CX31B
Tier 4B (final)
Compact Hydraulic Excavator

PIN NETN31001 and above

SERVICE MANUAL

Part number S5PW0039E01
1st edition English
October 2014

CASE CONSTRUCTION

MidWestTech | Case CX31B Tier 4B Compact Hydraulic Excavator Service Manual | Publication S5PW0039E01

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

2. SPECIFICATIONS

TABLE OF CONTENTS

2.1 COMPONENTS NAME 2-3
2.2 MACHINE DIMENSIONS 2-4
2.3 SPECIFICATIONS AND PERFORMANCE 2-5
2.4 MACHINE & COMPONENTS WEIGHT (DRY) 2-7
2.5 TRANSPORTATION 2-9
2.5.1 LOADING MACHINE ON A TRAILER 2-9
2.5.2 TRANSPORTATION DIMENSION AND WEIGHT OF ATTACHMENT 2-10
2.6 TYPE OF CRAWLER SHOES 2-11
2.7 TYPE OF BUCKET 2-12
2.8 ENGINE SPECIFICATIONS 2-13
2.8.1 SPECIFICATIONS 2-13
2.8.2 ENGINE PERFORMANCE CURVE 2-14

Book Code No. **S5PW0239E01**

MidWestTech | Case CX31B Tier 4B Compact Hydraulic Excavator Service Manual | Public... Order the manual at mid-west-tech.com >

3. ATTACHMENT DIMENSIONS

TABLE OF CONTENTS

3.1 BOOM 3-3
3.1.1 BOOM DIMENSIONAL DRAWINGS 3-3
3.1.2 BOOM MAINTENANCE STANDARDS 3-4
3.2 ARM 3-8
3.2.1 ARM DIMENSIONAL DRAWINGS 3-8
3.2.2 ARM MAINTENANCE STANDARDS 3-10
3.3 BUCKET 3-15
3.3.1 BUCKET DIMENSIONAL DRAWINGS 3-15
3.3.2 DETAIL DIMENSIONAL DRAWINGS OF LUG SECTION 3-16
3.3.3 DETAIL DIMENSIONAL DRAWINGS OF BOSS SECTION 3-16
3.4 DOZER 3-17
3.4.1 DOZER DIMENSIONAL DRAWINGS 3-17
3.4.2 DOZER MAINTENANCE STANDARDS 3-18
3.5 SWING 3-20
3.5.1 SWING BRACKET DIMENSIONAL DRAWINGS 3-20
3.5.2 SWING PORTION MAINTENANCE STANDARDS 3-21

Book Code No. **S5PW0339E01**

MidWestTech | Case CX31B Tier 4B Compact Hydraulic Excavator Service Manual | Public... Order the manual at mid-west-tech.com >

