CX350B
Tier 3
Crawler Excavator

SERVICE MANUAL

Part number 84124934C

English

June 2010

Replaces part number 84124934BEN-US

CASE CONSTRUCTION

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WARNING: *THIS SAFETY ALERT SYMBOL INDICATES IMPORTANT SAFETY MESSAGES IN THIS MANUAL. WHEN YOU SEE THIS SYMBOL, CAREFULLY READ THE MESSAGE THAT FOLLOWS AND BE ALERT TO THE POSSIBILITY OF DEATH OR SERIOUS INJURY.* M171C

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TYPE, SERIAL NUMBER AND YEAR OF MANUFACTURE OF THE MACHINE

For all part orders, request for information or assistance, always specify the type and the serial number of the machine to your Case dealer.

Fill in the following lines with the required information: Type, serial number, year of manufacture of the machine and the serial numbers of the hydraulic and mechanical components.

Machine



CRIL05J002E00

Type .....

Serial number .....

Year of manufacture .....

Engine

Make and type .....

Serial number .....

Serial numbers of the components

Hydraulic pump .....

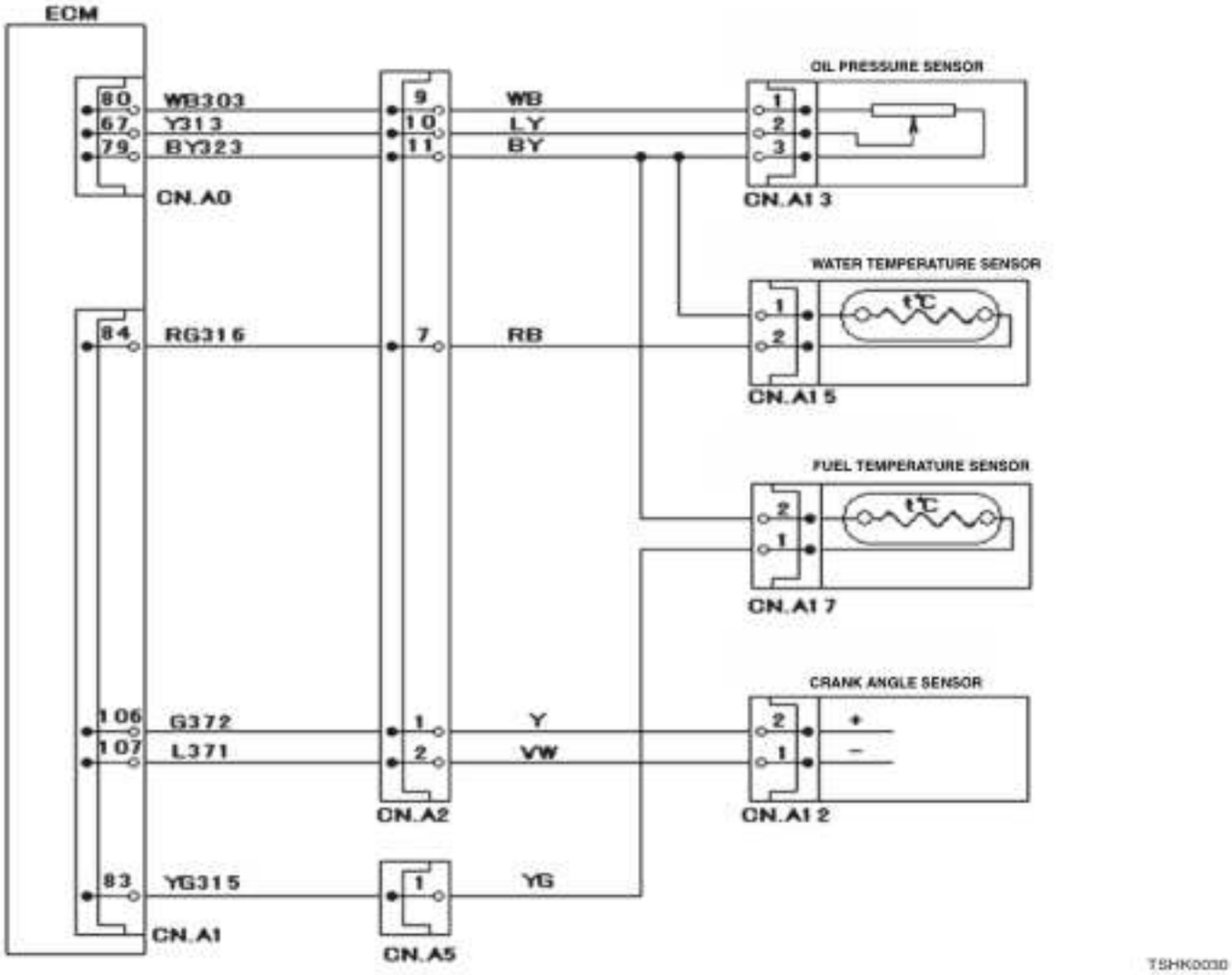
Swing reduction gear .....

