SERVICE MANUAL

E33C

Mini Excavator

PREVIEW - YOUFIXTHIS.COM

Part number 51691657
English
November 2019

NEW HOLLAND CONSTRUCTION

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Engine - Special tools

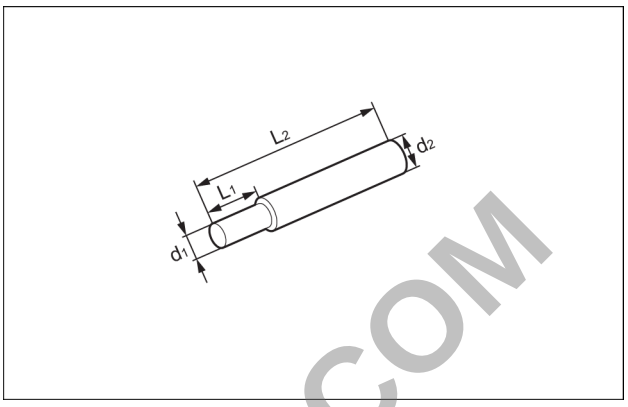
Valve guide tool (for removing valve guide)

L1= **20 mm** (**0.787 in**)

L2= **7.5 mm** (**0.295 in**)

d1= **7.5 mm** (**0.295 in**)

d2= **11 mm** (**0.433 in**)



SMIL16MEX3362AA 1

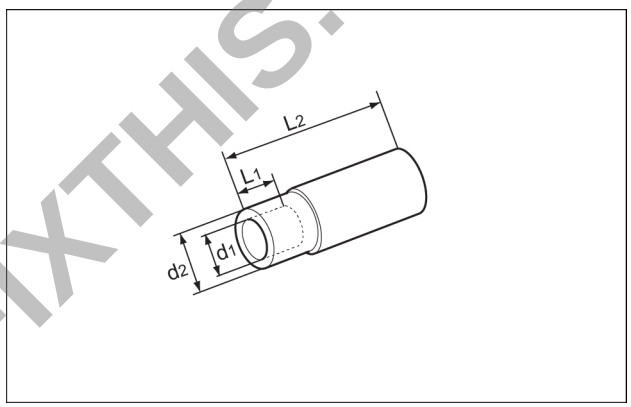
Valve guide tool (for installing valve guide)

L1= **15 mm** (**0.591 in**)

L2= **65 mm** (**2.559 in**)

d1= **14 mm** (**0.551 in**)

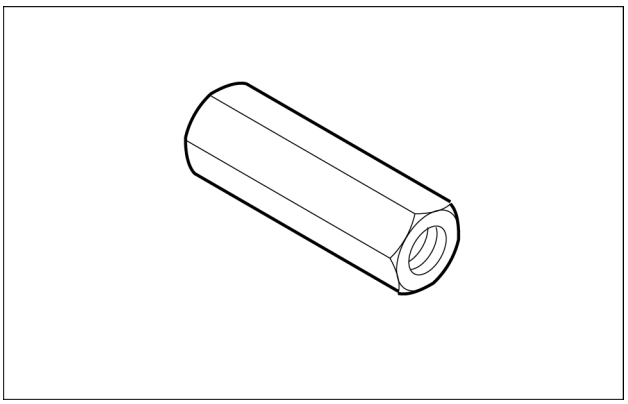
d2= **20 mm** (**0.787 in**)



SMIL16MEX3358A 2

Fuel injector removal tool

Part number: 129470–92305



SMIL17MEX0128AA 3

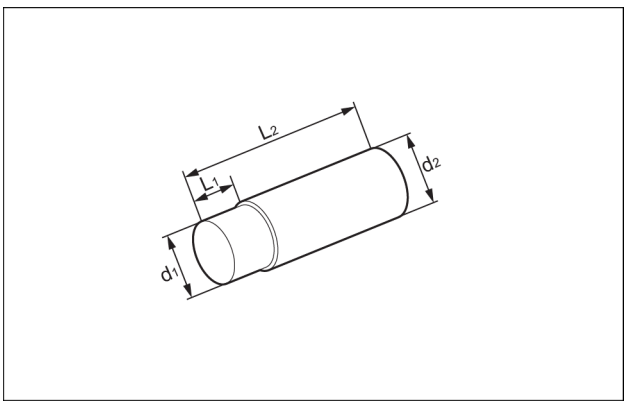
Connecting rod bushing replacer (for removal/ installation of connecting rod bushing)

L1= **20 mm** (**0.787 in**)

L2= **100 mm** (**3.937 in**)

d1= **26 mm** (**1.024 in**)

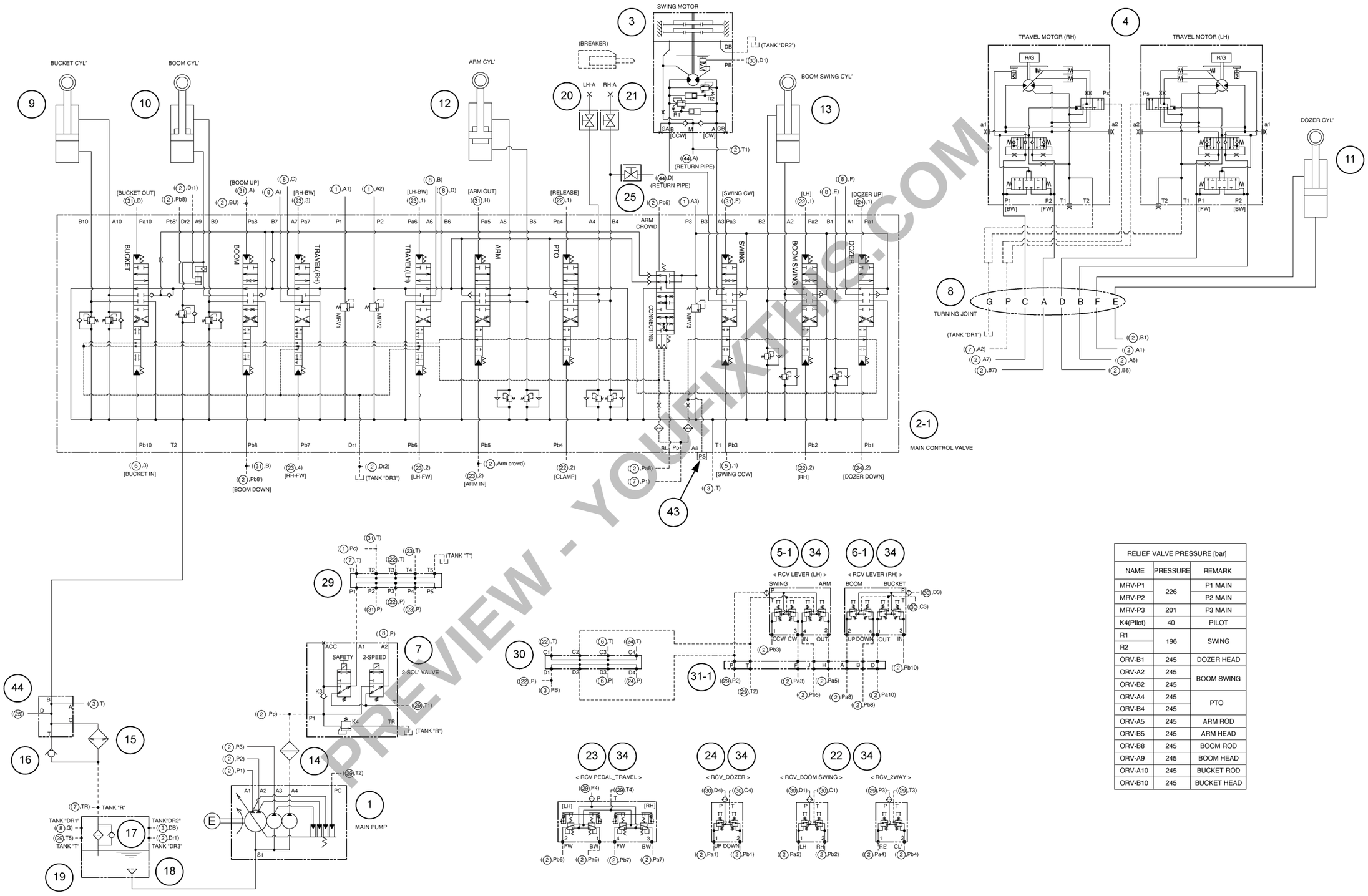
d2= **29 mm** (**1.142 in**)



