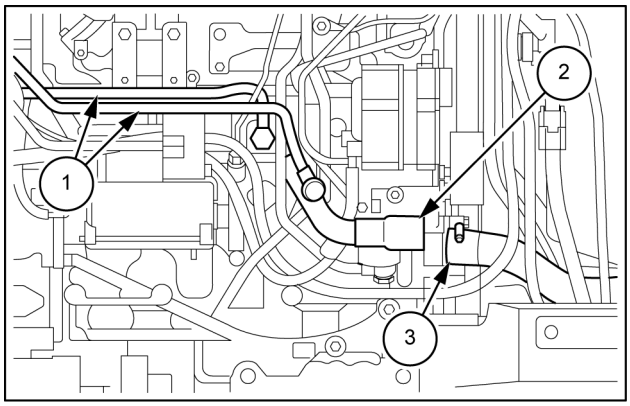
SERVICE MANUAL

T4.90 / T4.100 / T4.110 / T4.120
Tier 4B (final)
Tractor

Part number 47878245
1st edition English
June 2015

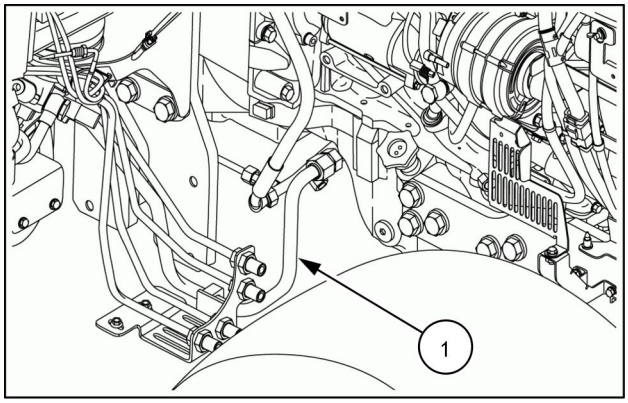
NEW HOLLAND AGRICULTURE

28. Refit the two supply and return lines to the cab heater **(1)** and the pipe **(3)** inserted on the lower sleeve coming from the expansion tank. Refit the upper and lower sleeves **(2)** of the engine radiator connection. Secure the straps and clamps tightening the pipes.



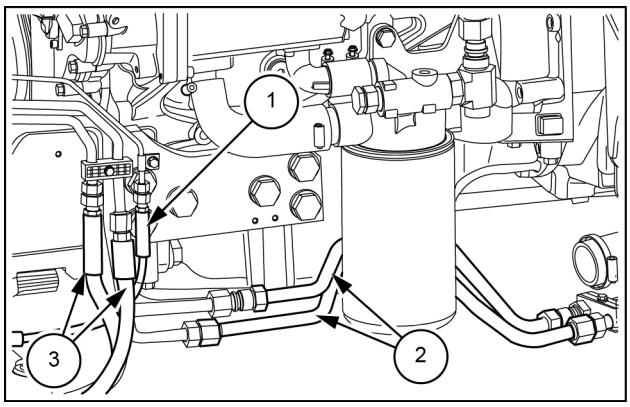
MOIL13TR01739AB 16

29. Reconnect the drain tube **(1)** of the control valve for the power steering.



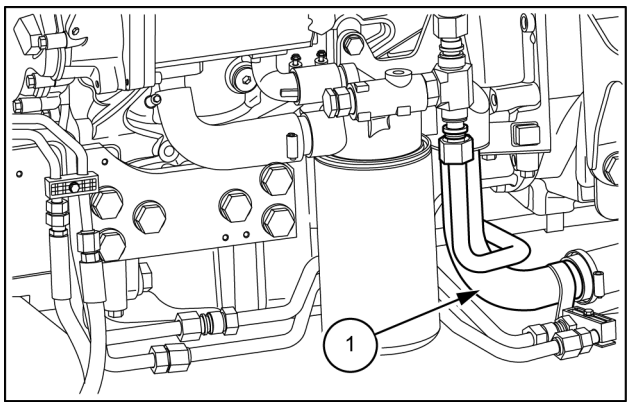
MOIL14TR00613AA 17

30. Refit the two pipes **(2)** of the heat exchanger and, if present, of the front braking assembly **(1)**. Reconnect the lines directed to the cylinder **(3)**.



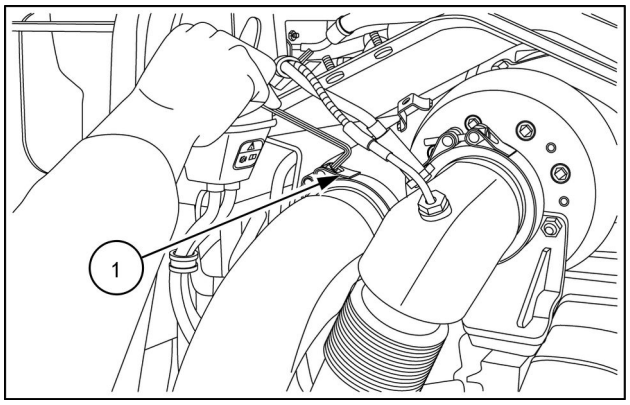
MOIL13TR01800AA 18

31. Reconnect the oil suction line from the transmission **(1)**.



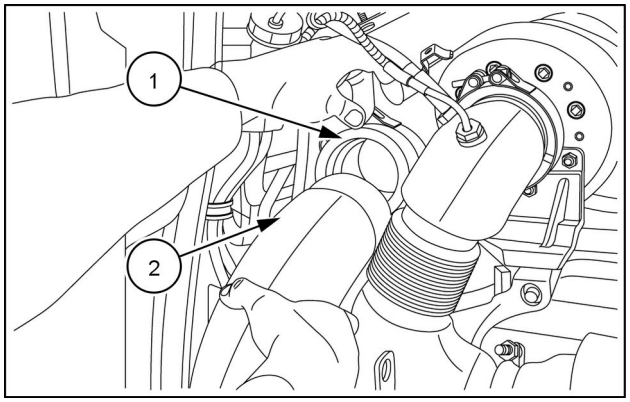
MOIL14TR00846AA 19

6. Loosen the clamp **(1)** retaining the exhaust pipe on the diesel oxidation catalyst (DOC).



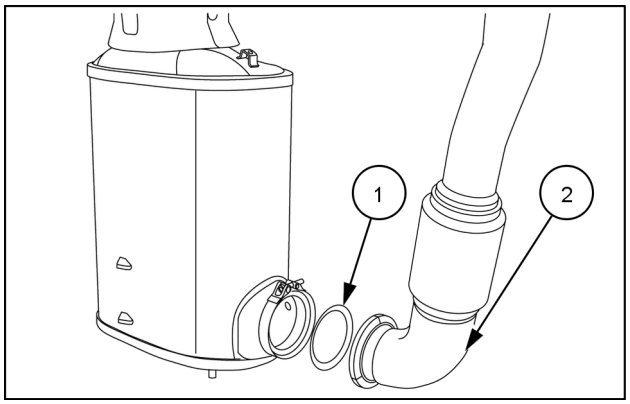
MOIL15TR00742AA 4

7. Move the exhaust pipe **(2)** and recover the gasket **(1)**.



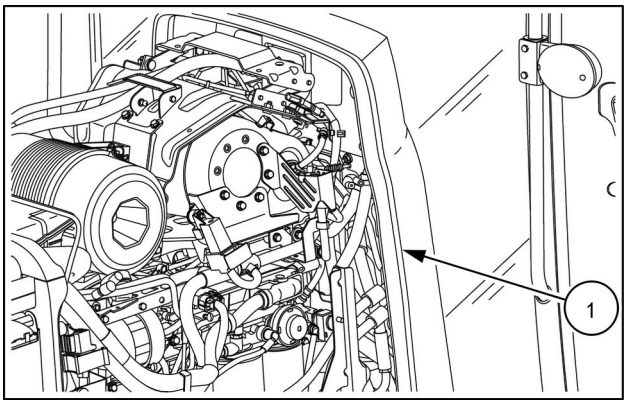
MOIL15TR00743AA 5

8. Remove the exhaust pipe **(2)** and recover the gasket **(1)**.



MOIL15TR00744AA 6

5. Refit the seal **(1)** of the hood.



MOIL14TR00727AA 5

Next operation:
Radiator - Change fluid (10.400).

Accessory belt - Tension adjust

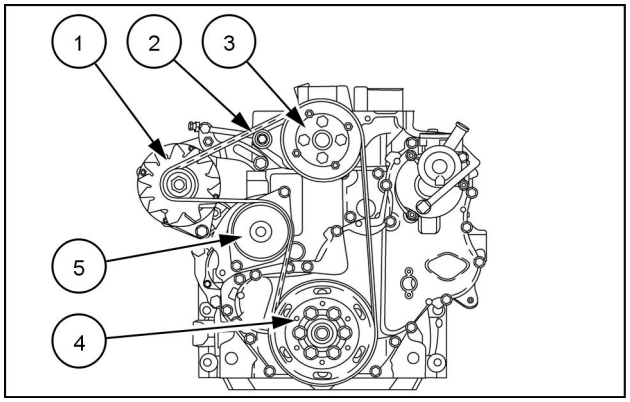
T4.100 without cab, with Dual Command™ transmission	
T4.100 without cab, with mechanical or Power shuttle transmission	
T4.110 without cab, with Dual Command™ transmission	
T4.110 without cab, with mechanical or Power shuttle transmission	
T4.120 without cab, with Dual Command™ transmission	
T4.120 without cab, with mechanical or Power shuttle transmission	
T4.90 without cab, with Dual Command™ transmission	
T4.90 without cab, with mechanical or Power shuttle transmission	

⚠ 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.

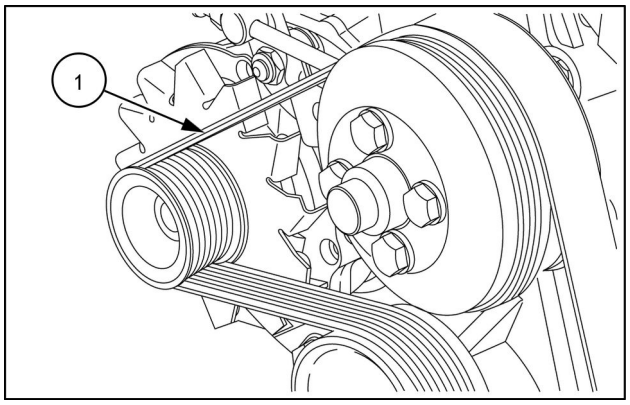
W0208A

1. Make sure the pulleys and the guides are clean and free from debris.
2. Position the belt **(2)** making sure it is centred on the pulleys of the alternator **(1)**, water pump **(5)**, fan **(3)** and crankshaft **(4)**.



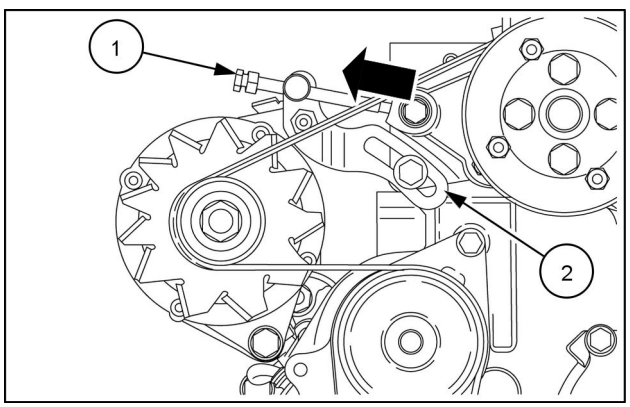
MOIL15TR01157AA 1

3. Make sure that the ribs of the belt **(1)** are correctly inserted in the grooves of the pulleys.



MOIL15TR01158AA 2

4. Tighten the belt tensioner adjusting screw **(1)** to reach the maximum possible extension of the bracket **(2)**.



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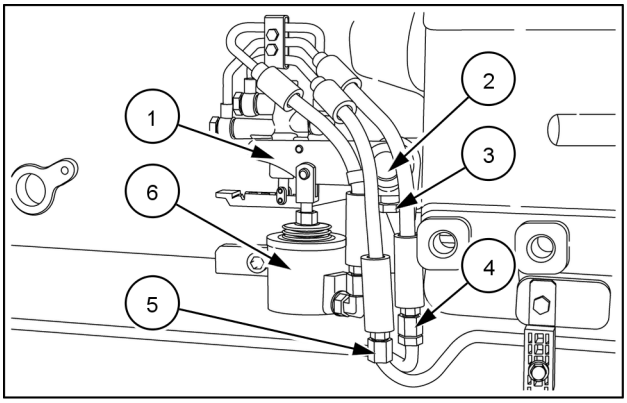
Power Take-Off (PTO) clutch engagement cylinder - Install

T4.100 with cab, with mechanical or Power shuttle transmission	Transmission - Mechanical
T4.110 with cab, with mechanical or Power shuttle transmission	Transmission - Mechanical
T4.120 with cab, with mechanical or Power shuttle transmission	Transmission - Mechanical
T4.90 with cab, with mechanical or Power shuttle transmission	Transmission - Mechanical

Prior operation:
See **Power Take-Off (PTO) clutch engagement cylinder - Remove (18.104)**.

1. Mount the Power Take-Off (PTO) engagement cylinder **(6)** on the clutch case. Tighten the relative retaining screws.
2. Tighten the screws **(3)** to lock the control rod **(1)** to the operating pin **(2)** of the PTO clutch.
3. Connect the oil supply lines **(5)** and the oil drain lines **(4)**.



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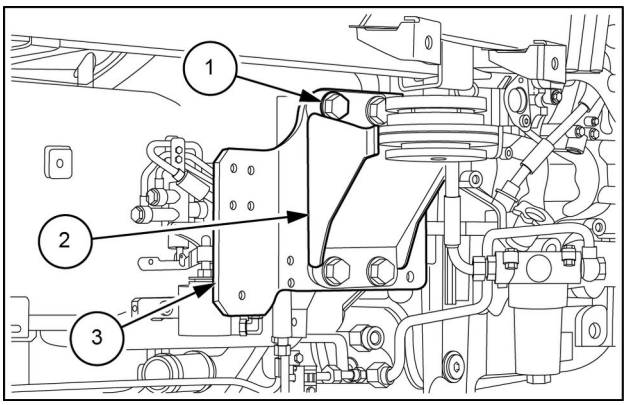
4. Mount the plate **(3)** with the cab support **(2)**, securing the plate with the four retaining screws **(1)** and their respective washers.



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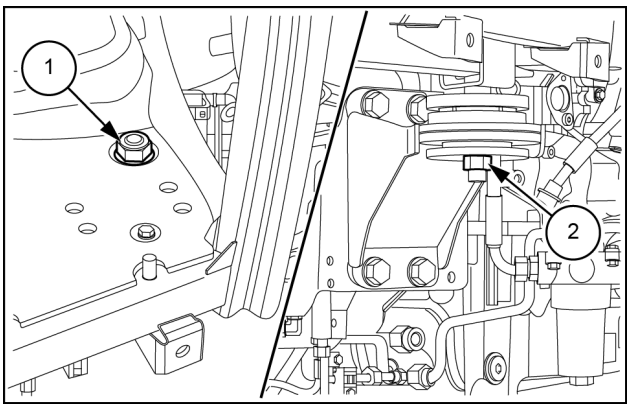
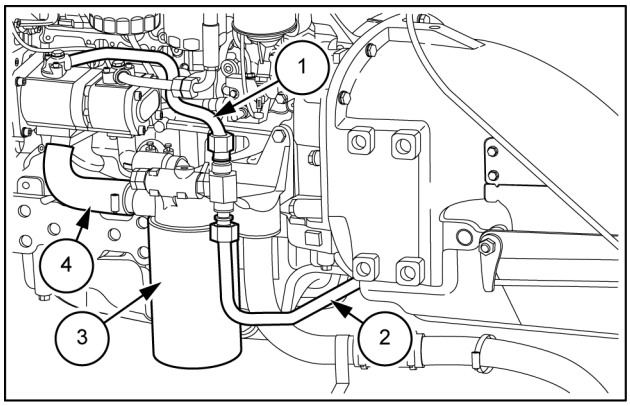
5. Position and tighten the bolt **(1)** and the relative cab retaining nut **(2)**.



MOIL14TR00213AA 3

4. Install the oil filter and support **(3)**. Secure with bolts.
5. Connect the hydraulic pump line **(1)**.
6. Connect the pipe of the central auxiliary control valve **(2)**.
7. Connect the inlet pipe of the hydraulic pump **(4)**.



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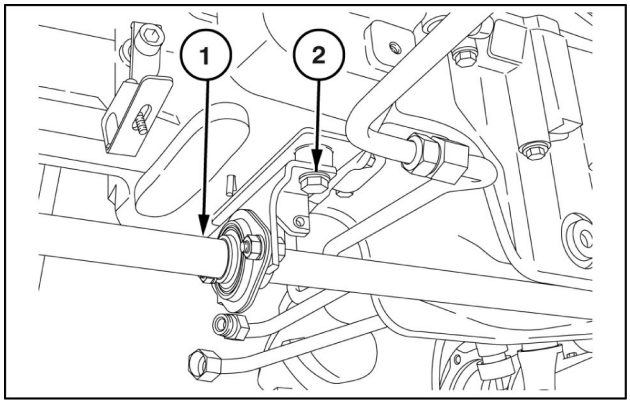
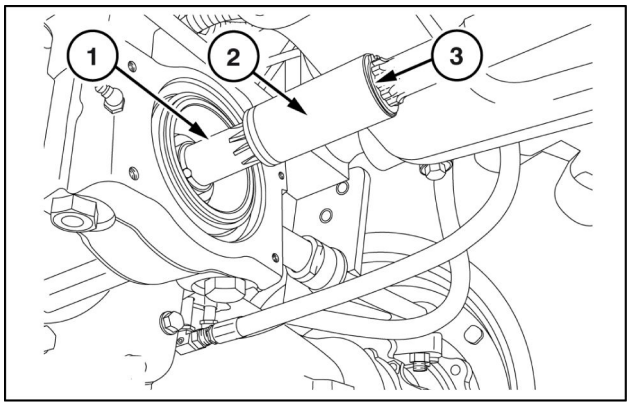
8. Install the drive shaft **(1)**. Secure with bolts **(2)**.



MOLI11U0085AA 5

9. Align the drive shaft with the output shaft of the front axle **(1)**.
10. Slide the sleeves **(2)** onto the shafts and secure on both sides with circlips **(3)**.



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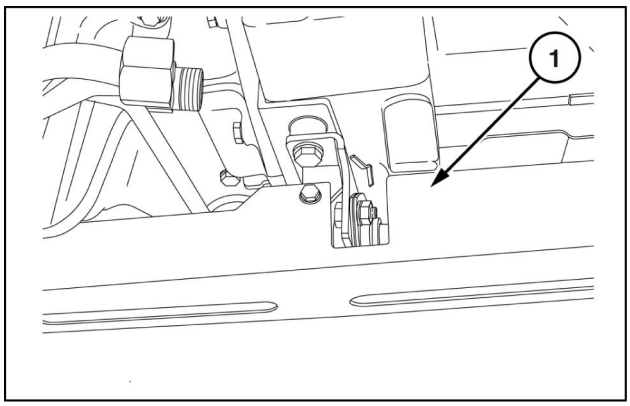
11. Fit the drive shaft guard **(1)**. Secure with the front, middle and rear bolts.



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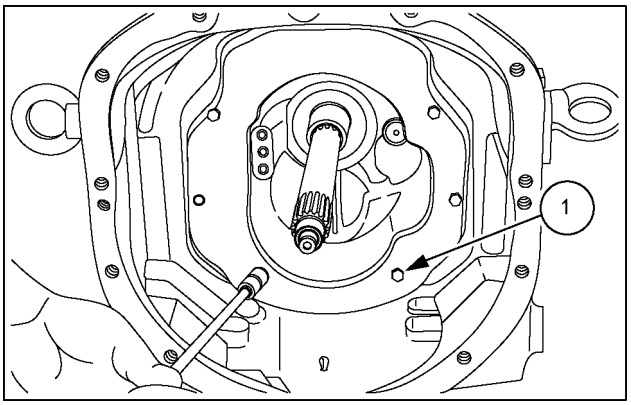
3. Loosen the eight front cover retaining bolts **(1)**.



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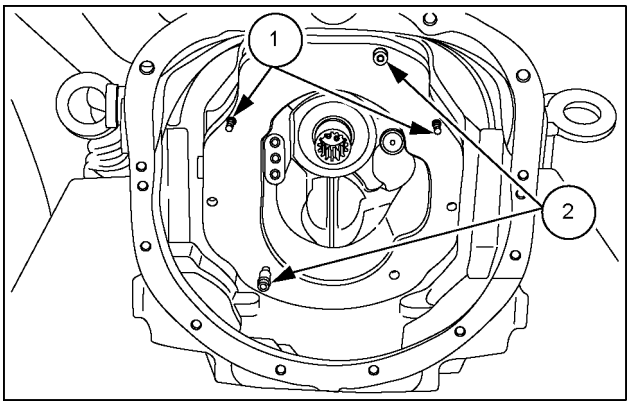
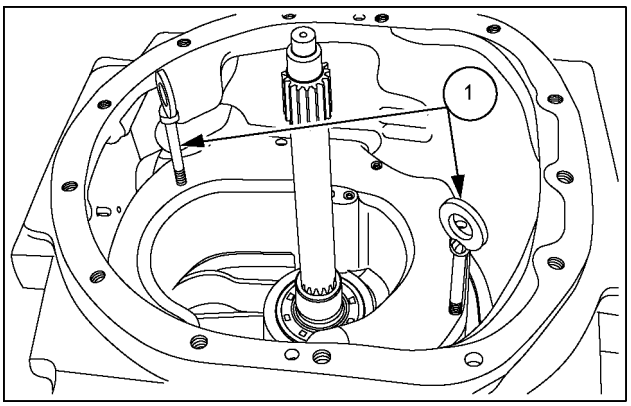
4. Insert two threaded support pins **(1)** and screw two M10 bolts into the threaded holes **(2)** until the front cover is released.



MOIL13TR01759AA 4

5. With the clutch casing in vertical position, fix two supporting rings **(1)** to the front cover. With the aid of the hoist, extract the front cover from the casing along with the clutch pack and gears.



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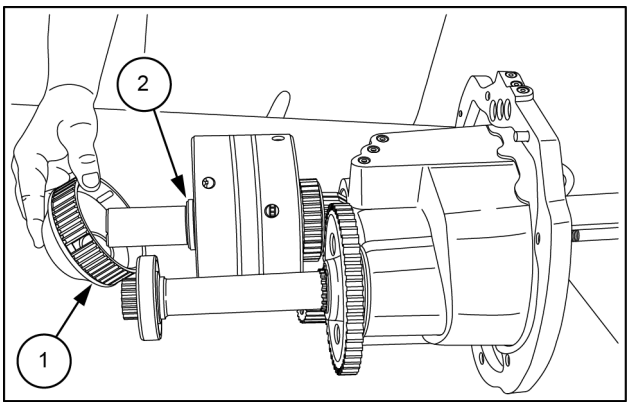
6. Raise the stake mark. Then, remove the hub **(1)** of the clutch pack and its washer. Loosen the locking ring nut **(2)**.



MOIL13TR01848AA 6

Transmission - 21

Reverser - 162

T4.100 with cab, with Dual Command™ transmission , T4.100 with cab, with mechanical or Power shuttle transmission , T4.100 without cab, with Dual Command™ transmission , T4.100 without cab, with mechanical or Power shuttle transmission , T4.110 with cab, with Dual Command™ transmission , T4.110 with cab, with mechanical or Power shuttle transmission , T4.110 without cab, with Dual Command™ transmission , T4.110 without cab, with mechanical or Power shuttle transmission , T4.120 with cab, with Dual Command™ transmission , T4.120 with cab, with mechanical or Power shuttle transmission , T4.120 without cab, with Dual Command™ transmission , T4.120 without cab, with mechanical or Power shuttle transmission , T4.90 with cab, with Dual Command™ transmission , T4.90 with cab, with mechanical or Power shuttle transmission , T4.90 without cab, with Dual Command™ transmission , T4.90 without cab, with mechanical or Power shuttle transmission

Transmission drive housing - Install

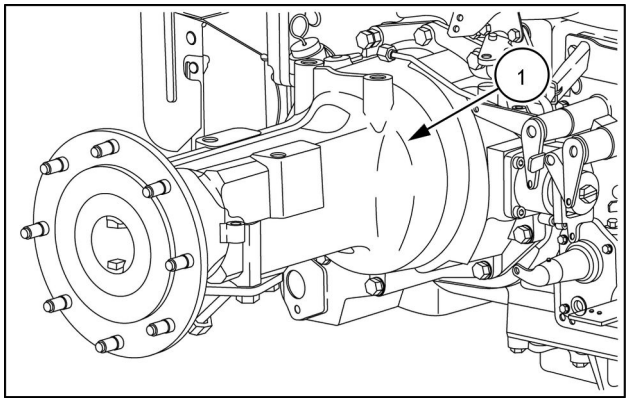
⚠ DANGER

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

Prior operation:
Transmission drive housing - Remove (21.118).

1. Install the Power Take-Off (PTO) as described in **One-speed rear Power Take-Off (PTO) - Install (31.110)** and in **Two-speed rear Power Take-Off (PTO) - Install (31.114)**.
2. Install the final drive housing **(1)** on both sides, as described in **Rear axle housing - Install (27.100)**.



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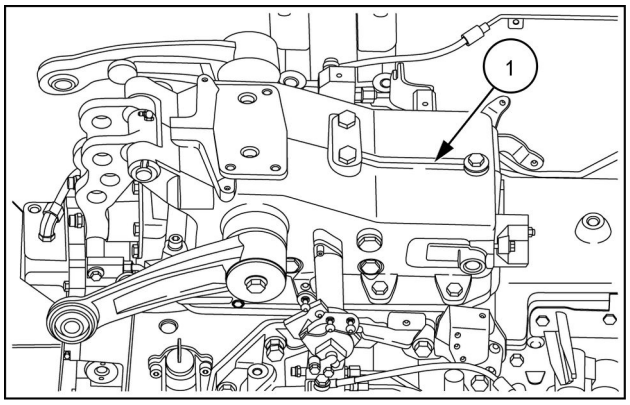
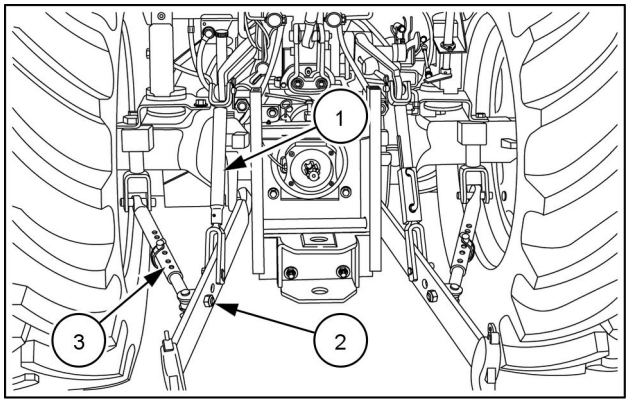
3. Install the rear lift **(1)** as described in **Rear hitch - Install (37.110)**.



