Contents

INTRODUCTION

Engine 10

[10.001] Engine and crankcase 10.1

[10.103] Crankshaft and flywheel 10.2

[10.202] Air cleaners and lines 10.3

[10.206] Fuel filters 10.4

[10.216] Fuel tanks 10.5

[10.310] Aftercooler 10.6

[10.400] Engine cooling system 10.7

Clutch 18

[18.100] Clutch mechanical release control 18.1

[18.110] Clutch and components 18.2

Transmission 21

[21.114] Mechanical transmission 21.1

[21.130] Mechanical transmission external controls 21.2

[21.140] Mechanical transmission internal components 21.3

[21.145] Gearbox internal components 21.4

[21.200] Dropbox 21.5

Four-Wheel Drive (4WD) system 23

[23.314] Drive shaft 23.1

Front axle system 25

[25.100] Powered front axle 25.1

[25.102] Front bevel gear set and differential 25.2

[25.108] Final drive hub, steering knuckles, and shafts 25.3

[25.310] Final drives 25.4

[25.400] Non-powered front axle 25.5

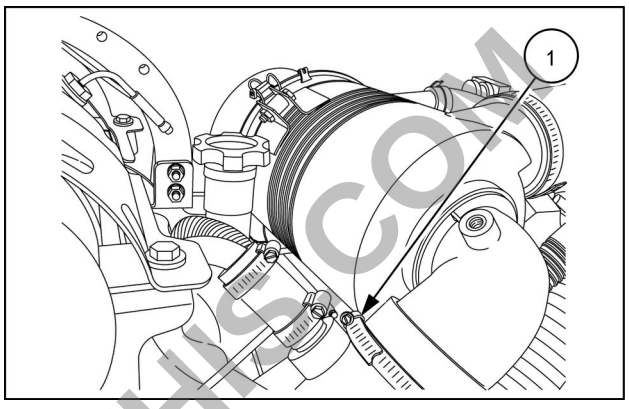
PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Air cleaner - Remove

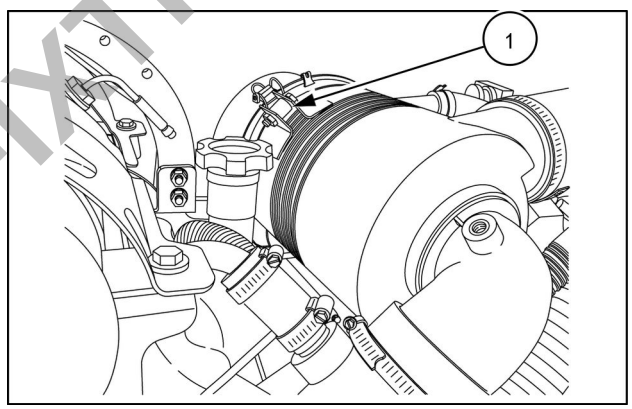
NOTE: *It is not necessary to remove the complete air cleaner body, as described below, to service the air cleaner elements.*

1. Lift the front hood.
2. Loosen the clamp **(1)** of air cleaner hose. Remove the air cleaner hose.



GNIL14TR00720AA 1

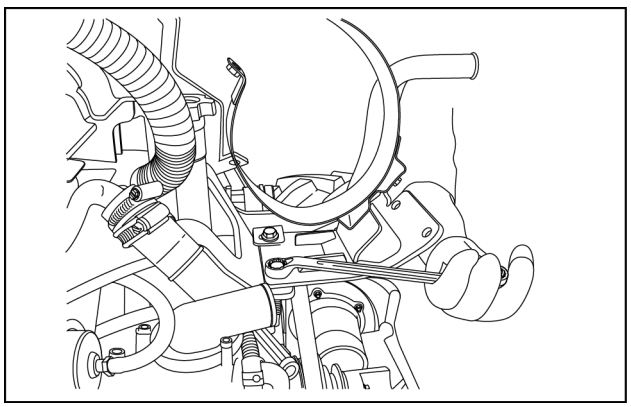
3. Loosen the bolt of the air cleaner securing clamp. **(1)**.
4. Remove the air cleaner assembly.



GNIL14TR00720AA 2

Air cleaner mounting bracket removal

5. Loosen the bolts and remove the air cleaner mounting bracket.



GNIL14TR00722AA 3

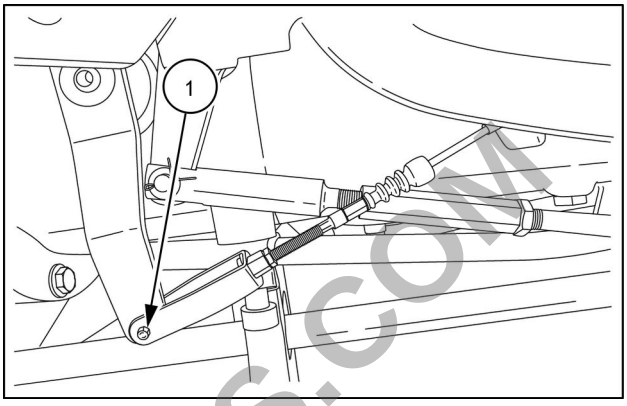
PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Power Take-Off (PTO) clutch lever removal

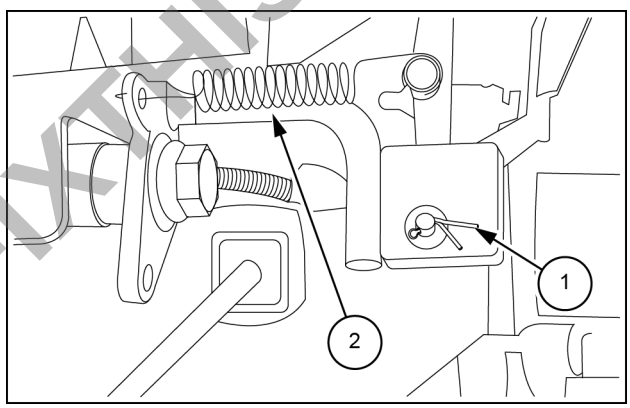
To remove the Power Take-Off (PTO) clutch lever **(1)** proceed as follows:-

1. Remove pin **(1)** by releasing lock plate and disconnect linkage between Power Take-Off (PTO) clutch lever and Power Take-Off (PTO) clutch cross shaft.



