KOBELCO

SHOP MANUAL

COMPACT CRAWLER EXCAVATOR

SK17SR-3

S5PU0002E02

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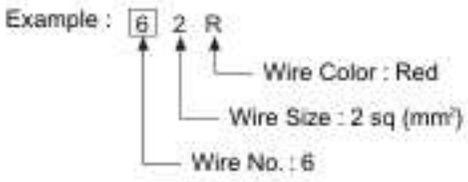
23.1 HOW TO READ CIRCUIT DIAGRAM AND HARNESS CONNECTION

23.1.1 ELECTRIC CIRCUIT DIAGRAM

Note

For the electric circuit diagram, refer to Fig. 71–13 of Supporting Data that is provided at the end of this shop manual.

(1) In the diagram, the number, size and color of wires are shown on the wiring line.
The size of the wire is to be 0.75 sq (square mm = mm²) unless otherwise specified.

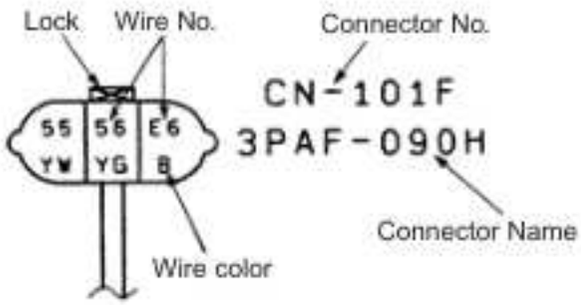


WIRING COLOR TABLE

Symbol	Color	Symbol	Color	Symbol	Color
B	BLACK	Y	YELLOW	Gr	GRAY
G	GREEN	P	PINK	Sb	SKY BLUE
L	BLUE	O	ORANGE	V	VIOLET
R	RED	Br	BROWN		
W	WHITE	Lg	LIGHT GREEN		

23.1.2 HARNESS CONNECTION

(1) Indication for Connector



1) The figure for the connector pin arrangement is shown by putting the lock (nail) to upper portion, and looking from the fitting face.
2) The numbers in the connector show the wire No., and alphabetical letters show the wire color.
3) On the side face of connector, the connector name and serial number of the connector No. are indicated.
4) At the place indicated as "DOUBLE SPLICE", Two wires are connected to one place.

(2) The connector is to be connected with engaging the male (M) and female (F) connectors of the same number.
Example : CN-101M and CN-101F
Where : M means for Male, and F for Female.

(3) ⊣◀ mark means the connector with diode. The direction for diode is shown by the arrow.

(4) The AVSS wires are to be used for the size between 0.75 sq and 2 sq. AVS wires between 3 sq and 5 sq and others are AV wires, unless otherwise specified.

(5) The wire size is 0.75 sq, unless otherwise specified.

(6) The treatment for the harness end is to be as follows :

1) ——— : After roughly applying harness taping, wires are installed in a corrugated tube.
2) ——— : Harness taping by two plies.
3) ——— : No harness treatment for connection.

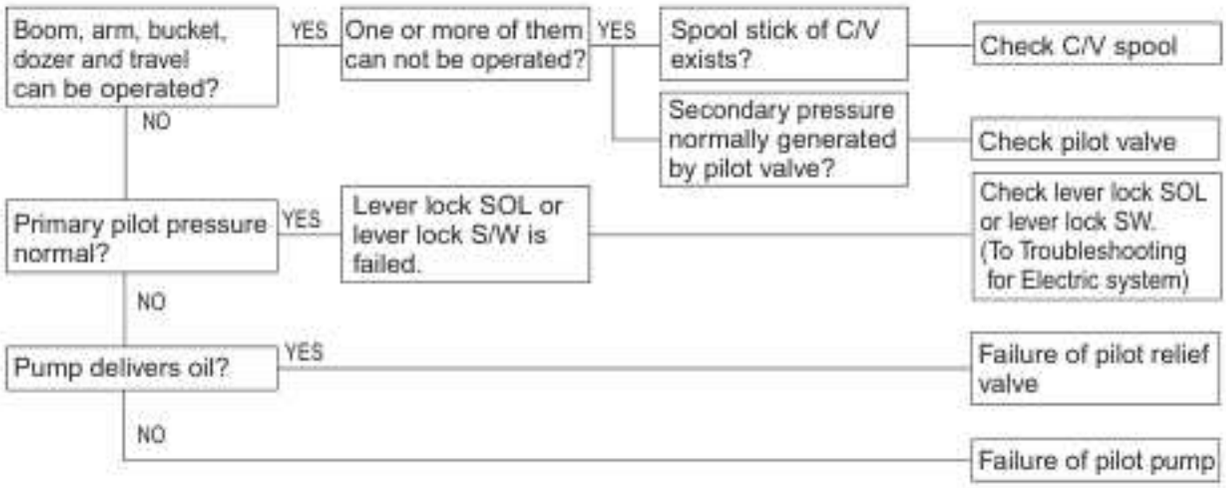
(7) The length for the above (6)-3) is to be 30 ± 10 mm. (1.2 ± 0.4 in), and the length includes in the total length of wire shown in the diagram.