MOIL14TR01284AA 2

4. Install the vertical rod **(1)** on both sides, as described in **Vertical rod - Install (37.120)**.
5. Install the stabilizer **(3)** on both sides, as described in **Stabilizer - Install (37.120)**.
6. Install the lower arm **(2)** on both sides, as described in **Lower link arm - Install (37.120)**.



MOIL14TR01279AA 3

Next operation:
Transmission housing - Install (21.114).
Next operation:

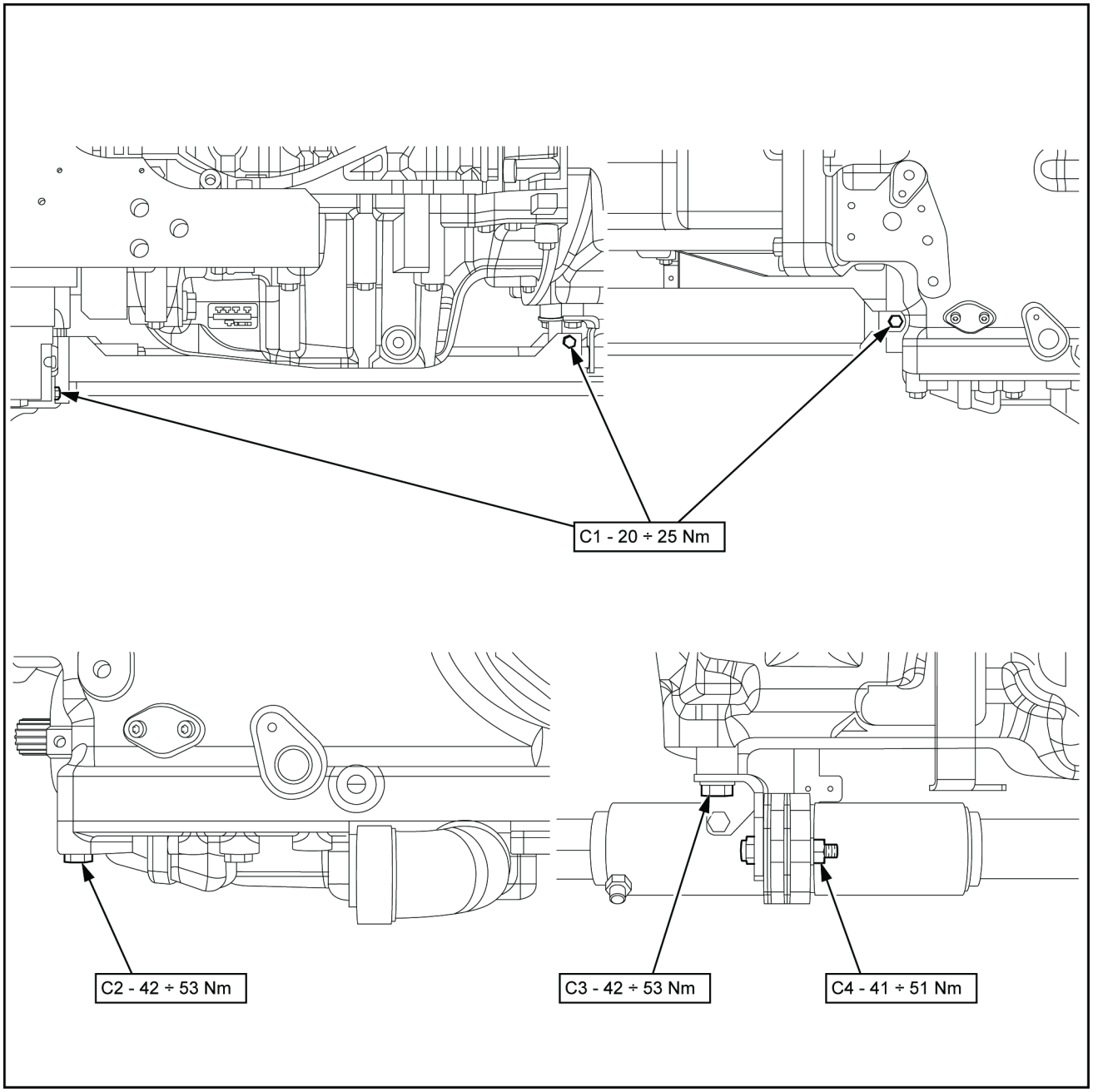
Mechanical control - General specification

Mechanically controlled four-wheel drive

NOTE: *Please see* ***Front-Wheel Drive (FWD) - Sectional view (23.101)***

Reduction ratio of drive gear device (on all models)	44/45 = 1 : 0.98
Reduction ratio of drive gear device (on all models)	15

Mechanical control - Torque



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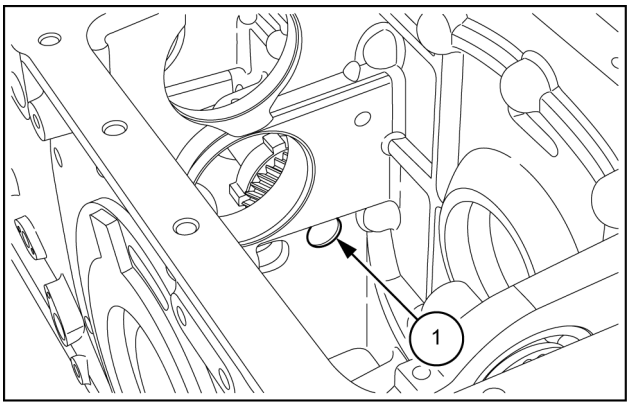
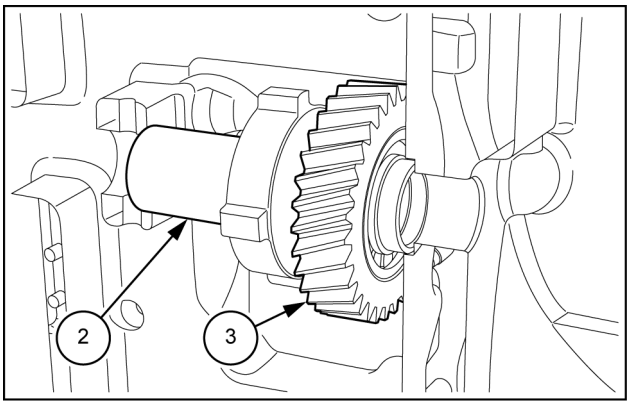
PARTS TO BE TIGHTENED	THREAD SIZE	TORQUE
Drive shaft guard retaining bolts (C1)	M8 X 14	**20 - 25 N·m** (**15 - 18 lb ft**)
4WD cover retaining bolts (C2)	M10 x 1.25	**42 - 53 N·m** (**31 - 39 lb ft**)
Bracket retaining bolts (C3)	M12	**73 - 90 N·m** (**54 - 66 lb ft**)
Bracket bearing retaining nut (C4)	M10 x 1.25	**41 - 51 N·m** (**30 - 38 lb ft**)

16. Remove the pin from the reverse idle gear **(1)**, recover the spacer **(2)**, the two bearings and the reverse idle gear **(3)**.



MOIL13TR01813AB 17



MOIL13TR01814AB 18

Next operation:
Front-Wheel Drive (FWD) - Install (23.202) approximately.

Parts to be torqued	Thread size	Tightening torque
		N·m (lb ft)
Front axle support retaining bolt (**(C1)**, **1**)	M18 x 1.5	**370.00 - 410.00 N·m** (**272.90 - 302.40 lb ft**)
Rear axle support retaining bolt (**(C2)**, **1**)	M18 x 1.5	**370.00 - 410.00 N·m** (**272.90 - 302.40 lb ft**)
Steering cylinder head locking ring nut (**(C3)**, **1**)	M18 x 1.5	**111.00 - 137.00 N·m** (**81.87 - 101.05 lb ft**)
Steering knuckle fastener on the piston (**(C4)**, **1**)	M22 x 1.5	**240.00 - 296 N·m** (**177.01 - 0.0 lb ft**)
Ring nut locking steering cylinder to support (**(C5)**, **1**)	M60 x 2	**620.00 - 680.00 N·m** (**457.29 - 501.54 lb ft**)
Locking piston seat retaining bolt (**(C6)**, **2**)	M10 x 1.25	**60.00 - 70.00 N·m** (**44.25 - 51.63 lb ft**)
Differential casing support box retaining bolt (**(C7)**, **2**)	M14 x 1.5	**130.00 - 144.00 N·m** (**95.88 - 106.21 lb ft**)
Bevel crown wheel bearing cap retaining bolt (**(C8)**, **2**)	M12 x 1.25	**116.00 - 144.00 N·m** (**85.56 - 106.21 lb ft**)
Bevel crown wheel to differential support retaining bolt (**(C9)**, **2**)	M18 x 1.5	**119.00 - 131.00 N·m** (**87.77 - 96.62 lb ft**)
Axle shaft bearing bush retaining bolt (**(C11)**, **2**)*	M12 x 1.25	**10.00 - 20.00 N·m** (**7.38 - 14.75 lb ft**)
Final drive bearing retaining washer fixing screws (**(C12)**, **2**)	M12 x 1.25	**90.00 - 100.00 N·m** (**66.38 - 73.76 lb ft**)
Final drive crown support retaining bolts, axle version with brakes (**(C13)**, **2**)	M10 x 1.25	**75.00 - 82.00 N·m** (**55.32 - 60.48 lb ft**)
Ring nut locking hub on stub axle, axle version without brakes (**(C14)**, **2**)	M70 x 2	**370.00 - 410.00 N·m** (**272.90 - 302.40 lb ft**)
Final drive to hub retaining bolt (**(C15)**, **2**)	M10 x 1.25	**55.00 - 87.00 N·m** (**40.57 - 64.17 lb ft**)
Stub axle pin retaining bolt (**(C10)**, **2**)	M10 x 1.25	**55.00 - 87.00 N·m** (**40.57 - 64.17 lb ft**)

NOTE: *(*) Apply* ***LOCTITE® 243™*** *on the thread.*

Powered front axle - Special tools

List of specific tools required for the various operations described in this section.

380000268 Wrench for front bevel drive pinion ring nut
380000248 Bevel pinion bearing adjustment tool (with **50118**)
380000257 Front bevel drive pinion retaining wrench
380000249 Universal gauge for positioning of front bevel drive pinion
380000252 Wrench for front differential case bearing threaded adjustment ring
380000235 Tool for measurement of rolling drag torque of front axle bearings

Contents

Front axle system - 25

Front bevel gear set and differential - 102

Front axle system - 25

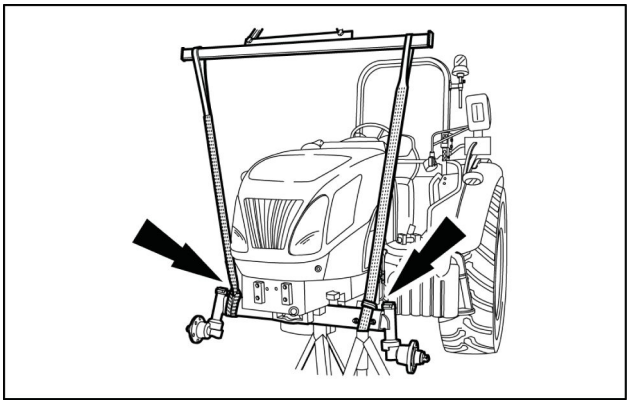
Final drive hub, steering knuckles, and shafts - 108

T4.100 with cab, with Dual Command™ transmission , T4.100 with cab, with mechanical or Power shuttle transmission , T4.100 without cab, with Dual Command™ transmission , T4.100 without cab, with mechanical or Power shuttle transmission , T4.110 with cab, with Dual Command™ transmission , T4.110 with cab, with mechanical or Power shuttle transmission , T4.110 without cab, with Dual Command™ transmission , T4.110 without cab, with mechanical or Power shuttle transmission , T4.120 with cab, with Dual Command™ transmission , T4.120 with cab, with mechanical or Power shuttle transmission , T4.120 without cab, with Dual Command™ transmission , T4.120 without cab, with mechanical or Power shuttle transmission , T4.90 with cab, with Dual Command™ transmission , T4.90 with cab, with mechanical or Power shuttle transmission , T4.90 without cab, with Dual Command™ transmission , T4.90 without cab, with mechanical or Power shuttle transmission

Front axle - Install

ATTENTION: *Use suitable tools to align the holes. NEVER USE FINGERS OR HANDS.*

1. Position the front axle under the vehicle making sure that the front axle shims and spacers are in position.



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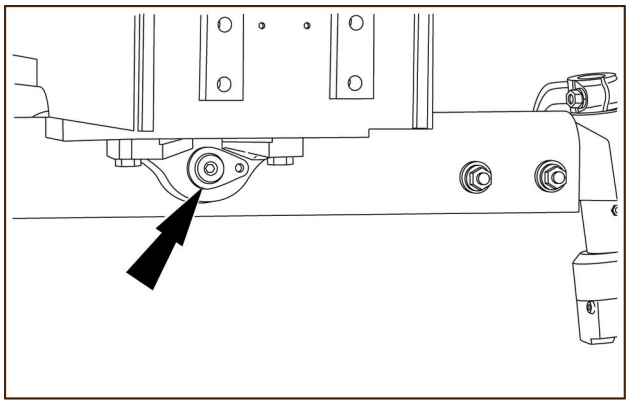
2. Install the front axle articulation pin.



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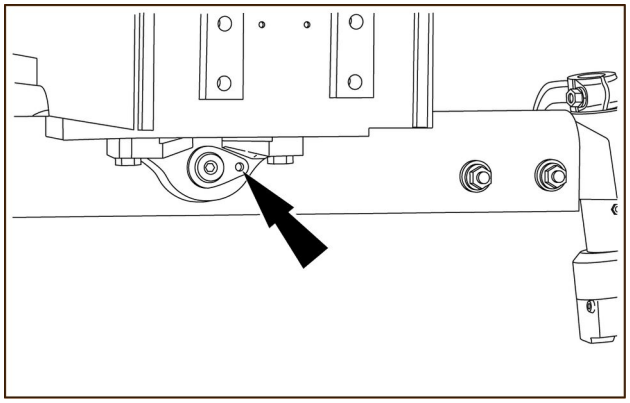
3. Install the front axle articulation pin retaining bolt.



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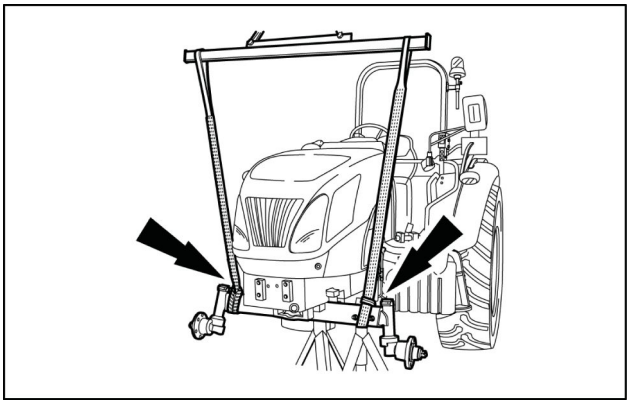
4. Remove the lifting equipment from the front axle.



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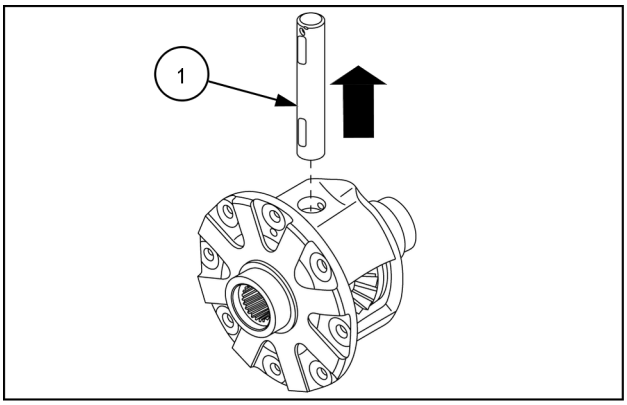
5. Remove the central spindle **(1)**.



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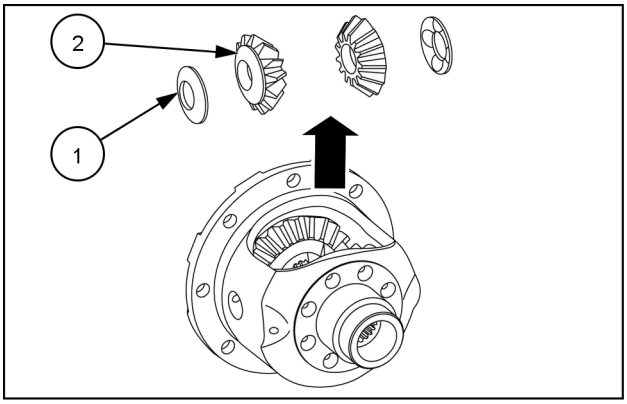
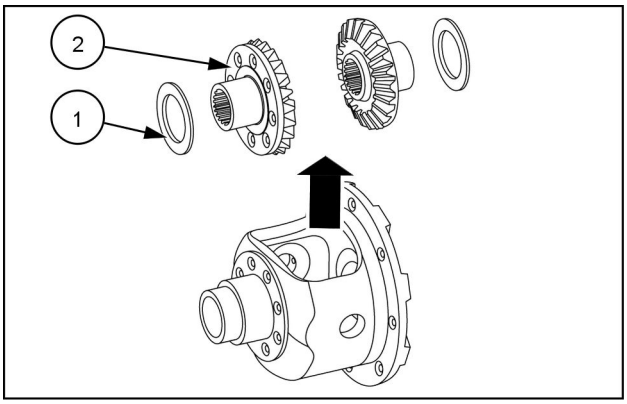
6. Remove the side pinions **(2)** and **(4)**. Remove the shim washers **(1)** and **(3)**.



MOIL14TR01729AA 5

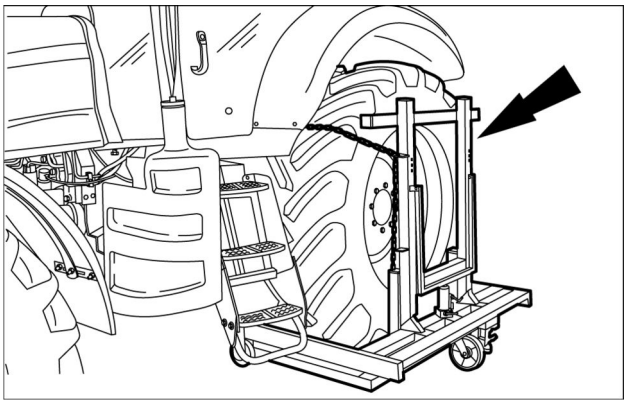
7. Remove the planetary pinions **(2)** and **(4)**. Remove the shim rings **(1)** and **(3)**.



MOIL14TR01728AA 6

Next operation:
Differential - Assemble (27.106).

21. Fit the rear wheels as described in **Rear wheel - Install (44.520)**.



BAIL07APH363AVA 19

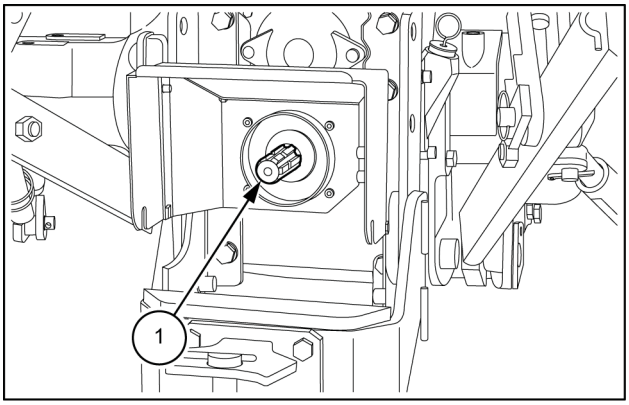
Next operation:
Fuel tank - Install (10.216) approximately.

Rear mechanical control - Dynamic description - Power take-off (PDF) speed change 540/1000 RPM

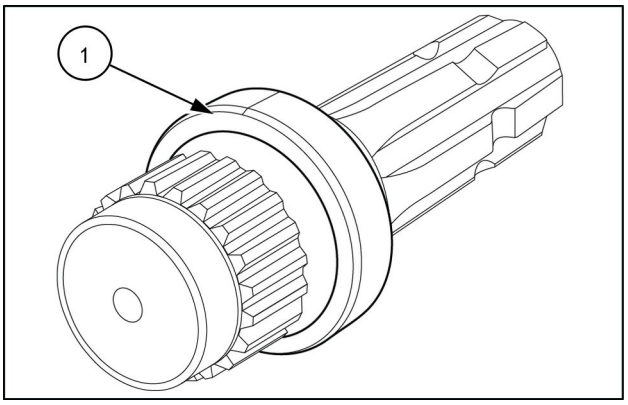
T4.100 with cab, with mechanical or Power shuttle transmission	Transmission - Mechanical
T4.100 without cab, with mechanical or Power shuttle transmission	Transmission - Mechanical
T4.110 with cab, with mechanical or Power shuttle transmission	Transmission - Mechanical
T4.110 without cab, with mechanical or Power shuttle transmission	Transmission - Mechanical
T4.120 with cab, with mechanical or Power shuttle transmission	Transmission - Mechanical
T4.120 without cab, with mechanical or Power shuttle transmission	Transmission - Mechanical
T4.90 with cab, with mechanical or Power shuttle transmission	Transmission - Mechanical
T4.90 without cab, with mechanical or Power shuttle transmission	Transmission - Mechanical

To change the speed from **540 RPM** to **1000 RPM**, proceed as follows:

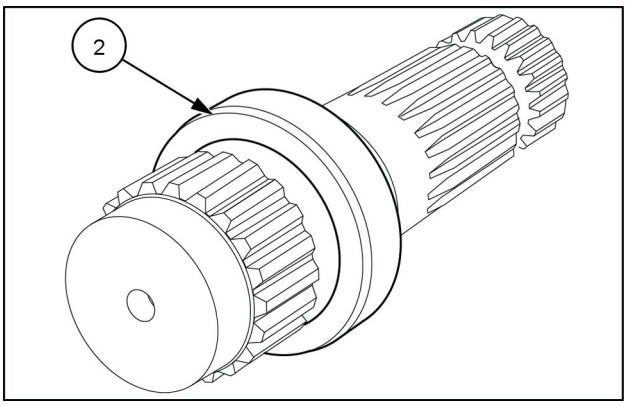
1. Replace the 3/8 in shaft (6 spline) **(1)** for **540 RPM** with the 3/8 in shaft (21 spline) **(2)** for **1000 RPM**.



MOIL13TR01474AB 1



MOIL14UTL0086AA 2



MOIL14UTL0087AA 3

Power Take-Off (PTO) clutch - General specification

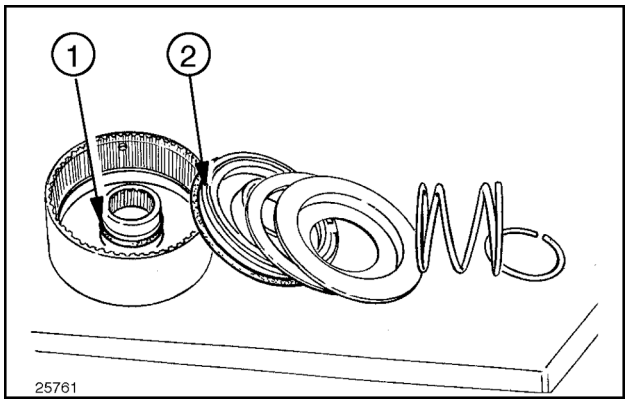
T4.100 with cab, with Dual Command™ transmission	
T4.100 with cab, with mechanical or Power shuttle transmission	Transmission - Power Shuttle
T4.100 without cab, with Dual Command™ transmission	
T4.100 without cab, with mechanical or Power shuttle transmission	Transmission - Power Shuttle
T4.110 with cab, with Dual Command™ transmission	
T4.110 with cab, with mechanical or Power shuttle transmission	Transmission - Power Shuttle
T4.110 without cab, with Dual Command™ transmission	
T4.110 without cab, with mechanical or Power shuttle transmission	Transmission - Power Shuttle
T4.120 with cab, with Dual Command™ transmission	
T4.120 with cab, with mechanical or Power shuttle transmission	Transmission - Power Shuttle
T4.120 without cab, with Dual Command™ transmission	
T4.120 without cab, with mechanical or Power shuttle transmission	Transmission - Power Shuttle
T4.90 with cab, with Dual Command™ transmission	
T4.90 with cab, with mechanical or Power shuttle transmission	Transmission - Power Shuttle
T4.90 without cab, with Dual Command™ transmission	
T4.90 without cab, with mechanical or Power shuttle transmission	Transmission - Power Shuttle

Main Data

Number of clutch driving plates	No.5
Thickness of driving plates	**1.950 - 2.050 mm** (**0.077 - 0.081 in**)(*)
Driving plate material	N266420
Number of clutch driven plates	No.5
Driven plate thickness	**2.250 - 2.350 mm** (**0.089 - 0.093 in**)(*)
Driven plate thickness	**2.350 - 2.450 mm** (**0.093 - 0.096 in**)(*)
Driven plate material	Turn the crank handle counter-clockwise until it locks up in the rearward position as shown
Reaction plate thickness	**8.500 mm** (**0.335 in**)
Thickness of clutch assembly under a load of **1600.0 N** (**359.7 lb**)	**21.800 - 22.000 mm** (**0.858 - 0.866 in**)
Hydraulic control valve	Mounted on the outer left-hand side of the clutch casing
PTO clutch working pressure	**17.5 - 18.5 Kg/cm²** (**248.9 - 263.1 psi**)
Accumulator spring (**(4)** see **Power Take-Off (PTO) clutch - Sectional view (31.114)**)	
Spring free length	**122.000 mm** (**4.803 in**)
Spring length under load of **34.9 kg** (**76.9 lb**)	**100.000 mm** (**3.937 in**)
Spring length under load of **74.2 kg** (**163.6 lb**)	**75.000 mm** (**2.953 in**)

NOTE: *(*) Value to be obtained by varying the thickness of the driving plates.*

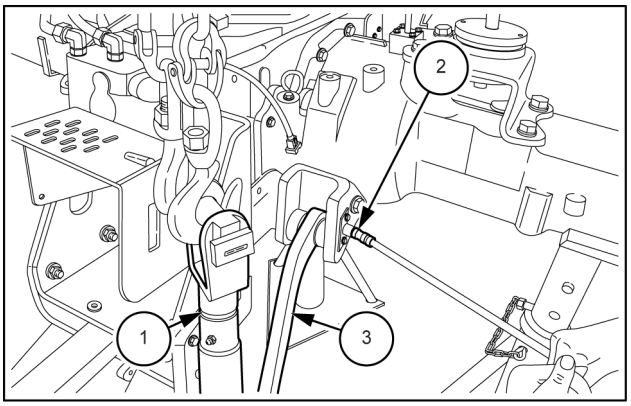
6. Remove and check all of the components. Check the condition of the O-ring seals **(1)** and **(2)**. Replace the O-ring seals if necessary.



