REMOVAL

⚠ CAUTION!

Avoid disassembling cab if there are strong wind gusts, which could catch large surface area of cab shell and push it sideways during lift.

1. Park on firm and level ground.
2. Lower bucket to ground.
3. Shut engine down and remove key from starter switch.

⚠ WARNING!

If engine must be run while performing maintenance, use extreme care. Always have one person in the cab at all times. Never leave the cab with the engine running.

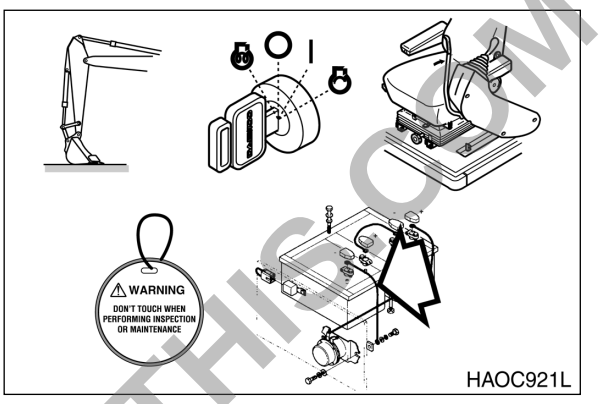


Figure 1

4. Set safety lever on "LOCK" position.
5. Hang maintenance warning tag on controls.
6. Disconnect negative (-) battery cable leading to frame from battery.
7. Prepare cab shell for removal by disconnecting wiring connectors for:
   A. Cab interior lighting.
   B. External light wiring.
   C. Radio antenna and connections.
   D. Wiper/washer connections.

   NOTE: *Control console wiring harnesses and hydraulic piping lines that pass through the floor of the cab do not need to be disassembled.*

   NOTE: *If unit is equipped with a cab protective structure (for forestry, or hazardous working conditions), it must be removed.*

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GENERAL DESCRIPTION

Schematic(s) presented in this section are laid out on facing pages.

An overlapping edge has been taken into consideration so that a photocopy can be made and pasted together to make a complete schematic.

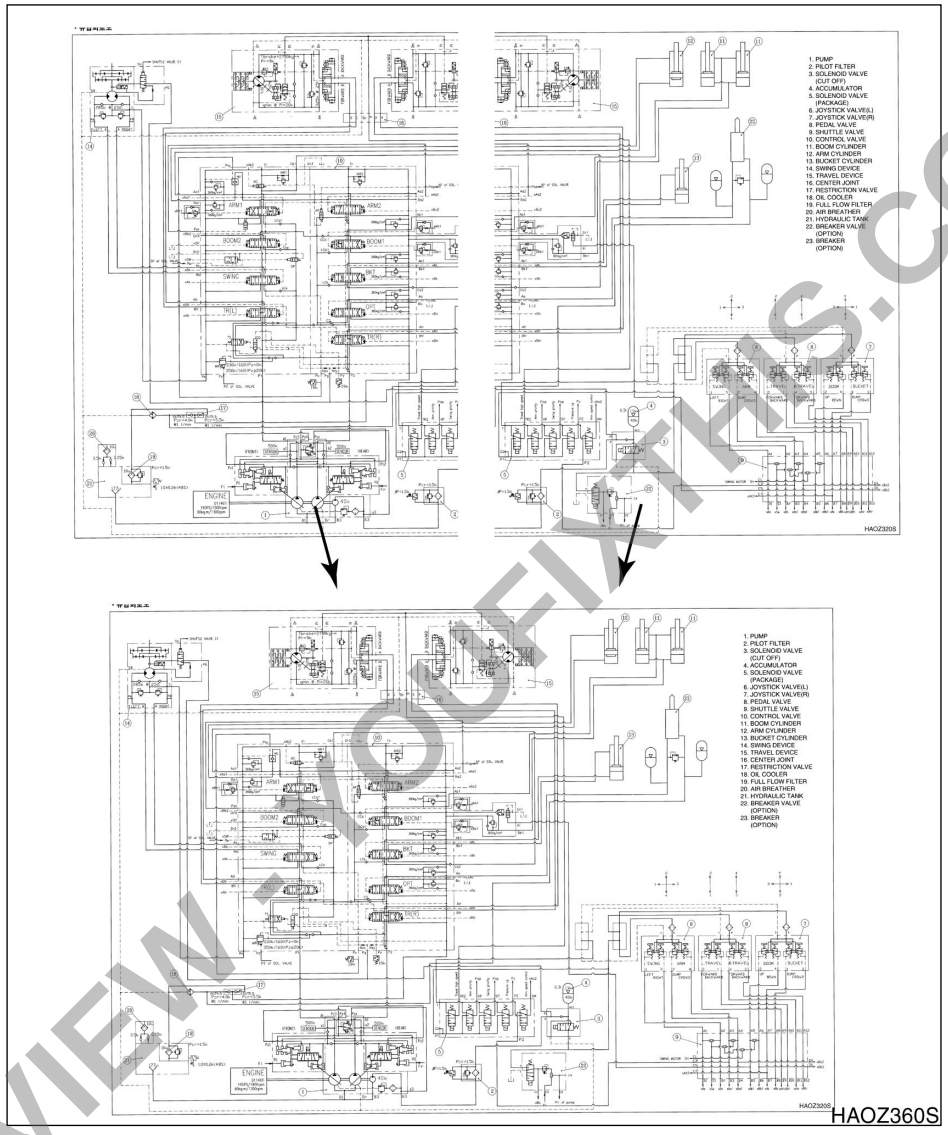


Figure 1

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GENERAL DESCRIPTION

Schematic(s) presented in this section are laid out on facing pages.

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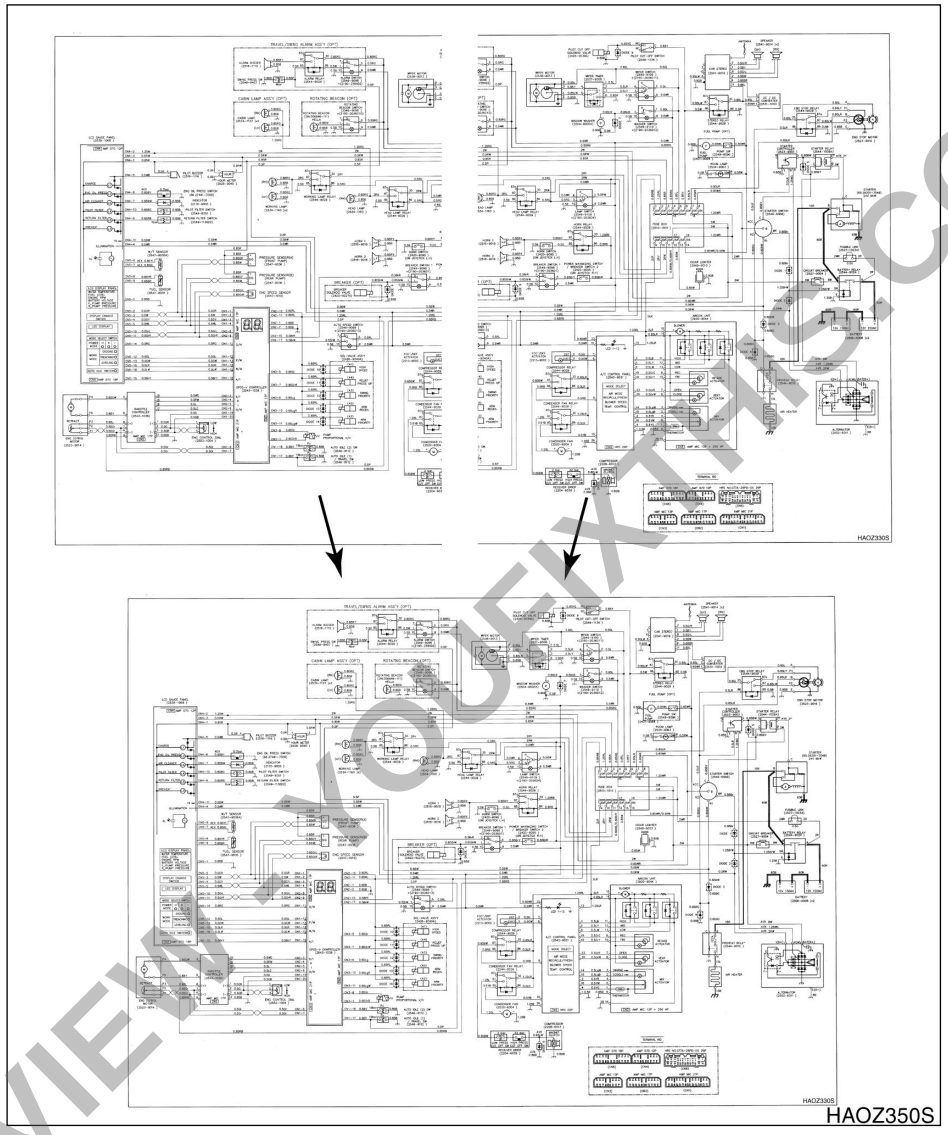


