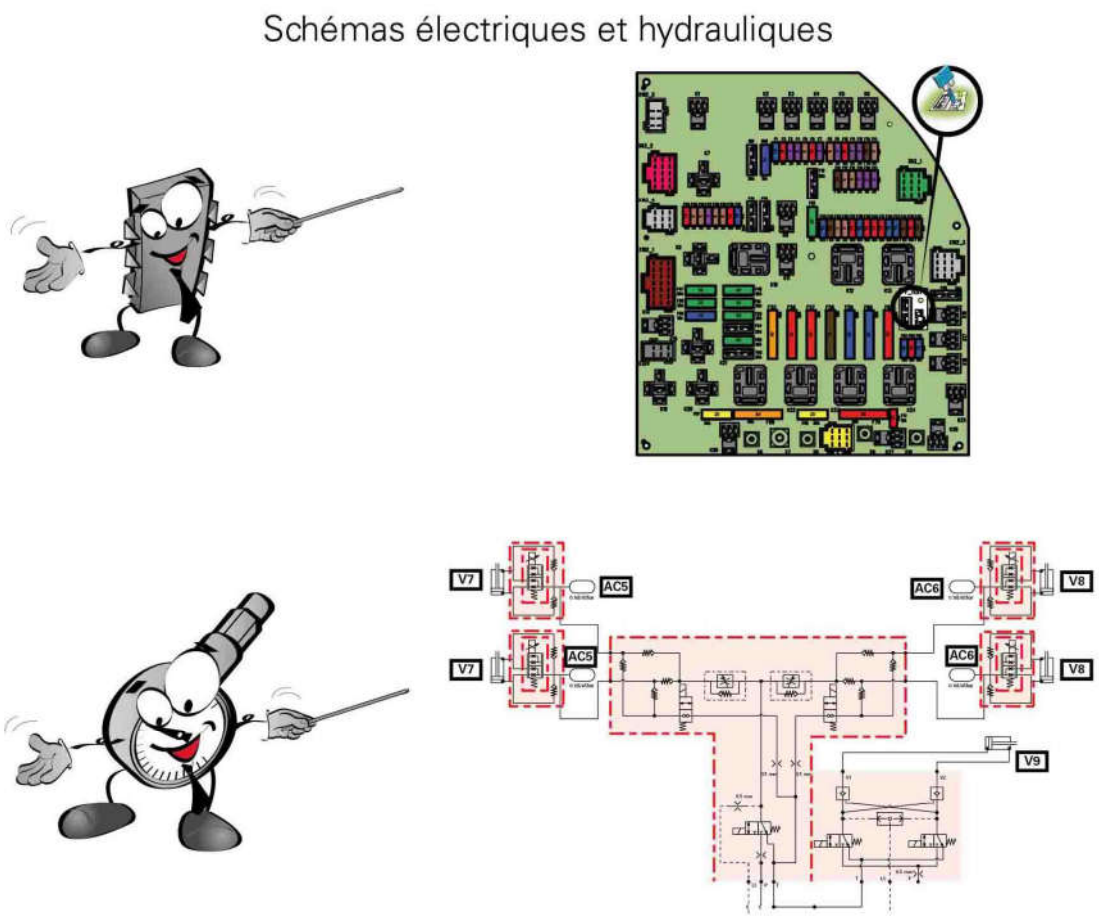
Workshop Service Manual

MASSEY FERGUSON

Technician Service Book - series tractors MF 6700 S



Beauvais
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English

Engine				
Model	**MF 6712 S**	**MF 6713 S**	**MF 6714 S**	**MF 6715 S**
Device brand	Bosch Denox 2.2+			
Type of control	Engine controller EEM4			
Urea solidification temperature	-11 °C			
Oil vapor recirculation system	Closed system breather (CCV)			
Belt: Air conditioning compressor/ left-hand alternator	Poly V belt			
Belt: Fan/right-hand alternator	Poly V belt			
Belt: Air compressor	Poly V belt			

Rear axle transmission		
Model	**MF 6712 S/MF 6713 S**	**MF 6714 S/MF 6715 S**
Gearbox type	GBA25	
Number of ratios	4	
Number of ranges	4	
Number of gears	16/16	
Super creeper gears	14/1	
Number of gears with super creeper gears	32/32	
Maximum speed	40 km/h	
Rear axle type	GPA22/22+	GPA23/23+
Number of pinion/crown wheel teeth	8/39	8/39
Rear axle ratio	24.75	27.16
4WD ratio	0.83	0.83
Final drive type	Heavy Duty (HD) or Heavy Duty + (HD+)	Super Heavy Duty (SHD)
Final drive reduction ratio	(53+13)/13	(64+14)/14
Maximum 4WD clutch torque	180 daNm	206 daNm
Number of 4WD disks	6 disks	
Main brake type	Disk	
Number of disks per side	1 disk	
Braking pressure	66 - 70 bar	
Parking brake type	Hand brake	

Rear axle transmission		
Model	**MF 6713 S/MF 6714 S**	**MF 6715 S/MF 6716 S/MF 6718 S**
Braking pressure	66 - 70 bar	
Parking brake type	Hand brake	
Trailer brake type	Hydraulic and pneumatic with built-in antifreeze pump	
Pneumatic trailer braking pressure	6,9 bar to 8,3 bar	
Hydraulic trailer braking pressure	0 to 150 bar	
Maximum operating tilt - pitch (front/rear)	15° (> 15 km/h) 22° (< or = 15 km/h)	
Maximum operating tilt - roll (right/left)	15° (> 15 km/h) 22° (< or = 15 km/h)	
Maximum operating tilt - combined	15° (> 15 km/h) 22° (< or = 15 km/h)	
Total loaded weight supported by rear axle	7600 kg	9000 kg

Front axle			
Model	**MF 6713 S/MF 6714 S**	**MF 6715 S**	**MF 6716 S/MF 6718 S**
Brand	DANA		
Axle type	Suspended or fixed		
Supplier reference - suspended axle	735/614	735/613	740/614
Suspended front axle weight	587 kg	587 kg	620 kg
Supplier reference - fixed axle	735/528	735/530	740/553
Fixed front axle weight	347 kg	347 kg	380 kg
Number of differential disks	12		
Total ratio for fixed and suspended front axle	15.5	17	
Total loaded weight supported by front axle	6000 kg		
Rotational direction	Anti-clockwise		
Recommended oil type (beam and final drive)	SAE85W90 (API GL5-MIL 2105B)		
Ratio for fixed and suspended axle final drive	6		

Front axle		
Model	**MF 6713 S/MF 6714 S**	**MF 6715 S/MF 6716 S/MF 6718 S**
Suspension ram diameter	68 mm x 32 mm	
Suspension ram stroke	2 x 129 mm	
Hydraulic control unit brand	Husco	
Hydraulic control unit nominal pressure	190 bar	
Number of accumulators	2	
Accumulator pressure	10 bar and 50 bar	
Suspension sensor type	Angular potentiometer.	
Steering sensor type	Angular potentiometer.	
Brake type	Combined with the rear brake	
Factor K	1.32	

Spool valve	
Model	**All models**
System type	Closed Center Load Sensing (CCLS)
Flow rate	110 l/190 l
High-pressure pump type	Bosch Rexroth piston pump
High-pressure pump displacement	45 cm3 at 110 l/min 85 cm3 at 190 l/min
High-pressure pump rotational speed	2512 rpm
High-pressure pump maximum flow rate	110 l/min or 190 l/min
High-pressure pump maximum pressure	205 bar
Maximum quantity of oil	110 l
Maximum exportable oil quantity (without adding oil)	42 l continuous
	52 l temporary (example: emptying a bucket)
Charge pump type	Suction
Main relief valve adjustment pressure	230 bar ± 5 bar
Number of spool valves (maximum)	8
Number of front "push-pull" connectors	4
Number of rear "push-pull" connectors	10

Range	Ratio	GTA 2522+ - MF 6713 S/MF 6714 S at 1800 rpm	GTA 2523 - MF 6715 S/MF 6716 S/MF 6718 S at 1800 rpm
1	F	0,25 km/h	0,23 km/h
2	A	0,28 km/h	0,25 km/h
2	B	0,34 km/h	0,31 km/h
2	C	0,39 km/h	0,36 km/h
2	D	0,47 km/h	0,43 km/h
2	E	0,56 km/h	0,51 km/h
2	F	0,67 km/h	0,61 km/h
3	A	0,57 km/h	0,52 km/h
3	B	0,68 km/h	0,62 km/h
3	C	0,80 km/h	0,73 km/h
3	D	0,96 km/h	0,88 km/h
3	E	1,13 km/h	1,03 km/h
3	F	1,36 km/h	1,24 km/h
4	A	1,43 km/h	1,37 km/h
4	B	1,72 km/h	1,65 km/h
4	C	2,02 km/h	1,93 km/h
4	D	2,43 km/h	2,33 km/h
4	E	2,86 km/h	2,73 km/h
4	F	3,44 km/h	3,29 km/h

1.2.5 Forward speed for all models with transmission in Dyna-VT mode

50 kph version* tractors

*depending on country legislation.

For the 40 kph version, the speed is electronically controlled.

Continuous variation mode		
	Forward	Reverse
Slow speed range (Tortoise)	0.03 kph to 28 kph	0.03 kph to 16 kph
High speed range (Hare)	0.03 kph to 40 kph or 50 kph*	0.03 kph to 38 kph

1.4.3 Attachment points: MF 6715 S / MF 6716 S / MF 6718 S Dyna-4/Dyna-6 models without front linkage

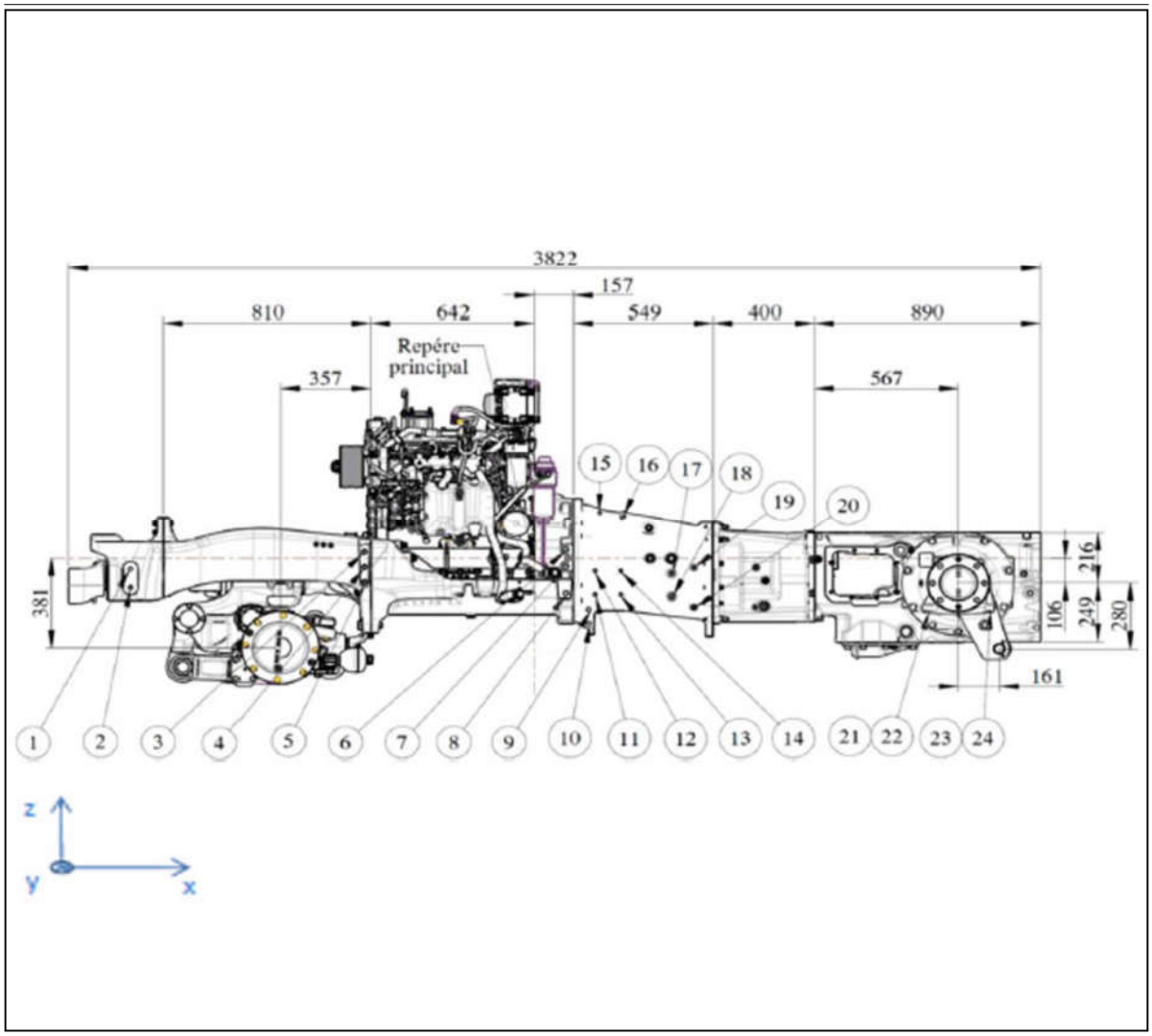

Fig. 6

NOTE:
Values x, y and z represent reference point 0 of the tractor.

Reference		X	Y	Z
1[1]	M20	-1582 mm	-315 mm	-45 mm
2[1]	M20	-1582 mm	-315 mm	-125 mm
3[1]	M20	-667 mm	-280 mm	27,5 mm
4[1]	M20	-667 mm	-280 mm	-37,5 mm
5	M16	-667 mm	-280 mm	-102,5 mm
6[1]	M20	126,8 mm	-280 mm	38 mm
7[1]	M20	126,8 mm	-280 mm	-35 mm

1.6 Tightening torques, retaining compounds and sealing products

1.6.1 Retaining compounds and sealing products

General

The Loctite compounds mentioned in this manual are referred to by their industrial name.

For repair purposes, use their commercial names or the corresponding Massey Ferguson references listed in the table below.

Loctite product type	Operation
221	Standard threadlock
241	
242	Medium threadlock
270	Strong threadlock
496	Glue (for metals)
510	Standard sealant
518	Sealant for flat surfaces and paper seals
542	Thread sealant
549	Oil-resistant surface sealant
573	Surface sealant (engine, gearbox)
574	
577	Threaded union sealant (prevents loosening and leakages caused by vibrations)
603	Retainer for cylindrical assemblies (bearings, rings etc.)
638	Strong retainer for cylindrical assemblies (bearings, rings etc.)
648	Strong retainer for cylindrical assemblies (resistant to high temperatures)
706	Degreasing cleaner
5206	Metallic surface sealant (gearbox housing, engine sump)
5910	± Flexible surface sealant
5922	Sealant paste for ± flexible unions (sensor attachments etc.)
7100	Leakage detector for pneumatic systems

NOTE: *Use the product "Form A gasket 2" when sealing between plastic material and cast iron or steel.*

Application method for Loctite products

1. Remove all traces of previous sealants and corrosion
   - mechanically: wire brush or emery cloth
   - chemically: "DECAPLOC 88" (Leave the product to take effect then scrape off and wipe clean).
2. Degrease the components with dry solvent: preferably use "Super Solvant Sec LOCTITE 706".
3. Allow the solvents to evaporate

[2] Metric unit

Torque		
Nm	x 0.7375	lbf ft
lbf ft	x 1.3558	Nm
daNm	x 7.3756	lbf ft
lbf ft	x 0.1356	daNm

Pressure		
bar	x 14.504	psi
psi	x 0.0690	bar

Flow rate		
l/min	x 0.2642	gal/min (US)
gal/min (US)	x 3.7853	l/min
l/hr	x 0.2642	gal/hr (US)
gal/hr (US)	x 3.7853	l/hr
l/ha	x 0.1069	gal/acre (US)
gal/acre (US)	x 9.3531	l/ha

Speed		
kph	x 0.6214	mph
mph	x 1.6093	kph

Weight		
g	x 0.03527	oz
oz	x 28.3495	g
kg	x 2.2046	lb
lb	x 0.4536	kg
t	x 1.1023	US ton
US ton	x 0.9072	t

Temperature		
°C	(°C x 1.8) + 32	°F
°F	(°F - 32)/1.8	°C

General failure warning light

Activating condition(s)

- Indicator light flashing with engine oil pressure indicator light = engine error - stop the engine
- Indicator light permanently on = major error - stop the tractor

Cause(s)	Solution(s)
Engine error	Contact the dealer.
Major error	Contact the dealer.

Lubrication pressure indicator light

Activating condition(s)

- Indicator light permanently on = lubrication pressure lower than 0.45 bar

Cause(s)	Solution(s)
Oil level too low	Check the transmission oil level.
Hydraulic system components faulty	Contact the dealer.

Steering supply pressure indicator light

Activating condition(s)

- Indicator light flashing = auxiliary hydraulic oil level below 55 l
- Indicator light permanently on = auxiliary hydraulic oil pressure lower than 25 bar or oil level below 35 l

Cause(s)	Solution(s)
Oil level too low	Check the auxiliary hydraulic oil level.
Hydraulic system components faulty	Contact the dealer.

Transmission oil pressure indicator light

Activating condition(s)

- Indicator light flashing = transmission oil pressure lower than 9 bar

Cause(s)	Solution(s)
Transmission oil level too low	Check the transmission oil level.
Transmission module faulty	Contact the dealer.

No.	Components concerned	Causes
0.X.3B	**X56** - PowerShuttle lever	Electrical signal too high
0.X.3C		Electrical signal too low
0.X.3D		Electrical signal too high
0.X.3E		Electrical signal too low
0.X.3F		CAN network deactivated (CAN bus off)
0.X.40		CAN message lost
0.X.41		Tractor speed too high
0.X.42	**X55** - Instrument panel	Hourmeter error for engine maintenance
0.X.43		Configuration error
0.X.44		CAN communications from transmission controllers to instrument panel are faulty
0.X.45	**X55** - Instrument panel	Incorrect tractor code selected
0.X.46	**X68** - Clutch pedal sensor	TOC stuck open
0.X.47	**X56** - PowerShuttle lever	Switch error when in neutral position
0.X.48		Switch error when not in neutral position
0.X.49		Failure of CAN communications from EEM to the instrument panel
0.X.4A		Loss of CAN messages between the instrument panel and the engine controller
0.X.4B	Hand throttle	Signal in open circuit
0.X.4C	**X358** - Outside temperature sensor / **X541** - Temperature info shunt for automatic air conditioning	Outside temperature sensor connected to the instrument panel
0.X.4E	**X236** - Electrohydraulic Orbitrol (gray connector)	Error on the steering unit
0.X.4F	**X55** - Instrument panel	Power output error
0.X.54	**X168** - Pneumatic brake system pressure sensor	Electrical signal too high or too low
0.X.5E	**X235** - Front axle steering sensor (WAS sensor)	Electrical signal too high or too low
0.X.5F	**X57** - Keypad Setup and Information Screen	Electrical signal too high or too low
0.X.61	**X55** - Instrument panel	The 9.5 V output is too low or too high
0.X.63	**X55** - Instrument panel	Internal temperature electrical signal is too high or too low

2.1.7 AGCO Power Tier 3/Stage IIIA engine and Tier 4F/Stage IV SCR Technology engine error codes

Description of the protection modes

In order to protect the engine, the electronic system activates a protection mode when certain error codes appear.

Standard protection modes for all engines:

No.	FMI	Components concerned	Causes	Standard modes	modes
4334	4	DEF or AdBlue™ pressure sensor	Voltage below normal		X
4340	3	DEF or AdBlue™ preheating suction line	Short circuit to +12 V		
4340	4	DEF or AdBlue™ preheating suction line	Short circuit to earth (-)		
4340	5	DEF or AdBlue™ preheating suction line	Open circuit		
4340	31	DEF or AdBlue™ preheating suction line	Excessive temperature		
4342	3	DEF or AdBlue™ preheating return line	Short circuit to +12 V		
4342	4	DEF or AdBlue™ preheating return line	Short circuit to earth (-)		
4342	5	DEF or AdBlue™ preheating return line	Open circuit		
4342	31	DEF or AdBlue™ preheating return line	Excessive temperature		
4344	2	DEF or AdBlue™ heating module	Invalid temperature signal		X
4344	3	DEF or AdBlue™ heating module	Short circuit to +12 V		
4344	4	DEF or AdBlue™ heating module	Short circuit to earth (-)		
4344	5	DEF or AdBlue™ heating module	Open circuit		
4344	8	DEF or AdBlue™ heating module	Fault with temperature range signal		X
4344	12	DEF or AdBlue™ heating module	No response from the temperature measurement		
4344	31	DEF or AdBlue™ heating module	Excessive temperature		
4346	3	DEF or AdBlue™ preheater pressure line	Short circuit to +12 V		
4346	4	DEF or AdBlue™ preheater pressure line	Short circuit to earth (-)		
4346	5	DEF or AdBlue™ preheater pressure line	Open circuit		
4346	31	DEF or AdBlue™ preheater pressure line	Excessive temperature		
4356	5	DEF or AdBlue™ module relay	Open circuit		
4360	2	DOC inlet temperature sensor	Incorrect temperature value		X
4360	3	DOC inlet temperature sensor	Voltage above normal or open circuit		X
4360	4	DOC inlet temperature sensor	Voltage below normal		X
4360	10	DOC inlet temperature sensor	Temperature value inconsistent		
4363	2	Exhaust outlet temperature sensor	Incorrect temperature value		X

No.	Components concerned	Causes
4.X.16		Electrical power supply (+APC < 7 V)
4.X.40	**X483** - Intermediate speed sensor **X482** - Theoretical forward speed sensor	Difference in value between the intermediate speed sensor and the forward travel speed sensor, depending on the range engaged
4.X.54	**X19** - Transmission hydraulic oil temperature sensor	Value > 150°C or < -24°C
4.X.61	**X484** - Range solenoid valve 1	Open circuit or short circuit to +12 V or 0 V
4.X.62	**X485** - Range solenoid valve 2	Open circuit or short circuit to +12 V or 0 V
4.X.69	**X486** - Range solenoid valve 3	Open circuit or short circuit to +12 V or 0 V
4.X.6A	**X487** - Range solenoid valve 4	Open circuit or short circuit to +12 V or 0 V
4.X.6B	**X488** - Range switch 1	Short circuit to 0 V
4.X.6C	**X489** - Range switch 2	Short circuit to 0 V
4.X.6D	**X490** - Range switch 3	Short circuit to 0 V
4.X.6E	**X491** - Range switch 4	Short circuit to 0 V
4.X.85	**X481** - Engine speed sensor/**X483** - Intermediate speed sensor	Slippage > 10% for more than 700 ms between engine speed and intermediate speed
4.X.90	**X483** - Intermediate speed sensor	No intermediate speed value and current forward speed > 0 kph
4.X.91	**X481** - Engine speed sensor	No engine speed value and current forward speed > 0 kph
4.X.92	**X482** - Theoretical forward speed sensor	No forward speed value and actual intermediate speed is > 0
4.X.95	**X484** - Range solenoid valve 1 **X488** - Range switch 1	Inconsistency between the switch and range solenoid valve
4.X.96	**X485** - Range solenoid valve 2 **X489** - Range switch 2	Inconsistency between the switch and range solenoid valve
4.X.97	**X486** - Range solenoid valve 3 **X490** - Range switch 3	Inconsistency between the switch and range solenoid valve
4.X.98	**X487** - Range solenoid valve 4 **X491** - Range switch 4	Inconsistency between the switch and range solenoid valve
4.X.99	**X478** - Powershift module solenoid valve P	Short circuit to +12 V Open circuit Measured current > 40 mA in relation to required value Current measured > maximum possible (1.4 A) Measured current < 13 mA in relation to required value

2.1.19 Air conditioning error codes

No.	Component(s) concerned	Cause(s)
10.X. 01	**X441** - Ventilation temperature sensor (TT1)	Sensor in open circuit
10.X. 02	**X441** - Ventilation temperature sensor (TT1)	Sensor short-circuited
10.X. 03	**X442** - Ventilation temperature sensor (TT2)	Sensor in open circuit
10.X. 04	**X442** - Ventilation temperature sensor (TT2)	Sensor short-circuited
10.X. 05	**X69** - Cab interior temperature sensor	Sensor in open circuit
10.X. 06	**X69** - Cab interior temperature sensor	Sensor short-circuited
10.X. 07	**X358** - Outside temperature sensor	Sensor in open circuit
10.X. 08	**X358** - Outside temperature sensor	Sensor short-circuited
10.X. 09	**X443** - Evaporator temperature sensor	Sensor in open circuit
10.X. 10	**X443** - Evaporator temperature sensor	Sensor short-circuited
10.X. 11	**X70** - Solar radiation sensor	The signal from the solar sensor is outside its limits or is giving an impossible value
10.X. 14	**X449** - Motor for left-hand heating shutter	The signal from the potentiometer of the left-hand recirculation actuator is outside its operating range
10.X. 15	**X449** - Motor for left-hand heating shutter **X450** - Motor for right-hand heating shutter	The potentiometer reference is short-circuited to earth
10.X. 16	**X439** - Air conditioning control module (blue connector) **X440** - Air conditioning control module (yellow connector)	Error in temperature selected, the signal is out of range
10.X. 17	**X439** - Air conditioning control module (blue connector)	Error from the fan potentiometer
10.X. 18	**X69** - Cab interior temperature sensor	Ambient temperature sensor fan fault
10.X. 19	**X451** - Motor for heating mixer shutter	Stepper motor output error (water valve)
10.X. 20	**X449** - Motor for left-hand heating shutter **X450** - Motor for right-hand heating shutter	Left-hand and right-hand recirculation actuator motor output error
10.X. 21	**X318** - Air conditioning compressor	Air conditioning compressor relay output error

Number	Amperage	Size	Protected function
F28	15 A	Small	+APC • **X87** - Linkage lifting switch on right-hand fender • **X97** - Linkage lifting switch on left-hand fender • **X111** - dynamic transmission mode switch Dyna-TM • **X124** - Pedal/ mode switchLever • **X127** - Front PTO engagement switch • **X128** - Rear PTO engagement switch • **X166** - Suspended front axle position sensor • **X235** - Front axle steering sensor (WAS sensor) • **X277** - Front linkage lifting switch • **X618** - Parking brake sensor • **X658** - Front linkage lowering switch • **X664** - Linkage lowering switch on right-hand fender • **X665** - Linkage lowering switch on left-hand fender • **X884** - Hydraulic spool valve controls change-over switch
F29	10 A	Small	+APC • Transmission control module
F30	15 A	Small	+ APC **X191** - Fuel preheater
F31	15 A	Small	+ APC **X513** - Additional heater
F32	15 A	Small	+ APC **X739** - Sensor detecting presence of operator in seat
F33	50 A	Large	Tractor +APC
F34	5 A	Small	+ BAT **X55** - Instrument panel
F35	7.5 A	Small	+BAT • **X104** - TECU controller • **X105** - Datatronic CCD • **X594** - unit AgCommand™

Number	Amperage	Size	Protected function
F42	10 A	Small	+ APC • **X58** - Windscreen wiper and direction indicator control unit • **X74** - Audible alarm supply (+12 V APC)
F43	10 A	Small	+ APC • **X55** - Instrument panel • **X717** - Linkage and PTO keypad on pillar
F44	5 A	Small	+ APC • **X345** - Supply for additional terminal (Mitron unit) • Aerial Auto-Guide™
F45	5 A	Small	Not used
F46	15 A	Small	K24 relay power circuit supplying the + APC to the brake lights
F47	20 A	Average	Not used
F48	30 A	Average	+ BAT • **X58** - Windscreen wiper and direction indicator control unit • **X250** - Power socket in cab(on the front right-hand wheel arch)
F49	30 A	Average	+ BAT • Trailer connector (NA) • power circuit **X815** - Panoramic cab + APC relay
F50	25 A	Average	+ BAT **X271** - Front accessories connection socket (+12 V battery)
F51	30 A	Average	+ BAT • **X157** - Left-hand side power socket (power) • **X395** - Radio supply • **X407** - Interior light • **X439** - Air conditioning control module (blue connector) • **X811** - Triflash switch (only for panoramic cabs) • **X812** - Side windscreen wiper motor connection (only for panoramic cabs)

3.1.4 Battery isolator

Battery isolator

A device isolates the battery/batteries (depending on assembly) from all the other electrical equipment on the tractor.