GNIL14TR00781AA 8

2. Remove the split pin lock **(1)** take out the pin and remove hand lever from the mounting bracket.
3. Remove bolt **(2)** from the housing to take out the levers with the bracket.

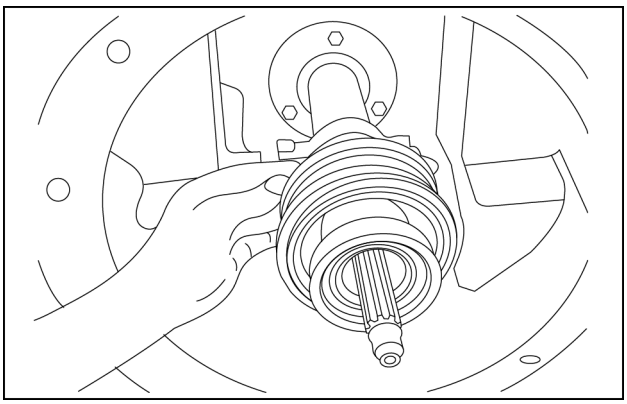


GNIL14TR04671AB 9

Cross shafts removal

To remove cross shafts clutch housing has to be split between engine flywheel housing and transmission housing.

1. Remove clips **(1)** from both the forks and release bearings and take out release bearings.



GNIL14TR04673AB 10

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Mechanical transmission - Remove

⚠ WARNING

Avoid injury!
Handle all parts carefully. Do not place your hands or fingers between parts. Use Personal Protective Equipment (PPE) as indicated in this manual, including protective goggles, gloves, and safety footwear.
Failure to comply could result in death or serious injury.

W0208A

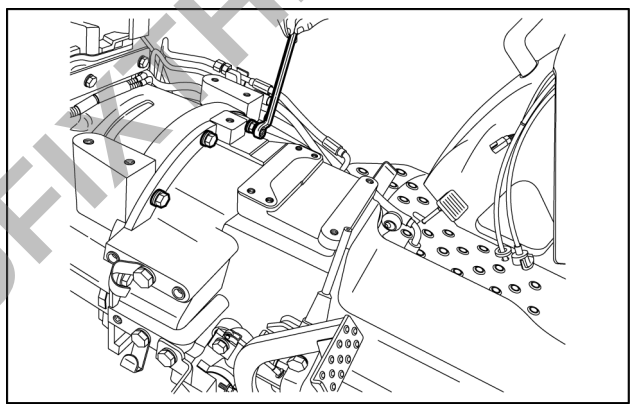
⚠ DANGER

Heavy objects!
Lift and handle all heavy components using lifting equipment with adequate capacity. Always support units or parts with suitable slings or hooks. Make sure the work area is clear of all bystanders.
Failure to comply will result in death or serious injury.

D0076A

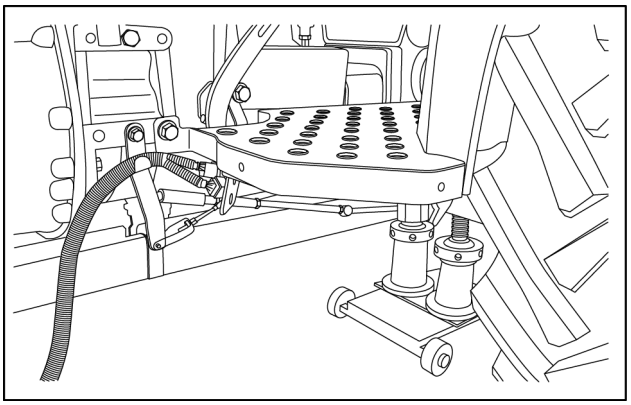
NOTE: *To remove the transmission housing from the tractor, tractor has to be split at clutch and transmission housing. Fenders, hydraulic housing, three point linkage, rear tires and final drive housing have to be removed from the tractor.*

1. Loosen the bolts and remove the transmission assembly from the tractor. See engine removal section.



GNIL14TR00753AA 1

2. Loosen bolts securing foot boards on left-hand side and right-hand side fenders. Disconnect all the wirings. See **Protections and footboards - Remove (90.118)**.