SEZ31CAP2A-52 7

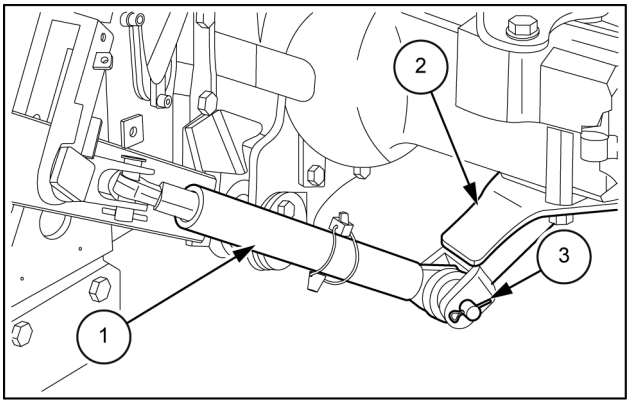
Next operation:
Power Take-Off (PTO) clutch - Assemble (31.110)

15. Connect the tie rods **(1)** to the lifting hook with chain, connected to the hoist. Attach the lower arms **(3)** of the lift. Insert the pins and tighten the respective retaining bolts **(2)**.



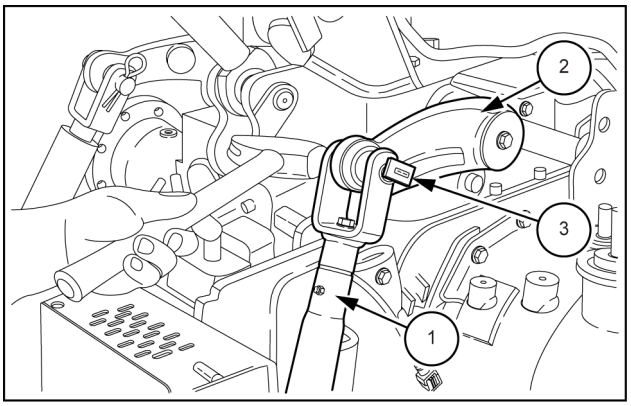
MOIL13TR01531AB 15

16. Attach the stabilisers **(1)** to the brackets **(2)** on the final drives, inserting the pins **(3)** and securing them with the respective cotter pins.



MOIL13TR01530AB 16

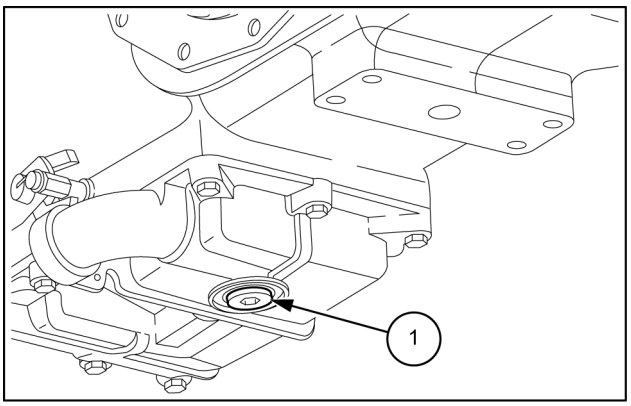
17. Position the vertical tie rods **(1)** on the lift arms **(2)** , inserting the pins **(3)** and securing them with the respective cotter pins.



MOIL13TR01529AB 17

18. Screw the drain plug **(1)** onto the rear transmission casing and fill up with oil.

NOTE: *For the quantity of oil and type of oil, see* ***Consumables ()****.*



MOIL13TR01363AB 18

Next operation:

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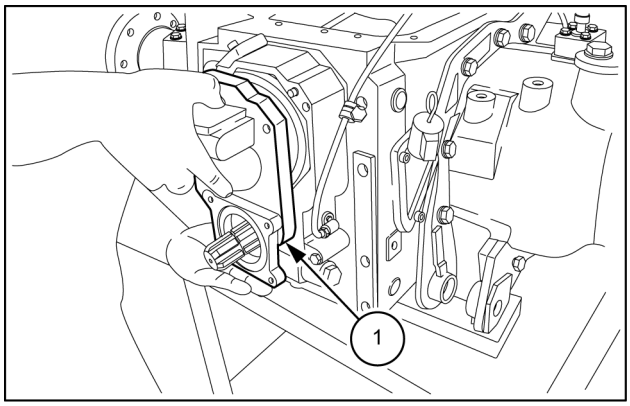
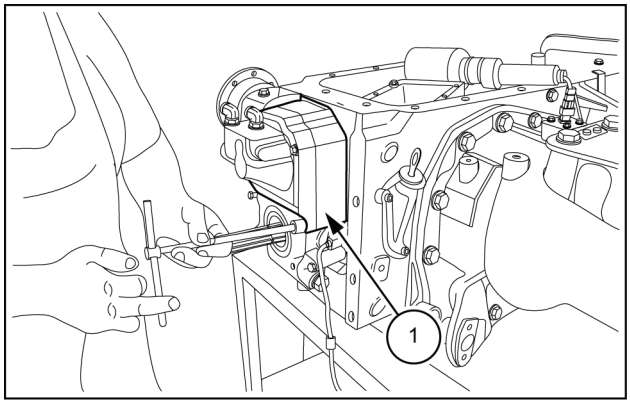
16. Position the PTO clutch cover **(1)** along with the driving shaft, hub and respective bearing.



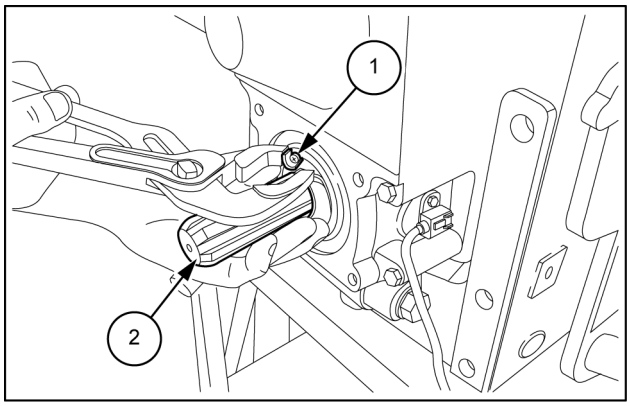
MOIL13TR01560AB 15

17. Screw in the four retaining bolts of the PTO clutch cover **(1)** .



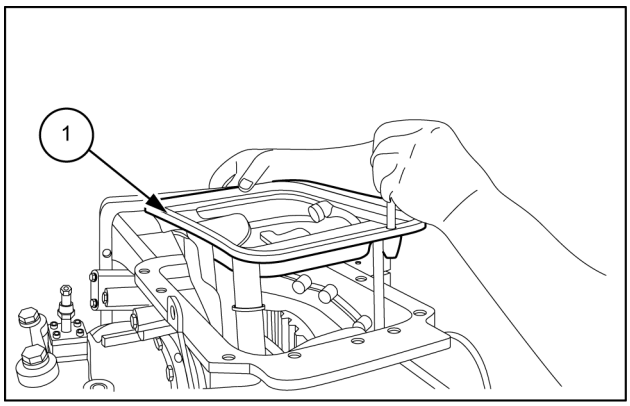
MOIL13TR01561AB 16

18. Position the snap ring **(1)** of the splined terminal **(2)**.



MOIL13TR01562AB 17

19. Position the lift reservoir **(1)** and tighten the respective bolts.



MOIL13TR01563AB 18

Contents

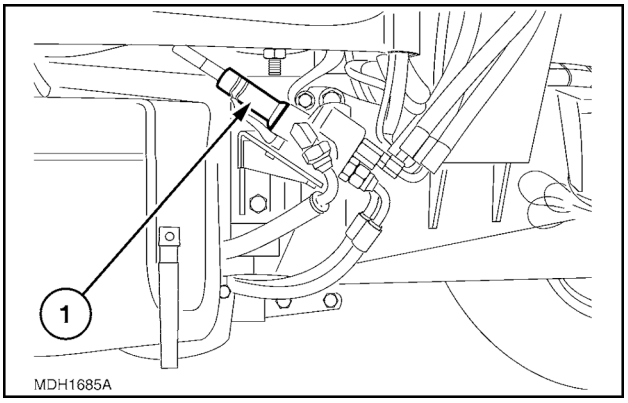
Brakes and controls - 33

Trailer brake hydraulic control - 220

(*) See content for specific models

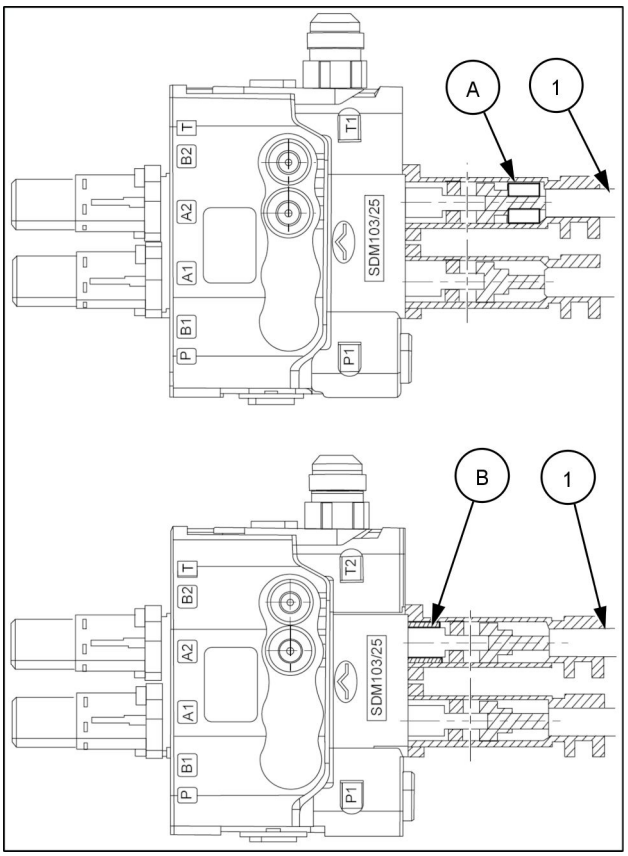
Disabling bushing of the regenerating function of the second control valve

All tractors fitted with ventral control valves are equipped with a disabling bushing of the regenerating function of the second control valve. The bushing is fitted during production. The bushing is fitted on the control cable of the spool of the second control valve inside the rubber protection **(1)**. All spool movements are available.



SEZ35CAP7A-10 6

To disable the regenerating function of the second control valve, free the bushing from the rubber protection of cable **(1)**. Move the bushing from position **(A)** to position **(B)** on the spool.



MOIL14TR00808BA 7

1. Control valve assembly
2. **M8 x 16** dowel
3. **M8** nut
4. **M6 x 25** screw
5. Valve stack for adjusting sensitivity
6. Valve plug
7. Seal
8. Spring
9. Seal
10. Seal
11. Seal
12. Seal
13. Spring
14. Ball
15. Cup
16. Spring
17. Plug
18. Washer
19. Cup
20. Bottom retaining plate
21. **M8 x 16** screw
22. **M8 x 20** dowel
23. Spring
24. Main valve – (Not supplied as spare part)
25. **M8** nut
26. Drilled screw
27. Valve seat
28. Seal
29. Pilot valve
30. Spring
31. Seal
32. Control valve body – (Not supplied as spare part)
33. Retainer
34. Spring
35. Pilot valve
36. Pilot valve spool
37. Washer
38. Spring
39. Cup
40. Top cover

Lift arm cylinder - Replace – Connecting pins

⚠ WARNING

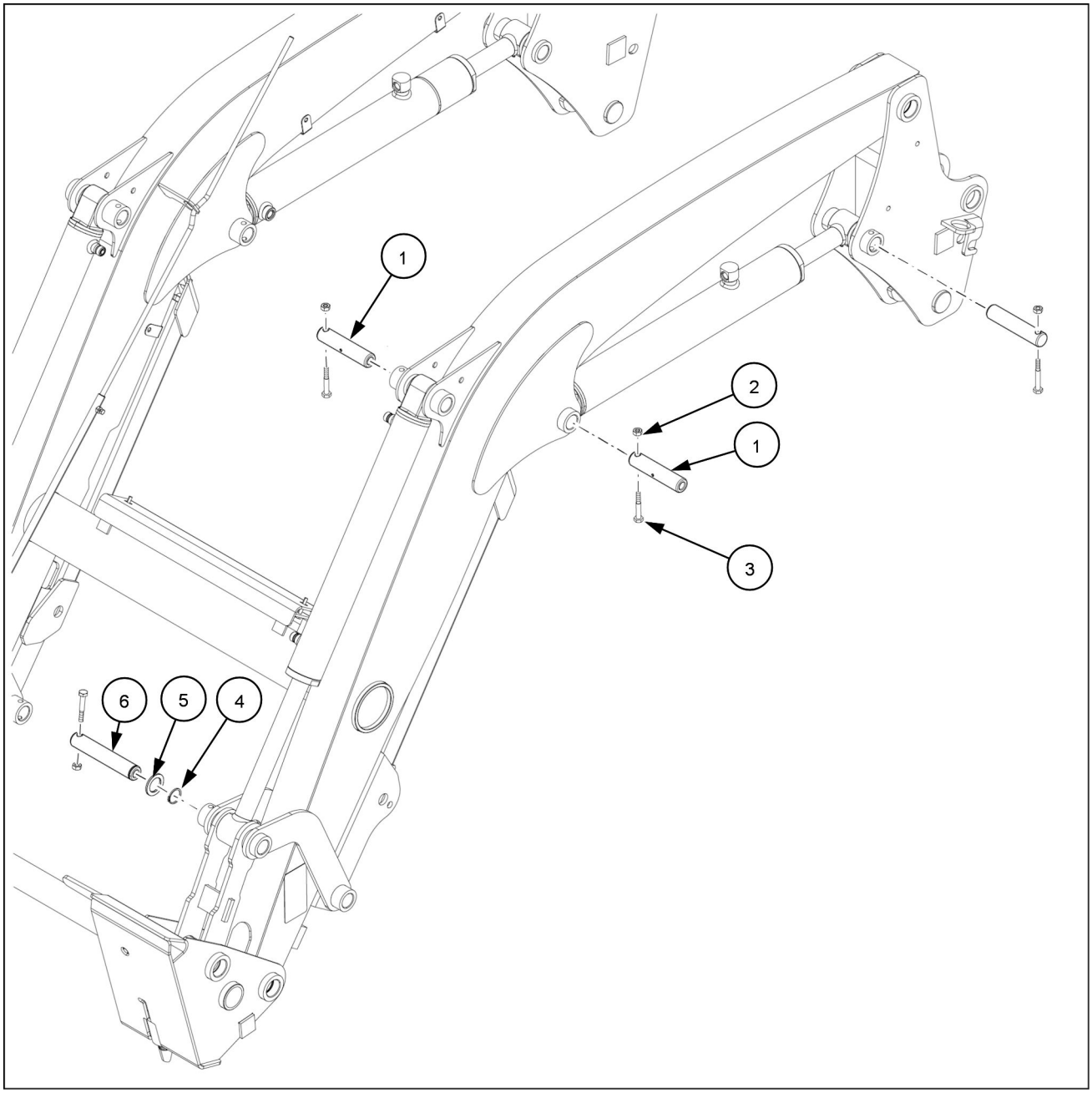
Avoid injury!
Handle all parts carefully. Do not place your hands or fingers between parts. Use Personal Protective Equipment (PPE) as indicated in this manual, including protective goggles, gloves, and safety footwear.
Failure to comply could result in death or serious injury.

W0208A

⚠ CAUTION

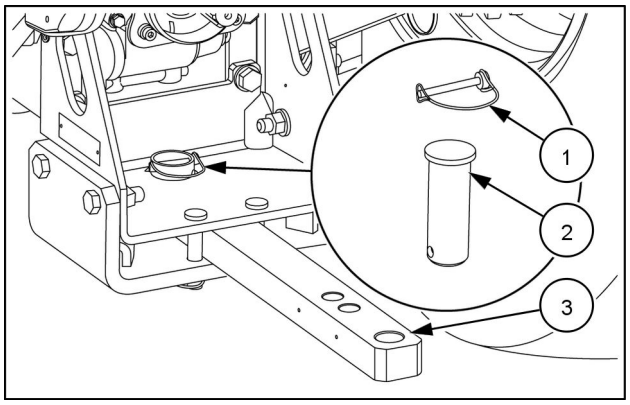
Pinch hazard!
Always use suitable tools to align mating parts. DO NOT use your hand or fingers.
Failure to comply could result in minor or moderate injury.

C0044A



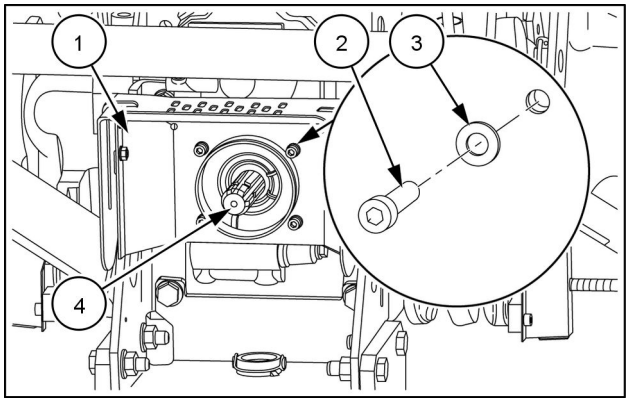
MOIL14TR00805GA 1

5. Insert the drawbar **(3)** in the support.
6. Secure the drawbar by inserting the lock pin **(2)** and secure it with the retaining pin **(1)**.



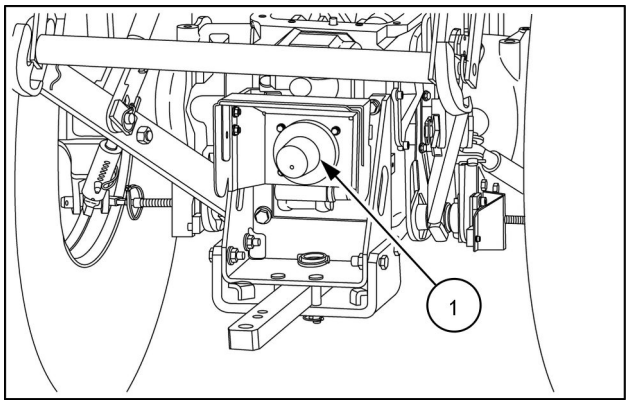
MOIL15TR00251AA 3

7. Position the rear guard of the splined output shaft **(1)** of the Power Take−Off (PTO) **(4)**.
8. Position the spacers **(3)** and screw in the four fixing screws **(2)**.



MOIL15TR00248AA 4

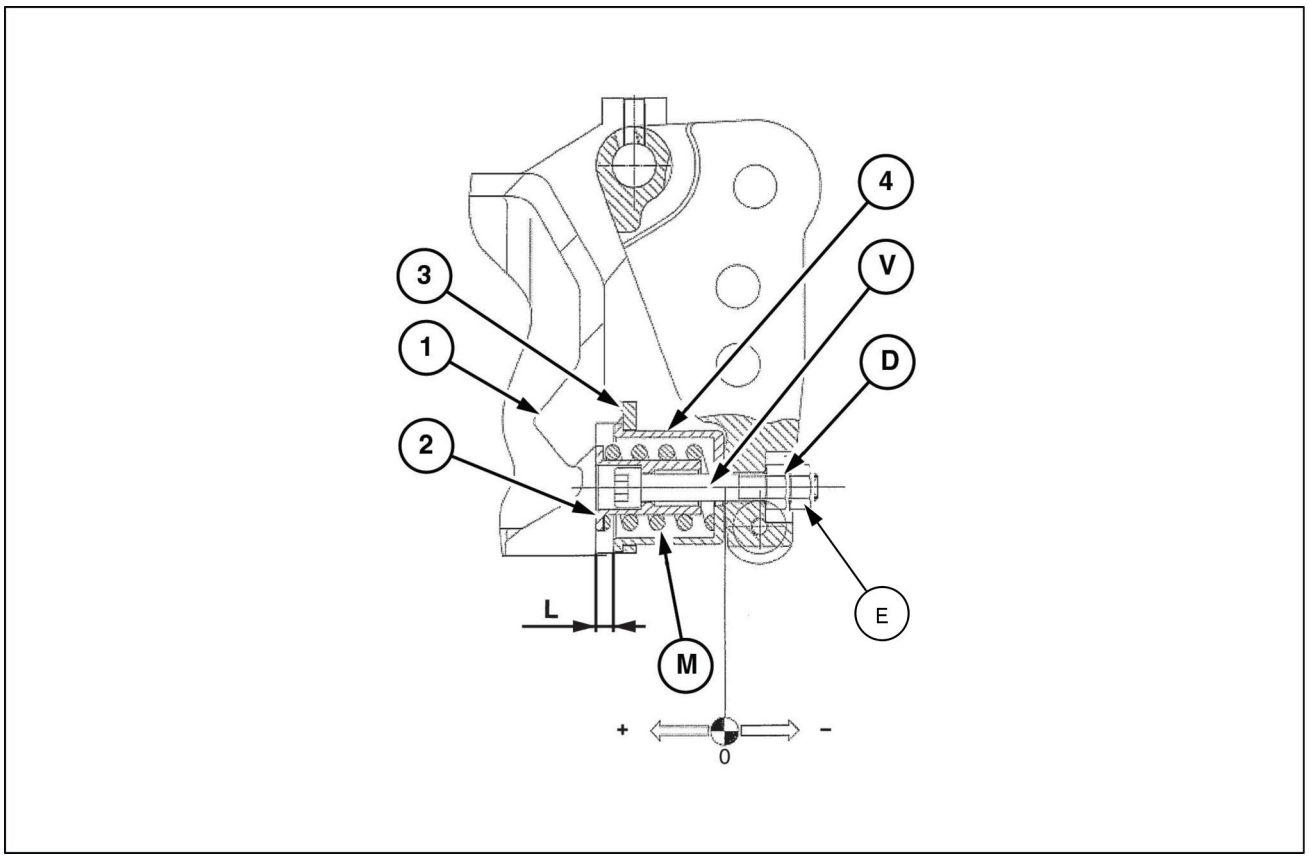
9. Position the guard of the splined output shaft **(1)** of the PTO.



MOIL15TR00247AA 5

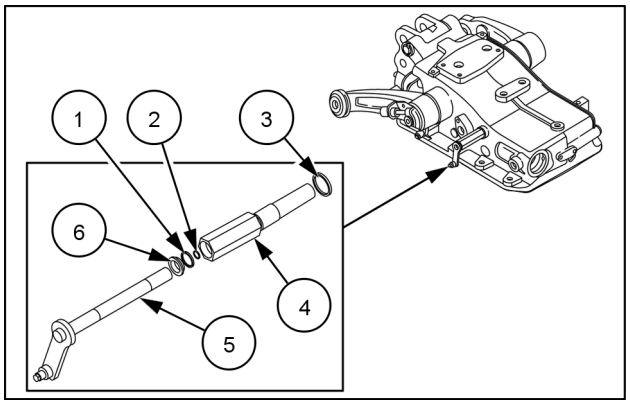
Adjusting the reaction spring

For the lift to function correctly, the bracket of the top link, when not working, must have no end float in the positive (+) and negative (-) directions of operation. If the components have been fitted correctly, the spring carrier **(2)** should rest against the lift case **(1)** and the cover of the spring carrier **(4)** should rest against the flange **(3)**. In this condition, the spring **(M)** is pre-loaded (compressed) by approximately **1.00 - 1.20 mm** (**0.04 - 0.05 in**). Before fitting the whole reaction unit, pre-assemble the spring **(M)** to obtain a measurement of **(L) _= 9.00 mm** (**0.35 in**).
On completing assembly of the reaction unit, perform final adjustments.
Hold the screw **(V)** stationary with a **8.00 mm** (**0.31 in**) wrench.
Tighten or loosen the nut **(D)** to fully eliminate the end play.
Tighten nut **(E)**.



MOIL14TR00910FA 6

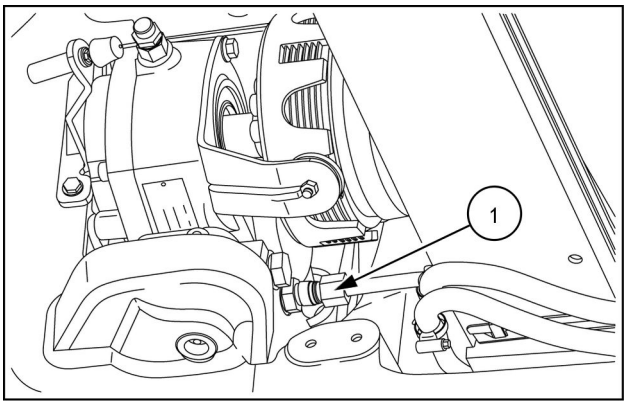
29. Remove the pin **(4)** from the body of the lift and remove the idler arm **(5)** of the control **Lift-O-Matic™ (5)**.
30. Remove the spacer **(3)** and the seal rings **(2)**, **(1)** and **(6)**.



MOIL15TR00230AA 20

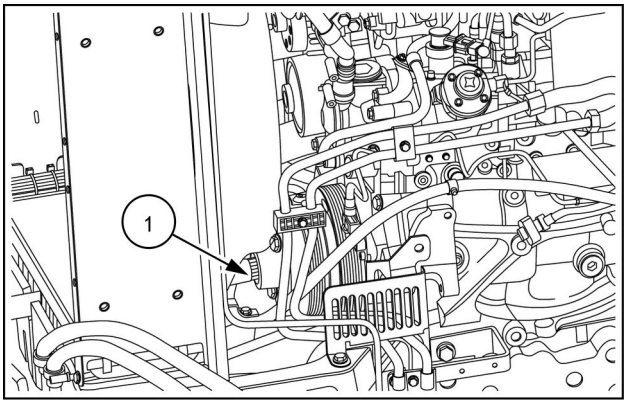
Next operation:
Rear hitch internal controls - Assemble (37.110) approximately.