This isolator is programmed for automatic cut-off after a delay of 60 minutes after switching off the ignition. Therefore, the operator does not have to activate the device; this system is self-managed in terms of activation and cut-off, depending on the position of the ignition key.

The isolator timer control can vary according to the tractor configuration.

The temporary control conditions for the closed isolator are as follows:

1. the time required to drain the DEF or AdBlue™ system
2. the Datatronic CCD standby time
3. power supply maintained on an ISOBUS or Auto-Guide™ implement

Whatever the status of the above conditions, the isolator will always open after a maximum period of 60 minutes after the ignition key has been set to the OFF position.

The permanent control condition for the closed isolator is as follows:

1. Activation of the hazard warning lights

   NOTE:
   The battery isolator will open once the hazard warning lights have been deactivated.

IMPORTANT:
In the event of electrical faults on the tractor or the implement, emergency cut-off of the isolator is possible via a switch located under the controllers housing cover plate in the cab, but only if the ignition key is in the OFF position. The DEF or AdBlue™ system is drained even after pressing the switch for the emergency cut-off of the battery isolator.

1. Open the cover plate (A) located on the cab floor (right-hand side).

Fig. 12

EFD00182 - Brake system (Italy)

EFD00183 - Implement attachment without Isobus

EFD00184 - AgCommand™

4.1.2 Identification of electrical connectors from X1 to X500

X1 - Auxiliary hydraulic oil temperature sensor

X2 - Auxiliary hydraulic filter blockage sensor

X3 - 540E rpm PTO speed solenoid valve

X4 - 1000 rpm PTO speed solenoid valve

X5 - 4-wheel drive 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 - Collector shaft speed sensor

X11 - Solenoid valve limiting speed to 30 km/h

X12 - Coupler function solenoid valve

X13 - High speed range (Hare) solenoid valve

X14 - Low speed range (Tortoise) solenoid valve

X15 - PTO clutch speed sensor

X16 - PTO output shaft speed sensor

X17 - High/low speed range (Hare/Tortoise) position sensor

X18 - Transmission control module

X19 - Transmission hydraulic oil temperature sensor

X20 - Transmission filter blockage sensor

X22 - Radar

X23 - Steering pressure sensor

X24 - Auxiliary hydraulic oil gage

X25 - Engine speed sensor

X27 - Rear linkage lifting solenoid valve

X28 - Rear linkage lowering solenoid valve

X29 - Dual Control socket connector

X30 - Rear linkage position sensor

X30a - Position sensor for normal-capacity rear linkage

X31 - Rear linkage right-hand draft sensor

X32 - Rear linkage left-hand draft sensor

X32 - Top link draft sensor

X33 - Connector for the electrohydraulic spool-valves supply

X34 - Transmission oil high pressure sensor 2

X403 - Rear windscreen wiper motor

X404 - Door switch

X405 - Interior light (earth)

X406 - Interior light (control)

X407 - Interior light

X408 - Right-hand console light

X409 - Left-hand rotary beacon

X410 - Right-hand rotary beacon

X411 - Rear windscreen wiper switch

X412 - Radio antenna

X413 - Earth (antenna)

X414 - Left-hand number plate lighting

X414-A - Left-hand number plate lighting supply

X414-B - Left-hand number plate lighting earth

X415 - Right-hand number plate lighting

X415-A - Right-hand number plate lighting supply

X415-B - Right-hand number plate lighting earth

X416 - Radio supply

X416-A - Reverse connector of the radio battery supply, tractor side

X416-B - Reverse connector of the radio battery supply, radio side

X417 - Radio speaker connector

X417-A - Reverse connector of the supply after radio is switched on, tractor side

X417-B - Reverse connector of the supply after radio is switched on, radio side

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 1 relay for fan

X430 - Speed 2 relay for fan

X431 - Speed 3 relay for fan

X432 - Speed 4 relay for fan

X847 - Protection fuse for the engine controller supply

X848 - Protection fuse for the fuse box supply

X849 - EGR temperature sensor

X850 - Electrical pack connection for joysticks 1 and 2

X851 - Valtra sensor for defrosting ECR system

X852 - Mid Mounted cab harness/cab harness connection

X853 - Mid Mounted cab harness/Mid Mounted harness connection

X854 - Electrohydraulic unit controller

X855 - Spool 2 position sensor

X856 - Spool 1 position sensor

X857 - Electrohydraulic block supply solenoid valve

X858 - Solenoid valve B1

X859 - Solenoid valve A2

X860 - Solenoid valve A1

X861 - Solenoid valve B2

X865 - Crosswiring connector 2 (CW2)

X866 - input temperature sensor DOC (catalyseur d'oxydation diesel)

X867 - Protection fuse for the valveEGR

X868 - Protection fuse for the turbocharger wastegate

X869 - Battery isolator protection fuse

X871 - Cooling system pressure sensor

X877 - Earth relay for the side/rear windscreen washer pump

X878 - Power relay for the rear windscreen washer pump

X879 - Fuse for the side/rear windscreen washer pump

X880 - Fuse for the side windscreen washer switch

X875 - Loader selector sensor

X881 - Relay for the valve EGR

X882 - FingerTIP 7

X883 - FingerTIP 8

X884 - Hydraulic spool valve controls change-over switch

X885 - Rear lighting harness/windscreen washer pump 2 harness connection

X886 - Supply fuse for the NOX sensors

X887 - Supply relay for the NOX sensors, for the EGR valve and for the turbocharger wastegate

X888 - Diagnostics connector

X891 - Steering pressure sensor/standby pump

X892 - PTO neutral solenoid valve

X892 - Standard speed PTO solenoid valve

X897 - Rear-linkage raised position adjustment potentiometer

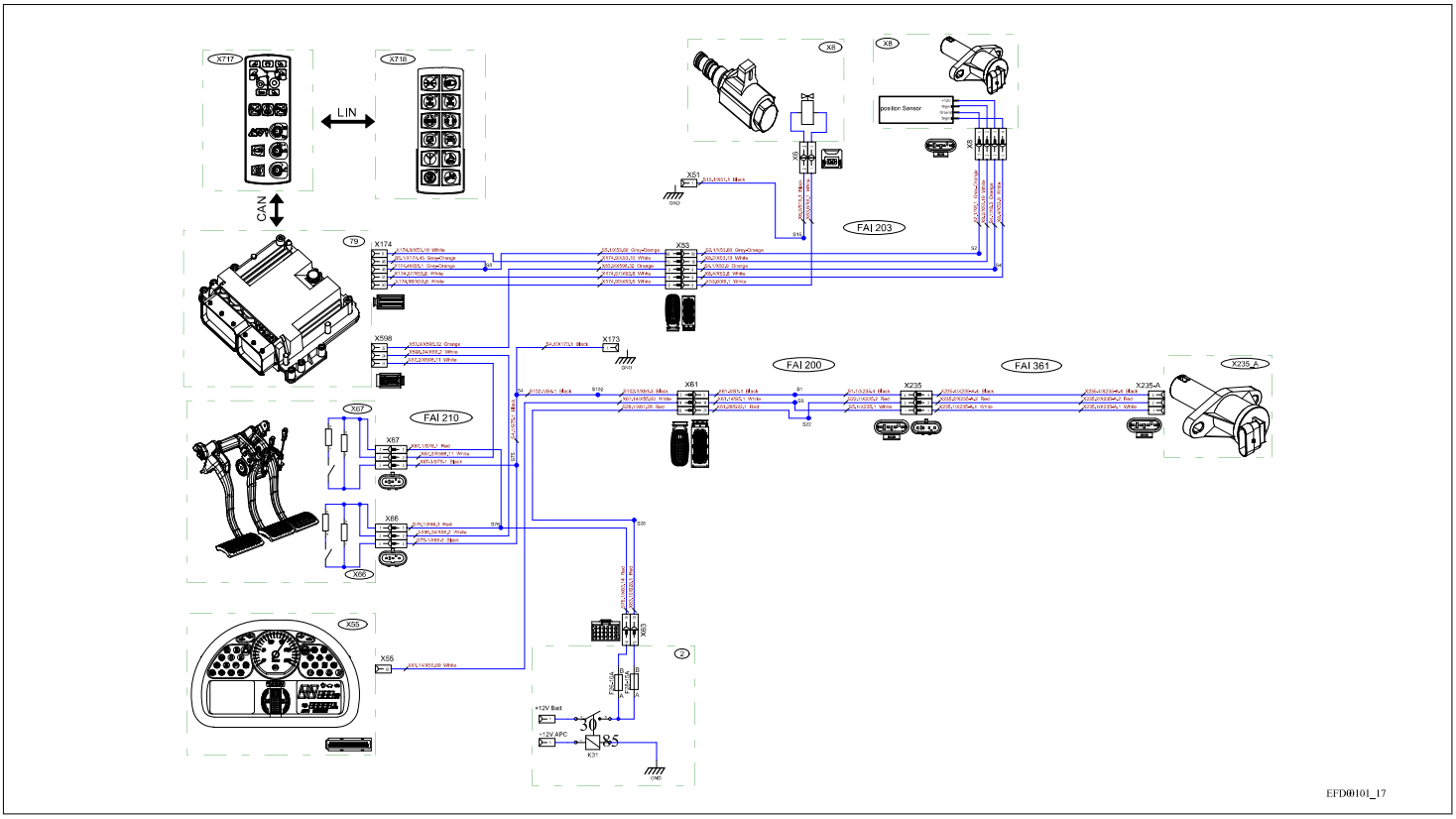

Fig. 6

4.1.5.7 EFD00101_18 - Differential lock Dyna-6
EFD00101_18 - Differential lock Dyna-6

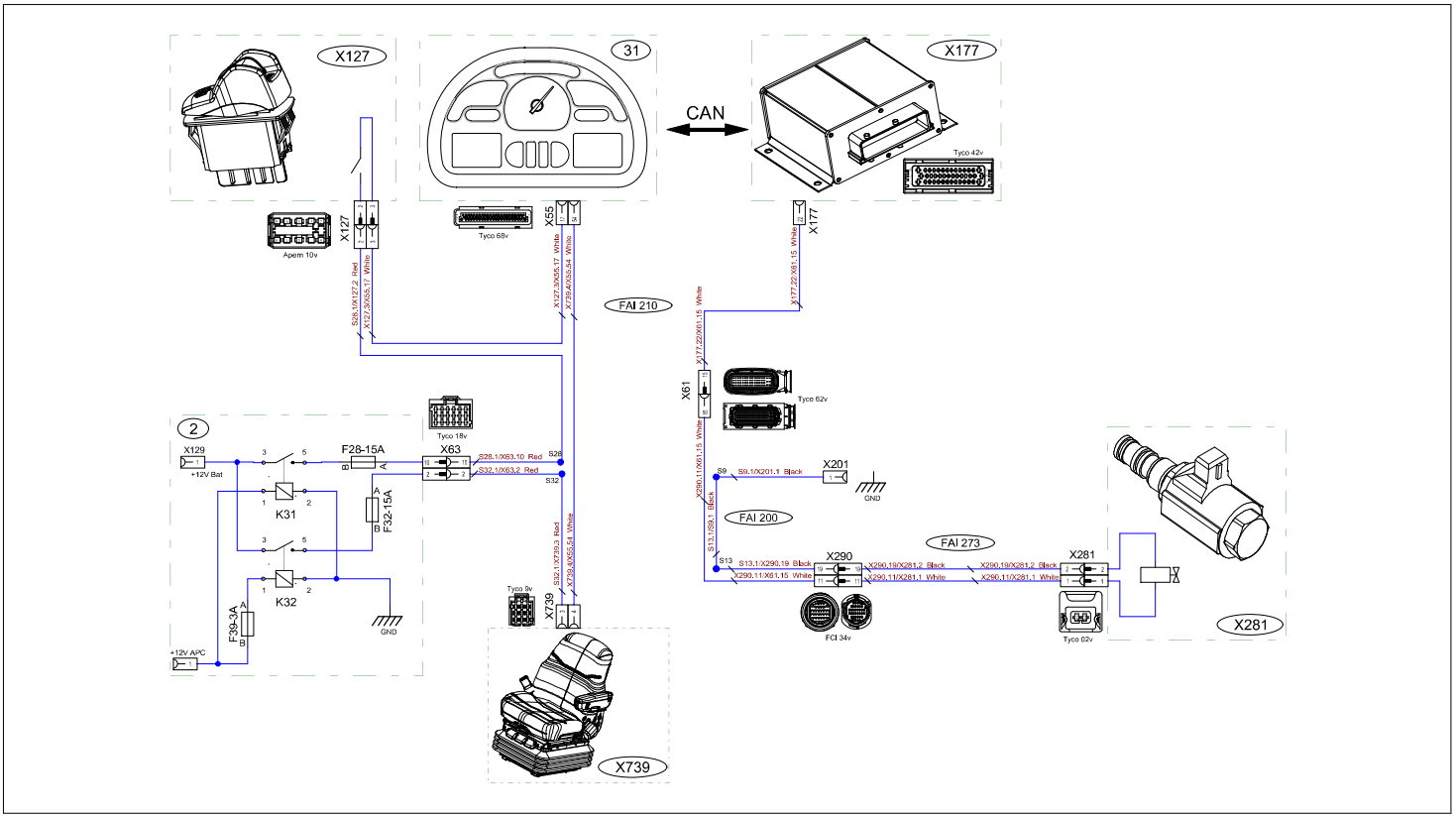

Fig. 16

4.1.5.17 EFD00111_31 - transmission Dyna-VT_1/2
EFD00111_31 - transmission Dyna-VT_1/2

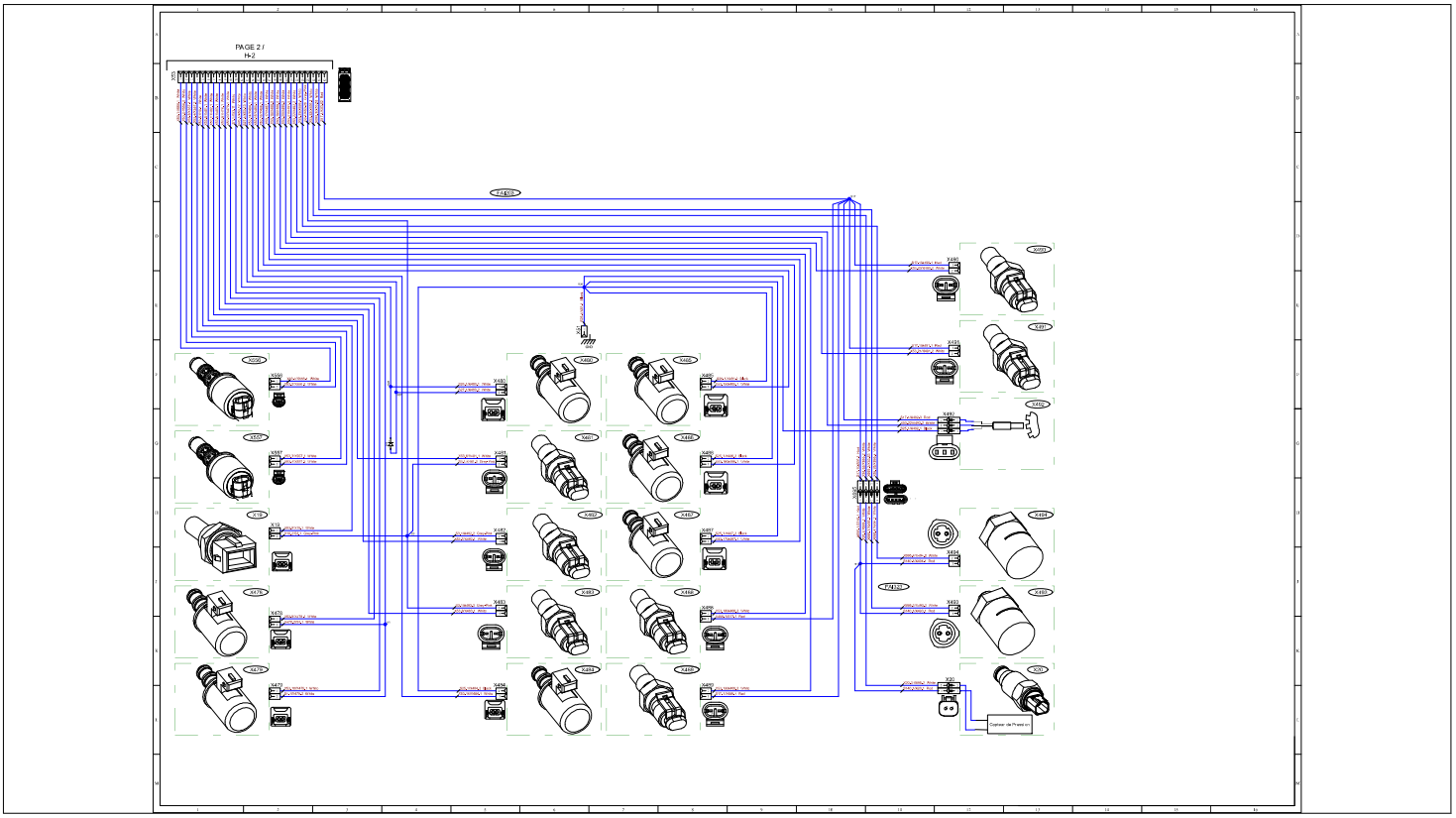

Fig. 26

4.1.5.27 EFD00111_35 - GTA2520 transmission Dyna-4 Load Sensing_1/2
EFD00111_35 - GTA2520 transmission Dyna-4 Load Sensing_1/2

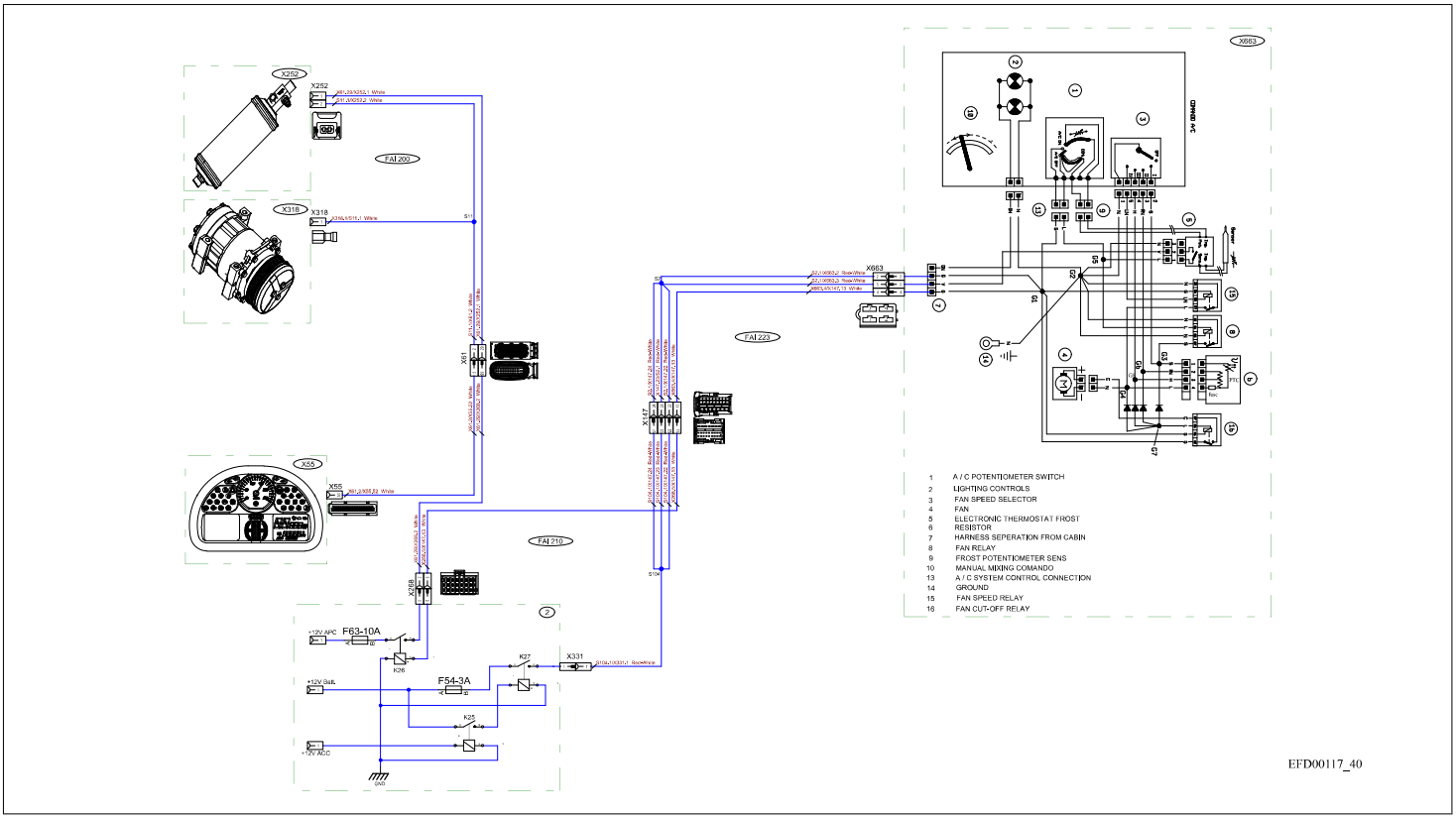

Fig. 36

4.1.5.37 EFD00117_41 - Manual air conditioning for high-visibility roof
EFD00117_41 - Manual air conditioning for high-visibility roof

