

8B17

Bearings and transmission shaft - Disassembly and reassembly

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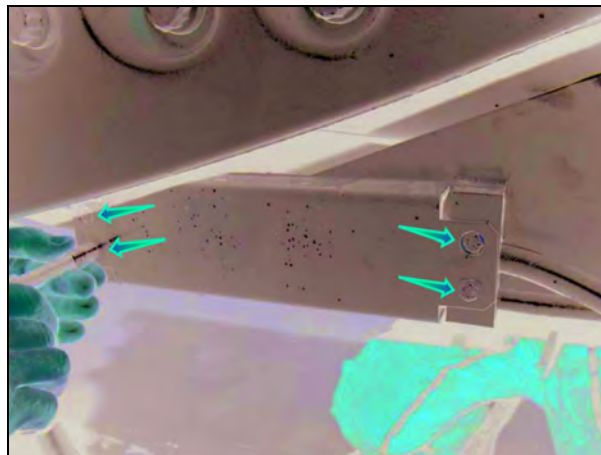
A. Removing and refitting the front transmission shaft

Preliminary steps

11. Place the tractor on axle stands.
12. Manually release the ParkLock.

Removal

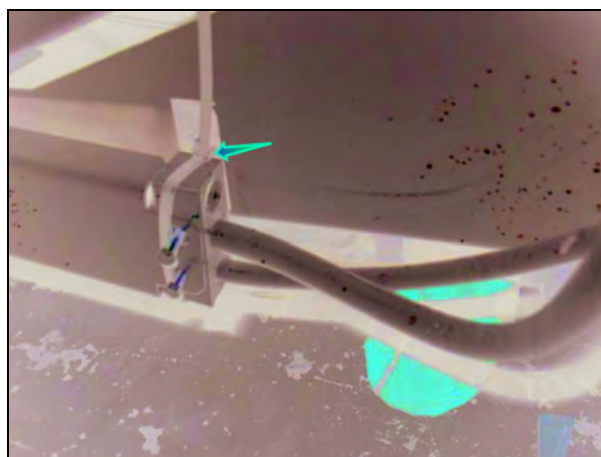
13. Remove the 4 screws from the right and left-hand guards.



1010280

Fig. 1

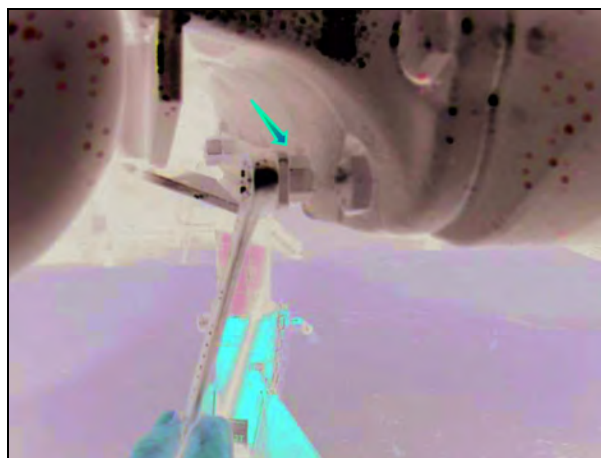
14. Using a plastic clip, secure all of the hydraulic hoses.



1010281

Fig. 2

15. Remove the screws at the front of the lower guard.



1010282

Fig. 3

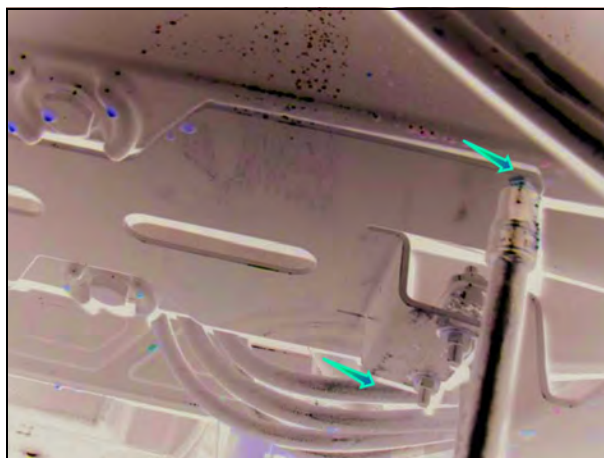
16. Remove the screws at the rear of the lower guard.



1010283

Fig. 4

17. Secure the guard by supporting it and then remove the screws located towards the middle of the lower guard.



1010284

Fig. 5

18. Remove the guard.



1010285

Fig. 6

19. Using a lever, immobilise the front transmission shaft and then remove the shaft screws.
20. Remove the shaft.

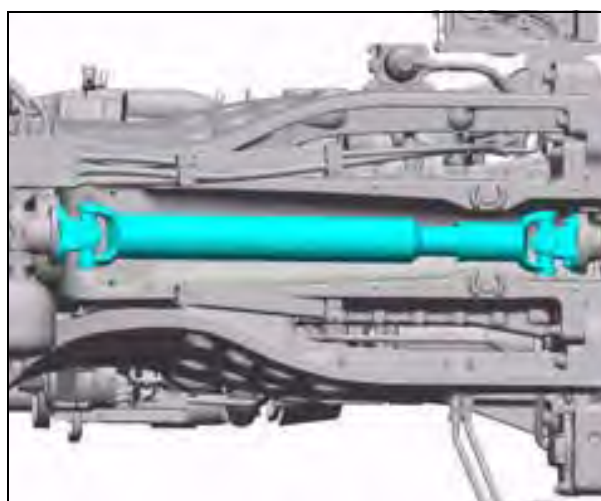


1010287

Fig. 7

Refitting

21. Refit the front transmission shaft.
22. Fit and tighten the nuts to the following torque:
 - 43 Nm to 53 Nm spacer side
 - 43 Nm to 53 Nm front axle side
23. Continue by carrying out the removal steps in reverse order.



1010288

Fig. 8

B. Removing the 4WD shaft bearing

Preliminary step

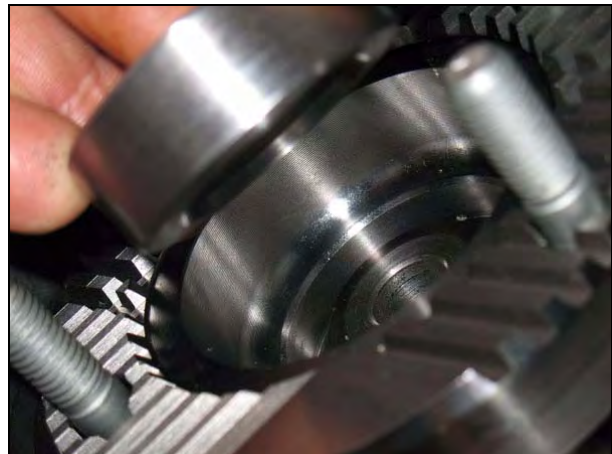
- 24.** Remove the transmission shaft.
- 25.** Remove the screw by immobilising the hub using 2 M10x40 screws and a lever.



1011227

Fig. 9

- 26.** Remove the ring.



1011236

Fig. 10

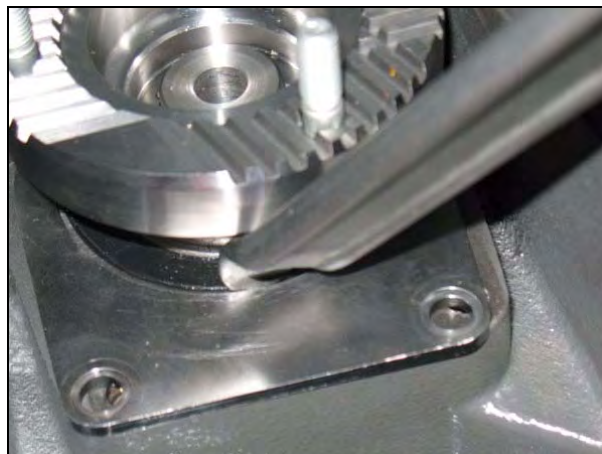
- 27.** Remove the 2 retainer plate screws.



1011229

Fig. 11

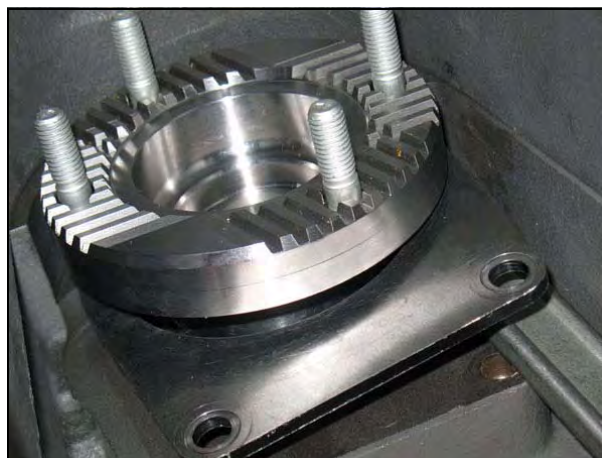
28. Use a lever to slide the retainer plate downwards.



