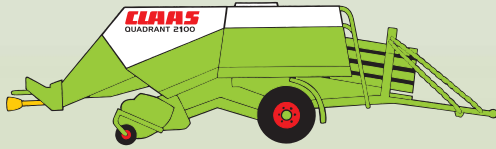


CLAAS



QUADRANT 2100
QUADRANT 2100 RC

Technical Systems

Electric System

SERVICE & PARTS

Layout of electric circuit diagrams

All electric circuits are shown in individual circuit diagrams. Some explanations are given below to illustrate the layout.

Numbering of circuit diagrams

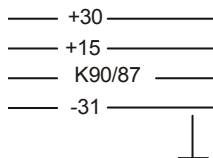
01...

- The respective numbering can be found on the corresponding cover sheet and in the footer.

01a / 01b ...

- Depending on the machine no., the components fitted and the country specification, there may be several individual circuit diagrams for a given function.

Potentials



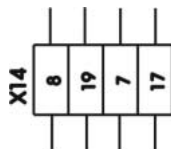
- Main power supply (battery)
- Switched power supply (ignition switch)
- Relay-controlled power supply
- Earth
- Housing earth (external)

Connections

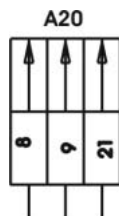


- The description provided **inside** the circle (e.g. „H44”) defines the connection.
- Numbers **next to** the circle (e.g. „1a”) describe the continuation of the cabling in accordance with the circuit diagram numbering which can be taken from the cover sheet or from the footer.

Designations



- Connectors (e.g. „X14”, pin 8 - 19 - 7 - 17). Each chapter lists the respective connectors and their pin assignment in the individual connection tables.



- Modules (e.g. „A20”) The arrows identify the functional inputs and outputs according to the assignment table provided in chapter **ZE**.

Wiring loom A

- Position of components according to wiring looms

A 1 ... Z 99 - Component designation according to CLAAS standards catalogue

- A - Terminal / Module
- B - Sensor
- E - Lighting
- F - Fuse
- G - Voltage Source
- H - Signalling Device / Lamp
- K - Relay
- M - Electric Motor
- P - Gauge
- R - Potentiometer / Resistor
- S - Switches – Cab Operation
- T - Switches – Terminal Operation
- U - Switches – External Operation
- V - Electronic Component
- W - Antenna
- X - Connector
- Y - Solenoid coil
- Z - Actual Value Function Switch

Wire colours / Wire cross-sections

Connector	mm ²	Colour
XT1 – 1	1.5	bk
XT1 – 2	1.5	br
XT1 – 4	1.5	bk-rd
XT1 – 5	1.5	br-rd
XT2 – 1	1.5	bk
XT2 – 2	1.5	bk-rd
XT2 – 3	1.5	br-rd
XT2 – 15	1.5	br

- Indication of cross-section (mm²) and colour
- rd - red
- bk - black
- br - brown
- wh - white
- bl - blue
- gr - grey
- ye - yellow
- gn - green
- pi - pink
- or - orange
- vi - violet

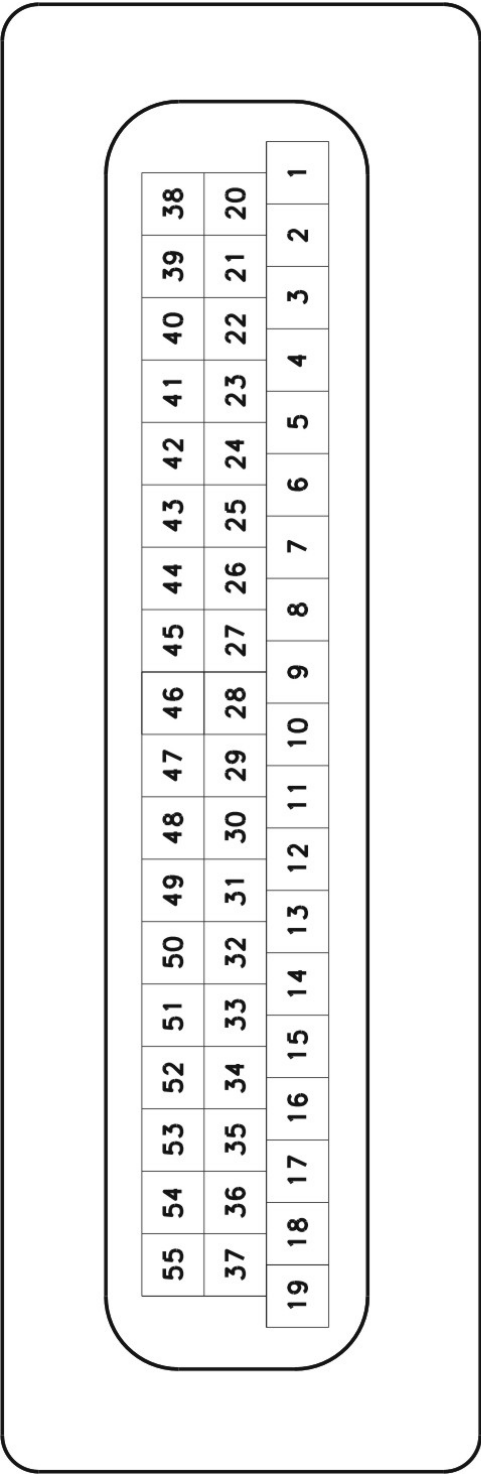
Contents

Pin assignment in modules.....	ZE-8
01a - Main power supply, Quadrant 2100 RC and 2100 RF	01a-2
01b - Main power supply, Quadrant 2100 (without rotor)	01b-2
06a - CAN bus, module power supply, Quadrant 2100 RC and 2100 RF	06a-2
07a - ROTOCUT, Quadrant 2100 RC and 2100 RF	07a-2
08a - Automatic cutting frame, Quadrant 2100 RC and 2100 RF	08a-2
10a - Baling pressure control, Quadrant 2100 RC und 2100 RF	10a-2
11a - Wrapping release, knotter cleaning, Quadrant 2100 RC and 2100 RF - up to 2004 model	11a-2
11b - Wrapping release, knotter cleaning, Quadrant 2100 RC and 2100 RF - from 2005 model	11b-2
11c - Knotter cleaning, Quadrant 2100 without rotor	11c-2
13a - Ejecting bales / Operating the bale ramp, Quadrant 2100 RC and 2100 RF	13a-2
20a - Raise / lower pick-up, Quadrant 2100 RC and 2100 RF	20a-2
26a - Machine monitoring, Quadrant 2100 RC and 2100 RF	26a-2
26b - Machine monitoring, Quadrant 2100 without rotor	26b-2
27a - Operating displays (bale discharge, crop moisture), Quadrant 2100 RC and 2100 RF	27a-2
28a - Steering axle lock ON/OFF, Quadrant 2100 RC and 2100 RF	28a-2
29a - Central lubrication system, Quadrant 2100 RC and 2100 RF	29a-2
32a - Taillight, side light	32a-2

40a - Additional sockets, Quadrant 2100 RC and 2100 RF.....	40a-2
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Wiring loom A (Quadrant 2100RC without rotor).....	KB-2
Wiring loom A, part 1 (Quadrant 2100RC)	KB-6
Wiring loom A, part 1 (Quadrant 2100RF).....	KB-10
Wiring loom A, part 2 (Quadrant 2100RC and Quadrant 2100RF).....	KB-14
Wiring loom B, part 1 (Quadrant 2100RC and Quadrant 2100RF).....	KB-18
Wiring loom B, part 2 (Quadrant 2100RC and Quadrant 2100RF).....	KB-22
Wiring loom C	KB-26
Wiring loom D	KB-30
Index	index-3

Pin assignment in modules

Pin assignment in modules



A20 CCU

Module A20 CCU

Pin	Function	Component	Measuring variable	Direction	Circuit diagram no.
1	Power earth	31	Earth	Input	6
2	Rotor speed sensor	B 24	High - Low	Input	8
3	Feed rake speed sensor (blue)	B 23	High - Low	Input	8
4	not used	-	-	-	-
5	Electronics plus	15	12 V	Input	6
6	Cutting frame position sensor	B 67	0.25 – 4.75 V	Input	8
7	Wrapping motor monitoring	M1 / 53	0 – 12 V	Input	11
8	not used	U 2	12 V	Input	13
9	not used	-	-	-	-
10	Extend bale ejector cylinder switch (blue)	U 1	12 V	Input	13
11	not used	-	-	-	-
12	not used	-	-	-	-
13	Crop moisture sensor	B 38	Frequenz	Input	27
14	Metering wheel / bale length signal A	B 69	High - Low	Input	11
15					
16	Flywheel brake switch	Z 56	12 V	Input	26
17	CAN low	-	-	-	6
18	Twine break switch left / right	Z 11	Earth	Input	26
19	Electronics earth XD pin 7	XD	Earth	Input	5
20	not used	-	-	-	-
21	Drive speed sensor (red)	B 9	High - Low	Input	8
22	not used				
23	Electronics plus	15	12 V	Input	6
24	Diagnosis plug XD pin 1	XD	Boot signal	Input	5
25	Baling pressure sensor	B 56	approx. 1 – 3.5 V	Input	27
26	Emergency operation	U5	12 V	Input	1
27	ROTOCUT knives position	B 111	0.25 – 4.75 V	Input	8
28	not used	-	-	-	-
29	Retract bale ejector cylinder switch (red)	U 2	12 V	Input	13
30	not used	-	-	-	-
31	not used	-	-	-	-
32	Metering wheel / bale length signal B	B 69	High - Low	Input	11
33	Wrapping system monitoring sensor	B 112	High - Low	Input	11
34	No function				
35	Bale discharge sensor	B 101	High - Low	Input	27
36	CAN high	-	-	-	6
37	Identification of bale eject / bale ramp function	B 113	High - Low	Input	13
38	Power plus (fused by F2 with 25 A)	30	12 V	Input	7, 8, 10, 11, 13, 28, 29
39	Power plus (fused by F2 with 25 A)	30	12 V	Input	7, 8, 10, 11, 13, 28, 29
40	CCU switch-on voltage	K90 / 30	12 V	Input	6

Module A20 CCU

Pin	Function	Component	Measuring variable	Direction	Circuit diagram no.
41	Central lubrication system motor	M 25	12 V	Output	29
42	Direction P – A reversing valve solenoid coil	Y 150	12 V	Output	7
43	Rotor blocking solenoid coil	Y 58	12 V	Output	8
44	Bale ejector / bale ramp pre-selection solenoid coil	Y 149	12 V	Output	13
45	Direction P – B reversing valve solenoid coil	Y 151	12 V	Output	7
46	Pick-up raise solenoid coil	Y 48	12 V	Output	20
47	ROTOCUT knives in/out solenoid coil	Y147	12 V	Output	7
48	Cutting frame open/close pre-selection solenoid coil	Y148	12 V	Output	7
49	Steering axle lock ON solenoid coil	Y145	12 V	Output	28
50	Socket CAN bus (7-pin) XD pin 2 serial interface	XD	Data	-	5
51	Socket CAN bus (7-pin) XD pin 3 serial interface	XD	Data	-	5
52	Pick-up lower solenoid coil	Y 49	12 V	Output	20
53	Baling pressure build-up solenoid coil	Y 50	12 V PWM	Output	10
54	Wrapping release relay	K 92	12 V	Output	11
55	Steering axle lock OFF solenoid coil	Y 146	12 V	Output	28

Circuit diagram assignment
of fuses and relays

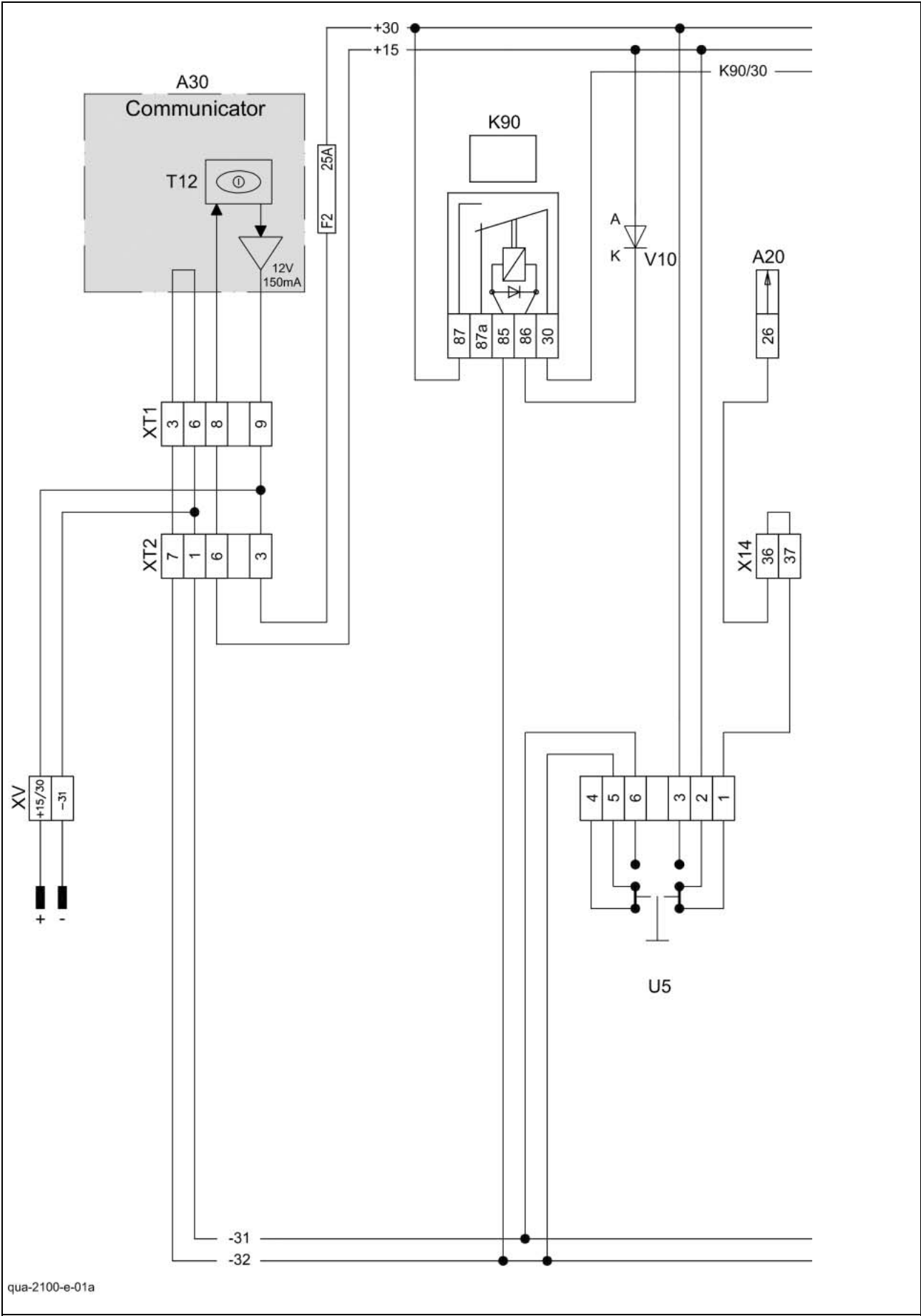
Component	Designation	Circuit diagram
F1	Fuse 5 A	11
F2	Fuse 25 A	1
F3	Fuse 7.5 A	11
F4	Fuse 7.5 A	11
K90	Relay	1
K92	Relay	11

1a

Main power supply

Quadrant 2100 RC and 2100 RF

01a - Main power supply, Quadrant 2100 RC and 2100 RF



Key to diagram:

		Coordinates
A20	CCU Module	
A30	Terminal	
F 2	Main fuse 25 Amp.....	Switchbox
K 90	Relay	Switchbox
T12	Main switch	
U5	Emergency operation switch	Switchbox
V10	Polarity reversal protection diode	Switchbox
X14	Wiring loom connector	
XT1	Terminal connector	
XT2	Terminal connector	
XV	Power supply connector	

Measured value table:

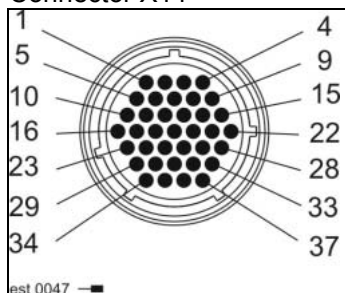
Item	Component	Measured value	Remark
K90	Remote control relay 20 A 30 A	85±10 Ω	(Pin 86/1 – 85/2) (Pin 87a/4 – 30/3) (Pin 87/5 – 30/3)

Description of function:

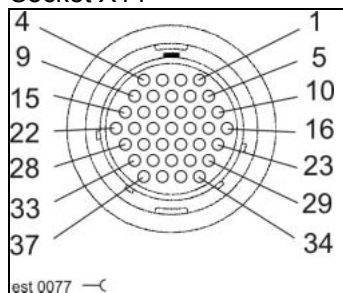
Main power supply	Power supply from the tractor to the baler is by connector XV.
Potential + 30	The potential + 30 (battery power plus) is fused with 25 A by fuse F2.
Potential + 15	Is switched by main switch T12 at terminal A30 (electronics +).
Potential K 90 / 30	The potential K 90 / 30 is a power plus with polarity reversal protection by diode V10.
Emergency operation	The baler can be operated without terminal A30 in emergency operating mode after actuating the emergency operation switch U5. For machine operation in emergency operation refer to the Operator's Manual.

Connector pin definition:

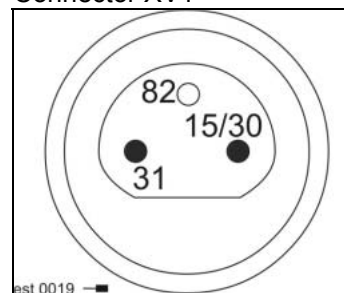
Connector X14



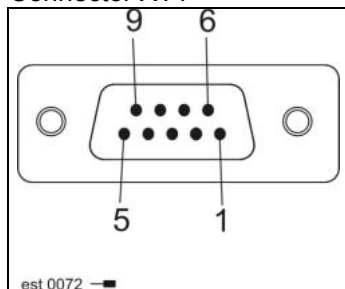
Socket X14



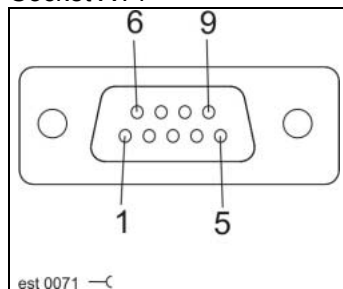
Connector XV1



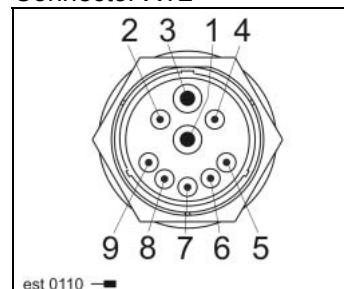
Connector XT1



Socket XT1



Connector XT2

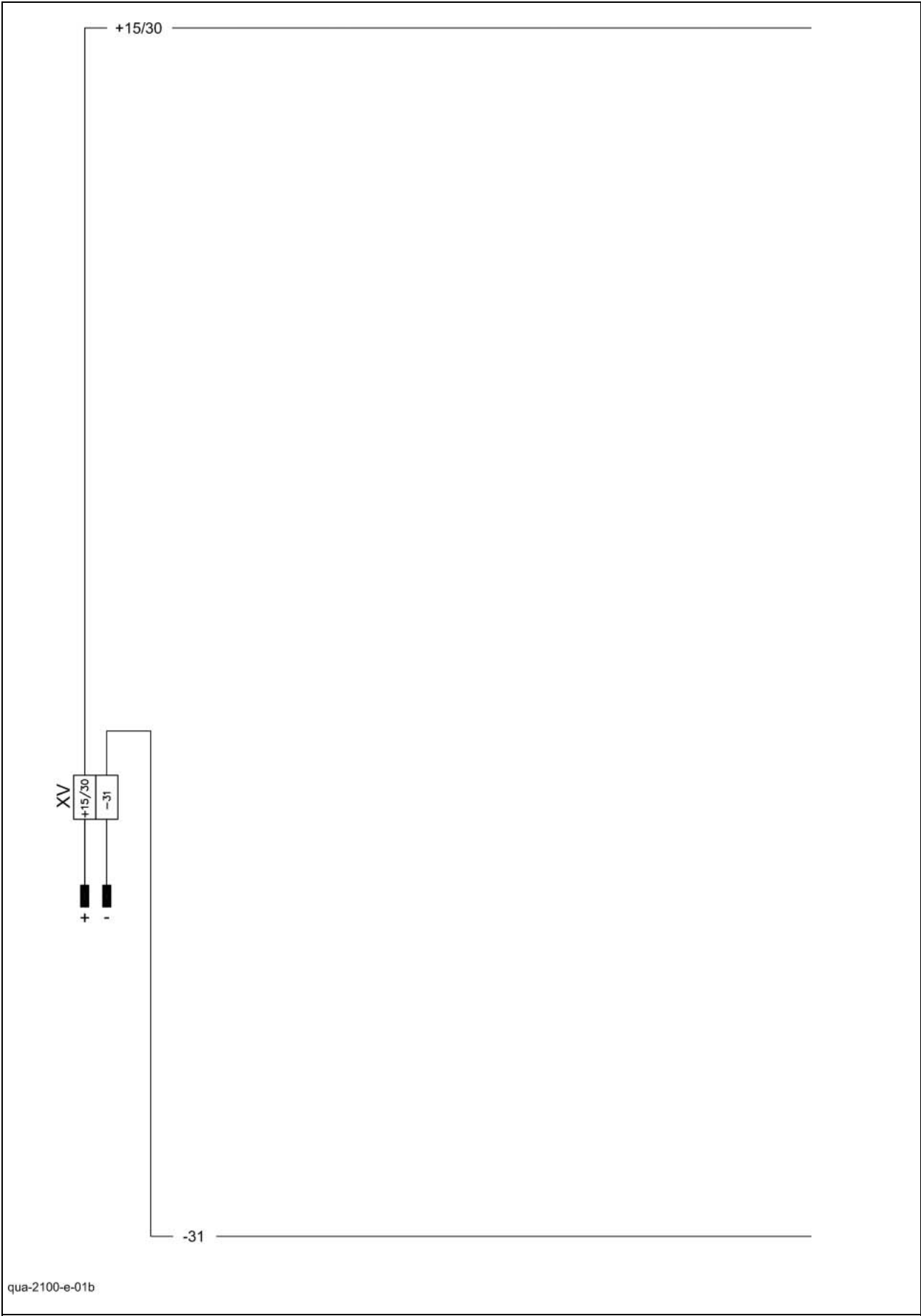


Connector	mm ²	Colour
A20 - 26	0.5	br/wh
K90 - 30	1.5	bk/rd
K90 - 85	0.5	bk
K90 - 86	0.5	rd
K90 - 87	1.5	bk
U5 - 1	0.5	br/wh
U5 - 2	0.5	rd
U5 - 3	1.5	bk
U5 - 5	1.5	br/rd
U5 - 6	1.5	br
X14 - 36	0.5	br/wh
X14 - 37	0.5	br/wh
XT1 - 3	0.5	bk
XT1 - 6	0.5	br
XT1 - 8	0.5	rd
XT1 - 9	0.5	bk
XT2 - 1	4	br
XT2 - 3	4	bk
XT2 - 6	0.5	rd
XT2 - 7	0.5	bk
XV1 - 15/30	4	bk
XV1 - 31	4	br

1b
Main power supply

Quadrant 2100 (without rotor)

01b - Main power supply, Quadrant 2100 (without rotor)



Key to diagram:

XV Power supply connector

Coordinates

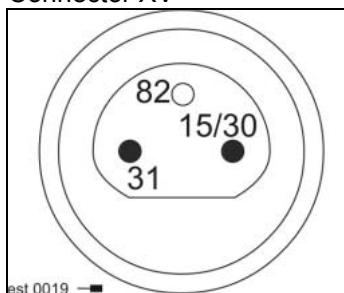
Description of function:

Main power supply

Power supply from the tractor to the baler is by connector XV. A fuse of 25 A max. must be provided on the tractor for this power supply.