Figure 1

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1. BATTERY
2. FUEL TANK FILL CAP
3. FUEL TANK
4. HYDRAULIC OIL TANK
5. PUMPS
6. MUFFLER
7. COUNTERWEIGHT
8. ENGINE
9. RADIATOR AND OIL COOLER
10. AIR CLEANER
11. CONTROL VALVES
12. ARM CYLINDER
13. BOOM
14. BOOM CYLINDER
15. CAB
16. SEAT
17. CENTER JOINT
18. SWING MOTOR
19. PRECLEANER
20. TRAVEL MOTOR
21. LOWER ROLLER
22. UPPER ROLLER
23. TRACK GUIDE
24. TRACK ADJUSTER
25. IDLER
26. TRACK LINK AND SHOE
27. TRAVEL LEVER
28. WORK LEVER (JOYSTICK) CONTROLS
29. TOOTH POINT
30. SIDE CUTTER
31. BUCKET
32. PUSH LINK
33. GUIDE LINK
34. BUCKET CYLINDER
35. ARM

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GENERAL SPECIFICATIONS

Shipping Weight	33.9 metric tons (74,700 lb), includes 10% fuel, boom, 3,200 mm (10’ 5") arm, 1.3 m^3 backhoe bucket and standard shoes
Operating Weight	Add weight of full fuel tank and operator.
Shipping Weights With Optional Track Shoes	Add 400 kg (882 lb) for 700 mm (28") shoes
	Add 800 kg (1,764 lb) for 800 mm (32") shoes
	Add 1,000 kg (2,204 lb) for 850 mm (34") shoes
Major Component Weights	Standard Boom 2,530 kg (5,577 lb)
	2,600 mm (8’ 6") Arm 1,100 kg (2,425 lb)
	3,200 mm (10’ 5") Arm 1,100 kg (2,425 lb)
	4,000 mm (13’ 1") Arm 1,330 kg (2,932 lb)
	Boom Cylinders 285 kg (628 lb) each
	Arm Cylinder 419 kg (928 lb)
	Bucket Cylinder 269 kg (593 lb)
	Counterweight 6,400 kg (14,109 lb)
	Upper Turntable 8,870 kg (19,555 lb)
	Lower - below Swing Bearing 11,630 kg (25,640 lb)
Digging Forces:	
Bucket Cylinder	214 KN or 21,800 kg (48,060 lb) - (with either 3,200 mm [10’ 5"] or 2,600 mm [8’ 6"] arm)
Arm Cylinder	171 KN or 17,400 kg (38,360 lb) with 3,200 mm (10’ 5") standard arm
Fuel Tank Capacity	550 liters (145 U.S. gal)
Hydraulic System Capacity	460 liters (122 U.S. gal)
Hydraulic Reservoir Capacity	210 liters (56 U.S. gal)
Bucket Heaped Capacity Range	PCSA 1.25 - 1.83 m^3 (1.63 - 2.56 yd^3)
	IMPORTANT: Refer to the Load Weight, Bucket and Arm Length Compatibility Table for information on which bucket sizes may be used safely with which arm length, for load material weights.
Shoe Type	Triple Grouser
Shoe Width and Optional Sizes	600 mm (23.6") - standard
	700 mm (28") - optional
	800 mm (32") - optional
	850 mm (34") - optional
Ground Pressure Ratings:	
Standard 600 mm (23.6") shoe -	0.65 kg/cm^2 (9.24 psi)
Optional 700 mm (28.0") shoe -	0.56 kg/cm^2 (7.96 psi)
Optional 800 mm (32.0") shoe -	0.50 kg/cm^2 (7.11 psi)
Optional 850 mm (34.0") shoe -	0.47 kg/cm^2 (6.68 psi)
Transport Dimensions	

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Symptoms	Possible Causes	Remedies
1. No rotation and –		
a. Pressure at swing motor inlet *increases*	Swing brake not releasing	Check brake engagement and disengagement, check release pressure
	Internal damage to gearbox drive train	Replace broken gears, drive train assemblies
	Overload	Reduce load weight
b. Pressure at swing motor inlet shows *no increase,* **and** the swing motor is making irregular noises	Swing motor drive shaft damage	Replace swing motor
	Internal damage to gearbox drive train	Repair/replace broken or faulty assemblies
c. Pressure at swing motor inlet shows *no increase,* but **without** irregular *noises* from the swing motor	Hydraulic pump or valve broken	Troubleshoot hydraulic system
2. Oil leakage		
a. From drive shaft	Oil seal damaged	Replace oil seal
b. From bolted connections or other assembled surfaces	Assembly compound (joint sealer) old and not sealing, bolt not tight or flange warped	Disassemble and check mating surfaces. Reapply Loctite, torque bolts to specifications
3. Excess heat		
Gearbox casing becomes excessively hot, with or without irregular noise(s) during operation	Low oil level	Replace oil, refill to specified level
	Bearings or gear worn but not completely inoperative	Repair or replace gearbox

HAOE960L

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SAFETY ALERT SYMBOL

Be Prepared - Get To Know All Operating and Safety Instructions.

This is the Safety Alert Symbol. Wherever it appears in this manual or on safety signs on the machine you should be alert to the potential for personal injury or accidents. Always observe safety precautions and follow recommended procedures.

LEARN THE SIGNAL WORDS USED WITH THE SAFETY ALERT SYMBOL

The words **"CAUTION," "WARNING"** and **"DANGER"** used throughout this manual and on decals on the machine indicate degree of risk of hazards or unsafe practices. All three degrees of risk indicate that safety is involved. Observe precautions indicated whenever you see the Safety Alert "Triangle," no matter which signal word appears next to the "Exclamation Point" symbol.

CAUTION!

Indicates potential of a hazardous situation that, if not avoided, could result in minor or moderate injury. It may also be used to alert against a generally unsafe practice.

WARNING!

Indicates potential of a hazardous situation that, if not avoided, could result in serious injury or death. It may also be used to alert against a highly unsafe practice.

DANGER!

Indicates imminent hazard of a situation that, if not avoided, is very likely to cause death or extremely serious injury. It may also be used to alert against equipment that may explode or detonate if handled or treated carelessly.

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TO THE OPERATOR OF A DAEWOO EXCAVATOR

⚠ DANGER!

Unsafe use of the excavator could lead to serious injury or death. Operating procedures, maintenance and equipment practices or traveling or shipping methods that do not follow the safety guidelines on the following pages could cause serious, potentially fatal injuries or extensive damage to the machine or nearby property.

Please respect the importance of taking responsibility for your own safety, and that of other people who may be affected by your actions.

