CRAWLER EXCAVATOR

SERVICE MANUAL

R480, R520LC-9

HYUNDAI

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CONTENTS

SECTION 1 GENERAL

Group 1 Safety Hints 1-1
Group 2 Specifications 1-10

SECTION 2 STRUCTURE AND FUNCTION

Group 1 Pump Device 2-1
Group 2 Main Control Valve 2-22
Group 3 Swing Device 2-47
Group 4 Travel Device 2-58
Group 5 RCV Lever 2-65
Group 6 RCV Pedal 2-72

SECTION 3 HYDRAULIC SYSTEM

Group 1 Hydraulic Circuit 3-1
Group 2 Main Circuit 3-2
Group 3 Pilot Circuit 3-5
Group 4 Single Operation 3-12
Group 5 Combined Operation 3-22

SECTION 4 ELECTRICAL SYSTEM

Group 1 Component Location 4-1
Group 2 Electric Circuit 4-3
Group 3 Electrical Component Specification 4-21
Group 4 Connectors 4-29

SECTION 5 MECHATRONICS SYSTEM

Group 1 Outline 5-1
Group 2 Mode Selection System 5-3
Group 3 Automatic Deceleration System 5-6
Group 4 Power Boost System 5-7
Group 5 Travel Speed Control System 5-8
Group 6 Automatic Warming Up System 5-9
Group 7 Engine Overheat Prevention System 5-10
Group 8 Variable power control system 5-11

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Group 9 Attachment flow control system 5-12
Group 10 Anti-restart system 5-13
Group 11 Self-Diagnostic System 5-14
Group 12 Engine Control System 5-25
Group 13 EPPR (Electro Proportional Pressure Reducing) Valve 5-26
Group 14 Monitoring System 5-31
Group 15 Fuel warmer system 5-54

SECTION 6 TROUBLESHOOTING

Group 1 Before Troubleshooting 6-1
Group 2 Hydraulic and Mechanical System 6-4
Group 3 Electrical System 6-24
Group 4 Mechatronics System 6-40

SECTION 7 MAINTENANCE STANDARD

Group 1 Operational Performance Test 7-1
Group 2 Major Components 7-21
Group 3 Track and Work Equipment 7-30

SECTION 8 DISASSEMBLY AND ASSEMBLY

Group 1 Precaution 8-1
Group 2 Tightening Torque 8-4
Group 3 Pump Device 8-7
Group 4 Main Control Valve 8-31
Group 5 Swing Device 8-44
Group 6 Travel Device 8-69
Group 7 RCV Lever 8-107
Group 8 Turning Joint 8-121
Group 9 Boom, Arm and Bucket Cylinder 8-126
Group 10 Undercarriage 8-144
Group 11 Work Equipment 8-156

SECTION 9 COMPONENT MOUNTING TORQUE

Group 1 Introduction guide 9-1
Group 2 Engine system 9-2
Group 3 Electric system 9-4

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Group 4 Hydraulic system 9-6
Group 5 Undercarriage 9-9
Group 6 Structure 9-10
Group 7 Work equipment 9-14

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5. LIFTING CAPACITIES

1) ROBEX 480LC-9

(1) 6.55 m (21' 6") boom, 2.40 m (7' 10") arm equipped with 2.15 m³ (SAE heaped) bucket and 600 mm (24") triple grouser shoe and 9200 kg (20280 lb) counterweight.

