

HML 31 SERVICE-MANUAL

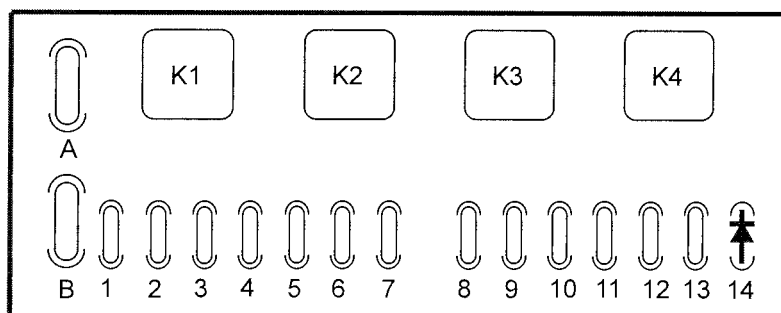
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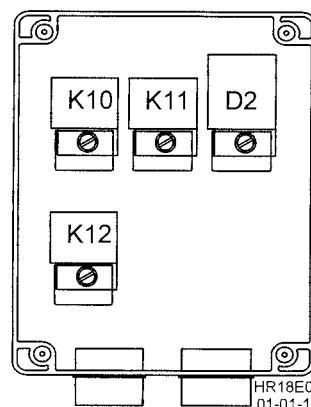
Electrical system

Fuse and relay box - assignment diagram

①



②



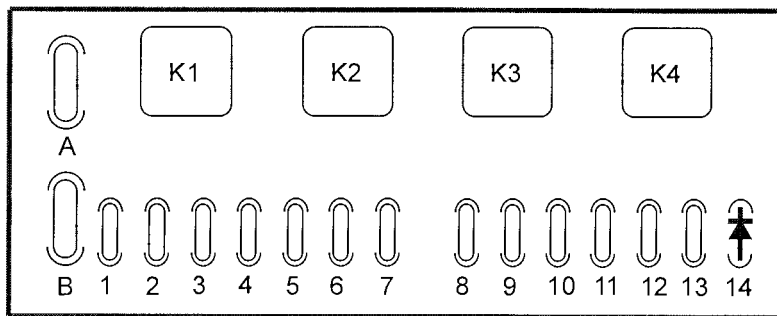
1 = Fuse and relay box.....Dashboard

2 = Relay boxUpper carriage front left

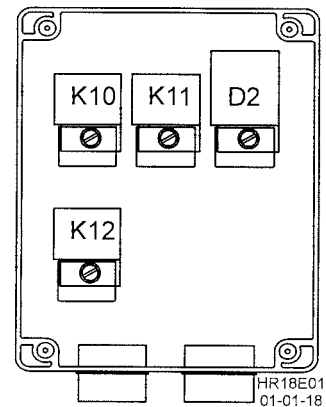
including additional equipment

Item	Ampere	Assigned to
FA	30 A	Main fuse
FB	60 A	Fuse for pre-heater system
F1	15A	Windscreen wiper
F2	10A	Instruments, indicator lamps
F3	10A	Working floodlight, front
F4	10A	Working floodlight, rear, boom-mounted working floodlight
F5	10A	Travel, fast/ slow
F6	10A	Horn
F7	15A	Heater fan
F8	10A	Generator
F9	10A	Radio
F10	10A	Travel alarm
F11	10A	Interior lighting, radio
F12	10A	Rotating beacon, immobilizer
F13	20A	Socket
F14	Diode 3A	Blocking diode for generator