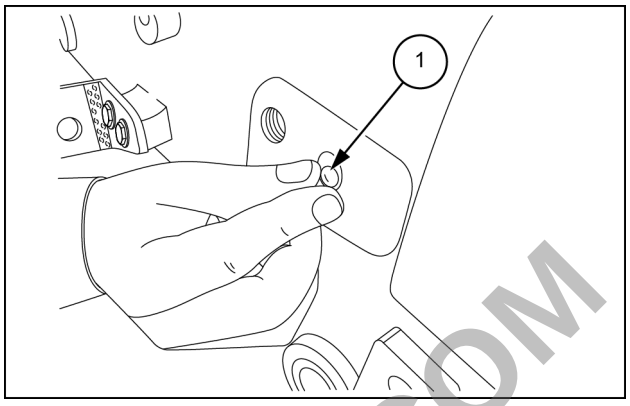


GNIL14TR00767AA 2

PREVIEW - YOUFIXTHIS.COM

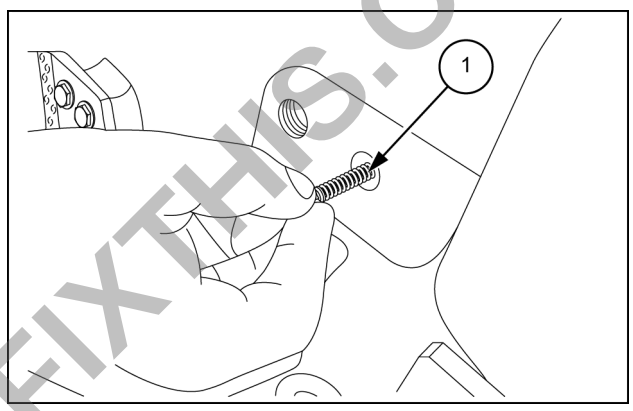
Download full manual at youfixthis.com

21. Insert the detent ball **(1)** in front of the spring.



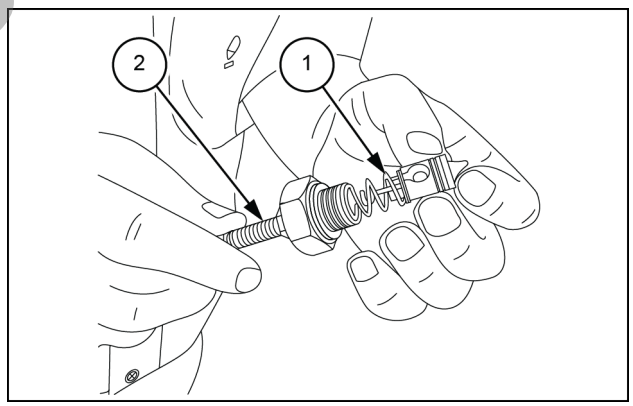
GNIL14TR04219AB 9

22. Insert the spring **(1)** into the clutch housing.
23. Install the shuttle detent bolt to the left-hand side of the clutch housing.



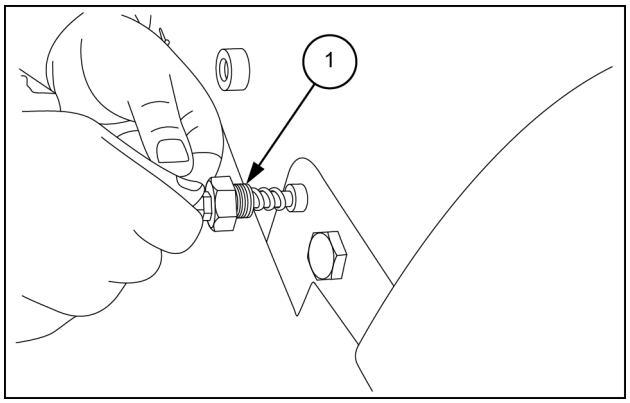
GNIL14TR04220AB 10

24. Insert the pin and spring **(1)** to shuttle cable **(2)**.



GNIL14TR04221AB 11

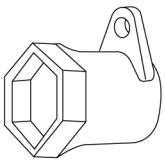
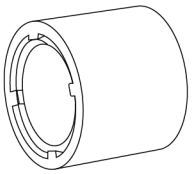
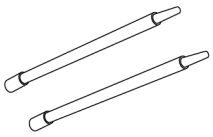
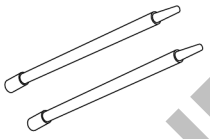
25. Insert the shuttle cable **(1)** through the hole on the left-hand side of the clutch housing.



GNIL14TR04222AB 12

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Tool number	Cross over tool number	Image	Description	Tractor series also used on
380000268*	NH01289 or 293878		Pinion shaft spanner	40 / TS / 60/TM/ TL
380000295*	NH01319 or 295030		Wrench for front axle wheel hub bearing retaining nut	40 /TS/60 / TM / TN / TL
380002813*	NA		Dowel studs (set of 2) (M10 x 1.25 x 100), fine thread for front axle cover removal	TN
380002814*	NA		Dowel studs (set of 2) (M10 x 1.25 x 100), fine thread for front axle differential cover removal	TN

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Final drive driving pinion - Preload – (4WD) Front Axle

⚠ WARNING

Avoid injury!
Handle all parts carefully. Do not place your hands or fingers between parts. Use Personal Protective Equipment (PPE) as indicated in this manual, including protective goggles, gloves, and safety footwear.
Failure to comply could result in death or serious injury.

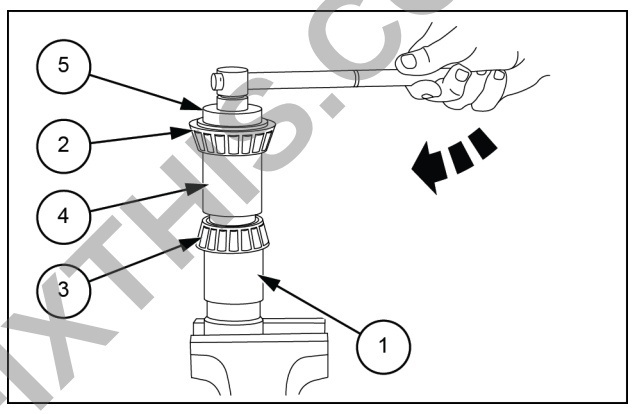
W0208A

Adjustment of the preload of the pinion shaft bearings

Proceed as follows:

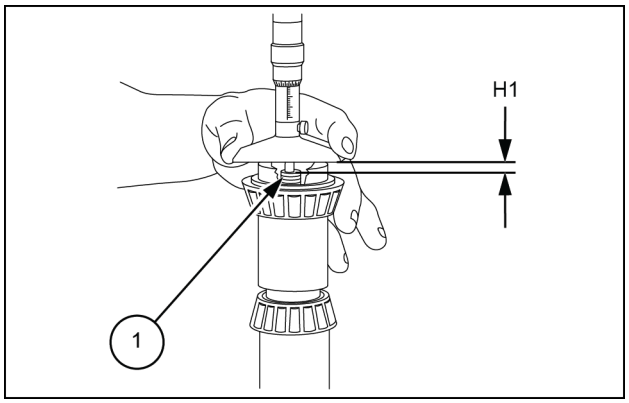
1. Clamp tool number **380000248 (1)** in the vice. Install bearings **(2)**, **(3)** and the bearing spacer **(4)** and tighten the nut of the tool fully home.

NOTE: *Install the **10 mm** (**0.394 in**) thick spacer between tool number **380000248 (1)** and the bearing **(2)**.*



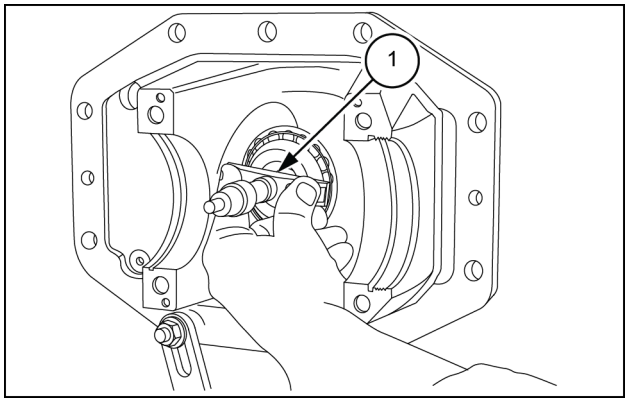
GNIL14TR04419AB 1

2. Using a micrometer, measure distance **(H1)** between the upper surface and the pin of tool number **380000248 (1)**.
3. Disassemble the above parts, lubricate the bearings with oil and then re-assemble the parts, excluding the bearing spacer, in the bevel drive-differential housing, complete with outer bearing races, held in place with tool number 380000255.



GNIL14TR04420AB 2

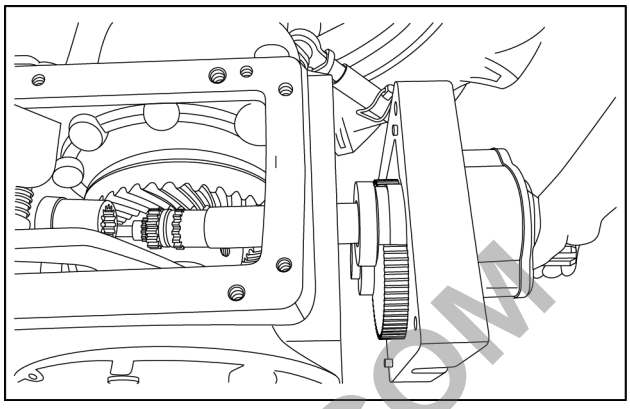
4. Tighten the nut of tool number 380000255 **(1)**, while turning the tool to ensure that the bearings are seated correctly.
5. Using a micrometer, measure the distance **(H2)** between the upper surface and the pin of the tool.
6. The thickness of the adjustment shim required is given by:
   Shim = H2 - H1 + **0.05 mm** (**0.002 in**)



GNIL14TR04421AB 3

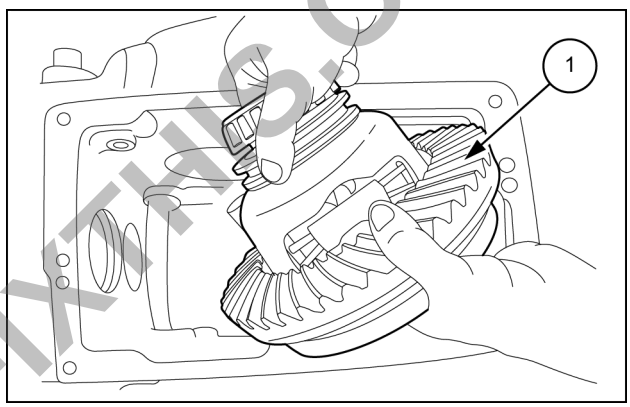
PREVIEW - YOUFIXTHIS.COM
Download full manual at youfixthis.com

19. Remove PTO RPM sensor cable. Loosen the rear Power Take-Off (PTO) cover bolts and pull out the cover along with Power Take-Off (PTO) shaft and Power Take-Off (PTO) input shaft assembly. See **Rear mechanical control - Remove (31.101)**.