1011237

Fig. 12

29. Use a lever to release the retainer plate towards the rear.



1011238

Fig. 13

30. Extract the hub along with the retainer plate and the bearing.



1011239

Fig. 14

31. Remove the shim.



I011240

Fig. 15

32. Remove the shaft and discard the "O" ring.



I011241

Fig. 16

33. If the bearing is damaged, extract it using a puller.



I011242

Fig. 17

C. Refitting the 4WD shaft bearing

Preliminary step

34. Clean all components.



WARNING: All traces of rust, mud and water must be removed.

If the bearing has been removed

35. Fit a new bearing using a press or a threaded rod (Fig. 18)



1011245

Fig. 18

36. Fit the shaft along with a new "O" ring.



1011246

Fig. 19

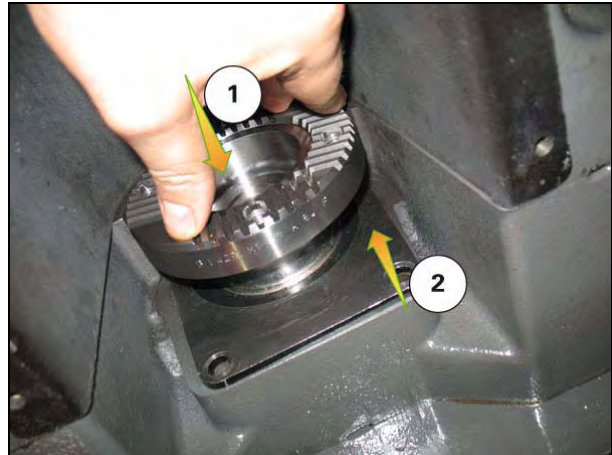
37. Fit the shim.



1011247

Fig. 20

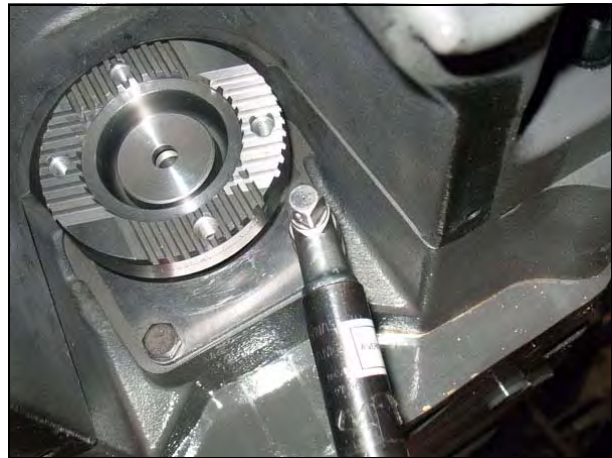
38. Fit the bearing by pushing on it until it makes contact (1) then placing it in the retainer plate groove (2).



I011257

Fig. 21

39. Fit the plate screws and tighten them to a torque of 60 Nm to 70 Nm.



I011258

Fig. 22

40. Fit the ring.



I011259

Fig. 23

- 41.** Fit the central screw and tighten to a torque of 120 Nm to 160 Nm.



1011227

Fig. 24

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4WD clutch - General

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A. 4-wheel drive clutch - General 141

A. 4-wheel drive clutch - General

General

The front axle clutch assembly is fitted in the lower part of the gearbox. In order to access to the 4-wheel drive clutch, the transmission module must be removed.

This comprises:

- 1) a shaft (5) turning on two ball bearings fitted in the bore of the gearbox housing
- 2) a hydraulic clutch assembly integral with the rotating gear (15)
- 3) a disc carrier (9) centred on the shaft by needle roller bearings, which drives the clutch discs.

The helical gear (15) is constantly meshed to the idler gear on the pinion.

Declutching operation

The 4-wheel drive solenoid valve directs the 17 bar pressure inside the shaft (5) via a drilled channel in the gearbox housing.

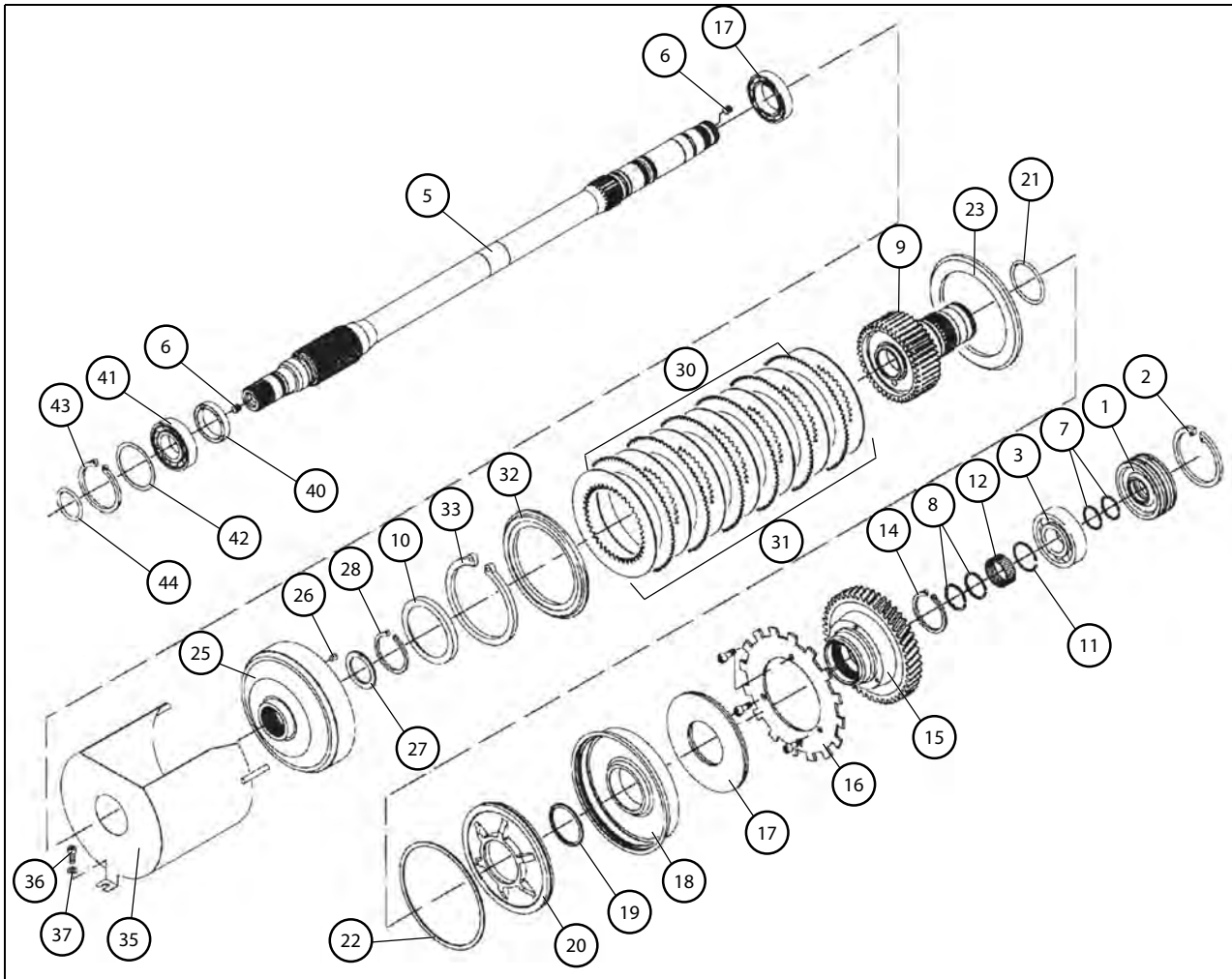
The pressure moves the piston washer (20), which presses against the spring washers (17) via the piston (18), thus releasing the discs (30).

The disc carrier (9) integral with the shaft no longer turns.

Clutch operation

When the pressure is cut off, the spring washers are released and push the piston and piston-washer assembly; this compresses the discs (30), allowing the disc carrier (9) integral with the shaft to turn.

Blown-up view of the 4-wheel drive clutch



1010289

Fig. 1










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4WD clutch - Error codes

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D. Instrument panel error codes	149

A. Reading error codes

ERROR CODES DISPLAYED ON THE INSTRUMENT PANEL				
	DISPLAY with Dash Control Center			DISPLAY without Dash Control Center
Instrument panel		+	Letter D (Dashboard)	Letter D (Dashboard)
Engine		+	Letter E (Engine)	Letter E (Engine)
SCR system	no icon		Letter U (Urea)	Letter U (Urea)
Transmission/4WD/PTO		+	Letter T (Transmission)	Letter T (Transmission)
Lights module		+	Letter L (Light)	Letter L (Light)
ParkLock		+	Letter P (ParkLock)	Letter P (ParkLock)
Front axle		+	Letters FA (Front Axle)	Letters FA (Front Axle)
Linkage		+	Letters R (Linkage)	Letter R (Linkage)
Electrohydraulic		+	Letters H (Hydraulics)	Letter H (Hydraulics)
Cab		+	Letters C (Cab)	Letter C (Cab)
Auto-Guide		+	Letters A (Auto-Guide)	Letter A (Auto-Guide)
Control Arm		+	Letters AR (ARmrest)	Letter AR (ARmrest)

OTHER DISPLAYS	
Automatic air conditioning	Displayed on the air conditioning module.

