SERVICE MANUAL

T6.125 / T6.145 / T6.155
T6.165 / T6.175 / T6.180
T6.145 AutoCommand™
T6.155 AutoCommand™
T6.165 AutoCommand™
T6.175 AutoCommand™
Tier 4B (final)

Tractor

PIN ZxEx01001 and above

FIXTHIS.COM

Part number 51675244
English
September 2019
Replaces part number 47938738

NEW HOLLAND AGRICULTURE

Engine - Disconnect

T6.125	NA
T6.145	NA
T6.155	NA
T6.165	NA
T6.175	NA
T6.180	NA

Prior operation:
Discharge the air conditioning system, see **Air conditioning - Discharging (50.200)**.
Prior operation:
Disconnect the battery, see **Battery - Disconnect (55.302)**.
Prior operation:
Drain the engine cooling system, see **Engine cooling system - Drain fluid (10.400)**.
Prior operation:
Remove the selective catalytic reduction (SCR) muffler, see **Selective Catalytic Reduction (SCR) muffler and catalyst - Remove (10.500)**.
Prior operation:
Remove the left-hand fuel tank, see **Fuel tank - Remove (10.216)**.
Prior operation:
Remove the coolant control valve, see **Coolant control valve - Remove (10.500)**.

⚠ WARNING

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 could result in death or serious injury.

W0398A

⚠ 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

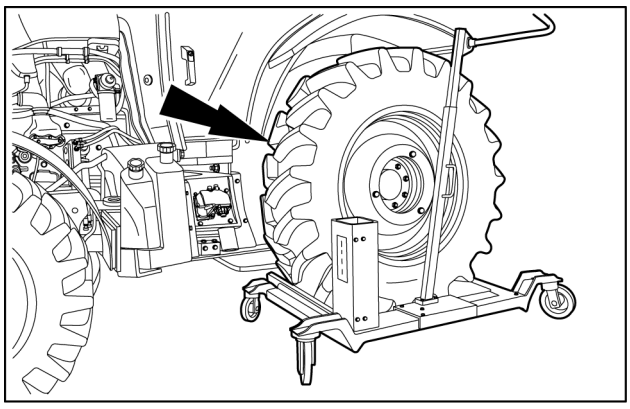
All vehicles

1. **⚠ WARNING**

   Crushing hazard!
   The wheels on this vehicle are very heavy. Always use a wheel remover or chain hoists to remove and install the wheels. Use an assistant as required.
   Failure to comply could result in death or serious injury.

   W0149A

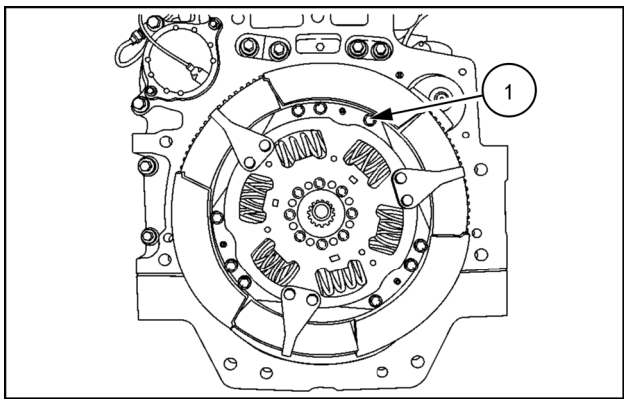
   Install the left-hand rear wheel.



BAIL14TR00881AB 1

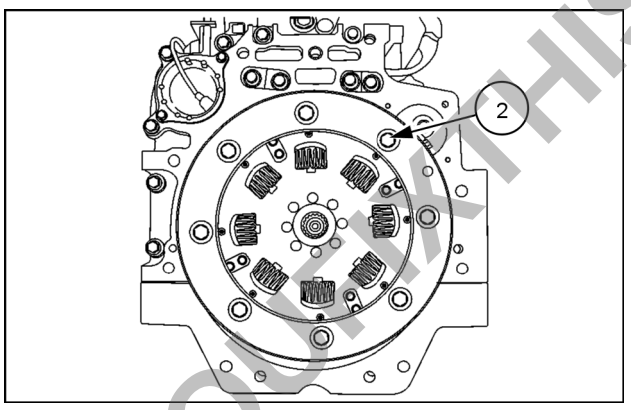
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Flywheel damper - Torque



SVIL14TR00013AA 1

Electronic fuel injection system – 4 cylinder



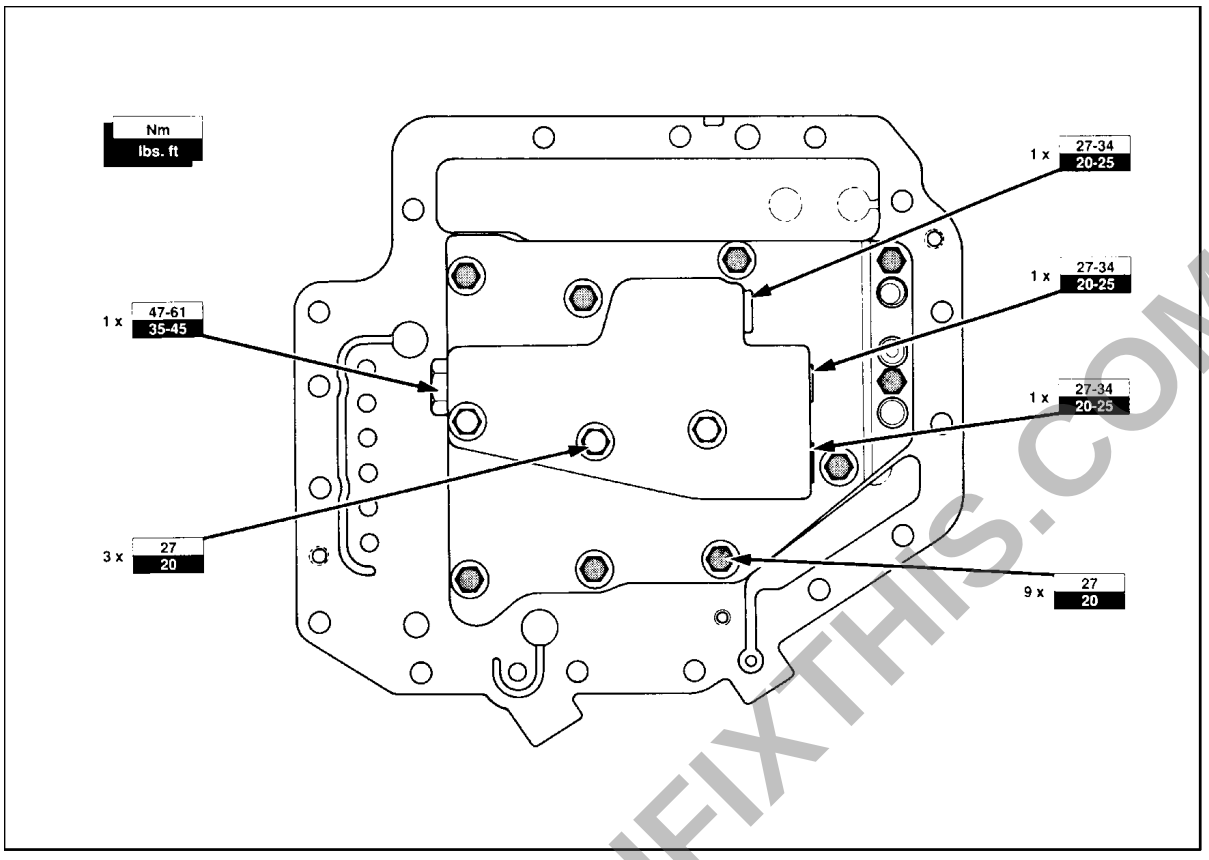
SVIL13TR00001AC 2

Electronic fuel injection system – 6 cylinder

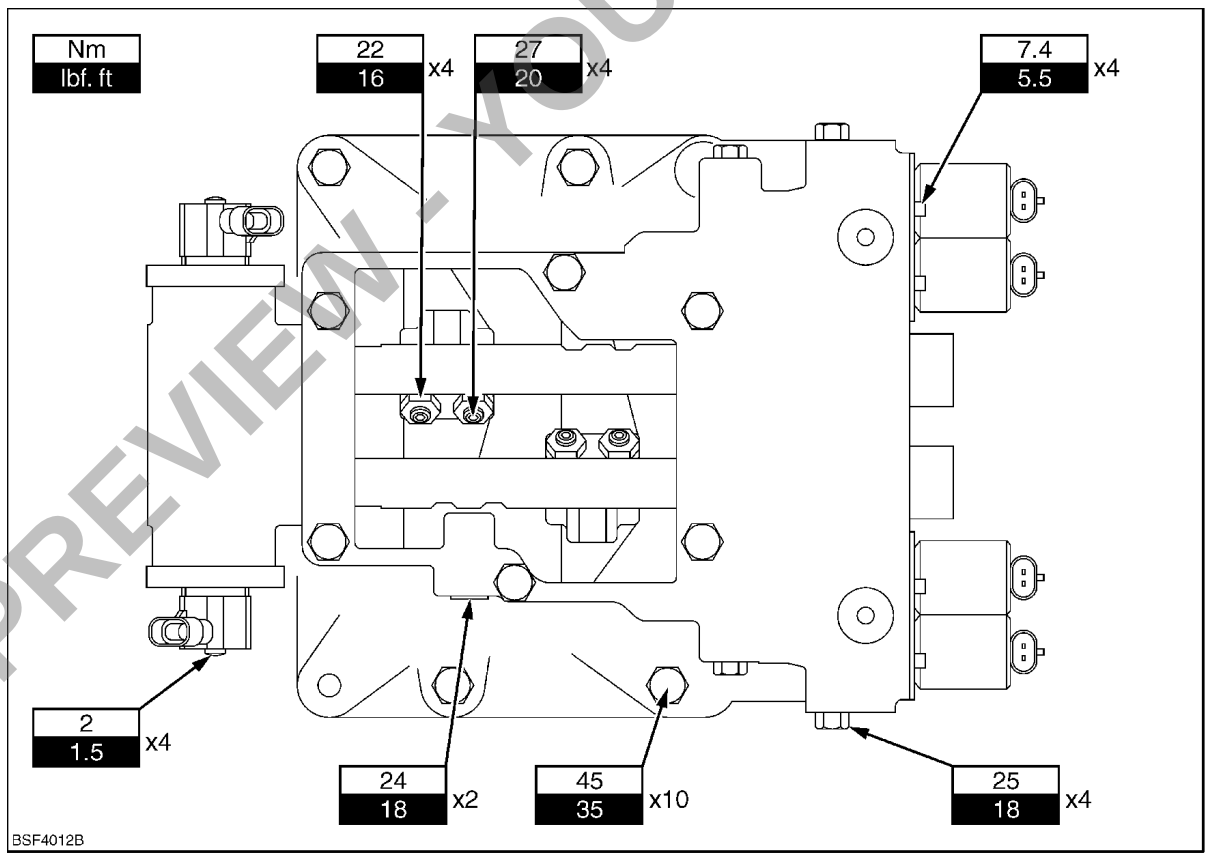
Reference	Description	Torque
1	Bolt	**80 Nm** (**59 lb ft**)
2	Bolt	**88 Nm** (**65 lb ft**)