The safety information on the following pages is organized into the following sections:

1. “General Safety Essentials” on page 5
2. “Location of Safety Labels” on page 5
3. “Summary of Safety Precautions for Lifting in Digging Mode” on page 6
4. “Work Site Precautions” on page 7
5. “Operation” on page 9
6. “Equipment” on page 14
7. “Maintenance” on page 18
8. “Shipping and Transportation” on page 21

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ENGINE PERFORMANCE CURVES (PER KS-R1004 STANDARD)

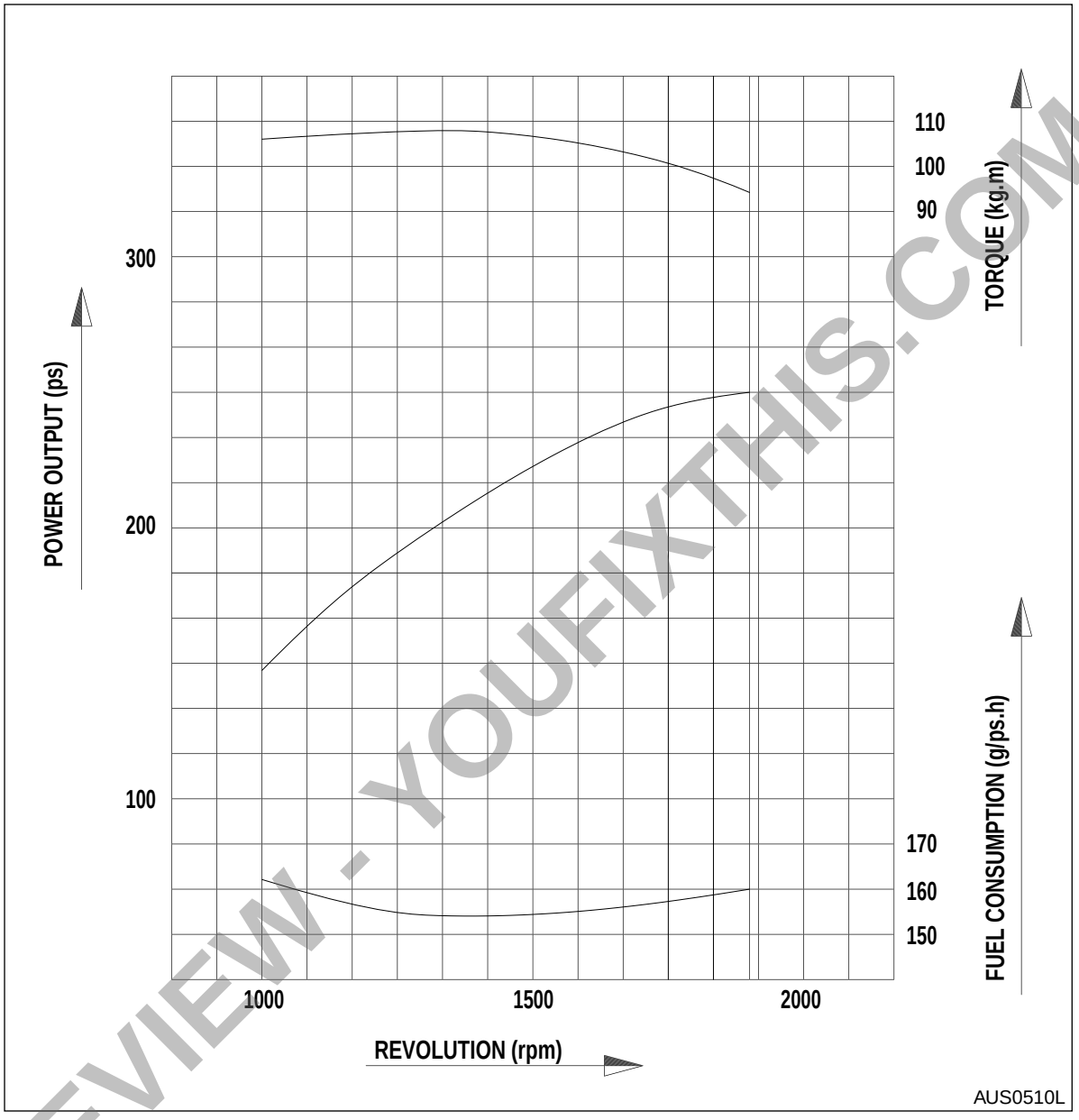


Figure 4

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TORQUE VALUES FOR SPLIT FLANGES

The following chart provides the tightening torques for split flange connections used in hydraulic systems. Split flanges and fitting shoulders should fit squarely. Install all bolts, finger tight and then torque evenly.

NOTE: *Over torquing bolts will damage the flanges and/or bolts, which may cause leakage.*

FLANGE SIZE (*)	BOLT SIZE	BOLT TORQUE	
		KILOGRAM METER (kg•m)	FOOT POUNDS (ft lb)
1/2"	5/16"	2.1 - 2.5	15 - 18
3/4"	3/8"	3.0 - 3.7	22 - 27
1"	3/8"	3.7 - 4.8	27 - 35
1 - 1/4"	7/16"	4.8 - 6.2	35 - 45
1 - 1/2"	1/2"	6.4 - 8.0	46 - 58
2"	1/2"	7.6 - 9.0	55 - 65
2 - 1/2"	1/2"	10.9 - 12.6	79 - 91
3"	5/8"	19.1 - 20.7	138 - 150
3 - 1/2"	5/8"	16.2 - 18.4	117 - 133

(*) - Inside diameter of flange on end of hydraulic tube or hose fitting.

NOTE: *Values stated in chart are for Standard Pressure Series (Code 61) Split Flanges.*

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MODEL	SERIAL NUMBER RANGE
Solar 290LC-V	0001 and Up
Solar 290LL	1001 and Up
Solar 300LC-V	1001 and Up
Solar 300LC-V	1001 and Up
Solar 300LL	1001 and Up
Solar 340LC-V	1001 and Up
Solar 400LC-V	1001 and Up
Solar 420LC-V	1001 and Up
Solar 450LC-V	1001 and Up
Solar 470LC-V	1001 and Up

TABLE OF CONTENTS

General Description 3
Theory of Operation 3
Troubleshooting 4
Replacement of Rotor and Vane 4
Replacement of Rear Cover 5
Replacement of Armature 6

