CX130C
Tier 4
Crawler Excavator

SERVICE MANUAL

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CASE CONSTRUCTION

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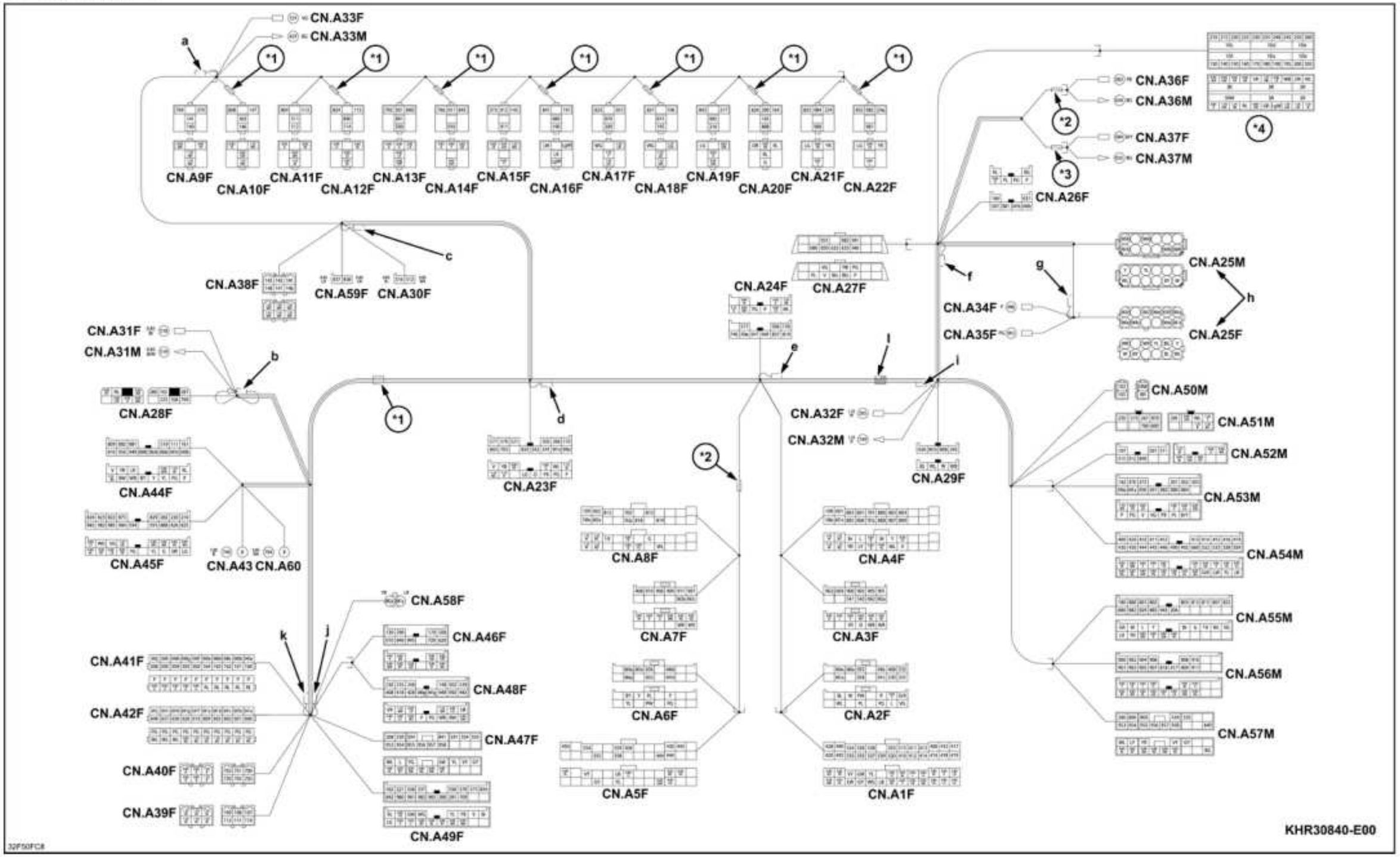
Engine Output Deficiency

1. Insufficient engine output Description of Symptom
   The engine output is lower than expected, the output does not change when the throttle lever is lifted up, the operation is not effective.
2. Insufficient engine output Diagnostics