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1B0O2004061008 3

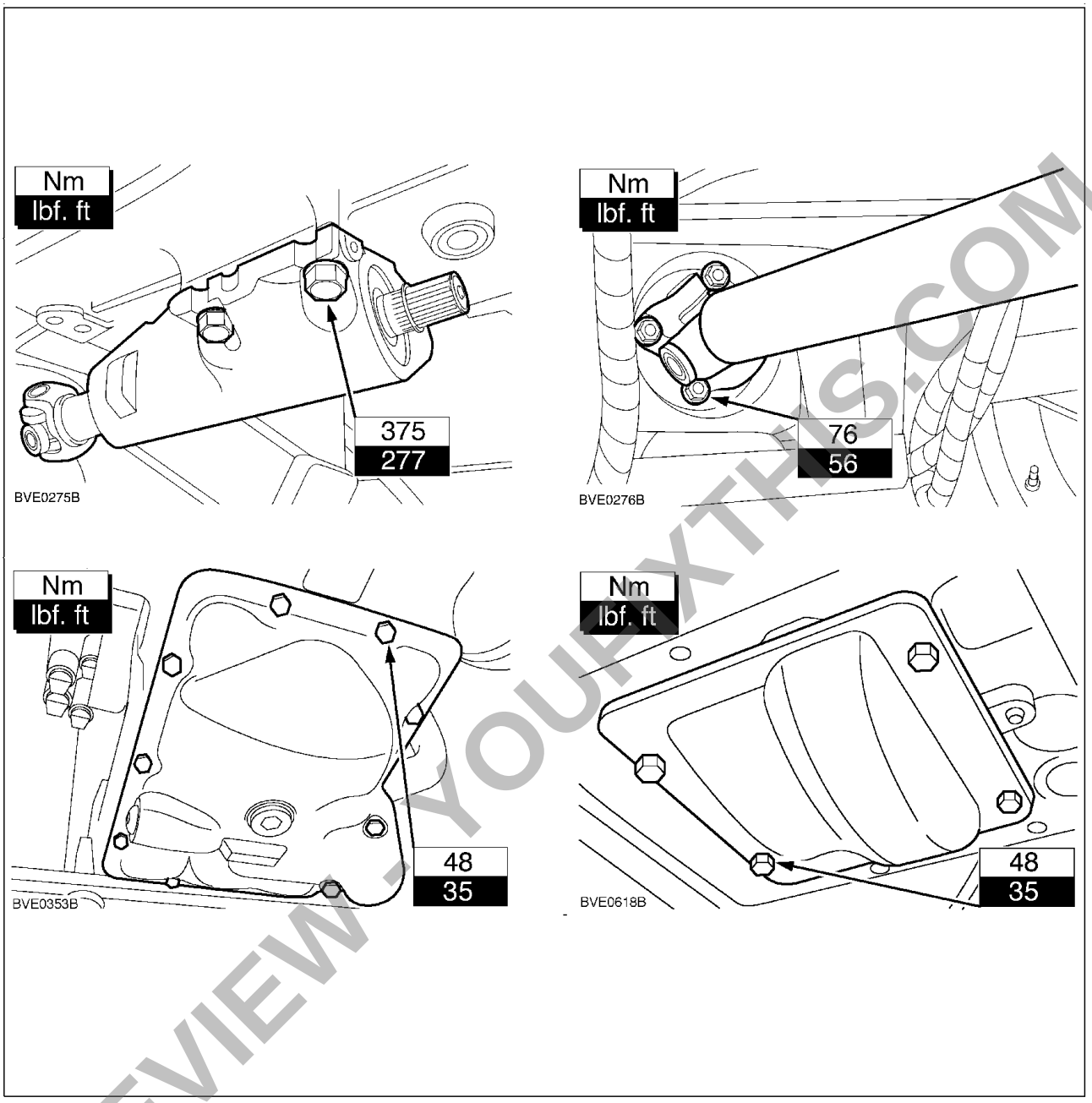


BSF4012B 4

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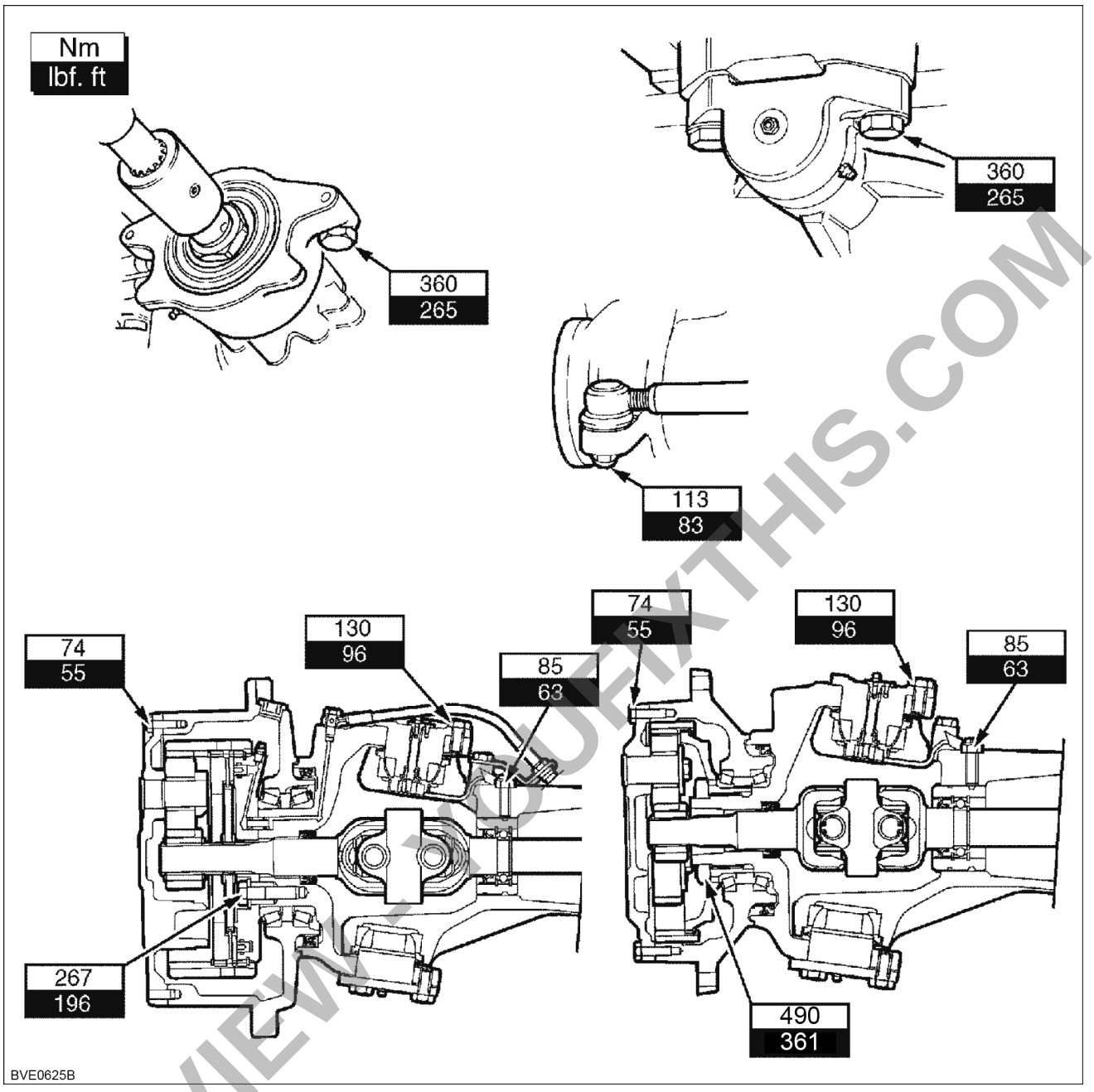
Electro-hydraulic control - Torque