9. Disconnect the tubing **(1)** of the front lift.



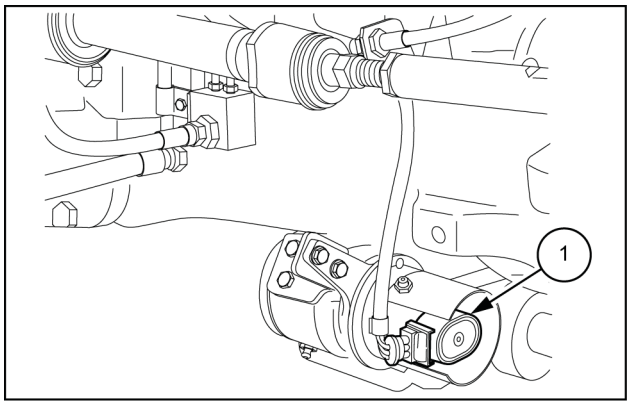
MOIL14TR00392AA 7

10. Remove the Seeger locking ring **(1)**. Release the front PTO shaft.



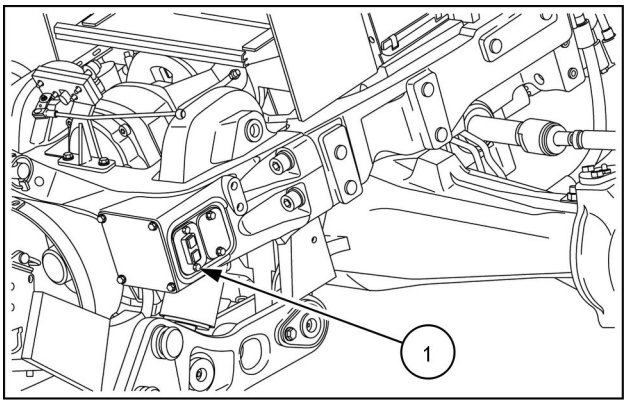
MOIL14TR00393AA 8

11. Disconnect the connection of the lift arm position detection sensor **(1)** of the front lift.



MOIL14TR00384AB 9

12. Disconnect the connection of the outside push button **(1)** for controlling the front lift.



MOIL14TR00394AA 10

Problem	Possible Cause	Correction
During manual control, operation is normal; when stopping manual control the steering wheel tends to move on its own, or remain stationary, but steering continues slowly in the direction that was initially selected (motoring), therefore steering must be continually corrected with the steering wheel	Sleeve and rotating valve locked in delivery position because of the presence of foreign bodies	Eliminate foreign bodies and clean the filter
	Sleeve crushed on the rotating valve due to excessive pressure	Check the pressure relief valve calibration
Vibrations on front wheels (shimmy)	Air pockets in the hydraulic cylinder	Bleed the air and eliminate the causes of possible infiltration
	Wear on mechanical joints on steering rods	Renew the worn parts
	Cylinder safety or back flow valves held open by foreign bodies or damaged	Eliminate foreign bodies and clean filter or replace the control valve
Difficulty in steering in general, or in one direction	Insufficient pressure	Check the hydraulic pump and the pressure relief valve calibration
	Excessive leakage inside the control valve	Renew the control valve
	Cylinder safety valve incorrectly calibrated or soiled with deposits that interfere with the seal of one of the two valves	Eliminate the foreign bodies and clean the filter or renew the control valve

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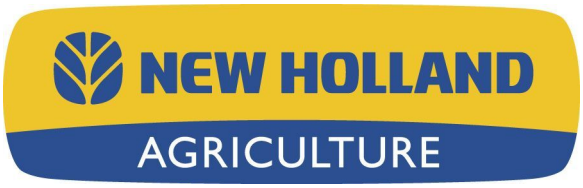


NEW HOLLAND policy is one of continuous improvement and the right to change prices, specification or equipment at any time without notices is reserved.

All data given in this publication is subject to production variations. Dimensions and weight are approximate only and the illustrations do not necessarily show products in standard condition. For exact information about any particular product, please consult your NEW HOLLAND Dealer.

Using Recycling Equipment

Recycling equipment extracts and removes common contaminants from refrigerants. Recycling equipment designed and certified to meet SAE standards can make refrigerant recovery from mobile air conditioning systems suitable for reuse in automotive air conditioning systems. Like extraction equipment, SAE standards require that each piece of recycling equipment be dedicated to a single refrigerant.

NOTE: *Only equipment capable of recovering and cleaning* ***R134A*** *to meet SAE J2099 purity levels carries a label with the phrase "Design certified by Underwriters" Laboratories, Inc. for compliance with SAE J2099.*

The Underwriters' Laboratories label must be specific that the equipment is "design certified" for the SAE J2099 standard. If not, it certifies only that the machine is free of reasonable shock or other electrical hazards to the user.

Recycling vs. Reclaiming

Recycled refrigerant has been recovered from a mobile air conditioning system and is cleaned by the same shop that recovered it to meet J2099 for **R134A**. The equipment designed to recycle refrigerant in the shop environment removes only contaminants picked up during the operation of a mobile air conditioning system. Refrigerant that is either properly recycled or reclaimed is adequate for use in mobile air conditioning systems.

⚠ DANGER

Avoid injury!
Observe ALL precautions listed below when servicing the air-conditioning system and handling refrigerant.
Failure to comply will result in death or serious injury.

D0043A

CONTAINMENT OF AIR CONDITIONING REFRIGERANTS

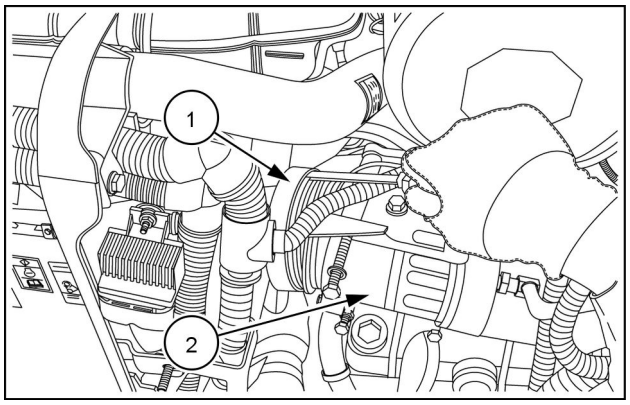
The following procedure is a guide to servicing mobile air conditioning systems in a way that minimizes the potential for losing refrigerant to the atmosphere. Following the procedures in this section will help ensure compliance with SAE J2211 for **R134A** systems.

To avoid fire or explosion, do not over-pressurize R134a. Refrigerant 134a poses a fire and explosion risk at air concentrations of greater than 60% by volume. At normal atmospheric pressure and temperature, R134a is nonflammable. Do not pressure-test or leak-test R134 service equipment or vehicle air conditioning systems with compressed air. Some mixtures of air and R134a are combustible under pressure. These can result in fire or explosion, causing injury or property damage. Refrigerant and lubricant manufacturers can provide additional health and safety information.

7. With a hand move the cooling fan and in the same time, with the other, remove the belt **(1)** from the compressor pulley using a screwdriver.

NOTE: *If you want to use the belt again, take the greatest care over moving the belt out from the pulley.*

8. Fully unscrew the retaining bolts **(4)** (see image **3**) and remove the air conditioned compressor **(2)**.



MOIL15TR01103AA 4

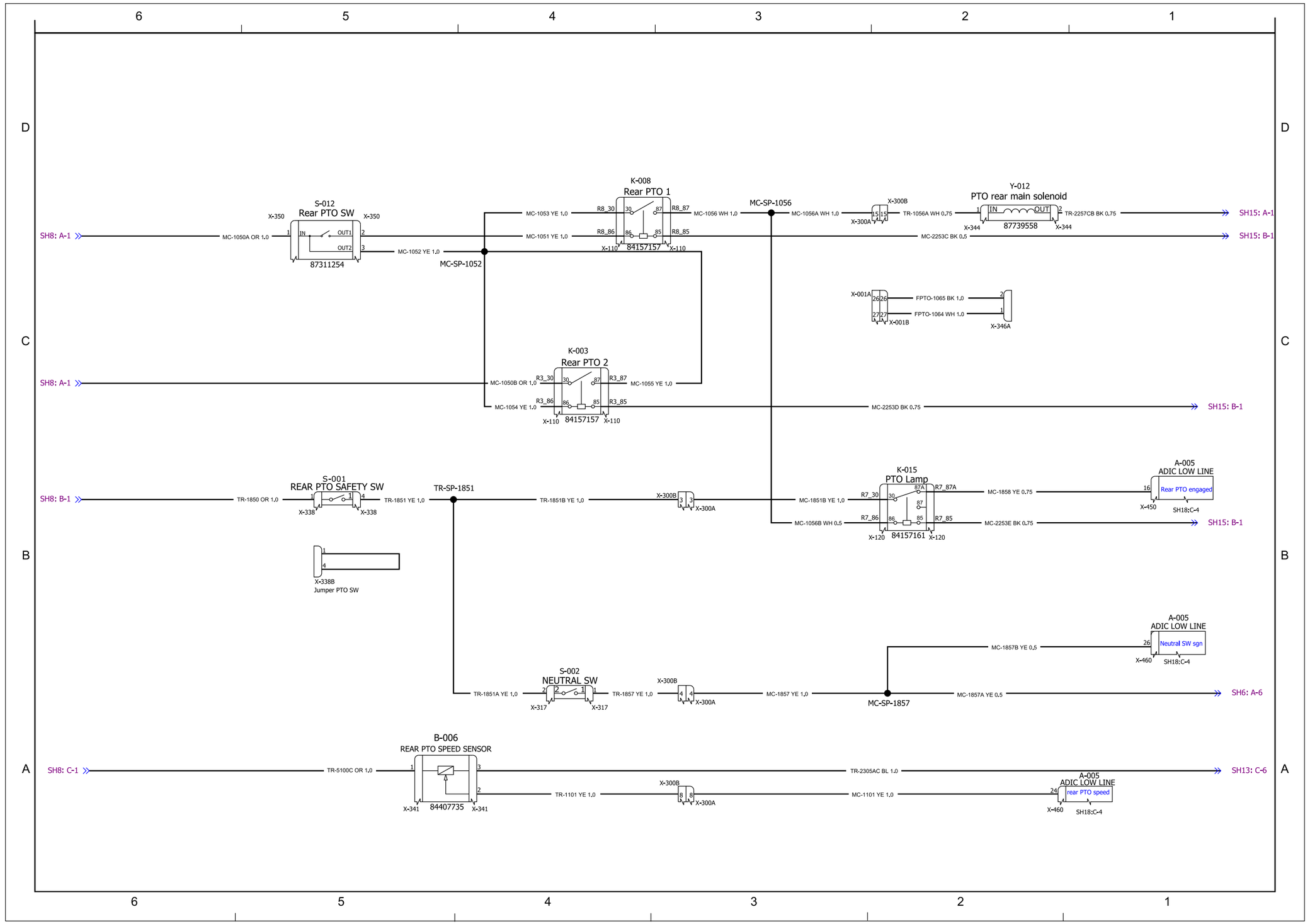
Wire connectors

(*) See content for specific models

Wiring harnesses - Electrical schematic sheet 03 SH03-POWER DISTRIBUTION MAIN BATTERY

T4.100 with cab, with mechanical or Power shuttle transmission	
T4.110 with cab, with mechanical or Power shuttle transmission	
T4.120 with cab, with mechanical or Power shuttle transmission	
T4.90 with cab, with mechanical or Power shuttle transmission	

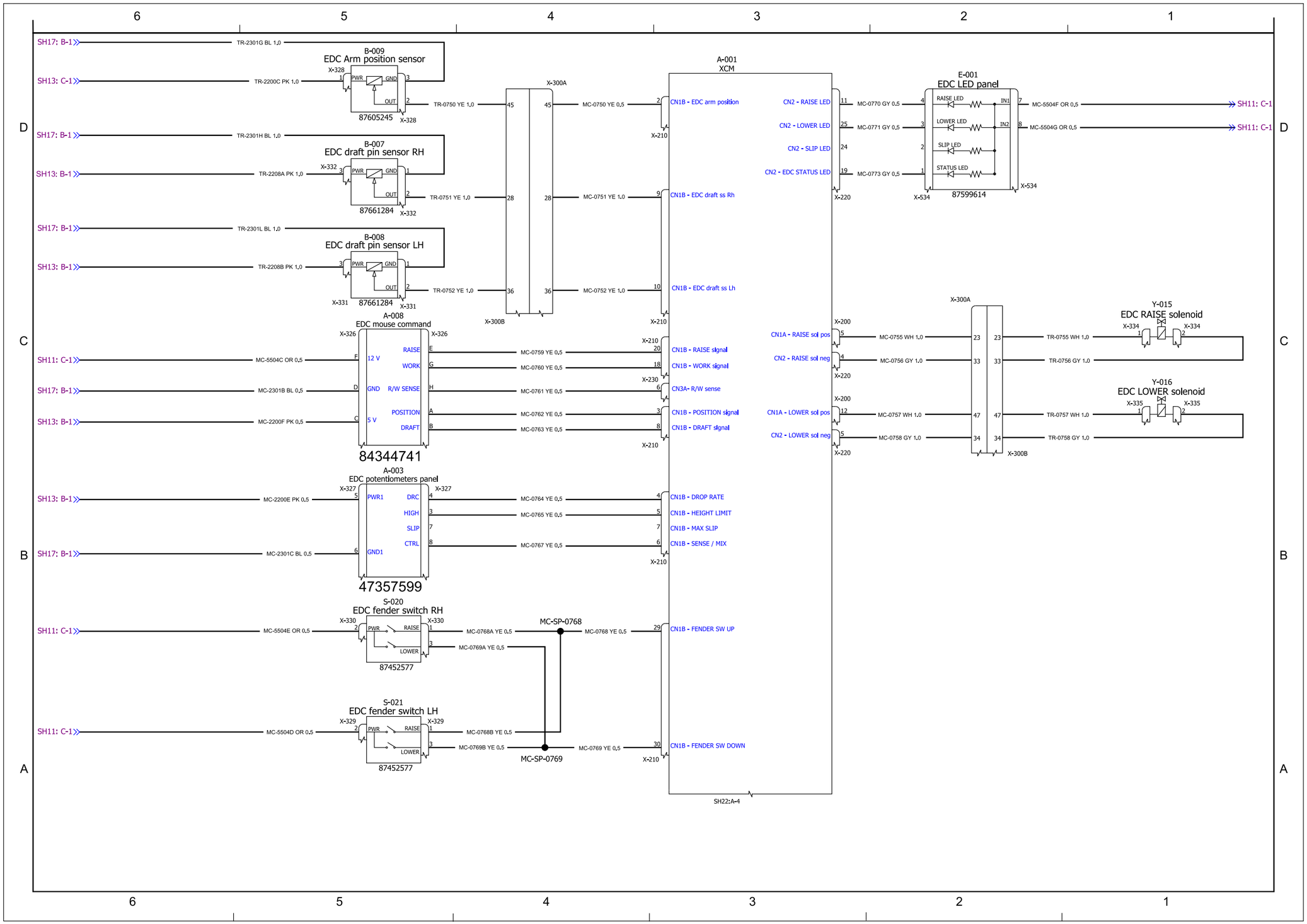
Type	Component	Connector / Link	Description
ECU	**A-005**	**X-460**	ADIC LOW LINE
ECU	**A-007**	**X-008**	BDS relay
Fuse	**F-062**		KAM fuse
Voltage source	**G-001**	**X-012 X-013**	Alternator
Voltage source	**G-002**	**X-500 X-600**	Battery
Motor	**M-001**	**X-011**	Starter Motor
Connector	X-001A	**X-001A**	Cab-Engine inline
Connector	X-001B	X-001B	Engine-cab inline
Connector	X-008	**X-008**	BDS se-reset
Connector	X-009	**X-009**	BDS B
Connector	X-010	**X-010**	Starter motor + battery
Connector	X-011	**X-011**	+50 starter motor
Connector	X-012	**X-012**	Alternator D+
Connector	X-013	**X-013**	Alternator B+
Connector	X-101	**X-101**	BDS A
Connector	X-103	**X-103**	PDU power (starter motor side)
Connector	X-104	**X-104**	AUX power
Connector	X-105	**X-105**	Supply KAM
Connector	X-190	**X-190**	Engine fuse & relays box
Connector	X-304	**X-304**	Alternator B+ (starter motor)
Connector	X-460	**X-460**	ADIC LL-CN2
Connector	X-500	**X-500**	Battery positive clamp
Connector	X-600	**X-600**	Battery negative clamp
Connector	X-604	**X-604**	Battery Ground
Connector	X-936A	**X-936A**	Isobus Connector
Connector	X-936B	X-936B	Isobus connector


6
5
4
3
2
1
D
C
B
A
S-012
Rear PTO SW
X-350
X-350
IN
OUT1
OUT2
87311254
SH8: A-1
MC-1050A OR 1,0
MC-1052 YE 1,0
MC-SP-1052
K-008
Rear PTO 1
MC-1053 YE 1,0
MC-1051 YE 1,0
R8_30
R8_87
R8_86
R8_85
84157157
X-110
X-110
MC-1056 WH 1,0
MC-SP-1056
MC-1056A WH 1,0
X-300B
X-300A
TR-1056A WH 0,75
Y-012
PTO rear main solenoid
IN
OUT
87739558
X-344
X-344
TR-2257CB BK 0,75
SH15: A-1
MC-2253C BK 0,5
SH15: B-1
X-001A
X-001B
FPTO-1065 BK 1,0
FPTO-1064 WH 1,0
X-346A
K-003
Rear PTO 2
SH8: A-1
MC-1050B OR 1,0
MC-1054 YE 1,0
R3_30
R3_87
R3_86
R3_85
84157157
X-110
X-110
MC-1055 YE 1,0
MC-2253D BK 0,75
SH15: B-1
S-001
REAR PTO SAFETY SW
SH8: B-1
TR-1850 OR 1,0
X-338
X-338
TR-1851 YE 1,0
TR-SP-1851
TR-1851B YE 1,0
X-300B
X-300A
X-338B
Jumper PTO SW
K-015
PTO Lamp
MC-1851B YE 1,0
MC-1056B WH 0,5
R7_30
R7_87A
R7_86
R7_85
84157161
X-120
X-120
MC-1858 YE 0,75
MC-2253E BK 0,75
SH15: B-1
A-005
ADIC LOW LINE
Rear PTO engaged
X-450
SH18:C-4
A-005
ADIC LOW LINE
Neutral SW sgn
X-460
SH18:C-4
MC-1857B YE 0,5
S-002
NEUTRAL SW
TR-1851A YE 1,0
X-317
X-317
TR-1857 YE 1,0
X-300B
X-300A
MC-1857 YE 1,0
MC-SP-1857
MC-1857A YE 0,5
SH6: A-6
B-006
REAR PTO SPEED SENSOR
SH8: C-1
TR-5100C OR 1,0
X-341
84407735
X-341
TR-1101 YE 1,0
X-300B
X-300A
TR-2305AC BL 1,0
MC-1101 YE 1,0
SH13: C-6
A-005
ADIC LOW LINE
rear PTO speed
X-460
SH18:C-4
SHT_21 1

Wiring harnesses - Electrical schematic sheet 08 SH-008_POWER DISTRIBUTION_TRANSMISSION

T4.100 with cab, with Dual Command™ transmission	
T4.110 with cab, with Dual Command™ transmission	
T4.120 with cab, with Dual Command™ transmission	
T4.90 with cab, with Dual Command™ transmission	

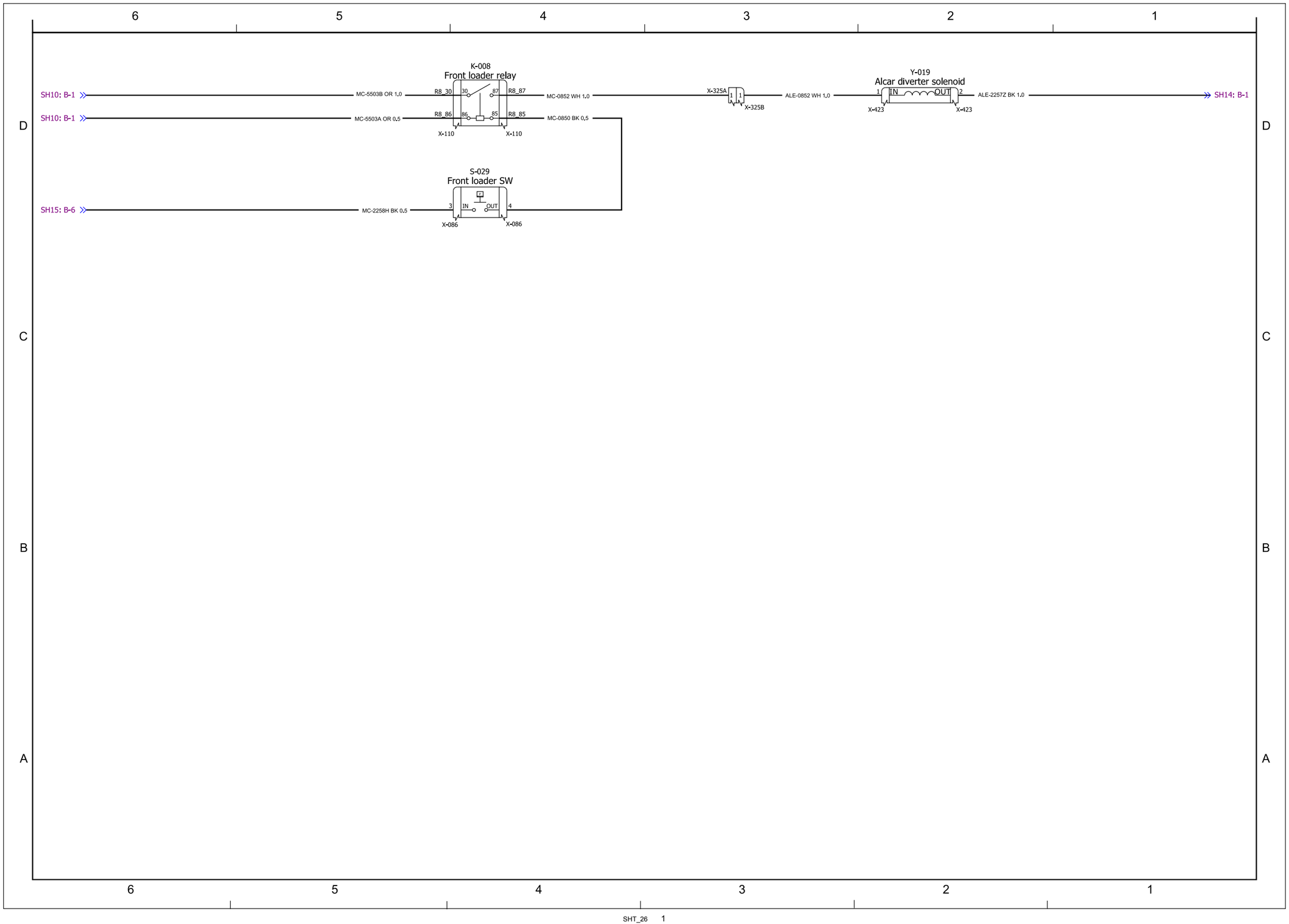
Type	Component	Connector / Link	Description
ECU	**A-001**	**X-230**	XCM
Fuse	**F-002**		PTO - TERRALOCK
Fuse	**F-009**		Wheel speed and press.SW
Fuse	**F-012**		VF - XCM, CLUTCH C and D
Fuse	**F-034**		SHUTTLE LEVER
Connector	X-110	**X-110**	Fuse Relay Module R1-R8 F33-F36
Connector	X-130	**X-130**	Fuse Relay Module F1-F32
Connector	X-230	**X-230**	XCM CN3A
Connector	X-300A	X-300A	Cab-transmission inline
Connector	X-300B	**X-300B**	Trasnmissison-cab inline
Connector	X-383A2	**X-383A2**	SAFETY PRESSURE SW A pin2


6
5
4
3
2
1
D
C
B
A
SH17: B-1
TR-2301G BL 1,0
B-009
EDC Arm position sensor
X-328
PWR
GND
OUT
87605245
SH13: C-1
TR-2200C PK 1,0
TR-0750 YE 1,0
SH17: B-1
TR-2301H BL 1,0
B-007
EDC draft pin sensor RH
X-332
87661284
SH13: B-1
TR-2208A PK 1,0
TR-0751 YE 1,0
SH17: B-1
TR-2301L BL 1,0
B-008
EDC draft pin sensor LH
X-331
87661284
SH13: B-1
TR-2208B PK 1,0
TR-0752 YE 1,0
X-300A
X-300B
A-001
XCM
MC-0750 YE 0,5
MC-0751 YE 1,0
MC-0752 YE 1,0
CN1B - EDC arm position
CN1B - EDC draft ss Rh
CN1B - EDC draft ss Lh
X-210
CN2 - RAISE LED
CN2 - LOWER LED
CN2 - SLIP LED
CN2 - EDC STATUS LED
X-220
MC-0770 GY 0,5
MC-0771 GY 0,5
MC-0773 GY 0,5
E-001
EDC LED panel
RAISE LED
LOWER LED
SLIP LED
STATUS LED
IN1
IN2
X-534
87599614
MC-5504F OR 0,5
MC-5504G OR 0,5
SH11: C-1
SH11: C-1
A-008
EDC mouse command
X-326
12 V
GND
RAISE
WORK
R/W SENSE
POSITION
DRAFT
5 V
84344741
SH11: C-1
MC-5504C OR 0,5
SH17: B-1
MC-2301B BL 0,5
SH13: B-1
MC-2200F PK 0,5
MC-0759 YE 0,5
MC-0760 YE 0,5
MC-0761 YE 0,5
MC-0762 YE 0,5
MC-0763 YE 0,5
CN1B - RAISE signal
CN1B - WORK signal
CN3A- R/W sense
CN1B - POSITION signal
CN1B - DRAFT signal
X-230
CN1A - RAISE sol pos
CN2 - RAISE sol neg
CN1A - LOWER sol pos
CN2 - LOWER sol neg
MC-0755 WH 1,0
MC-0756 GY 1,0
MC-0757 WH 1,0
MC-0758 GY 1,0
Y-015
EDC RAISE solenoid
Y-016
EDC LOWER solenoid
X-334
X-335
TR-0755 WH 1,0
TR-0756 GY 1,0
TR-0757 WH 1,0
TR-0758 GY 1,0
A-003
EDC potentiometers panel
X-327
PWR1
GND1
DRC
HIGH
SLIP
CTRL
47357599
SH13: B-1
MC-2200E PK 0,5
SH17: B-1
MC-2301C BL 0,5
MC-0764 YE 0,5
MC-0765 YE 0,5
MC-0767 YE 0,5
CN1B - DROP RATE
CN1B - HEIGHT LIMIT
CN1B - MAX SLIP
CN1B - SENSE / MIX
S-020
EDC fender switch RH
X-330
PWR
RAISE
LOWER
87452577
SH11: C-1
MC-5504E OR 0,5
MC-0768A YE 0,5
MC-0769A YE 0,5
MC-SP-0768
MC-0768 YE 0,5
CN1B - FENDER SW UP
S-021
EDC fender switch LH
X-329
87452577
SH11: C-1
MC-5504D OR 0,5
MC-0768B YE 0,5
MC-0769B YE 0,5
MC-SP-0769
MC-0769 YE 0,5
CN1B - FENDER SW DOWN
SH22:A-4
SHT_26 1

Wiring harnesses - Electrical schematic sheet 08 SH-008_POWER DISTRIBUTION_TRANSMISSION

T4.100 without cab, with Dual Command™ transmission	
T4.110 without cab, with Dual Command™ transmission	
T4.120 without cab, with Dual Command™ transmission	
T4.90 without cab, with Dual Command™ transmission	

