

MAN Nutzfahrzeuge Aktiengesellschaft

Service Information



Date 20.07.2010	Issued by SASIC	Number: 367102 Power Train Manager (PTM)
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Component(s) affected Power Train Manager (PTM)



Introduction

The previously used vehicle management computer (FFR) will be replaced by the Power Train Manager (PTM).

This SI is intended to provide an overview on how to handle the PTM in the workshop.

Converting from FFR to PTM or vice-versa is not possible.

At series introduction, the Power Train Manager (PTM) is equipped with identical functions to those of the vehicle management computer (FFR) (see brief overview as from page [13](#)).

In contrast to the FFR, the PTM does not make the switching noise of a relay when switching the ignition on or off.

As with the FFR, vehicles with automated gearboxes (TipMatic) are fitted with a different PTM than vehicles with manual gearboxes ex works.

Distribution to the worldwide service organisation			
Forwarding within the organisation of the MAN service workshop:			
Workshop management	Yes	Personnel in spare parts store	Yes
Workshop personnel for performance of the work	Yes	Emergency service mechanics	Yes
Workshop personnel in general	Yes	Customers' workshops authorised for servicing	No

Differences between FFR and PTM	The most obvious differentiating feature between FFR and PTM are the connections (see page 3) and the connectors (see illustration as from page 7). The connections require using different dies for the crimping pliers because such contacts were previously not used in MAN vehicles. It is permitted to only connect DNR switches or stalk switches (to operate cruise control, continuous brakes or the gearbox) to the PTM that are equipped with a connector for a LIN data bus (see page 12). In vehicles with PTM, it is required to fit ACC Step 5 at minimum, older versions do not work correctly with the PTM.								
Displays	More exact text messages can be displayed in vehicles with PTM. Example: <table><tr><td></td><td>Vehicles with FFR</td><td>Vehicles with PTM</td></tr><tr><td rowspan="2">Text message</td><td>Vehicle computer fault</td><td>Engine fault</td></tr><tr><td>Vehicle computer fault</td><td>ACC fault</td></tr></table>		Vehicles with FFR	Vehicles with PTM	Text message	Vehicle computer fault	Engine fault	Vehicle computer fault	ACC fault
	Vehicles with FFR	Vehicles with PTM							
Text message	Vehicle computer fault	Engine fault							
	Vehicle computer fault	ACC fault							
Diagnosis	PTM diagnosis using MAN-cats is possible as from Service CD 10.01.00 with the same components ("old" and "new" interface) as with the FFR. The depth of the diagnosis also corresponds to that of the FFR, the only exception being the actuator test for the exhaust-gas throttle valve. Modified cable adapters 80.99641-6036 are required for work using the break box.								
Calibrating the accelerator pedal	Compared to the FFR, it is no longer required to calibrate the accelerator pedal in vehicles with PTM.								
System description	A PTM system description (T160) will be available shortly.								