BVE0353B 1

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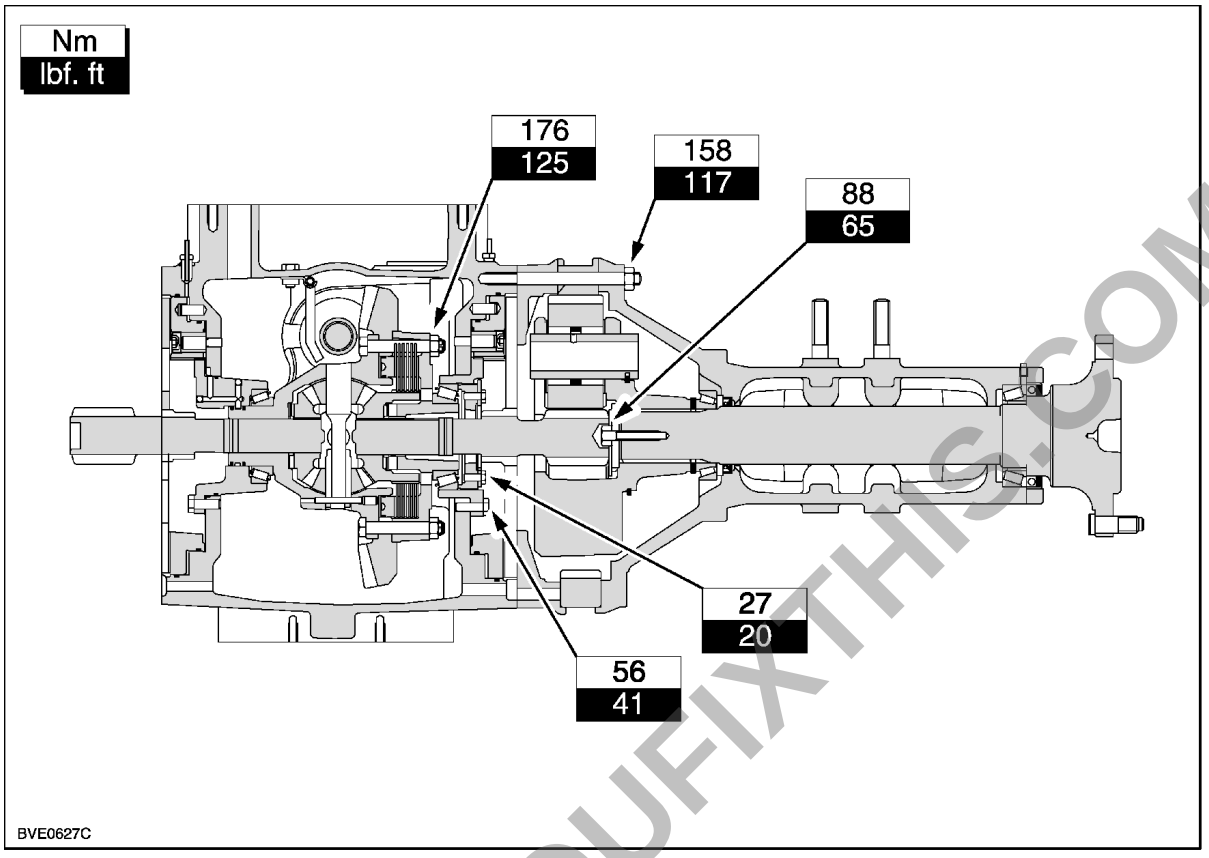


BVE0625B 1

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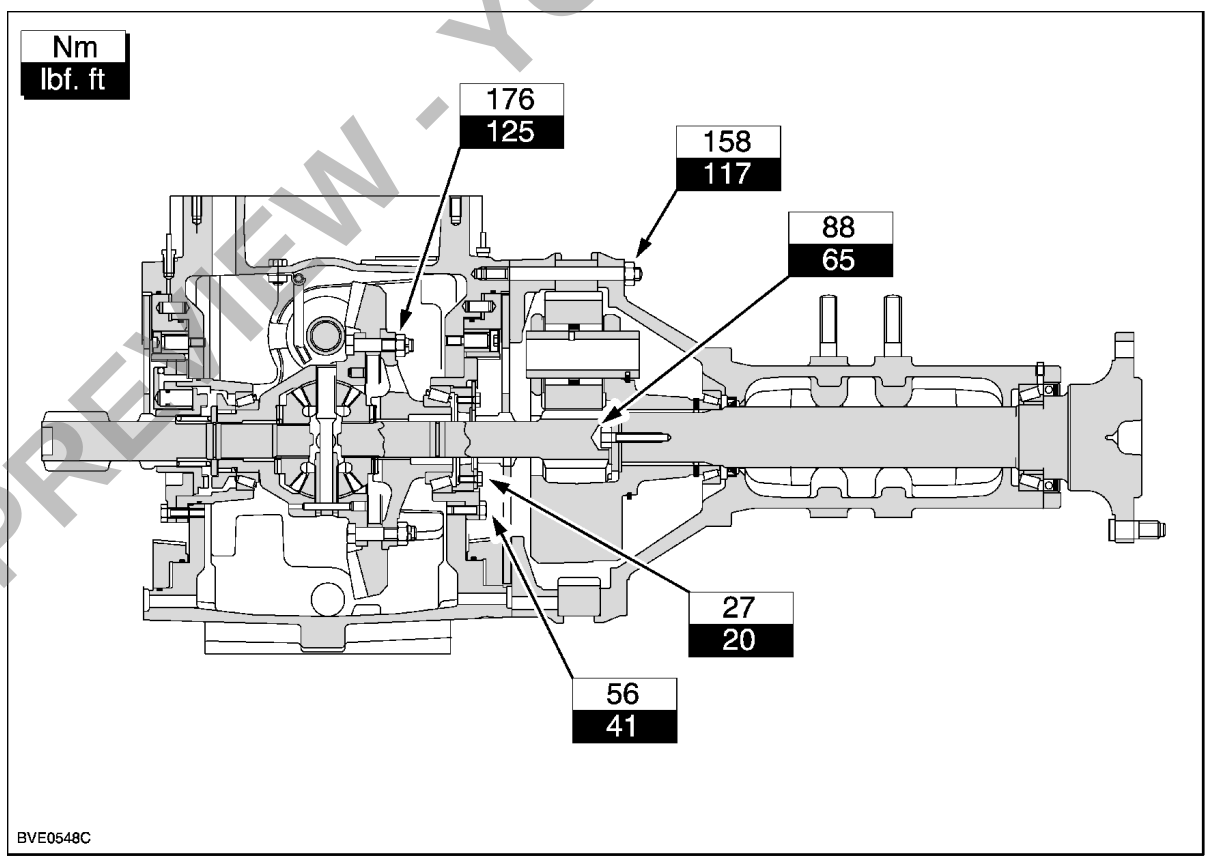
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Powered rear axle - Torque



BVE0627C 1

Rear Axle Cross-Section - Multi-Wet Plate Clutch



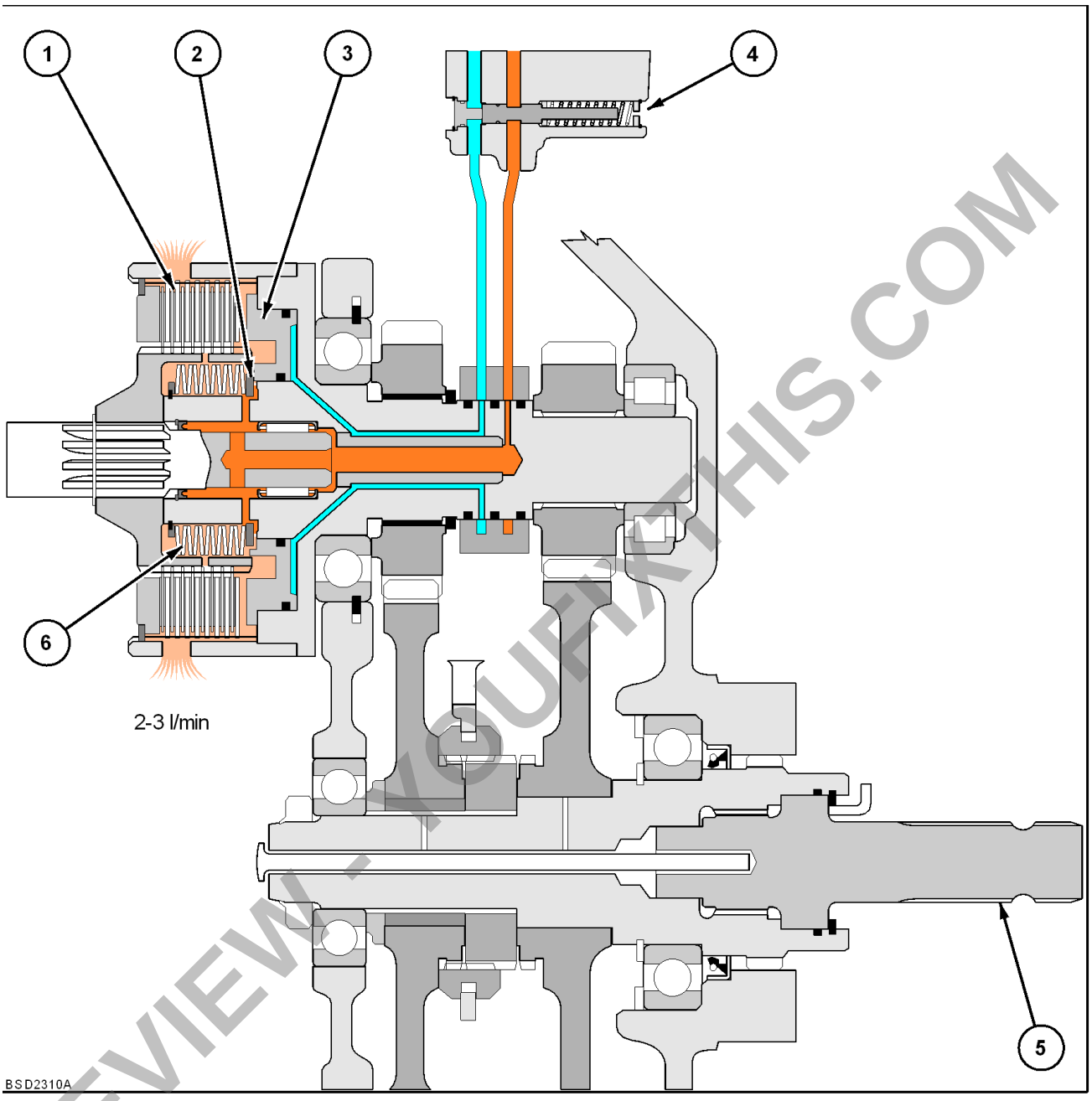
BVE0548C 2

Rear Axle Cross-Section - Dog Clutch

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Rear electro-hydraulic control - Dynamic description