   - Preliminary inspection
     Before using this section, perform a functional inspection and OBD system check to check all of the following.
     The ECM and monitor are operating correctly.
     Check DTC.
     The scan tool data is in the normal range of operation values.
     Check the machine status, and locate the appropriate symptom.
     Check with the customer whether they are using the specified engine oil and fuel.
     Since there are various possible causes of insufficient output, investigate on the association between the engine body and the machine thoroughly.
     Check in which operation the insufficient output occurs.
     If the symptom of insufficient output contains hesitation and lug-down, it is associated with control of the machine, so contact the machine manufacturer.
     If a trouble diagnosis scan tool is available, the engine output at the rated point can simply be checked by checking the boost at the rated point.
   - Visual inspection
     Careful visual inspection is required for several symptom procedures. This can lead to correcting a problem without further inspections, and can save valuable time.
     The inspection includes the following.
     Whether the air cleaner element is clean and free from clogging.
     Correct wiring connections, tightening, and disconnection.
     Whether the power of any commercial accessories is being taken from the ECM power.
     Whether the ECM ground is clean and securely installed in the correct location.
     Correct connections, cracks, and twists in the pipes and hoses related to fuel, air or oil. Extensively check for any leaks or blockage.
     Whether there is any fuel leaks or pipe damage in the fuel system.
     Increase of resistance due to failure of air intake system parts, especially dirty or clogged air cleaner element and collapsing of air intake pipe
     Exhaust system parts abnormalities
   - Diagnostic aids
     Fuel out, fuel freezing, mixture of air into the fuel piping, filter defect, pipe defect, fuel quality and failure of fuel system such as fuel tank
     Air intake system abnormalities such as clogged filter and air intake piping failure
     Exhaust system abnormalities such as exhaust pipe failure
     Sensor input circuit system abnormalities such as throttle position sensor and harness failure
     Switch input circuit system abnormalities
     Engine unit abnormalities such as compression pressure, valve clearance, turbocharger, supply pump, injector, common rail, and other mechanical failure, etc.
     Failure related to machine measurement devices such as oil pressure pump
     Effect of post-installed accessories such as wireless devices and lights, etc.
     Inspect the connector for connection failures and the harness for abnormalities such as abrasions or bends. Inspect that the wire inside the harness has not caused a short circuit with other circuits.
     Perform inspections for functional diagnosis, and confirm the operation and control of each part. Repair if abnormalities are found.
     Decrease of output by fuel flow rate limitations due to overheating
     Insufficient output by fuel flow rate limitations for highland driving

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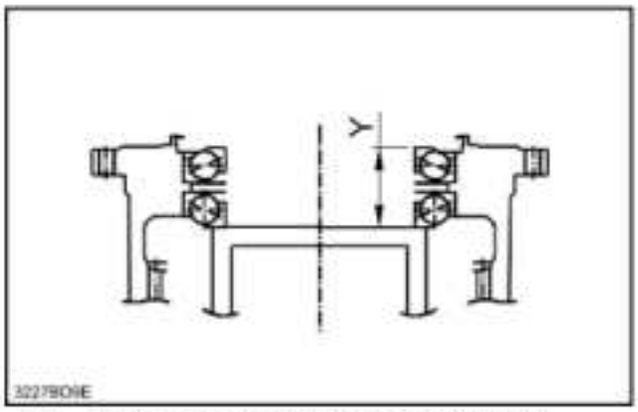
Cab Main Harness



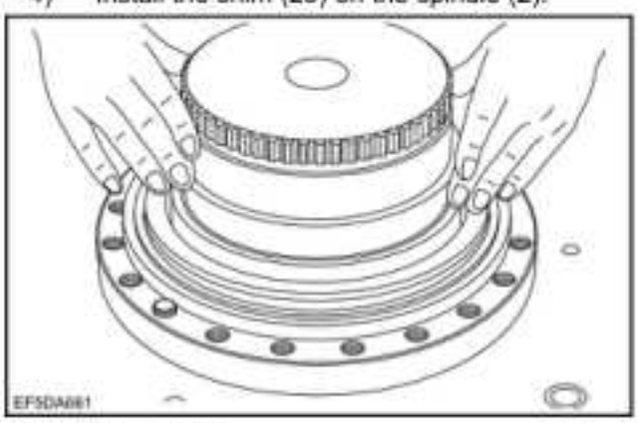
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3) Subtract dimension Y from X, and select a shim (23) from the table below so that the gap is + 0.13 to + 0.17 mm (0.00512 - 0.00669 in).

