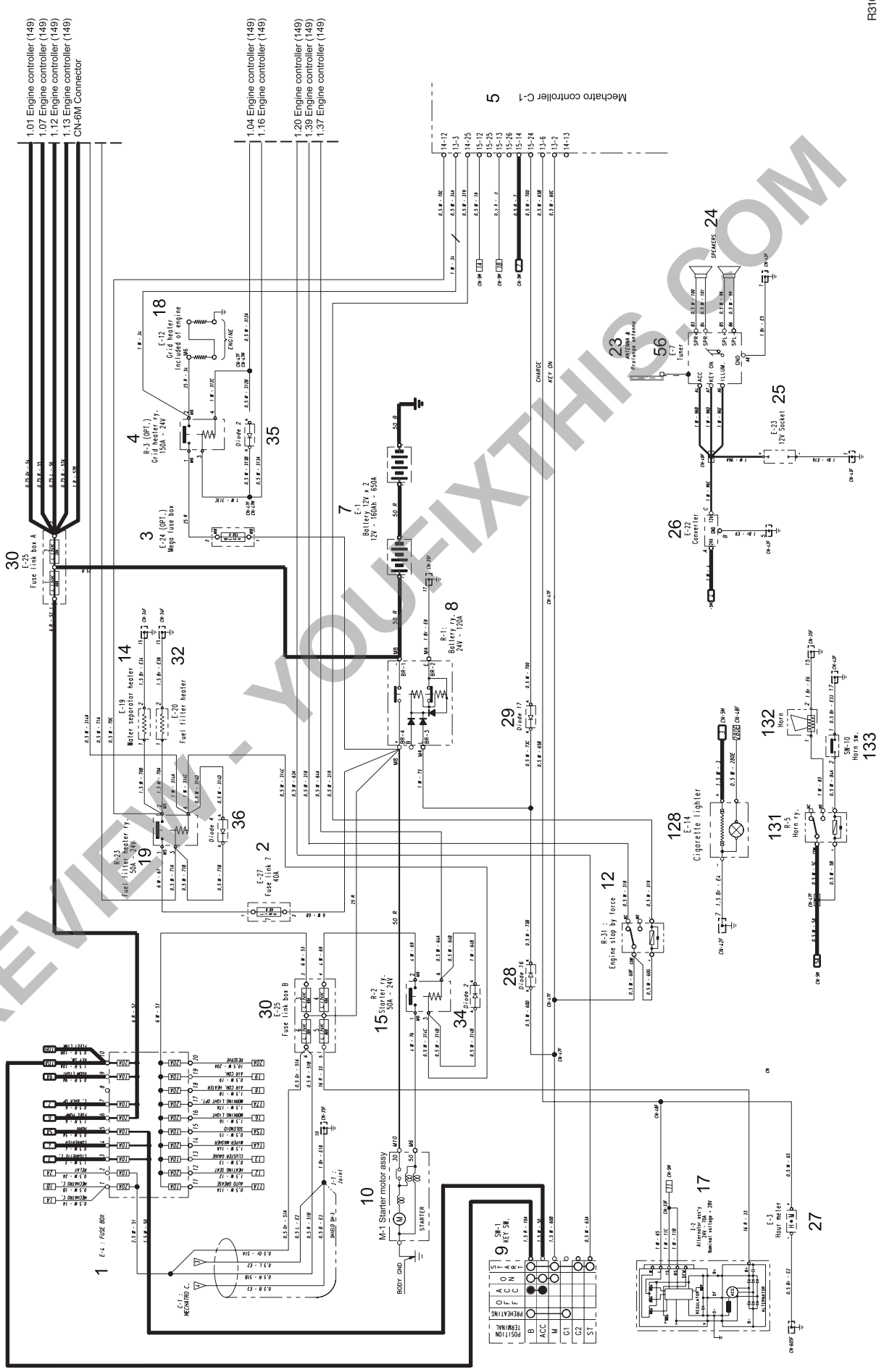
			E265EL				E265LC			
M	**Track shoe width**	**(mm)**	600	700	800	900	600	700	800	900
N	**Gauge**	**(mm)**	2 990	**3 090**	**3 190**	**3 290**	3 190	**3 290**	**3 390**	**3 490**
O	**Frame width**	**(mm)**	**3 064**	3 064	3 064	3 064	**3 264**	3 264	3 264	3 264
Working weight		**(kg)**	26 320	26 650	26 980	27 310	26 380	26 710	27 040	27 370
Spec. ground pressure		**(bar)**	0.56	0.49	0.43	0.39	0.56	0.49	0.43	0.39