BSD2310A 1

Power Take-Off (PTO) clutch – disengaged

Lubrication circuit oil

Lubrication oil at reduced flow

Return to reservoir

Item	Description	Item	Description
1	Clutch plates	2	Washer
3	Piston	4	Lubrication valve
5	Power Take-Off (PTO) output shaft	6	Bellville springs

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Hydraulic service brakes - Bleed

NOTE: *Air must be bled out whenever carrying out work on the brake hydraulic system.*

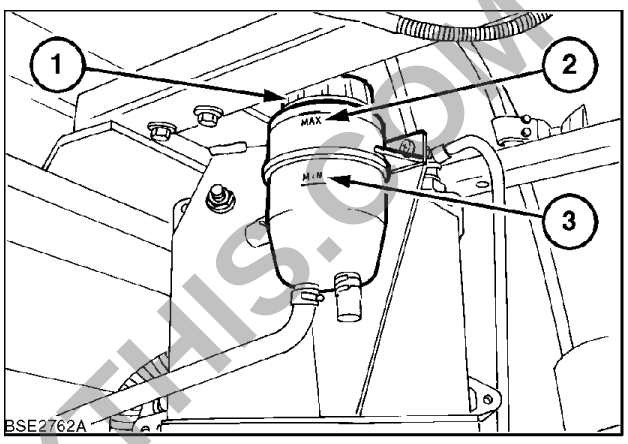
NOTE: *When bleeding the complete brake system, refer to* ***7*** *for the complete brake system air bleeding sequence.*

NOTE: *Make sure the vehicle is on a level surface.*

General Brake System Air Bleeding

1. Thoroughly clean around all bleed screws and the brake fluid reservoir cap **(1)**.
   Install one end of a suitable bleed tube to the bleed screw, and the other end into a bleed jar containing a small quantity of brake fluid.
   Open the bleed screw.
   Operate the brake pedal(s) fully, and allow the brake pedal to return to the rest position.

NOTE: *The brake fluid reservoir fluid level must remain above the 'MIN' line (3) at all times during brake system air bleeding.*



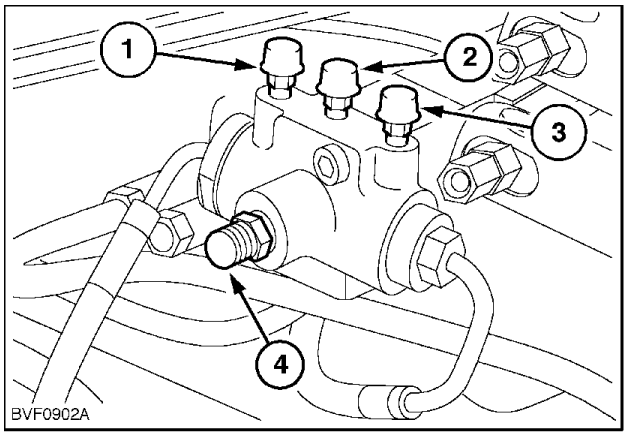
BSE2762A 1

2. Continue operating the brake pedal(s) until air-free fluid is seen entering into the bleed jar.
3. Fully depress the brake pedal(s) and tighten the brake bleed screw.
4. Operate the brake pedals fully several times to pressurize the brake system.
5. Refill the brake fluid reservoir to the 'MAX' line **(2)** (figure **1**).

NOTE: *Make sure the bleed screw cap(s) are installed after brake system air bleeding. This will prevent corrosion and dirt ingress to the bleed screw. Failure to follow this instruction may cause the bleed screw(s) to become seized.*

Rear Service Brake and Trailer Brake Bleeding

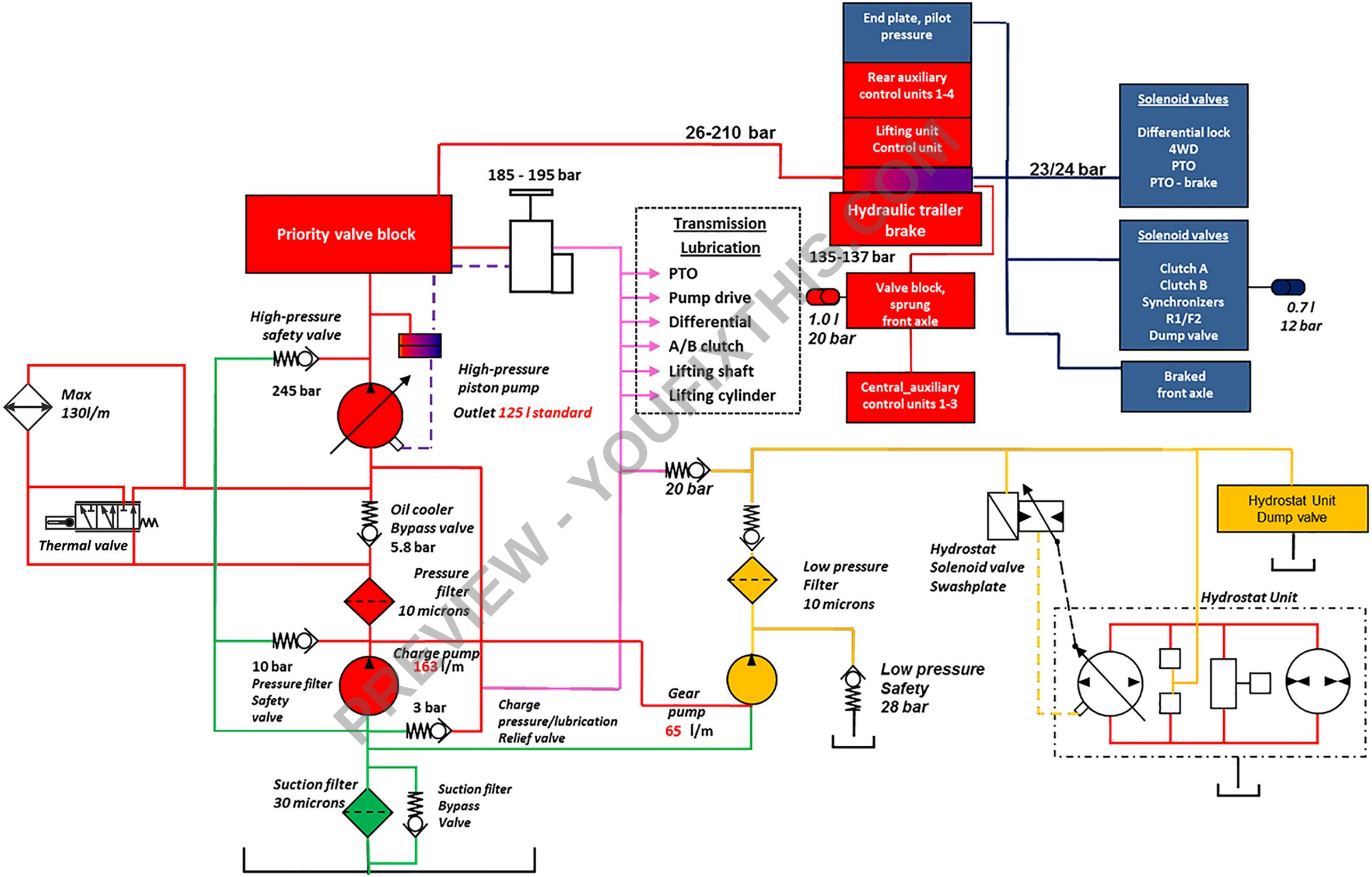
6. Open the corresponding bleed screw by one-half turn in the sequence below on the trailer brake valve logic head. Bleed the air from the brake system at each bleed screw (refer to general brake system air bleeding in this chapter).
   1. Left brake pedal to bleed air from the system.
   3. Right brake pedal to bleed air from the system.
   4. Both brake pedals must be latched together to bleed air from the system.
   2. Both brake pedals must be latched together to bleed air from the system.



BVF0902A 2

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SVIL16TR00672JA 1

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Top link arm - Install

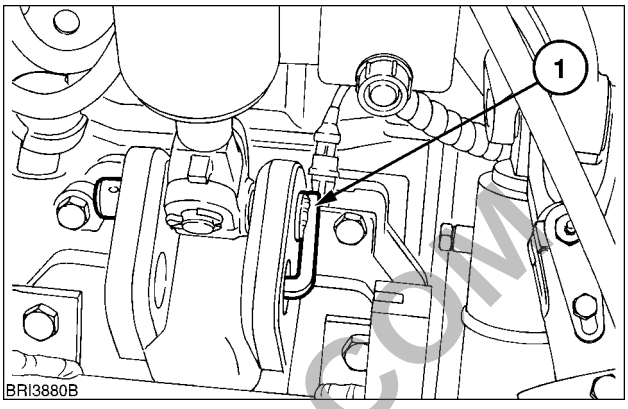
1. Locate the clevis hole of the top link with the hole in the bracket on the rear axle.

