WHEELED EXCAVATOR

SERVICE MANUAL

HW160A, HW180A

HYUNDAI

MidWestTech | Hyundai HW160A, HW180A Wheel Excavator Service Manual | Publication...

Order the manual at mid-west-tech.com >

CONTENTS

SECTION 1 GENERAL

Group 1 Safety Hints 1-1
Group 2 Specifications 1-9

SECTION 2 STRUCTURE AND FUNCTION

Group 1 Pump Device 2-1
Group 2 Main Control Valve 2-17
Group 3 Swing Device 2-51
Group 4 Travel Motor 2-60
Group 5 RCV Lever 2-70
Group 6 Accelerator Pedal 2-77
Group 7 Brake Device 2-78
Group 8 Transmission 2-80
Group 9 Travel Control Valve 2-87
Group 10 Steering Valve 2-89
Group 11 Front Axle and Rear Axle 2-94

SECTION 3 HYDRAULIC SYSTEM

Group 1 Hydraulic Circuit 3-1
Group 2 Main Circuit 3-5
Group 3 Pilot Circuit 3-8
Group 4 Single Operation 3-16
Group 5 Combined Operation 3-31

SECTION 4 ELECTRICAL SYSTEM

Group 1 Component Location 4-1
Group 2 Electrical Circuit 4-3
Group 3 Electrical Component Specification 4-25
Group 4 Connectors 4-38

SECTION 5 MECHATRONICS SYSTEM

Group 1 Outline 5-1
Group 2 Mode selection System 5-3

MidWestTech | Hyundai HW160A, HW180A Wheel Excavator Service Manual | Public... Order the manual at mid-west-tech.com >

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 Function 5-9
Group 7 Engine Overheat Prevention Function 5-10
Group 8 Variable Power Control System 5-11
Group 9 Attachment Flow Control System 5-12
Group 10 Boom Floating Control System 5-13
Group 11 Intelligent Power Control System 5-14
Group 12 Anti-Restart System 5-16
Group 13 Self-Diagnostic System 5-17
Group 14 Engine Control System 5-63
Group 15 EPPR Valve 5-64
Group 16 Monitoring System 5-67
Group 17 Fuel Warmer System 5-113
Group 18 1 or 2-Way Optional Piping Pressure Removal System 5-114

SECTION 6 TROUBLESHOOTING

Group 1 Before Troubleshooting 6-1
Group 2 Hydraulic and Mechanical System 6-4
Group 3 Electrical System 6-25
Group 4 Mechatronics System 6-41
Group 5 Air conditioner and Heater System 6-72

SECTION 7 MAINTENANCE STANDARD

Group 1 Operational Performance Test 7-1
Group 2 Major Components 7-19
Group 3 Track and Work Equipment 7-25

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 8-43
Group 5 Swing Device 8-49
Group 6 Travel Motor 8-53
Group 7 Transmission 8-80

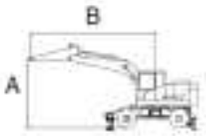
MidWestTech | Hyundai HW160A, HW180A Wheel Excavator Service Manual | Public... Order the manual at mid-west-tech.com >

Group 8 Steering Valve 8-177
Group 9 Front Axle 8-202
Group 10 Rear Axle 8-273
Group 11 RCV Lever 8-315
Group 12 Turning Joint 8-329
Group 13 Boom, Arm, Bucket, Dozer and Outrigger Cylinders 8-335
Group 14 Work Equipment 8-359

MidWestTech | Hyundai HW160A, HW180A Wheel Excavator Service Manual | Public... Order the manual at mid-west-tech.com >

Model	Type	Boom	Arm	Counterweight	Shoe	Wheel	Dozer		Outrigger	
		Length [mm]	Length [mm]	weight [kg]	width [mm]	width [mm]	Front	Rear	Front	Rear
HW160A HW180A	MONO BOOM	5097	2000	3410	-	500	-	Up	-	-

