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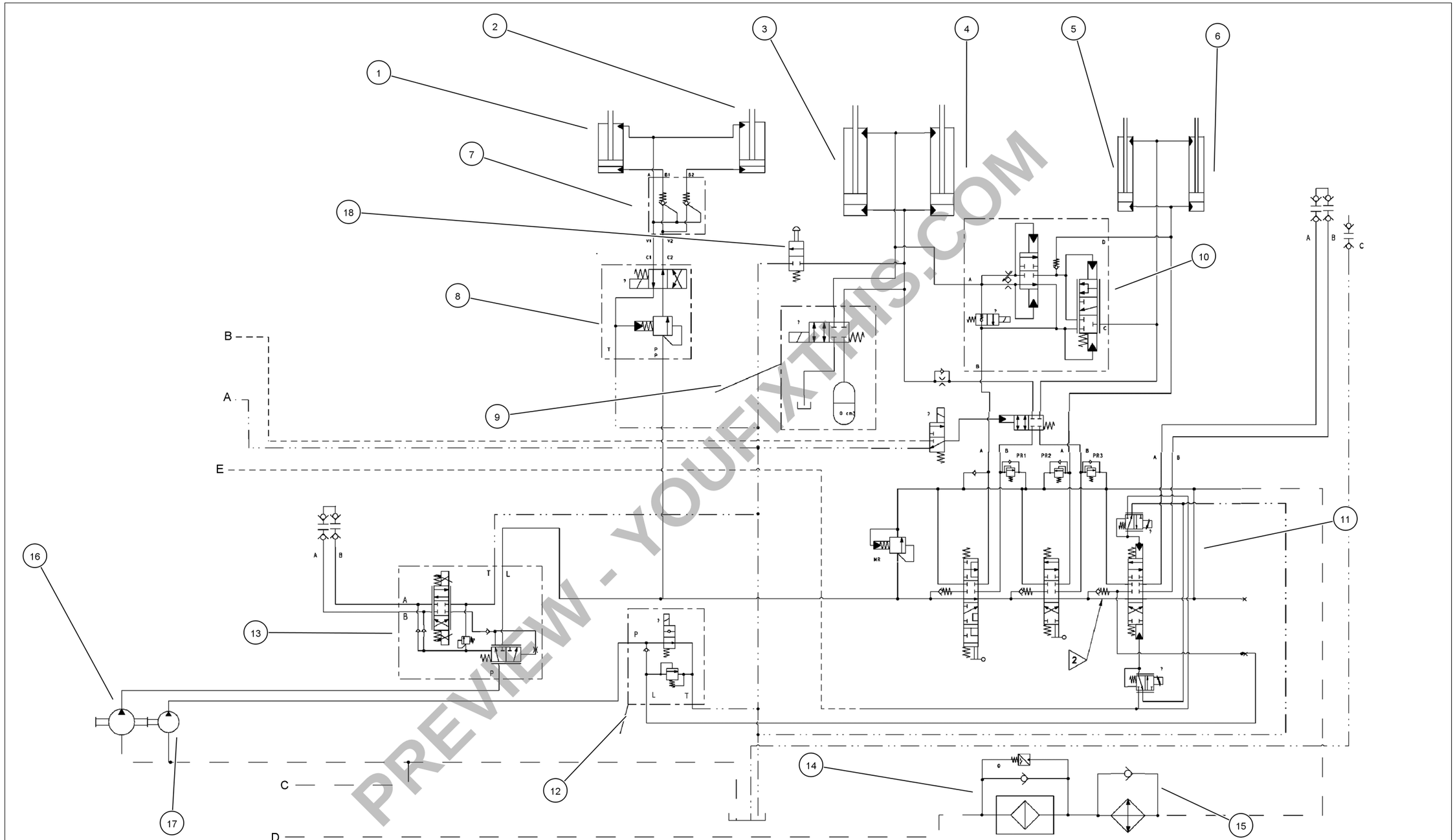
PRIMARY HYDRAULIC POWER SYSTEM - Component identification of pumps on medium frame models

L218, L220, C227

Component Name	Component ID (Reference Number)	Frame Location	Information (Tech Data)	Functional	Diagnostic Information (Testing)	Service
46cc EH Hydrostatic Pump A20VG - ET	**(4)** applicable to C227 models only	**PRIMARY HYDRAULIC POWER SYSTEM - Hydraulic schematic frame 01 Two speed track drive assembly (A.10.A)**	**Pump - General specification 46cc EH Hydrostatic pump (C.20.F)**		**TRANSMISSION Hydrostatic - Troubleshooting (C.20.F)**	**Pump - Remove EH hydrostatic pump (C.20.F) Pump - Install EH hydrostatic pump (C.20.F)**
35cc EH Hydrostatic Pump A20VG - ET	**(4)** applicable to L218, L220 models only	**PRIMARY HYDRAULIC POWER SYSTEM - Hydraulic schematic frame 01 Two speed drive assembly (A.10.A)**	**Pump - General specification 35cc EH Hydrostatic pump, used with small and medium frame models. (C.20.F)**		**TRANSMISSION Hydrostatic - Troubleshooting (C.20.F)**	**Pump - Remove EH hydrostatic pump (C.20.F) Pump - Install EH hydrostatic pump (C.20.F)**
24.9cc Auxiliary Pump (Standard)	**(16)** applicable to L218, L220 models.	**PRIMARY HYDRAULIC POWER SYSTEM - Hydraulic schematic frame 03 Valve assembly (A.10.A)**	**PRIMARY HYDRAULIC POWER SYSTEM - General specification for the 24.9cc Gear Pump (A.10.A)**			

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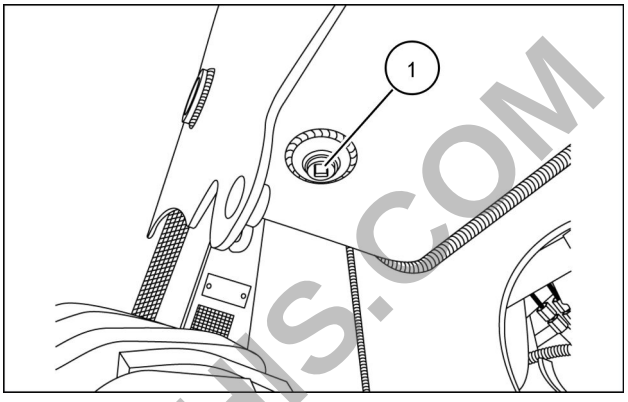
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Oil cooler - Remove for models equipped with ISM engine

L213, L215, L218, L220

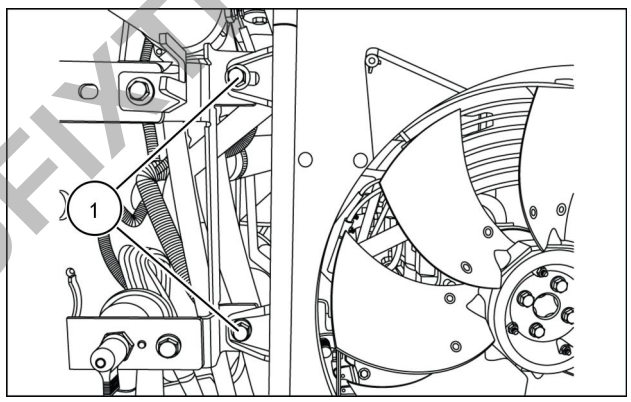
Prior operation:
Radiator - Remove (B.50.A).