Yours sincerely,
MAN Nutzfahrzeuge Aktiengesellschaft

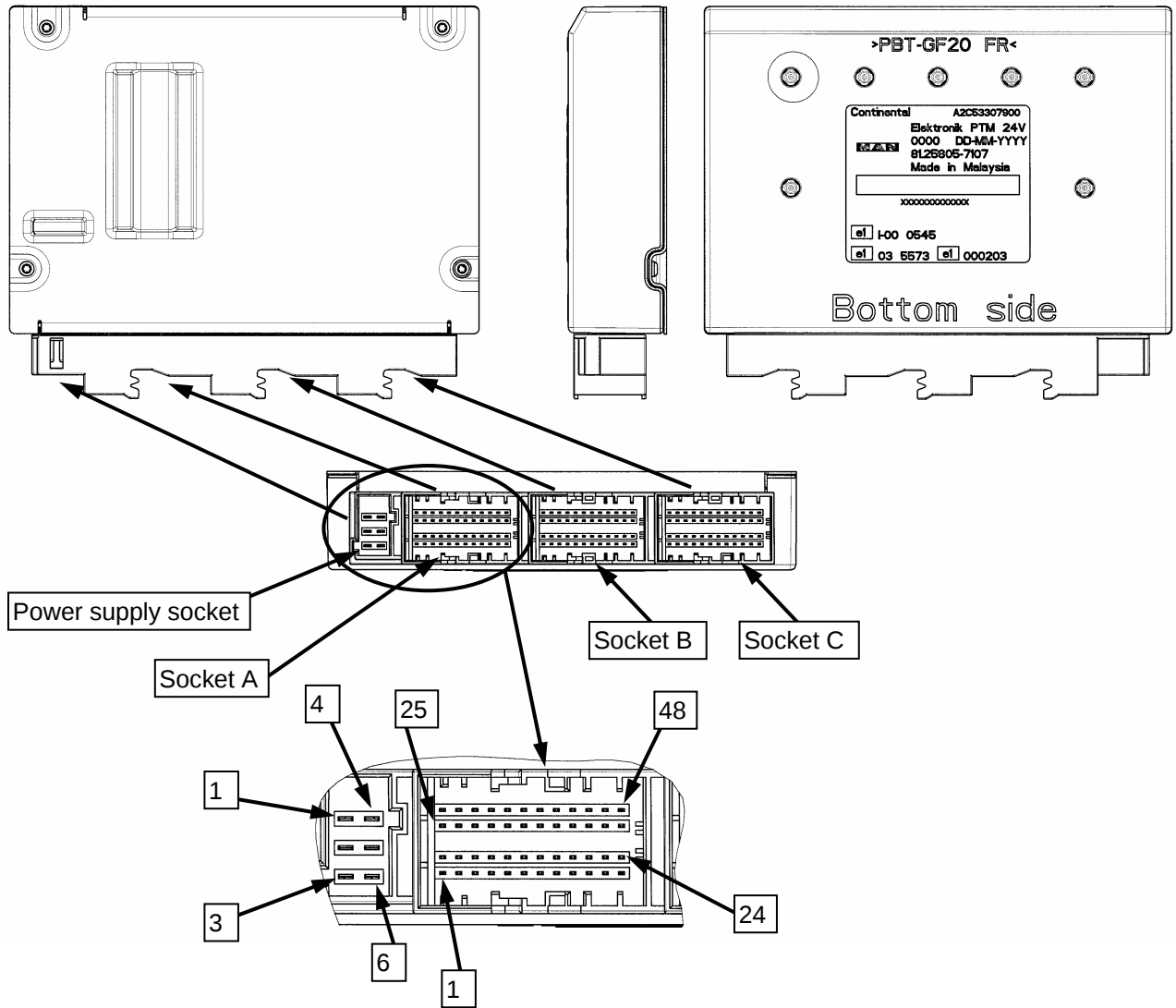


ppa. G. Ziegler



i.V. W. Kuchler

Sockets



Power supply socket

1	Socket terminal 31
2	not used
3	Socket terminal 15

4	¹
5	¹
6	Socket terminal 30

Socket A

1	not used
2	Solenoid valve, split group "slow" (High output) ²
3	Solenoid valve, clutch servo (High output) ²
4	not used
5	not used
6	^{1 2}
7	¹
8	not used
9	not used
10	not used
11	not used
12	not used
13	not used
14	Solenoid valve, split group "fast" (High output) ²
15	not used
16	not used
17	Solenoid valve, clutch servo (Low output) ²
18	not used
19	not used
20	Solenoid valve, PTO 1 (High output)
21	Solenoid valve, PTO 2 (High output)
22	not used
23	not used
24	not used

25	not used
26	Solenoid valve, gate lock (High output) ²
27	Solenoid valve, range-change group "slow" (High output) ²
28	Solenoid valve, range-change group/gate lock (Low output) ²
29	Solenoid valve, split group (Low output) ²
30	not used
31	not used
32	not used
33	not used
34	not used
35	not used
36	not used
37	not used
38	not used
39	Solenoid valve, range-change group "fast" (High output) ²
40	not used
41	not used
42	not used
43	not used
44	not used
45	not used
46	not used
47	not used
48	not used

¹ Not yet used at the introduction of PTM.

² Only available in vehicles with manual gearbox.

Socket B

1	¹
2	not used
3	not used
4	Diagnosis (CAN High)
5	Engine CAN (CAN High)
6	Driveline CAN (CAN High)
7	not used
8	Signal, gearbox input speed (input)
9	Signal, engine oil level (input)
10	Accelerator (input 2)
11	Sensor, ambient temperature (negative connector)
12	not used
13	Sensor, exhaust-gas backpressure (positive connector)
14	not used
15	not used
16	Diagnosis (CAN Low)
17	Engine CAN (CAN Low)
18	Driveline CAN (CAN Low)
19	not used
20	¹
21	Signal, exhaust-gas back pressure (input)
22	Signal, clutch travel (negative connector) ²
23	Sensor, fan speed (negative connector)
24	not used

¹ Not yet used at the introduction of PTM

² Only available in vehicles with manual gearbox

25	Sensor, fan speed (positive connector)
26	not used
27	not used
28	¹
29	¹
30	¹
31	Immobilizer data line (input)
32	not used
33	Signal, engine oil temperature (input)
34	Signal, clutch travel (input) ²
35	Sensor, gearbox input speed (negative connector)
36	Engine torque limitation/maximum speed limitation (negative connector)
37	EVB (High output)
38	Fan clutch (High output)
39	DNR switch (LIN)
40	not used
41	Multi-function steering wheel (LIN)
42	¹
43	Signal, fan speed (input 2)
44	not used
45	Accelerator (input 1)
46	Sensor, exhaust-gas backpressure (negative connector)
47	Sensor, engine oil level/engine oil temperature (negative connector)
48	not used

Socket C

1	Signal, ambient temperature (input)
2	not used
3	not used
4	Transfer case, off-road gear engaged (input)
5	¹
6	not used
7	Request, external engine start (input)
8	PTO 2 switched on (input)
9	not used
10	Request, EVB (input)
11	¹
12	Request, ComfortShift switch 1 (input) ²
13	not used
14	Request, range-change group (input) ²
15	not used
16	not used
17	Request, engine start terminal 50 (input)
18	¹
19	Request, external engine stop (input)
20	Parking brake applied (input)
21	Request, split group (input) ²
22	Request, engine torque limitation/maximum speed limitation 2 (input)
23	Request, intermediate speed controller 1 (input)
24	^{1 2}

