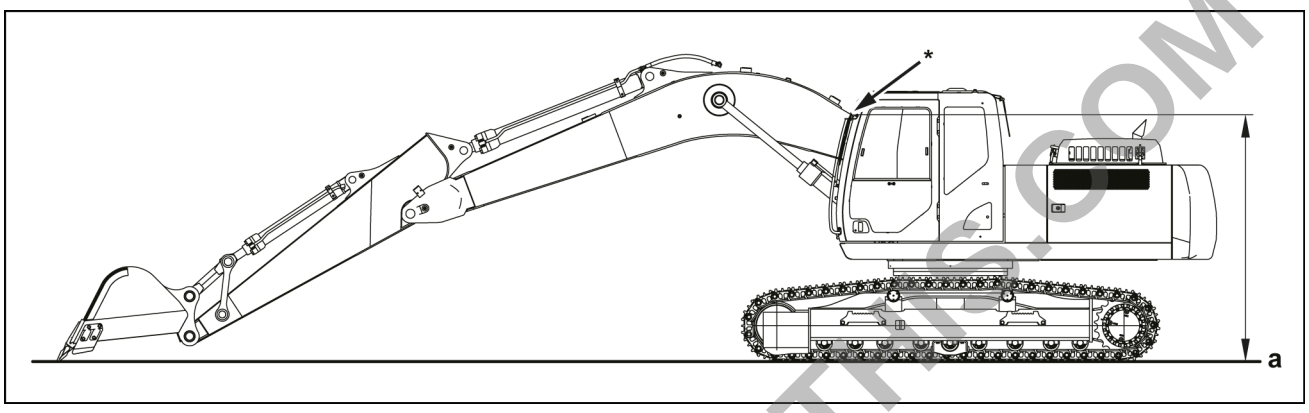
Boom position

Warning

- If you make such modification as lowers the boom position, ROPS is not applicable.
- Consultation with us is required whenever it is assumed that the boom position is lowered by modification.
- The range of change in the boom position cannot be determined uniformly.



SMIL14CEX2001EA 1

(a) Ground point

It is not applicable if the position overlapping with a cab on the side view (mark * in the figure) is lowered significantly as compared with the standard model (standard arm), within the maximum digging radius with the bucket tip on the surface of the ground.

Moreover, it cannot be said that the 24-ton model, close to the limit weight, with a cab that can bear up to 31-tons and the 21-ton model with the same cab are the same in the degree of influence.

3. Prohibitions

- Such modification as reduces the strength of the platform where the ROPS cab is installed. (Such action or modification as reduces the function of the retaining anchor in the left rear of the cab)
- Such modification as affects the ROPS strength of the ROPS cab.

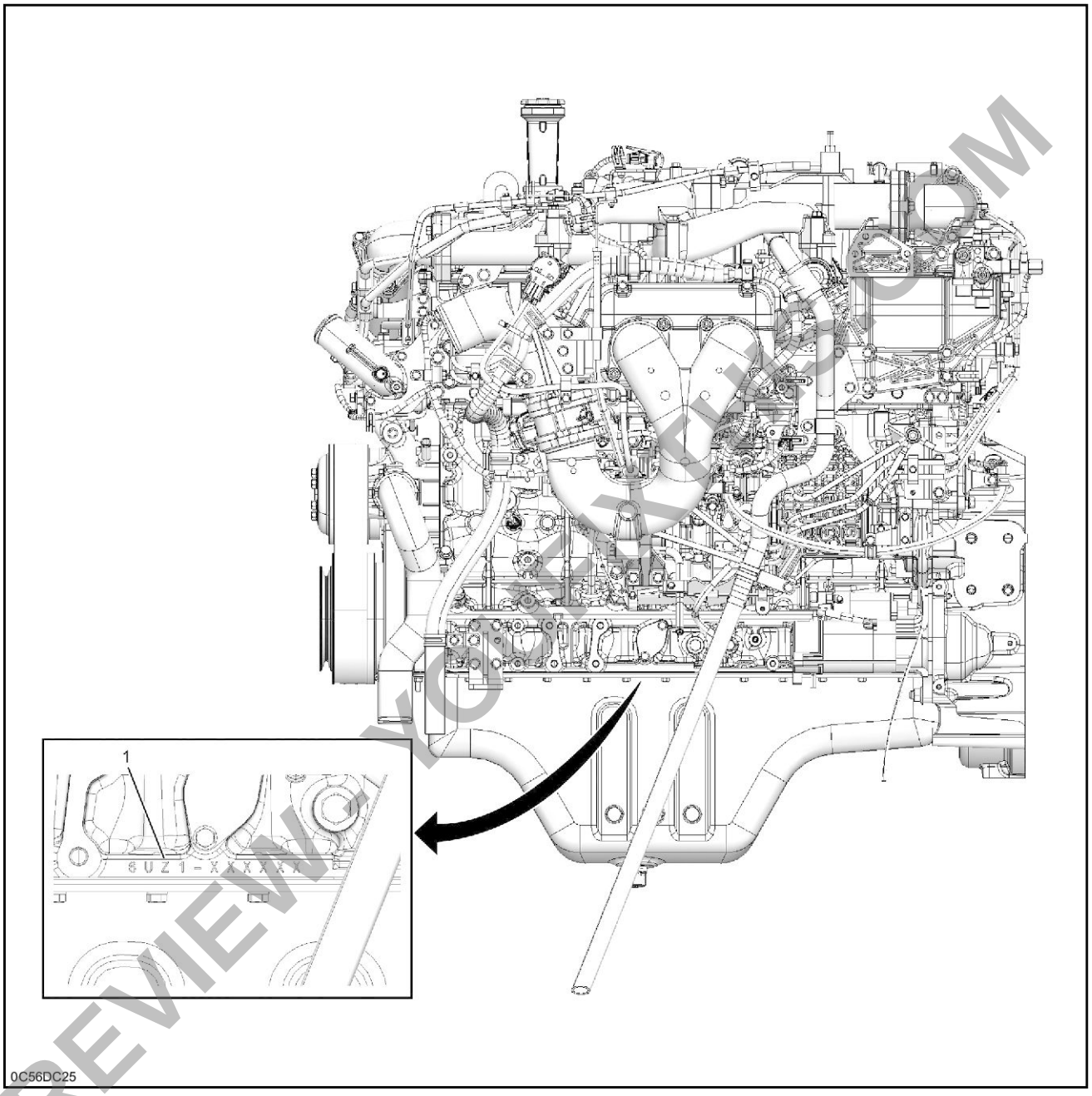
Modification prohibited (Red components)	All changes (grinding, welding, drilling, removal, etc.) are prohibited.
Conditional modification permitted (Gray components)	Removal of components is prohibited. Welding and drilling of bars (limited to **20 mm** (**0.79 in**) or less in diameter) are allowed.