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R3101

Key Switch in ACC position

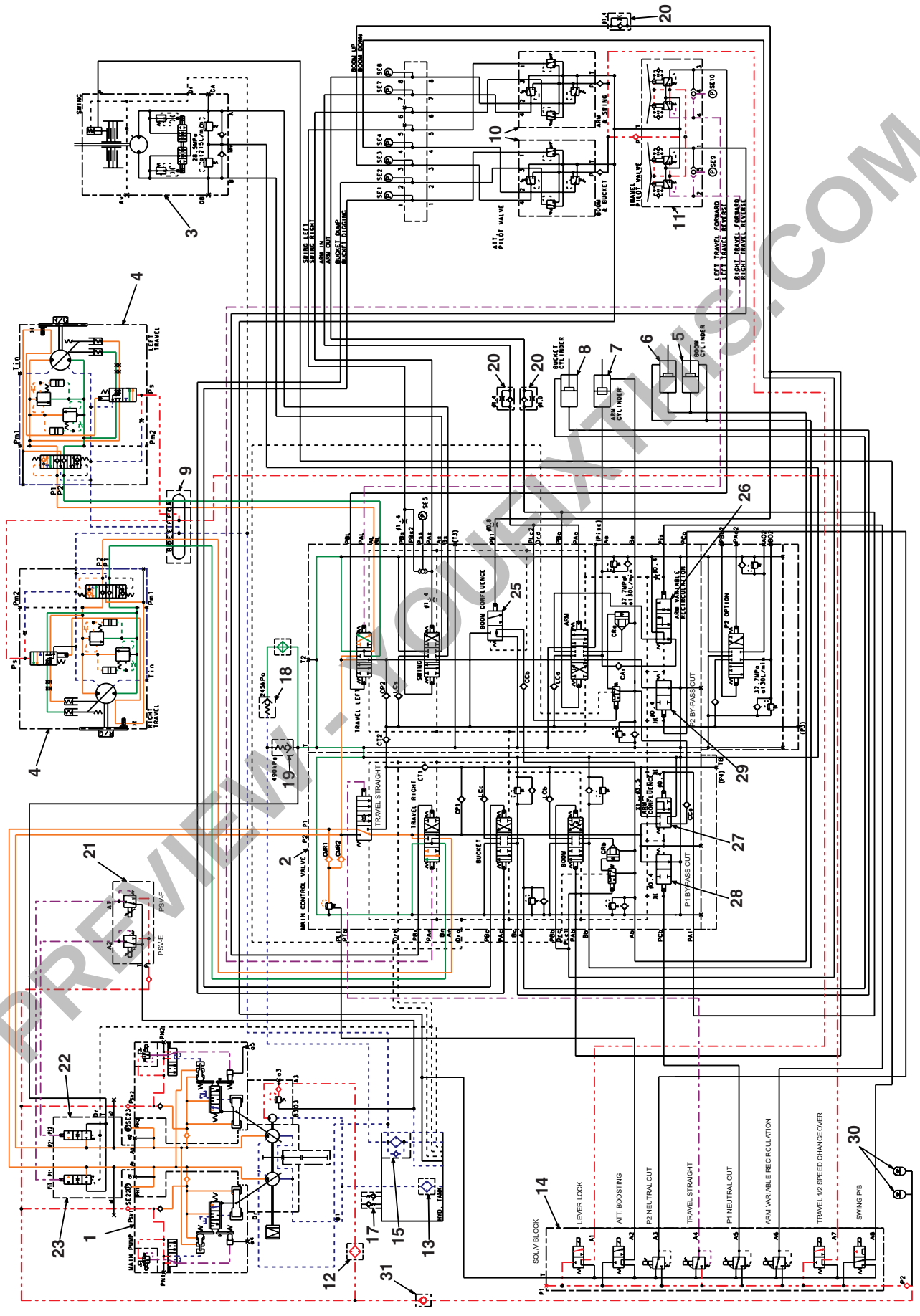


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HYDRAULIC CIRCUIT

TRAVEL CIRCUIT (E265): 2nd speed travel, simultaneous operations

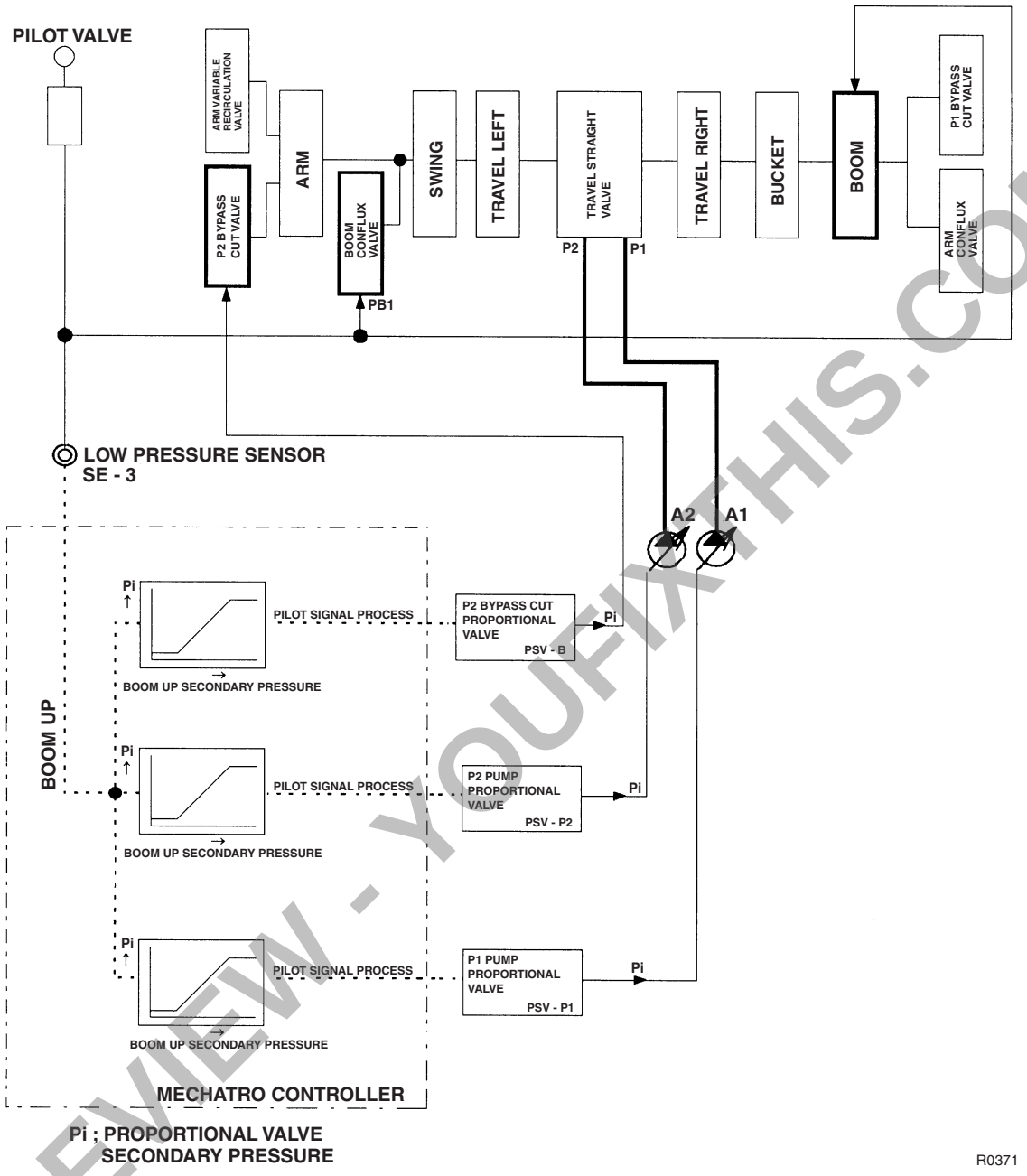


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MECHATRO CONTROL SYSTEM

BOOM UP CONFLUX

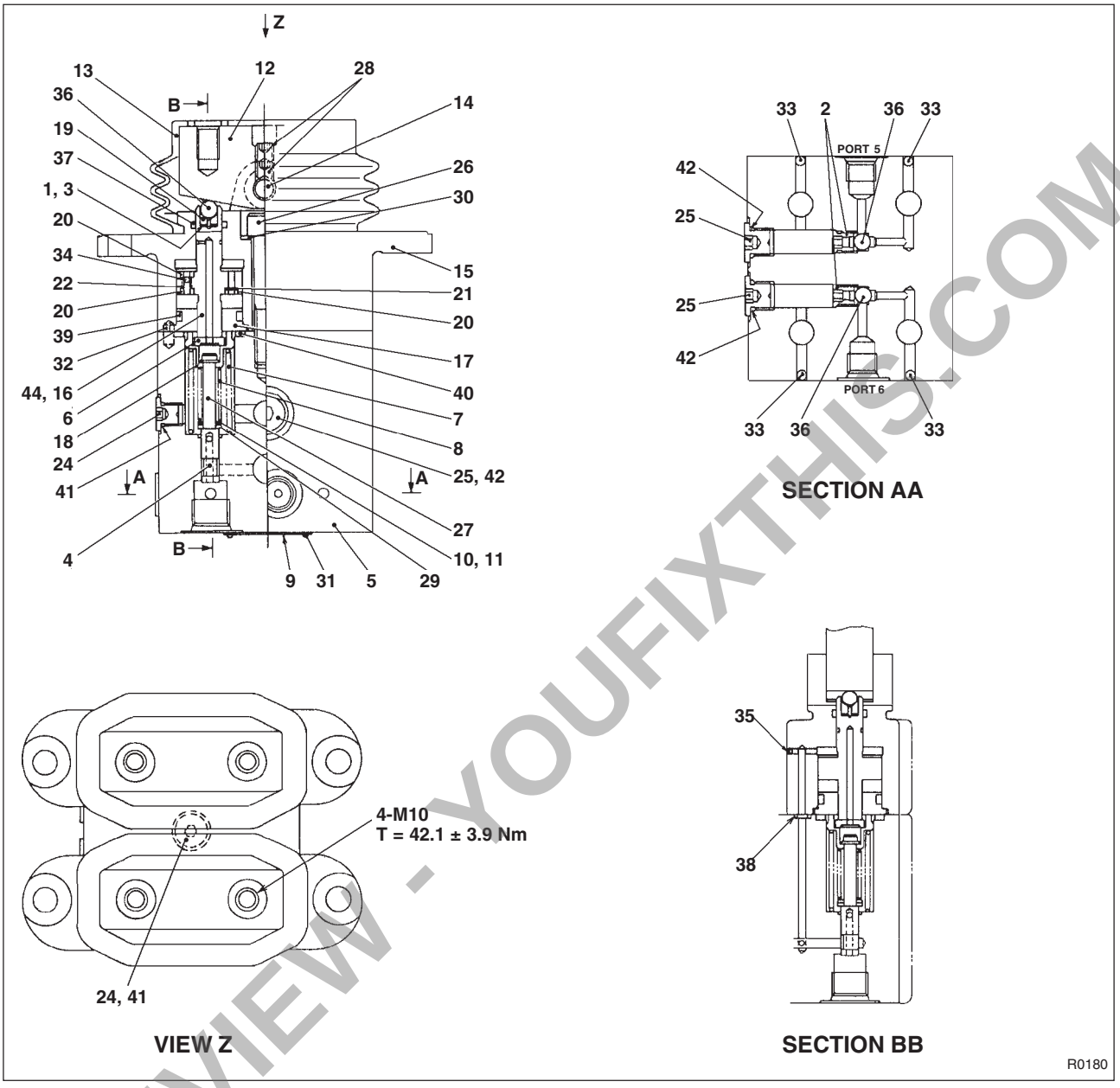


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PILOT VALVE

CONSTRUCTION (TRAVEL)



Apply Loctite #262 to areas marked ☆.

1 - Orifice (shim) (Q.ty 4)
2 - Seat (Q.ty 2) ☆ 14.7 Nm
3 - Orifice (shim) (Q.ty 4)
4 - Spool (Q.ty 4)
5 - Body
6 - Stopper (Q.ty 4)
7 - Spring (Q.ty 4)
8 - Spring (Q.ty 4)
9 - Name plate
10 - Shim t = 0.2 (Q.ty 4)
11 - Shim t = 0.1 (Q.ty 4)
12 - Cam (Q.ty 2)
13 - Boots (Q.ty 2)
14 - Pin (Q.ty 2)
15 - Cover (Q.ty 2)
16 - Piston (Q.ty 4)
17 - Guide (Q.ty 4)
18 - Sleeve (Q.ty 4)
19 - Holder (Q.ty 4)