Travel reduction gears .....

Control valve .....

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Block diagram



Preconditions when DTC is set

- Key switch input voltage is 18 V or higher.
- DTC: 1633 is not detected.

Diagnostic aid

If an intermittent problem is suspected, the cause may be one of the following.

- Harness connector connection problem
- Harness routing problem
- Breakage in harness covering due to friction
- Wire disconnection within harness covering

In order to detect these causes, the following inspection is necessary.

- Harness connector and ECM connector connection problem
  - Terminal has come out from connector
  - Connection between non-matching terminals
  - Damage to connector lock
  - Terminal and wire connection problem
- Harness damage
  - Inspect the external appearance to check for any harness damage.
  - While moving the connector or harness related to a sensor, confirm the display of the related item in the scan tool data display. The display change shows the trouble location.

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Engine Start Problem

Preliminary inspection

Before using this section, implement a "Service support monitor check" and check all of the following items.

- Check whether there is an excessive load on the main unit side.
- The ECM and shovel controller are operating correctly.
- Check diagnostic trouble codes.
- Check the condition of the main unit and find applicable symptoms in the problem symptom list. Implement the procedure indicated in the symptom chart.
- Confirm with the customer that the stipulated engine oil and fuel are being used.

Visual inspection

Some symptoms detection procedures require careful visual inspection. This allows for problems to be repaired without performing further inspection, which saves valuable time. The following items are included in this inspection.

- Check whether the fuel filter is dirty or clogged.
- Check for connector connection problems (connections are properly connected up to a clicking sound being heard). Especially important for CKP and CMP sensors.
- Check whether the battery terminal voltage is low.
- Check for correct wiring connections, tightness, and disconnections
- Check whether the power supply for commercially-available accessories is being diverged from the ECM power supply.
- Check whether the ECM ground is dirty and check that it is securely installed in the correct location.
- Check that pipes and hoses for fuel, air, and oil are not broken or twisted and that they are correctly connected. Thoroughly check for any leaking or clogging.
- Check for fuel leaks and damage and denting on pipes in the fuel system.
- Suction air system parts abnormality
- Exhaust system parts abnormality

