

## SAFETY



**WARNING:** This symbol means **WARNING ! BE VIGILANT ! YOUR SAFETY IS AT RISK**. The message that follows the symbol contains important safety information. Read it carefully. Be sure you understand the possible risks of injury or even death.

To avoid all risks, always follow the safety notes contained in this section and throughout this manual.

Put the warning tag shown below on the key for the keyswitch when servicing or repairing the machine. One warning tag is supplied with each machine. Additional tags, Part Number 321-4614, are available from your service parts supplier.



PDG0328



**WARNING:** Read the Operator's Manual carefully and make sure you understand how to operate the controls correctly.



**WARNING:** Never operate the machine and attachment controls unless you are seated in the operator's seat. If you are not in the operator's seat, you run the risk of serious injury.



**WARNING:** The machine is built to carry the operator only. Do not allow passengers to ride on the machine.



**WARNING :** Prior to starting up the engine read the safety messages contained in the operator's manual carefully. Read all safety stickers on the machine. Have people move back from the machine. Learn how to use the controls before starting up the machine. It is your responsibility to follow the manufacturer's instructions on how to operate and maintain the machine. It is your responsibility to follow applicable rules and regulations. Service and Operator's Manuals are available from your J.I. Case Dealer.



**WARNING:** If you wear loose clothing or if you omit to use safety equipment for your work, you risk injury. Always wear clothes that do not risk getting caught in the machine. Other safety equipment may be necessary, in particular : helmets, safety shoes, ear plugs, safety glasses, protection mask, thick gloves and reflecting clothes.

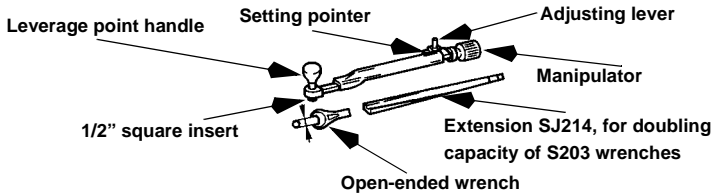
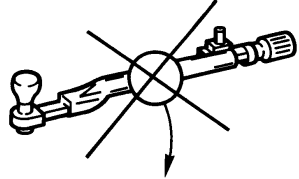
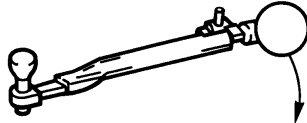
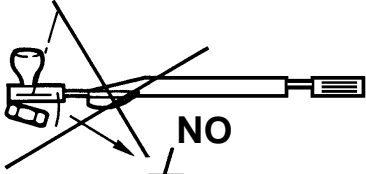
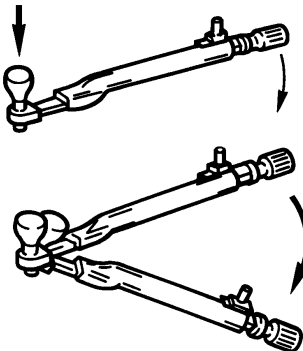
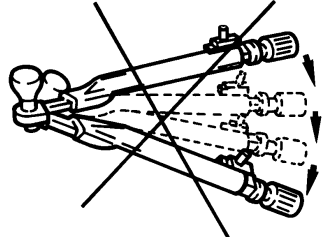
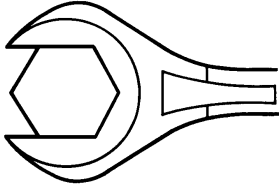
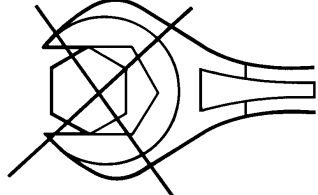


**WARNING:** When working close to the fan with the engine running, avoid wearing loose clothing and operate with extreme caution.

