SERVICE MANUAL

L234
Tier 4B (final)
200 Series Skid Steer Loader

PIN NHM435463 and above

C234 / C238
Tier 4B (final)
200 Series Compact Track Loader

PIN NHM435463 and above

Part number 48060316
1st edition English
November 2017

NEW HOLLAND CONSTRUCTION

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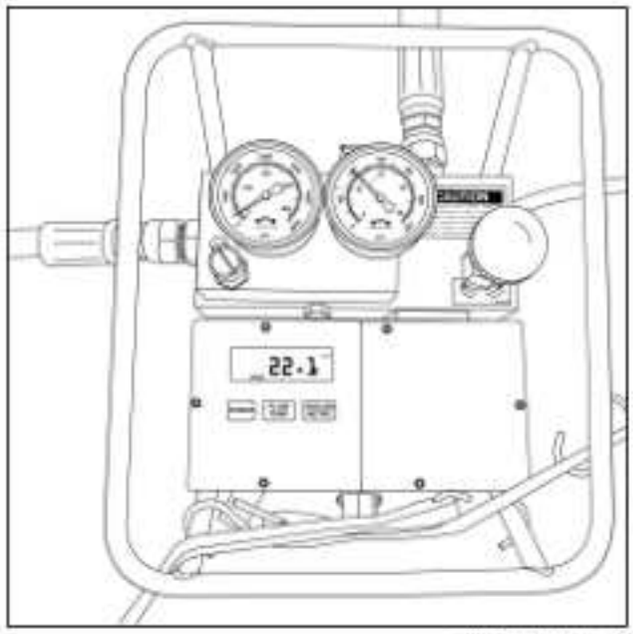
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Test 3A: Pump flow with no restriction

5. Verify that the flow meter has no restriction on the hydraulic pump. Record the pump flow on the data collection sheet.
   Please see **Fixed displacement pump - General specification (35.104)** for specification about the pumps.

NOTE: *A flow reading of **92.3 L/min** (**24.4 US gpm**) is expected.*

NOTE: *Image **13** is an example of a flow reading. Image **13** may not match your reading.*

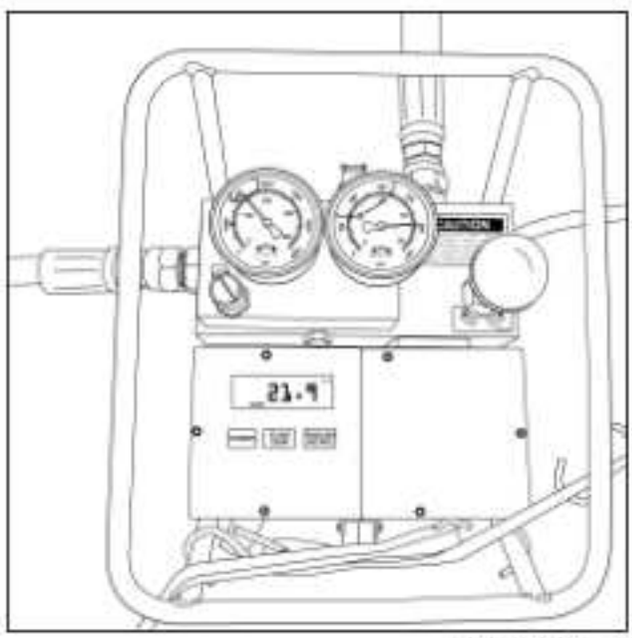


RAPH1255L0242AA 13

Test 3B: Pump flow with restriction

6. Adjust the flow meter pressure until **152 bar** (**2200 psi**) is achieved. Verify that the machine is running at the set RPM recorded on the data collection sheet located on the following page. Adjust the RPM if necessary. Record the pump flow on the data collection sheet.
   Please see **Fixed displacement pump - General specification (35.104)** for specification about the pumps.

NOTE: *Image **14** is an example of a flow reading. Image **14** may not match your reading.*



RAPH1255L0243AA 14

Test 3C: Pump efficiency

7. Pump efficiency is determined by dividing the pump flow with restriction value (Test 3B) by the pump flow without restriction value (Test 3A), then multiplying that new value by 100. Record the pump efficiency on the data collection sheet.

NOTE: *Pump efficiency should be no less than **70%**.*

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B. One or both measurements are greater than **10 Ω**. There is a short circuit to chassis ground. Repair or replace the harness as required. Return to step **1** to confirm elimination of the fault.

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9151 - Bus-Warn at CAN-Bus No.1

C234 TIER 4B (FINAL) [NHM435463 -]	NA (Electro hydraulic controls)
C238 TIER 4B (FINAL) [NHM435463 -]	NA (Electro hydraulic controls)
L234 TIER 4B (FINAL) [NHM435463 -]	NA (Electro hydraulic controls)

Context:
CAN bus communications between the modules on the data link have been lost. This fault code may be displayed with other CAN bus fault code messages.