Connector pin definition:

Connector XV



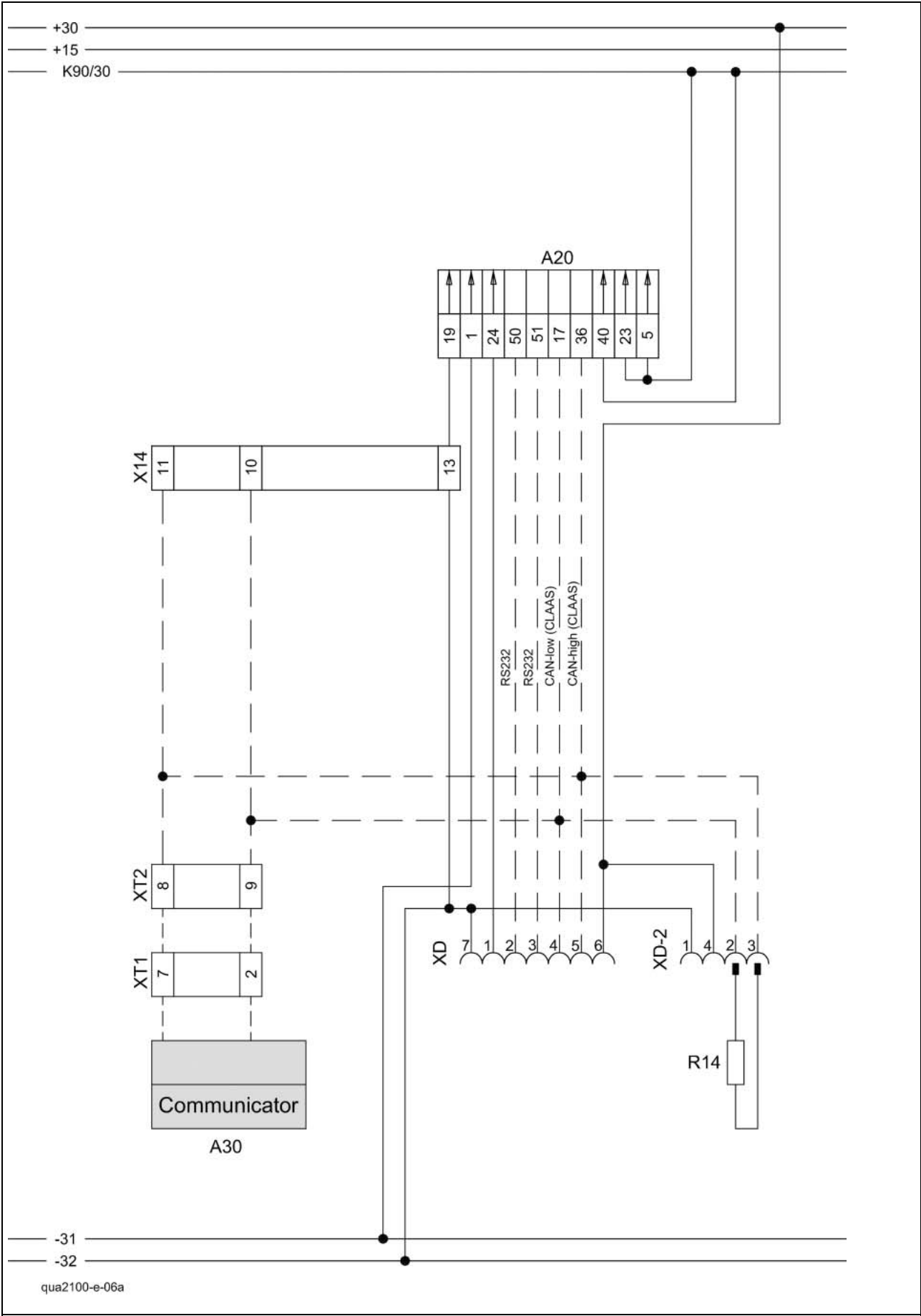
Connector	mm ²	Colour
XV1 - 15/30	4	bk
XV1 - 31	4	br

6a

CAN bus, module power supply

Quadrant 2100 RC and 2100 RF

06a - CAN bus, module power supply, Quadrant 2100 RC and 2100 RF



Key to diagram:

Coordinates

A20	CCU Module	
A30	Terminal	
X14	Wiring loom connector	
XD	CAN bus socket (7-pin)	Switchbox
XD2	CAN bus socket	Switchbox
XT1	Terminal connector	
XT2	Terminal connector, power supply	
R14	CAN BUS terminating resistor 122 Ω	Switchbox

Measured value table:

Item	Component	Measured value	Remark
R14	Terminating resistor	122 Ω	

Description of function:**Terminal**

The XD connectors serve for diagnosis with the CDS CLAAS Diagnosis system.

The performance data (total number of bales, operating hours, etc.) are saved in module A20. These data can be read using the CDS diagnosis system.

Communication of the module with terminal A30 is via the CAN bus.

CAN bus

(Controller Area Network)

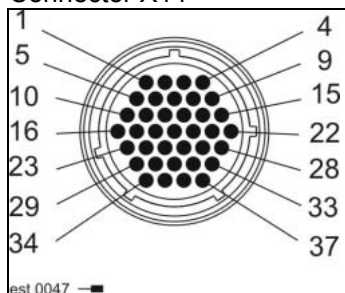
Data exchange between electronic components via a serial network.

- Measured value table CAN bus

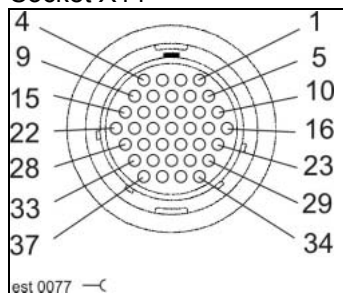
CAN high (U_{eff})	CAN low (U_{eff})	Diagnosis
$2.52\text{ V} \pm 0.1\text{ V}$	$2.49\text{ V} \pm 0.1\text{ V}$	System OK
2.50 V	2.50 V	Short circuit CAN high to CAN low
12 V	>2.50 V	Short circuit CAN high to +12 Volt
0 V	<2.5 V	Short circuit CAN high to earth
>2.50 V	12 V	Short circuit CAN low to +12 Volt
<2.50 V	0 V	Short circuit CAN low to earth

Connector pin definition:

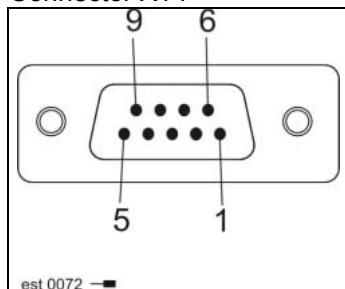
Connector X14



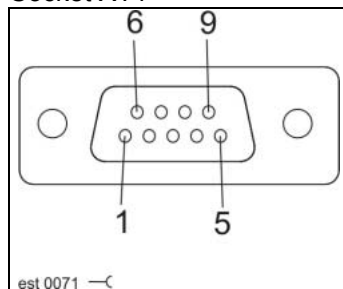
Socket X14



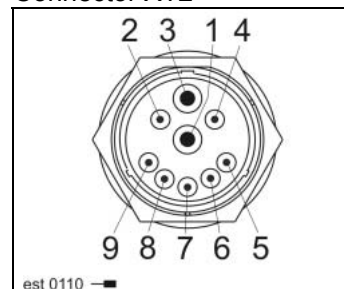
Connector XT1



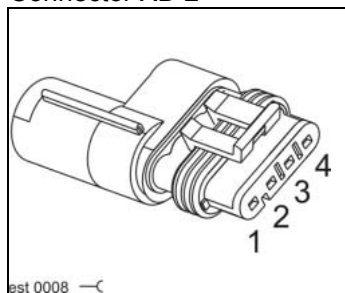
Socket XT1



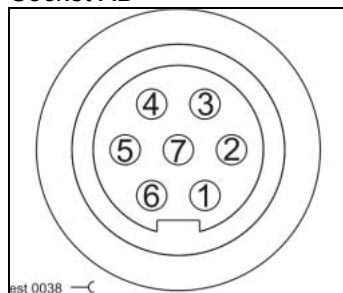
Connector XT2



Connector XD 2



Socket XD



Connector	mm ²	Colour
A20 - 1	1.5	br
A20 - 5	0.5	rd
A20 - 17	0.5	gn
A20 - 23	0.5	rd
A20 - 36	0.5	ye
A20 - 40	1.0	bk/rd
XT1- 2	0.5	gn
X14 - 10	0.5	gn
X14 - 11	0.5	ye
XT1- 7	0.5	ye
XT2 - 8	0.5	ye
XT2 - 9	0.5	gn

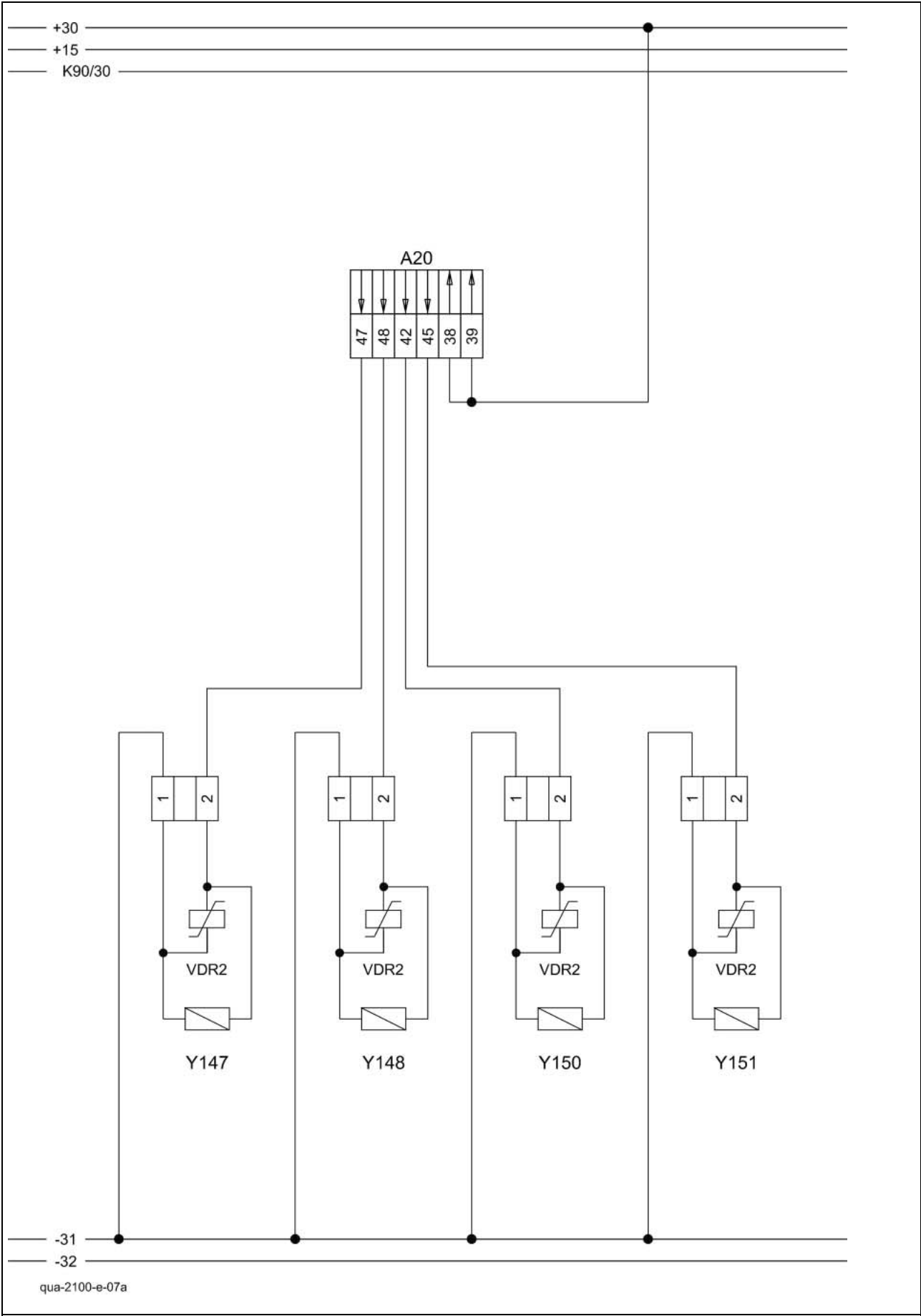
Connector	mm ²	Colour
XD - 1	0.5	wh
XD - 2	0.5	wh
XD - 3	0.5	wh
XD - 4	0.5	gn
XD - 5	0.5	ye
XD - 6	1.5	bk
XD - 7	0.5	bk

7a

ROTOCUT

Quadrant 2100 RC and 2100 RF

07a - RTOCUT, Quadrant 2100 RC and 2100 RF



Key to diagram:

Coordinates

- A20 CCU Module
- Y147 RTOCUT knives IN/OUT pre-selection
- Y148 Open/close cutting frame pre-selection
- Y150 Direction P – A reversing valve
- Y151 Direction P – B reversing valve

Measured value table:

Item	Component	Measured value	Remark
Y147	Solenoid coil		See inscription
Y148			
Y150			
Y151			

Description of function:

Module A 20 actuates the corresponding solenoid coils Y 147, Y148, Y150, Y151 for operation of the ROTOCUT unit.

Rotor plugged

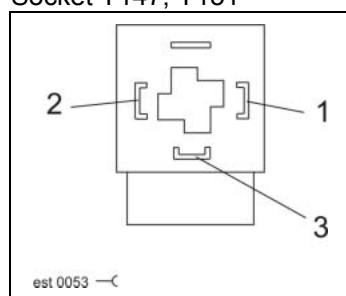
When the rotor is plugged in automatic mode, the knives are moved out (drive speed > 500 rpm), the cutting frame is possibly opened, depending on the configuration, and then closed (see "Rotor plugged" sequence diagram, circuit diagram 8a).

Feed rake plugged

In case of feed rake standstill, the rotor drive is additionally disconnected via the solenoid Y 58 (see "Feed rake plugged" sequence diagram, circuit diagram 8a).

Connector pin definition:

Socket Y147, Y151



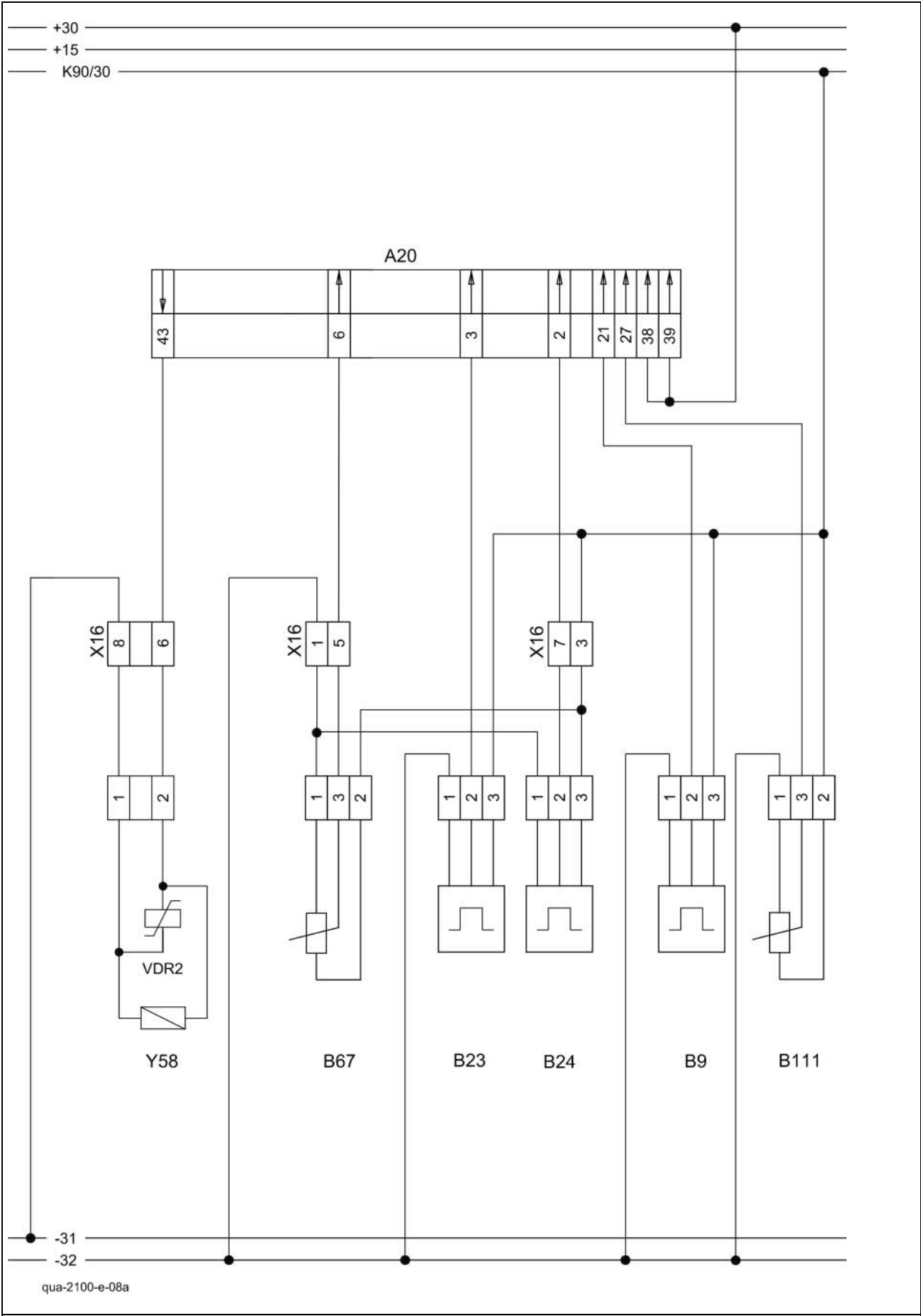
Connector	mm ²	Colour
A20 - 38	2.5	bk
A20 - 39	2.5	bk
A20 - 42	0.75	gr/ye
A20 - 45	0.75	gn/rd
A20 - 47	0.75	ye/bl
A20 - 48	0.75	gn/bl
Y147 - 1	0.75	br
Y147 - 2	0.75	ye/bl
Y148 - 1	0.75	br
Y148 - 2	0.75	gn/bl
Y150 - 1	0.75	br
Y150 - 2	0.75	gr/ye
Y151 - 1	0.75	br
Y151 - 2	0.75	gn/rd

8a

Automatic cutting frame

Quadrant 2100 RC and 2100 RF

08a - Automatic cutting frame, Quadrant 2100 RC and 2100 RF



Key to diagram:

- Coordinates
- A20

CCU Module
- B9

Drive speed sensor
(red), vertical
- B23

Feed rake speed sensor
(blue), horizontal
- B24

Rotor speed sensor
- B67

Cutting frame position sensor
- B111

ROTOCUT knives position sensor
- VDR2

Varistor not shown
- X16

Connector
- Y58

Rotor blocking solenoid coil

Measured value table:

Item	Component	Measured value	Remark
Y58	Solenoid coil		See inscription
B9	Sensor	LED bright = low (0 - 1 V)	Metal
B23		LED weak = high (6 - 12 V)	no metal
B24			
B67	Sensor	12 V	(Pin 1 - 2)
B111		0.25 - 4.75 V	(Pin 1 - 3)

Description of function:

The electronic unit monitors the following in order to control the automatic functions:

- Drive speed
- Feed rake speed
- Rotor speed
- Knives position
- Opening angle of cutting frame

Rotor plugged

When the rotor is plugged in automatic mode (drive speed > 500 rpm), the knives are moved out, the cutting frame is possibly opened, depending on the configuration, and then closed (see "Rotor plugged" sequence diagram).

Feed rake plugged

In case of feed rake standstill, the rotor drive is additionally disconnected via the solenoid Y 58 (see "Feed rake plugged" sequence diagram).

Note: For cabling of the corresponding solenoid valves see circuit diagram 7a.

- Speed sensors (B9, B23, B24)

The clearance between the HALL sensors and the tooth top should be approx. **1.5 ± 0.25 mm (Pitch of sensor threads: 1 mm)**.
At a drive speed of approx. 350 rpm, the speed values should be displayed correctly in the CDS diagnosis system.

HALL sensor (B67)

The cutting frame angle can be read using the CDS diagnosis system. When the cutting frame is closed, the displayed value must be - 2°.

HALL sensor (B111)

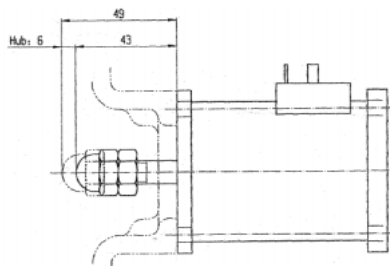
The ROTOCUT knives position angle can be read using the CDS diagnosis system. With the knives retracted, the displayed value must be > 35°.