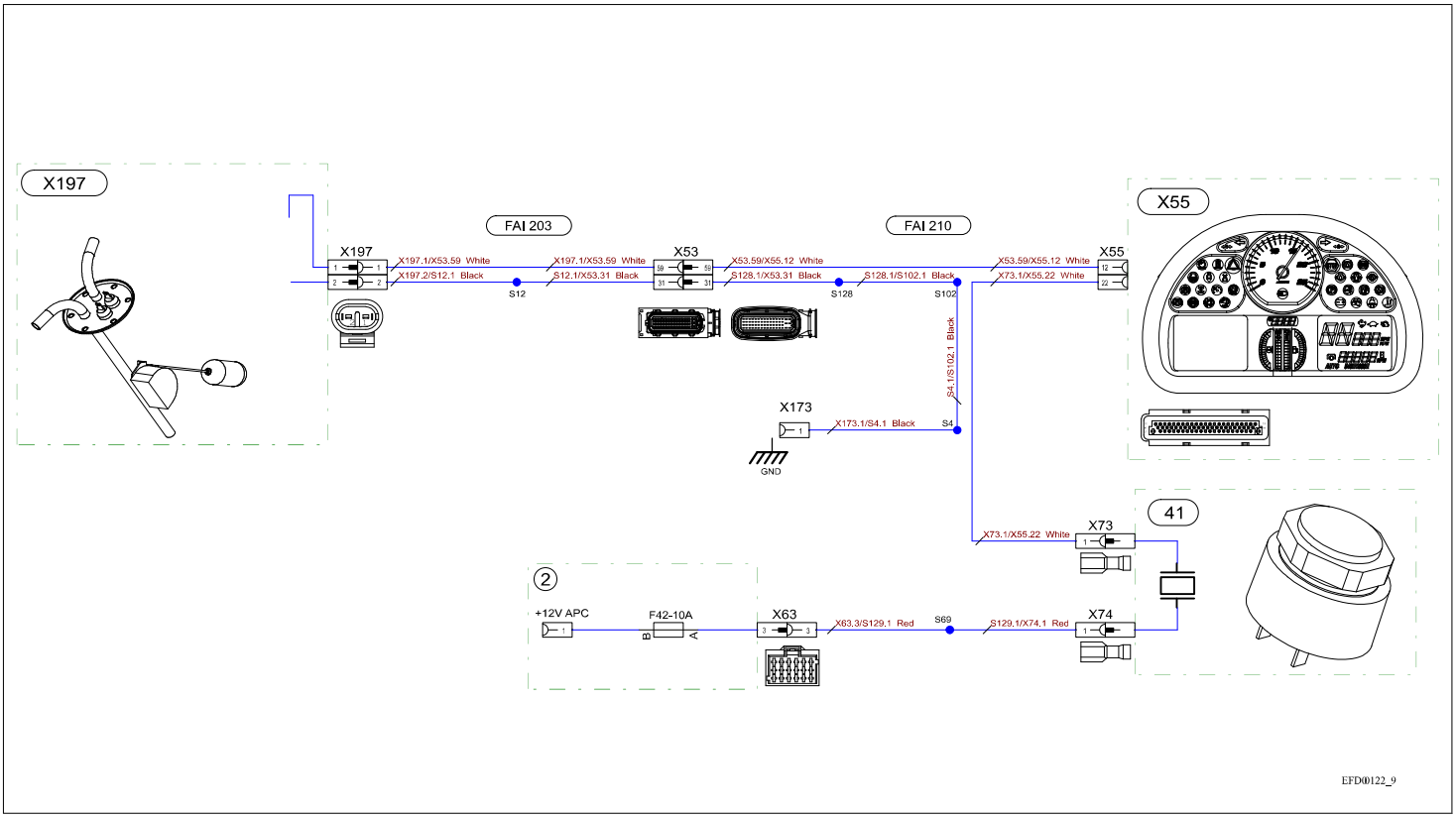

Fig. 46

4.1.5.47 EFD00123 - C3000
EFD00123 - C3000

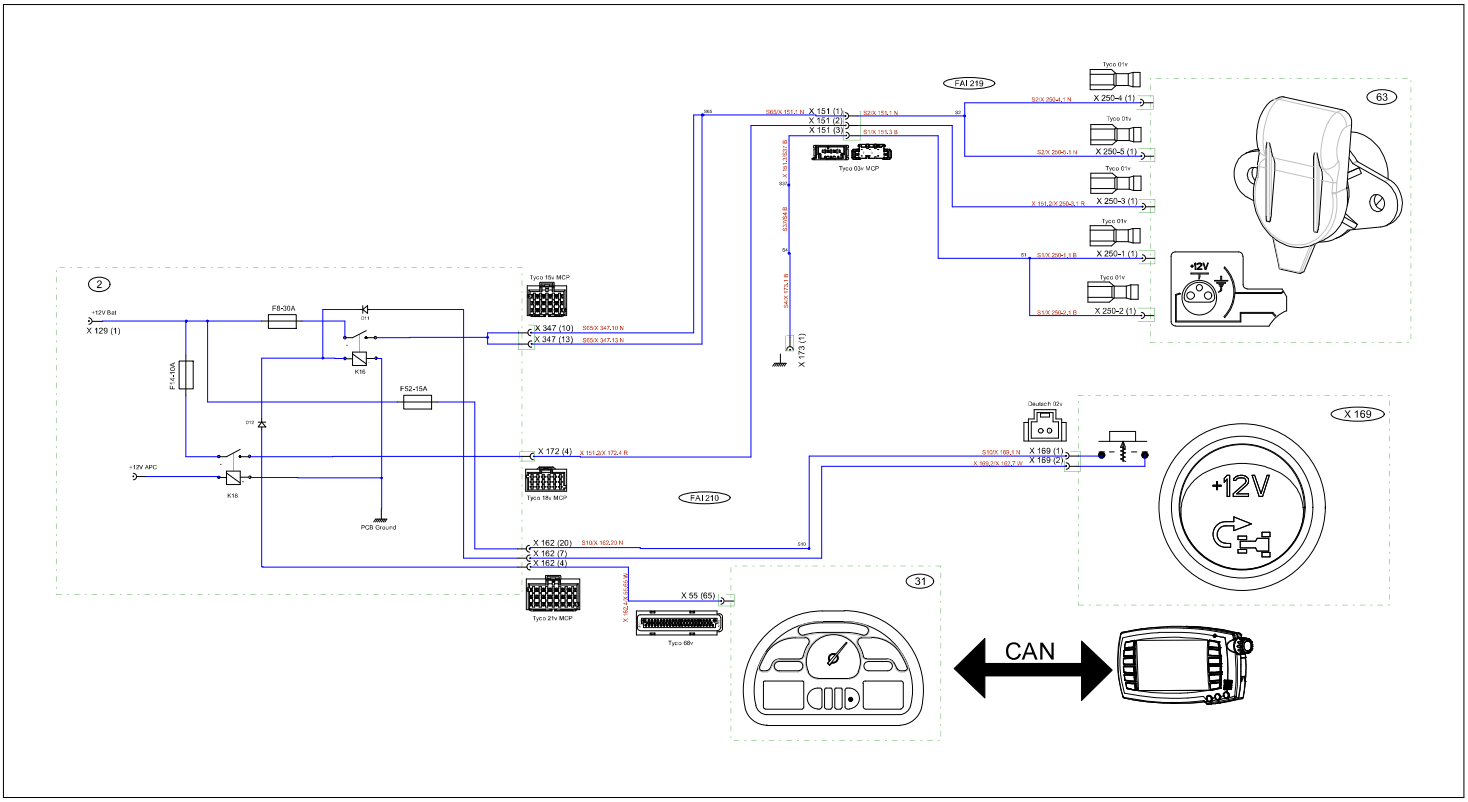

Fig. 56

4.1.5.57 EFD00128_18 - NA/SAE cab power socket
EFD00128_18 - NA/SAE cab power socket

4.1.5.66 EFD00130_5 - radar Dyna-VT
EFD00130_5 - radar Dyna-VT

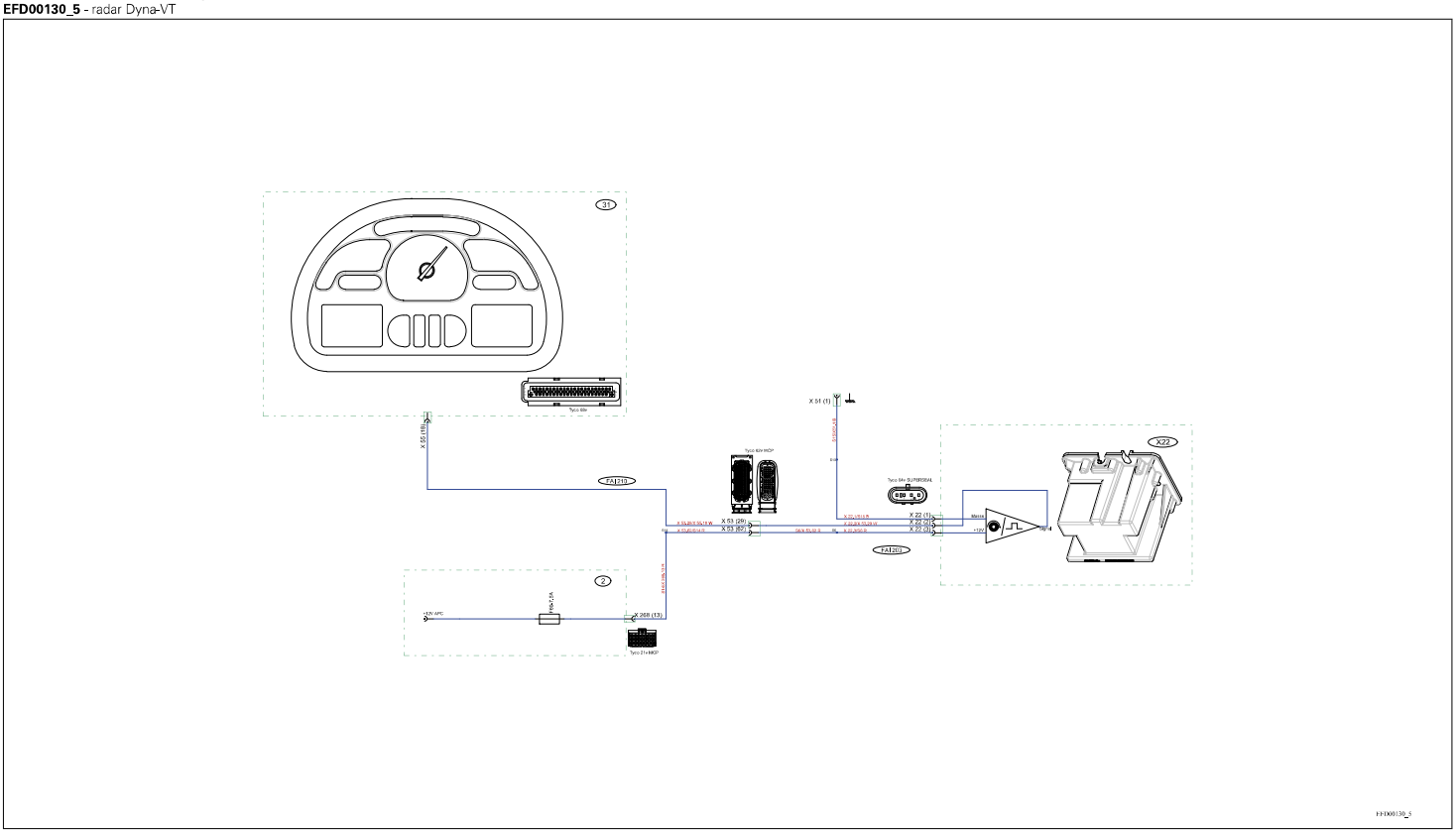

Fig. 66

4.1.5.67 EFD00130_6 - Dyna-6 and radar Dyna-4
EFD00130_6 - Dyna-6 and radar Dyna-4

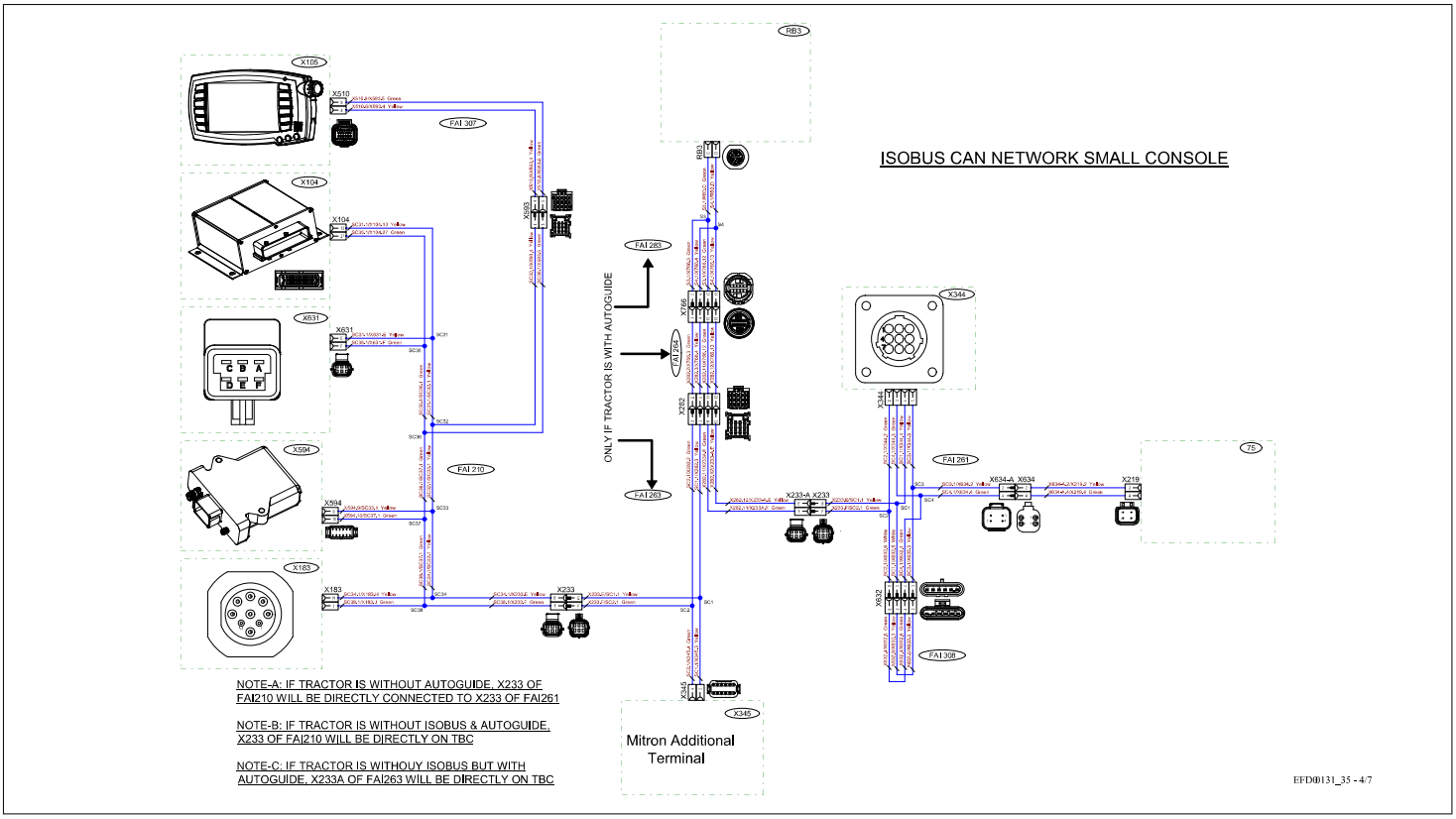

Fig. 76

4.1.5.77 EFD00131_35 - CAN network Dyna-6 (tractor)_5/7 with Tier 4F/Stage IV SCR Technology engine and cab harnesses ACW005780-ACW005784-4392642
EFD00131_35 - CAN network Dyna-6 (tractor)_5/7 with Tier 4F/Stage IV SCR Technology engine and cab harnesses ACW005780-ACW005784-4392642

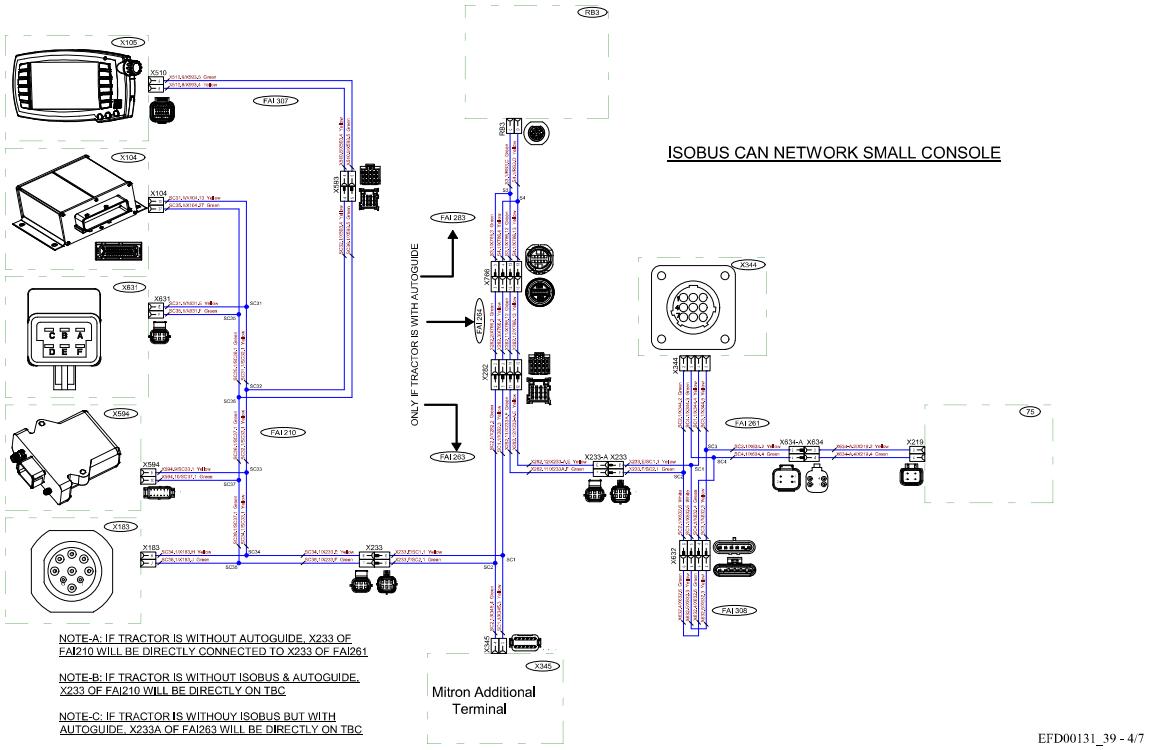

Fig. 86

4.1.5.87 EFD00131_39 - CAN network Dyna-6 (tractor)_5/7 with Tier 4F/Stage IV SCR Technology engine and cab harness ACW039167
EFD00131_39 - CAN network Dyna-6 (tractor)_5/7 with Tier 4F/Stage IV SCR Technology engine and cab harness ACW039167

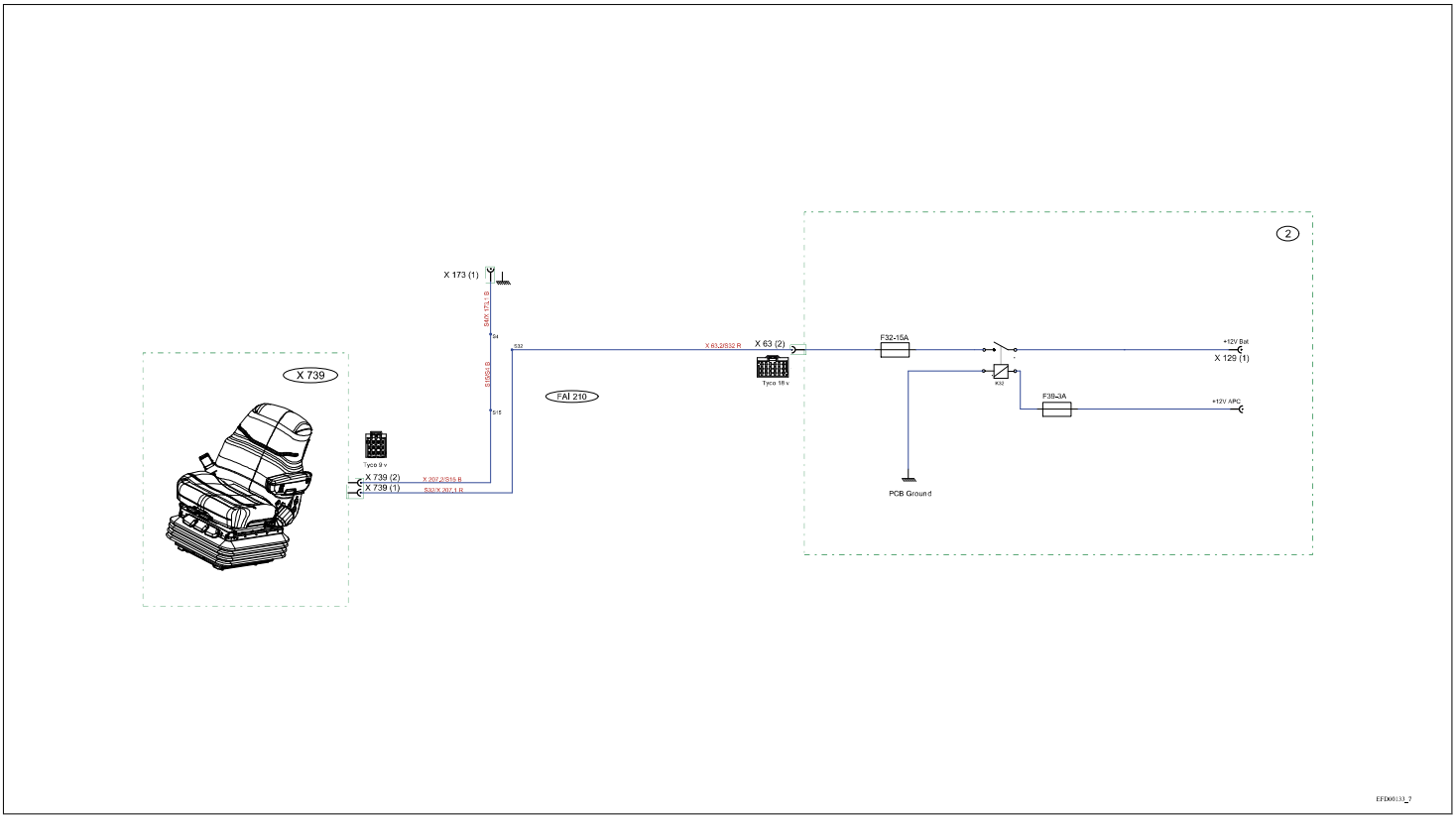

Fig. 96

4.1.5.97 EFD00135_11 - Ventilation for tractors with standard roof
EFD00135_11 - Ventilation for tractors with standard roof