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Engine - Identification

Engine number



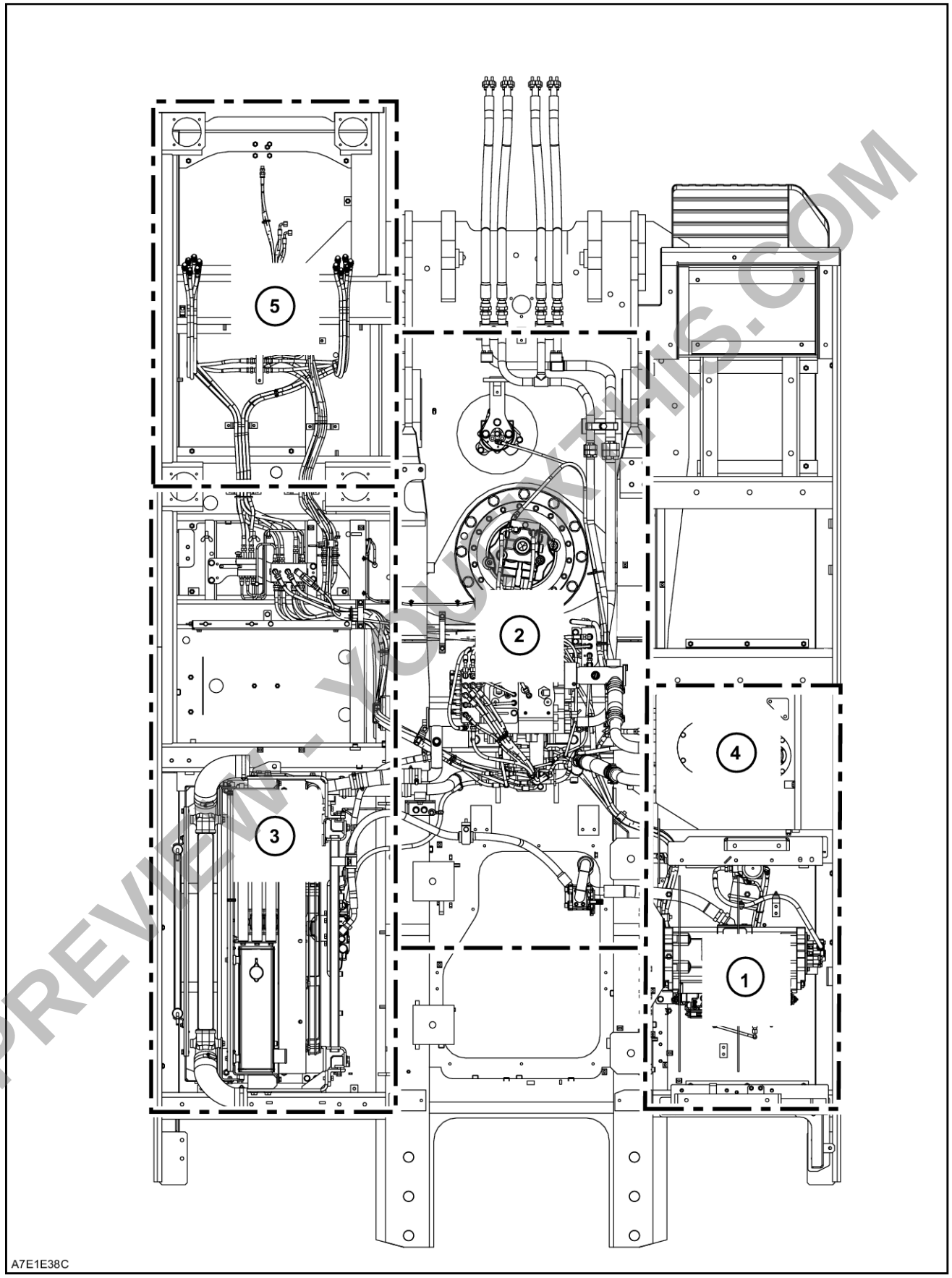
0C56DC25 1

1. Engine number stamping

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Hydraulic systems - Overview



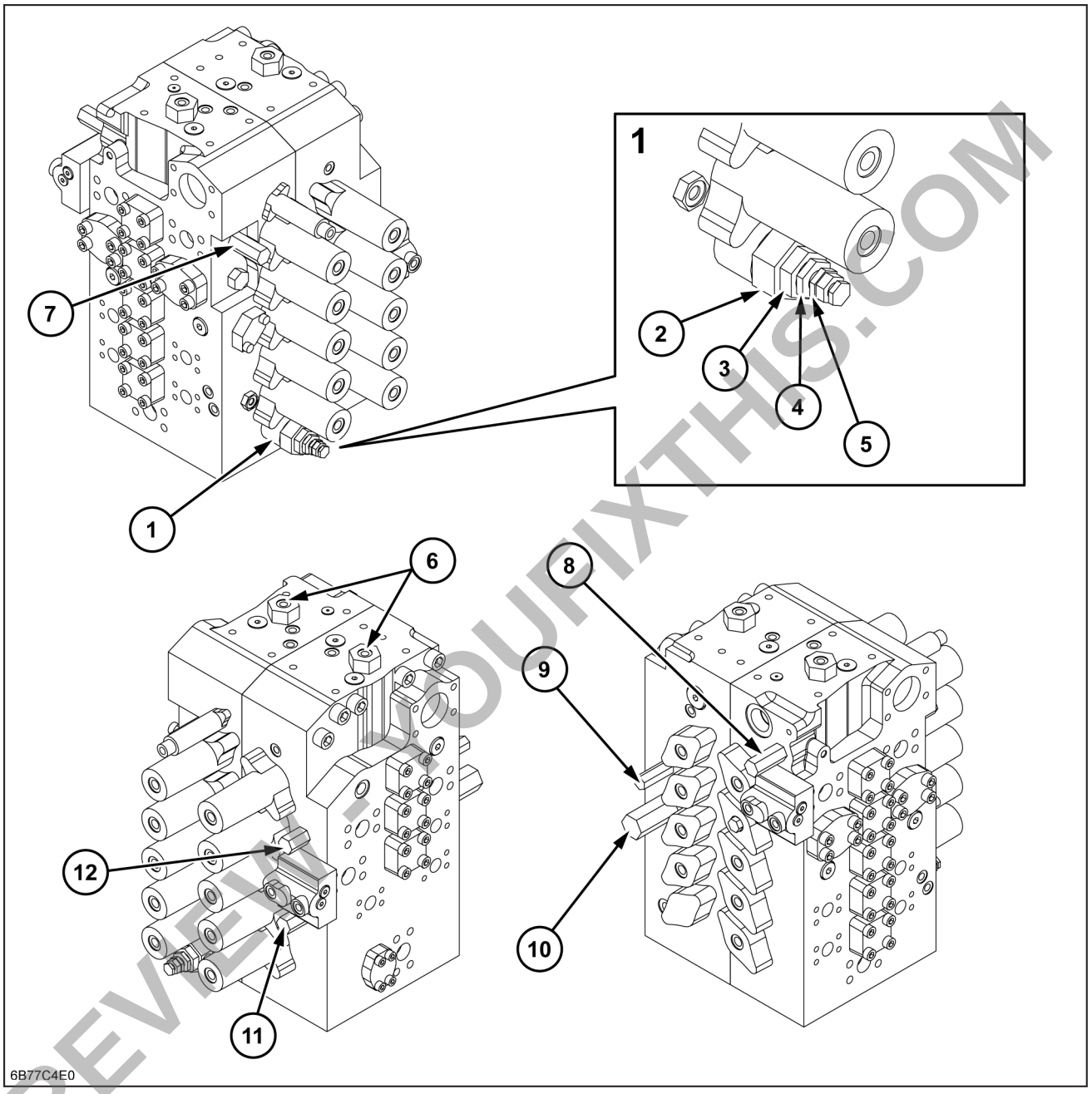
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Main control valve - Overview

Relief valve



6B77C4E0 1

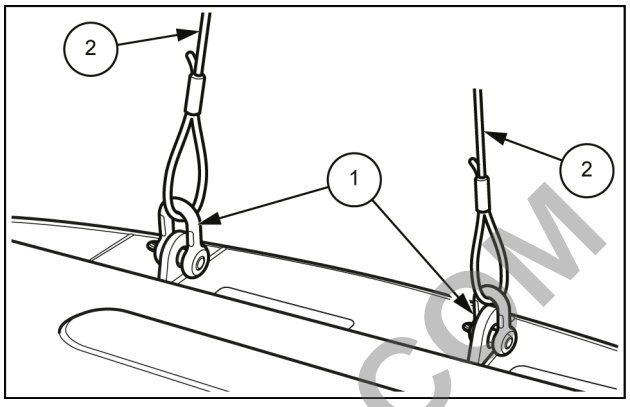
1. Main relief valve
2. Pressure boost lock nut
3. Pressure boost adjusting screw
4. Standard lock nut
5. Standard pressure adjusting screw
6. Low-pressure relief valve
7. Overload relief valve (arm 2)
8. Overload relief valve (arm 1)
9. Overload relief valve (optional)
10. Overload relief valve (boom 1)
11. Overload relief valve (boom 2)
12. Overload relief valve (bucket)

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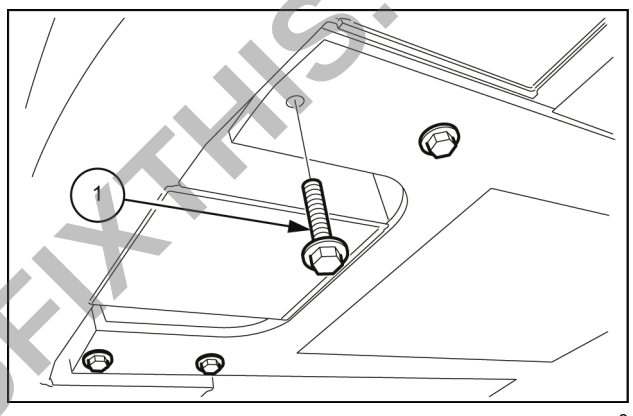
Counterweight - Remove

1. Remove the following before beginning work.
   - Engine hood, gas damper and lock stay
   - Rear view camera and electrical components bracket
2. Install the shackles **(1)**, and then use the wire ropes **(2)** and lifting equipment to secure the counterweight so that it does not fall during removal and installation operations.