11. TOOLS

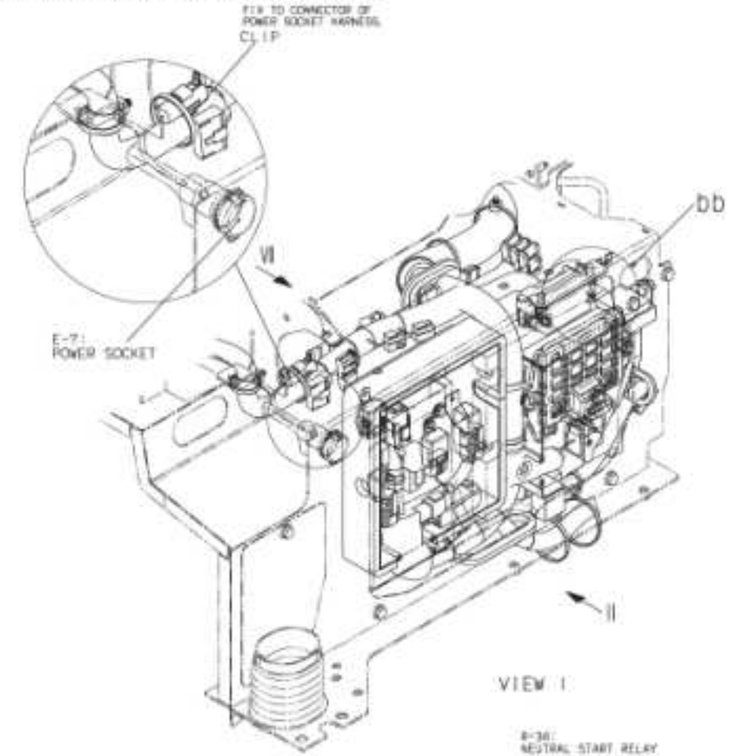
TABLE OF CONTENTS

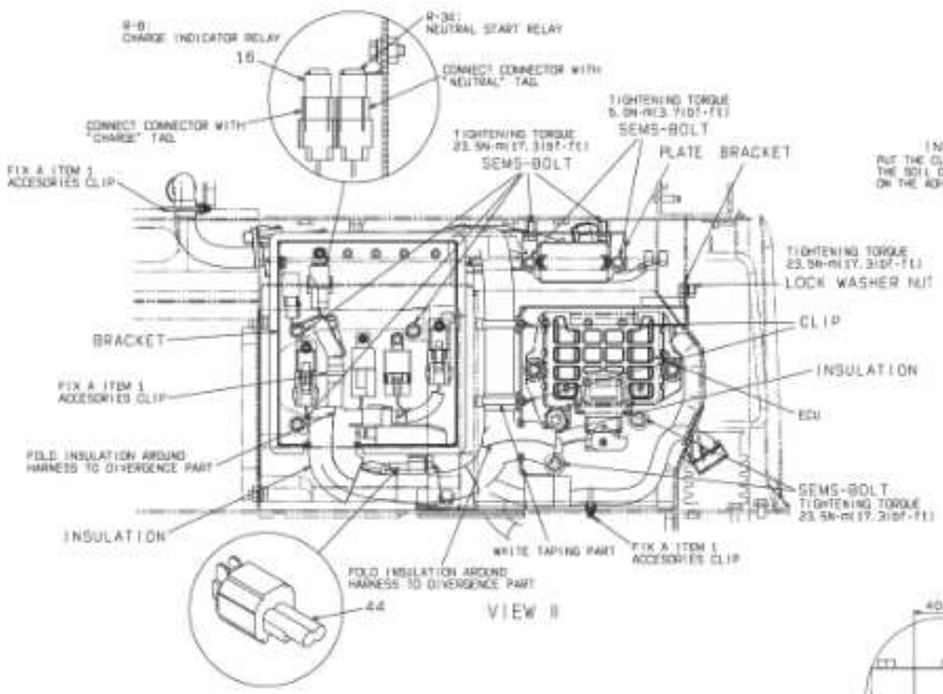
11.1 TORQUE SPECIFICATIONS FOR CAPSCREWS & NUTS ····· 11-3
11.1.1 Metric Coarse Thread Standard Tightening Torque Values. Make Certain to tighten all Capscrews & Nuts to proper torque values. ····· 11-3
11.1.2 Metric Fine Thread Standard Tightening Torque values. Make certain to tighten all Capscrews & Nuts to proper torque values. ····· 11-4
11.2 SCREW AND TOOL SIZES ····· 11-5
11.2.1 CAPSCREW ····· 11-5
11.2.2 CAPSCREW (SOCKET BOLT) ····· 11-5
11.3 TORQUE SPECIFICATIONS FOR JOINTS AND HOSES ····· 11-6
11.3.1 JOINTS FOR PIPING (O-RING SEALING TYPE) ····· 11-6
11.3.2 HYDRAULIC HOSE (30 DEG. FLARE TYPE) ····· 11-6
11.4 TORQUE SPECIFICATIONS FOR SLEEVE TYPE TUBE FITTINGS ····· 11-7
11.4.1 SLEEVE TYPE TUBE FITTINGS ····· 11-7
11.4.2 PART NO. ····· 11-7
11.5 PLUGS ····· 11-8
11.5.1 PLUG FOR HYDRAULIC PIPE JOINT ····· 11-8
11.5.2 PLUG FOR HYDRAULIC EQUIPMENT ····· 11-9
11.6 SPECIAL SPANNERS FOR TUBES ····· 11-10
11.7 SPECIAL TOOLS ····· 11-11
11.8 APPLICATION OF SCREW LOCKING AND SEALING COMPOUNDS ····· 11-12
11.9 COUNTER WEIGHT LIFTING JIG ····· 11-13
11.10 UPPER FRAME LIFTING JIG ····· 11-15