20 - Ring (Q.ty 12)
21 - Orifice(shim) (Q.ty 4)
22 - Spring (Q.ty 4)
24 - Plug: PF1/8 (Q.ty 3) 9.8 Nm
25 - Plug: PF1/4 (Q.ty 3) 24.5 Nm
26 - Socket bolt: M10×60 (Q.ty 2) 58.8 Nm
27 - Flange bolt (Q.ty 4) 4.9 Nm
28 - Setscrew: M8 (Q.ty 4) 14.7 Nm
29 - Washer (Q.ty 4)
30 - Washer (Q.ty 2)
31 - Rivet (Q.ty 2)
32 - Pin: Ø5 (Q.ty 4)
33 - Ball (Q.ty 6)
34 - Ball (Q.ty 4)
35 - Ball (Q.ty 4)
36 - Ball (Q.ty 6)
37 - U-packing (Q.ty 4)
38 - O-Ring (Q.ty 4)
39 - O-Ring (Q.ty 4)
40 - O-Ring (Q.ty 4)
41 - O-Ring (Q.ty 3)
42 - O-Ring (Q.ty 3)
44 - Piston assy (Q.ty 4)

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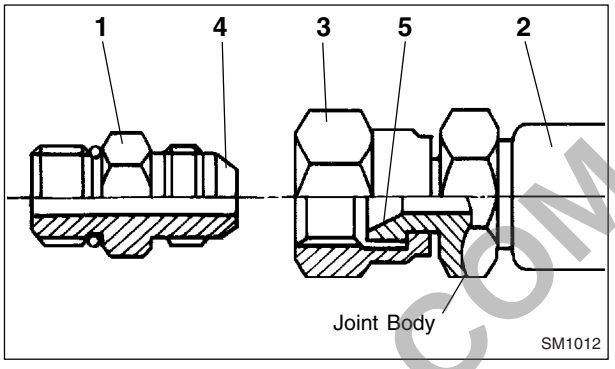
TIGHTENING TORQUE

PIPING JOINT

Pipe Thread Connection / Union Joint Tightening Torque Specifications

Union Joint

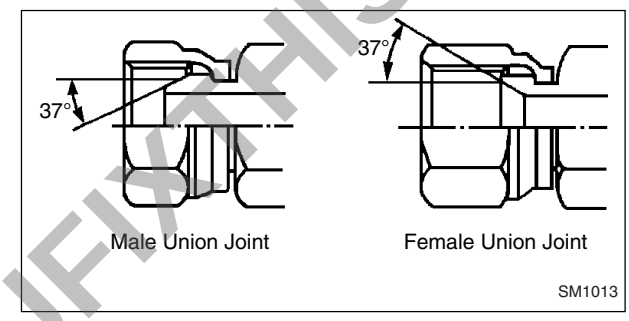
Metal sealing faces (**4**) and (**5**) of adaptor (**1**) and hose (**2**) fit together to seal pressure oil. Union joints are used to join small-diameter lines.



