

SECTION 55 - ELECTRICAL CIRCUITS**Chapter 2 – Circuit diagrams****CONTENTS**

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LIST OF CONNECTORS

CON.	DESIGNATION
X1	Connector 3-ways, rh stabiliser sensor
X10	Connector 2-ways, back-up alarm
X100	Connector 4-ways, inside air sensor
X102	Connector 2-ways, engine recycling
X106	Connector 4-ways, electric fan
X11	Connector 4-ways, boom work light
X12	Connector 3-ways, low boom sensor
X129	Connector 8-ways, dashboard line-conditioner line
X131	Connector 4-ways, inside heating
X132.1	Connector 1-way, inside heating
X132.2	Connector 1-way, inside heating
X132.3	Connector 1-way, heating
X132.4	Connector 1-way, heating
X137	Connector 17-ways, work selection controller
X138	Connector 2-ways, filter thermistor
X139	Connector 2-ways, filter pre-heating
X14	Connector 3-ways, boom retracted sensor
X16	Connector 6-ways, engine-dashboard
X17	Connector 6-ways, lh front light
X18	Connector 6-ways, rh front light
X1A2	Connector 2-ways, steering sol. valve A2
X1B2	Connector 2-ways, steering sol. valve B2
X301	Connector 2-ways, lh stabiliser lowering sol. valve
X302	Connector 2-ways, lh stabiliser lifting sol. val.
X303	Connector 2-ways, rh stab. lowering sol. val.
X304	Connector 2-ways, rh stab. lift sol. valve
X305	Connector 2-ways, lh levelling sol. valve
X306	Connector 2-ways, rh levelling sol. valve
X309	Connector 2-ways, optional sol. valve
X21	Connector 12-ways, rear line-dashboard
X2	Connector 3-ways, rh stabiliser sensor
X310	Connector 2-ways, tachometer sensor
X311	Connector 2-ways, pilot contr. sol. valve
X307	Connector 2-ways, telescopic extr. sol. valve
X308	Connector 4-ways, pilot contr. sol. valve
X213	Connector 2-ways, reverse sol. valve
X214	Connector 2-ways, forward speed sol. valve
X215	Connector 2-ways, gearshift selection sol. valve
X216	Connector 2-ways, 1 st gear sol. valve
X217	Connector 2-ways, 2 nd gear sol. valve
X218	Connector 2-ways, attachments sol. valve
X25	Connector 21-ways, dashboard line- engine line
X27	Connector 9-ways, dashboard line-cab line
X28a	Connector 2-ways, axle locking sol. valve
X28b	Connector 2-ways, axle locking sol. valve
X29	Connector 2-ways, cold starting sol. valve
X30	Connector 6-ways, pre-heating arrangement

CON.	DESIGNATION
X4	Connector 2-ways, stop lights micro
X31	Connector 17-ways, dashboard line-cab line
X32	Connector 1-way, rh front work light
X33	Connector 1-way, lh front work light
X313	Connector 2-ways, opt. sol. valve out
X37	Connector 8-ways, momentum device
X39	Connector 4-ways, rear wiper
X40	Connector 3-ways, ceiling light
X42	Connector 4-ways, parking brake switch
X43	Connector 9-ways, conditioner arrang. line
X68	Connector 1-way, rh rear work light
X48	Connector 8-ways, pilot valve
X5	Connector 2-ways, fuel level
X53	Connector 2-ways, cigarette lighter
X55	Connector 8-ways, radio brown
X56	Connector 8-ways, radio black
X6	Connector 15-ways, dashboard line- rear line
X60	Connector 20-ways, instrument
X62	Connector 12-ways, gearshift control
X63	Connector 12-ways, light switch
X65	Connector 4-ways, stop micro
X67	Connector 4-ways, front wiper
X69	Connector 3-ways, load momentum
X7	Connector 18-ways, dashb. line- front line
X70	Connector 10-ways, cold starting controller
X8	Connector 3-ways, rear axle sensor
X9	Connector 2-ways, load cell
X91	Connector 2-ways, conditioner press. switch
X92a	Connector 2-ways, electric fan
X92b	Connector 2-ways, electric fan
X94	Connector 8-ways, conditioner controller
X95	Connector 9-ways, conditioner controller
X99	Connector 3-ways, thermostat
XA1.2	Connector 2-ways, alternator
XA1.1	Connector 1-way, alternator
XC1	Connector 18-ways, controller
XC2	Connector 21-ways, axles
XC3	Connector 6-ways, controller
XC4	Connector 21-ways, controller
XC5	Connector 12-ways, controller
XC6	Connector 15-ways, controller
XC7	Connector 21-ways, controller
XC8	Connector 18-ways, controller
X15	Connector 6-ways, deutsch rh rear light
X13	Connector 6-ways, deutsch lh rear light
Xi3	Connector 3-ways, thermostats