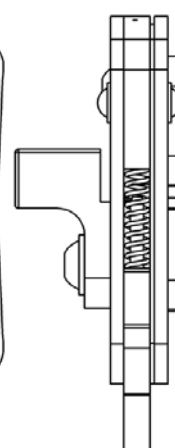
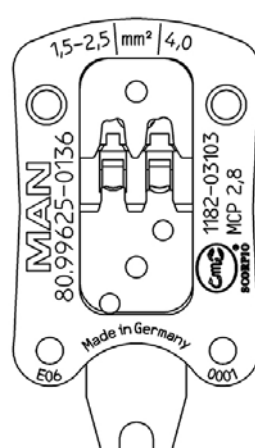
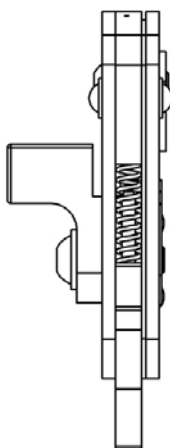
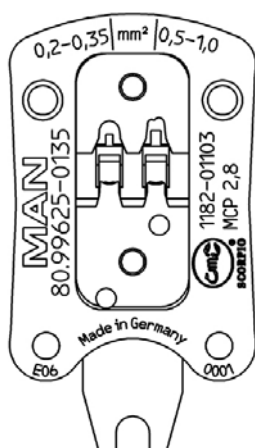
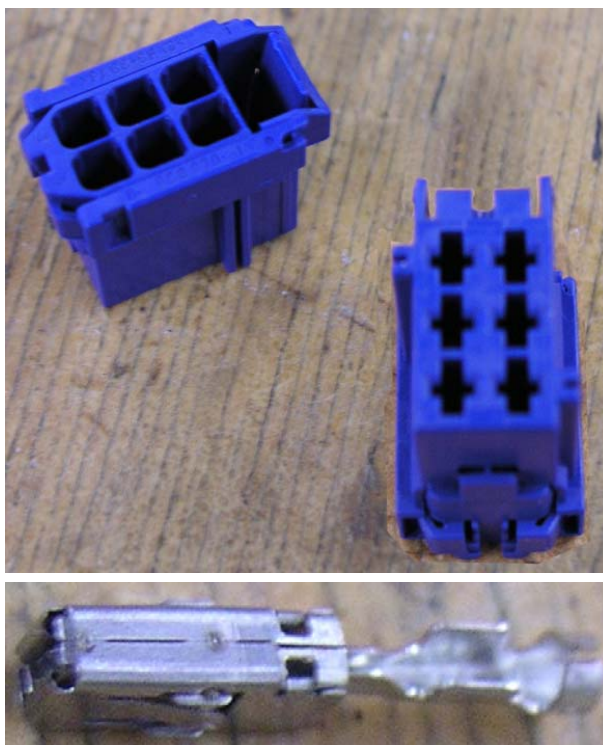
25	not used
26	Request, maximum speed limitation (input)
27	not used
28	not used
29	not used
30	not used
31	Request, PTO 1 (input)
32	not used
33	Request, ComfortShift switch 2 (input) ²
34	Request, intelligent brake function (input)
35	Request, intermediate speed controller 2 (input)
36	Reverse gear engaged (input) ²
37	Request, engine torque limitation (input)
38	not used
39	not used
40	not used
41	not used
42	¹
43	Request, PTO 2 (input)
44	PTO 1 switched on (input)
45	not used
46	Request, FGR/FGB (input)
47	Request, intermediate speed controller 3 (input)
48	Manual gearbox in neutral (input) ²

¹ Not yet used at the introduction of PTM.

² Only available in vehicles with manual gearbox.

Connectors and contacts

- Voltage supply

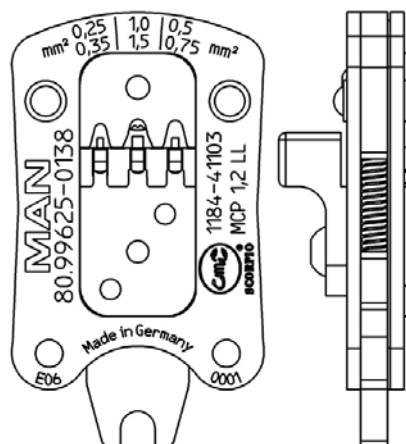
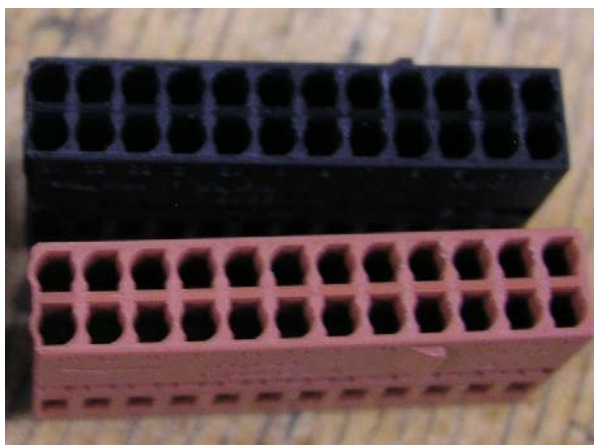


Receptacle housing	
MAN item number	36.25435-0022
Encoding	A
Colour	Blue

Contacts	
Flat spring contact 1<0	07.91201-0644
Flat spring contact 2<5	07.91201-0643

Crimping pliers	
Head for crimping pliers MCP 2.8 (1<0)	80.99625-0135
Head for crimping pliers MCP 2.8 (2<5)	80.99625-0136

- Socket A



Receptacle housing basket	
MAN item number	81.25432-0486
Encoding	A
Colour	Black

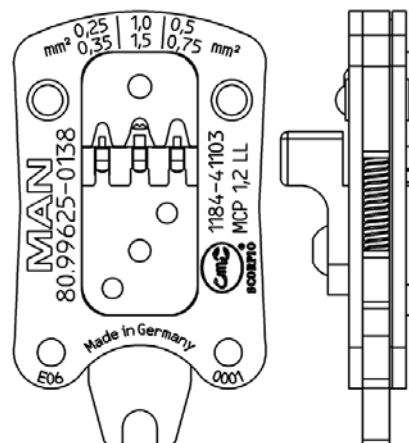
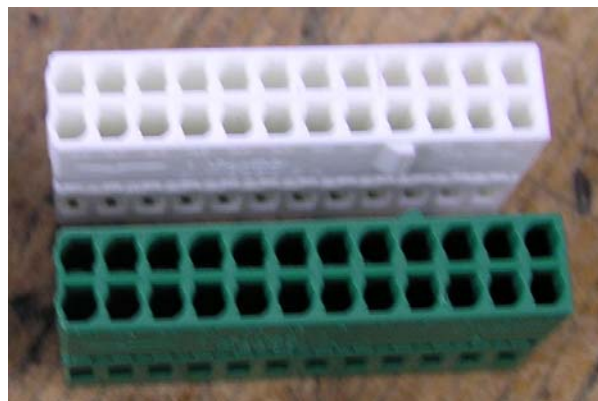
Contacts	
Receptacle 0<7	07.91201-6015
Receptacle 1<5	07.91201-6016