Actuator settings

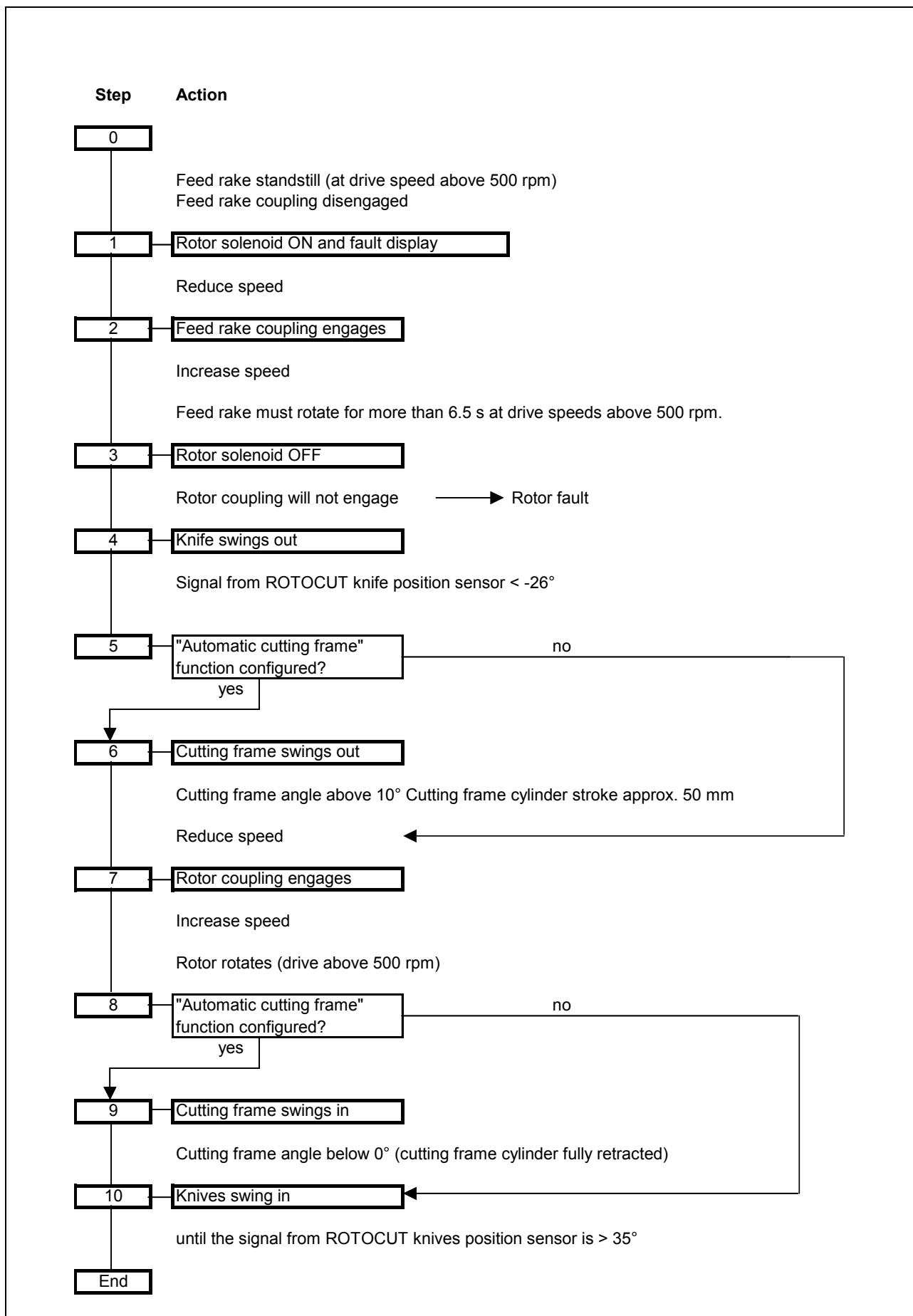
Clearance between flange surface and cap nut:

Rotor blocking solenoid coil Y58

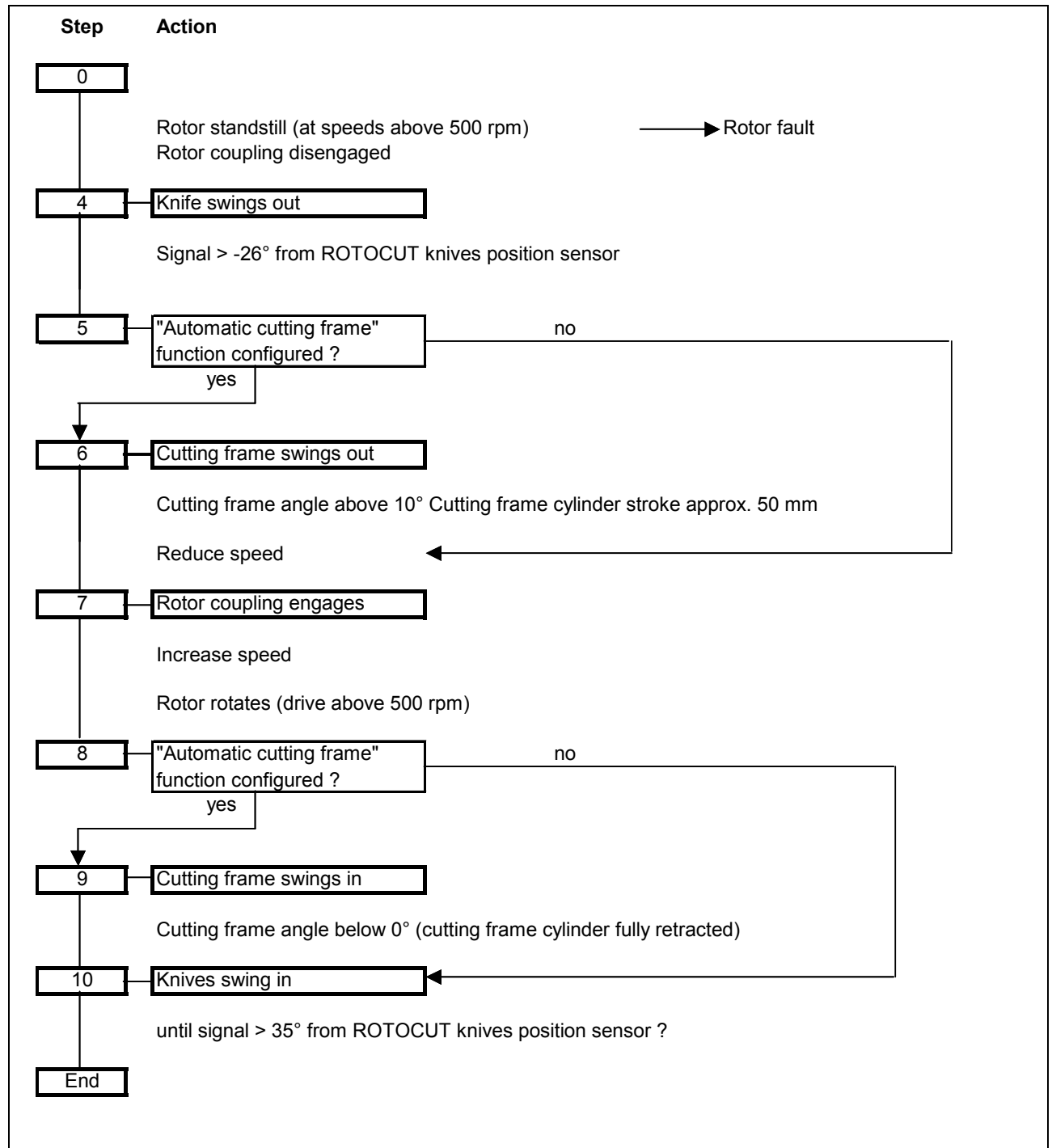
- Solenoid non-energized (Solenoid linkage retracted) = 43 mm
- Solenoid energized (Solenoid linkage extended) = 49 mm



Feed rake plugged sequence diagram

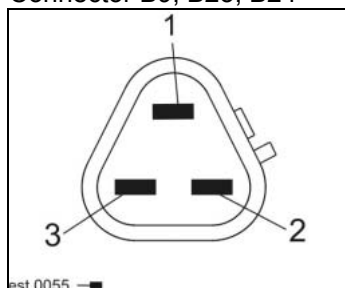


Rotor plugged sequence diagram

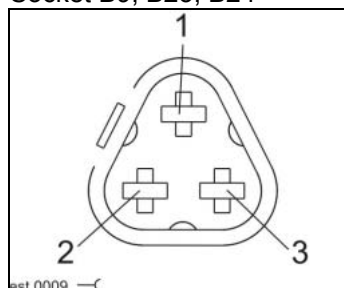


Connector pin definition:

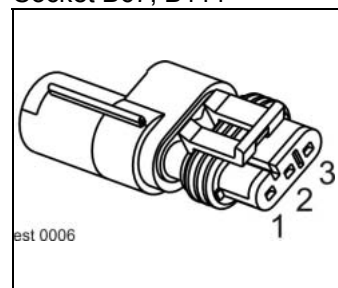
Connector B9, B23, B24



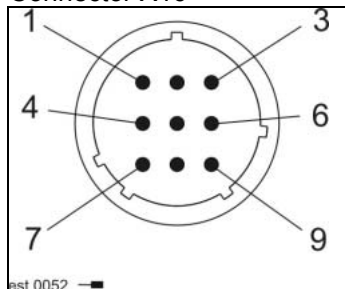
Socket B9, B23, B24



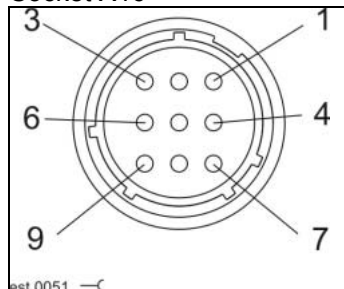
Socket B67, B111



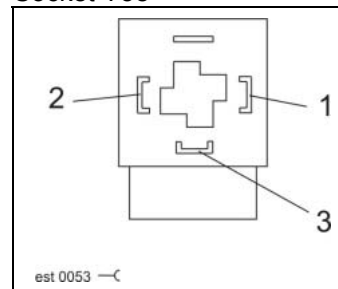
Connector X16



Socket X16



Socket Y58



Connector	mm ²	Colour
A20 - 2	0.5	br/bk
A20 - 3	0.5	vi/rd
A20 - 6	0.5	bk/wh/gn
A20 - 21	0.5	br/gn
A20 - 27	0.5	gn/vi
A20 - 38	2.5	bk
A20 - 39	2.5	bk
A20 - 43	0.75	bk/gn
B9 - 1	0.5	br/rd
B9 - 2	0.5	br/gn
B9 - 3	0.5	bk/rd
B23 - 1	0.5	br/rd
B23 - 2	0.5	vi/rd
B23 - 3	0.5	bk/rd
B24 - 1	0.5	br/rd
B24 - 2	0.5	br/bk
B24 - 3	0.5	bk/rd

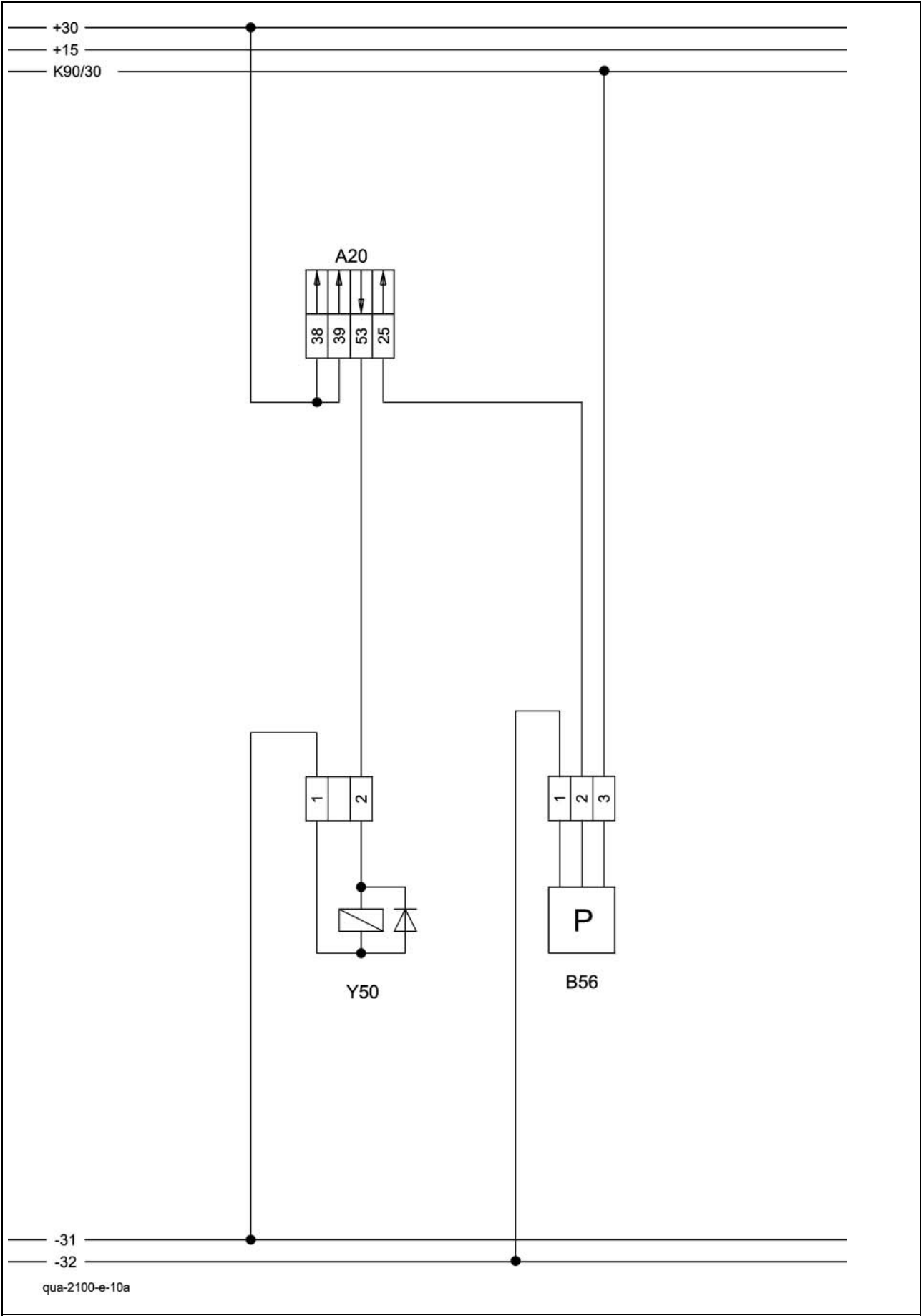
Connector	mm ²	Colour
B67 - 1	0.5	br/rd
B67 - 2	0.5	bk/rd
B67 - 3	0.5	bk/wh/gn
B111 - 1	0.5	br/rd
B111 - 2	0.5	bk/rd
B111 - 3	0.5	gn/vi
X16 - 1	0.5	br/rd
X16 - 3	0.5	bk/rd
X16 - 5	0.5	bk/wh/gn
X16 - 6	0.75	bk/gn
X16 - 7	0.5	br/bk
X16 - 8	0.75	br
Y58 - 1	0.75	br
Y58 - 2	0.75	bk/gn

10a

Baling pressure control

Quadrant 2100 RC and 2100 RF

10a - Baling pressure control, Quadrant 2100 RC und 2100 RF



Key to diagram:

- A20 CCU Module
- B56 Baling pressure sensor
- Y50 Baling pressure build-up solenoid coil

Coordinates

Measured value table:

Item	Component	Measured value	Remark
B56	Sensor	approx. 1 – 3.5 V	at 0 – 220 bar
Y50	Solenoid coil		See inscription

Description of function:**Pressure setting**

The pressure of the baling chamber cylinders 334 is pre-selected in terminal A 30 (set value).
According to the pre-selected value, a pressure in the baling chamber cylinders 334 is regulated (actual value) via module A20 and the baling pressure build-up solenoid coil Y 50.
Control of the baling pressure build-up solenoid coil Y 50 is by pulse-width modulation (PWM).

Baling pressure monitoring

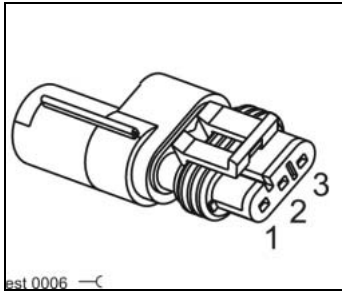
The set pressure of the bale chamber cylinders 334 is monitored by sensor B 56. This value is displayed in terminal A30.

Baling pressure reduction for "Eject bale" function

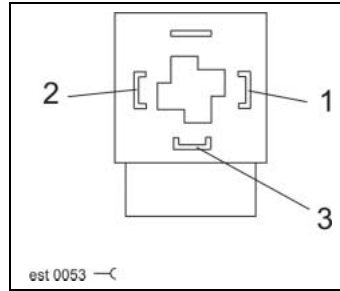
When sensor B113 identifies the "Eject bale" function (reversing valve in corresponding position), module A20 regulates the baling pressure to 0 bar.
This can be seen in terminal A30 by the inverted baling pressure symbol (see circuit diagram 13a).

Connector pin definition:

Connector B56



Socket Y50



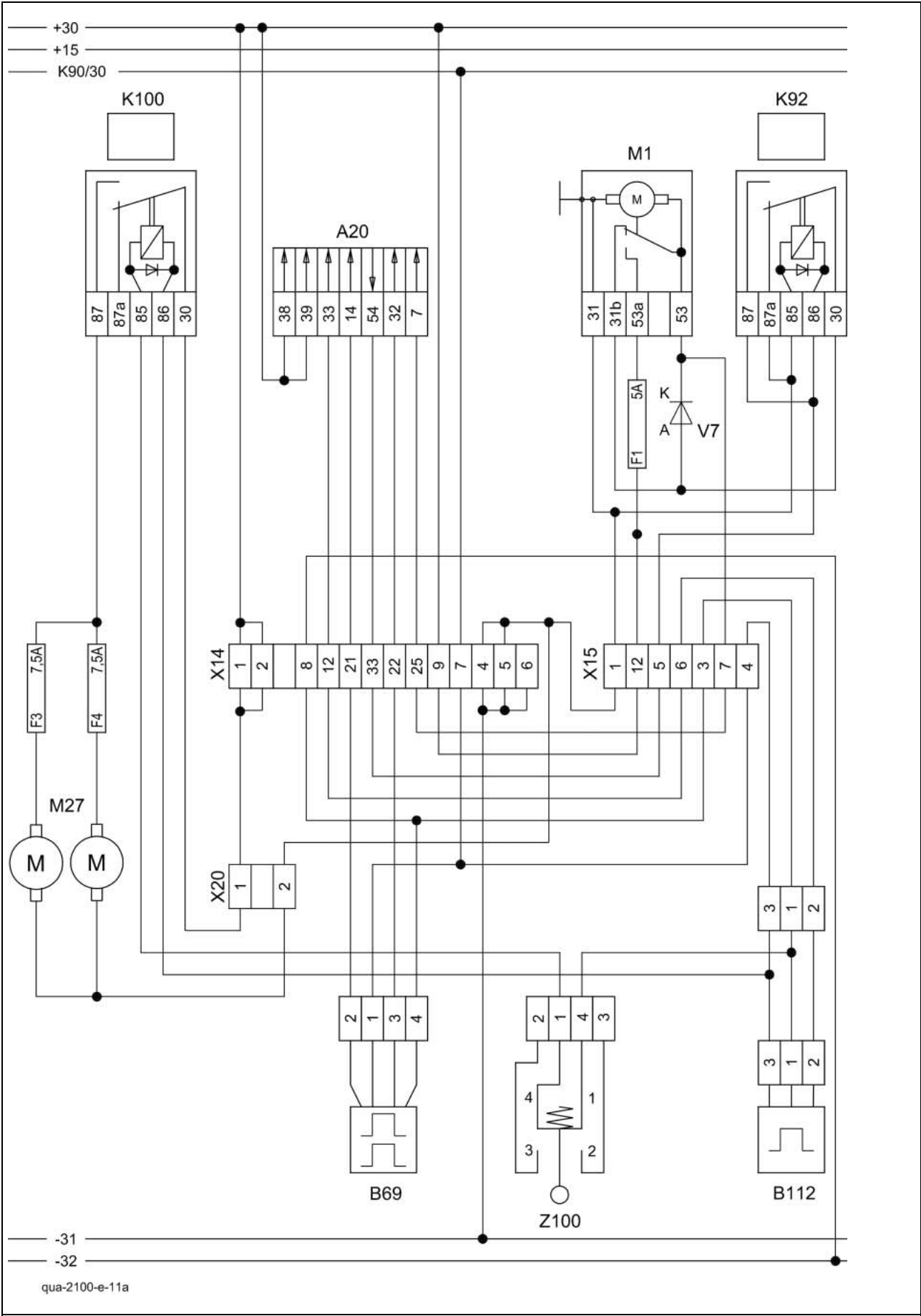
Connector	mm ²	Colour
A20 - 38	2.5	bk
A20 - 39	2.5	bk
A20 - 53	0.75	wh/gn
B56 - 1	0.5	br/rd
B56 - 2	0.5	rd/bk
B56 - 3	0.5	bk/rd
Y50 - 1	0.75	br
Y50 - 2	0.75	wh/gn

11a

Wrapping release, knotter cleaning

Quadrant 2100 RC and 2100 RF
up to 2004 model

11a - Wrapping release, knotter cleaning, Quadrant 2100 RC and 2100 RF - up to 2004 model



Key to diagram:

- A20 CCU Module
- B69 Metering wheel / bale length sensor
B112 Metering wheel / bale length sensor
- F1 Fuse 5 A
F3 Fuse 7.5 A
F4 Fuse 7.5 A
- K92 Wrapping release relay
K100 Knotter cleaning fan relay
- M1 Wrapping release motor
M27 Knotter cleaning fan motor
- V7 Return diode (wrapping)
- X14 Connector
X15 Connector
X20 Connector
- Z100 Wrapping cover actual value switch

Coordinates

Measured value table:

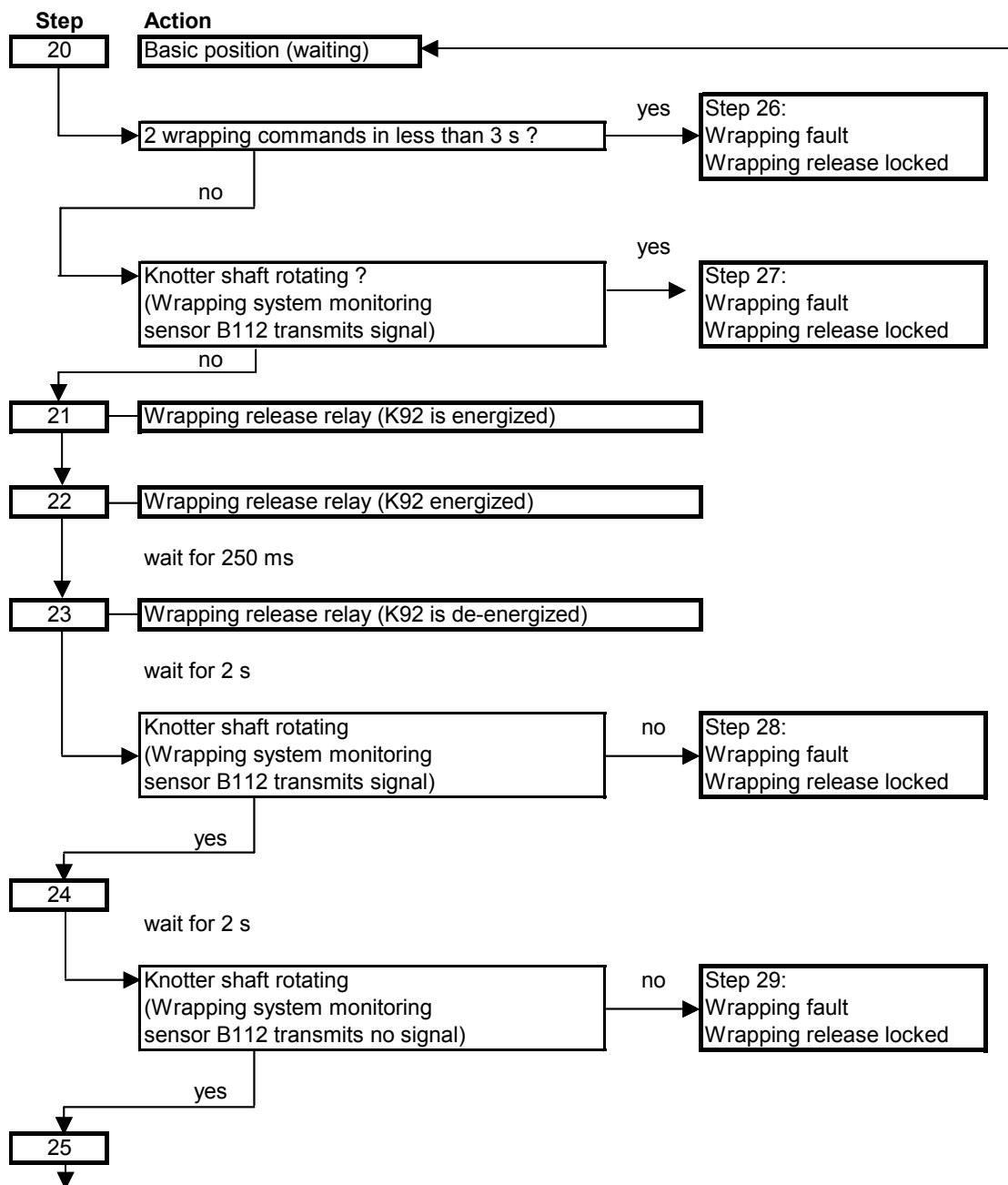
Item	Component	Measured value	Remark
B112	Sensor	High - low	
K92 K100	Remote control relay	75±10 Ω	(Pin 86/1 – 85/2) (Pin 87a/4 – 30/3) (Pin 87/5 – 30/3)
M1	Motor	I _{max.} = 8.5 A	

Description of function:

Bale length	The desired bale length is pre-selected in terminal A 30. The metering wheel / bale length sensor B 69 detects the bale length. Both values are compared in module A20. When they are identical, wrapping is released.
Wrapping release	Wrapping is released by module A 20 by a short switching pulse. When motor M1 is near its parking position, pin 53 is internally connected with pin 31b. The induced voltage electrically brakes motor M1 via relay K 92 against earth. Following a wrapping release, the electronic unit must detect at least 0.4 metres of bale length before wrapping can be released one more time.
Wrapping monitoring	Generates the „Wrapping fault“ error in terminal A 30 if the wrapping system monitoring sensor B112 transmits a signal without wrapping command (from module A20) at a drive speed of > 500 rpm. Wrapping is now electronically blocked (see Wrapping fault sequence diagram).
Knotter cleaning fan	The fan motors run only while the wrapping cover is closed (Z100). When opening the wrapping cover (e.g. for service work), relay K100 drops out and consequently cuts the electrical connection with the knotter cleaning fan motors (M27).