1. Drain hydraulic oil reservoir by removing drain plug **(1)**.



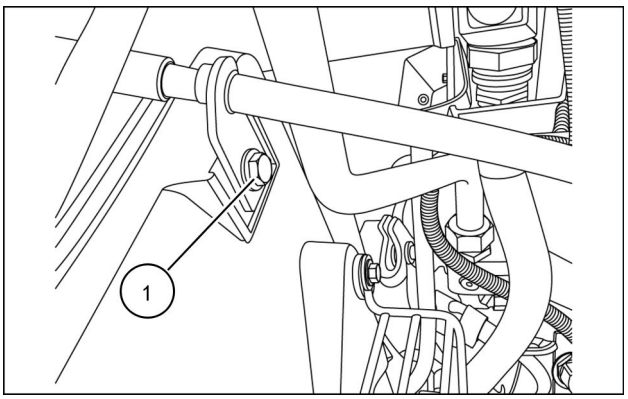
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2. If required, remove fan shroud mounting hardware **(1)**.



931001660 2

3. Remove engine oil dip stick mounting bolt **(1)**.



931001661 3

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Component Name	Component ID	Frame Location	Connector	Overview / Dynamic Description	Diagnostic
Proportional Aux Switch (EH)	**S-036** **S-037** (EH)	**Wiring harness - Electrical schematic frame 19 (A.30.A)** (EH)	**X-403** (EH)		**5141 - Aux thumbwheel axis - Pin A STG / OC** (EH) **5142 - Aux thumbwheel axis - Pin A STP** (EH) **5144 - Aux thumbwheel axis - Pin B STG / OC** (EH) **5145 - Aux thumbwheel axis - Pin B STP** (EH) **5147 - Aux thumbwheel axis - in-range fault** (EH)
Proportional Auxiliary Hydraulic Switch (Mech)	**U-004** (Mech)	**Wiring harness - Electrical schematic frame 23 (A.30.A)** (Mech)	**X-402** (Mech)		
Ride Control / Glide Ride Switch	**S-018**	**Wiring harness - Electrical schematic frame 07 (A.30.A)**	**X-406** (EH) **X-402** (Mech)	**Command - Overview Glide Ride control (D.15.C)**	**Command - Testing Glide Ride Control Solenoid and Switch (D.15.C)**
Rotating Beacon Switch	**S-001**	**Wiring harness - Electrical schematic frame 06 (A.30.A)**	**X-301**		
Seat Heat Switch	**S-003**	**Wiring harness - Electrical schematic frame 20 (A.30.A)**	**X-58**		**Heater - Testing Seat Heat Switch (E.32.C)**
Seat Switch	**S-002**	**Wiring harness - Electrical schematic frame 20 (A.30.A)**	**X-58**		**1208 - Seat Switch - Plausibility Fault** (EH) **Command - Testing Seat Switch (E.32.C)**
Self Level Switch	**S-013**	**Wiring harness - Electrical schematic frame 06 (A.30.A)**	**X-317**		
STD / On Road Lamp Configurator	**S-029**	**Wiring harness - Electrical schematic frame 02 (A.30.A)**	**X-101** **X-101A** **X-101B**		
Turn Signal Switch		**Wiring harness - Electrical schematic frame 07 (A.30.A)**	**X-406** (EH) **X-407** (Mech)		**Turn/hazard light - Testing Turn Signal Switch (A.40.A)**

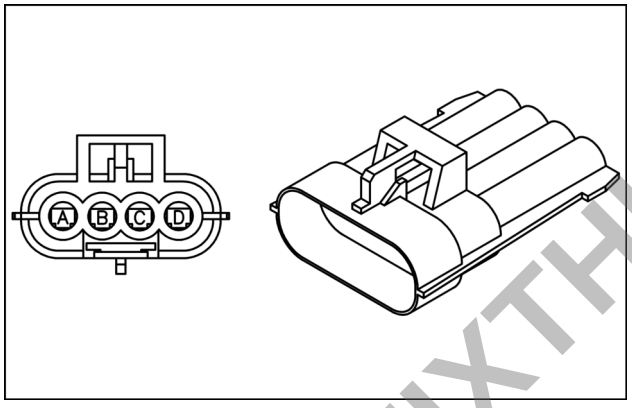
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RH Handle Interconnect Multifunction #1/#2 to Chassis (Mechanical)

Cavity	Circuit ID	Description	Frame
1	352 (OR)	RH handle multifunctional #1/2 power	**Wiring harness - Electrical schematic frame 07 (A.30.A)**
2	410 (WH)	RH handle multifunctional #1 up	
3	411 (TN)	RH handle multifunctional #1 down	
4	Open		
5	412 (VT)	RH handle multifunctional #2 up	
6	413 (RD)	RH handle multifunctional #2 down	

Connector X-405 LH Handle Interconnect Horn/Two Speed to Chassis (Mechanical)

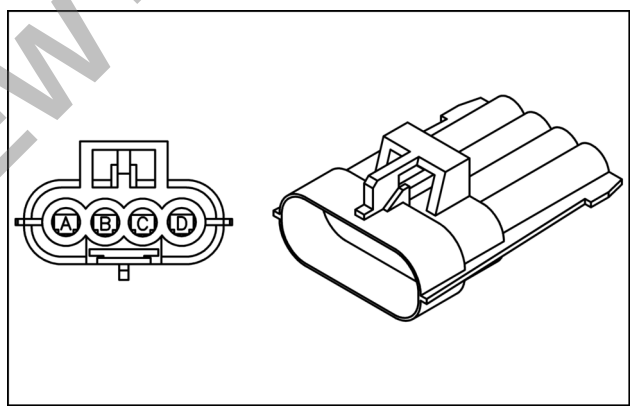


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Connector X-405 LH Handle Interconnect Horn/Two Speed to Chassis (Mechanical)

Cavity	Circuit ID	Description	Frame
A	891 (OR)	LH grip horn/2 speed switch power	**Wiring harness - Electrical schematic frame 07 (A.30.A)**
B	892 (WH)	Horn power signal	
C	Open		
D	563 (WH)	2 speed switch output signal	

Connector X-406 Right-hand Handle Interconnect Park Brake/Ride Control to Cab (EH)



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Right-hand Handle Interconnect Park Brake/Ride Control to Cab (EH)

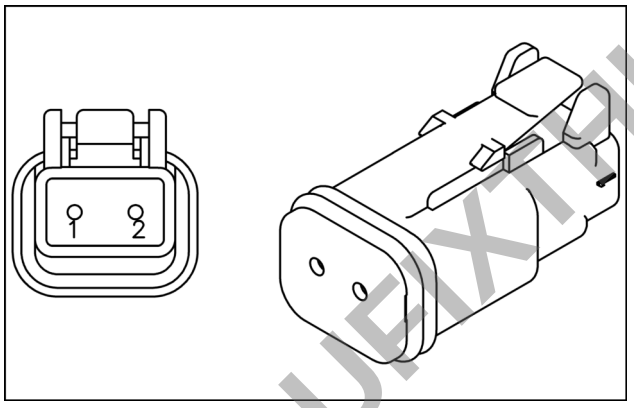
Cavity	Circuit ID	Description	Frame
A	324 (OR)	RH grip park brake switch power	**Wiring harness - Electrical schematic frame 07 (A.30.A)**
B	307 (YE)	RH grip park brake sw output	
C	832 (OR)	Ride control valve solenoid switch power	
D	831 (WH)	Ride control valve solenoid signal	

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Cavity	Circuit ID	Description	Frame
E2	129 (OR)	Light relay #1 front work lamp power	
E3	Open		
E4	Open		
E5	714 (VT)	Rear work lamp fuse in	
E6	716 (VT)	Rear work lamp fuse out	
E7	715 (VT)	Tail lamp splice LH tail lamp fuse in	
E8	719 (VT)	Tail lamp splice LH tail lamp fuse out	
E9	101 (RD)	Tail lamp splice LH tail lamp fuse in	
E10	156 (RD)	Tail lamp splice LH tail lamp fuse out	
E11	743 (OR)	Crank signal	
E12	744 (OR)	Crank signal	