1



2



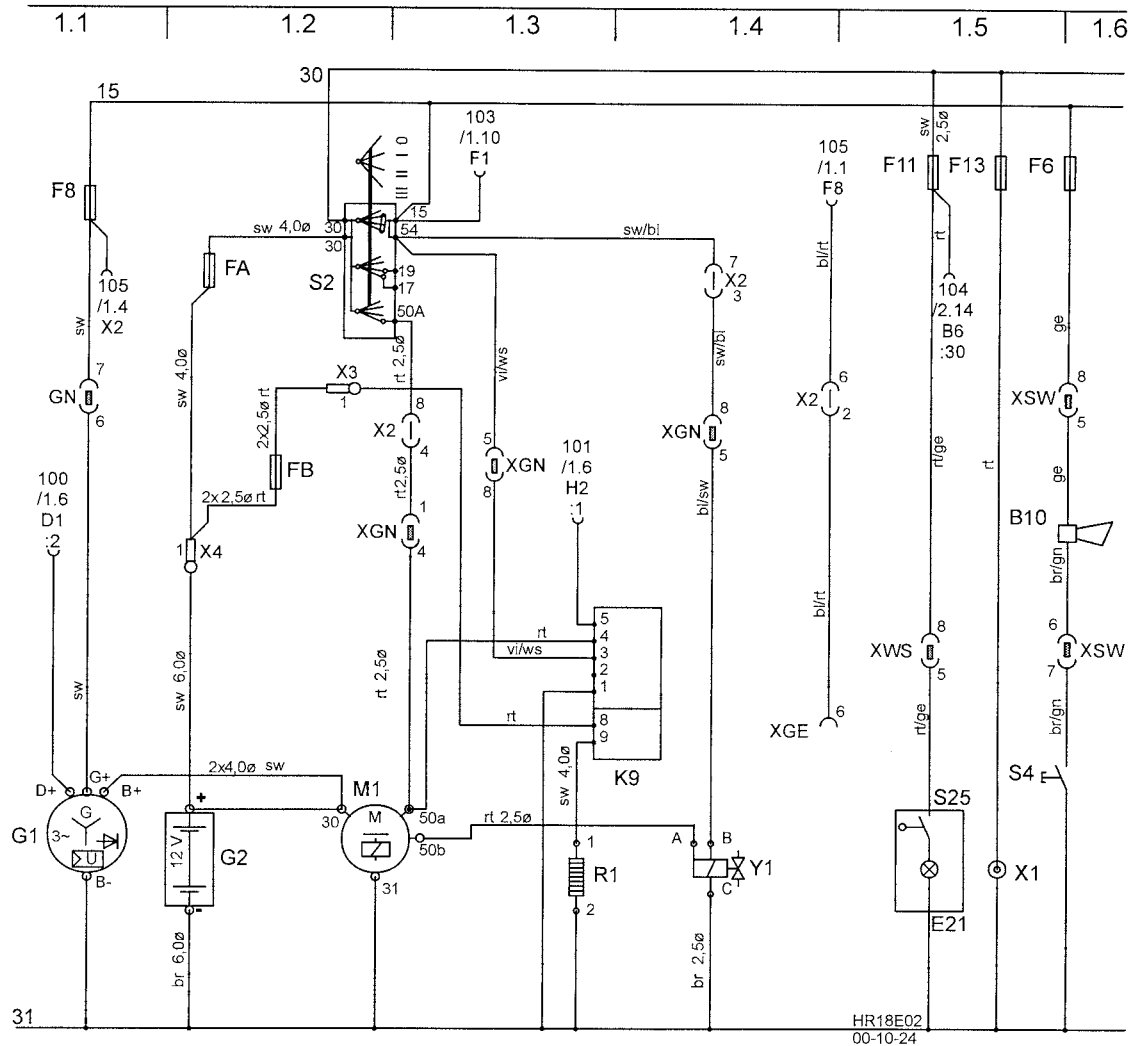
HR18E01
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K 1	Cut-off warning buzzer
K 2	Option
K 3	Option
K 4	Diode block warning buzzer
K 9	Pre-heating time control relay - at engine dividing wall, right
K 10	Travel alarm - travel forward
K 11	Travel alarm - travel reverse
K12	Travel alarm - travel
D 2	Diode block travel alarm

Cable and plug colours (X...)