Diagnostic aid

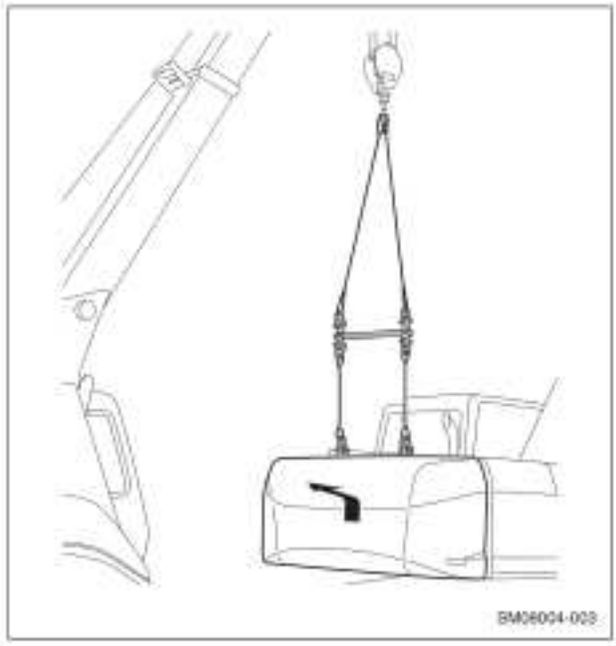
- If there is a CKP sensor abnormality, the engine should be cranked for at least 14 sec. at a speed of at least 60 min^{-1} because the abnormality will not be diagnosed unless the crank rotates at least 14 times.
- CKP sensor diagnostic trouble codes for CKP sensor problems may not be detected during low rotation of the engine. For intermittent trouble, increase engine rotation to the maximum and check whether a diagnostic trouble code related to the CKP sensor is detected.
- Fuel system abnormality (fuel cut-off, fuel freezing, air entering fuel line, filter abnormality (main, gauze clogging), line abnormality, fuel quality, fuel tank (debris, fuel suction abnormality)
- Suction air system abnormality (filter clogging, suction air line abnormality)
- Supply pump abnormality (no fuel pressure feed)
- Common rail abnormality (flow damper, pressure limiter operation/internal sealant deterioration)
- Injector abnormality (Fuel is not injected.)
- System is down due to trouble
- Engine main unit abnormality (seizing, compression pressure deficiency, other mechanical trouble)
- ACG trouble
- Trouble related to main unit-side devices (hydraulic pump, etc.)
- Effect of electrical components installed after purchasing (wireless devices, lights, etc.)
- ECM trouble (main unit, power supply, GND)
- Perform inspection to check whether there are any connector connection problems, abnormalities involving friction or breaking in harnesses, and whether any wires inside harnesses are touching another circuit and causing a short. Also, perform function diagnosis inspection, check operations and control in each area, and repair any abnormalities.

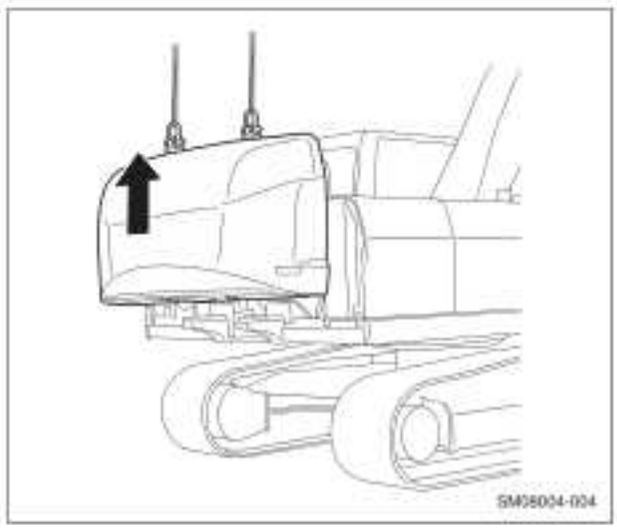
Step	Action	Value	Yes	No
1	Is the emergency stop switch LED flashing?	-	Turn the switch "OFF" and go to step 2.	Go to step 2.
2	Check the diagnostic trouble code with service support. Has the diagnostic trouble code been checked?	-	Go to step 3.	Go to "Trouble Diagnosis by Service Support".
3	Check whether any diagnostic trouble codes have been detected. Check whether any of the diagnostic trouble codes below have been detected. Diagnostic trouble code: 0335, 0336, 0340, 0341, 0601, 1261, 1262 Has a diagnostic trouble code been detected?	-	Go to "Inspection methods for corresponding diagnostic trouble codes".	Go to step 4.
4	Check cranking rotation. Check that the engine is cranking at or above the necessary speed for the ECM to judge engine rotation. Is the cranking speed at or above the reference value?	60 min^{-1}	Go to step 5.	Go to step 6.