IMPORTANT

1. *Do not over-tighten union nut (**3**). Excessive force will be applied to metal sealing surfaces (**4**) and (**5**), possibly cracking adaptor (**1**). Be sure to tighten union nut (**3**) to specifications.*

2. *Scratches or other damage to sealing surfaces (**4**) or (**5**) will cause oil leakage at the joint. Take care not to damage them when connecting /disconnecting.*



Type	Wrench Size		Tightening Torque
	Union Nut	Joint Body	(Nm)
37° Union Joint	19	17	29
	22	19	39
	27	22	78.5
	36	30, 32	157
	41	36	205
	50	46	323.6

NOTE - *Tightening torque for the non-union type 37° male joint is the same as the 37° female union joint.*

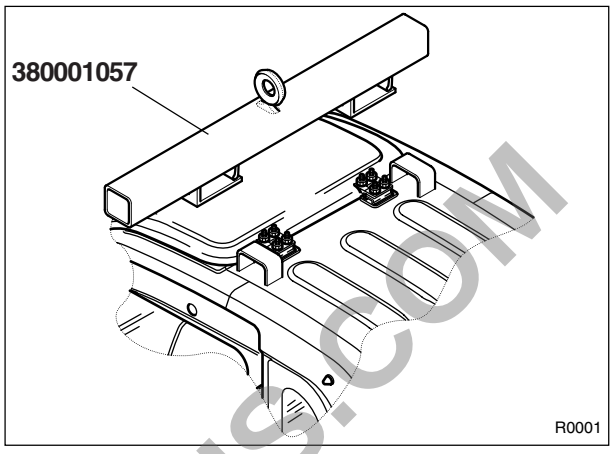
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Installation of cab

WARNING

Approximate mass of the cab: 270 kg



1. Lift the cab structure using tool no. **380001057** and place it in the operator's compartment.

2. Secure the cab to the operator's compartment using screws (**1**) (Q.ty 8).

   : 19 mm
   : 100 ± 15 Nm

3. Connect flex air duct (**13**) to the rigid duct, pushing it forward.

4. Connect washer liquid hose (**11**).

5. Connect the connections to hourmeter device (**3**) and secure panel (**2**) using securing screws (**4**) (Q.ty 3).

6. Connect the grounding cable to the cab structure using securing screw (**6**).

   : 10 mm
   : 28.5 ± 3 Nm

7. Connect connectors of the monitor (**9** and **10**), ceiling light (**7**) and wiper interlock switch (**8**). Connect connection of the engine controller (**20**).

8. Connect to panels (**17** and **19**) the connections of loudspeakers (**5**), power socket (**15**) and pressure discharge button (**18**).

9. Secure panels (**17** and **19**) acting on locking hooks (**14**) and tightening securing screws (**16**) (q.ty used 4) complete with washers.

10. Connect the cab heating switch cable and install the operator's seat complete with longitudinal travel slide using securing screws (**12**) (Q.ty 4) complete with spring washers.

    : 6 mm
    : 29.5 Nm

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TROUBLE DIAGNOSIS (HYDRAULIC SYSTEM)

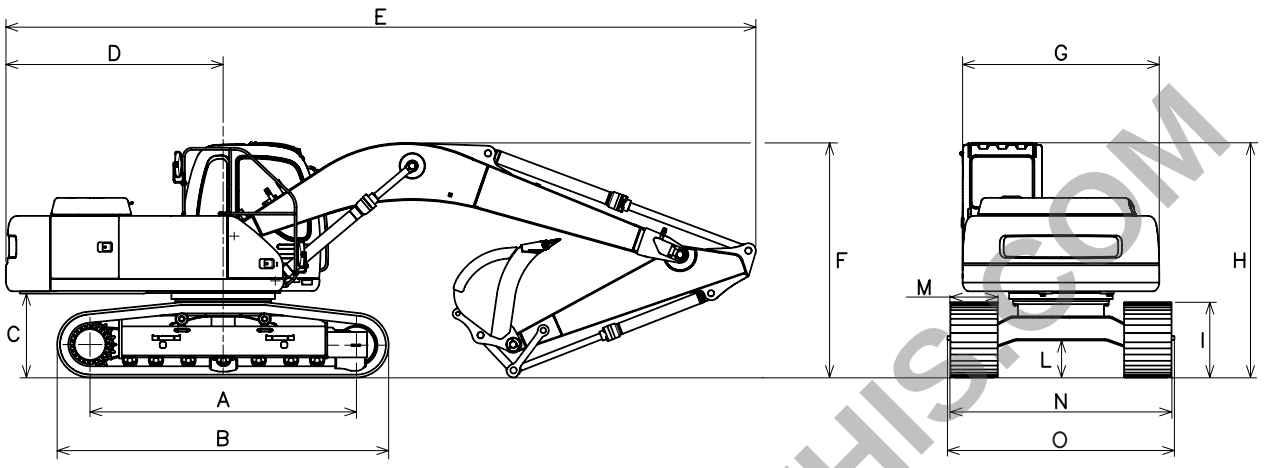
Classification		Group No.	Trouble			Component: Hydraulic														
						Control valve						Swing motor			Travel motor					
						P2 bypass cut valve	P1 bypass cut valve	Arm variable recirculation valve	Load check valve	Lock valve	Check valve for relief	Parking brake	Bypass valve	Reduction parts	Motor	Counterbalance valve	Parking brake	Counterbalance check valve	Pilot valve (1-2 speed select)
			Device No.			2						3			4					
Hydraulic systems	Attachment operation	1	No operation is possible																	
			Machine moves unexpectedly when lever is at neutral			○	○													
		2	Speed is low	All actions																
				Bucket digging and dump		○			○		○									
				Boom	Down	○			○	○										
					Up	○			○	○										
				Arm in conflux			○	○	○	○										
				Arm out conflux			○		○	○										
		3	Power lacks	All motions																
				Bucket digging					○		○									
				Boom	Down				○	○	○									
					Up	○			○	○										
				Arm in and out			○	○	○	○										
		4	Fine operation impossible	Bucket digging and dump					○											
				Boom	Down				○	○										
					Up	○			○	○										
				Arm in and out			○		○	○										
	Travel operation	5	Travel 1, 2 speed change impossible																	○
		6	Travel independent speed is low								○				○	○	○	○	○	○
		7	Travel power is low								○				○	○	○	○	○	○
		8	Machine cannot travel straight or deviates in one direction or zigzags								○				○	○	○	○		
		9	Machine does not stop still on a slope												○	○	○	○		
	Swing operation	10	Swing motion does not work									○	○	○						
		11	Swing speed is low						○			○	○	○						
		12	Swing power is low						○			○	○	○						
			Swing drifts very large									○	○	○						
		13	Fine operation impossible									○	○	○						
			Swing parking brake is not held on a slope									○		○						
			Abnormal noise at swing									○	○	○						

