WEBM005001

SHOP MANUAL

SK818-5
SK820-5 turbo

SKID-STEER LOADER

SERIAL NUMBER

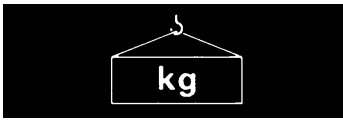
SK818-5 37BF50111 and up

SK820-5 turbo 37BTF50112 and up

KOMATSU

Utility

HOISTING INSTRUCTIONS



⚠ Heavy parts (25 kg or more) must be lifted with a hoist etc. In the **Disassembly and Assembly** section, every part weighing 25 kg or more is clearly indicated with the symbol 

1. If a part cannot be smoothly removed from the machine by hoisting, the following checks should be made:
   - Check for removal of all bolts fastening the part to the relative parts.
   - Check for any part causing interference with the part to be removed.

2. Wire ropes

1) Use adequate ropes depending on the weight of parts to be hoisted, referring to the table below:

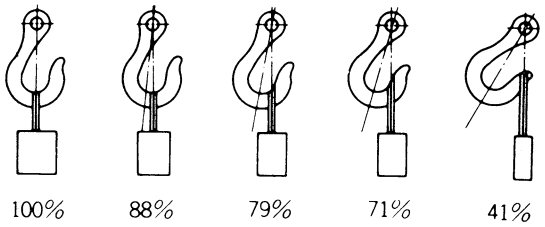
WIRE ROPES
(Standard «S» or «Z» twist ropes without galvanizing)

Rope diameter (mm)	Allowable load (tons)
10.0	1.0
11.2	1.4
12.5	1.6
14.0	2.2
16.0	2.8
18.0	3.6
20.0	4.4
22.4	5.6
30.0	10.0
40.0	18.0
50.0	28.0
60.0	40.0

The allowable load value is estimated to be one-sixth or one-seventh of the breaking strength of the rope used.

2) Sling wire ropes from the middle portion of the hook. Slinging near the edge of the hook may cause the rope to slip off the hook during hoisting, and a serious accident can result.

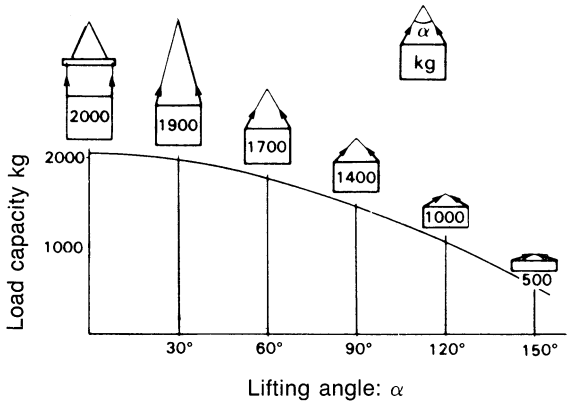
Hooks have maximum strength at the middle portion.



3) Do not sling a heavy load with one rope alone, but sling with two or more ropes symmetrically wound on to the load.

⚠ Slinging with one rope may cause turning of the load during hoisting, untwisting of the rope, or slipping of the rope from its original winding position on the load, which can cause dangerous accidents.

4) Do not sling a heavy load with ropes forming a wide hanging angle from the hook.
When hoisting a load with two or more ropes, the force subjected to each rope will increase with the hanging angles.
The table below shows the variation of allowable load (kg) when hoisting is made with two ropes, each of which is allowed to sling up to 1000 kg vertically, at various handing angles.
When two ropes sling a load vertically, up to 2000 kg of total weight can be suspended.
This weight becomes 1000 kg when two ropes make a 120° hanging angle.
On the other hand, two ropes are subjected to an excessive force as large as 4000 kg if they sling a 2000 kg load at a lifting angle of 150°.



From liter to U.S. Gall.

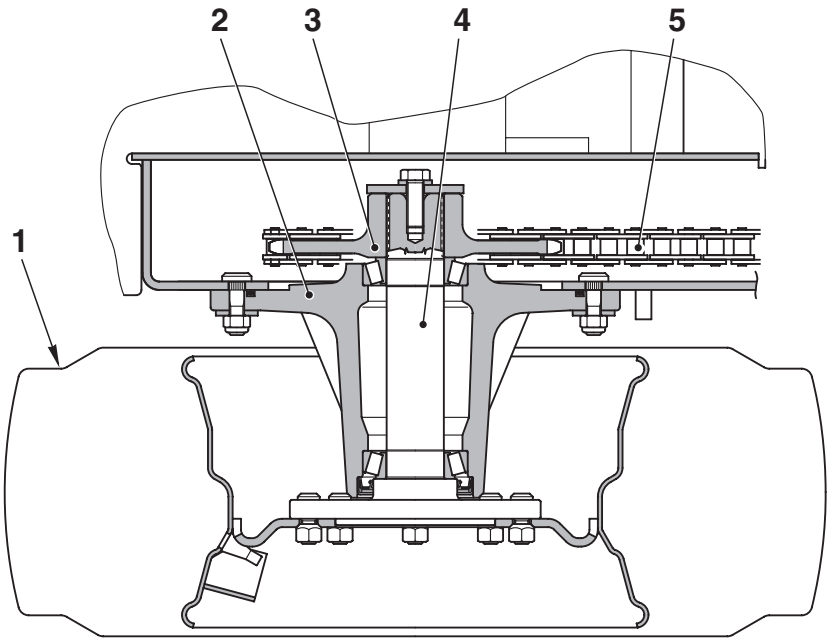
1 ℓ = 0.2642 U.S. Gall.

	0	1	2	3	4	5	6	7	8	9
0	0	0.264	0.528	0.793	1.057	1.321	1.585	1.849	2.113	2.378
10	2.642	2.906	3.170	3.434	3.698	3.963	4.227	4.491	4.755	5.019
20	5.283	5.548	5.812	6.076	6.340	6.604	6.869	7.133	7.397	7.661
30	7.925	8.189	8.454	8.718	8.982	9.246	9.510	9.774	10.039	10.303
40	10.567	10.831	11.095	11.359	11.624	11.888	12.152	12.416	12.680	12.944
50	13.209	13.473	13.737	14.001	14.265	14.529	14.795	15.058	15.322	15.586
60	15.850	16.115	16.379	16.643	16.907	17.171	17.435	17.700	17.964	18.228
70	18.492	18.756	19.020	19.285	19.549	19.813	20.077	20.341	20.605	20.870
80	21.134	21.398	21.662	21.926	22.190	22.455	22.719	22.983	23.247	23.511
90	23.775	24.040	24.304	24.568	24.832	25.096	25.361	25.625	25.889	26.153

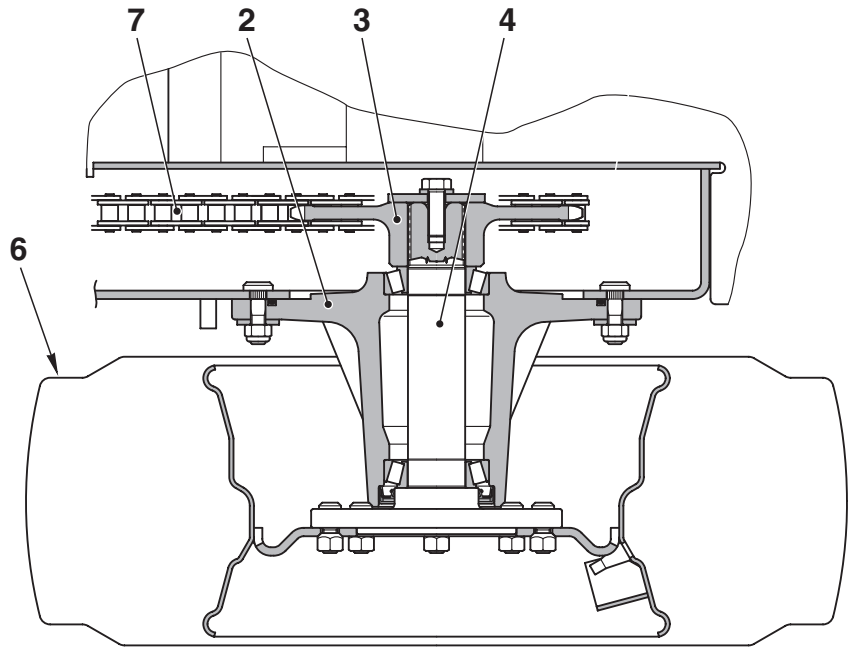
From liter to U.K. Gall.

1 ℓ = 0.21997 U.K. Gall.

	0	1	2	3	4	5	6	7	8	9
0	0	0.220	0.440	0.660	0.880	1.100	1.320	1.540	1.760	1.980
10	2.200	2.420	2.640	2.860	3.080	3.300	3.520	3.740	3.950	4.179
20	4.399	4.619	4.839	5.059	5.279	5.499	5.719	5.939	6.159	6.379
30	6.599	6.819	7.039	7.259	7.479	7.969	7.919	8.139	8.359	8.579
40	8.799	9.019	9.239	9.459	9.679	9.899	10.119	10.339	10.559	10.778
50	10.998	11.281	11.438	11.658	11.878	12.098	12.318	12.528	12.758	12.978
60	13.198	13.418	13.638	13.858	14.078	14.298	14.518	14.738	14.958	15.178
70	15.398	15.618	15.838	16.058	16.278	16.498	16.718	16.938	17.158	17.378
80	17.598	17.818	18.037	12.257	18.477	18.697	18.917	19.137	19.357	19.577
90	19.797	20.017	20.237	20.457	20.677	20.897	21.117	21.337	21.557	21.777