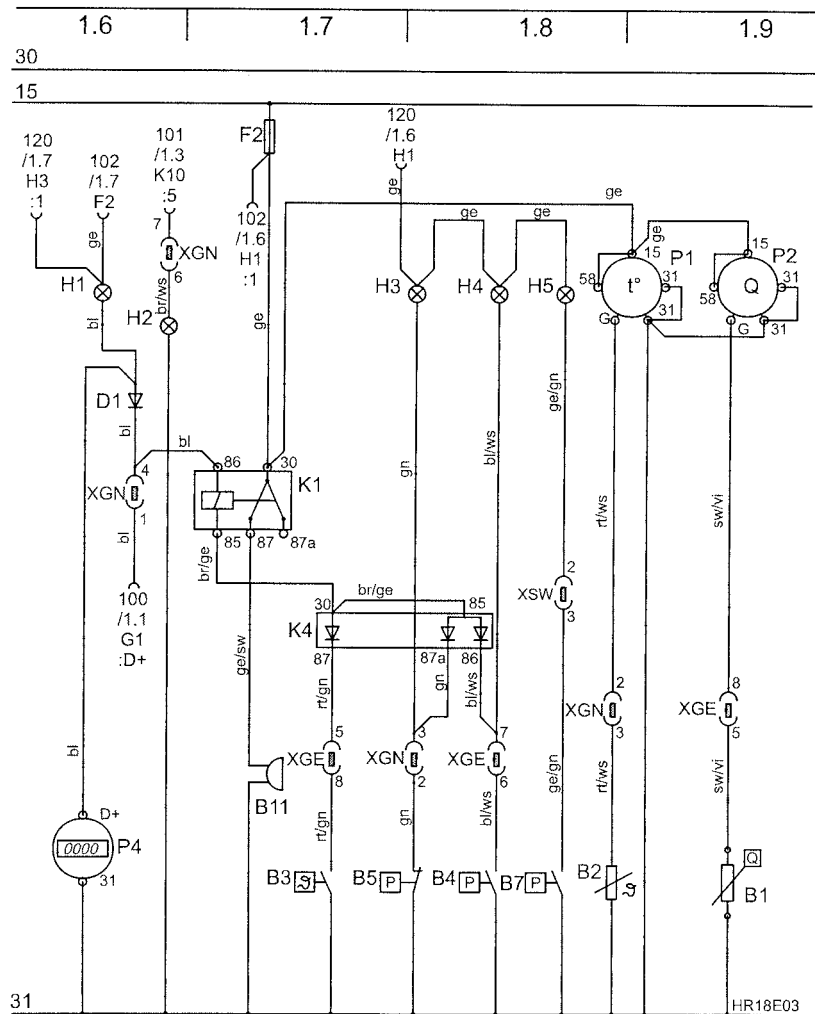
bg	beige	dgr	dark grey	hbr	light brown	rt	red
bl	blue	ge	yellow	hgr	light grey	sw	black
br	brown	gn	green	hr	light red	vi	violet
dbl	dark blue	gr	grey	nt	nature	ws	white
dbr	dark brown	hbl	light blue	or	orange		

Power supply	Pre-heat/ start-up system	Engine shut-off	Interior lighting, socket, horn
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Section	Designation	Device	Section	Designation	Device
		Power supply			Engine shut-off
1.1	G1	Generator	1.4	Y1	Engine shut-off
1.2	G2	Battery			
1.1	F8	Fuse			Interior lighting, socket, horn
		Pre-heat/ start-up system	1.5	F11	Interior lighting, radio
1.2	S2	Pre-heat/ starter switch	1.5	E21	Interior lighting
1.2	FA	Main fuse	1.5	S25	Interior lighting switch
1.2	FB	Fuse, pre-heat system	1.5	F13	Socket fuse
1.3	K9	Pre-heating time control unit	1.5	X1	Socket
1.3	R1	Glow plugs	1.6	F6	Fuse
1.2	M1	Starter	1.6	B10	Horn
			1.6	S4	Horn button