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



Lift-point height (A)		Lift-point radius (B)						At max. reach		
		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		Capacity		Reach
										m (ft)
6.0 m	kg			*4560	4520			*4580	3170	5.60
(19.7 ft)	lb			*10050	9960			*10100	6990	(18.4)
4.5 m	kg			*5180	4350	*4560	2810	4180	2490	6.47
(14.8 ft)	lb			*11420	9590	*10050	6190	9220	5490	(21.2)
3.0 m	kg			*6290	4070	4600	2710	3720	2190	6.90
(9.8 ft)	lb			*13870	8970	10140	5970	8200	4830	(22.6)
1.5 m	kg			6860	3820	4480	2600	3600	2100	6.99
(4.9 ft)	lb			15120	8420	9880	5730	7940	4630	(22.9)
0.0 m	kg			6720	3710	4410	2530	3750	2180	6.73
(0.0 ft)	lb			14820	8180	9720	5580	8270	4810	(22.1)
-1.5 m	kg	*9960	6720	6720	3700	4420	2540	4320	2490	6.10
(-4.9 ft)	lb	*21960	14820	14820	8160	9740	5600	9520	5490	(20.0)
-3.0 m	kg	*7850	6900	*5540	3820			*4790	3390	4.94
(-9.8 ft)	lb	*17310	15210	*12210	8420			*10560	7470	(16.2)

Note 1. Lifting capacity are based on ISO 10567.
2. Lifting capacity of the HX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.
3. The Lift-point is bucket pivot mounting pin on the arm (without bucket mass).
4. *Indicates load limited by hydraulic capacity.

※ Lifting capacities are based upon a standard machine conditions.
Lifting capacities will vary with different work tools, ground conditions and attachments.
The difference between the weight of a work tool attachment must be subtracted.
Consult with your local HD Hyundai Construction Equipment dealer regarding the lifting capacities for specific work tools and attachments.

⚠ Failure to comply to the rated load can cause surious injury, death, or property damage. Make adjustments to the rated load as necessory for non-standard configurations.

MidWestTech | Hyundai HW160A, HW180A Wheel Excavator Service Manual | Public... Order the manual at mid-west-tech.com >

6. WIPER AND WASHER CIRCUIT

1) OPERATING FLOW

(1) Key switch ON

Fuse box (No.11) → I/conn [J-1 (4)] → Column left switch [CS1 (13)]
Fuse box (No.24) → I/conn [J-1 (12)] → Column left switch [CS1 (26)]
Fuse box (No.40) → Wiper motor [CN-21 (1)]
→ Washer pump relay [CR-49 (1, 3)]
→ Int wiper relay [CR-6 (3)]
→ Wiper relay [CR-4 (86, 87)]

(2) Wiper switch ON : 1st step

Wiper switch ON [Column left switch CS1 (23)] → I/conn [J-1 (6)] → Int wiper relay [CR-6 (1) → (2)] → Wiper relay [CR-4 (85) → (87a)] → Wiper motor intermittently operating [CN-21 (3)]

(3) Wiper switch ON : 2nd step

Wiper switch ON [Column left switch CS1 (22)] → I/conn [J-1 (1)] → Int wiper relay [CR-6 (4) → (3)] → Wiper relay [CR-4 (87) → (30)] → Wiper motor operating [CN-21 (2)]

(4) Washer switch ON

Washer switch ON [Column left switch CS1 (15)] → I/conn [J-1 (5)]
→ Washer pump relay [CR-49 (2) → (5)] → Washer pump [CN-22 (2)] → Washer operating

(5) Auto parking (when switch OFF)

Switch OFF [Column left switch OFF position] → Wiper motor parking position by control unit.

2) CHECK POINT

Engine	Start switch	Check point	Voltage
STOP	ON	① - GND (fuse box) ② - GND (switch power input)	20–25 V
		③ - GND (switch power output) ④ - GND (Inter wiper relay input)	0–5 V
		⑤ - GND (wiper motor)	0 or 24 V

※ GND : Ground

※ The circuit diagram may differ from the equipment, so please check before a repair.