· : Rating over-front · : Rating over-side or 360 degree

Load point height		Load radius								At max. reach		
		3.0 m (10.0 ft)		4.5 m (15.0 ft)		6.0 m (20.0 ft)		7.5 m (25.0 ft)		Capacity		Reach
												m (ft)
6.0 m (20.0 ft)	kg					*12480	*12480	*11020	9310	*9470	6570	9.15
	lb					*27510	*27510	*24290	20530	*20880	14480	(30.0)
4.5 m (15.0 ft)	kg			*18440	*18440	*13960	13040	*11650	9010	*9440	5790	9.65
	lb			*40650	*40650	*30780	28750	*25680	19860	*20810	12760	(31.7)
3.0 m (10.0 ft)	kg					*15580	12220	*12420	8610	*9470	5410	9.86
	lb					*34350	26940	*27380	18980	*20880	11930	(32.3)
1.5 m (5.0 ft)	kg					*16700	11550	*13000	8240	*9510	5340	9.80
	lb					*36820	25460	*28660	18170	*20970	11770	(32.2)
Ground Line	kg			*22790	17330	*16900	11170	*13090	8000	*9480	5590	9.47
	lb			*50240	38210	*37260	24630	*28860	17640	*20900	12320	(31.1)
-1.5 m (-5.0 ft)	kg	*25320	*25320	*20990	17370	*16060	11060	*12360	7920	*9240	6280	8.83
	lb	*55820	*55820	*46270	38290	*35410	24380	*27250	17460	*20370	13850	(29.0)
-3.0 m (-10.0 ft)	kg	*21780	*21780	*17910	17670	*13920	11190			*8390	7800	7.79
	lb	*48020	*48020	*39480	38960	*30690	24670			*18500	17200	(25.6)
-4.5 m (-15.0 ft)	kg			*12770	*12770							
	lb			*28150	*28150							

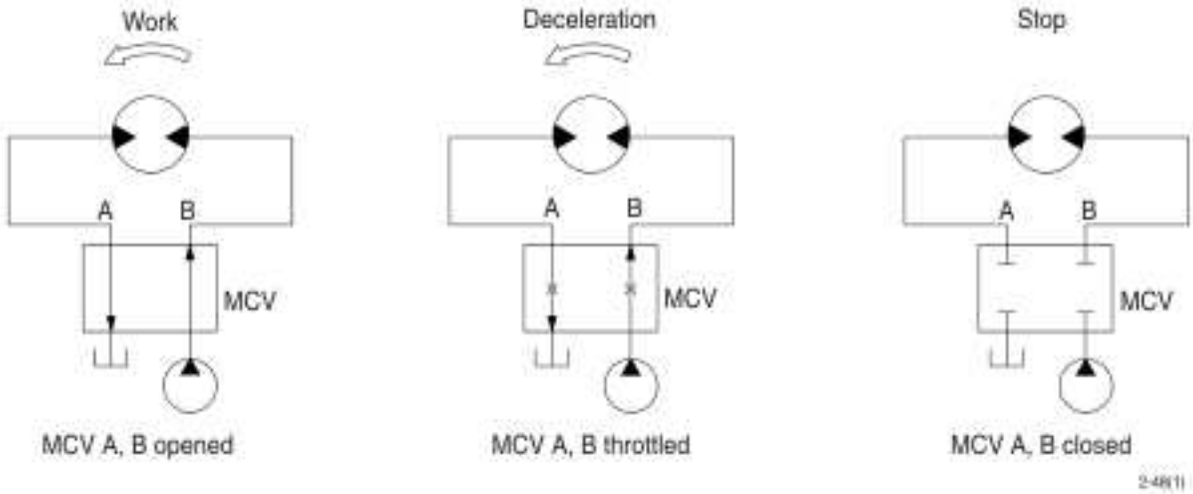
Note
1. Lifting capacity are based on SAE J1097 and ISO 10567.
2. Lifting capacity of the ROBEX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.
3. The load point is a hook located on the back of the bucket.
4. *indicates load limited by hydraulic capacity.

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4) BRAKE SYSTEM

(1) Control valve swing brake system

This is the brake system to stop the swing motion of the excavator during operation.
In this system, the hydraulic circuit is throttled by the swing control valve, and the resistance created by this throttling works as a brake force to slow down the swing motion.