Receptacle housing 1-24	
MAN item number	81.25432-0484
Encoding	With groove
Colour	Black

Receptacle housing 25-48	
MAN item number	81.25432-0499
Encoding	Without groove
Colour	Brown

Crimping pliers	
Head of crimping pliers 1.2	80.99625-0138

- Socket B



Receptacle housing basket	
MAN item number	81.25432-0487
Encoding	B
Colour	White

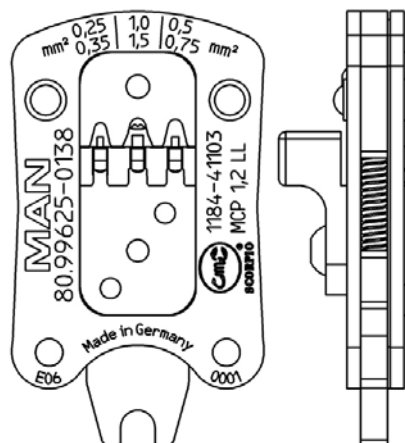
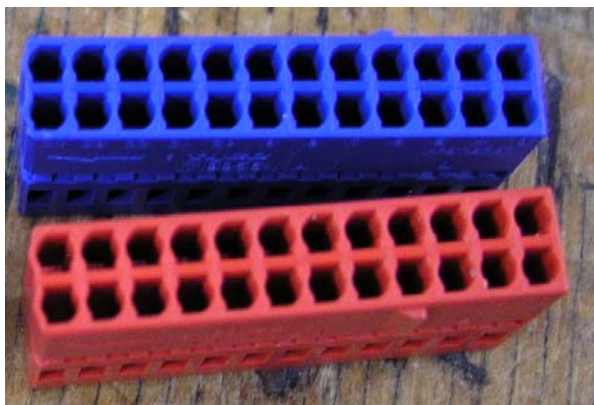
Contacts	
Receptacle 0<7	07.91201-6015
Receptacle 1<5	07.91201-6016

Receptacle housing 1-24	
MAN item number	81.25432-0497
Encoding	With groove
Colour	Green

Receptacle housing 25-48	
MAN item number	81.25432-0485
Encoding	Without groove
Colour	White

Crimping pliers	
Head of crimping pliers 1.2	80.99625-0138

- Socket C



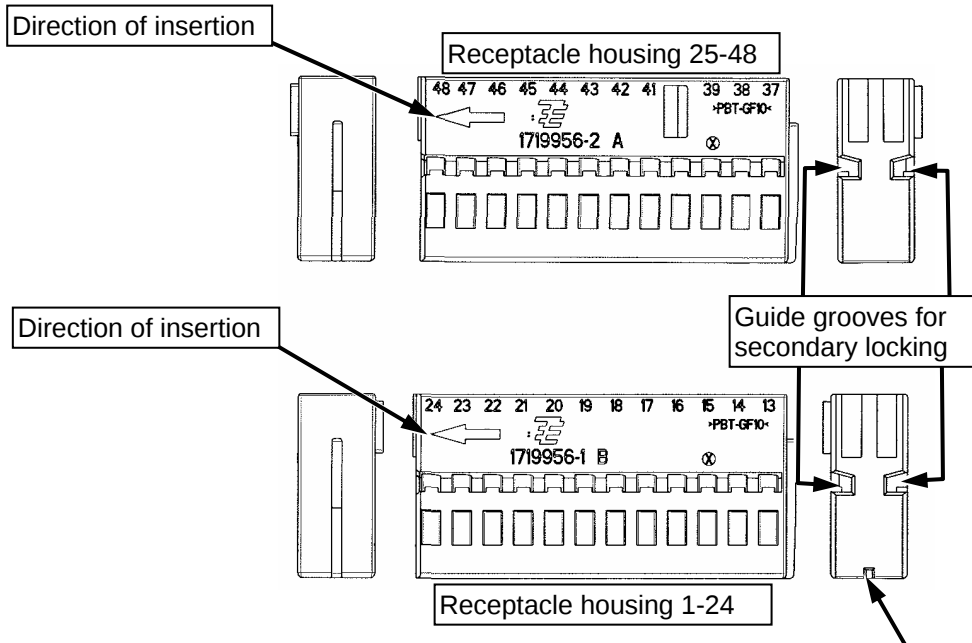
Receptacle housing basket	
MAN item number	81.25432-0488
Encoding	C
Colour	Blue

Contacts	
Receptacle 0<7	07.91201-6015
Receptacle 1<5	07.91201-6016

Receptacle housing 1-24	
MAN item number	81.25432-0496
Encoding	With groove
Colour	Blue

Receptacle housing 25-48	
MAN item number	81.25432-0498
Encoding	Without groove
Colour	Red

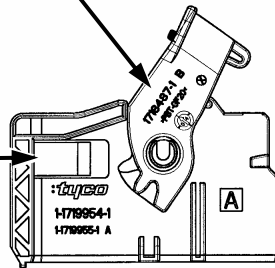
Crimping pliers	
Head of crimping pliers 1.2	80.99625-0138



To avoid interchanging, receptacle housings 1-24 are equipped with a guide groove on the bottom side. This guide groove fits in the bar that is located on the side of the holder for the receptacle housings where receptacle housing 1-24 must be fitted.

Lock for receptacle housing 1-24
To remove the receptacle housing press, the locking spring towards the outside and remove the housing.