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SPECIFICATIONS

TRANSPORTING DIMENSIONS E305
(Monoblock Version)



M0614

VERSIONS	A	B	C	D	E	F	G	H	I	L
E305EL	4 010	4 870	1 245	2 950	(1) 10 470 (2) 10 370 (3) 10 270 (4) 10 280	(1) 3 490 (2) 3 410 (3) 3 160 (4) 3 200	2 950	3 170	1 040	539
E305LC	4 010	4 870	1 245	2 950	(1) 10 470 (2) 10 370 (3) 10 270 (4) 10 280	(1) 3 490 (2) 3 410 (3) 3 160 (4) 3 200	2 950	3 170	1 040	539

Arm:
(1) 2 100 mm
(2) 2 400 mm
(3) 3 100 mm
(4) 3 750 mm

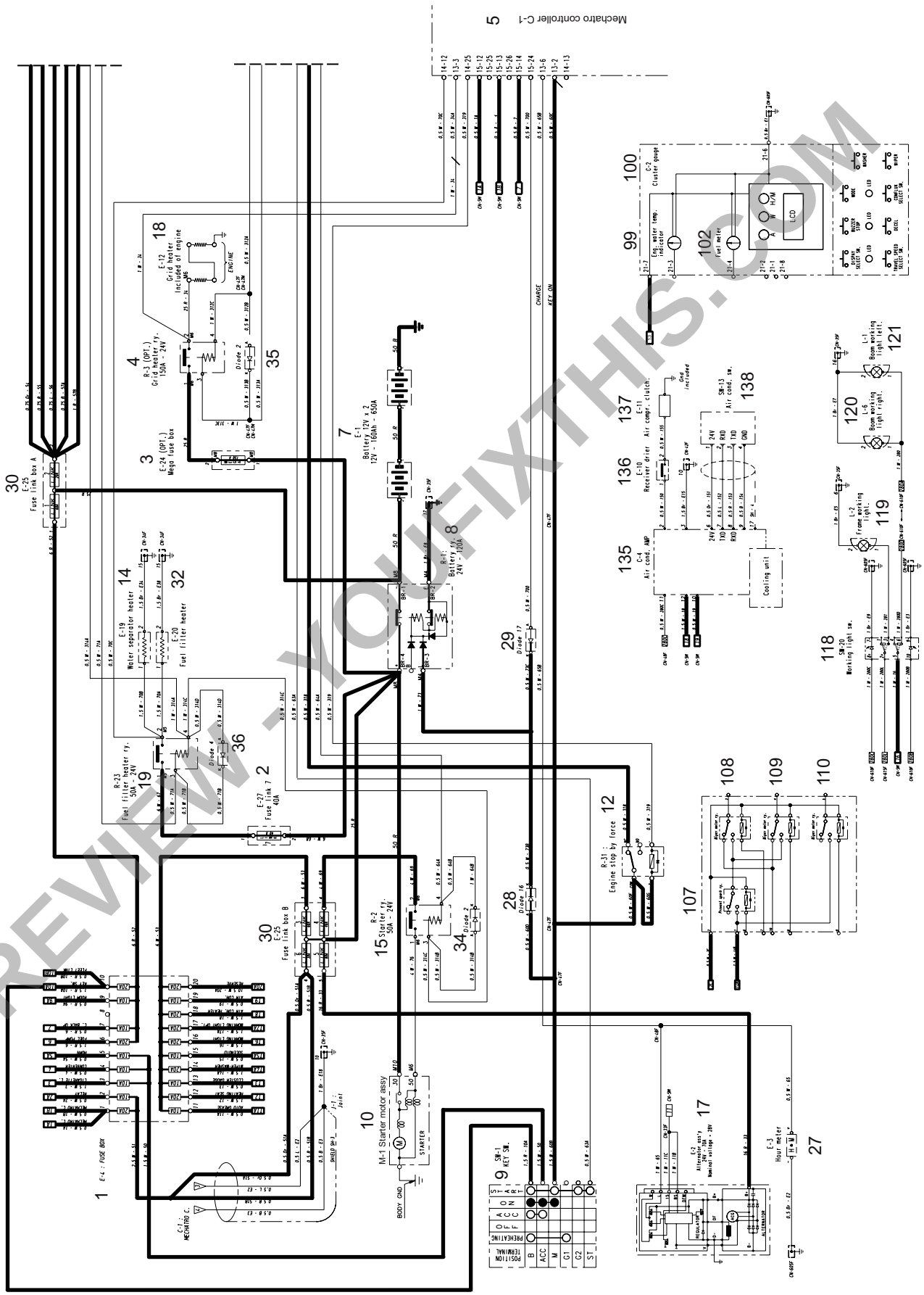
(Dimensions in mm)

			E305EL				E305LC			
M	**Track shoe width**	**(mm)**	600	700	800	900	600	700	800	900
N	**Gauge**	**(mm)**	2 990	**3 090**	**3 190**	**3 290**	3 190	**3 290**	**3 390**	**3 490**
O	**Frame width**	**(mm)**	**2 998**	2 998	2 998	2 998	**3 198**	3 198	3 198	3 198
Working weight		**(kg)**	29 400	29 800	30 200	30 600	29 460	29 860	30 260	30 660
Spec. ground pressure		**(bar)**	0.60	0.52	0.46	0.42	0.60	0.52	0.46	0.42