SMIL16MEX3363A 4

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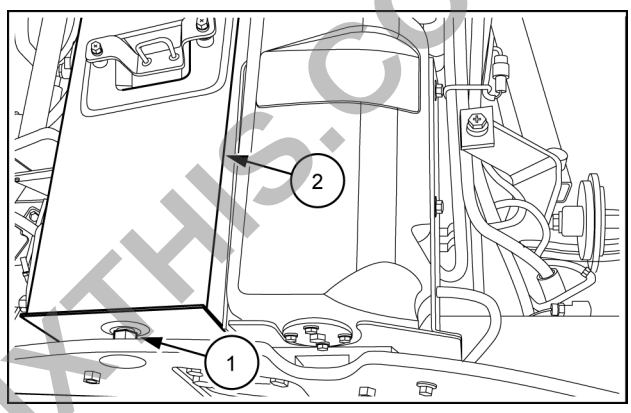
RELIEF VALVE PRESSURE [bar]		
NAME	PRESSURE	REMARK
MRV-P1	226	P1 MAIN
MRV-P2		P2 MAIN
MRV-P3	201	P3 MAIN
K4(Pilot)	40	PILOT
R1	196	SWING
R2		
ORV-B1	245	DOZER HEAD
ORV-A2	245	BOOM SWING
ORV-B2	245	
ORV-A4	245	PTO
ORV-B4	245	
ORV-A5	245	ARM ROD
ORV-B5	245	ARM HEAD
ORV-B8	245	BOOM ROD
ORV-A9	245	BOOM HEAD
ORV-A10	245	BUCKET ROD
ORV-B10	245	BUCKET HEAD

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SMIL18MEX0669JB 1

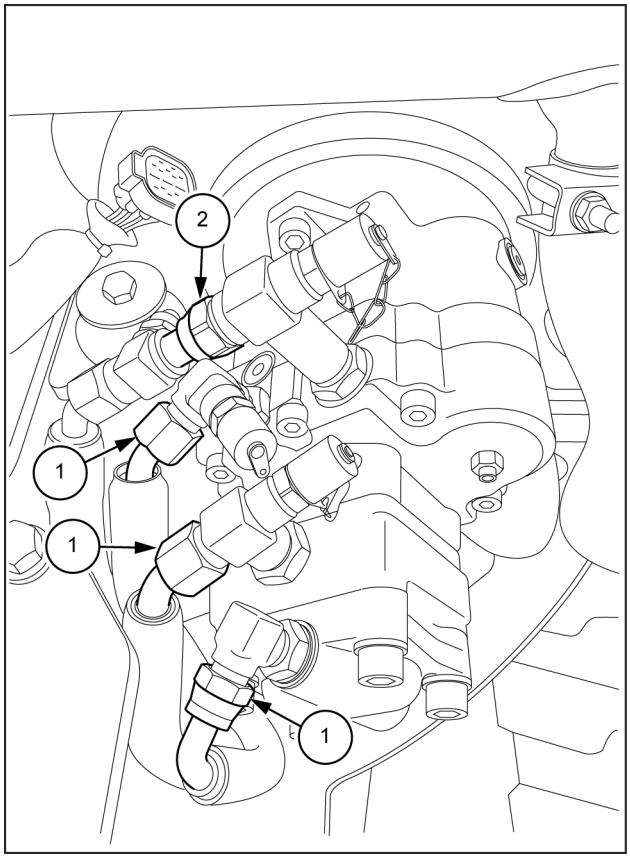
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1. Set the battery disconnect switch to O position (OFF position) to cut off any power supply in the electrical system of the machine (refer to **Mechanical battery isolator - Dynamic description (55.302)**).
2. Remove the engine access door (refer to **Hood - Remove (90.100)**).
3. Remove the left side panels (refer to **Side panels - Remove (90.100)**).
3. Remove the counterweight (refer to **Counterweight - Remove (39.140)**).
4. Place a receptacle of a suitable capacity under the drain plug **(2)**.
5. Remove the drain plug **(2)** located at the bottom of the tank **(1)** and drain the hydraulic oil.
6. After draining, close the drain plug **(2)**.



SMIL17MEX1426AB 1

7. Use a wrench [**24 mm**] to disconnect the hoses **(1)**.
8. Use a wrench [**22 mm**] to disconnect the hose **(2)**.
   - Mark the pump and hoses so that the connectors match at the time of assembly.
   - Use caps and plugs to cover the pump and hoses to prevent any entry of water, dust or dirt.
   - Clean the pump and hoses by spraying them with a parts cleaner to prevent scratches and prevent dirt from accumulating on the connectors.

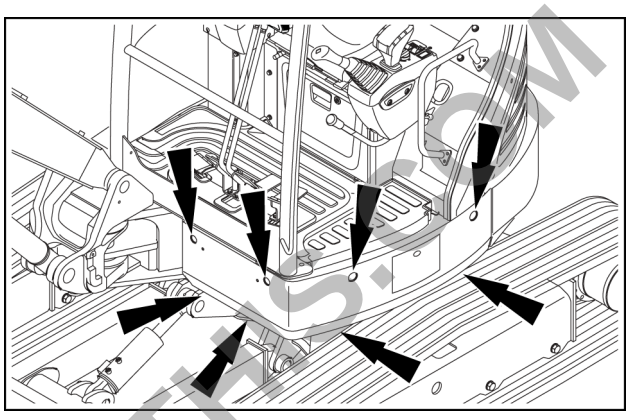


SMIL17MEX1427AB 2

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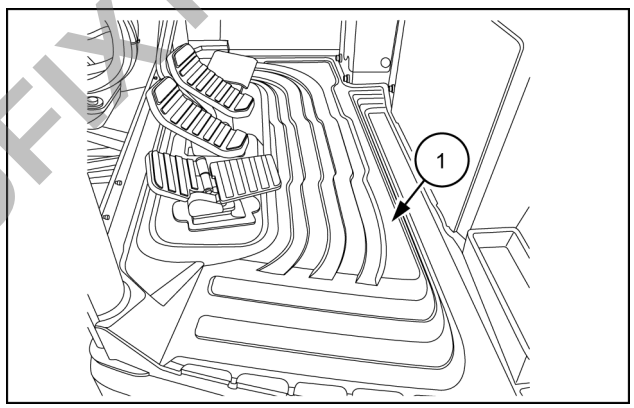
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1. Set the battery disconnect switch to O position (OFF position) to cut off any power supply in the electrical system of the machine (refer to **Mechanical battery isolator - Dynamic description (55.302)**).
2. Release the pressure in the hydraulic system (refer to **Hydraulic systems - Service instruction - Releasing pressure (35.000)**).
3. Remove the protective caps and use a wrench [**13 mm**] to remove the bolts indicated in the figure.
4. Remove the left-hand external panel.