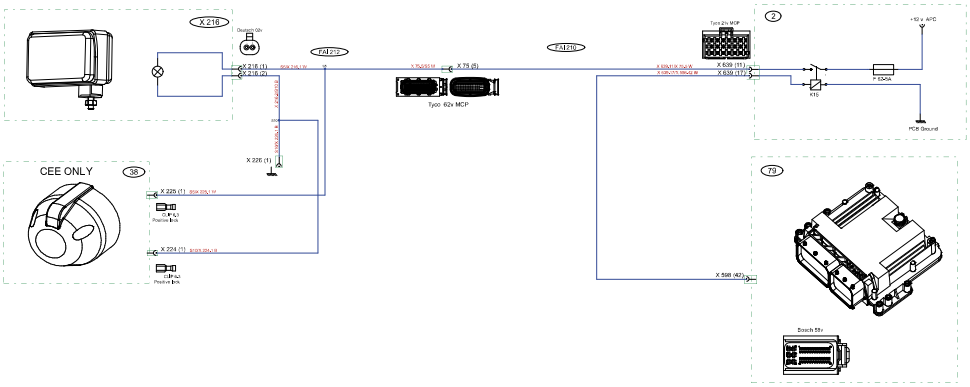

Fig. 106

4.1.5.107 EFD00139_9 - Reversing light Dyna-6
EFD00139_9 - Reversing light Dyna-6

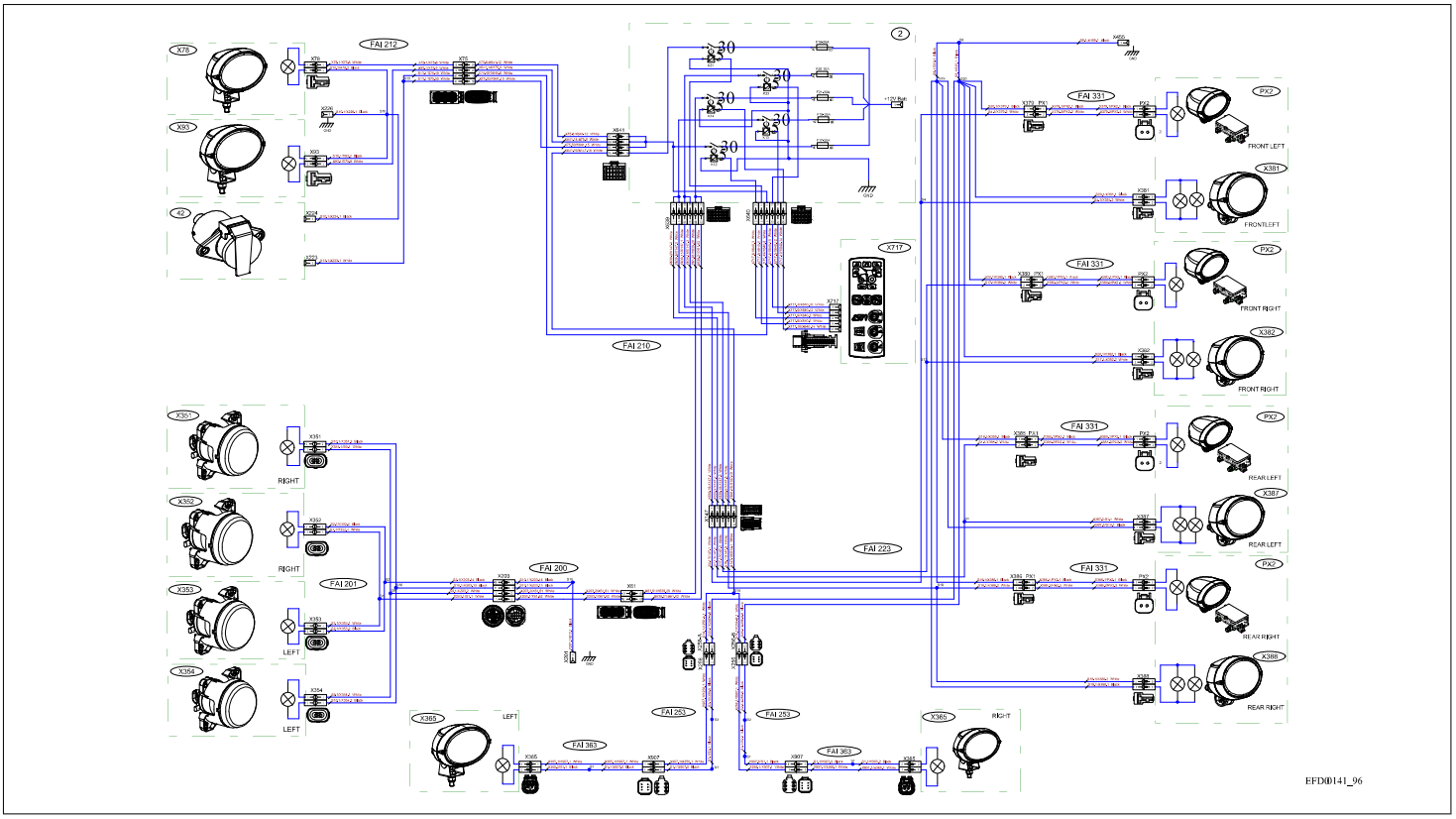

Fig. 116

4.1.5.117 EFD00141_97 - Work lights
EFD00141_97 - Work lights

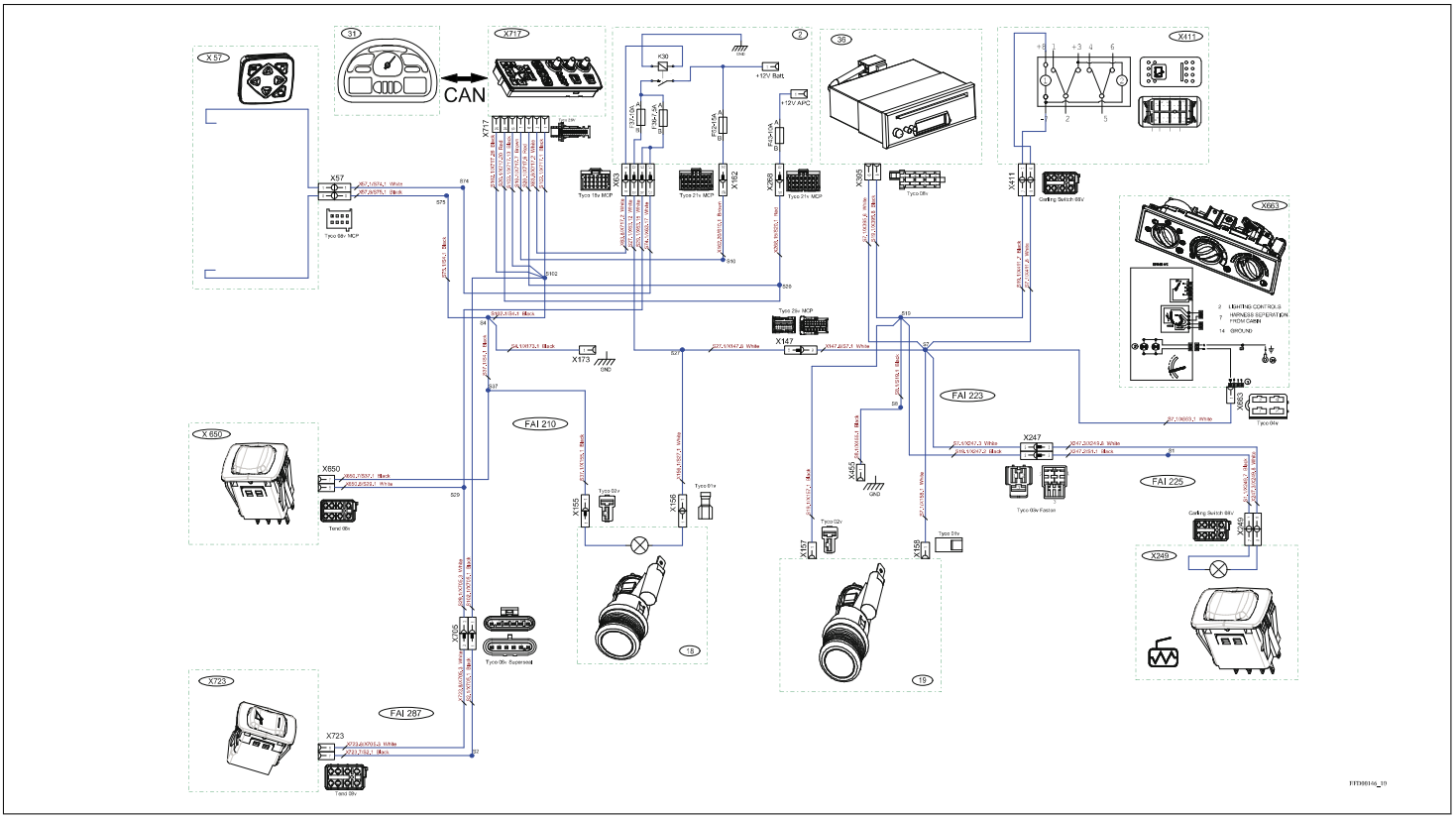

Fig. 126

4.1.5.127 EFD00148_13 - Audible alarm
EFD00148_13 - Audible alarm

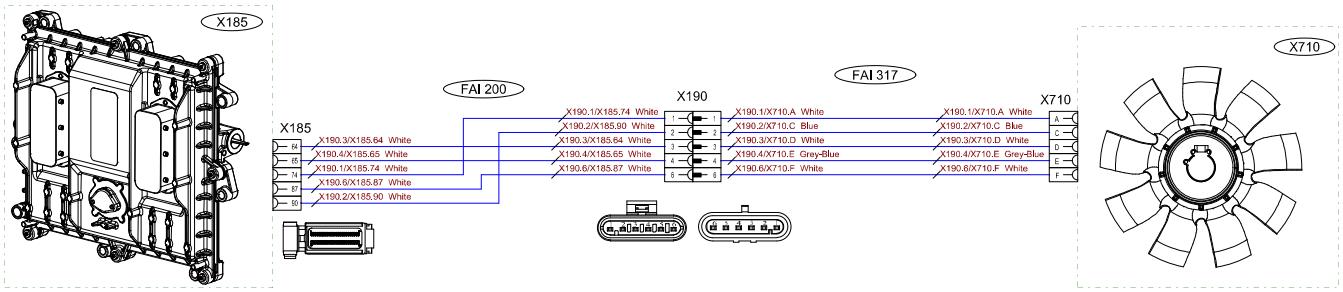

Fig. 136

4.1.5.137 EFD00159_18 - Hydraulic spool valves Dyna-VT
EFD00159_18 - Hydraulic spool valves Dyna-VT

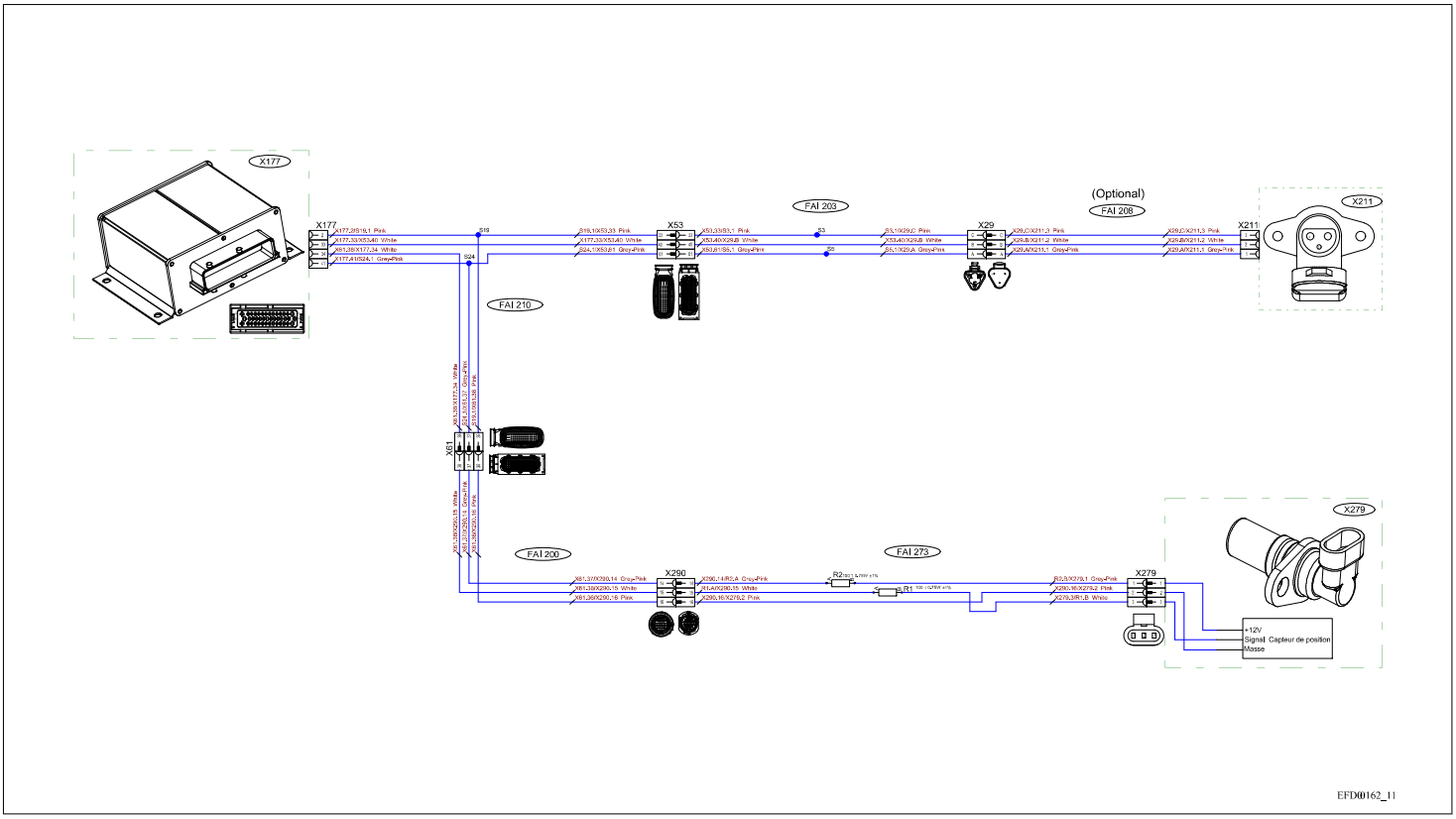

Fig. 146

4.1.5.147 EFD00162_12 - Dual Control linkage and trailed implements (TIC) Dyna-6
EFD00162_12 - Dual Control linkage and trailed implements (TIC) Dyna-6

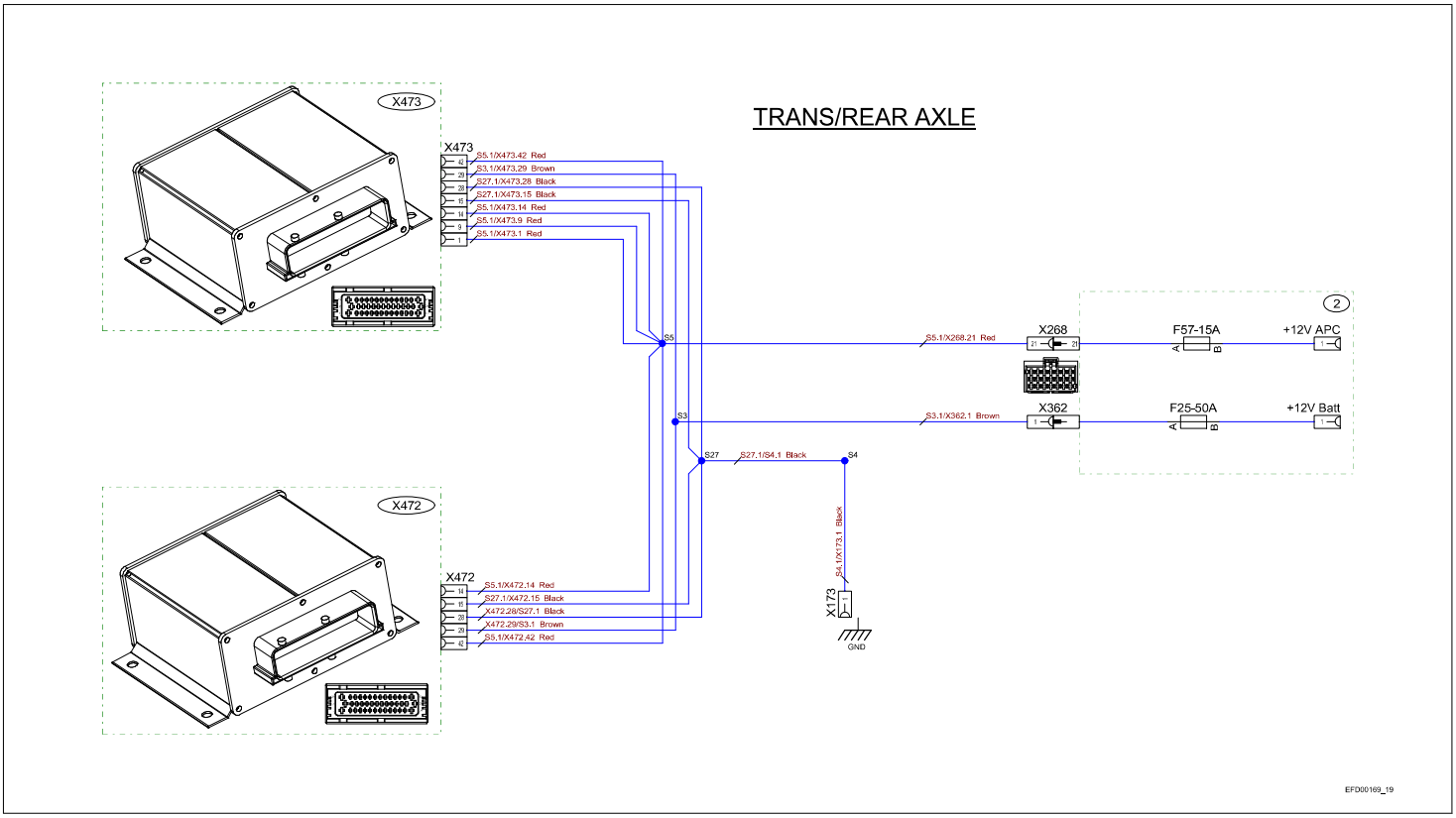

Fig. 156

4.1.5.157 EFD00169_19 - Controller power supply Dyna-6 - linkage
EFD00169_19 - Controller power supply Dyna-6 - linkage

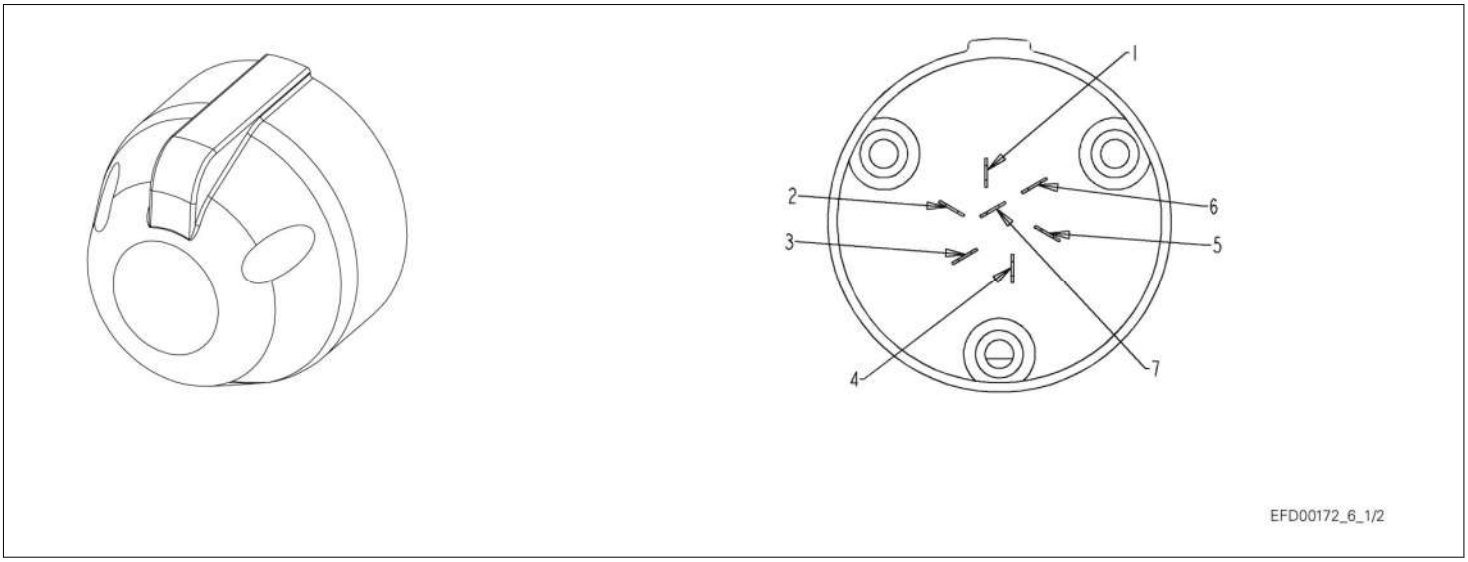

Fig. 166

DIN	Pin	Connector	Function	Name of wire	Color of wire
L	1	X271	+ battery	X 271.1/S2.1	Brown
54G	2	X275	Work lights	X 275.1/X 290.6	White
31	3	X276	Earth	X 276.1/S3.1	Black
R	4	X272	+ 12 V APC	X 272.1/X 290.5	Red
58R	5	X273	Side lights	X 273.1/S1.1	White
54	6	X270	Rotary beacon	X 270.1/X 290.2	White
58L	7	X274	Side lights	X 274.1/S1.1	White