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LOWER STRUCTURE AND CHASSIS

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CONTROL PANEL

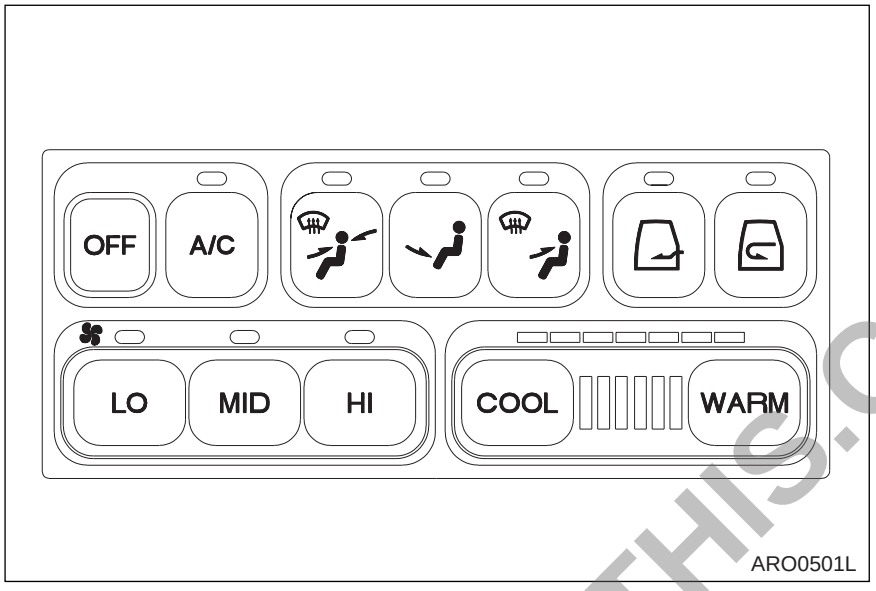


Figure 2

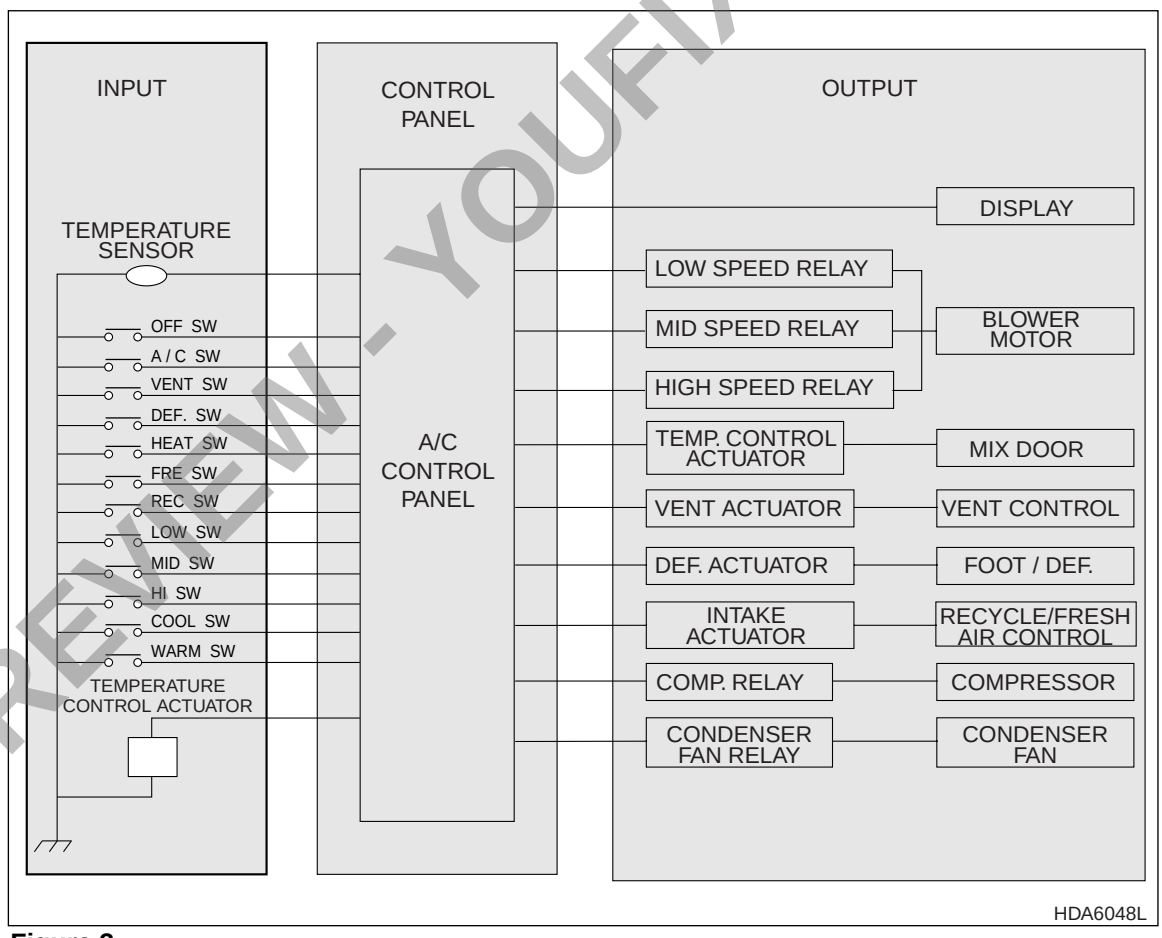


Figure 3

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HYDRAULIC SCHEMATIC

The hydraulic schematic(s) is available in the "Hydraulic and Electrical Schematic Shop Manual." This manual is a collection of diagrams and schematics for a number of models.

GENERAL NOTES

When referring to the schematic, refer to the following items:

- As shown in the schematic, the main pump assembly is driven by the engine. Mechanical energy is converted to hydraulic power, generating the required hydraulic flow which drives the system. Two main pumps (a right side pump and a left side pump) make up the main pump assembly.
- Hydraulic output from the right side pump is transmitted to the right side of the control valve. Output from the left side pump is transmitted to the valve spools on the left side of the control valve. Hydraulic output from the pilot pump is used to control the pump and to operate pilot and solenoid valves.
- The right half of the hydraulic control valve, supplied by the right pump in the pump assembly, operates valve spools for right travel, swing, boom up and arm functions. The amount of oil flow to the actuators at the output end of each of those circuits is regulated through the movement of each individual valve spool.
- The left half of the hydraulic control valve, fed by the left pump in the pump assembly, has control spools for left travel, bucket, boom and arm operation.
- Two-stage operation is a feature of boom and arm function. All of these circuits can be operated using the output of only one half of the hydraulic pump assembly (one pump or the other), or – since both halves of the control valve have a spool and available circuit for these functions – the output of both pumps can be combined, allowing higher speed operation. Boom up, arm crowd and dumping functions can operate in any one of the two available power modes – the standard or general duty mode, the high speed/rapid cycling mode.
- Whenever the right travel or left travel control spools are shifted, output from the main pump assembly passes through the center joint to one or both of the axial piston motors driving the side frame crawler tracks. A pilot valve connected to the swash plate of each travel motor changes motor capacity (and output) in direct proportion to the position of the travel switch selected by the operator.
- The hydraulic reservoir return line and the pilot circuit both have 10 micron full flow filters. The disposable elements in these two canister-type filters trap and remove impurities from the oil in the system. An 80 mesh, 177 micron reservoir intake strainer also helps maintain system cleanliness and should be cleaned each time hydraulic fluid is drained and replaced. An oil cooler in the hydraulic system helps maintain the operating temperature of the system at approximately 50°C (122°F).
- The arm cylinder operating circuit includes anti-vacuum valves which protect the hydraulic system from vacuum that could result from external shocks or other unusual conditions. Boom, Arm, and Bucket cylinder circuit are also protected by overload relief valves. Whenever high pressure is generated as a result of a shock or overload, excess pressure is dumped to the reservoir return circuit through the relief valve.

A selection valve in the travel circuit can be used to provide constant high torque/low speed travel, or variable speed/variable torque output for travel. To prevent sliding during simultaneous travel and boom/arm/bucket operation, select the high torque/low speed travel position.

