BACKHOE LOADER

SERVICE MANUAL

H930S, H940S

HYUNDAI

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3. SPECIFICATION FOR MAJOR COMPONENTS

1) ENGINE

Item	Specification	
	H940S	H930S
Manufacture	PERKINS	
Model	1104C-44T	
Type	4-stroke, turbocharged	4-stroke, turbocharged
Non-road emission standards	Certified to EPA Tier 2 / EU stage II	
Piston displacement	4.4 ℓ (1.2 U.S.gal)	
Fuel	Diesel	
Rated horse power (Gross)	100 hp (74.5 kW) at 2200 rpm	92 hp (68.5 kW) at 2200 rpm
Maximum torque at 1350 rpm	42 kgf · m (301 lbf · ft)	40 kgf · m (291 lbf · ft)
Alternator	100 amp	
Battery	12V	

2) MAIN PUMP

Item		Specification	
		H940S	H930S
Type		Fixed displacement double gear pump	
Capacity	Steering	31 cc/rev	31 cc/rev
	Attachment	35 cc/rev	31 cc/rev
Maximum operating pressure		250 kgf/cm² (3560 psi)	
Rated oil quantity	Steering	68 ℓ /min (18.0 U.S.gpm)	68 ℓ /min (18.0 U.S.gpm)
	Attachment	77 ℓ /min (20.3 U.S.gpm)	68 ℓ /min (18.0 U.S.gpm)
Rated speed		2200 rpm	

3) MAIN CONTROL VALVE FOR LOADER

Item		Specification
Type		2 spool (option : 3 spool)
Operating method		Manual control
Main relief valve pressure		250 kgf/cm² (3560 psi)
Unloading relief valve pressure		220 kgf/cm² (3130 psi)
Overload relief valve pressure	Bucket out	175 kgf/cm² (2490 psi)
	Bucket in	300 kgf/cm² (4270 psi)

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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.)