B. Transmission error codes

No.		Components concerned	Causes
T	4105	X34 - Transmission oil high pressure sensor 2	Signal error - 8.5 V supply error
T	4107	X9 - Transmission oil high pressure sensor 1	Signal error - 8.5 V supply error
T	4108	X17 - Hare/Tortoise range position sensor	Signal error - 8.5 V supply error
T	4121		Signal error
T	4127	X10 - Collecting shaft speed sensor	Signal error
T	4128	X18 - Transmission control module	Signal error
T	412A	X8 - Bevel gear theoretical speed sensor	Signal error
T	412B	X123 - Hare/Tortoise range shift switch	Signal error
T	4131	X10 - Collecting shaft speed sensor	Direction of rotation signal error
T	4142		Rotation speed signal error
T	4144	X25 - Engine speed sensor	Signal error
T	4145	X8 - Bevel gear theoretical speed sensor	Signal error
T	4150	X20 - Transmission filter blockage switch	Filter blocked
T	4153	X19 - Transmission hydraulic oil temperature sensor	Transmission oil temperature higher than 110°C
T	4156	X20 - Transmission filter blockage switch	Signal error
T	4158	Transmission slip monitor	The transmission output speed indicates over 30% slippage compared to the value given
T	4159	Engagement of limp home mode	Manual engagement of limp home mode without reason Limp home mode error
T	4161	X14 - Tortoise range solenoid valve	Control error when shifting from Hare to Tortoise mode
T	4162	X13 - Hare range solenoid valve	Control error when shifting from Tortoise to Hare mode
T	4163	X11 - Solenoid valve limiting speed to 30 kph	Control error
T	4164	X12 - Coupler function solenoid valve	PWM control error
T	4172	X20 - Transmission filter blockage switch	Signal error
T	4173	X19 - Transmission hydraulic oil temperature sensor	Signal error
T	4182	X8 - Bevel gear theoretical speed sensor X10 - Collecting shaft speed sensor	Inconsistent speeds
T	4183	X8 - Bevel gear theoretical speed sensor X10 - Collecting shaft speed sensor	Inconsistent direction of rotation.
T	4185	X25 - Engine speed sensor	Inconsistent speed
T	4186	X9 - Transmission oil high pressure sensor 1 X34 - Transmission oil high pressure sensor 2	Inconsistent values
T	4189	X19 - Transmission hydraulic oil temperature sensor	Inconsistent value
T	4192	X67 - Right-hand brake pedal sensor	Data transfer interrupted
T	4193	X66 - Left-hand brake pedal sensor	Data transfer interrupted
T	41A0	X18 - Transmission control module	Control of control module interrupted
T	41A1	X18 - Transmission control module	The angle of rotation is limited, but not by the speed limiting solenoid valve
T	41A2	X18 - Transmission control module X174 - Autotronic 4 transmission controller	The CAN network control is interrupted
T	41A3	X18 - Transmission control module	Increment sensor signal (internal actual position sensor) interrupted or illogical
T	41A4	X18 - Transmission control module	Autotronic 4 signal interrupted or illogical
T	41A5	X18 - Transmission control module	Reference output (Position "0") not found at start-up
T	41A6	X18 - Transmission control module	Reference point signal interrupted during operation

No.		Components concerned	Causes
T	41B0	CAN network	Initialisation error
T	41B1	X174 - Autotronic 4 transmission controller	Illogical range shift
T	41B2	X174 - Autotronic 4 transmission controller	Faulty programming
T	41B3	X174 - Autotronic 4 transmission controller	Faulty programming
T	41B4	X174 - Autotronic 4 transmission controller	Faulty programming
T	41B5	X174 - Autotronic 4 transmission controller	Faulty programming
T	41C1	X174 - Autotronic 4 transmission controller	The engine has stalled due to transmission overload
T	41CF	X174 - Autotronic 4 transmission controller	Internal error (RAM/EEPROM)
T	41E0	X174 - Autotronic 4 transmission controller	Coupler function reference curve incorrectly interpreted, faulty programming
		X12 - Coupler function solenoid valve	Signal error
T	41E1	X174 - Autotronic 4 transmission controller	Faulty programming
T	41E2	X174 - Autotronic 4 transmission controller	Faulty programming
T	41E3	X174 - Autotronic 4 transmission controller	Faulty programming
T	41E4	X174 - Autotronic 4 transmission controller	Faulty programming
T	41E5	X174 - Autotronic 4 transmission controller	Faulty programming
T	41E6	X174 - Autotronic 4 transmission controller	Faulty programming
T	41E7	X174 - Autotronic 4 transmission controller	Faulty programming
T	41E9	X174 - Autotronic 4 transmission controller	Faulty programming
T	41EA	X174 - Autotronic 4 transmission controller	Faulty programming
T	41EB	X17 - Hare/Tortoise range position sensor	Calibration error or sensor value out of tolerance ranges
T	41EE	X174 - Autotronic 4 transmission controller	Faulty programming
T	41EF	X174 - Autotronic 4 transmission controller	Faulty programming
T	41FF	X174 - Autotronic 4 transmission controller	Internal error (RAM/EEPROM)

C. 4WD/Differential lock error codes

No.		Components concerned	Causes
T	5131	X137 - 4WD switch	Incorrect manual engagement signal
T	5132		Incorrect automatic engagement signal
T	5133	X5 - 4WD solenoid valve	Control error
T	5151	X136 - Differential lock switch	Signal error
T	5153	X6 - Differential lock solenoid valve	Control error
T	5154	X66 - Left-hand brake pedal sensor	Signal error
T	5555	X67 - Right-hand brake pedal sensor	Signal error

D. Instrument panel error codes

No.		Component(s) concerned	Cause(s)
D	121		Alternator regulator voltage too high (filtered battery signal)
D	122		Alternator regulator voltage too low (filtered battery signal)
D	127	X197 - Diesel fuel gauge	Electrical signal too high
D	128		Electrical signal too low
D	129		Battery voltage too high (non-filtered battery signal)
D	130		Battery voltage too low (non-filtered battery signal)
D	133	X71 - Throttle pedal sensor	Electrical signal too high
D	134		Electrical signal too low
D	135	X56 - Power Control lever X71 - Throttle pedal sensor	Electrical signal too high - C.N.
D	136		Electrical signal too low - C.N.
D	137	X106 - Transmission lever in armrest	Electrical signal too high
D	138		Electrical signal too low
D	139	X68 - Clutch pedal sensor	Electrical signal too high
D	140		Electrical signal too low
D	141	X25 - Engine speed sensor	Engine speed signal not at maximum level
D	142	X68 - Clutch pedal sensor	Short circuit to + 12 V AC
D	143		Short circuit to + 12 V AC - C.N.
D	144	X56 - Power Control lever	Electrical signal too high
D	145		Electrical signal too low
D	146		Electrical signal too high
D	147		Electrical signal too low
D	148	X55 - Instrument panel	Attempt to program with engine running
D	149		CAN network deactivated (CAN bus off)
D	150		CAN messages lost
D	151		Tractor speed too high
D	152	X55 - Instrument panel	Hourmeter error for engine maintenance
D	153		Parameter table error
D	154		CAN communications from Autotronic 4 to DCC3 - C.N. Special failed
D	155	X55 - Instrument panel	Incorrect tractor code selected
D	156	X68 - Clutch pedal sensor	TOC stuck open
D	157	X25 - Engine speed sensor	No electrical signal
D	158	X106 - Transmission lever in armrest	Incorrect calibration of armrest lever
D	159	X56 - Power Control lever	Neutral switch error in neutral - C.N. position
D	160		Neutral switch error outside neutral - C.N. position
D	164		CAN communications from EEM to DCC3 failed
D	170	X122 - Hand throttle	
D	183	X235 - Front axle steering sensor (WAS sensor)	Electrical signal too high
D	184		Electrical signal too low
D	185	X57 - DOT Matrix keyboard	Electrical signal too high
D	186		Electrical signal too low
D	189	X55 - Instrument panel	9.5 V output - electrical signal too high
D	190		9.5 V output - electrical signal too low
D	191	X168 - Pneumatic brake system pressure sensor	Electrical signal too high
D	192		Electrical signal too low

4WD clutch - Error codes

No.		Component(s) concerned	Cause(s)
D	193	X144 - Variable steering setting potentiometer (fast steering)	Electrical signal too high
D	194		Electrical signal too low
D	195	X55 - Instrument panel	Electrical signal too high
D	196		Electrical signal too low
D	197	X1 - Auxiliary hydraulic oil temperature sensor	Electrical signal too high
D	198		Electrical signal too low

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4WD clutch - Diagrams and plans

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A. Hydraulics diagram

Different systems

- (1) Valve block (fuel lift/lubrication)
- (2) Hydrostatic loop
- (3) Settings
- (4) Transmission control unit
- (5) Rear axle
- (6) Solenoid valve block on rear axle

Pumps

- (1P1) Service pump
- (1P2) Lubrication pump
- (2P1) Hydrostatic pump

Drive components

- (2A1) Hydrostatic motor
- (2A2) Hydrostatic motor
- (3A1) Piston for setting the hydrostatic pump displacement
- (3A2) Piston for setting the hydrostatic motor displacement
- (3A3) Forward speed limiter in limp home mode
- (4A1) Forward range selector
- (6A1) Rear PTO clutch
- (6A3) 1000 rpm PTO selector piston
- (6A4) Front axle clutch
- (6A5) Rear axle differential lock
- (6A6) 750 rpm PTO selector piston
- (6A7) Front axle differential lock