Section B - B

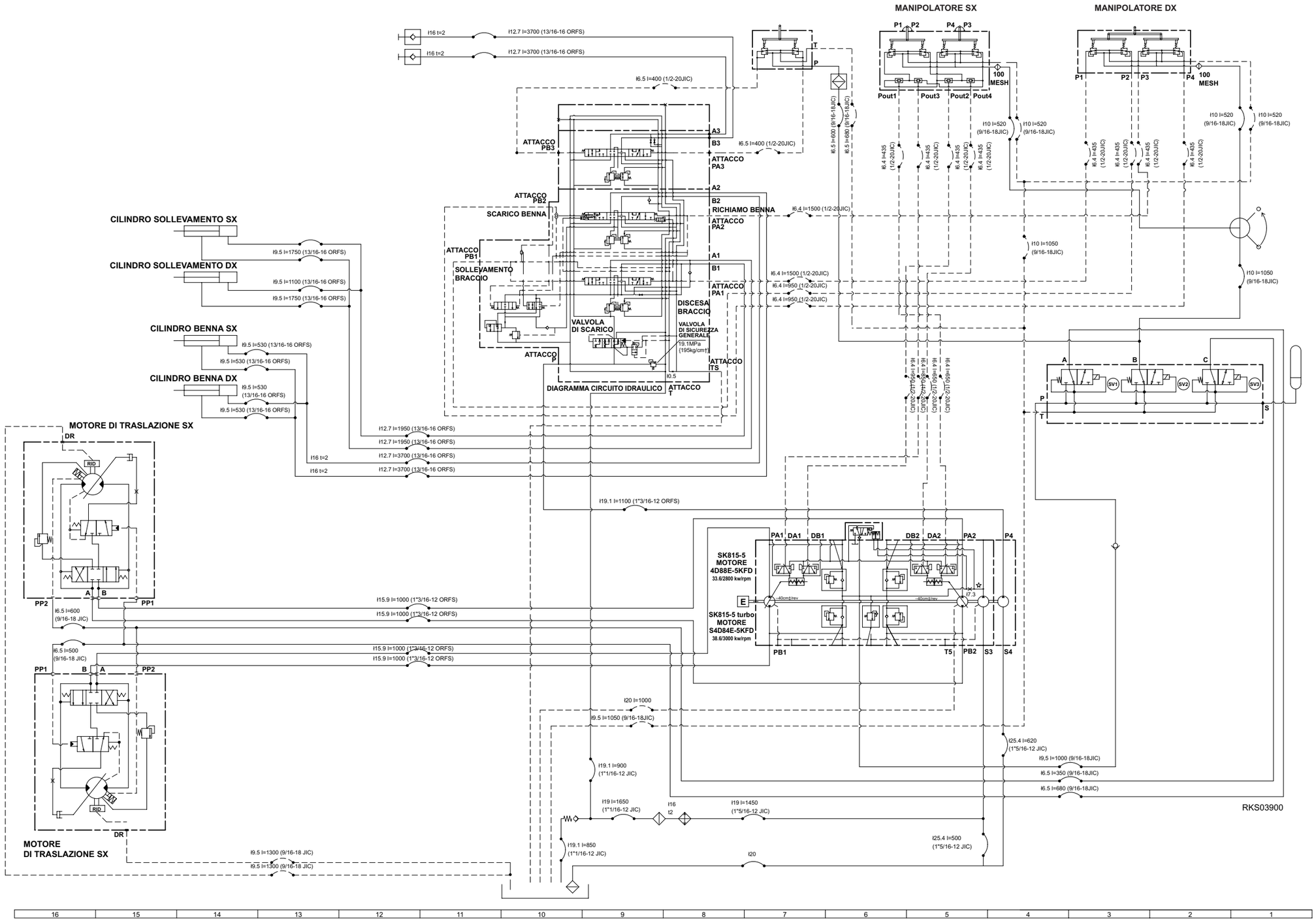


Section C -C

RKS01010

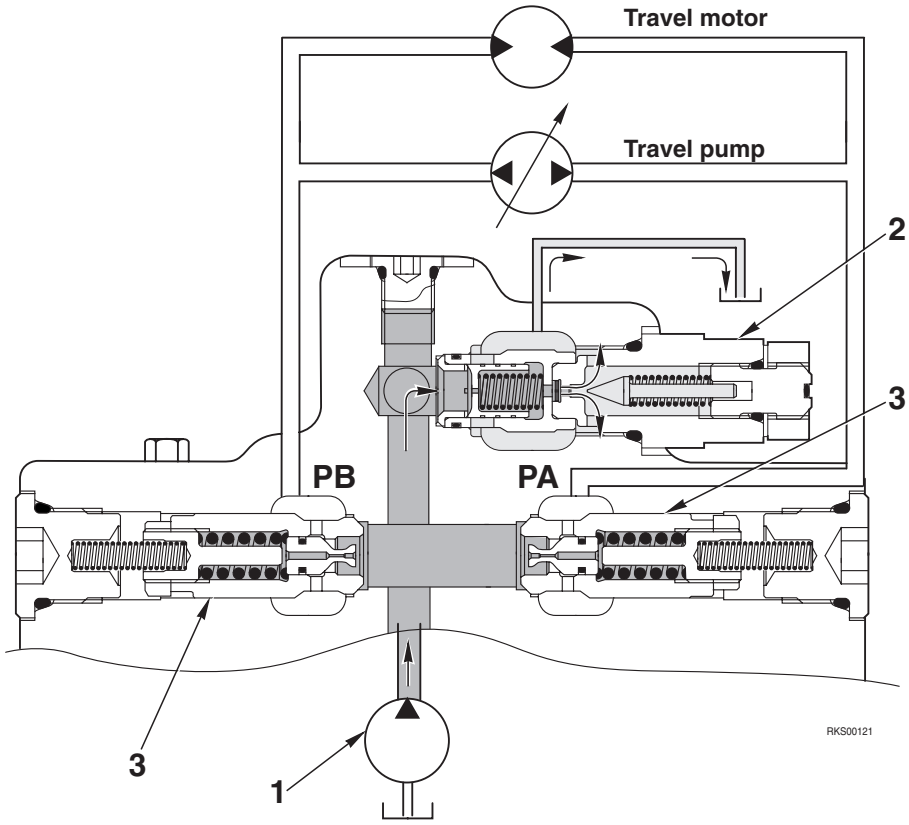
1. Front wheel
2. Axle housing
3. Sprocket
4. Shaft
5. Front trasmission chain
6. Rear wheel
7. Rear trasmission chain

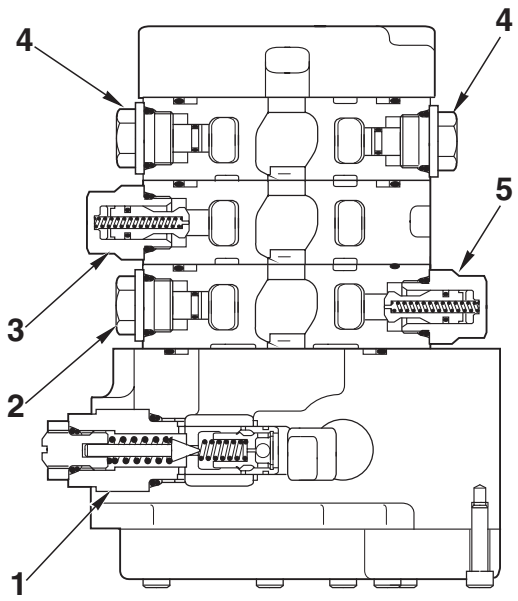
HYDRAULIC CIRCUIT SK818-5 - SK820-5 turbo (ROAD HOMOLOGATION)



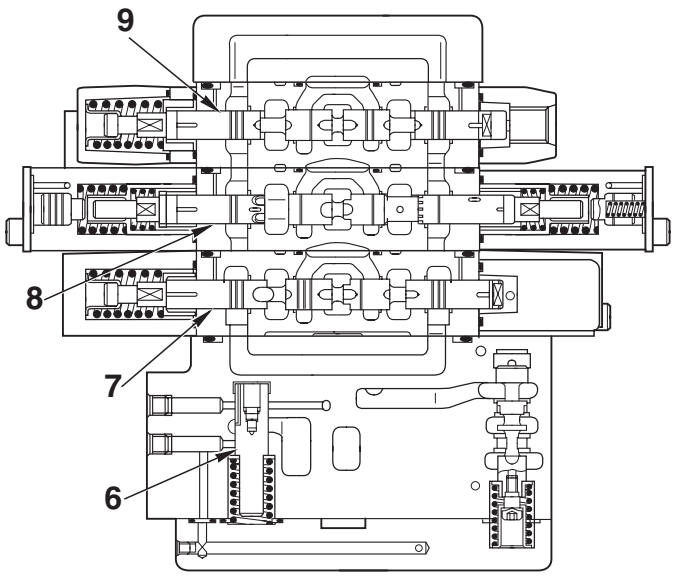
Operation when acting as suction safety valve

1) **When HST pump delivery is 0**.
The HST circuit is closed, and the charge oil does not flow into the HST circuit. Therefore the charge pressurized oil from the charge pump (1) all passes the charge safety valve (2) and is drained to the pump case.

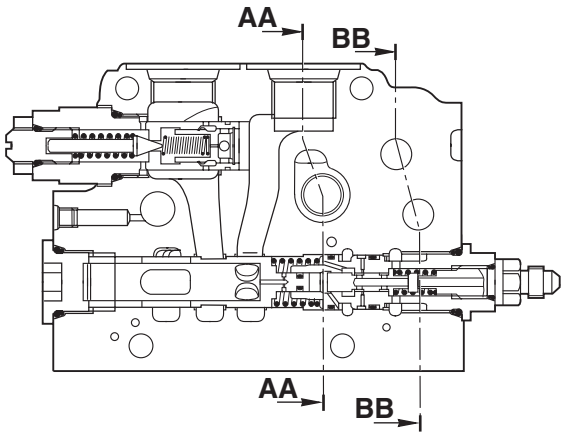




Section A - A



Section B- B



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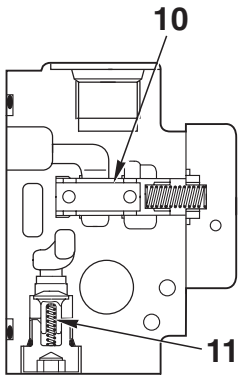
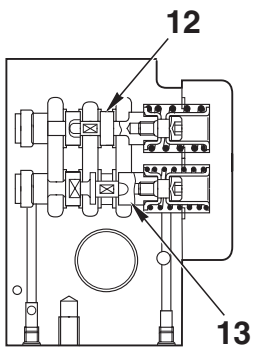


Section AA-AA



Section BB-BB

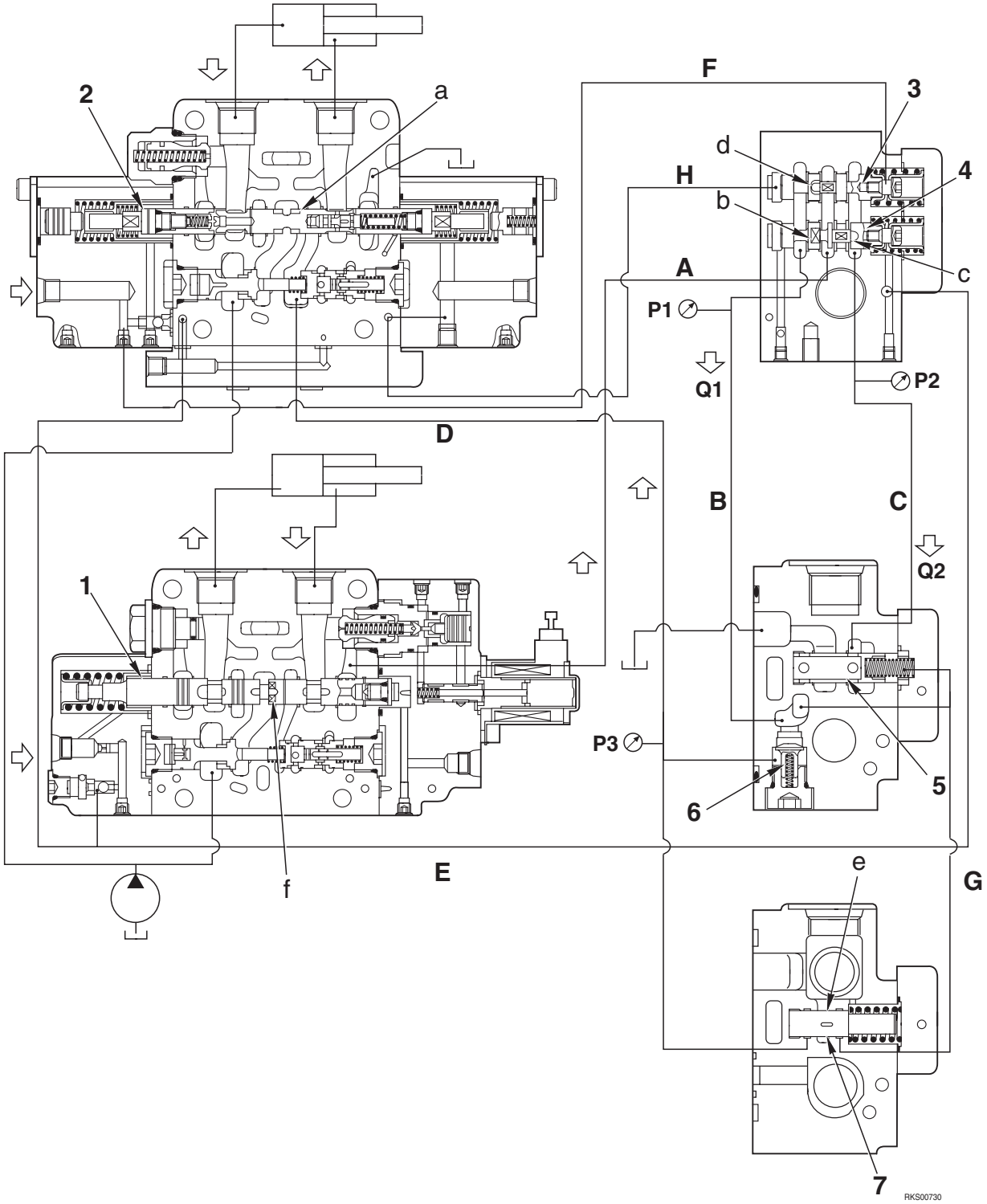
RKS00521

1. Main relief valve
2. Stop plug (lift arm bottom side)
3. Suction valve (bucket bottom side)
4. Plug
5. Plug
6. Series - parallel circuit switching valve
7. Spool (lift arm)
8. Spool (bucket)
9. Spool (attachment)
10. Flow divider
11. Check valve (circulating circuit)
12. Combination circulating valve
13. Leveling circulating valve

3.3 THE FUNCTION TO SWITCH SERIES CIRCUIT TO PARALLEL CIRCUIT

Function

- (1) Low bucket load: Series circuit
- (2) High bucket load: Parallel circuit
- Depend on bucket load, a circuit can change automatically as above.
  Then the machine gets high speed and strong digging power.