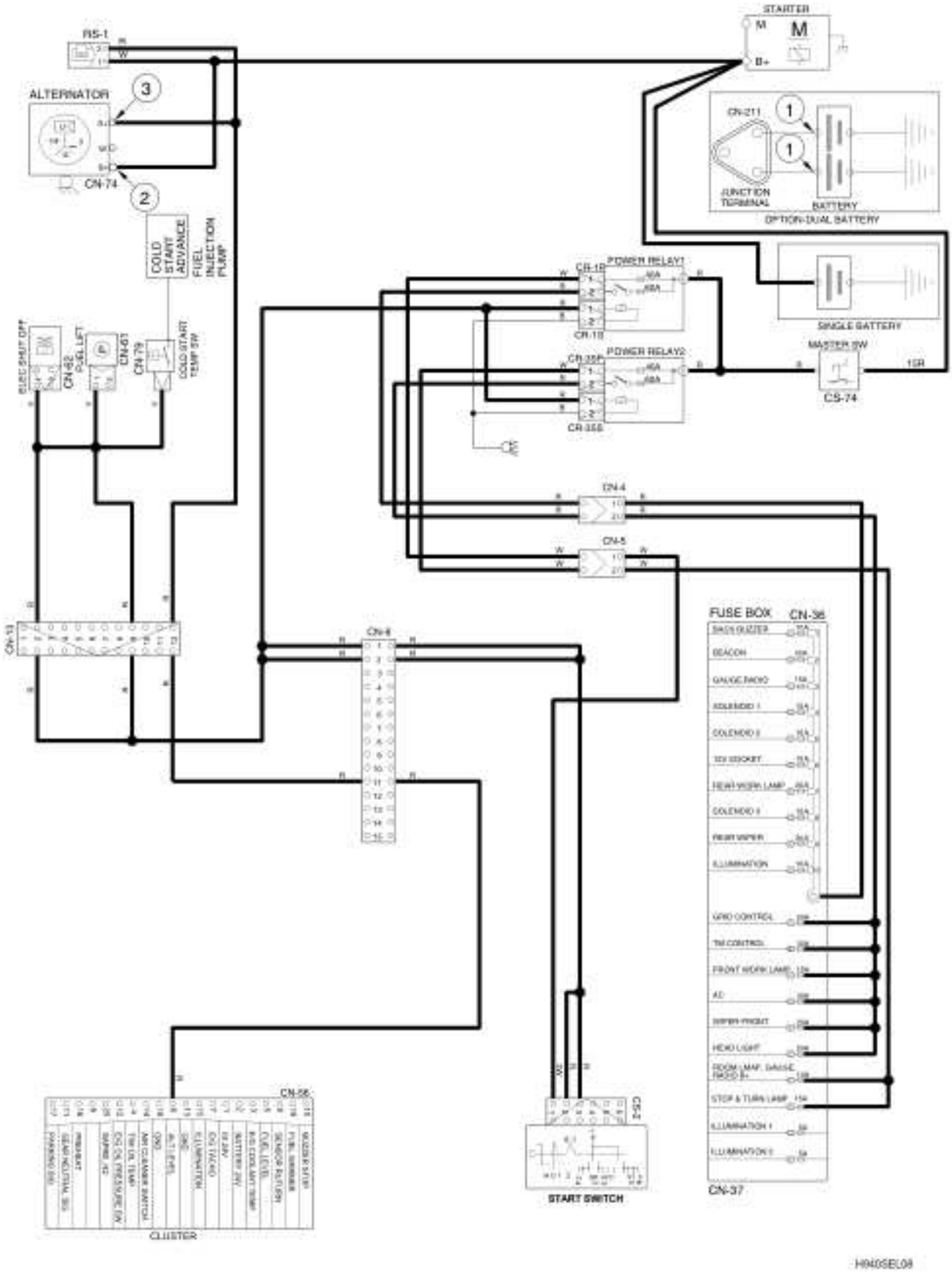
  Step 3. Troubleshooting

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

Problem	Cause	Remedy
Transmission slippage	Low oil level.	Add oil.
	Wrong oil grade.	Change oil.
	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.
Machine will not move	Low oil level.	Add oil.
	Applied park brake.	Check parking brake fuse. Check continuity to parking brake switch.
	Malfunctioning parking brake solenoid valve.	Remove and inspect parking brake solenoid valve. Check for power to solenoid valve.
	Excessive leakage in transmission element.	Do transmission element leakage test using system pressure.
	Worn clutch disks.	Repair transmission.
	Low or no transmission pressure.	See transmission pressure is low in this group.
	Service brake will not release.	Do brake pedal operational check. Do service and park system drag checks.
	Failed torque converter.	Do torque converter stall test. If engine pull down in normal, torque converter is good.
	Broken shafts or gears.	Drain transmission to determine if large pieces of metal contamination are present.
	Broken drive shafts.	Inspect drive shafts and universal joints for external damage. Repair.
Machine does not engage in low gear	Malfunctioning transmission control solenoid valve.	Check solenoid valve.
	Stuck spool in transmission control valve.	Remove and inspect transmission control valve spools.

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CHARGING CIRCUIT



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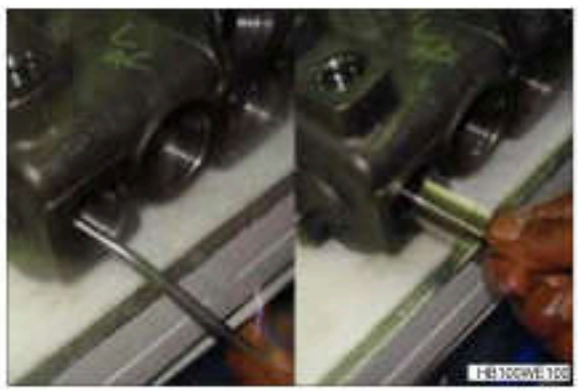
6) PRIORITY INLET SPOOL ASSEMBLY

(1) Insert orifice of (ø 0.75 mm) in the spool as shown in picture.