GNIL14TR00742AA 14

20. Take out the differential assembly along with crown wheel.

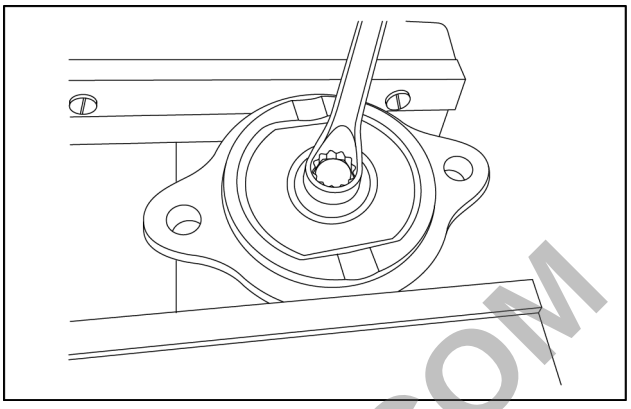


GNIL14TR04258AB 15

PREVIEW - YOUFIXTHIS.COM

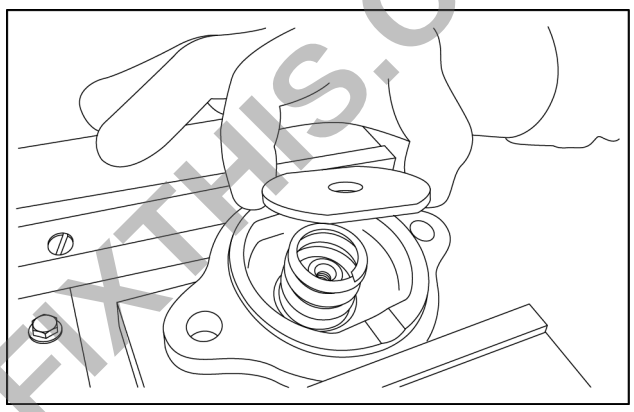
Download full manual at youfixthis.com

13. Loosen the bolt from the inner side of the cover plate.



GNIL14TR00738AA 12

14. Retrieve the inner plate and the spring from the cover.



GNIL14TR00739AA 13

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Contents

Hydraulic systems - 35

[35.000] Hydraulic systems 35.1

[35.100] Main lift system 35.2

[35.104] Fixed displacement pump 35.3

[35.204] Remote control valves 35.4

[35.300] Reservoir, cooler, and filters 35.5

[35.355] Hydraulic hand control 35.6

[35.359] Main control valve 35.7

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Fixed displacement pump - General specification

FILTER	
Type	Full-flow spin on type
Location	On suction pipe before pump intake, on the right-hand side of the engine
PUMP	
Type	Gear type (In tandem with the steering pump), drawing oil from transmission housing
Location	On the right-hand side of the engine
Mounting	Fitted on engine timing case and driven by timing gears
Make	Rexroth (Bosch Group)
Drive	Engine timing gears
Rotation (seen from the free end of the drive shaft)	Anti-clockwise
Displacement	**16 cm³** per revolution
Max. rotational speed	**3300 RPM**
Flow at **1500 RPM** & **210 bar**	**21.12 L/min**

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Steering - 41

Pump - 206

Workmaster™ 50
Workmaster™ 60
Workmaster™ 70

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Index

Electrical systems - 55

Electrical system - 000

Electrical system - General specification 3
Electrical system - Overview 4
Electrical system - Troubleshooting 5

PREVIEW - YOUFIXTHIS.COM

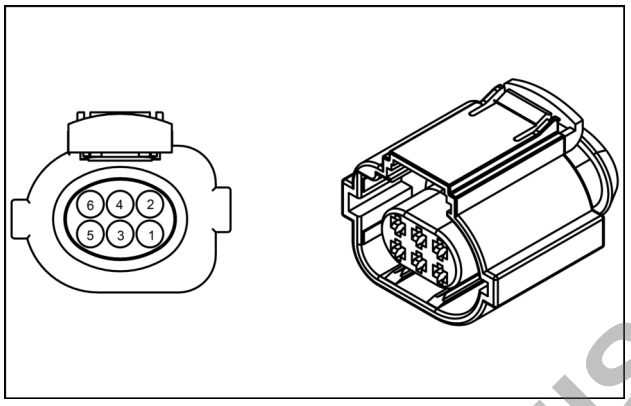
Download full manual at youfixthis.com

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Wire connectors - Component diagram 01 - Connectors X-9010 to X-9019

Connector X-9011 - Throttle Valve Actuator (TVA)

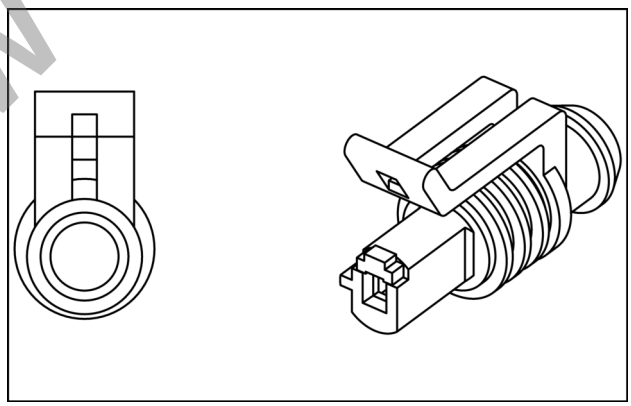


84360293 1

84360293

CONNECTOR X-9011 - TVA			
PIN NUMBER	**WIRE NUMBER**	**CIRCUIT REFERENCE**	**ELECTRICAL SCHEMATIC FRAME**
1	EN-9098	**+5 V** sensor supply, Engine Control Unit (ECU)	**SHEET 03**
2	EN-9135	H-bridge Pulse-Width Modulated (PWM) supply, ECU	
3	EN-9100	Reference ground, ECU	
4	-		
5	EN-9099	Position signal, ECU	**SHEET 03**
6	EN-9134	H-bridge Pulse-Width Modulated (PWM) supply, ECU	

Connector X-9016 - Oil pressure switch



87687239 2

87687239

CONNECTOR X-9016 - Oil pressure switch			
PIN NUMBER	**WIRE NUMBER**	**CIRCUIT REFERENCE**	**ELECTRICAL SCHEMATIC FRAME**
1	EN-9105	Input signal, Engine Control Unit (ECU)	**SHEET 03**

