WHEEL LOADER

SERVICE MANUAL

HL940, HL940TM

HYUNDAI

MidWestTech | Hyundai HL940, HL940TM Wheel Loader Service Manual | Publication HL9...

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

CONTENTS

SECTION 1 GENERAL

Group 1 Safety Hints 1-1
Group 2 Specifications 1-10
Group 3 Operational Checkout Record Sheet 1-26

SECTION 2 ENGINE

Group 1 Structure and Function 2-1
Group 2 Engine speed and Stall rpm 2-12
Group 3 Fuel Warmer System 2-13

SECTION 3 POWER TRAIN SYSTEM

Group 1 Structure and Function (fault code) 3-1
Group 2 Operational Checks and Troubleshooting 3-75
Group 3 Test and Adjustments 3-86
Group 4 Disassembly and Assembly 3-88

SECTION 4 BRAKE SYSTEM

Group 1 Structure and Function 4-1
Group 2 Operational Checks and Troubleshooting 4-32
Group 3 Tests and Adjustments 4-39
Group 4 Disassembly and assembly 4-41

SECTION 5 STEERING SYSTEM

Group 1 Structure and Function 5-1
Group 2 Operational Checks and Troubleshooting 5-9
Group 3 Tests and Adjustments 5-15
Group 4 Disassembly and Assembly 5-21

SECTION 6 WORK EQUIPMENT

Group 1 Structure and Function 6-1
Group 2 Operational Checks and Troubleshooting 6-44
Group 3 Tests and Adjustments 6-54
Group 4 Disassembly and Assembly 6-67

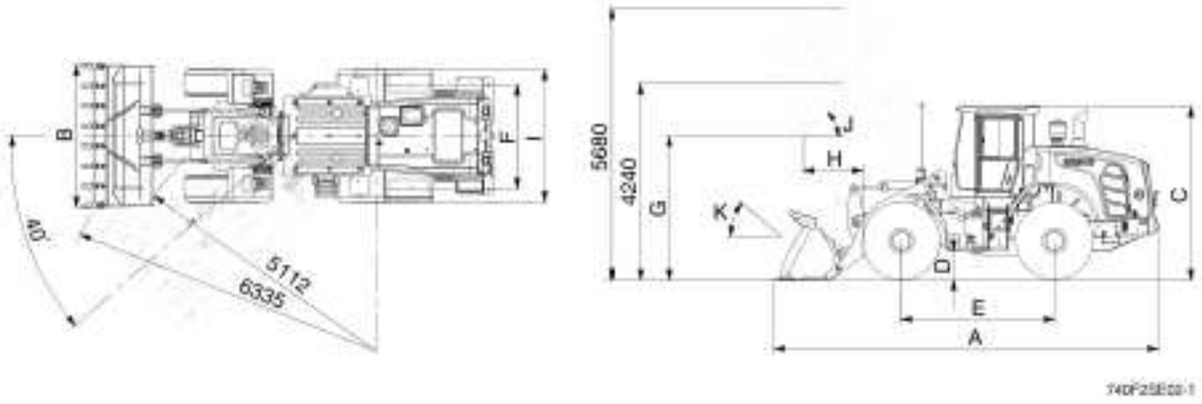
MidWestTech | Hyundai HL940, HL940TM Wheel Loader Service Manual | Publication... Order the manual at mid-west-tech.com >

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 7-69
Group 5 Connectors 7-76
Group 6 Troubleshooting 7-97

MidWestTech | Hyundai HL940, HL940TM Wheel Loader Service Manual | Publication... Order the manual at mid-west-tech.com >

WITH TOOTH TYPE BUCKET (HL940 XT)



Description		Unit	Specification
Operating weight		kg (lb)	13330 (29390)
Bucket capacity	Struck	m^3 (yd^3)	1.9 (2.5)
	Heaped		2.2 (2.9)
Overall length	A	mm (ft-in)	8200 (26' 11")
Overall width	B		2650 (8' 8")
Overall height	C		3300 (10' 10")
Ground clearance	D		417 (1' 4")
Wheelbase	E		2950 (9' 8")
Tread	F		1900 (6' 3")
Dump clearance at 45°	G		3120 (10' 3")
Dump reach (full lift)	H		1080 (3' 7")
Width over tires	I		2430 (8' 0")
Dump angle	J	degree (°)	47(-#0486) / 45(#0487-)
Roll back angle (carry position)	K		49
Cycle time	Lift (with load)	sec	5.5
	Dump (with load)		1.1
	Lower (empty)		3.0
Maximum travel speed		km/hr (mph)	40 (24.9)
Braking distance		m (ft-in)	13.3 (43' 8")
Minimum turning radius (center of outside tire)			5.11 (16' 9")
Gradeability		degree (°)	30
Breakout force		kg (lb)	11915 (26270)
Travel speed	Forward	km/hr (mph)	First gear 6.9 (4.3)
			Second gear 12.7 (7.9)
			Third gear 24.9 (15.5)
			Fourth gear 40 (24.9)
	Reverse		First gear 7.3 (4.5)
			Second gear 13.4 (8.3)
			Third gear 26.1 (16.2)

MidWestTech | Hyundai HL940, HL940TM Wheel Loader Service Manual | Publication... Order the manual at mid-west-tech.com >

2. TROUBLESHOOTING

1) TRANSMISSION

- Diagnose malfunction charts are arranged from most probable and simplest to verify, to least likely, more difficult to verify. Remember the following steps when troubleshooting a problem :

  Step 1. Operational check out procedure (See group 3 in section 1.)