4.1.5.167 EFD00172_6 - Front accessory connection socket_2/2
EFD00172_6 - Front accessory connection socket_2/2

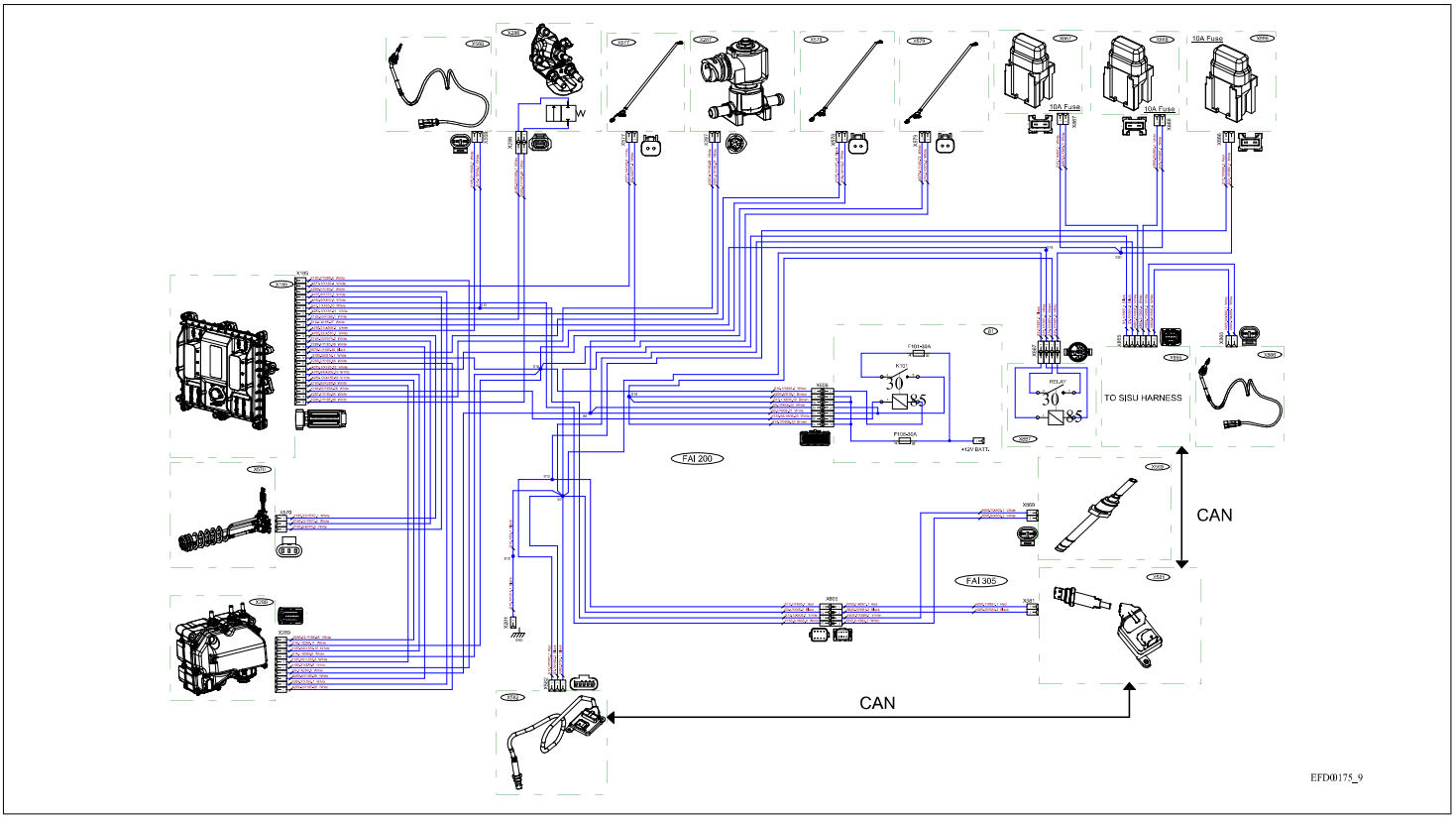

Fig. 176

4.1.5.177 EFD00176 - LoaderALO
EFD00176 - LoaderALO

5. Harnesses

5.1.3 Harnesses

5.1.3.1 FAI200 - Engine harness cab - ACW0349940_1/2

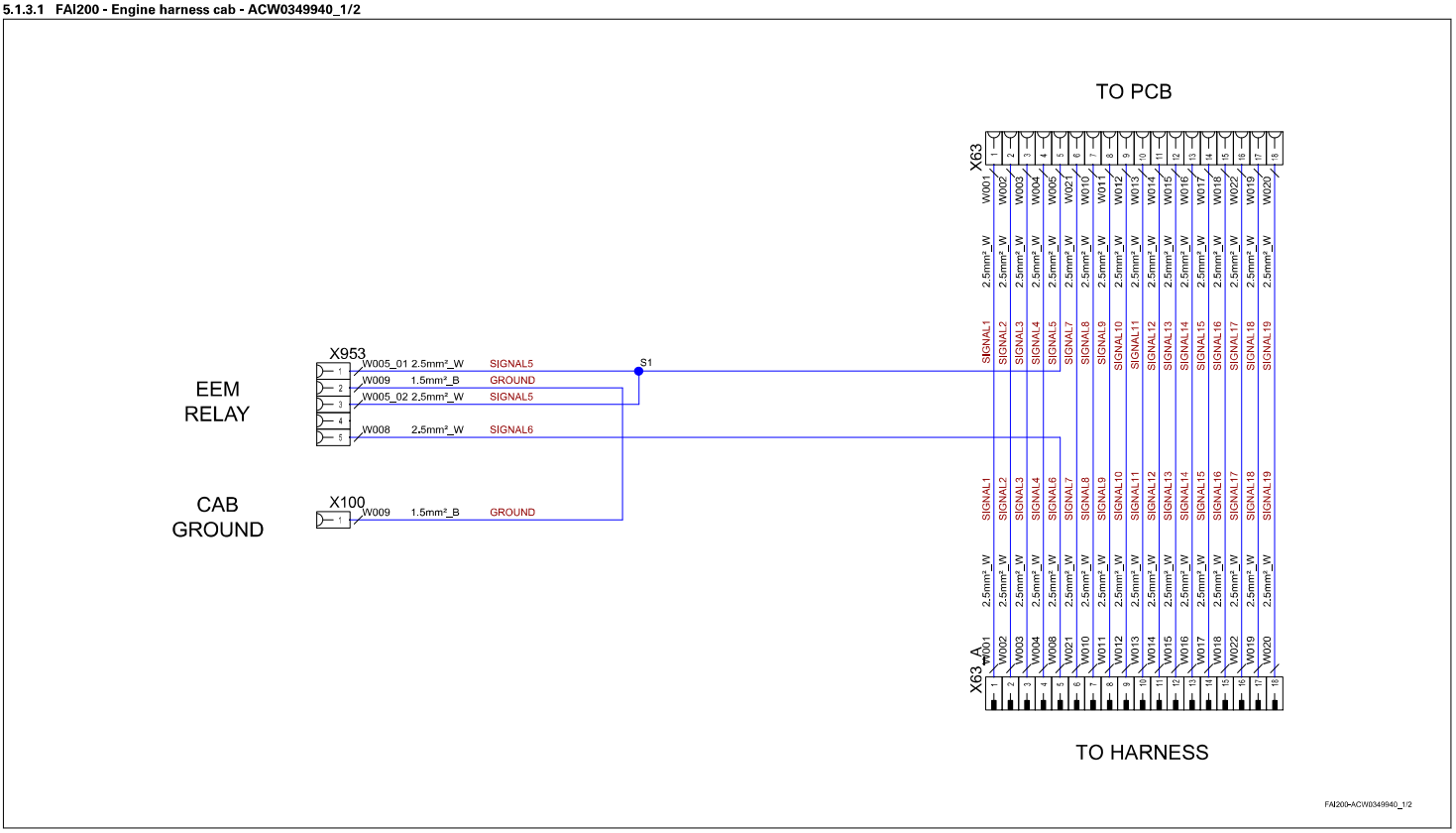

Fig. 1

5.1.3.11 FAI203 - Transmission harness Dyna-VT - 4389481_1/3

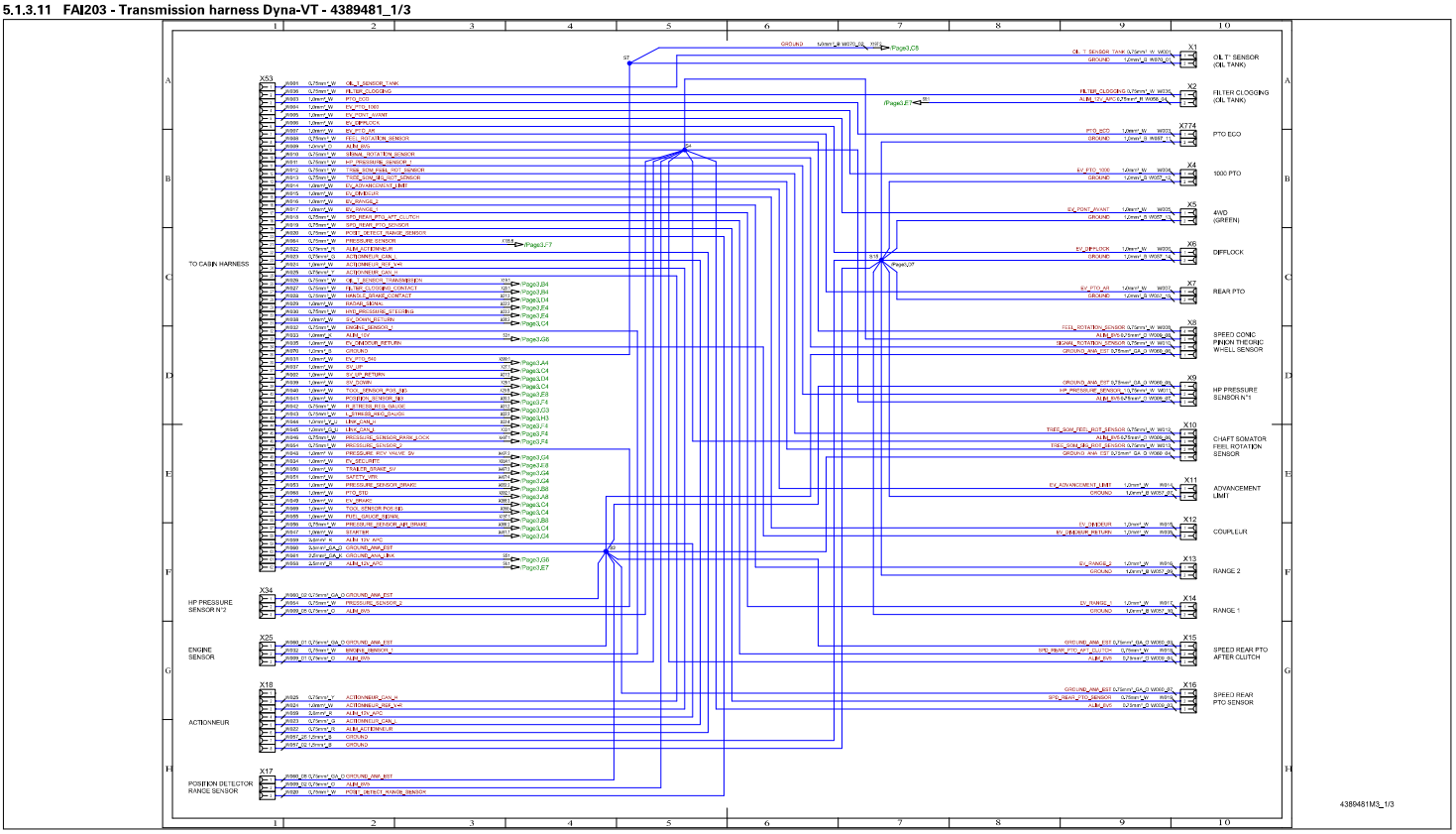

Fig. 11

5.1.3.21 FAI208 - Linkage with Dual Control and TIC harness - 4387797_1/2

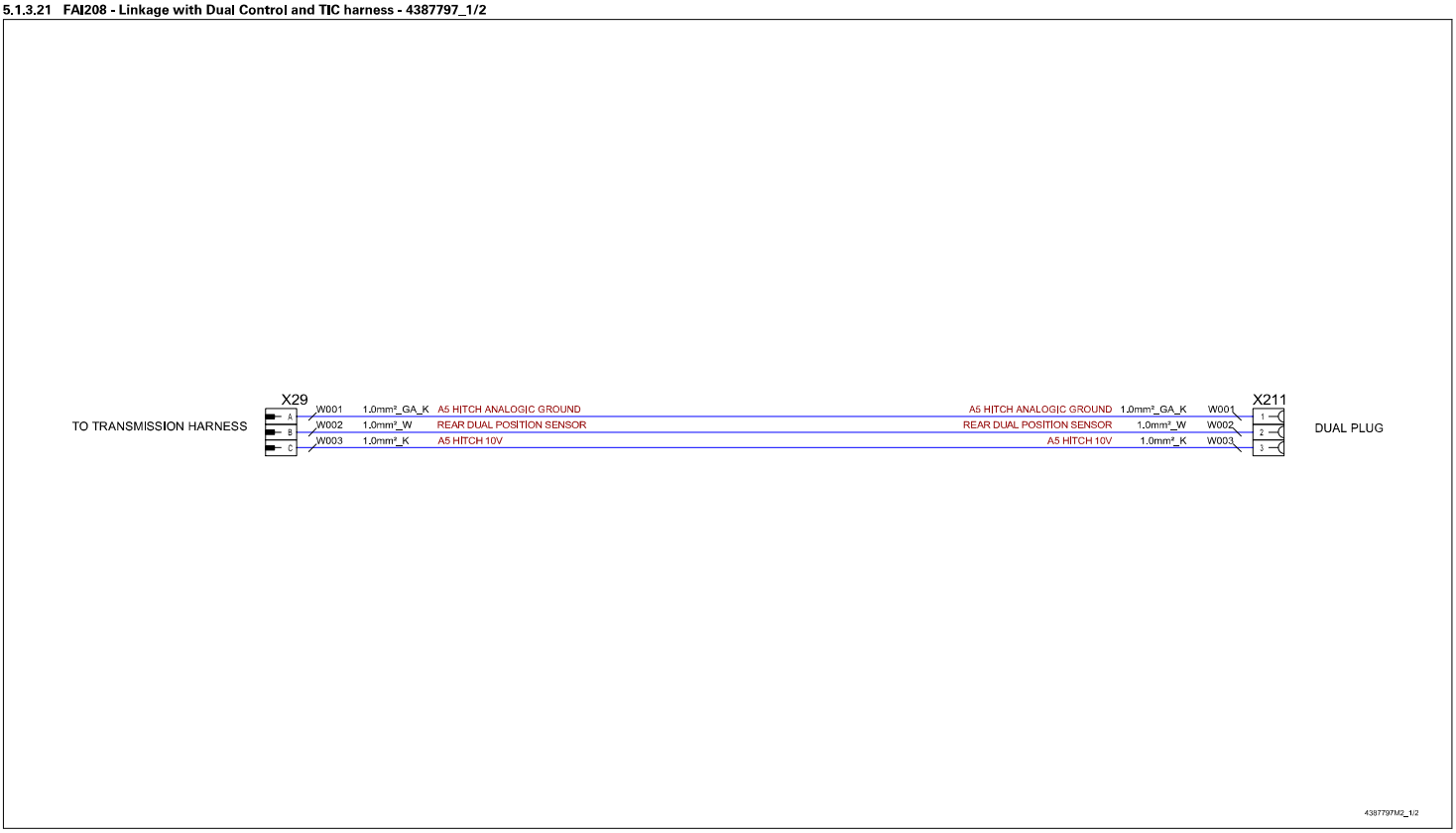

Fig. 21

5.1.3.31 FAI210 - Cab transmission harness Dyna-6 municipal - 4392642_1/9

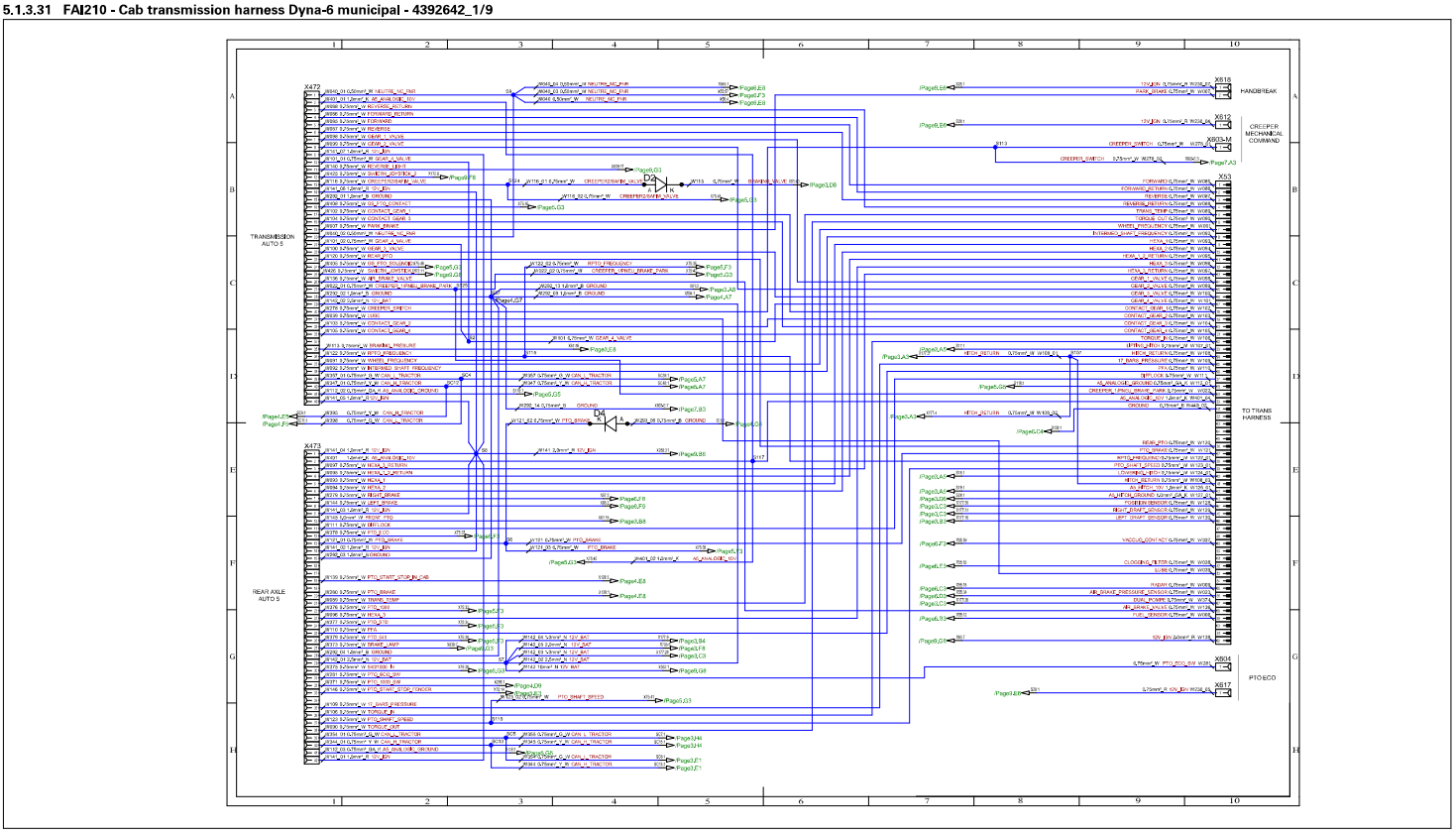

Fig. 31

5.1.3.41 FAI210 - Cab transmission harness Dyna-6 long console - ACW005784_2/8

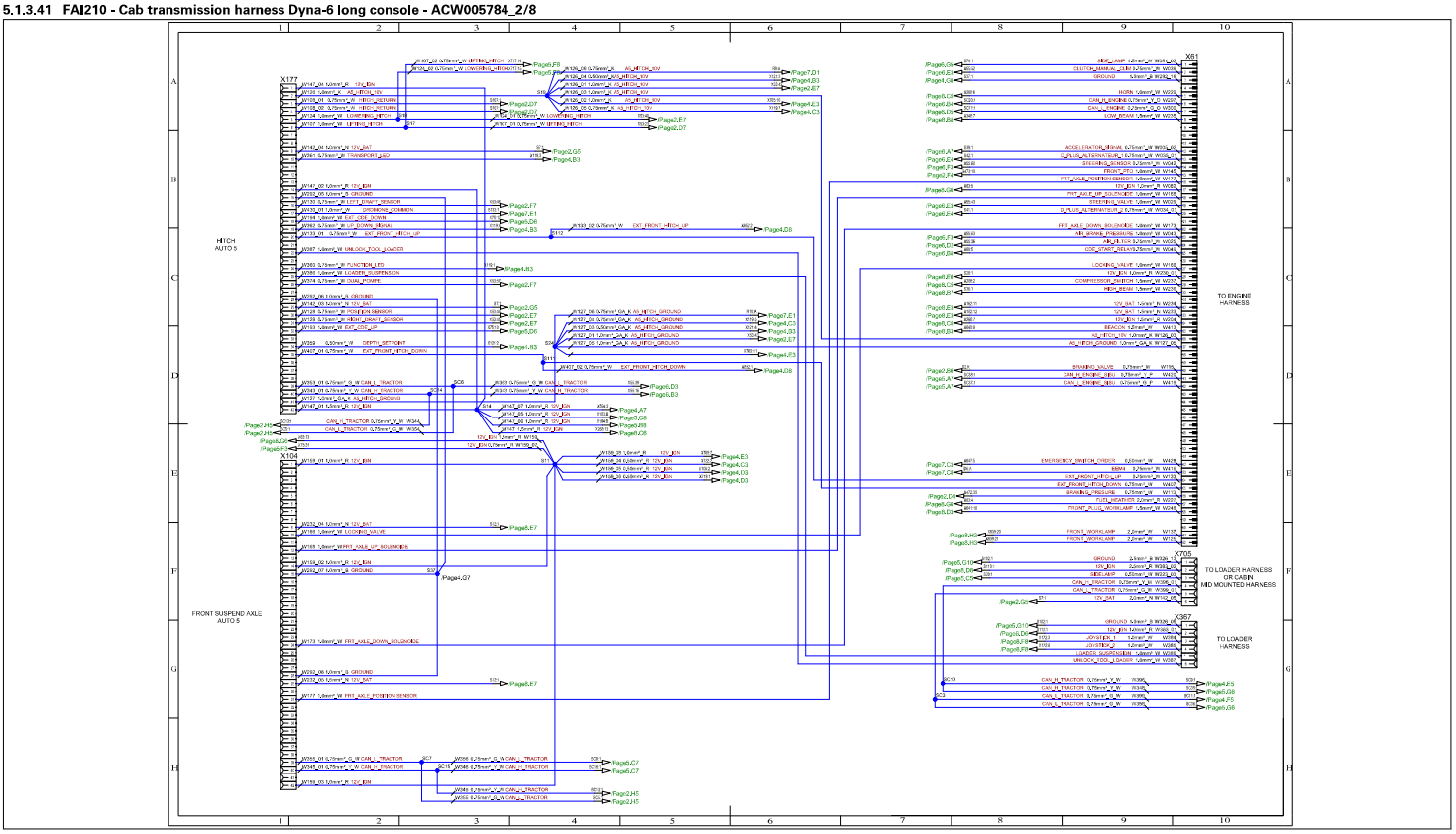

Fig. 41

5.1.3.51 FAI210 - Cab transmission harness Dyna-4 long console - ACW017847_4/7