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[3] Use the wire ropes and crane to lift and remove the counterweight.

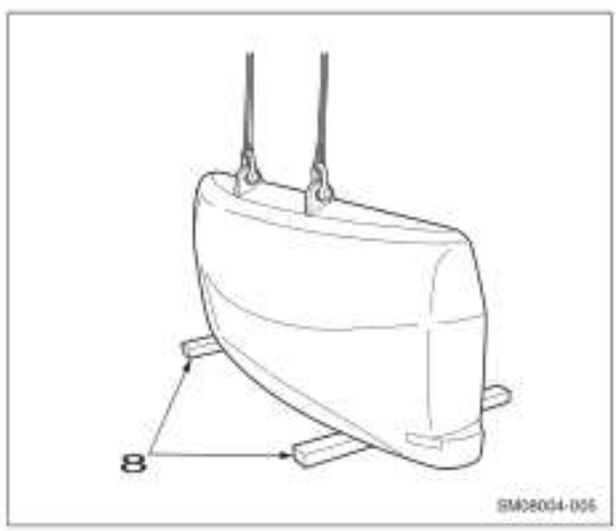
- Move the counterweight about 50 cm (1.6 ft.) to the rear while lifting it so that it does not interfere with the housing, engine parts and pipes.





[4] Thoroughly check that the location is safe before lowering the counterweight on wood planks (8).

- Thoroughly secure the counterweight with the wire ropes and crane so that it does not fall over.



2 Installation of counterweight

Perform the reverse of the removal procedure.

The tightening torque for the counterweight bolts is 1862 - 2058 Nm (1373 - 1517 lb. ft.)

Do not apply oil, etc. to the bolts.

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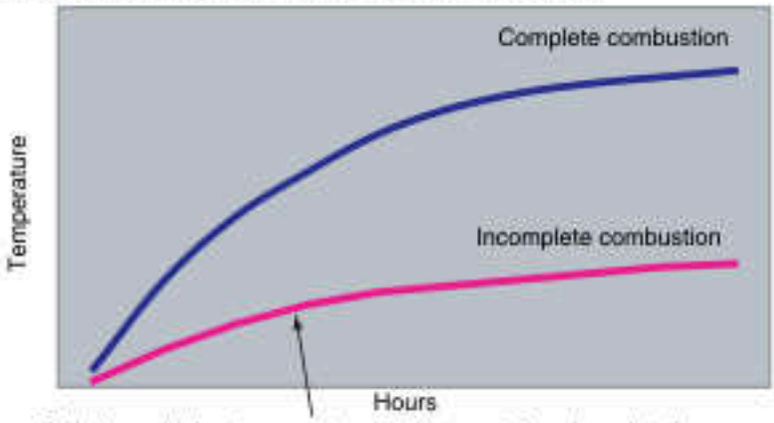
Injector Inspection Methods Using A Thermogun

Common rail-type fuel injection device injectors are located inside the head cover, and inspection (removal and installation of couplers, outside injection from cylinder) cannot be performed. An inspection method for mechanical problems (spray deficiencies, clogging, seizing) for which a diagnostic trouble code does not appear is necessary.

Judgment through temperature measurement

For engines in which combustion conditions are normal, the temperature of each cylinder will ordinarily increase.
However, for cylinders in which there is trouble and combustion conditions are poor, it is difficult for the temperature to increase.
Use these characteristics and observe the temperature change in each cylinder to judge whether there are cylinder problems.

«Difference in temperature change by state of combustion»



Cylinders with low temperature have poor status of combustion.

Therefore, you can judge that there has been some kind of trouble.

TSSA0001

The cause of the problem is often a defect (spray deficiencies, clogging, seizing) with the injector itself.
Also investigate other causes and thoroughly perform trouble diagnosis before deciding what the problem is.

Thermogun

A thermogun is a infrared thermometer capable of non-contact temperature measurement.
As a maintenance tool, this is sold as a thermogun and infrared thermometer.