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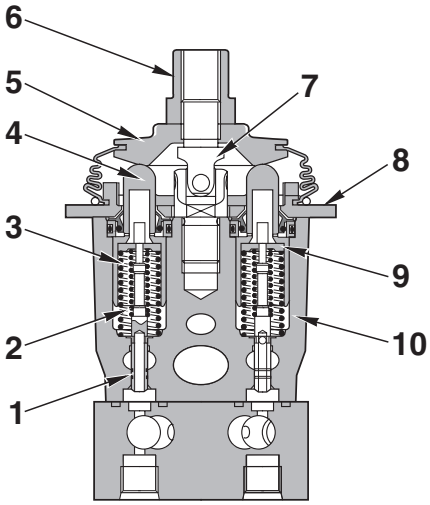
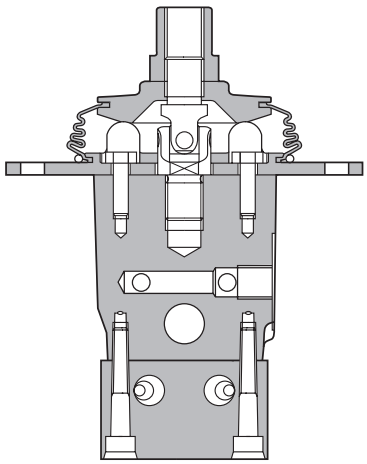


Section A - A



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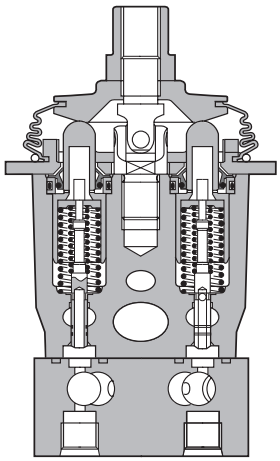
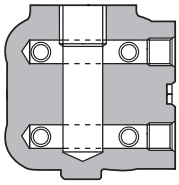
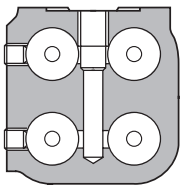


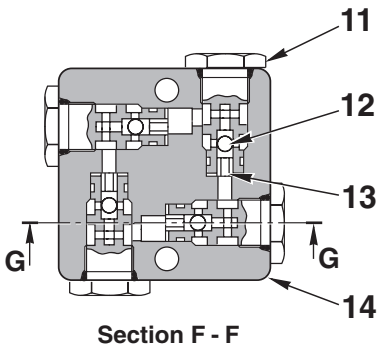
Section C - C



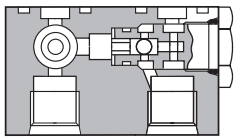
Section D - D



Section E - E



Section F - F



Section G - G

RKS00871

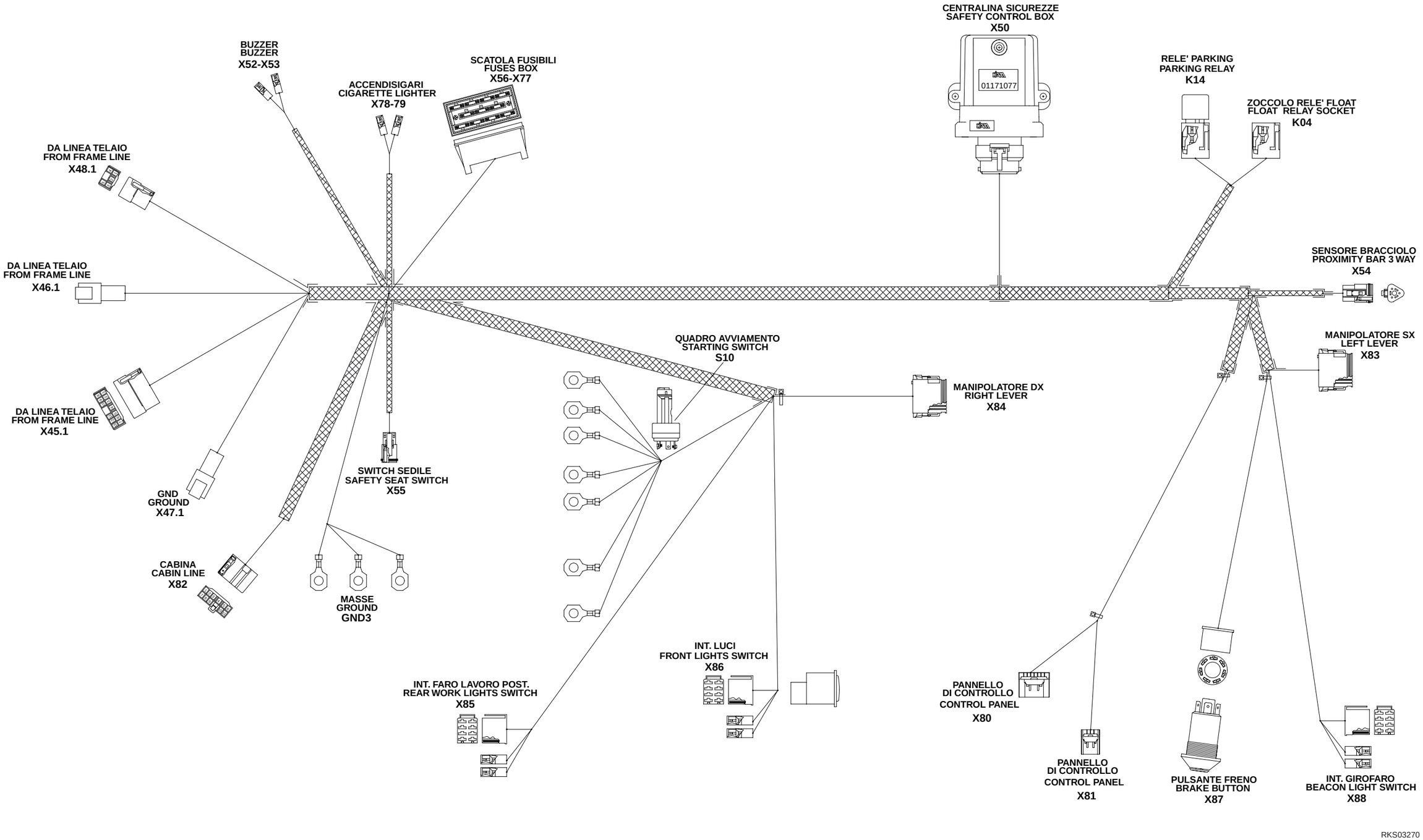
1. Spool
2. Metering spring
3. Centering spring
4. Piston
5. Disc
6. Nut
7. Joint
8. Cover
9. Stopper
10. Body
11. Plug
12. Ball
13. Seat
14. Body (for shuttle valve)

ELECTRICAL DIAGRAM (ENGINE LINE) (3/3)

COMPONENTS

FG1 General fuse 50A
G1 Battery 80Ah
G2 Generator
K01 Fuel solenid valve relay
K02 Fuel pull solenid valve timer 1 second
K03 Safety relay
M1 Starter motor
M2 Fuel pump
R1 Preheating starter
R2 Fuel level sender
R3 Engine water temperature sender
S25 Air filter blocked switch
S26 Hydraulic oil filter blocked switch
S27 Stop lights pressure switch
S28 Stop lights pressure switch
S29 Back-up alarm pressure switch
S30 Back-up alarm pressure switch
S31 Engine oil min. pressure switch
V1 Diode 1A
X01 Frame line 3 way connector
X02 2 way connector
X03 Fuel solenoid relay connector
X06 Diode 2 way connector
X07 Pull solenoid timer 4 way connector
X08 Safety relay 6 way connector
X09 C6 generator terminal
X10 Frame line mark 13 way connector
X11 Generator 3 way connector
X13 Fuel pool-stop solenoid 3 way connector solenoid 3 way connector
X14 Fuel pump 2 way connector
X15 Preheating start C6 terminal
X16 Air filter blocked switch 2 way connector
X17 Fuel level sender 3 way connector
X18 Engine water temperature sender 2 way connector
X19 Hydraulic oil filter blocked switch C5 terminal
X20 Stop light pressure 1 switch 2 way connector
X21 Stop light pressure 2 switch 2 way connector
X22 Back-up pressure 1 switch 2 way connector
X23 Back-up pressure 2 switch 2 way connector
Y0 Stop fuel solenoid valve

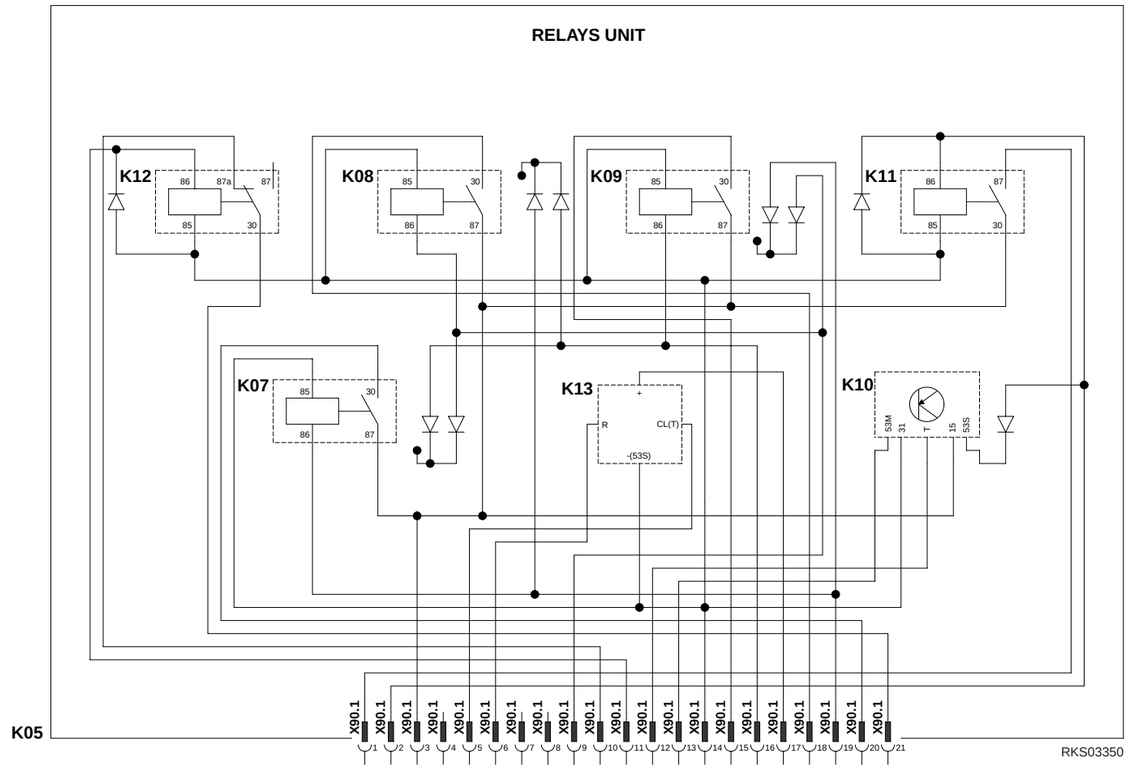
ELECTRICAL DIAGRAM (CABIN LINE STANDARD) (1/5)