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

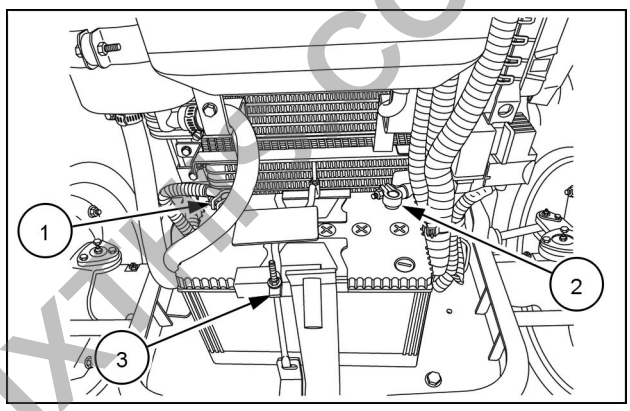
Battery - Remove

⚠ WARNING

Improper operation or service of this machine can result in an accident.
Before working on any component(s) of the electrical circuit, put the starter switch key in the off (shut down) position. When disconnecting batteries, always disconnect the negative (-) cable first. When reconnecting batteries, always connect the negative (-) cable last.
Failure to comply could result in death or serious injury.

W0264A

1. Unlatch and raise the hood to gain access to the battery.
2. Remove the negative (-) cable, **(1)**, from the negative (-) terminal on the battery.
3. Remove the positive (+) cable, **(2)**, from the positive (+) terminal on the battery.
4. Remove the nut, washer and J-bolt, **(3)**, which secures the battery to the tractor frame.
5. Remove the battery from the tractor.



GNIL14TR00784AA 1

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

DTC 161-02-Short circuit error of injector in cylinder 1 [ECU] 58
DTC 161-03-Short circuit of low side to high source of injector in cylinder 1 [ECU] 61
DTC 162-02-Short circuit error of injector in cylinder 2 [ECU] 63
DTC 162-03-Short circuit of low side to high source of injector in cylinder 2 [ECU] 66
DTC 163-02-Short circuit error of injector in cylinder 3 [ECU] 68
DTC 163-03-Short circuit of low side to high source of injector in cylinder 3 [ECU] 71
DTC 167-02-Open load error of injector in cylinder 1 [ECU]. 73
DTC 168-02-Open load error of injector in cylinder 2 [ECU]. 75
DTC 169-02-Open load error of injector in cylinder 3 [ECU]. 77
DTC 171-03-Injection bank 1 short circuit failure (all injectors of the same bank can be affected) [ECU]79
DTC 173-03-Injection bank 2 short circuit failure (all injectors of the same bank can be affected) [ECU]80
DTC 17C-12-ECU internal failure - Injector CY33x component [ECU] 82
DTC 17E-02-Number of desired injections exceeds threshold [ECU]. 83
DTC 17E-03-Exceeded the number of injections for a given engine speed [ECU]. 84
DTC 17E - 04-Injection control : Number of injections is limited by system [ECU]. 85
DTC 17E-12-Number of injections is limited by quantity balance of high pressure pump [ECU] 86
DTC 17F-12-Missing adjustment value programming for injector in cylinder 1 [ECU] 87
DTC 18F-02-Lambda sensor heater power stage open circuit [ECU]. 88
DTC 18F-03-Lambda sensor heater power stage short circuit to battery [ECU] 90
DTC 18F-04-Lambda sensor heater power stage short circuit to ground [ECU]. 92
DTC 18F-04-Lambda sensor heater power stage short circuit to ground [ECU]. 94
DTC 199-02-Turbocharger boost pressure is higher than expected [ECU] 96
DTC 199-02-Turbocharger boost pressure is higher than expected [ECU] 97
DTC 1B1-03-CAN A Bus off failure [ECU] 98
DTC 1B1-04-CAN A Bus off passive failure [ECU]. 100
DTC 1B5-02-CAN communication error between vehicle controller to ECU [ECU] 102
DTC 1B7-02-CAN transmit error - EEC1 message (Electronic Engine Control 1 message - Torque, accelerator pedal, engine speed, and other signals) [ECU]. 104
DTC 1C6-03-CAN communication failure between vehicle controller and ECU controller - TSC1_PE message [ECU] 106
DTC 1C8-03-CAN communication failure between vehicle controller and ECU controller - TSC1_VE message [ECU] 108
DTC 1D1-03-ECU internal failure [ECU] 110
DTC 1D2-02-ECU internal failure - EEPROM write error [ECU] 111
DTC 1D2-03-ECU internal failure - EEPROM erase error [ECU]. 112
DTC 1D2-04-ECU internal failure - EEPROM read error [ECU]. 113
DTC 1D2-12-ECU internal failure - EEPROM write/read error [ECU]. 114
DTC 1D3-12-ECU internal failure - Software resets in DSM 0 [ECU] 115
DTC 1D4-12-ECU internal failure - Query/response communication errors [ECU]. 116
DTC 1D8-12-ECU internal failure - SPI communication error [ECU]. 117
DTC 1D9-02-ECU internal failure - ADC test [ECU]. 118
DTC 1D9-03-ECU internal failure - Voltage ratio in ADC monitoring [ECU]. 119
DTC 1D9-12-ECU internal failure - NTP error in ADC monitoring [ECU] 120

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

DTC 144-03-Compared camshaft and crankshaft speed sensor values are not plausible

Control Module : ECU

Context:
The Engine Control Unit (ECU) A-9000 monitors the camshaft position sensor B-9017 and the crankshaft position sensor B-9007 characteristics for angle, speed determination, signal plausibility, and quality. If the ECU A-9000 determines that the offset between the crankshaft signal and the expected camshaft first edge is less or greater than **10.00 °** for longer than four consecutive cycles, this fault will occur.