Sensors

- (1S1) Transmission oil temperature sensor
- (1S2) Pressure filter blockage switch
- (4S1) HP loop pressure sensor
- (4S2) Pressure sensor

Other components

- (1Z1) Intake filter with bypass
- (1Z2) Pressure filter with bypass
- (1Z3) Transmission oil cooler
- (1Z4) Transmission lubrication
- (3Z1) Cam channel adjustment shaft
- (3Z2) Control unit
- (4Z1) Clutch pedal with clutch master cylinder
- (4Z2) Accumulator
- (5Z2) Rear PTO lubrication
- (5Z3) Differential and right-hand brake lubrication
- (5Z4) Differential and left-hand brake lubrication

Valves (or spool valves/solenoid valves)

- (1V1) Cooler bypass valve
- (1V2) Flushing pressure relief valve
- (1V3) Fuel lift pressure relief valve
- (1V4) Lubricating pressure relief valve
- (1V5) Service pump pressure relief valve
- (1V6) System pressure relief valve
- (2V1) Reverse fuel lift non-return valve
- (2V2) Forward fuel lift non-return valve
- (2V3) Forward high-pressure relief valve
- (2V4) Reverse high-pressure relief valve
- (2V5) Flushing valve
- (2V6) Shuttle valve
- (3V1) Hydrostatic pump control spool valve
- (3V2) Hydrostatic motor control spool valve
- (4V1) Hare range solenoid valve

Valves (or spool valves/solenoid valves)

- (4V2) Tortoise range solenoid valve
- (4V3) Forward speed limiting solenoid valve
- (4V4) Coupler function solenoid valve
- (4V5) Clutch function spool valve
- (4V6) Rear axle pressure relief spool valve
- (6V1) Rear PTO clutch solenoid valve
- (6V3) 540 (or 750) rpm PTO control solenoid valve (depending on equipment)
- (6V4) Front axle clutch solenoid valve
- (6V5) Differential lock solenoid valve
- (6V6) 1000 rpm PTO control solenoid valve

Measurement points

- (M1) Pressure upstream of cooler
- (M2) Lubricating pressure
- (M3) Flushing pressure
- (M4) Fuel lift pressure
- (M5) Service pump pressure
- (M6) Transmission system pressure
- (M7) Range 1 engaging pressure (Tortoise)
- (M8) Range 2 engaging pressure (Hare)
- (M9) High pressure
- (M10) Rear axle and brake system pressure
- (M11) PTO clutch pressure
- (M13) 540 (or 750) rpm PTO selector pressure (depending on equipment)
- (M14) Front axle clutch pressure
- (M15) Differential lock pressure
- (M16) 1000 rpm PTO selector pressure
- (M18) Lubricating pressure
- (M22) Oil leak from clutch or coupler function valve

A.1 Transmission hydraulics diagram

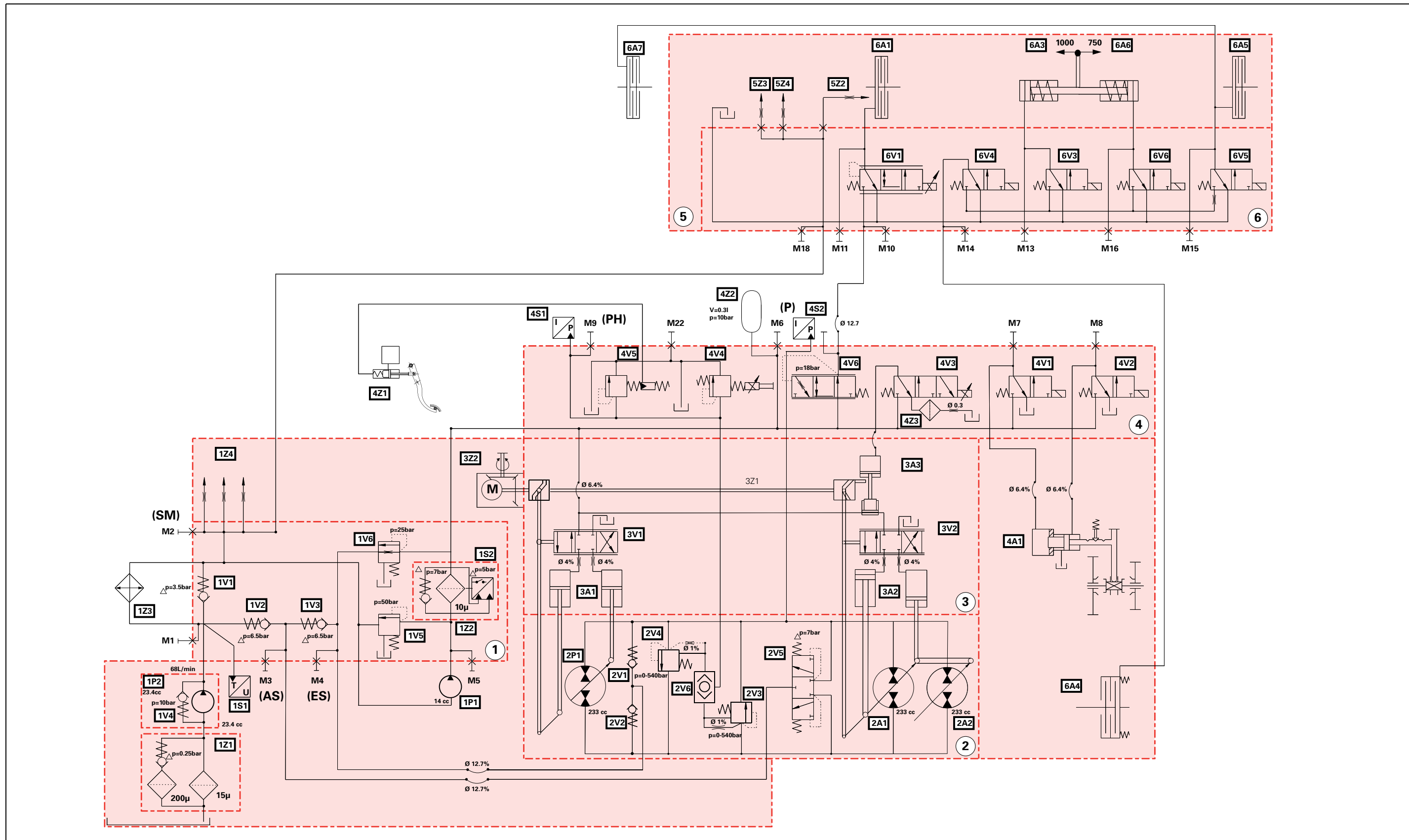


Fig. 1

B. Electrical diagrams

B.1 Identification of electrical connectors and harnesses

Identification of electrical connectors

- X1** - Auxiliary hydraulic oil temperature sensor
- X2** - Auxiliary hydraulic oil filter blockage switch
- X3** - 540 rpm PTO speed solenoid valve
- X4** - 1000 rpm PTO speed solenoid valve
- X5** - 4WD solenoid valve
- X6** - Differential lock solenoid valve
- X7** - Rear PTO solenoid valve
- X8** - Bevel gear theoretical speed sensor
- X9** - Transmission oil high pressure sensor 1
- X10** - Collecting shaft speed sensor
- X11** - Solenoid valve limiting speed to 30 kph
- X12** - Coupler function solenoid valve
- X13** - Hare range solenoid valve
- X14** - Tortoise range solenoid valve
- X15** - PTO clutch speed sensor
- X16** - PTO shaft speed sensor
- X17** - Hare/Tortoise range position sensor
- X18** - Transmission control module
- X19** - Transmission hydraulic oil temperature sensor
- X20** - Transmission filter blockage switch
- X21** - ParkLock brake pressure sensor
- X22** - Radar
- X23** - Steering pressure sensor
- X24** - Auxiliary hydraulic oil gauge
- X25** - Engine speed sensor
- X26** - Pneumatic brake solenoid valve
- X27** - Rear linkage lifting solenoid valve
- X28** - Rear linkage lowering solenoid valve
- X29** - Dual Control socket connector
- X30** - Rear linkage position sensor
- X31** - Rear linkage right-hand draft sensor
- X32** - Rear linkage left-hand draft sensor
- X33** - Transmission harness CAN junction
- X34** - Transmission oil high pressure sensor 2
- X35** - ParkLock hydraulic system pressure sensor
- X36** - LS signal breaker solenoid valve
- X37** - ParkLock pressure reversing solenoid valve
- X38** - Trailer braking proportional solenoid valve
- X39** - Trailer braking safety solenoid valve
- X40** - Front linkage single/double acting function solenoid valve
- X41** - Divider solenoid valve 1
- X42** - Divider solenoid valve 2
- X43** - Auto-hitch lifting solenoid valve
- X44** - Auto-hitch lowering solenoid valve
- X45** - Bleed for pneumatic suspended cab front and rear systems
- X46** - Rear left-hand ram position sensor for cab suspension
- X47** - Rear right-hand unit for suspended cab
- X48** - Rear left-hand unit for suspended cab
- X49** - Suspended cab rear lowering solenoid valve
- X50** - Suspended cab front lowering solenoid valve
- X51** - Transmission harness earth (chassis)
- X52** - Engine harness/transmission harness junction
- X53** - Cab transmission harness/transmission harness junction
- X54** - Suspended cab lifting solenoid valve
- X55** - Instrument panel
- X56** - Power Control lever
- X57** - DOT Matrix keyboard
- X58** - Windscreen wiper and indicator control unit
- X59** - DOT Matrix keyboard connection on instrument panel
- X60** - Engine harness/instrument panel harness junction
- X61** - Cab transmission harness/engine harness junction
- X62** - Instrument panel harness/cab transmission harness junction
- X63** - Instrument panel harness connection on fuse box
- X64** - Instrument panel harness connection on fuse box
- X65** - Front windscreen wiper motor
- X66** - Left-hand brake pedal sensor
- X67** - Right-hand brake pedal sensor
- X68** - Clutch pedal sensor
- X69** - Cab interior temperature sensor
- X70** - Solar radiation sensor
- X71** - Throttle pedal sensor
- X72** - ParkLock switch on Power Control lever
- X73** - Buzzer Control
- X74** - Buzzer Supply (+12 V APC)
- X75** - Pillar harness/right-hand fender harness junction
- X76** - Rear right-hand indicator
- X77** - Rear right-hand side light and stop light
- X78** - Work light on rear right-hand fender
- X79** --
- X80** --
- X81** --
- X82** --
- X83** --
- X84** --
- X85** --
- X86** --
- X87** - Linkage lifting/lowering switch on right-hand fender
- X88** - Rear right-hand NA indicator extension
- X89** - Earth (chassis)
- X90** - Pillar harness/left-hand fender harness junction
- X91** - Rear left-hand indicator
- X92** - Rear left-hand side light and stop light
- X93** - Work light on rear left-hand fender
- X94** - PTO ON/OFF switch on left-hand fender
- X95** - PTO Stop switch on left-hand fender
- X96** - Hydraulic spool valve switch on left-hand fender
- X97** - Linkage lifting/lowering switch on left-hand fender
- X98** - Rear left-hand NA indicator extension
- X99** - PTO and linkage console harness/cab transmission harness junction
- X100** - Instrument panel harness earth (chassis)
- X101** - Instrument panel harness/electric rear-view mirror harness junction
- X102** - Right-hand fender lighting harness/trailer connector harness junction
- X103** - Armrest harness/cab transmission harness junction
- X104** - Armrest Autotronic 5

