WHEEL LOADER

SERVICE MANUAL

HL970A

HYUNDAI

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CONTENTS

SECTION 1 GENERAL

Group 1 Safety Hints 1-1
Group 2 Specifications 1-10
Group 3 Operational Checkout Record Sheet 1-24

SECTION 2 ENGINE

Group 1 Structure and Function 2-1
Group 2 Engine speed and Stall rpm 2-7
Group 3 Fuel Warmer System 2-8

SECTION 3 POWER TRAIN SYSTEM

Group 1 Structure and Function 3-1
Group 2 Operational Checks and Troubleshooting 3-78
Group 3 Test and Adjustments 3-90
Group 4 Disassembly and Assembly 3-92

SECTION 4 BRAKE SYSTEM

Group 1 Structure and Function 4-1
Group 2 Operational Checks and Troubleshooting 4-29
Group 3 Tests and Adjustments 4-36
Group 4 Disassembly and assembly 4-38

SECTION 5 STEERING SYSTEM

Group 1 Structure and Function 5-1
Group 2 Operational Checks and Troubleshooting 5-16
Group 3 Tests and Adjustments 5-24
Group 4 Disassembly and Assembly 5-31

SECTION 6 WORK EQUIPMENT

Group 1 Structure and Function 6-1
Group 2 Operational Checks and Troubleshooting 6-34
Group 3 Tests and Adjustments 6-51
Group 4 Disassembly and Assembly 6-62

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SECTION 7 ELECTRICAL SYSTEM

Group 1 Component Location 7-1
Group 2 Electrical Circuit 7-3
Group 3 Monitoring System 7-22
Group 4 Electrical Component Specification 7-72
Group 5 Connectors 7-79
Group 6 Troubleshooting 7-100

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Fault code (Hex)	Meaning of the fault code possible reason for fault detection	Reaction of the TCU	Possible steps to repair
7F	O.C. at engine derating device TCU detected a wrong voltage at the output pin, that looks like a O.C. for this output pin - Cable is defective and has no connection to TCU - Engine derating device has an internal defect - Connector has no connection to TCU	No reaction OP mode : Normal	- Check the cable from TCU to the engine derating device - Check the connectors from engine derating device to TCU - Check the resistance* of engine derating device * See page 3-74
81	S.C. to battery voltage at clutch K4 The measured resistance value of the valve is out of limit, the voltage at K4 valve is too high - Cable/connector is defective and has contact to battery voltage - Cable/connector is defective and has contact to another regulator output of the TCU - Regulator has an internal defect	TCU shifts to neutral OP mode : Limp home If failure at another clutch is pending TCU shifts to neutral OP mode : TCU shutdown	- Check the cable from TCU to the gearbox - Check the connectors from gearbox to TCU - Check the regulator resistance* - Check internal wire harness of the gearbox * See page 3-74
82	S.C. to ground at clutch K4 The measured resistance value of the valve is out of limit, the voltage at K4 valve is too low - Cable/connector is defective and has contact to vehicle ground - Regulator has an internal defect	TCU shifts to neutral OP mode : Limp home If failure at another clutch is pending TCU shifts to neutral OP mode : TCU shutdown	- Check the cable from TCU to the engine derating device - Check the connectors from gearbox to TCU - Check the regulator resistance* - Check internal wire harness of the gearbox * See page 3-74
83	O.C. at clutch K4 The measured resistance value of the valve is out of limit - Cable/connector is defective and has contact to TCU - Regulator has an internal defect	TCU shifts to neutral OP mode : Limp home If failure at another clutch is pending TCU shifts to neutral OP mode : TCU shutdown	- Check the cable from TCU to the gearbox - Check the connectors from gearbox to TCU - Check the regulator resistance* - Check internal wire harness of the gearbox * See page 3-74
84	S.C. to battery voltage at clutch KV The measured resistance value of the valve is out of limit, the voltage at KV valve is too high - Cable/connector is defective and has contact to battery voltage - Cable/connector is defective and has contact to another regulator output of the TCU - Regulator has an internal defect	TCU shifts to neutral OP mode : Limp home If failure at another clutch is pending TCU shifts to neutral OP mode : TCU shutdown	- Check the cable from TCU to the gearbox - Check the connectors from gearbox to TCU - Check the regulator resistance* - Check internal wire harness of the gearbox * See page 3-74
85	S.C. to ground at clutch KV The measured resistance value of the valve is out of limit, the voltage at KV valve is too low - Cable/connector is defective and has contact to vehicle ground - Regulator has an internal defect	TCU shifts to neutral OP mode : Limp home If failure at another clutch is pending TCU shifts to neutral OP mode : TCU shutdown	- Check the cable from TCU to the gearbox - Check the connectors from gearbox to TCU - Check the regulator resistance* - Check internal wire harness of the gearbox * See page 3-74