Possible failure modes:

1. Faulty camshaft position sensor B-9017, improperly mounted or not fully seated.
2. Faulty crankshaft position sensor B-9007, improperly mounted or not fully seated.
3. Faulty camshaft tone wheel, loose or damaged.
4. Faulty crankshaft tone wheel, loose or damaged.
5. Faulty engine timing, incorrectly timed.
6. Faulty ECU A-9000, software.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

DTC 18F-02-Lambda sensor heater power stage open circuit

Control Module : ECU

NOTE: *If the Lambda sensor B-9123 is replaced, it is necessary to perform the Replacement of the Lambda Sensor - Reset ECU Data with the Electronic Service Tool (EST) before you return the machine to service. See* ***Lambda sensor - Configure - Reset ECU data (Lambda sensor) (55.989)****, if necessary.*

Context:
The Lambda sensor B-9123 has a heating element encased in ceramic that heats the sensor tip. Whenever the heater is operating, the heater low side driver power stage contained in the Engine Control Unit (ECU) A-9000 is monitored for an open circuit condition. If an open circuit condition exists in the heater control circuit, this fault will occur. For information regarding the functional operation of the Lambda sensor B-9123 see **Lambda sensor - Overview (55.989)**. For more information regarding the technical specifications of the lambda sensor B-9123, see **Lambda sensor - Technical Data (55.989)**.

Cause:
The Lambda sensor B-9123 low side driver heater control circuit is open.

Possible failure modes:

1. Faulty Lambda sensor B-9123 heater control circuit wiring, open circuit.
2. Faulty Lambda sensor B-9123 battery voltage supply wiring, open circuit.
3. Faulty Lambda sensor B-9123, failed internally.
4. Faulty ECU A-9000, software.

Solution:

1. Verify that the fault present and active.

   Use the Electronic Service Tool (EST) to check the status of this fault.

   A. If the fault is present and active, continue with Step **2**.

   B. If the fault is no longer present or in an inactive state, the fault may be intermittent and not currently active. Continue with Step **4**.

2. Check the Lambda sensor B-9123 heater circuit wiring for an open circuit condition.

   Disconnect the vehicle harness (VE) from the Lambda sensor B-9123 at connector **X-9123**.

   With the key switch in the ON position, use a multimeter to perform the following voltage check on the vehicle harness (VE) side :

From	To	Value
X-9123 pin 4	chassis ground	There should be approximately **12.0 V**.

   A. If there is no voltage, there is an failure in the battery voltage supply wiring to the lambda sensor B-9123. Use the appropriate vehicle service manual, if necessary, to locate and repair the failed conductor.

   B. If there is voltage, leave connector **X-9123** disconnected and continue with Step **3**.

3. Check the Lambda sensor B-9123 low side driver wiring for an open circuit.

   Disconnect the vehicle harness (VE) from the ECU A-9000 at connector **X-9102**.

   With the key in the OFF position, use a multimeter to perform the following continuity check for an open circuit on the vehicle harness (VE) side :

From	To	Value
X-9123 pin 3	**X-9102 pin K07**	There should be continuity.

PREVIEW - YOUFIXTHIS.COM
Download full manual at youfixthis.com

With the key in the OFF position, use a multimeter to perform the following continuity checks on the vehicle harness (VE) side :

From	To	Value
X-9001 pin A11	All pins in connector **X-9001**.	There should be no continuity.

A. If the specified values are measured, leave the ECU A-9000 connectors **X-9102** and **X-9001** disconnected. Then, continue to Step **9**.

B. If the specified values are not measured, there is a failure in the rail pressure sensor B-9004 voltage supply wiring. Use the appropriate service manual, if necessary, to locate and repair the failed conductor.

9. Check the camshaft speed sensor B-9017 voltage supply wiring.

With the key in the ON position, use a multimeter to perform the following voltage check on the engine harness (EN) side :

From	To	Value
X-9008 pin 3	Chassis ground	There should be no voltage.

With the key in the OFF position, use a multimeter to perform the following continuity checks on the engine harness (EN) side :

From	To	Value
X-9008 pin 3	Chassis ground	There should be no continuity.
X-9008 pin 1	**X-9008 pin 3**	There should be no continuity.

With the key in the OFF position, use a multimeter to perform the following continuity checks on the vehicle harness (VE) side :

From	To	Value
X-9001 pin A13	All pins in connector **X-9001**.	There should be no continuity.

A. If the specified values are measured, re-connect all of the connectors and continue to Step **10**.

B. If the specified values are not measured, there is a failure in the camshaft speed sensor B-9017 voltage supply wiring. Use the appropriate service manual, if necessary, to locate and repair the failed conductor.

10. Check the ECU A-9000 for the appropriate software and re-flash, if necessary.

A. If the fault has been resolved, return the machine to service.

B. If the fault has not been resolved, escalate an ASIST concern.

11. 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 breaks or shorts in the wiring concerned. Operate the machine while you monitor the display.

A. If you find damage or the display indicates other than normal display readings, Then, repair the damage discovered during the inspection or locate and repair the other than normal display condition and verify that the error has been resolved.

B. If you do not find damage and the display indicates only normal readings, Then, erase the fault code and continue operation.