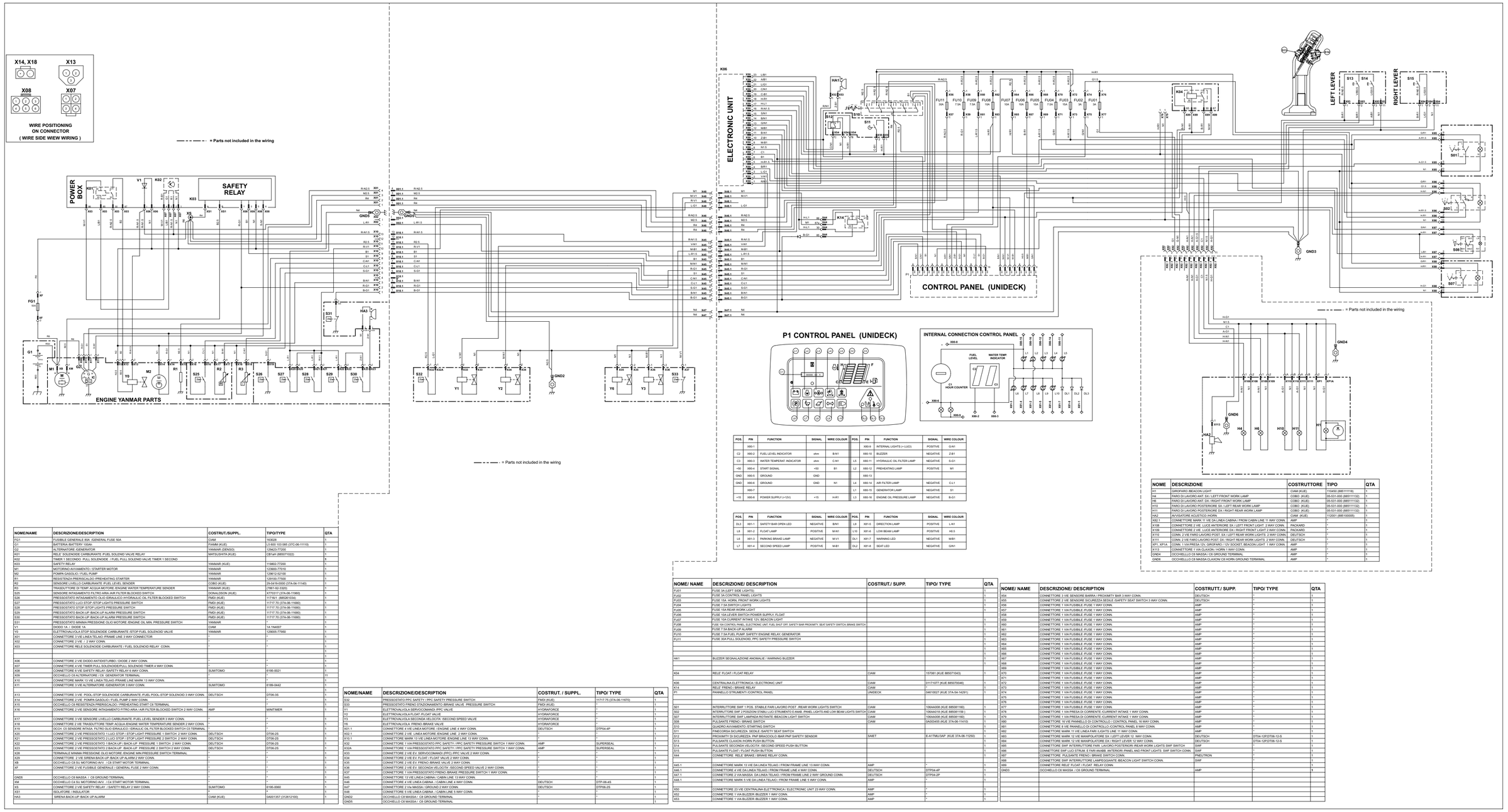
RKS03270

ELECTRICAL DIAGRAM (CABIN LINE OPTIONAL) (5/7)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20



ELECTRICAL DIAGRAM (STANDARD)



NOME/NAME	DESCRIZIONE/DESCRIPTION	COSTRUT./SUPPL.	TIPO/TYPE	QTA
FG1	FUSIBILE GENERALE 80A GENERAL FUSE 50A	CIAM	150328	1
G1	BATTERIA /BATTERY 100Ah	FIAMM (KUE)	LS 600 103 085 (372-06-11110)	1
G2	ALTERNATORE /GENERATOR	YANMAR (DENSO)	129423-77200	1
K01	RELE' SOLENOIDE CARBURANTE /FUEL SOLENOI VALVE RELAY	MATSUSHITA (KUE)	CB1ah1 (885071022)	1
K02	TIMER 1 SECONDO /PULL SOLENOIDE / FUEL PULL SOLENOI VALVE TIMER 1 SECONO			1
K03	SAFETY RELAY	YANMAR (KUE)	119802-77200	1
M1	MOTORINO AVVIAMENTO / STARTER MOTOR	YANMAR	123900-77010	1
M2	POMPA GASOLIO / FUEL PUMP	YANMAR	129612-52100	1
R1	RESISTENZA PRERISCALDO /PREHEATING STARTER	YANMAR	129100-77500	1
R2	SENSORE LIVELLO CARBURANTE /FUEL LEVEL SENDER	COBO (KUE)	29-0418-5000 (37A-04-11140)	1
R3	TRASDUTTORE DI TEMP. ACQUA MOTORE /ENGINE WATER TEMPERATURE SENDER	YANMAR (KUE)	(7861-92-3320)	1
S25	SENSORE INTASAMENTO FILTRO ARIA /AIR FILTER BLOCKED SWITCH	DONALDSON (KUE)	X770317 (37A-06-11960)	1
S26	PRESSOSTATO INTASAMENTO OLIO IDRAULICO /HYDRAULIC OIL FILTER BLOCKED SWITCH	FMDI (KUE)	117161 (885281034)	1
S27	PRESSOSTATO LUCI STOP /STOP LIGHTS PRESSURE SWITCH	FMDI (KUE)	11717 70 (37A-06-11680)	1
S28	PRESSOSTATO STOP /STOP LIGHTS PRESSURE SWITCH	FMDI (KUE)	11717 70 (37A-06-11680)	1
S29	PRESSOSTATO BACK-UP /BACK-UP ALARM PRESSURE SWITCH	FMDI (KUE)	11717 70 (37A-06-11680)	1
S30	PRESSOSTATO BACK-UP /BACK-UP ALARM PRESSURE SWITCH	FMDI (KUE)	11717 70 (37A-06-11680)	1
S31	PRESSOSTATO MINIMA PRESSIONE OLIO MOTORE /ENGINE OIL MIN. PRESSURE SWITCH	YANMAR		1
V1	DIODO 1A / DIODE 1A	CIAM	1A 1N4007	1
Y0	ELETTROVALVOLA STOP SOLENOIDE CARBURANTE /STOP FUEL SOLENOID VALVE	YANMAR	129005-77950	1
X01	CONNETTORE 2 VIE LINEA TELAIO /FRAME LINE 3 WAY CONNECTOR	*	*	1
X02	CONNETTORE 2 VIE / 2 WAY CONN.	*	*	1
X03	CONNETTORE RELE SOLENOIDE CARBURANTE / FUEL SOLENOID RELAY CONN.	*	*	1
				1
				1
X06	CONNETTORE 2 VIE DIODO ANTIDISTURBO / DIODE 2 WAY CONN.	*	*	1
X07	CONNETTORE 4 VIE TIMER PULL SOLENOIDE/PULL SOLENOID TIMER 4 WAY CONN.	*	*	1
X08	CONNETTORE 6 VIE SAFETY RELAY /SAFETY RELAY 6 WAY CONN.	SUMITOMO	6195-0021	1
X09	OCCHIELLO C8 ALTERNATORE / C8 GENERATOR TERMINAL	*	*	11
X10	CONNETTORE MARK 13 VIE LINEA TELAIO /FRAME LINE MARK 13 WAY CONN.	*	*	1
X11	CONNETTORE 3 VIE ALTERNATORE /GENERATOR 3 WAY CONN.	SUMITOMO	6189-0442	1
				1
X13	CONNETTORE 3 VIE POOL-STOP SOLENOIDE CARBURANTE /FUEL POOL-STOP SOLENOID 3 WAY CONN.	DEUTSCH	DT06-3S	1
X14	CONNETTORE 2 VIE POMPA GASOLIO / FUEL PUMP 2 WAY CONN.	*	*	1
X15	OCCHIELLO C8 RESISTENZA PRERISCALDO / PREHEATING START C8 TERMINAL	*	*	1
X16	CONNETTORE 2 VIE SENSORE INTASAMENTO FITRO ARIA / AIR FILTER BLOCKED SWITCH 2 WAY CONN.	AMP	MINITIMER	1
				1
X17	CONNETTORE 3 VIE SENSORE LIVELLO CARBURANTE /FUEL LEVEL SENDER 3 WAY CONN.	*	*	1
X18	CONNETTORE 2 VIE TRASDUTTORE TEMP. ACQUA /ENGINE WATER TEMPERATURE SENDER 2 WAY CONN.	*	*	1
X19	OCCH. C5 SENSORE INTASA. FILTRO OLIO IDRAULICO / IDRAULIC OIL FILTER BLOCKED SWITCH C5 TERMINAL	*	*	1
X20	CONNETTORE 2 VIE PRESSOSTATO 1 LUCI STOP / STOP LIGHT PRESSURE 1 SWITCH 2 WAY CONN.	DEUTSCH	DT06-2S	1
X21	CONNETTORE 2 VIE PRESSOSTATO 2 LUCI STOP / STOP LIGHT PRESSURE 2 SWITCH 2 WAY CONN.	DEUTSCH	DT06-2S	1
X22	CONNETTORE 2 VIE PRESSOSTATO BACK-UP / BACK-UP PRESSURE 1 SWITCH 2 WAY CONN.	DEUTSCH	DT06-2S	1
X23	CONNETTORE 2 VIE PRESSOSTATO 2 BACK-UP /BACK-UP PRESSURE 2 SWITCH 2 WAY CONN.	DEUTSCH	DT06-2S	1
X24	TERMINALE MINIMA PRESSIONE OLIO MOTORE /ENGINE MIN.PRESSURE SWITCH TERMINAL	*	*	1
X29	CONNETTORE 2 VIE SIRENA BACK-UP /BACK UP ALARM 2 WAY CONN.	*	*	1
X8	OCCHIELLO C8 SU MOTORINO AVV. / C8 START MOTOR TERMINAL	*	*	1
XF	CONNETTORE 2 VIE FUSIBILE GENERALE / GENERAL FUSE 2 WAY CONN.	*	*	1
		*	*	1
GND5	OCCHIELLO C8 MASSA / C8 GROUND TERMINAL	*	*	1
XM	OCCHIELLO C4 SU MOTORINO AVV. / C4 START MOTOR TERMINAL	*	*	1
XS	CONNETTORE 2 VIE SAFETY RELAY / SAFETY RELAY 2 WAY CONN.	SUMITOMO	6195-0060	1
XS1	ISOLATORE / INSULATOR	*	*	1
HA3	SIRENA BACK-UP /BACK UP ALARM	CIAM (KUE)	GN201357 (312612100)	1

NOME/NAME	DESCRIZIONE/DESCRIPTION	COSTRUT. / SUPPL.	TIPO/ TYPE	QTA
S32	PRESSOSTATO PPC SAFETY / PPC SAFETY PRESSURE SWITCH	FMDI (KUE)	11717 70 (37A-06-11670)	1
S33	PRESSOSTATO FRENO STAZIONAMENTO /BRAKE VALVE PRESSURE SWITCH	FMDI (KUE)	*	1
Y1	ELETTROVALVOLA SERVOCOMANDI /PPC VALVE	HYDRAFORCE	*	1
Y2	ELETTROVALVOLA FLOAT /FLOAT VALVE	HYDRAFORCE	*	1
Y3	ELETTROVALVOLA SECONDA VELOCITA' /SECOND SPEED VALVE	HYDRAFORCE	*	1
Y5	ELETTROVALVOLA FRENO /BRAKE VALVE	HYDRAFORCE	*	1
X01.1	CONNETTORE 4 VIE LINEA MOTORE / ENGINE LINE 4 WAY CONN.	DEUTSCH	DTP04-4P	1
X02.1	CONNETTORE 2 VIE LINEA MOTORE /ENGINE LINE 2 WAY CONN.	*	*	1
X10.1	CONNETTORE MARK 13 VIE LINEA MOTORE /ENGINE LINE 13 WAY CONN.	*	*	1
X32	CONNETTORE 1 VIA PRESSOSTATO PPC SAFETY / PPC SAFETY PRESSURE SWITCH 1 WAY CONN.	AMP	SUPERSEAL	1
X32A	CONNETTORE 1 VIA PRESSOSTATO PPC SAFETY / PPC SAFETY PRESSURE SWITCH 1 WAY CONN.	AMP	SUPERSEAL	1
X33	CONNETTORE 2 VIE EV. SERVOCOMAND (PPC) /PPC VALVE 2 WAY CONN.	*	*	1
X34	CONNETTORE 2 VIE EV. FLOAT / FLOAT VALVE 2 WAY CONN.	*	*	1
X35	CONNETTORE 2 VIE EV. FRENO /BRAKE VALVE 2 WAY CONN.	*	*	1
X36	CONNETTORE 2 VIE EV. SECONDA VELOCITA' /SECOND SPEED VALVE 2 WAY CONN.	*	*	1
X37	CONNETTORE 1 VIA PRESSOSTATO FRENO /BRAKE PRESSURE SWITCH 1 WAY CONN.	*	*	1
X45	CONNETTORE 13 VIE LINEA CABINA / CABIN LINE 13 WAY CONN.	*	*	1
X46	CONNETTORE 4 VIE LINEA CABINA / CABIN LINE 4 WAY CONN.	DEUTSCH	DTP-06-4S	1
X47	CONNETTORE 2 VIA MASSA / GROUND 2 WAY CONN.	DEUTSCH	DTP06-2S	1
X48	CONNETTORE 5 VIE LINEA CABINA / CABIN LINE 5 WAY CONN.	*	*	1
GND2	OCCHIELLO C8 MASSA / C8 GROUND TERMINAL	*	*	1
GND5	OCCHIELLO C8 MASSA / C8 GROUND TERMINAL	*	*	1