※ Some fault codes are not applied to this machine.

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Housing dimension :

(3) Determine Dimension I, from the bearing outer ring to the mounting face.
Dimension I e.g ..... 16.13 mm



Figure 260

Cover dimension :

(4) Determine Dimension II, from the contact/ bearing outer ring to the mounting face.
Dimension II e.g ..... 17.75 mm

※ Special tool
Digital depth gauge 5870 200 072

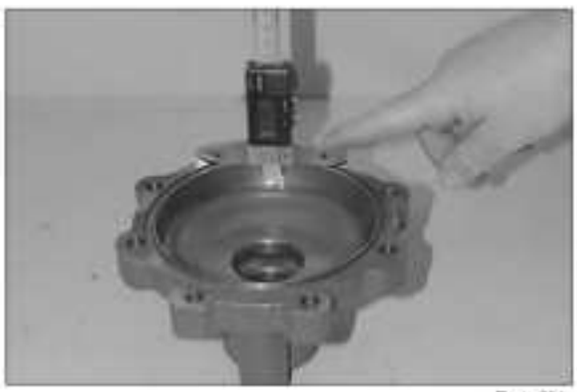


Figure 261

Example :

Dimension II		17.75 mm
Dimension I		- 16.13 mm
Difference		= 1.62 mm
Bearing preload	e.g.	+ 0.03 mm
Resulting shim (s)	s	= 1.65 mm

(5) Fix the shim with assembly grease into the cover. Install the O-ring (arrow).



Figure 262

(6) Grease the rectangular rings (arrows) and centrally align them.

