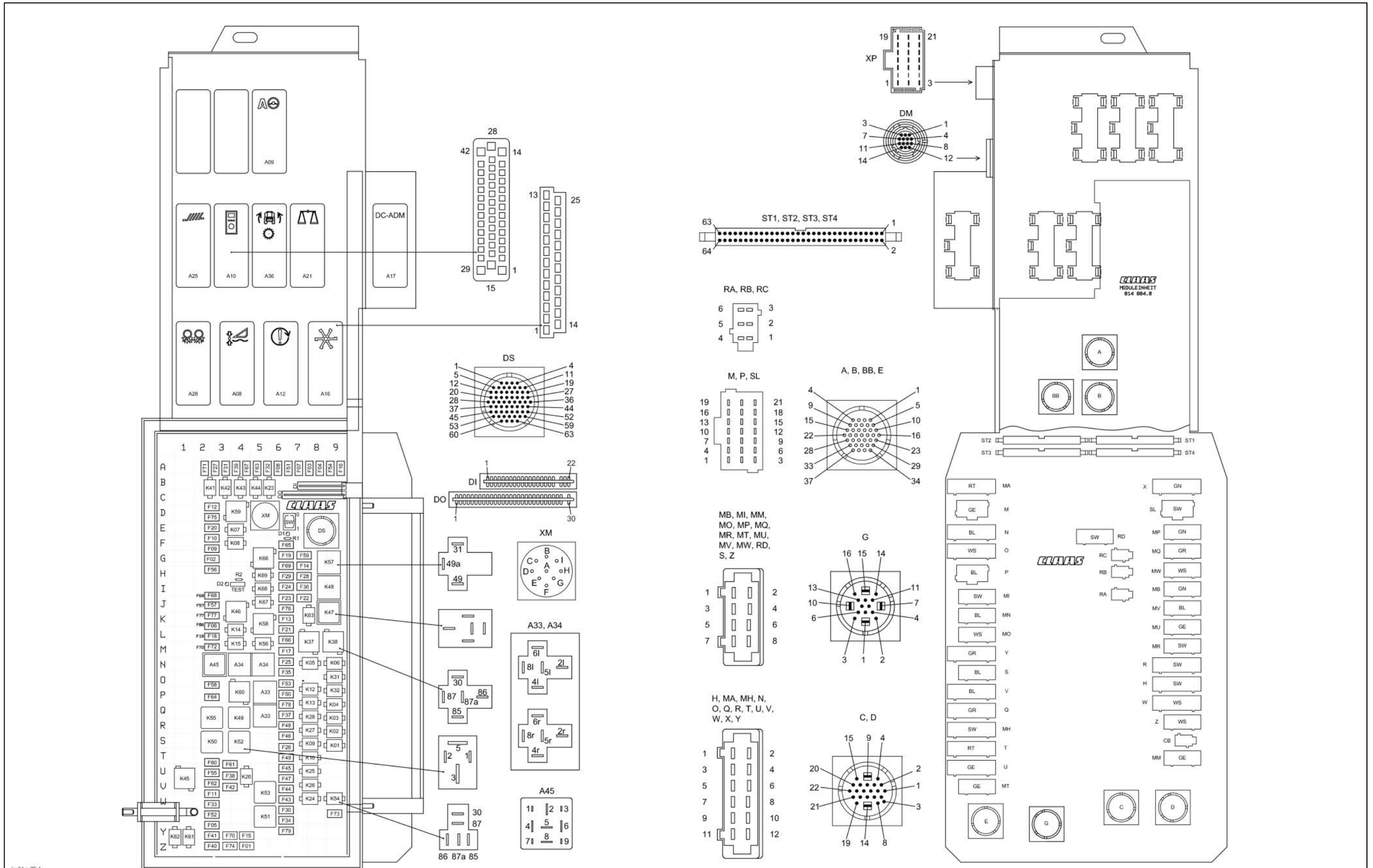
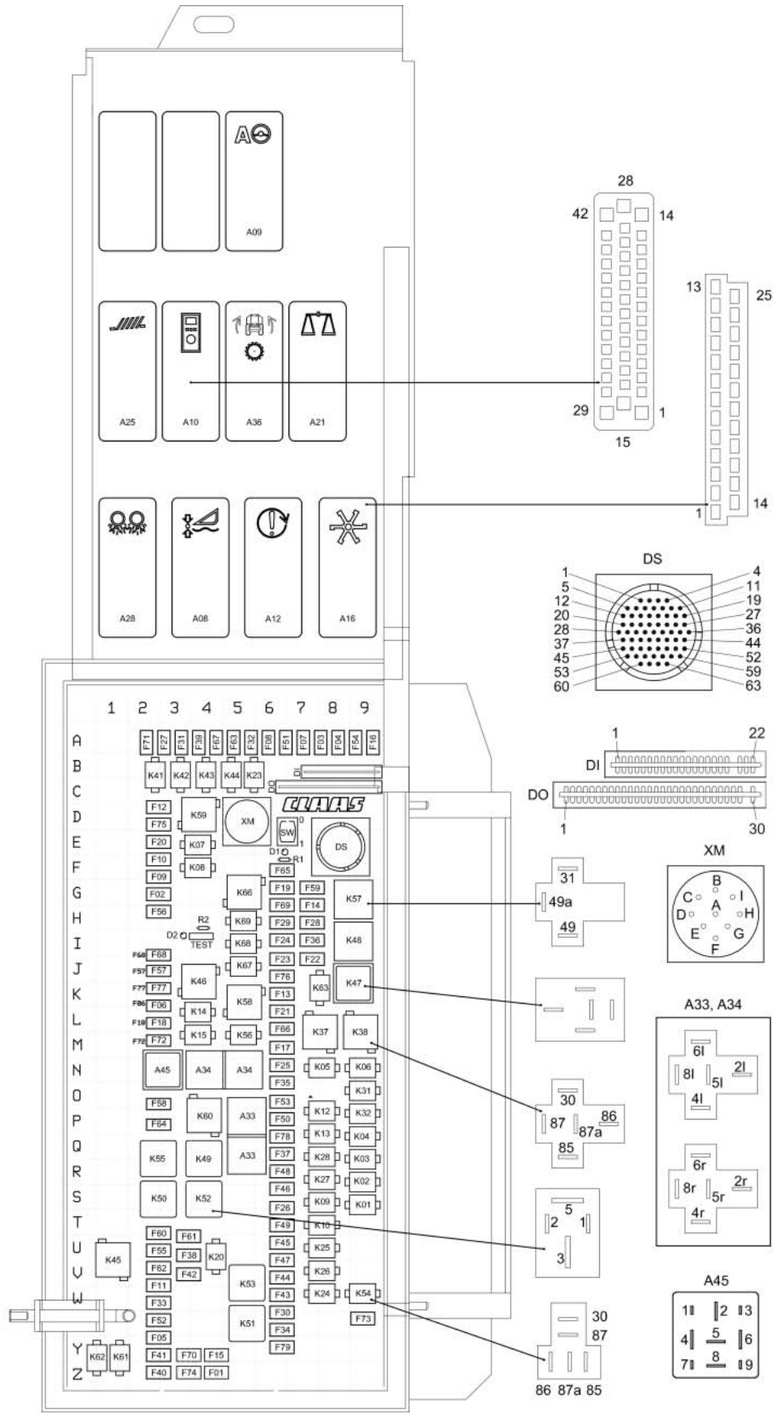
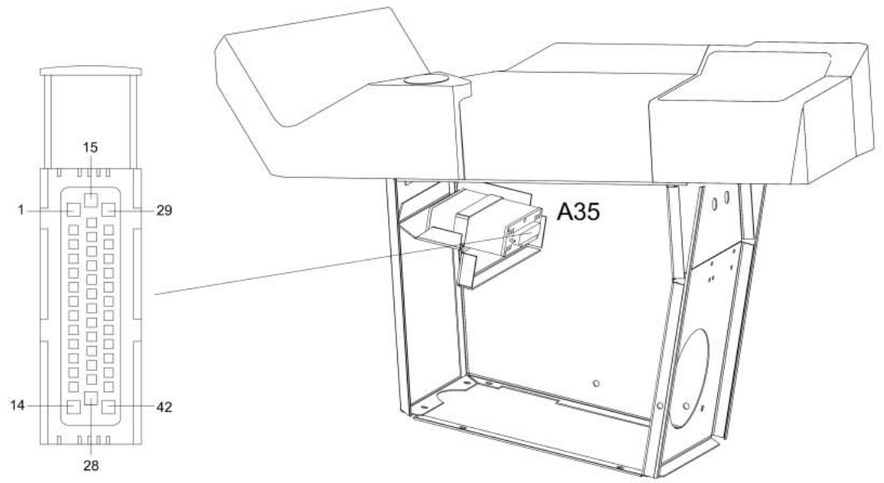
Central terminal compartment