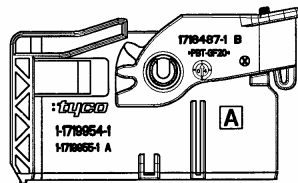
Rail in unlocked position



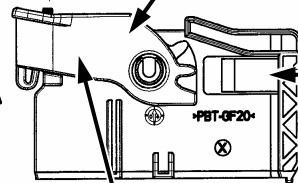
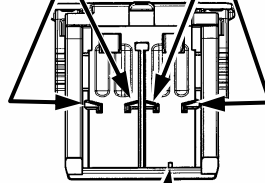
Lock for receptacle housing 25-48
To remove the receptacle housing press, the locking spring towards the outside and remove the housing.

Rail in locked position

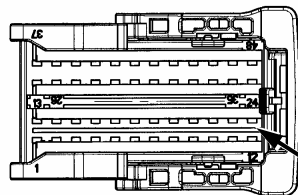
Press this lever towards the front to unlock the rail.



Secondary lock



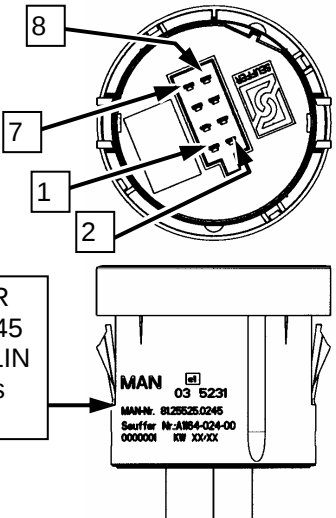
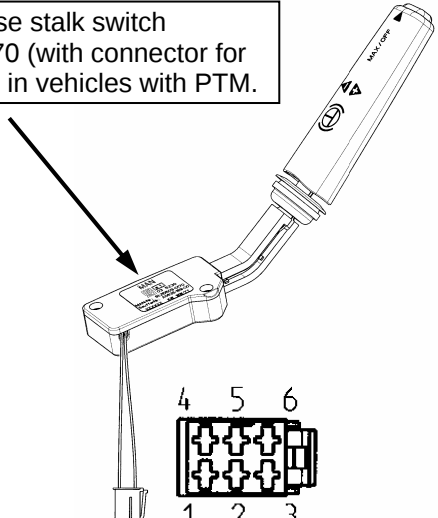
The holder must be locked after connecting to the PTM.

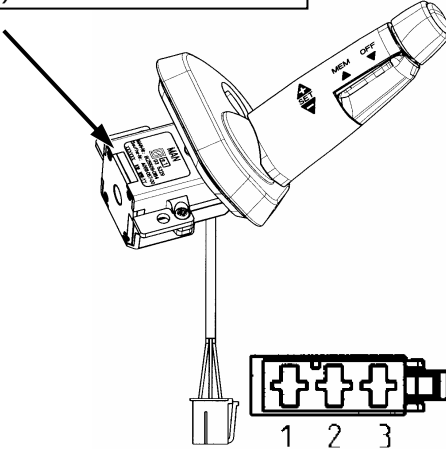
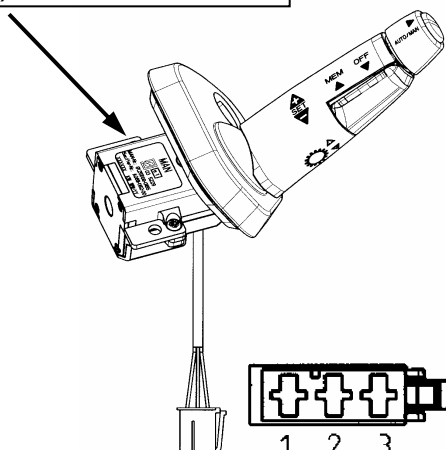


To avoid interchanging, the holder for the receptacle housing is equipped with a bar on the side for the receptacle housing 1-24. The groove of the receptacle housing fits in there.

DNR switch and stalk switch

In contrast to the FFR, the DNR switch and the stalk switch are connected to the PTM using the LIN data bus

DNR switch		Stalk switch for EVB and retarder operation	
 Exclusively use DNR switch 81.25525-0245 (with connector for LIN data bus) in vehicles with PTM.		 Exclusively use stalk switch 81.25509-0170 (with connector for LIN data bus) in vehicles with PTM.	
1 not used	5 Negative connector (LED)	1 Negative connector	4 LIN data bus
2 not used	6 Positive connector	2 not used	5 not used
3 Positive connector (LED)	7 not used	3 not used	6 Positive connector
4 LIN data bus	8 Negative connector		

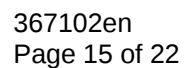
Stalk switch for cruise control operation		Stalk switch for cruise control and gearbox operation	
 Exclusively use stalk switch 81.25509-0164 (with connector for LIN data bus) in vehicles with PTM.		 Exclusively use stalk switch 81.25509-0165 (with connector for LIN data bus) in vehicles with PTM.	
1 Negative connector	2 LIN data bus	1 Negative connector	2 LIN data bus
	3 Positive connector		3 Positive connector

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A100	Central electrical system	Q101	Ignition switch
A302	Central on-board computer (ZBR)	X669	Plug connection starter interlock
A410	Accelerator pedal	X1544	Plug connection frame III
A477	Sensor, immobilizer	X1547	Plug connection door, left
A1124	Power Train Manager (PTM)	X1559	Plug connector engine/EDC/gearbox IV
B269	Ambient temperature sensor	X1644	Cab earth point next to central electrical system
B369	Switch, check for parking brake	X1827	Crimp connector, line 31000
F236	Fuse, engine control, terminal 15	X1904	Threaded bolt M6 (MP box), line 31000
F1026	Fuse, PTM (terminal 30)	X1966	Plug connection ignition lock
F1027	Fuse, PTM (terminal 15)	X1971	Plug connection immobilizer
F1028	Fuse, PTM (terminal 15) ZDR interface	X1996	Plug connection ZDR interface (FFR/PTM)
G101	Battery 2	X2408	Plug connection EVB module
K266	Relay, parking brake (for start/stop system)	X2541	Potential distributor line 31000
K371	Relay, reverse light	X3385	Plug connection engine brake/EVB
K871	Relay, starter interlock for refrigerated body	X4397	Plug connection multi-function steering wheel
S284	FGR/FGB switch	X4644	Potential distributor line 60028
S1133	Button, continuous brake	V1022	Diode group V783, V818, V921, V922
blue	Blue	Y281	EVB solenoid valve
brown	Brown	Y355	EVB module
		1	Reverse-gear interlock