  Step 2. Operational checks (In this group.)

  Step 3. Troubleshooting

  Step 4. Tests and/or adjustments (See group 3.)

Problem	Cause	Remedy
Transmission slippage	Low oil level.	Add oil.
	Wrong oil grade.	Change oil.
	Restricted transmission pump suction screen.	Remove and clean screen.
	Leak in transmission control valve or gasket.	Remove valve and inspect gaskets.
	Low transmission pump flow due to worn pump.	Do transmission pump flow test.
	Weak or broken pressure regulating valve spring.	Do transmission system pressure test.
Error code on display	Something wrong in transmission.	Go to transmission fault code group at page 3-54-3-70.

MidWestTech | Hyundai HL940, HL940TM Wheel Loader Service Manual | Publication... Order the manual at mid-west-tech.com >

5. CHARGING CIRCUIT

When the starter is activated and the engine is started, the operator releases the key switch to the ON position.

Charging current generated by operating alternator flows into the battery through the battery relay (CR-01).

The current also flows from alternator to each electrical component and controller through the fuse box.

1) OPERATING FLOW

(1) Warning flow

Altermator [CN-74 (2)] → I/conn [CN-04 (18)] → MCU [CN-58B (B33)]
→ Cluster charge warning lamp ON

(2) Charging flow

Alternator → Starter [CN-45 (B^+)] → Battery relay [CR-01]
- → Battery (+) terminal → Charging
- → Fusible link [CN-351 (40A)] → Master switch [CS-74 (1)→(2)] → I/conn [CN-01 (16, 17)] → Fuse box [CN-36, 39]
- → Fusible link [CN-352 (80A)] → I/conn [CN-01 (21~26)] → Fuse box [CN-38, 39]

2) CHECK POINT

Engine	Key switch	Check point	Voltage
OFF	ON	① - GND (battery) ② - GND (battery relay) ③ - GND (alternator B^+) ④ - GND (alternator 2) ⑤ - GND (MCU) ⑥ - GND (fuse box)	20~28V

※ GND : Ground

※ MCU : Machine control unit

MidWestTech | Hyundai HL940, HL940TM Wheel Loader Service Manual | Publication... Order the manual at mid-west-tech.com >

5) DISASSEMBLY AND ASSEMBLY

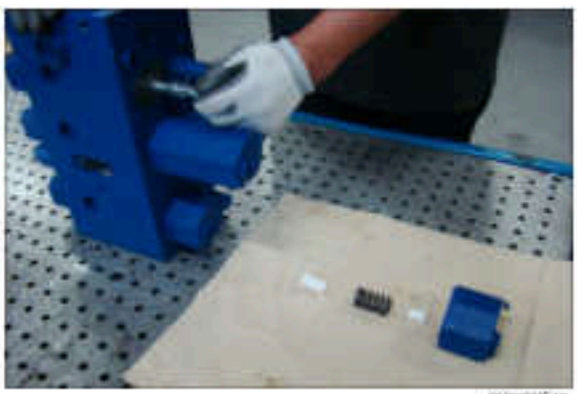
(1) Spool

① Loosen the bolt (2EA).

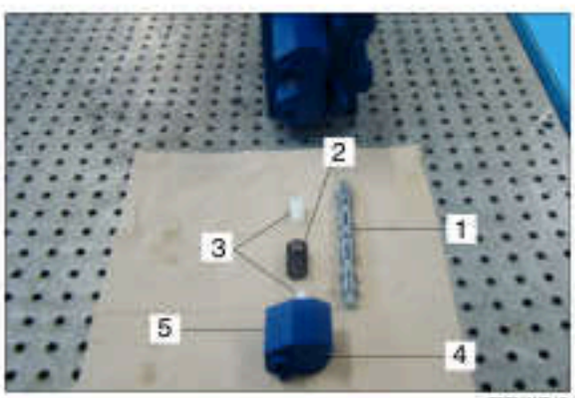
- Tool : Wrench 4 mm
- Tightening torque : 0.85 kgf · m (61 lbf · ft)



② Remove the cover, spring retainer, spring and spool.



1 Spool
2 Spring
2 Spring ratainer
4 Bolt
5 Cover



(2) Port relief valve

- Tool : Spanner 24 mm



MidWestTech | Hyundai HL940, HL940TM Wheel Loader Service Manual | Publication... Order the manual at mid-west-tech.com >

(3) Fault and maintenance warning



760F3CD14-1 760F3CD15-1 760F3CD16-1

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.