Connector X-HFLO High Flow Valve Solenoid to Chassis (EH) (Mech)

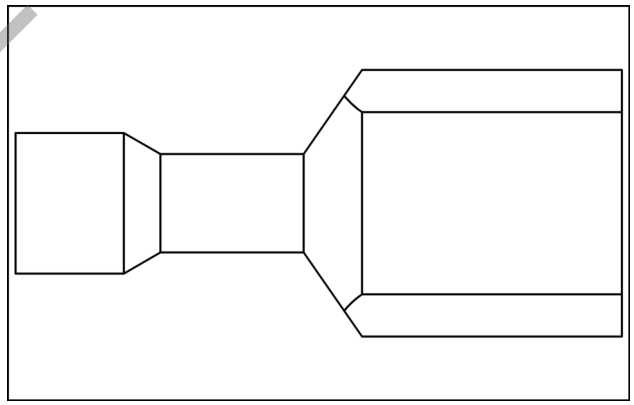


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High Flow Valve Solenoid to Chassis (EH) (Mech)

Cavity	Circuit ID	Description	Frame
1	750 (WH)	Standard high flow signal	**Wiring harness - Electrical schematic frame 25 (A.30.A)** (EH) **Wiring harness - Electrical schematic frame 02 (A.30.A)** (Mech)
2	976 (BK)	Standard high flow valve ground	

Connector X-HORN-GND Horn to Chassis (EH) (Mech)

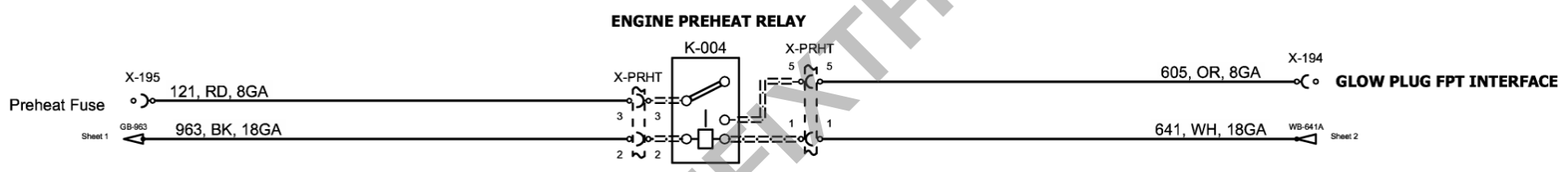


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Horn to Chassis (EH) (Mech)

Cavity	Circuit ID	Description	Frame
1	955 (BK)	Horn ground	**Wiring harness - Electrical schematic frame 07 (A.30.A)**

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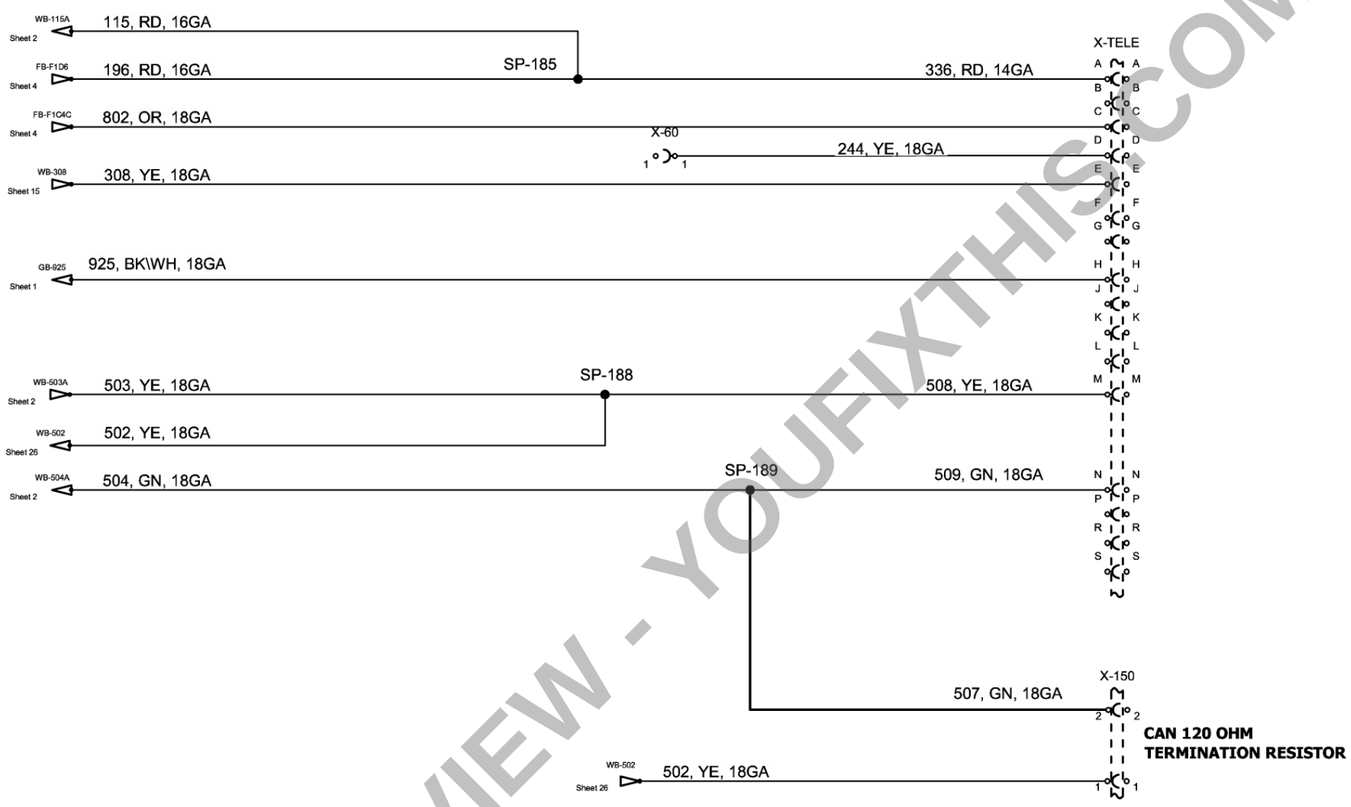


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PART NUMBER	DRAWN BY	LOCAL NOUN	SHT	OF	
		DESCRIPTION: ENGINE PREHEATING	11	36	

87673075_FR11 1

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PART NUMBER	DRAWN BY	LOCAL NOUN	SHT	OF	
		DESCRIPTION: TELEMATICS	26	36	

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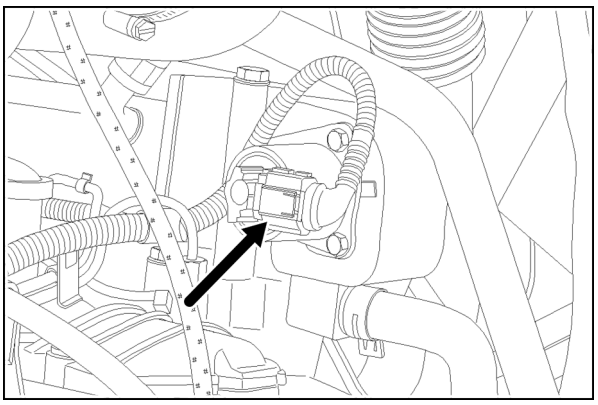
HYDRAULIC, PNEUMATIC, ELECTRICAL, ELECTRONIC SYSTEMS - A

LIGHTING SYSTEM - 40.A

C227 , C232 , C238 , L213 , L215 , L218 , L220 , L223 , L225 , L230

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BD08F227-01 1

(1) Turn ignition switch on, check for voltage at pin 2 at **EGR valve**.

(2) Take a continuity reading at pin 4 at **EGR valve** to ground, a reading of continuity should be obtained.