Installation locations

B1	Engine	F3	Pedals
C	Front	F4	Front wall, inside left
E6	Area, central electrical system	F5	Front wall, inside right
E7	Slots for control units	G	Battery box
F	Instrument panel	R1	Frame, front part
F1	Centre part	R2	Frame, rear part
F2	Steering column/steering wheel		



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A143	ECAS/EFR control unit
A144	Retarder control unit
A302	Central on-board computer (ZBR)
A312	Customer-specific control module (KSM)
A330	TipMatic control unit
A402	EBS control unit
A435	EDC control unit
A479	ACC control unit
A609	LGS control unit
A626	HydroDrive control unit
A969	Fan clutch with speed sensor
A1124	Power Train Manager (PTM)

B362	Clutch travel sensor
B368	Induction sensor, gearbox input speed

R283	Terminating resistor HD OBD-CAN
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blue	Blue
Blue/red	Blue/red

Blue/white	Blue/white
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Installation locations

B1	Engine
B2	Gearbox
E7	Slots for control units
F1	Centre part
F2	Steering column/steering wheel

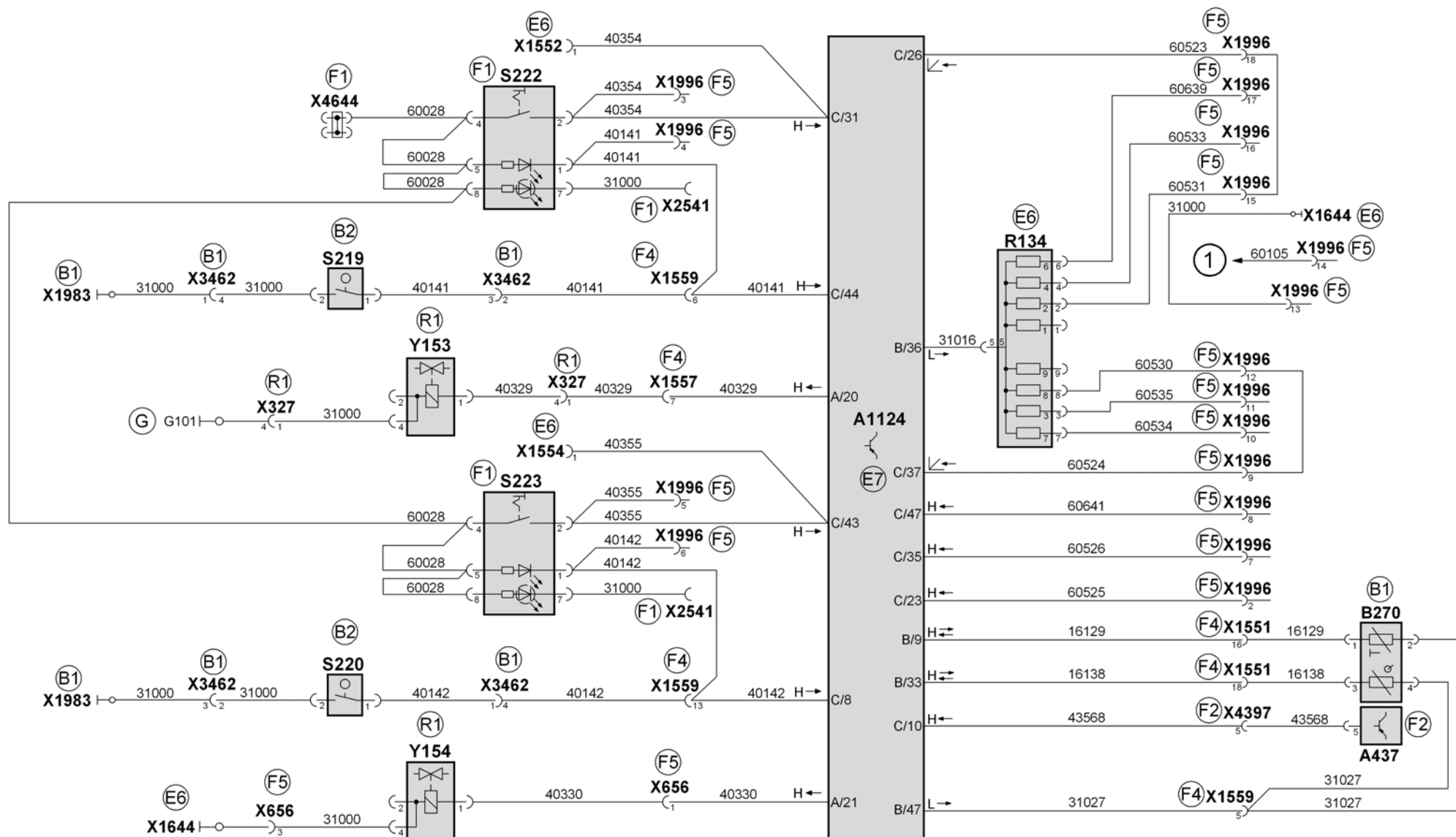
S172	Switch, neutral position, gearbox
S477	Switch, gear selector lever