Wrapping fault sequence diagram Q2100

Fault monitoring is active only at drive speeds above 500 rpm!



When a fault has occurred, steps 26 27, 28 and 29 can be read out with the CDS:

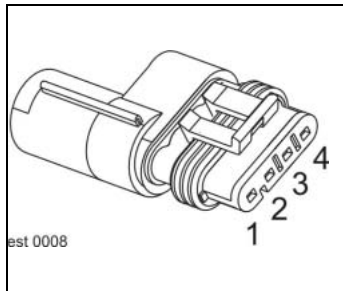
The fault in steps 27, 28 and 29 can be deleted with terminal A30 (back to step 20)

The fault in step 26 can be deleted as follows:

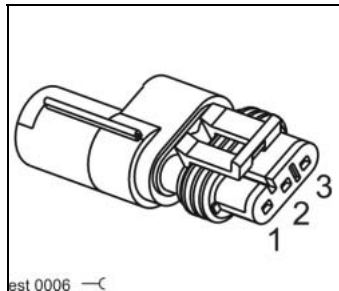
1. Delete fault on terminal A30
2. Rotate metering wheel backwards until the bale indicator bar is at zero.
3. Terminal A30 OFF
4. Terminal A30 ON (back to step 20)

Connector pin definition:

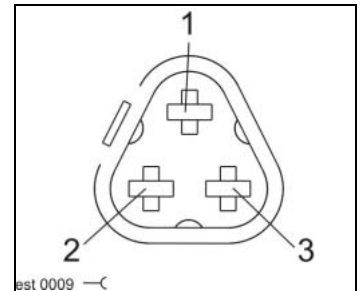
Connector B69



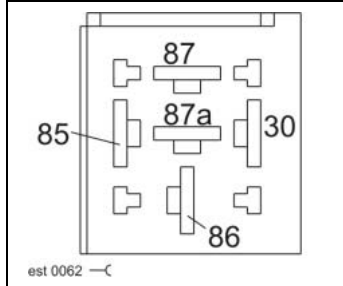
Connector B112



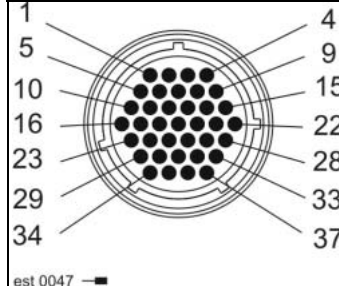
Socket B112



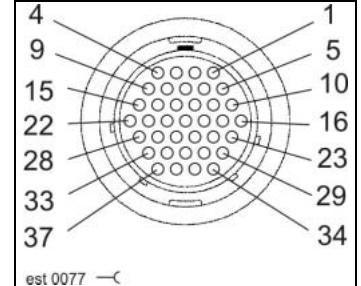
Relay socket K92



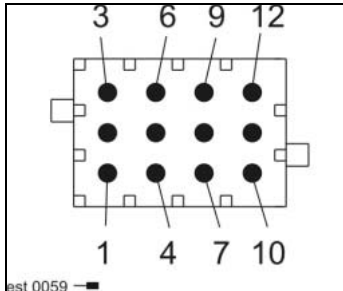
Connector X14



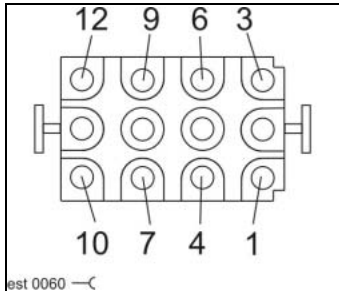
Socket X14



Connector X15



Socket X15



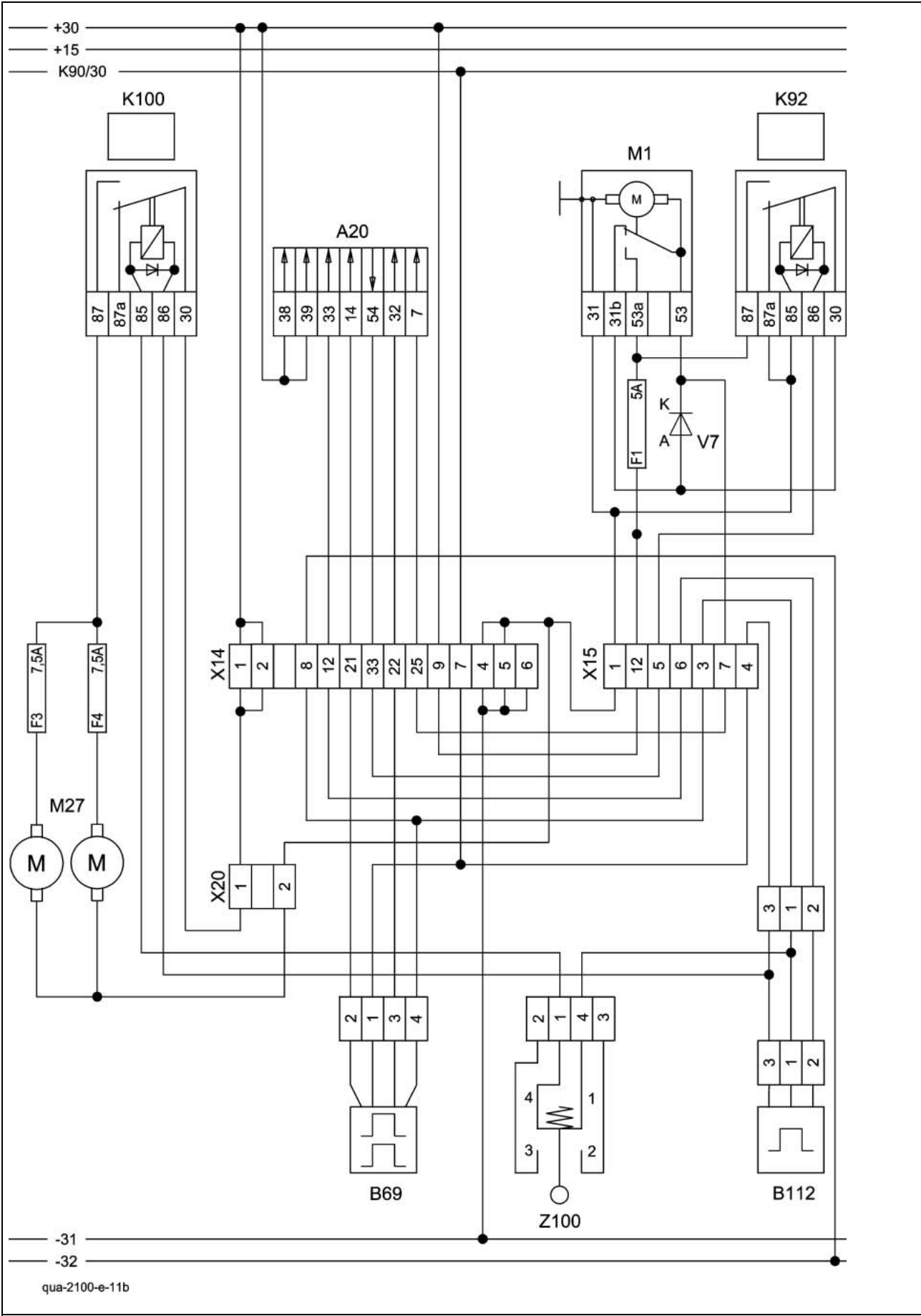
Connector	mm ²	Colour
A20 - 7	1.0	gr/bl
A20 - 14	0.5	br/ye
A20 - 32	0.5	bl/ye
A20 - 33	0.5	br/bl
A20 - 38	2.5	bk
A20 - 39	2.5	bk
B69 - 1	0.5	bk/rd
B69 - 2	0.5	br/ye
B69 - 3	0.5	bl/ye
B69 - 4	0.5	br/rd
B112 - 1	0.5	br/rd
B112 - 2	0.5	br/bl
B112 - 3	0.5	bk/rd
K92 - 30	1.0	br/bl
K92 - 85	1.0	br
K92 - 86	1.0	gn
K92 - 87	1.0	gn
K92 - 87a	1.0	br
M1 - 31	1.0	br
M1 - 31b	1.0	br/bl
M1 - 53	1.0	gn/bl
M1 - 53a	1.0	bk/wh
M27 - 1	4.0	br
M27 - 2	4.0	bk
X14 - 1	1.5	bk
X14 - 2	1.5	bk
X14 - 4	1.5	br
X14 - 5	1.5	br
X14 - 6	1.5	br
X14 - 7	1.5	bk/rd
X14 - 8	1.5	br/rd
X14 - 9	1.5	bk/wh
X14 - 12	1.5	bk/wh
X14 - 21	0.5	br/ye
X14 - 22	0.5	bl/ye
X14 - 25	1.0	gr/bl
X14 - 33	1.0	gn
X15 - 1	2.5	br
X15 - 3	0.5	br/rd
X15 - 4	0.5	bk/rd
X15 - 5	1.0	gn
X15 - 6	0.5	br/bl
X15 - 7	1.0	gn/bl
X15 - 12	1.0	bk/wh

11b

Wrapping release, knotter cleaning

Quadrant 2100 RC and 2100 RF
from 2005 model

11b - Wrapping release, knotter cleaning, Quadrant 2100 RC and 2100 RF - from 2005 model



Key to diagram:

- A20 CCU Module
- B69 Sensor for metering wheel / bale length
B112 Sensor für monitoring wrapping system
- F1 Fuse 5 A
F3 Fuse 7.5 A
F4 Fuse 7.5 A
- K92 Wrapping release relay
K100 Knotter cleaning fan relay
- M1 Wrapping release motor
M27 Knotter cleaning fan motor
- V7 Return diode (wrapping)
- X14 Connector
X15 Connector
X20 Connector
- Z100 Wrapping cover actual value switch

Coordinates

Measured value table:

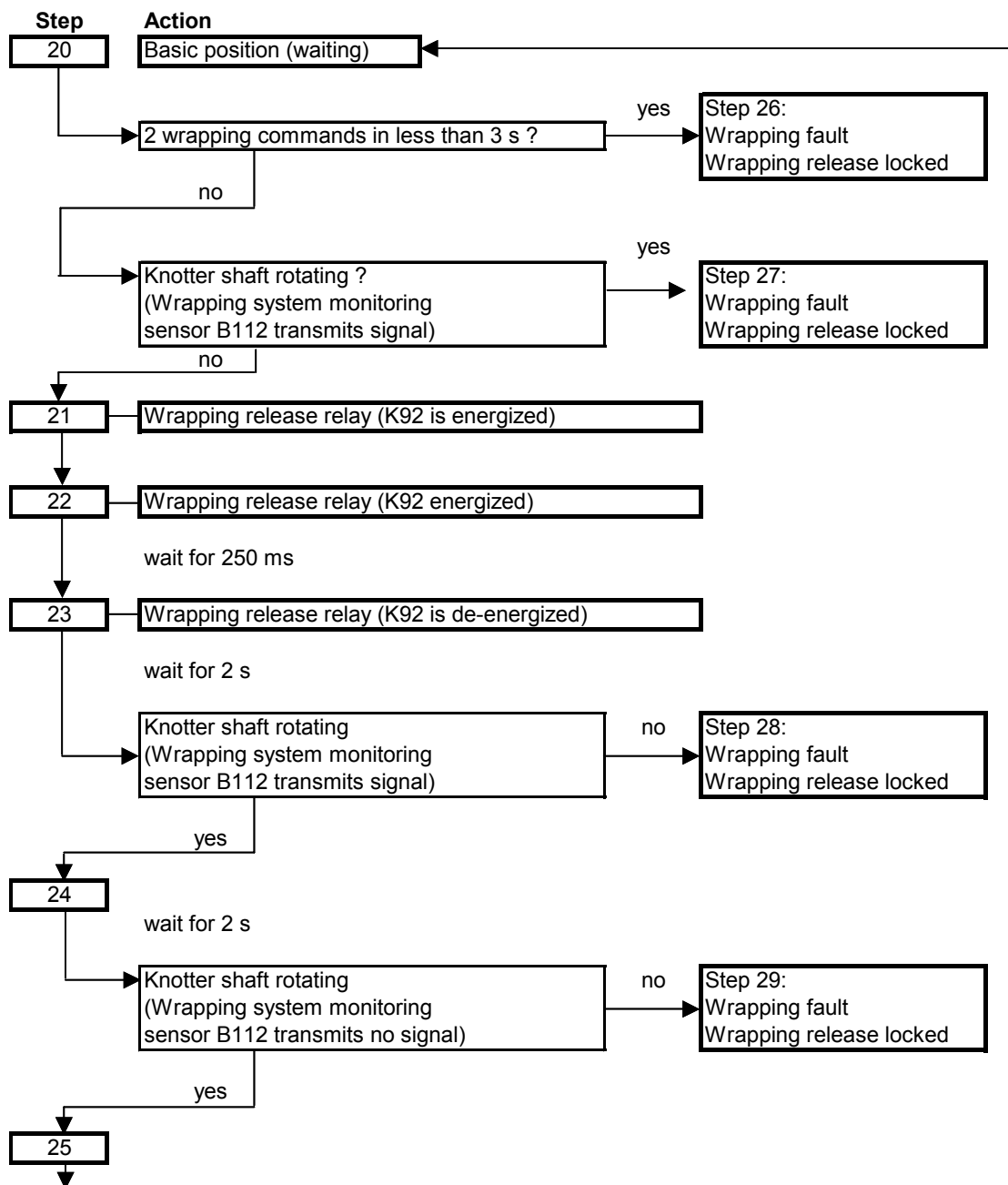
Item	Component	Measured value	Remark
B112	Sensor	High - low	
K92 K100	Remote control relay	75±10 Ω	(Pin 86/1 – 85/2) (Pin 87a/4 – 30/3) (Pin 87/5 – 30/3)
M1	Motor	I _{max.} = 8.5 A	

Description of function:

Bale length	The desired bale length is pre-selected in terminal A 30. The metering wheel / bale length sensor B 69 detects the bale length. Both values are compared in module A20. When they are identical, wrapping is released.
Wrapping release	Wrapping is released by module A 20 by a short switching pulse. When motor M1 is near its parking position, pin 53 is internally connected with pin 31b. The induced voltage electrically brakes motor M1 via relay K 92 against earth. Following a wrapping release, the electronic unit must detect at least 0.4 metres of bale length before wrapping can be released one more time.
Wrapping monitoring	Generates the „Wrapping fault“ error in terminal A 30 if the wrapping system monitoring sensor B112 transmits a signal without wrapping command (from module A20) at a drive speed of > 500 rpm. Wrapping is now electronically blocked (see Wrapping fault sequence diagram).
Knotter cleaning fan	The fan motors run only while the wrapping cover is closed (Z100). When opening the wrapping cover (e.g. for service work), relay K100 drops out and consequently cuts the electrical connection with the knotter cleaning fan motors (M27).

Wrapping fault sequence diagram Q2100

Fault monitoring is active only at drive speeds above 500 rpm!



When a fault has occurred, steps 26 27, 28 and 29 can be read out with the CDS:

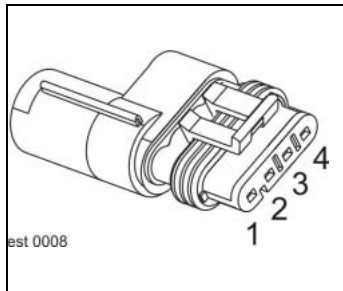
The fault in steps 27, 28 and 29 can be deleted with terminal A30 (back to step 20)

The fault in step 26 can be deleted as follows:

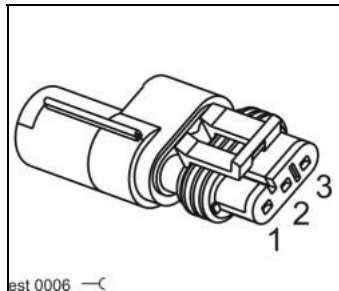
1. Delete fault on terminal A30
2. Rotate metering wheel backwards until the bale indicator bar is at zero
3. Terminal A30 OFF
4. Terminal A30 ON (back to step 20)

Connector pin definition:

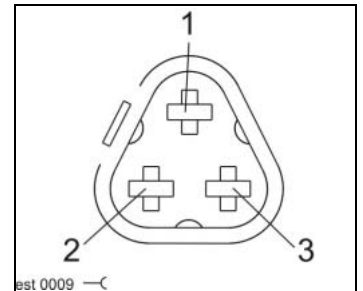
Connector B69



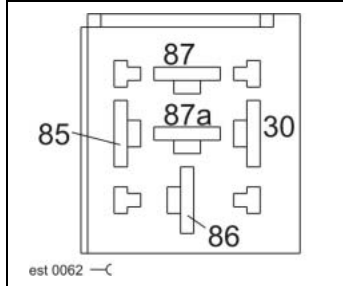
Connector B112



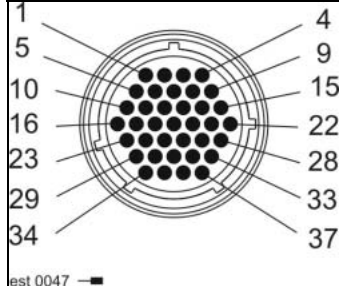
Socket B112



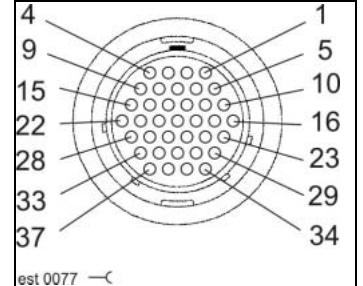
Relay socket K92



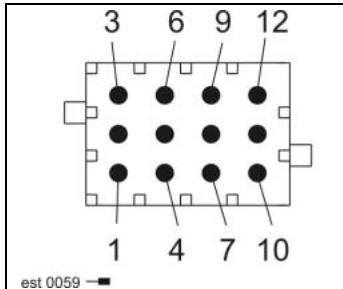
Connector X14



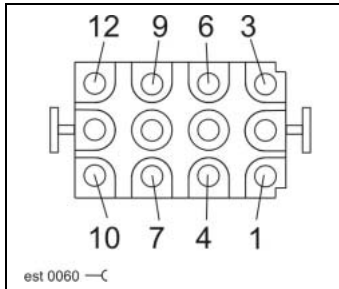
Socket X14



Connector X15



Socket X15



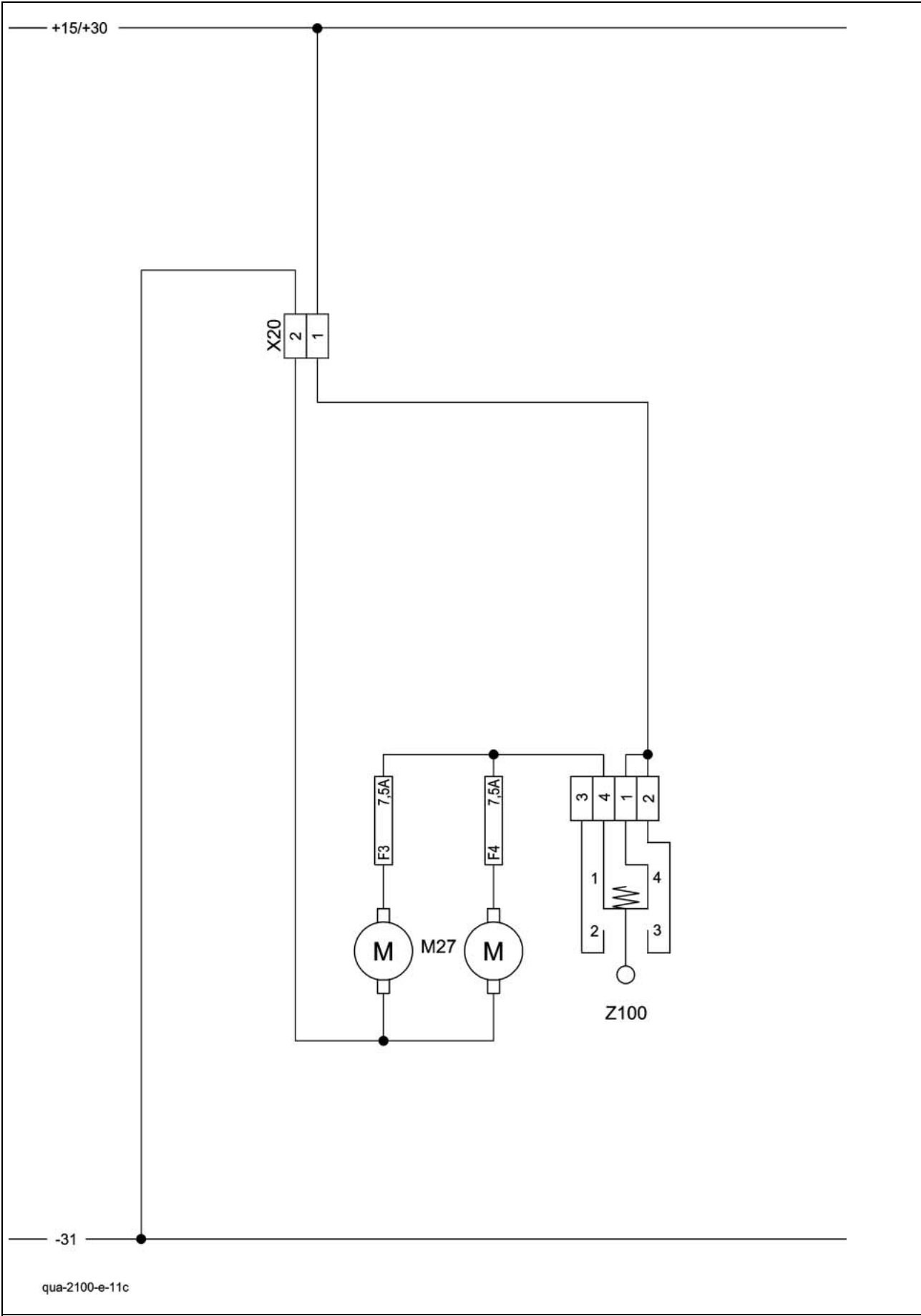
Connector	mm ²	Colour
A20 - 7	1.0	gr/bl
A20 - 14	0.5	br/ye
A20 - 32	0.5	bl/ye
A20 - 33	0.5	br/bl
A20 - 38	2.5	bk
A20 - 39	2.5	bk
B69 - 1	0.5	bk/rd
B69 - 2	0.5	br/ye
B69 - 3	0.5	bl/ye
B69 - 4	0.5	br/rd
B112 - 1	0.5	br/rd
B112 - 2	0.5	br/bl
B112 - 3	0.5	bk/rd
K92 - 30	2.5	br/bl
K92 - 85	2.5	br
K92 - 86	1.0	gn
K92 - 87	2.5	gn
K92 - 87a	2.5	br
M1 - 31	2.5	br
M1 - 31b	1.0	br/bl
M1 - 53	1.0	gn/bl
M1 - 53a	1.0	bk/wh
M27 - 1	4.0	br
M27 - 2	4.0	bk
X14 - 1	1.5	bk
X14 - 2	1.5	bk
X14 - 4	1.5	br
X14 - 5	1.5	br
X14 - 6	1.5	br
X14 - 7	1.5	bk/rd
X14 - 8	1.5	br/rd
X14 - 9	1.5	bk/wh
X14 - 12	1.5	bk/wh
X14 - 21	0.5	br/ye
X14 - 22	0.5	bl/ye
X14 - 25	1.0	gr/bl
X14 - 33	1.0	gn
X15 - 1	2.5	br
X15 - 3	0.5	br/rd
X15 - 4	0.5	bk/rd
X15 - 5	1.0	gn
X15 - 6	0.5	br/bl
X15 - 7	1.0	gn/bl
X15 - 12	1.0	bk/wh

11c

Knotter cleaning

Quadrant 2100 without rotor

11c - Knotter cleaning, Quadrant 2100 without rotor



Key to diagram:

- M27 Knotter cleaning fan motor
- X20 Connector

Coordinates

Measured value table:

Item	Component	Measured value	Remark
M27	Motor		

Description of function:

Knotter cleaning

Power supply from the tractor to the knotter cleaning fan motor M27 is by connector XV.
A fuse of 25 A max. must be provided on the tractor for this power supply.