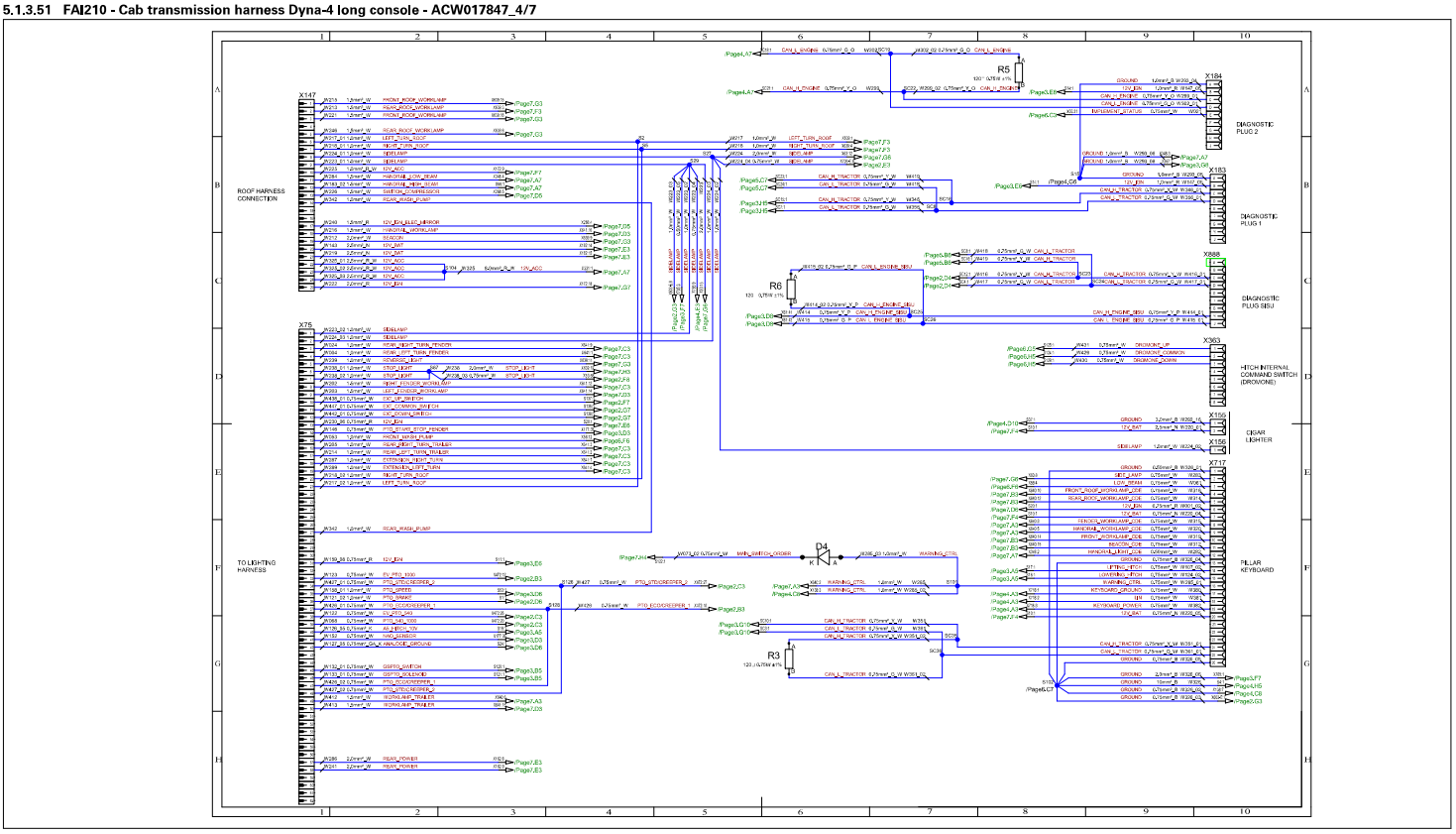

Fig. 51

5.1.3.61 FAI210 - Cab transmission harness Dyna-VT short console - ACW039162_7/9

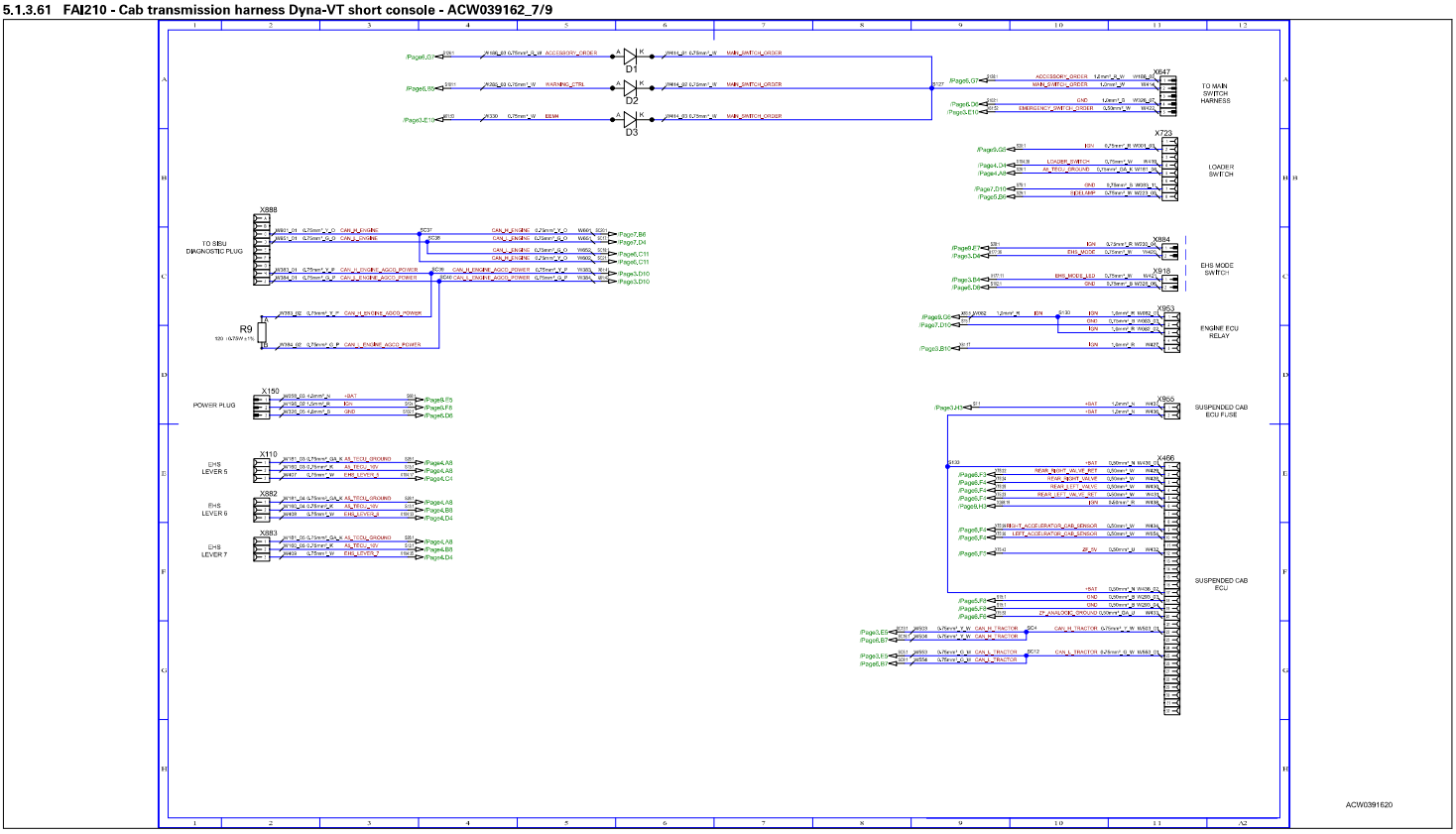

Fig. 61

5.1.3.71 FAI210 - Cab transmission harness Dyna-6 short console - ACW039167_8/9

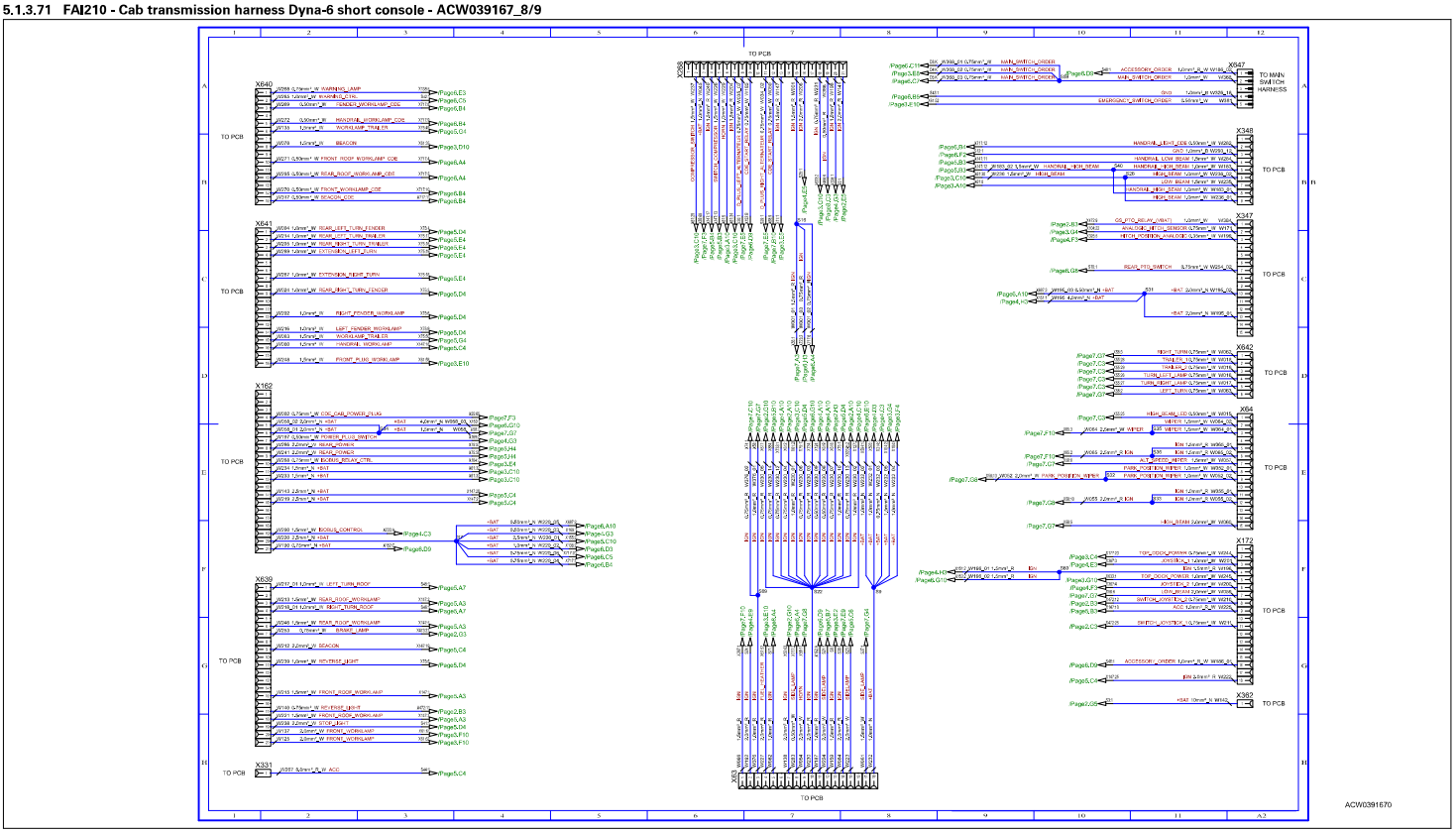

Fig. 71

5.1.3.81 FAI212 - Lighting harness NA - 4389034_3/3

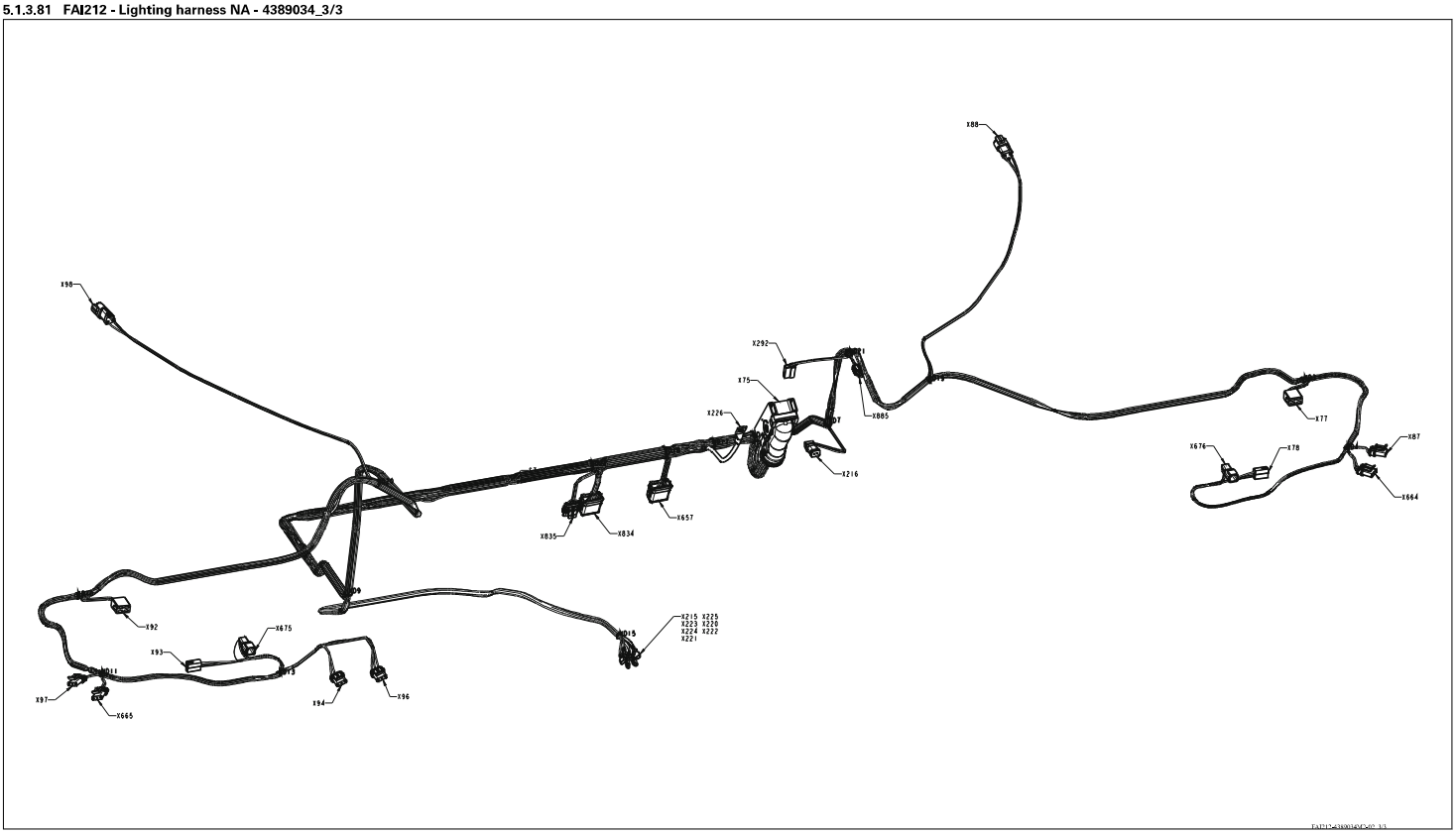

Fig. 81

5.1.3.91 FAI223 - Roof harness_High visibility_4375395_3/3

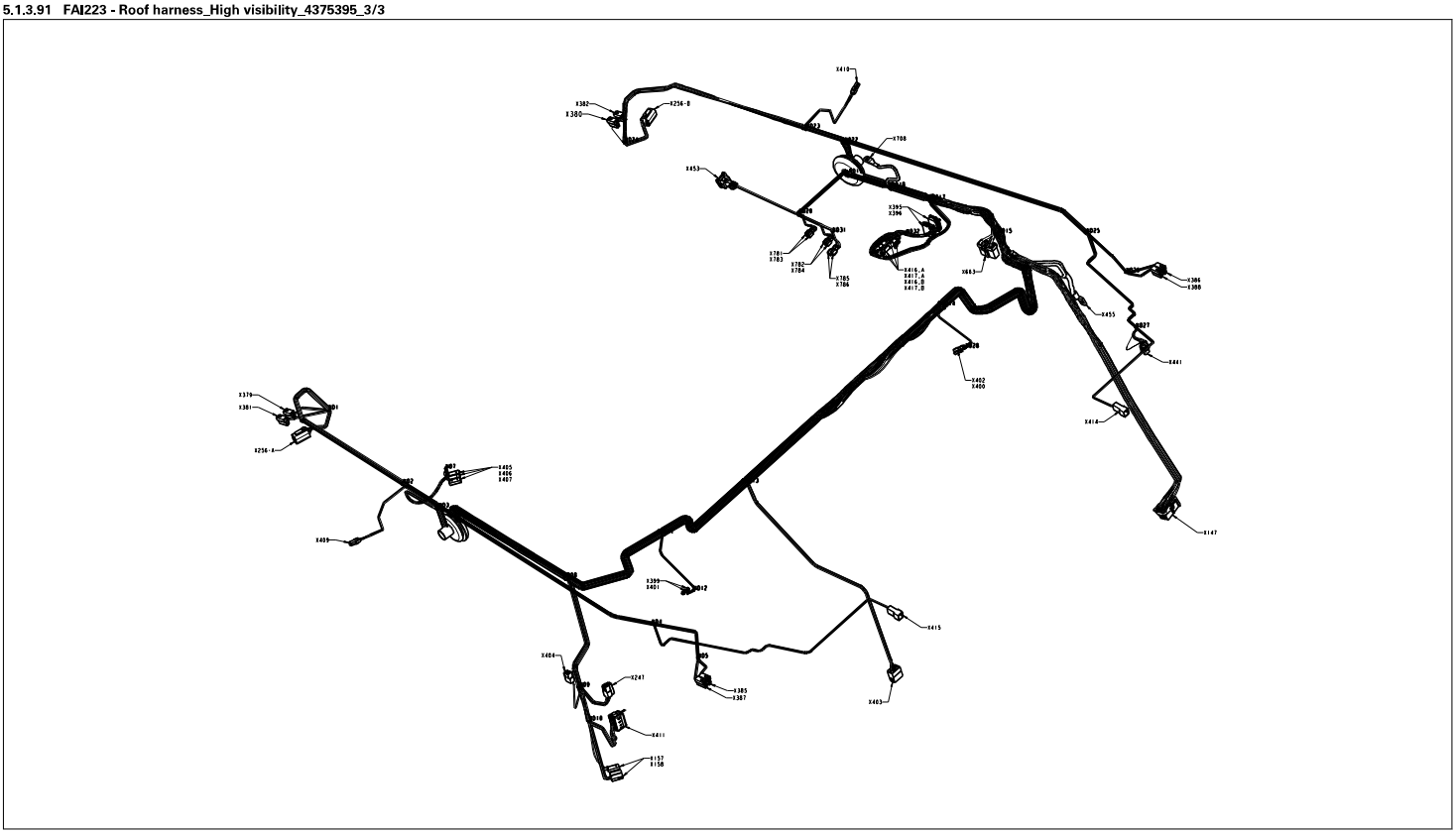

Fig. 91

5.1.3.101 FAI227 - Roof harness with automatic air conditioning - 4352621_3/3

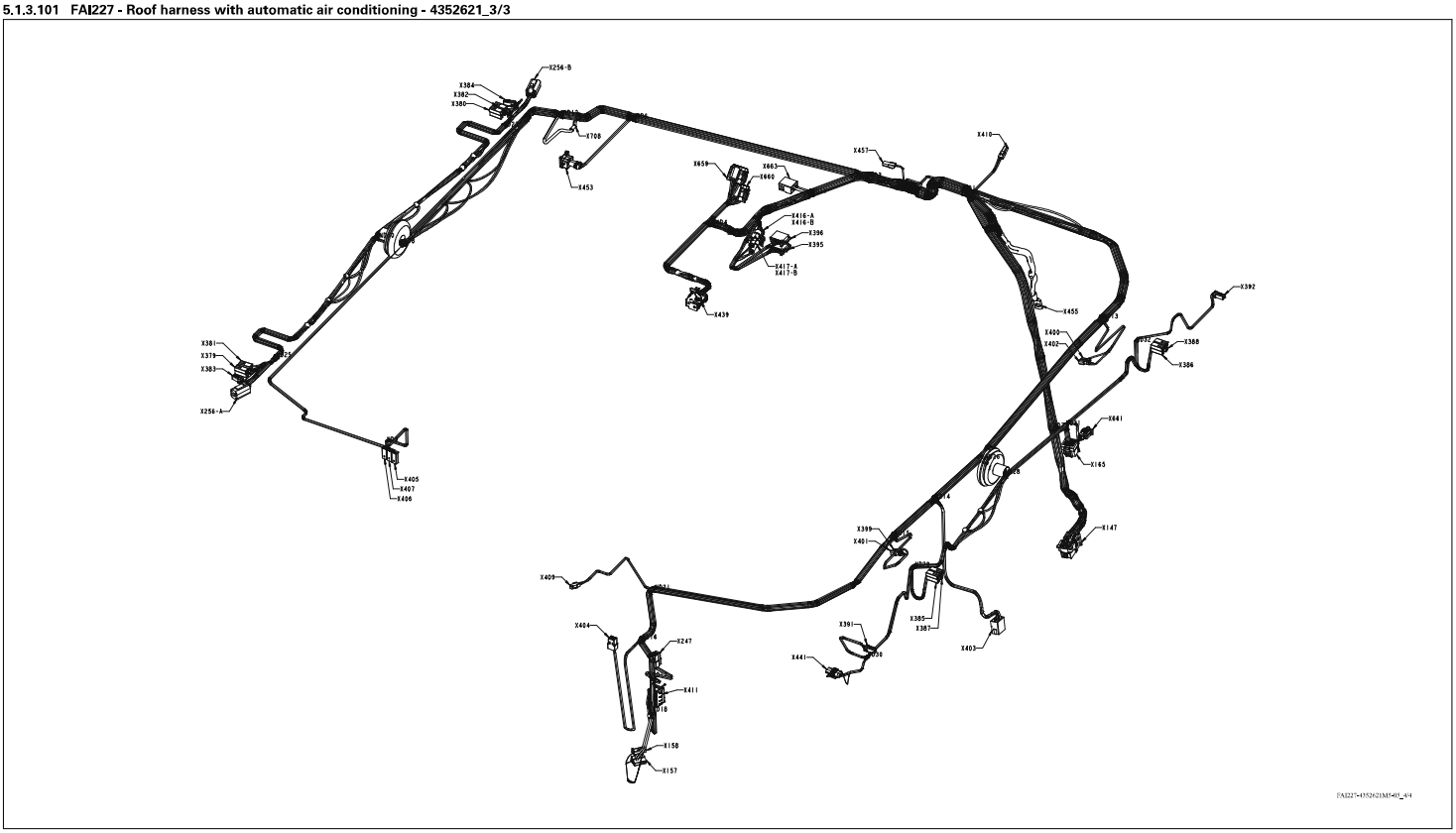

Fig. 101

5.1.3.111 FAI261 - Isobus harness - 4353130_2/2

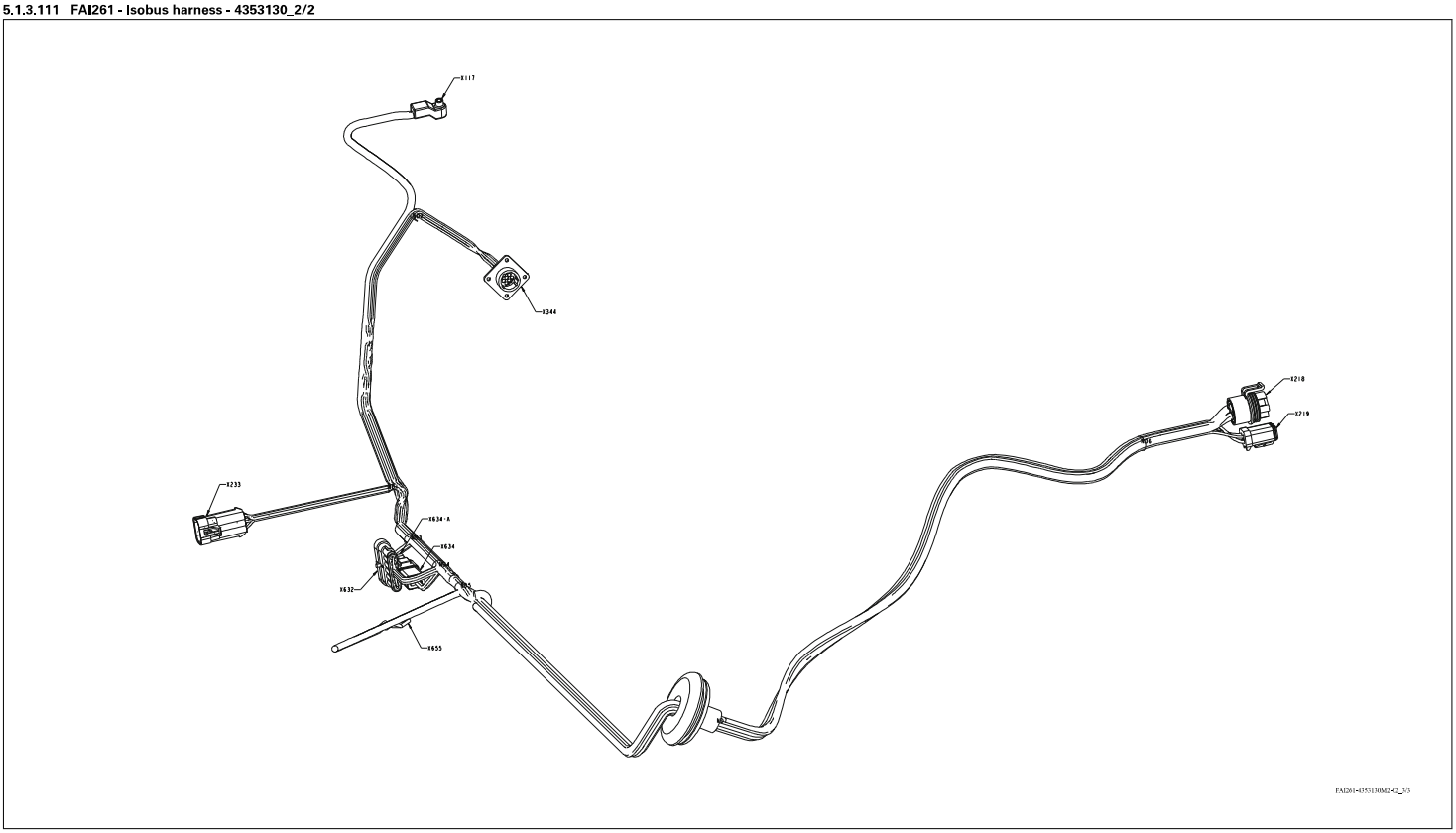

Fig. 111

5.1.3.121 FAI272 - Suspended cab harness Dyna-6 - ACW039185_1/2

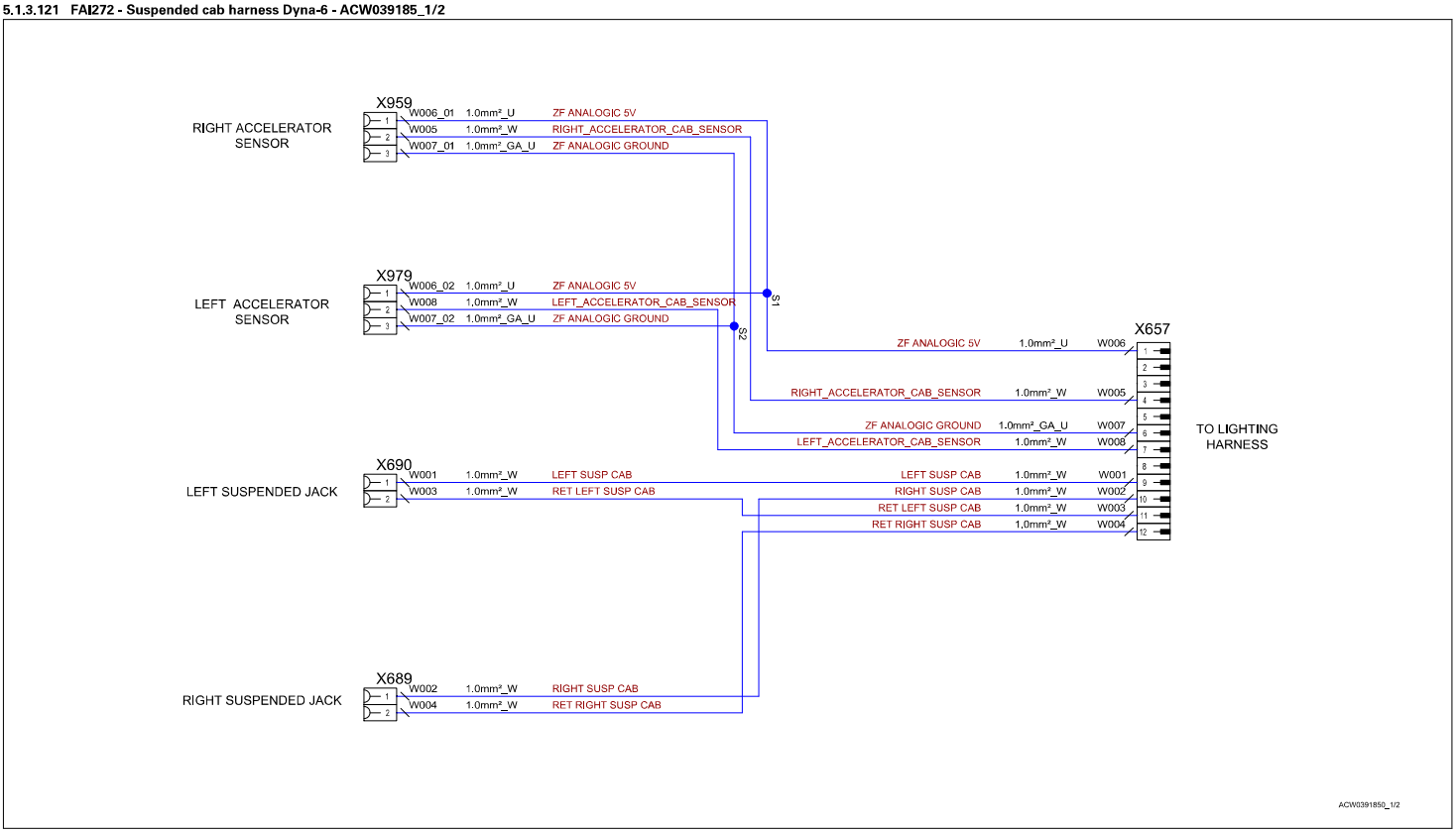