- Ideal for measuring temperatures from 0 °C to 500 °C.
- Includes laser pointer
- Includes spot measurement function (convergence ratio of about 10:1)

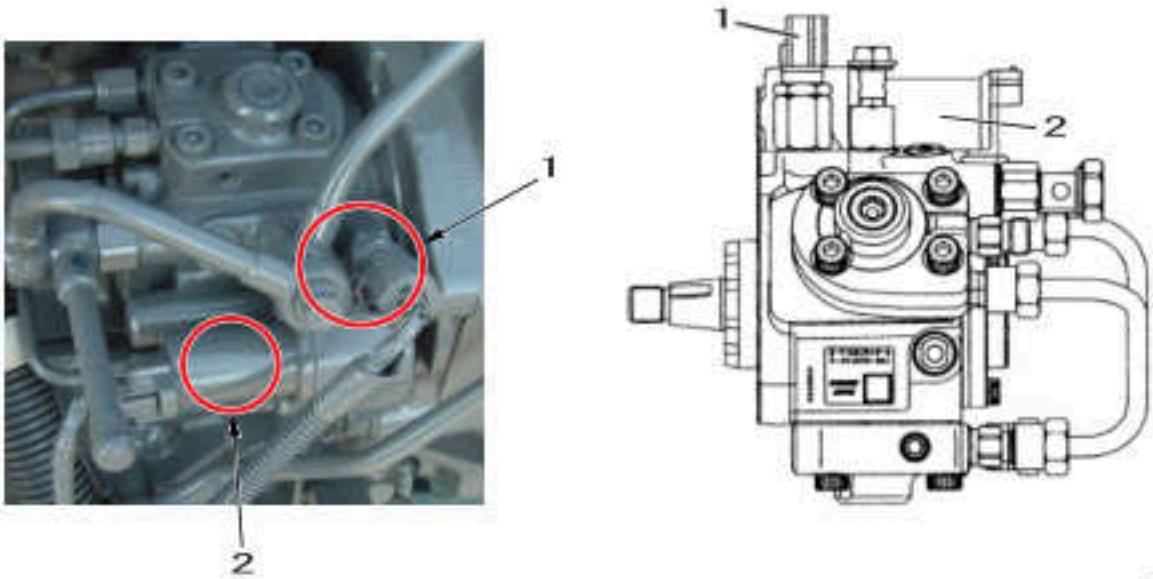


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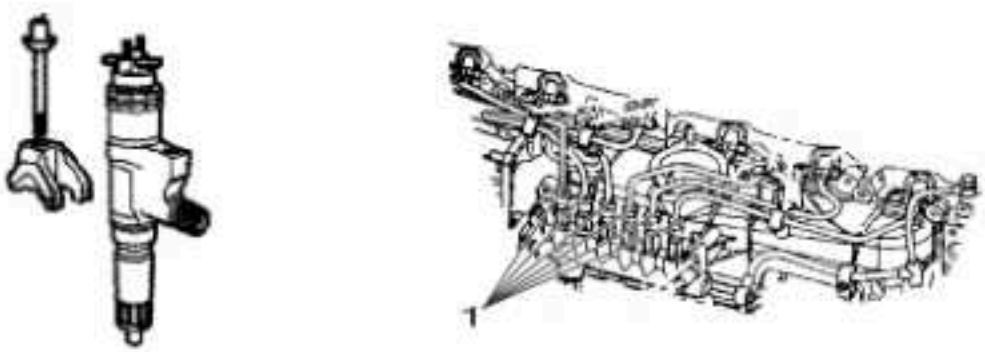
The SCV and fuel temperature sensor are installed on the supply pump main unit and cannot be individually replaced.

Always replace the supply pump assembly.



