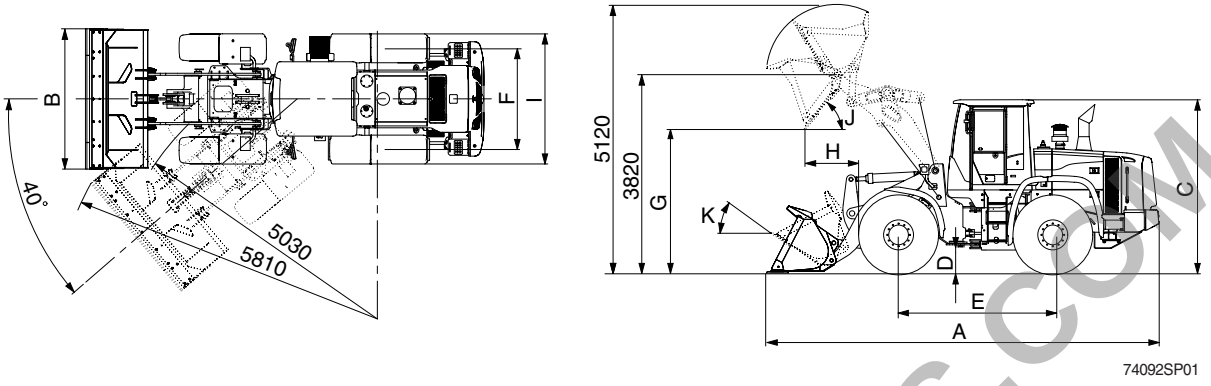
2. SPECIFICATIONS

1) WITH BOLT-ON CUTTING EDGE TYPE BUCKET (HL740-9)



Description			Unit	Specification
Operating weight			kg (lb)	12000 (26460)
Bucket capacity		Struck	m^3 (yd^3)	2.0 (2.6)
		Heaped		2.3 (3.0)
Overall length		A	mm (ft-in)	7380 (24' 3")
Overall width		B		2600 (8' 6")
Overall height		C		3260 (10' 8")
Ground clearance		D		417 (1' 4")
Wheelbase		E		2900 (9' 6")
Tread		F		1900 (6' 3")
Dump clearance at 45˚		G		2785 (9' 2")
Dump reach (full lift)		H		1025 (3' 4")
Width over tires		I		2430 (8' 0")
Dump angle		J	degree (˚)	48
Roll back angle (carry position)		K		47
Cycle time		Lift (with load)	sec	5.5
		Dump (with load)		1.1
		Lower (empty)		3.0
Maximum travel speed			km/hr (mph)	39.0 (24.3)
Braking distance			m (ft-in)	12 (39' 4")
Minimum turning radius (center of outside tire)				5.03 (16' 6")
Gradeability			degree (˚)	30
Travel speed	Forward	First gear	km/hr (mph)	6.7 (4.2)
		Second gear		12.2 (7.6)
		Third gear		23.8 (14.8)
		Fourth gear		39.0 (24.3)
	Reverse	First gear		7.1 (4.4)
		Second gear		12.9 (8.0)
		Third gear		25.1 (15.6)

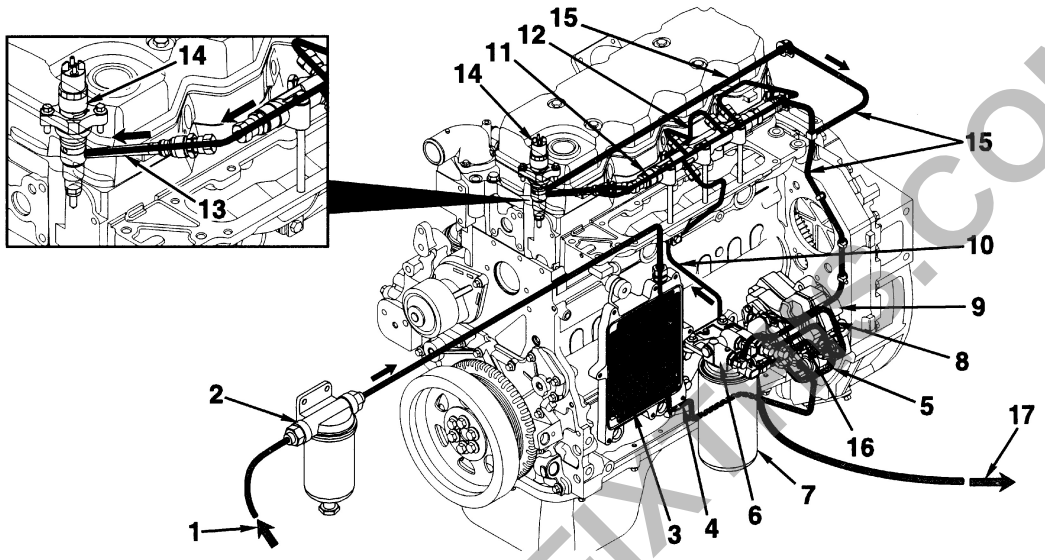
PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

2. SYSTEM DIAGRAMS

The following drawings show the flow through the engine systems.

1) FUEL SYSTEM



7607AEG02

1 From fuel tank
2 Water/fuel separator (not mounted on engine)
3 ECM cooling plate
4 To fuel gear pump
5 To fuel filter
6 Fuel filter head
7 Fuel filter
8 To high-pressure pump
9 High-pressure pump
10 To fuel rail
11 Fuel rail
12 To injectors
13 High-pressure connector
14 Injector
15 Fuel return from injectors and fuel rail to fuel filter head
16 Fuel return from high-pressure pump to fuel filter head
17 To fuel tank