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PARTS LIST

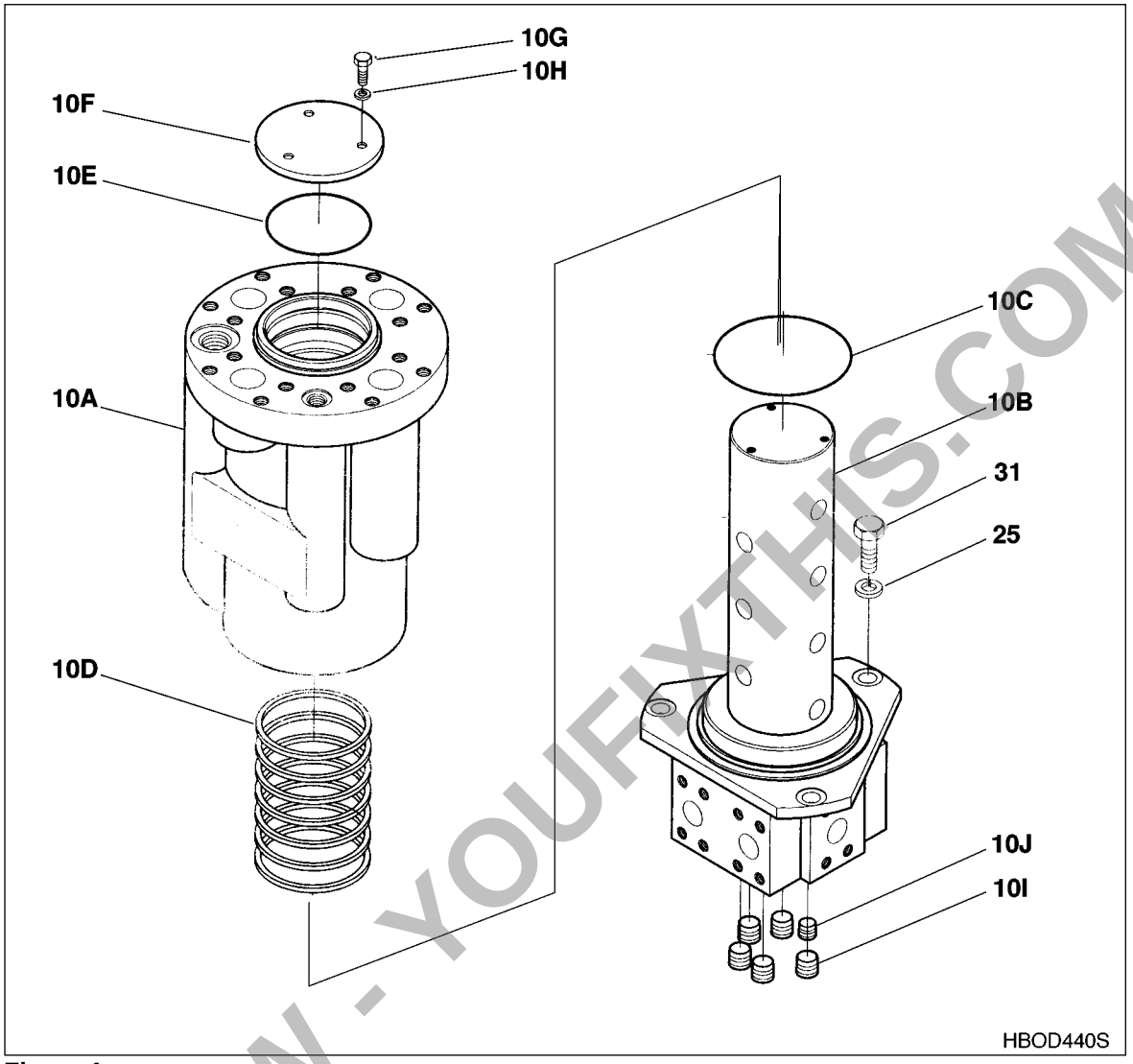


Figure 1

Reference Number	Description
10A	Center Joint Body
10B	Spindle
10C	O-ring
10D	Slipper Seal
10E	O-ring
10F	Cover

Reference Number	Description
10G	Hex Bolt
10H	Spring Washer
10I	Plug
10J	Plug
25	Spring Washer
31	Bolt

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SPECIAL TOOLS AND MATERIALS

The special tools shown in Figure 5 can be fabricated for use in Swing Motor assembly.

TOOLS

Reference Number	Tool	Dimension
24, 25	12 mm L-Wrench	M14
28	17 mm L-Wrench	PF1
30	46 mm Spanner	M36 x 1.5P
32	5 mm L-Wrench	M6 x 75

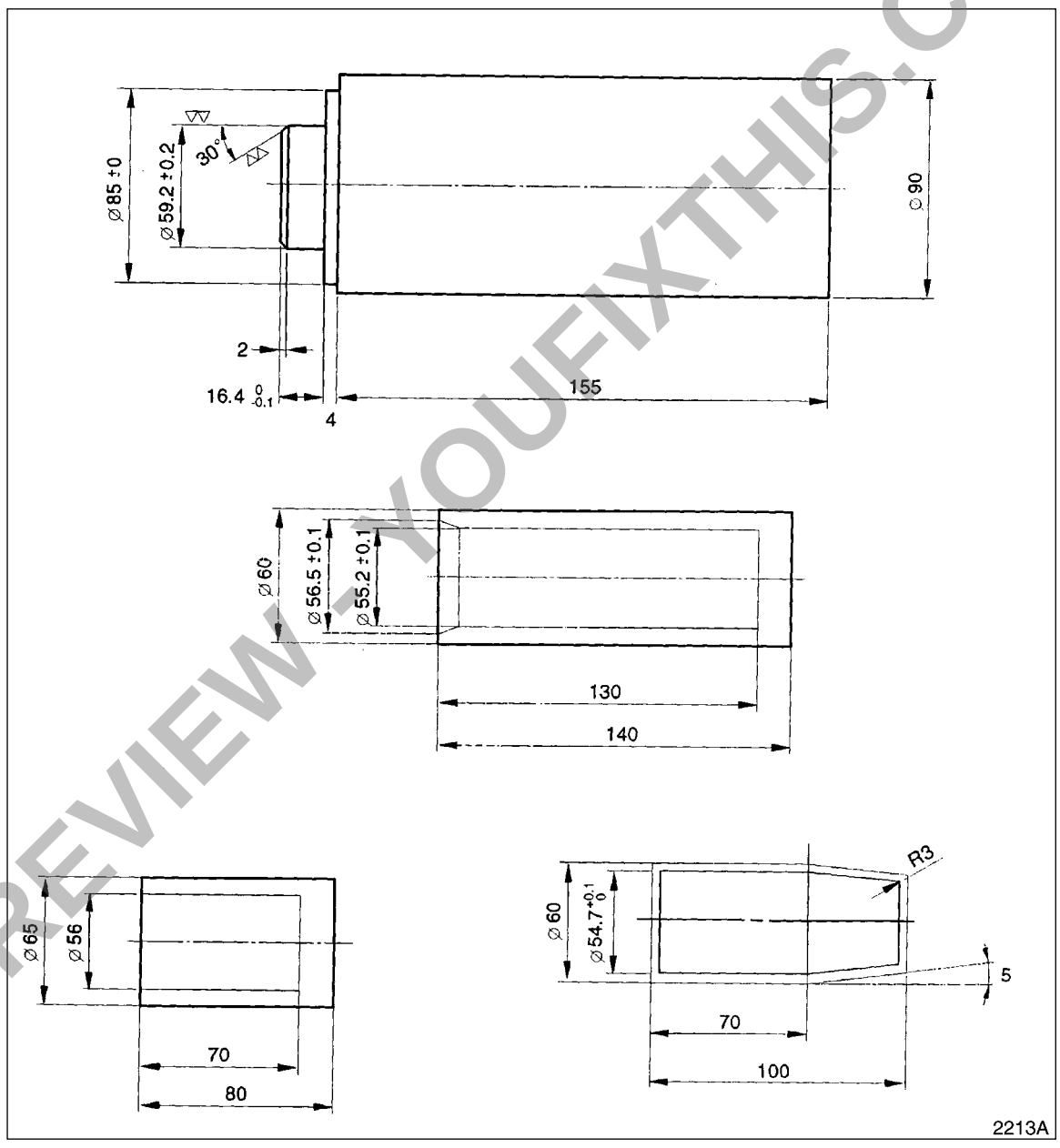


Figure 5

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TIGHTENING TORQUE CHART

Section	No.	Name	Size (mm)	B	Tightening torque kg•cm
Hydraulic motor part	366	Socket Bolt	M12x45	10	1,000
	401	Socket Bolt	NPTF 1/16	17	4,400
	402	Socket Bolt	M20x100	17	4,400
	461	Plug	NPTF 1/16	4	90
	464	VP Plug	PF 1/4	27	1,100
	545	Orifice	NPTF 1/16	4	70
	546	Orifice	NPTF 1/16	4	70
	564	Plug	PF 1/4	6	220
	567	VP Plug	PF 1/4	19	370
	569	Plug	PF 1/4	6	370
	571	Plug	PF 3/8	8	750
	703	Orifice	M4x0.7	2	35
	704	Orifice	M5x0.8	2.5	70
Reduction gear part	029	Socket Bolt	M16x100	14	3,000
	030	Socket Bolt	M8x20	6	350
	032	Plug	PF 1/2	10	1,100
	054	Set Screw	M8x16	6	500

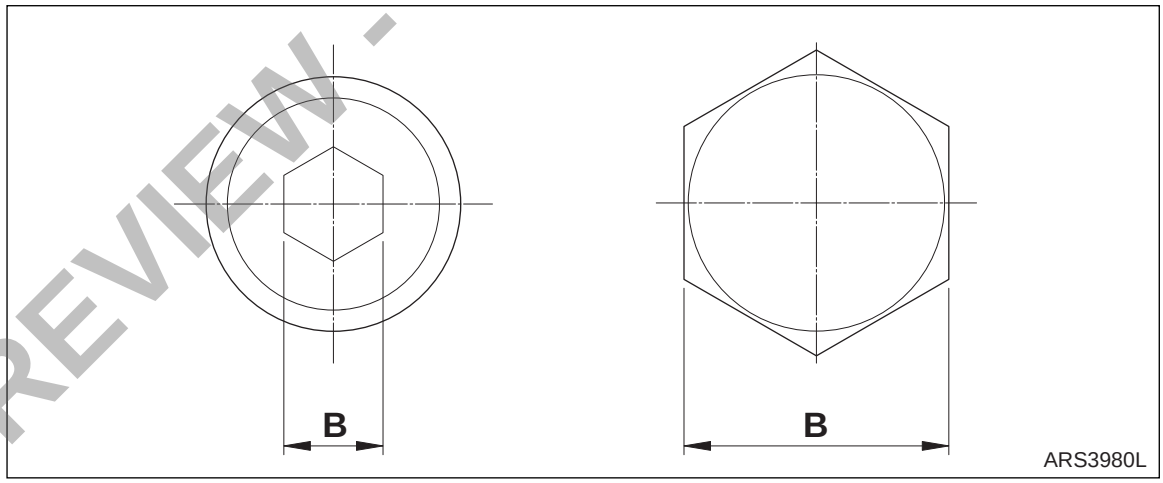


Figure 11

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C. Assemble the needle cage (022) in the inner side of the No. 2 planetary gear (013), place the side plate (019) at both sides, then insert them into the No. 2 carrier.