MidWestTech | Hyundai HW160A, HW180A Wheel Excavator Service Manual | Public... Order the manual at mid-west-tech.com >

3. MACHINE ERROR CODES TABLE

DTC		Diagnostic Criteria	Application		
HCESPN	FMI		G	C	W
101	3	10 seconds continuous, Hydraulic Oil Temp. Measurement Voltage > 3.8V	●		
	4	10 seconds continuous, Hydraulic Oil Temp. Measurement Voltage < 0.3V	●		
	(Results / Symptoms) 1. Monitor – Hydraulic oil temperature display failure 2. Control Function – Fan revolutions control failure (Checking list) 1. CD-1 (#2), CN-51 (#16) Checking Open/Short 2. CD-1 (#1), CN-51 (#25) Checking Open/Short				
105	0	10 seconds continuous, Load Sensing Press. Sensor Measurement Voltage > 5.2V	●		
	1	10 seconds continuous, 0.3V≤ Load Sensing Press. Sensor Measurement Voltage < 0.8V	●		
	4	10 seconds continuous, Load Sensing Press. Sensor Measurement Voltage < 0.3V	●		
	(Results / Symptoms) 1. Monitor – Load Sensing Press. display failure 2. Control Function – Auto Idle operation failure, Engine variable horse power control operation failure (Checking list) 1. CD-101 (#B) – CN-52 (#19) Checking Open/Short 2. CD-101 (#A) – CN-51 (#32) Checking Open/Short 3. CD-101 (#C) – CN-51 (#31) Checking Open/Short				
108 (N.A)	0	10 seconds continuous, Travel Oil Press. Sensor Measurement Voltage > 5.2V		●	
	1	10 seconds continuous, 0.3V ≤ Travel Oil Press. Sensor Measurement Voltage < 0.8V	●		
	4	10 seconds continuous, Travel Oil Press. Sensor Measurement Voltage < 0.3V	●		
	(Results / Symptoms) 1. Monitor – Travel Oil Press. display failure 2. Control Function – Auto Idle operation failure, Engine variable horse power control operation failure, IPC operation failure, Driving alarm operation failure (Checking list) 1. CD-06 (#B) – CN-52 (#27) Checking Open/Short 2. CD-06 (#A) – CN-51 (#32) Checking Open/Short 3. CD-06 (#C) – CN-51 (#31) Checking Open/Short				

※ Some error codes are not applied to this machine.

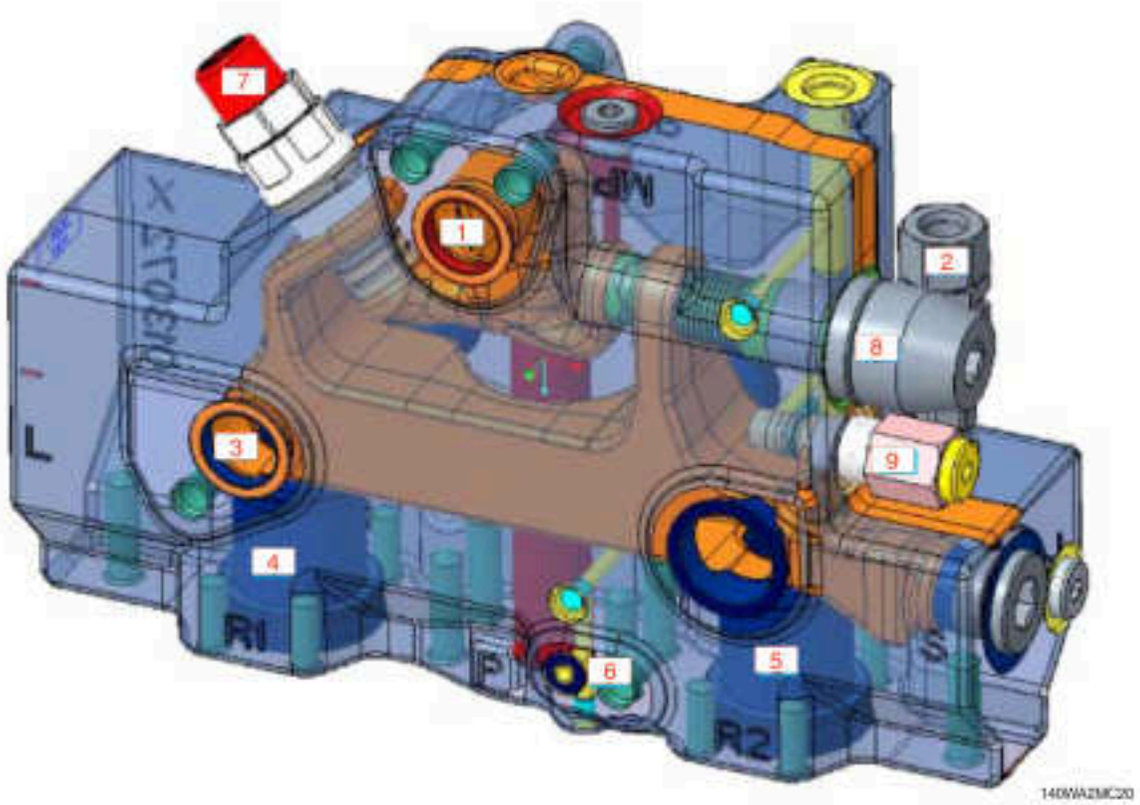
G : General C : Crawler Type W : Wheel Type