SMIL14CEX3870AB 1

3. Use a box wrench [**50 mm**] to remove the 4 bolts **(1)** at the bottom section of the counterweight.

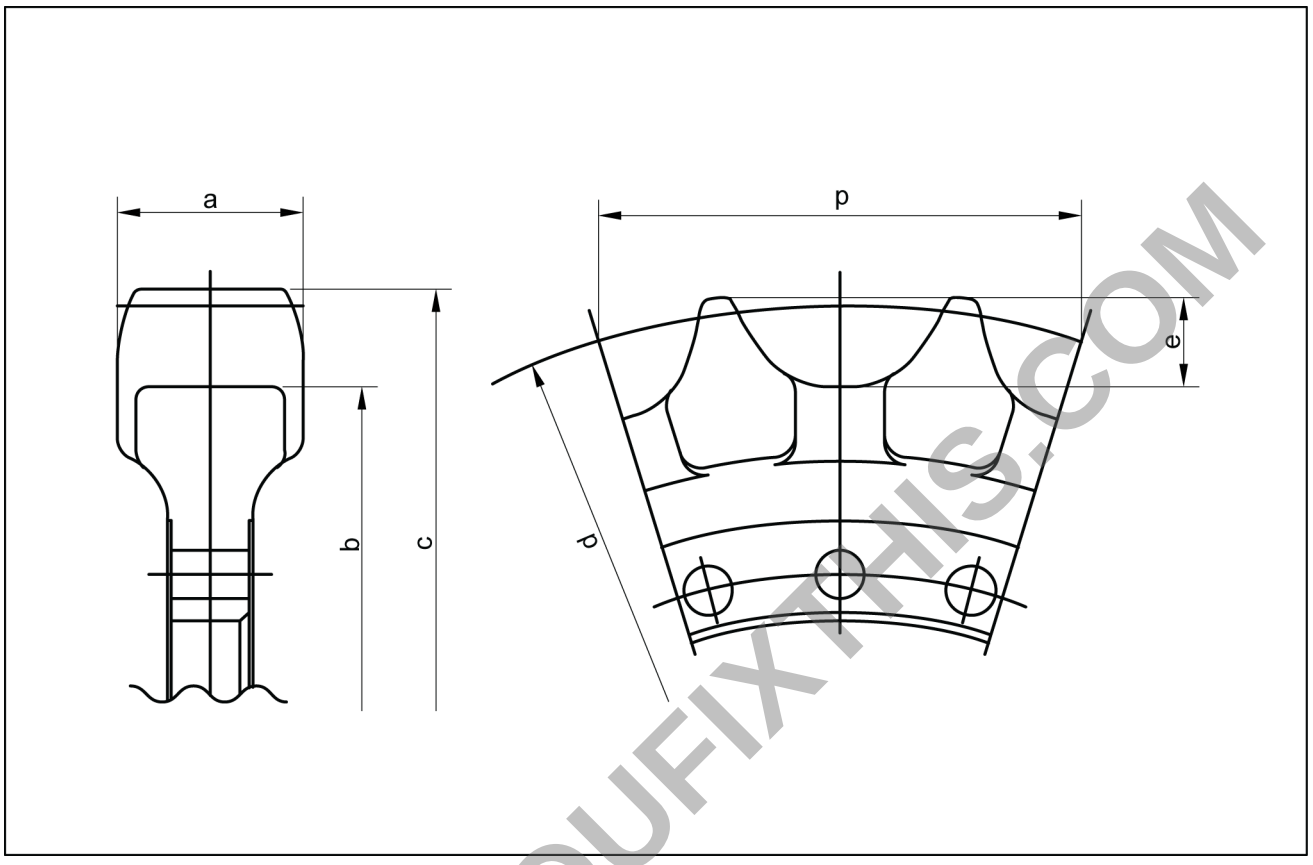


SMIL14CEX3871AB 2

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Driving wheel - Service limits



SMIL14CEX2908FA 1

NOTE: *See the gauge list for measurement gauges (see* ***Driving wheel - Dimension (48.130)****).*

Part name	Code	Standard value	Usage limit	Judgment	Solution
Drive sprocket	a	**90 mm** (**3.54 in**)	**80 mm** (**3.15 in**)	Acceptable/ Unacceptable	Clad by welding or replace
	b	**Ø 773.6 mm** (**30.46 in**)	**Ø 763.6 mm** (**30.06 in**)	Acceptable/ Unacceptable	
	c	**Ø 867.5 mm** (**34.15 in**)	**Ø 857.5 mm** (**33.76 in**)	Acceptable/ Unacceptable	
	d	**Ø 847.3 mm** (**33.36 in**)	–	Acceptable/ Unacceptable	
	e	**43.4 mm** (**1.71 in**)	**48.4 mm** (**1.91 in**)	Acceptable/ Unacceptable	
	p	**228.6 mm** (**9.00 in**)	–	Acceptable/ Unacceptable	

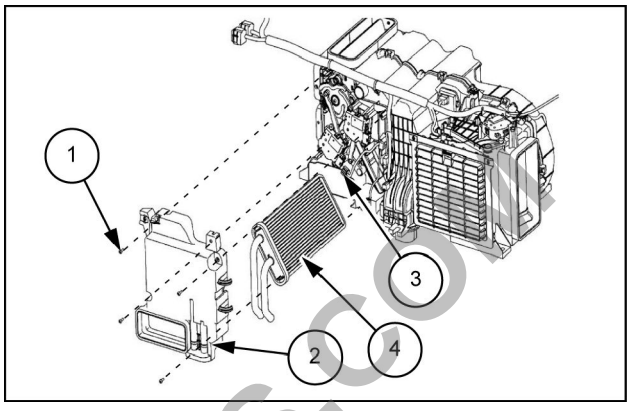
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Heater core - Replace

NOTICE: *Remove while being careful not to apply excessive force to the pipe.*

1. Drain the coolant.
   - Remove the 4 Phillips screws **(1)** and remove the link cover **(2)**.
     Phillips screws **(1)**: M4 x 16
   - Remove the mode actuator connector **(3)**, and remove the heater core **(4)**.
   - The installation procedure is the reverse of the removal procedure.



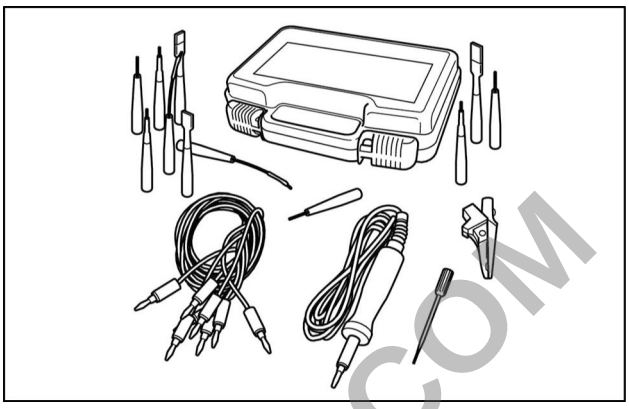
SMIL14CEX1812AB 1

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Electrical system - Special tools

Isuzu reference	5-8840-2835-0
CASE CONSTRUCTION tool number	Common probes
Description	Connector test adapter kit



SMIL14CEX2953AA 1

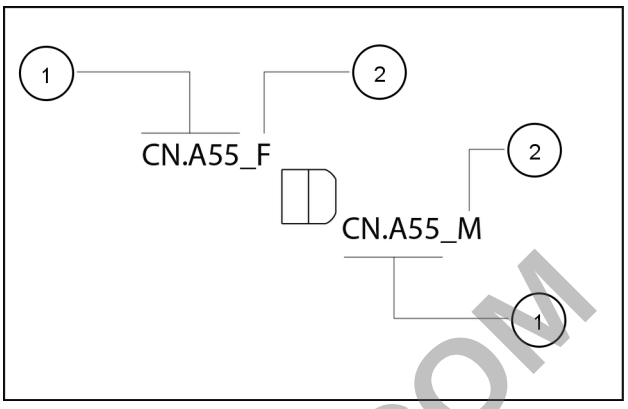
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Connectors

1. Connector number (in cab)/connector letter located (outside cab)
2. M: Male
   F: Female

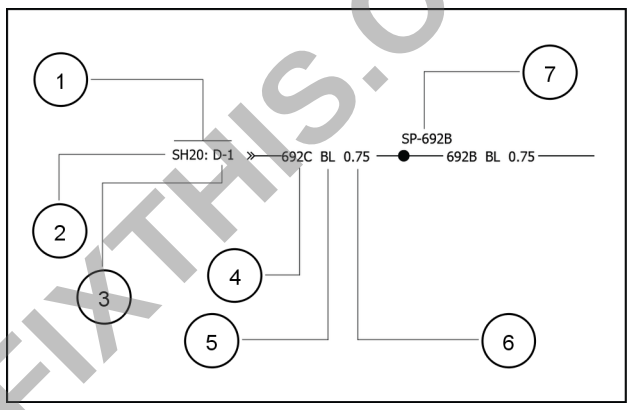
NOTE: *Waterproof connectors are used outside the cab.*