Code	T [mm (in)]	Code	T [mm (in)]
A	0.9 (0.0354 in)	G	1.5 (0.0591 in)
B	1.0 (0.0394 in)	H	1.6 (0.0630 in)
C	1.1 (0.0433 in)	I	1.7 (0.0669 in)
D	1.2 (0.0472 in)	J	1.8 (0.0709 in)
E	1.3 (0.0512 in)	K	1.9 (0.0748 in)
F	1.4 (0.0551 in)	L	2.0 (0.0787 in)

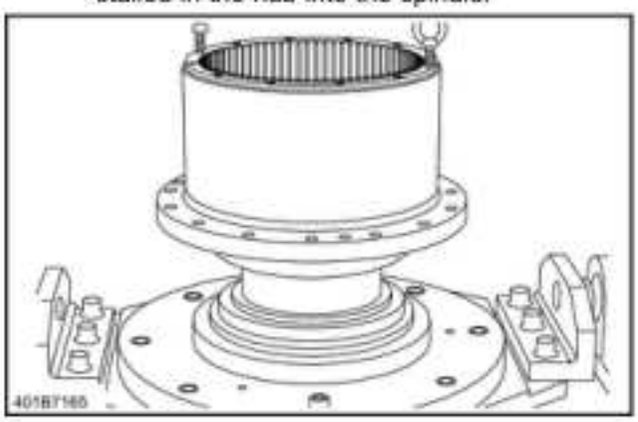


4) Install the shim (23) on the spindle (2).

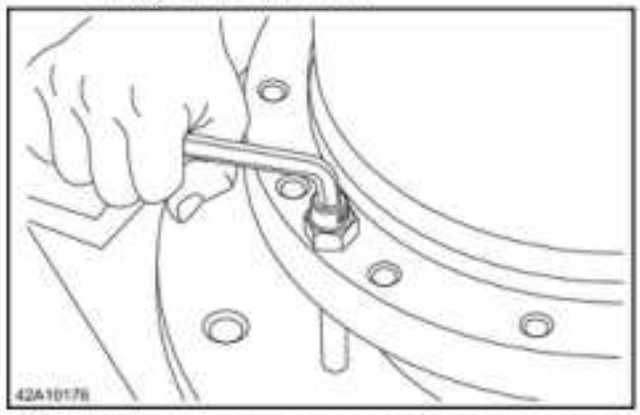


4. Installation of hub

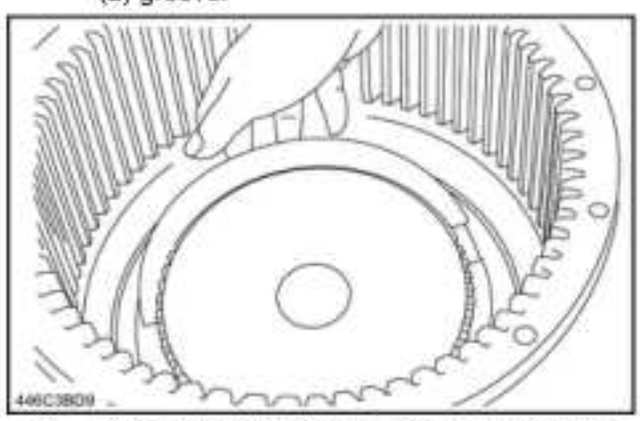
1) Install the angular ball bearings (24) on the hub (1).
2) Make it so that the center axis of the hub (1) and spindle (2) is straight, slowly lower the hub, and insert the angular ball bearings installed in the hub into the spindle.



3) Use the D14 mm (0.551 in) hole of the hub and tighten the long hexagon socket head bolts to the work platform to secure the hub.
4) Place a metal rod against the inner race of the reduction valve side angular ball bearings (24) and lightly strike it with a hammer to eliminate rising of the inner race.



5) Align the lock washers (22) with the spindle (2) groove.