(3) Check for short circuit by measuring continuity from pin 6 to pin 2 and pin 4 on the EGR valve, the circuits should be open. If a short is present go to Step 5.

(4) Check for voltage between pin 6 at **EGR valve** to ground, no voltage should be present.

A. NOT OK – Go to Step **3**.

B. OK – Go to Step **5**.

3. Disconnect the connectors at the EGR controller and the EGR valve.

(1) Take a continuity reading from pin 8 **X-EGR** to pin 2 at **EGR valve**, a reading of continuity should be obtained.

(2) Take a continuity reading from pin 10 **X-EGR** to pin 4 at **EGR valve**, a reading of continuity should be obtained.

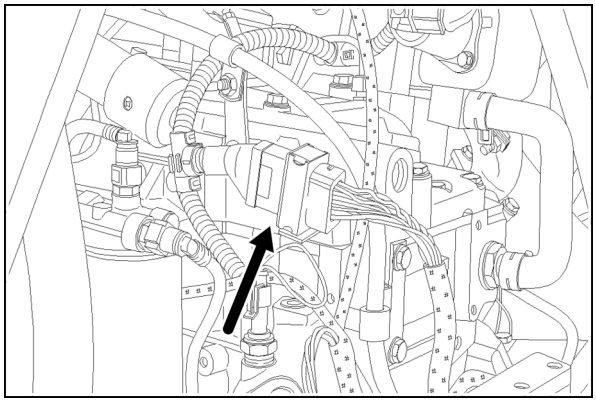
(3) Take a continuity reading from pin 19 **X-EGR** to pin 6 at **EGR valve**, a reading of continuity should be obtained.

(4) Take a continuity reading from pin 19 **X-EGR** to all other EGR controller pins, the circuits should be open.

A. NOT OK – Go to Step **4**.

B. OK – Go to Step **5**.

4. Disconnect connector from EGR harness to engine EGR harness.



BD08F228-01 2

(1) Take a continuity reading from pin 8 **X-EGR** to pin 3A at **X-FPT** connector, a reading of continuity should be obtained.

(2) Take a continuity reading from pin 10 **X-EGR** to pin 5A at **X-FPT** connector, a reading of continuity should be obtained.

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4401- Park Brake (Mechanical Machines) - Park Brake Solenoid - OC

L213 Mechanical hydraulic controls, L215 Mechanical hydraulic controls, L218 Mechanical hydraulic controls, L220 Mechanical hydraulic controls, L223 Mechanical hydraulic controls, L225 Mechanical hydraulic controls, L230 Mechanical hydraulic controls

Control Module : IC

Context:
Diagnostic Trouble Code 4401 has an error priority of Red.
There are no restrictions with Diagnostic Trouble Code 4401.

Cause:
INSTRUMENT CLUSTER has sent a signal to the Brake Valve solenoid to energize, but the solenoid is off. (The fault is only activated when Ignition is on and solenoid output is off and Brake Commanded State is high.)

Possible failure modes:

1. Brake Valve solenoid has failed.
2. Open wire in circuit.
3. Instrument Cluster has internal failure.

Solution:

1. Use the machine to recreate conditions for error. Use the **EST** to verify **4401 - Park Brake (Mechanical Machines) - Park Brake Solenoid - OC** is active.
   A. If the fault is active, continue with step **2**.
   B. If the fault is not active, the fault may be intermittent and not currently active, continue with step **6**.
2. Check for proper resistance in the **BRAKE VALVE SOLENOID**. Disconnect connector **X-BRK** from the **BRAKE VALVE SOLENOID**. Using a multi-meter to check for resistance between **BRAKE VALVE SOLENOID** pins 1 and 2.
   A. If resistance is normal, continue with step **3**.
   B. If resistance is infinite, the **BRAKE VALVE SOLENOID** has developed an open. Replace the **BRAKE VALVE SOLENOID**.
   C. If resistance is **0 Ω**, the **BRAKE VALVE SOLENOID** has shorted internally. Replace the **BRAKE VALVE SOLENOID**.
3. Check for open circuit. Disconnect connector **X-BRK** from the **BRAKE VALVE SOLENOID**. Disconnect connector **X-C23** from the **INSTRUMENT CLUSTER**. Using a multi-meter, check continuity between connector **X-BRK** pin 1 and connector **X-C23** pin 8.
   A. If there is continuity, continue with step **4**.
   B. If there is no continuity, there is an open wire condition on wire 258 (White) between connector **X-BRK** pin 1 and connector **X-C23** pin 8. Repair or replace the wire.
4. Check for proper resistance in the ground circuit by using a multi-meter to check for continuity between connector **X-BRK** pin 2 and ground.
   A. If there is continuity, continue with step **5**.
   B. If there is no continuity, there is an open in the ground circuit. Use Frames 1, 2, and 3 to troubleshoot and isolate the faulty wire.
5. Check for proper resistance of the **INSTRUMENT CLUSTER**. Using a multi-meter, check for resistance between **INSTRUMENT CLUSTER** pins 8 and 20.
   A. If resistance is **248 K Ω**, continue with step **6**.

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1907- UCM - Rail 12VF1 - Aux Retract Input Power OFF

L213 Electro hydraulic controls, L215 Electro hydraulic controls, L218 Electro hydraulic controls, L220 Electro hydraulic controls, L223 Electro hydraulic controls, L225 Electro hydraulic controls, L230 Electro hydraulic controls, C227 Electro hydraulic controls, C232 Electro hydraulic controls, C238 Electro hydraulic controls

Control Module : UCM

Context:
Diagnostic Trouble Code 1907 has an error priority of Amber.
Disable Aux operating mode is enabled with Diagnostic Trouble Code 1907.

Cause:
UCM has sensed that a 12 V UCM input has failed low. (The fault is only activated when Ignition is On, crank pin is low, Diagnostic Code 1903 is not active, and UCM input voltage is less than **9 V**.)

Possible failure modes:

1. Open wire in circuit.
2. Shorted wire in circuit.
3. Blown fuse.
4. Failure of UCM.

Solution:

1. Before troubleshooting this Trouble Code electrically, ensure the battery and charging system are working properly. Due to the nature of the fault, and the design of the 12 VDC distribution system, this Trouble Code can be caused by a short in a number of different places. Use information regarding other active trouble codes to logically determine possible fault locations. This resolution procedure does not fully isolate the fault, it only tests the most likely components.
   Use the machine to recreate conditions for error. Use the **EST** to verify **1907 - UCM - Rail 12VF1 - Aux Retract Input Power OFF** is active.

   A. If the fault is active, continue with step **2**.

   B. If the fault is not active, the fault may be intermittent and not currently active, continue with step **8**.
2. Check for blown fuse. Remove fuse **F-18** from **ACCESSORY POWER DISTRIBUTION FUSE BLOCK 2**. Using a multi-meter, check for resistance across the fuse.

   A. If resistance is **0 Ω**, continue with step **3**.

   B. If resistance is infinite, the fuse has blown. Replace with fuse of same type and amp rating.
3. Check for open circuit. Disconnect connector **X-CN1B** from the **UCM**. Using a multi-meter, check continuity between connector **X-CN1B** pin 26 and **ACCESSORY POWER DISTRIBUTION FUSE BLOCK 2** pin B2.

   A. If there is continuity, continue with step **4**.

   B. If there is no continuity, there is an open wire condition on wire 177/128 (Orange) between **ACCESSORY POWER DISTRIBUTION FUSE BLOCK 2** pin B2 and connector **X-CN1B** pin 26. Repair or replace the wire.
4. Check for open circuit. Disconnect connector **X-CN1B** from the **UCM**. Using a multi-meter, check continuity between connector **X-CN1B** pin 27 and **ACCESSORY POWER DISTRIBUTION FUSE BLOCK 2** pin B2.