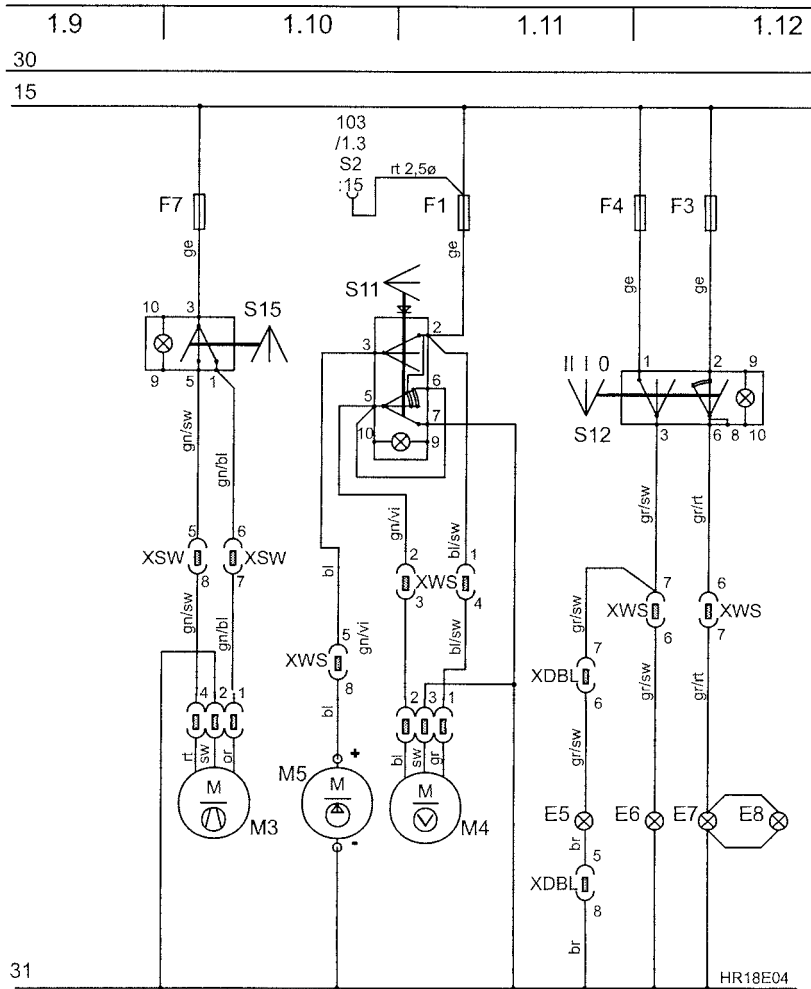
Instruments, warning device



Section	Designation	Device	Section	Designation	Device
		Instruments, warning device			
1.6	H1	Charge indicator	1.8	H3	Oil pressure checking
1.6	D1	Blocking diode for generator	1.8	B5	Oil pressure switch
1.6	P4	Operating hour meter	1.8	H4	Air filter indicator
1.6	H2	Pre-heating monitor	1.8	B4	Air filter maintenance switch
1.7	F2	Instruments, indicator lamps	1.8	H5	Hydraulic oil filter clogging checking
1.7	K1	Warning buzzer cut-off	1.8	B7	Hydraulic oil filter clogging
1.7	K4	Diode block	1.8	P1	Coolant temperature indicator
1.7	B11	Warning buzzer	1.8	B2	Coolant temperature sensor
1.7	B3	Coolant temperature warning contact	1.9	P2	Tank gauge
			1.9	B1	Tank level sensor