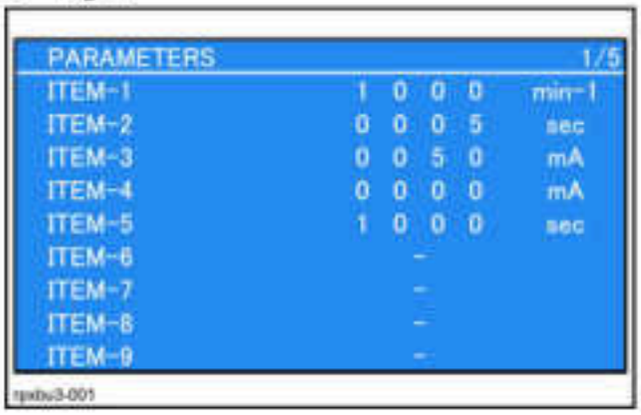
6) Press the lock washers (22) into the jig with the spindle.
   - Thoroughly press the lock washer into the back of the groove so that it does not interfere with lock washer when carrier 2 (7) is installed.
7) Remove the long hexagon socket head bolts connecting the hub (1) and work platform.
8) Rotate the hub (1) 2 - 3 times.
   - Rotating the hub (1) makes the sliding surfaces of the floating seals (29) fit against the hub and prevents pseudo-leaks.

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PARAMETERS

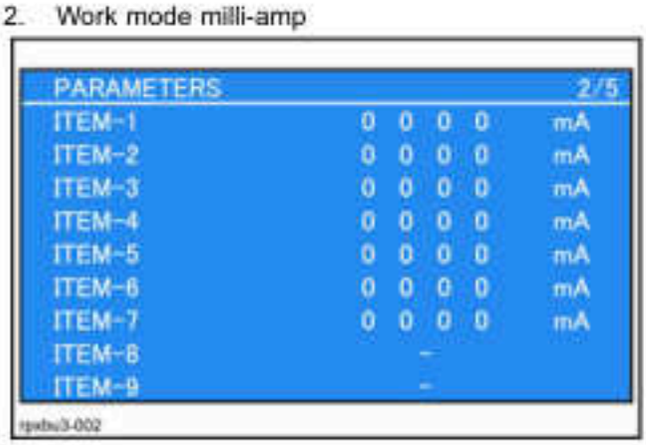
The work mode speed and pump milli-amps can be set.

1. Engine



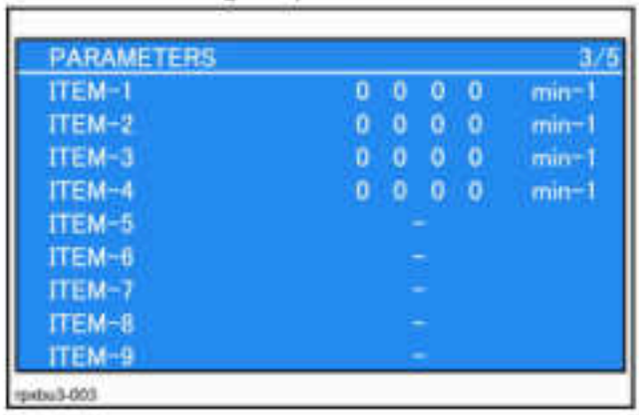
ITEM-1	min^{-1} (rpm)	Auto idling speed
ITEM-2	ms*100	Auto idle time
ITEM-3	mA	Transient load minimum milli-amp (normally 50 mA)
ITEM-4	mA	Semi-transient load minimum milli-amp
ITEM-5	ms*100	Eco gauge update period (normally 1000 ms)

2. Work mode milli-amp



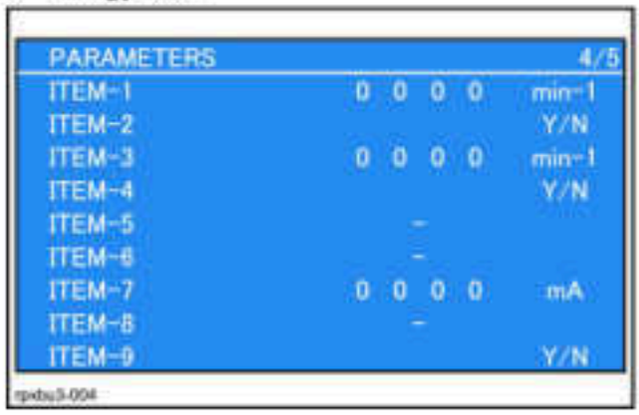
ITEM-1	mA	SP mode milli-amp (Hi)
ITEM-2	mA	SP mode milli-amp (Low)
ITEM-3	mA	H mode milli-amp (Hi)
ITEM-4	mA	H mode milli-amp (Low)
ITEM-5	mA	A mode milli-amp (Hi)
ITEM-6	mA	A mode milli-amp (Low)
ITEM-7	mA	Minimum milli-amp