LIST OF COMPONENTS

COMP.	DESIGNATION	DIA.	COMP.	DESIGNATION	DIA.
B	Button, rexroth pilot valve	4	M4	Pump, front windshield washer	8
BS1	Rh loud speaker	9	M5	Motor, rear wiper	8
BS2	Lh loud speaker	9	M7	Fan	9
EVA2	Sol. valve, steering A2	3	M8	Electric fan	10
EVB2	Sol. valve, steering B2	3	M9	Compressor	10
FG1.1	Fuse, general 80 Amp	3	S131	Switch, heating	9
FG1.2	Fuse, general 80 Amp	3	S15	Switch, rear axle release	4
FG2	Fuse, conditioner 30 Amp	1	R3	Filter thermistor	1
FG3	Fuse, filter pre-heater 20 Amp	10	R2	Cold starter	1
FV1	Fuse, variator 40 Amp	10	K300	Relay, climate	10
G	Button, rexroth pilot valve	4	K301	Relay, thermostat	10
G1	Battery	1	S1	Micro, parking brake	5
G2	Alternator	1	S11	Switch, lh stabiliser	5
H	Button, rexroth pilot valve	4	S12	Switch, levelling	5
H1	Light, front lh	6	S13	Switch, rh stabiliser	5
H11	Light, work rear rh	7	S14	Switch, attachments	7
H12	Rotary beacon	7	S15a	Dashboard, starting	1
H13	Light, cigarette lighter	9	S2	Switch, rotary beacon	7
H14	Ceiling light	9	S3	Switch, warning	6
H15	Lighting	9	S30	Battery cut-off, keyed	1
H2	Light, front rh	6	S31	Fuel level	1
H3	Light, rear lh	6	S61	Switch, steering selector	3
H4	Light, rear rh	6	S33	Sensor, rear axle	3
H19	Light, licence plate	6	S35	Sensor, lh stabiliser	5
H6	Light, work boom	7	S36	Sensor, rh stabiliser	5
H7	Light, work boom	7	S15	Switch, rear axle release	4
H8	Light, work front rh	7	S38	Sensor, low boom	3
H9	Light, work front lh	7	S39	Sensor, boom retracted	3
HA1	Back-up alarm	2	S4	Switch, lights	6
HX	Lighting, climate	10	S64	Level, brake oil	6
I1	Pressure switch, transmission oil	1	S5	Switch, front work lights	7
I10	Pressure switch, conditioner	10	S50	Switch, climate	10
I13	Thermostat	10	S51	Switch, 4 gearshift + horn	2
I2	Thermostat, transm. oil high pressure	1	S52	Switch, lights direction wiper	6
I3a	Thermistor, glow plugs	1	S6	Switch, rear work lights	7
I3b	Transducer, engine coolant temperat.	1	S7	Switch, boom work lights	7
I4	Pressure switch, engine oil low pressure	1	S8	Switch, upper/front wiper	8
I7	Filter thermistore	1	S9	Switch, rear wiper	8
I8	Pressure switch, parking brake	5	S310	Sensor, tachometer	5
K103	Relay, electric fan 1 st speed	10	SCX	Switch, climate	10
K105	Relay, electric fan 2 nd speed	10	XA4	Horn	2
K107	Relay, electric fan 3 rd speed	10	X53	Cigarette lighter	9
KA	Relay, starting	1	X54	Refrigerator socket	9
KB	Relay, conditioner	10	S65	Micro, stop lights	6
KC	Relay, filter preheating	1	Y1	Sol. valve, lh stabiliser lowering	5
KD	Relay, under key	1	Y10	Sol. valve, optional (out)	4
KT	Relay, cold starting	1	Y11	Sol. valve, pilot controls	4
M1	Starter motor	1	Y13	Sol. valve, reverse	2
M11	Recycling	10	Y14	Sol. valve, forward	2
M12	Valve	10	Y15	Sol. valve, gearshifting	2
M13	Cooling fan	10	Y16	Sol. valve, 1 st speed	2
M14	Solenoid valve	10	Y17	Sol. valve, 2 nd speed	2
M2	Motor, front wiper	6	Y18	Sol. valve, engine cut-off	1
			Y19	Sol. valve, attachments	7
			Y2	Sol. valve, lh stabiliser lifting	5

COMP.	DESIGNATION	DIA.
Y3	Solenoid valve, rh stabiliser lowering	5
Y4	Solenoid valve, rh stabiliser lifting	5
Y5	Solenoid valve, lh levelling	5
Y6	Solenoid valve, rh levelling	5
Y8a	Solenoid valve, rh levelling	5
Y8b	Solenoid valve, rh levelling	5
Y9	Solenoid valve, optional (in)	4

HOW TO USE THE CIRCUIT DIAGRAMS

The circuit diagrams have been drawn in a linear format, meaning that the complete vehicle system is drawn over a number of pages, with references to link the pages, where applicable. The flow of power is generally speaking, from top, positive, to bottom, negative.

Here are a number of explanations to the layout and references contained within the diagrams:

WIRE COLOUR KEYS

A	Azure
B	White
C	Orange
G	Yellow
H	Grey
L	Blue
M	Brown
N	Black
R	Red
S	Pink
V	Green
Z	Purple

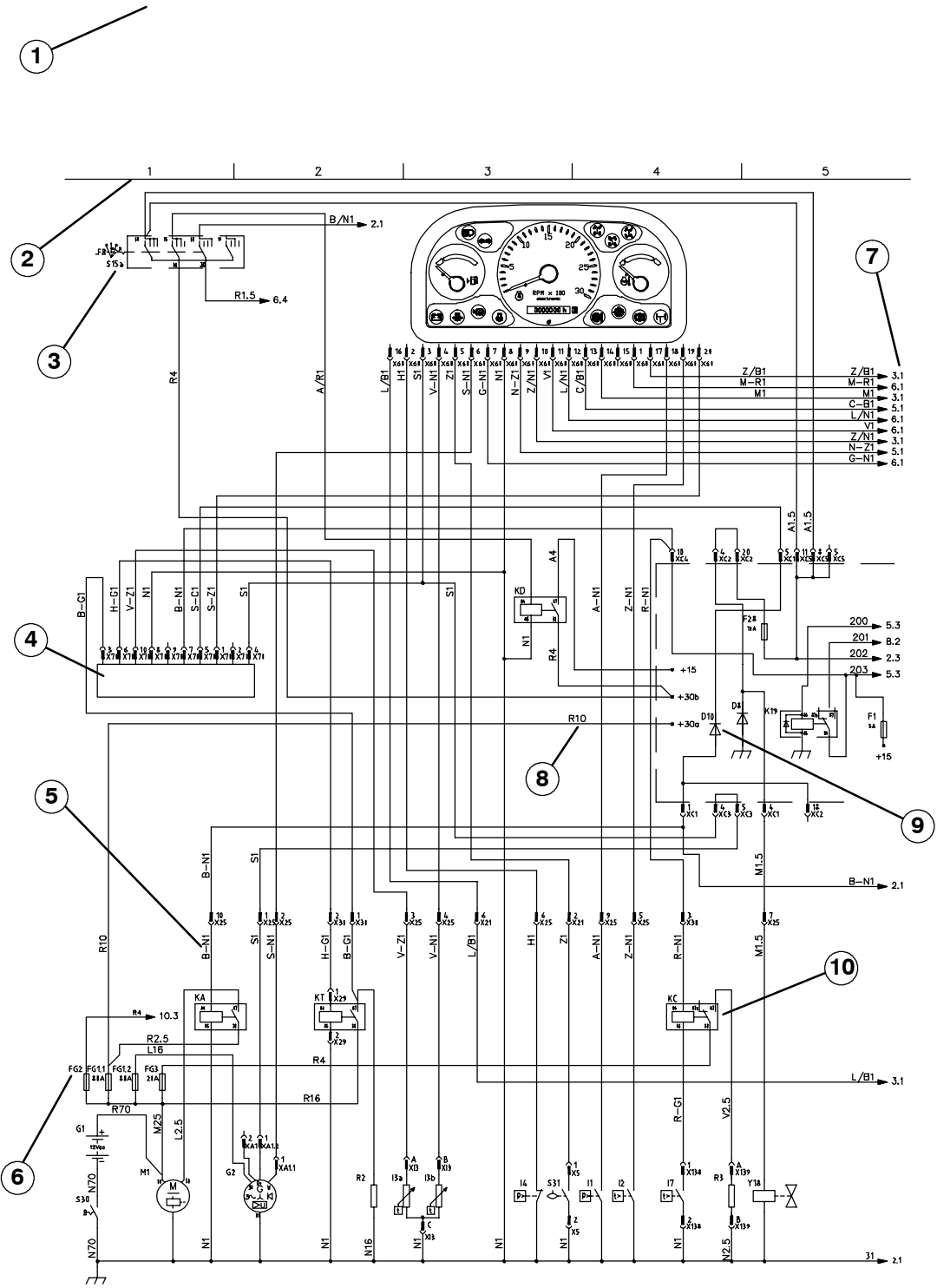
NOTE: wires with two colours have compound acronyms, e.g.:

G/V - Yellow/green (cross colouring)

G-V - Yellow-Green (longitudinal colouring)

1. All diagrams are located on the right hand pages. Within the diagram there are a number of references.
 1. Diagram number and electric function
 2. Line reference
 3. Component identification reference
 4. Connector x70, connector code, 3, references (pin)
 5. Wire colour code
 6. Fuse code. G1, fuse number, 10A, capacity
 7. Line continues on another diagram. In this instance: diagram 3 at line reference 1
 8. Alphabetical wire colour key
 9. Diode
 10. Component pin code
2. Each component and connector appears only once in a set of circuit diagrams.
3. The circuit diagrams are broken up into sections. However, where single component is used in a number of circuits, such as a processor or multi-function switch, it is drawn either on its own or in the circuit which it influences the most.

DIAGRAM 1 - STARTING/RECHARGE/WARNING LAMPS/INDICATORS

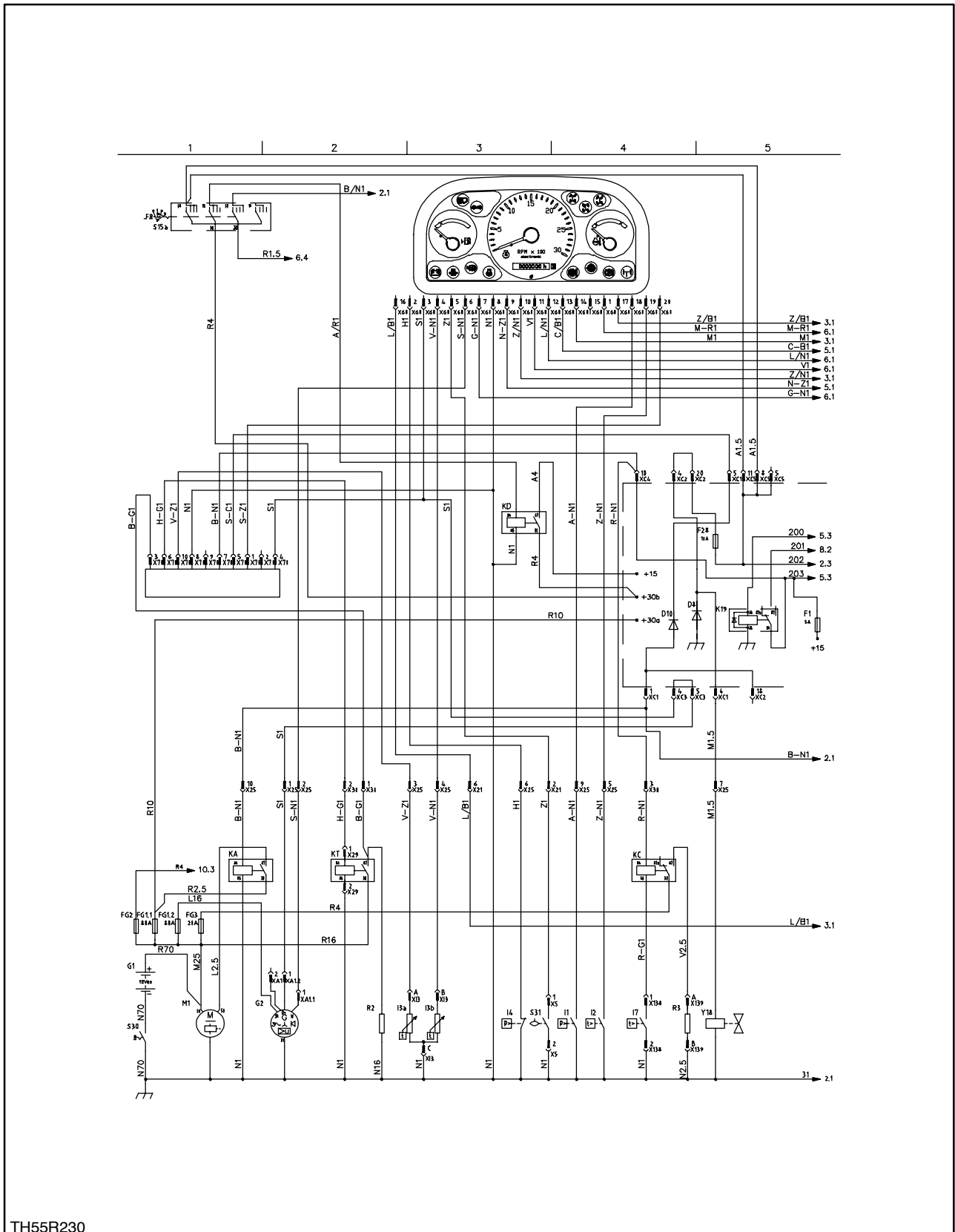


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DIAGRAM 1 – STARTING/RECHARGE/WARNING /INDICATORS LIGHTS

COMPONENTS AND FUSES	DESCRIPTION
F1	Fuse, relay KC power 5 Amp
F28	Engine cut-off 10 Amp
FG2	Fuse, conditioner 30 Amp
G1	Battery
G2	Alternator
I1	Pressure switch, transmission oil
I2	Thermostat, transmission oil high temperature
I3a	Thermistor, glow plugs
I3b	Transducer, engine coolant temperature
I4	Pressure switch, engine oil low pressure
I7	Filter thermistor
K19	Relay, engine cut-off
KA	Relay, starting
KC	Relay, filter preheating
KD	Relay, under key
KT	Relay, cold starting
M1	Starter motor
R2	Cold starting
R3	Filter thermistor
S15a	Starting dashboard
S30	Keyed battery cut-off
S31	Fuel level
Y18	Solenoid valve, engine cut-off

DIAGRAM 1 – STARTING/RECHARGE/WARNING LAMPS/INDICATORS



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DIAGRAM 2 – TRANSMISSION

COMPONENTS AND FUSES	DESCRIPTION
F18	Fuse, horn 15 Amp
F33	Fuse, safety gears + parking brake 10 Amp
F34	Fuse, back-up alarm 5 Amp
F37	Fuse, high beam lights 15 Amp
HA1	Back-up alarm
HA4	Horn
K13	Relay, 2 nd speed
K15	Relay, telescopic retraction
K20	Relay, horn
K22	Relay, 1 st speed
K23	Relay, forward speed
K24	Relay, 4 th speed
K5	Relay, gearshifting safety
K6	Relay, back-up alarm
K7	Relay, telescopic motion
S51	Switch, 4 speed gearshift + horn Hobbs
Y13	Solenoid valve, reverse speeds
Y14	Solenoid valve, forward speeds
Y15	Solenoid valve, gearshifting
Y16	Solenoid valve, 1 st speed
Y17	Solenoid valve, 2 nd speed