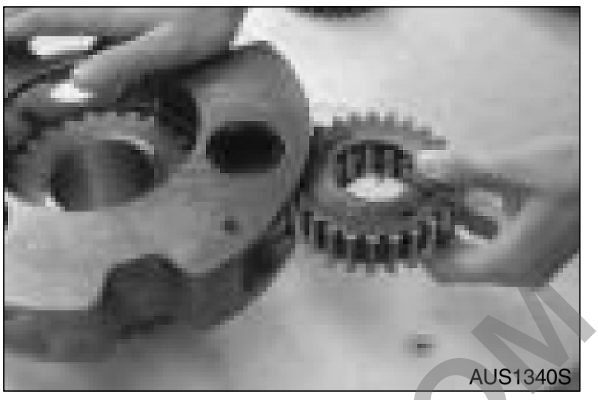


Figure 99

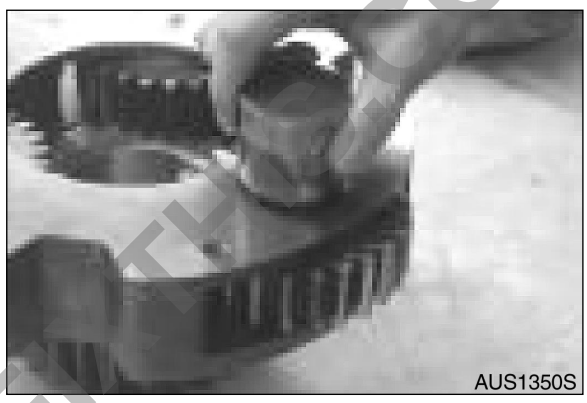


Figure 100

D. Insert the spring pin (036) into the pin hole of the No. 2 carrier and caulk it at two places with a punch so that it may not be fallen out.

NOTE: *Align the carrier pin to the center of the planetary gear.*



Figure 101

14. Tighten two M10 eyebolts to the No. 2 carrier subassembly, and use a crane to assemble the No. 2 planetary gear and ring gear carefully.



Figure 102

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3. New disassembly position: (1, 2 and 3, Figure 54).

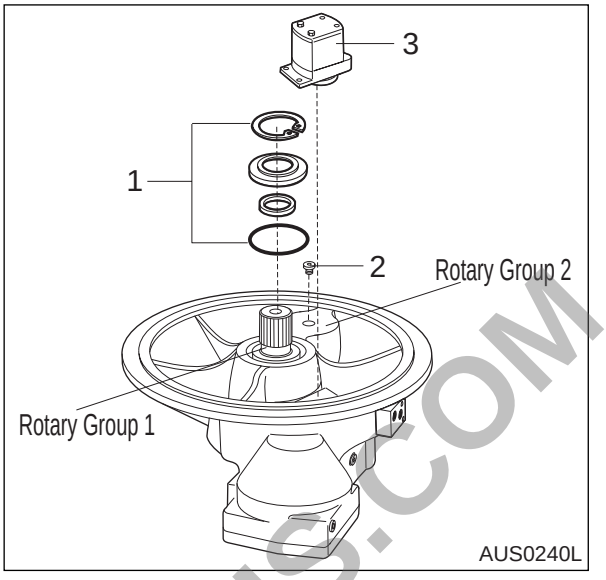


Figure 54

4. Press out hydraulically or mechanically rotary group with a tool device.

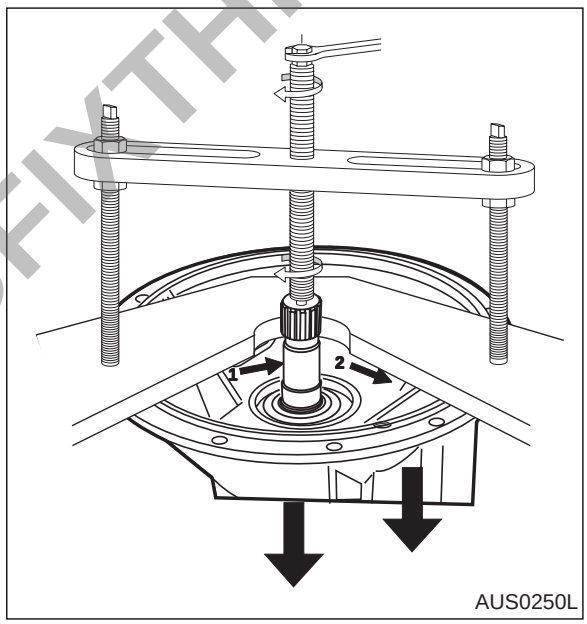


Figure 55

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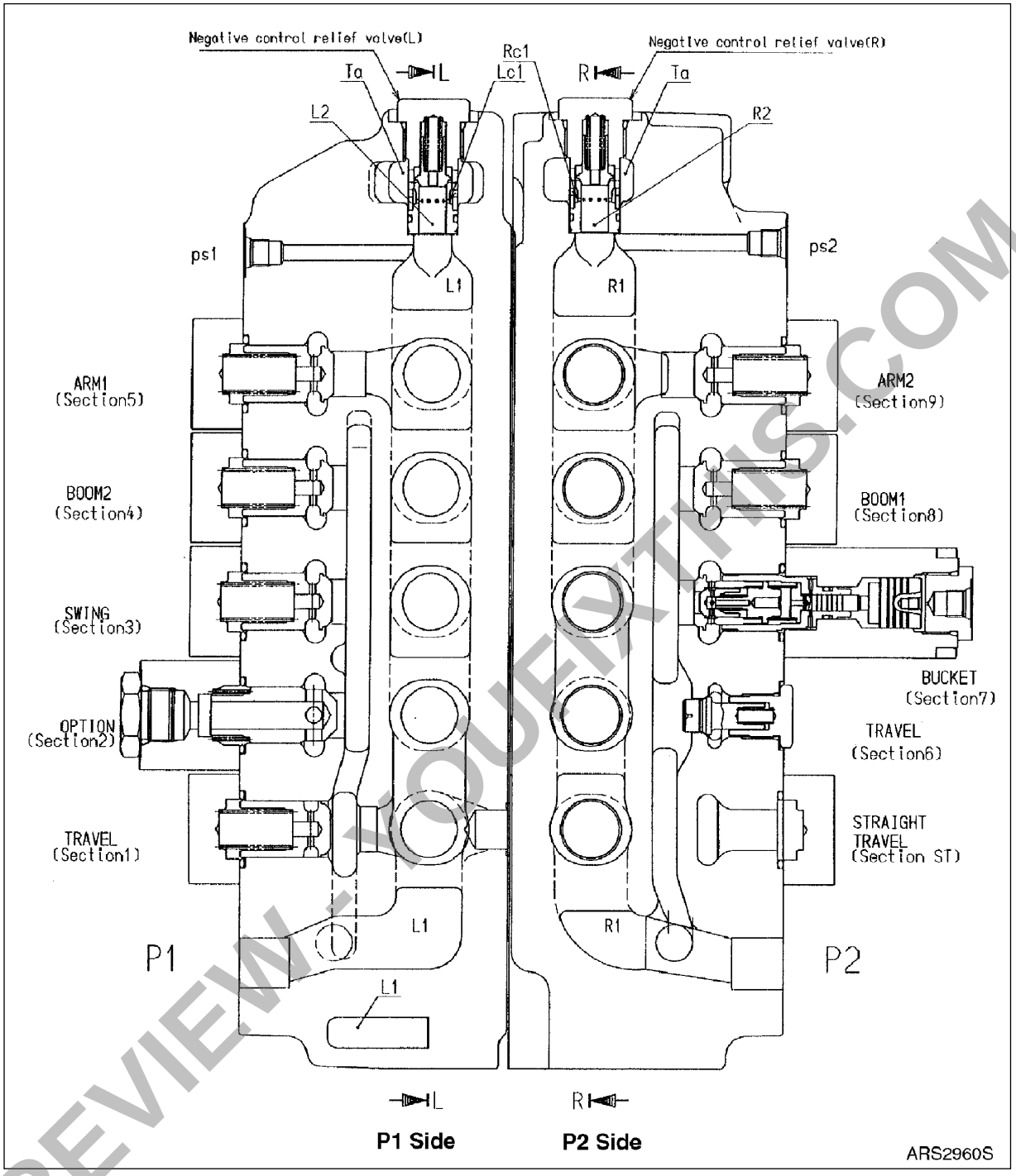