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R3102

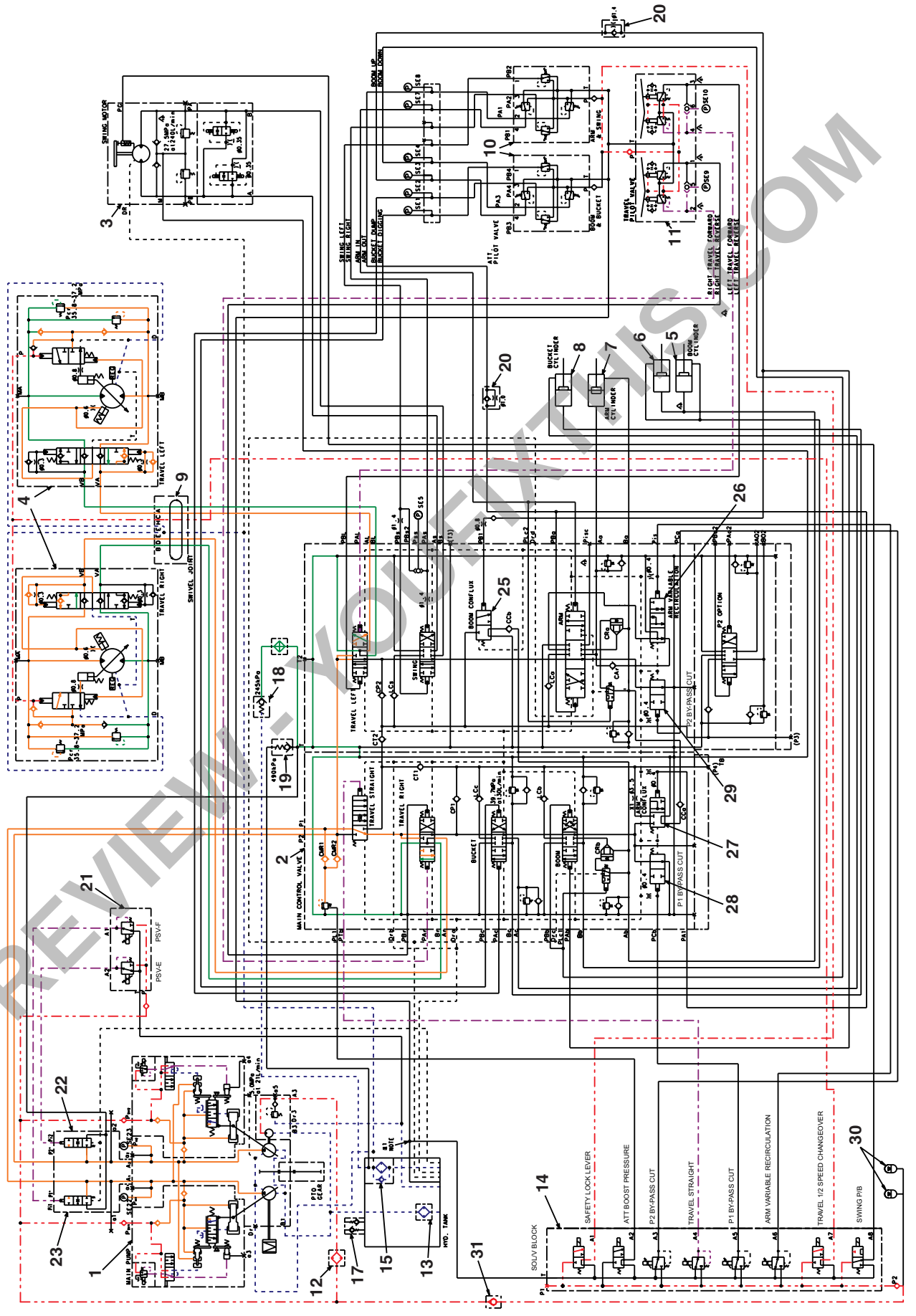


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HYDRAULIC CIRCUIT

TRAVEL CIRCUIT (E305): 2nd speed travel, simultaneous operations



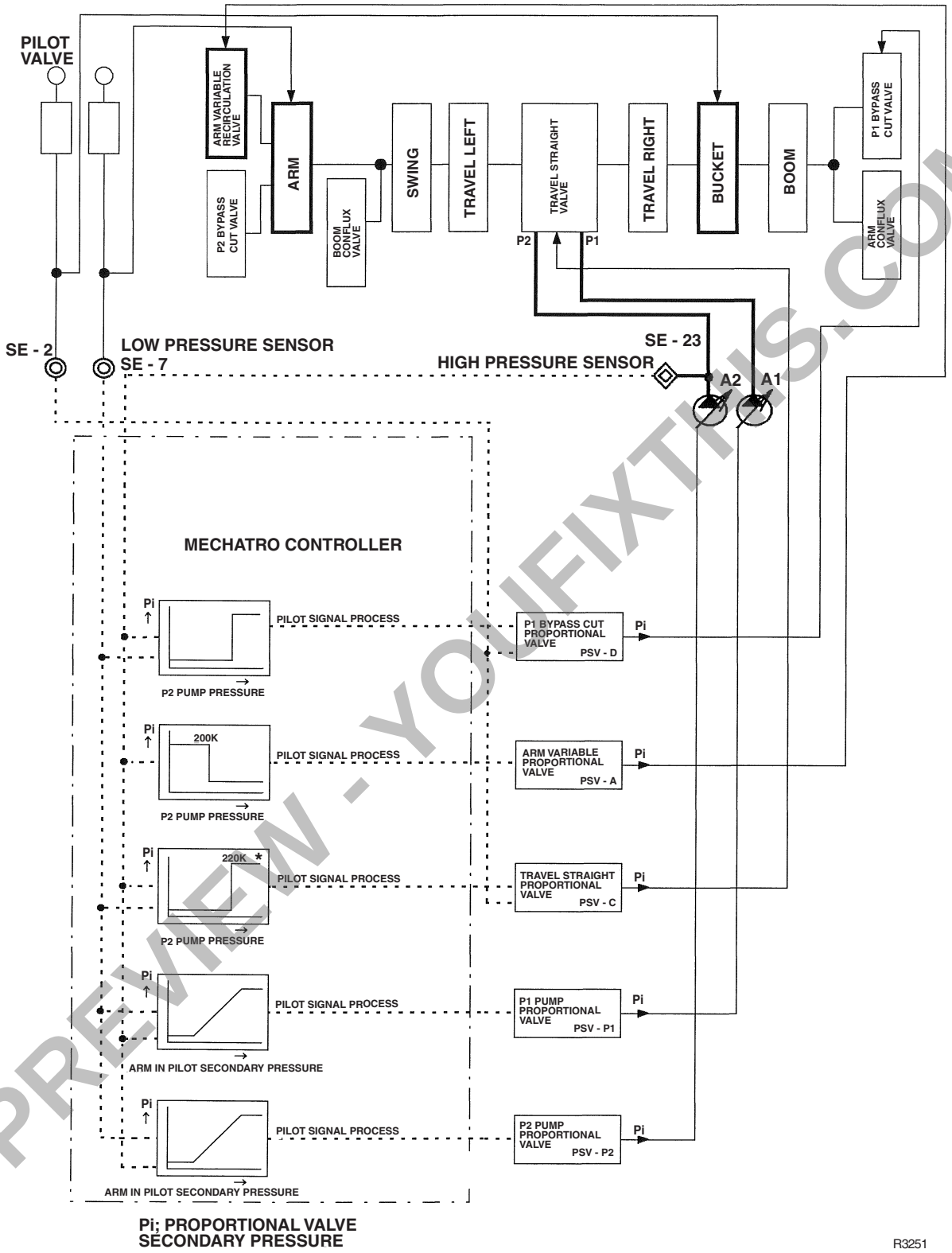
R3061