Connector pin definition:

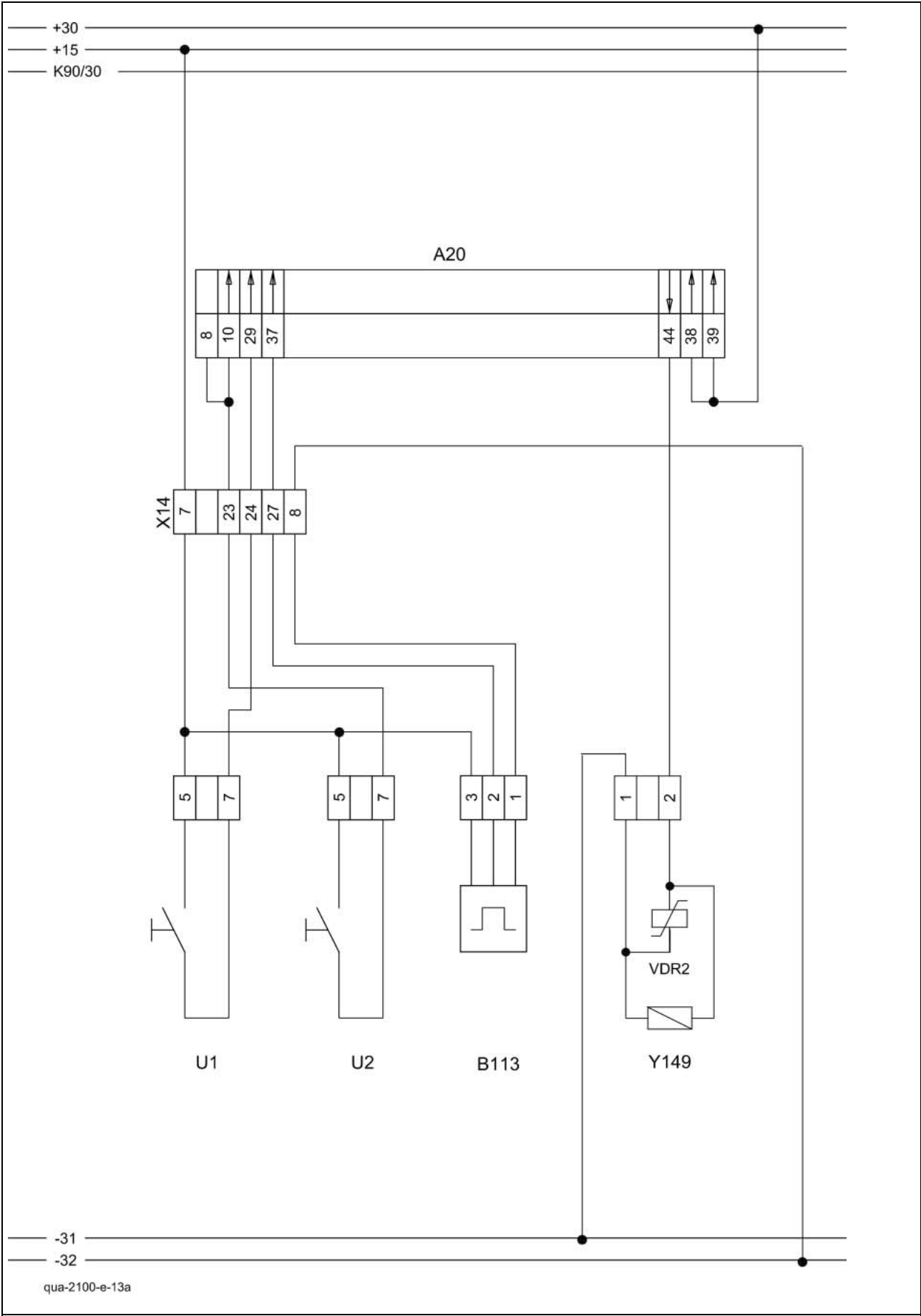
Connector	mm ²	Colour
M27 - 1	4.0	bk
M27 - 2	4.0	br

13a

Ejecting bales Operating the bale ramp

Quadrant 2100 RC and 2100 RF

13a - Ejecting bales / Operating the bale ramp, Quadrant 2100 RC and 2100 RF



Key to diagram:

Coordinates

- A20 CCU Module
- B113 Identification of bale ejector / bale ramp function
- U1 Bale ejector extend cylinder **or** lower bale ramp switch (blue)
- U2 Bale ejector retract cylinder **or** raise bale ramp switch (red)
- X14 Connector
- Y149 Bale ejector / bale ramp pre-selection

Measured value table:

Item	Component	Measured value	Remark
B113	Sensor	High - low	
Y149	Solenoid coil		See inscription

Description of function:**Identification of operating mode**

The operating mode pre-selected at the reversing valve 633 – Bale ejector or bale ramp - is transmitted to module A20 as a signal by sensor B113.

This is required for the switches to work properly according to their layout
front = raise bale ramp / retract bale ejector
rear = lower bale ramp / extend bale ejector

Note: Module A20 controls the baling pressure to 0 bar when
- sensor B113 detects the bale ejector position
- the bale ejector is actuated via switches U1/U2

A baling pressure of 0 bar is indicated in terminal A30 by the inverted „Baling pressure“ symbol.

**Ejecting bales
Operating the bale ramp**

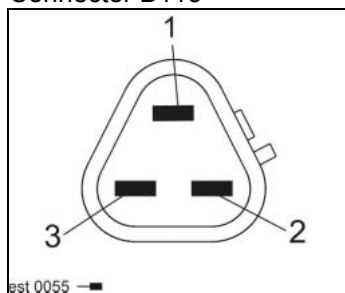
When module A20 identifies a signal from switches U1 or U2, module A20 actuates bale ejector / bale ramp pre-selection solenoid coil Y149. In parallel with the function, the solenoid coils Y150 Direction P - A reversing valve or Y151 Direction P - B reversing valve are actuated. (See also Technical Systems – Hydraulic System)

Bale length

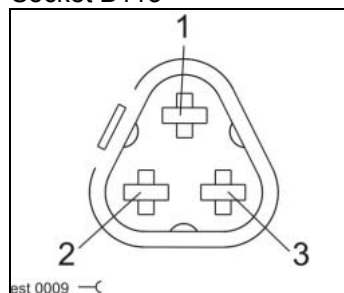
The bale length determined by the metering wheel upon bale ejection is saved in module A20, but not directly displayed in terminal A30. In the next use, the saved value is added to the following bale and will then be displayed in terminal A30. This value remains saved even after switching off terminal A30.

Connector pin definition:

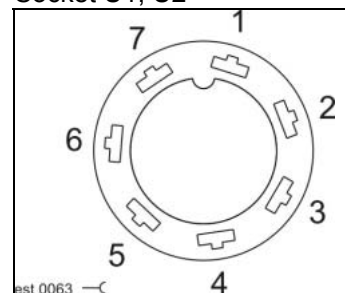
Connector B113



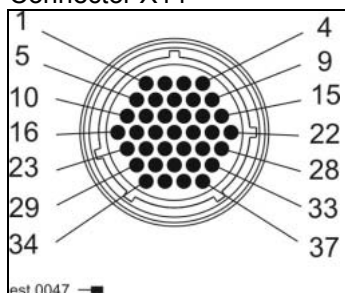
Socket B113



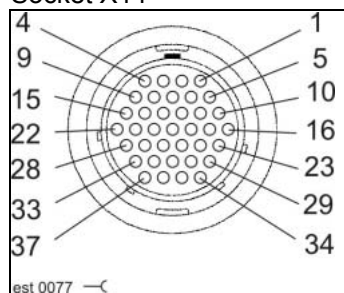
Socket U1, U2



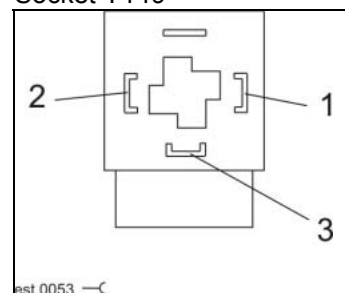
Connector X14



Socket X14



Socket Y149



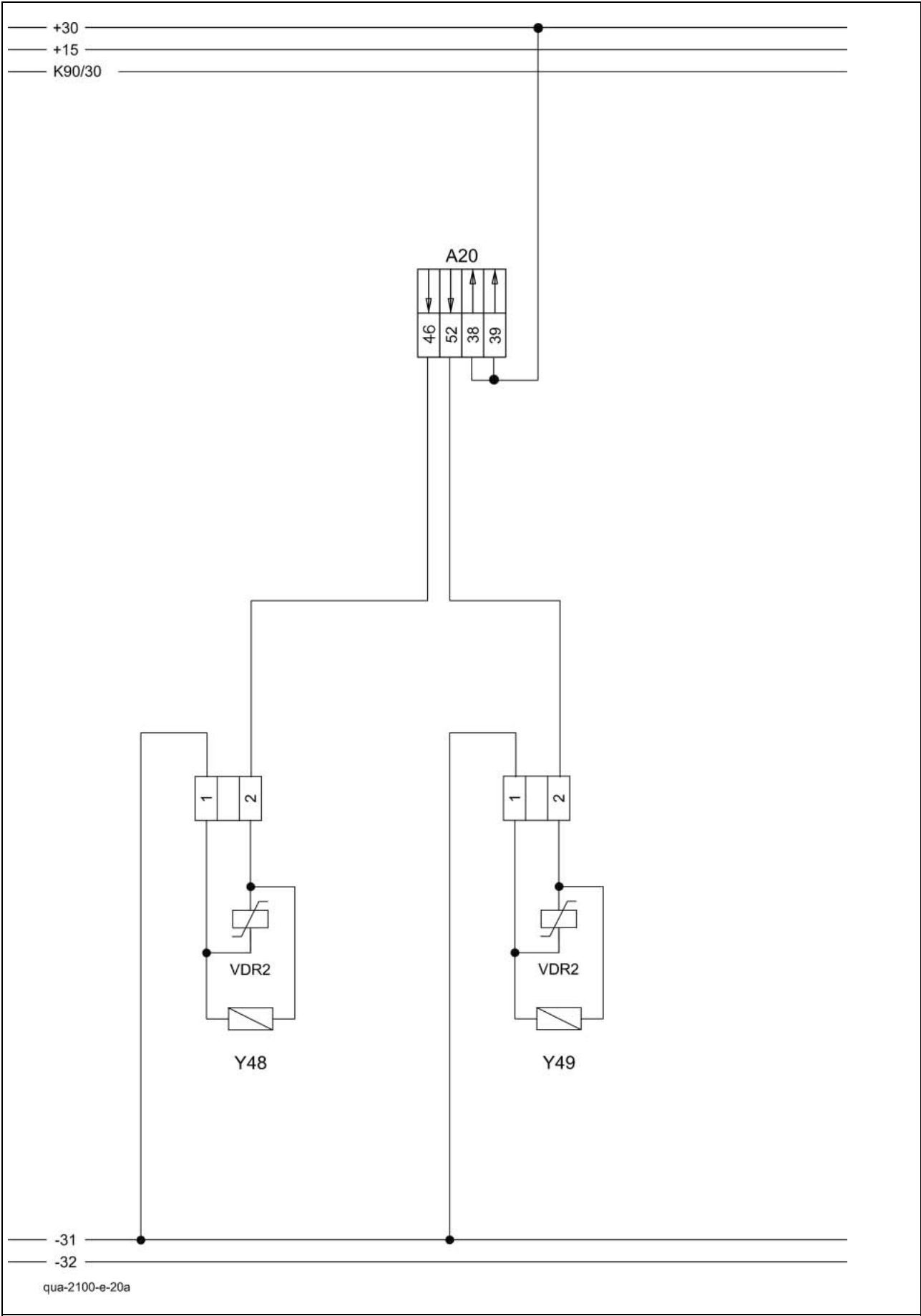
Connector	mm ²	Colour
A20 - 8	0.5	br/wh
A20 - 10	0.5	rd
A20 - 29	0.5	gr/wh
A20 - 37	0.5	bk/gn
A20 - 38	2.5	bk
A20 - 39	2.5	bk
A20 - 44	0.75	ye/bk
B113 - 1	0.5	br/rd
B113 - 2	0.5	bk/gn
B113 - 3	0.5	bk/rd
U1 - 5	0.5	bk/rd
U1 - 7	0.5	gr/wh
U2 - 5	0.5	bk/rd
U2 - 7	0.5	rd
X14 - 7	0.5	bk/rd
X14 - 8	1.4	br/rd
X14 - 23	0.5	br/wh
X14 - 24	0.5	gr/wh
X14 - 27	0.5	bk/gn
Y149 - 1	0.75	br
Y149 - 2	0.75	ye/bk

20a

Raise / lower pick-up

Quadrant 2100 RC and 2100 RF

20a - Raise / lower pick-up, Quadrant 2100 RC and 2100 RF



Key to diagram:

- A20 CCU Module
- Y48 Raise pick-up solenoid coil
- Y49 Lower pick-up solenoid coil

Coordinates

Measured value table:

Item	Component	Measured value	Remark
Y48	Solenoid coil		See inscription
Y49			

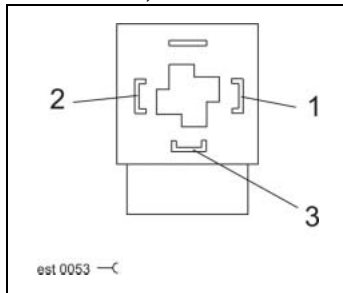
Description of function:

Raise / lower pick-up

According to the operation on the A 30 terminal, the raise pick-up solenoid coil Y48 and lower pick-up solenoid coil Y49 are actuated by module A20.

Connector pin definition:

Socket Y48, Y49



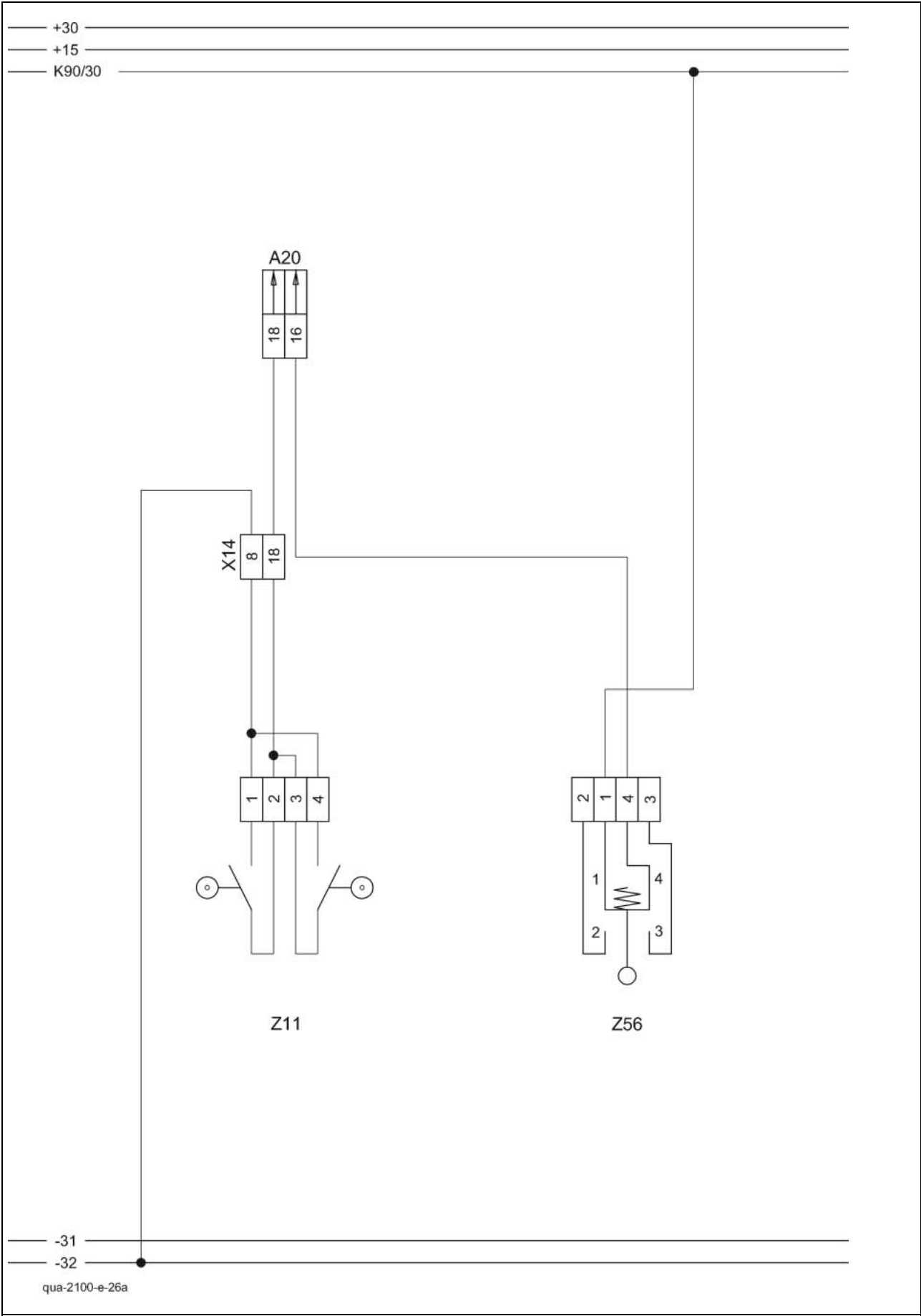
Connector	mm ²	Colour
A20 - 38	2.5	bk
A20 - 39	2.5	bk
A20 - 46	0.75	bl
A20 - 52	0.75	bk/rd
Y48 - 1	0.75	br
Y48 - 2	0.75	bl
Y49 - 1	0.75	br
Y49 - 2	0.75	bk/rd/wh

26a

Machine monitoring

Quadrant 2100 RC and 2100 RF

26a - Machine monitoring, Quadrant 2100 RC and 2100 RF



Key to diagram:

- A20 CCU Module
- X14 Connector
- Z11 Twine break switch left / right
- Z56 Flywheel brake switch

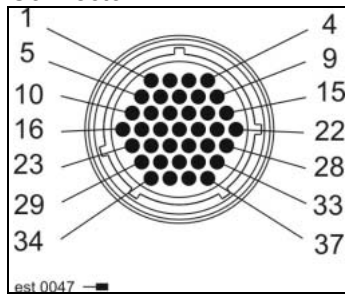
Coordinates

Description of function:

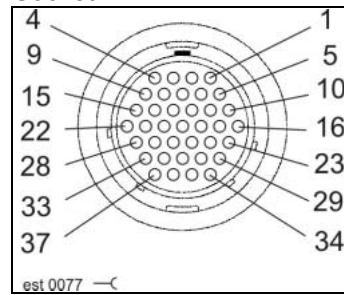
Twine break monitoring	When actuating twine break left / right switch Z 11, an earth signal is connected to module A 20. The fault is displayed in terminal A 30.
Flywheel brake monitoring	Upon actuation of the flywheel brake switch Z 56 an earth signal is connected to module A 20. The fault is displayed in terminal A 30.