Type	Component	Connector / Link	Description
ECU	**A-001**	**X-240 X-230**	XCM
Fuse	**F-002**		PTO - TERRALOCK
Fuse	**F-009**		Wheel speed and press.SW
Fuse	**F-012**		VF - XCM, CLUTCH C and D
Fuse	**F-028**		SHUTTLE LEVER
Connector	X-130	**X-130**	Fuse Relay Module F1-F32
Connector	X-230	**X-230**	XCM CN3A
Connector	X-300A	X-300A	Cab-transmission inline
Connector	X-300B	**X-300B**	Trasnmissison-cab inline
Connector	X-350	**X-350**	PTO rear main command

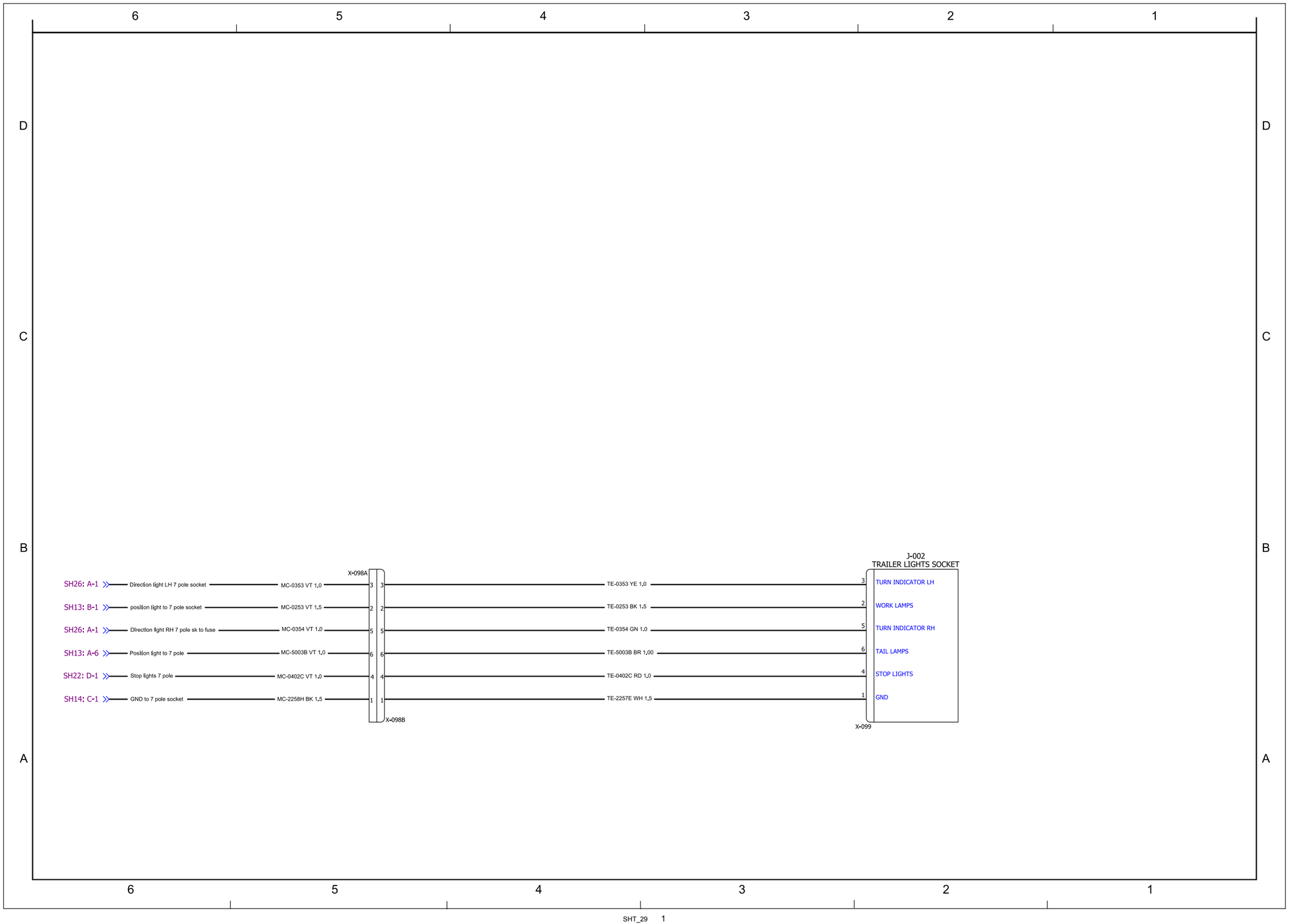

6
5
4
3
2
1
D
C
B
A
K-008
Front loader relay
SH10: B-1
MC-5503B OR 1,0
R8_30
30
87
R8_87
MC-0852 WH 1,0
SH10: B-1
MC-5503A OR 0,5
R8_86
86
85
R8_85
MC-0850 BK 0,5
X-110
X-110
X-325A
1
1
X-325B
ALE-0852 WH 1,0
Y-019
Alcar diverter solenoid
1
IN
OUT
2
X-423
X-423
ALE-2257Z BK 1,0
SH14: B-1
S-029
Front loader SW
SH15: B-6
MC-2258H BK 0,5
3
IN
OUT
4
X-086
X-086

SHT_26 1

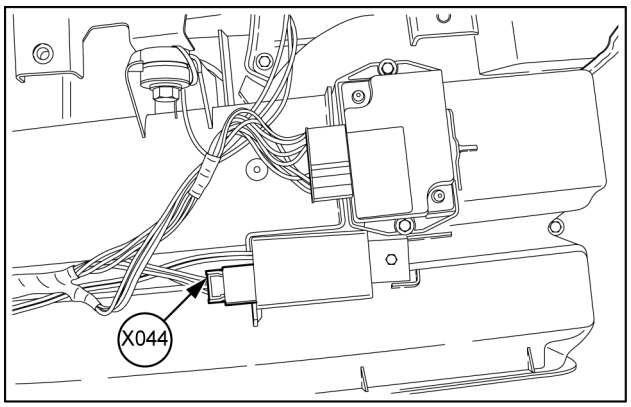
Wiring harnesses - Electrical schematic sheet 11 SH12-POWER DISTRIBUTION POWER SOCKET

T4.100 without cab, with mechanical or Power shuttle transmission	
T4.110 without cab, with mechanical or Power shuttle transmission	
T4.120 without cab, with mechanical or Power shuttle transmission	
T4.90 without cab, with mechanical or Power shuttle transmission	

Type	Component	Connector / Link	Description
Fuse	**F-015**		8A SOCKET
Fuse	**F-026**		LIGHTERS
Fuse	**F-031**		30/40A Socket
Fuse	**F-038**		30A Socket
Connector	X-027	**X-027**	Sigarette socket RH trim
Connector	X-120	**X-120**	Module Relays R9-R16 + Fuses F37-F40
Connector	X-130	**X-130**	Fuse relay module F1-F32


6
5
4
3
2
1
D
C
B
A
X-098A
SH26: A-1
Direction light LH 7 pole socket
MC-0353 VT 1,0
3
3
TE-0353 YE 1,0
SH13: B-1
position light to 7 pole socket
MC-0253 VT 1,5
2
2
TE-0253 BK 1.5
SH26: A-1
DIrection light RH 7 pole sk to fuse
MC-0354 VT 1,0
5
5
TE-0354 GN 1,0
SH13: A-6
Position light to 7 pole
MC-5003B VT 1,0
6
6
TE-5003B BR 1,00
SH22: D-1
Stop lights 7 pole
MC-0402C VT 1,0
4
4
TE-0402C RD 1,0
SH14: C-1
GND to 7 pole socket
MC-2258H BK 1.5
1
1
TE-2257E WH 1,5
X-098B
J-002
TRAILER LIGHTS SOCKET
3
TURN INDICATOR LH
2
WORK LAMPS
5
TURN INDICATOR RH
6
TAIL LAMPS
4
STOP LIGHTS
1
GND
X-099

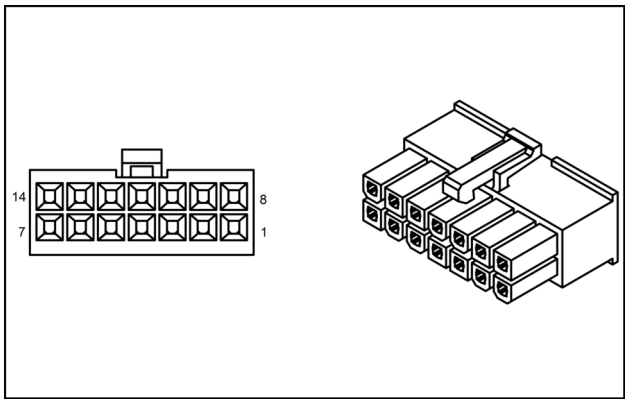
SHT_29 1



MOIL12TR0396AA 10

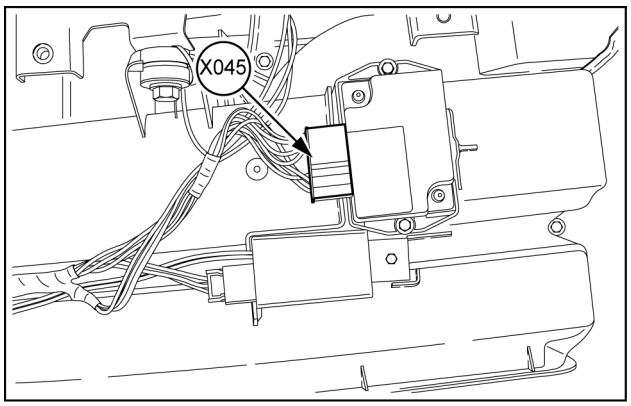
Pin	From	Wire	Description	Color-Size	frame
1	MC-SP-0908B-P-X	MC-0908C	AC switch	YE - 0.5	**SHEET 25**
2	**X-001A (Female) pin 9** Cab-Engine inline	MC-0909	A/C filter pressure switch	YE - 1.0	
3	**X-410 pin 1** CAB frame GND - Dashboard LH	MC-2257W	CAB GND to Frost thermostat	BK - 0.5	

X-045 - AC control unit [A-018] (87694702) (Female)



87694702 11

87694702



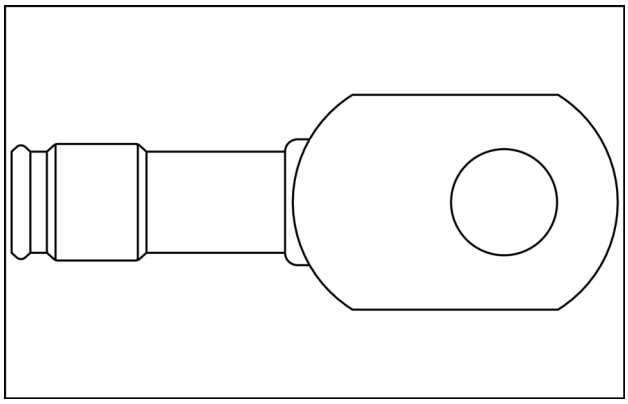
MOIL12TR0397AA 12

Pin	From	Wire	Description	Color-Size	frame
9A	MC-SP-1801A-P-X	MC-1801AF	+15 speed sensor fuse	OR - 1.0	**SHEET 06**
9A	F-009-P-1	WIRE1781	WIRE1781		
10A	MC-SP-1801A-P-X	MC-1801AE	+15 AC control unit fuse	OR - 0.75	
10A	F-010-P-1	WIRE942	WIRE942		
13A	MC-SP-1801A-P-X	MC-1801AD	+15 lights control fuse	OR - 1.5	
13A	F-013-P-1	WIRE1780	WIRE1780		
14A	MC-SP-1801A-P-X	MC-1801AB	+15 electric seat fuse	OR - 1.0	
14A	F-014-P-1	WIRE609	WIRE609		
15A	MC-SP-0010C-P-X	MC-0010CH	MAIN B+ to 8A Socket fuse	RD - 1.0	**SHEET 05**
15A	F-015-P-1	WIRE688	WIRE688		
16A	MC-SP-5001-P-X	MC-5001A	12V from K-002 position light relay [87]	VT - 1.5	**SHEET 14**
16A	F-016-P-2	WIRE731	WIRE731		
19A	MC-SP-0010C-P-X	MC-0010CF	MAIB B+ to FLASHER fuse	RD - 2.5	**SHEET 05**
19A	F-019-P-1	WIRE683	WIRE683		
20A	MC-SP-0010C-P-X	MC-0010CA	MAIN B+ to HIGH beam fuse	RD - 1.5	
20A	F-020-P-1	WIRE700	WIRE700		
21A	MC-SP-0030-P-X	MC-0030A	12V 58 key to stop light fuse	OR - 1.5	**SHEET 14**
21A	F-021-P-1	WIRE709	WIRE709		
22A	MC-SP-0030-P-X	MC-0030B	12V 58 Key to corner light fuse	OR - 1.5	**SHEET 06**
22A	F-022-P-1	WIRE715	WIRE715		
23A	MC-SP-0010B-P-X	MC-0010BD	MAIN B+ to LH Fan 3rd speed fuse	RD - 2.5	**SHEET 10**
23A	F-023-P-1	WIRE2096	WIRE2096		
24A	MC-SP-0010C-P-X	MC-0010CC	MAIN B+ to RH fan 3rd speed	RD - 2.5	**SHEET 05**
24A	F-024-P-1	WIRE2196	WIRE2196		
25A	MC-SP-0030-P-X	MC-0030D	12V 58 Key to reverse gear fuse	OR - 1.5	**SHEET 06**
25A	F-025-P-1	WIRE1786	WIRE1786		
26A	MC-SP-0010C-P-X	MC-0010CE	MAIN B+ to LIGHTERS fuse	RD - 2.5	**SHEET 05**
26A	F-026-P-1	WIRE692	WIRE692		
27A	MC-SP-0010C-P-X	MC-0010CB	MAIN B+ to LOW beam fuse	RD - 1.5	
27A	F-027-P-1	WIRE698	WIRE698		
31A	MC-SP-0010B-P-X	MC-0010BA	MAIN B+ to 30/40 A baler socket	RD - 6.0	
31A	F-031-P-1	WIRE2198	WIRE2198		
32A	MC-SP-0010-P-X	MC-0010X	MAIN B+ to IGNITION KEY	RD - 6.0	
32A	F-032-P-1	WIRE544	WIRE544		
1B	F-001-P-2	WIRE2205	WIRE2205		**SHEET 14**
1B	**X-091 (Female) pin 2**Lighting stalk switch	MC-1870	12V B+ from F-001 to lights control	OR - 1.0	
2B	MC-SP-1050-P-X	MC-1050	12V 58 Key from F-002	OR - 1.0	**SHEET 08**
2B	F-002-P-1	WIRE724	WIRE724		
3B	F-003-P-1	WIRE740	WIRE740		**SHEET 14**
3B	MC-SP-5002-P-X	MC-5002	Position light from F-003	VT - 0.75	
4B	X-300A-Male-P-5	MC-1850	12V from F-004 to safety	OR - 1.0	**SHEET 08**
4B	F-004-P-2	WIRE665	WIRE665		
5B	**X-001A (Female) pin 25** Cab-Engine inline	MC-5695A	12 V Key engine	OR - 1.0	**SHEET 09**
5B	F-005-P-2	WIRE657	WIRE657		
6B	**X-120 (Female) pin R1_30** Module Relays R9-R16 + Fuses F37	MC-1805	12 V from F-006 cranking	YE - 1.0	**SHEET 06**
6B	F-006-P-1	WIRE543	WIRE543		
7B	F-007-P-2	WIRE612	WIRE612		**SHEET 07**
7B	MC-SP-5696-P-X	MC-5696	12V from ADIC fuse	OR - 0.5	
8B	F-008-P-2	WIRE1787	WIRE1787		
8B	MC-SP-0117-P-X	MC-0117	MC-0117	RD - 0.5	
9B	X-300A-Male-P-6	MC-5100	12V from F-009 to speed sensor	OR - 1.0	**SHEET 08**
9B	F-009-P-2	WIRE1782	WIRE1782		
10B	F-010-P-2	WIRE2195	WIRE2195		**SHEET 10**
10B	MC-SP-5204-P-X	MC-5204	12V from F-010 to AC control unit	OR - 0.75	
13B	MC-SP-1860-P-X	MC-1860	12V from F-013	OR - 1.5	**SHEET 14**
13B	F-013-P-2	WIRE679	WIRE679		

Wire connectors - Component diagram 40

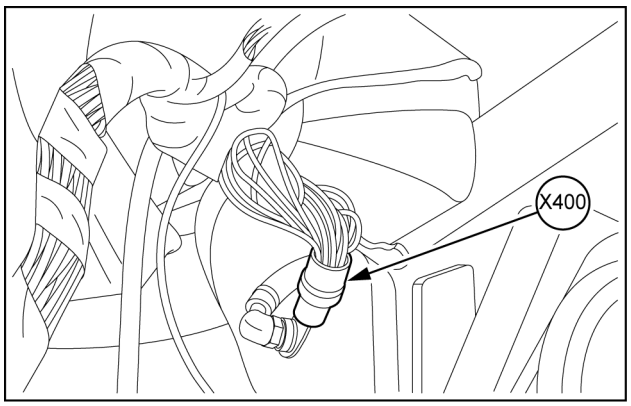
T4.100 with cab, with mechanical or Power shuttle transmission	
T4.110 with cab, with mechanical or Power shuttle transmission	
T4.120 with cab, with mechanical or Power shuttle transmission	
T4.90 with cab, with mechanical or Power shuttle transmission	

X-400 - CAB GND LH Pillar lower (84153306) (Male)



84153306 1

84153306

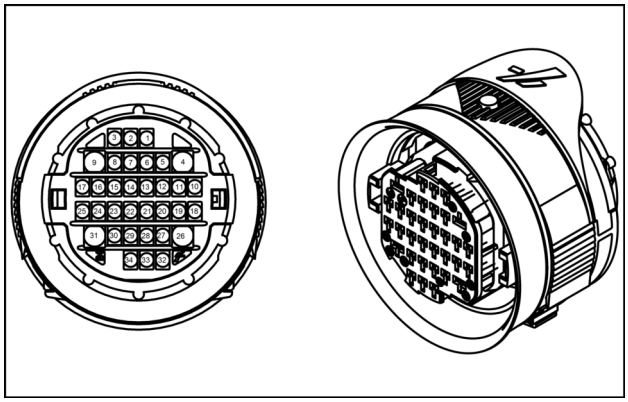


MOIL12TR0495AA 2

Wire connectors - Component diagram 00

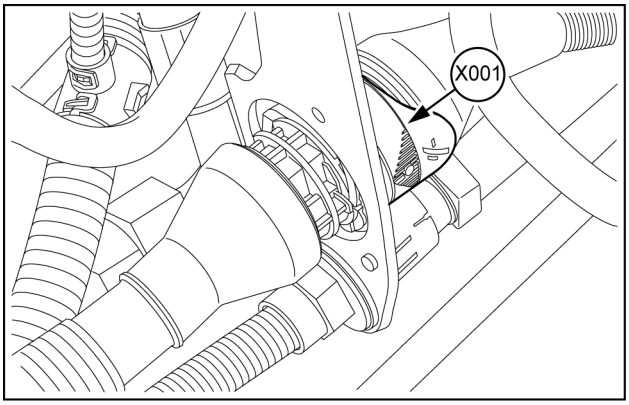
T4.100 with cab, with Dual Command™ transmission	
T4.110 with cab, with Dual Command™ transmission	
T4.120 with cab, with Dual Command™ transmission	
T4.90 with cab, with Dual Command™ transmission	

X-001A - Cab-Engine inline (84142902) (Female)



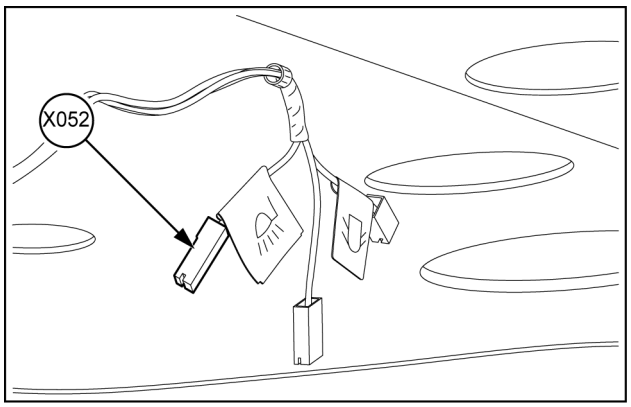
84142902 1

84142902



MOIL12TR0358AA 2

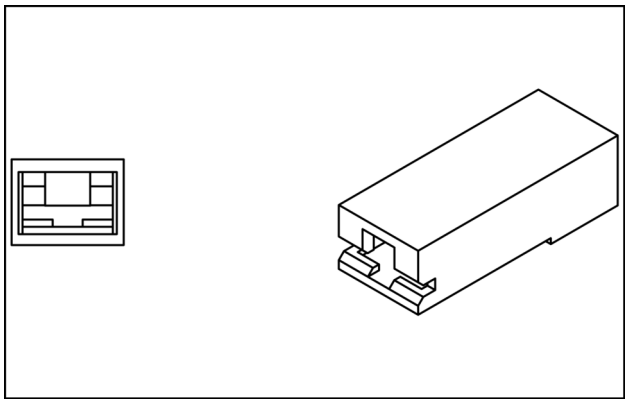
Pin	From	Wire	Description	Color-Size	frame
2	**X-376 (Male) pin E** DIAGNOSTIC SOCKET 1	MC-0042	Iso K-line	YE - 1.0	**SHEET 31**
3	**X-460 (Female) pin 13** ADIC LL-CN2	MC-0021	D+ alternator	YE - 1.0	**SHEET 03**
4	**X-410 (Male) pin 1** CAB frame GND - Dashboard LH	MC-2257C	Cab frame GND	BK - 1.0	**SHEET 15**
5	**X-460 (Female) pin 18** ADIC LL-CN2	MC-0407	Brake fluid level signal	YE - 1.0	**SHEET 28**
6	**X-460 (Female) pin 3** ADIC LL-CN2	MC-0116	Engine intake air filter signal	YE - 1.0	**SHEET 20**
7	MC-SP-5696-P-X	MC-5696H	12V from ADIC fuse	OR - 1.0	**SHEET 07**
8	**X-050A (Female) pin 9** CAB-ROOF inline	MC-0910	AC filter pressure switch	WH - 1.0	**SHEET 30**
9	**X-044 (Female) pin 2** FROST THERMOSTAT	MC-0909	AC filter pressure switch	YE - 1.0	
10	**X-410 (Male) pin 1** CAB frame GND - Dashboard LH	MC-2257A	Cab frame GND	BK - 1.5	**SHEET 15**
11	**X-050A (Female) pin 14** CAB-ROOF inline	MC-0349	Corner lights	VT - 1.5	**SHEET 36**
12	**X-120 (Female) pin R2_87** Module Relays R9-R16 + Fuses F37	MC-0201	LOW BEAM-LTS	WH - 1.5	**SHEET 35**
13	**X-120 (Female) pin R3_87** Module Relays R9-R16 + Fuses F37	MC-0205	HIGH BEAM-LTS	VT - 1.5	
14	**X-091 (Female) pin 1**INT lighting stalk	MC-0550	Signl horn	WH - 1.0	**SHEET 33**



MOIL12TR0404AA 6

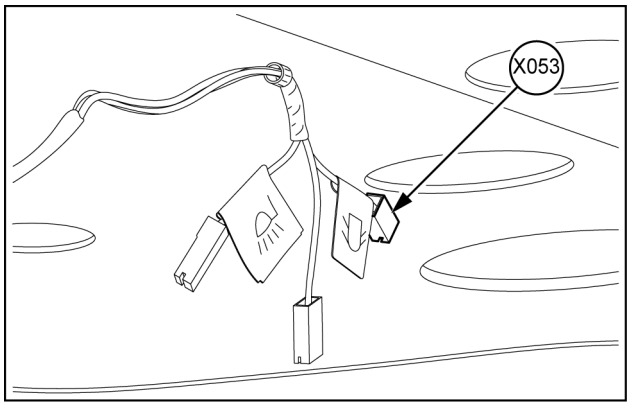
Pin	From	Wire	Description	Color-Size	frame
1	**X-404 pin 1** RH upper pillar GND ROOF	MR-2260L	GND RH ROOF to Ceiling light	BK - 0.5	**SHEET 38**

X-053 - Dome lamp DOOR [E-023] (87691425) (Female)



87691425 7

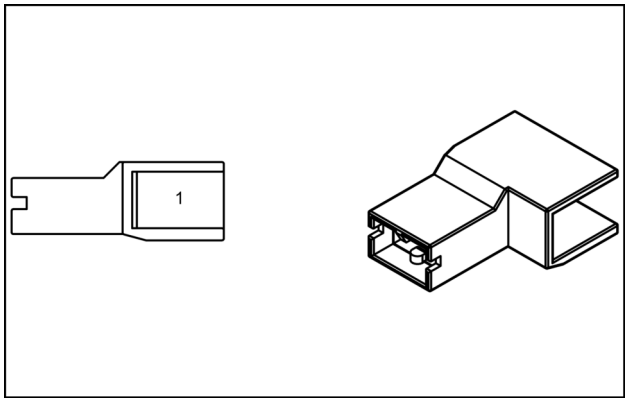
87691425



MOIL12TR0405AA 8

Pin	From	Wire	Description	Color-Size	frame
1	**X-064 (Female) pin 1**INT DOOR	MR-2504	SWITCH DOOR	GY - 0.5	**SHEET 38**

X-196 - power-off SW [S-014] (82944111) (Female)

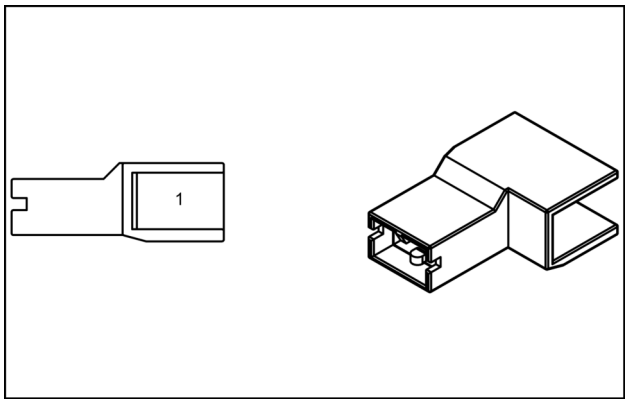


82944111 2

82944111

Pin	From	Wire	Description	Color-Size	Frame
1	TR-SP-5101A-P-X	TR-5101D	12 V from F-009 to POWER OFF SWITCH	OR - 1.0	**SHEET 08**