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

4. FAULT CODE

1) MACHINE FAULT CODE

HCESPN	FMI	Description
101	3	Hydraulic oil temperature sensor circuit - Voltage above normal, or shorted to high source (or open circuit)
	4	Hydraulic oil temperature sensor circuit - Voltage below normal, or shorted to low source
145	5	Engine cooling fan EPPR valve circuit - Current below normal, or open circuit
	6	Engine cooling fan EPPR valve bircuit - Current above normal
172	4	Boom up lever detent solenoid circuit - Voltage below normal, or shorted to low source (or open circuit)
	6	Boom up lever detent solenoid circuit - Current above normal
173	4	Boom down lever detent solenoid circuit - Voltage below normal, or shorted to low source (or open circuit)
	6	Boom down lever detent solenoid circuit - Current above normal
174	4	Bucket lever detent solenoid circuit - Voltage below normal, or shorted to low source (or open circuit)
	6	Bucket lever detent solenoid circuit - Current above normal
181	4	Engine cooling fan reverse solenoid circuit - Voltage below normal, or shorted to low source (or open circuit)
	6	Engine cooling fan reverse solenoid circuit - Current above normal
183	4	Engine cooling fan reverse driving status signal circuit - Voltage below normal, or shorted to low source (or open circuit)
	6	Engine cooling fan reverse driving status signal circuit - Current above normal
187	4	Emergency steering pump relay circuit - Voltage below normal, or shorted to low source (or open circuit)
	6	Emergency steering pump relay circuit – Current above normal
202	0	Steering main pump pressure sensor data above normal range (or open circuit)
	1	Steering main pump pressure sensor data below normal range
	2	Steering main pump pressure sensor data error
	4	Steering main pump pressure sensor circuit - Voltage below normal, or shorted to low source
203	0	Emergency steering pump pressure sensor data above normal range (or open circuit)
	1	Emergency steering pump pressure sensor data below normal range
	2	Emergency steering pump pressure sensor data error
	4	Emergency steering pump pressure sensor circuit - Voltage below normal, or shorted to low source
204	0	Boom cylinder pressure sensor data above normal range (or open circuit)
	1	Boom cylinder pressure sensor data below normal range
	2	Boom cylinder pressure sensor data error
	4	Boom cylinder pressure sensor circuit - Voltage below normal, or shorted to low source
205	0	Bucket cylinder pressure sensor data above normal range (or open circuit)
	1	Bucket cylinder pressure sensor data below normal tange
	2	Bucket cylinder pressure sensor data error
	4	Bucket cylinder pressure sensor circuit - Voltage below normal, or shorted to low source

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.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 :**

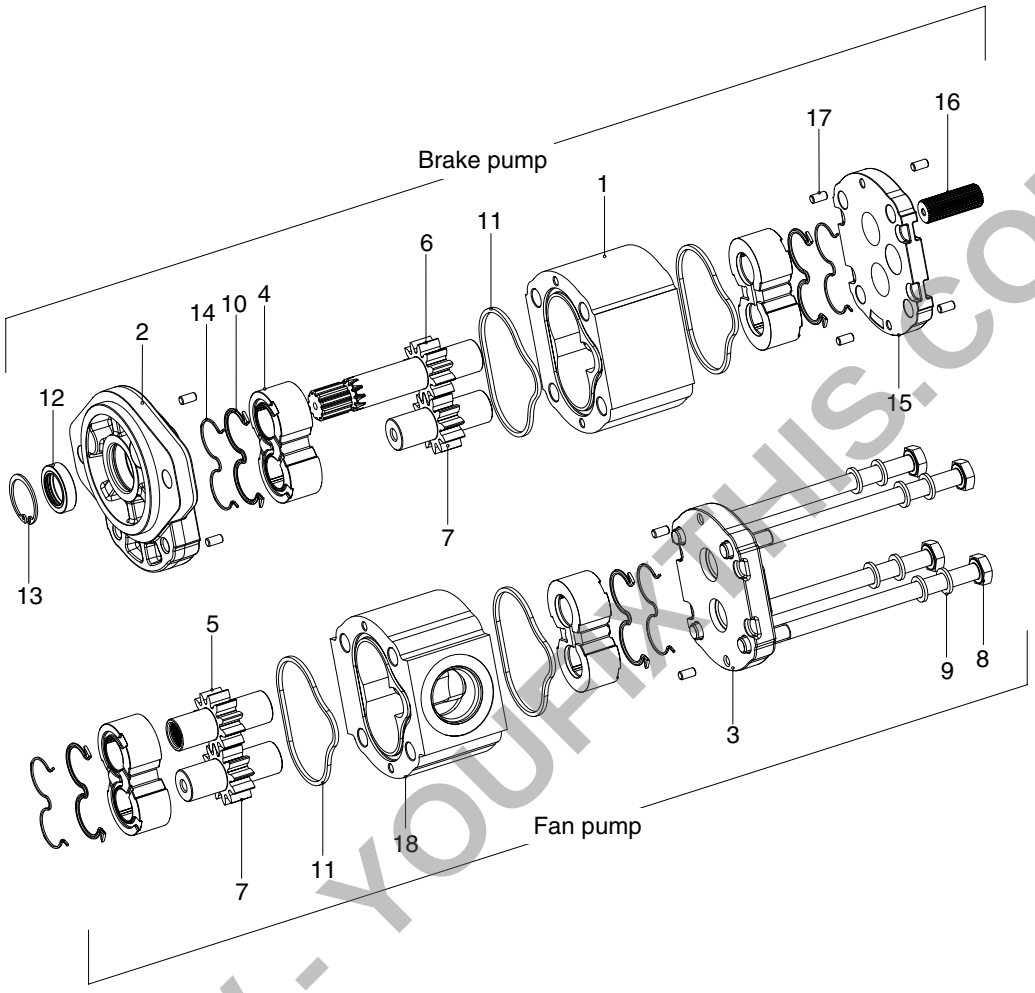
Step 1. Operational check out procedure (See group 3 in section 1.)
Step 2. Operational checks (In this group.)
Step 3. Troubleshooting
Step 4. Tests and/or adjustments (See group 3.)

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 error code group at page 3-32~3-51.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

2) DISASSEMBLY



74094BS20

※ Before disassembling ensure that the unit itself, bench and tools are thoroughly clean.

(1) Lightly mark the flange (15), housing (1) and front cover (2) to ensure reassembly in the correct position.

(2) Remove the bolts (8) and separate the brake pump unit from the fan pump using a soft faced hammer.

(3) From the front cover (2), extract the shaft seal (12) and the ring (13).

(4) Remove the front cover (2) from the housing (1).

(5) Remove the backing ring (14), the seal (10) and the seal (11).