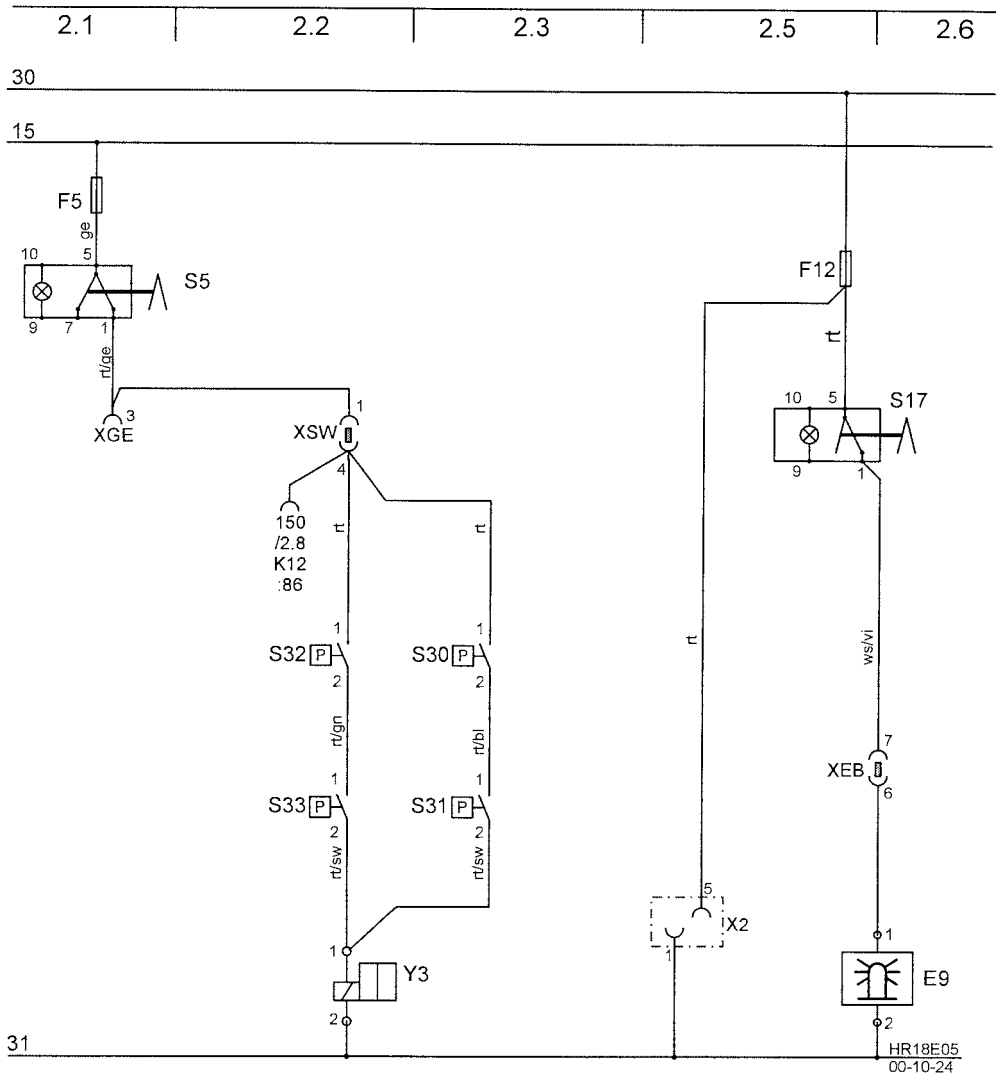
Heater fan, wash/ wipe system

Working floodlights



Section	Designation	Device	Section	Designation	Device
		Heater fan, wash/ wipe system			Working floodlights
1.10	F7	Fuse	1.12	F4	Fuse
1.10	S15	Fan switch	1.12	F3	Fuse
1.10	M3	Heater fan	1.11	S12	Switch for working floodlights
1.11	F1	Fuse	1.11	E5	Working floodlight, boom
1.10	S11	Wash/ wipe switch	1.11	E6	Working floodlight, rear
1.10	M5	Washer pump	1.12	E7	Working floodlight, front
1.11	M4	Wiper motor	1.12	E8	Working floodlight, front

Travel, fast/ slow	Rotating beacon
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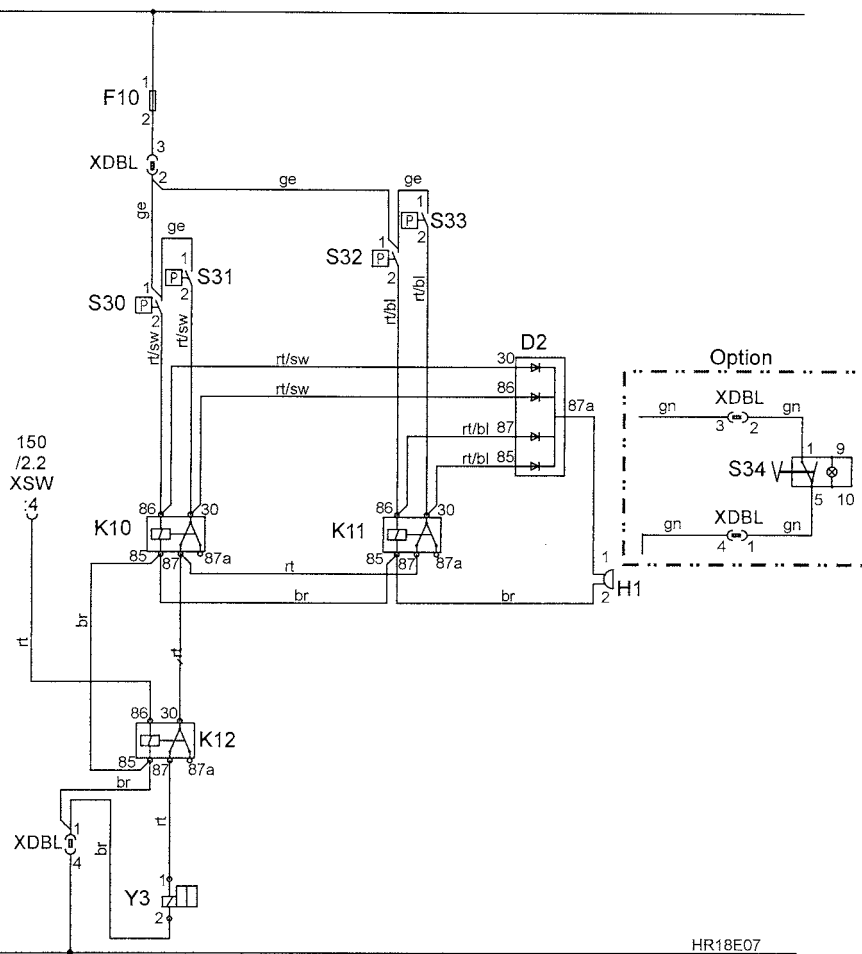
Section	Designation	Device	Section	Designation	Device
		<i>Travel, fast/ slow</i>			<i>Rotating beacon</i>
2.1	F5	Travel, fast/ slow	2.5	F12	Fuse
2.1	S5	Selection switch, fast/ slow	2.5	S17	Switch for rotating beacon
2.2	S32	Pressure switch, reverse/ left	2.6	E9	Rotating beacon
2.2	S33	Pressure switch, reverse/ right	2.5	X2	Immobilizer
2.3	S30	Pressure switch, forward/ left			
2.3	S31	Pressure switch, forward/ right			
2.2	Y3	Valve, fast/ slow			