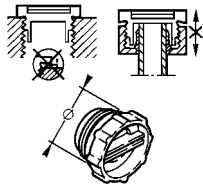
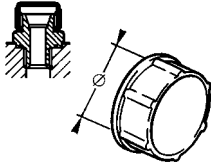
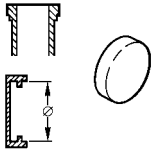
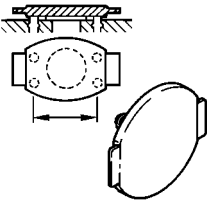


**WARNING:** When checking the hydraulic circuits, follow procedures to the letter. **DO NOT CHANGE** procedures.

# CORRECT USE OF TORQUE WRENCHES

<p><b>TORQUE WRENCHES</b></p>	 <p style="text-align: right;">PDG0315</p>
<p><b>CORRECT USE</b></p> <p>a - Hold the wrench by the handle provided.</p> <p>b - When tightening, always keep the wrench perpendicular to the screw.</p> <p>c - Keep one hand on the leverage point handle on the wrench.</p> <p>d - Tighten progressively in one movement.</p> <p>e - Position a correctly dimensioned socket or open-ended wrench on the flats of the screw head.</p>	<div style="text-align: center;"> <p><b>NO</b></p>  </div> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p><b>HAND</b></p> </div> <div style="text-align: center;"> <p><b>NO</b></p>  </div> </div> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  </div> <div style="text-align: center;"> <p><b>NO</b></p>  </div> </div> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  </div> <div style="text-align: center;"> <p><b>NO</b></p>  </div> </div> <p style="text-align: right;">PDG0316</p>

## PLASTIC PLUG AND CAP REFERENCE CHART

	Dia. x pas	Part number	Dia. x pas	Part number
<b>Tapped orifices and connectors with tightening nuts = screw-type plugs</b>    PDG0324	M10 x 1.5 M12 x 1.5 M14 x 1.5 M16 x 1.5 M18 x 1.5	F3237416 G3237417 H3237418 J3237419 K3237420	M20 x 1.5 M22 x 1.5 M24 x 1.5 M27 x 2	L3237421 M3237422 N3237423 Q3237448
<b>Unions = Screw-type plugs</b>    PDG0325	M12 x 1.5 M14 x 1.5 M16 x 1.5 M18 x 1.5	X3237409 Z3237410 A3237411 B3237412	M20 x 1.5 M22 x 1.5 M30 x 1.5	C3237413 D3237414 E3237415
<b>S.A.E tube or hose collars = external plugs</b>    PDG0326	NP 250 bar 30.2 38.1 44.5 50.8 60.4	J2537460 K2537461 L2537462 M2537463 N2537464	NP 400 bar 31.8 41.3 47.6 54 63.6	P2537465 Q2537466 R2537467 S2537468 T2537469
<b>S.A.E orifices = caps for installation into tapped fitting orifices</b>    PDG0327	NP 250 bar L = 38.1 47.65 52.35 58.07 69.85	A2340480 B2340481 C2340482 D2340483 E2340484	NP 400 bar L = 40.5 50.8 57.15 66.7 79.4	K1640415 R1640421 S1640422 T1640423 Z1640479

NP = Nominal pressure  
 ND = Nominal diameter

## FLUIDS AND LUBRICANTS

Lubricants must have the correct properties for each application.



**WARNING:** *The conditions of use for individual fluids and lubricants must be respected.*

### Hydraulic fluid

CASE hydraulic fluid is specially designed for high pressure applications and for the CASE hydraulic system. The type of fluid to be used depends on the ambient temperature.

#### Temperate climates

-20°C to +40°C  
Fluid type ISO VG 46  
CASE reference: POHYDR

#### Hot climates

0°C to +60°C  
Fluid type ISO VG 100  
CASE reference: POHYDC

#### Cold climates

-40°C to +20°C  
Fluid type ISO VG 22  
CASE reference: POHYPF

These various grades of fluid must be in conformity with CASE France specification P9903201Z.

#### Temperate climate biodegradable fluid:

This yellow fluid is compatible with standard fluid. If adopted, it is advisable to drain the circuit completely.  
Fluid type ISO VG 46  
CASE reference: CASYNTH 46

This grade of fluid must be in conformity with CASE France specification P9903203B

### Transmission component oil

Extreme pressure oil used for transmission components inside sealed housings.  
Extreme pressure oil type API GL5 grade 80W90 or ISO VG 150

#### Grease

The type of grease to use depends on ambient temperature.