   A. If there is continuity, continue with step **5**.

   B. If there is no continuity, there is an open wire condition on wire 126 (Orange) between **SPLICE 109** and connector **X-CN1B** pin 27. Repair or replace the wire.
5. Check for a short to ground. Using a multi-meter, check for continuity between connector **ACCESSORY POWER DISTRIBUTION FUSE BLOCK 2** pin B2 and ground.

   A. If there is no continuity, continue with step **6**.

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4734- Right Swashplate angle sensor - Pin B STG / OC

L213 Electro hydraulic controls, L215 Electro hydraulic controls, L218 Electro hydraulic controls, L220 Electro hydraulic controls, L223 Electro hydraulic controls, L225 Electro hydraulic controls, L230 Electro hydraulic controls, C227 Electro hydraulic controls, C232 Electro hydraulic controls, C238 Electro hydraulic controls

Control Module : UCM

Context:
Diagnostic Trouble Code 4734 has an error priority of Amber.
Limp Home Ground Drive operating mode is enabled with Diagnostic Trouble Code 4734.

Cause:
UCM has sensed that the **5 V** signal has failed low. (The fault is only activated when Engine is On and Right Swashplate angle sensor voltage is less than **0.2 V**.)

Possible failure modes:

1. Shorted wire in circuit.
2. Failure of Swashplate Angle Sensor.
3. Open wire in circuit.
4. UCM has internal failure.

Solution:

1. Use the machine to recreate conditions for error. Use the **EST** to verify **4734 - Right Swashplate angle sensor - Pin B STG / OC** is active.
   A. If the fault is active, continue with step **2**.
   B. If the fault is not active, the fault may be intermittent and not currently active, continue with step **7**.
2. Check for open circuit. Disconnect connector **X-93** from **RH PUMP SWASH PLATE SENSOR**. Disconnect connector **X-CN2B** from **UCM**. Using a multi-meter, check continuity between connector **X-93** pin 3 and connector **X-CN2B** pin 33.
   A. If there is continuity, continue with step **3**.
   B. If there is no continuity, there is an open wire condition on wire 575 (Yellow) between connector **X-93** pin 3 and connector **X-CN2B** pin 33. Repair or replace the wire.
3. Check for a short to ground. Using a multi-meter, check for continuity between connector **X-CN2B** pin 33, or connector **X-93** pin 3 and chassis ground.
   A. If there is no continuity, continue with **4**.
   B. If there is continuity, there is a short to ground condition on wire 575 (Yellow) between connector **X-CN2B**, pin 33 and connector **X-93** pin 3. Repair or replace the open wire.
4. Check for proper resistance in the **RH PUMP SWASH PLATE SENSOR** by using a multi-meter to check for resistance between **RH PUMP SWASH PLATE SENSOR** pins 3 and 1.
   A. If resistance is normal, continue with step **5**.
   B. If resistance is infinite, the **RH PUMP SWASH PLATE SENSOR** has developed an open, replace the **RH PUMP SWASH PLATE SENSOR**.
   C. If resistance is **0 Ω**, the **RH PUMP SWASH PLATE SENSOR** has shorted internally. Replace the **RH PUMP SWASH PLATE SENSOR**.
5. Check for proper resistance in the ground circuit by using a multi-meter to check for continuity between connector **X-93** pin 1 and ground.
   A. If there is continuity, continue with step **6**.

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B. If there is continuity, there is a short to ground condition on wire 562 (Green) between connector **X-UJML** pin 8 and connector **X-CN2B** pin 14. Continue with step **6**.

6. Locate the short to ground. Disconnect connector **X-ECC5A** from connector **X-ECC5B**. Using a multi-meter, check for continuity between connector **X-ECC5B** pin 11, or connector **X-CN2B** pin 14 and ground.

   A. If there is no continuity, there is a short to ground on wire 562 (Green) between connector **X-UJML** pin 8 and **X-ECC5A** pin 11. Repair or replace the shorted wire.

   B. If there is continuity, there is a short to ground condition on wire 562 (Green) between connector **X-ECC5B** pin 11 and connector **X-CN2B** pin 14. Repair or replace the shorted wire.

7. Check for short to high. Using a multi-meter, check for voltage between connector **X-UJML** pin 8, or connector **X-CN2B** pin 14 and ground.

   A. If there is no voltage, continue with step **9**.

   B. If there is voltage, there is a short to high source on wire 562 (Green) between connector **X-UJML** pin 8 and connector **X-CN2B** pin 14. Continue with step **8**.

8. Locate the short to high. Disconnect connector **X-ECC5A** from **X-ECC5B**. Using a multi-meter, check for voltage between connector **X-UJML** pin 8 and ground.

   A. If there is no voltage, there is a short to high source on wire 562 (Green) between connector **X-ECC5B** pin 11 and connector **X-CN2B** pin 14. Repair or replace the wire.

   B. If there is voltage, there is a short to high source on wire 562 (Green) between connector **X-UJML** pin 8 and connector **X-ECC5A** pin 11. Repair or replace the wire.

9. Check for proper resistance in the **LEFT HAND CONTROL HANDLE**. Using a multi-meter to check for resistance between **LEFT HAND CONTROL HANDLE** pins 8 and 10.

   A. If resistance is normal, continue with step **10**.

   B. If resistance is infinite, the **LEFT HAND CONTROL HANDLE** has developed an open. Replace the **LEFT HAND CONTROL HANDLE**.

   C. If resistance is **0 Ω**, the **LEFT HAND CONTROL HANDLE** has shorted internally. Replace the **LEFT HAND CONTROL HANDLE**.

10. Check for proper resistance in the ground circuit by using a multi-meter to check for continuity between connector **X-UJML** pin 10 and ground.

    A. If there is continuity, continue with step **11**.

    B. If there is no continuity, there is an open in the ground circuit. Use Frames 26, 25, 23, 19, 2 and 1 to troubleshoot and isolate the faulty wire.

11. Check for proper operation of the **LEFT HAND CONTROL HANDLE**. Reconnect connector **X-UJML** to the **LEFT HAND CONTROL HANDLE**. Disconnect connector **X-ECC5B** from connector **X-ECC5A**. Using a multi-meter, check for voltage between connector **X-ECC5A** pin 11 and ground.

    A. If voltage is greater than **4.8 V**, the **LEFT HAND CONTROL HANDLE** has failed. Replace the **LEFT HAND CONTROL HANDLE**.

    B. If voltage is less than **4.8 V**, continue with step **12**.

12. Check for proper operation of the **UCM**. Reconnect connector **X-CN2B** to the **UCM**. Using a multi-meter, check for voltage between connector **X-ECC5B** pin 11 and ground.

    A. If voltage is greater than **4.8 V**, the **UCM** has failed. Replace the **UCM**.

    B. If voltage is less than **4.8 V**, continue with step **13**.

13. Check for proper resistance of the **UCM**. Completely power down the **UCM** by removing all six connectors. Using a multi-meter, check for resistance between **UCM** pins CN2B-14 and CN1A-1.

    A. If resistance is normal, continue with step **14**.

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5511- Loader Arm Spool Sensor - implausible state sensor vs loader arm command, stuck spool/PRV

L213 Electro hydraulic controls, L215 Electro hydraulic controls, L218 Electro hydraulic controls, L220 Electro hydraulic controls, L223 Electro hydraulic controls, L225 Electro hydraulic controls, L230 Electro hydraulic controls, C227 Electro hydraulic controls, C232 Electro hydraulic controls, C238 Electro hydraulic controls

Control Module : UCM

Context:
Diagnostic Trouble Code 5511 has an error priority of Red.
Loader Hydraulics are disabled with Diagnostic Trouble Code 5511.

Cause:
UCM has sensed that the Boom Spool Position Sensor does not agree with the direction of Loader travel. (The fault is only activated when Engine is On and the Boom Spool Position Sensor senses Loader movement when the solenoids are not energized or Loader movement opposite of the energized solenoid.)