POS.	PIN	FUNCTION	SIGNAL	WIRE COLOUR	POS.	PIN	FUNCTION	SIGNAL	WIRE COLOUR
	X60-1					X60-9	INTERNAL LIGHTS (+ LUCI)	POSITIVE	G-N1
C2	X60-2	FUEL LEVEL INDICATOR	ohm	B-N1		X60-10	BUZZER	NEGATIVE	Z-B1
C3	X60-3	WATER TEMPERAT. INDICATOR	ohm	C-N1	L5	X60-11	HYDRAULIC OIL FILTER LAMP	NEGATIVE	S-G1
+50	X60-4	START SIGNAL	+50	B1	L2	X60-12	PREHEATING LAMP	POSITIVE	M1
GND	X60-5	GROUND	GND			X60-13			
GND	X60-6	GROUND	GND	N1	L4	X60-14	AIR FILTER LAMP	NEGATIVE	C-L1
	X60-7				L1	X60-15	GENERATOR LAMP	NEGATIVE	S1
+15	X60-8	POWER SUPPLY (+12V)	+15	H-R1	L3	X60-16	ENGINE OIL PRESSURE LAMP	NEGATIVE	B-G1

POS.	PIN	FUNCTION	SIGNAL	WIRE COLOUR	POS.	PIN	FUNCTION	SIGNAL	WIRE COLOUR
DL3	X81-1	SAFETY BAR OPEN LED	NEGATIVE	B/N1	L9	X81-9	DIRECTION LAMP	POSITIVE	L-N1
L8	X81-2	FLOAT LAMP	POSITIVE	M-N1	L10	X81-8	LOW BEAM LAMP	POSITIVE	H0.5
L6	X81-3	PARKING BRAKE LAMP	NEGATIVE	M-V1	DL1	X81-7	WARNING LED	NEGATIVE	M/B1
L7	X81-4	SECOND SPEED LAMP	POSITIVE	M-B1	DL2	X81-6	SEAT LED	NEGATIVE	G/N1

NOME/ NAME	DESCRIZIONE/ DESCRIPTION	COSTRUT./ SUPP.	TIPO/ TYPE	QTA
FU01	FUSE 3A (LEFT SIDE LIGHTS)			1
FU02	FUSE 5A CONTROL PANEL LIGHTS			1
FU03	FUSE 10A HORN, FRONT WORK LIGHTS			1
FU04	FUSE 7.5A SWITCH LIGHTS			1
FU05	FUSE 15A REAR WORK LIGHT			1
FU06	FUSE 10A LEVER SWITCH POWER SUPPLY, FLOAT			1
FU07	FUSE 10A CURRENT INTAKE 12V, BEACON LIGHT			1
FU08	FUSE 15A CONTROL PANEL ELECTRONIC UNIT, FUEL SHUT OFF, SAFETY BAR PROXIMITY, SEAT SAFETY SWITCH, BRAKE SWITCH			1
FU09	FUSE 7.5A BACK-UP ALARM			1
FU10	FUSE 7.5A FUEL PUMP, SAFETY ENGINE RELAY, GENERATOR			1
FU11	FUSE 30A FULL SOLENOID, PPC SAFETY PRESSURE SWITCH			1
				1
				1
HA1	BUZZER SEGNALAZIONE ANOMALIE / WARNING BUZZER			1
				1
K04	RELE' FLOAT / FLOAT RELAY	CIAM	157061 (KUE 885070403)	1
				1
K06	CENTRALINA ELETTRONICA / ELECTRONIC UNIT	CIAM	01171077 (KUE 885070046)	1
K14	RELE' FRENO / BRAKE RELAY	CIAM		1
P1	PANNELLO STRUMENTI /CONTROL PANEL	UNIDECK	04610027 (KUE 37A-54-14291)	1
				1
S01	INTERRUTTORE SWF 1 POS. STABILE FARI LAVORO POST. /REAR WORK LIGHTS SWITCH	CIAM	106AA008 (KUE 885081160)	1
S02	INTERRUTTORE SWF 2 POSIZIONI STABILI LUCI STRUMENTI E ANAB. /PANEL LIGHTS AND LOW BEAM LIGHTS SWITCH	CIAM	106AA019 (KUE 885081159)	1
S07	INTERRUTTORE SWF LAMPADA ROTANTE /BEACON LIGHT SWITCH	CIAM	106AA008 (KUE 885081160)	1
S08	PULSANTE FRENO / BRAKE SWITCH	CIAM	GA0324455 (KUE 37A-06-11410)	1
S10	GUARDO AVVIAMENTO /STARTING SWITCH			1
S11	FINECORSA SICUREZZA, SEDILE /SAFETY SEAT SWITCH			1
S12	PROXIMITY DI SICUREZZA PAP BRACCIOLO BAR /PAP SAFETY SENSOR	SAIET	E-A17MU3AP (KUE 37A-06-11250)	1
S13	PULSANTE CLAXON /HORN PUSH BUTTON			1
S14	PULSANTE SECONDA VELOCITA' /SECOND SPEED PUSH BUTTON			1
S15	PULSANTE FLOAT / FLOAT PUSH BUTTON			1
X44	CONNETTORE RELE' BRAKE / BRAKE RELAY CONN.	*	*	1
				1
X45.1	CONNETTORE MARK 13 VIE DA LINEA TELAIO / FROM FRAME LINE 13 WAY CONN.	AMP		1
X46.1	CONNETTORE 4 VIE DA LINEA TELAIO / FROM FRAME LINE 4 WAY CONN.	DEUTSCH	DTP04-4P	1
X47.1	CONNETTORE 2 VIA MASSA DA LINEA TELAIO / FROM FRAME LINE 2 WAY GROUND CONN.	DEUTSCH	DTP04-2P	1
X48.1	CONNETTORE MARK 5 VIE DA LINEA TELAIO / FROM FRAME LINE 5 WAY CONN.	AMP	*	1
				1
X50	CONNETTORE 23 VIE CENTRALINA ELETTRONICA / ELECTRONIC UNIT 23 WAY CONN.	AMP	*	1
X52	CONNETTORE 1 VIA BUZZER /BUZZER 1 WAY CONN.	AMP	*	1
X53	CONNETTORE 1 VIA BUZZER /BUZZER 1 WAY CONN.	AMP	*	1

NOME/ NAME	DESCRIZIONE/ DESCRIPTION	COSTRUTT./ SUPP.	TIPO/ TYPE	QTA
X54	CONNETTORE 3 VIE SENSORE BARRA / PROXIMITY BAR 3 WAY CONN.	DEUTSCH	*	1
X55	CONNETTORE 2 VIE SENSORE SICUREZZA SEDILE /SAFETY SEAT SWITCH 3 WAY CONN.	DEUTSCH	*	1
X56	CONNETTORE 1 VIA FUSIBILE /FUSE 1 WAY CONN.	AMP	*	1
X57	CONNETTORE 1 VIA FUSIBILE /FUSE 1 WAY CONN.	AMP	*	1
X58	CONNETTORE 1 VIA FUSIBILE /FUSE 1 WAY CONN.	AMP	*	1
X59	CONNETTORE 1 VIA FUSIBILE /FUSE 1 WAY CONN.	AMP	*	1
X60	CONNETTORE 1 VIA FUSIBILE /FUSE 1 WAY CONN.	AMP	*	1
X61	CONNETTORE 1 VIA FUSIBILE /FUSE 1 WAY CONN.	AMP	*	1
X62	CONNETTORE 1 VIA FUSIBILE /FUSE 1 WAY CONN.	AMP	*	1
X63	CONNETTORE 1 VIA FUSIBILE /FUSE 1 WAY CONN.	AMP	*	1
X64	CONNETTORE 1 VIA FUSIBILE /FUSE 1 WAY CONN.	AMP	*	1
X65	CONNETTORE 1 VIA FUSIBILE /FUSE 1 WAY CONN.	AMP	*	1
X66	CONNETTORE 1 VIA FUSIBILE /FUSE 1 WAY CONN.	AMP	*	1
X67	CONNETTORE 1 VIA FUSIBILE /FUSE 1 WAY CONN.	AMP	*	1
X68	CONNETTORE 1 VIA FUSIBILE /FUSE 1 WAY CONN.	AMP	*	1
X69	CONNETTORE 1 VIA FUSIBILE /FUSE 1 WAY CONN.	AMP	*	1
X70	CONNETTORE 1 VIA FUSIBILE /FUSE 1 WAY CONN.	AMP	*	1
X71	CONNETTORE 1 VIA FUSIBILE /FUSE 1 WAY CONN.	AMP	*	1
X72	CONNETTORE 1 VIA FUSIBILE /FUSE 1 WAY CONN.	AMP	*	1
X73	CONNETTORE 1 VIA FUSIBILE /FUSE 1 WAY CONN.	AMP	*	1
X74	CONNETTORE 1 VIA FUSIBILE /FUSE 1 WAY CONN.	AMP	*	1
X75	CONNETTORE 1 VIA FUSIBILE /FUSE 1 WAY CONN.	AMP	*	1
X76	CONNETTORE 1 VIA FUSIBILE /FUSE 1 WAY CONN.	AMP	*	1
X77	CONNETTORE 1 VIA FUSIBILE /FUSE 1 WAY CONN.	AMP	*	1
X78	CONNETTORE 1 VIA PRESA DI CORRENTE /CURRENT INTAKE 1 WAY CONN.	AMP	*	1
X79	CONNETTORE 1 VIA PRESA DI CORRENTE /CURRENT INTAKE 1 WAY CONN.	AMP	*	1
X80	CONNETTORE 16 VIE PANNELLO DI CONTROLLO / CONTROL PANEL 16 WAY CONN.	AMP	*	1
X81	CONNETTORE 8 VIE PANNELLO DI CONTROLLO / CONTROL PANEL 8 WAY CONN.	AMP	*	1
X82	CONNETTORE MARK 11 VIE LINEA FARI /LIGHTS LINE 11 WAY CONN.	AMP	*	1
X83	CONNETTORE MARK 12 VIE MANIPOLATORE SX / LEFT LEVER 12 WAY CONN.	DEUTSCH	DT04-12P,DT06-12-S	1
X84	CONNETTORE MARK 12 VIE MANIPOLATORE DX / RIGHT LEVER 12 WAY CONN.	DEUTSCH	DT04-12P,DT06-12-S	1
X85	CONNETTORE SWF INTERRUTTORE FARI LAVORO POSTERIORI /REAR WORK LIGHTS SWF SWITCH	SWF	*	1
X86	CONNETTORE SWF LUCI STROM. E FARI ANAB. ANTERIORI /PANEL AND FRONT LIGHTS SWF SWITCH CONN.	SWF	*	1
X87	CONNETTORE PULSANTE FRENO / BRAKE SWITCH CONN.	PNEUTRON	*	1
X88	CONNETTORE SWF INTERRUTTORE LAMPEGGIANTE /BEACON LIGHT SWITCH CONN.	SWF	*	1
X89	CONNETTORE RELE' FLOAT / FLOAT RELAY CONN.	*	*	1
GND3	OCCHIELLO C5 MASSA / C5 GROUND TERMINAL	AMP	*	1