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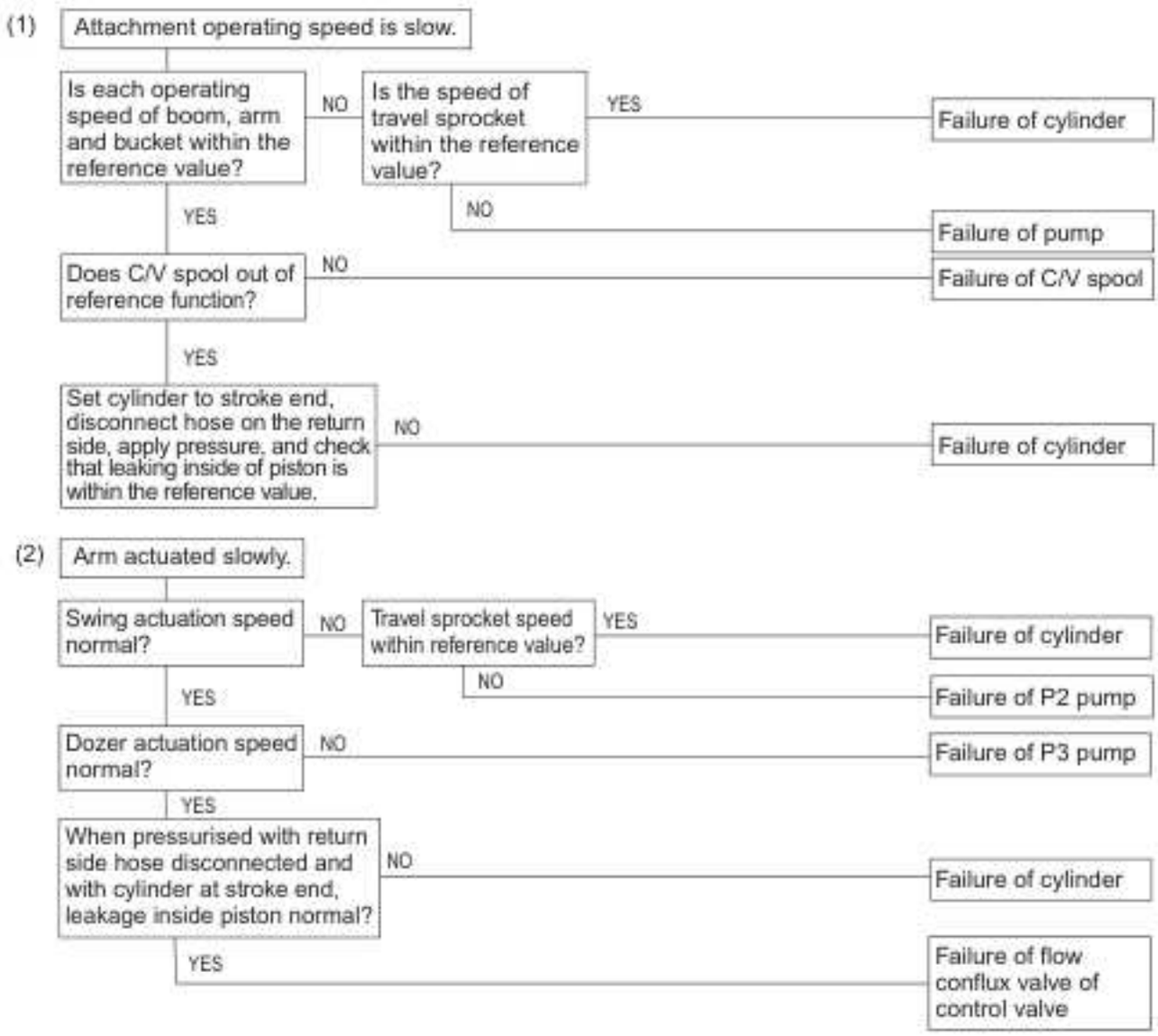
42.3 TROUBLESHOOTING