Possible failure modes:

1. Improper wiring in circuit.
2. Failure of Boom Spool Position Sensor.
3. Stuck open or shut valve boom spool.

Solution:

1. Verify Boom Spool Valve is not mechanically stuck before troubleshooting this fault electrically. Use the machine to recreate conditions for error. Use the **EST** to verify **5511 - Loader Arm Spool Sensor - implausible state sensor vs loader arm command, stuck spool/PRV** is active.

   A. If the fault is active, continue with step **2**.

   B. If the fault is not active, the fault may be intermittent and not currently active, continue with step **5**.

2. Check for proper connections to **LOADER VALVE RETRACT SOLENOID** and **LOADER VALVE EXTEND SOLENOID**.
   Ensure that connector **X-27** is connected to the **LOADER VALVE RETRACT SOLENOID**.
   Ensure that connector **X-28** is connected to the **LOADER VALVE EXTEND SOLENOID**.

   A. If both connectors are correctly installed, continue with step **3**.

   B. If either connector is not correctly installed, Use frame 24 to ensure connectors **X-27** and **X-28** are installed correctly.

3. Check for proper connections to **AUXILIARY SPOOL POSITION SENSOR**, **BUCKET SPOOL POSITION SENSOR**, and **BOOM SPOOL POSITION SENSOR**.
   Ensure that connector **X-21** is connected to the **BUCKET SPOOL POSITION SENSOR**.
   Ensure that connector **X-22** is connected to the **BOOM SPOOL POSITION SENSOR**.
   Ensure that connector **X-23** is connected to the **AUXILIARY SPOOL POSITION SENSOR**.

   A. If all connectors are correctly installed, continue with step **4**.

   B. If any connector is not correctly installed, Use frame 24 to ensure connectors **X-21**, **X-22**, and **X-23**, are installed correctly.

4. Check Instrument Cluster or EST for other Trouble Codes.

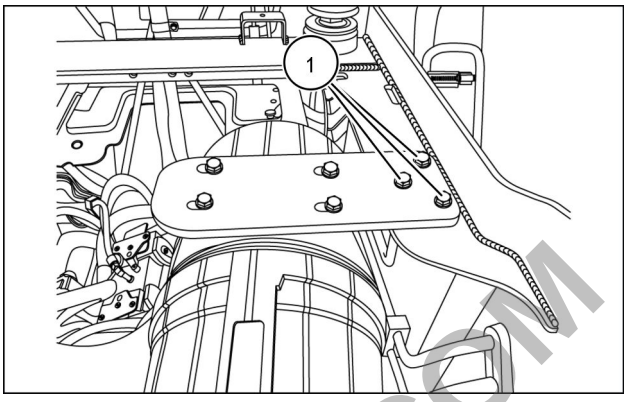
   A. If the other Trouble Codes are active, follow the procedure for those first.

   B. If the no other Trouble Codes are active, the **BOOM SPOOL POSITION SENSOR** has failed. Replace the **BOOM SPOOL POSITION SENSOR**.

5. Visually inspect the relevant harnesses and connectors for damage, bent or dislocated pins, corroded terminals or broken wires. Verify that the connectors are fully installed. Flex the harnesses involved to reveal intermittent

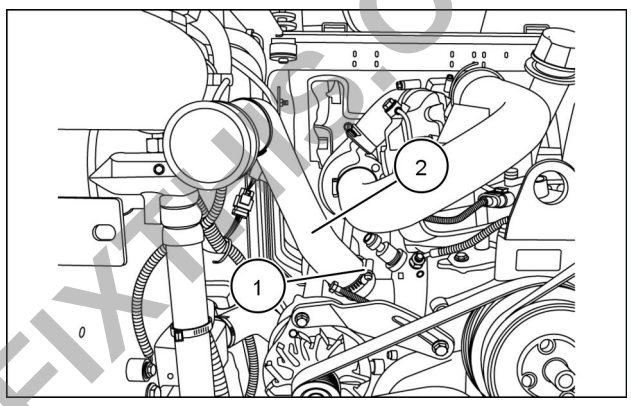
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11. Remove air cleaner housing **(1)** by removing the three bolts **(2)**.



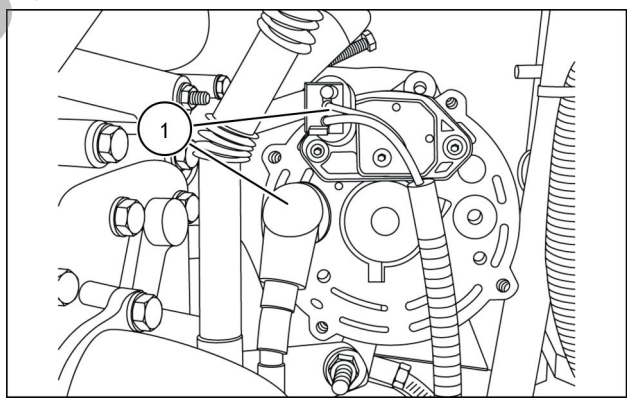
931001900 9

12. Loosen hose clamp **(1)** and remove upper radiator hose **(2)** from engine.



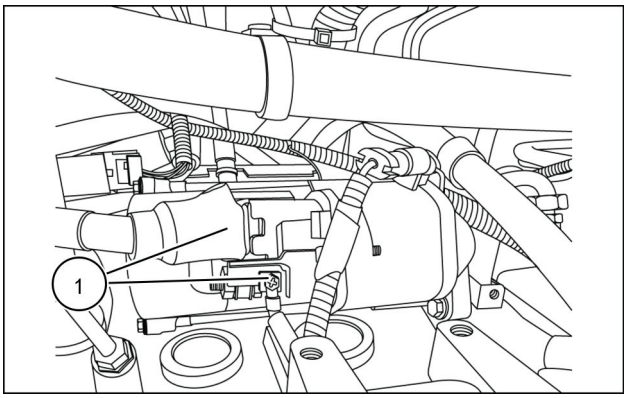
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13. Disconnect the alternator electrical connections **(1)**.



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14. Disconnect the starter electrical connections **(1)**.



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ENGINE AND PTO IN - B

STARTING SYSTEM - 80.A

FUNCTIONAL DATA

Cold start aid
Overview Engine preheat 3

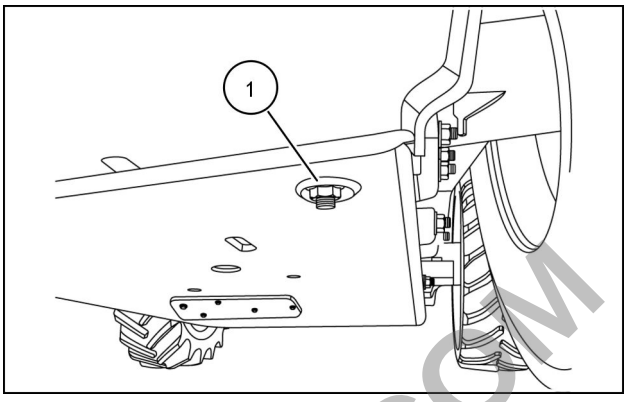
DIAGNOSTIC

Start control
Testing Ignition Switch 4

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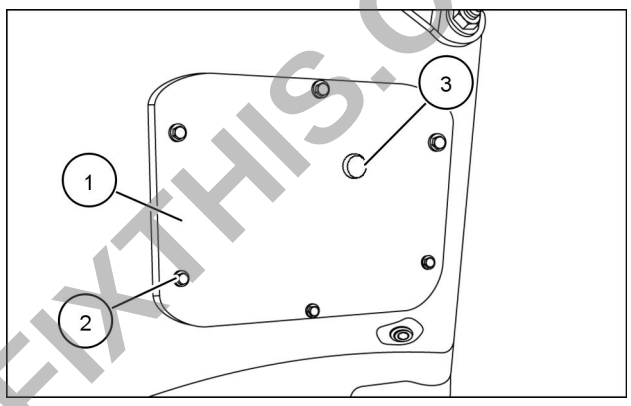
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10. Install chain oil drain plug **(1)**. oil level is approximately mid-way up the inspection cover. Cover must be installed before filling with oil.