- X105** - Datatronic CCD
X106 - Transmission lever in armrest
X107 - Headland mode switch (headland function)
X108 - FingerTIP 3
X109 - FingerTIP 4
X110 - FingerTIP 5
X111 - DTM dynamic transmission mode switch
X112 - Joystick
X113 - Armrest 6-button keyboard
X114 - Supply on fuse box for 3rd spool valve
X115 - Supply on fuse box for 4th spool valve
X116 - +12 V battery supply (for lighting module)
X117 - Isobus +12 V battery power socket
X118 - Automatic PTO switch
X119 - Rear linkage lifting/lowering switch
X120 - Datatronic CCD navigation keyboard
X121 - Rear linkage height/depth adjustment thumb wheel
X122 - Hand throttle
X123 - Hare/Tortoise range shift switch
X124 - Pedal/lever mode switch
X125 - SV1 speed setting potentiometer
X126 - SV2 speed setting potentiometer
X127 - Front PTO ON/OFF switch
X128 - Rear PTO ON/OFF switch
X129 - Fuse box +12 V battery connection
X130 - FingerTIP 6 front linkage function
X131 - Front linkage suspension solenoid valve
X132 - Instrument panel harness/armrest harness junction
X133 - Console harness/cab transmission harness junction
X134 - Console harness/pillar harness junction
X135 - Braking pressure sensor
X136 - Differential lock switch
X137 - 4WD switch
X138 - Hazard warning lights indicator light and switch
X139 - Suspended front axle switch
X140 - Suspended front axle setting potentiometer
X141 - Suspended cab switch
X142 - Suspended cab setting potentiometer
X143 - Variable steering switch (fast steering)
X144 - Variable steering setting potentiometer (fast steering)
X145 - PTO/linkage console
X146 - Rear linkage suspension switch
X147 - Roof harness/pillar harness junction
X148 - Roof harness/pillar harness junction
X149 - Headlights module (black connector)
X150 - Pillar harness/cab power socket harness junction
X151 - Pillar harness/cab power socket harness junction
X152 - Start switch
X153 - Non-Isobus implement connector
X154 - Suspended front axle lifting solenoid valve
X155 - Cigarette lighter socket (power)
X156 - Cigarette lighter socket (backlighting)
X157 - Left-hand side +12 V socket (power)
X158 - Left-hand side +12 V socket (backlighting)
X159 - Suspended front axle lowering solenoid valve
X160 - Console harness earth (chassis)
X161 - Solenoid valve 1 for suspended front axle suspension
X162 - Pillar harness connection on fuse box
X163 - Solenoid valve 2 for suspended front axle suspension
X164 - Pillar harness/cab transmission harness junction
X165 - Automatic air conditioning harness/pillar harness junction
X166 - Suspended front axle position sensor
X167 - +12 V APC fuse box connection
X168 - Pneumatic brake system pressure sensor
X169 - Power socket control switch (in cab)
X170 - Pillar harness connection on fuse box
X171 - Cab transmission harness connection on fuse box
X172 - Cab transmission harness connection on fuse box
X173 - Cab transmission harness earth
X174 - Autotronic 4 transmission controller
X175 - Emergency control switch
X176 - Earth (Autotronic 4 transmission controller)
X177 - Autotronic 5 Linkage
X178 - ParkLock/suspended front axle/passive suspended cab Autotronic 5
X179 - Main lighting, sidelight/dipped light activation switch
X180 - Front windscreen washer pump
X181 - Front linkage single acting / double acting function switch
X182 - Linkage external lifting switch
X183 - Diagnostics connector (tractor-Isobus CAN)
X184 - Diagnostics connector (engine-valve CAN)
X185 - Sisu EEM unit
X186 - Starter
X187 - Engine start relay
X188 - Engine identification module (ID module)
X189 - Fuel lift pump
X190 - Vistronic fan
X191 - Diesel fuel preheater
X192 - B + alternator 1
X193 - B + alternator 2
X194 - D + alternator 1
X195 - D + alternator 2
X196 - In line fuse (225 A)
X197 - Diesel fuel gauge
X198 - Pneumatic trailer brake sensor
X199 - Work light on left-hand step
X200 - Work light on right-hand step
X201 - Engine harness earth
X202 - Front accessory connection socket harness/front function harness junction
X203 - Engine harness/front headlights harness junction
X204 - Cooling unit harness/engine harness junction
X205 - Front axle harness/engine harness junction
X206 - Sensor detecting water in the diesel fuel
X207 - Pneumatic seat adjustment control
X208 - Front linkage suspension switch LED
X209 - Rear linkage external lowering switch
X210 - Orbitrol steering sensor (SASA sensor)
X211 - Rear Dual Control connector