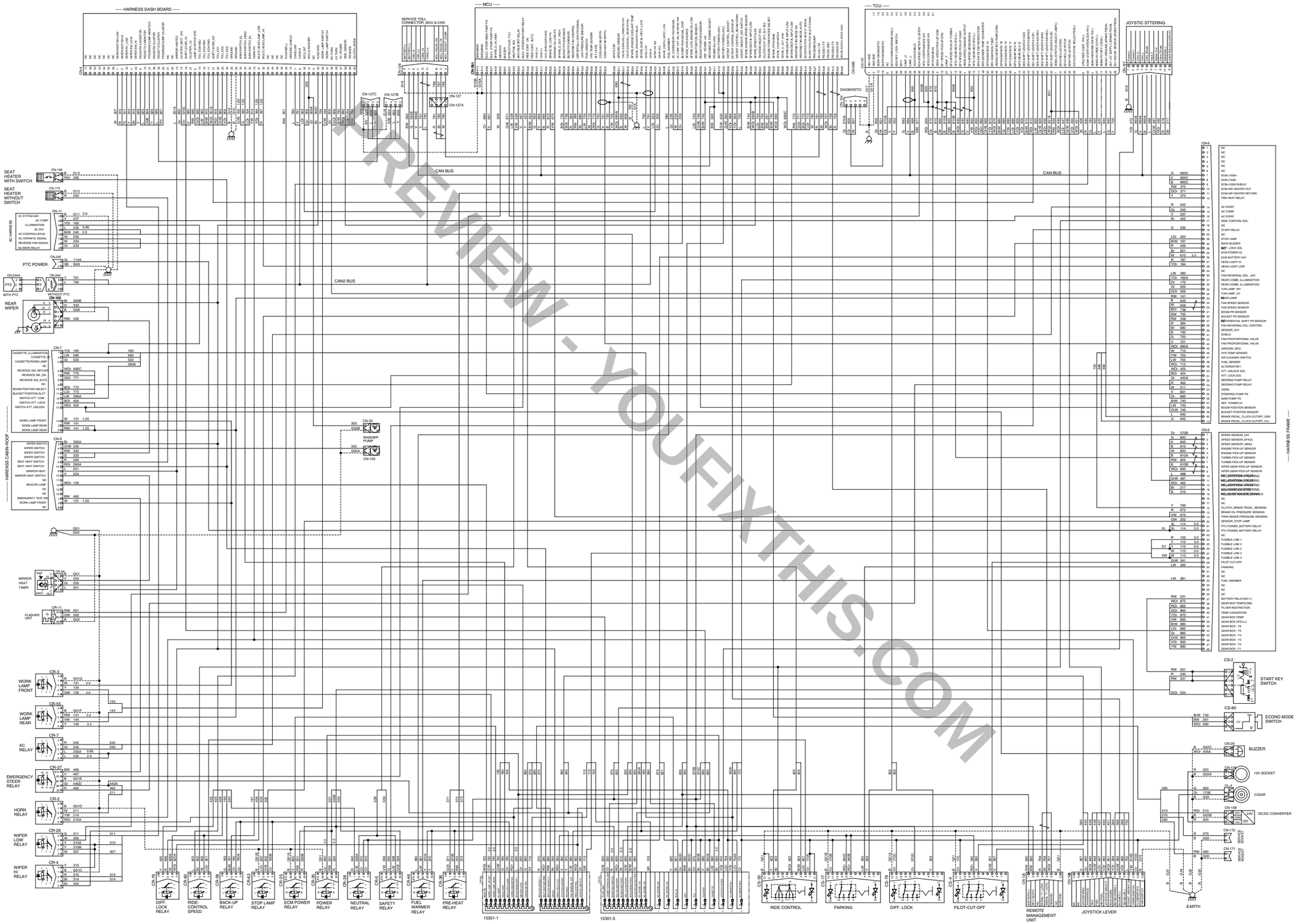
※ Before removing the internal components each bushing (4) must be marked to denote its location within the body. On the plain area of the bush away from the seal location, lightly mark.

(6) With the unit laying on its side grasp hold of the drive shaft (6) and pull it squarely out of the housing (1) bringing the bushing (4) with it.

(7) Remove the driven gear (7) and the remaining bushing (4).

Download full manual at youfixthis.com

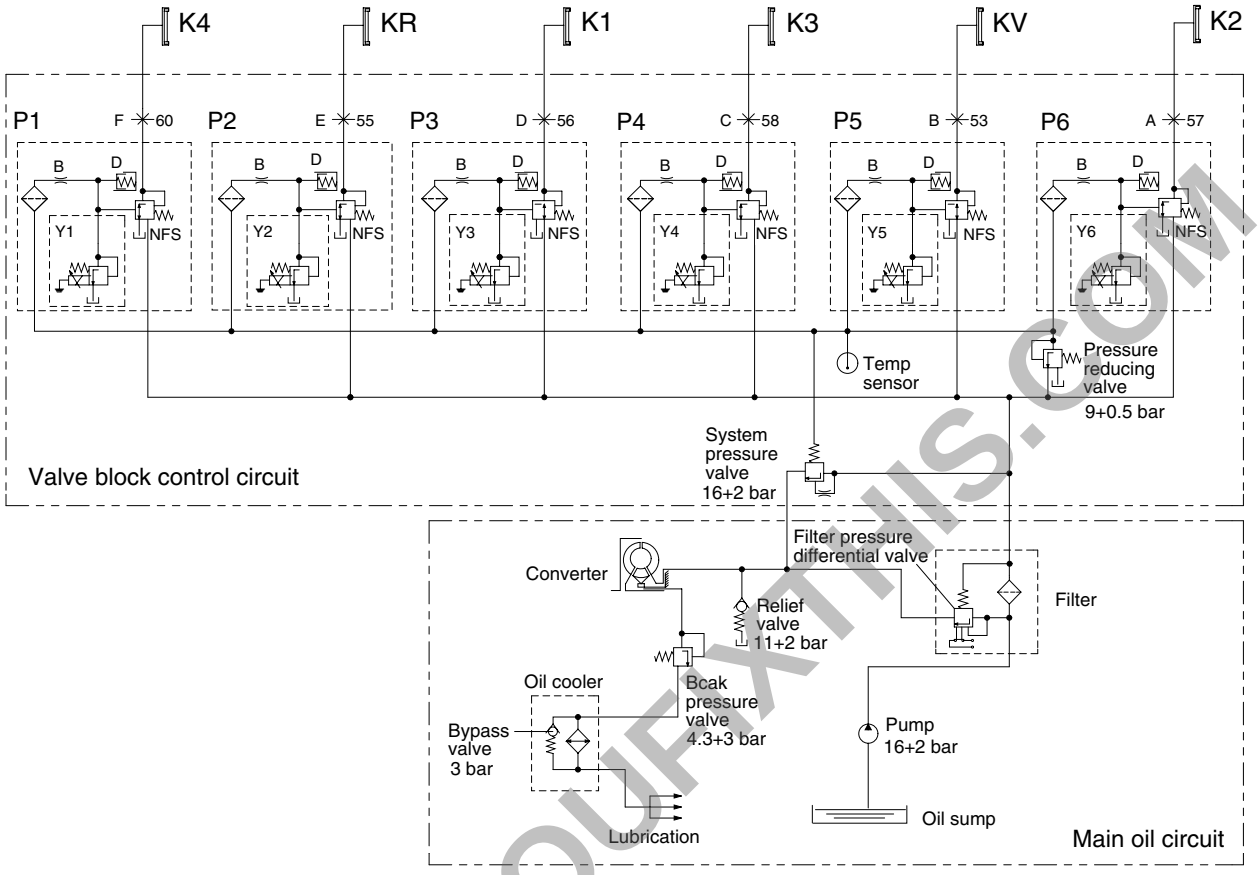
PREVIEW - YOUFIXTHIS.COM



PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

HYDRAULIC CIRCUIT



7607APT18

NFS	Follow-on slide	P3	Proportional valve K1
D	Vibration damper	P4	Proportional valve K3
B	Orifice	P5	Proportional valve KV
P1	Proportional valve K4	P6	Proportional valve K2
P2	Proportional valve KR	Y1~Y6	Pressure regulator