X-196 - power-off SW [S-014] (82944111) (Female)*

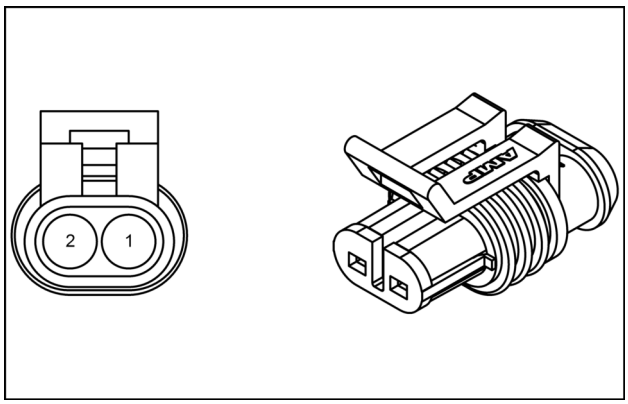


82944111 3

82944111

Pin	From	Wire	Description	Color-Size	Frame
1	**X-300B (Female) pin 32** Trasnmissison-cab inline	TR-0265	power off	YE - 1.0	**SHEET 22**

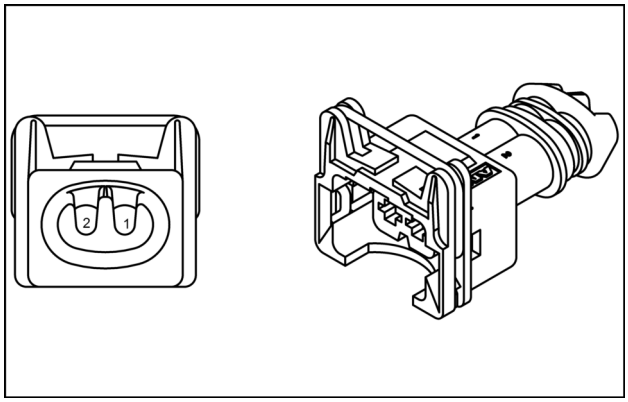
X-199 - Range 1 switch [S-001] (84152155) (Female)



84152155 4

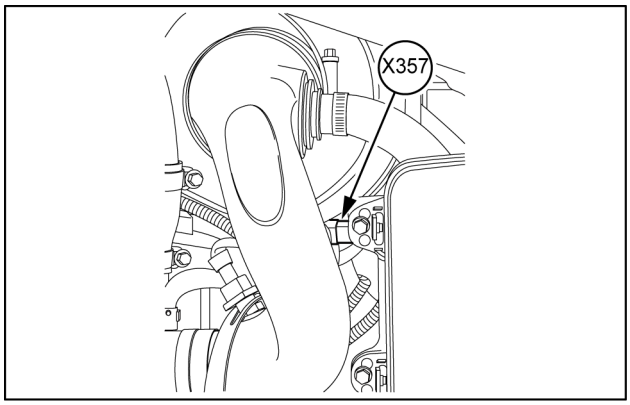
84152155

X-357 - Engine intake filter [S-059] (84607243) (Female)



84607243 8

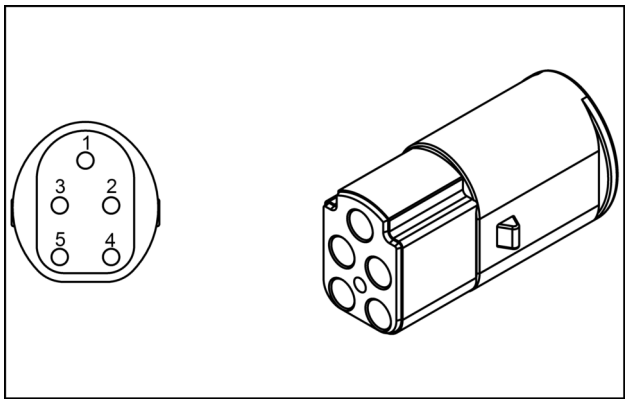
84607243



MOIL12TR0481AA 9

Pin	From	Wire	Description	Color-Size	frame
1	X-001B-Male-P-6	EN1-0116	Engine intake signal to ADIC	YE - 1.0	**SHEET 20**
2	EN1-SP-2250-P-X	EN1-2250AD	Engine intake switch GND	BK - 1.0	

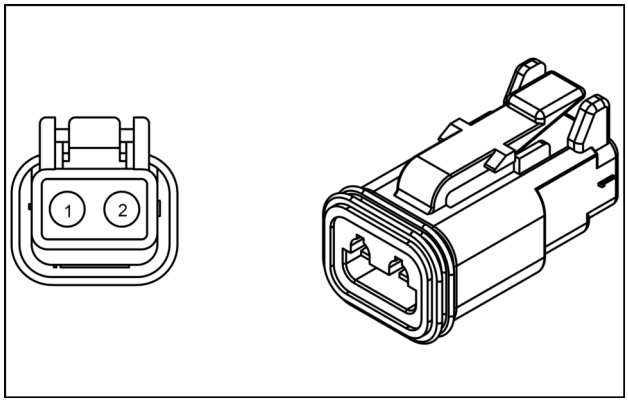
X-358 - Handbrake switch [S-034] (82867472) (Female)



82867472 10

82867472

X-932 - Adblue outlet pipe heater [R-001] (87708145) (Female)

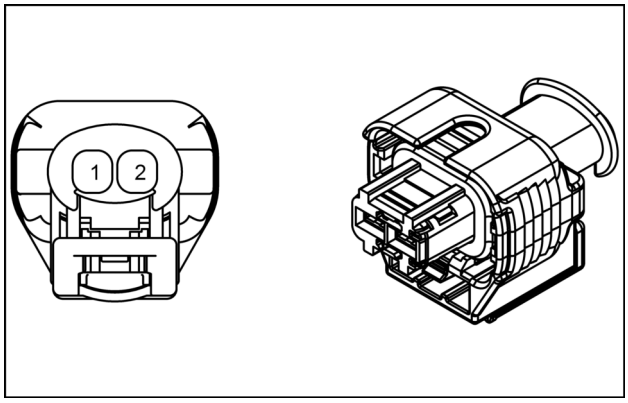


87708145 3

87708145

Pin	From	Wire	Description	Color-Size	frame
1	**X-925 (Female) pin 2** HCU Unit	EN1-0062	Adblue outlet heater +	WH - 1.5	**SHEET 18**
2	**X-420 (Male) pin 1** ENGINE GROUND	EN1-2250AC	Adblue outlet heater GND	BK - 1.5	

X-933 - Reduction agent dosing valve [Y-033] (84532147) (Female)

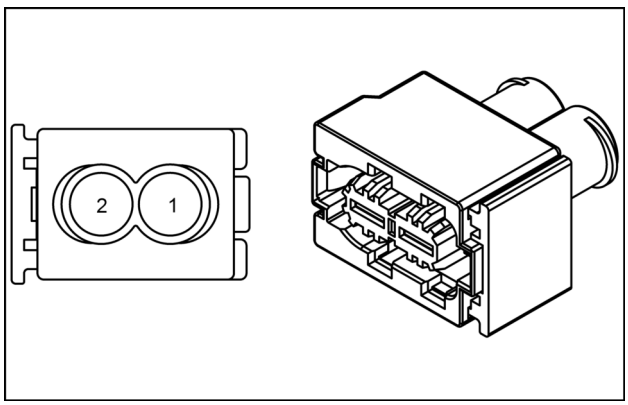


84532147 4

84532147

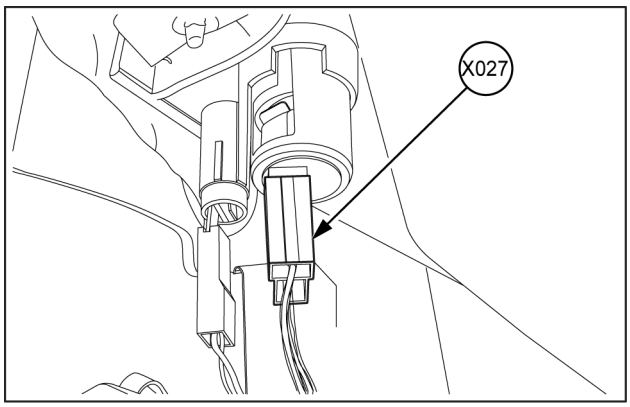
Pin	From	Wire	Description	Color-Size	frame
1	X-949A-Male-P-13	EN1-0067	Reduction agent valve H	WH - 1.5	**SHEET 19**
2	X-949A-Male-P-14	EN1-0068	Reduction agent valve L	GY - 1.5	

X-936A - Isobus Connector (84344499) (Female)



84344499 5

84344499



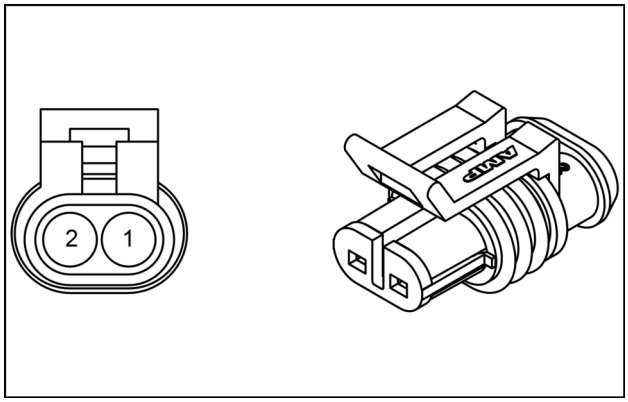
MOIL12TR0380AA 22

Pin	From	Wire	Description	Color-Size	frame
1	**X-400 (Male) pin 1** CAB chassis GND - LH pillar lowe	MC-2258R	GND cigar lighter	BK - 1.5	**SHEET 29**
2	**X-130 (Female) pin 26B** Fuse relay module F1-F32	MC-5404	12V B+ from F-026 to lighters	RD - 1.5	

Wire connectors - Component diagram 31

T4.100 without cab, with Dual Command™ transmission	
T4.110 without cab, with Dual Command™ transmission	
T4.120 without cab, with Dual Command™ transmission	
T4.90 without cab, with Dual Command™ transmission	

X-310 - Range H switch [S-003] (87691973) (Female)

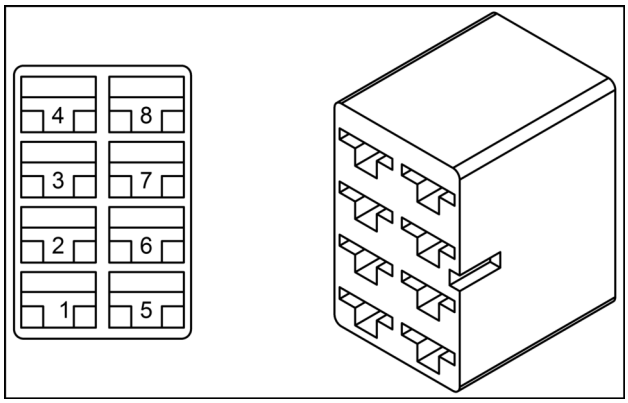


87691973 1

87691973

Pin	From	Wire	Description	Color-Size	frame
1	**X-300B (Female) pin 19** Trasnmissison-cab inline	TR-1111	TR-1111	YE - 1.0	**SHEET 21**
2	TR-SP-2200A-P-X	TR-2200L	5 V from XCM to high range switch	PK - 1.0	

X-313 - Reactivity switch [S-013] (87745329) (Female)

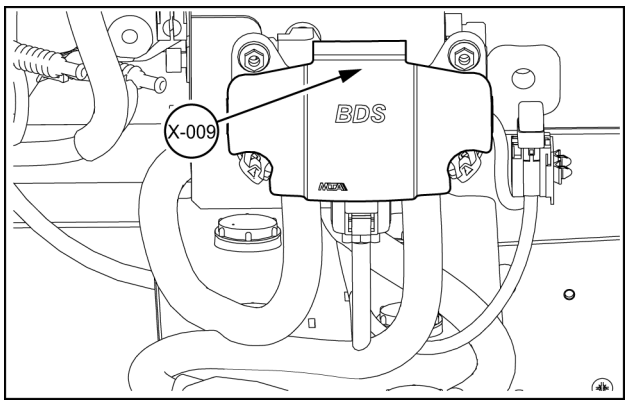


87745329 2

87745329

Pin	From	Wire	Description	Color-Size	frame
1	**X-240 (Female) pin 33** XCM CN3B	MC-1139	Reactivity HIGH	YE - 0.75	**SHEET 20**
2	MC-SP-5100-P-X	MC-5100L	12 V from F-002 to reactivity switch, low	OR - 0.75	**SHEET 08**
3	MC-SP-5100-P-X	MC-5100B	12 V from F-002 to reactivity switch, high	OR - 0.75	
4	**X-240 (Female) pin 24** XCM CN3B	MC-1138	Reactivity LOW	YE - 0.75	**SHEET 20**

Pin	From	Wire	Description	Color-Size	frame
25	**X-376 (Male) pin G** DIAGNOSTIC SOCKET 1	MC-2400	Switch Requirements	YE - 0.75	**SHEET 29**



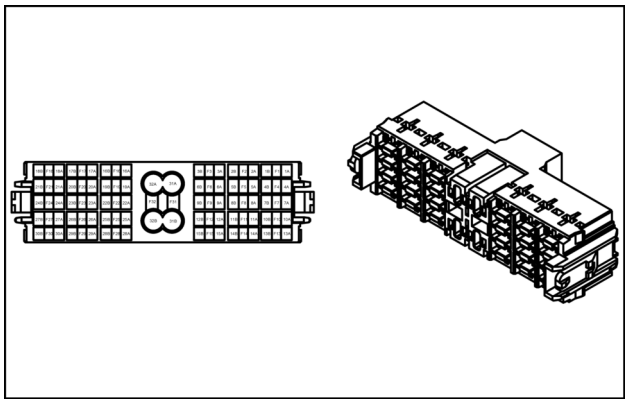
MOIL13TR00075AA 18

Pin	From	Wire	Description	Color-Size	frame
1	**X-500 (Male) pin 1** Battery positive clamp	BBDS-0066	Battery positive to BDS	RD - 70.0	**SHEET 03**

Wire connectors - Component diagram 13

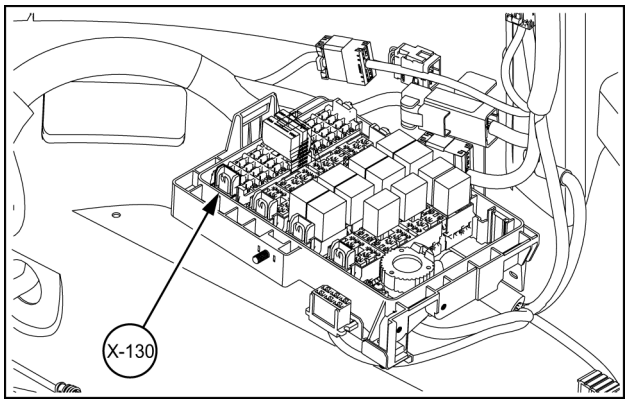
T4.100 without cab, with mechanical or Power shuttle transmission	
T4.110 without cab, with mechanical or Power shuttle transmission	
T4.120 without cab, with mechanical or Power shuttle transmission	
T4.90 without cab, with mechanical or Power shuttle transmission	

X-130 - Fuse relay module F1-F32 [F-008] (87314761) (Female)



87314761 1

87314761



MOIL13TR00090AA 2

Pin	From	Wire	Description	Color-Size	frame
1A	MC-SP-0010A-P-X	MC-0010CL	MAIN B+ to LIGHTS CONTROL fuse	RD - 0.5	**SHEET 05**
2A	MC-SP-0030-P-X	MC-0030C	12V 58 key to rear PTO fuse	OR - 0.75	**SHEET 06**
3A	MC-SP-5001-P-X	MC-5001B	12V from K-002 position light relay [87]	VT - 0.75	**SHEET 13**
4A	MC-SP-1801A-P-X	MC-1801AG	+15 Safety switches fuse	OR - 1.0	**SHEET 06**
5A	MC-SP-1801A-P-X	MC-1801AC	+15 engine fuse	OR - 1.0	
6A	**X-510 (Female) pin 9** Key SW	MC-1804	Crank signal	YE - 1.0	
7A	MC-SP-1801A-P-X	MC-1801AA	+15 ADIC fuse	OR - 0.5	
8A	MC-SP-0010A-P-X	MC-0071	MAIN B+ to ADIC fuse (KAM)	RD - 0.5	**SHEET 07**
9A	MC-SP-1801A-P-X	MC-1801AF	+15 speed sensor fuse	OR - 1.0	**SHEET 06**
13A	MC-SP-1801A-P-X	MC-1801AD	+15 lights control fuse	OR - 1.5	
14A	MC-SP-5001-P-X	MC-5001D	12V from K-002 position light relay [87]	VT - 1.0	**SHEET 13**
15A	MC-SP-0010A-P-X	MC-0010CH	MAIN B+ to 8A Socket fuse	RD - 1.0	**SHEET 05**
16A	MC-SP-5001-P-X	MC-5001A	12V from K-002 position light relay [87]	VT - 1.5	**SHEET 13**
19A	MC-SP-0010A-P-X	MC-0010CF	MAIB B+ to FLASHER fuse	RD - 2.5	**SHEET 05**
20A	MC-SP-0010A-P-X	MC-0010CA	MAIN B+ to HIGH beam fuse	RD - 1.5	
21A	MC-SP-0030-P-X	MC-0030A	12V 58 key to stop light fuse	OR - 1.5	**SHEET 06**
23A	MC-SP-0030-P-X	MC-0030B	12V 58 Key to corner light fuse	OR - 1.5	**SHEET 13**

Pin	From	Wire	Description	Color-Size	frame
1	**X-120 pin R3_85** Module Relays R9-R16 + Fuses F37	MC-2253N	CAB GND to High beam relay [85]	BK - 0.5	**SHEET 06**
1	**X-120 pin R2_85** Module Relays R9-R16 + Fuses F37	MC-2253M	CAB GND to low beam relay [85]	BK - 0.5	
1	**X-110 pin R1_85** Module relays R1-R8 + Fuses F33-	MC-2253G	GND service relay [85]	BK - 0.5	
1	**X-110 pin R8_85** Module relays R1-R8 + Fuses F33-	MC-2253C	Rear PTO relay GND [85]	BK - 0.5	
1	**X-090 pin B8** FLASHER UNIT	MC-2253X	CAB GND to FLASHER - 1	BK - 2.5	
1	**X-110 pin R3_85** Module relays R1-R8 + Fuses F33-	MC-2253D	Rear PTO relay GND [85]	BK - 0.5	
1	**X-120 pin R8_85** Module Relays R9-R16 + Fuses F37	MC-2253B	CAB GND to stop relay[85]	BK - 0.5	
1	**X-092 pin 7**HAZARD LIGHTS switch	MC-2253V	HAZARD LIGHTS switch backlight [7]	BK - 0.5	
1	**X-120 pin R7_85** Module Relays R9-R16 + Fuses F37	MC-2253E	PTO lamp relay GND [85]	BK - 0.5	
1	**X-120 pin R1_85** Module Relays R9-R16 + Fuses F37	MC-2253F	NEUTRAL SWITH RELAY GND [85]	BK - 0.5	
1	**X-021 pin 2** LH front SMV	MC-2253J	GND LH front SMV	BK - 1.0	
1	**X-022 pin 2** RH front SMV	MC-2253W	GND RH front SMV	BK - 1.0	
1	**X-260 pin 3**UP-DOWN SWITCH	MC-2253Q	GROUND to up-down SWITCH [3]	BK - 0.5	
1	**X-250 pin 3**Home/Enter switch	MC-2253R	GROUND to Home/Enter switch [3]	BK - 0.5	
1	**X-389A (Female) pin 2** CAB - REVERSE inline	MC-2253Y	GND reverse system	BK - 1.0	
1	**X-260L pin 1**UP-DOWN switch backlight	MC-2253T	Backlighting up-down switch	BK - 0.5	
1	**X-260 pin 2**UP-DOWN SWITCH	MC-2253A	GROUND to up-down SWITCH [2]	BK - 0.5	
1	**X-325A pin 2**Front loader switch	MC-2253K	Front diverter solenoid GND	BK - 1.0	
1	**X-376 pin A** DIAGNOSTIC SOCKET 1	MC-2253H	GND Diagnostic socket	BK - 0.75	
1	**X-120 pin R6_85** Module Relays R9-R16 + Fuses F37	MC-2253P	GND 30A socket relay [85]	BK - 0.5	
1	**X-250 pin 2**Home/Enter switch	MC-2253	GROUND to Home/Enter SWITCH[2]	BK - 0.5	
1	**X-460 pin 15** ADIC LL-CN2	MC-2253Z	GND ADIC	BK - 0.5	
1	**X-001A (Female) pin 10** Cab-Engine inline	MC-2253I	MC-2253I	BK - 1.5	
1	**X-250L pin 1**Home/Enter switch backlight	MC-2253U	Backlighting home enter switch	BK - 0.5	
1	**X-110 pin R2_85** Module relays R1-R8 + Fuses F33-	MC-2253S	GND position light relay [85]	BK - 0.5	
1	**X-120 pin R4_85** Module Relays R9-R16 + Fuses F37	MC-2253L	GND reverse relay [85]	BK - 0.75	

Electrical components - Speaker description

T4.100 with cab, with mechanical or Power shuttle transmission	
T4.110 with cab, with mechanical or Power shuttle transmission	
T4.120 with cab, with mechanical or Power shuttle transmission	
T4.90 with cab, with mechanical or Power shuttle transmission	

H-001 - Horn (Speaker)

Component Type	Speaker
Wiring frames	**SHEET 28**
Connectors	**X-016 (Female)** **X-015 (Female)**

H-002 - Rev gear Buzzer (Speaker)

Component Type	Speaker
Wiring frames	**SHEET 28**
Connectors	**X-557 (Female)**

H-003 - SPEAKER RH (Speaker)

Component Type	Speaker
Wiring frames	**SHEET 27**
Connectors	**X-083 (Female)** **X-082 (Female)**

H-004 - SPEAKER LH (Speaker)

Component Type	Speaker
Wiring frames	**SHEET 27**
Connectors	**X-085 (Female)** **X-084 (Female)**

Electrical components - Resistor description

T4.100 with cab, with Dual Command™ transmission	
T4.110 with cab, with Dual Command™ transmission	
T4.120 with cab, with Dual Command™ transmission	
T4.90 with cab, with Dual Command™ transmission	

R-001 - Adblue inlet pipe heater (Resistor)

Component Type	Resistor
Wiring frames	**SHEET 18**
Connectors	**X-932 (Female)**

R-002 - Adblue outlet pipe heater (Resistor)

Component Type	Resistor
Wiring frames	**SHEET 18**
Connectors	**X-931 (Female)**

R-003 - CAN2 TERMINATOR (Resistor)

Component Type	Resistor
Wiring frames	**SHEET 18**
Connectors	**X-930 (Female)**

R-006 - Fuel heater (Resistor)

Component Type	Resistor
Wiring frames	**SHEET 20**
Connectors	**X-362 (Female)**

R-093a - LH FAN RESISTOR (Resistor)

Component Type	Resistor
Wiring frames	**SHEET 30**
Connectors	**X-C93 (Female)**

R-093b - RH FAN RESISTOR (Resistor)

Component Type	Resistor
Wiring frames	**SHEET 30**
Connectors	**X-C93* (Female)**

Electrical components - ECU description

T4.100 without cab, with mechanical or Power shuttle transmission	
T4.110 without cab, with mechanical or Power shuttle transmission	
T4.120 without cab, with mechanical or Power shuttle transmission	
T4.90 without cab, with mechanical or Power shuttle transmission	

A-005 - ADIC LOW LINE (ECU)

Component Type	ECU
Wiring frames	**SHEET 03** **SHEET 06** **SHEET 12** **SHEET 13** **SHEET 17** **SHEET 18** **SHEET 19** **SHEET 20** **SHEET 22** **SHEET 24** **SHEET 26** **SHEET 27** **SHEET 30** **SHEET 31**
Connectors	**X-450 (Female)**

A-007 - BDS relay (ECU)

Component Type	ECU
Wiring frames	**SHEET 03**
Connectors	**X-008 (Female)**

A-010 - Engine Control Unit (ECU)

Component Type	ECU
Wiring frames	**SHEET 15** **SHEET 16** **SHEET 31**
Connectors	**X-937 (Female)** **X-939 (Female)**

A-015 - FLASHER UNIT (ECU)

Component Type	ECU
Wiring frames	**SHEET 26**
Connectors	**X-090 (Female)**

A-021 - DENOX MODULE (ECU)

Component Type	ECU
Wiring frames	**SHEET 15**
Connectors	**X-356 (Female)**

A-022 - HCU Unit (ECU)

Component Type	ECU
Wiring frames	**SHEET 15**
Connectors	**X-925 (Female)**

Contents

Electrical systems - 55

Alternator - 301

TECHNICAL DATA

FUNCTIONAL DATA

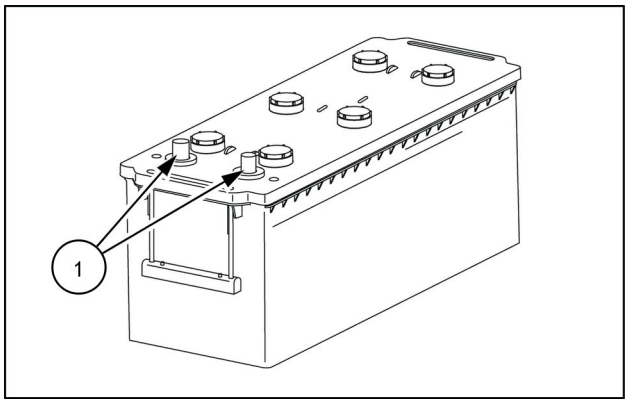
SERVICE

(*) See content for specific models

Battery - Install

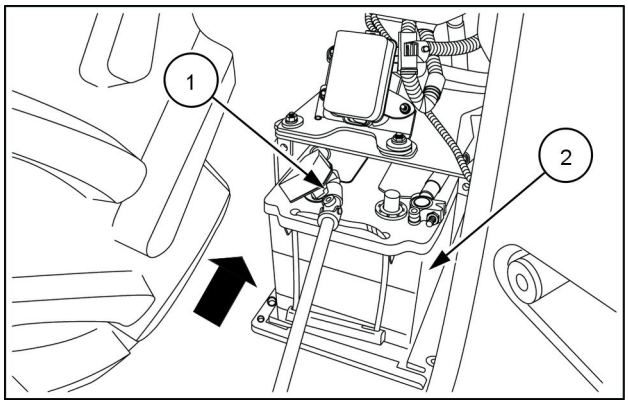
Prior operation:
Battery - Remove (55.302) approximately.

1. Check that the battery is clean, there are no signs of electrolyte leak.
2. Apply **PETROLEUM JELLY** to the terminals **(1)**; do not use traditional lubricants as they can cause electrolytic corrosion.
3. Make sure that the battery housing and the terminals are clean.