- X212** - Instrument panel harness/armrest harness junction
X213 - Power socket for additional heating
X214 - Armrest harness/cab transmission harness junction
X215 - Trailer connector (right-hand side light and number plate lights)
X216 - Reversing light
X217 - Isobus CAN connector
X218 - External Isobus tool connector
X219 - Cab Isobus harness/external Isobus harness junction
X220 - Trailer connector (left-hand side light)
X221 - Trailer connector (right-hand indicator)
X222 - Trailer connector (left-hand indicator)
X223 - Trailer connector (brake lights)
X224 - Trailer connector (earth)
X225 - Trailer connector (reversing light)
X226 - Trailer connector harness earth
X227 - Console harness/cab transmission harness junction
X228 - Front linkage single/double-acting function LED
X229 - 120 Ohm CAN 1 resistor (cab transmission harness)
X230 - 120 Ohm CAN 2 resistor (cab transmission harness)
X231 - 120 Ohm CAN 3 resistor (cab transmission harness)
X232 - 120 Ohm CAN 4 resistor (cab transmission harness)
X233 - Cab transmission harness/Isobus harness junction
X234 - 120 Ohm CAN ATC resistor
X235 - Front axle steering sensor (WAS sensor)
X236 - Electrohydraulic Orbitrol (grey connector)
X237 - Electrohydraulic Orbitrol (black connector)
X238 - Connector 1 for valve harness
X239 - Connector 2 for valve harness
X240 - 120 Ohm resistor for electrohydraulic spool valves
X241 - Sisu engine preheating supply (Grid Heater)
X242 - Exhaust temperature sensor
X243 - AdBlue/DEF reservoir (urea) level gauge and temperature sensor
X244 - CAN SCR harness
X245 - +12 V APC supply for SCR
X246 - Auto-Guide external harness/engine harness junction
X247 - Roof harness/electric rear-view mirror harness junction
X248 - Right and left-hand electric rear-view mirror adjustment switch
X249 - External rear-view mirror defroster switch
X250 - Power socket in cab
X251 - In line fuse (225 A)
X252 - Automatic air conditioning condenser
X253 - Air filter vacuum sensor
X254 - Horn (earth)
X255 - Horn
X256 - Roof harness/hand rail harness junction
X257 - Side light and indicator on hand rail (right and left)
X258 - Main beam on hand rail (right and left)
X259 - Hand rail upper work light
X260 - Hand rail upper work light
X261 - Front right-hand unit for suspended cab
X262 - Front left-hand unit for suspended cab
X263 - Floating stop relay control (US front-end loader)
X264 - Front linkage suspension switch
X265 - Rear linkage suspension switch indicator light
X266 - Rear linkage diagnostic and lifting/lowering LEDs
X267 - Switch for left-hand side heater
X268 - Pillar harness connection on fuse box
X269 - Cab suspension harness/cab transmission harness junction
X270 - Front accessories connection socket (rotary beacon)
X271 - Front accessories connection socket (+12 V battery)
X272 - Front accessories connection socket (+12 V APC)
X273 - Front accessories connection socket (main beam light)
X274 - Front accessories connection socket (main beam light)
X275 - Front accessories connection socket (work light)
X276 - Earth for front accessory connection socket harness
X277 - Front linkage lifting/lowering external control
X278 - Front linkage lifting switch (external)
X279 - Dual Control or TIC position sensor
X280 - Front linkage rams pressure sensor
X281 - Solenoid valve for front PTO
X282 - Roof harness/cab Auto-Guide harness junction
X283 - TopDock
X284 - Headlights module keyboard
X285 - Ad Blue (urea) metering valve
X286 - Ad Blue (urea) injection valve
X287 - Ad Blue (urea) reservoir preheating valve
X288 - 12/24 V converter for SCR system
X289 - SCR management module
X290 - Front accessory connection socket harness/front function harness junction
X291 - Front accessory connection socket harness/front function harness junction
X292 - Front windscreen washer pump
X293 - 540 rpm PTO switch
X294 - 540 eco rpm PTO switch
X295 - 1000 rpm PTO switch
X296 - USB connector
X297 - PTO/linkage console backlighting
X298 - Headland mode switch (headland function)
X299 - Linkage lowering speed potentiometer
X300 - -
X301 - PTO stop switch on left-hand fender
X302 - Switch for pre-selected engine speed A
X303 - Switch for pre-selected engine speed B
X304 - Instrument panel harness/armrest harness junction
X305 - Headlights module (grey connector)
X306 - Switch for pre-selected engine speed A/B
X307 - FingerTIP 1
X308 - FingerTIP 2
X309 - SV1/SV2 speed regulator switch

- X310** - Divider 1 indicator light and solenoid valve (earth)
X311 - Divider 2 indicator light and solenoid valve (+12 V)
X312 - SV1/SV2 speed setting potentiometer in armrest
X313 - Pedal/lever transmission control mode switch and DTM switch
X314 - Hydraulics switch 1, road/field mode
X315 - Hydraulics switch 2, road/field mode
X316 - Headland mode switch (headland function)
X317 - + battery supply for headlights module
X318 - Automatic air conditioning compressor
X319 - + battery supply for headlights module
X320 - + battery supply on headlights module
X321 - + battery supply on headlights module
X322 - + battery supply on headlights module
X323 - + battery supply on headlights module
X324 - +12 V APC fuse box connector (battery isolator switch)
X325 - Pillar harness / non-Isobus implement connector harness junction
X326 - Pillar harness / non-Isobus implement connector harness junction
X327 - Battery earth (chassis)
X328 - Battery isolator switch earth terminal
X329 - Battery isolator switch earth terminal
X330 - Battery negative terminal contact (battery isolator switch)
X331 - Pillar harness connection on fuse box
X332 - + battery (start switch)
X333 - Engine harness earth (chassis)
X334 - Battery isolator switch earth terminal
X335 - Battery isolator switch earth terminal
X336 - Battery isolator switch
X337 - Pneumatic brake ParkLock solenoid valve
X338 - Earth (battery isolator switch)
X339 - Pneumatic trailer braking solenoid valve
X340 - + terminal on battery for fuse box
X341 - Starter supply
X342 - Positive battery terminal
X343 - RS232 diagnostics connector for Auto-Guide
X344 - Isobus connector in cab
X345 - Supply for additional terminal (mitron unit)
X346 - Auto-Guide switch
X347 - Cab transmission harness connection on fuse box
X348 - Cab transmission harness connection on fuse box
X349 - -
X350 - Front right-hand grille work light
X351 - Front right-hand grille work light
X352 - Front right-hand grille work light
X353 - Front left-hand grille work light
X354 - Front left-hand grille work light
X355 - Front left-hand grille work light
X356 - Right-hand main beam and dipped light
X357 - Left-hand main beam and dipped light
X358 - Outside temperature sensor
X359 - Cab suspension harness/cab transmission harness junction
X360 - Pillar harness connection on fuse box
X361 - Pillar harness connection on fuse box
X362 - Fuse box (+12 V battery)
X363 - Auto-hitch (Dromone) switch
X364 - 120 Ohm resistor for Auto-Guide/Isobus CAN network
X365 - Hand rail lower work light
X366 - Pneumatic brake harness / transmission harness junction
X367 - Switch 1 on joystick
X368 - Switch 2 on joystick
X369 - Engine speed + switch
X370 - Engine speed - switch
X371 - Engine speed stop switch
X372 - Orbitrol safety solenoid valve
X373 - Left-hand 12 V socket (cab) (power)
X374 - Left-hand 12 V socket (cab) (backlighting)
X375 - Instrument panel harness/cab transmission harness junction
X376 - Fuse box (reserve for + APC)
X377 - Fuse box (supply for cab suspension compressor)
X378 - FNRP lever and button
X379 - Front left-hand work light on roof
X380 - Front right-hand work light on roof
X381 - Front left-hand work light on roof
X382 - Front right-hand work light on roof
X383 - Front left-hand roof indicator
X384 - Front right-hand roof indicator
X385 - Rear left-hand work light on roof
X386 - Rear right-hand work light on roof
X387 - Rear left-hand work light on roof
X388 - Rear right-hand work light on roof
X389 - Rear left-hand work lights
X390 - Rear right-hand work lights
X391 - Rear left-hand roof indicator
X392 - Rear right-hand roof indicator
X393 - Earth
X394 - Radio aerial connector
X395 - Radio supply
X396 - Radio speaker connector
X397 - Front left-hand speaker
X398 - Front right-hand speaker
X399 - Rear left-hand speaker (+ supply)
X400 - Rear right-hand speaker (+ supply)
X401 - Rear left-hand speaker (- supply)
X402 - Rear right-hand speaker (- supply)
X403 - Rear windscreen wiper motor
X404 - Door switch
X405 - Interior light (earth)
X406 - Interior light (control)
X407 - Interior light (+12 V battery supply)
X408 - Right-hand console light
X409 - Left-hand rotary beacon
X410 - Right-hand rotary beacon
X411 - Rear windscreen wiper switch
X412 - Radio aerial
X413 - Earth (aerial)
X414 - Left-hand number plate light
X415 - Right-hand number plate light
X416 - Radio supply
X417 - Radio speaker connector
X418 - Earth
X419 - Earth
X420 - Rotary beacon harness earth (chassis)

X421 - Earth
X422 - Roof harness earth (chassis)
X423 - Left-hand side fan ON/OFF switch
X424 - Fan speed control knob
X425 - Air conditioning switch
X426 - Air conditioning indicator light
X427 - Manual air conditioning module
X428 - Electronic thermostat for heating
X429 - Speed 1relay for fan
X430 - Speed 2relay for fan
X431 - Speed 3relay for fan
X432 - Speed 4relay for fan
X433 - Left-hand heating resistor
X434 - Right-hand fan
X435 - Left-hand fan
X436 - Left-hand side fan switch
X437 - Relay for left-hand side fan
X438 - Earth (automatic air conditioning)
X439 - Air conditioning control module (blue connector)
X440 - Air conditioning control module (yellow connector)
X441 - Heating temperature sensor
X442 - TT2 sensor
X443 - Evaporator temperature sensor
X444 - Right-hand fan adapter module (signal)
X445 - Left-hand fan adapter module
X446 - Right-hand fan adapter module (supply)
X447 - Left-hand fan adapter module (supply)
X448 - Separation harness for automatic air conditioning
X449 - Motor for left-hand heating shutter
X450 - Motor for right-hand heating shutter
X451 - Motor for heating mixer shutter
X452 - Relay for heater pump
X453 - Heater accelerator pump
X454 - Earth (roof)
X455 - Roof harness earth
X456 - Solar panel
X457 - Earth (Auto-Guide)
X458 - Cab transmission harness/pillar harness junction
X459 - Linkage lifting switch on fender
X460 - Linkage lowering switch on fender
X461 - Pillar harness/TECU harness junction
X462 - Supply indicator light for power socket on pillar
X463 - Earth (Isobus)
X464 - Pillar harness/armrest harness junction
X465 - Battery positive terminal contact
X466 - Active suspended cab Autotronic 5
X467 - Right-hand electric rear-view mirror
X468 - Left-hand electric rear-view mirror
X469 - Additional fan connection
X470 - Operator presence in seat switch
X471 - Suspended cab harness connection