42.3.1 Attachment

42.3.1.1 Attachment operational failure (Excluding swing, dozer and crawler width operations)



42.3.1.2 Attachment speed is slow



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Table 1-1 Specifications of L3E (2 / 2)

Engine model			L3E
Lubrication system	Lubrication system		Pressure feed, full flow filter system
	Engine oil	Speci fication	Class CD or above oil (API service classification)
		Capacity (engine total)	3.1 L [0.82 U.S. gal] (3.6 L [0.95 U.S. gal])
	Oil pump	Type	Gear type (internal and external teeth engagement), built into gear case
		Discharge rate	3 L [0.79 U.S. gal]/min or more (at 1000 min^{-1})
	Relief valve	Type	Plunger valve type
		Valve opening pressure	0.29 ± 0.029 MPa [3.0 ± 0.3 kgf/cm^2] [42.68 ± 4.3 psi] (1000 min^{-1})
	Oil filter	Type	Paper-element cartridge
Cooling system	Cooling system		Forced-feed circulation type
	Coolant capacity (main unit of engine)		1.8 L [0.48 U.S. gal]
	Water pump	Type	Centrifugal volute type
		Discharge rate	50 L [13.21 U.S. gal]/min (at pump rotation of 4500 min^{-1})
	Thermostat	Type	Wax pellet
		Valve opening pressure	76.5 ± 1.5°C [167.0 to 172.4°F]
	Cooling fan	Type	Push type
		No. of blades/Outside diameter	5 equally spaced blades/310 mm [12.20 in.]
Inlet system	Air cleaner	Type	Paper element
Electrical system	Voltage - polarity		12 V - negative (-) ground
	Starter	Type	M001T68381
		Manufacturer	Mitsubishi Electric Corporation
		Pinion engagement type	Pinion shift (reduction type)
		Output	12 V - 1.7 kW
		Number	1
		Pinion/ring gear ratio	14/106
	Alternator	Type number	A007TA0171B
		Type	Three-phase current generator, integral with IC regulator
		Manufacturer	Mitsubishi Electric Corporation
		Output	12 V - 40 A
		Rated voltage generating speed	5000 min^{-1} (at 13.5 V, 37 A, when hot)
		Regulator adjusting voltage	14.7 ± 0.3 V
	Glow plug	Type	Sheathed
		Rated voltage - current	11 V - 9.5 A ± 1.0 A (6-second duration)
	Stop solenoid	Working voltage	12 V - ETR: 8 V or less
		Insulation resistance	100 MΩ or more at DC 500 V megger (normal temperature, normal relative humidity)
		Stroke	13.5 ± 0.5 mm [0.532 ± 0.020 in.]
		Ambient temperature for use	-40 to 120°C [-40 to 248°F]

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⚠ CAUTION

About warning labels

Maintenance of warning labels

Make sure all warning/caution labels are legible.

Clean or replace the warning/caution labels the description and/or illustration of which cannot be seen clearly.

For cleaning the warning/caution labels, use a cloth, water and soap. Do not use cleaning solvents, gasoline or other chemicals to prevent the letters from getting blurred or the adhesion from being weakened.

Replace damaged or fractured labels with new ones.

If any engine part on which a warning label is attached is replaced with a new one, attach a new identical warning label to the new part.

To obtain replacement warning labels, contact a Mitsubishi dealer.



Warning labeles

X

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2.1 Removing flywheel

⚠ CAUTION

(a) Be careful not to cut your hands with the ring gear when pulling out the flywheel.
Be careful not to drop or hit the flywheel when removing.

(b) The personnel who holds the pulley must pay due attention to safety.
Also, personnel must stay in close contact with each other during work.

(1) One personnel must firmly hold the pulley with a wrench to prevent the flywheel from turning.