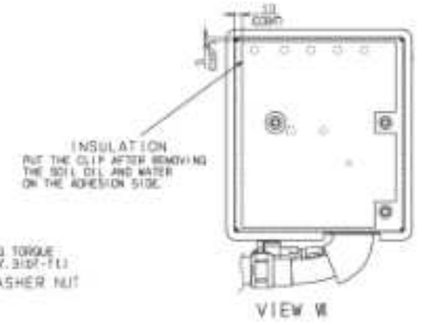
Book Code No. **S5PX1111E01**

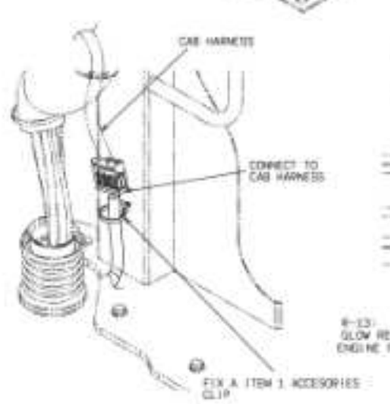
MidWestTech | Case CX31B Tier 4B Compact Hydraulic Excavator Service Manual | Public... Order the manual at mid-west-tech.com >

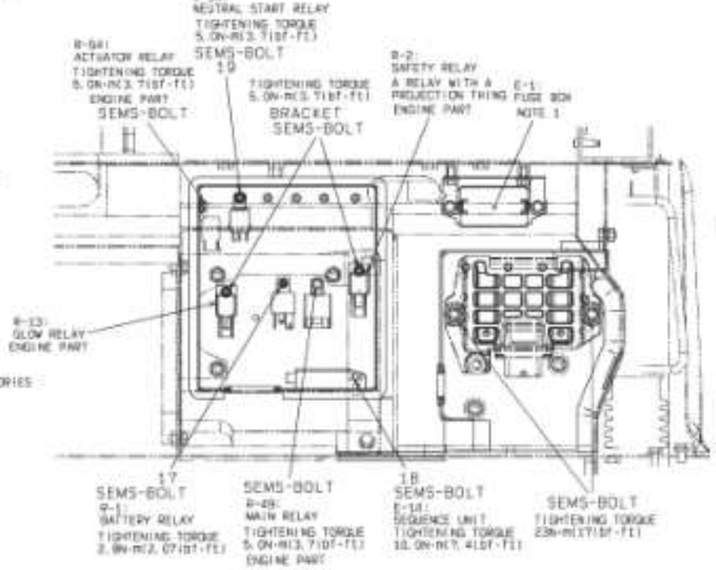
23.3.10 UPPER HARNESS ASSY (FLOOR) (2/4)