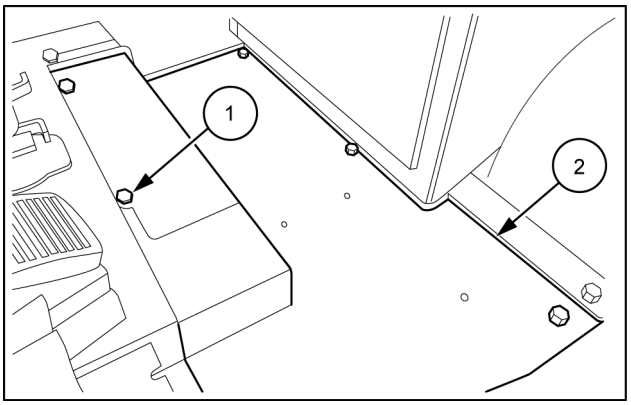
SMIL17MEX0298AB 1

5. Remove the floor mat **(1)**.



SMIL17MEX2900AB 2

6. Use a wrench [**17 mm**] to remove the six bolts **(1)** and then remove the left bottom plate **(2)**.



SMIL17MEX0299AB 3

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PARKING BRAKE

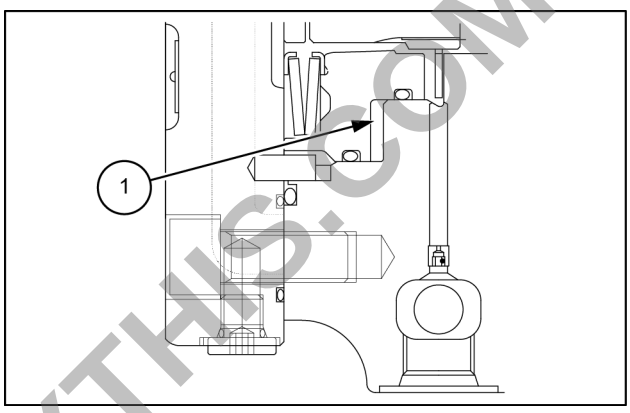
The parking brake is of wet type multi-plate construction of hydraulic release type and has a shaft lock mechanism that changes between ON and OFF of the brake by external signal pressures.

1. Parking brake ON

   When the hydraulic pressure for brake release is shut, the disc coupled to the periphery of the cylinder block via the spline is pushed by the spring force against the brake piston (pinned to the case so that it will not rotate) and the cylinder block and the case secured by the frictional force. Thus the shaft is locked.

Parking brake releasing pressure ON

(1) Brake cylinder chamber C



SMIL16MEX1003AB 2

2. Parking brake OFF

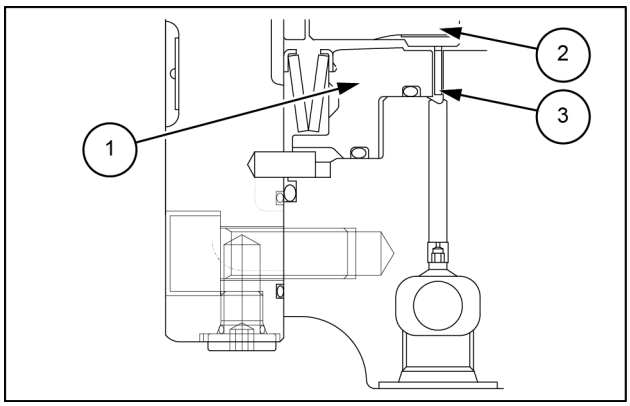
   When the brake release pressure is introduced to the brake cylinder chamber via the "PB" port, the brake piston is operated by the release pressure in opposition to the spring force to eliminate the force of friction with the disc, thus allowing the shaft to rotate freely.

Parking brake releasing pressure OFF

(1) Brake piston

(2) Disc plate

(3) Cylinder block



SMIL16MEX1002AB 3

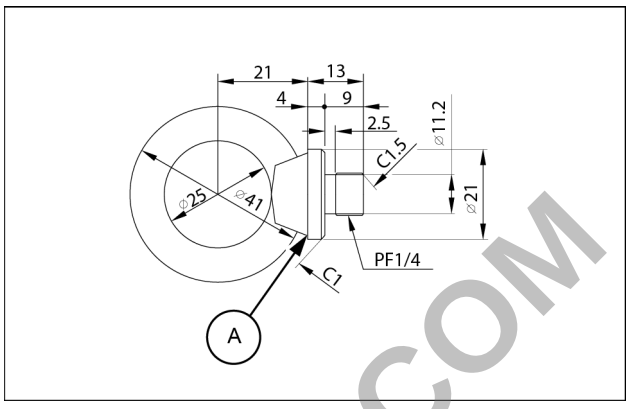
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Hydraulic travel system - Special tools