Connector pin definition:

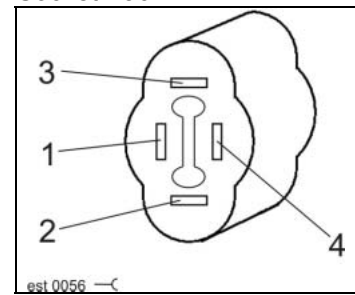
Connector X14



Socket X14



Socket Z56



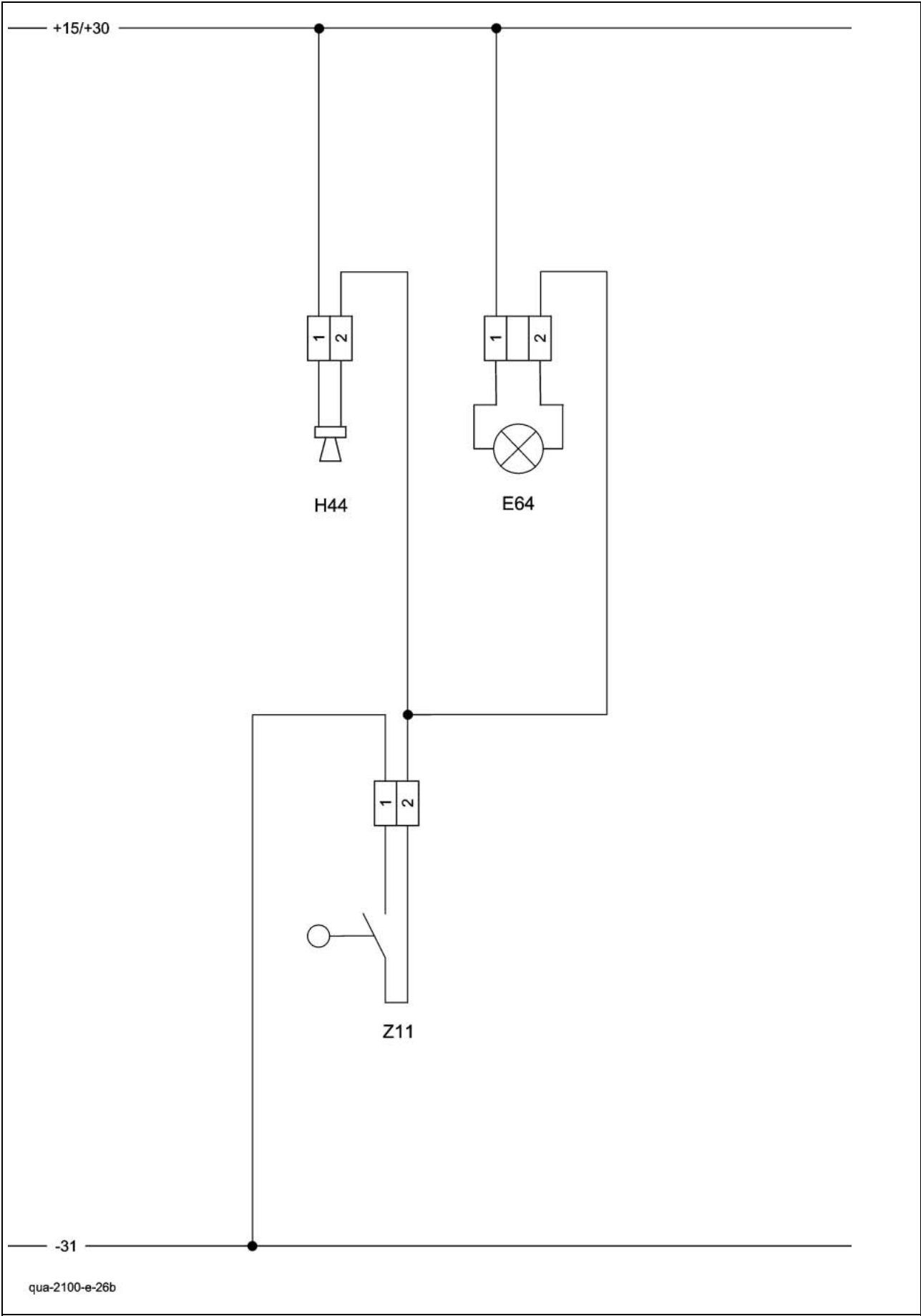
Connector	mm ²	Colour
A20 - 16	0.5	br/bk
A20 - 18	0.5	vi/rd
X14 - 8	1.5	br/rd
X14 - 18	0.5	wh/gr
Z11 - 1	0.5	br/rd
Z11 - 2	0.5	wh/gr
Z11 - 3	0.5	wh/gr
Z11 - 4	0.5	br/rd
Z56 - 1	0.5	bk/rd
Z56 - 4	0.5	or/bk

26b

Machine monitoring

Quadrant 2100 without rotor

26b - Machine monitoring, Quadrant 2100 without rotor



Key to diagram:

- E 64 Twine break signal light
- H44 Buzzer
- Z11 Twine break switch left / right

Coordinates

Description of function:

Twine break monitoring

When the twine break left / right switch Z11 is actuated, an earth signal is connected to H44 and H64. H44 and H64 give a warning.

Connector pin definition:

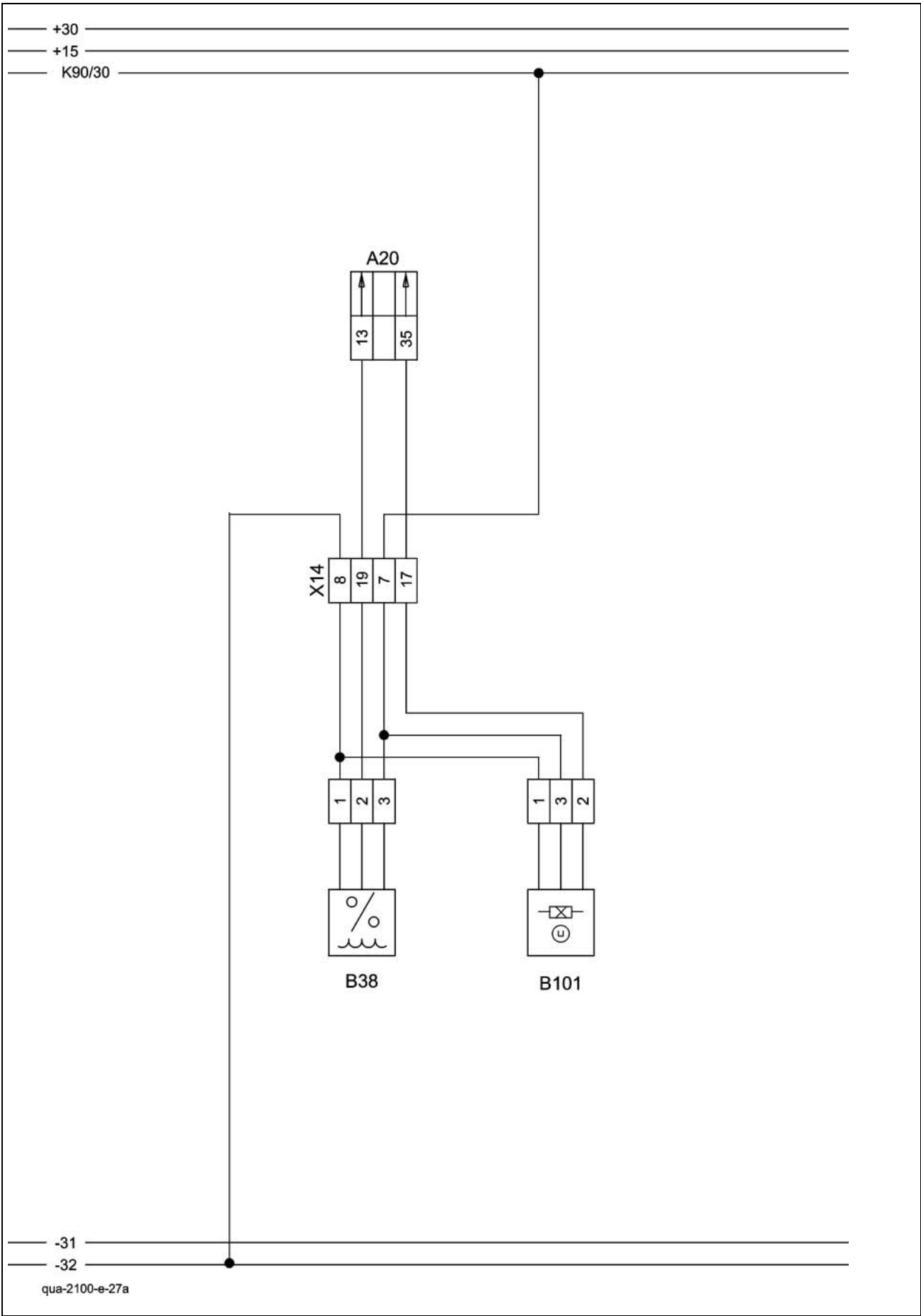
Connector	mm ²	Colour
H44 - 1	1.0	br/wh
H44 - 2	1.0	bk
H64 - 1	1.0	bk
H64 - 2	1.0	br/wh
Z11 - 1	1.0	br
Z11 - 2	1.0	br/wh

27a

Operating displays (bale discharge, crop moisture)

Quadrant 2100 RC and 2100 RF

27a - Operating displays (bale discharge, crop moisture),
Quadrant 2100 RC and 2100 RF



Key to diagram:

- A20 CCU Module
- B38 Crop moisture sensor
- B101 Bale discharge sensor
- X14 Connector

Coordinates

Measured value table:

Item	Component	Measured value	Remark
B38	Sensor	0 to 800 Hz	- Frequency
B101	Sensor	LED bright = low (0 – 1 V) LED weak = high (6 – 12 V)	Metal no metal

Description of function:

Moisture monitoring

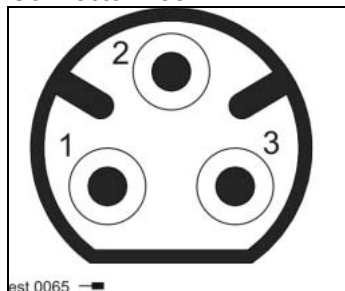
According to the measured resistance of the crop at the sensor, crop moisture sensor B 38 transmits a frequency signal to module A 20. This value is displayed in terminal A 30.

Bale discharge monitoring

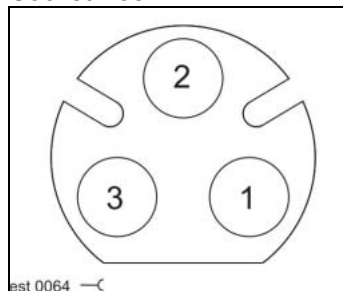
When the finished bale leaves the bale chute, the bale discharge sensor B 101 transmits a signal to module A 20. This process is displayed in terminal A 30.

Connector pin definition:

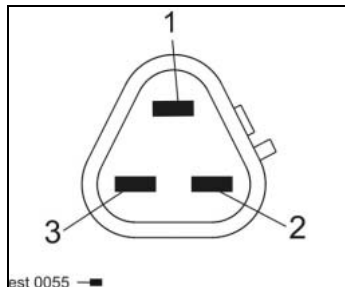
Connector B38



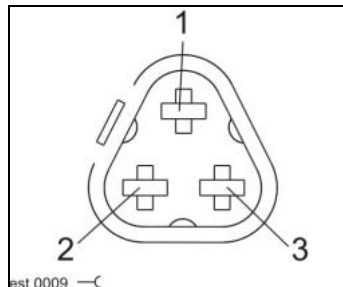
Socket B38



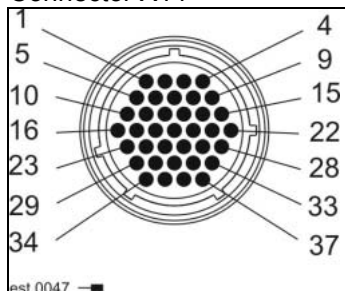
Connector B101



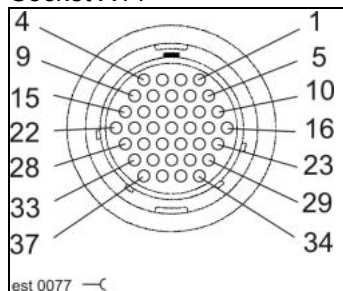
Socket B101



Connector X14



Socket X14



Connector	mm ²	Colour
A20 - 13	0.5	gn/wh
A20 - 25	0.5	rd/bk
A20 - 35	0.5	bl/gr
B38 - 1	0.5	br/rd
B38 - 2	0.5	gn/wh
B38 - 3	0.5	bk/rd
B101 - 1	0.5	br/rd
B101 - 2	0.5	bl/gr
B101 - 3	0.5	bk/rd

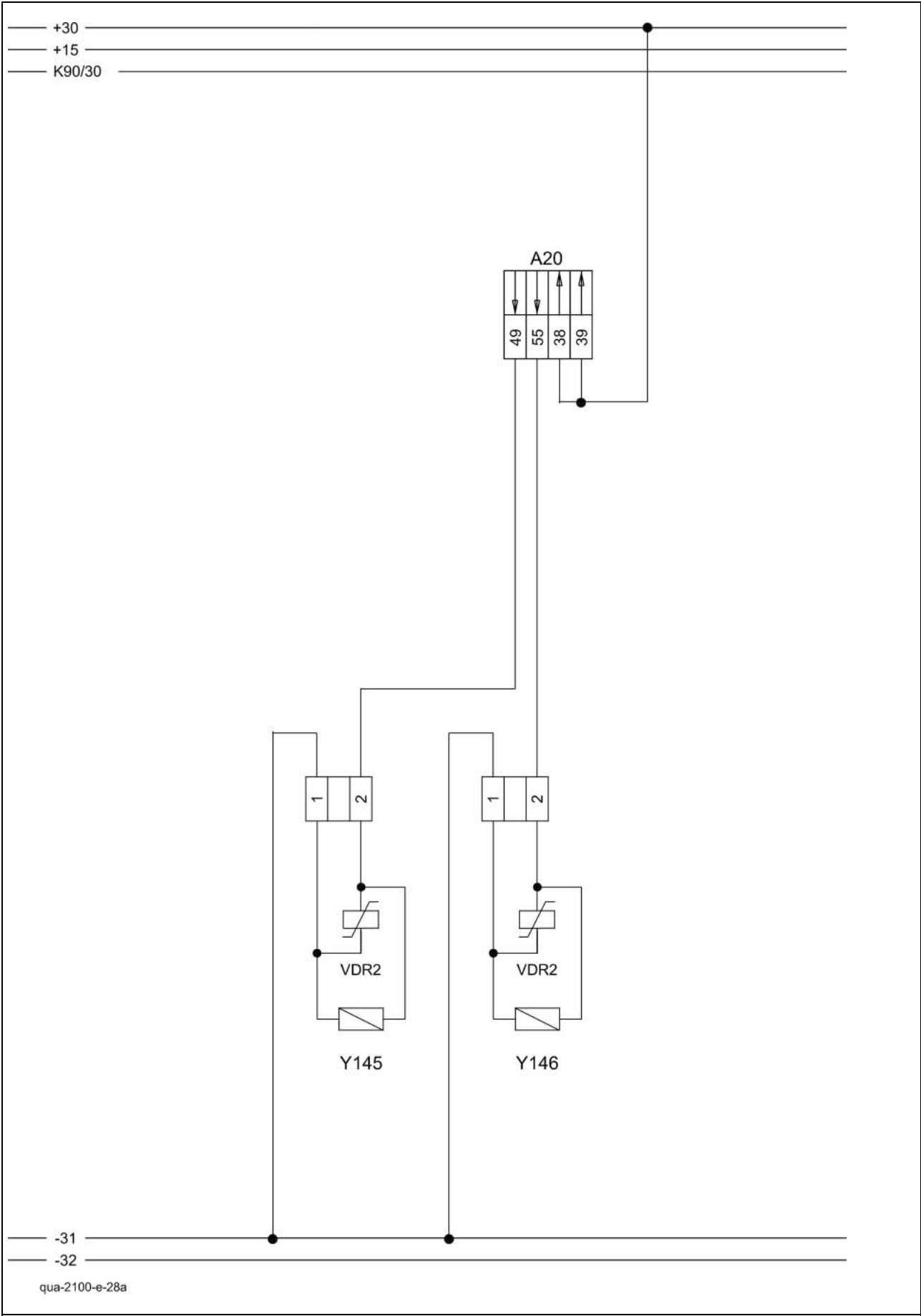
Connector	mm ²	Colour
X14 - 7	1.5	bk/rd
X14 - 8	1.5	br/rd
X14 - 17	0.5	bl/gr
X14 - 19	0.5	gn/wh

28a

Steering axle lock ON/OFF

Quadrant 2100 RC and 2100 RF

28a - Steering axle lock ON/OFF, Quadrant 2100 RC and 2100 RF



Key to diagram:

- A20 CCU Module
- Y145 Steering axle lock ON solenoid coil
- Y146 Steering axle lock OFF solenoid coil

Coordinates

Measured value table:

Item	Component	Measured value	Remark
Y145	Solenoid coil		See inscription
Y146			

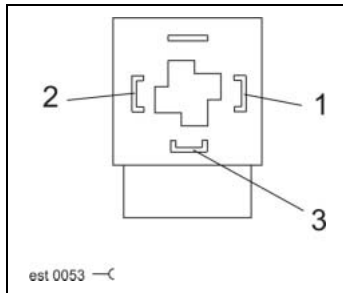
Description of function:

Steering axle lock ON/OFF

According to the operation on the A30 terminal, the steering axle lock ON solenoid coil Y145 or the steering axle lock OFF solenoid coil Y146 is actuated by module A20.

Connector pin definition:

Socket Y145 - Y146



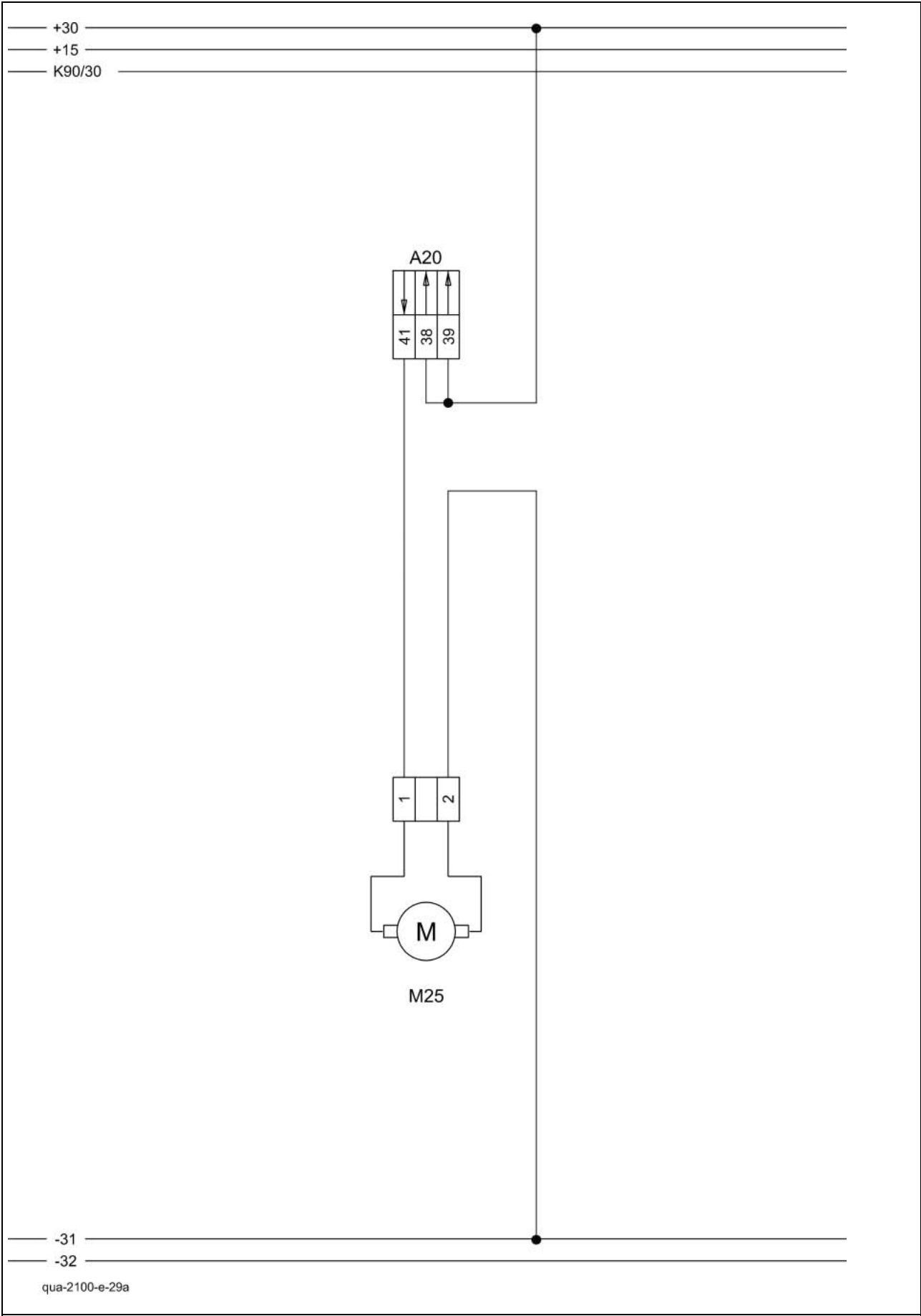
Connector	mm ²	Colour
A20 - 38	2.5	bk
A20 - 39	2.5	bk
A20 - 49	0.75	rd/wh
A20 - 55	0.75	bl/gn
Y145 - 1	0.75	br
Y145 - 2	0.75	rd/wh
Y146 - 1	0.75	br
Y146 - 2	0.75	bl/gn

29a

Central lubrication system

Quadrant 2100 RC and 2100 RF

29a - Central lubrication system, Quadrant 2100 RC and 2100 RF



Key to diagram:

- A20 CCU Module
- M25 Central lubrication system motor

Coordinates

Measured value table:

Item	Component	Measured value	Remark
M25	Motor	$I_{max} = 6.5\text{ A}$	

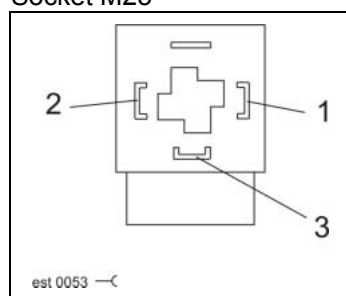
Description of function:

Automatic
central lubrication system

At a drive speed of > 500 rpm, the automatic lubrication system is activated by module A20 according to the programmed lubricating and pre-set interval periods. The operating status is displayed in terminal A30.