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MECHATRO CONTROL SYSTEM

ARM IN RECIRCULATION & SEQUENCE CONFLUX



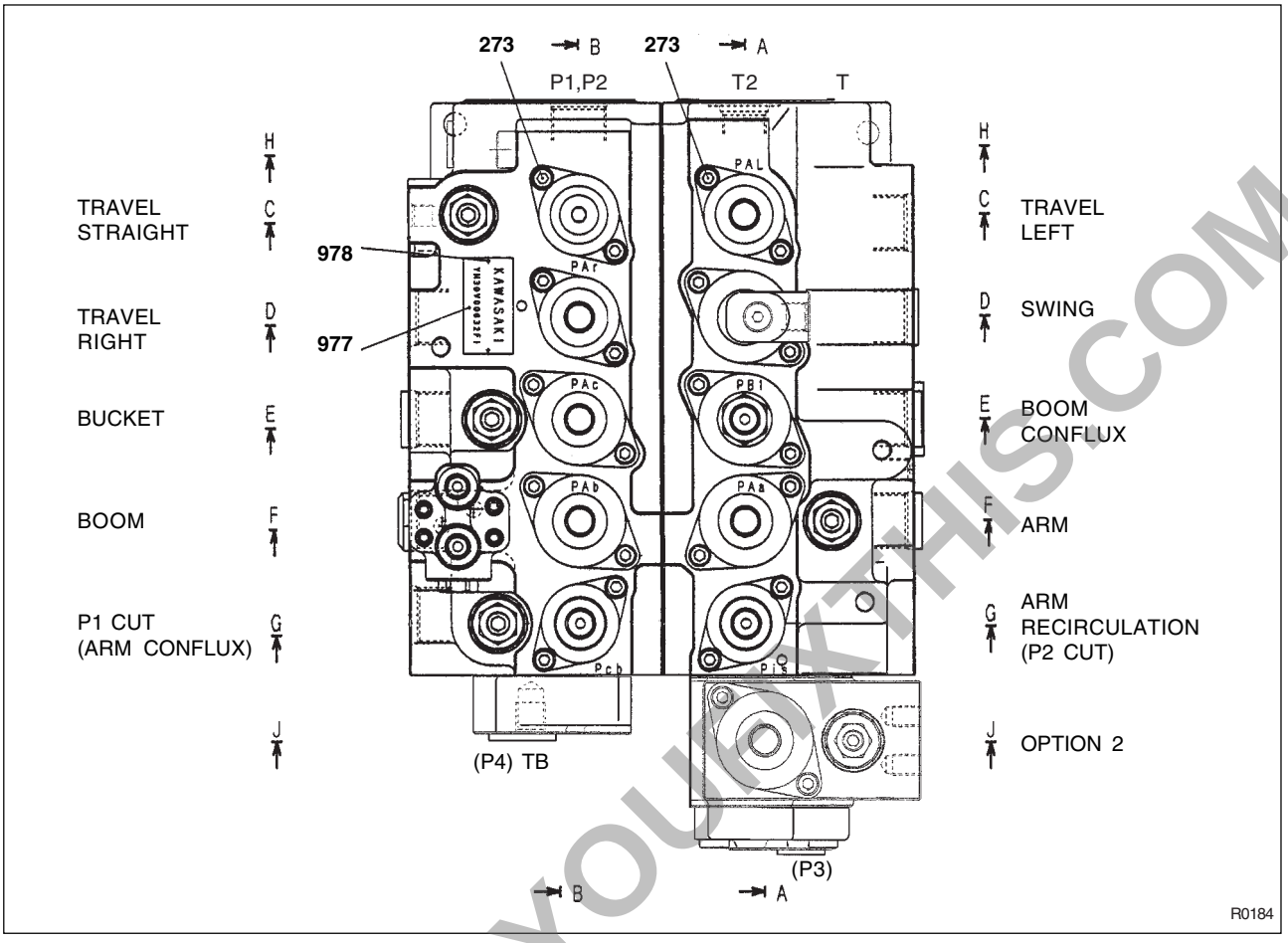
*: 220k for E265 and 300k for E305.

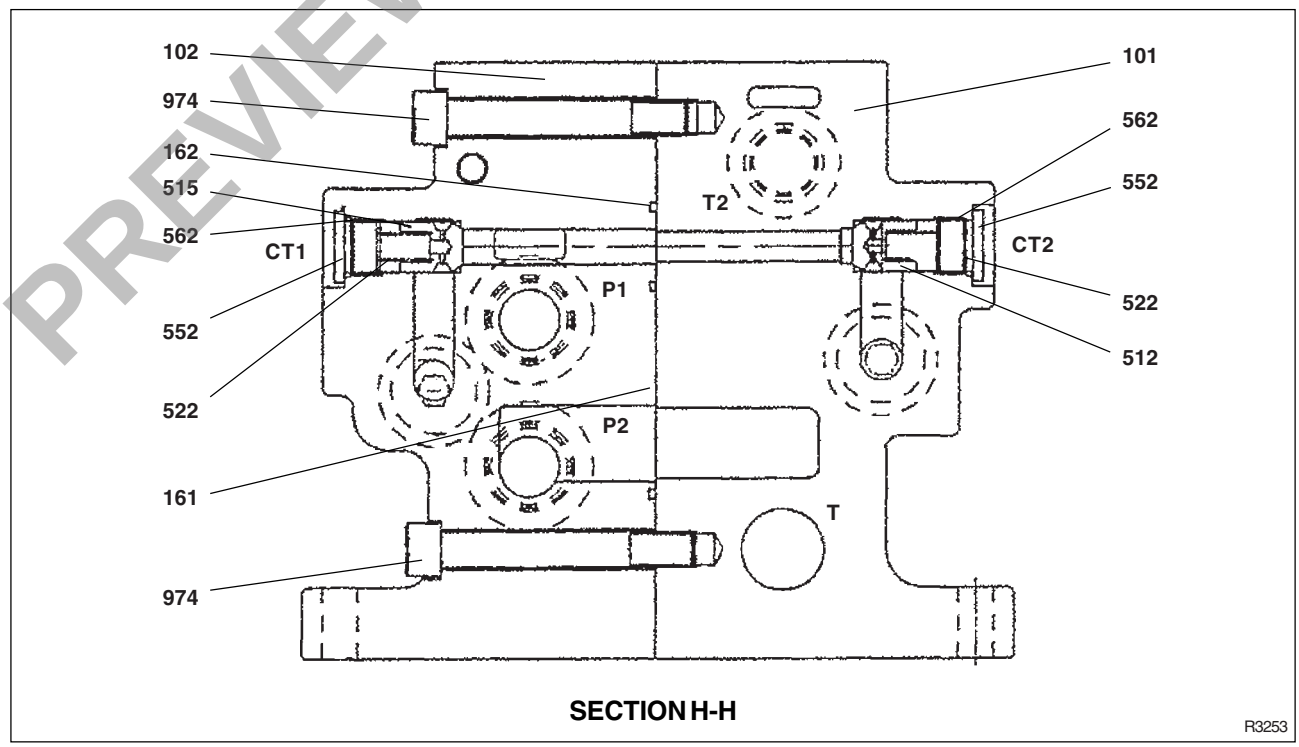
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CONTROL VALVE