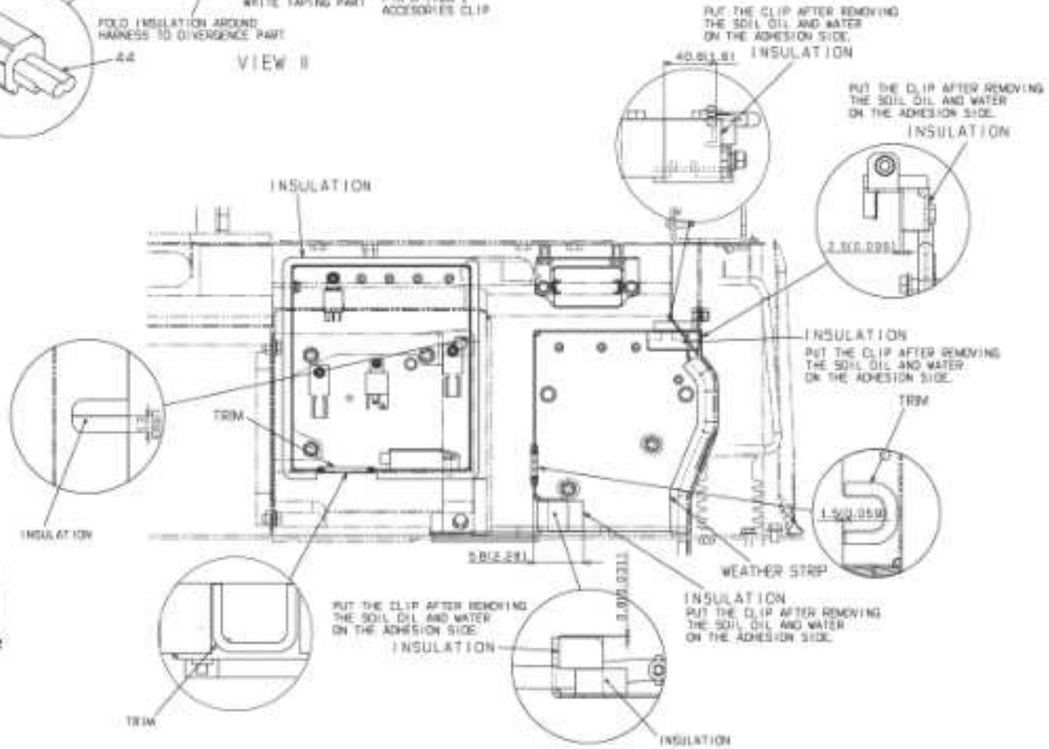










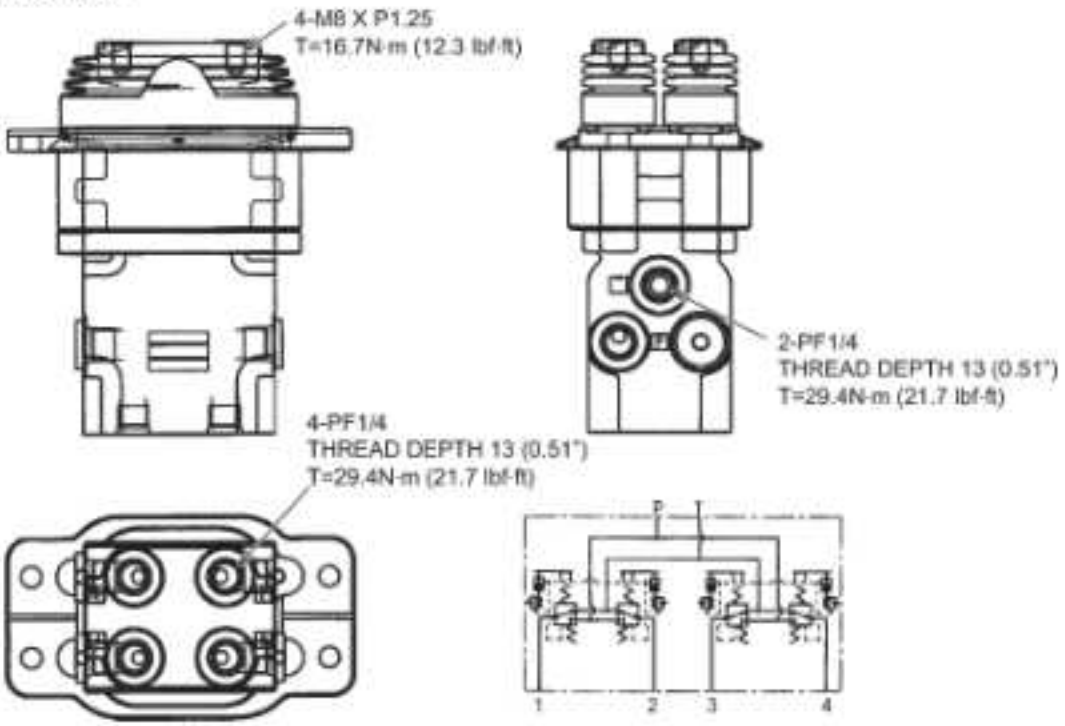


Order the manual at mid-west-tech.com >

24.1.3 PILOT VALVE (TRAVEL)

24.1.3.1 SUMMARY

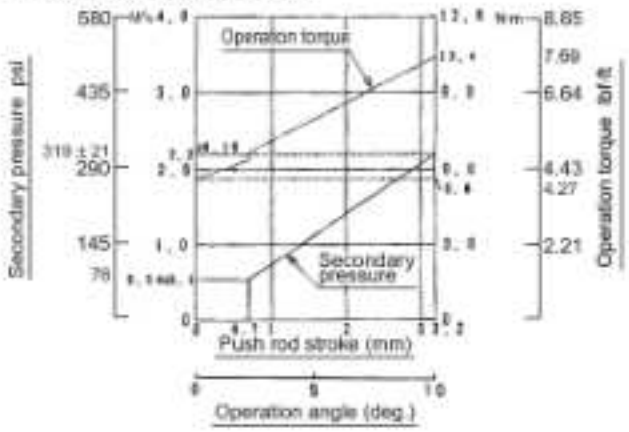
(1) General view



(2) Specifications

ITEM	SPECIFICATIONS
Model (Type)	PVD6P4062
Max. primary pressure	6.9MPa (1000 psi)
Rated flow	10 L/min (2.6 gal/min)
Weight	3.9 kg (8.6 lb)

(3) Performance Characteristics



• Required operating torque (damper)
18.9 ± 2.8N·m (13.9 ± 2.07 lbf·ft)
Push rod speed 0.0275m/s
(The actual required torque is found by adding the operating torque of the damper in the valve operating torque in the left operating lines.)

MidWestTech | Case CX31B Tier 4B Compact Hydraulic Excavator Service Manual | Public... Order the manual at mid-west-tech.com >

Error code	H033		
Description of failure	Arm angle potentiometer, disconnection failure		
Judged by	Input voltage from the arm angle potentiometer is less than 0.1 V.		
Symptom	The rating, load and radius of the high reach crane are displayed as abnormal values.		
Control at failure	Controlled normally.		
Return in normal condition	Returned automatically when in normal condition.		
Confirmation screen for service diagnosis	Screen No.	4	Arm
	Screen No.		
	Screen No.		

	To be inspected	Inspection and action
1	-Arm angle potentiometer SE-11	Measure the resistance between the terminals of the arm angle potentiometer. 4.0 - 6.0kΩ Turn potentiometer to measure the resistance between the signal and GND. 0 - total resistance (4.0 - 6.0) kΩ
2	-Wiring between arm angle potentiometer and controller CN-427F CN-500F	Inspect and repair according to wiring check procedure.
3	-Mechatro controller	Replace the controller and check if the failure goes away.

MidWestTech | Case CX31B Tier 4B Compact Hydraulic Excavator Service Manual | Public... Order the manual at mid-west-tech.com >