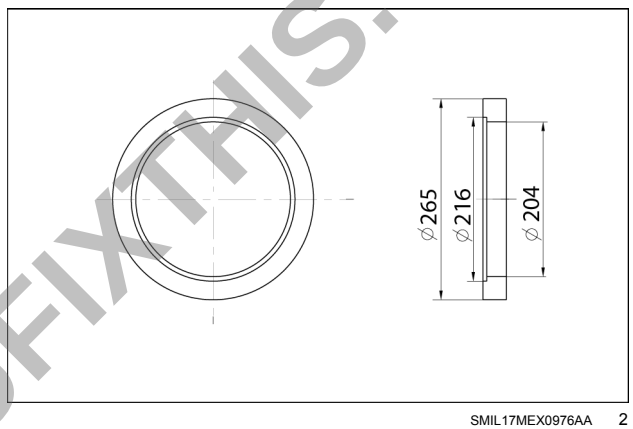
Eyebolt PF 1/4

(A): Welding



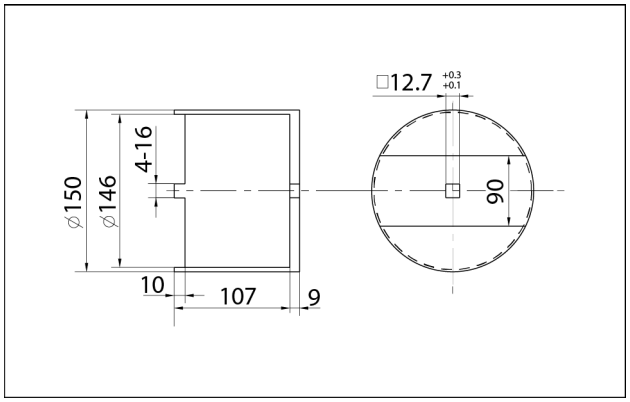
SMIL17MEX0975AB 1

Housing disassembly jig



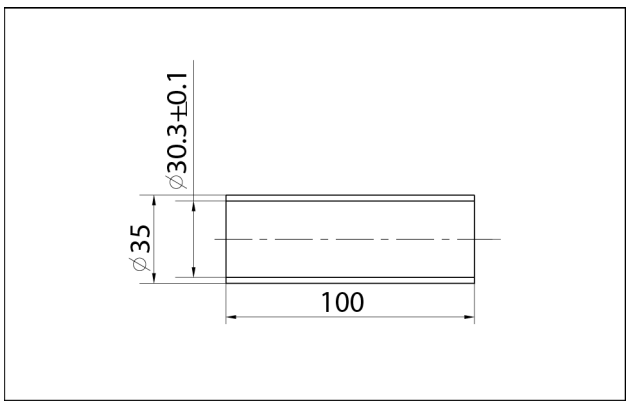
SMIL17MEX0976AA 2

Ring nut tightener



SMIL17MEX0977AA 3

Ball bearing disassembly



SMIL17MEX0978AA 4

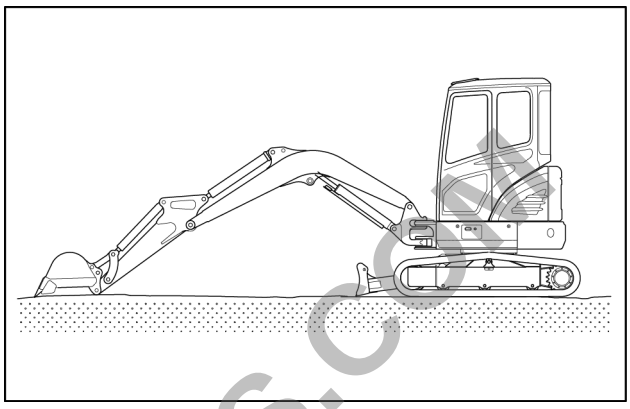
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Boom cylinder - Service instruction

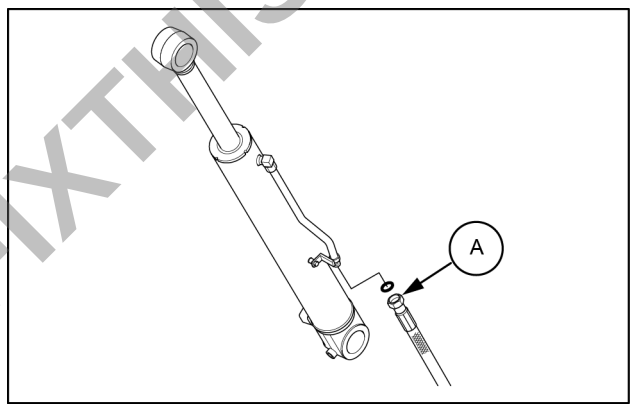
How to check internal boom cylinder leakage

1. Lower the bucket teeth to the ground with bucket cylinder fully retracted and arm cylinder rod retracted almost in full.



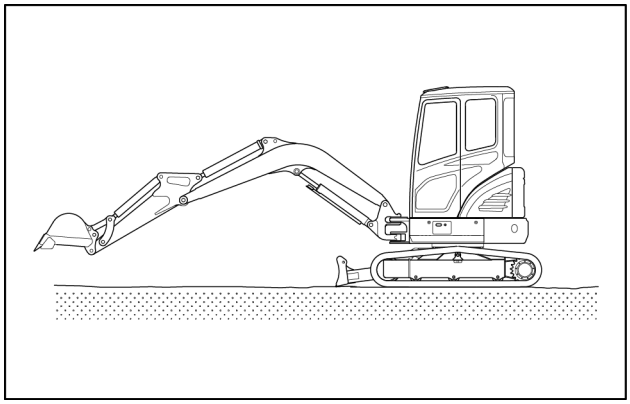
SMIL16MEX1260AA 1

2. Disconnect hose **(A)** from rod side of boom cylinder and drain oil from cylinders and hose. (Put cups on piping and hose ends)



SMIL16MEX1261AA 2

3. Raise bucket OFF the ground by retracting the arm cylinder rod.
   If oil leaks from piping side and boom cylinder rod are retracted there is an internal leak in the cylinder. If no oil leaks from piping side and boom cylinder rod is retracted, there is an internal leak in the control valve.



SMIL16MEX1262AA 3

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Frames and ballasting

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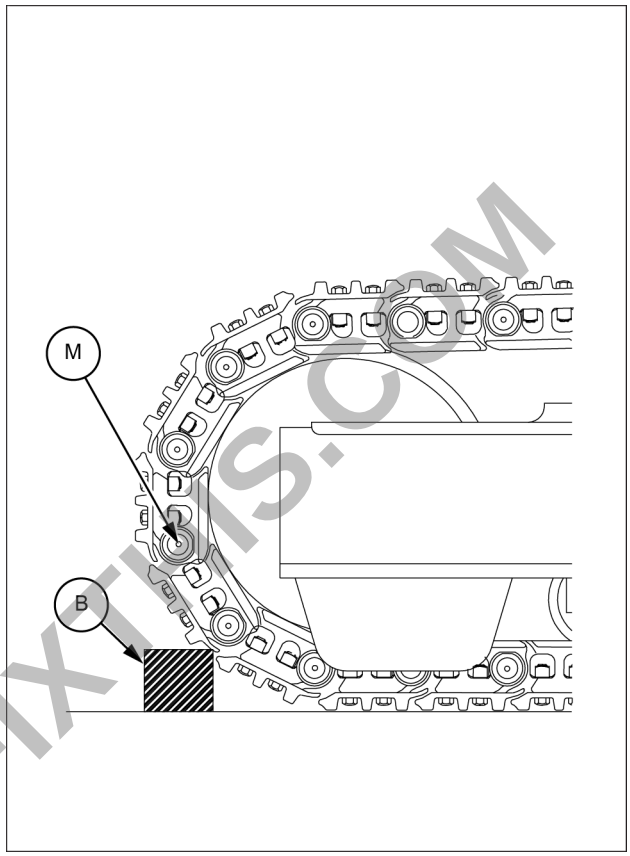
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Track chain - Remove

1. Move the track link until the master pin **(M)** is over the front idler. Put a wooden block **(B)** as shown.
2. Loosen the tension of the track link.