NOME	DESCRIZIONE	COSTRUTTORE	TIPO	QTA
H1	GIROFARO /BEACON LIGHT	CIAM (KUE)	110450 (885111118)	1
H4	FARO DI LAVORO ANT. SX / LEFT FRONT WORK LAMP	COBO (KUE)	05-531-000 (885111132)	1
H6	FARO DI LAVORO ANT. DX / RIGHT FRONT WORK LAMP	COBO (KUE)	05-531-000 (885111132)	1
H10	FARO DI LAVORO POSTERIORE SX / LEFT REAR WORK LAMP	COBO (KUE)	05-531-000 (885111132)	1
H11	FARO DI LAVORO POSTERIORE DX / RIGHT REAR WORK LAMP	COBO (KUE)	05-531-000 (885111132)	1
H42	AVVISATORE ACUSTICO /HORN	CIAM (KUE)	112001 (885100005)	1
XB2.1	CONNETTORE MARK 11 VIE DA LINEA CABINA / FROM CABIN LINE 11 WAY CONN.	AMP	*	1
X10B	CONNETTORE 2 VIE LUCE ANTERIORE SX / LEFT FRONT LIGHT 2 WAY CONN.	PACKARD	*	1
X10B	CONNETTORE 2 VIE LUCE ANTERIORE DX / RIGHT FRONT LIGHT 2 WAY CONN.	PACKARD	*	1
X11C	CONN. 2 VIE FARO LAVORO POST. SX / LEFT REAR WORK LIGHTS 2 WAY CONN.	DEUTSCH	*	1
X11I	CONN. 2 VIE FARO LAVORO POST. DX / RIGHT REAR WORK LIGHTS 2 WAY CONN.	DEUTSCH	*	1
XP1, XP1A	CONN. 1 VIA PRESA 12V. GIROFARO / 12V SOCKET, BEACON LIGHT 1 WAY CONN.	AMP	*	1
X113	CONNETTORE 1 VIA CLAXON / HORN 1 WAY CONN.	AMP	*	1
GND4	OCCHIELLO C8 MASSA / C8 GROUND TERMINAL	AMP	*	1
GND6	OCCHIELLO C8 MASSA CLAXON/ C8 HORN GROUND TERMINAL	AMP	*	1

RKS03680

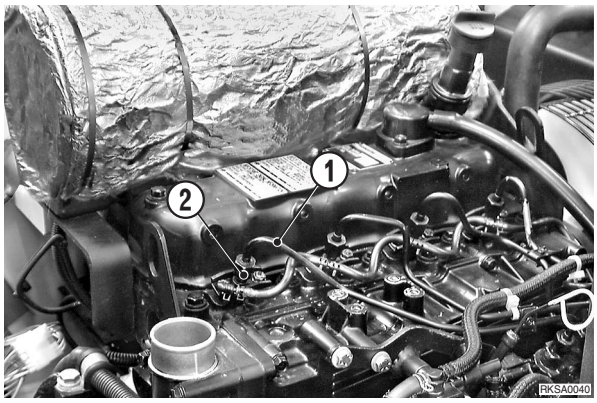
FOR MACHINE

SK820-5 turbo					
Standard value	Permissible value				
Max. 130	Max. 130				
Max. 12	Max. 12				
Max. 8	Max. 10				

MEASUREMENT OF THE COMPRESSION PRESSURE (SK818-5)

⚠ While measuring the compression, take care not to get entangled in the cooling fan, the alternator belt, or in other rotating parts.
Check all cylinders.

★ Test conditions:
- Engine: at working temperature.
- Oil temperature: 45–55 °C.
- Battery: fully charged
- Valve clearance: adjusted
(See «ADJUSTMENT OF VALVE CLEARANCE»).



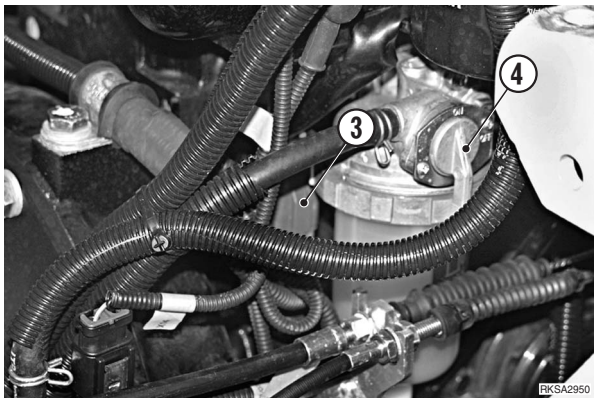
1 - Remove air filter with support.

2 - Disconnect the high-pressure pipe (1).

3 - Remove the nozzle holder (2) of the cylinder to be checked.

4 - Disconnect the connector (3) of the engine-stopping solenoid and close the fuel cock (4).

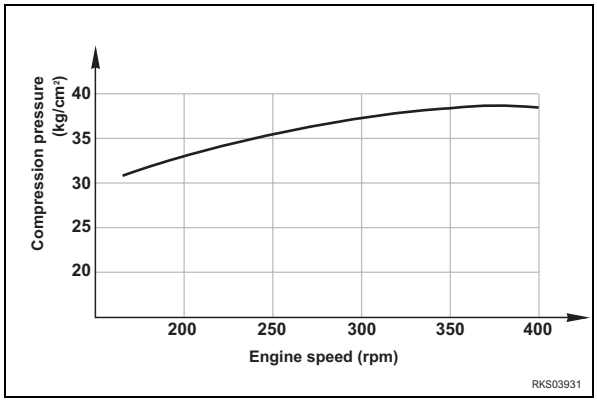
5 - Turn the engine over a few times, using the starting motor.



6 - Mount the adapter **C2** and connect the test pressure gauge **C1**.
★ Check that the seal is mounted in the adapter, and that it is undamaged.

7 - Turn the engine using the starting motor and read the compression value.
★ Read the compression value when the pressure gauge has stabilised.
★ While reading the compression, also check the engine rpm using the tachometer **A1** or **A2**. If the speed does not correspond with the control value, check it against the diagram.

★ Compression value:
Normal: 35±1 kg/cm² at 250 rpm
Minimum permissible: 28±1 kg/cm² at 250 rpm
★ Maximum difference between the cylinders:
2–3 kg/cm²



8 - After the reading, re-assemble the nozzle holder (2), and reconnect the high- pressure pipe (1) and the connector (3).

Nm Nut that secures the nozzle: 7.84±0.98 Nm

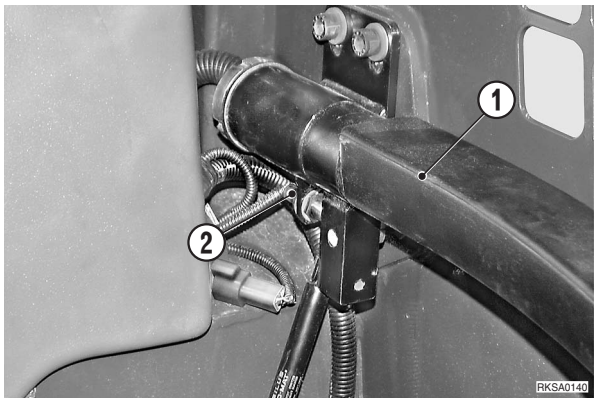
Nm High-pressure coupling: 31.85±2.45 Nm

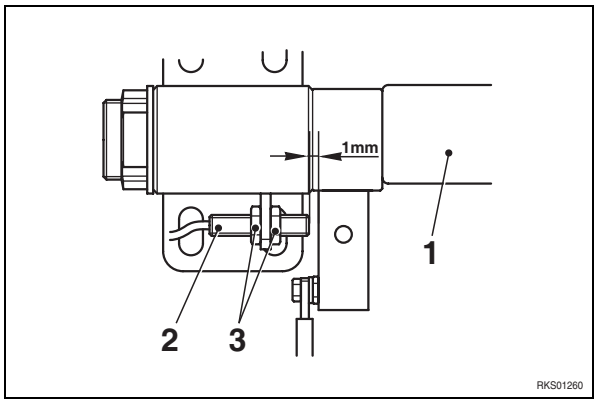
ADJUSTING THE POSITION OF THE SERVO-CONTROL ENGAGEMENT SAFETY SENSOR

Lower the working equipment to the ground, stop the engine and remove starter key.

1 - Lower the LH safety bar (1) and adjust the position of the sensor (2) by loosening and tightening the adjustment nuts (3).

★ Distance between safety bar and sensor: 1 mm





2 - Connect a pressure gauge **E1** (60 bar).

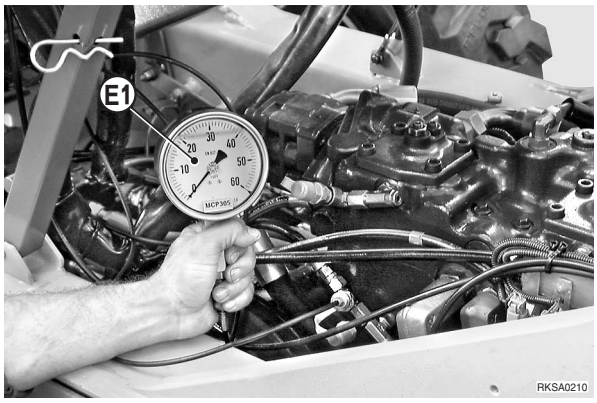
3 - Lower the cab and sit in the driving seat.

4 - Start the engine and bring it up to working speed of 2800 rpm with all the levers in neutral position.

5 - Lower the safety bar, slowly activate the travel lever in the direction of the test to be performed, and then check the following conditions:

- Pressure as the wheels start to turn
- Pressure with the levers at full stroke

★ Normal pressures:
- when the wheels start to turn: 4.0–7.0 bar
- with levers at full stroke: 14–15 bar



3. Parking brake system pressure check

1 - Disconnect the brake control hose (1); connect a “T” fitting and a pressure tap and reconnect the hose.

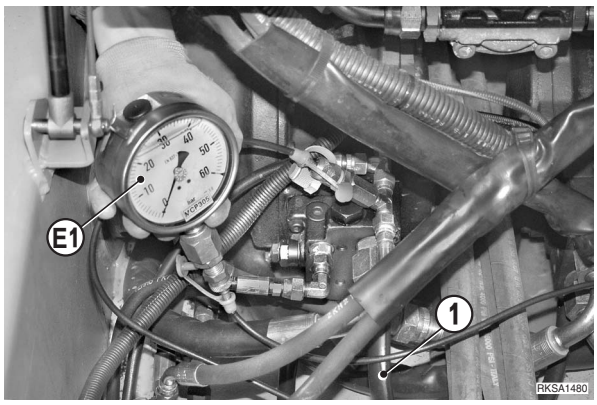
2 - Connect a manometer **E1** (60 bar).

3 - Lower the cabin and sit down on the driver’s seat.

4 - Start the engine and rev it up to operating speed (2800 rpm) with all the levers in neutral position.

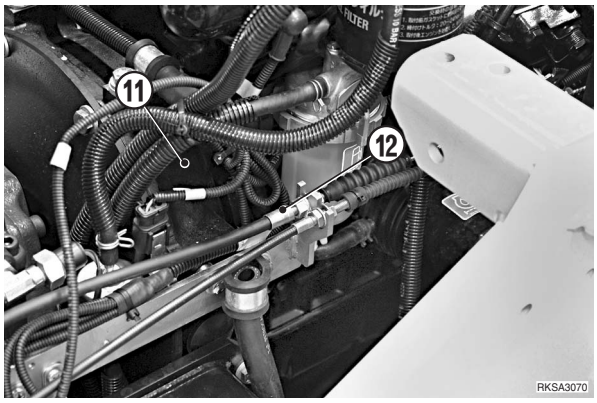
5 - Lower the safety bars; operate the parking brake control and check the pressure.

★ Parking brake pressure: Min. 22 bar



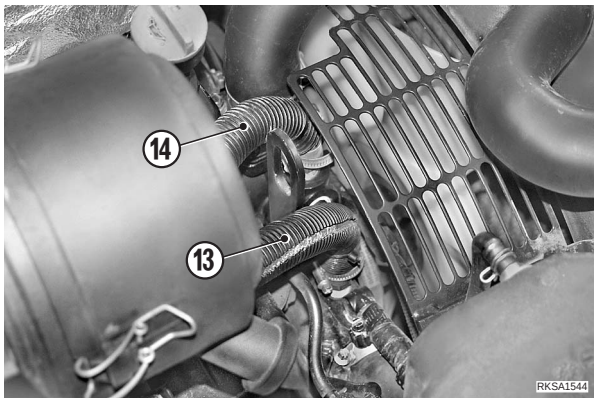
8 - Disconnect, the cable (12) of the accelerator command lever from the engine (11).

※ 3



With heating system

9 - Disconnect the heating system's feed (13) and return (14) pipes from the engine.
Drain engine coolant from the pipes and disconnect the washer pipe from the washer tank.