Connector pin definition:

Socket M25

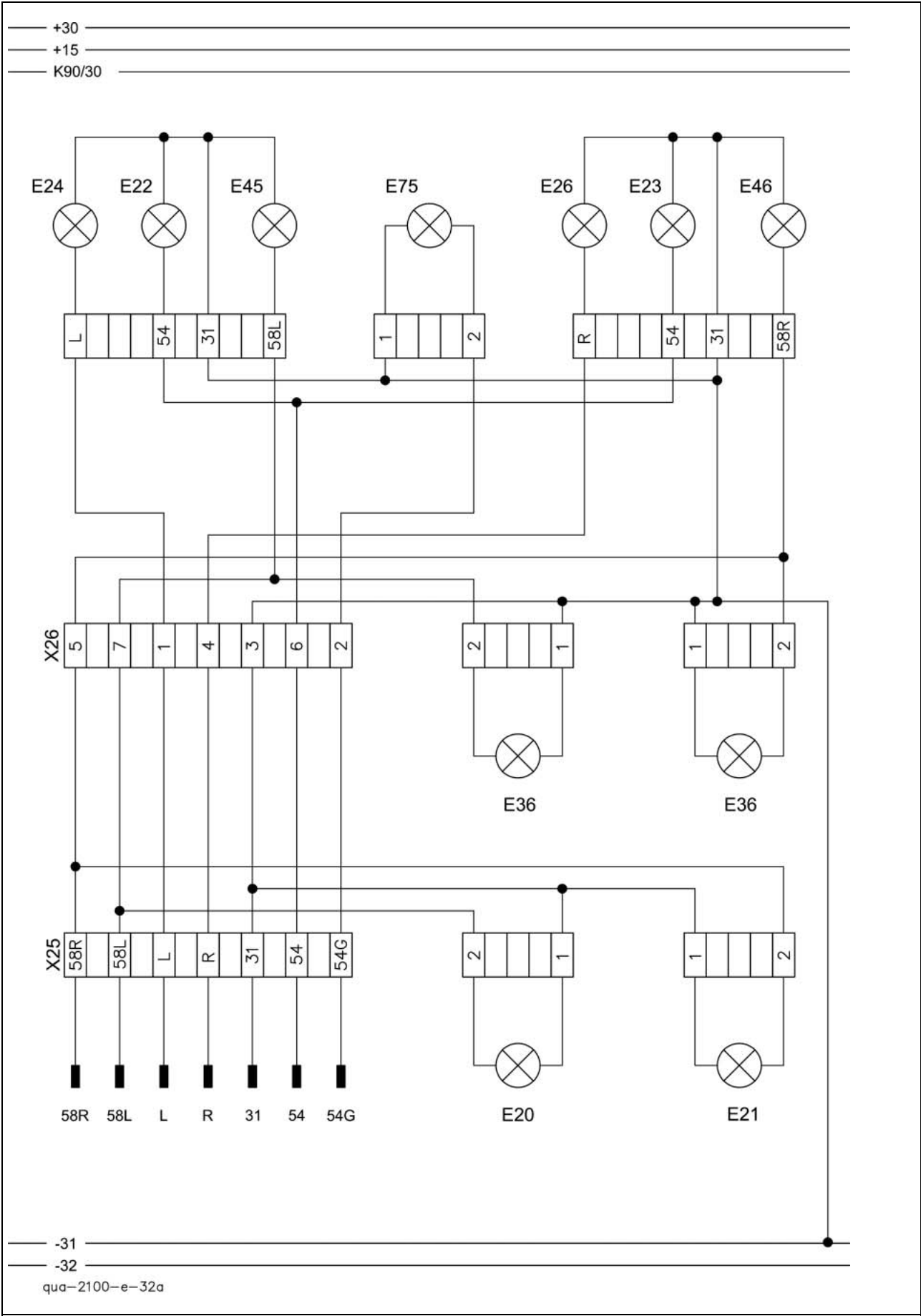


Connector	mm ²	Colour
A20 - 38	2.5	bk
A20 - 39	2.5	bk
A20 - 41	1.5	or/bk
M25 - 1	1.5	or/bk
M25 - 2	1.5	br

32a

Taillight, side light

32a - Taillight, side light



Key to diagram:

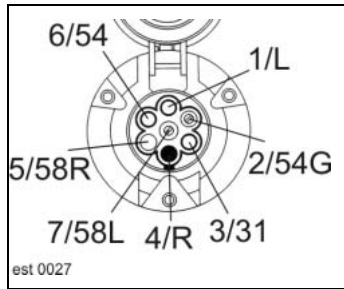
- | | |
|-----|--------------------------------|
| E20 | Side light, front left |
| E21 | Side light, front right |
| E22 | Brake light, left |
| E23 | Brake light, right |
| E24 | Indicator, rear left |
| E26 | Indicator, rear right |
| E36 | Rear number plate light |
| E45 | Taillight, left |
| E46 | Taillight, right |
| E75 | Rear fog light |
| X25 | Lighting wiring loom connector |
| X26 | Lighting wiring loom connector |

Coordinates

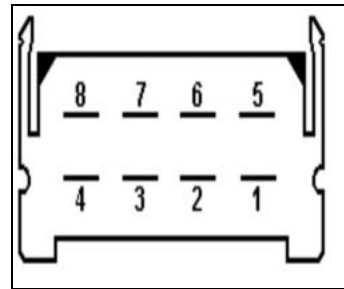
Description of function: None

Connector pin definition:

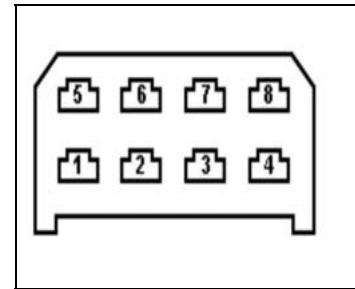
Socket X25



Connector X26



Socket X26



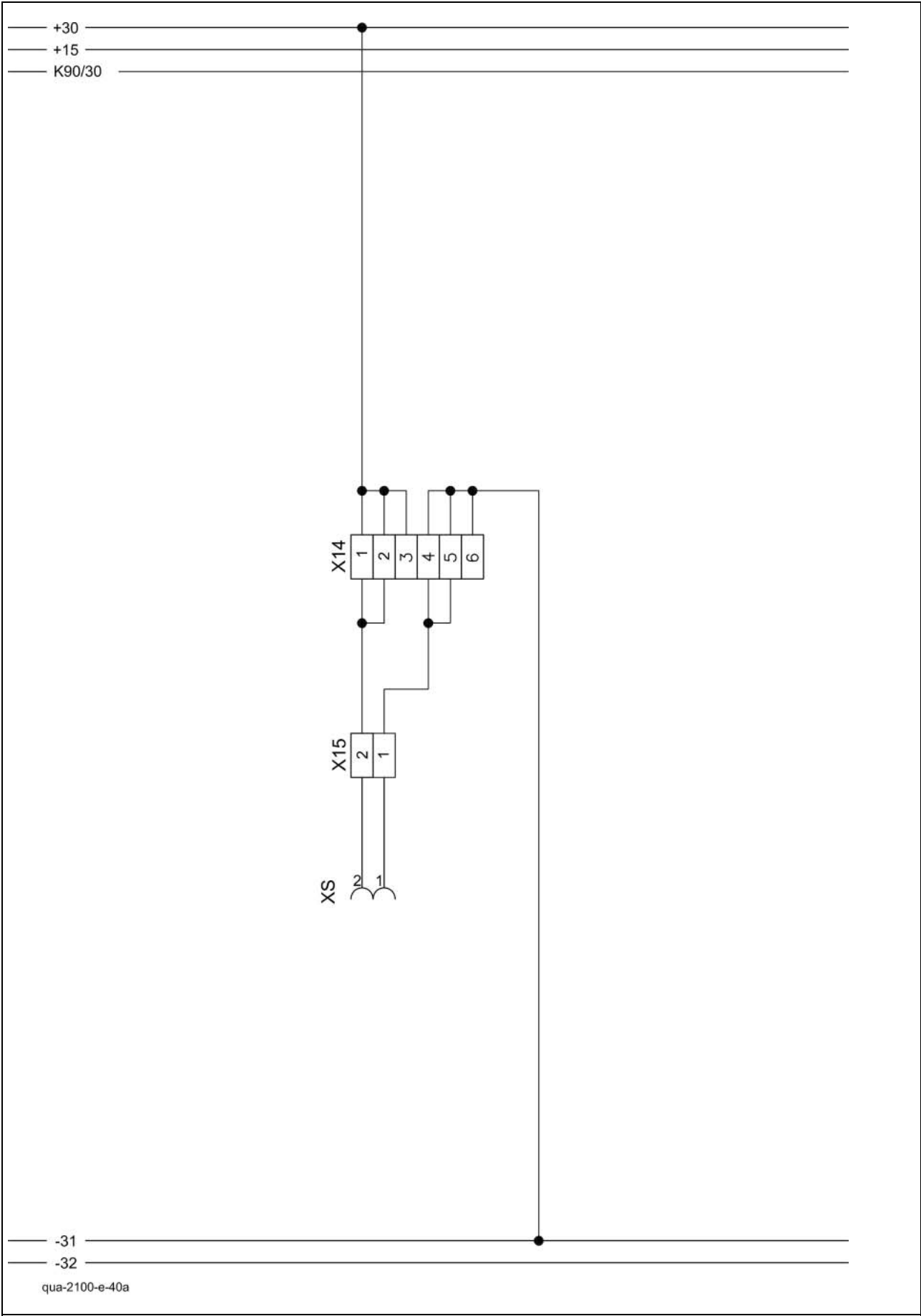
Connector	mm ²	Colour
X25 - 58L	1.5	gr-bk
X25 - 58R	1.5	gr-rd
X25 - L	1.5	bk-wh
X25 - R	1.5	bk-gn
X25 - 31	1.5	br
X25 - 54	1.5	bk-rd
X25 - 54G	1.5	bl
X26 - 1	1.5	bk-wh
X26 - 2	1.5	bl
X26 - 3	1.5	br
X26 - 4	1.5	bk-gn
X26 - 5	1.5	gr-rd
X26 - 6	1.5	bk-rd
X26 - 7	1.5	gr-bk

40a

Additional sockets

Quadrant 2100 RC and 2100 RF

40a - Additional sockets, Quadrant 2100 RC and 2100 RF



Key to diagram:

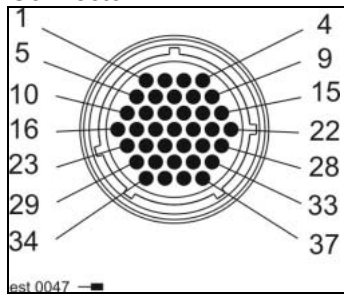
- X14 Connector
- X15 Connector
- XS Service socket 12 V

Coordinates

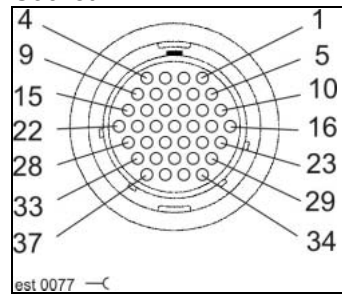
Description of function: None

Connector pin definition:

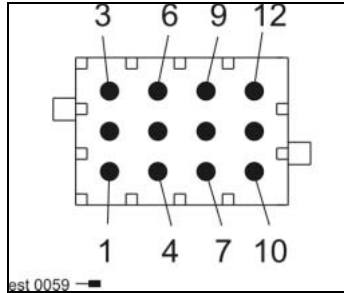
Connector X14



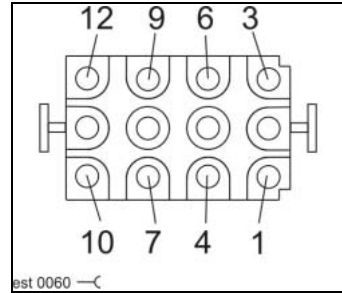
Socket X14



Connector X15



Socket X15



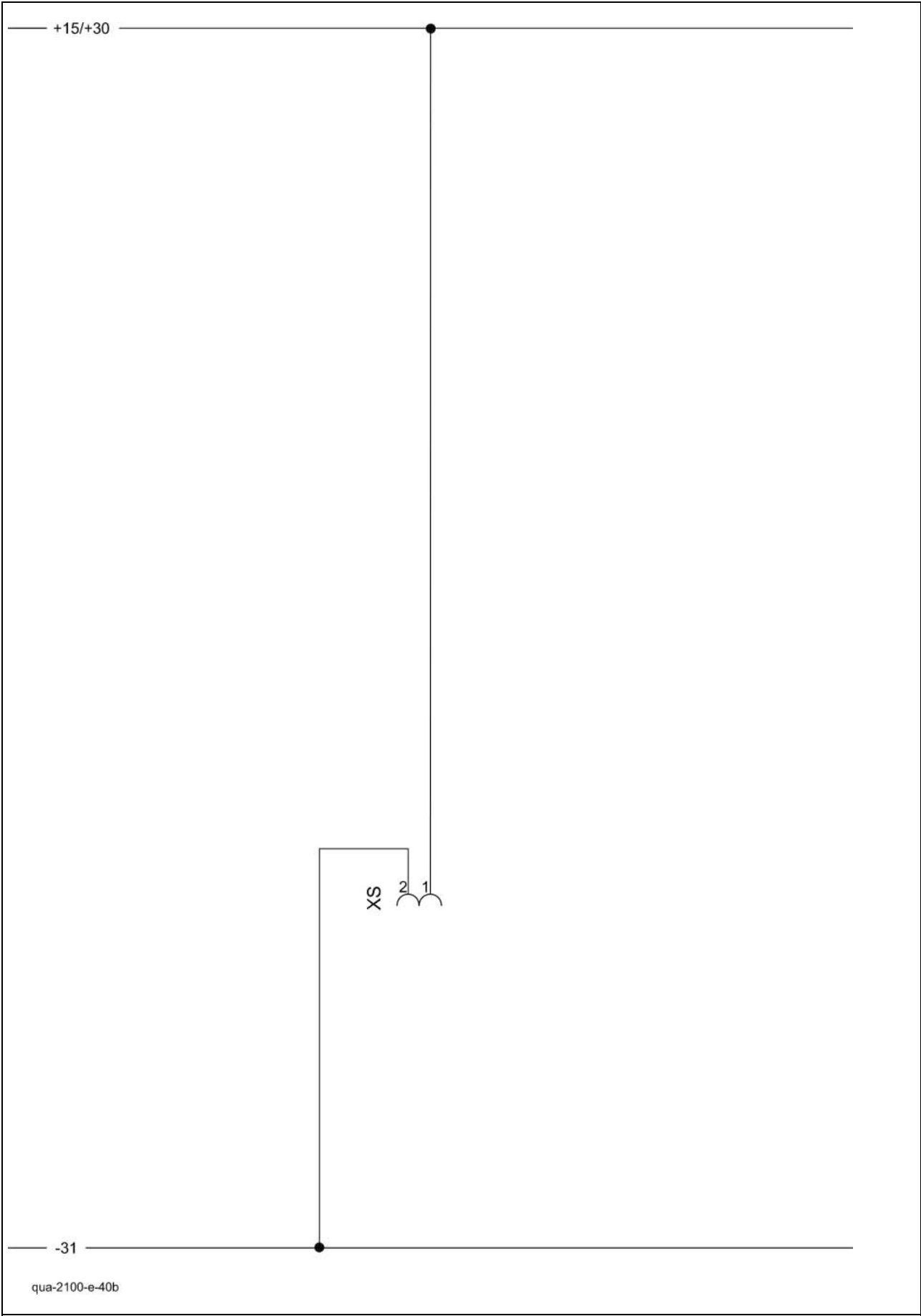
Connector	mm ²	Colour
X14 - 1	1.5	bk
X14 - 2	1.5	bk
X14 - 3	1.5	bk
X14 - 4	1.5	br
X14 - 5	1.5	br
X14 - 6	1.5	br
X15 - 1	2.5	br
X15 - 2	2.5	bk

40b

Additional sockets

Quadrant 2100 without rotor

40b - Additional sockets, Quadrant 2100 without rotor



Key to diagram:

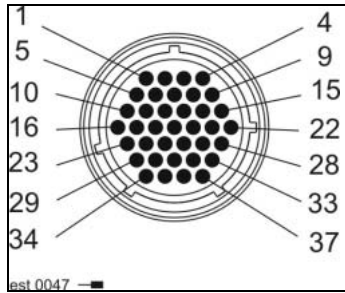
XS Service socket 12 V

Coordinates

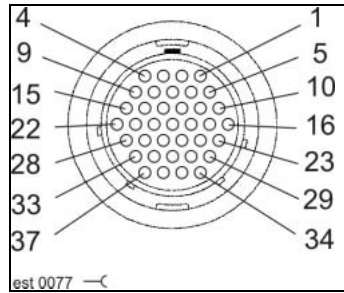
Description of function: None

Connector pin definition:

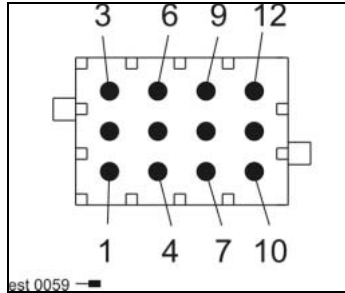
Connector X14



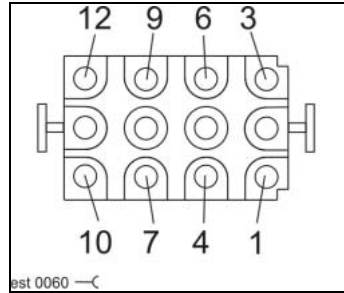
Socket X14



Connector X15



Socket X15



Connector	mm ²	Colour
XS - 1	1.0	br
XS - 2	1.0	bk

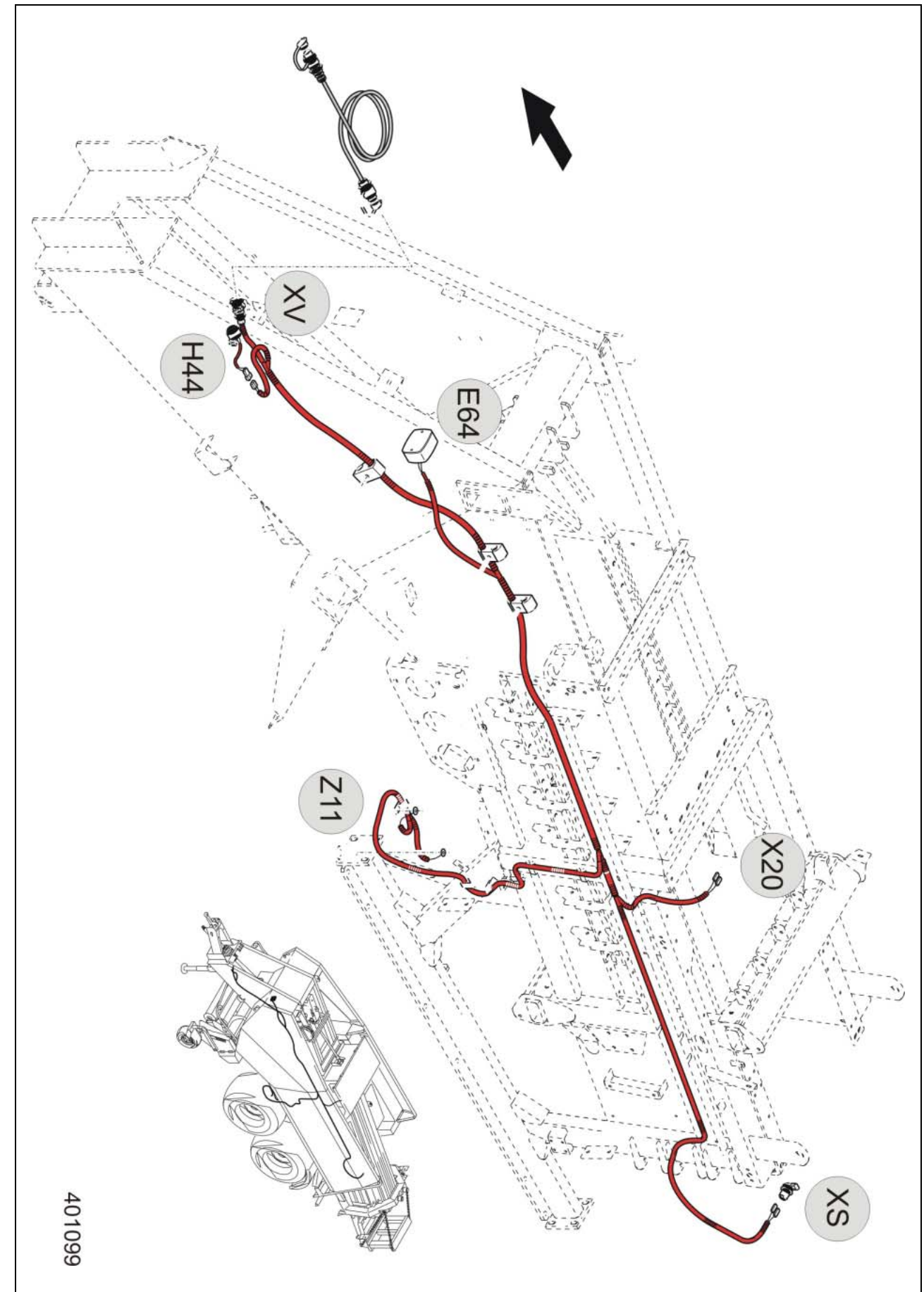
Wiring loom A

Quadrant 2100RC without rotor

Wiring loom A (Quadrant 2100RC without rotor)

Key to diagram:

E64	Twine break signal light.....	26b
H44	Buzzer	26b
X20	Connector.....	11b, 11c
XS	Service socket outlet 12V.....	40b
XV	Power supply connector	1b
Z11	Twine break switch left / right	26b



Wiring loom A, part 1

Quadrant 2100RC

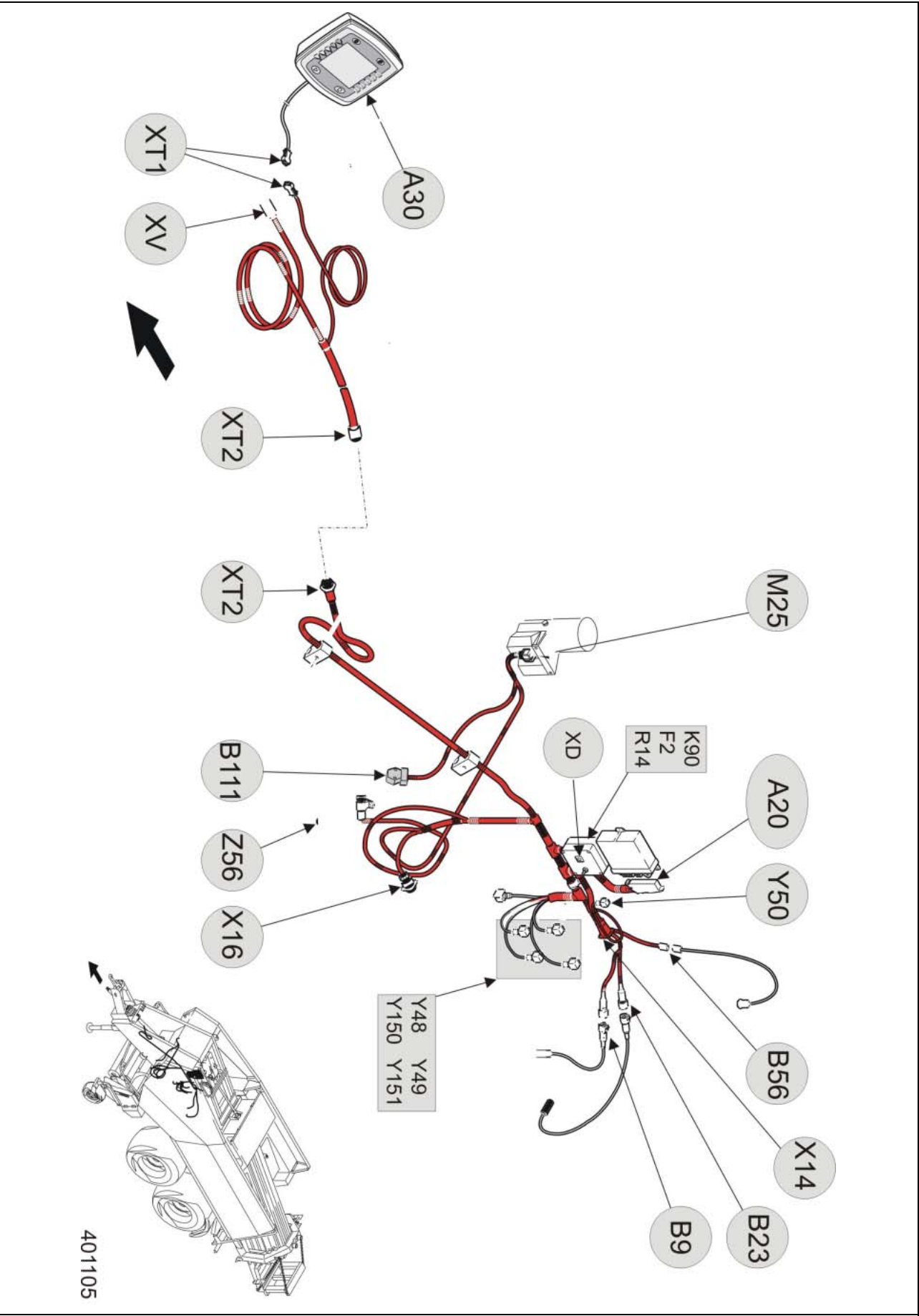
Wiring loom A, part 1

Quadrant 2100RF

Wiring loom A, part 1 (Quadrant 2100RF)