#### Temperate and hot climates

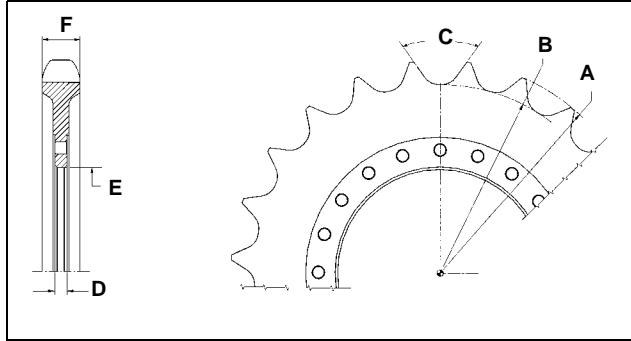
-20°C to +60°C  
Extreme pressure grease EP NLGI grade 2 with molybdenum disulphide.

#### Cold climates

-40°C to +20°C  
Extreme pressure grease EP NLGI grade 0.

### Sprocket

Type.....	D60.....	D60.....
Weight .....	61.60 kg.....	61.60 kg.....
Number of teeth (per sprocket).....	21.....	21.....
Retaining screw torque setting .....	500 Nm.....	500 Nm.....



PDG0385

Original dimension

A.....	664.6 mm.....	664.6 mm.....
B.....	584.6 mm.....	584.6 mm.....
C.....	60°.....	60°.....
D.....	25 mm.....	25 mm.....
E.....	350 mm.....	350 mm.....
F.....	72 mm.....	72 mm.....

### Shock absorbers

Weight (per shock absorbers) .....	79 kg.....	79 kg.....
Grease adaptor torque setting.....	100 Nm.....	100 Nm.....
Number (per track) .....	1.....	1.....

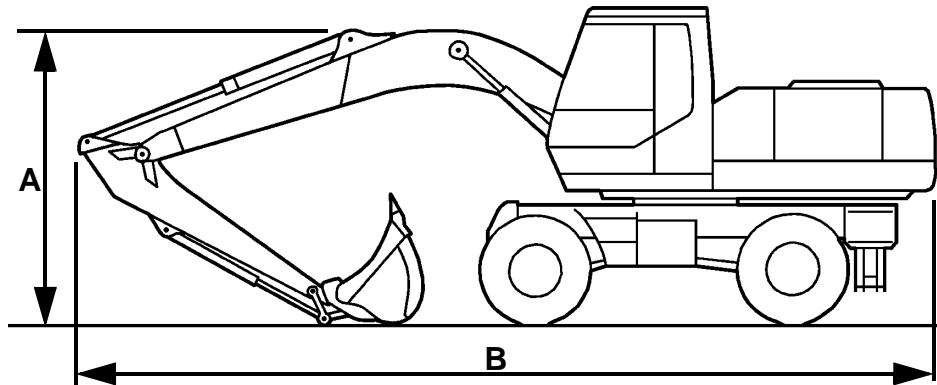
### Turntable

Weight .....	270 kg.....
Number of teeth.....	72.....
Module.....	11.....
Retaining screw torque setting on	
Outer ring on upperstructure .....	500 Nm.....
Inner ring on undercarriage.....	500 Nm.....

### Batteries

Weight of one battery	
With electrolyte.....	37 kg.....
Without electrolyte.....	29 kg.....
Number of batteries .....	2.....
Voltage of each battery.....	12 volts.....
Starting capacity at -17°C.....	800 amps.....
Charge for capacity test (load) .....	400 amps.....