Fig. 121

5.1.3.131 FAI287 - ALO loader harness external without multi-function armrest - 4378794_1/2

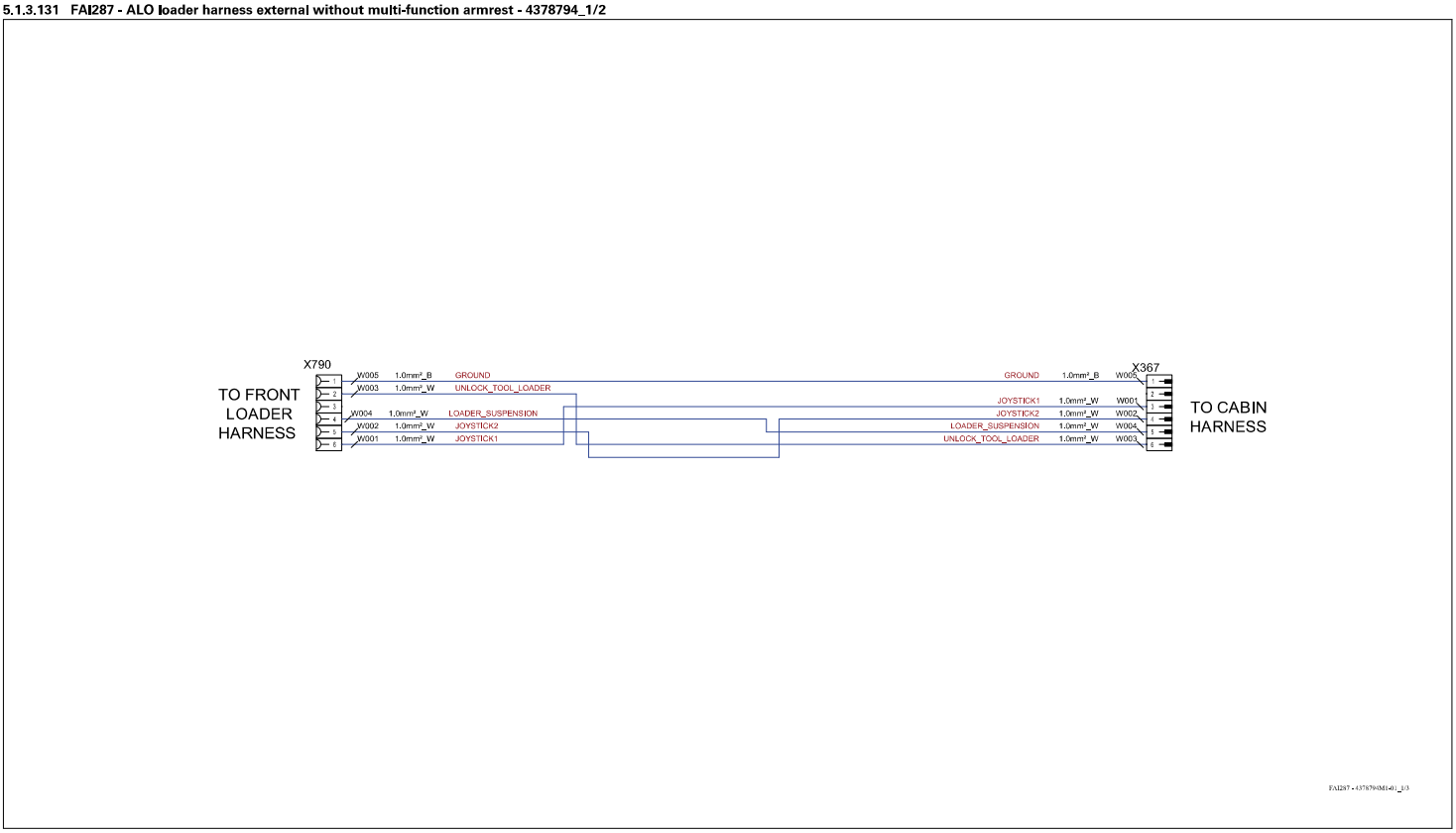

Fig. 131

5.1.3.141 FAI293 - EAME indicator harness - 4355520_1/2

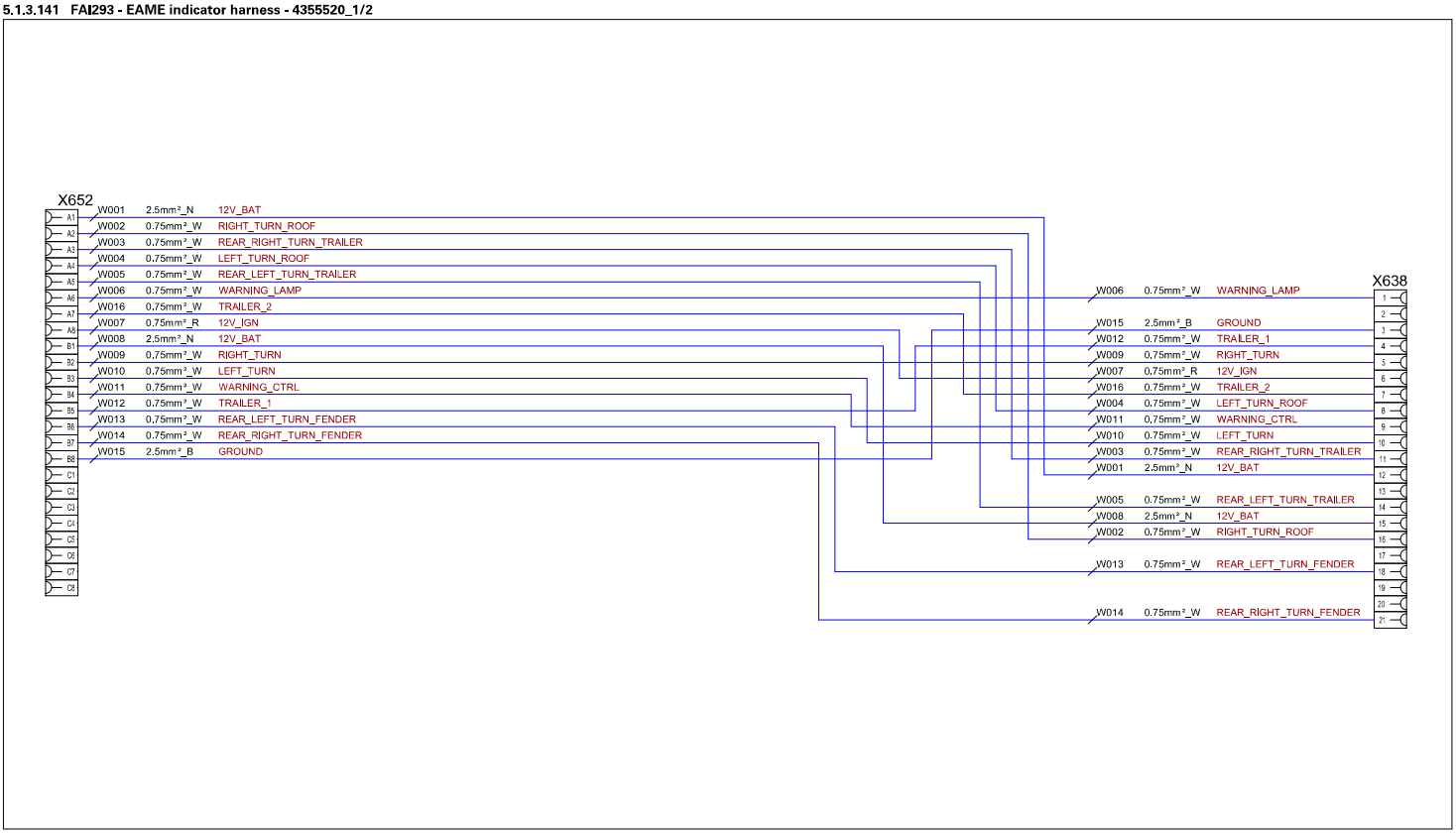

Fig. 141

5.1.3.151 FAI307 - Datatronic 4 harness - 4390934_1/2

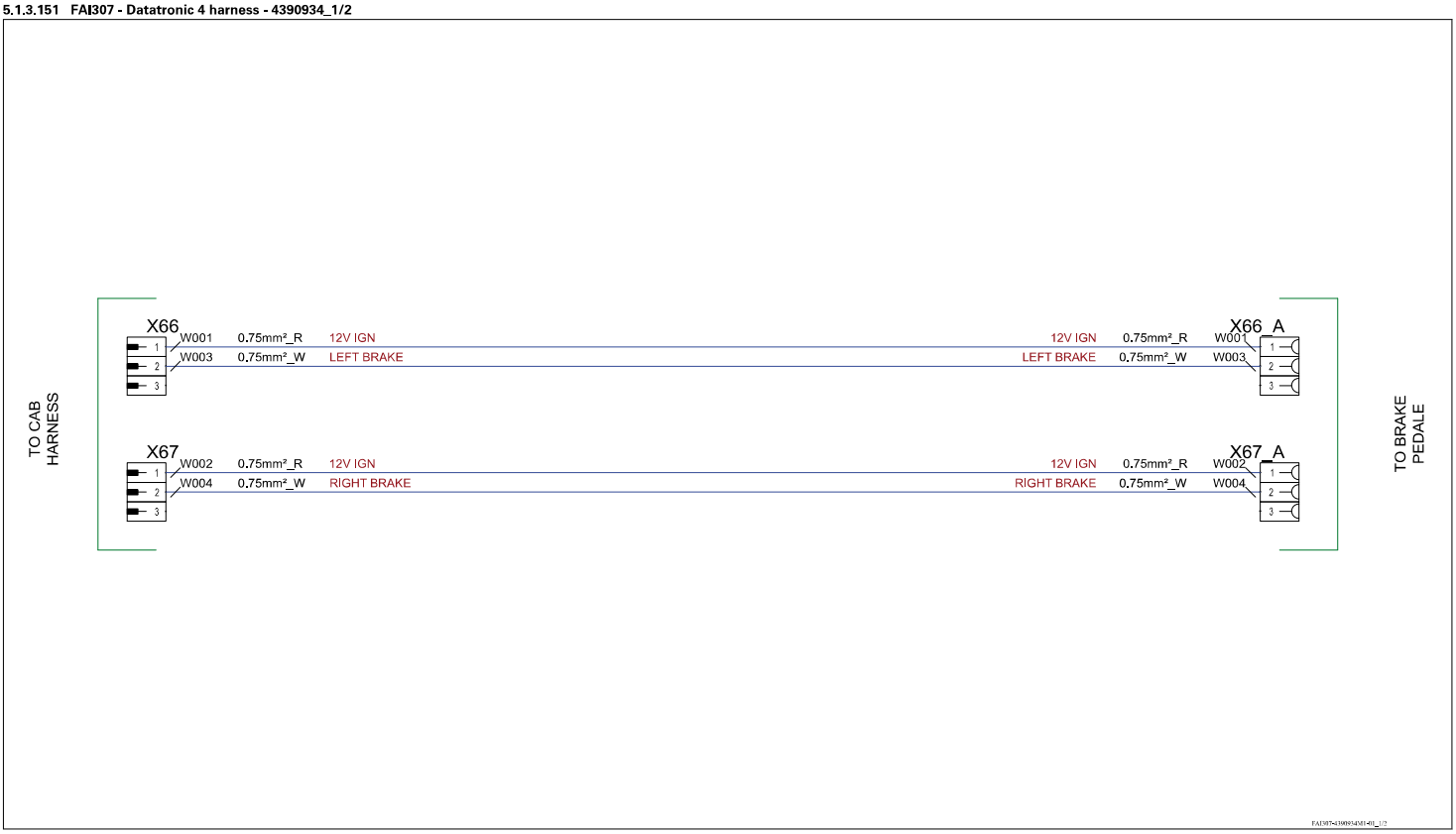

Fig. 151

5.1.3.161 FAI321 - GSPTO harness - ACW008066_1/2

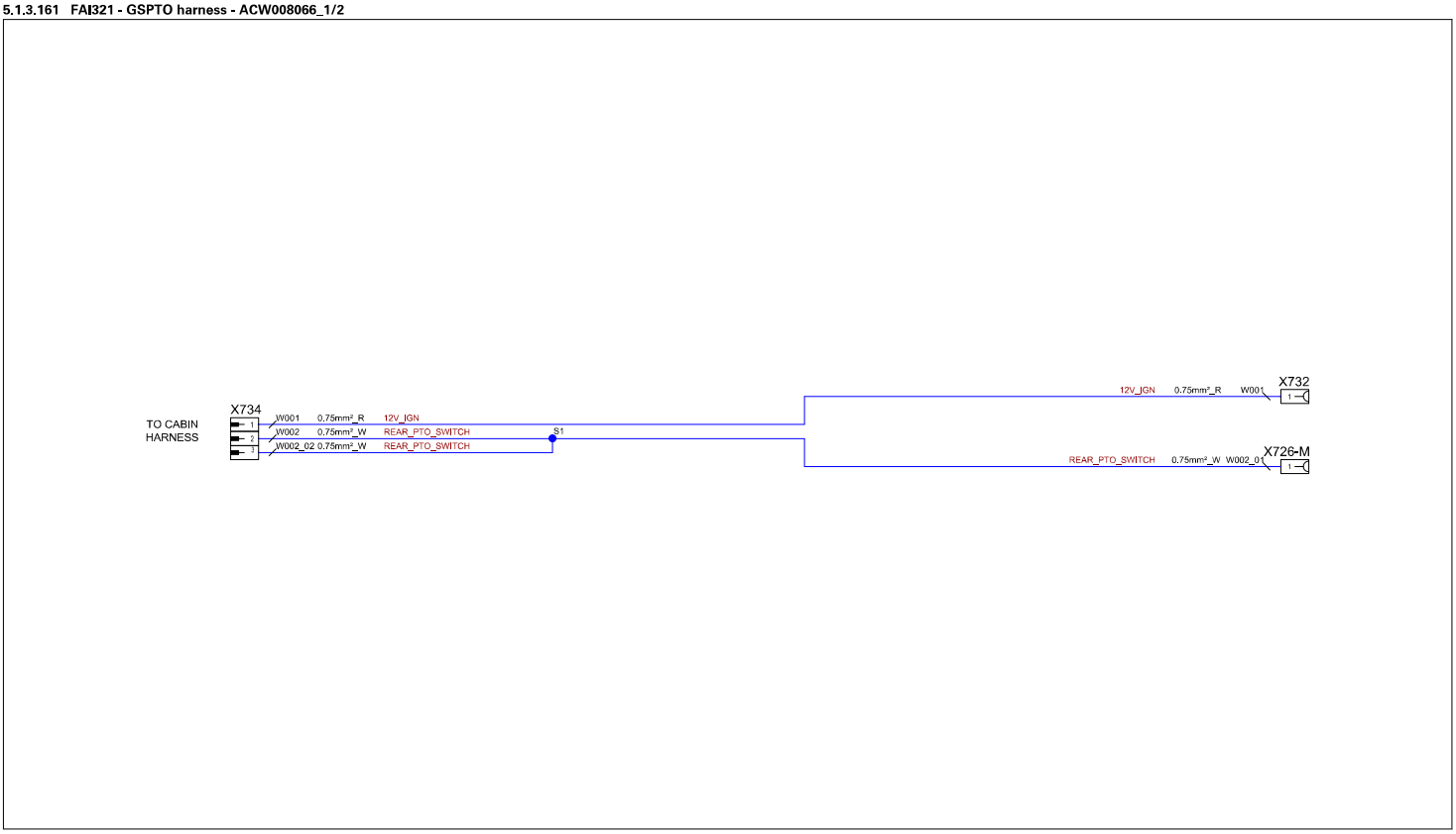

Fig. 161

5.1.3.171 FAI340 - Battery/fuse box positive cable harness - ACW029172

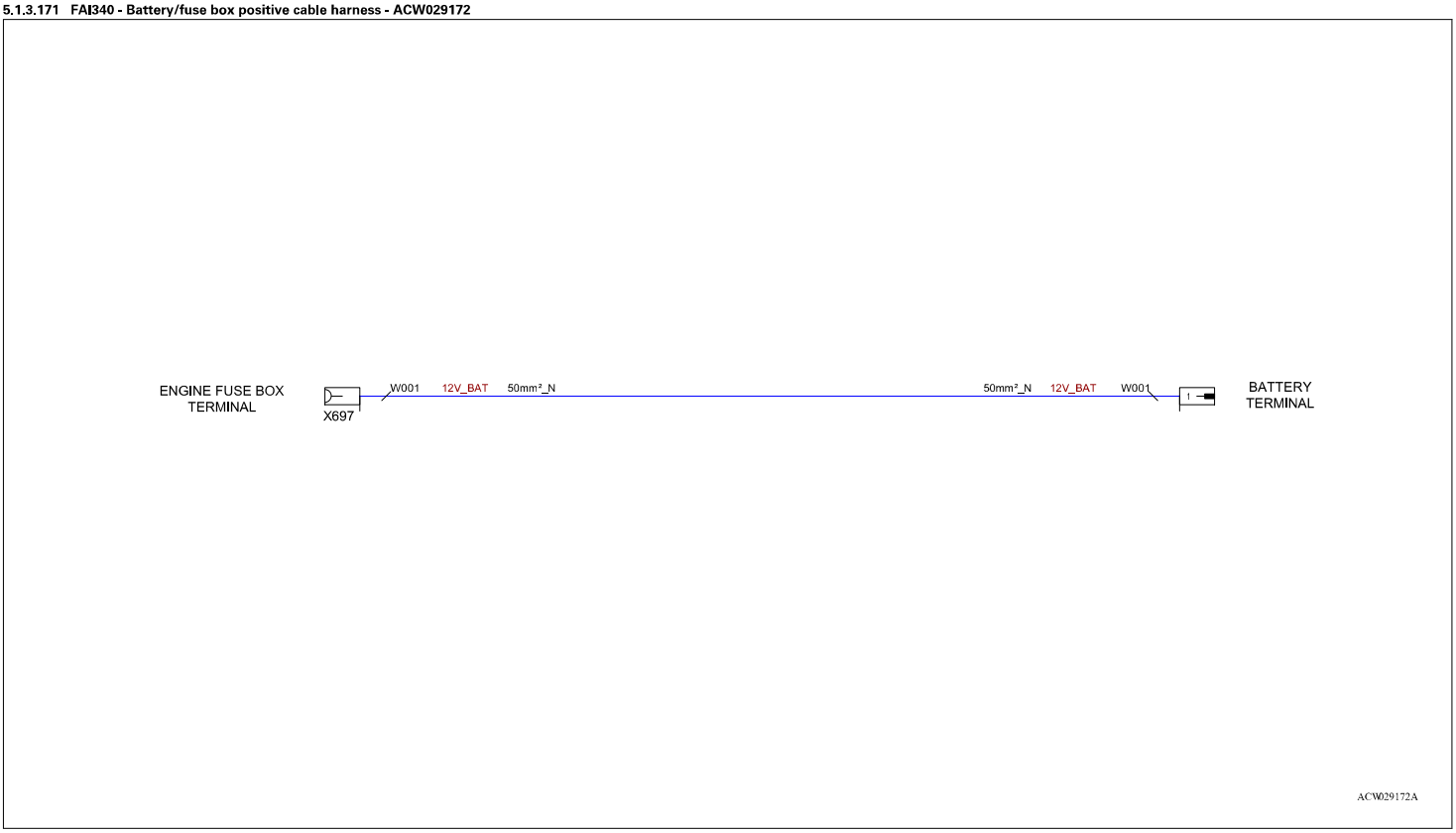

Fig. 171

6. Hydraulics diagrams

6.1.1.7 HFD01062 – Auxiliary hydraulics diagram: all options, GTA2520 Open Center 57 l/min

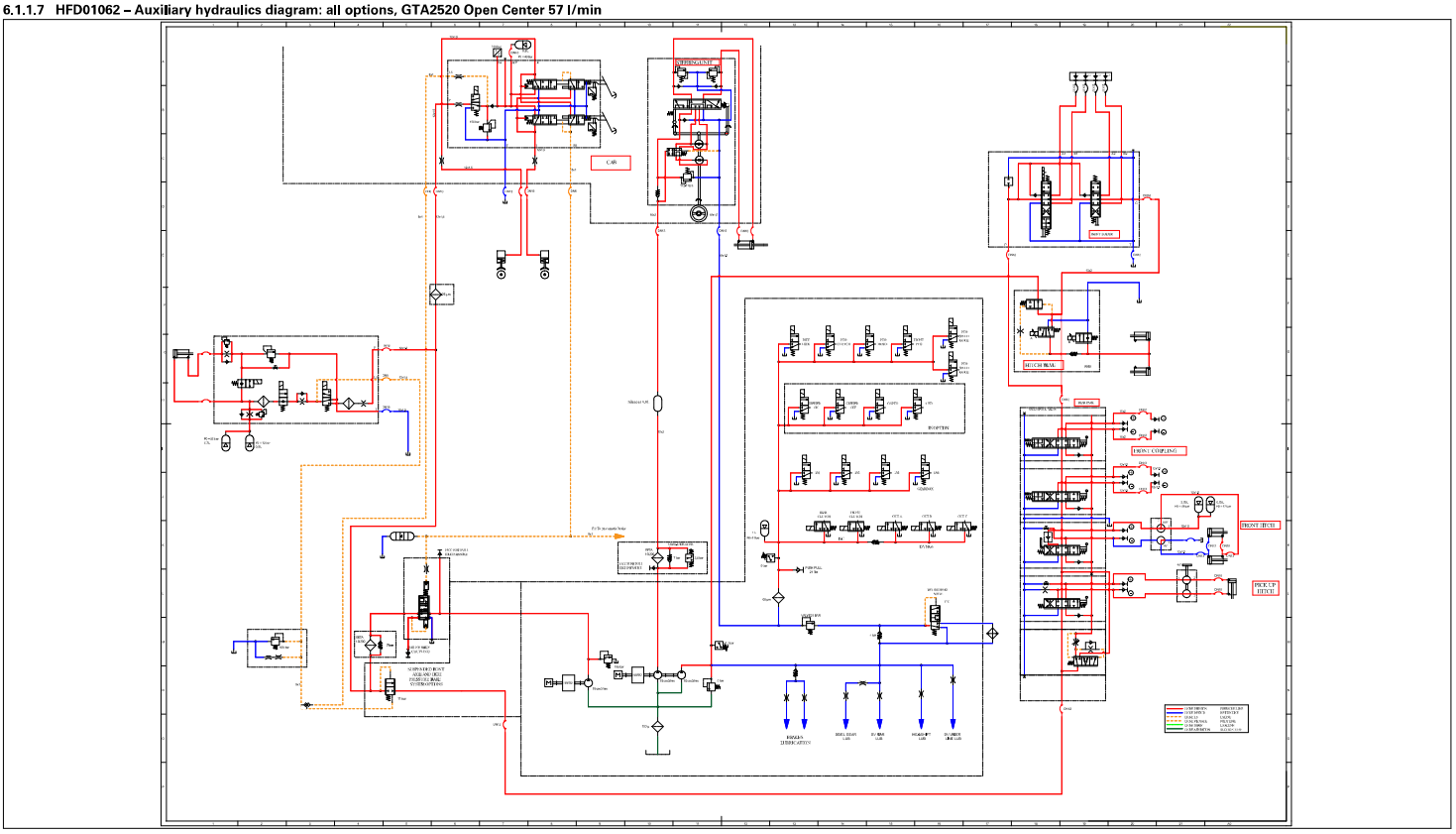

Fig. 7

6.1.1.17 HFD03061 - Hydraulics diagram: GTA2520 Load Sensing assisted braking with pneumatic trailer brake and Auto-Guide™ steering