Wiring harnesses - Electrical schematic sheet 02 – Engine Control Unit (ECU) power and after treatment system (engine schematics) (55.100.DP-C.20.E.02)
Wiring harnesses - Electrical schematic sheet 03 – Engine sensors and fuel injection (engine schematics) (55.100.DP-C.20.E.03)

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

B. If the voltage is not present for one or more of the checks, see the appropriate vehicle service manual and electrical schematics, if necessary, to locate and restore supply power to the ECU A-9000.

4. Determine the condition of the ECU A-9000 CAN circuit.

   With the key switch in the OFF position, use a multimeter to measure the resistance of the CAN connection on the vehicle (VE) harness side:

From	To	Value
X-9102 pin K24	**X-9102 pin K25**	There should be **120 Ω**.
X-9102 pin K24	chassis ground	There should be no continuity
X-9102 pin K25	chassis ground	There should be no continuity

   Use a multimeter to measure the resistance of the CAN termination resistor, internal to the ECU A-9000:

From	To	Value
X-9102 pin K24	**X-9102 pin K25**	There should be **120 Ω**.

   A. If the measured resistances are correct and neither conductor is grounded, check the ECU A-9000 for the appropriate software and re-flash, if necessary.

   B. If the measured resistances are not correct or one or both of the conductors is grounded, see the appropriate vehicle service manual and electrical schematics, if necessary, to locate and restore the termination resistance to the CAN circuit.

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 breaks or shorts in the wiring concerned. Operate the machine while you monitor the display.

   A. If you find damage or the display indicates other than normal display readings, then repair the damage discovered during the inspection or locate and repair the other than normal display condition and verify that the error has been resolved.

   B. If you do not find damage and the display indicates only normal readings, then erase the fault code and continue operation.

Wiring harnesses - Electrical schematic sheet 02 – Engine Control Unit (ECU) power and after treatment system (engine schematics) (55.100.DP-C.20.E.02)

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

DTC 3E3-12-ECU internal failure - Torque request comparison

Control Module : ECU

Context:
The Engine Control Unit (ECU) A-9000 performs a diagnostic comparison of requested engine torque to allowed engine torque. If the ECU A-9000 determines that requested engine torque is greater than maximum allowed torque, this fault will occur.

Solution:

1. Check the ECU A-9000 for the appropriate software and re-flash, if necessary.
   A. If the fault has been resolved, return the machine to service.
   B. If the fault has not been resolved, escalate an ASIST concern.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

DTC 5E3-03-ECU internal failure - Torque request due to fuel pressure exceeds maximum torque limit

Control Module : ECU

Context:
The Engine Control Unit (ECU) A-9000 monitors “lead torque”, which is the input torque request that is calculated for determining fuel pressure. If the ECU A-9000 determines that “lead torque” is less than the limited maximal torque, this fault will occur.

Solution:

1. Check the ECU A-9000 for the appropriate software and re-flash, if necessary.
   A. If the fault has been resolved, return the machine to service.
   B. If the fault has not been resolved, escalate an ASIST concern.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

DTC 78D-03-Throttle valve actuator control circuit over load

Control Module : ECU

Context:
The Engine Control Unit (ECU) A-9000 monitors the throttle valve actuator Z-9001 output 1 and output 2 h-bridge circuits. The ECU A-9000 monitors both circuits for a short circuit condition. If the ECU A-9000 determines that the output 1 circuit and output 2 circuits are shorted together, this fault will occur.

Cause:
The ECU A-9000 has detected a short circuit between the throttle valve actuator Z-9001 output 1 and output 2 h-bridge circuits.

Possible failure modes:

1. Faulty throttle valve actuator Z-9001 h-bridge wiring short circuit.
2. Faulty throttle valve actuator Z-9001, internal failure.
3. Faulty ECU A-9000, software.

Solution:

1. Verify fault is present and active.

   Use the Electronic Service Tool (EST) to check the status of this fault.

   A. If the fault is present and active, continue with Step **2**.

   B. If the fault is no longer present or in an inactive state, the fault may be intermittent and not currently active. Continue with Step **4**.

2. Check the throttle valve actuator Z-9001 h-bridge circuit engine harness (EN) wiring for a short circuit.

   Disconnect the engine harness (EN) from the throttle valve actuator Z-9001 at connector **X-9011**.

   With the key in the OFF position, use a multimeter to perform the following continuity check on the engine harness (EN) side :

From	To	Value
X-9011 pin 2	**X-9011 pin 6**	There should be no continuity.

   A. If there is continuity, there is a short circuit in the throttle valve actuator Z-9001 h-bridge wiring. Locate and repair the shorted conductor.

   B. If there is no continuity, leave connector **X-9011** disconnected and continue to Step **3**.

3. Replace the throttle valve actuator Z-9001.

   Use the Electronic Service Tool (EST) to check the status of this fault.

   A. If the fault is no longer active, return the machine to service.

   B. If the fault is still active, check the ECU A-9000 for the appropriate service manual and re-flash, if necessary.

4. 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 breaks or shorts in the wiring concerned. Operate the machine while you monitor the display.

   A. If you find damage or the display indicates other than normal display readings, then repair the damage discovered during the inspection or locate and repair the other than normal display condition and verify that the error has been resolved.

   B. If you do not find damage and the display indicates only normal readings, then erase the fault code and continue operation.

PREVIEW - YOUFIXTHIS.COM
Download full manual at youfixthis.com

PREVIEW ONLY

You're viewing 25 of 1067 pages

The full manual includes:

- All 1067 pages, complete
- Searchable PDF (find any keyword)
- No watermarks
- Instant download
- Print-ready quality

GET FULL MANUAL NOW

New Holland Workmaster 50, Workmaster 60, Workmaster 70 Repair Manual



Scan or click anywhere
youfixthis.com

Click anywhere on this page to get the full manual