⚠ WARNING ⚠

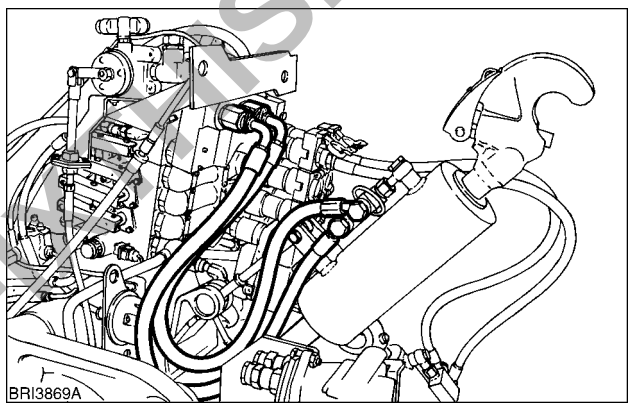
Lift and handle all heavy components using lifting equipment of appropriate lifting capacity. Make sure that units or parts are supported by suitable slings or hooks. Make sure that no-one is in the vicinity of the load to be lifted. Failure to comply could result in serious injury or death.

B012

2. Slide the pin **(1)** through the hole and secure with the retaining clip.
3. Reattach the oil supply hoses.



BAIL07APH395ASA 1



BAIL07APH390ASA 2

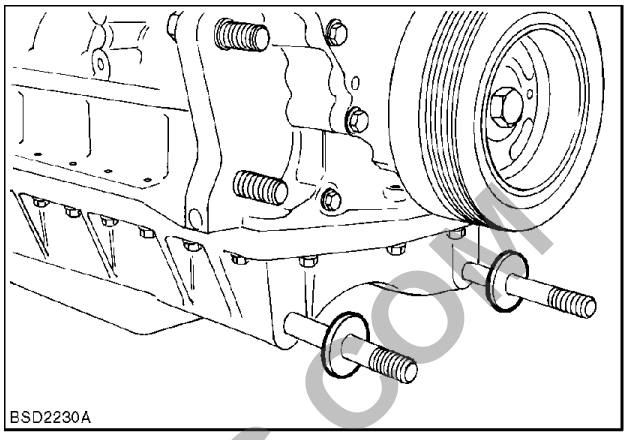
4. Lock into position using the locking handle.

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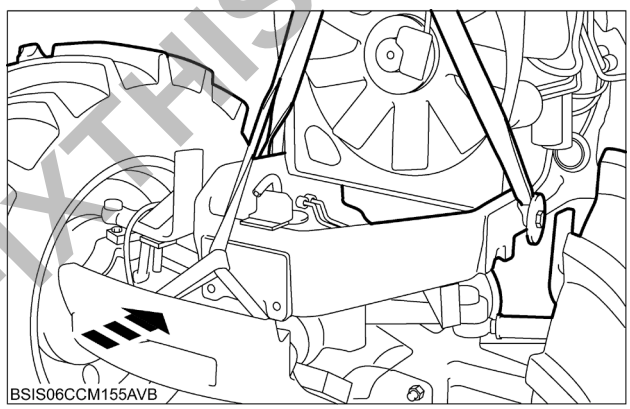
Front frame - Clearance

1. Install a 4.5 mm yellow shim, part number 82026240, onto each of the engine sump mounting studs.



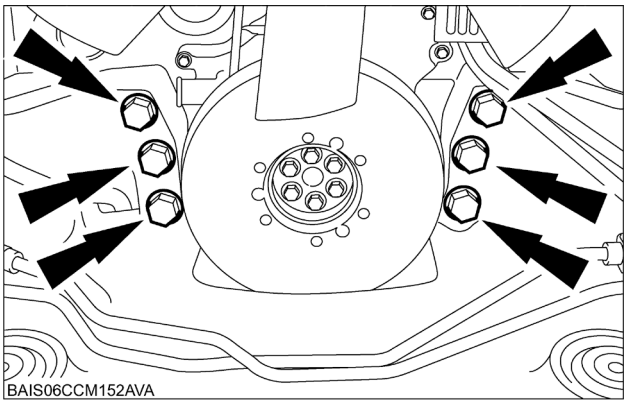
BSD2230A 1

2. Align the front support to the engine.



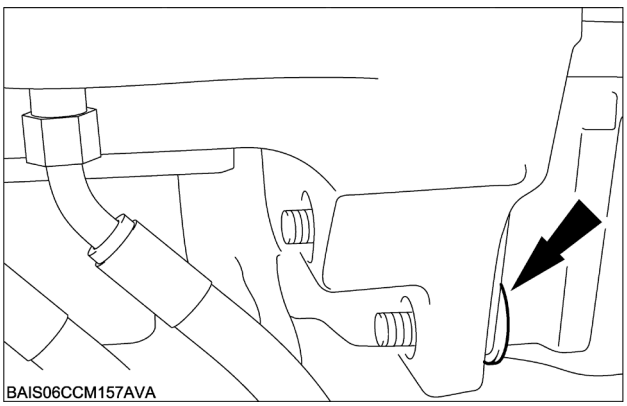
BAIS06CCM155AVB 2

3. Install the front support to engine upper retaining bolts. Tighten to the specified torque value.



BAIS06CCM152AVA 3

4. Using feeler gauges measure the gap between each shim and the front support.



BAIS06CCM157AVA 4

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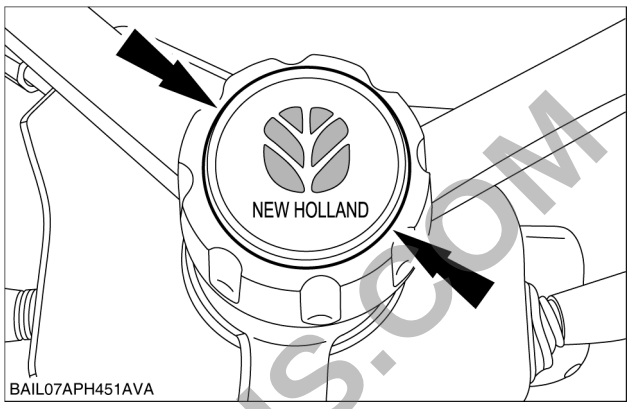
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Power steering wheel - Remove Steering Wheel - Standard

NOTE: *Make sure that the road wheels are in the straight ahead position.*

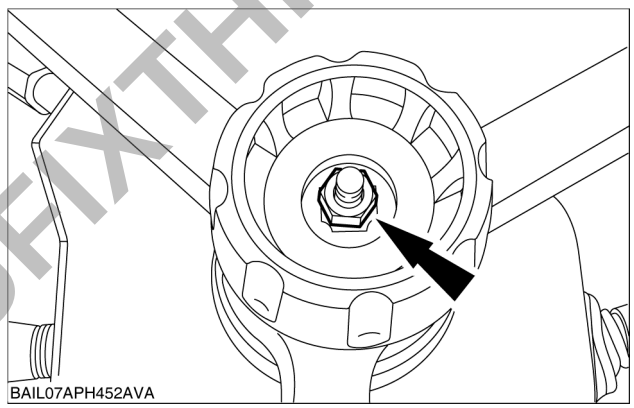
NOTE: *Lock the steering column in the down position.*

1. Remove the steering wheel centre cap.



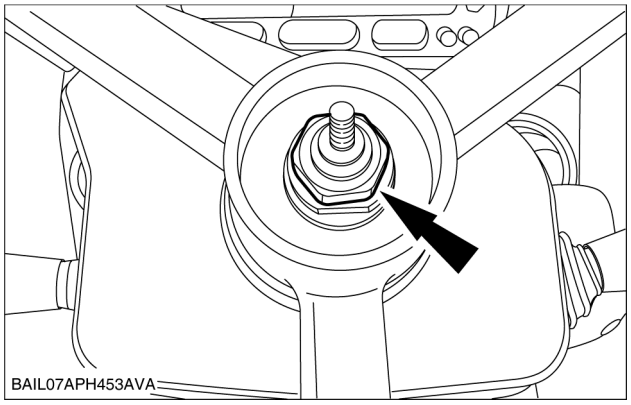
BAIL07APH451AVA 1

2. Remove the steering wheel boss.



BAIL07APH452AVA 2

3. Loosen the steering wheel retaining nut.



BAIL07APH453AVA 3

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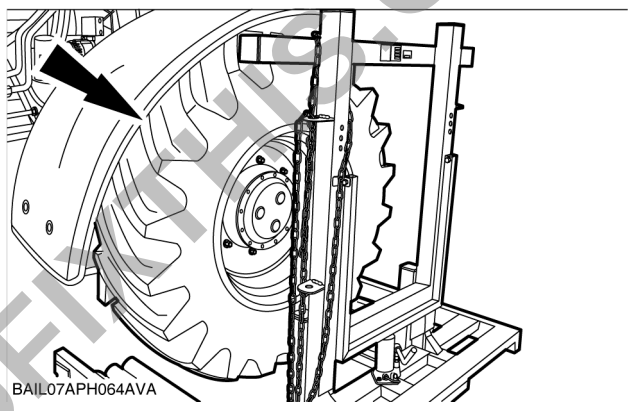
Front wheels - Remove

⚠ WARNING

Crushing hazard!
The wheels on this vehicle are very heavy. Always use a wheel remover or chain hoists to remove and install the wheels. Use an assistant as required.
Failure to comply could result in death or serious injury.