SMIL15CEXYYY7AA 1

Wiring harnesses

1. Circuit break
2. Sheet number
3. Zone number
4. Circuit number
5. Wire color
6. Wire size (mm²)
7. Circuit splice



SMIL15CEXYYY8AA 2

Color abbreviations

SYMBOL	COLOR
B	Black
BR	Brown
W	White
P	Pink
V	Violet
G	Green
O	Orange
R	Red
Y	Yellow
L	Blue
GR	Gray
LG	Light green
SB	Sky blue

NOTE: *" BR" indicates black cable with red stripe.*

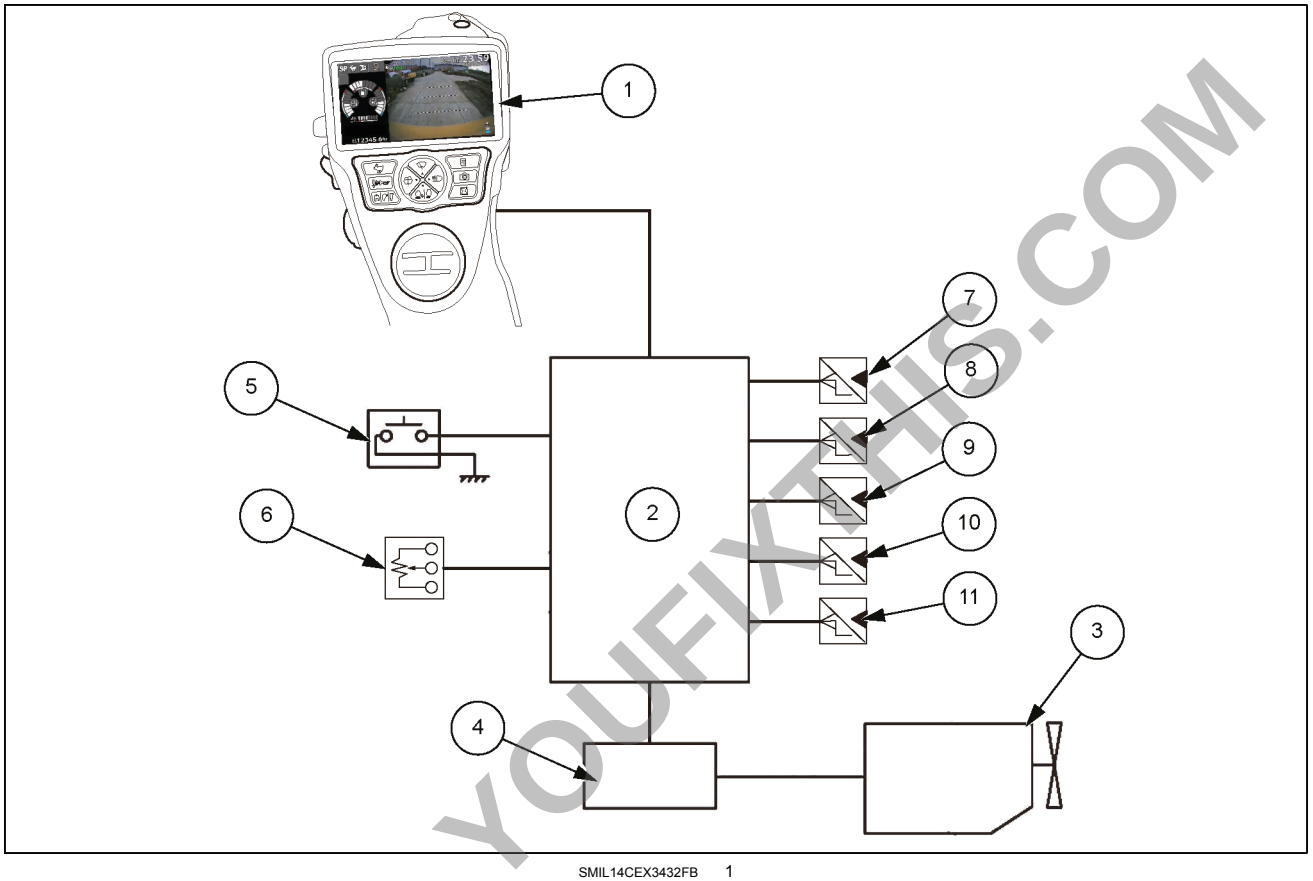
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Cab engine controls - Dynamic description - Auto idle

Purpose/overview

The system lower the engine speed when the system is not operated for a certain time continuously.



SMIL14CEX3432FB 1

1. Monitor
2. Main controller
3. Engine
4. ECM
5. One-touch idle switch
6. Throttle volume
7. Pressure sensor (option 1)
8. Pressure sensor (option 2)
9. Pressure sensor (upper)
10. Pressure sensor (swing)
11. Pressure sensor (travel)

Operation condition

The auto idle is activated with the following conditions.

- The auto idle switch is pressed and the auto idle mode is ON.
- The operation lever is not operated for a certain time continuously. (Either one of the following pressure sensors is OFF for a certain time continuously; upper, swing, travel, option 1, option 2)

Stop condition

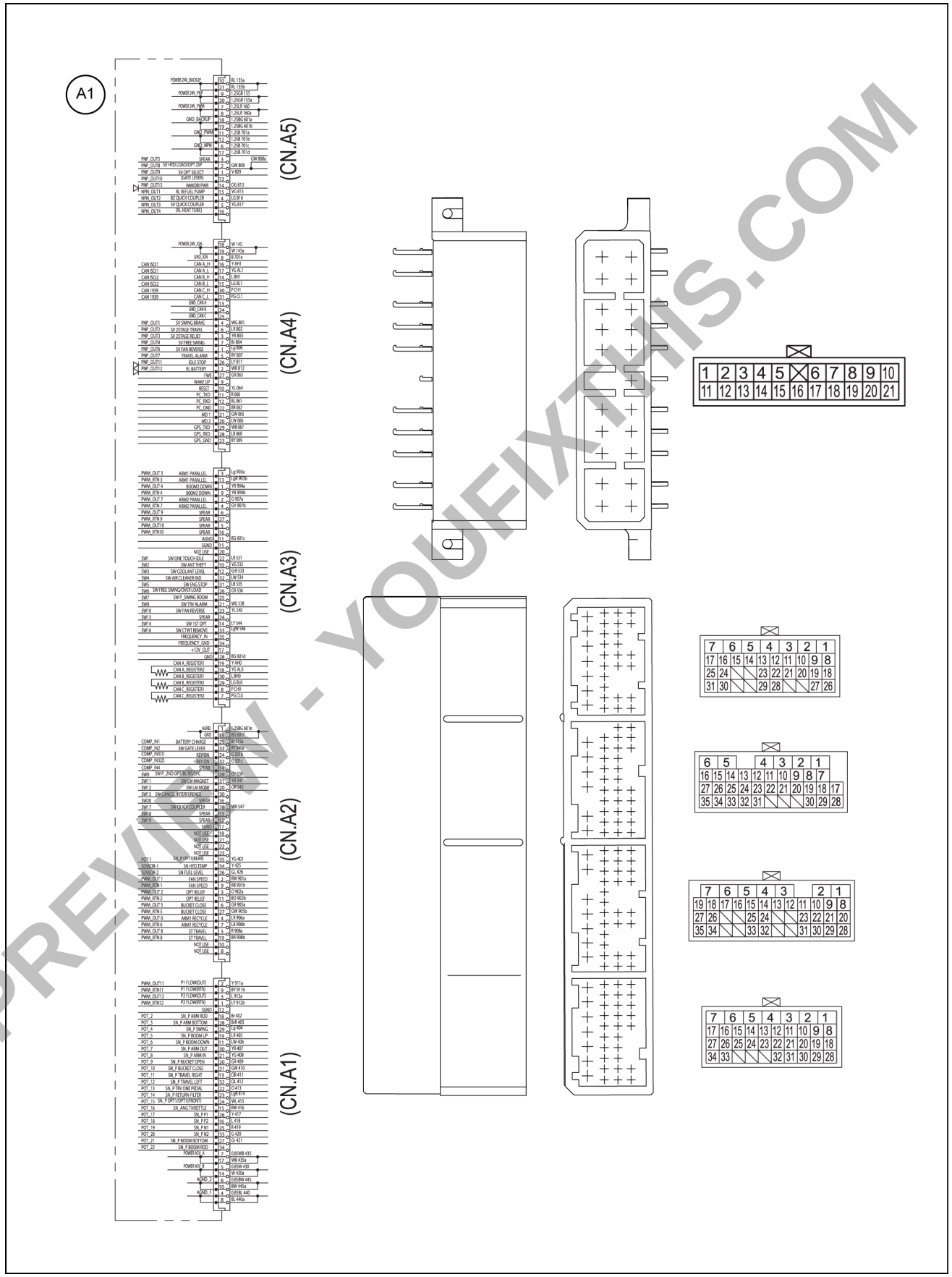
The system releases auto idle with the following conditions.