CONSTRUCTION





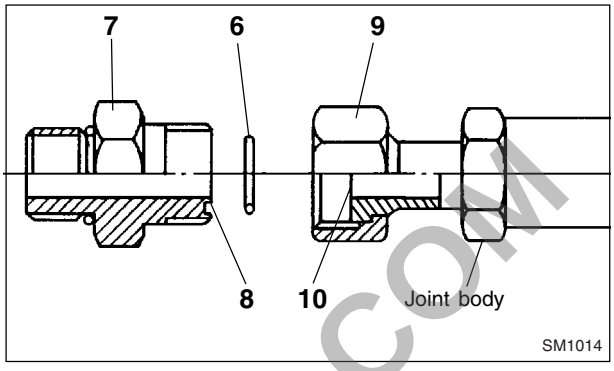
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TIGHTENING TORQUE

O-Ring Seal Joint

O-Ring (**6**) seats against the end face of adaptor (**7**) to seal pressure oil.



IMPORTANT

1. *Be sure to replace O-Ring (**6**) with a new one when reconnecting.*
2. *Before tightening union nut (**9**), confirm that O-Ring (**6**) is seated correctly in O-Ring groove (**8**). Tightening union nut (**9**) with O-Ring (**6**) displaced will damage O-Ring, resulting in oil leakage.*
3. *Take care not to damage O-Ring groove (**8**) or sealing face (**10**). Damage to O-Ring (**6**) will cause oil leakage.*
4. *If union nut (**9**) is found to be loose, causing oil leakage, do not tighten it to stop the leak. Instead, replace O-Ring (**6**) with a new one, then tighten union nut (**9**) after confirming that O-Ring (**6**) is securely seated in place.*

Wrench Size		Tightening Torque
Union Nut	Joint Body	(Nm)
19	17	29.4
22	19	68.6
27	22	93
30	27	137.3
36	30	175
41	36	205
50	46	320

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REMOVAL AND INSTALLATION OF AIR CONDITIONER

Preliminary operations

Prior to and during the removal and installation process of the air conditioning unit, make sure that the following conditions are complied with:

1. This air conditioning unit is filled with a type R314a refrigerant. Thus, make sure, prior to performing removal and re-installation operations, that no refrigerant is present inside the air conditioning system. Implement the operations described in Procedure: "Discharging R134a fluid from the air conditioning system" at page **W1-1-4**.

2. Do not keep open the connections of the ducts on the compressor and the portions of the refrigeration system.

3. Prevent the lubricant from adhering to painted surfaces and plastic made parts. In the event lubricant is spilled, clean it at once.

4. The dryer is filled with material absorbing moisture in the circuit. Consequently, the valves on the opening of the ducts must be removed immediately before connecting the ducts.

5. Prior to performing any operation, cut-off the engine and disconnect all the electric power sources of the systems relative to the air conditioner.

Removal of air conditioner

1. Remove the air ducts, the front protection panel, all the connections between the operator's compartment and the conditioning unit, the controller mounting plate, the front bracket and the fluid pipes with the relevant O-Rings.

2. Remove the screws (Q.ty 6) securing the conditioning unit to the operator's compartment.

   : 13 mm

3. Lift and remove the air conditioning unit.

Installation of air conditioner

1. Place the air conditioning unit on the operator's compartment.

2. Arrange the unit securing the screws (Q.ty 6)

   : 13 mm
   : 10.8 Nm

3. Install the air ducts, front protection panel, all the connectors between the operator's seat and the air conditioning unit, the controller securing plate, the front bracket and the fluid pipes with the relevant O-Rings.

4. Charge the conditioning system with refrigerant fluid as described in Procedure: "Charging R134a fluid into the air conditioning system" at page **W1-1-5**.

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HYDRAULIC SYSTEM

Hydraulic																													
Cylinder				Other valve			Proportional valve block								Relief valve											Unload valve		2-section propor-tional valve block	
							SV1	SV2	SV3	SV4	A	B	C	D	Main control valve							Travel		Swing					
Boom cylinder	Boom cylinder	Arm cylinder	Bucket cylinder	Swivel joint	Pilot valve (ATT)	Pilot valve (travel)	Swing parking SOL valve	Power boost SOL valve	Travel 1-2 speed SOL valve	Lever lock SOL valve	Arm variable recirculation valve	P2 bypass cut proportional valve	Travel straight proportional valve	P1 bypass cut proportional valve	Main relief valve	Bucket digging	Bucket dump	Boom up	Boom down	Arm in	Arm out	Left shockless	Right shockless	Left shockless	Right shockless	Travel unload spool	ATT unload spool	Travel unload	ATT unload
5	6	7	8	9	10	11										14													
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SPECIFICATIONS

EXCAVATOR PERFORMANCE (E265)

GRADEABILITY 70%

TRAVEL SPEED

Excavator / Speed	E265
First speed	4.0 km/h
Second speed	6.0 km/h

ENGINE DATA E265

MAIN SPECIFICATIONS (E265)	
- Manufacturer	CNH U.K.
- Model	667TA/EEG
- Type	Four cycle, common-rail, direct injection, with intercooler turbo charger
- Number of cylinder	6 in-line
- Bore	102 mm
- Stroke	120 mm
- Total displacement	5 900 cm^3
- Compression ratio	17.1 : 1
- Net power at flywheel	137 kW
- Torque (at 1400 min^{-1})	710 Nm
- Engine idle at no-load	1000 min^{-1}

INJECTION PUMP
- Type ..... BOSCH CP3.3
- Injection order 1-5-3-6-2-4
- Injection pressure range ..... 250 ~ 1450 bar

BATTERY
- Voltage - Capacity ..... 2 x 12 V - 160 Ah

STARTER MOTOR
- Voltage - Output ..... 24V - 4 kW

ALTERNATOR
- Voltage - Output ..... 28,5V - 70A

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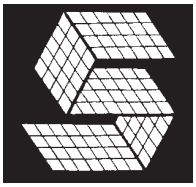


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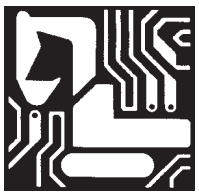
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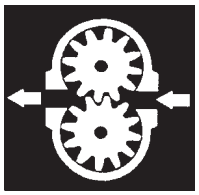
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