W0149A

1. Raise and support the front of the vehicle
2. Remove the front wheels.



BAIL07APH064AVA 1

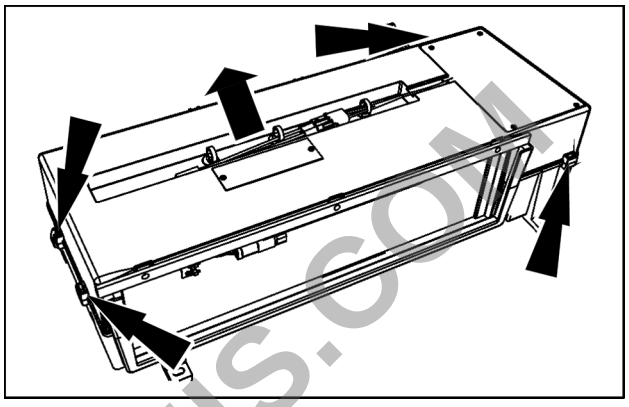
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Heater core - Remove

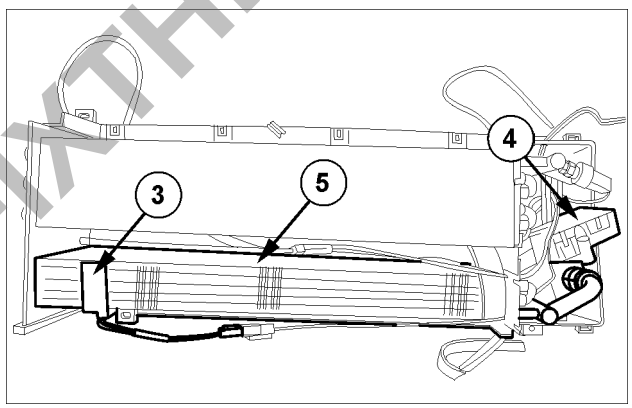
Prior operation:
Heating, Ventilation, and Air-Conditioning (HVAC) unit - Remove (50.100)

1. Remove the mounting bolts from the rear air duct.
2. Remove the air duct.
3. Remove the four retaining clips from the housing.
4. Take off the top part of the housing.



SS14D009 1

5. Remove the air outlet temperature sensor **(3)** and the electric heat valve **(4)**.
6. Remove the heater radiator **(5)**.



SS08D016 2

Next operation:
Heater core - Install (50.100)

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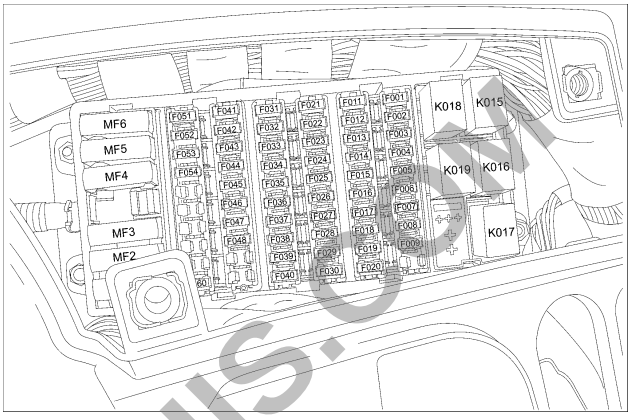
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Electrical system - Static description - Circuit components

NOTE: *The chapters dealing with electrical components refer to the state of these components (e.g. normally open state or normally closed state of a switch). These references to the state of an electrical component are always to be considered with the machine in stationary state (the component is disconnected from the circuit).*

CIRCUIT PROTECTION DEVICES

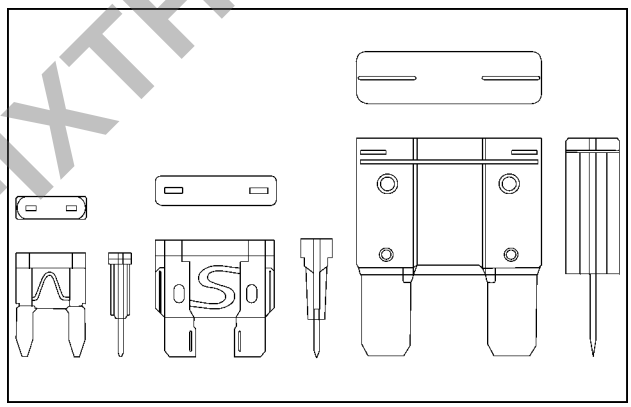
Circuit protection devices are used to protect wiring and components from excessive current. Fuses protect electrical circuits with thin pieces of metal or wire which heat up and melt to open up the circuit when too much current flows through them. In the automotive industry the fuses are mostly located in fuse boxes (see figure **1**).



SS11M174 1

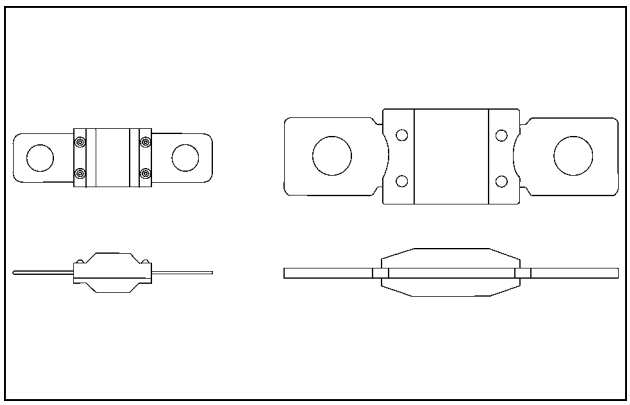
Fuses

Fuses are used to protect the electrical circuit from overload. This can occur in the event of a short circuit or by connecting equipment which demands a current greater than the electrical circuit is designed to carry. There are several types of fuses, but they all consist of a metal conductor which is capable of carrying a limited current. If the specified current is exceeded then the metal conductor will overheat, causing it to melt and break. This will cause an open circuit.



SVIL13TR00281AB 2

In the automotive industry used fuse types are blade fuses (see figure **2**) and screwable fuses (see figure **3**). The rating of the fuse relates to the current that the fuse can carry continuously. If a fuse blows, it must be replaced with a fuse of the correct rating. If a fuse blows again, the cause must be investigated.



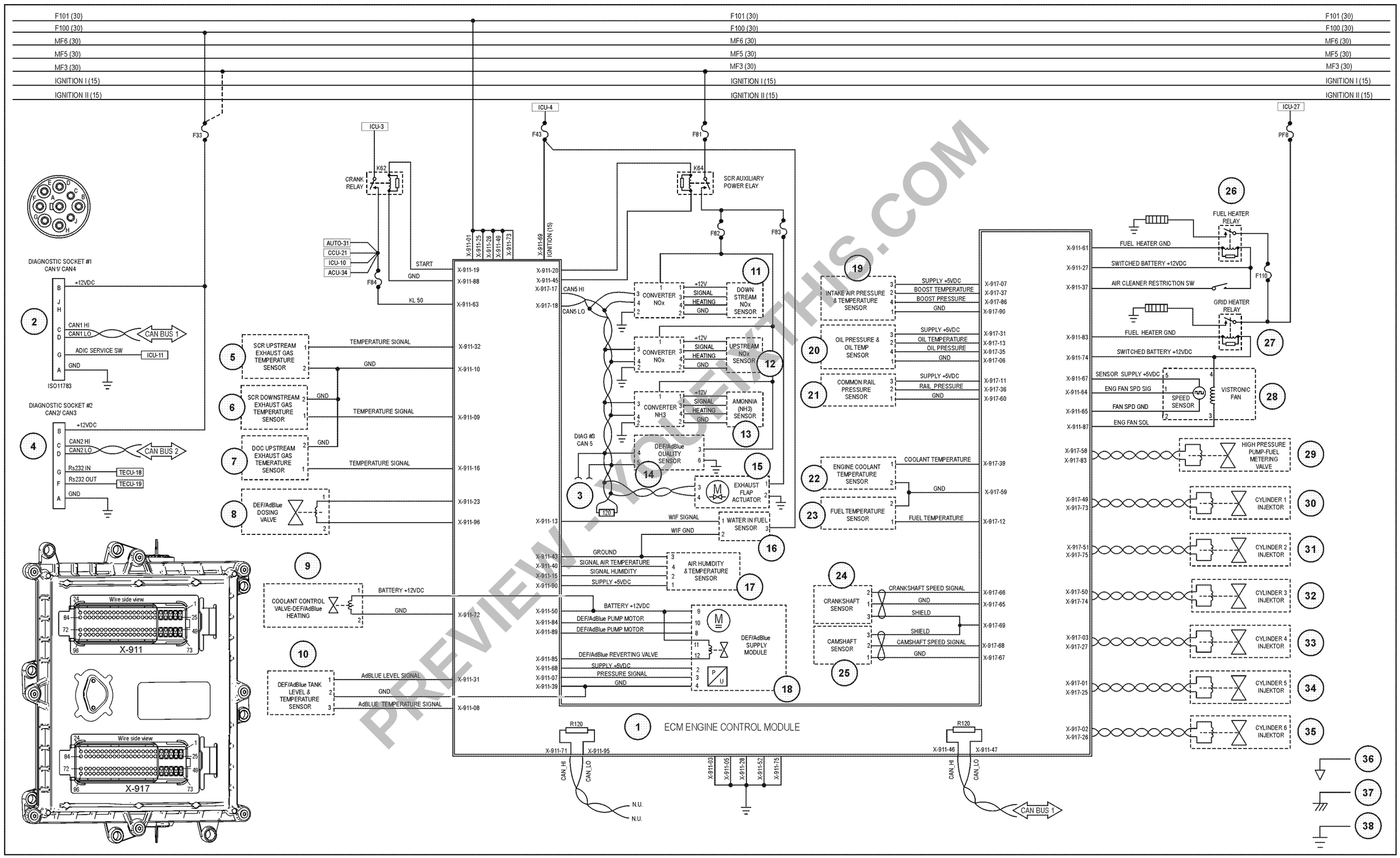
SVIL13TR00280AB 3

Fusible links

A fusible link is a wire that acts like a fuse. A fusible link is breaking down and causing an open circuit when the current that passes through it exceeds a certain amperage. For primary fuse protection the main supplies from the starter solenoid can be fitted with fusible links.