- When the operation lever is operated. (Either one of the following pressure sensors is ON; upper, swing, travel, option 1, option 2)
- When the throttle volume is operated.
- When the one-touch idle switch is pressed.
- The auto idle is not activated if the engine speed is lower than auto idle RPM (during low idle) or if the fan is reversed.

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Electronic module - Electrical schema

Connector pin layout of the main controller



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029D-Lost communication with NOx sensor 1

Control Module : DCU

Solution:

1. Check if diagnostic trouble code 1462 is set at the same time, and go to each diagnosis. Diagnosis when diagnostic trouble code 029D is set independently.

   Turn OFF the ignition switch.

   Disconnect the NOx sensor harness connector **CN.D17-5**.

   Inspect the NOx sensor harness connector **CN.D17-5**.

   Make sure that there should be no intermittent conditions, poor connections, or corrosion.

   Make sure that there should be no water intrusion or adhering foreign material.

   A. If a problem is found, repair the connector **CN.D17-5**.

   B. If there are no problems, proceed to Step **2**.
2. Inspect the NOx sensor power supply circuit for an open circuit or breakage.

   A. If a problem is found, repair the NOx sensor power supply circuit.

   B. If there are no problems, proceed to Step **3**.
3. Connect a test lamp between the power supply circuit and the GND circuit.

   A. If the test lamp does not illuminate, repair the open circuit or high resistance in the NOx sensor GND circuit.

   B. If the test lamp illuminate, proceed to Step **4**.
4. Turn ON the ignition switch without starting the engine.

   Measure the voltage between the CAN Low circuit and the DCU harness GND connection, and between the CAN High circuit and the DCU harness GND connection.

   A. If the voltage is outside the range **1.5 - 3.5 V**, repair the open circuit or high resistance in the NOx sensor GND circuit.

   B. If there are no problems, proceed to Step **5**.
5. Replace the NOx sensor. (Refer to " **Nitrogen Oxide (NOx) sensor - Remove (55.988)**" and " **Nitrogen Oxide (NOx) sensor - Install (55.988)**")

   NOTE: *If the NOx sensor is replaced, perform NOx sensor data reset with the trouble diagnosis scan tool.*

   Diagnosis when diagnostic trouble code 1462 and 029D are set at the same time.

   Inspect the NOx sensor power supply circuit.

   Make sure that there should be no open circuit, breakage, or high resistance.

   Make sure that there should be no short to the GND circuit.

   Make sure that there should be no short to a metal component, such as the frame.

   A. If a problem is found, repair the NOx sensor power supply circuit.

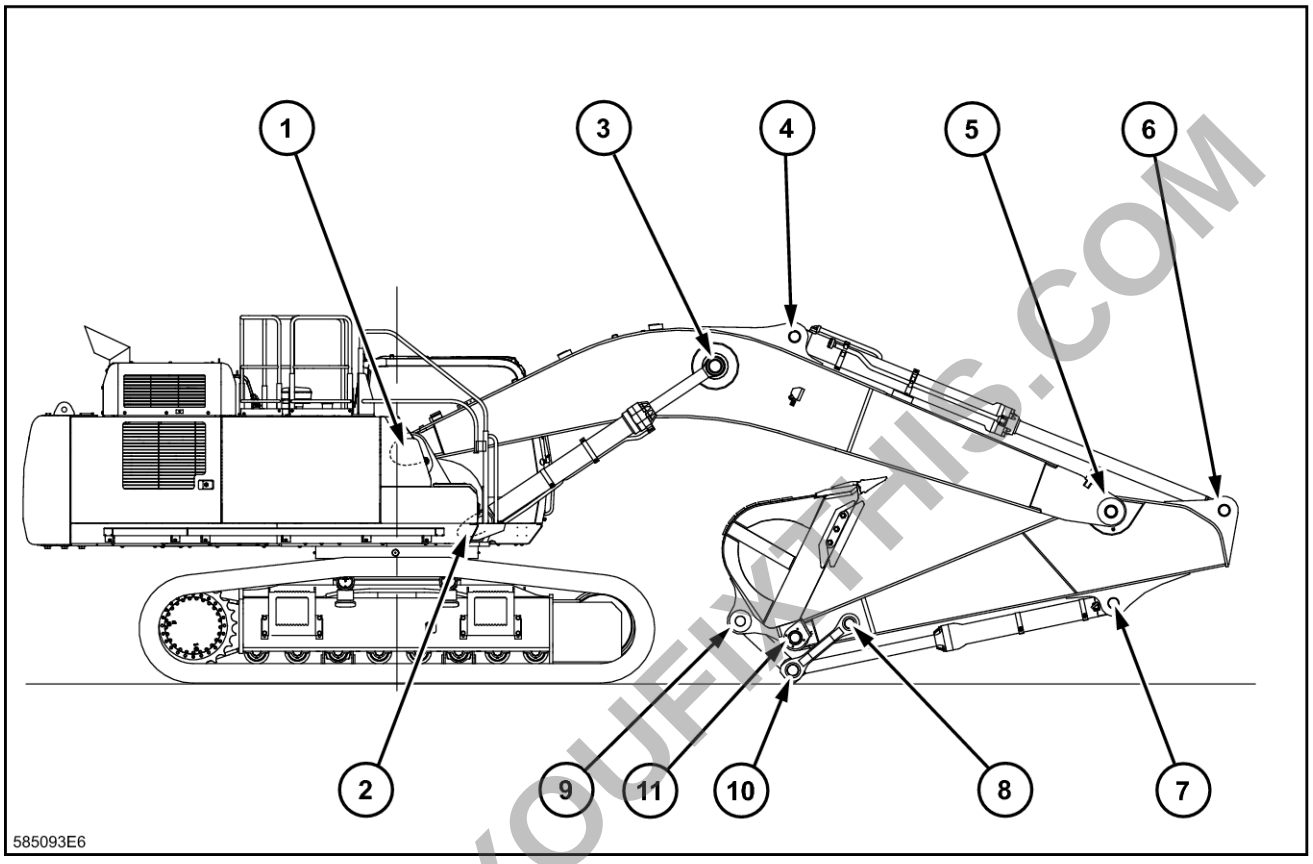
   B. If there are no problems, proceed to Step **6**.
6. Inspect the NOx sensor GND circuit between the NOx sensor and the DCU harness GND connection.

   NOTE: *Make sure that there should be no open circuit, breakage, or high resistance.*

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Boom - Service limits

Attachment (Backhoe)



585093E6 1

1. Boom and swing frame mounting area
2. Boom cylinder and swing frame installation section
3. Boom and boom cylinder installation section
4. Boom and arm cylinder installation section
5. Boom and arm installation section
6. Arm and arm cylinder installation section
7. Arm and bucket cylinder installation section
8. Arm and arm link installation section
9. Bucket and bucket link installation section
10. Bucket link and bucket cylinder installation section
11. Bucket and arm installation section

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Cab and platform - Remove

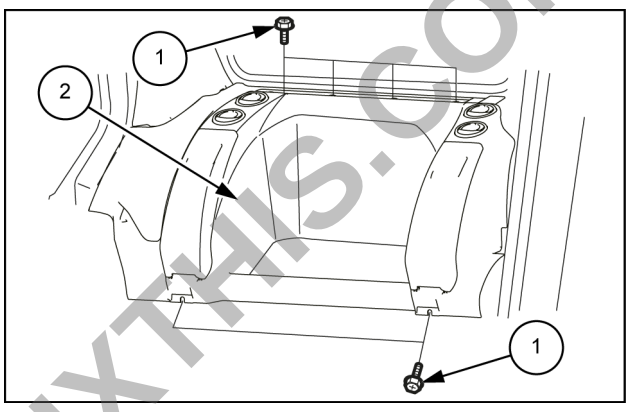
1. Disconnect the battery ground cable from the battery.

NOTICE: *While the indicator (LED) of the battery disconnect switch is lit, do not turn OFF the battery disconnect switch nor disconnect its negative cable from the battery. After turning the key OFF, the LED is lit for a maximum duration of* ***3 min****.*

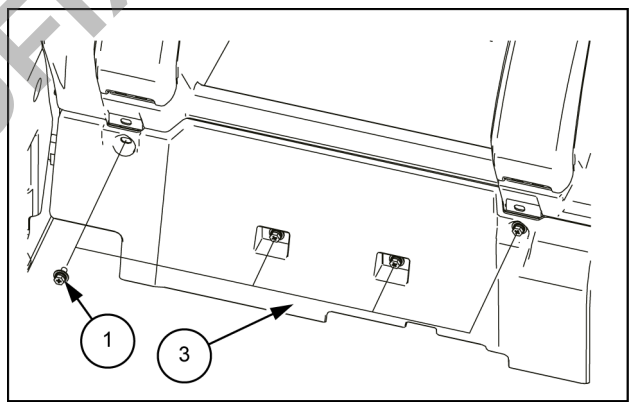
- Remove the operator's seat. (Refer to the **Operator seat - Remove (90.120)** for detail.)