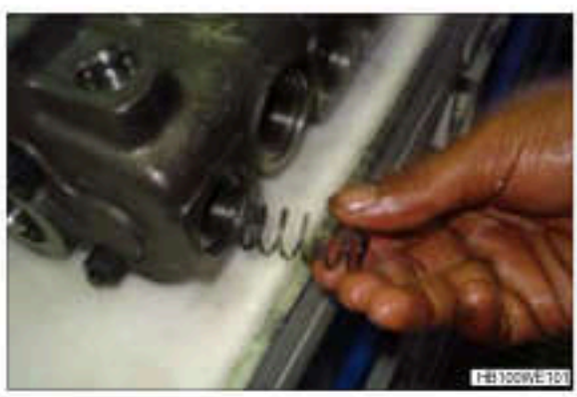


(2) Lubricate the spool cavity with hyspin VG46.

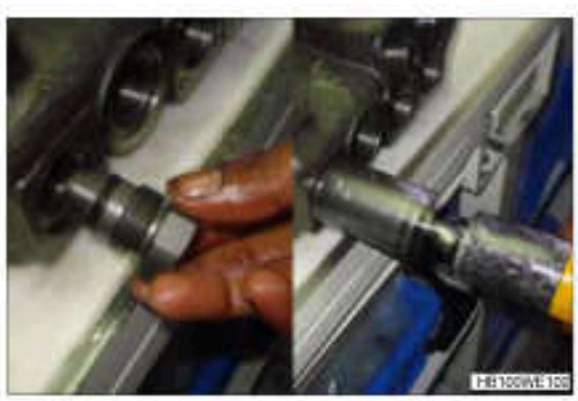
(3) Insert the spool into the spool cavity with orifice face should go inside.



(4) Insert the spring on to the spool seat.



(5) Assemble the adapter and tighten it to 4.28 kgf · m (31 lbf · ft) torque (wrench 32) using pneumatic torque gun. (Make sure that washer & O-rings are present in the adapter.



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(2) Disassembly

① Clamp the unit in vice.

Clamp lightly on both sides of the unit, making spline end of the housing facing down.
Use soft jawed vice or add protective material between jaws and the unit. Do not over tight the housing.

② Remove the 6 cap screws, one rolled screw, and washers.

Remove the cap screws and a rolled screw with 13 mm socket. Inspect for damaged threads, bent or broken bolts. Remove the washer under the bolt head and discard them.

③ Lift end cap and O-ring seal.

Lift end cap and O-ring seal. Discard the O-ring seal. Inspect for good bolt sealing.
Check the wear or scoring from rotor set. A polished pattern on the rotor side caused by rotor set is normal.

④ Remove gerotor.

Remove gerotor. Be careful not to drop the inner rotor. The drive link stays in the steering unit.
Discard the O-ring seal. Inspect the gerotor for nicks, scoring, spalling, or chipping on any internal contacting surfaces. Replace the entire set if there is any damage on them.

⑤ Lift spacer, drive link and plate.

Lift spacer, if exist, drive link and plate. Discard the O-ring seal. Inspect the plate for cracks, surface scoring, discoloration. A polished pattern on the gerotor side is normal.

⑥ Remove bore screw and the ball.

Turn out the bore screw by thin bladed screw driver. Remove the housing from the vice then remove the ball from the hole. Check the ball for wear or scoring.

⑦ Remove the rolled pin and ball.