3. Work mode engine speed



ITEM-1	min^{-1} (rpm)	SP mode speed
ITEM-2	min^{-1} (rpm)	H mode speed
ITEM-3	min^{-1} (rpm)	A mode speed
ITEM-4	min^{-1} (rpm)	Idling speed

4. Energy save



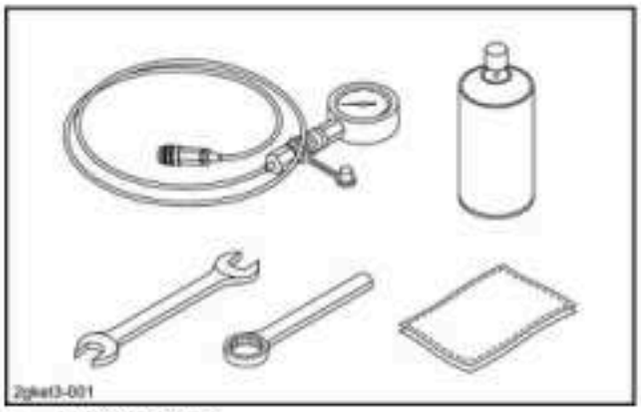
ITEM-1	min^{-1} (rpm)	Speed change amount during boom-down swing operation
ITEM-2	-	-
ITEM-3	min^{-1} (rpm)	Semi-auto idling speed change amount
ITEM-4	-	-
ITEM-5	-	-
ITEM-6	-	-
ITEM-7	mA	Speed limit milli-amp

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Pressure Measurement Preparations

1. Items to prepare

1) Pressure gauge	For 10 MPa (1450.54 psi) (for pilot and negative control pressure measurement) For 60 MPa (8703.22 psi) (for main pressure measurement)
2) Tool	Wrench (closed wrench) 17 mm (0.669 in) Hexagon wrench 6 mm (0.236 in)
3) Others	Rag Cleaning fluid

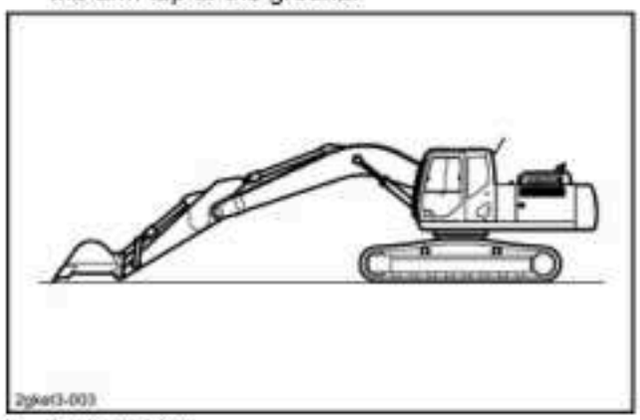


2. Monitor check
Use the service check to check the no-load engine maximum speed and the SP mode pump input milli-amp.

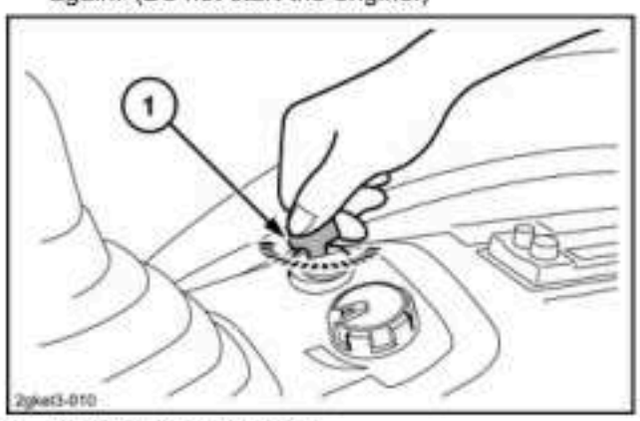
Engine max.	SP mode milli-amp
2000 min^{-1} (2000 rpm)	600 mA (during operation)



3. Main unit installation
Put the main unit on solid, level ground, put the bucket cylinder at its open stroke end, the arm cylinder at its out stroke end, lower the boom, and touch the arm top to the ground.