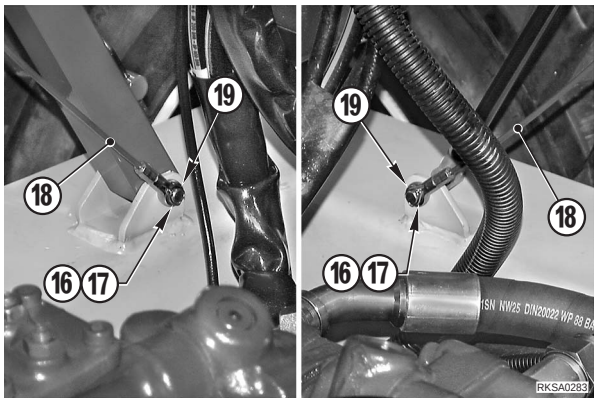
10 - Attach the cab (15) to some hoisting tackle.

11 - Remove the safety cotter pin (16) and the washers (17).

12 - Remove the safety cotter pin.

13 - Push the cab (15) gently towards its "at rest" position to relieve the tension on the safety cables (18), and disconnect them from the pins (19).

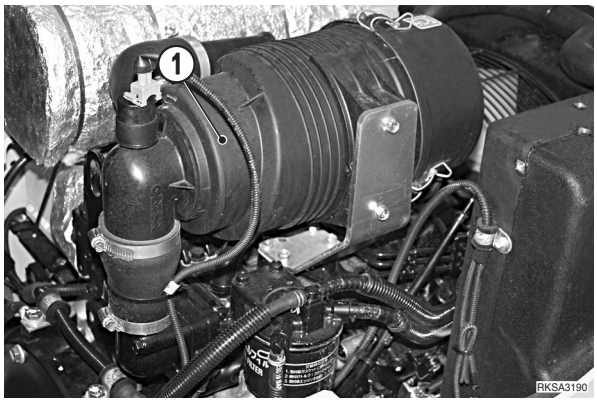
⚠ Apply a slight tension to the hoisting-tackle chains to prevent the cab from moving unexpectedly.



REMOVAL OF THE VALVE COVER (SK818-5)

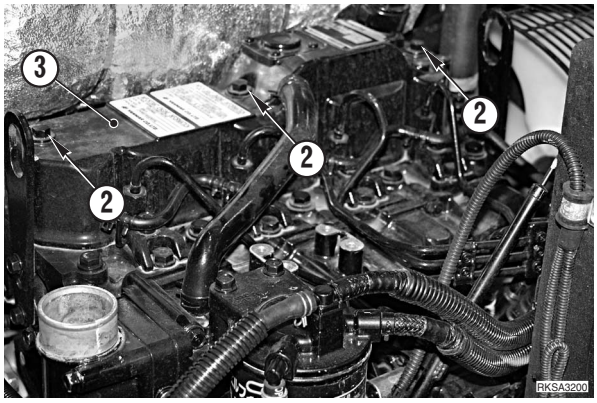
⚠ Disconnect the negative terminal cable (–) from the battery.

1 - Remove the air filter (1).
(For detail see «REMOVAL OF THE AIR FILTER»).



2 - Loosen the 3 screws (2) and remove the valve cover (3).

※ 1



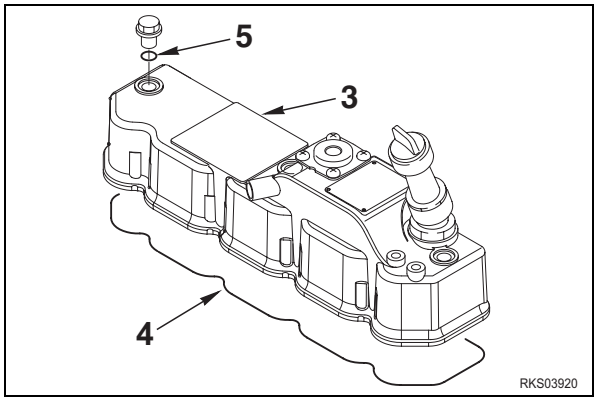
INSTALLATION OF THE VALVE COVER

- To install, reverse the removal procedure.

※ 1

★ Check the state of the seal (4) on the valve cover (3), and of the O-rings (5); thoroughly clean the contact surface on the cylinder head.

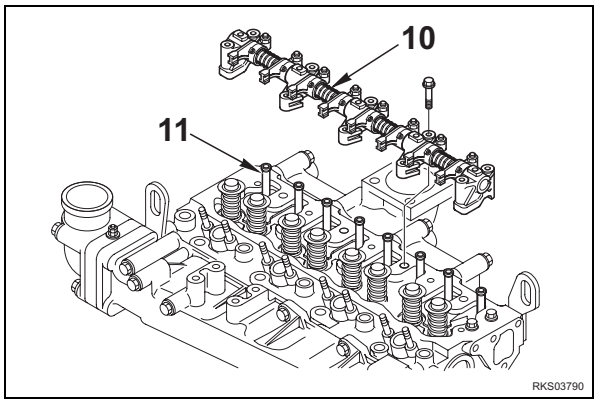
Nm Screw: 22.6–28.4 Nm



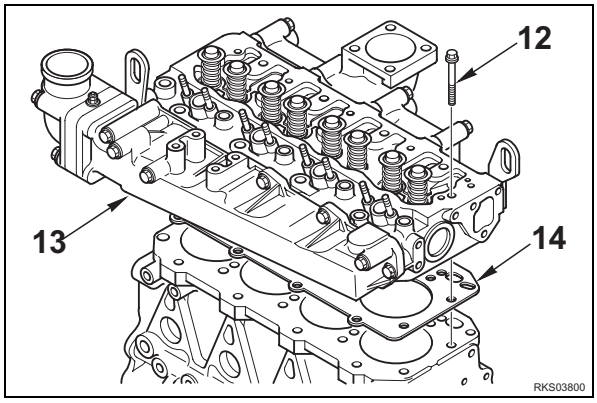
9 - Remove the rocker-arm shaft (10). ※ 2

★ Loosen the lock nuts and unscrew the valve tappets by 2-3 turns.

※ 3

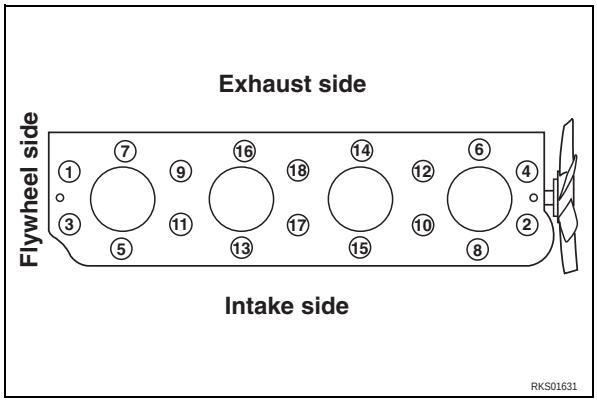


10 - Take out the rocker-arm control rods (11).



11 - Take out the screws (12) in the sequence indicated and remove the complete cylinder head (13). ※ 4

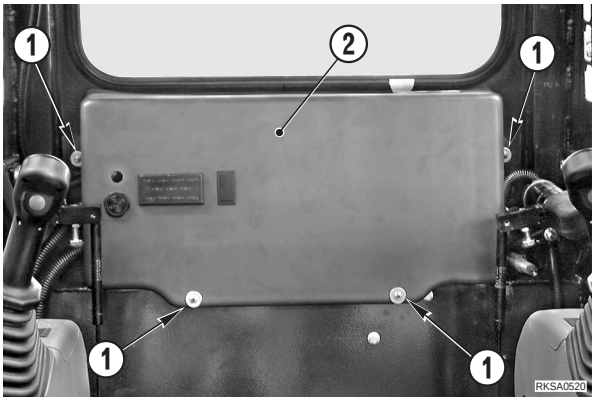
★ The cylinder head gasket (14) must be substituted every time it is dismantled.



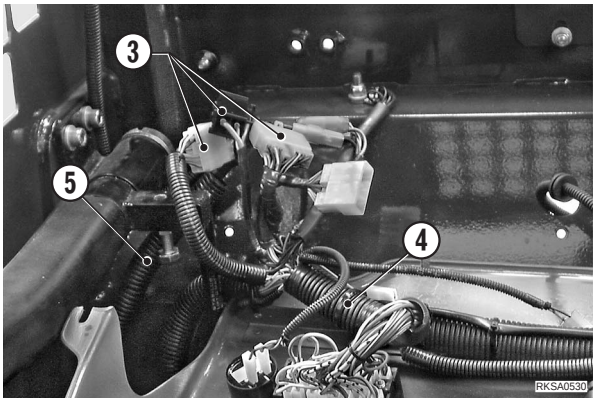
REMOVAL OF THE CAB

1 - Remove the complete working equipment.
(For details, see «REMOVAL OF THE WORKING EQUIPMENT»).

2 - Loosen the nuts (1) and tilt the rear panel (2) towards the front of the machine.



3 - Disconnect the connectors (3) from the cab cabling (4) and release the engine cabling (5) from its retaining clamps.



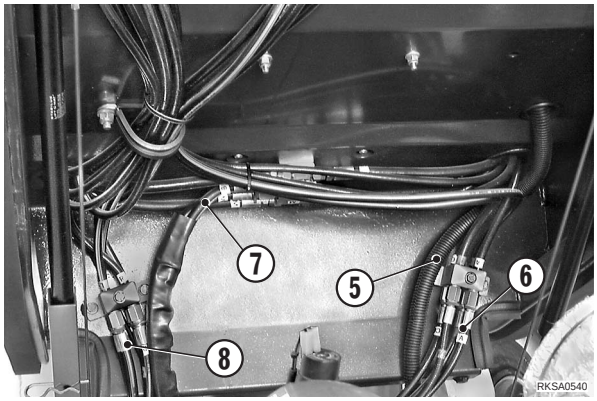
4 - Tilt the cab. (For details, see «TILTING THE CAB»).

5 - Disconnect the four pipes (6) on the RH side, the two servo-control feed-pipes (7) and the four pipes (8) on the LH side.

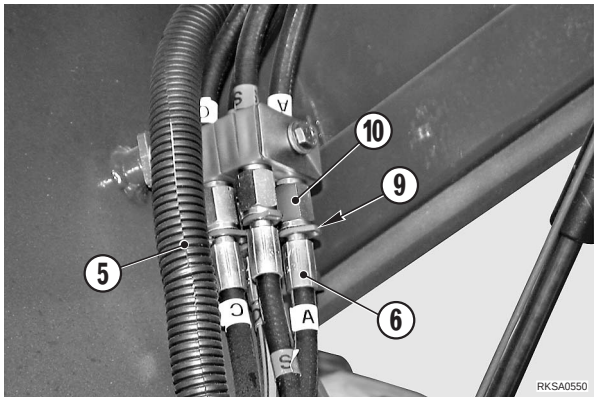
★ To disconnect the pipes, remove the retainer (9) push the pipe (6) completely inside the union (10) and extract the pipe (6).

⁘ 1

★ Mark the tubes to avoid exchanging them during re-assembly.



6 - Pull out the cab cabling (5).



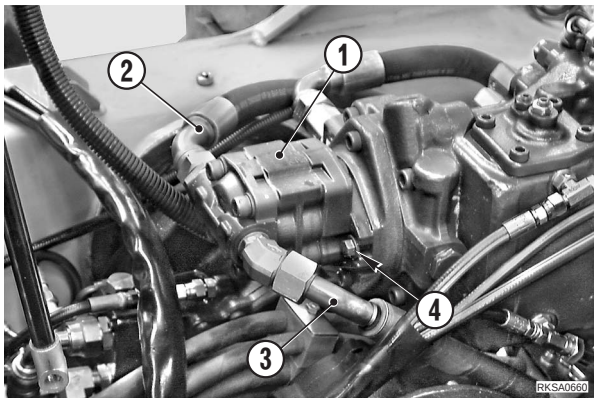
REMOVAL OF THE GEAR PUMP

⚠ Fully raise the working equipment and tilt the cab. (For details, see «TILTING THE CAB»).

★ Drain the hydraulic oil

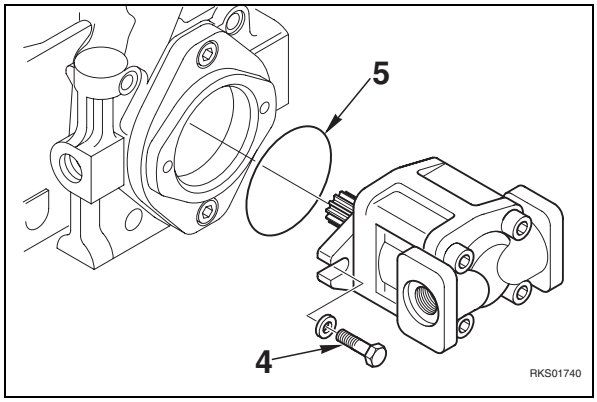
Hydraulic oil: max. 39 ℓ

1 - Disconnect from the pump (1) the suction pipe (2) and the pipe (3) (one for the normal version, two for the HIGHFLOW version.