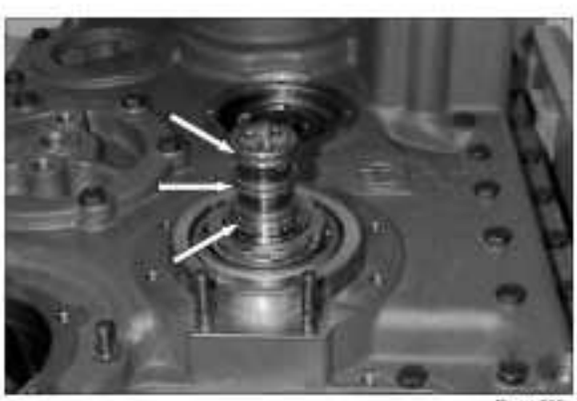
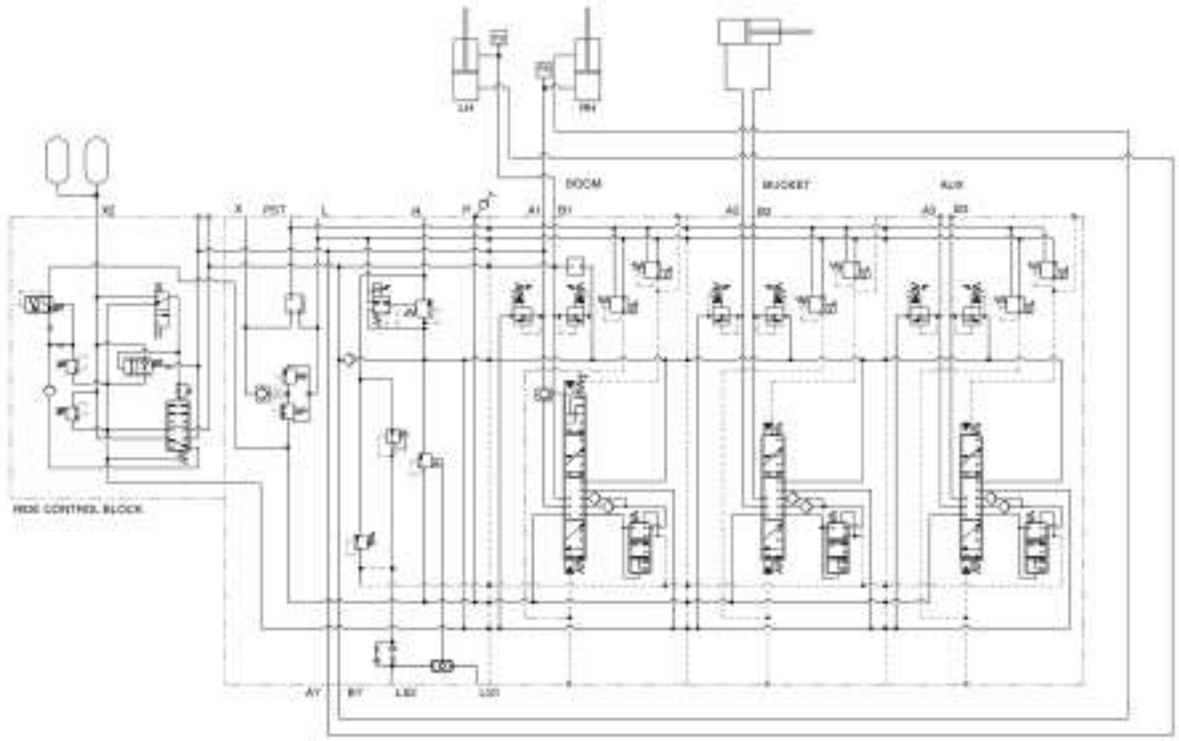


Figure 263

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5. MAIN CONTROL VALVE

1) HYDRAULIC CIRCUIT

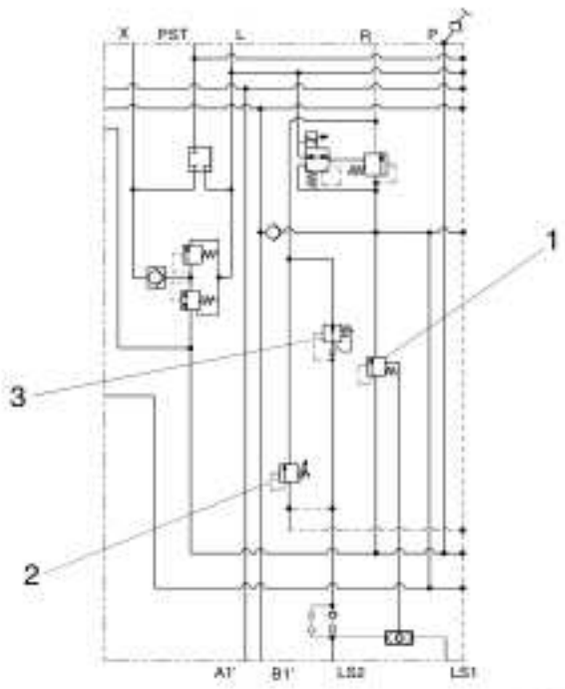


95DA5WE10

2) INLET ELEMENT DESCRIPTION

(1) The inlet element moreover comprises all components necessary for the system function : One flow control valve (1) for the controlled unloading of the LS line and one LS pressure relief valve (2) to limit the maximum system pressure.

(2) Protection of the system by means of LS pressure relief valve (2) combined with flushing valve (3).