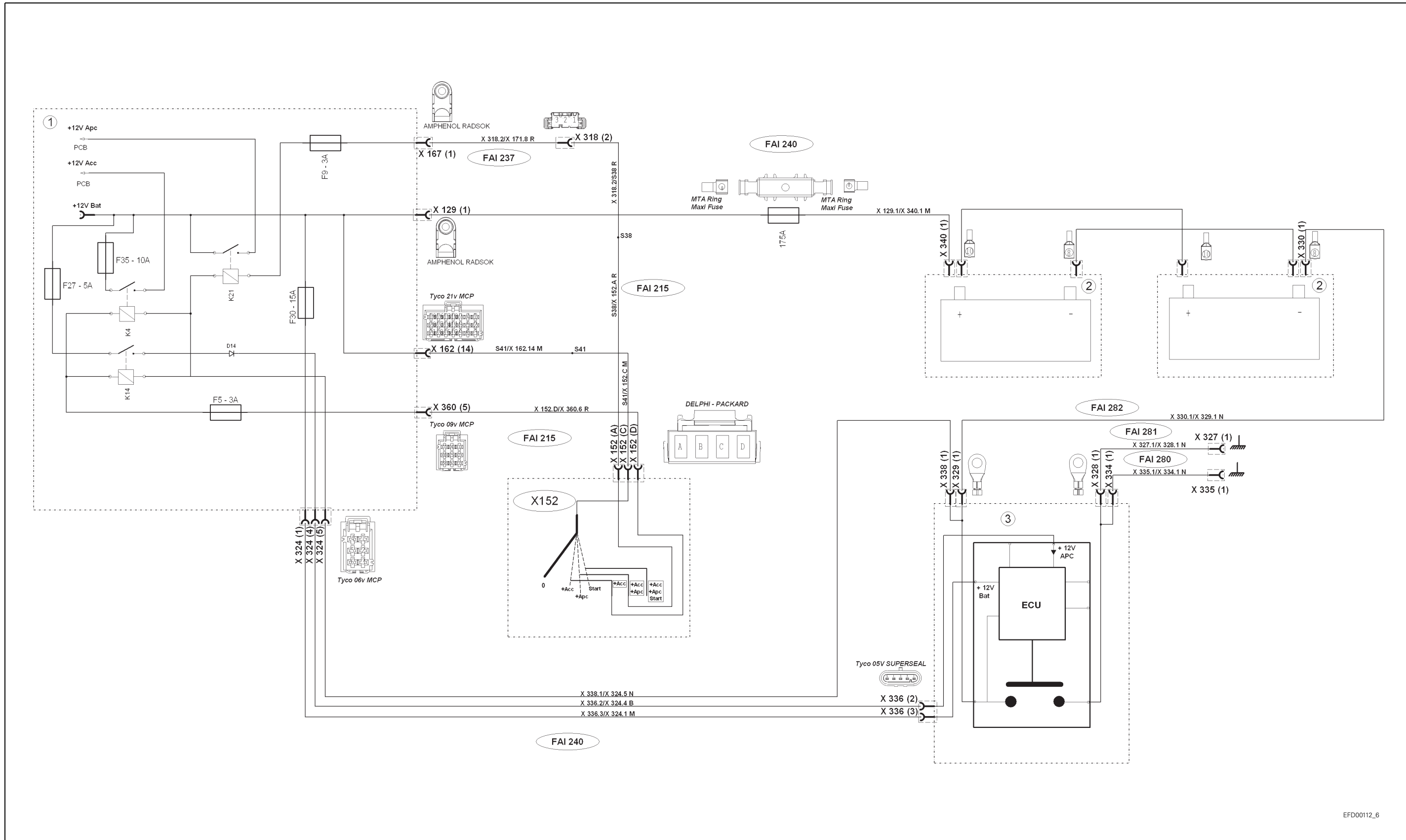
Identification of harnesses

FAI200 - Engine harness
FAI201 - Front headlights harness
FAI202 - Suspended front axle harness
FAI203 - Transmission harness
FAI204 - Cab/platform linkage external harness
FAI205 - Electrohydraulic valves harness
FAI206 - Transmission harness — PTO

FAI207 - Front Dual Control harness
FAI208 - Linkage with Dual Control and TIC harness
FAI209 - Instrument panel harness
FAI210 - Cab transmission harness
FAI211 - Cab linkage harness
FAI212 - Lighting harness
FAI213 - Cab interior lighting harness
FAI214 - Armrest harness
FAI215 - Pillar harness
FAI216 - Diagnostics connector harness
FAI217 - Datatronic 3 harness
FAI218 - Fieldstar harness
FAI219 - Cab interior power socket harness
FAI220 - BOC harness — safety switch
FAI221 - Automatic air conditioning harness — instrument panel
FAI222 - Autotronic 5 ParkLock/suspended front axle harness
FAI223 - Roof harness
FAI224 - Hand rail lighting harness
FAI225 - Electric rear-view mirror harness
FAI226 - Roof/external harness
FAI227 - Automatic air conditioning harness - roof
FAI228 - Number plate lighting harness
FAI229 - Xenon light adapter harness
FAI230 - GSPTO harness
FAI231 - Transmission harness — ParkLock
FAI232 - Radio harness
FAI235 - Front accessory connection socket harness
FAI236 - Start-up harness
FAI237 - +12 APC fuse box harness
FAI238 - +12 APC instrument panel harness
FAI239 - Permanent +12 V supply harness
FAI240 - +12 V permanent fuse box harness
FAI241 - Automatic air conditioning adapter harness
FAI242 - Main beams on hand rail adapter harness
FAI243 - Circuit breaker harness
FAI244 - Linkage external controls extension harness
FAI245 - Left-hand linkage external controls harness
FAI246 - Right-hand linkage external controls harness
FAI247 - PTO shunt harness
FAI248 - Linkage external controls harness
FAI249 - Suspended front axle harness
FAI250 - Engine harness
FAI251 - Parking brake harness
FAI252 - +12 V battery harness
FAI253 - Hand rail harness
FAI254 - Windscreen wiper harness
FAI255 - Windscreen wiper harness
FAI256 - High-visibility roof heating harness
FAI257 - High-visibility roof heating harness
FAI258 - Roof earth harness
FAI260 - Cooling unit harness
FAI261 - Isobus harness
FAI262 - Auto-Guide engine harness
FAI263 - Auto-Guide cab adapter harness
FAI265 - Pneumatic brake harness
FAI267 - Console harness
FAI268 - Front function harness
FAI271 - Cab electric rear-view mirror harness
FAI272 - Active suspended cab harness

- FAI273** - Front linkage harness
- FAI274** - Rear right-hand lighting harness
- FAI275** - Trailer connector harness
- FAI276** - Rear left-hand lighting harness
- FAI280** - Negative battery harness
- FAI281** - Negative battery harness
- FAI282** - Negative battery harness
- FAI283** - TopDock harness
- FAIxxx** - Non-Isobus tool connector harness
- FAIxxx** - Non-Isobus implement connector controller harness
- FAIxxx** - Additional fan harness

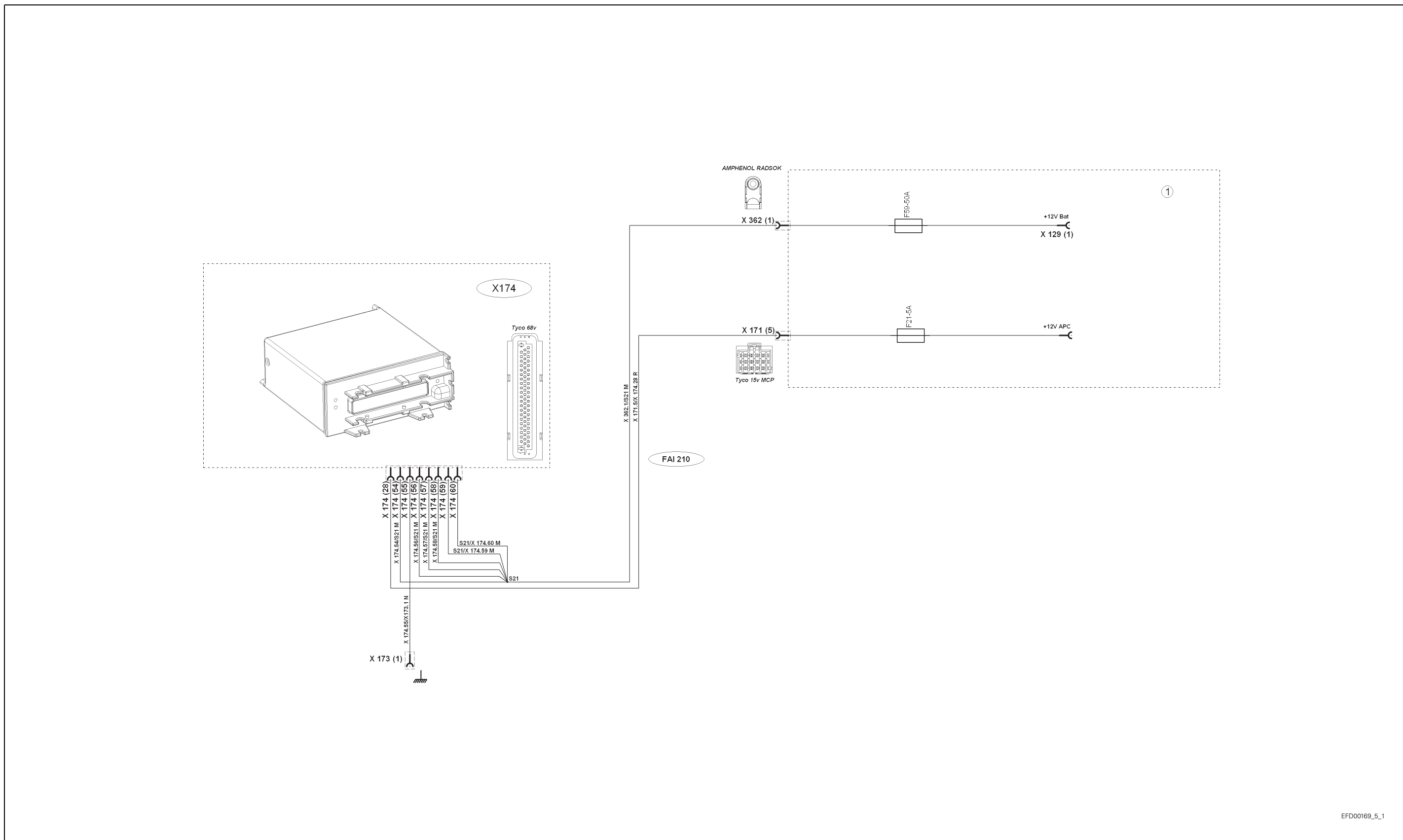
B.2 Fuse box supply with circuit breaker