NOTE: *if the track tension is not relieved when the grease valve is loosened, move the machine backwards and forwards.*

3. Push out the master pin **(M)** by using a suitable tool.

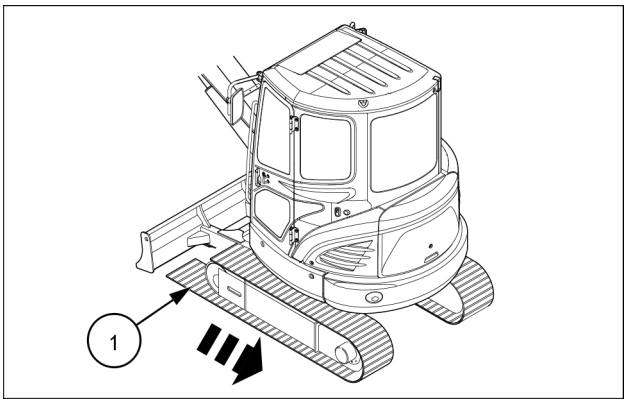


SMIL16MEX2357BB 1

4. Move the machine slowly in reverse, and lay out track link assembly **(1)**.

NOTE: *jack up the machine and put wooden block under the machine.*

NOTE: *don't get close to the sprocket side as the track shoe plate may fall down on your feet.*



SMIL16MEX3658AB 2

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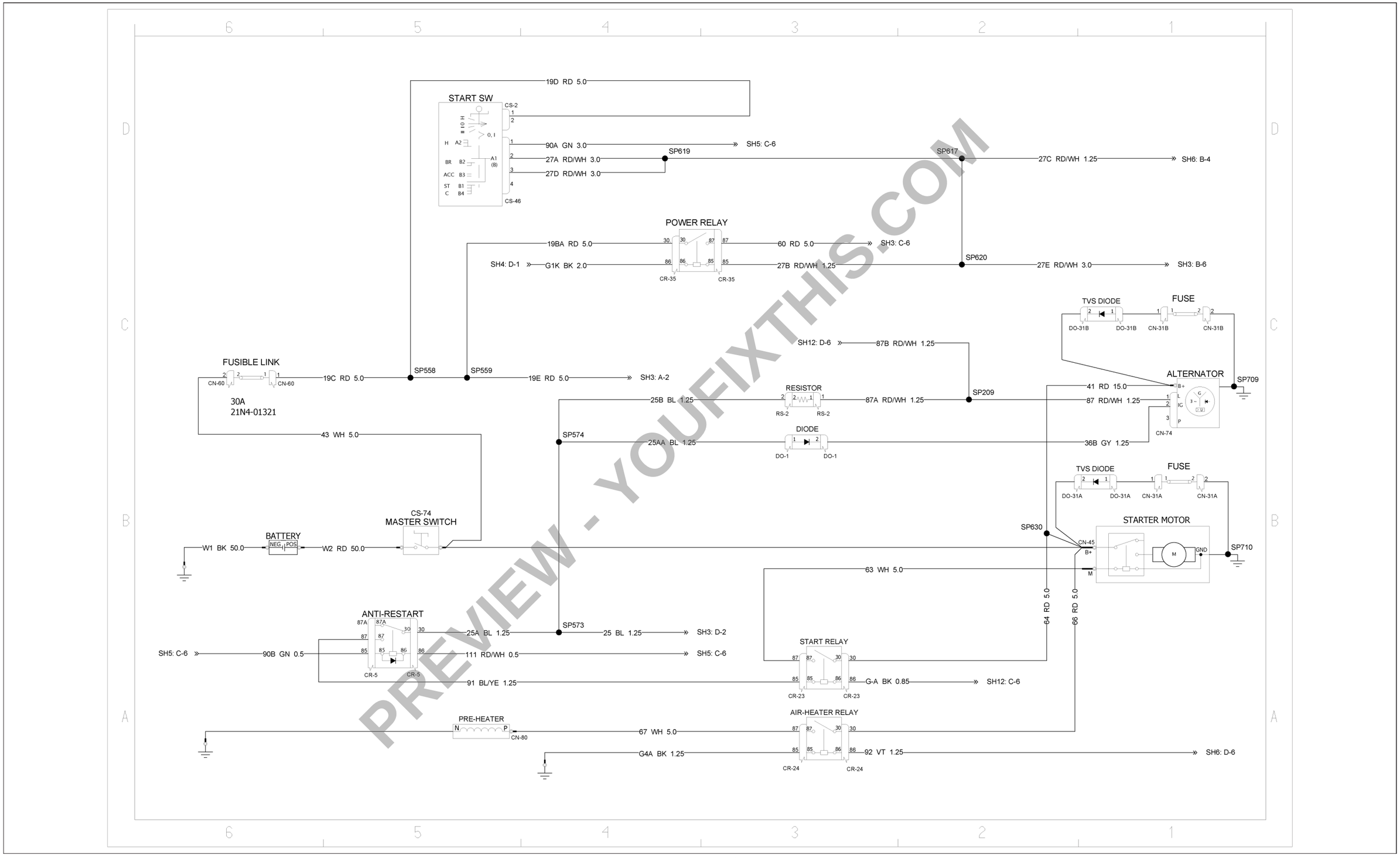
SERVICE MANUAL

Electrical systems

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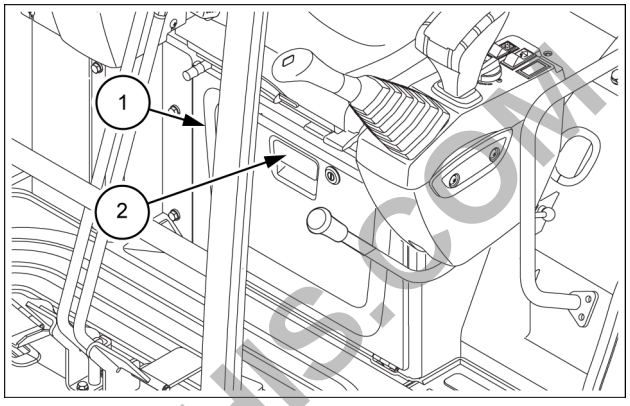
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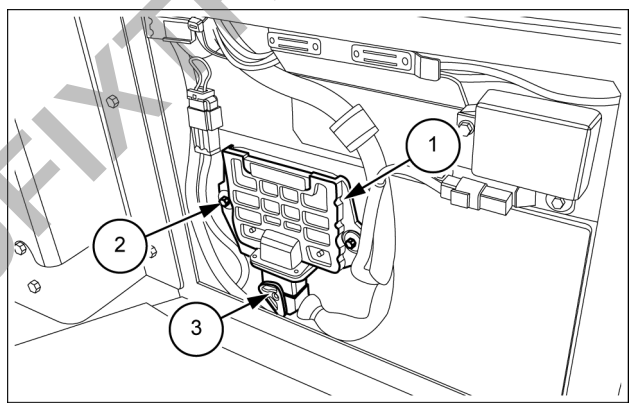
Engine Control Unit (ECU) - Remove

1. Set the battery disconnect switch to O position (OFF position) to cut off any power supply in the electrical system of the machine (refer to **Mechanical battery isolator - Dynamic description (55.302)**).
2. Use the handle **(2)** to open the door **(1)** located under the operator's seat.



SMIL17MEX1593AB 1

3. Disconnect the electrical connector **CN-93 (3)** from the ECU **(1)**.
4. Remove the two bolts **(2)**, and remove the ECU **(1)**.