9. Take out the B2 gears (107) and the needles 2 (112) from the carrier 2 kit.

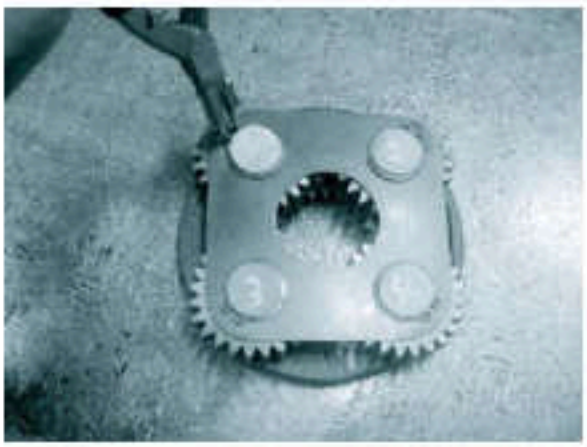


10. Take out the rings 2 (130) and thrust washers 2 (118) from the carrier 2 kit.



11. Take out the thrust plate 1 (115) from the carrier 1 kit.

    Tools: Snap ring plier: 22 dia. For shaft



12. Take out the b1 gears (116) and needles 1 (111) from the carrier 1 kit.



MidWestTech | Case CX31B Tier 4B Compact Hydraulic Excavator Service Manual | Public... Order the manual at mid-west-tech.com >

(7) Gauge Cluster Display Details

The screen for the operator is displayed on the multi-display following the logo mark display, after the key is turned on. The multi-display has the following functions.

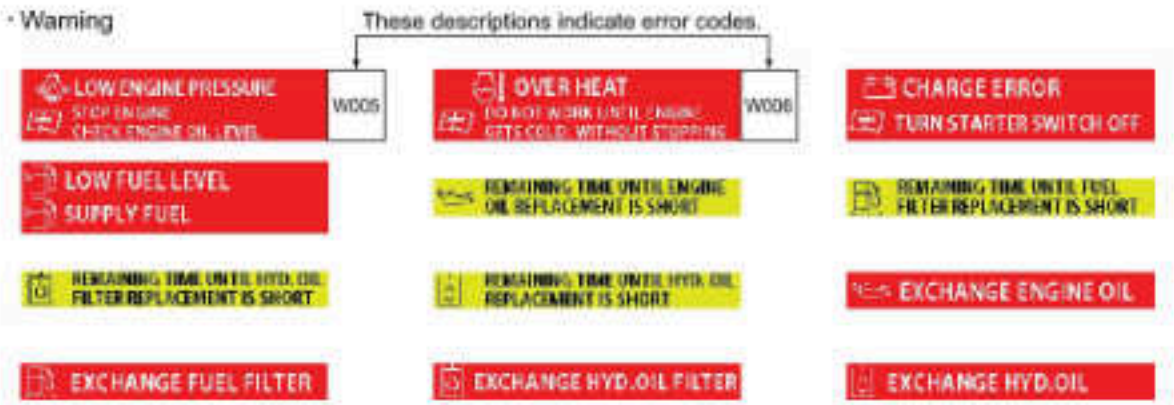


1. Display function for operator·····Normally, this is displayed during operation.

1.1 Time display····Displays the current time.

1.2 Self-diagnosis display·····If a failure is detected in the mechatronic system such as a sensor, the machine status and error code are displayed on the upper part, and the instruction is displayed on the lower part.

1.3 Warning display·····When the machine is in an unsafe condition or a failure occurs, the warning information is displayed with the symbol and text.



Notice

Error codes are stored as a failure history, and are displayed by the failure history display function on the multi-display.