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SVIL18TR01575JA 1

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Electronic module - Configure H-Menu Overview

T6.125	NA
T6.145	NA
T6.155	NA
T6.165	NA
T6.175	NA
T6.180	NA

ECU Names and Identifiers

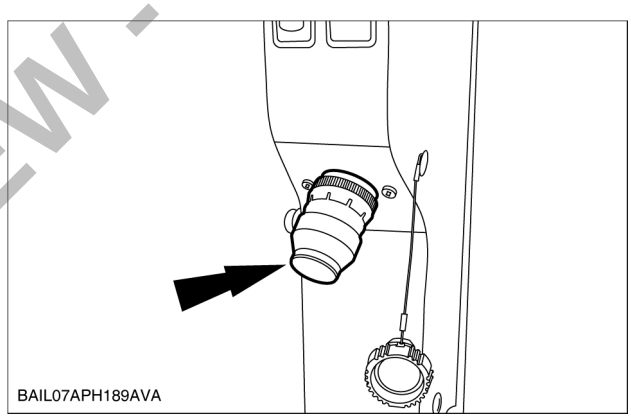
Each of the electronic control modules fitted to the vehicle has an associated identifier that is used by the instrument cluster during the H menu diagnostics procedures. Throughout this document the modules are referred to using these identifiers. The following table lists all the modules accessible from the H menu diagnostics, its function and the corresponding identifier used by the instrument cluster.

Identifier	Controller name	Controller functions
HW	Enhanced Analogue Digital Instrument Cluster (ADIC)	Instrument cluster
HV	Basic ADIC	Instrument cluster
JA	Enhanced keypad	Keypad
KA	Steering controller	Steering control
R1	16x16 Central controller	16x16 Transmission, Electronic Draft Control (EDC), Engine, Rear PTO, Front Wheel Drive, Differential Lock
R2	Auxiliary controller	Suspended Front Axle, Rear Electronic Hydraulic Remote Valves, Front PTO, Front Hitch

Introduction

The “H" menu mode is part of the on-board diagnostics, providing configuration and diagnostic support through the resources available on the system.

To gain access to the diagnostic “H" menu mode routine, it is necessary to use the diagnostic test switch, special tool **380000843** in the tractor diagnostic connector. The main diagnostics connector is located in the cab on the right hand side rear pillar behind the operators seat.



BAIL07APH189AVA 1

The ADIC dot matrix display **(1)** and the lower central display **(2)** are used to indicate the information for the “H" menus.

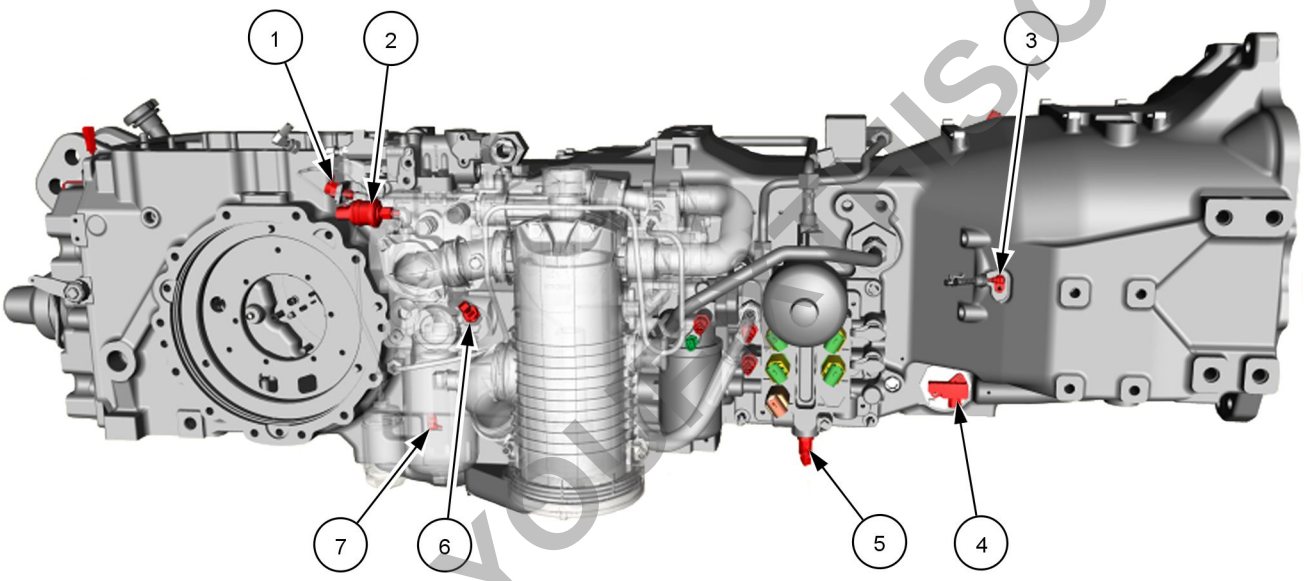
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Transmission control system - Overview - Sensors and solenoid valves

T6.145 AutoCommand™	NA
T6.155 AutoCommand™	NA
T6.165 AutoCommand™	NA
T6.175 AutoCommand™	NA

Sensors and solenoid valves



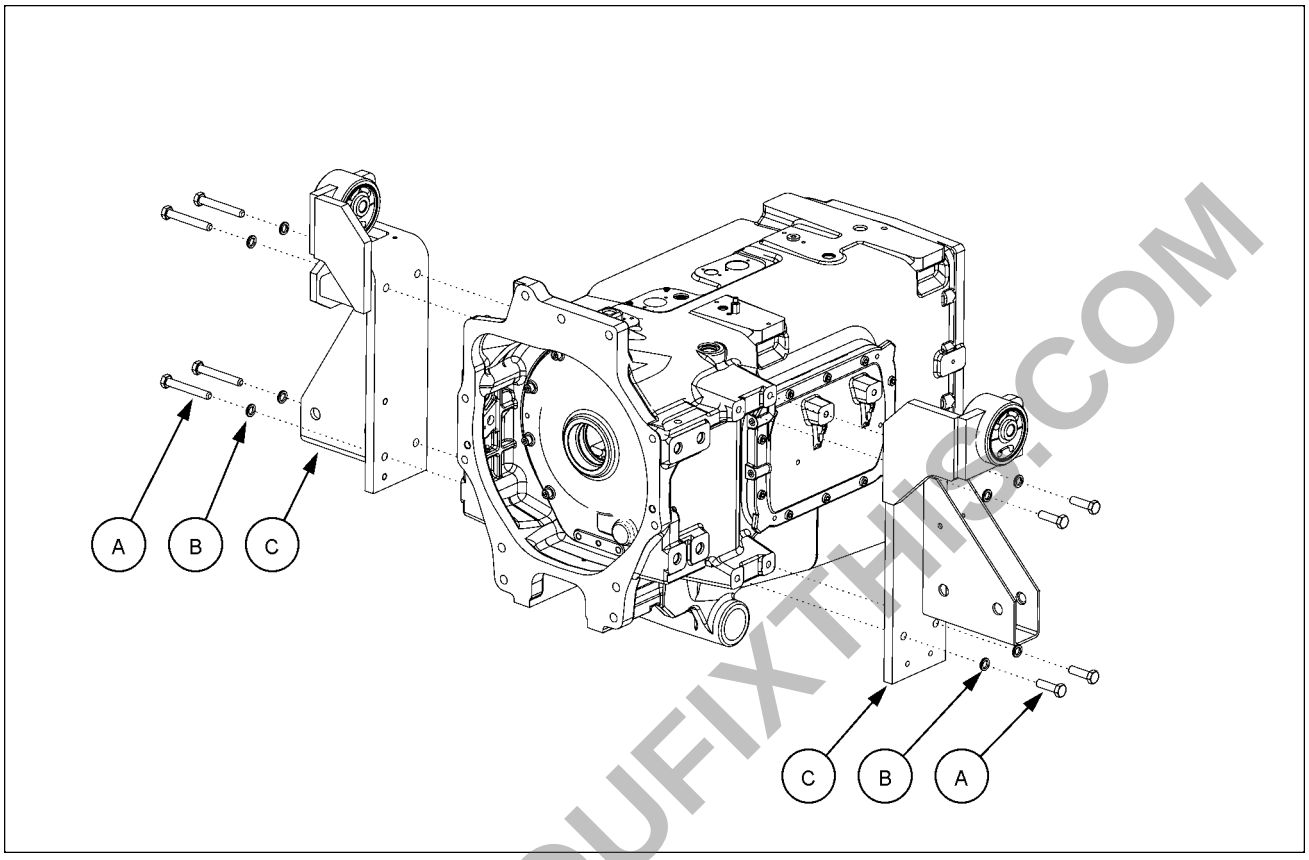
SS14M022 1

Item	Description
1	Ground Power Take-Off (PTO) switch
2	Filter vacuum switch
3	Hydro out (Ring) speed sensor
4	Synchronizer F2/R1 position sensor
5	Transmission oil pressure transducer
6	Piston pump boost pressure switch
7	Transmission output speed sensor 1