MCV A, B opened | MCV A, B throttled | MCV A, B closed

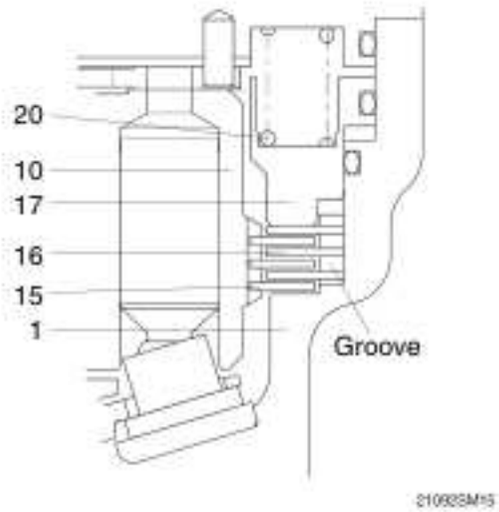
2-48(1)

(2) Mechanical swing parking brake system

This is function as a parking brake only when all of the RCV lever (except travel pedal) are not operated.

① **Brake assembly**

Circumferential rotation of separate plate (16) is constrained by the groove located at housing (1). When housing is pressed down by brake spring (20) through friction plate (15), separate plate (16) and brake piston (17), friction force occurs there.
Cylinder block (10) is constrained by this friction force and brake acts, while brake releases when hydraulic force exceeds spring force.



1	Housing	16	Separate plate
10	Cylinder block	17	Brake piston
15	Friction plate	20	Spring

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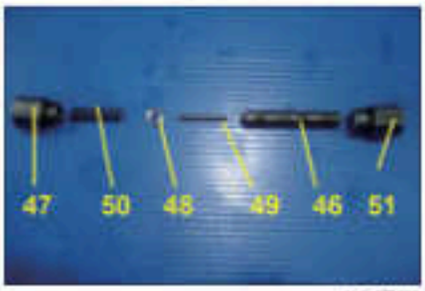
3. MACHINE ERROR CODES TABLE

Error code		Description
HCESPN	FMI	
101	3	Hydraulic oil temperature sensor circuit - Voltage above normal, or shorted to high source.
	4	Hydraulic oil temperature circuit - Voltage below normal, or shorted to low source.
105	0	Working pressure sensor data above normal range.
	1	Working pressure sensor data below normal range.
	2	Working pressure sensor data error.
	4	Working pressure sensor circuit - Voltage below normal, or shorted to Low source.
108	0	Travel oil pressure sensor data above normal range.
	1	Travel oil pressure sensor data below normal range.
	2	Travel oil pressure sensor data error.
	4	Travel oil pressure sensor circuit - Voltage below normal, or shorted to low source.
120	0	Main pump 1 (P1) pressure sensor data above normal range.
	1	Main pump 1 (P1) pressure sensor data below normal range.
	2	Main pump 1 (P1) pressure sensor data error.
	4	Main pump 1 (P1) pressure sensor circuit - Voltage below normal, or shorted to low source.
121	0	Main pump 2 (P2) pressure sensor data above normal range.
	1	Main pump 2 (P2) pressure sensor data below normal range.
	2	Main pump 2 (P2) pressure sensor data error.
	4	Main pump 2 (P2) pressure sensor circuit - Voltage below normal, or shorted to low source.
122	0	Overhead pressure sensor data above normal range.
	1	Overhead pressure sensor data below normal range.
	2	Overhead pressure sensor data error.
	4	Overhead pressure sensor circuit - Voltage below normal, or shorted to low source.
123	0	Negative 1 pressure sensor data above normal range.
	1	Negative 1 pressure sensor data below normal range.
	2	Negative 1 pressure sensor data error.
	4	Negative 1 pressure sensor circuit - Voltage below normal, or shorted to low source.
124	0	Negative 2 Pressure sensor data above normal range.
	1	Negative 2 Pressure sensor data below normal range.
	2	Negative 2 Pressure sensor data error.
	4	Negative 2 Pressure sensor circuit - Voltage below normal, or shorted to low source.
125	0	Pilot pump (P3) pressure sensor data above normal range.
	1	Pilot pump (P3) pressure sensor data below normal range.
	2	Pilot pump (P3) pressure sensor data error.
	4	Pilot pump (P3) pressure sensor circuit - Voltage below normal, or shorted to low source.
127	0	Boom up pilot pressure sensor data above normal range.
	1	Boom up pilot pressure sensor data below normal range.
	2	Boom up pilot pressure sensor data error.
	4	Boom up pilot pressure sensor circuit - Voltage below normal, or shorted to low source.
133	0	Arm in/out & bucket in pilot pressure sensor data above normal range.
	1	Arm in/out & bucket in pilot pressure sensor data below normal range.
	2	Arm in/out & bucket in pilot pressure sensor data error.
	4	Arm in/out & bucket in pilot pressure sensor circuit - Voltage below normal, or shorted to low source.