DIAGRAM 2 - TRANSMISSION

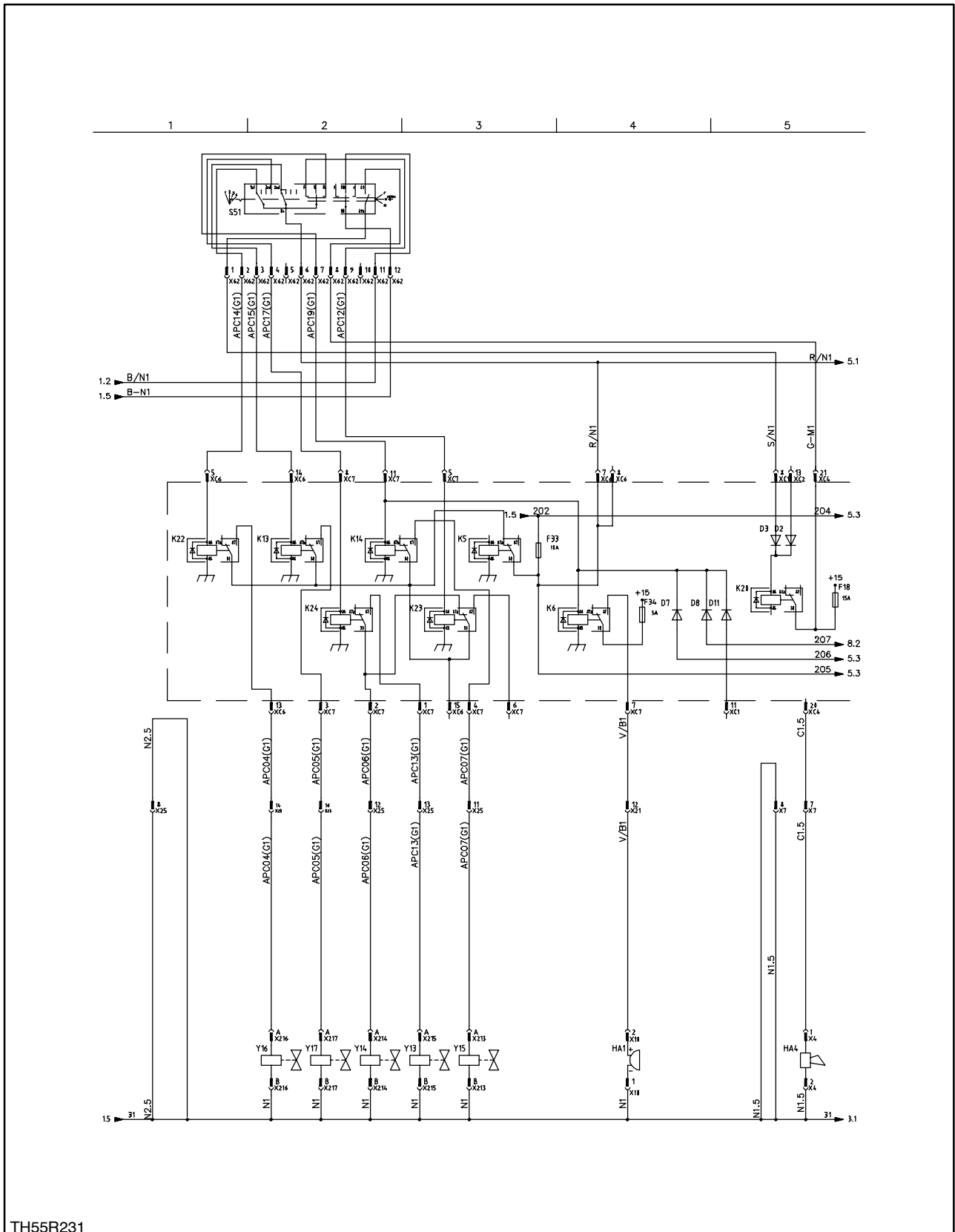
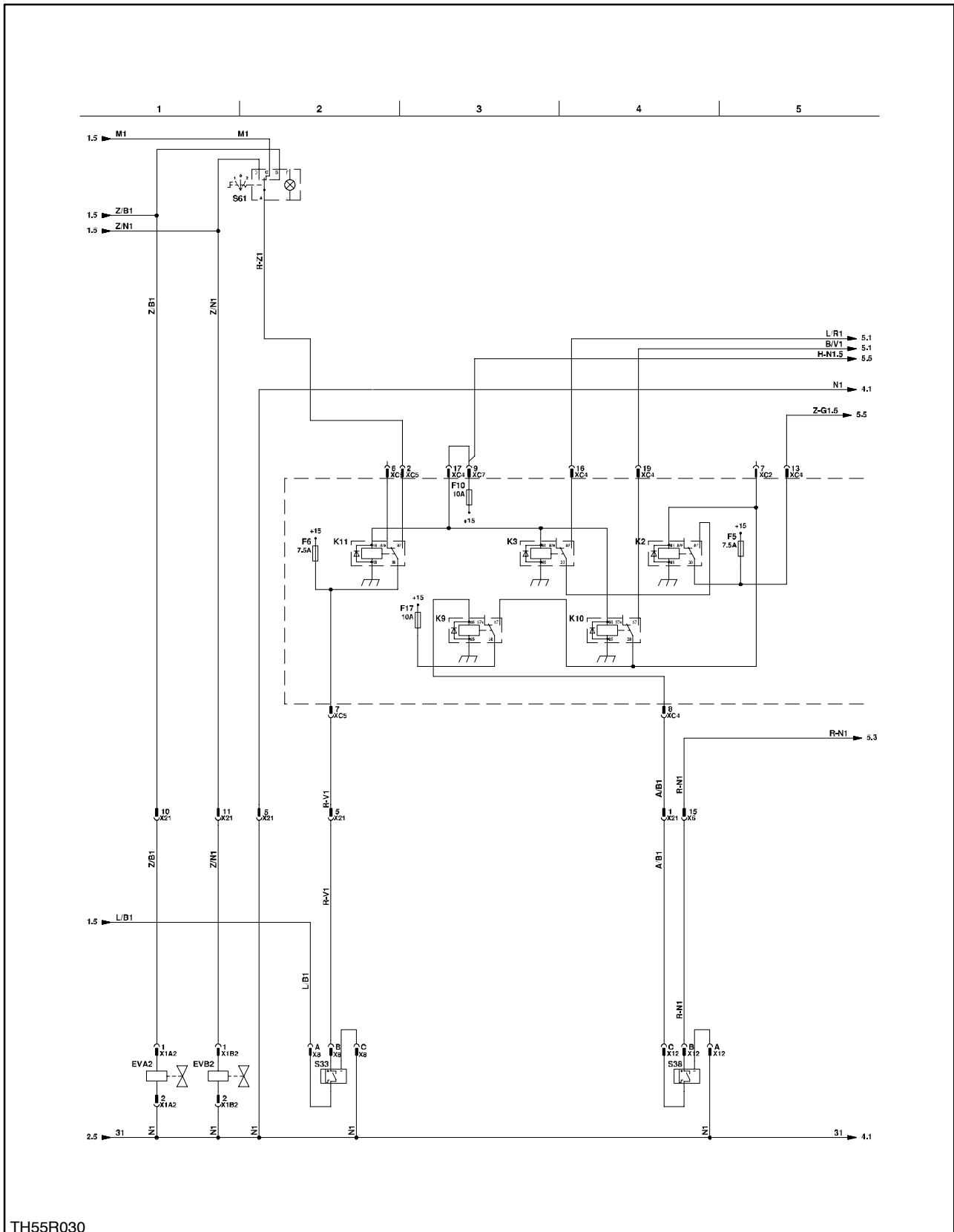