Figure 1

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TROUBLESHOOTING, TESTING AND ADJUSTMENT

GENERAL

Problem	Possible Cause	Remedy
Spool does not stroke.	Hydraulic oil excessively hot.	Remove blockage in oil piping.
	Hydraulic oil contaminated.	Change oil and clean oil passages.
	Over tightened piping port fittings.	Check torque.
	Valve housing deformed when assembling.	Loosen assembling bolts and check.
	Pressure too high.	Check pump port pressure and cylinder port pressure with pressure gauge.
	Spool bent.	Replace valve assembly.
	Return spring damaged.	Replace damaged parts.
	Spring or cap crisscrossed.	Loosen, center, and retighten cap.
	Valve temperature uneven.	Warm up entire system.
	Dirt in valve.	Clean valve (flushing).
	Lack of pilot pressure.	Check pilot valve and pilot relief pressure.
Fail to keep load	Cylinder leaks.	Check seal parts of cylinder.
	Spool leaks.	Check spool.
	Overload relief valve leaks.	Clean valve housing and relief valve seat parts.
	Antidrift valve leaks.	Remove antidrift valve and clean every seat parts.
		If seat parts are damaged, replace poppet or lap poppet and seat parts.
		If draft valve is malfunction, replace spool and sleeve at the same time.
Load drops when changing the spool from neutral to up.	Dirt in load check valve.	Remove and clean check valve.
	Poppet or seat parts in check valve scratched.	Remove poppet or lap poppet and seat parts.

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4. Install spring (10) in case (1) and pressure reducing valve assembly (6, 7, 8, 9, 11).