Central terminal compartment Montana 570-520 - with external MONTANA control unit
(up to serial no. 582 00051, 581 00026; 580 00028)

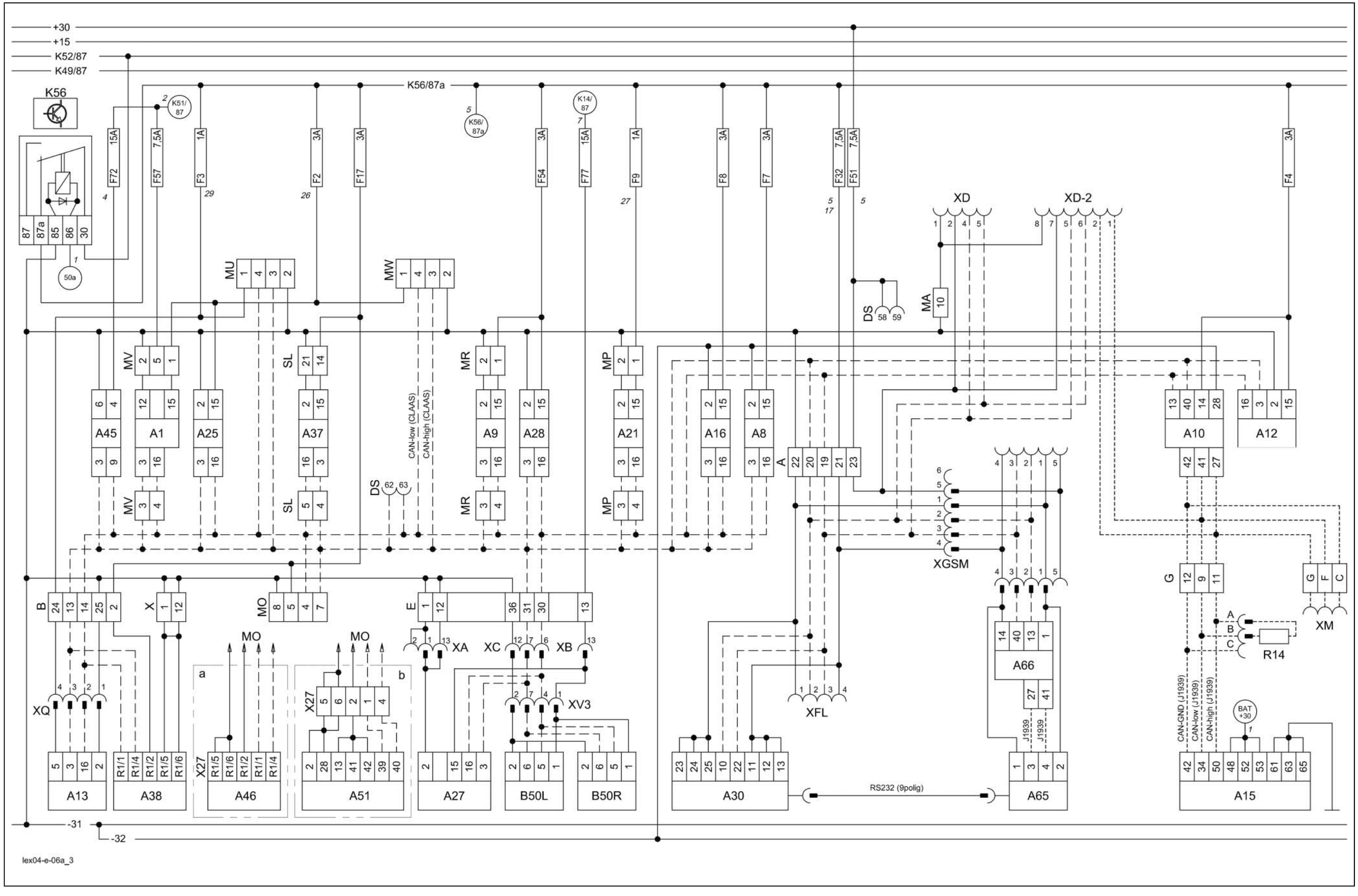




Module A65 - GPS pilot terminal

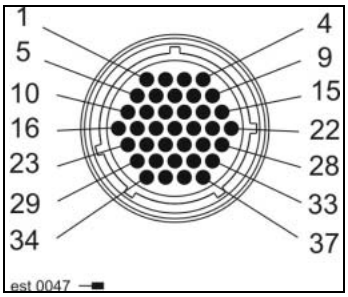
Pin	Function	Component	Measuring variable	Direction	Circuit diagram no.
1	---	---	---	---	---
2	---	---	---	---	---
3	---	---	---	---	---
4	---	---	---	---	---
5	---	---	---	---	---
6	---	---	---	---	---
7	---	---	---	---	---
8	---	---	---	---	---
9	---	---	---	---	---
10	---	---	---	---	---
11	---	---	---	---	---
12	---	---	---	---	---
13	CAN 1 low	-	-	-	6
14	Electronic unit	F32	12V / 1A	Input	6
15	---	---	---	---	---
16	---	---	---	---	---
17	---	---	---	---	---
18	---	---	---	---	---
19	---	---	---	---	---
20	---	---	---	---	---
21	---	---	---	---	---
22	---	---	---	---	---
23	---	---	---	---	---
24	---	---	---	---	---
25	---	---	---	---	---
26	---	---	---	---	---
27	CAN 2 high (J1939)	-	-	-	-
28	Earth (GND)	-31	Earth	Input	6
29	---	---	---	---	---
30	---	---	---	---	---
31	---	---	---	---	---
32	---	---	---	---	---
33	---	---	---	---	---