MOIL15TR00604AA 1

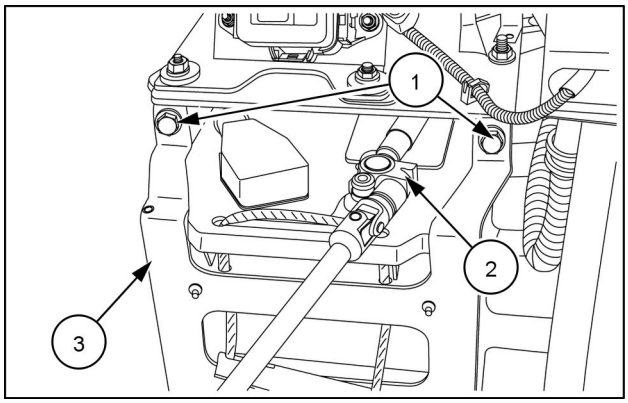
4. Position the battery **(2)** in its housing, using the handles to lift it.
5. Connect the positive cable connection **(1)**.



MOIL15TR00603AA 2

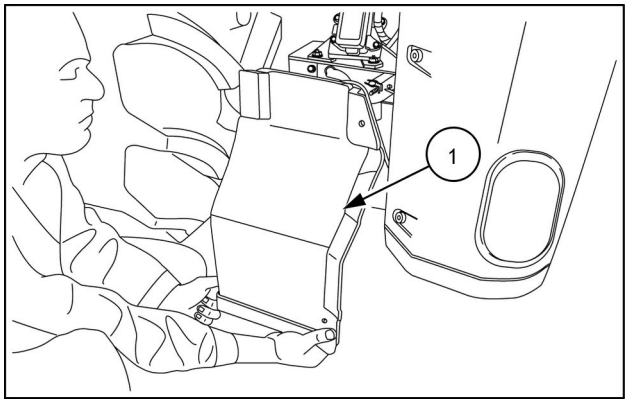
6. Install the battery retaining bracket **(3)** screwing the retaining bolts **(1)**.
7. Connect the negative cable connection **(2)**.

NOTE: *Make sure that the battery terminal polarity is correct and that the terminal connections are suitably tightened.*



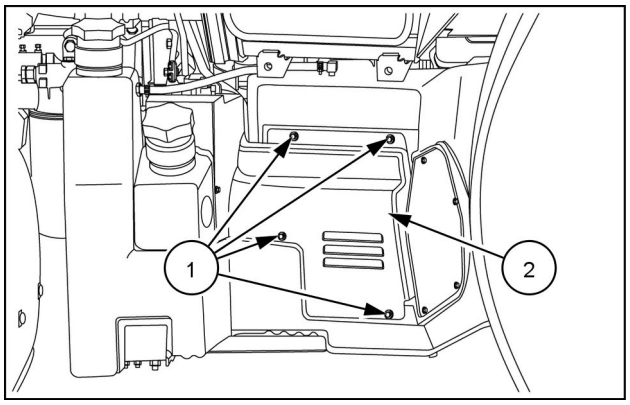
MOIL15TR00602AA 3

8. Position the battery cover **(1)** in its seat.



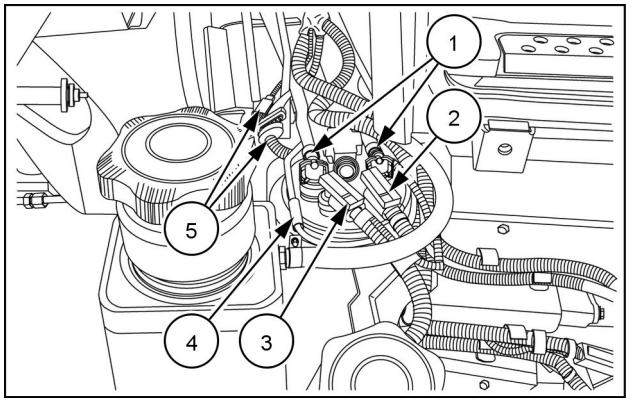
MOIL15TR00601AA 4

8. Loosen the retaining screws **(1)**. Remove the lateral guard **(2)**.



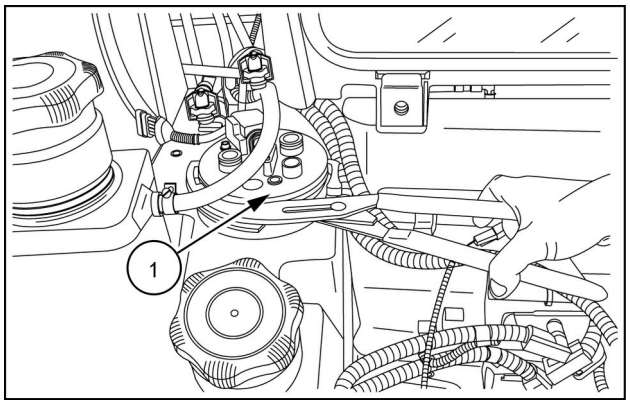
MOIL15TR00671AA 8

9. Disconnect the refrigerant liquid lines **(1)**.
10. Disconnect the supply line **(2)** and the return line **(3)** to the supply module for Diesel Exhaust Fluid **DEF/ADBLUE®**. Disconnect the vent line **(4)**.
11. Disconnect the electrical connections **(5)**.



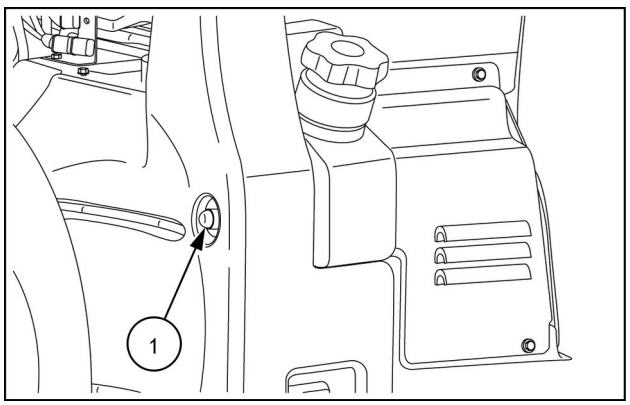
MOIL15TR00673AA 9

12. Rotate the **DEF/ADBLUE®** diesel exhaust fluid tank level and temperature sensor **(1)** counter-clockwise until the sensor unlocks.



MOIL15TR00676AA 10

13. Remove the protection cap **(1)**.



MOIL15TR00677AA 11

Electronic module - Electrical schema - CCU for models with Hi-Lo transmission

T4.100 with cab, with Dual Command™ transmission	
T4.100 without cab, with Dual Command™ transmission	
T4.110 with cab, with Dual Command™ transmission	
T4.110 without cab, with Dual Command™ transmission	
T4.120 with cab, with Dual Command™ transmission	
T4.120 without cab, with Dual Command™ transmission	
T4.90 with cab, with Dual Command™ transmission	
T4.90 without cab, with Dual Command™ transmission	

Components table

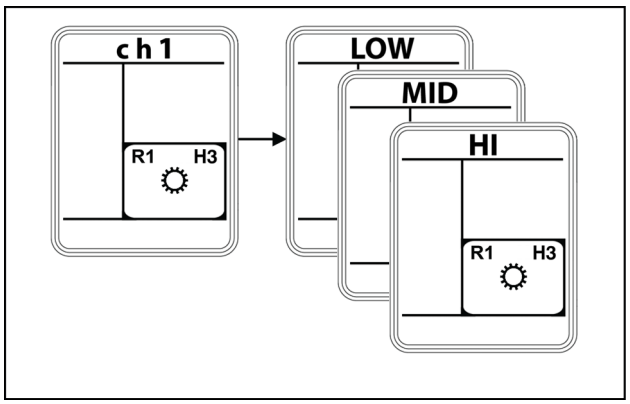
Component name	Description
A-003	EDC potentiometers panel
A-006	Shuttle lever
A-008	EDC mouse
B-006	Rear PTO speed sensor
B-007	EDC right-hand draft sensor
B-008	EDC left-hand draft sensor
B-009	EDC position sensor
B-011	Clutch pedal position
B-032	Wheel speed sensor
B-033	Transmission oil temperature sensor
E-001	EDC LED panel
F-002	Rear PTO circuit power supply [**+12 V** 15/54 key]
F-005	ECU power supply [**+12 V** 15/54 key]
F-006	Cranking power supply [**+12 V** 50a key]
F-009	Wheel speed sensor, pressure switches, power supply [**+12 V** 15/54 key]
F-011	EDC circuit power supply [**+12 V** 15/54 key]
F-094	Main engine power supply [**+12 V** G-001]
K-012	Reverse gear buzzer relay
K-029	Starting relay
M-001	Starter motor
S-001	Low range switch
S-002	Medium range switch
S-003	High range switch
S-004	Creeper switch
S-005	Gear 3-4 switch
S-006	Park Lock engaged switch (mechanical parking block)
S-007	Gear 1-2 switch
S-008	Differential lock switch
S-008A	Clutch "A" safety pressure switch
S-008B	Clutch "B" safety pressure switch
S-009	4WD input switch
S-012	Rear PTO switch
S-013	Power shuttle reactivity switch
S-016	Ground PTO engaged switch
S-017	PTO right-hand fender switch
S-018	PTO left-hand fender switch
S-020	EDC right-hand fender switch
S-021	EDC left-hand fender switch
S-030	Brake pedal switch right-hand
S-031	Brake pedal switch left-hand
S-037	Gear lever buttons
S-041	Clutch pedal switch
Y-006	Clutch "C" solenoid
Y-007	Clutch "D" solenoid

Channel	Description
6	Park lock enable/disable
7	Bevel gear type
8	Bevel gear speed
9	Multicontroller option enable
10	Front axle type
11	Creeper option enable

Transmission channel 1 - Flyshift speed threshold

This functionality allows the adjustment of the flyshift speed threshold. The flyshift speed is a speed threshold: flyshifts above this speed use an engagement table faster than the one used flyshifting below this speed. This menu allow the choice of the speed threshold in a set of three values.

1. Once selected the channel 1 use buttons **(3)** or **(4)**, image **1**, to toggle between:
   - "LOW" [around **4.8 km/h** (**3.0 mph**)];
   - "MID" [around **6.4 km/h** (**4.0 mph**)];
   - "HI" [around **12.9 km/h** (**8.0 mph**)].
2. When the desired option is displayed, press and hold down either the button **(3)** or **(4)**, image **1**, for **1 s** until the instrument cluster bleeps indicating that the selection has been stored.



MOIL15TR00044AA 3

Transmission channel 2, 3, 4, 5 - Clutches A, b, C, d quick fill adjustment

This functionality allows the manual adjustment of the clutch fill time on all clutches. The fill time for each clutch can be adjusted from **30 - 150 ms** in increments of **10 ms**.

1. Once selected the channel (2, 3, 4 or 5) use buttons **(3)** or **(4)**, image **1**, to change the quick filling time. Refer to the table below.

Channel	Description	Range	Default
2	Clutch A quick fill adjustment	**30 - 150 ms**	60
3	Clutch b quick fill adjustment	**30 - 150 ms**	60
4	Clutch C quick fill adjustment	**30 - 150 ms**	40
5	Clutch d quick fill adjustment	**30 - 150 ms**	40

Transmission channel 6 - Park lock enable/disable

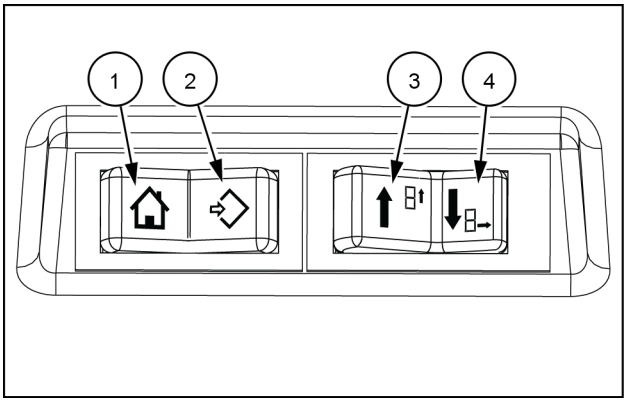
This channel is used to select whether the park lock option is enabled or disabled.

Software - HF - View controller hardware information - Analog Digital Instrument Cluster (ADIC)[ZI]

This function is common for all modules.

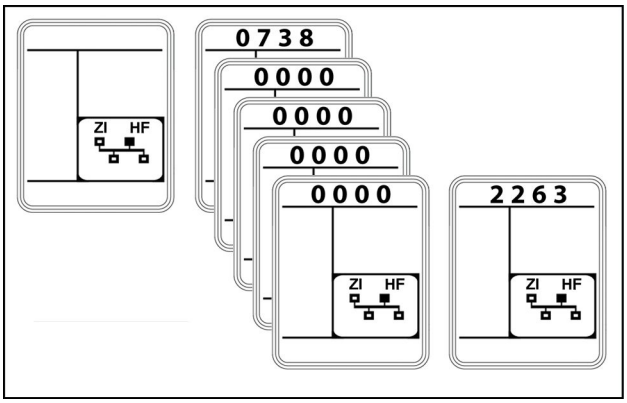
Access the HH menu, as described in **Software - View - HH menu access (55.640)**, for the ZI unit and proceed as follows.

1. Select the HF menu with the buttons **(3)** or **(4)** and press **(2)** to access the HH menu program.



MOIL15TR00005AA 1

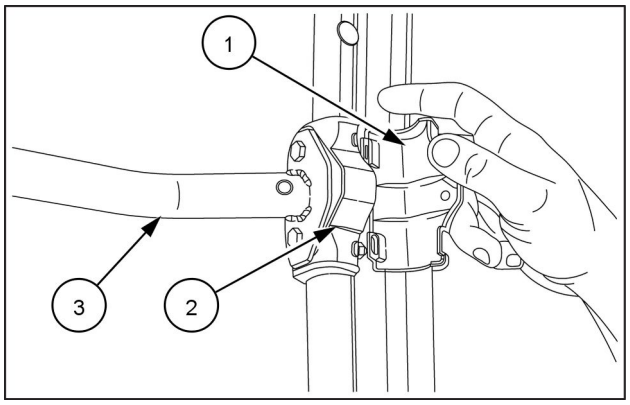
2. The display will show, in the upper side, a sequence of numbers, representing the hardware identifier and the hardware version, in some cases the hardware serial number also, as example:
   - 0738: hardware module identification;
   - 0000.0000: hardware module release identification;
   - 0000.0000.2263: control unit serial number (printed on control unit label).



MOIL15TR00027AA 2

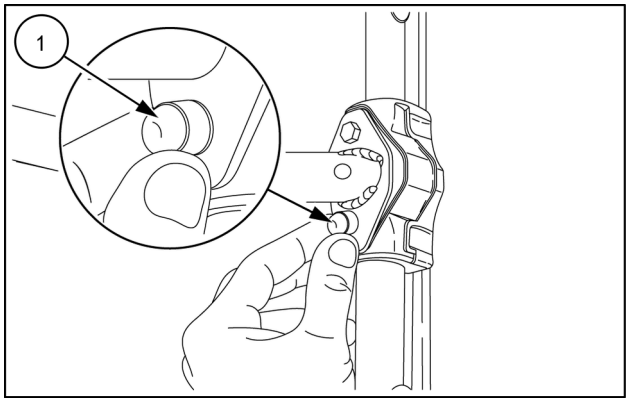
3. At the end of the procedure, the program automatically returns to the HF menu, from which it is possible scrolling through the HH menu.

3. Install the rear cover **(1)** of the support **(3)** retaining terminal **(2)**.



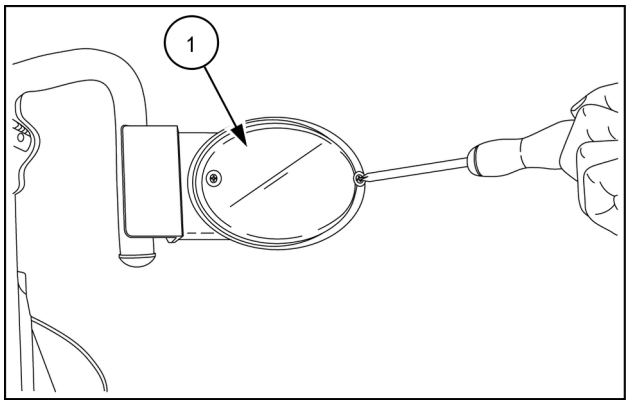
MOIL15TR00952AA 3

4. Install the protection caps **(1)** of the fastening nuts of the direction indicator support to the cab.



MOIL15TR00951AA 4

5. Install the direction indicator light body **(1)**, as described in **Turn signal and/or hazard lights - Install (55.404)**.



MOIL15TR00945AA 5

Wiring harnesses - Electrical schematic sheet 26 (55.100)

1066-Hydraulic valve raise solenoid - short circuit

Control Module : CCU

Cause:
EDC HYDRAULIC VALVE RAISE SOLENOID SHORT CIRCUIT

Possible failure modes:

1. Faulty connector
2. Faulty EDC valve raise solenoid
3. Wiring harness faulty
4. Faulty controller

Solution:

1. Check the EDC valve raising solenoid **Y-015** connector **X-334**, the transmission - cab main connector **X-300B** and the connectors **X-200** and **X-220** of the controller.

   A. Ensure the connectors are connected and not damaged, that the pins are in the correct position and the fit is tight. Repair or replace as necessary.

   B. If the connectors are okay, continue to step **2**
2. Check the EDC valve raise solenoid **Y-015**.

   A. Disconnect the connector **X-334** of the EDC valve lifting solenoid valve **Y-015**. Measure the resistance between the terminals of the solenoid valve. If the resistance indicated is not approximately **2 Ω**, remove and replace the EDC valve lower solenoid **Y-015**.

   B. If the solenoid valve is okay, continue to step **3**
3. Check for a short circuit to positive voltage.

   A. Turn the ignition key switch ON. Measure the voltage between the connector:
   X-334 pin 2 and ground.
   If a voltage is indicated, repair or replace the harness as required.

   B. If a voltage is not indicated, continue to step **4**
4. Check for a short circuit to positive voltage.

   A. Turn the ignition key switch OFF. Disconnect the connector **X-200** of the controller. Turn the ignition key switch ON. Measure the voltage between the connector:
   X-334 pin 1 and ground.
   If a voltage is indicated, repair or replace the harness as required.

   B. If the harness is okay, download the correct level of software. If the fault re-occurs, remove and replace the controller.

2028-Clutch B not calibrated

T4.100 with cab, with Dual Command™ transmission	
T4.100 without cab, with Dual Command™ transmission	
T4.110 with cab, with Dual Command™ transmission	
T4.110 without cab, with Dual Command™ transmission	
T4.120 with cab, with Dual Command™ transmission	
T4.120 without cab, with Dual Command™ transmission	
T4.90 with cab, with Dual Command™ transmission	
T4.90 without cab, with Dual Command™ transmission	

Control Module : CCU

Context:
Effects:
Poor performance of the uncalibrated clutch.

Possible failure modes:

1. Transmission not calibrated
2. Clutch B solenoid valve fault
3. Hydraulic circuit fault
4. Mechanical failure

Solution:

1. Check whether the transmission has been calibrated.
   A. If the transmission has not been calibrated since replacing the control unit (CCU), or since using H8, delete the EEPROM memory and run the transmission calibration procedure.
   B. If the transmission has been calibrated, download the correct level of the software and run the calibration procedure again. If the fault re-occurs again, continue to step **2**
2. Check for other error codes being displayed.
   A. If other error codes are displayed, continue with these tests.
   B. If no other error code is displayed, continue to step **3**
3. Check the solenoid valve of the broken clutch.
   A. Remove the solenoid, clean or replace as required.
   B. If the error code is still displayed, continue to step **4**
4. Check the clutch pack pressures.
   A. If the pressures indicated are approximately **18.00 bar** (**261.00 psi**), possible mechanical fault within the transmission. If the pressures of all the clutches are low, continue to hydraulic troubleshooting procedures.
   B. If the pressures indicated are not approximately **18.00 bar** (**261.00 psi**) on one or more of the clutches. there may be an internal leak in the transmission.

2052-Oil temperature sensor - short circuit

Control Module : CCU

Context:
Cause:
Short to ground between the oil temperature sensor and the control unit (CCU), the sensor is faulty, or the oil temperature is above **130 °C**.
Effects:
It is presumed that the oil is hot. If the oil is cold, sluggish shifting and a higher than normal clutch pedal bite point will be indicated.

Possible failure modes:

1. Oil temperature
2. Faulty connectors
3. Oil temperature sensor faulty
4. Wiring fault
5. Control unit (CCU) fault

Solution:

1. Check the transmission oil temperature sensor in H9, Channel 14.
   A. The value will change dependant on temperature, at **25 °C** (**77.0 °F**) 52 is displayed; if the reading is incorrect, continue to step **2**
   B. If the values displayed are okay, while still in H9 channel 14, wiggle the harness, the transmission oil temperature sensor connector **X-316**, the connectors of the control unit (CCU) **X-200** and **X-210** and the transmission - cab main connector **X-300B** to check for an intermittent circuit. Channel 14 values will change if an intermittent circuit is detected; Repair or replace as necessary.
2. Check the temperature sensor connector **X-316**, the connectors of the control unit (CCU) **X-200** and **X-210** and the transmission - cab main connector **X-300B**.
   A. Ensure that the connectors are connected, not damaged, the pins are in the correct position and that the fit is tight. Repair or replace as necessary.
   B. If the connectors are okay, continue to step **3**
3. Check for a short circuit in the temperature sensor.
   A. Disconnect the connector **X-316**. Check the connector between:
   X-316 pin A and B
   If a short circuit is indicated, remove and replace the temperature sensor.
   B. If a short circuit is not indicated, continue to step **4**
4. Check the temperature sensor for a short to ground.
   A. Check between the component side of connector:
   X-316 pin A and ground
   X-316 pin B and ground
   If short to ground is indicated, remove and replace the temperature sensor.
   B. If the temperature sensor is okay, continue to step **5**
5. Check for a short to ground.
   A. Check between the connector:
   X-316 pin B and ground
   If a short to ground is indicated, repair or replace the harness as required.

2094-Low power HSD short to gnd

Control Module : CCU

Context:
Cause:
Short to ground between the control unit (CCU) and gear lever switches.
Effects:
Switches disabled, amber warning light on.

Possible failure modes:

1. Wiring fault.
2. Faulty connectors
3. Controller (CCU) fault

Solution:

1. Disconnect the connector of the control unit (CCU) **X-200** and **X-230** and the connector for the push-buttons on the gear lever **X-320**.

   A. Ensure that the connectors are connected, not damaged, the pins are in the correct position and that the fit is tight. Repair or replace as necessary.

   B. If the connectors are okay, continue to step **2**
2. Check for a short to ground.

   A. Disconnect **X-320**. With a tester switched onto measuring continuity, test between connector:
   X-320 pin 3 and ground
   If continuity is indicated, disconnect the connector **X-200** if continuity is still indicated, repair or replace the harness as required.

   B. If no continuity is indicated, download the correct level of software. If the error is repeated, remove and replace the control unit (CCU).

To	From	Value
Coolant temperature sensor connector, pin 1	Coolant temperature sensor connector, pin 2	There should be no continuity.
Coolant temperature sensor connector, pin 1	Chassis ground	There should be no continuity.
X-941A pin 14	All pins in connector **X-941A**	There should be no continuity.

A. If there is no continuity, leave coolant temperature sensor and **X-941A** connectors disconnected and continue to Step **3**.

B. If there is continuity, there is a short to ground condition in the coolant temperature sensor **B-107** engine harness (EN) wiring. Locate and repair the damaged conductor or conductors.

4. Check the coolant temperature sensor **B-107** vehicle harness (VE) wiring for a short to ground condition.

   Disconnect the vehicle harness (VE) from the ECU **A-010** at connector **X-939**.

   Use a multimeter to perform the following continuity check on the vehicle harness (VE) side :

From	To	Value
X-941A pin 14	chassis ground	There should be no continuity.
X-941A pin 14	All pins in connector **X-941A**	There should be no continuity.
X-939 pin 57	chassis ground	There should be no continuity.
X-939 pin 57	All pins in connector **X-939**	There should be no continuity.

   A. If there is no continuity, check the ECU **A-010** for the appropriate software and re-flash, if necessary.

   B. If there is continuity, there is a short to ground condition in the coolant temperature sensor **B-107** vehicle harness (VE) wiring. Use the appropriate service manual, if necessary, to locate and repair the damaged conductor or conductors.

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 19 (55.100)

3089-Crankshaft speed sensor pattern is not plausible

Control Module : ECU

Context:
The Engine Control Unit (ECU) **A-010** monitors the crankshaft position sensor **B-106** characteristics for angle, speed determination, signal plausibility, and quality. If the ECU **A-010** detects greater than 80 crankshaft position signal plausibility errors, this fault will occur.

Cause:
The ECU **A-010** has detected more than 80 crankshaft position signal plausibility errors.

Possible failure modes:

1. Faulty crankshaft tone wheel, damaged or misaligned.
2. Faulty crankshaft position sensor **B-106**, not fully seated or loose.
3. Faulty crankshaft position sensor **B-106** circuit wiring, open or grounded or shorted to another circuit.
4. Faulty crankshaft position sensor **B-106**, internal failure.
5. Faulty ECU **A-010**, 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 **8**.
2. Check the physical integrity of the crankshaft position sensor **B-106** and crankshaft tone wheel.

   Remove the crankshaft position sensor **B-106** and inspect the crankshaft tone wheel.

   The tone wheel should not be damaged or loose.

   The crankshaft position sensor **B-106** should be fully seated and mounted tightly.

   A. If the tone wheel or sensor is damaged or the sensor is not mounted/secured properly, repair as necessary.

   B. If the tone wheel and sensor are not damaged and the sensor is mounted/secured properly, continue to Step **3**.
3. Check the crankshaft position sensor **B-106** internal resistance.

   Disconnect the engine harness (EN) from the crankshaft position sensor **B-106** connector.

   Use a multimeter to measure the resistance of the crankshaft position sensor **B-106** on the sensor side :

From	To	Value
Crankshaft position sensor connector, pin 1	Crankshaft position sensor connector, pin 2	There should be between **774 - 946 Ω**.

   A. If there is between **774 - 946 Ω**, leave crankshaft position sensor connector disconnected and continue to Step **4**.

   B. If there is not between **774 - 946 Ω**, the crankshaft position sensor **B-106** has failed. Replace the crankshaft position sensor **B-106**.
4. Check the crankshaft position sensor **B-106** circuit wiring for a short to a voltage source condition.

Use a multimeter to check for continuity on the vehicle (VE) harness side:

From	To	Value
X-937 pin 02	chassis ground	There should be continuity.
X-937 pin 04	chassis ground	There should be continuity.
X-937 pin 06	chassis ground	There should be continuity.

A. If there is continuity on all of the checks, leave connector **X-937** disconnected and continue with Step **5**.

B. If there is no continuity for one or more of the checks, see the appropriate vehicle service manual and electrical schematics, if necessary, to locate and restore the ground circuits to the ECU **A-010** .

5. Determine the condition of the ECU **A-010** 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-937 pin 24	**X-937** pin 25	There should be **120 Ω**.
X-937 pin 24	chassis ground	There should not be continuity
X-937 pin 25	chassis ground	There should not be continuity

Use a multimeter to measure the resistance of the CAN termination resistor, internal to the ECU **A-010**:

From	To	Value
X-937 pin 24	**X-937** pin 25	There should be **120 Ω**.