※ Some error codes are not applied to this machine.

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(5) Insert spool (46), parallel pin (49), spring seat (48), spring (50) in regular sequence and then assemble plug (47), connector (51) using torque wrench.
· Tightening torque : 5.5±0.5 kgf · m (40±3.6 lbf · ft)



480L2TM55


480L2TM56


480L2TM57

(6) Press needle bearing (10) into rear cover (32) using jig.


480L2TM58

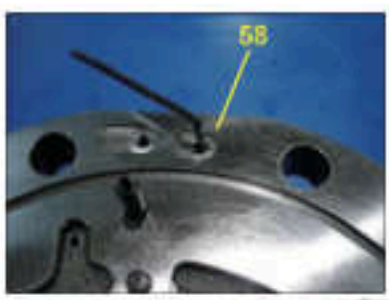
(7) Assemble spring pin (30), parallel pin (27) using small hammer.


480L2TM59

(8) Apply loctitle #242 on the restrictor (57, 58) and then assemble restrictor (57, 58), O-ring (43, 44) into rear cover (32).



480L2TM60



480L2TM61

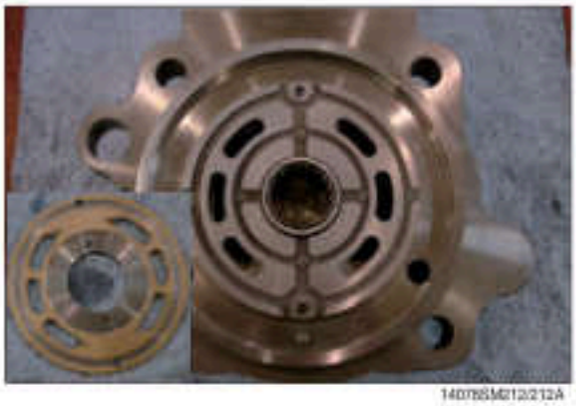


480L2TM62

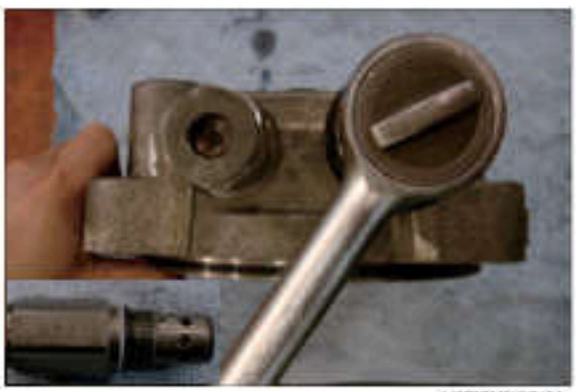
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(3) Disassemble rear cover assy sub

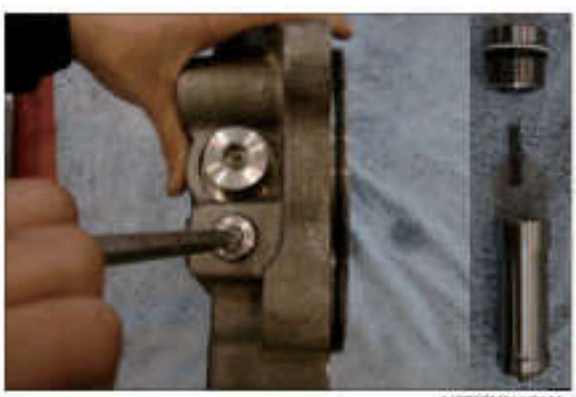
① Disassemble pin (8, 23), valve plate (24) from rear cover (21).



② Using a torque wrench, disassemble relief valve assy (31) 2 set from rear cover (21).