DIAGRAM 3 – WHEEL ALIGNMENT/HYDRAULIC SOLENOIDS/BRAKE SYSTEM

COMPONENTS AND FUSES	DESCRIPTION
EVA2	Solenoid valve, steering A2
EVB2	Solenoid valve, steering B2
F10	Fuse, rear axle release 10 Amp
F17	Fuse, low boom sensor 10 Amp
F5	Fuse, stabilisers lowering 7.5 Amp
F6	Fuse, rear axle sensor 7.5 Amp
FG1.1	Fuse, general 80 Amp
FG1.2	Fuse, general 80 Amp
K10	Relay, levelling
K2	Relay, stabilisers safety
K3	Relay, stabilisers
K9	Relay, low boom sensor
S33	Sensor, rear axle
S38	Sensor, low boom
S39	Sensor, boom retracted
S61	Switch, steering selector

DIAGRAM 3 – WHEEL ALIGNMENT/HYDRAULIC SOLENOIDS/BRAKE SYSTEM



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DIAGRAM 4 - BOOM CONTROL

COMPONENTS AND FUSES	DESCRIPTION
B	Button, Rexroth pilot valve
F12	Fuse, extension/retraction 15 Amp
F21	Fuse, option in/out 10 Amp
G	Button, Rexroth pilot valve
H	Button, Rexroth pilot valve
K14	Relay, reverse
K21	Relay, option "n"
K4	Relay, option "out"
S15	Switch, rear axle release
Y10	Solenoid valve, optional (out)
Y11	Solenoid valve, pilot controls
Y9	Solenoid valve, optional (in)

DIAGRAM 4 - BOOM CONTROL

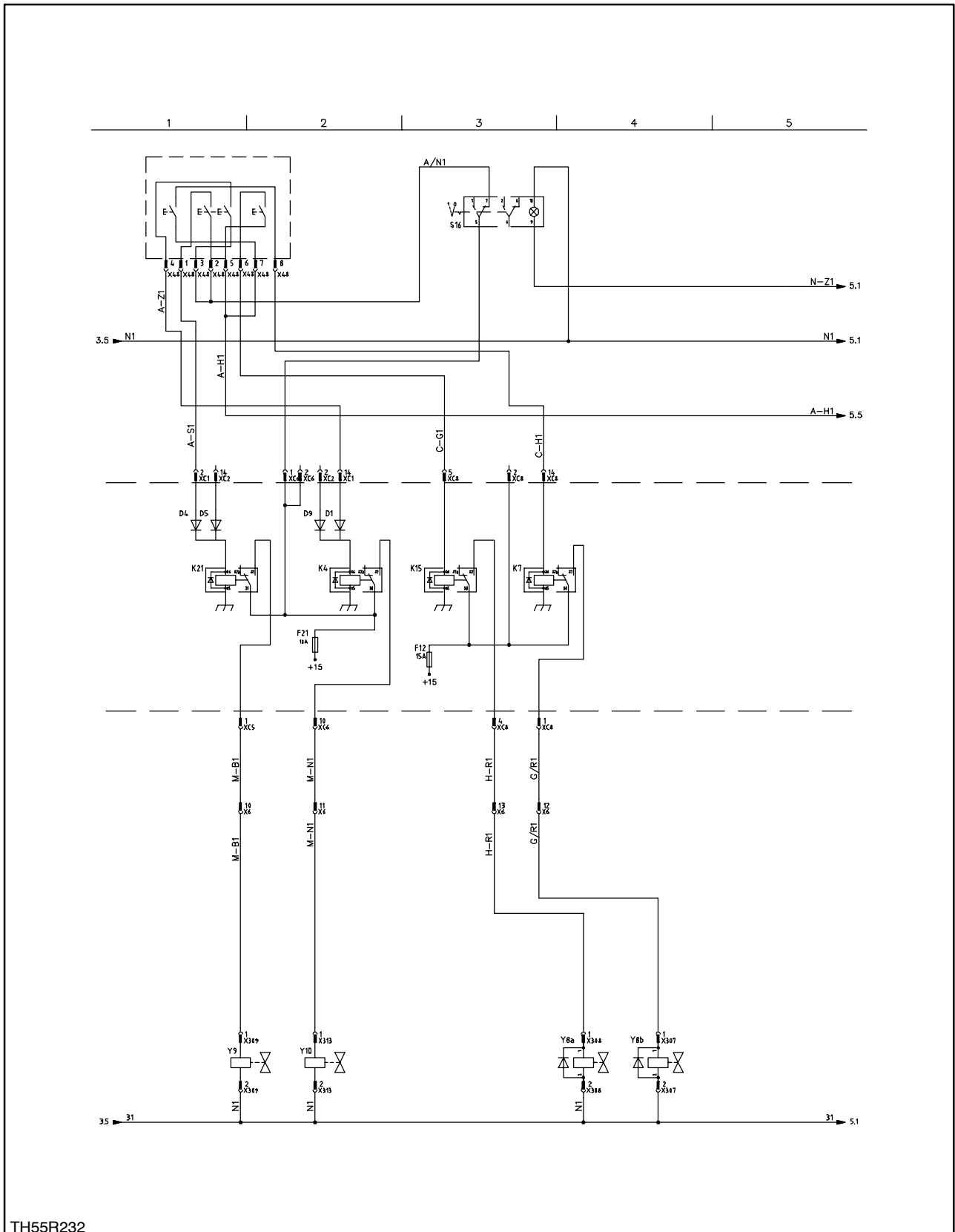


DIAGRAM 5 - STABILISER

COMPONENTS AND FUSES	DESCRIPTION
F32	Fuse, lights 3 Amp
I8	Pressure switch, parking brake
K12	Relay, parking brake
S1	Micro, parking brake
S11	Switch, lh stabiliser
S12	Switch, levelling
S13	Switch, rh stabiliser
S310	Sensor, tachometer
S35	Sensor, lh stabiliser
S36	Sensor, rh stabiliser
Y1	Solenoid valve, lh stabiliser lowering
Y2	Solenoid valve, lh stabiliser lifting
Y3	Solenoid valve, rh stabiliser lowering
Y4	Solenoid valve, rh stabiliser lifting
Y5	Solenoid valve, lh levelling
Y6	Solenoid valve, rh levelling
Y8a	Solenoid valve, rh levelling
Y8b	Solenoid valve, rh levelling
Y9	Solenoid valve, optional (IN)