## TRANSPORTATION OVERALL DIMENSIONS



PDH0126

**NOTE:** For top of cab to ground, see "Overall dimensions".

### P2A Version

Boom	Dipper	A	B
4.80 m one-piece	1.70 m	3.00	9.15
	2.20 m	3.15	8.90
	2.80 m	3.80	8.90
	3.40 m	4.30	8.65
5.40 m one-piece	1.70 m	3.10	9.75
	2.20 m	3.20	9.55
	2.80 m	3.35	9.55
	3.40 m	3.80	9.45
Articulated	1.70 m	3.00	9.85
	2.20 m	3.10	9.50
	2.80 m	3.35	9.35
	3.40 m	3.80	9.30
Adjustable	1.70 m	3.35	9.55
	2.20 m	3.30	9.00
	2.80 m	3.60	8.90
	3.40 m	4.75	8.35
Handling		3.00	9.30

### P2AL and P2A+2A Versions

Boom	Dipper	A	B
4.80 m one-piece	1.70 m	3.45	9.20
	2.20 m	3.70	8.95
	2.80 m	4.15	8.75
	3.40 m	4.80	8.45
5.40 m one-piece	1.70 m	3.10	9.75
	2.20 m	3.30	9.55
	2.80 m	3.80	9.55
	3.40 m	4.30	9.35
Articulated	1.70 m	3.00	9.85
	2.20 m	3.15	9.50
	2.80 m	3.50	9.30
	3.40 m	4.70	9.00
Adjustable	1.70 m	3.35	9.55
	2.20 m	3.55	9.10
	2.80 m	3.90	8.75
	3.40 m	5.20	8.15
Handling		3.00	9.30

**NOTE:** These values are given in metres.

## Tools

**NOTE:** The selection of bucket capacity depends on the density of the material (See "Density of various spoils and materials" in the operator's manual) and the attachment configuration as well as the compactness and structure of the ground.

### Earthmoving buckets

Width	CECE capacity	Weight
0.60 m.....	460 L .....	585 kg
0.75 m.....	590 L .....	615 kg
0.85 m.....	680 L .....	645 kg
0.90 m.....	730 L .....	690 kg
1.05 m.....	870 L .....	745 kg
1.15 m.....	970 L .....	775 kg
1.25 m.....	1060 L .....	845 kg
1.40 m.....	1200 L .....	890 kg

All earthmoving buckets are equipped with teeth with removable tooth tips and pins with side play take-up system. Heavy duty supplement optional (add 5% to the capacity shown). Side cutters optional (add 8 cm to the width shown).

### Trench buckets with ejector

Width	CECE capacity	Weight
0.45 m.....	310 L .....	755 kg

### Ditch cleaning buckets equipped with teeth

Width	CECE capacity	Weight
2.00 m.....	900 L .....	780 kg

### Ditch cleaning buckets equipped with reversible blade (notched or smooth)

Width	CECE capacity	Weight
2.00 m.....	900 L .....	825 kg

### Ditch-cleaning buckets equipped with smooth blade

Width	CECE capacity	Weight
2.20 m.....	1000 L .....	815 kg

### V-shaped bucket

Width	CECE capacity	Weight
0.50 - 3.00 m .....	670 L .....	625 kg

### Trench clamshell with ejector

Width	Opening	Capacity	Weight
0.55 m.....	1.94 m.....	350 L .....	1180 kg

### Earthmoving clamshells

Width	Opening	Capacity	Weight
0.92 m.....	1.72 m.....	500 L .....	1270 kg
1.02 m.....	1.83 m.....	650 L .....	1300 kg
1.27 m.....	1.83 m.....	850 L .....	1395 kg

## Hydraulic reservoir

Weight of empty reservoir .....	215 kg
Reservoir capacity .....	180 L
Total system capacity .....	288 L

## Water radiator/oil cooler

Empty weight .....	51 kg
Capacity (water) .....	6 L
Capacity (oil).....	2.3 L
Radiator cap pressure .....	1.03 bar

## Attachment and swing control block (control lever)

Weight .....	2.7 kg
Theoretical output pressure depending on angle to which lever is tilted:	
from 0 to 1°-4° .....	6.2 to 7 bar
from 0 to 16°-19° .....	18.4 to 21.6 bar
de 0 to 19°-21° (Old type) .....	26 to 28 bar
de 0 to 19°-21° (New type).....	28 to 34 bar
Push-rod stroke .....	7.55 mm