4. Ignition key
Switch OFF the ignition key (1), check that the engine has stopped, then switch the ignition key ON again. (Do not start the engine.)



5. Oil temperature check
Use the service check to check the hydraulic oil temperature.

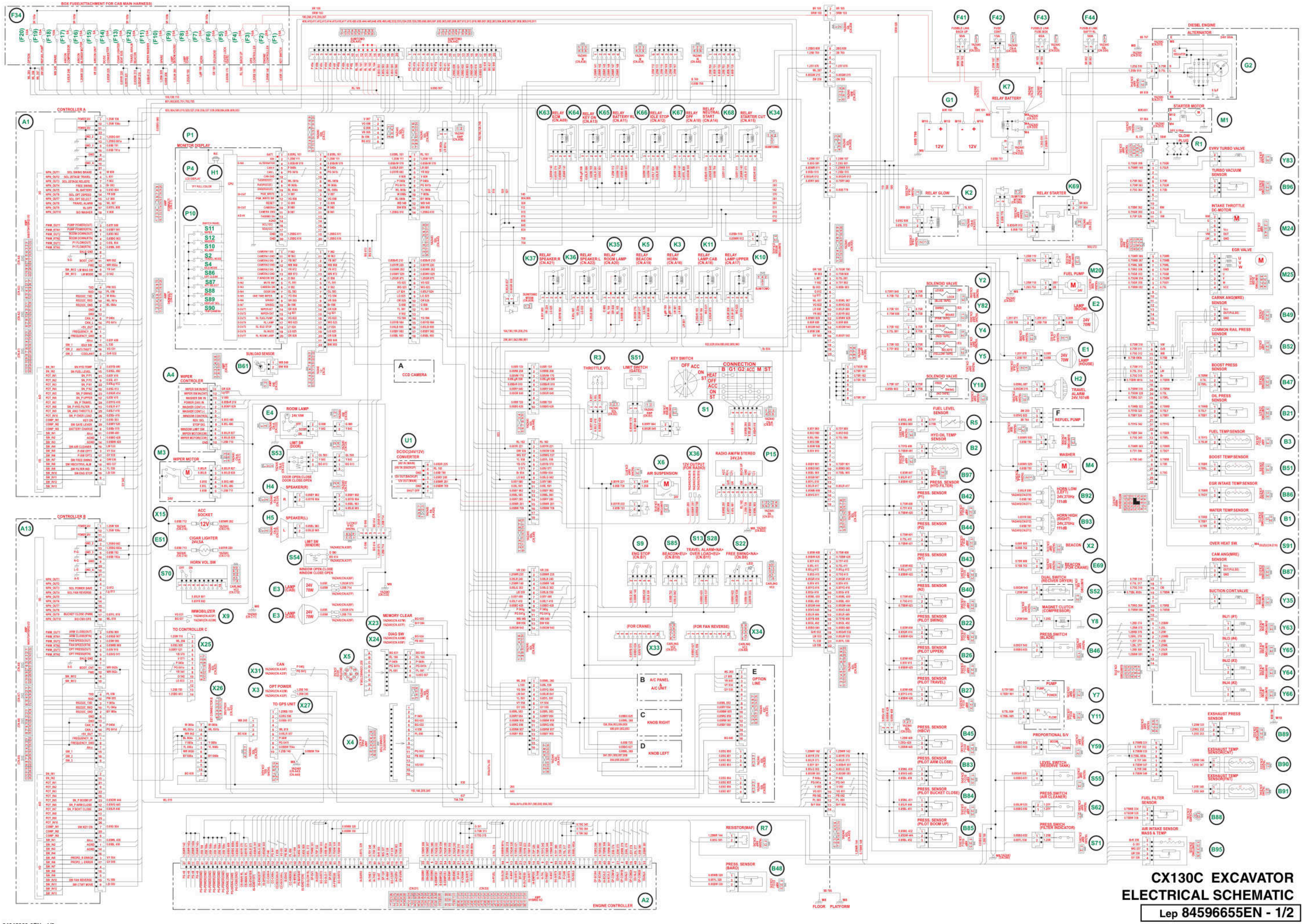
Oil temperature	45 - 55 °C (113.0 - 131.0 °F)

If the oil temperature is low, raise the oil temperature according to the warm-up operation procedure in the operator's manual.



6. Bleeding pressure from inside circuits

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CX130C EXCAVATOR ELECTRICAL SCHEMATIC

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