SMIL17MEX1167AB 2

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Cab controls - 512

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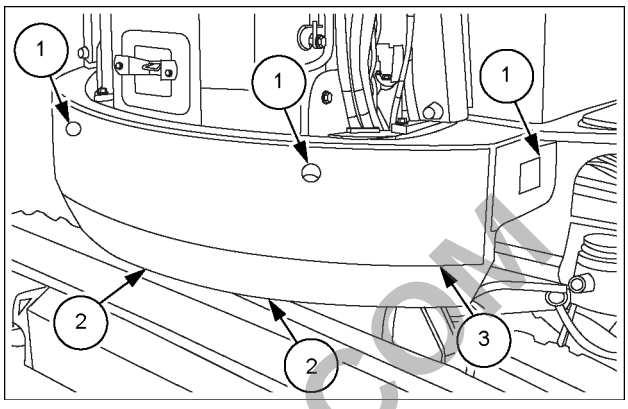
FAULT CODES - DTC

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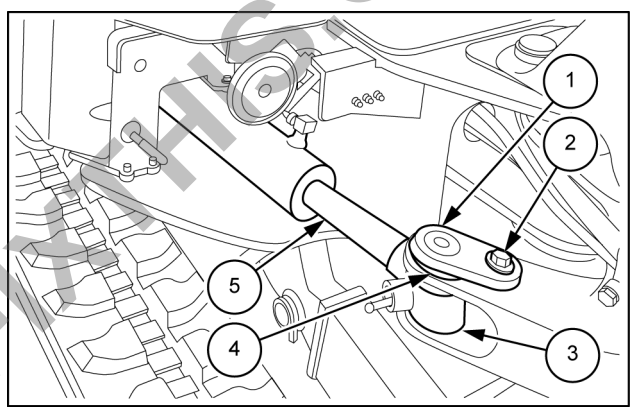
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1. Remove the boom (refer to **Boom - Remove (84.910)**).
2. Remove the protective caps and use a wrench [**13 mm**] to remove the bolts **(1)**.
3. Use a wrench [**13 mm**] to loosen the bolts **(2)**, and then remove the right side shield **(3)**.



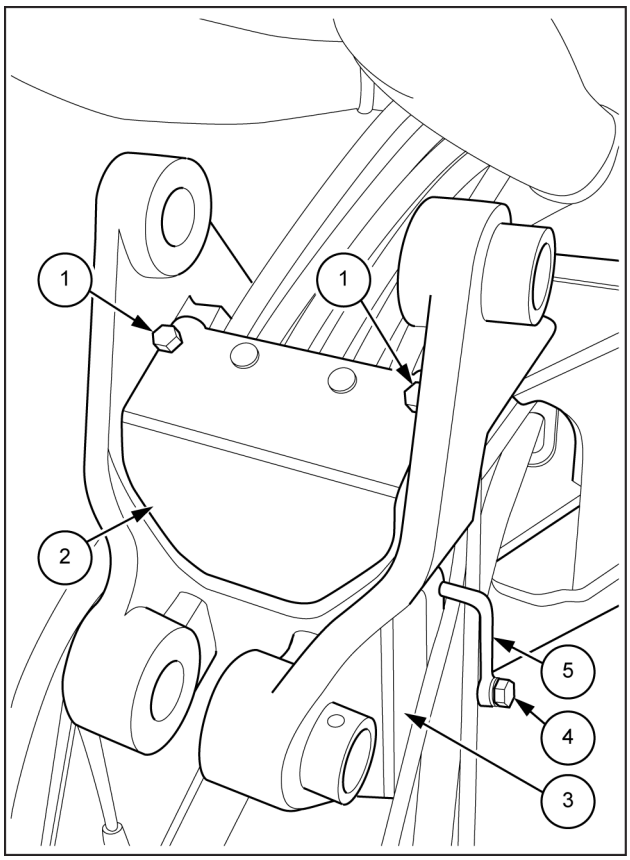
SMIL16MEX2545AB 1

4. Use a wrench [**19 mm**] to remove the bolt **(2)** then remove the pin **(1)** with the spacer **(4)** and the round-shims **(3)** from the eye of the swing cylinder **(5)**.



SMIL16MEX2569AB 2

5. Use a wrench [**17 mm**] to remove the bolts **(1)**, and then remove the cover **(2)** from the swing support **(3)**.
6. Use a wrench [**17 mm**] to remove the bolt **(4)**, and then remove the hoses guide **(5)**. Repeat the same operation for the opposite side.



SMIL16MEX2570BB 3

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Dozer blade and arm

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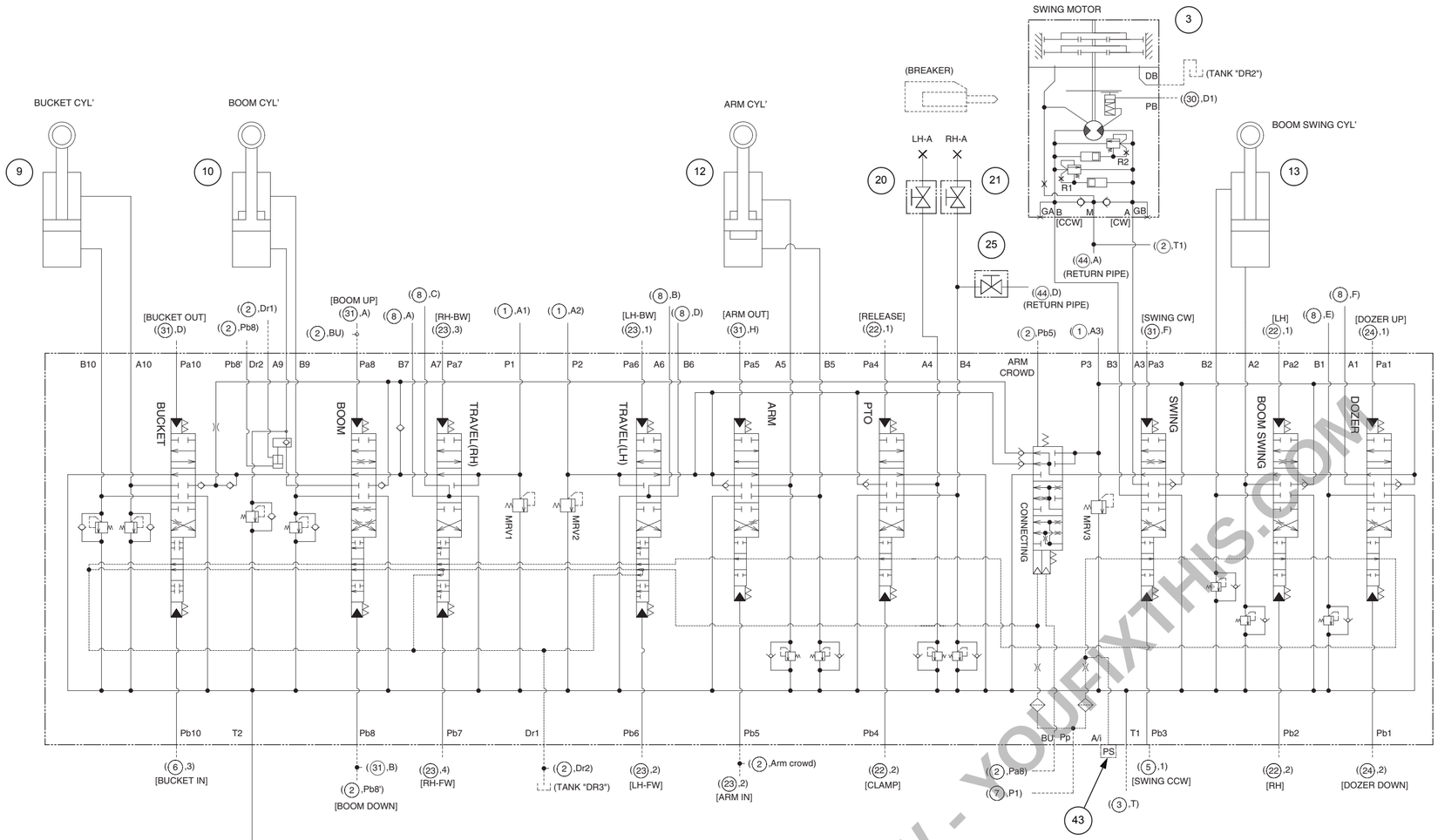
SERVICE MANUAL