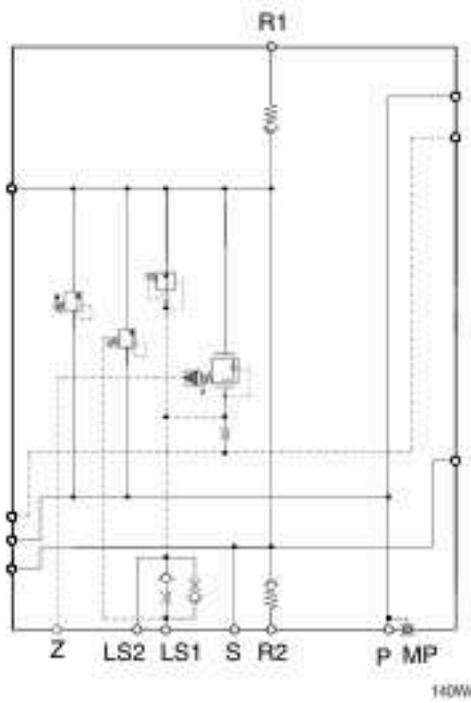
MidWestTech | Hyundai HW160A, HW180A Wheel Excavator Service Manual | Public... Order the manual at mid-west-tech.com >

4. FUNCTION

1) INLET SECTION

(1) Structure

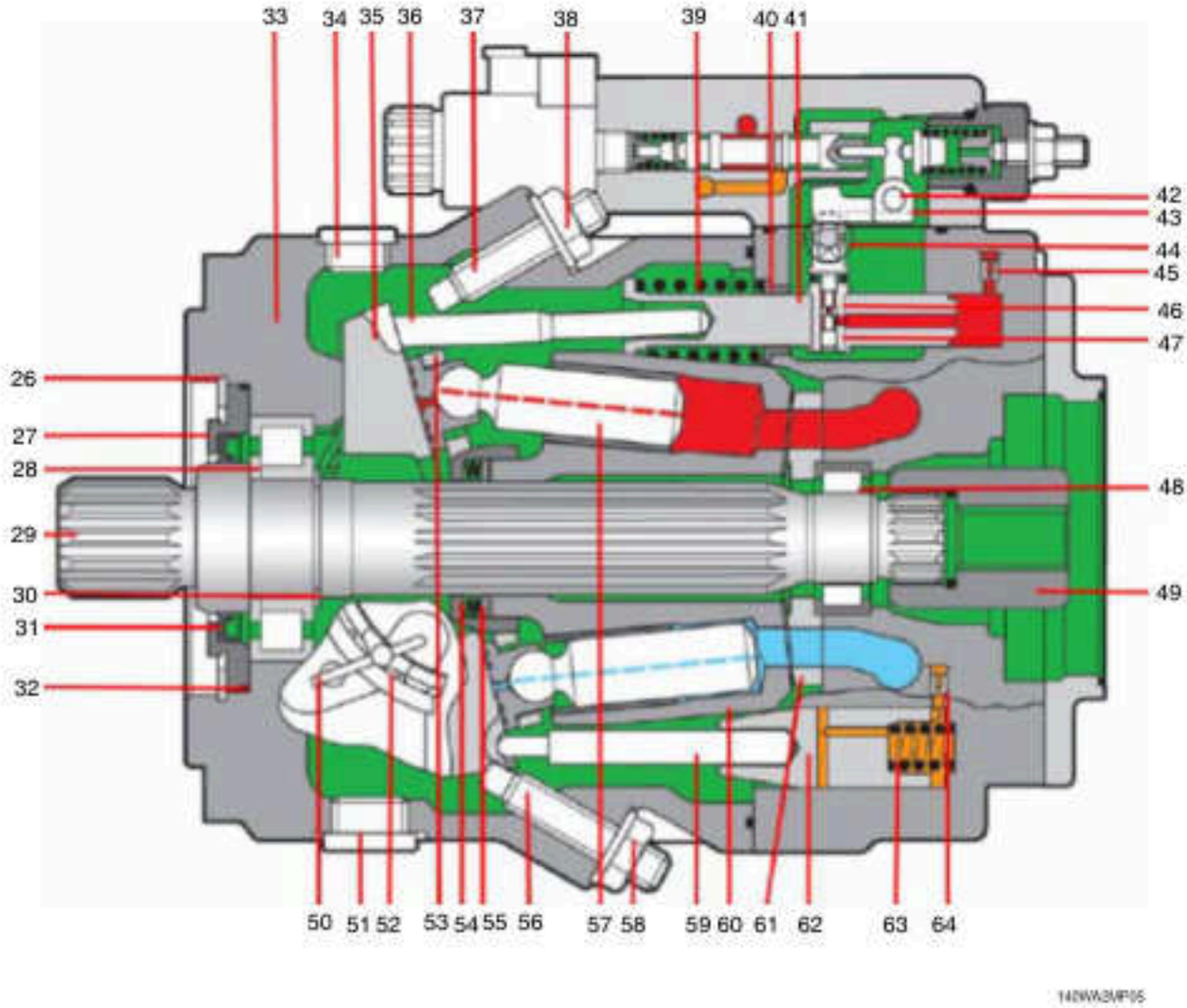




1 Pump channel (P)
2 2 stage LS pressure relief valve
3 Tank channel
4 Tank port (R1, cooler)
5 Tank port (R2)
6 LS channel
7 Primary relief valve
8 Unloading valve
9 LS drain valve

MidWestTech | Hyundai HW160A, HW180A Wheel Excavator Service Manual | Public... Order the manual at mid-west-tech.com >