③ After disassembling plug with a L-wrench from rear cover (21), disassemble respectively back up ring, O-ring, O-ring, spring, anti-inversion valve assy (32)

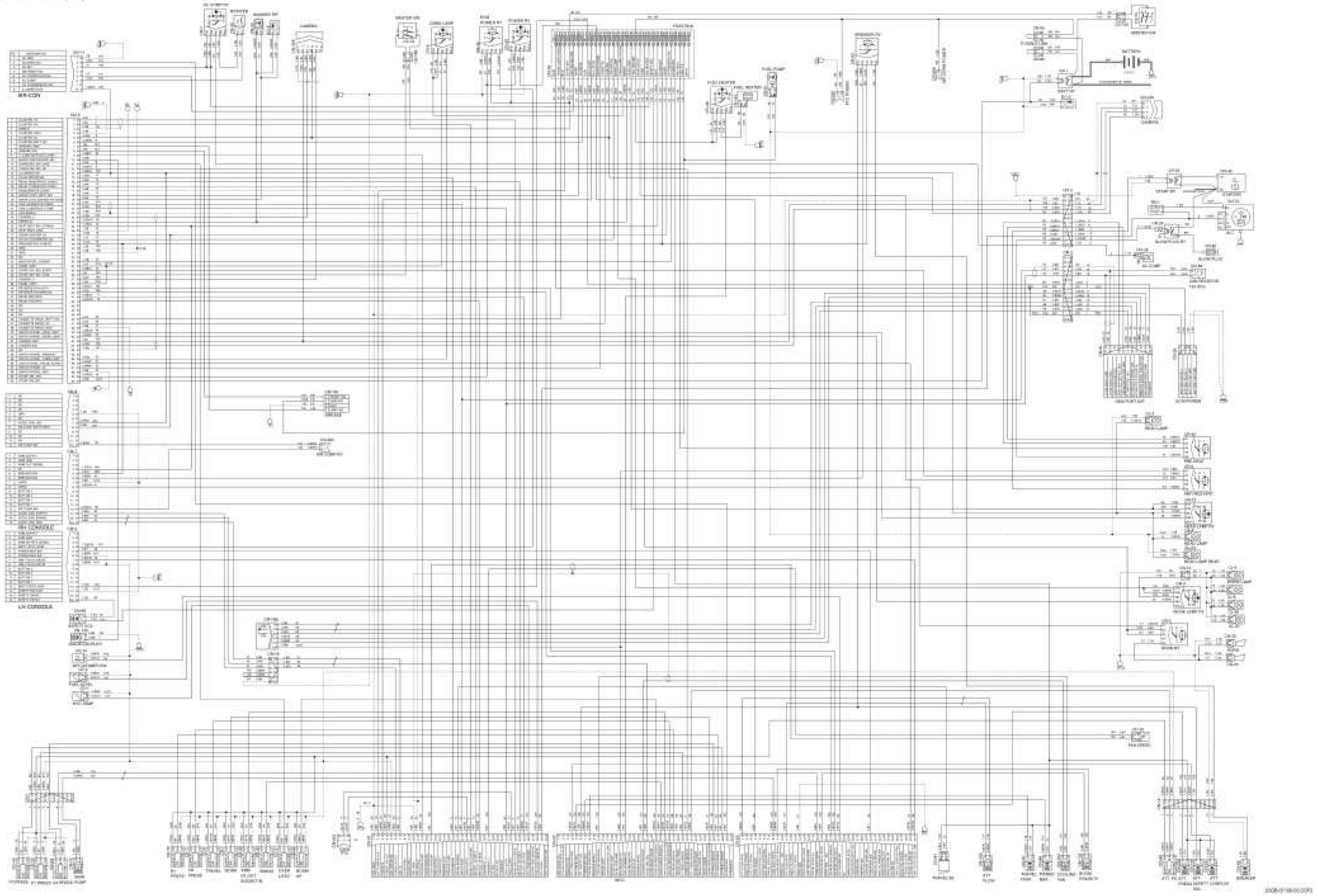


④ Disassemble make up check valve assy with a torque wrench from rear cover (21).



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ELECTRICAL CIRCUIT (1/2)



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