A. If the measured resistances are correct and neither conductor is grounded, check the ECU **A-010** 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.

6. 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 39 (55.100)

3285-ECU internal: error sensor supplies 3

Control Module : ECU

Context:
The Engine Control Unit (ECU) **A-010** provides three independent five volt sensor supplies. The ECU **A-010** monitors each sensor supply voltage to ensure they operate within a given range. If the ECU **A-010** determines that the voltage for sensor supply 3 is out of range, this fault will occur.

The ECU **A-010** pin numbers associated with sensor supply 3 are K17, K18 and A29.

Cause:
The ECU **A-010** has determined that the sensor supply 3 voltage is out of range.

Possible failure modes:

1. Faulty battery voltage.
2. Faulty ECU **A-010**, supply voltage.
3. Faulty ECU **A-010** sensor supply 3 pins.
4. Faulty ECU **A-010** connector **X-937** or **X-939**, corrosion or damage.
5. Faulty ECU **A-010**, 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 **6**.
2. Check the battery voltage.

   Charge the battery, then, perform a load test on the battery.

   A. If the battery passes the load test, continue to Step **3**.

   B. If the battery fails the load test, the battery has failed. Replace the battery.
3. Check the ECU **A-010** supply voltage.

   Disconnect the ECU **A-010** connector **X-937**.

   Place a jumper wire between **X-937** pin 28 and chassis ground. This will energize the main relay **K-030**.

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

From	To	Value
X-937 pin 03	**X-937** pin 02	There should be approximately **12 V**.
X-937 pin 05	**X-937** pin 04	There should be approximately **12 V**.
X-937 pin 01	**X-937** pin 06	There should be approximately **12 V**.

   A. If there is approximately **12 V**, leave connector **X-937** disconnected and continue to Step **4**.

   B. If there is not approximately **12 V**, there is a failure in the ECU **A-010** supply wiring. Use the appropriate service manual, if necessary, to locate and repair the failed conductor.

3507-Engine cranked for too long or key switch failure

Control Module : ECU

Context:
The Engine Control Unit (ECU) **A-010** is notified of a request for engine cranking at connector **X-937** pin 08. If the request for cranking signal exists for longer than **80.0 s** the ECU **A-010** assumes a mechanical failure in the ignition key module or start relay or a short to a voltage source condition exists in the input circuit and this fault occurs.

Cause:
The engine cranking signal has exceeded the signal ON time established be the ECU **A-010**.

Possible failure modes:

1. Faulty vehicle cranking circuit component, key switch or crank / start relay.
2. Faulty cranking circuit wiring, shorted to a voltage source.
3. Faulty ECU **A-010**, 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 cranking circuit wiring for a short to voltage source condition.

   Carefully disconnect the vehicle harness (VE) from the ECU **A-010** at connector **X-937**.

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

From	To	Value
X-937 pin 08	chassis ground	There should be no voltage.

   A. If there is voltage, Use the appropriate vehicle service manual, if necessary, to locate the voltage source.

   B. If there is no voltage, leave connector **X-937** disconnected and continue with Step **3**.
3. Check the cranking circuit wiring for an ECU **A-010** sourced short to voltage condition.

   With the key switch in the OFF position, use a multimeter to check for continuity on the vehicle harness (VE) side :

From	To	Result
X-937 pin 08	to all other pins in connector **X-937**	There should be no continuity.

   A. If there is continuity, there is a short to a voltage source condition in the vehicle harness (VE). Use the appropriate vehicle service manual, if necessary, to locate and repair the shorted conductors.

   B. If there is no continuity, check the ECU **A-010** for the appropriate software 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.

3742-Too many SPI errors during MoCSOP execution

Control Module : ECU

Context:
The Engine Control Unit (ECU) **A-010** tests the correct functioning of the fuel injection path shut off procedure. During this test, each injection path is shortly activated during ECU **A-010** initialization. If a Serial Peripheral Interface (SPI) communication error is detected during this test, this fault will occur.

Solution:

1. Check the ECU **A-010** 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.

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-941A pin 8	All pins in connector **X-941A**	There should be no continuity.
X-939 pin 13	All pins in connector **X-939**	There should be no continuity.

A. If the specified values are measured, re-connect all of the connectors and continue to Step **12**.

B. If the specified values are not measured, there is a failure in the camshaft speed sensor **B-102** voltage supply wiring. Use the appropriate service manual, if necessary, to locate and repair the failed conductor.

12. Check the ECU **A-010** 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.

13. 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 19 (55.100)

Electronic module - Electrical schema (55.640)

— The wheel speed sensor connector **X-309** pin 3 and the ground reference (chassis).
If the wiring harness circuit is open in one or more places, repair or replace as required.

B. If the wiring harness circuit is not open, pass on to point **5**

5. Check the wheel speed sensor

   A. Measure the resistance between pin 1 and pin 2 on the wheel speed sensor connector **X-309**:
   if the resistance indicated is not approximately **680 Ω** at **20 °C**, remove and replace the wheel speed sensor.

   B. If the speed sensor is okay, pass on to point **6**

6. Check the instrument cluster unit (ADIC)

   A. Restore all the electrical connections.
   Download the correct software version to the instrument cluster unit (ADIC) and if the error occurs again, remove and replace the control unit ADIC.

A. If there is less than **4.86 V**, the short to a voltage source condition is in the engine harness (EN) between EGR valve **M-101** actuator motor connector pin 2 and connector **X-941A** pin 34. Locate and repair the damaged conductors.

B. If there is greater than **4.86 V**, leave connector **X-941A** disconnected and continue with Step **4**.

4. Locate the short to voltage source condition.

   Carefully disconnect the vehicle harness (VE) from the ECU **A-010** at connector **X-939**.

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

From	To	Result
X-939 pin 39	chassis ground	There should be no voltage.

   A. If there is voltage, there is a short to a voltage source condition in the vehicle harness (VE) between connector **X-939** pin 39 and connector **X-941A** pin 34. Use the appropriate service manual, if necessary, to locate and repair the damaged conductors.

   B. If there is no voltage, check the ECU **A-010** for the appropriate software and re-flash, if necessary.

5. Replace the EGR valve **M-101**.

   Then use the EST, see **Exhaust Gas Recirculation (EGR) valve - Configure - Reset ECU data (EGR valve) (10.501)** within engine technical information, if necessary, to perform the “Replacement of the Exhaust Gas Recirculation Valve (EGR) – Reset ECU Data”.

   Then check to see that the fault is resolved.

   A. If the fault is resolved, return the vehicle to operation.

   B. If the fault is not resolved, check the ECU **A-010** for the appropriate software and re-flash, if necessary.

6. 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 19 (55.100)

17405-DFC used to evaluate filter clog

Control Module : ECU

Context:
Based on the measured Diesel Engine Fluid (DEF)/AdBlue® supply module **A-021** pump duty cycle and pump speed, the Engine Control Unit (ECU) **A-010** calculates, for each driving cycle, the actual pump power needed to maintain the operation pressure at zero dosing. The calculated pump power is always compared to a reference pump power, which was determined directly after a DEF/AdBlue® supply module **A-021** filter change. If the current measured pump power is greater than the reference power multiplied with a filter full threshold of 1.30, this fault will occur.

Cause:
The needed DEF/AdBlue® supply module **A-021** pump power to maintain the operation pressure at zero dosing is out of the expected range.

Possible failure modes:

1. Faulty DEF/AdBlue ® tank suction side pre-filter in tank sending unit head, clogged.
2. Faulty DEF/AdBlue ® supply module **A-021** main or pre-filter, clogged.
3. Faulty DEF/AdBlue ® tank ventilation, blocked.
4. Faulty DEF/AdBlue ® tank suction side tank sending unit, air leakage.
5. Faulty DEF/AdBlue ® system pressure side, leakage.
6. Faulty DEF/AdBlue ® supply module **A-021**, pump membrane failure.
7. Faulty DEF/AdBlue ® supply module **A-021** pump motor, power loss.

17450-Intake throttle valve: short circuit to ground on out2 error for H-bridge

Control Module : ECU

Context:
The Engine Control Unit (ECU) **A-010** monitors the throttle valve actuator **M-102** output 1 and output 2 h-bridge circuits. If the ECU **A-010** detects a short to ground condition in the throttle valve actuator **M-102** output 2 h-bridge circuit, this fault will occur.

Cause:
The ECU **A-010** has detected a short to ground condition in the throttle valve actuator **M-102** output 2 h-bridge circuit.

Possible failure modes:

1. Faulty throttle valve actuator **M-102** wiring, short to ground condition.
2. Faulty throttle valve actuator **M-102**, internal failure.
3. Faulty ECU **A-010**, 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 **5**.
2. Check the throttle valve actuator **M-102** output 2 h-bridge engine harness (EN) wiring for a short to ground condition.

   Disconnect the engine harness (EN) from the throttle valve actuator **M-102** at connector.

   Disconnect the vehicle harness (VE) from the engine interface at connector **X-941A**.

   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
Throttle valve actuator connector, pin 2	Chassis ground	There should be no continuity.
Throttle valve actuator connector, pin 2	Throttle valve actuator, connector pin 3	There should be no continuity.
Throttle valve actuator connector, pin 2	Throttle valve actuator connector, pin 6	There should be no continuity.
X-941A pin 38	All pins in connector **X-941A**	There should be no continuity.

   A. If there is continuity, there is a short circuit in the throttle valve actuator **M-102** output 2 h-bridge circuit. Use the appropriate service manual, if necessary, to locate and repair the shorted conductor.

   B. If there is no continuity, leave throttle valve actuator connector and **X-941A** disconnected and continue to Step **3**.
3. Check the throttle valve actuator **M-102** output 2 h-bridge vehicle harness (VE) wiring for a short to ground condition.

   Disconnect the vehicle harness (VE) from the ECU **A-010** at connector **X-939**.

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

From	To	Value
X-356 pin 6	All pins in connector **X-356**	There should be no continuity.
X-939 pin 45	All pins in connector **X-939**	There should be no continuity.

With the key in the OFF position, use a multimeter to perform the following continuity check on the DEF/AdBlue® supply module **A-021** pins:

From	To	Value
X-356 pin 6	All other pins on the DEF/AdBlue® supply module **A-021**.	There should be no continuity.

A. If there is continuity, there is a short circuit in the DEF/AdBlue® back-flow pump circuit or inside the DEF/AdBlue® supply module **A-021**. Use the appropriate service manual, if necessary, to locate and repair the shorted conductor.

B. If there is no continuity, check the ECU **A-010** for the appropriate software and re-flash, if necessary.

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 18 (55.100)

19019-Upstream SCR catalyst temperature sensor voltage is higher than expected

Control Module : ECU

Context:
The Engine Control Unit (ECU) **A-010** monitors the Selective Catalytic Reduction (SCR) upstream temperature sensor **B-027**. If the ECU **A-010** detects a voltage greater than **3.59 V** in the SCR upstream temperature sensor **B-027** signal circuit, this fault will occur. For more information regarding the technical specifications of the SCR upstream temperature sensor **B-027**, see **Exhaust Gas Recirculation (EGR) temperature sensors - Technical Data (55.989)** within engine technical information. If this fault is active, the ECU **A-010** will set the SCR upstream temperature sensor **B-027** value at the last valid value for a preliminary failure, or a fixed replacement value of **0.06 °C** (**32.11 °F**) if the failure is validated.

Cause:
The ECU **A-010** has detected a voltage greater than **3.59 V** in the SCR upstream temperature sensor **B-027** signal circuit.

Possible failure modes:

1. Faulty SCR upstream temperature sensor **B-027** wiring, short to voltage source.
2. Faulty SCR upstream temperature sensor **B-027** wiring, open circuit.
3. Faulty SCR upstream temperature sensor **B-027**, internal failure.
4. Faulty ECU **A-010**, 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 **6**.

2. Check the SCR upstream temperature sensor **B-027** for an internal failure.

   Disconnect the vehicle harness (VE) from the SCR upstream temperature sensor **B-027** at connector **X-946**.

   Use a multimeter to measure the resistance on the DOC inlet temperature sensor **B-027** :

From	To	Value
X-946 pin 1	**X-946** pin 2	There should be between **170.2 - 849.7 Ω**.

   A. If there is between **170.2 - 849.7 Ω**, leave connector **X-946** disconnected and continue to Step **3**.

   B. If there is not between **170.2 - 849.7 Ω**, the SCR upstream temperature sensor **B-027** has failed. Replace the SCR upstream temperature sensor **B-027**.

3. Check the SCR upstream temperature sensor **B-027** vehicle harness (VE) wiring for a short circuit.

   With the key in the OFF position, use a multimeter to perform the following voltage check on the vehicle harness side :

From	To	Value
X-946 pin 1	Chassis ground	There should be no voltage.

   A. If there is voltage, there is a short to battery in the SCR upstream temperature sensor **B-027** wiring. Use the appropriate service manual, if necessary, to locate and repair the shorted conductor.

19080-DEF/AdBlue under pressure failure

Control Module : ECU

Context:
The Engine Control Unit (ECU) **A-010** monitors DEF/AdBlue® pressure using a pressure sensor inside of the DEF/AdBlue® supply module **A-021**. If the ECU **A-010** determines that DEF/AdBlue® pressure is below **3.90 bar** (**56.55 psi**), this fault will occur.

Possible failure modes:

1. Faulty DEF/AdBlue® tank level, too low.
2. Faulty DEF/AdBlue® system, leakage on the pressure side.
3. Faulty DEF/AdBlue® system, blockage in tank ventilation.
4. Faulty DEF/AdBlue® system suction side, pre-filter in DEF/AdBlue® tank sending unit.
5. Faulty DEF/AdBlue® system suction side, air entrance from leaking DEF/AdBlue tank sending unit
6. Faulty DEF/AdBlue® supply module, failed DEF/AdBlue® pump.
7. Faulty DEF/AdBlue® supply module, failed DEF/AdBlue® pressure sensor.
8. Faulty ECU **A-010**, software.

19267-Engine idle shutdown commanded from SCR inducement

Control Module : ECU

Context:
This failure path is only for information. No actions are necessary due to this failure alone. If an application calibrated period of time at low idle is exceeded, the engine is shutdown, and this fault occurs.

19835-Open load temperature error on the turbocharger PWM output powerstage

Control Module : ECU

Context:
The Engine Control Unit (ECU) **A-010** monitors the wastegate pressure modulator valve **Y-105** circuit. If the ECU **A-010** determines that there is an open load in the wastegate pressure modulator valve **Y-105** circuit, this fault will occur.

Cause:
The ECU **A-010** has detected an open load in the wastegate pressure modulator valve **Y-105** circuit.

Possible failure modes:

1. Faulty wastegate pressure modulator valve **Y-105** wiring, open circuit.
2. Faulty wastegate pressure modulator valve **Y-105**, internal failure.
3. Faulty ECU **A-010**, 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 **6**.

2. Check the wastegate pressure modulator valve **Y-105** internal resistance.

   Disconnect the wastegate pressure modulator valve **Y-105** connector.

   Use a multimeter to perform the following resistance check on the wastegate pressure modulator valve **Y-105** pins :

From	To	Value
Wastegate pressure modulator valve connector, pin 1	Wastegate pressure modulator valve connector, pin 2	There should be between **21.8 - 24.2 Ω**.
NOTE: *The provided value should be measured at a temperature of approximately* ***20 °C (68 °F)****.*		

   A. If there is between **21.8 - 24.2 Ω**, leave wastegate pressure modulator valve connector disconnected and continue to Step **3**.

   B. If there is not between **21.8 - 24.2 Ω**, the wastegate pressure modulator valve **Y-105** has failed internally. Replace the wastegate pressure modulator valve **Y-105**.

3. Check the wastegate pressure modulator valve **Y-105** engine harness (EN) wiring for an open circuit.

   Disconnect the vehicle harness (VE) from the engine interface at connector **X-941A**.

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

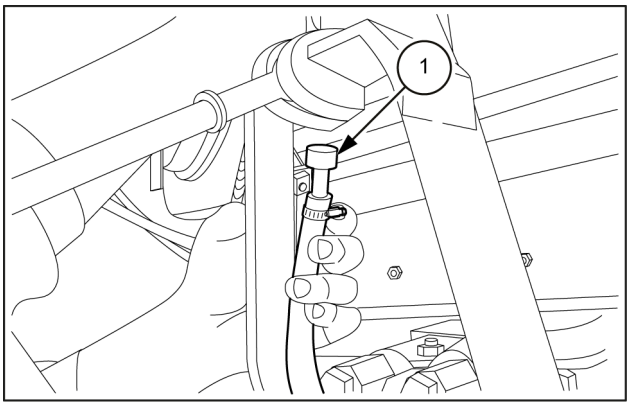
From	To	Value
Wastegate pressure modulator valve connector, pin 1	**X-941A** pin 28	There should be continuity.
Wastegate pressure modulator valve connector, pin 2	**X-941A** pin 27	There should be continuity.
NOTE: *Wiggle the harness during the check to promote an intermittent electrical connection.*		

Front loader and bucket - 82

Front loader and bucket generic sub-group - AAA

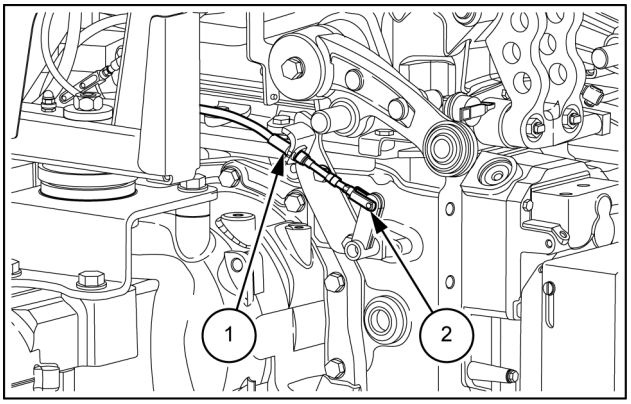
T4.100 with cab, with Dual Command™ transmission , T4.100 with cab, with mechanical or Power shuttle transmission , T4.100 without cab, with Dual Command™ transmission , T4.100 without cab, with mechanical or Power shuttle transmission , T4.110 with cab, with Dual Command™ transmission , T4.110 with cab, with mechanical or Power shuttle transmission , T4.110 without cab, with Dual Command™ transmission , T4.110 without cab, with mechanical or Power shuttle transmission , T4.120 with cab, with Dual Command™ transmission , T4.120 with cab, with mechanical or Power shuttle transmission , T4.120 without cab, with Dual Command™ transmission , T4.120 without cab, with mechanical or Power shuttle transmission , T4.90 with cab, with Dual Command™ transmission , T4.90 with cab, with mechanical or Power shuttle transmission , T4.90 without cab, with Dual Command™ transmission , T4.90 without cab, with mechanical or Power shuttle transmission

8. Position and secure the breather **(1)** of the transmission case.



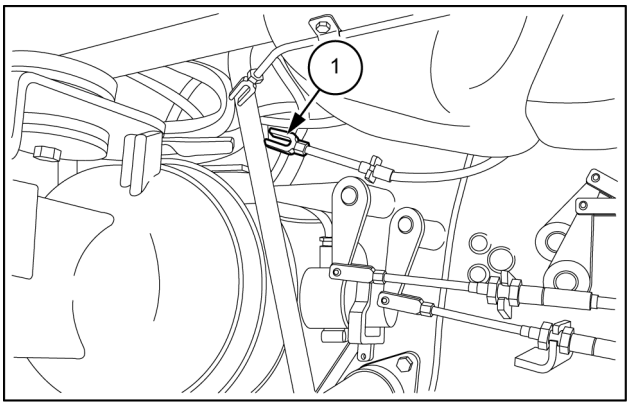
MOIL13TR01698AB 8

9. Connect the service brake control lines **(1)** on both sides.



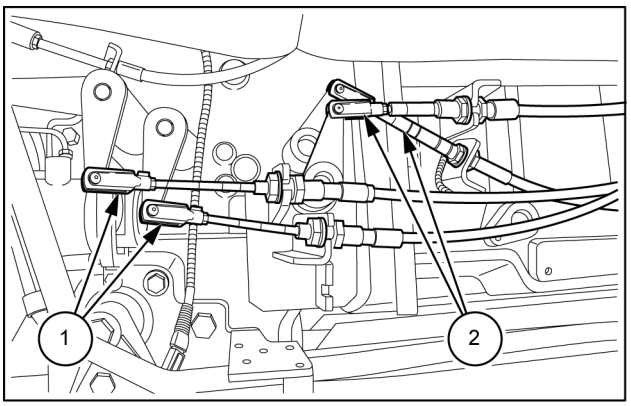
MOIL13TR01707AB 9

10. Connect the differential lock cable **(1)** with mechanical coupling.



MOIL13TR01695AB 10

11. Position, connect, and secure the range gear **(1)** and gearshift control tie rods **(2)**.



MOIL13TR01694AB 11

Console - Remove – Left-hand side

T4.100 with cab, with Dual Command™ transmission	
T4.100 with cab, with mechanical or Power shuttle transmission	
T4.110 with cab, with Dual Command™ transmission	
T4.110 with cab, with mechanical or Power shuttle transmission	
T4.120 with cab, with Dual Command™ transmission	
T4.120 with cab, with mechanical or Power shuttle transmission	
T4.90 with cab, with Dual Command™ transmission	
T4.90 with cab, with mechanical or Power shuttle transmission	

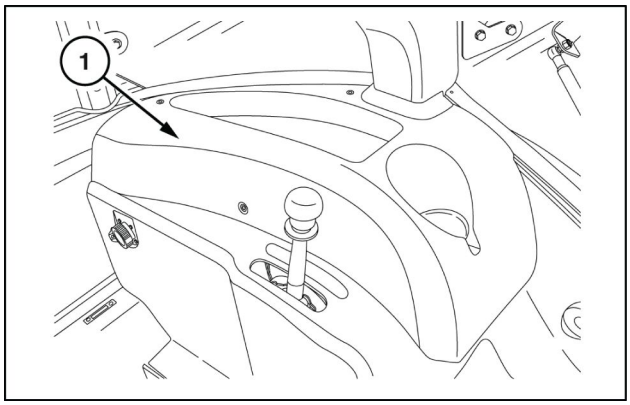
⚠ WARNING

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

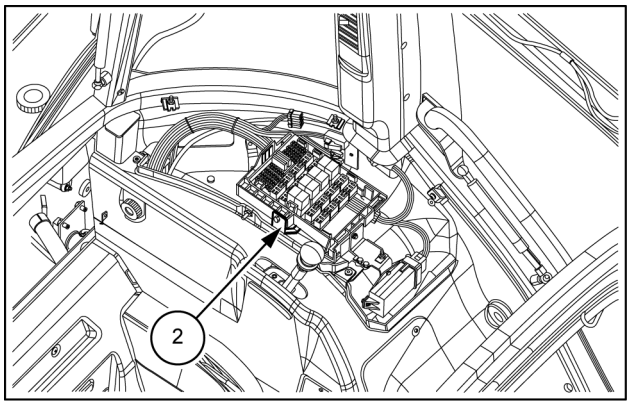
Proceed as follows:

1. Loosen the retaining bolts. Remove the left-hand top guard **(1)**.



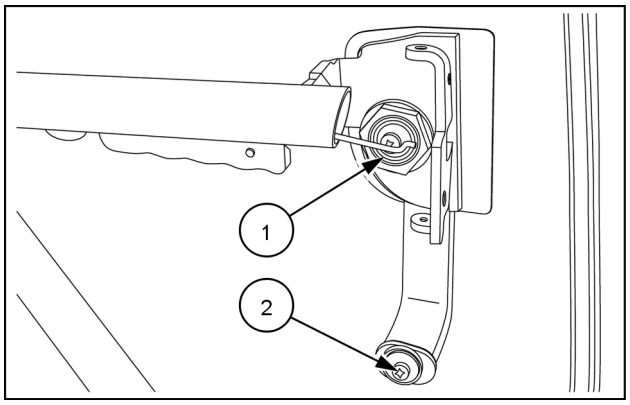
MOLI11U0881AA 1

2. This operation enables accessing the fuse and relay box **(2)**.



MOIL13TR01709AB 2

4. Tighten the upper retaining nut **(1)** at the required tightening torque, see **Cab door window - Torque (90.154)**.
5. Tighten the upper retaining screw **(2)** at the required tightening torque, see **Cab door window - Torque (90.154)**.



MOIL15TR00805AA 3

Next operation:
Cab door handle - Install (90.154) approximately.

Rear window weatherstrip - Replace

T4.100 with cab, with Dual Command™ transmission	
T4.100 with cab, with mechanical or Power shuttle transmission	
T4.110 with cab, with Dual Command™ transmission	
T4.110 with cab, with mechanical or Power shuttle transmission	
T4.120 with cab, with Dual Command™ transmission	
T4.120 with cab, with mechanical or Power shuttle transmission	
T4.90 with cab, with Dual Command™ transmission	
T4.90 with cab, with mechanical or Power shuttle transmission	

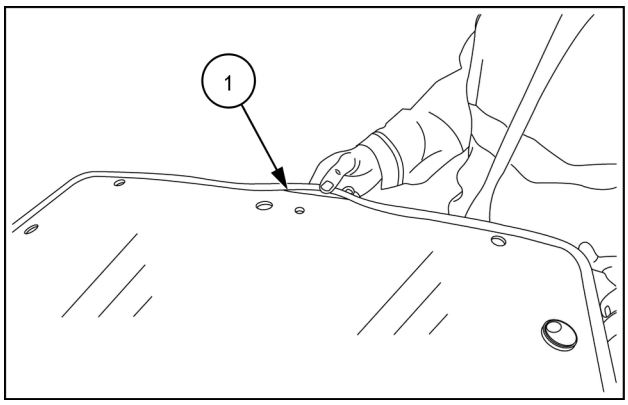
⚠ WARNING

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

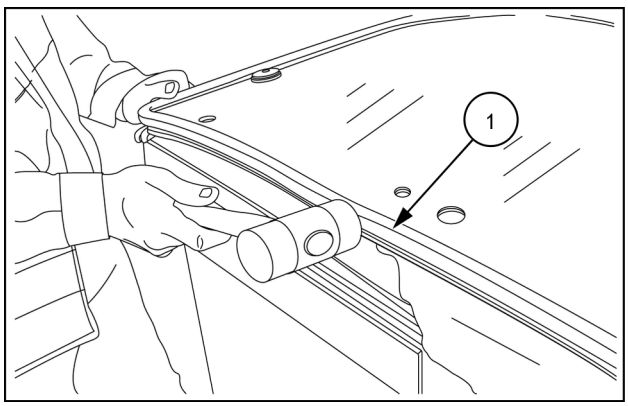
Prior operation:
Rear window - Torque (90.156) approximately.

1. Remove the gasket **(1)**.
2. If necessary, clean any residual sealant from the glass.



MOIL15TR00920AA 1

3. Install the new gasket **(1)** on striking slightly with a plastic hammer.



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