34	---	---	---	---	---
35	---	---	---	---	---
36	---	---	---	---	---
37	---	---	---	---	---
38	---	---	---	---	---
39	---	---	---	---	---
40	CAN 1 high	---	---	---	6
41	CAN 2 low (J1939)	---	---	---	2
42	---	---	---	---	---

06a CAN bus, module power supply, for diesel engine CATERPILLAR - C12, C10, C9, 3126B

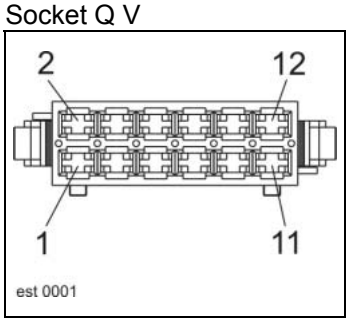


Connector pin definition:

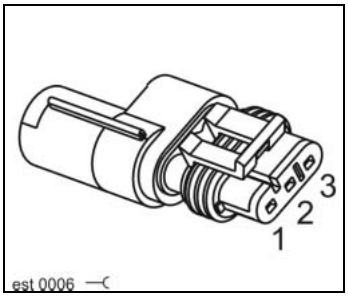
Connector B



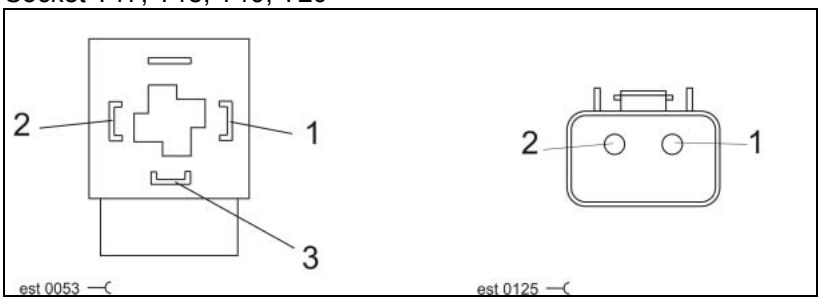
Socket Q V



Socket B30



Socket Y17, Y18, Y19, Y20

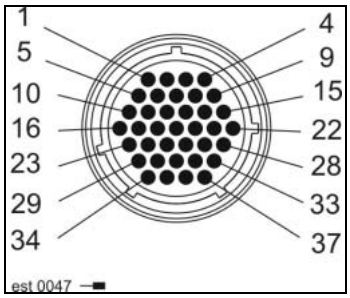


Interconnection list:

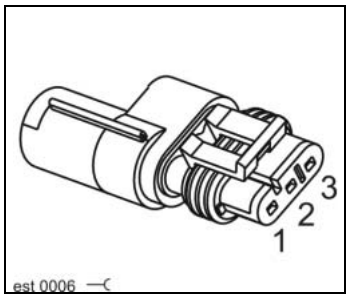
from	to 1	to 2	to 3	to 4	to 5	mm²	Colour
B 30	F63 a	BB 13	MR 5	MU 8	DS 57	1.0	bk-ye
B 31	A8 8	BB 10	E 25	DS 48			
B 32	A12 11	BB 11				1.0	gn-wh
B 33	BB 12	A8 2	A16 2	Q 12	A 34	1.0	pi-bl
	E 37	Bridge a	CB 2	Z 8			
Q 4	A16 20	F26 a	K1 86	K1 30	K2 86	1.0	bl-ye
	K2 30	K3 86	K3 30	K4 86	K4 30		
	A16 18						
V 1	A10 29					1.5	wh-ye
V 2	A10 15	DO 13				1.5	wh-gr
V 7	A12 13	DO 16				1.5	wh-bl
V 8	A12 12	DO 15				1.5	wh-br
V 11	-31					2.5	br
V 12	-31					2.5	br

Connector pin assignment:

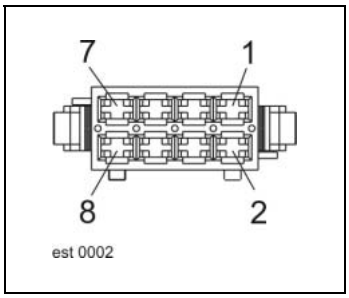
Connector A



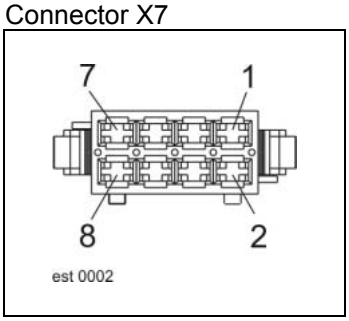
Connector B129



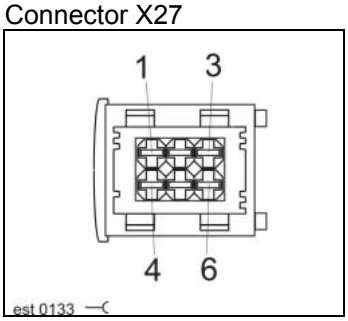
Connector MO



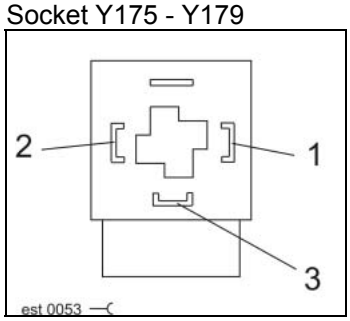
Connector X7



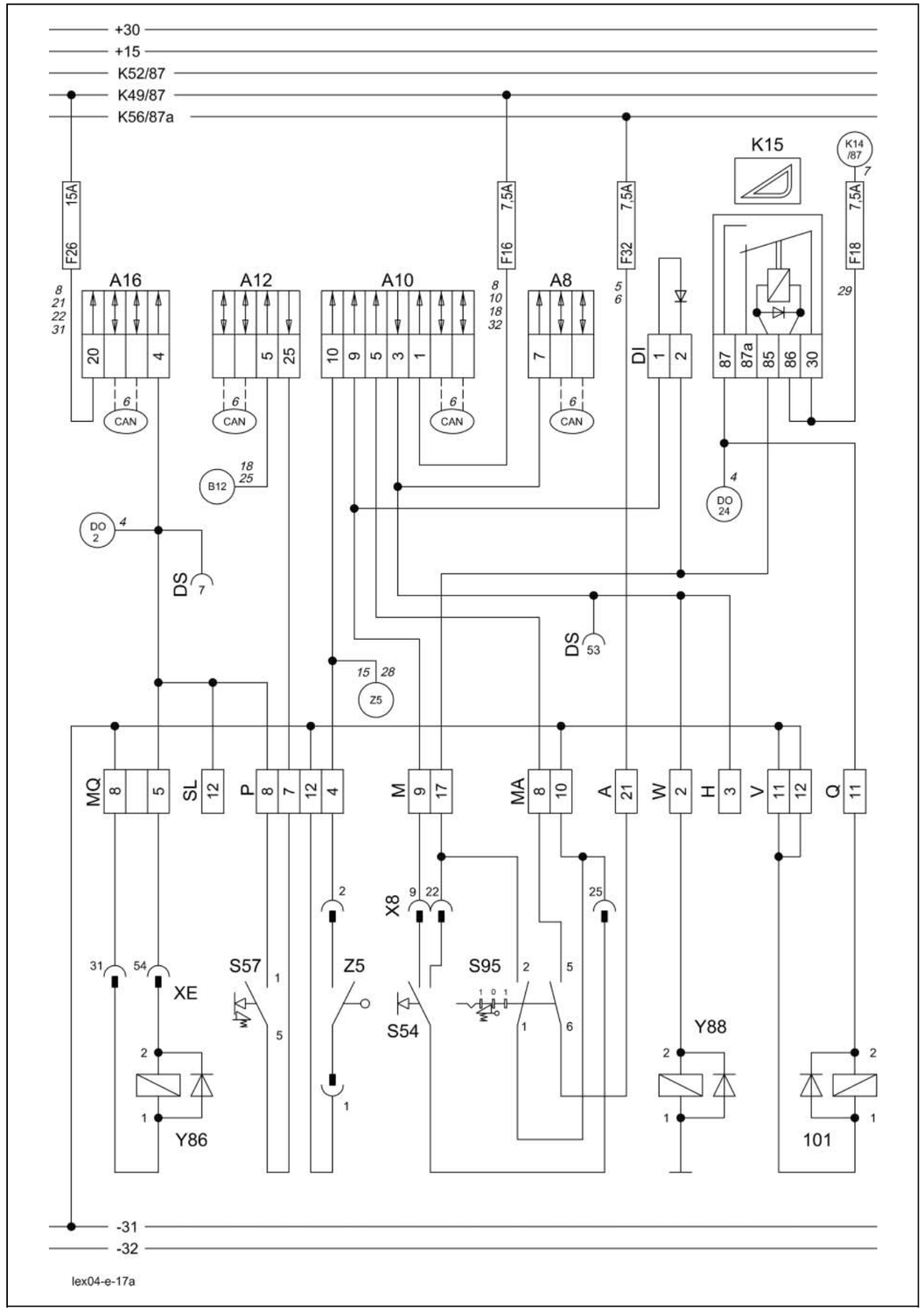
Connector X27



Socket Y175 - Y179



17a Front attachment drive, reverser drive, front attachment quick stop



Key to diagram:

Coordinates

A8	AUTOCONTOUR module (CAC)	2-i-20
A10	Fieldwork computer module (BIF/CAB)	2-i-20
A12	Speed monitor module (DZW)	2-i-20
A16	Reel controller module (HAS)	2-i-20
B12	Feed rake conveyor speed sensor	6-h-20
DI	Warning device diode PCB	4-i-20
D0	Master valve diode PCB	4-i-20
DS	Diagnosis plug (63-pin) VIA	3-i-20
K15	Front attachment quick stop relay	4-i-20
K49	Road travel main relay	4-i-20
K56	Electronic unit plus relay	4-i-20
S54	Front attachment OFF switch	4-g-17
S95	Front attachment ON/OFF switch	3-h-17
S57	Front attachment reverse switch	3-h-17
XE	Feed rake conveyor connector	5-g-19
X8	Ground speed control lever connector	4-h-17
Y86	Reverse front attachment solenoid coil	7-f-16
Y88	Front attachment clutch solenoid coil	2-p.20
Y101	Front attachment quick stop solenoid coil	4-m-20
Z5	Seat contact actual value switch	4-h-18

Measured value table:

Item	Component	Measured value	Remark
K15	Remote control relay 15 A 30 A	95±10 Ω	(Pin 86/1 – 85/2 (Pin 87a/4 – 30/3) (Pin 87/5 – 30/3)
Y86 Y101	Solenoid coil	3.8 A 3.2 Ω	See inscription
Y88	Solenoid coil	1.2 A	12 V (PWM) See inscription

Description of function: 1/2

Radial spreader in working or swathing position

With the road travel circuit unlocked and only with the threshing mechanism disengaged, switch (U13) is supplied with power.
The position control of the radial spreader requires that another pre-condition is fulfilled: No signal from the straw chopper speed sensor B28 (uni-spreader) is identified on the CAN bus for at least 2 seconds.
When the radial spreader is in transport position, it moves to the swathing position first after switch U13 is actuated. To achieve this, the radial spreader module (A51) actuates solenoid coil Y184 until it reaches its end position - actual value switch Z59 is closed on pins 1 and 4.