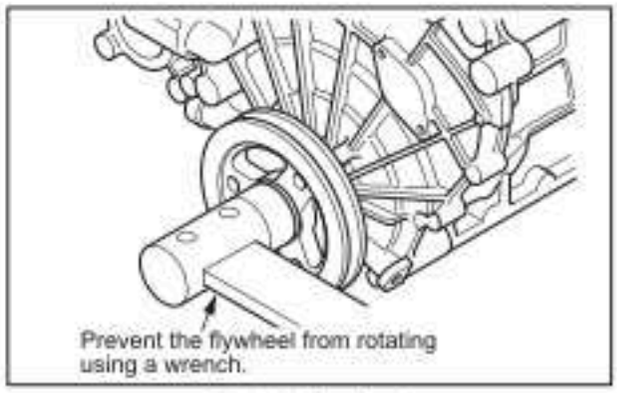
(2) Remove one bolt from the flywheel.

(3) Screw a guide bolt into the threaded hole of the bolt that has been removed.

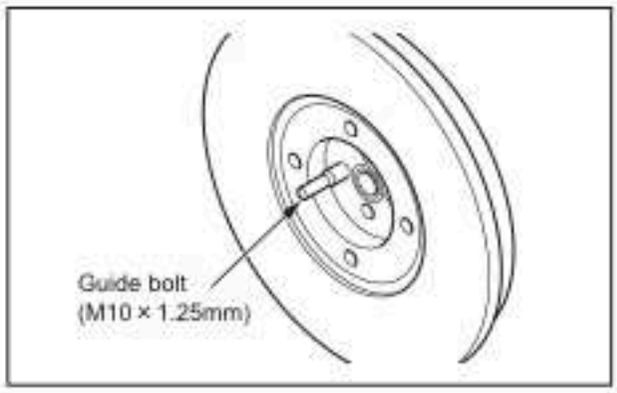
(4) Remove remaining bolts from the flywheel.

(5) Hold the flywheel firmly with both hands, and by moving it back and forth, pull it out straight.

Note: The ring gear is shrink fitted to the flywheel. Do not remove it unless defective.



Detent of flywheel

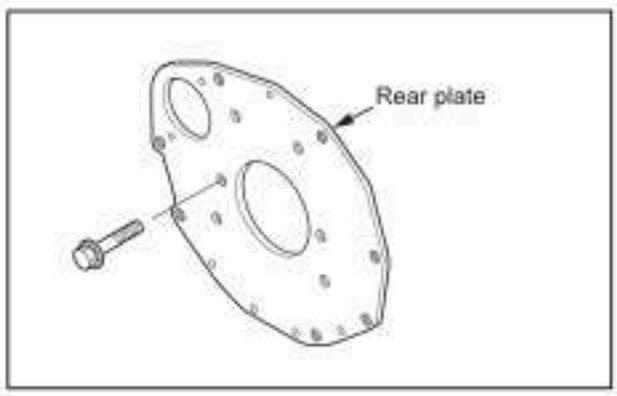


Removing flywheel

2.2 Removing rear plate

Remove the rear plate mounting bolt, and remove the rear plate.

Note: When removing the rear plate, firmly hold the rear plate with both hands and pull the rear place straight out by moving it back and force, as the rear plate is positioned by knock bushing.



Removing rear plate

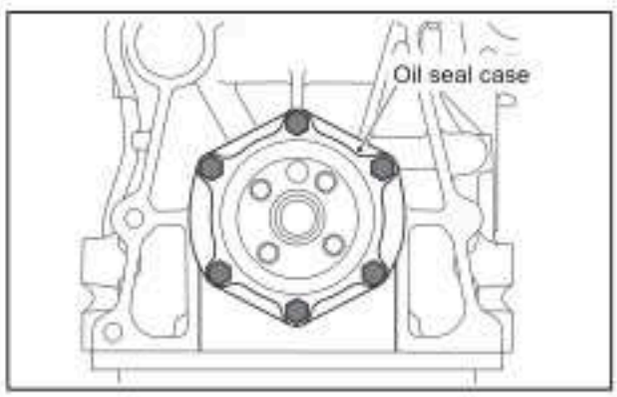
2.3 Removing oil seal case

CAUTION

Be very careful not to damage the oil seal.

(1) Remove bolts from the oil seal case.