EFD00112_6

Fig. 2

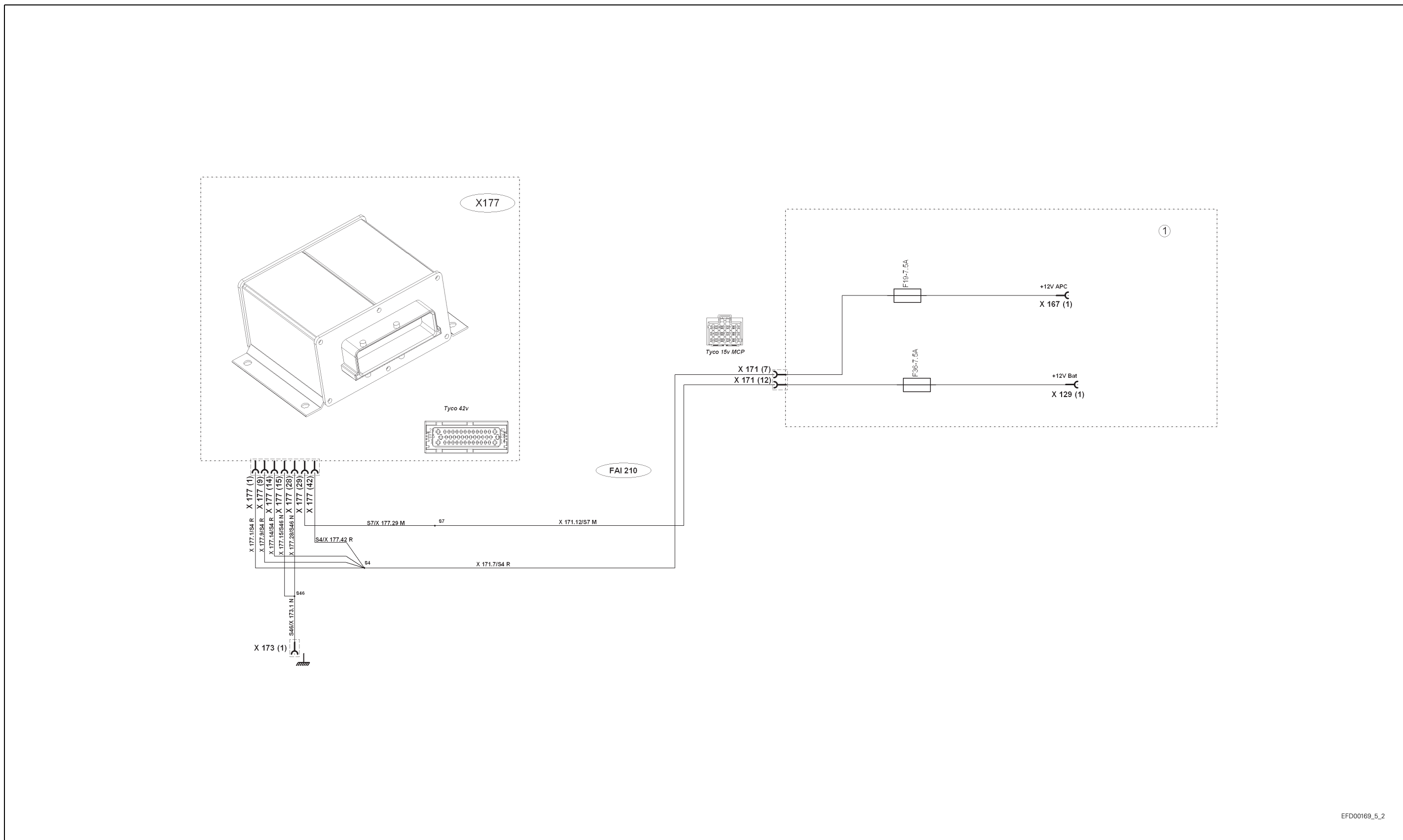
B.3 Autotronic 4 electrical power supply



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Fig. 3

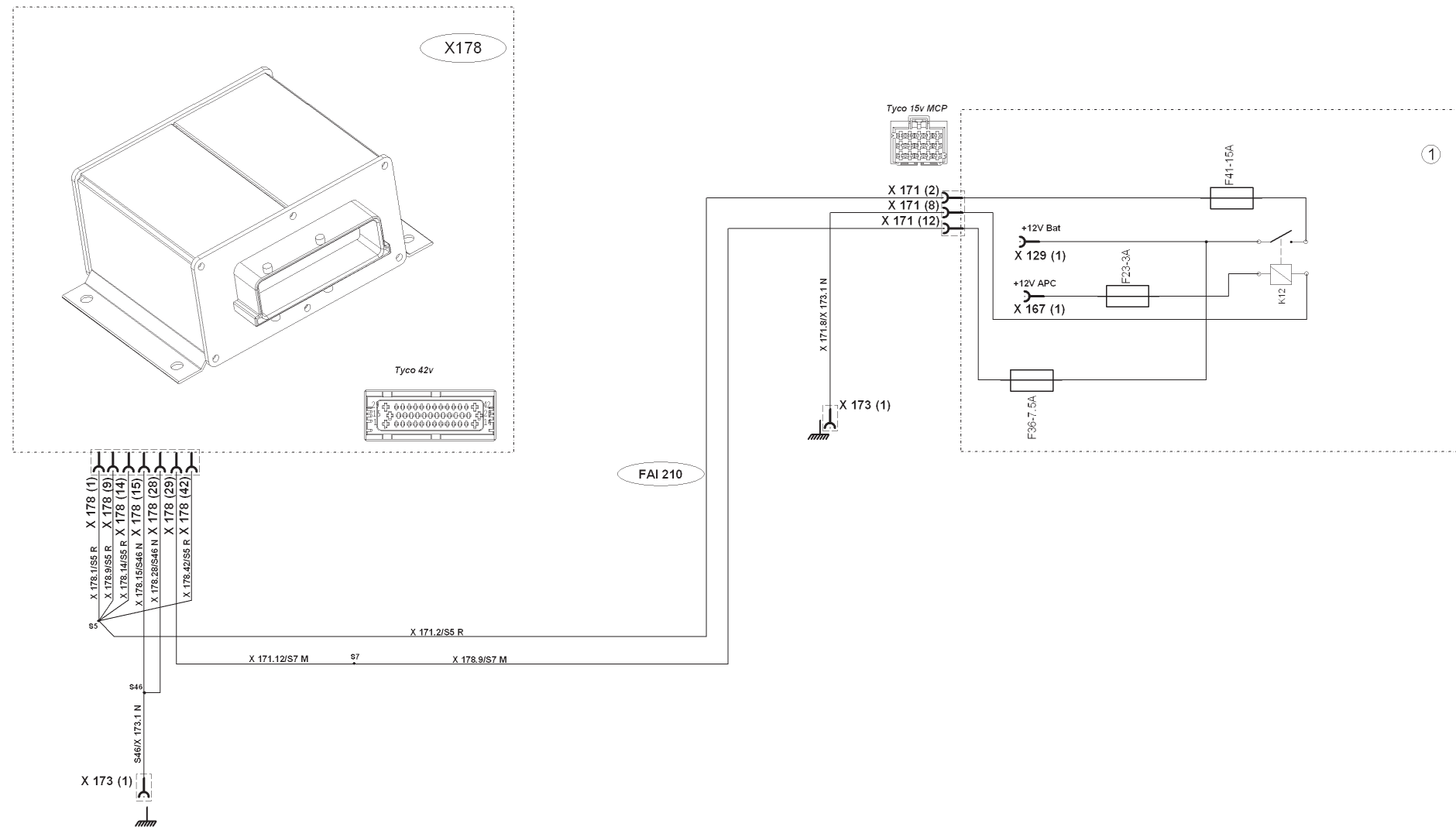
B.4 Autotronic 5 linkage electrical power supply



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Fig. 4

B.5 Autotronic 5 ParkLock/suspended front axle electrical power supply



EFD00169_5_3

Fig. 5

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