Speed	Forward				Reverse			Neutral	Engaged clutch	Positions on the valve block	Current No. of the measuring points
	1	2	3	4	1	2	3				
Y1				X					K4	F	60
Y2					X	X	X		KR	E	55
Y3	X				X		X		K1	D	56
Y4			X	X					K3	C	58
Y5	X	X	X						KV	B	53
Y6		X				X			K2	A	57
Engaged clutch	K1,KV	KV,K2	K3,KV	K4,K3	KR,K1	KR,K2	KR, K3		-	-	-

X : Pressure regulator under voltage

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

5. TIGHTENING TORQUE OF MAJOR COMPONENT

No.	Descriptions		Bolt size	Torque	
				kgf · m	lbf · ft
1	Engine	Engine mounting bolt, nut (rubber, 2EA)	M16×2.0	29.7 ± 4.5	215 ± 32.5
2		Engine mounting bolt (bracket, 8EA)	M12×1.75	10.7 ± 1.6	77.4 ± 11.6
3		Radiator mounting bolt	M16×2.0	29.7 ± 4.5	215 ± 32.5
4		Fuel tank mounting bolt, nut	M16×2.0	29.7 ± 4.5	215 ± 32.5
5		Air cleaner mounting bolt	M10×1.5	6.9 ± 1.4	50 ± 10.1
6		Muffler mounting nut	M12×1.75	10.7 ± 1.6	77.4 ± 11.6
7	Hydraulic system	Main pump housing mounting bolt	M16×2.0	29.7 ± 4.5	215 ± 32.5
8		Fan & brake pump housing mounting bolt	M10×1.5	6.9 ± 1.4	50 ± 10.1
9		Main control valve mounting bolt	M10×1.5	6.9 ± 1.4	50 ± 10.1
10		Steering unit mounting bolt	M10×1.5	6.9 ± 1.4	50 ± 10.1
11		Stop valve	M10×1.5	6.9 ± 1.4	50 ± 10.1
12		Cushion valve	M8×1.25	2.5 ± 0.5	18.1 ± 3.6
13		Brake valve mounting bolt	M8×1.25	2.5 ± 0.5	18.1 ± 3.6
14		Cut-off valve mounting bolt	M12×1.75	12.8 ± 3.0	92.6 ± 21.7
15		Remote control lever mounting bolt	M6×1.0	1.1 ± 0.2	8.0 ± 1.4
16		Safety valve	M10×1.5	6.9 ± 1.4	50 ± 10.1
17		Hydraulic oil tank mounting bolt	M16×2.0	29.7 ± 4.5	215 ± 32.5
18	Power train system	Transmission mounting bolt, nut (rubber, 4EA)	M20×2.5	57.9 ± 8.7	419 ± 63
19		Transmission mounting bolt (bracket)	M16×2.0	18.4 ± 2.0	133 ± 14.5
20		Front axle mounting bolt, nut	M24×2.0	100 ± 15	723 ± 108
21		Rear axle support mounting bolt, nut	M24×2.0	100 ± 15	723 ± 108
22		Tire mounting nut	M22×1.5	79 ± 2.5	571 ± 18.1
23		Drive shaft joint mounting bolt, nut	3/8-24UNF	6.0 ± 0.8	43.4 ± 5.8
24	Others	Counterweight mounting bolt	M30×3.5	199 ± 30	1439 ± 216
25		Operator's seat mounting bolt	M8×1.25	3.4 ± 0.8	24.6 ± 5
26		ROPS Cab mounting bolt (4EA)	M20×2.5	58 ± 8.7	419 ± 63

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

1. STRUCTURE

This service manual has been prepared as an aid to improve the quality of repairs by giving the serviceman an accurate understanding of the product and by showing him the correct way to perform repairs and make judgements. Make sure you understand the contents of this manual and use it to full effect at every opportunity.
This service manual mainly contains the necessary technical information for operations performed in a service workshop.
For ease of understanding, the manual is divided into the following sections.

Structure and function

This group explains the structure and function of each component. It serves not only to give an understanding of the structure, but also serves as reference material for troubleshooting.

Operational checks and troubleshooting

This group explains the system operational checks and troubleshooting charts correlating problem to remedy.

Tests and adjustments

This group explains checks to be amide before and after performing repairs, as well as adjustments to be made at completion of the checks and repairs.

Disassembly and assembly

This section explains the order to be followed when removing, installing, disassembling or assembling each component, as well as precautions to be taken for these operations.

The specifications contained in this shop manual are subject to change at any time and without any advance notice. Contact your Hyundai distributor for the latest information.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

CONTENTS

SECTION 1 GENERAL

Group 1 Safety Hints 1-1
Group 2 Specifications 1-10
Group 3 Operational Checkout Record Sheet 1-23

SECTION 2 ENGINE

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

SECTION 3 POWER TRAIN SYSTEM

Group 1 Structure and Function 3-1
Group 2 Operational Checks and Troubleshooting 3-61
Group 3 Test and Adjustments 3-72
Group 4 Disassembly and Assembly 3-74

-

SECTION 4 BRAKE SYSTEM

Group 1 Structure and Function 4-1
Group 2 Operational Checks and Troubleshooting 4-21
Group 3 Tests and Adjustments 4-28
Group 4 Disassembly and Assembly 4-31

SECTION 5 STEERING SYSTEM

Group 1 Structure and Function 5-1
Group 2 Operational Checks and Troubleshooting 5-11
Group 3 Tests and Adjustments 5-17
Group 4 Disassembly and Assembly 5-23

SECTION 6 WORK EQUIPMENT

Group 1 Structure and Function 6-1
Group 2 Operational Checks and Troubleshooting 6-42
Group 3 Tests and Adjustments 6-52
Group 4 Disassembly and Assembly 6-67

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

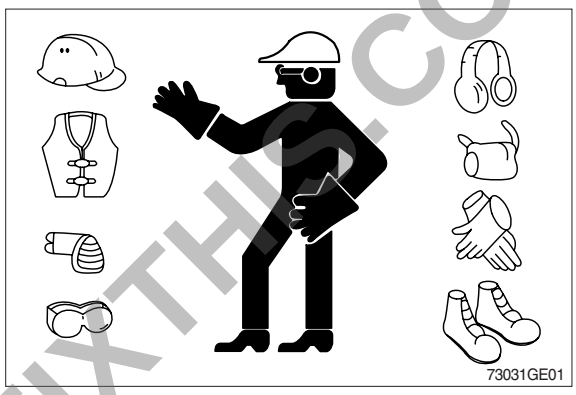
GROUP 1 SAFETY HINTS

FOLLOW SAFE PROCEDURE

Unsafe work practices are dangerous. Understand service procedure before doing work; Do not attempt shortcuts.