1.4 Shovel status display·····Displays the shovel operating status.

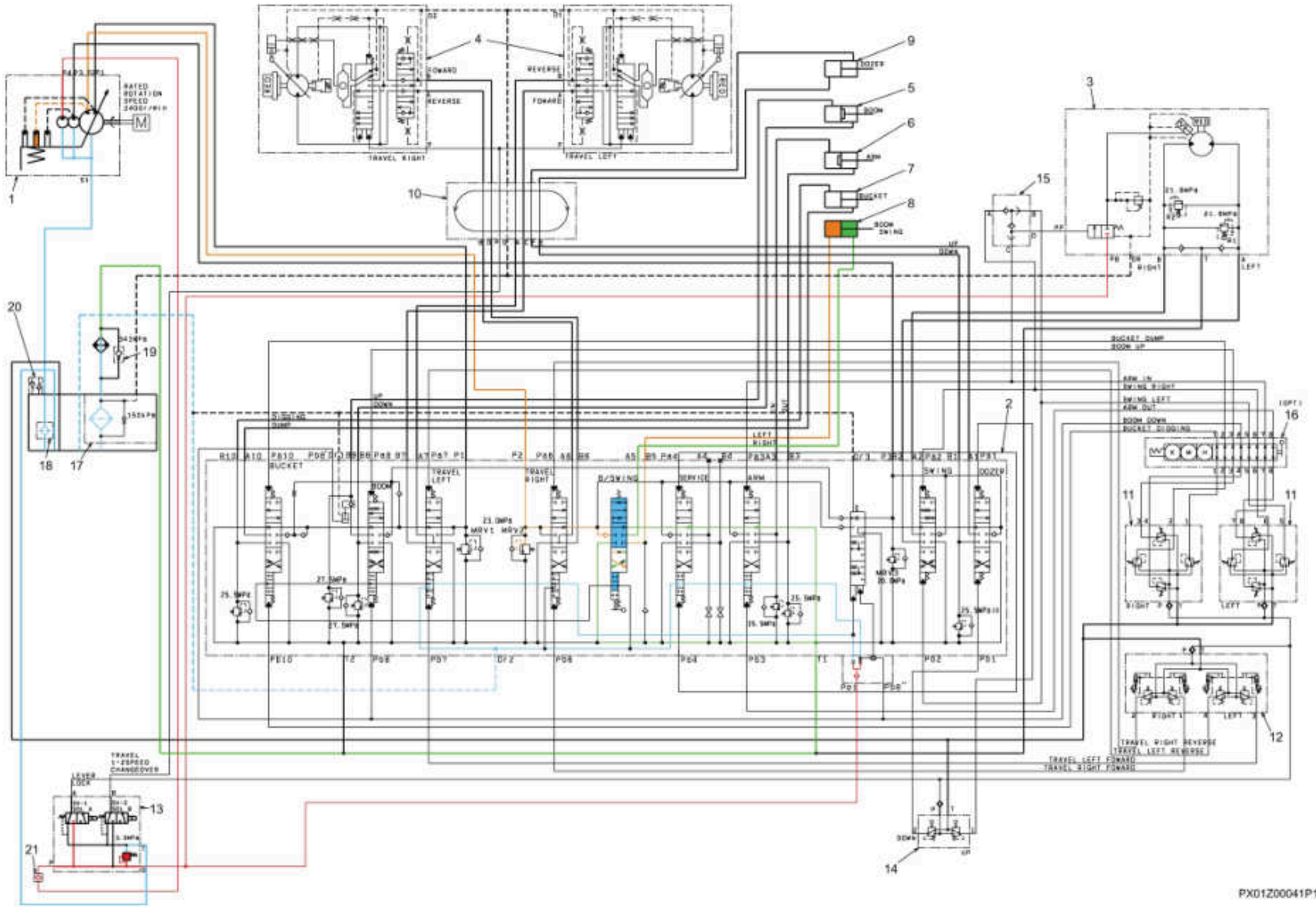
2. Maintenance display function·····The remaining time to the replacement time of the following maintenance items is displayed by pressing the menu switch and selecting "MAINTENANCE" from the user menu.

(1) Engine oil (2) Fuel filter (3) Hydraulic oil filter (4) Hydraulic oil (5) Exhaust gas filter (Only Tier4 machine)

3. Failure history display·····Displays the stored past failures of mechatro system in the reverse chronological order by operating the starter key switch and buzzer stop switch.

4. Service diagnosis display·····Displays information from the mechatro controller such as a value detected with the pressure sensor by operating the starter key switch and buzzer stop switch.

MidWestTech | Case CX31B Tier 4B Compact Hydraulic Excavator Service Manual | Public... Order the manual at mid-west-tech.com >



PX01Z00041P1 03

Boom swing circuit: Boom swing left operation

MidWestTech | Case CX31B Tier 4B Compact Hydraulic Excavator Service Manual | Publication S5PW0039E01

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