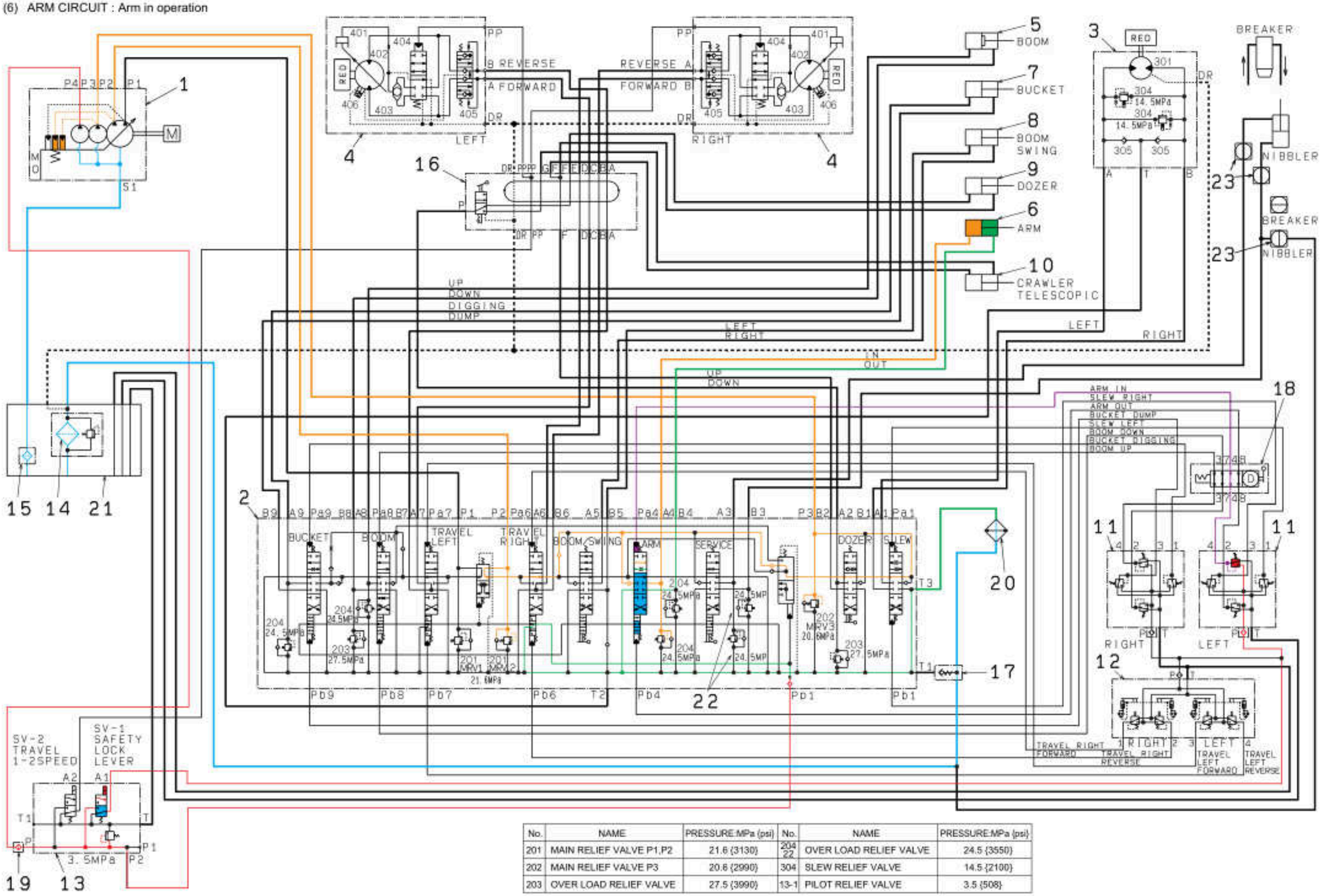
(2) Pry the oil seal case from the cylinder block using a screwdriver.



Removing oil seal case

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(6) ARM CIRCUIT : Arm in operation



No.	NAME	PRESSURE:MPa {psi}	No.	NAME	PRESSURE:MPa {psi}
201	MAIN RELIEF VALVE P1,P2	21.6 {3130}	204 22	OVER LOAD RELIEF VALVE	24.5 {3550}
202	MAIN RELIEF VALVE P3	20.6 {2990}	304	SLEW RELIEF VALVE	14.5 {2100}
203	OVER LOAD RELIEF VALVE	27.5 {3990}	13-1	PILOT RELIEF VALVE	3.5 {508}

Fig. 71-7

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