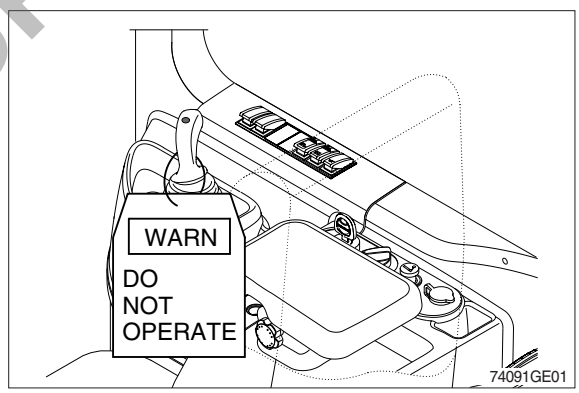
WEAR PROTECTIVE CLOTHING

Wear close fitting clothing and safety equipment appropriate to the job.



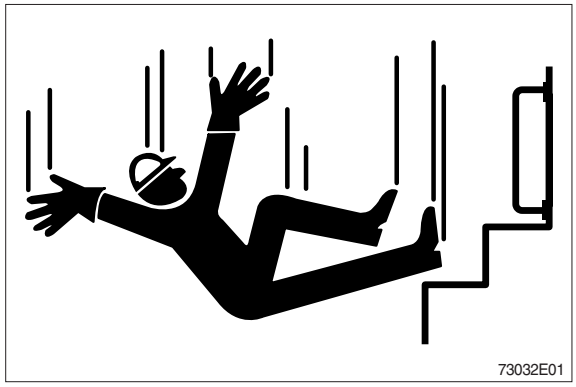
WARN OTHERS OF SERVICE WORK

Unexpected machine movement can cause serious injury.
Before performing any work on the wheel loader, attach a 「**Do Not Operate**」 tag on the right side controller lever.



USE HANDHOLDS AND STEPS

Falling is one of the major causes of personal injury.
When you get on and off the machine, always maintain a three point contact with the steps and handrails and face the machine. Do not use any controls as handholds.
Never jump on or off the machine. Never mount or dismount a moving machine.
Be careful of slippery conditions on platforms, steps, and handrails when leaving the machine.



PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Millimeters to inches

1mm = 0.03937in

	0	1	2	3	4	5	6	7	8	9
0		0.039	0.079	0.118	0.157	0.197	0.236	0.276	0.315	0.354
10	0.394	0.433	0.472	0.512	0.551	0.591	0.630	0.669	0.709	0.748
20	0.787	0.827	0.866	0.906	0.945	0.984	1.024	1.063	1.102	1.142
30	1.181	1.220	1.260	1.299	1.339	1.378	1.417	1.457	1.496	1.536
40	1.575	1.614	1.654	1.693	1.732	1.772	1.811	1.850	1.890	1.929
50	1.969	2.008	2.047	2.087	2.126	2.165	2.205	2.244	2.283	2.323
60	2.362	2.402	2.441	2.480	2.520	2.559	2.598	2.638	2.677	2.717
70	2.756	2.795	2.835	2.874	2.913	2.953	2.992	3.032	3.071	3.110
80	3.150	3.189	3.228	3.268	3.307	3.346	3.386	3.425	3.465	3.504
90	3.543	3.583	3.622	3.661	3.701	3.740	3.780	3.819	3.858	3.898

Kilogram to Pound

1kg = 2.2046lb

	0	1	2	3	4	5	6	7	8	9
0		2.20	4.41	6.61	8.82	11.02	13.23	15.43	17.64	19.84
10	22.05	24.25	26.46	28.66	30.86	33.07	35.27	37.48	39.68	41.89
20	44.09	46.30	48.50	50.71	51.91	55.12	57.32	59.5.	61.73	63.93
30	66.14	68.34	70.55	72.75	74.96	77.16	79.37	81.57	83.78	85.98
40	88.18	90.39	92.59	94.80	97.00	99.21	101.41	103.62	105.82	108.03
50	110.23	112.44	114.64	116.85	119.05	121.25	123.46	125.66	127.87	130.07
60	132.28	134.48	136.69	138.89	141.10	143.30	145.51	147.71	149.91	152.12
70	154.32	156.53	158.73	160.94	163.14	165.35	167.55	169.76	171.96	174.17
80	176.37	178.57	180.78	182.98	185.19	187.39	189.60	191.80	194.01	196.21
90	198.42	200.62	202.83	205.03	207.24	209.44	211.64	213.85	216.05	218.26