If switch U13 is actuated one more time after the swathing position is identified - actual value switch Z59 is closed on pins 1 and 4 - the radial spreader module (A51) actuates the solenoid coil Y185 until the working position is identified - actual value switch Z58 is closed on pins 1 and 4.

When switch U13 is pressed repeatedly, the radial spreader again changes between working and swathing position - toggle function.

The master valve (Y77) is also actuated via the diode PCB (DO) in parallel with the solenoid coils (Y184/Y185) because this function requires that pressure is built up in the system.

Radial spreader in transport position

With the road travel circuit unlocked and only with the threshing mechanism disengaged, switch (U14) is supplied with power.
The position control of the radial spreader requires that another pre-condition is fulfilled: No signal from the straw chopper speed sensor B28 (uni-spreader) is identified on the CAN bus for at least 2 seconds.

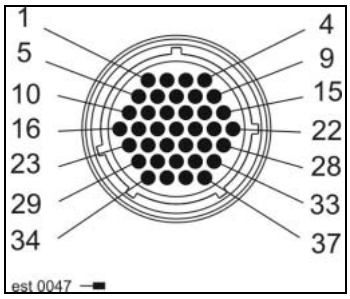
When the straw chopper switch is actuated while in rest position (U14 = radial spreader in transport position), the radial spreader moves to transport position.
To achieve this, the radial spreader module actuates the solenoid coils Y185 and Y174. The actual value switches Z58 and Z59 are not actuated any more (closed on pins 2 and 3).

When the correct transport position is reached, the actual value switch Z60 is actuated (closed on pin 1 and 4).

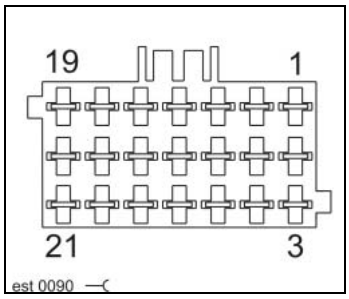
The master valve (Y77) is also actuated via the diode PCB (DO) in parallel with the solenoid coil (Y185) because this function requires that pressure is built up in the system.

Connector pin definition:

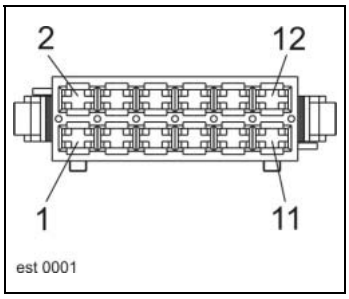
Connector E



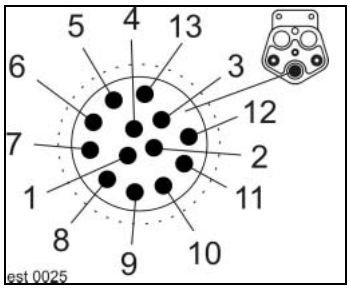
Socket M



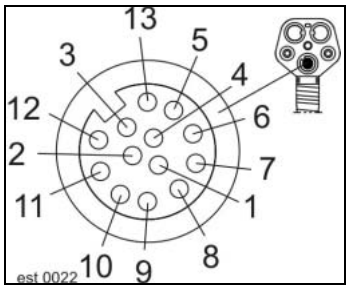
Socket MA



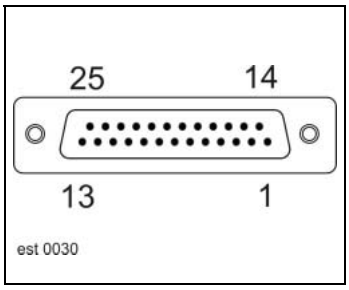
Connector XA



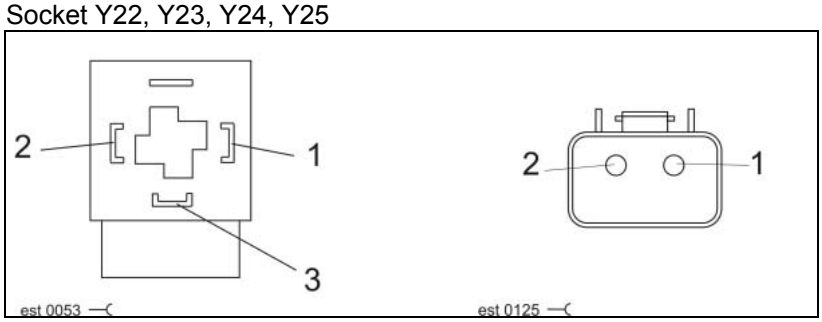
Socket XA



Socket X8



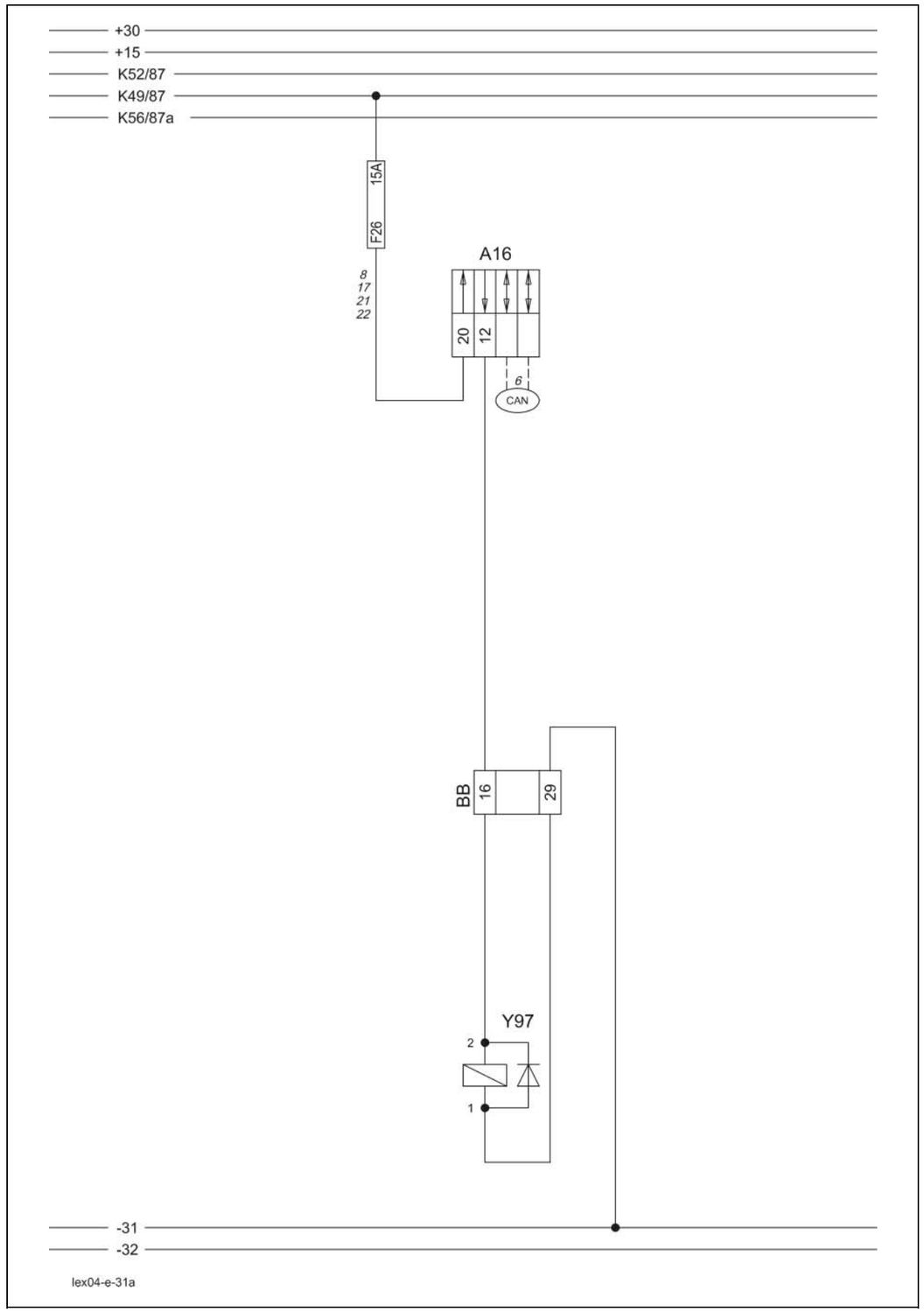
Socket Y22, Y23, Y24, Y25



Interconnection list:

from	to 1	to 2	to 3	to 4	to 5	mm²	Colour
C 14	R 2					0.35	bl-gr
C 16	-31					1.5	br
CB 1	-31					0.75	br
CB 2	A 34	B 33	BB 12	A8 2	A16 2	0.75	gn
	Q 12	E 37	Bridge a	Z 8			
E 13	F77 a					1.5	bk-bl
E 32	R 8					0.75	or-bl
E 33	R 9	DS 37				0.75	or-bk
E 34	R 11	DS 38				0.75	or-gn
E 35	R 12	DS 39				0.75	or-gr
E 36	-31					1.5	br
MA 5	R 5	MU 7				0.5	gn-bl
MA 10	-31					1.5	br
MR 2	-31						
MR 5	F63 a	BB 13	B 30	MU 8	DS 57		
MR 6	N 7						
MR 7	DO 9						
MR 8	P 2						
MU 7	R 5	MA 5					
MU 8	F63 a	BB 13	MR 5	B 30	DS 57		
N 7	MR 6					0.5	br-rd
P 1	F28 a					1.5	rd-wh
P 2	MR 8					1.5	rd-bk
P 3	R 10					0.5	bl-rd
P 9	R 7	DS 44				0.5	rd-ye
P 12	-31					2.5	br
B5-1						1.0	br
B5-2						1.0	wh-gn
B5-3						1.0	rd-gr
B6-1						1.0	br
B6-2						1.0	pi-br
B6-3						1.0	rd-gr

31a Front attachment dampening



Key to diagram:

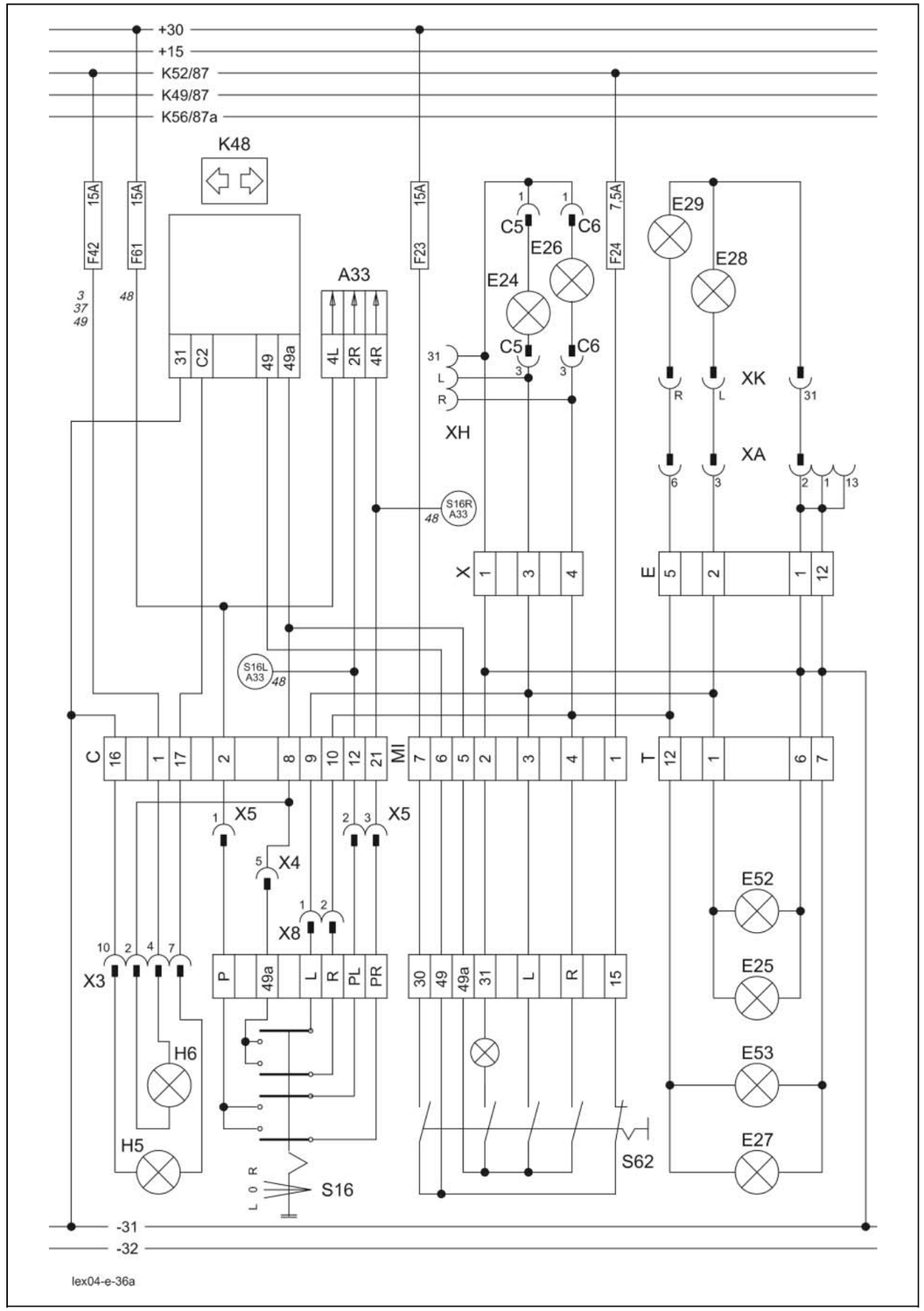
Coordinates

A16	Reel controller module (HAS)	2-i-20
K49	Road travel main relay	4-i-20
Y97	Front attachment dampening solenoid coil	7-h-18

Measured value table:

Item	Component	Measured value	Remark
Y97	Solenoid coil	3.8 A 3.2 Ω	See inscription

36a Indicator system (Europe)



Key to diagram:

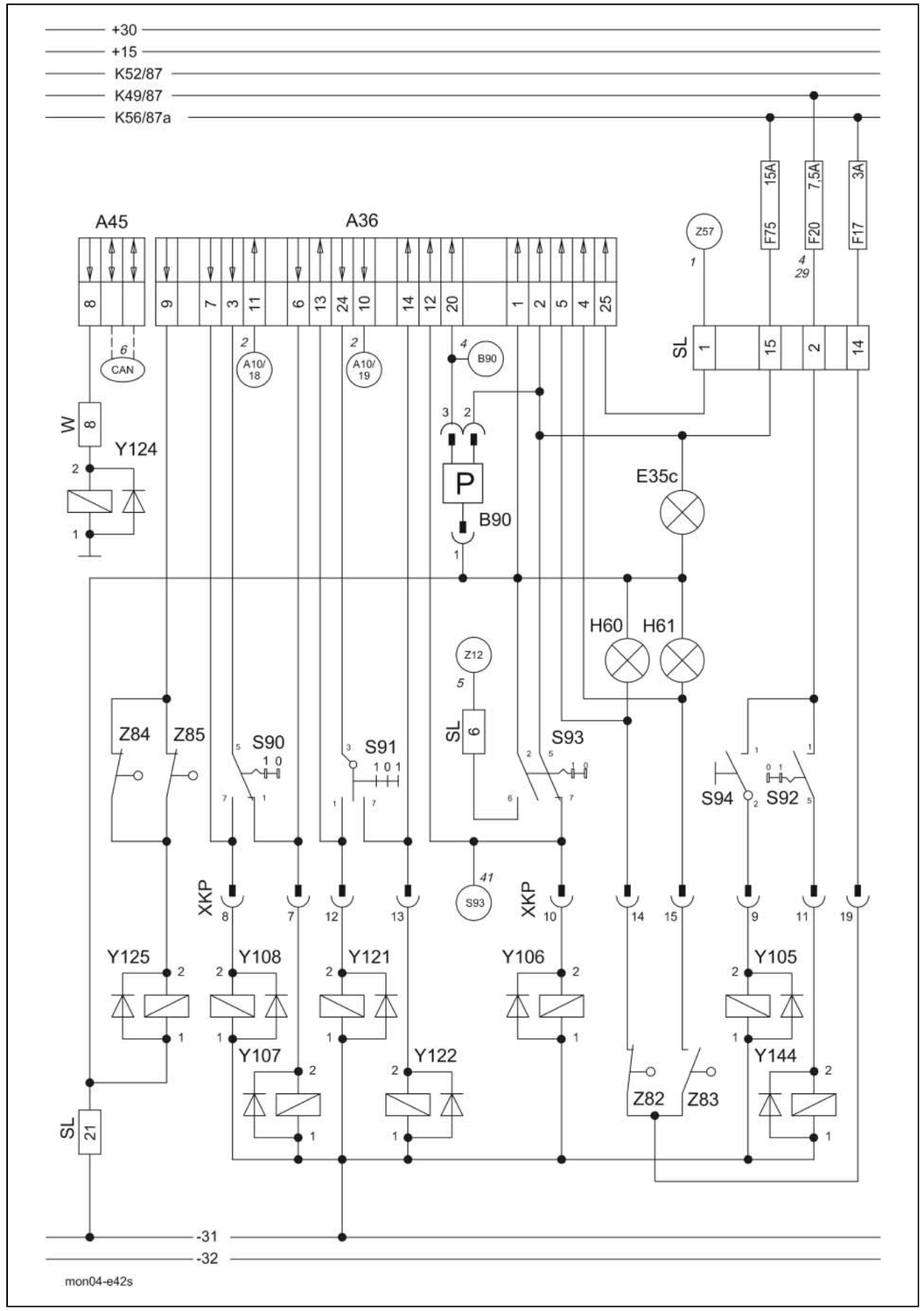
Coordinates

A33	Sidefinder module	4-i-20
C3	Control stalk with parking light	4-g-18
C5	Taillight, left-hand	5-u-21
C6	Taillight, right-hand	5-u-15
E24	Indicator, rear left	5-u-21
E25	Indicator, front left	5-g-20
E26	Indicator, rear right	5-u-15
E27	Indicator, front right	5-g-16
E28	Indicator, front attachment left	7-d-21
E29	Indicator, front attachment right	7-d-21
E52	Indicator, side left	5-h-20
E53	Indicator, side right	5-h-16
H5	Trailer indicator signal light	4-g-18
H6	Vehicle indicator signal light	4-g-18
K48	Indicator relay	4-i-20
K52	Power supply relay	4-i-20
S16	Indicator switch	3-g-18
S62	Hazard warning flasher switch	3-h-17
X4	Steering column indicator lights connector	4-g-18
XA	Multifunction coupling A connector	8-f-20
XH	Trailer lighting connector	7-r-18
XK	Front attachment lighting connector	7-d-18