Cause:
CAN bus communications between the modules on the data link have been lost.

Possible failure modes:

1. An open circuit in the CAN data link wiring.
2. A short circuit in the CAN data link wiring.
3. A faulty device on the CAN data link.
4. A faulty instrument cluster.
5. A faulty ECU.

Solution:

1. Verify that the fault code is active.

   Connect the Electronic Service Tool to the service tool connector.

   To check for fault codes: Start and operate the machine.

   A. Fault code **9151 – Bus-Warn at CAN-Bus No.1** is not recorded again. Go to step **2**.

   B. Fault code **9151 – Bus-Warn at CAN-Bus No.1** is recorded again. There are one or two other CAN bus fault codes associated with **9151 – Bus-Warn at CAN-Bus No.1**. Go to step **2**.

   C. Fault code **9151 – Bus-Warn at CAN-Bus No.1** is recorded along with multiple CAN data link faults such as **1051 – Timeout of CAN message EEC1** - **1059 – Timeout of CAN Message DM1**, and/or **3096 – CAN A Bus off failure**, **3179 – CAN communication failure between vehicle controller and ECU - BC2ECU2 message** and **3180 – CAN communication error between vehicle controller to ECU**. Go to **1051 - No CAN Communication With Engine Controller (55.408)** step 3.
2. Verify that the CAN bus circuit is functioning properly.

   Connect the Electronic Service Tool to the service tool connector.

   Turn the ignition switch ON.

   Verify the connections to the ECU, the instrument cluster, the diagnostic connector, the UCM (if installed), and the optional Telematics unit are tight and secure. Check for CAN bus fault codes while wiggling the harness.

   Turn the ignition switch OFF.

   Disconnect the instrument cluster connector **X-C23 (Male)** . Measure the resistance between pin 5 and pin 6 on the instrument cluster. The resistance should be between **108 Ω** and **132 Ω**.

   Disconnect the ECU connector **X-012 (Female)** . Measure the resistance between pin 24 and pin 25 on the ECU. The resistance should be between **108 Ω** and **132 Ω**.

   A. All connections are secure. Both resistance measurements are within the specified range. OK to return the machine to service.

   B. The harness is damaged or the connectors are loose or damaged. Repair or replace the harness or the connectors as required. Return to step **1** to confirm elimination of the fault.

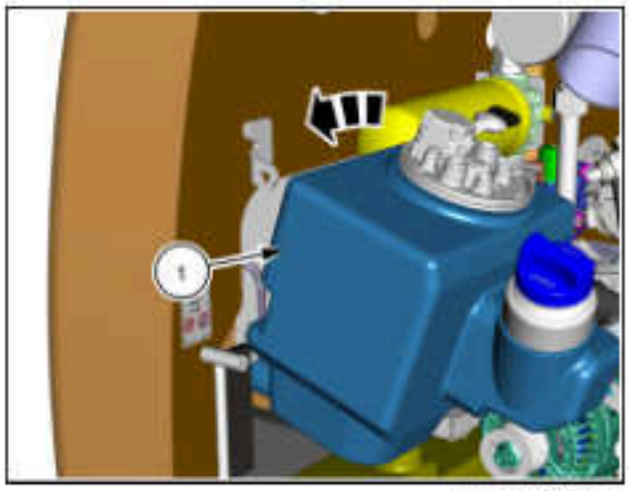
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Diesel Exhaust Fluid (DEF)/AdBlue®/ARLA tank - Install

Prior operation:
Diesel Exhaust Fluid (DEF)/AdBlue®/ARLA tank - Remove (10.500)

NOTE: *Torque all worm gear hose clamps to* ***3.0 – 4.0 N·m (2.0 – 3.0 lb ft)****.*

1. Install the Diesel Exhaust Fluid (DEF) tank **(1)** into the chassis by sliding the bottom-side of the tank into the chassis and rotating the topside in from the engine compartment.