PREVIEW - YOUFIXTHIS.COM

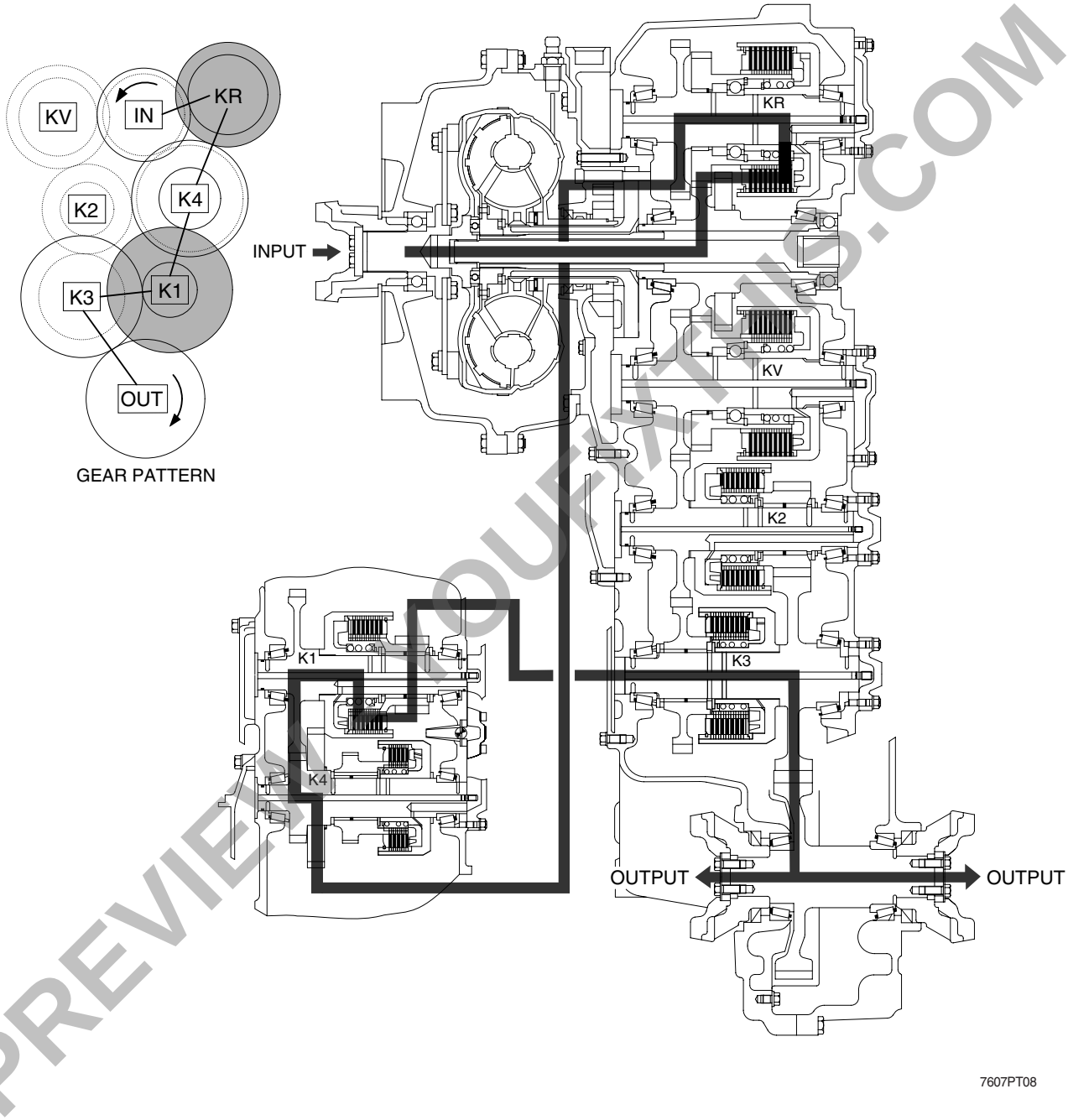
Download full manual at youfixthis.com

(2) Reverse

① Reverse 1st

In 1st reverse, reverse clutch and 1st clutch are engaged.

Reverse clutch and 1st clutch are actuated by the hydraulic pressure applied to the clutch piston.