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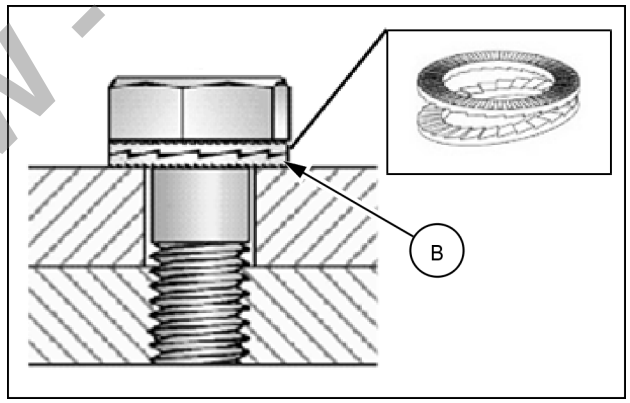
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Cab front mounts - Torque



SVIL16TR00238FA 1

NOTICE: *Depending on the day of manufacturing the tractor is fitted with standard washers or with Nord-Lock® washers* ***(B)****. If you detach the cab front mounts* ***(C)*** *you have to replace the standard washers with the self-locking Nord-Lock® washers* ***(B)*** *due to the fact that the standard washers do not maintain the correct bolt torque.*



SBAG14178ZED02 2

Nord-Lock® washer

Torque		
Bolt dimension **(A)**	Standard washer	Nord-Lock® washer
M14	**195 N·m** (**144 lb ft**)	**112 N·m** (**83 lb ft**)
M16	**300 N·m** (**221 lb ft**)	**175 N·m** (**129 lb ft**)

NOTE: *Depending on the type of the tractor the cab front mounts are fixed with M14 or with M16 bolts* ***(A)****.*

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SPECIAL TOOL INDEX

Genuine	Reference	PAGE
380003352 [Tractor Splitting Stand]	Engine - Disconnect	10.1 / 16
380003352 [Tractor Splitting Stand]	Engine - Disconnect	10.1 / 17
380003352 [Tractor Splitting Stand]	Engine - Disconnect	10.1 / 17
380003352 [Tractor Splitting Stand]	Engine - Disconnect	10.1 / 17
380003352 [Tractor Splitting Stand]	Engine - Disconnect	10.1 / 17
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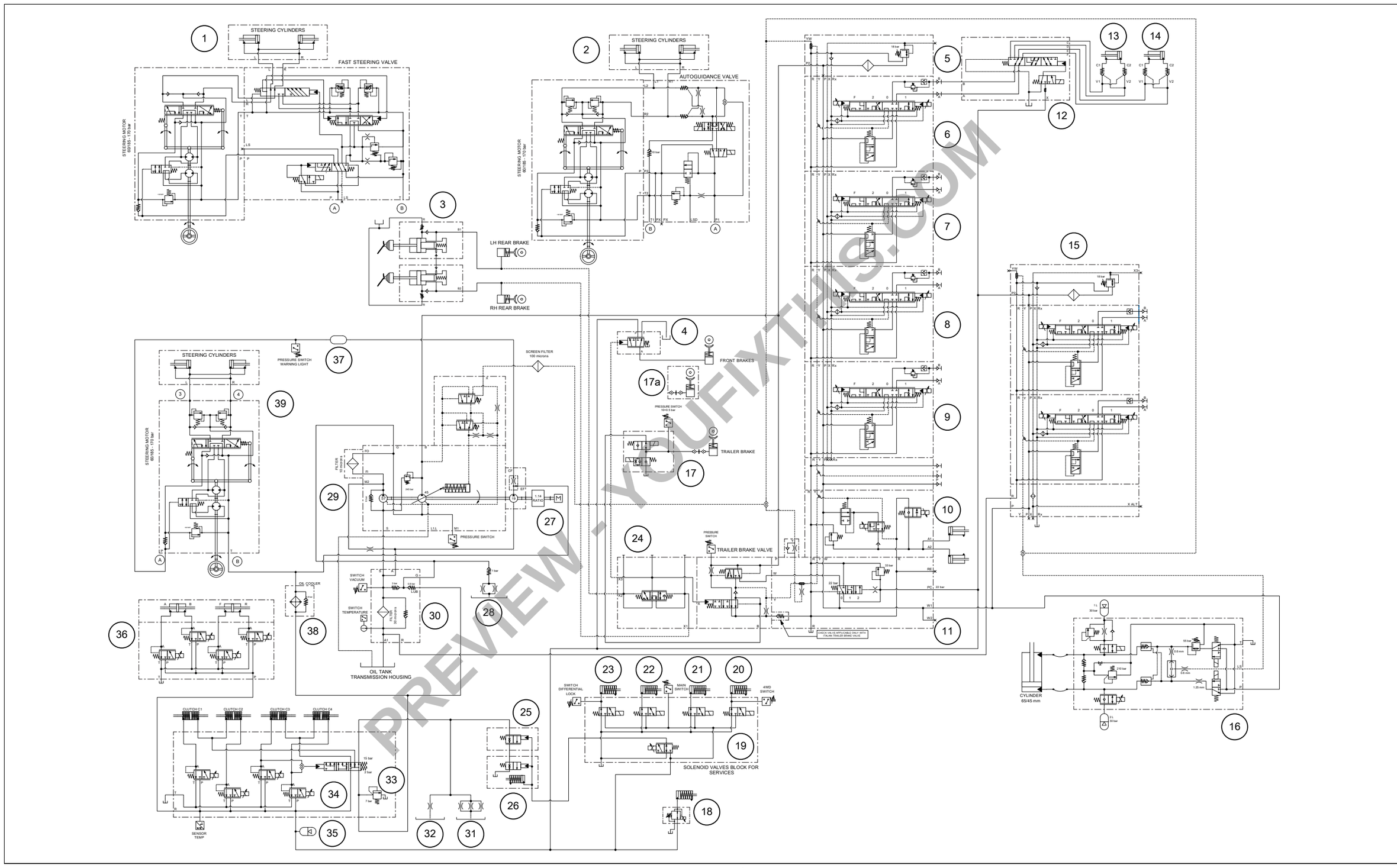
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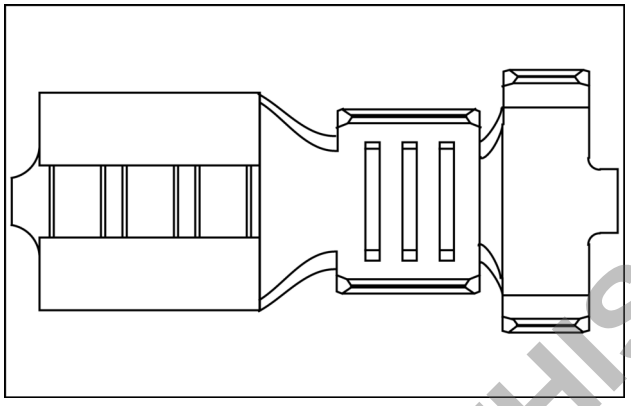
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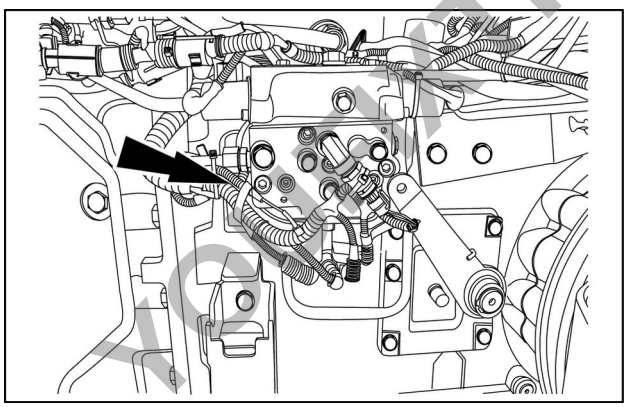
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T6.125, T6.145, T6.155, T6.165, T6.175, T6.180 – Advanced armrest with Multi-function handle

CONNECTOR X-283 - On harness 47746441			
PIN NUMBER	**WIRE NUMBER**	**CIRCUIT REFERENCE**	**ELECTRICAL SCHEMATIC FRAME**
1	TM-2012 (YE)	From X-283 to **X-020**	**Wiring harnesses - Electrical schematic sheet 24 (55.100)**



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Left-hand side top of the rear axle

CONNECTOR X-285 - Reverse synchronizer solenoid valve

LESS Electro Hydraulic Remote (EHR) valves

T6.125, T6.145, T6.155, T6.165, T6.175, T6.180 – Basic armrest

CONNECTOR X-285 - On harness 47725726			
PIN NUMBER	**WIRE NUMBER**	**CIRCUIT REFERENCE**	**ELECTRICAL SCHEMATIC FRAME**
1	TR-8040 (LG)	From X-285 to **X-022**	**Wiring harnesses - Electrical schematic sheet 16 (55.100)**
2	TR-8045 (VT)	From X-285 to **X-022**	

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2124 - Flywheel speed sensor not calibrated

T6.125	NA
T6.145	NA
T6.155	NA
T6.165	NA
T6.175	NA
T6.180	NA

Control Module: CCU

NOTE: *When the cause of the error code has been rectified, clear the error code and test the system for normal operation.*

Possible failure modes:

1. Flywheel speed sensor not calibrated
2. Faulty Central Control Unit (CCU)

Solution:

1. Check if the flywheel speed sensor was calibrated.

   A. If the flywheel speed sensor was not calibrated after a change of the controller or after using H8, clear the non-volatile memory (EEPROM). Perform the transmission calibration procedures, refer to **Electronic module Central Control Unit (CCU) - H1 - Calibration procedures (55.640)**.

   B. If the flywheel speed sensor was calibrated, perform the flywheel speed sensor calibration procedure, refer to **Electronic module Central Control Unit (CCU) - H1 - Calibration procedures (55.640)**.

   C. If the error code recurs, download the correct level of software and re-perform the calibration procedures.

   D. If the fault recurs again, remove and replace the CCU.

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