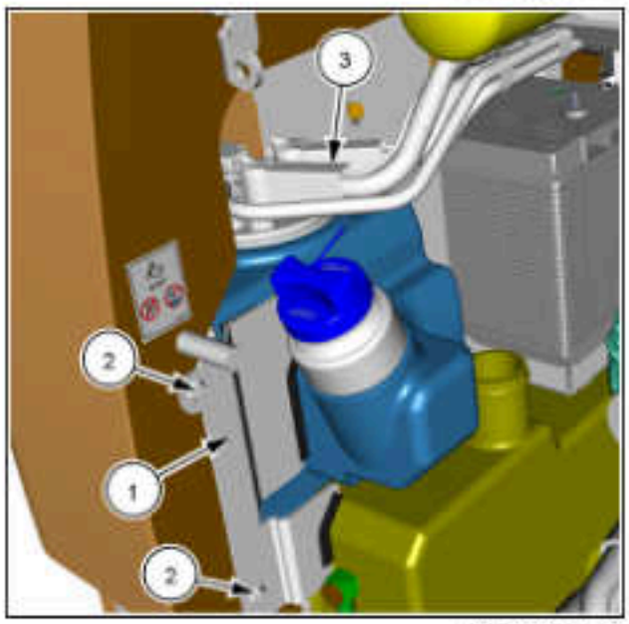
RAPH175SLE284QA 1

2. Install the DEF lines **(3)** to the DEF tank.

NOTE: *See Figure* ***3*** *for DEF tank line connections.*

3. Install the retaining bracket **(1)** to the chassis and secure with the bolts **(2)**.

NOTE: *Depending upon machine configuration, the same bolts* ***(2)*** *may be used to secure the fuel filter bracket.*



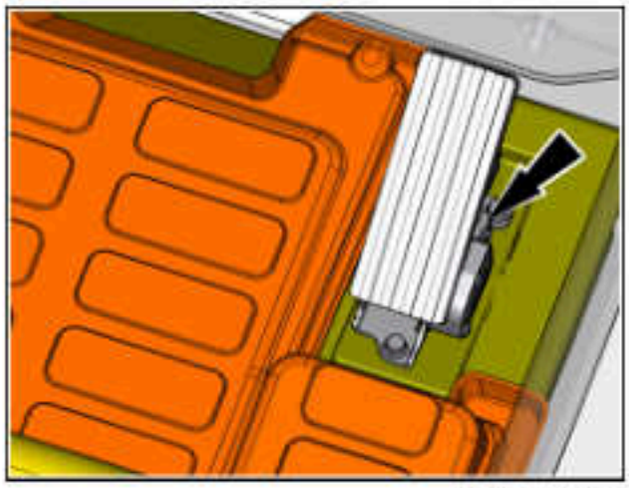
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Throttle pedal - Remove

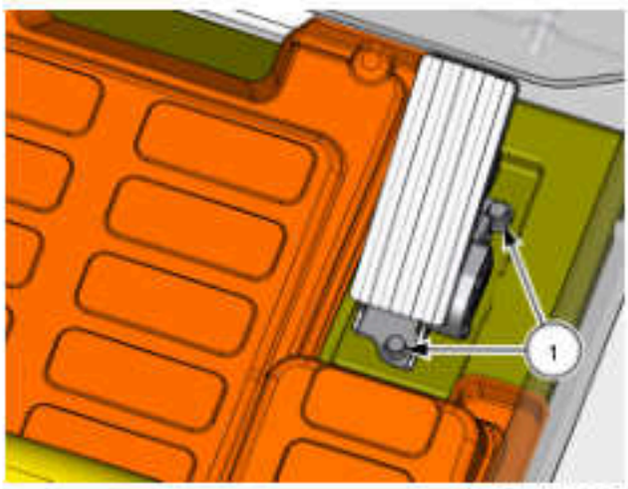
Prior operation:
Battery - Disconnect (55.302)

1. Disconnect the electrical harness from the foot pedal assembly.



RAPH175SLE17RDA 1

2. Remove the two bolts **(1)** that secure the foot pedal assembly to the floor plate.
3. Remove the foot pedal assembly from the machine.



RAPH175SLE17RDA 2

Next operation:
Throttle pedal - Install (55.525)

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MECHANICAL VALVE ASSEMBLY

RAC 51423445
L223 / L225 / L228 / L230
L234 / C232 / C234 / C238

NOTES:

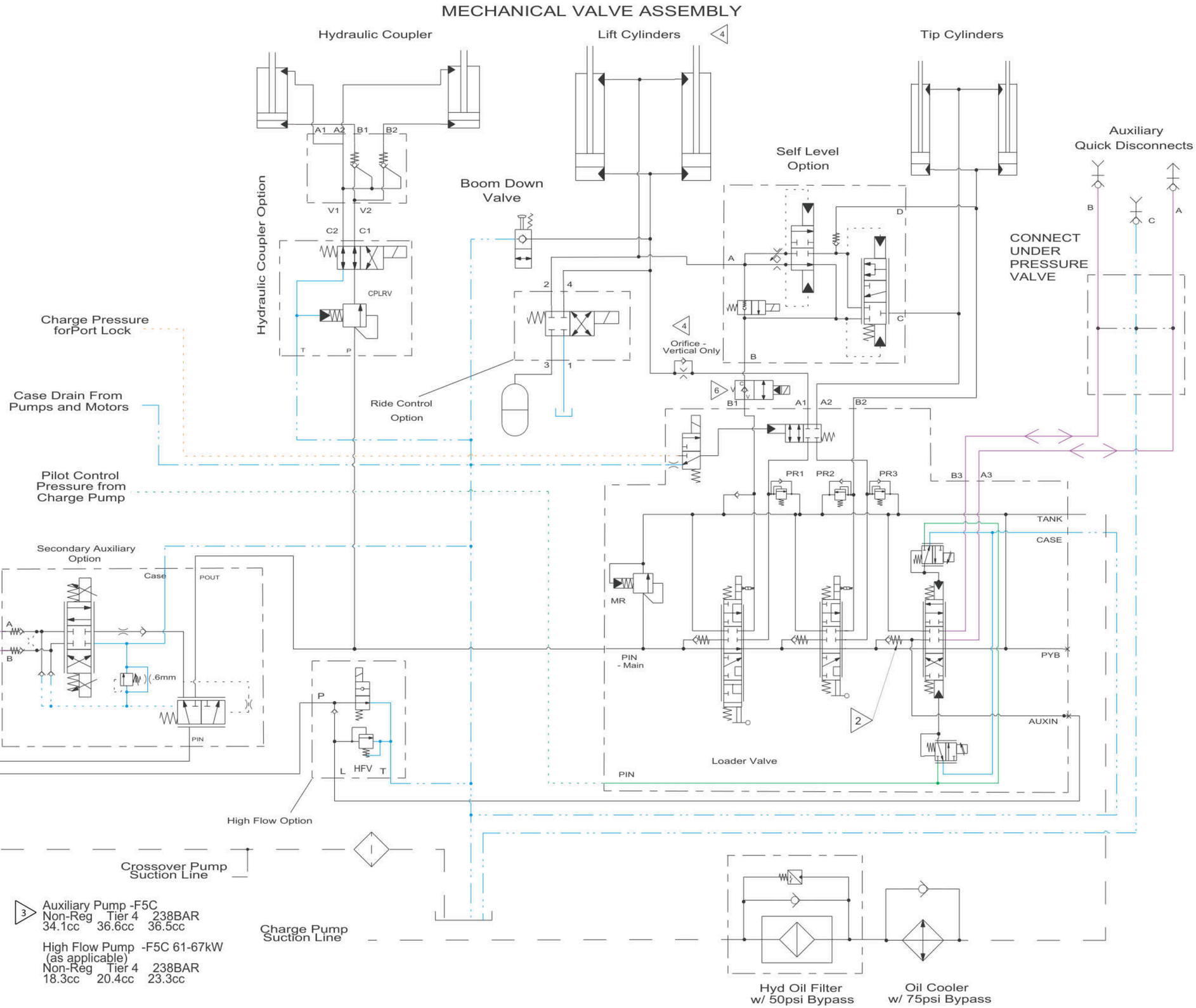
1. FLUSHING VALVE
   -10 BAR SPRINGS
   -2 mm FLUSHING ORIFICE
   -290 PSI (20BAR) CUTOFF RELIEF
2. LOAD CHECK REMOVED IF HIGH FLOW INSTALLED.
3. STANDARD PUMP STACK NOT USED ON EHF OPTION SEE NOTE ON DRAWING.
4. IN-LINE ORIFICE AT MANIFOLD BLOCK FOR VERTICAL MACHINES ONLY.
5. LIFT CYLINDERS ARE CUSHIONED FOR VERTICAL FRAME MACHINES ONLY.
6. BOOM ROD LOCK VALVE FOR LARGE FRAME VERTICAL MACHINES ONLY.

STANDARD RELIEF PRESSURE TABLE

MAIN 3046 PSI ± 72.5 (210 BAR)
PR1- 3263 PSI +145/-73 (225 BAR)
PR2- 3263 PSI +145/-73 (225 BAR)
PR3- 3771 PSI +145/-73 (260 BAR)
PR3- OPTIONAL 80 BAR OR 100 BAR (SERVICE)
HFV- 3250 PSI (224 BAR)
CPLRV- 2500 PSI (172 BAR)

HIGH PRESSURE RELIEF PRESSURE TABLE

MAIN 3450 PSI ± 72.5 (238 BAR)
PR1- 3625 PSI +290/-73 (250 BAR)
PR2- 3625 PSI +290/-73 (250 BAR)
PR3- 3916 PSI +290/-73 (270 BAR)
HFV- 3655 PSI +218/-0 (252 BAR)
CPLRV- 2500 PSI (172 BAR)



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