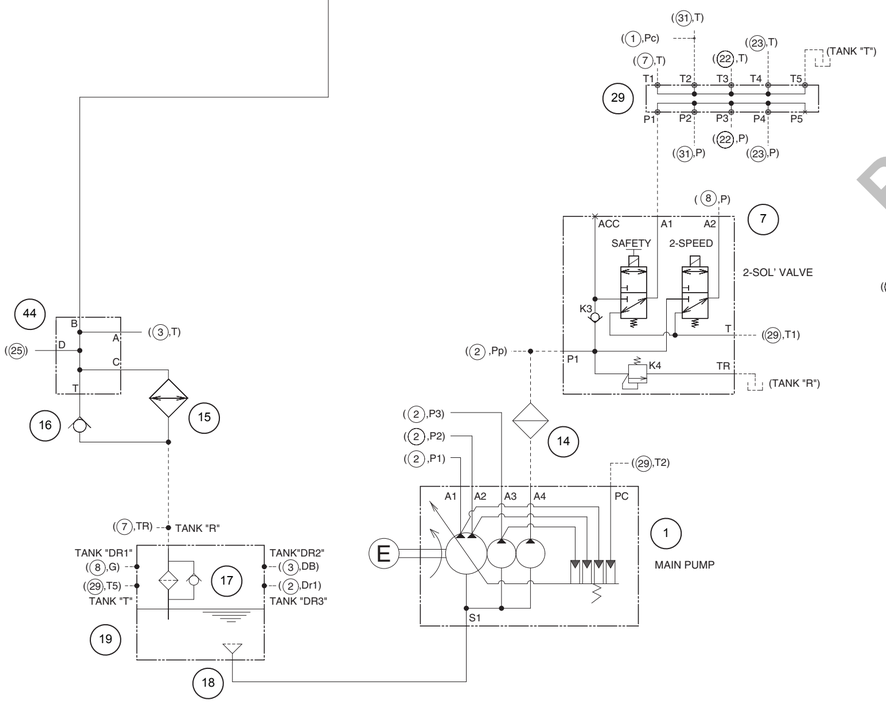
Platform, cab, bodywork, and decals

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RELIEF VALVE PRESSURE [bar]		
NAME	PRESSURE	REMARK
MRV-P1	226	P1 MAIN
MRV-P2		P2 MAIN
MRV-P3	201	P3 MAIN
K4 (Pilot)	40	PILOT
R1	196	SWING
R2		
ORV-B1	245	DOZER HEAD
ORV-A2	245	BOOM SWING
ORV-B2	245	
ORV-A4	245	PTO
ORV-B4	245	
ORV-A5	245	ARM ROD
ORV-B5	245	ARM HEAD
ORV-B8	245	BOOM ROD
ORV-A9	245	BOOM HEAD
ORV-A10	245	BUCKET ROD
ORV-B10	245	BUCKET HEAD

LEGEND

1. Main pump
2-1. Main control valve
3. Swing motor
4. Travel motor (quantity 2)
5-1. Remote control valve lever (left-hand)
6-1. Remote control valve lever (right-hand)
7. Pilot solenoid valve block
8. Hydraulic swivel
9. Bucket cylinder
10. Boom cylinder
11. Blade lifting cylinder
12. Dipper cylinder
13. Boom swing cylinder
14. Line filter
15. Oil cooler
16. Return check valve
17. Bypass valve and return filter
18. Suction strainer
19. Hydraulic oil tank
20. Stop valve (left-hand)
21. Stop valve (right-hand)
22. Remote control valve pedal (boom swing/2-way option) (quantity 2)
23. Remote control valve pedal/lever (travel)
24. Remote control valve lever (dozer)
25. 3-way valve (hammer/shears selection valve)
29. Block (P)
30. Block
31-1. Terminal
34. Last guard filter (quantity 6)
43. Pressure switch
44. Return block

E33C EXCAVATOR HYDRAULIC SCHEMATIC

51691672EN - 1/2

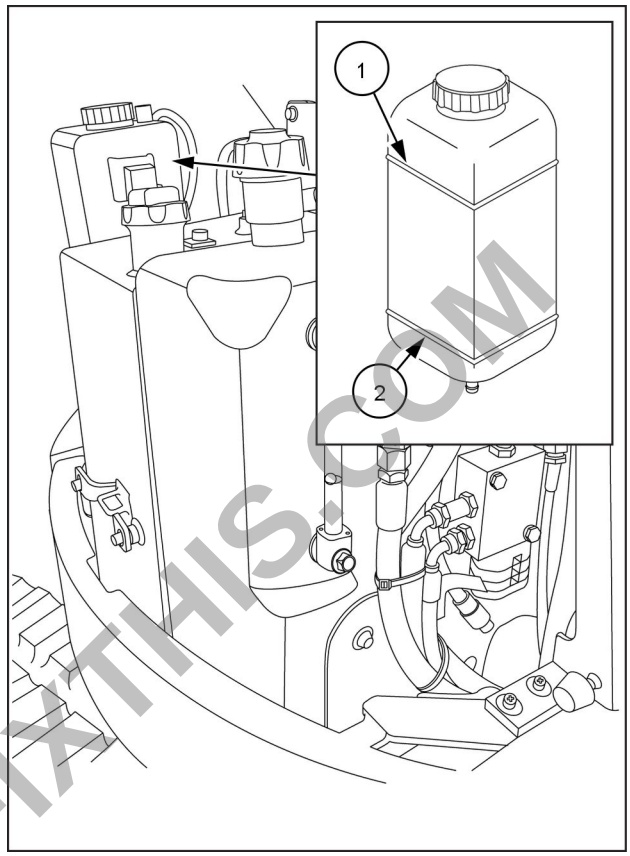
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[90.100] Engine hood and panels 90.5

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3. Check that the level of the coolant tank is between the FULL **(1)** mark and the LOW **(2)** mark.