X200	Diagnostics socket
X1551	Plug connector engine/EDC/gearbox II
X1553	Plug connector engine/EDC/gearbox III
X1559	Plug connector engine/EDC/gearbox IV
X1604	Plug connection switch in shift button
X1904	Threaded bolt M6 (MP box), line 31000
X1948	Plug connector engine/gearbox (MP box)
X1972	Plug connection pedals, outside
X1983	Threaded bolt M6 (MP box), line 31000
X3934	Crimp connector, line 185
X3935	Crimp connector, line 186
X4644	Potential distributor line 60028

Y307	Solenoid valve, split group and range-change group
Y308	Clutch servo

Yellow	Yellow
White/blue	White/blue
White/yellow	White/yellow

F3	Pedals
F4	Front wall, inside left
F8	Shift console
H1	B-post, driver's side



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A437	Tip switch, continuous brake
A1124	Power Train Manager (PTM)
B270	Oil level sensor
G101	Battery 2
R134	EDC resistor group
S219	Switch, display PTO I
S220	Switch, display PTO II
S222	Switch, PTO I
S223	Switch, PTO II

blue	Blue
Blue/red	Blue/red
Blue/white	Blue/white

Installation locations

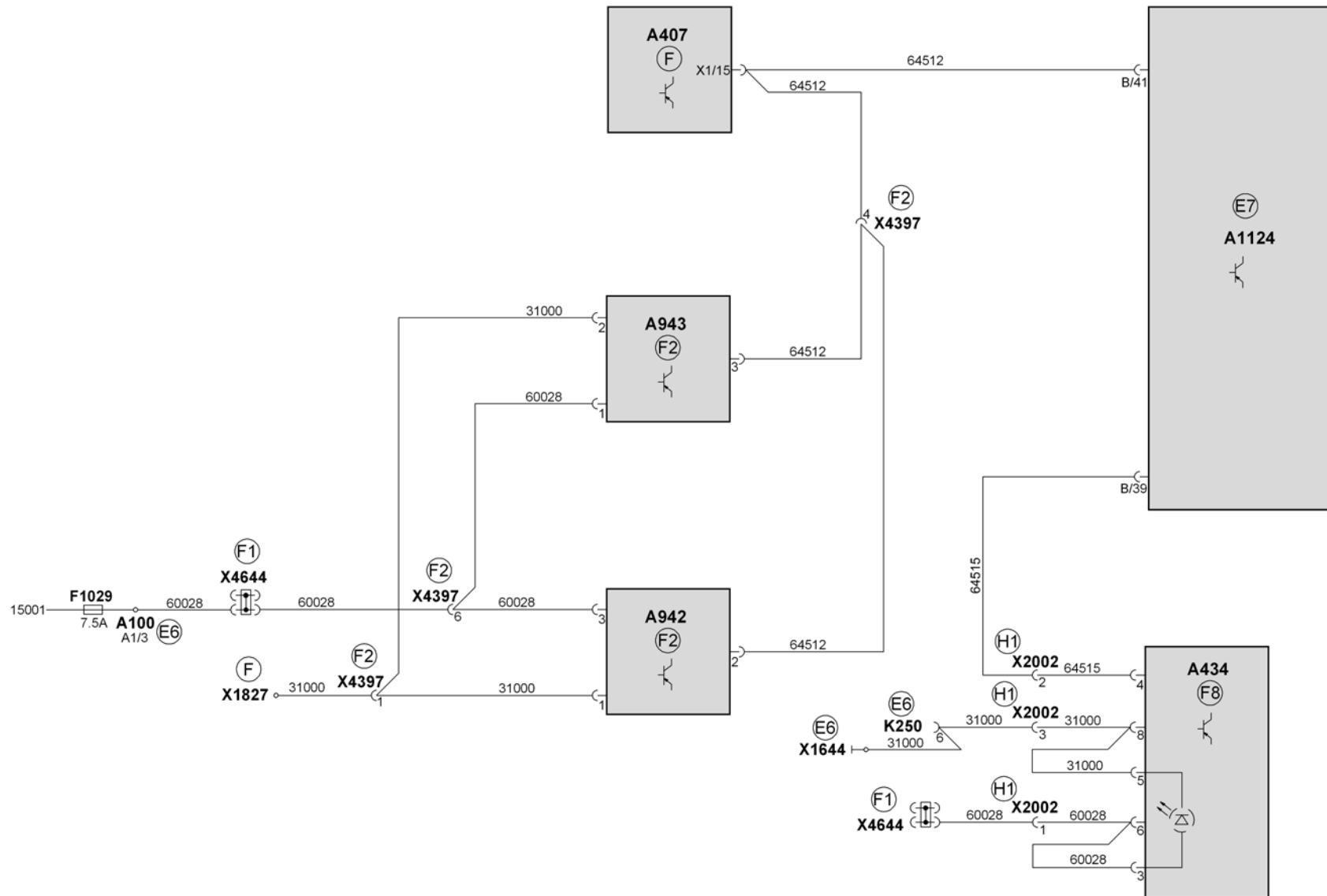
B1	Engine
B2	Gearbox
E6	Area, central electrical system
E7	Slots for control units
F1	Centre part

X327	Plug connection solenoid valve in the frame
X1551	Plug connector engine/EDC/gearbox II
X1552	Plug connection PTO I/auxiliary heater (ADR)
X1554	Plug connection PTO II/auxiliary heater (ADR)
X1557	Plug connection frame, left
X1559	Plug connector engine/EDC/gearbox IV
X1644	Cab earth point next to central electrical system
X1983	Threaded bolt M6 (MP box), line 31000
X1996	Plug connection ZDR interface (FFR/PTM)
X2541	Potential distributor line 31000
X3462	Plug connection, engine—PTO
X4397	Plug connection multi-function steering wheel
X4644	Potential distributor line 60028
Y153	Solenoid valve PTO I
Y154	Solenoid valve, PTO II

Yellow	Yellow
White/blue	White/blue
White/yellow	White/yellow

F2	Steering column/steering wheel
F4	Front wall, inside left
F5	Front wall, inside right
G	Battery box
R1	Frame, front part