2 - Loosen the two screws (4) and remove the pump (1) complete with the O-ring (5).

※ 1



INSTALLATION OF THE GEAR PUMP

★ To install, reverse removal procedure.

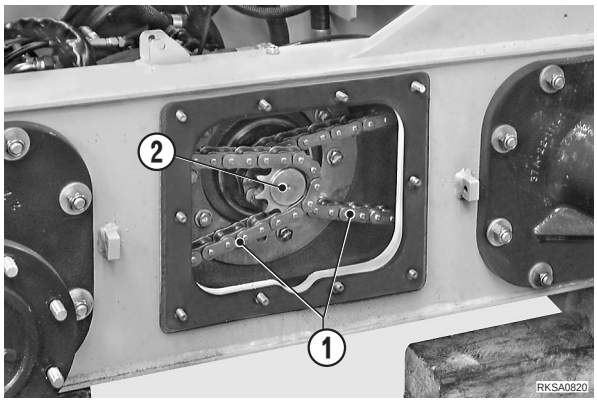
※ 1

Nm Screws: 59–74 Nm

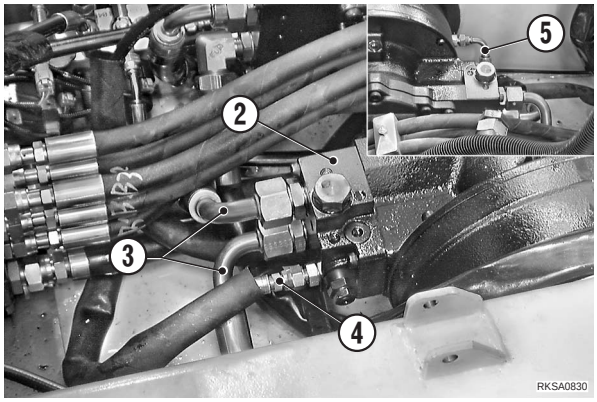
REMOVAL OF THE FINAL DRIVE

1 - Disconnect the gearing chains (1) from the final drive (2). (For details, see «REMOVAL OF WHEEL HUB»).

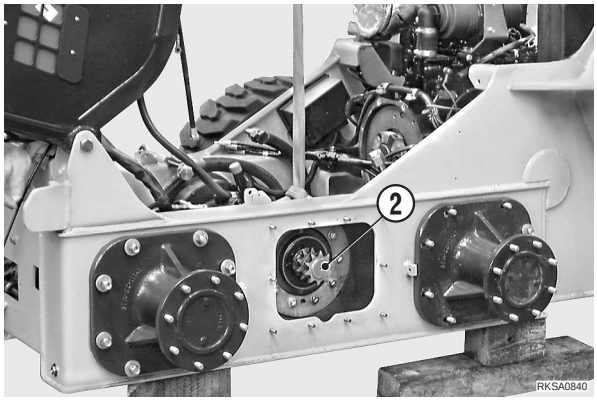
2 - Remove the complete hydraulic pump.
(For details, see «REMOVAL OF HYDRAULIC PUMP»).



3 - Disconnect from the final drive (2) the supply pipes (3), the speed increment pipe (4) and the drainage pipe (5).
★ Plug the tubes to prevent entry of impurities.

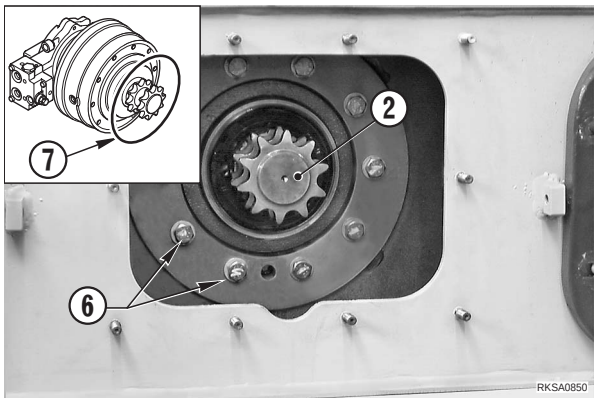


4 - Attach the final drive (2) to some hoisting tackle and apply a slight tension to the ropes.

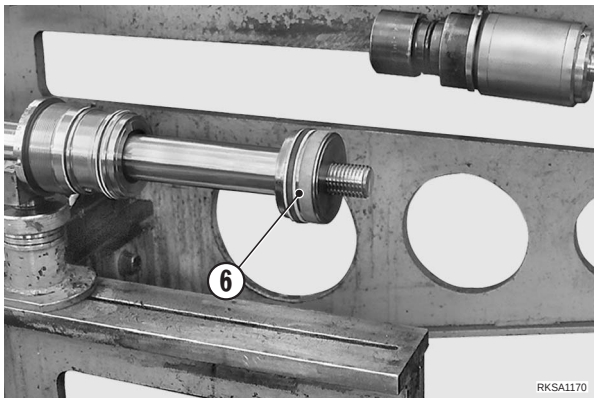


5 - Loosen the 10 screws (6) and take out the complete final drive (2).
★ Check the condition of the O-ring (7) and substitute a new one if necessary.

kg Final drive: 54 kg



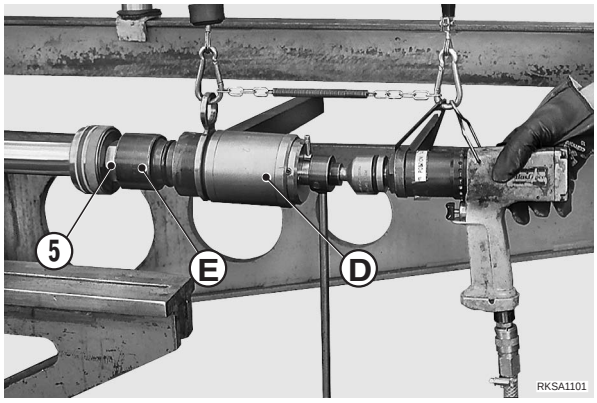
6 - Mount the complete piston (6).



7 - Mount the nut (5) that secures the piston and tighten it with the socket wrench **E** and the dynamometric tool with a multiplier **D**.

Nut: Loctite 262

Nut: Raising cylinder: 422±42 Nm
Bucket cylinder: 343±34 Nm

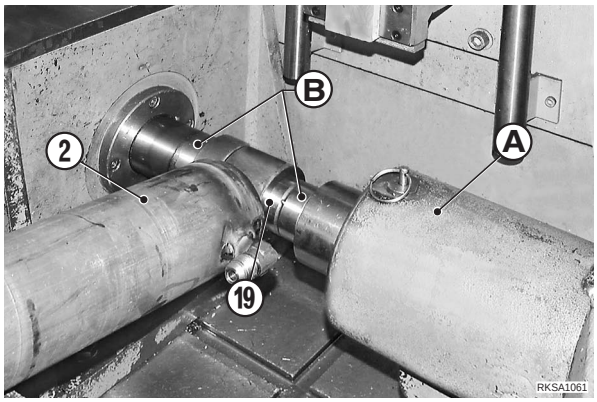


4. Cylinder assembly

1 - Mount the tools **A** onto the apparatus **B**.

2 - Position the bushing (20) and mount it onto the cylinder (2).

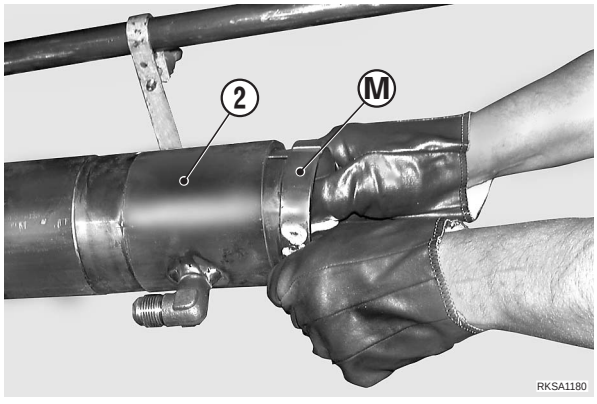
★ Leave the cylinder in position, ready for the next assembly operation.



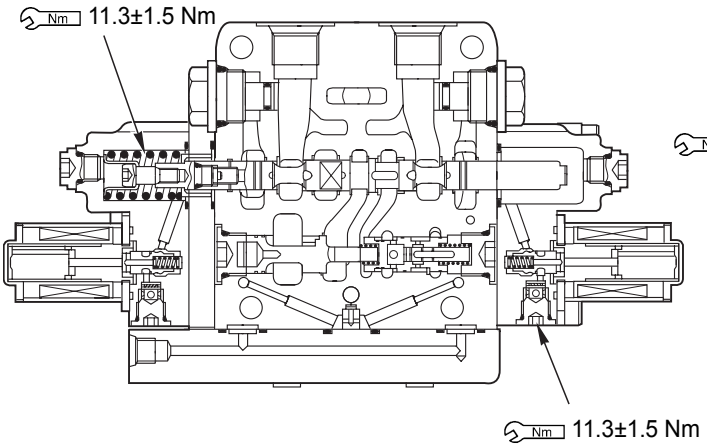
3 - Lubricate the threading and the first part of the cylinder (2).

Cylinder: Litio EP NLGI 2

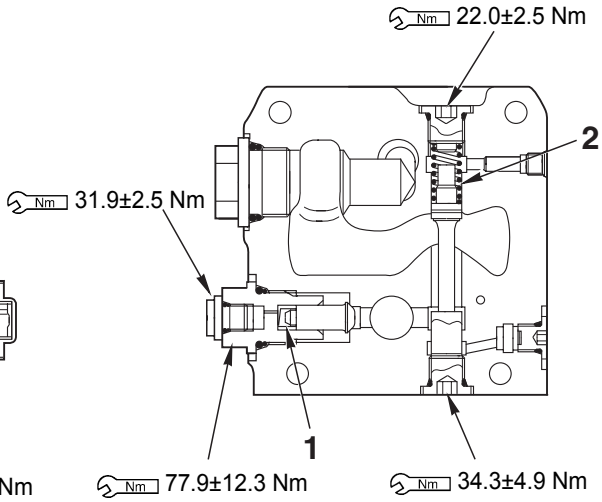
4 - Mount the two halves of the tool **M**, adapted to the diameter, onto the mouthpiece of the cylinder (2).



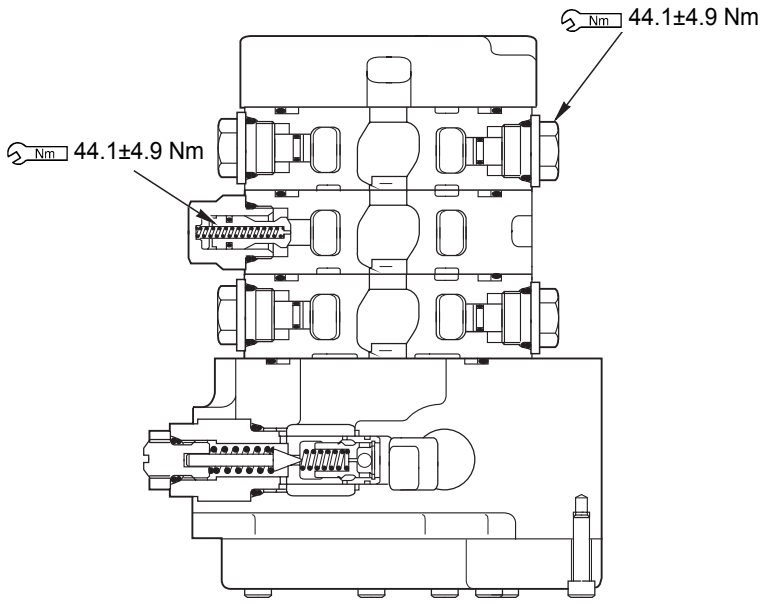
40 STANDARD MAINTENANCE



Section H - H



Section J - J



Section K - K

RKS00761

Unit: mm

N°	Check item	Criteria					Remedy
		Detail			Permitted value		
		Free heigh (outside Ø)	Installed length	Installed load	Free heigh	Installed load	
1	Spring of check valve	13x6.5	9.5	2.0 N	–	1.6 N	Change springs. If there are damage or deformation
2	Spool return spring (High-Flow joining circuit)	25.7x11.1	22	66.7 N	–	53.4 N	