2. Remove the 10 bolts **(1)** with a box wrench [**13 mm**] to remove the trim rear assembly **(2)** and the rear lower trim **(3)**.

   Bolt **(1)** tightening torque: **5.9 - 7.8 N·m** (**4.352 - 5.753 lb ft**)



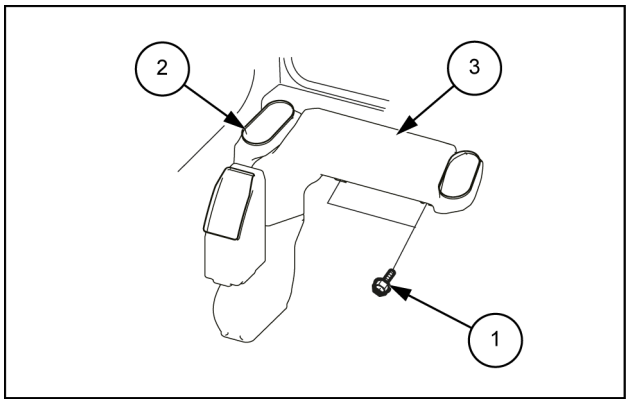
SMIL14CEX1861AB 1



SMIL14CEX1862AB 2

3. Remove the 3 bolts **(1)** with a box wrench [**10 mm**] to remove the air conditioner ducts **(2)** and **(3)** in left and right.

   Bolt **(1)** tightening torque: **2.9 - 3.9 N·m** (**2.139 - 2.876 lb ft**)



SMIL14CEX1863AB 3

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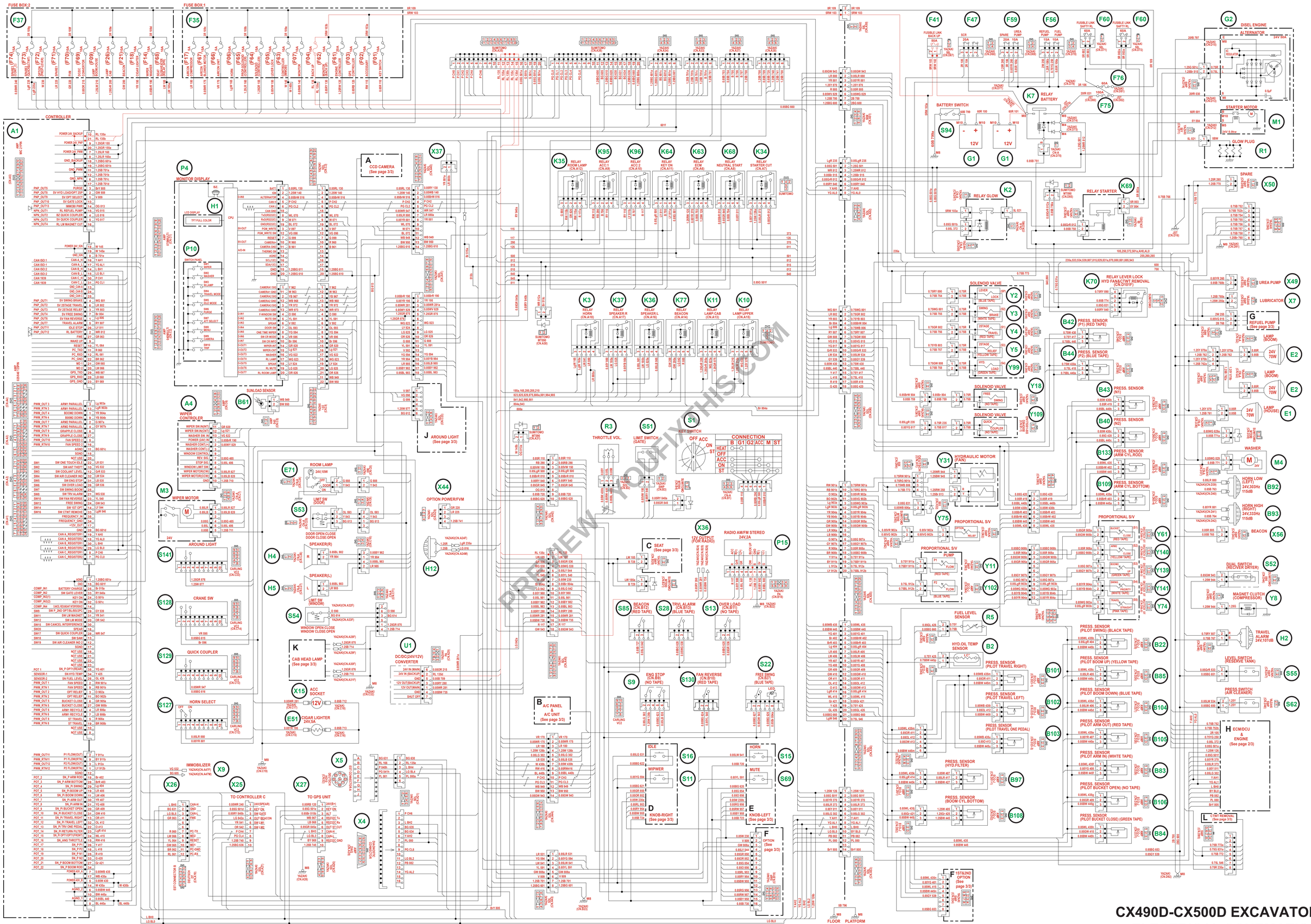
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380300008 [Cylinder Liner Installer]	Crankcase Liner - Special tools	10.1 / 6
380300009 [Angle Gauge]	Cylinder heads - Special tools	10.4 / 3
380300014 [Valve Guide Remover / Installer]	Cylinder head - Special tools	10.4 / 4
380002626 [Compression Gauge Adapter]	Cylinder head - Special tools	10.4 / 4
380002635 [Compression Gauge Adapter]	Cylinder head - Special tools	10.4 / 4
380300021 [Valve Clearance Adjust Nut Wrench]	Cylinder head - Special tools	10.4 / 5
380300011 [Valve Spring Replacer]	Valves - Special tools	10.4 / 6
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380002601 [Fuel Injector Remover]	Fuel injectors - Special tools	10.9 / 3
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CX490D-CX500D EXCAVATORS ELECTRICAL SCHEMATIC

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CX490D-CX500D EXCAVATORS
HYDRAULIC SCHEMATIC

47937817EN - 1/2

68846892-0

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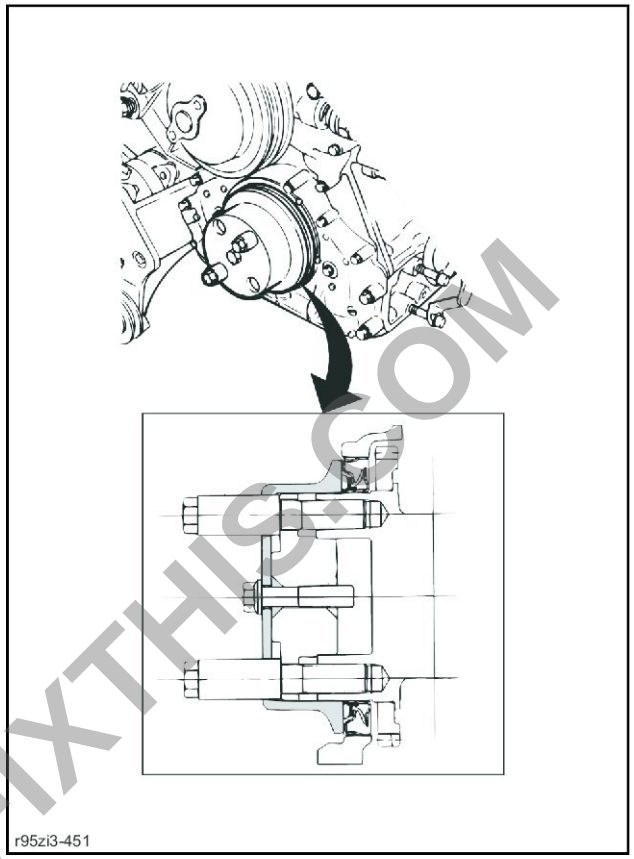
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[35.353] Hydraulic travel system 35.11
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NOTE: *Thoroughly wipe off oil that flows out after fitting the oil seal.*
When installing the oil seal, refer to the table for the specified installation locations with classification by colors.