Power Train Manager LIN data bus with multi-function steering wheel (TGS or TGX)



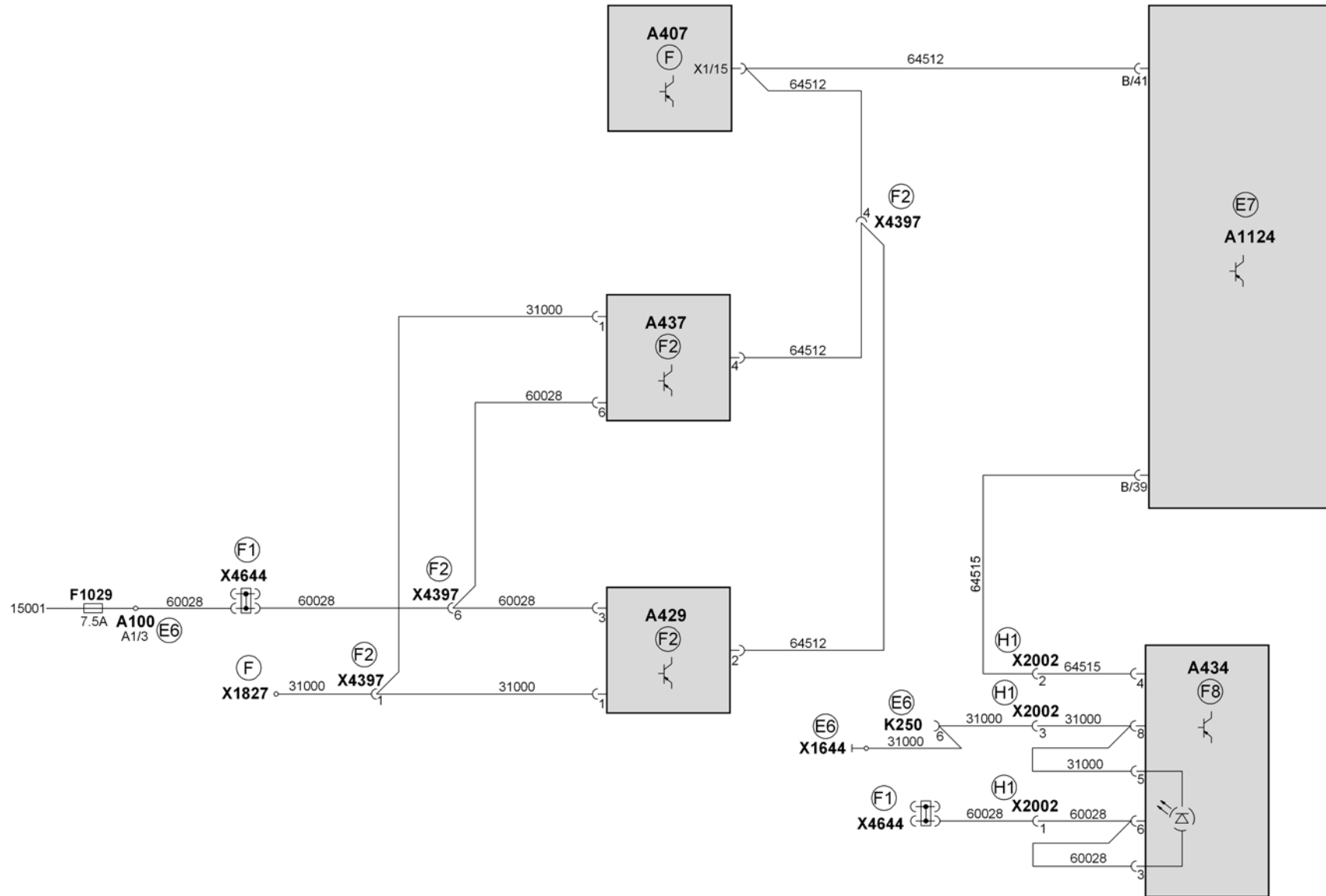
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A100	Central electrical system	K250	Relay, reverse light
A407	Instruments		
A434	Gear-selector switch	X1644	Cab earth point next to central electrical system
A942	Stalk switch for retarder/gearbox	X1827	Crimp connector, line 31000
A943	Multi-function steering wheel	X2002	Plug connection gear-selector switch B-pillar
A1124	Power Train Manager	X4397	Plug connection multi-function steering wheel
		X4644	Potential distributor line 60028
F1029	Fuse, PTM (terminal 15) switches/sensors		
64512	LIN data bus data line PTM – multi-function steering wheel – stalk switch – instruments	64515	LIN data bus data line PTM – DNR switch

Installation locations

E6	Area, central electrical system	F2	Steering column/steering wheel
E7	Slots for control units	F8	Shift console
F	Instrument panel	H1	B-post, driver's side
F1	Centre part		

Power Train Manager LIN data bus without multi-function steering wheel (TGS or TGX)



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A100	Central electrical system
A407	Instruments
A429	Stalk switch for cruise control/gearbox
A434	Gear-selector switch
A437	Tip switch, continuous brake
A1124	Power Train Manager
F1029	Fuse, PTM (terminal 15) switches/sensors

64512	LIN data bus data line PTM – multi-function steering wheel – stalk switch – instruments
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Installation locations

E6	Area, central electrical system
E7	Slots for control units
F	Instrument panel
F1	Centre part

K250	Relay reverse light
X1644	Cab earth point next to central electrical system
X1827	Crimp connector, line 31000
X2002	Plug connection gear-selector switch B-pillar
X4397	Plug connection multi-function steering wheel
X4644	Potential distributor line 60028

64515	LIN data bus data line PTM – DNR switch
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F2	Steering column/steering wheel
F8	Shift console
H1	B-post, driver's side