Measured value table:

Item	Component	Measured value	Remark
K48	Indicator relay	---	Electronic relay

42s Ground drive and brake control, Montana 570-520 - with external MONTANA control unit (up to serial no. 582 00051, 581 00026; 580 00028)



Key to diagram:

		Coordinates
A36	Montana gearshift control module	2-h-20
A45	Ground drive hydraulic motor brake restrictor module (HBM)	4-i-20
B90	Brake accumulator pressure sensor/switch	5-g-20
E35c	Instrument lighting	3-g-17
H60	1st gear signal light	3-g-17
H61	2nd gear signal light	3-g-17
S90	Gearshift control switch	3-g-17
S91	Shifting aid switch	3-g-17
S92	Hydraulic motor fast/slow switch	3-g-17
S93	Parking brake switch	3-g-17
S94	Differential lock switch	5-f-19
Y105	Differential lock solenoid coil	7-h-18
Y106	Parking brake solenoid coil	7-h-18
Y107	Gearbox shift 1st gear solenoid coil	7-h-18
Y108	Gearbox shift 2nd gear solenoid coil	7-h-18
Y121	Uphill shifting aid solenoid coil	7-h-18
Y122	Downhill shifting aid solenoid coil	7-h-18
Y124	Ground drive brake restrictor solenoid coil	7-h-18
Y125	Ground drive control pressure solenoid coil	3-q-19
Y144	Hydraulic motor solenoid coil	7-h-18
Z57	Ground speed control lever neutral position switch - safety start switch	3-g-18
Z82	1st gear switch (actual value)	8-g-19
Z83	2nd gear switch (actual value)	8-g-19
Z84	Service brake left pedal switch	5-f-20
Z85	Service brake right pedal switch	5-f-20

Measured value table:

Item	Component	Measured value	Remark
B90	Brake circuit oil pressure / charge pressure	ON OFF	< 135 bar > 165 bar
Y121 Y122 Y124 Y144	Solenoid coil	3.8 A 3.2 Ω	
Y105 Y106 Y107 Y108 Y125	Solenoid coil	0.75 A 16 Ω	

Description of function:

Electro-hydraulic gearshift

As a pre-condition for carrying out an electro-hydraulic drive range changeover, the signals of the actual value switch Z57 (ground speed control lever in neutral position), Z79 and Z80 (actuation of both service brakes) must be identified by the electro-hydraulic gearshift (EHS) module A37.

Module A37 (EHS) controls the solenoid coils Y107, Y108 and Y123 of the gear preselection correspondingly via switches S70 and S71.

The master valve (Y77) is also actuated via the diode PCB (DO) in parallel with the solenoid coils by module A37 (EHS) because these functions require that pressure is built up in the system.

The realization of the drive range changeover is controlled by module A37 (EHS) via the actual value switches Z82, Z83, Z95, Z97 and Z96.

Module A37 (EHS) performs several gearshift processes under program control for changing over the drive range if necessary if the changeover process is hindered by external influences on the gearshift.
If the selected gear cannot be engaged within 1 second, another attempt is made for engaging other gears.
An error message in terminal (A30) appears when the gear cannot be engaged within 4 seconds.
At the same time, the gearbox neutral signal light H63 flashes.

The gear engaged is indicated by the signal lights H60, H61, H62 and H63.

Supply voltage of gearshift actual value switches

The supply voltage of the gearshift actual value switches from pin 8 of module A37 (EHS) is 12 volt and is limited to a current consumption of 200 mA max.

Important! Suitable measuring devices must be used for error diagnosis.

Diagnosis

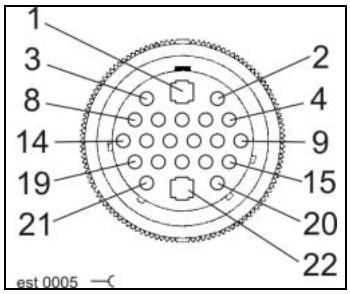
Errors occurred during the gearshift process are displayed as messages on terminal A30.

Gearshift logic EHS 3-speed:

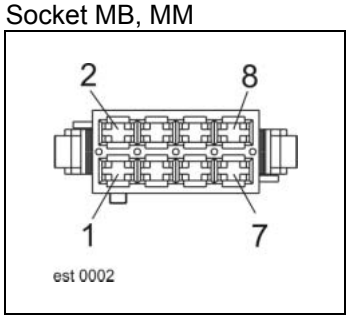
	1st gear engaged	2nd gear engaged	3rd gear engaged	2nd and 3rd gear neutral position	1st gear neutral position
Designation	**Z82**	**Z83**	**Z95**	**Z97**	**Z96**
Switch type	NO contact	NO contact	Changeover contact	NO contact	NO contact
Module A37	Pin 11	Pin 12	Pin 13	Pin 10	Pin 17
1st gear	12 V (200 mA)	0 V	0 V	12 V (200 mA)	0 V
2nd gear	0 V	12 V (200 mA)	0 V	0 V	12 V (200 mA)
3rd gear	0 V	0 V	12 V (200 mA)	0 V	12 V (200 mA)
Neutral	0 V	0 V	0 V	12 V (200 mA)	12 V (200 mA)

Connector pin definition:

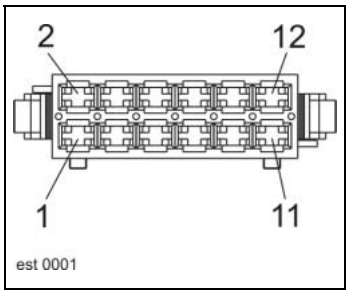
Socket D



Socket MB, MM



Socket Y



Interconnection list:

from	to 1	to 2	to 3	to 4	to 5	mm²	Colour
D 1	-31					6.0	br
MB 1	-31					2.5	br
MB 2	K46 87	Y 4				1.5	br
MB 4	F68 a	Y 9				1.5	
MM 6	A33 2L					0.75	gr-vi
MM 7	A33 8L					0.75	gr-rd
Y 1	-31					2.5	br
Y 4	K46 87	MB 2				1.5	pi-gn
Y 9	F68 a	MB 4				1.5	gr
Y 12	-31					2.5	br