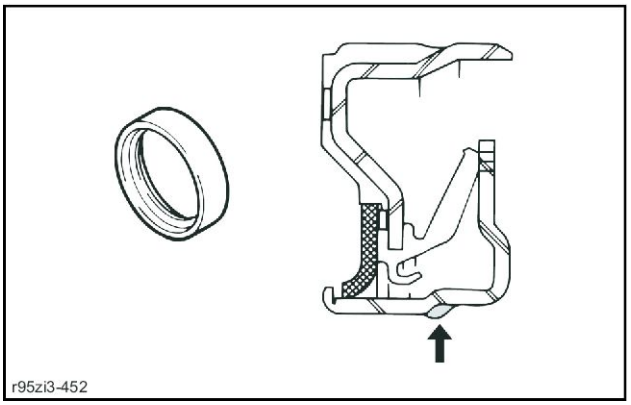
R95ZI3-451 28

Crankshaft oil seal identification color:

Front-side slinger - Silver

Rear-side slinger - Gray

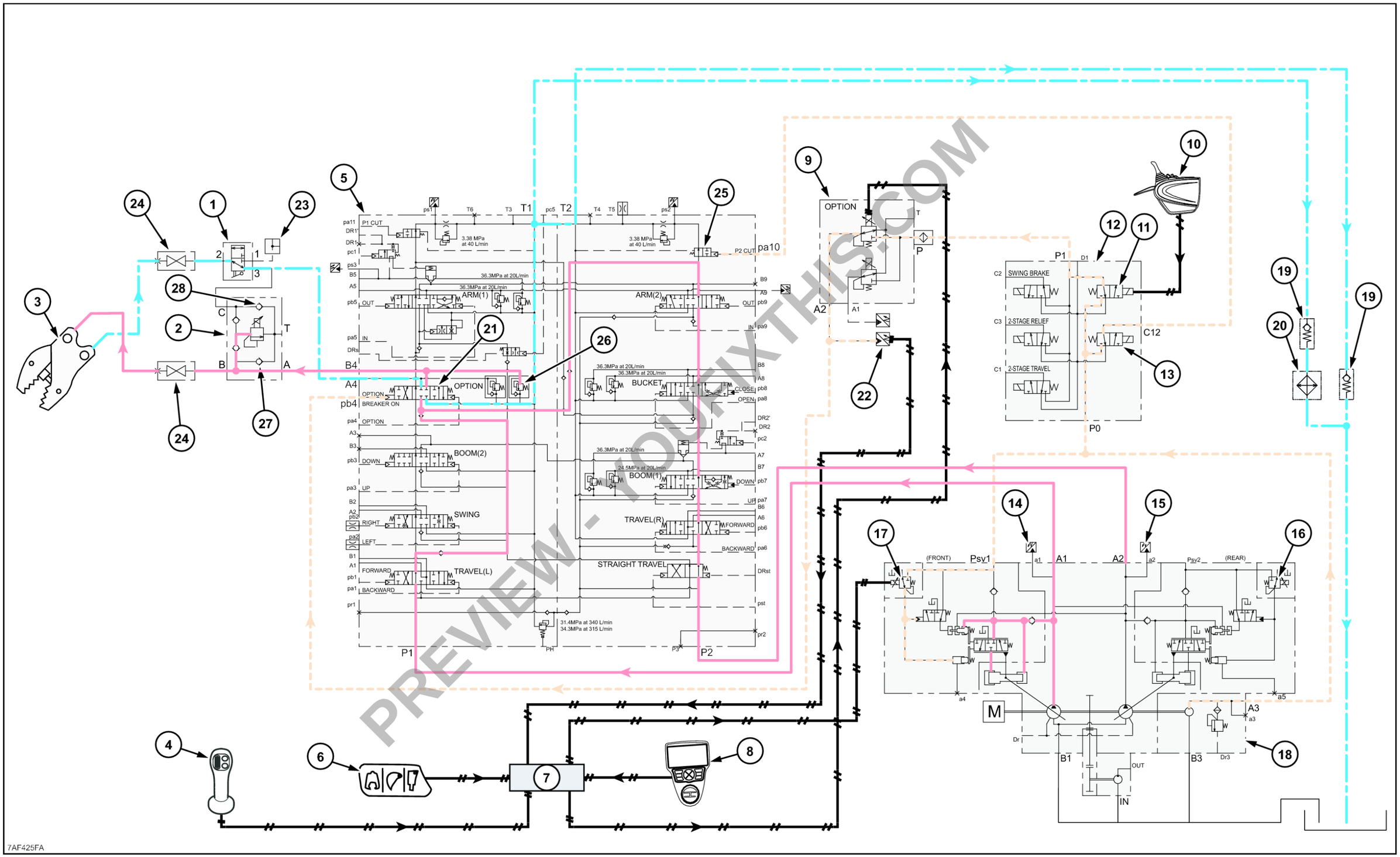
NOTICE: *If flaws are found on the crankshaft, apply ThreeBond 1207C to the area shown in the diagram.*



R95ZI3-452 29

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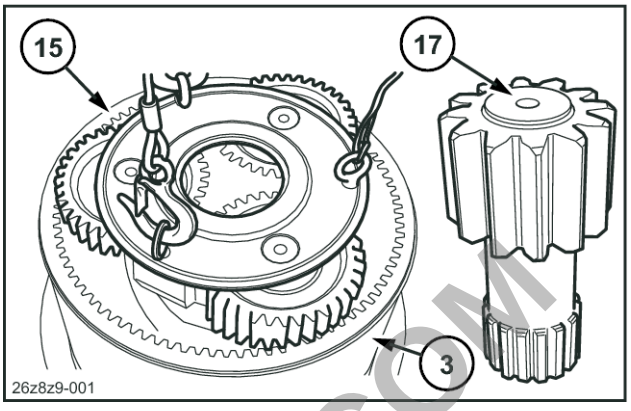
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2. After making sure that the coupling (See the motor parts Operator's Manual.) is at the end of the motor shaft, insert the sun gear 1 **(22)**.

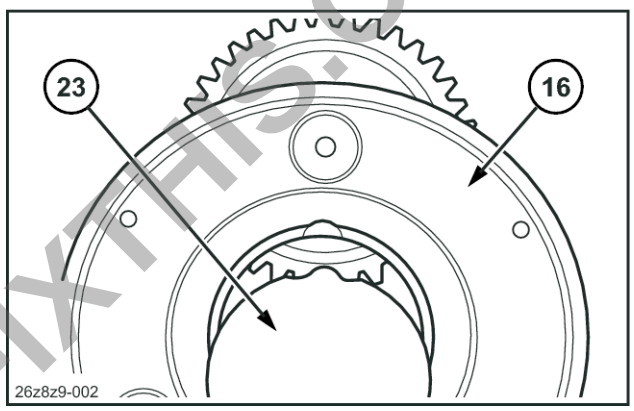
   ⚠ CAUTION:

   - Be very careful not to get hands stuck between gears.