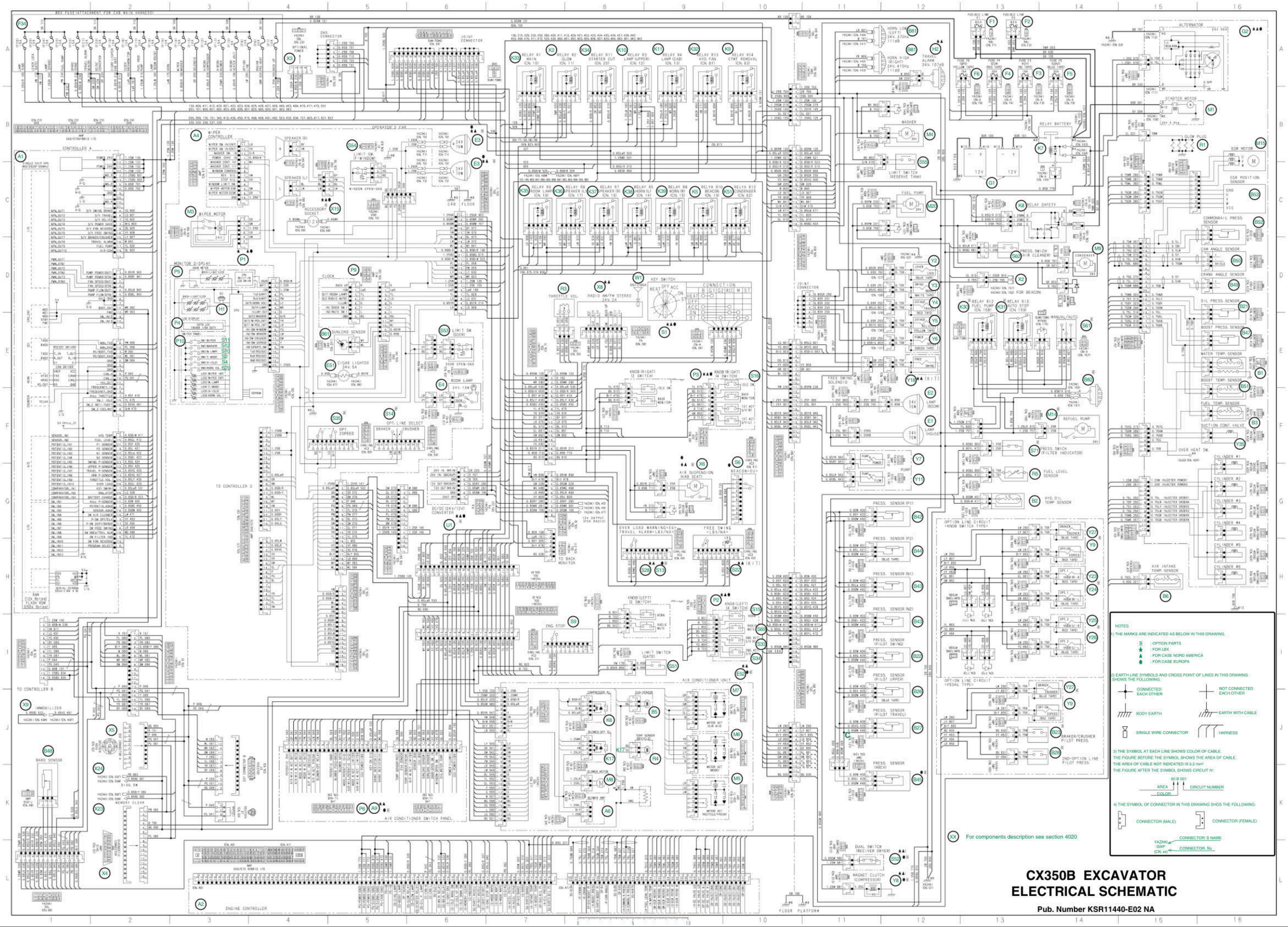
1. Fuel temperature sensor
2. SCV (suction control valve)

Judging individual cylinders as OK or not by starting up the engine and loosening the injection pipes is strictly prohibited when there is engine trouble. (Never do this. The high-pressure fuel sprays out dangerously.)



1. Injector pipe

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