95DA5WE11

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290F3CD246

- When the worker or pedestrian go near the danger area line (green, radius 3 m), an external danger area of equipping on the main display, the warning buzzer sounds and it displays the green rectangular box for the recognition of the worker and pedestrian. At this time, the operator should stop work immediately, and stop the buzzer by pressing the buzzer stop switch. And then, please work after you check whether the danger factors are solved.



290F3CD247

- When the worker or pedestrian go inside of the danger area line (red, radius 3 m), an internal danger area of equipping on the main display, the warning buzzer sounds and it displays the red rectangular box for the recognition of the worker and pedestrian. At this time, the operator should stop work immediately, and stop the buzzer by pressing the buzzer stop switch. And then, please work after you check whether the danger factors are solved.

(6) Mutimedia





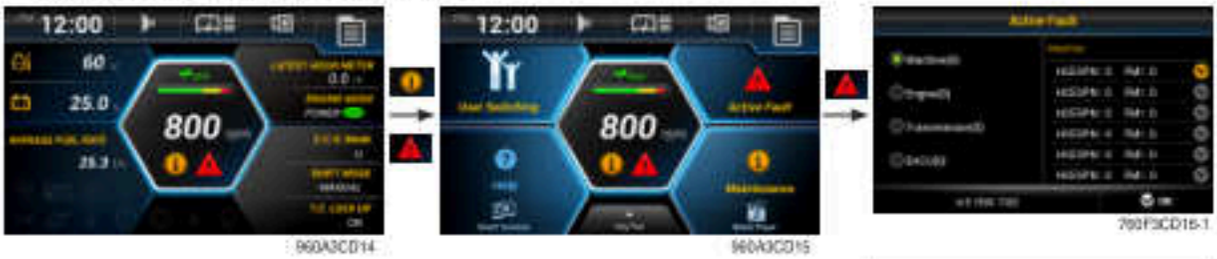
- Media player
  - Play video files in USB (mp4, mkv, avi, 3gp, divx, f4v, flv, mpeg, mov, vob, wmv, webm, xvid).
  - Play audio files in USB (mp3, mp4, ogg, wma, wav, flac, aac).

- Smart terminal
  - The menu features a smartphone and operates the miracast.

⚠ Operation of screen mirroring can be dangerous while driving.
Driver is responsible for accident or other damages. Operate the screen mirroring while stopping for safety.

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(3) Fault and maintenance warning



960A3CD14 960A3CD15 760F3CD15-1

① If you touch the warning sign (red icon), move to the quick menu.

② You can check the fault message and move the maintenance screen by touching relevant area.



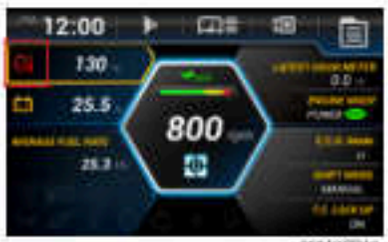
960A3CD08J

(4) Machine monitoring warning

① Warning sign (red icon) will be shown when the temperature of hydraulic oil, cooling water, transmission oil or battery voltage is not normal state.

② Case of warning sign

Icon	Description
	Above 106˚C of hydraulic oil temperature
	Above 105˚C of cooling water temperature
	Above 107˚C of transmission oil temperature
	Below 24.5 voltage of battery (for 3 minutes)
	Above 100˚C of axle oil temperature (option)



960A3CD18

(5) Communication error

① MCU could not communicate with monitor over 10 seconds, error message will be show on the screen.



760F3CD19-1

(6) Eco gauge

① This gauge indicates the fuel consumption rate and machine load status. So that operators can be careful with fuel economy.

② The fuel consumption rate or machine load is high, the segment is increased.

③ The color of Eco gauge indicates operation status.

- White : Idle operation
- Green : Economy operation
- Yellow : Non-economy operation at a medium level.
- Red : Non-economy operation at a high level.