DIAGRAM 5 - STABILISER

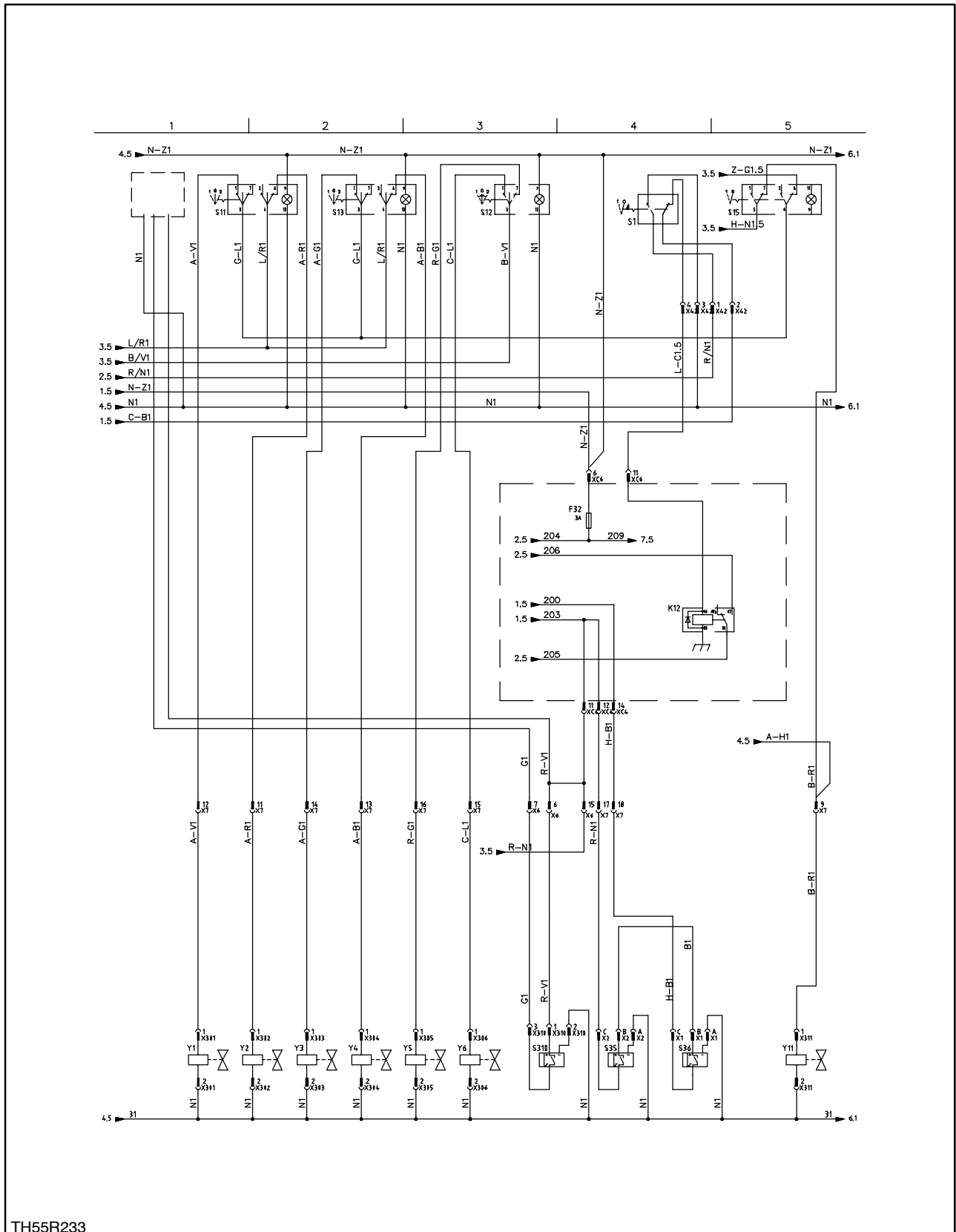


DIAGRAM 6 - LIGHTS/FRONT WIPER

COMPONENTS AND FUSES	DESCRIPTION
F11	Fuse, stop micro 5 amp
F14	Fuse, warning 10 Amp
F23	Fuse, rear wiper 10 Amp
F24	Fuse, tail lights + licence plate 5 Amp
F36	Fuse, head lights 5 Amp
F38	Fuse, low beam 15 Amp
H1	Light, front lh
H19	Light, licence plate
H2	Light, rh front
H3	Light, lh rear
H4	Light, rh rear
K16	Relay, high beam
K18	Flasher
M2	Motor, front wiper
S3	Switch, warning
S4	Switch, lights
S52	Switch, lights - direction - wiper
S64	Level, brake oil
S65	Micro, stop lights

DIAGRAM 7 – WORK LAMPS/ROOF BEACON LIGHT

COMPONENTS AND FUSES	DESCRIPTION
F15	Fuse, rotary beacon 10 Amp
F22	Fuse, boom work lights
F31	Fuse, attachments
F35	Fuse, rear work lights 15 Amp
F9	Fuse, front work lights 15 Amp
H11	Light, work rear rh
H12	Rotary beacon
H6	Light, work boom
H7	Light, work boom
H8	Light, work front rh
H9	Light, work front lh
S14	Switch, attachments
S2	Switch, rotary beacon
S5	Switch, front work lights
S6	Switch, rear work lights
S7	Switch, boom work lights
Y19	Sol. valve, attachments