PREVIEW YOUFIXTHIS.COM

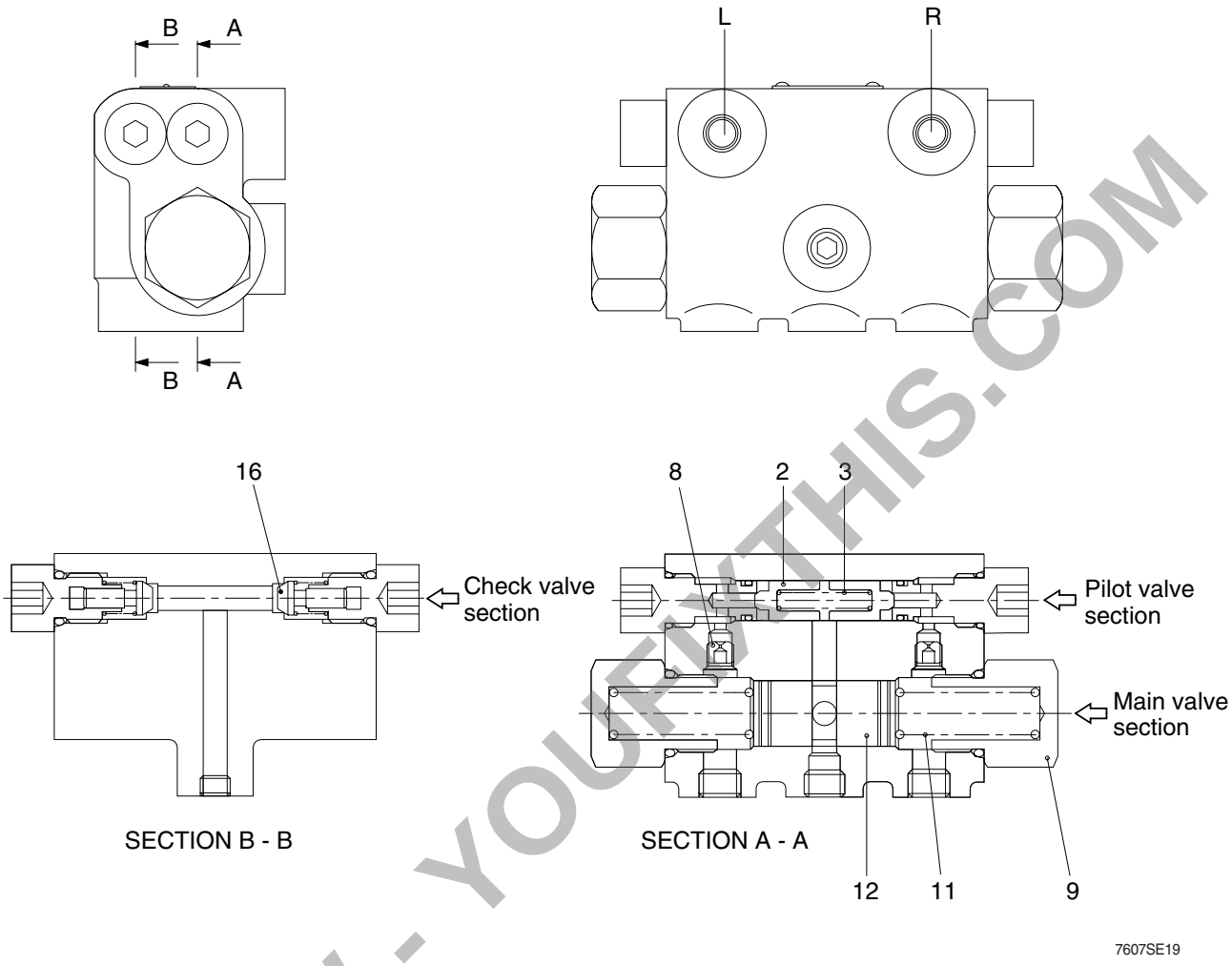
Download full manual at youfixthis.com

Problem	Cause	Remedy
Transmission pressure is low (all gears)	Low oil level.	Check transmission oil level and refill if necessary.
	Failed transmission pressure switch.	Verify transmission system pressure. Do transmission system pressure test.
	Plugged suction strainer.	Transmission pump may be noisy if transmission suction screen is clogged. Drain transmission. Remove and clean suction screen. Also, check condition of transmission filter.
	Stuck transmission pressure regulating valve or broken spring.	Remove transmission pressure regulating valve. Inspect for damage (See transmission control valve).
	Failed control valve gasket.	Inspect transmission control valve for external leakage. Remove control valve. Inspect or replace gasket.
	Stuck PPC valve.	Remove end cover to inspect modulation spool and check torque on cap screws retaining control valve to transmission.
Transmission system pressure is low (one or two gears)	Failed transmission pump.	Do pump flow test.
	Failed transmission control valve gasket.	Inspect transmission control valve for external leakage. Remove control valve. Inspect or replace gasket.
	Leakage in clutch piston or seal ring.	Disassemble and repair.
Transmission shifts too low	Low oil level (aeration of oil).	Add oil.
	Low transmission pressure.	Do transmission system pressure test.
	Restricted transmission pump suction screen.	Remove and clean screen.
	Low transmission pump flow.	Do transmission pump flow test.
	Excessive transmission element leakage.	Do transmission element leakage test using system pressure.
	Stuck PPC valve.	Remove end cover to inspect modulation spool. Replace if necessary.
	Restricted PPC valve orifice.	Remove orifice and inspect for contamination and /or plugging.
	Restricted oil passages between control valve and transmission elements.	Remove control valve and inspect oil passage.
	Incorrect transmission oil.	Change oil (SAE 10W-30/15W-40)

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

2) OPERATION



The cushion valve is a valve that eliminates steering jerk motion. It makes a higher pressurized oil to flow into another line in order to prevent the shock on steering system.

The pressure by rapid supplied pressurized oil from R port is higher than the spring (3) force, so it press and open the poppet (2). Then the oil flows to the central groove of the spool (12), and flows to L port through the poppet of the check valve (16) on L port side.

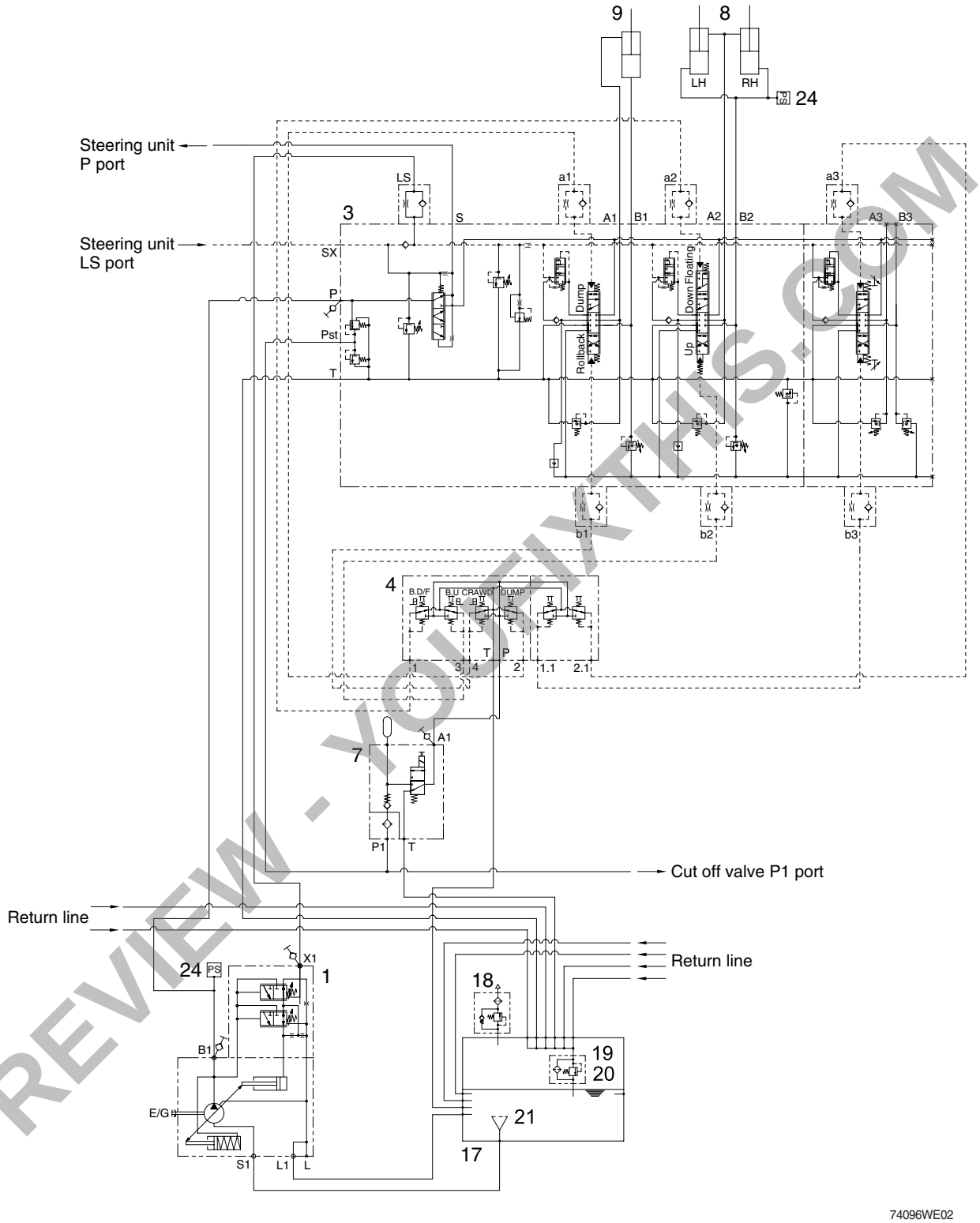
At this time, this pressurized oil flows to the pressure area of the plug (9) through the orifice (8), and this force is higher than the spring (11) force plus the oil pressure on L port side, so the spool (12) is shifted to the right. The flow of the supplied oil to L port side through the poppet (2) from R port side is trapped. The flow of this instant oil makes the function of the cushion. After this operation, the normal steering operation is not affected because this valve is not operated any longer.

Also, for the response of the pressure when the operation is slow as a cushion effect is not required, the spool (12) is closed before the poppet (2) is opened, so this valve is not operated.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

3. WORK EQUIPMENT HYDRAULIC CIRCUIT



74096WE02

1	Main pump	8	Boom cylinder	19	Return filter
3	Main control valve	9	Bucket cylinder	20	Bypass valve
4	Remote control valve	17	Hydraulic tank	21	Strainer
7	Safety valve	18	Air breather	24	Pressure sensor

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

7. HYDRAULIC SYSTEM RESTRICTION TEST

· **SPECIFICATION**

Oil temperature 45±5˚C(113±9˚F)
Engine speed High idle
Maximum pressure 1 MPa (10 bar, 145 psi) at steering unit.
Maximum pressure at main control valve
1 MPa (10 bar, 145 psi)

· **GAUGE AND TOOL**

Gauge 0~7 MPa (0~70 bar, 0~1000 psi) 2EA
This test will check for restrictions in the hydraulic system which can cause overheating of hydraulic oil.