Key to diagram:

A30	Terminal (Communicator)	1a
B9	Drive speed sensor (red), vertical	8a
B23	Feed rake speed sensor (blue) horizontal	8a
B56	Baling pressure sensor	10a
B111	ROTOCUT knife position sensor	8a
F2	Fuse 25 A (switchbox)	1a
K90	Relay (switchbox)	1a
M25	Central lubrication system motor	29a
R14	CAN bus terminating resistor 122 Ω	06a
XA20	CCU module connector	06a
XD	CAN bus connector (7-pin)	06a
XT1	Terminal connector	1a
XT2	Terminal connector	1a
XV	Power supply connector	1a
X14	Connector	1a, 11a, 13a, 26a, 27a, 40a
X16	Connector	26a
Y48	Pick-up raise solenoid coil	20a
Y49	Pick-up lower solenoid coil	20a
Y50	Baling pressure build-up solenoid coil	10a
Y150	Solenoid coil	
	Direction P – A reversing valve	7a
Y151	Solenoid coil	
	Direction P – B reversing valve	7a
Z56	Flywheel brake connector	26a



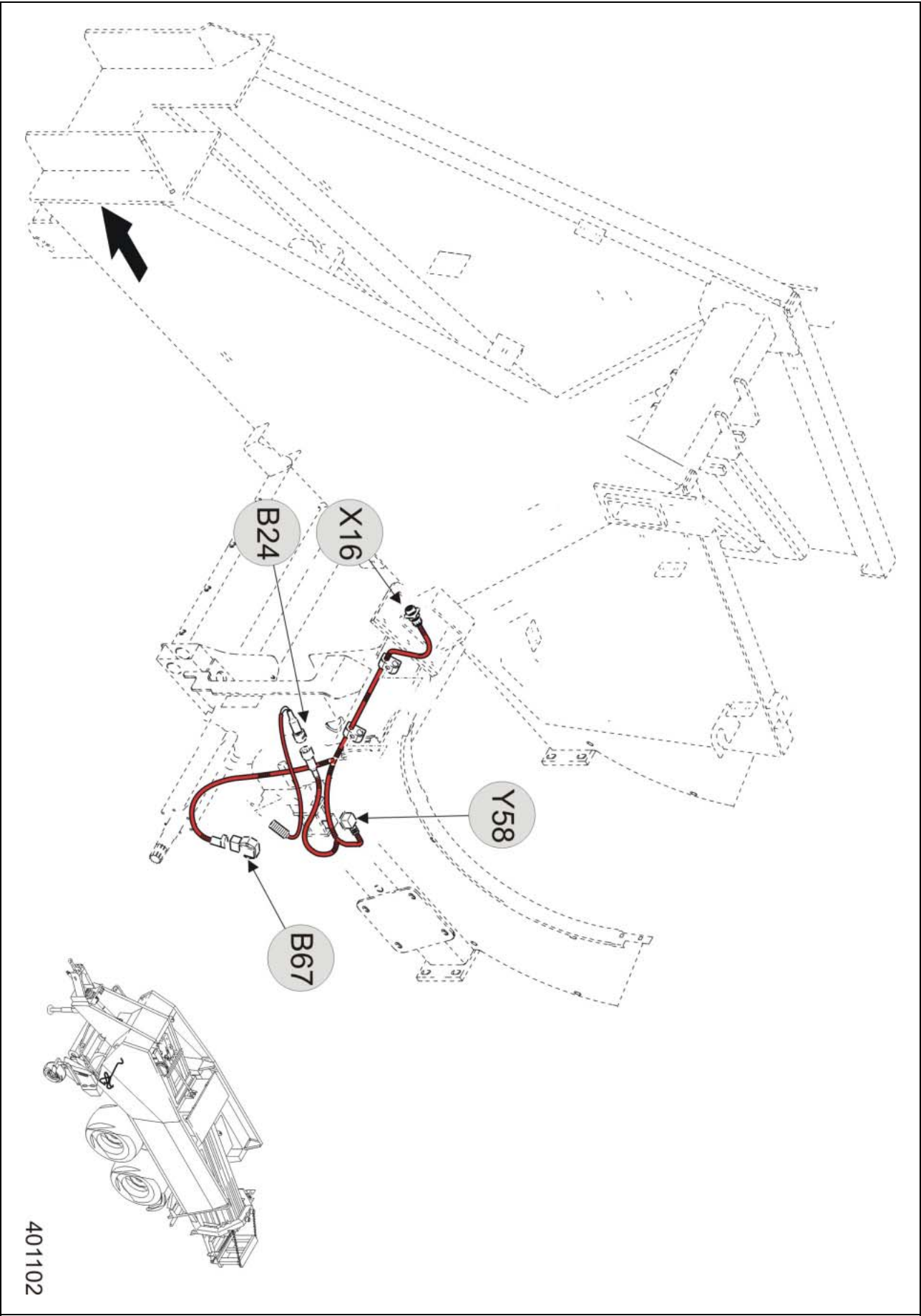
Wiring loom A, part 2

Quadrant 2100RC and Quadrant 2100RF

Wiring loom A, part 2 (Quadrant 2100RC and Quadrant 2100RF)

Key to diagram:

- B24 Rotor speed sensor 8a
- B67 Cutting frame position sensor 8a
- X16 Connector 8a, 26a
- Y58 Rotor blocking solenoid coil 8a



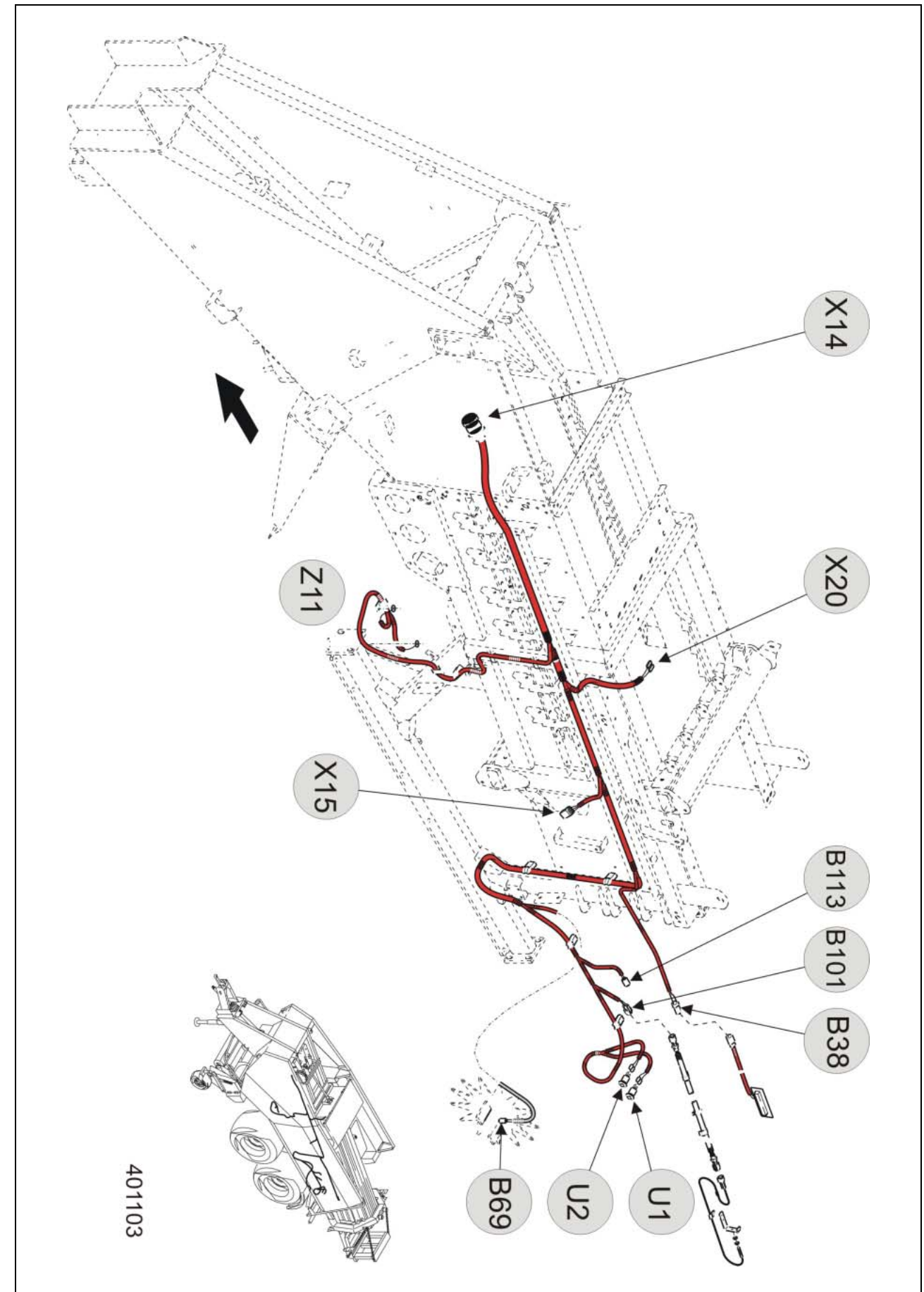
Wiring loom B, part 1

Quadrant 2100RC and Quadrant 2100RF

Wiring loom B, part 1 (Quadrant 2100RC and Quadrant 2100RF)

Key to diagram:

B38	Crop moisture sensor	27a
B69	Metering wheel / Bale length sensor	11a
B101	Bale discharge sensor	27a
B113	Sensor Bale ejector / bale ramp function detection	13a
U1	Bale ejector switch Extend cylinder or lower bale ramp	13a
U2	Bale ejector switch Retract cylinder or raise bale ramp	13a
X14	Connector	1a, 11a, 13a, 26a, 27a, 40a
X15	Connector	40a
X20	Connector	11a, b, c
Z11	Twine break switch left / right	26a



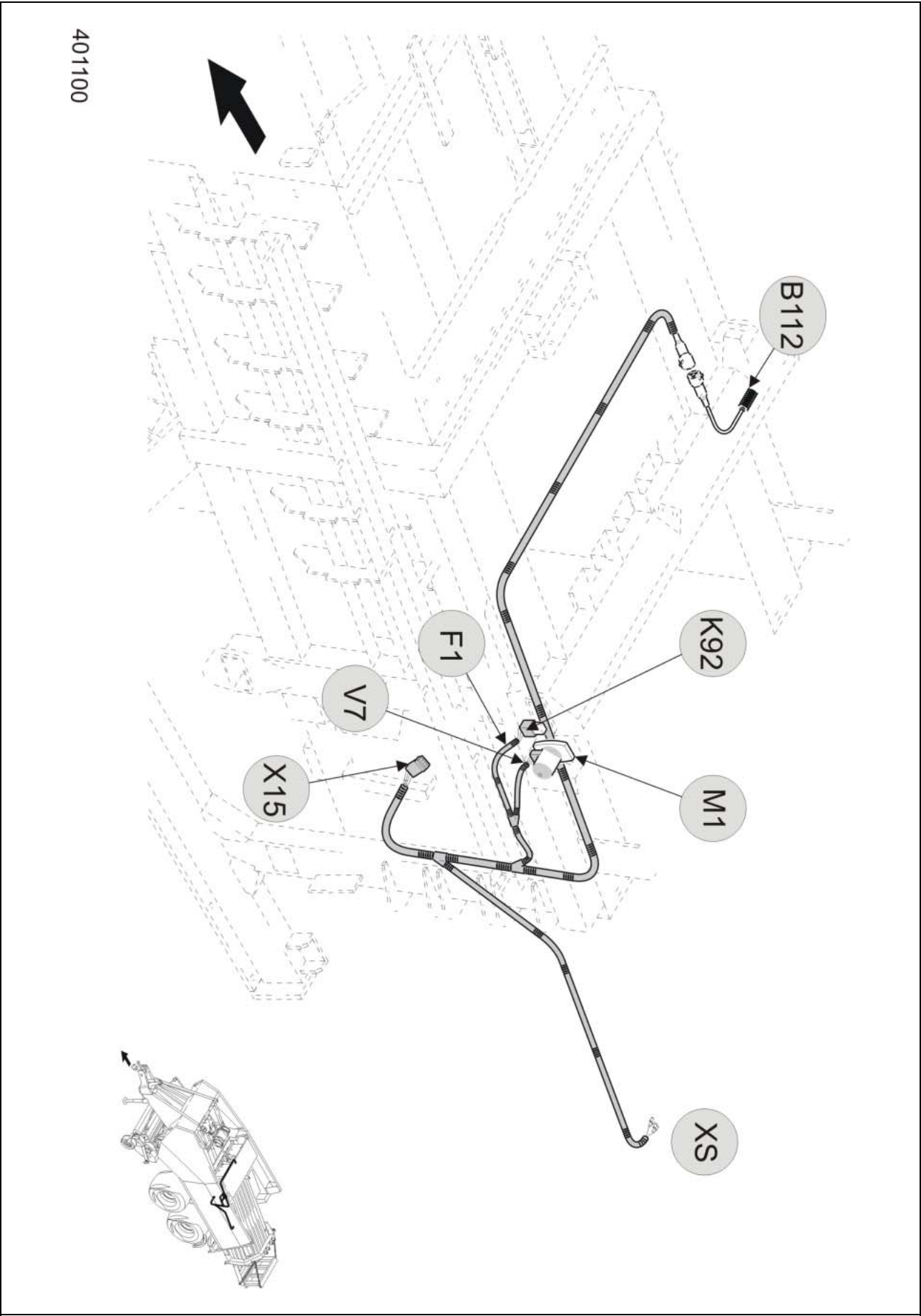
Wiring loom B, part 2

(Quadrant 2100RC and Quadrant 2100RF)

Wiring loom B, part 2 (Quadrant 2100RC and Quadrant 2100RF)

Key to diagram:

B112	Wrapping system monitoring sensor.....	11a
F1	5 A fuse	11a
K92	Wrapping release relay	11a
M1	Wrapping release motor	11a
V7	Free-wheeling diode (wrapping).....	11a
X15	Connector.....	11a, 40a
XS	Service socket outlet 12 V.....	40a

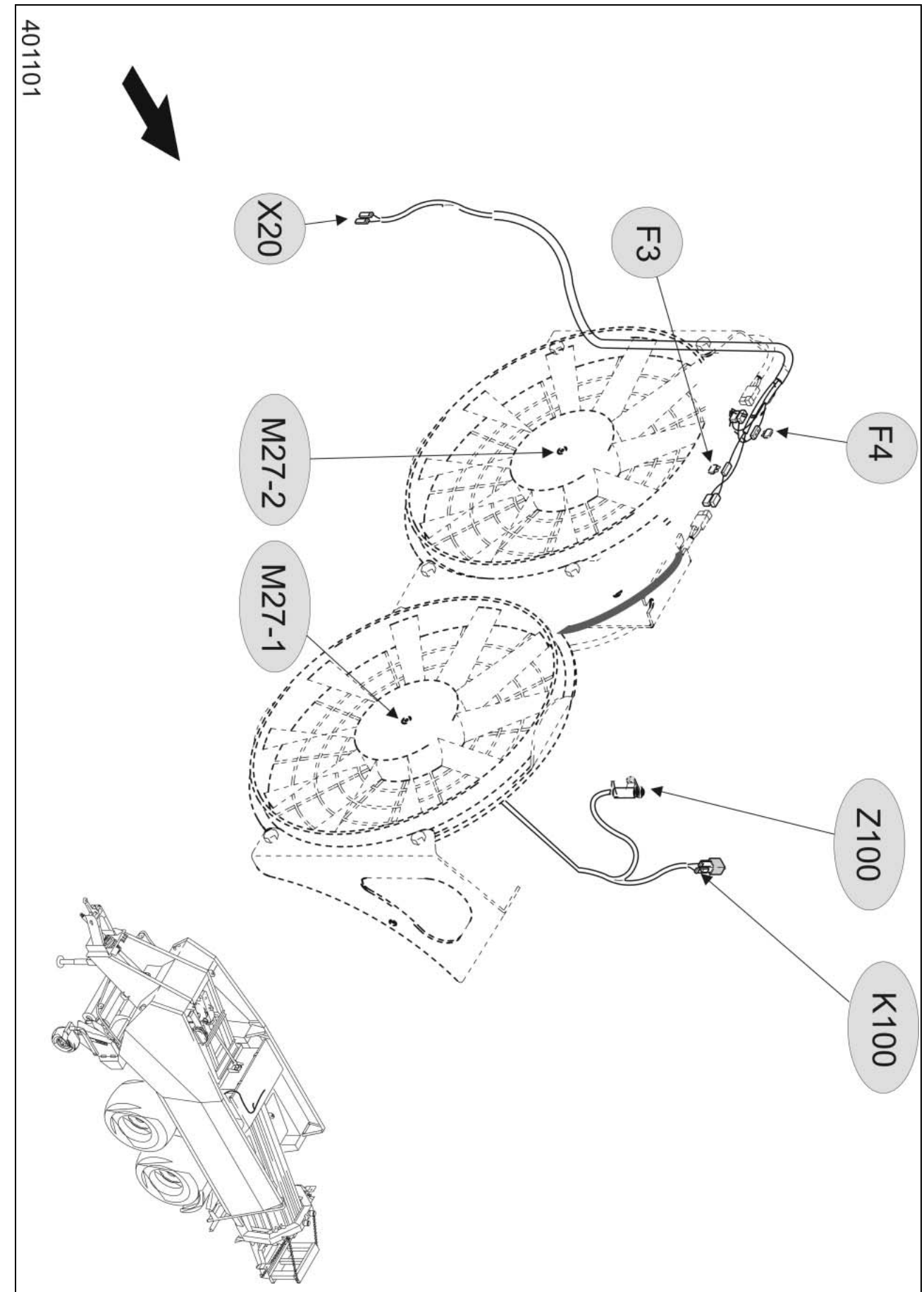


Wiring loom C

Wiring loom C

Key to diagram:

F3	7.5 A fuse	11a
F4	7.5 A fuse	11a
M27	Knotter cleaning fan motor	11a
X20	Connector	11a
Z100	Wrapping cover switch	11a

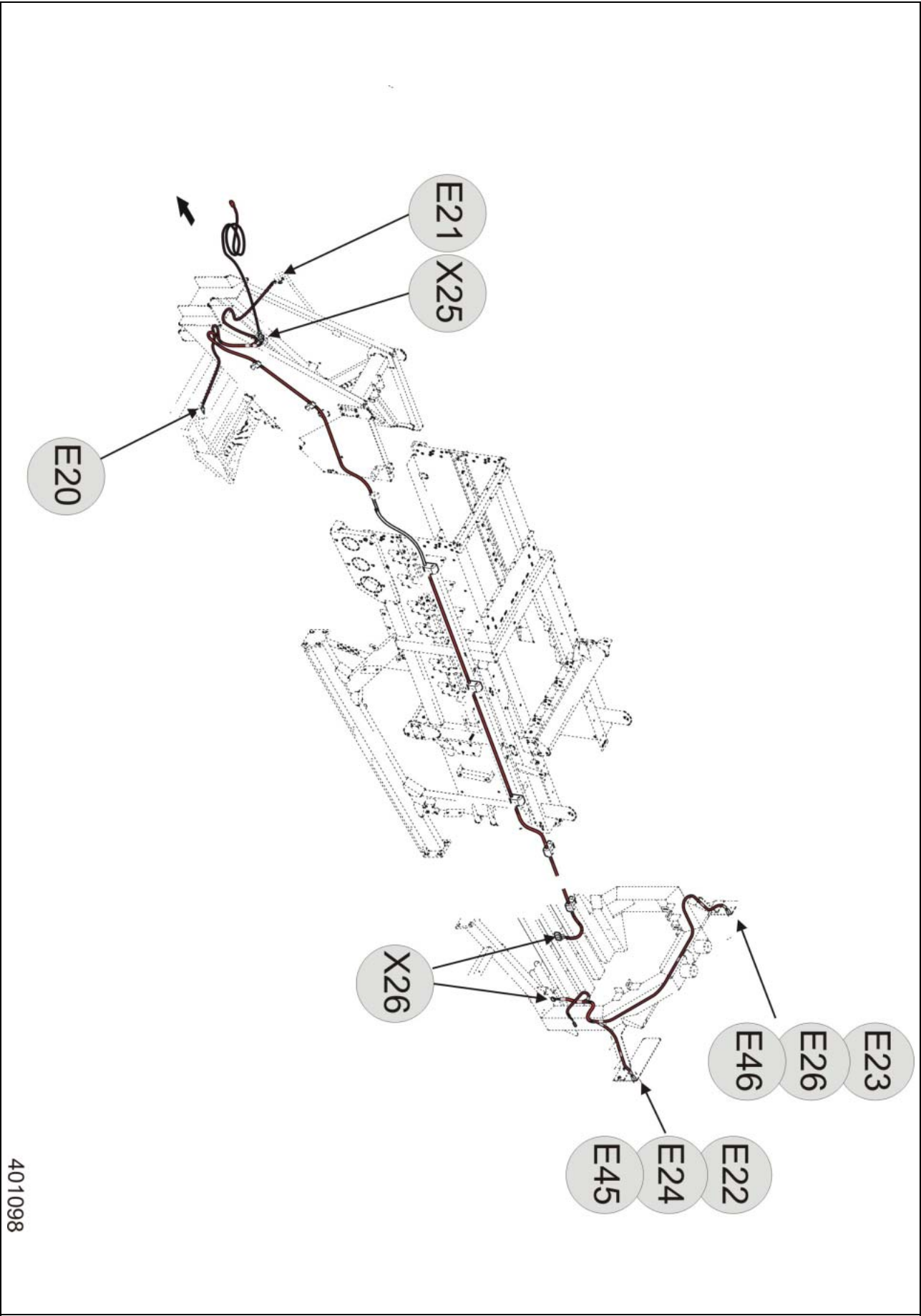


Wiring loom D

Wiring loom D

Key to diagram:

E20	Side light, front left	32a
E21	Side light, front right	32a
E22	Brake light, left	32a
E23	Brake light, right	32a
E24	Turn flasher light, rear left	32a
E26	Turn flasher light, rear right	32a
E45	Taillight, left	32a
E46	Taillight, right	32a
X25	Lighting wiring loom connector.....	32a
X26	Lighting wiring loom connector.....	32a



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