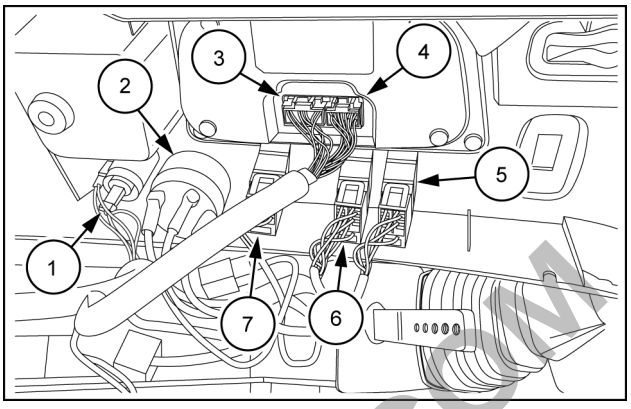


SMIL16MEX2697AA 2

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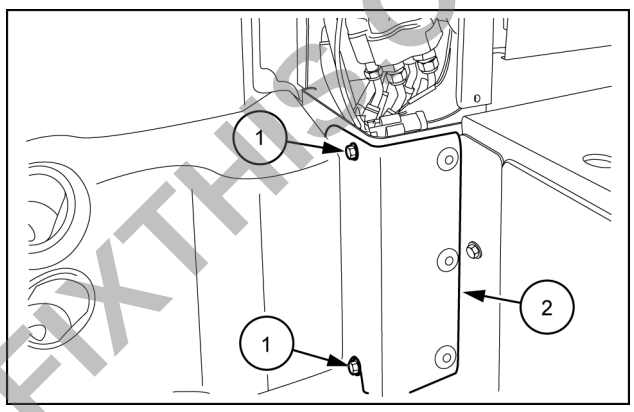
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9. Disconnect the electrical connectors: CL-2 **(1)**, CN-56A **(3)**, CN-56B **(4)**, CS-50 **(5)**, CS-16 **(6)**, and CS-23 **(7)**.
10. Disconnect the starter key connectors CS-2 and CS-46 **(2)**.
11. Remove the right-hand console.



SMIL19MEX0328AB 11

12. Remove the two screws **(1)** and then remove the panel **(2)**.



SMIL19MEX0300AB 12

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Component	Connector	Connector type
Cigar lighter • **Electrical system - Component identification - Cigar lighter and 12 V socket (55.000)**	**CL-2**	AMP
Intermediate connector: right-hand console harness - main harness	**CN-1**	AMP
Intermediate connector: main harness - right-hand console harness	**CN-2**	AMP
Intermediate connector: main harness - left-hand console harness	**CN-3**	AMP
Intermediate connector: relay harness - main harness	**CN-5**	KET
Intermediate connector: power relay - fuse box	**CN-5-1**	KET
Intermediate connector: relay harness - main harness	**CN-6**	AMP
Intermediate connector: relay harness - main harness	**CN-7**	AMP
Intermediate connector: right-hand console harness - cab harness (not used)	**CN-11**	AMP
Intermediate connector: right-hand console harness - canopy harness	**CN-11-1**	AMP
Washer pump (not used)	**CN-22**	KET
Cluster buzzer • **Electrical system - Component identification - Cluster buzzer (55.000)**	**CN-26**	–
Fuse box • **Electrical system - Component identification - Fuse box (55.000)**	**CN-36**	–
GPS telematics	**CN-125**	–
RS232 connector • **Electrical system - Component identification - RS232 connector (55.000)**	**CN-126**	DEUTSCH
12 V socket • **Electrical system - Component identification - Cigar lighter and 12 V socket (55.000)**	**CN-139**	AMP
Accelerator dial • **Electrical system - Component identification - Accelerator dial (55.000)**	**CN-142**	DEUTSCH
Left-hand EPPR proportional switch • **Electrical system - Component identification - EPPR switch (55.000)**	**CN-240**	–
Right-hand EPPR proportional switch • **Electrical system - Component identification - EPPR switch (55.000)**	**CN-241**	–
Safety switch • **Electrical system - Component identification - Safety switch (55.000)**	**CS-4**	AMP
Horn switch • **Electrical system - Component identification - Horn switch (55.000)**	**CS-5A**	AMP
Horn switch (EPPR remote control valve lever) • **Electrical system - Component identification - Horn switch (55.000)**	**CS-5B**	AMP
Travel alarm switch • **Electrical system - Component identification - Switch (looking type) (55.000)**	**CS-16**	SWF
Auto idle switch • **Electrical system - Component identification - Switch (looking type) (55.000)**	**CS-19**	SWF

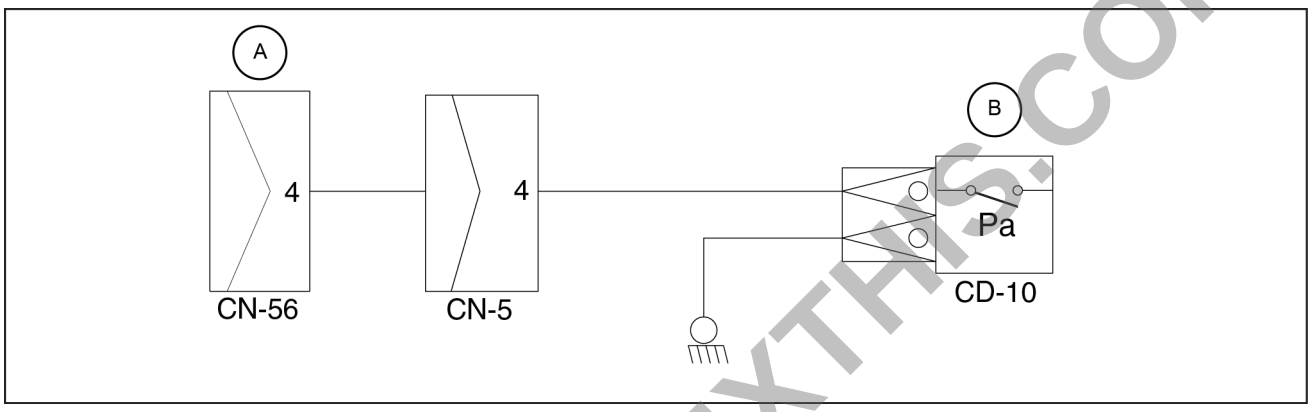
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Air cleaner restriction sensor - Service instruction - Troubleshooting

Air cleaner warning lamp lighting up

- Before disconnecting the connector, always turn OFF the starter switch.
- Before carrying out below procedure, check all the related connectors are properly inserted.
- After checking, insert the disconnected connectors again immediately unless otherwise specified.



SMIL16MEX1248EB 1

A. Cluster
B. Air cleaner pressure switch

Turn ON the starter switch.
Start the engine.

1. Disconnect the connector **CD-10**.
   A. If the display goes off, the air filter is clogged or the switch is defective. Check the filter or replace the switch (refer to **Air cleaner restriction sensor - Remove (55.014)**).
   B. If the display does not go off, proceed to step 2.

2. Turn OFF the starter switch.
   Disconnect the connector **CD-10**.
   Measure the resistance between terminal 4 of the connector **CN-56** and the ground.
   A. If the resistance is more than or equal to **1 MΩ**, there is a short circuit in the wiring harness. Repair or replace it, after clean.
   B. If the resistance is equal or lesser than **1 Ω** the cluster is defective. Replace the cluster (refer to **Instrument cluster - Remove (55.408)**).

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