1) Install temperature reader.
(see temperature reader installation procedure in this group)

2) Heat hydraulic oil to specifications.
(see hydraulic oil warm up procedure in this group)

3) Connect fitting and gauge to steering valve.

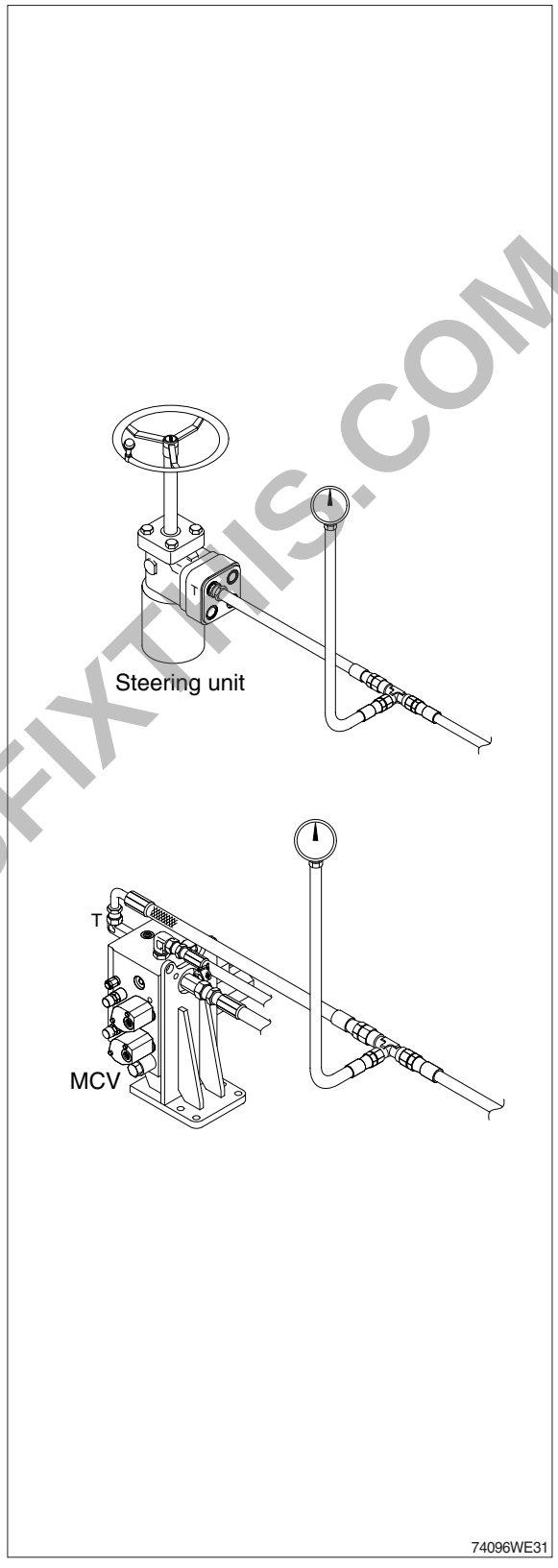
4) Connect fitting and gauge to main control valve.

⚠ **Do not operate steering or loader funct-ions or test gauge may be damaged.**

5) Run engine at specification and read pressure gauges.

If pressure is more than specification at the loader control valve, check for a kinked, dented or obstructed hydraulic line. Check loader control valve for a binding spool.

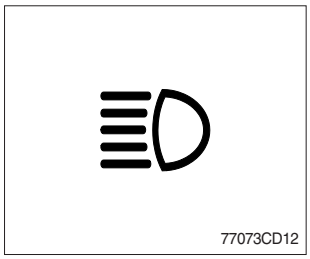
If pressure is more than specification at the steering unit, inspect neutral condition of the steering unit for a stuck spool. Make sure orifice plugs are installed in ends of priority spool in MCV.
Check for plugged orifice in priority valve and dynamic signal orifice on steering valve body.



PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

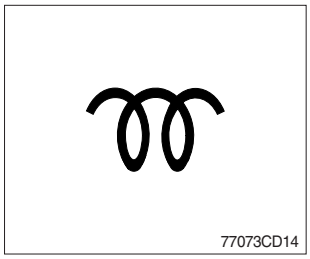
(4) High beam pilot lamp



① This lamp works when the illuminating direction is upward.

② This lamp comes ON when the dimmer switch is operated, e.g., when passing another vehicle.

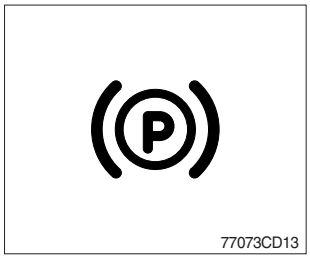
(5) Preheat pilot lamp



① This lamp lights ON when start switch is turned clockwise to the ON position. Light will turn off after approximately 5~45 seconds, depending on engine temperature, indicating that preheating is completed.

② When the lamp goes out the operator should start cranking the engine.

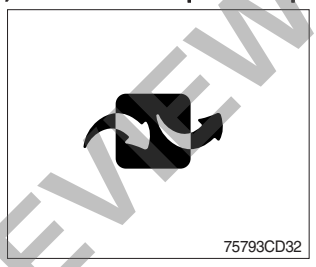
(6) Parking brake pilot lamp



① When the parking brake is actuated, the lamp lights ON.

※ **Check the lamp is OFF before driving.**

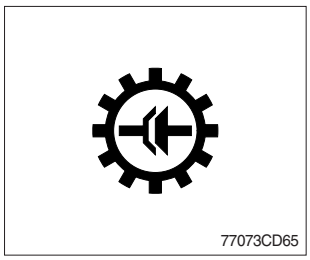
(7) Maintenance pilot lamp



① This lamp will be ON when the consuming parts are needed to change or replace. It means that the change or replacement interval of the consuming parts remains below 30 hours.

② Check the message in maintenance information of the monitor menu. Also, this lamp lights ON for 3 minutes when the start switch is ON position.

(8) Clutch cut off pilot lamp



① This lamp lights ON when the clutch cut off mode switch is positioned L, M, H.

※ **Refer to page 7-48.**

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

PREVIEW ONLY

You're viewing 18 of 397 pages

The full manual includes:

- All 397 pages, complete
- Searchable PDF (find any keyword)
- No watermarks
- Instant download
- Print-ready quality

GET FULL MANUAL NOW

Hyundai HL740-9, HL740XTD-9, HL740TM-9 Service Manual

Scan or click anywhere
youfixthis.com

Click anywhere on this page to get the full manual