DIAGRAM 7 – WORK LAMPS/ROOF BEACON LIGHT

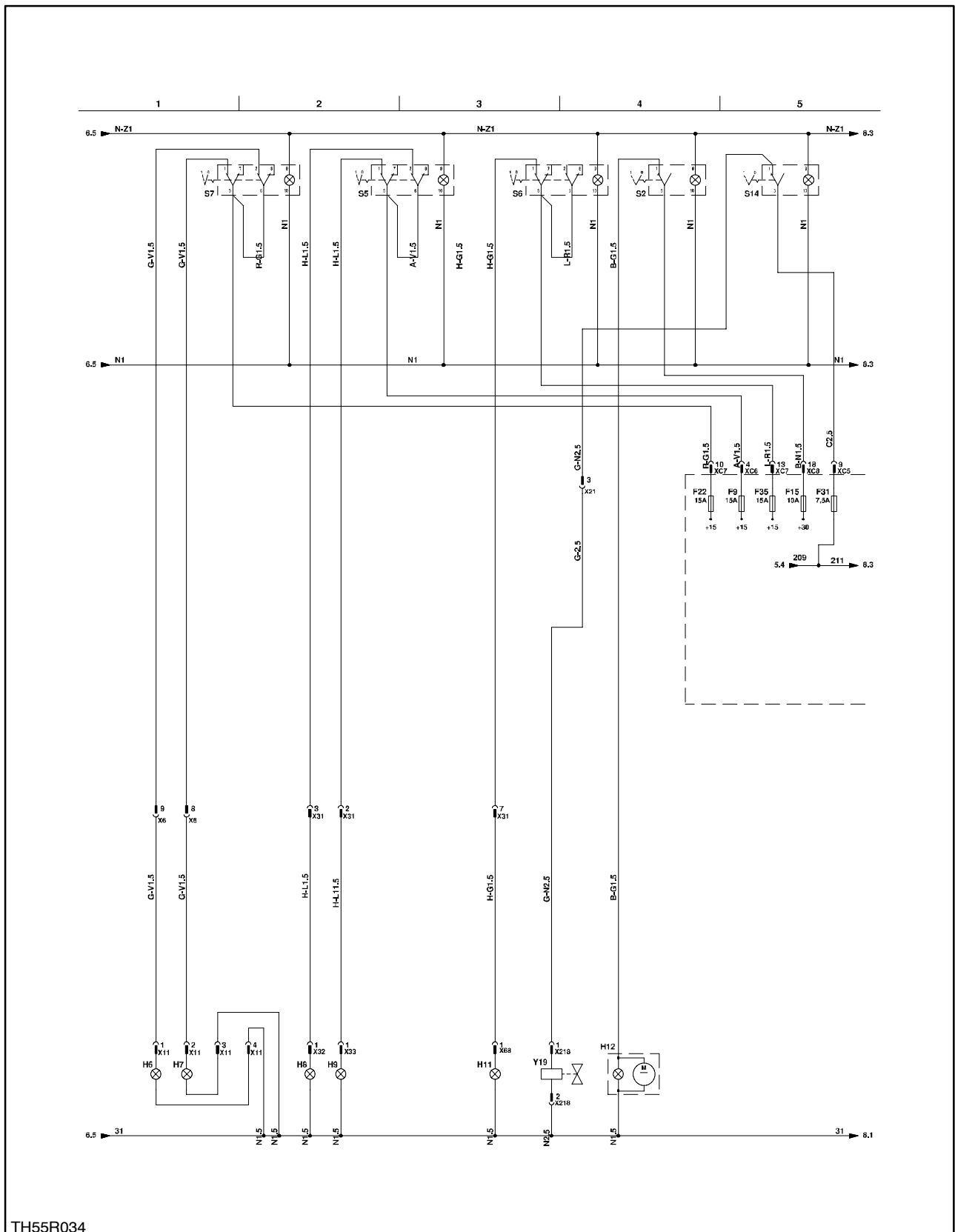


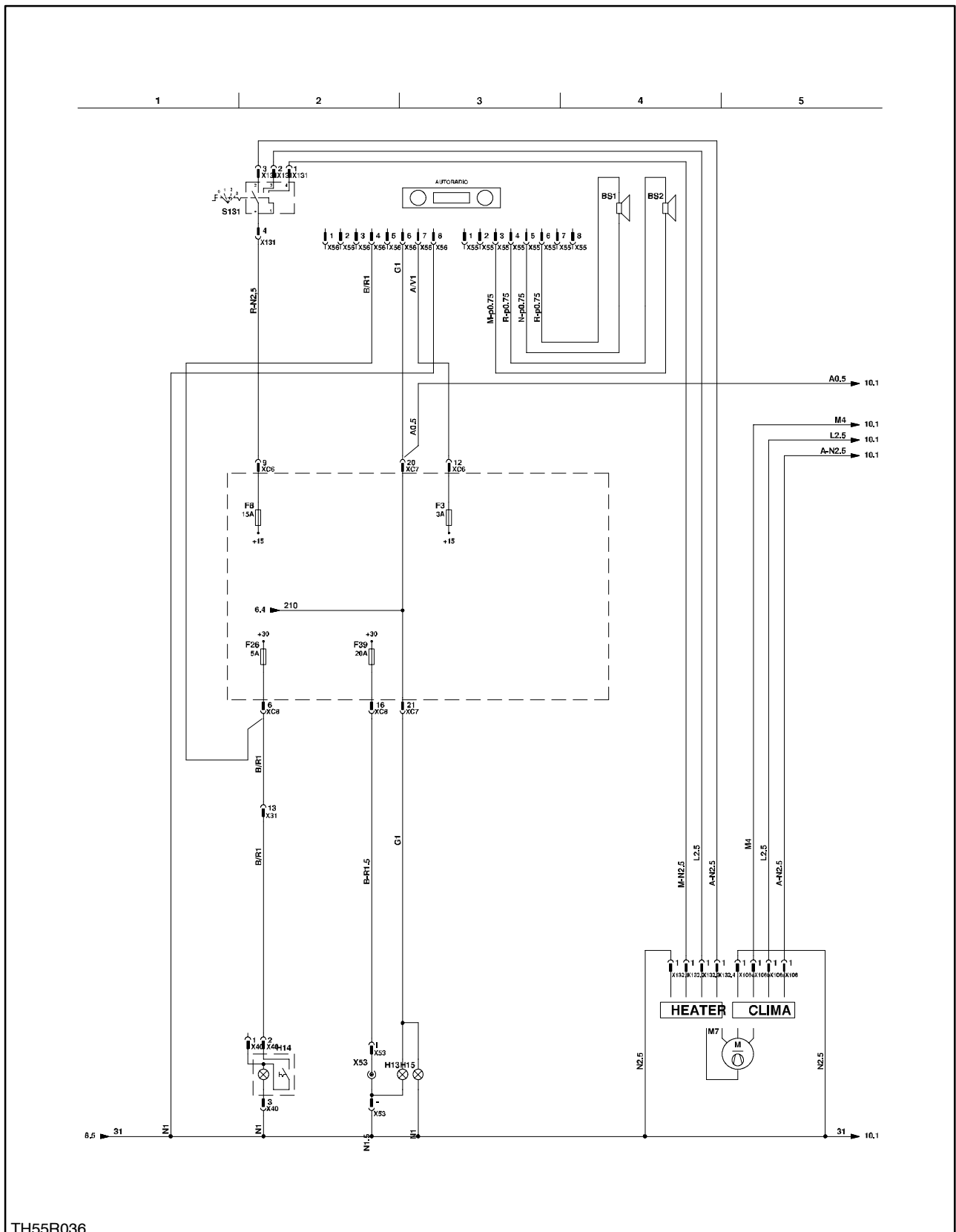
DIAGRAM 8 - LOAD MOMENTUM DEVICE / UPPER WIPER

COMPONENTS AND FUSES	DESCRIPTION
F19	Fuse, rear wiper 10 Amp
F29	Fuse, platform ON 15 Amp
F30	Fuse, load momentum instrument 5 Amp
F7	Fuse, upper wiper 10 Amp
K1	Relay, 100% motion cut
K17	Controller
K8	Relay, low beam lights
M4	Pump, front window washer
M5	Motor, rear wiper
S8	Switch, upper/front wiper
S9	Switch, rear wiper

DIAGRAM 9 - HEATING / RADIO / POWER SOCKET / CEILING LIGHT

COMPONENTS AND FUSES	DESCRIPTION
BS1	Rh loudspeaker
BS2	Lh loudspeaker
F26	Fuse, ceiling light 5Amp
F3	Fuse, radio 3 Amp
F39	Fuse, cigarette lighter 20 Amp
F8	Fuse, heating 15 Amp
H13	Light, cigarette lighter
H14	Ceiling light
H15	Lighting
M7	Fan
S131	Switch, heating
X53	Cigarette lighter
X54	Socket, refrigerator

DIAGRAM 9 - HEATING / RADIO / POWER SOCKET / CEILING LIGHT