Remove the rolled pins and balls from the suction valve. Check the ball and rolled pin for wear or scoring

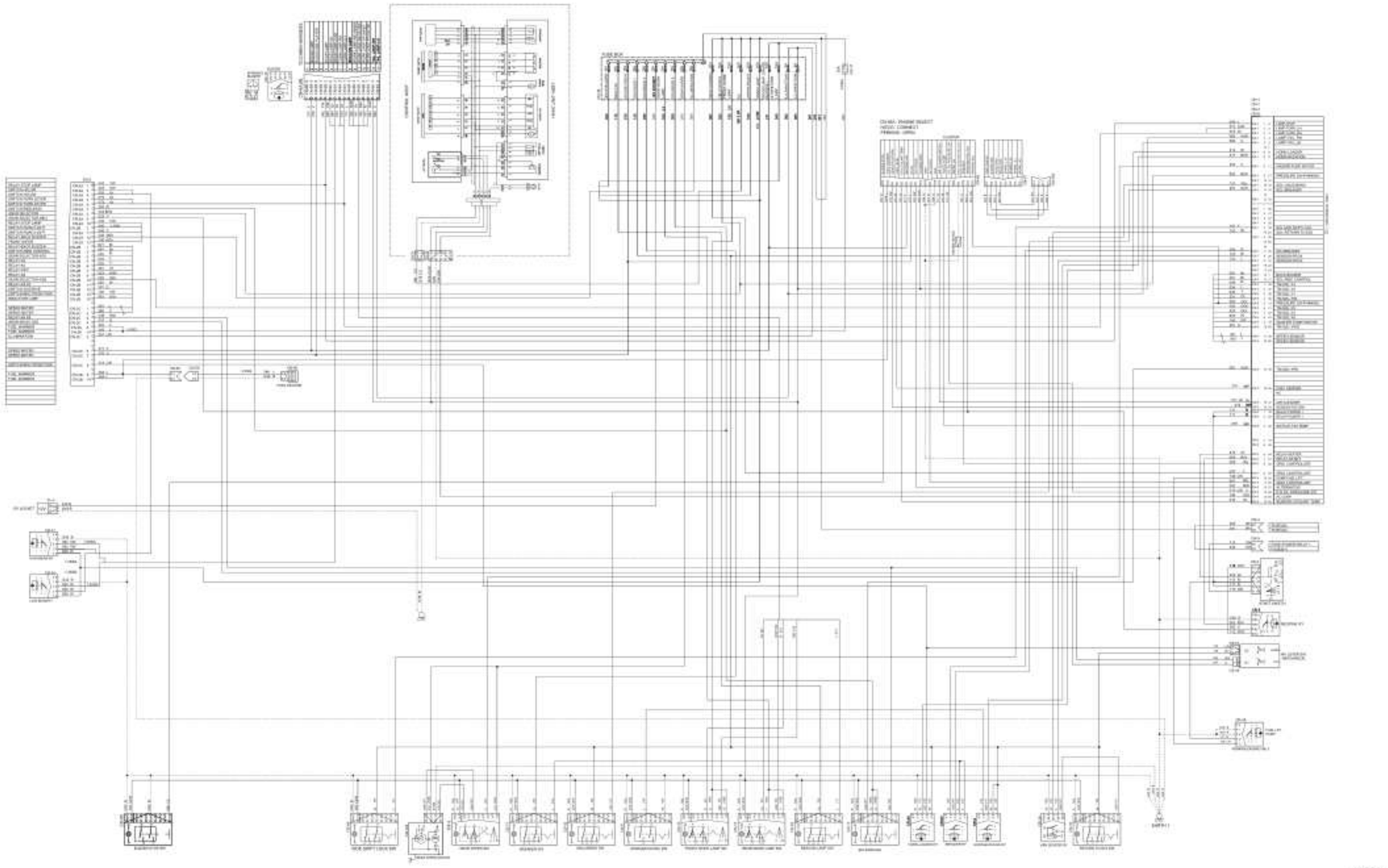
⑧ Remove the retaining ring.

Place housing on clean soft cloth, gerotor end down, to protect surface finish. Use thin bladed screw driver to pry retaining ring from housing. Check if there is any bent or corrosion on it.



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1. ELECTRICAL CIRCUIT (1/3, MECHANICAL)



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