Travel alarm (option)

2.7 | 2.8 | 2.9 | 2.10 | 2.11 | 2.12

30

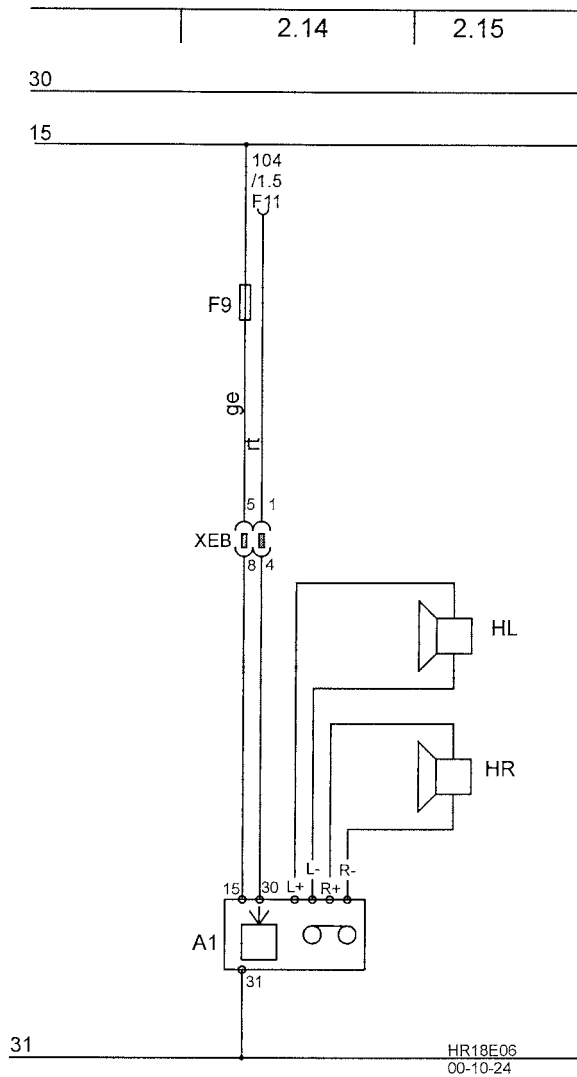
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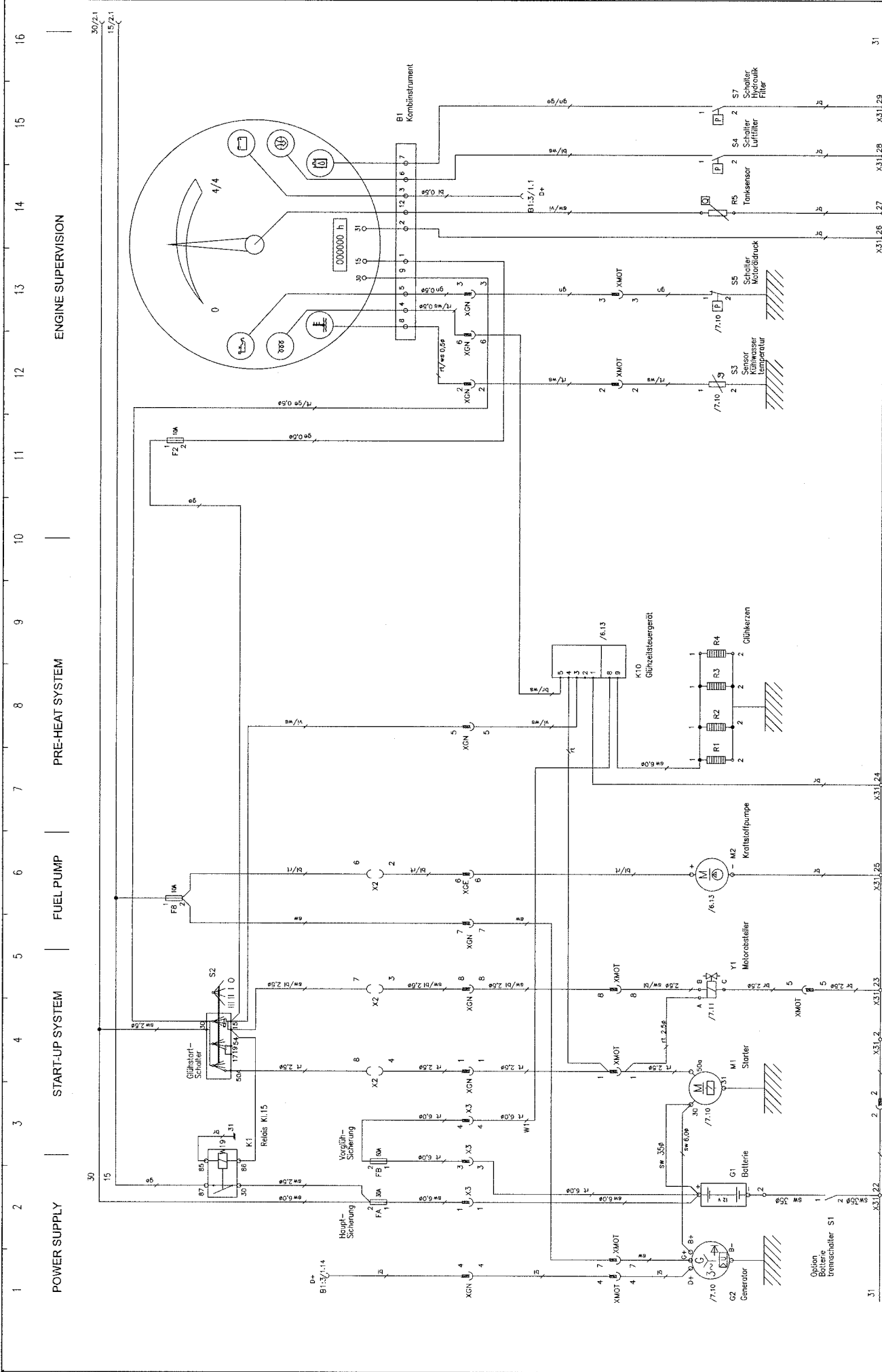
Section	Designation	Device	Section	Designation	Device
		Reversing alarm			Rotating beacon
2.8	F10	Fuse	2.10	S32	Pressure switch reverse/left
2.8	S30	Pressure switch, forward/left	2.10	S33	Pressure switch reverse/right
2.8	S31	Pressure switch, forward/right	2.10	K11	Relay travel reverse
2.8	K10	Relay travel forward	2.10	D2	Diode block
2.8	K12	Relay travel	2.11	H1	Buzzer back-up alarm
2.8	Y3	Valve quick/slow	2.12	S34	Cut-off travel alarm (option)

Radio



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Section	Designation	Device	Section	Designation	Device
		Radio installation			
2.11	F9	Fuse			
2.11	A1	Radio			
2.12	HL	Loudspeaker left			
2.12	HR	Loudspeaker right			



POWER SUPPLY | START-UP SYSTEM | FUEL PUMP | PRE-HEAT SYSTEM | ENGINE SUPERVISION

Typ Model Tipo	Elektrisches System Electrical system Circuit électrique Sistema eléctrico	1500R/0119	Blatt Page Página	01.2005
Benennung Description Dénomination Denominación	Stromlaufplan Wiring diagram Circuit électrique Esquemas de los circuitos		Blatt Page Página	7.90.01

Typ Model Tipo	HR 1.5	Blatt Nr. Page no. Página no.	01.2005
Benennung Description Dénomination Denominación	Stromlaufplan Wiring diagram Circuit électrique Esquemas de los circuitos	Blatt Page Página	7.90.01

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