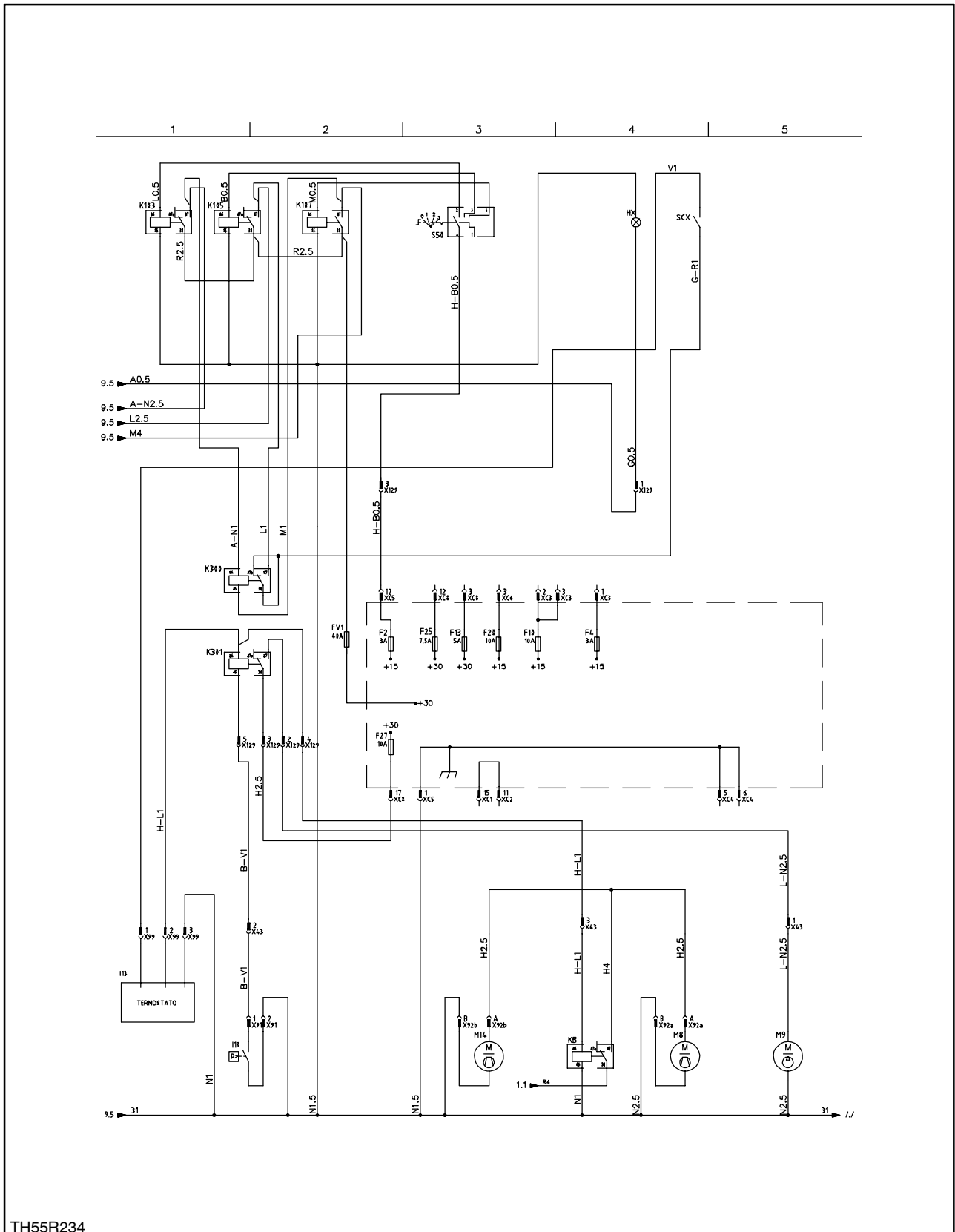


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DIAGRAM 10 - CONDITIONER

COMPONENTS AND FUSES	DESCRIPTION
F13	Fuse, optional 5 Amp
F16	Fuse, optional 10 Amp
F2	Fuse, conditioner 3 Amp
F20	Fuse, optional 10 Amp
F25	Fuse, optional 7.5 Amp
F27	Relay, compressor 10 Amp
F4	Fuse, optional 3 Amp
FG3	Fuse, filter preheating 20 Amp
FV1	Fuse, variator 40 Amp
HX	Lighting, climate
I10	Pressure switch, conditioner
I13	Thermostat
K103	Relay, electric fan 1 st speed
K105	Relay, electric fan 2 nd speed
K107	Relay, electric fan 3 rd speed
K11	Relay, steering selector
K300	Relay, climate
K301	Relay, thermostat
KB	Relay, conditioner
M11	Recycling
M12	Valve
M13	Fan, cooling
M14	Electric fan
M8	Electric fan
M9	Compressor
S50	Switch, climate
SCX	Switch, climate

DIAGRAM 10 - CONDITIONER



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