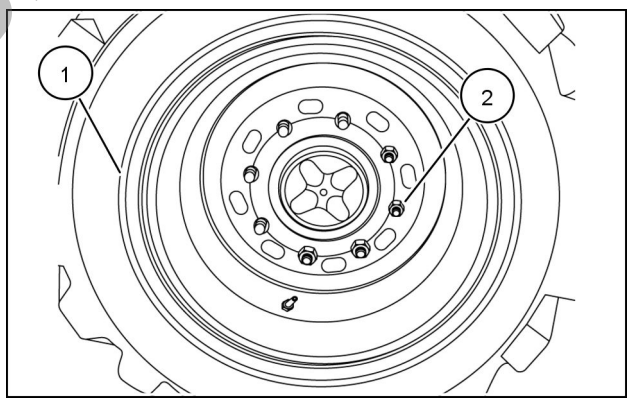
931002081 8

11. Install chain inspection cover **(1)** and mounting hardware **(2)**
12. Fill chain tank to correct level and install check plug.



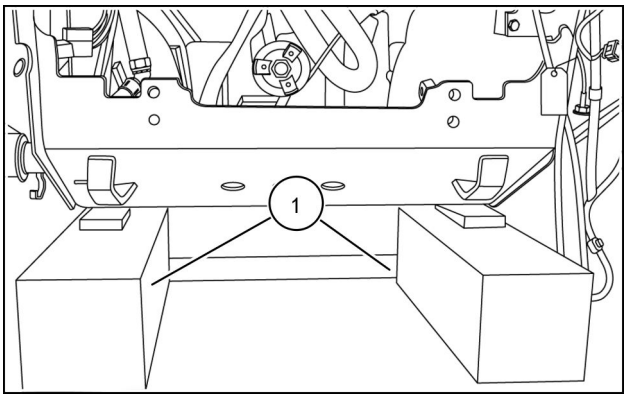
931002080A 9

13. Install wheels **(1)** and wheel hardware **(2)**



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14. Remove supports and lower skid steer



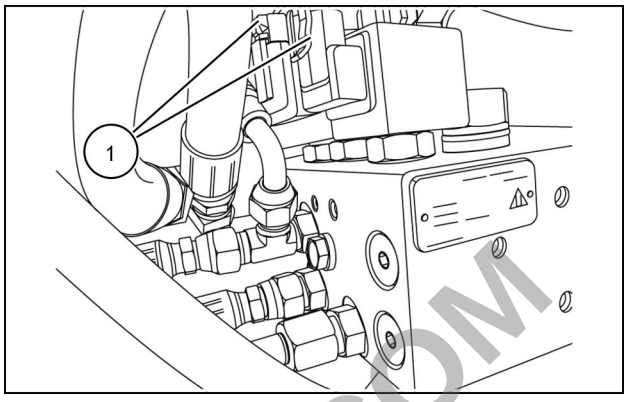
931002069 11

15. Disengage cab lock out and tilt cab down. See **Tilt system - Tilt To secure the lift arm in the raised position on radial lift machines. (E.34.A)** for more information on Radial working arm units

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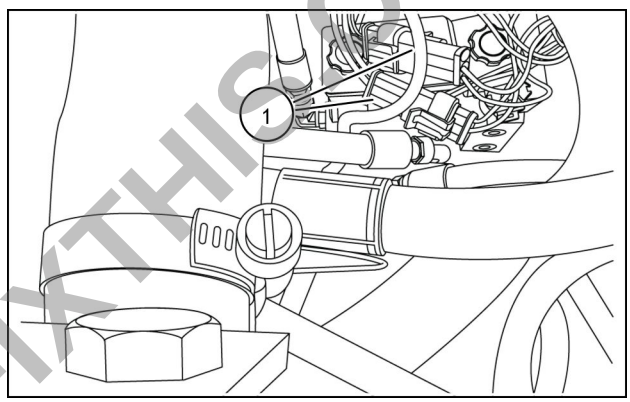
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5. Connect solenoid **(1)** connections onto the brake valve.



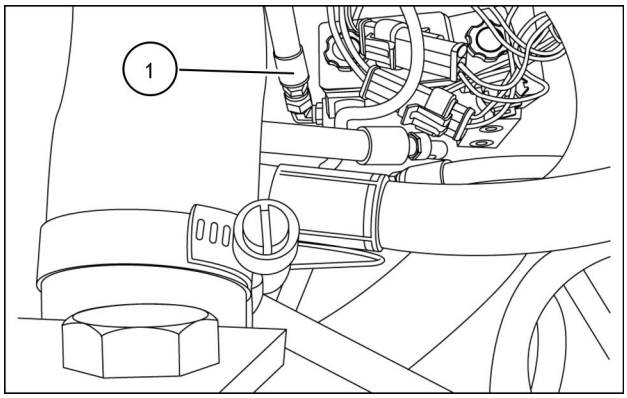
931001728 5

6. Connect switch connections **(1)** onto the brake valve.



931001727 6

7. Connect the hydraulic hose **(1)** to the back side of valve.



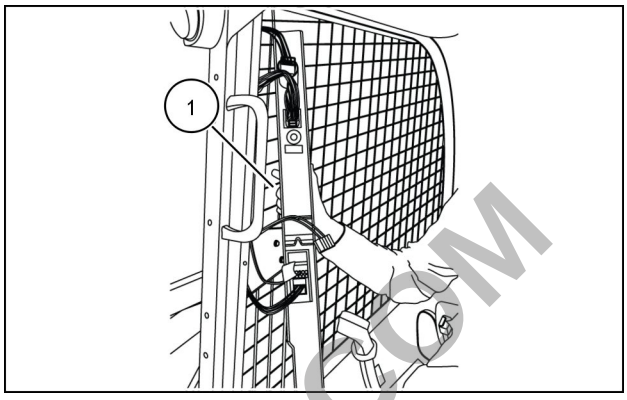
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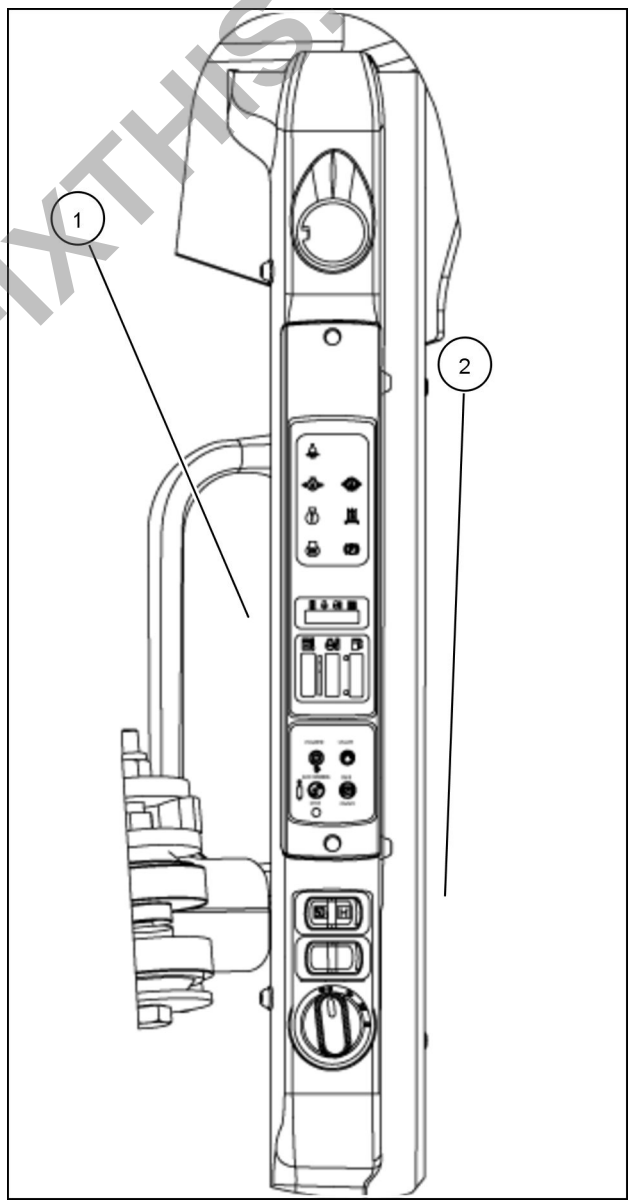
Instrument panel - Install Right hand side console