26Z8Z9-001 19

3. Install the thrust plate **(23)** on the carrier 1 **(16)**.
   - Face the sharp edge toward the cover **(24)** side.

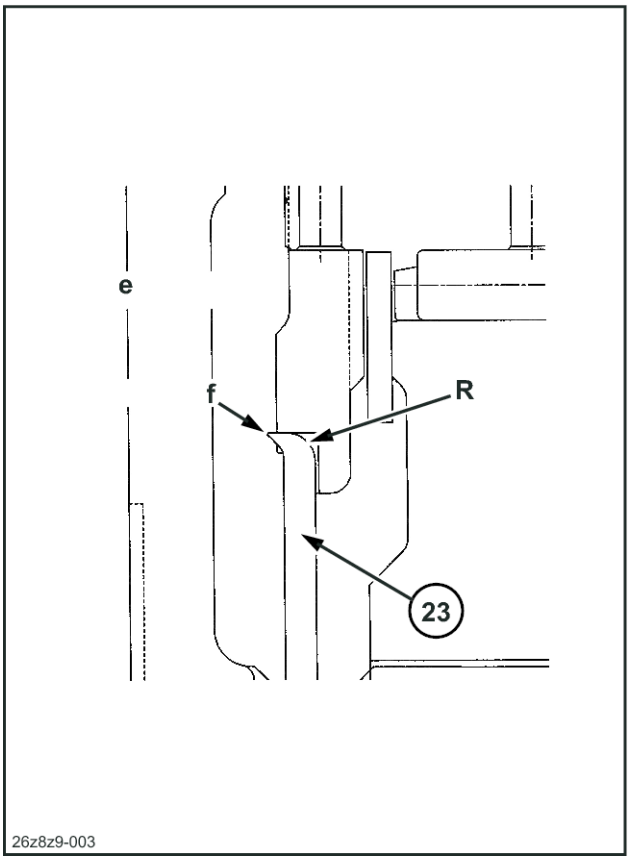


26Z8Z9-002 20

Thrust plate installation direction

e. Reduction gear cover

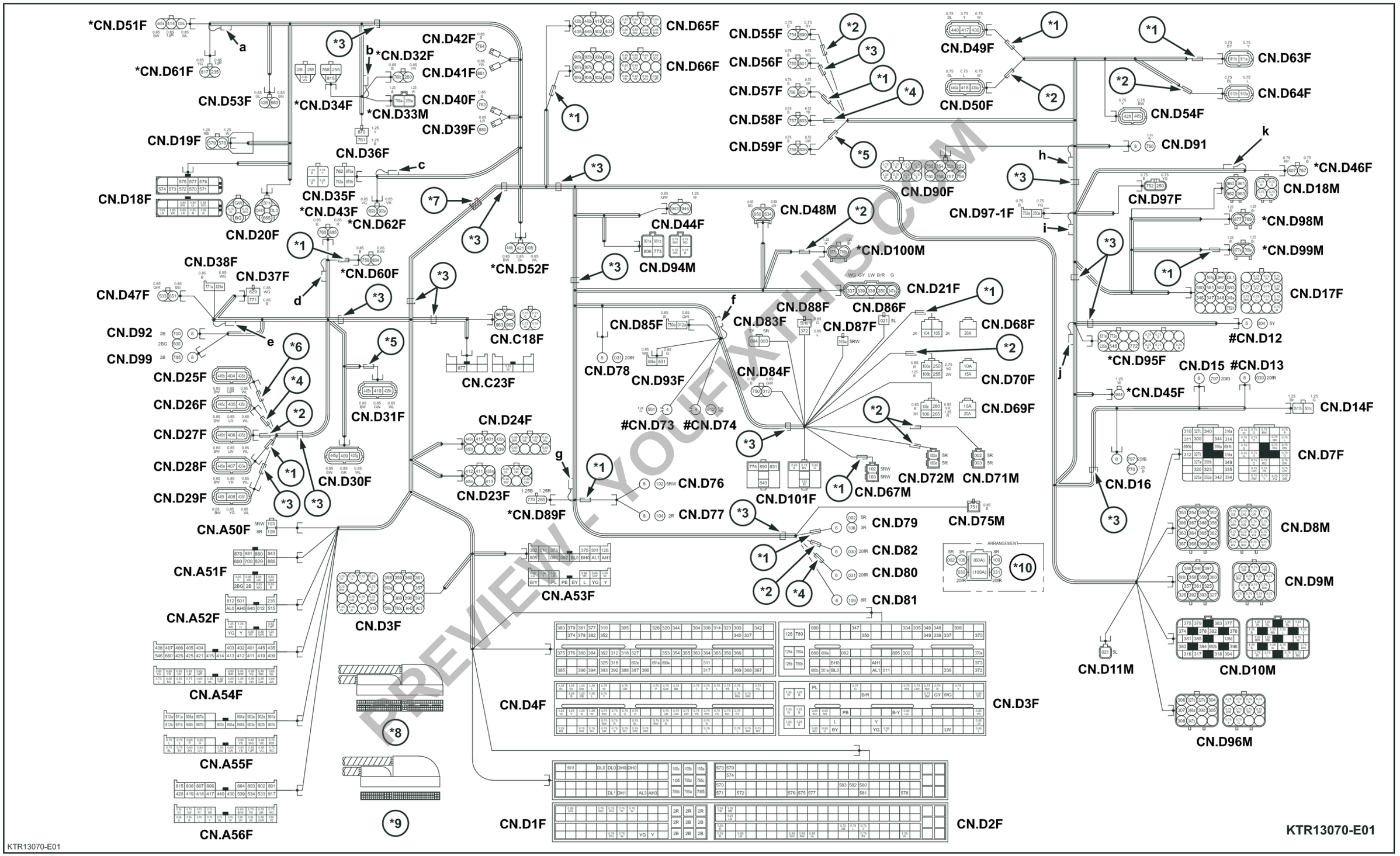
f. Sharp edge



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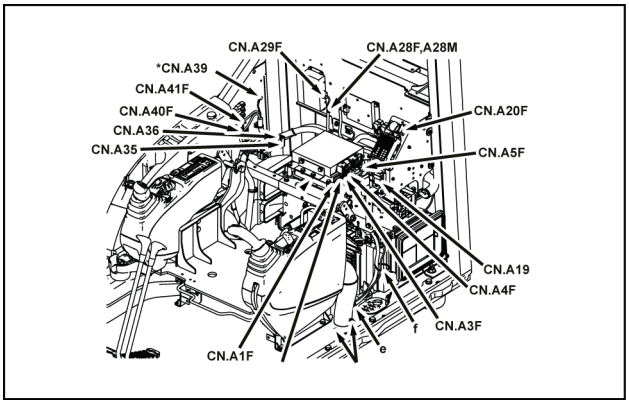


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KTR13070-E01 1

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CONNECTOR CN.A39 – CAB GROUND (1-PIN) (Female)



SMIL14CEX5191AA 16

Pin	From	Wire	Description	Color-Size	Frame
M8	CN.A26-P-10	745		B-1.25	**SHEET 30**

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Exhaust Gas Recirculation (EGR) electrical system - Inspect

EGR control system inspection - Functions

The ECM controls the EGR valve based on the engine revolution speed, engine coolant temperature, intake air temperature, fuel injection amount, and atmospheric pressure.

The EGR valve is driven by the EGR motor, and the EGR valve opening is detected by the EGR position sensor.

EGR control system inspection - Inspection

Inspection when there is a possibility that there is an abnormality in the locations relating to the EGR.

1. Check the diagnostic trouble code.

NOTE: *If the diagnostic trouble code is detected, inspect the corresponding diagnostic trouble code.*

2. Start the engine and warm it up until the coolant temperature exceeds the standard value.

   Standard value: **70 °C** (**158 °F**)

3. Check the EGR position display using a trouble diagnosis scan tool.

   Values: **-3 - 3 %**

4. Perform the actuator test EGR control using a trouble diagnosis scan tool if the EGR position display is outside the standard value.

5. Execute an Up and Down command to the EGR valve and check the EGR position display.

   Values: **-3 - 3 %**

6. Inspect the EGR piping if the EGR position display is outside the standard value.
   No damage or gas leaks should be found

7. Repair or replace if a problem is discovered.

8. Start the engine and warm it up until the coolant temperature exceeds the standard value.

   Standard value: **70 °C** (**158 °F**)

9. Check the EGR position display using a trouble diagnosis scan tool.

   Values: **-3 - 3 %**

10. Replace the EGR valve if the EGR position display is outside the standard value.
    See **Exhaust Gas Recirculation (EGR) valve - Remove (10.501)**.
    See **Exhaust Gas Recirculation (EGR) valve - Install (10.501)**.

11. When replacing the EGR valve, perform EGR learning to the ECM.

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206C-Urea fluid quality sensor circuit low voltage

Control Module : DCU

Solution:

1. Turn OFF the ignition switch.

   Disconnect the harness connector **CN.D20** from the urea fluid sensor.

   Inspect the urea fluid sensor harness connector **CN.D20**.

   Make sure that there should be no intermittent conditions, poor connections, or corrosion.

   Make sure that there should be no water intrusion or adhering foreign material.

   A. If a problem is found, repair the harness connector **CN.D20**.

   B. If there are no problems, proceed to Step **2**.
2. Turn ON the ignition switch.

   Connect a test lamp between the urea fluid sensor power supply circuit and the DCU harness GND connection.

   A. If the test lamp does not illuminate, repair the open circuit or high resistance in the urea fluid sensor power supply circuit.

   B. If the test lamp illuminates, proceed to Step **3**.
3. Connect a test lamp between the power supply circuit and the GND circuit.

   A. If the test lamp does not illuminate, repair the open circuit or high resistance in the urea fluid sensor GND circuit.

   B. If the test lamp illuminates, proceed to Step **4**.
4. Disconnect the harness connector **CN.D1-2** from the DCU.

   Inspect for poor connections at the DCU harness connector **CN.D1-2**.

   A. If a problem is found, repair the harness connector **CN.D1-2**.

   B. If there are no problems, proceed to Step **5**.
5. Inspect each circuit between the DCU and the urea fluid quality sensor for a short circuit.

   A. If a problem is found, repair the applicable circuit.

   B. If there are no problems, proceed to Step **6**.
6. Replace the urea fluid quality sensor.
7. Confirm resolution:

   1. Clear the diagnostic trouble code using the trouble diagnosis scan tool.

   2. Turn OFF the ignition switch until communication with the trouble diagnosis scan tool is discontinued.

   3. Turn ON the ignition switch without starting the engine.

   4. Observe the following parameters on the trouble diagnosis scan tool.

   - Urea fluid concentration sensor error
   - Urea fluid conductivity sensor error
   - Urea fluid tank temperature sensor error
   - Urea fluid sensor error

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