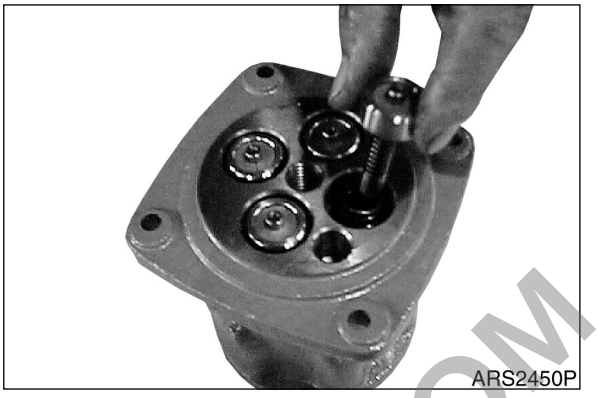


Figure 25

5. Install seal (20) on plug (18).

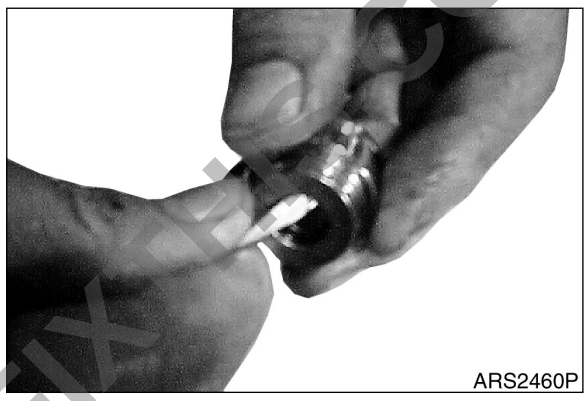


Figure 26

6. Install O-ring (19) on plug (18).



Figure 27

7. Install push rod (14) on plug (18).

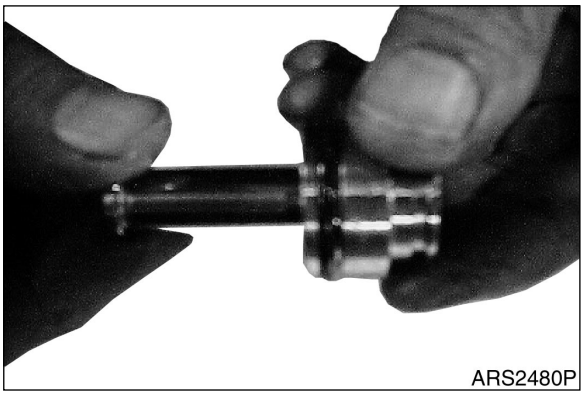


Figure 28

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SOLAR 340LC-V

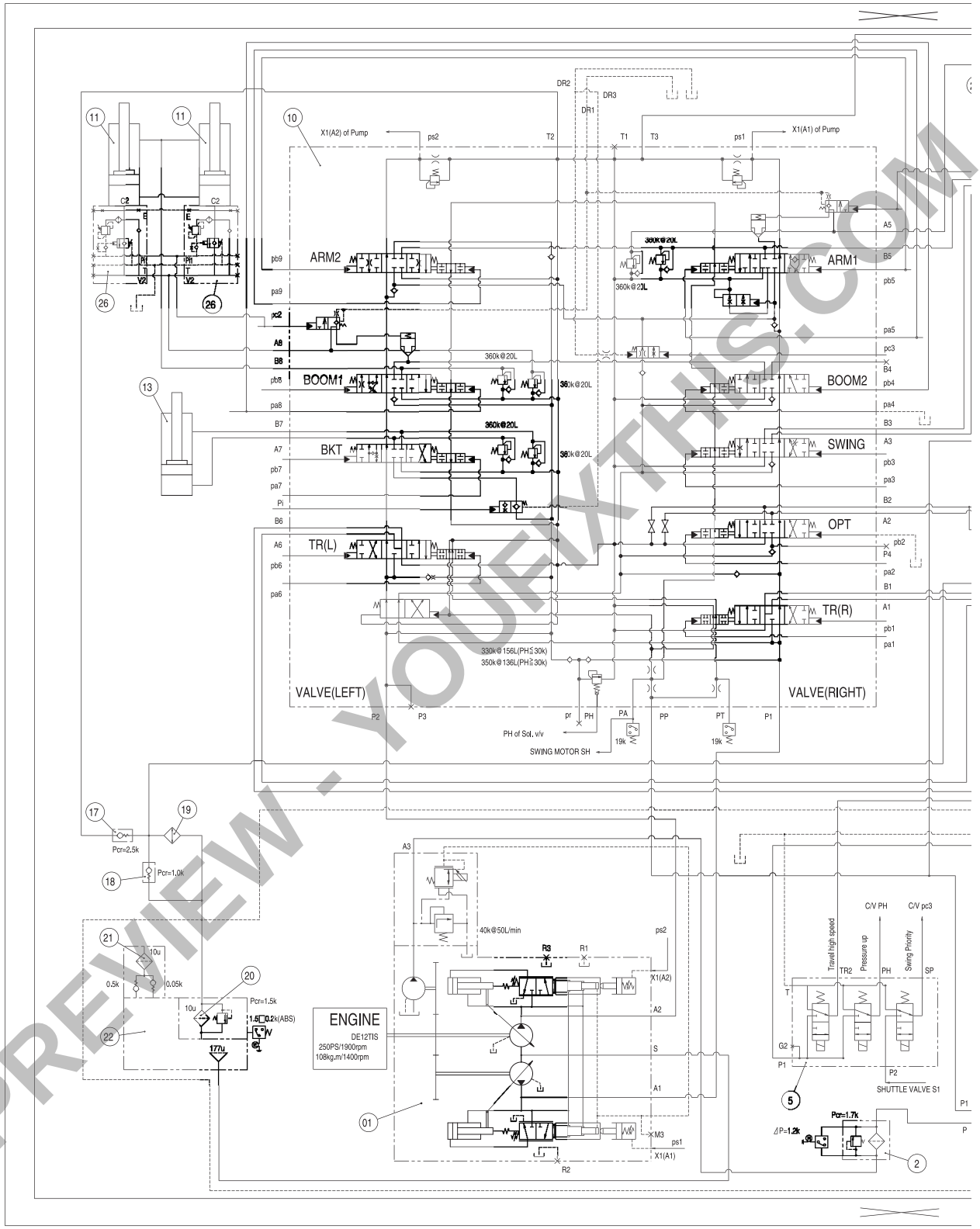


Figure 2

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Contents of Machine Status

Display Item of Machine State Information			Display	Remarks
1. EPPR Current			"mA"	EPPR valve current
2. Dial Voltage			"mV"	Dial voltage
3. TPS Voltage			"mV"	TPS voltage
4. Input State	1. Alternator	8. Pressure (Px)	On or Off	Input status delivered from switches and sensors to e-EPOS controller is displayed as on or off. * Number 3 (Work/Travel sel.) is used only wheel type machine. * Number 13 (OWD Select) is optional part.
	2. Power Max	9. E/G Oil Press.		
	3. Work/Travel Sel.	10. Air Cleaner		
	4. Hi Speed Sel.	11. Return Filter		
	5. Auto Travel	12. Pilot Filter		
	6. Work Lamp	13. OWD Select		
	7. Pressure (Py)			
5. Output State	1. Relief Press Up	4. Spare Out 1	On or Off	Output status delivered from e-EPOS controller to solenoid valves is displayed as on or off.
	2. High Speed	5. Spare Out 2		
	3. Swing Priority			
6. Hydraulic Oil Temp			˚C (˚F)	Hydraulic oil temperature.
7. Boom Pressure (Opt)			BAR	On machine with overload warning device, it displays cylinder pressure.
8. T/M Pressure (Wheel Type)			BAR	At this machine, it is always displayed as "O."

Sub-menu Selections

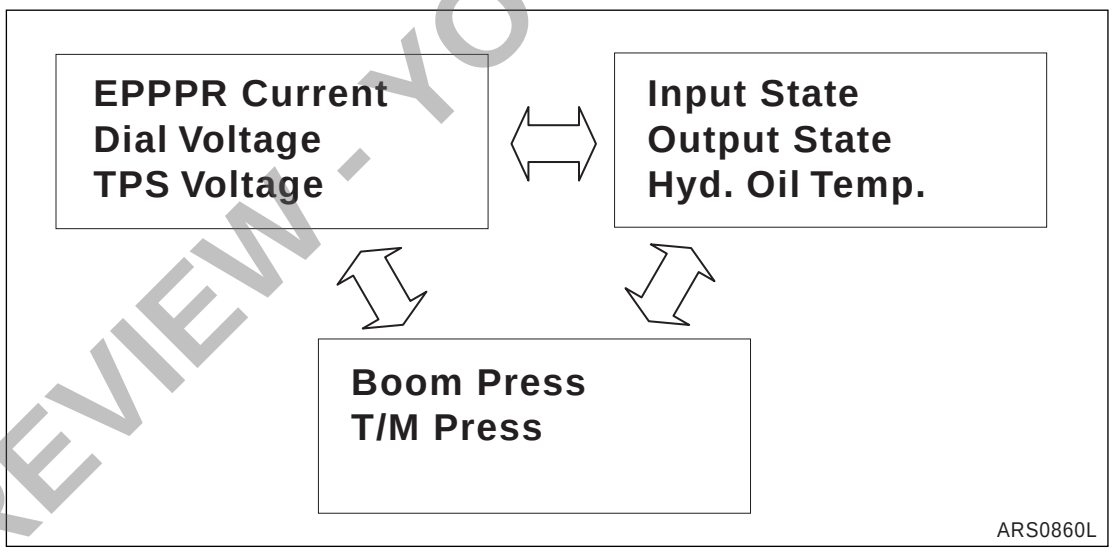


Figure 23

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AUTOMATIC TRAVEL SPEED CONTROL - CIRCUIT DIAGRAM

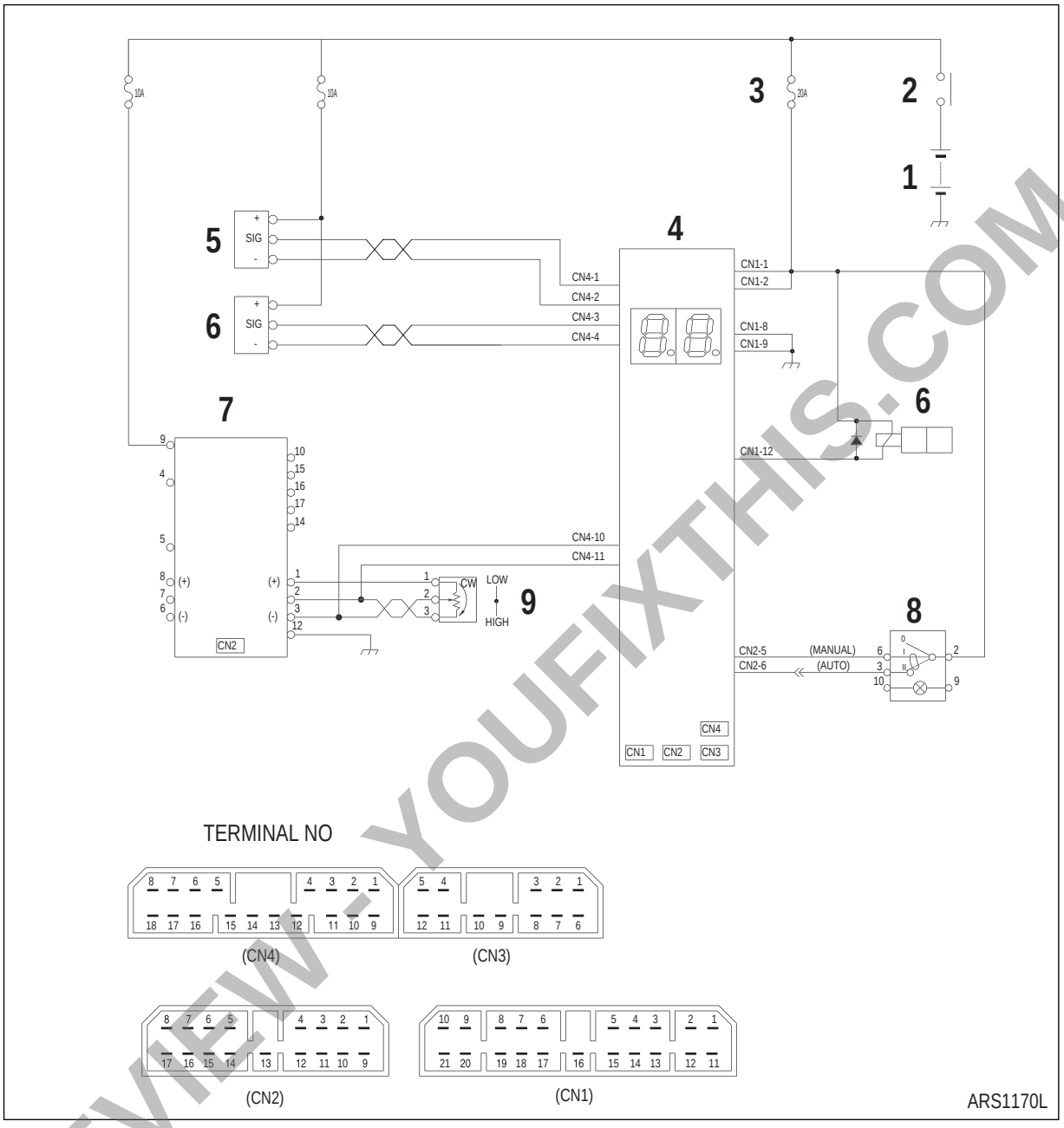


Figure 61

Reference Number	Description
1	Battery
2	Battery Relay
3	Fuse
4	e-EPOS Controller
5	Pressure Sensor (Front Pump)

Reference Number	Description
6	Pressure Sensor (Rear Pump)
7	Engine Throttle Controller
8	Automatic Travel Select Switch
9	Engine Control Dial
10	Solenoid Valve (High Speed)

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