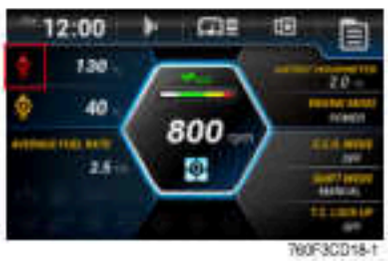
760F3CD17-1

(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)



760F3CD18-1

(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.

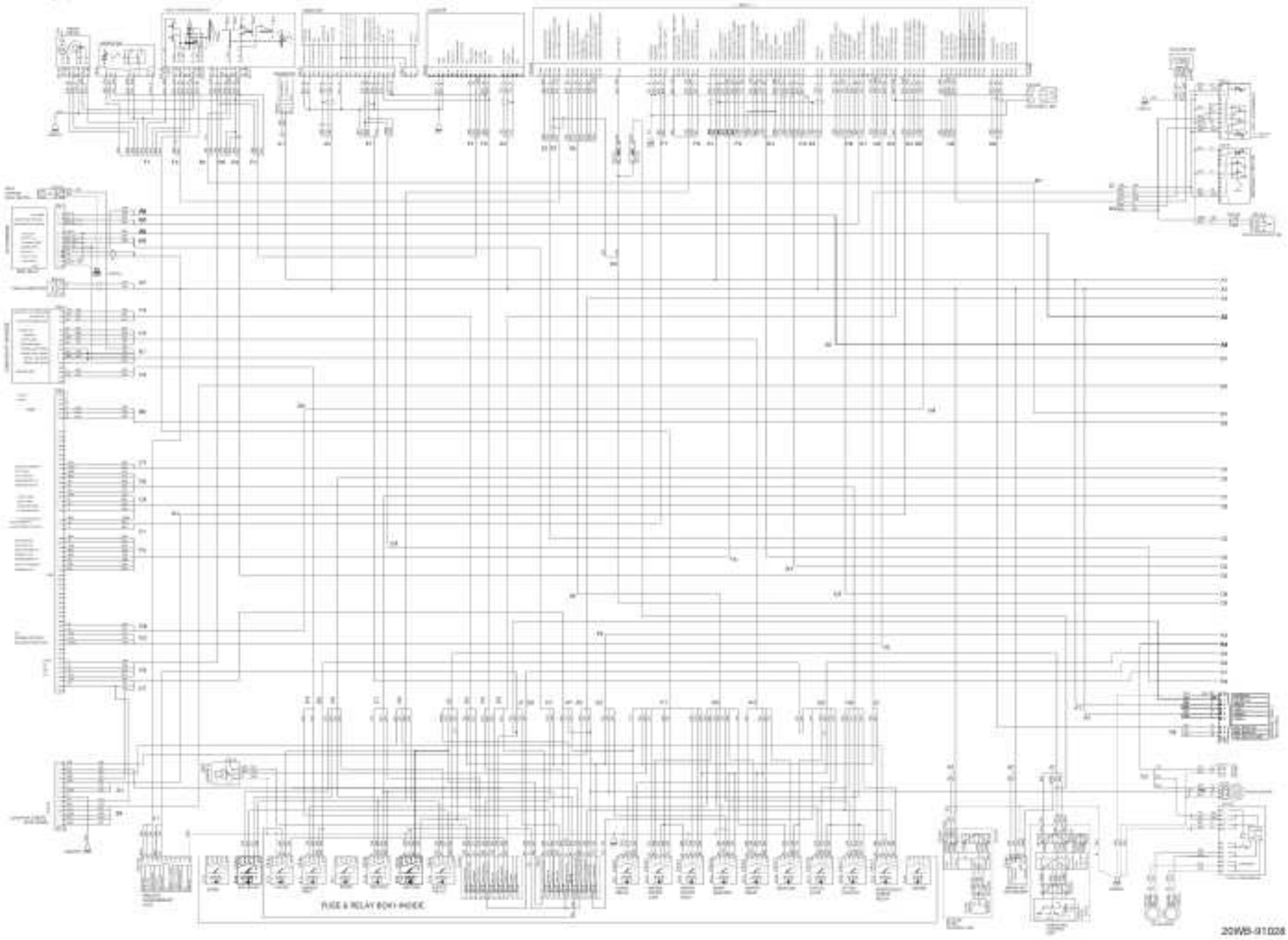
·White : Idle operation
·Green : Economy operation
·Yellow : Non-economy operation at a medium level.
·Red : Non-economy operation at a high level.



760F3CD113-1

MidWestTech | Hyundai HL940, HL940TM Wheel Loader Service Manual | Publication... Order the manual at mid-west-tech.com >

ELECTRICAL CIRCUIT (1/3, machine serial number : #0493~)



MidWestTech | Hyundai HL940, HL940TM Wheel Loader Service Manual | Publication HL940, HL940TM

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