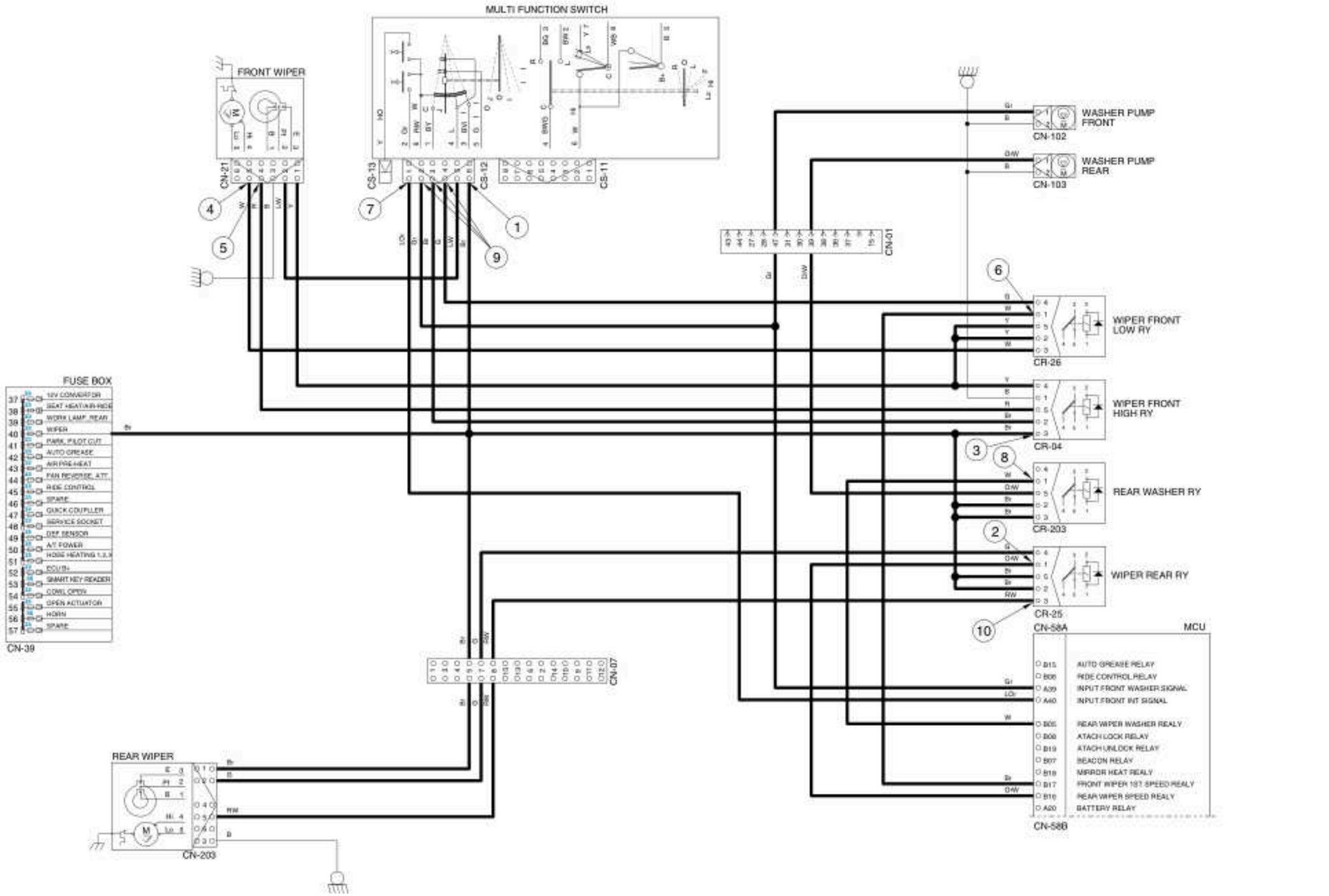
ECO gauge



760F3CD11G-1

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WIPER AND WASHER CIRCUIT



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

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