1. Insert switch into the right hand console **(1)**. Connect the connector to the switch.



20111505 1

2. Insert the mounting hardware into the left side **(1)** and right side **(2)** of the right hand console. Tighten to proper torque.



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FRAME POSITIONING - F

STABILISING Ballasting - 20.B

C227 , C232 , C238 , L213 , L215 , L218 , L220 , L223 , L225 , L230

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HITCH AND WORKING TOOL - H

BOOM Lift - 20.B

C227 , C232 , C238 , L213 , L215 , L218 , L220 , L223 , L225 , L230

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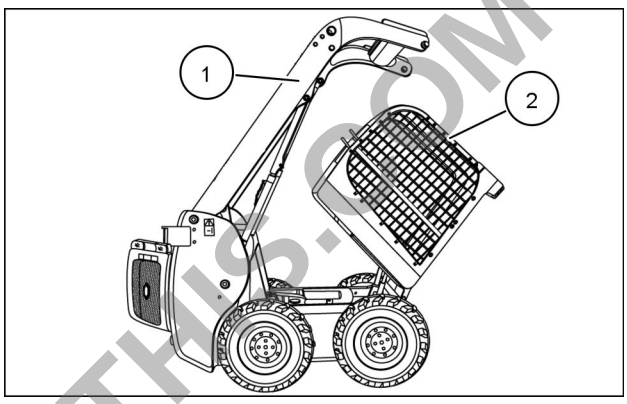
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Control valve - Remove Proportional aux valve extend solenoid (Mechanical)

L213 Mechanical hydraulic controls, L215 Mechanical hydraulic controls, L218 Mechanical hydraulic controls, L220 Mechanical hydraulic controls, L223 Mechanical hydraulic controls, L225 Mechanical hydraulic controls, L230 Mechanical hydraulic controls

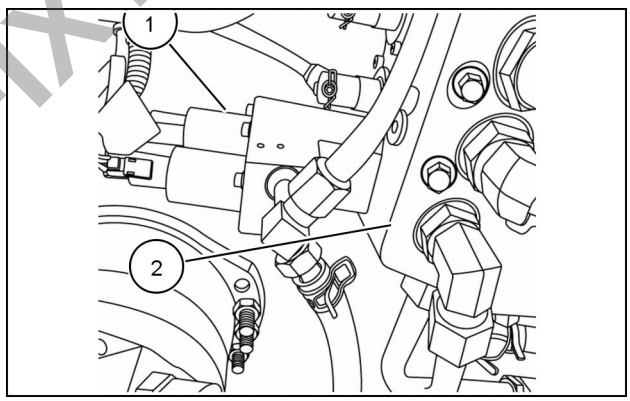
Prior operation:
Tilt system - Tilt To secure the lift arm in the raised position on radial lift machines. (E.34.A)

1. Raise the boom **(1)** and tilt cab forward **(2)**.



931002289 1

2. Locate proportional auxiliary valve extend solenoid **(1)** on the loader valve block **(2)**.



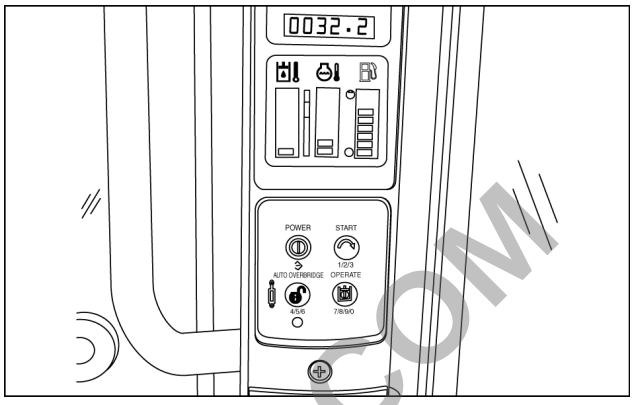
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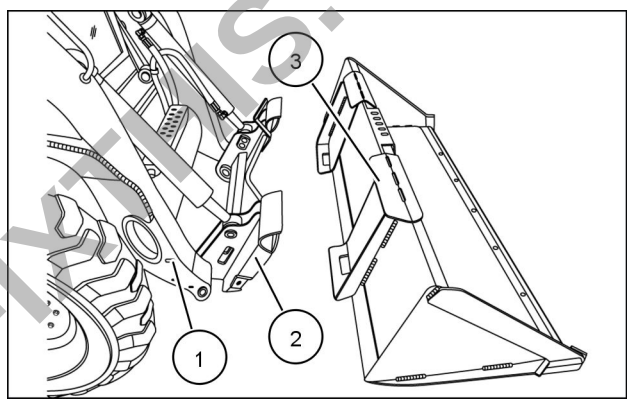
Bucket - Install - Hydraulic

1. Start engine.



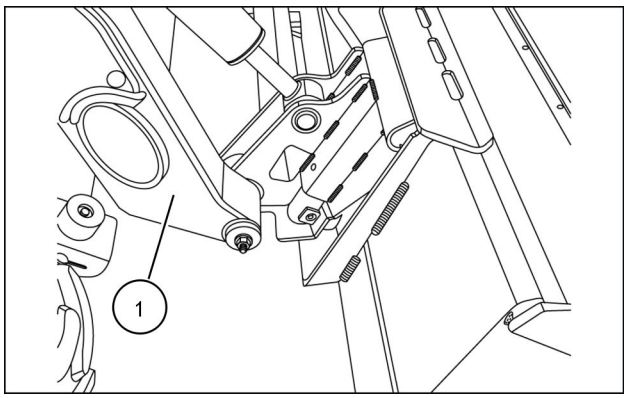
931002111 1

2. Lower lift arm **(1)** and tilt faceplate down **(2)** before inserting into saddles **(3)**.



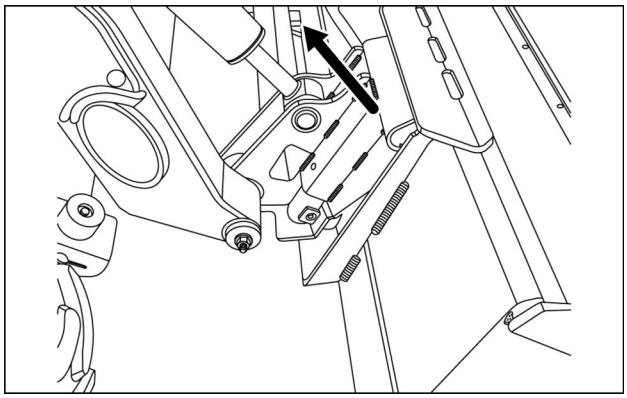
931002058 2

3. Slowly raise lift arm **(1)** ensuring faceplate seats into saddles.



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4. Tilt face plate up to engage.



931002057 4

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