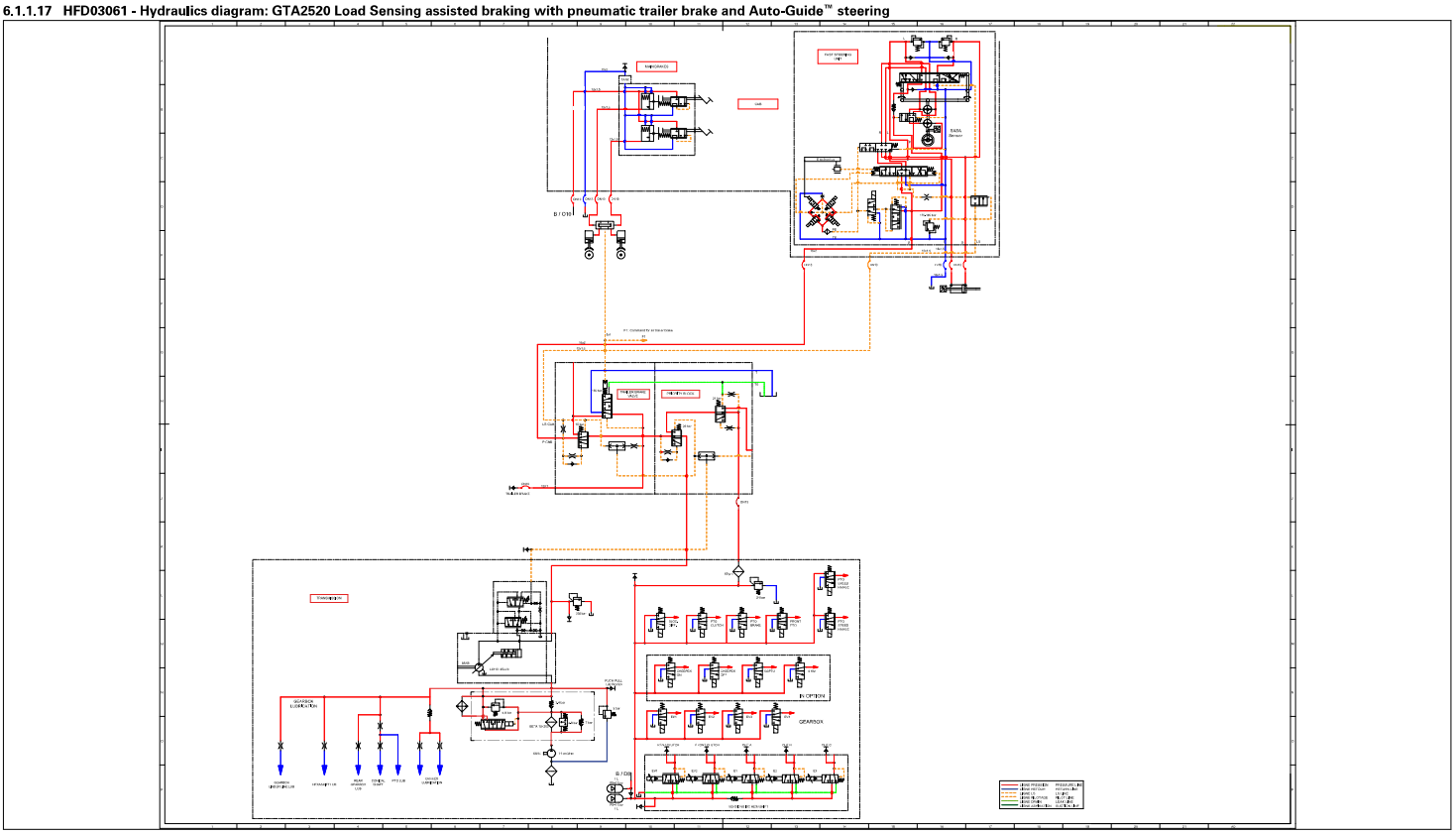

Fig. 17

6.1.1.27 HFD03079 - Hydraulics diagram: Open Center 100 l/min high-pressure braking with front suspension and trailer brake

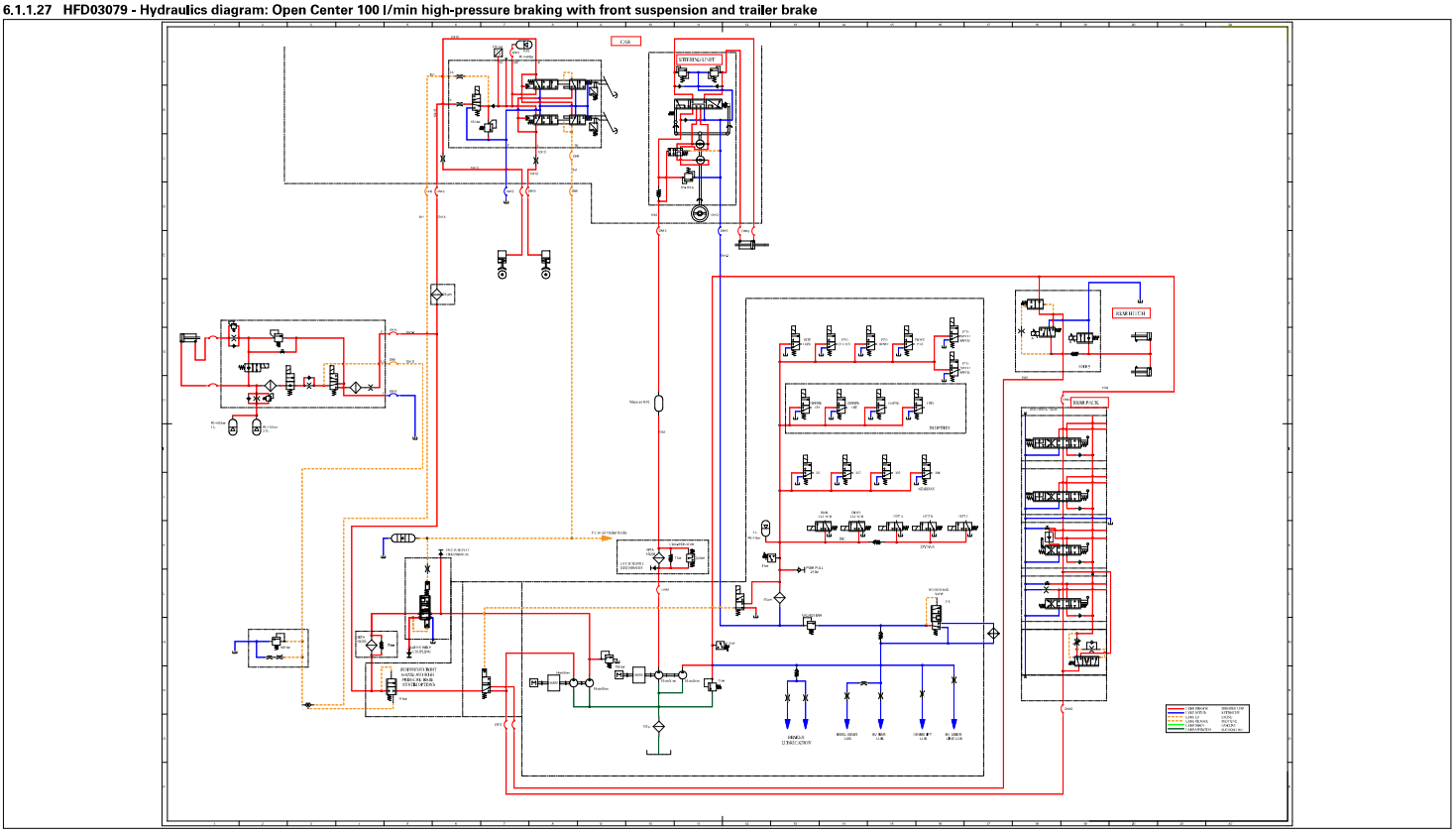

Fig. 27

6.1.1.37 HFD06014 - Hydraulics diagram: GTA2520 Load Sensing rear spool valves, four electrohydraulic and Power Beyond

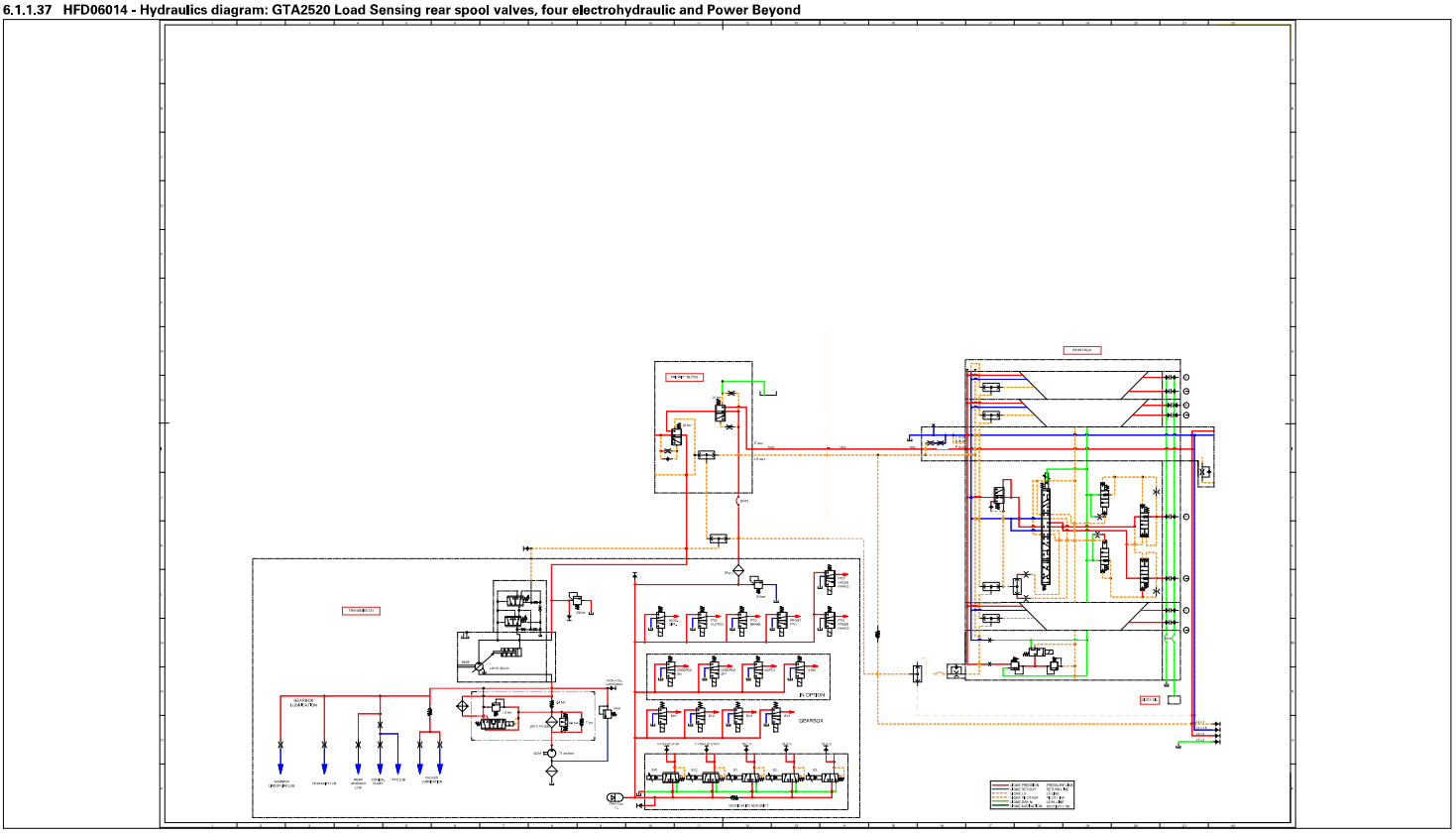

Fig. 37

1V1 - Cooler bypass valve
1V2 - Flushing pressure relief valve
1V3 - Charge pressure relief valve
1V4 - Lubricating pressure relief valve
1V5 - Service pump pressure relief valve
1V6 - System pressure relief valve
1Z1 - Intake filter with bypass
1Z2 - Pressure filter with bypass
1Z3 - Transmission oil cooler
1Z4 - Transmission lubrication
1Z5 - Auxiliary hydraulic oil/transmission oil cooler
2A1 - Hydrostatic motor
2P1 - Hydrostatic pump
2V1 - Forward charge non-return valve
2V2 - Reverse charge non-return valve
2V3 - Forward high-pressure relief valve
2V4 - Reverse high-pressure relief valve
2V5 - Flushing valve
2V6 - Shuttle valve
3A1 - Piston for setting the hydrostatic pump displacement
3A2 - Piston for setting the hydrostatic motor displacement
3A3 - Forward speed limiter in limp home mode
3V1 - Hydrostatic pump control spool valve
3V2 - Hydrostatic motor control spool valve
3Z1 - Cam channel adjustment shaft
3Z2 - Control unit
4A1 - Forward range selector
4S1 - Pressure sensor
4S2 - Pressure sensor
4V1 - Low-speed range (Tortoise) solenoid valve
4V2 - High-speed range (Hare) solenoid valve
4V3 - Forward speed limiting solenoid valve
4V4 - Coupler function solenoid valve
4V7 - High-pressure shock relief valve
5A1 - Right-hand brake cylinder
5A2 - Left-hand brake cylinder
5A3 - Universal joint shaft brake
5V1 - Cooling oil valve, right-hand brake
5V2 - Cooling oil valve, left-hand brake
5V4 - Universal joint brake control valve
5V5 - Cooling oil valve, universal joint brake
5Z2 - Rear PTO lubrication
5Z3 - Differential and right-hand brake lubrication
5Z4 - Differential and left-hand brake lubrication
5Z5 - Universal joint brake lubrication
6A1 - Rear PTO clutch
6A2 - 540 rpm PTO selector piston
6A3 - Economy PTO selector piston
6A4 - Front axle clutch
6A5 - Rear axle differential lock
6A6 - 1000 rpm PTO selector piston
6A7 - Front axle differential lock
6A8 - Standard PTO selector piston
6V1 - Rear PTO clutch solenoid valve
6V2 - 540 rpm PTO control solenoid valve
6V3 - Economy PTO control solenoid valve
6V4 - Front axle clutch solenoid valve
6V5 - Differential lock solenoid valve
6V6 - 1000 rpm PTO control solenoid valve
6V8 - Standard PTO control solenoid valve
M1 - Pressure upstream of cooler (KV)
M2 - Lubricating pressure (SM)
M3 - Flushing pressure (AS)
M4 - Charge pressure (ES)
M5 - Service pump pressure (PU)
M6 - Transmission system pressure (P)
M7 - Low-speed range engaging pressure (Tortoise) (I)
M8 - High-speed range engaging pressure (Hare) (II)
M9 - High pressure (PH)
M10 - Rear axle and brake system pressure (P)
M11 - Rear PTO clutch pressure
M12 - 540 rear PTO selector pressure
M13 - Economy rear PTO selector pressure
M14 - Front axle clutch pressure
M15 - Differential lock pressure
M16 - 1000 rpm rear PTO selector pressure
M22 - Oil leak from clutch or coupler function valve
M24 - Oil leak from high-pressure shock valve (T)
M30 - Standard rear PTO selector pressure

8.1 Bleeding

8.1.1 Bleeding: Dyna-VT - Assisted brake master cylinders

8.1.1.1 Charge connector

(A) Charge connector for the braking system

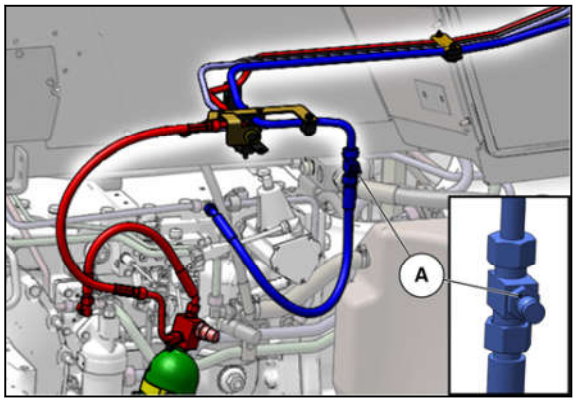

Fig. 1

8.1.1.2 Pressure connector

(B) Supply for charging the braking system

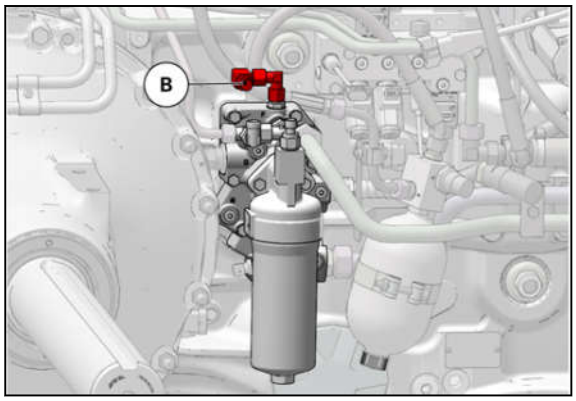

Fig. 2

8.1.1.3 Bleed screw locations

Main brakes

(L) Left-hand brake bleed screw
(R) Right-hand brake bleed screw
(F) Front universal joint brake bleed screw

The bleed screws are located on the auxiliary hydraulic spool valve support.

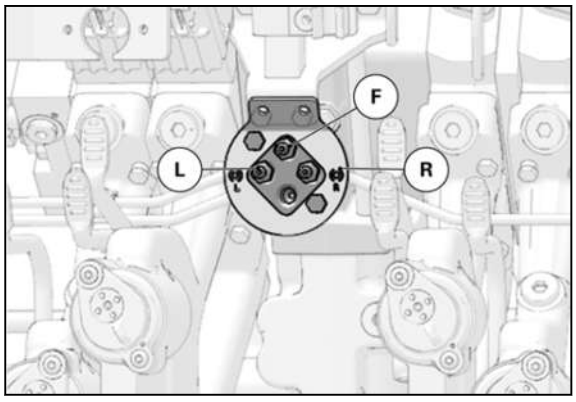

Fig. 3

8.2 Calibrations

8.2.1 Calibration of the clutch pedal sensor

Calibration of the clutch pedal sensor

Calibration procedure

The calibration of the clutch pedal potentiometer must be carried out each time one of the following elements is replaced or modified:

- clutch pedal switch
- instrument panel.

NOTE: *This calibration is carried out with the engine stopped.*

Procedure

1. Switch on the ignition.
2. Press down the clutch pedal and keep it depressed.
3. Lift the Power Control lever arm (PowerShuttle) and keep it raised throughout the calibration procedure.
4. An alarm sounds. Slowly release the clutch pedal.
5. The alarm will stop. Fully release the clutch pedal.
6. The alarm will sound again. Release the Power Control lever arm (PowerShuttle).
7. Switch off the ignition for at least 5 seconds to validate calibration.

8.2.2 Calibration of the throttle pedal sensor

Calibration of the throttle pedal sensor

Calibration procedure

The calibration of the throttle pedal potentiometer must be carried out each time one of the following elements is replaced or modified:

- Throttle potentiometer
- instrument panel.

WARNING:
This calibration is carried out with the engine stopped.

The calibration is carried out in two successive steps so as to determine the minimum and maximum engine speeds in relation to the position of the pedal.

Procedure

1. Switch on the ignition, with the Power Control (PowerShuttle) lever in neutral.

   NOTE: *The power take-off must be disengaged.*

Minimum speed

2. When the pedal is fully released, this corresponds to minimum engine speed.
3. Press and hold down the differential lock switch for 5 seconds.
4. An alarm sounds. This indicates the end of the first calibration phase (pedal fully released).

NOTE:
The daily hourmeter resets to 0 after 5 seconds.

3. "CAL" should appear on the screen .

4. Drive the tractor forward at normal working speed.

NOTE:
The tractor must be moving at a constant speed before starting out on the measured course. Otherwise, the calibration is not correct.

5. Press the display selector switch (A) when the starting line of the 100 m course has been passed.

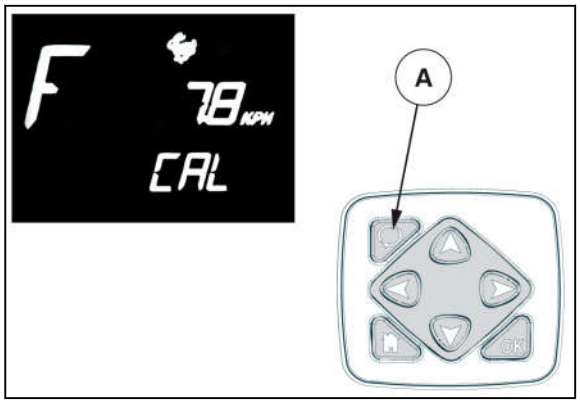

Fig. 36

6. "run" should appear on the screen .

7. Press the display selector switch (A) when the finish line of the course has been passed.

8. Press the display selector switch (A). The constant forward speed (theoretical) measured during calibration is displayed.

9. Press the display selector switch (A) again. The actual constant forward speed (radar) measured during calibration is displayed on tractors fitted with radar.

10. Press the display selector switch (A) one final time to return the instrument panel to normal operating mode.

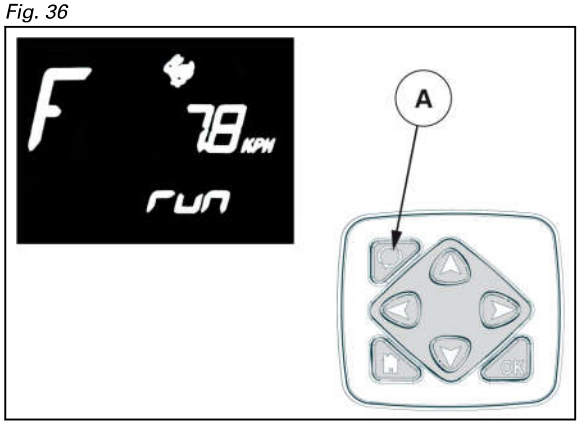

Fig. 37

8.2.9 Front power take-off calibration for Dyna-4/Dyna-6

Front power take-off calibration for Dyna-4/Dyna-6

General

NOTE:
This calibration must be performed only in the event of a starting problem with a high-inertia implement

- *When changing the PTO solenoid valve*
- *Transmission controller*

NOTE:
The tractor engine must be running.

NOTE: ***To access the calibration menu on the instrument panel, see chapter 8.2.12 Dyna-VT transmission calibrations: Introduction and access to calibration using the instrument panel, page 8-28 .***

4. After having selected  in the CAL1 screen, press "OK" to start calibration.

5. Engage the rear PTO.

6. Calibration takes place automatically, and the time taken depends on the implement.

7. The calibration result is displayed:

- "OK": successful calibration
- "ERROR": calibration failed

8. **Switch off the ignition for at least 30 seconds in order to validate the calibration.**

Fig. 50

8.2.17 Front power take-off calibration for Dyna-VT

Front power take-off calibration

NOTE:
Calibration procedure
This calibration must be performed only in the event of a starting problem with a high-inertia implement

- *When changing the PTO solenoid valve*
- *Transmission controller*

For optimum calibration, the implement must be connected.

Preliminary conditions

1. Hand brake applied or ParkLock engaged.

2. Power Control lever in neutral position.

Calibration

NOTE: ***To access the calibration menu on the instrument panel, see chapter 8.2.12 Dyna-VT transmission calibrations: Introduction and access to calibration using the instrument panel, page 8-28 .***

3. After having selected  in the CAL1 screen, press "OK" to start calibration.

4. Engage the front PTO.

5. Calibration takes place automatically, and the time taken depends on the implement.

6. The calibration result is displayed:

- "OK": successful calibration
- "ERROR": calibration failed

7. **Switch off the ignition for at least 30 seconds in order to validate the calibration.**

Fig. 51

Procedure

Fig. 63

(1) Calibration of the FingerTIPs

(2) Start calibration

1. Select "FingerTIP"

2. Then click on the button (2) to start calibration

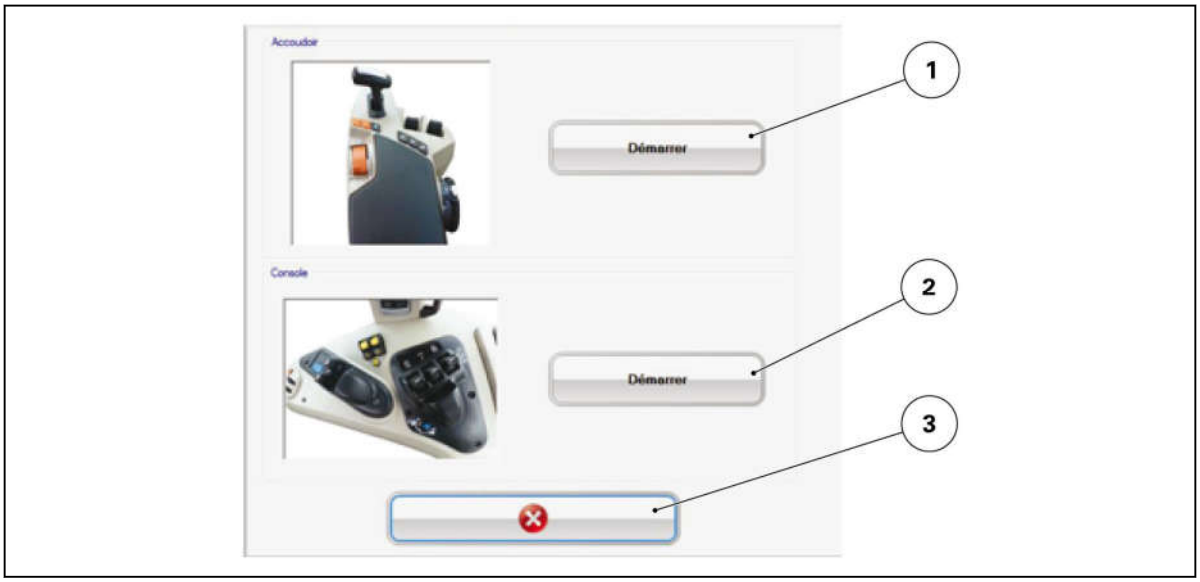

Fig. 64

(1) Selecting the FingerTIP controls on the armrest

(2) Selecting the FingerTIP controls on the console

(3) Close the screen

3. Click on the button (2) to begin calibration of FingerTIPs from the console.