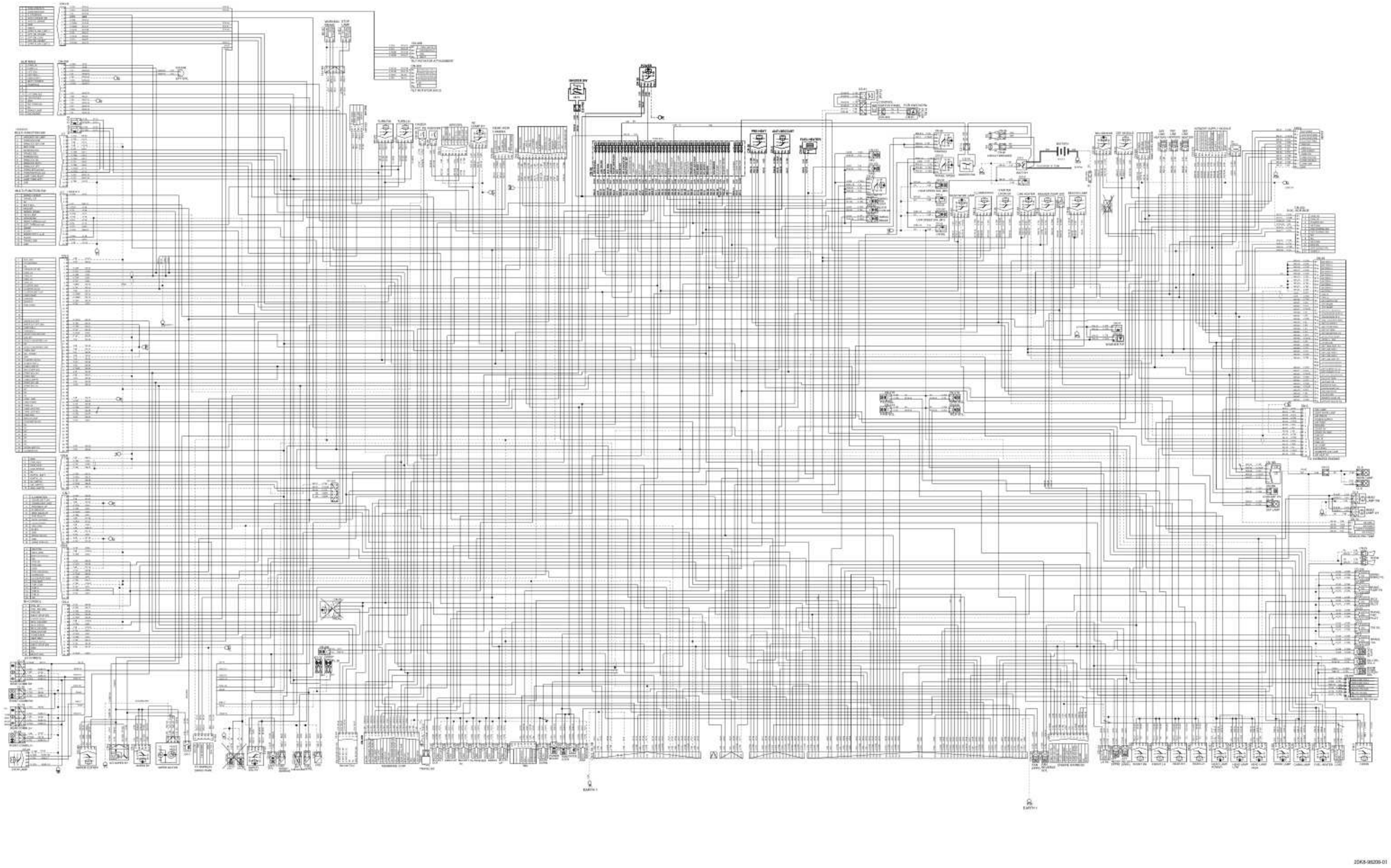
STRUCTURE (2/2)



26	Snap ring	39	Spring	52	Cage pair
27	Locking ring	40	Bushing	53	Retaining plate
28	Cylinderical roller bearing	41	Adjusting bushing small	54	Retaining ball
29	Drive shaft	42	Bolt	55	Cup spring stack
30	Snap ring	43	Angle lever	56	Adjusting screw
31	Shaft seal ring	44	Measuring roll	57	Piston pad
32	O-ring	45	Orifice	58	Sealing nut
33	Housing	46	Measuring bushing	59	Adjusting rod big
34	Screw plug	47	Measuring piston	60	Cylinder
35	Cradle	48	Cylinderical roller bearing	61	Control plate
36	Adjusting rod small	49	Coupling hub	62	Adjusting bushing big
37	Adjusting screw	50	Wire	63	Spring
38	Sealing nut	51	Screw plug	64	Orifice

MidWestTech | Hyundai HW160A, HW180A Wheel Excavator Service Manual | Public... Order the manual at mid-west-tech.com >

· ELECTRICAL CIRCUIT (1/3)



MidWestTech | Hyundai HW160A, HW180A Wheel Excavator Service Manual | Publication HW160A, HW180A

Order the manual at mid-west-tech.com >