## Travel and option travel control block

Weight .....	3.5 kg
Theoretical output pressure depending on angle to which pedal is tilted:	
from 0° to 1°-3° .....	7.2 to 8 bar
from 0° to 9°-11° .....	22 to 26 bar
from 0 to 11°-12° .....	35 bar
Pushrod stroke .....	0 to 5.8 mm

## Manual travel control block (inching)

Weight .....	2.5 kg
Theoretical output pressure depending on angle to which lever is tilted:	
from 0° to 2°-4° .....	8 bar
from 0° to 20° .....	24 bar
from 0° to 25° .....	24 bar
Pushrod stroke .....	7.5 mm

## Travel control pedal

Weight .....	1.350 kg
Minimum pressure .....	8 bar
Maximum pressure .....	27 bar
Spool stroke.....	15 mm

## Boom lowering flow limiter

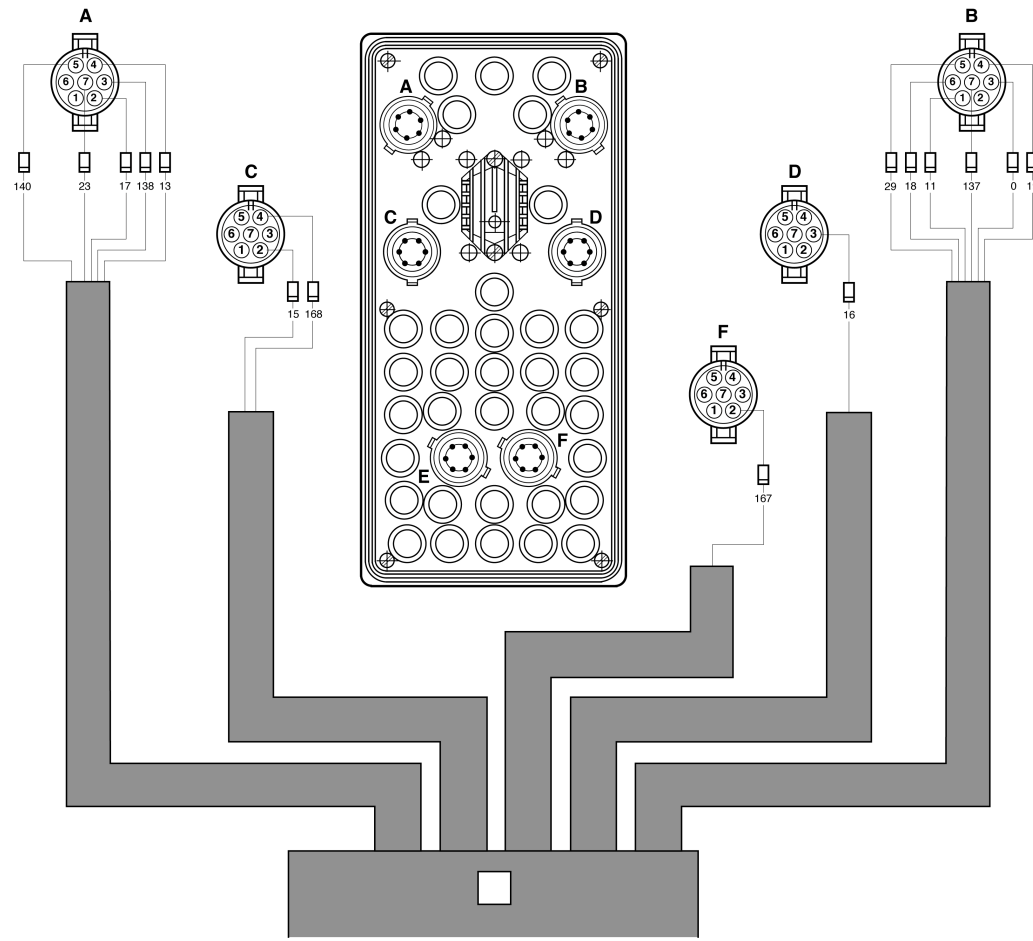
Flow .....	100 and 110 L/min
Spring length setting.....	22 mm

## Dipper retraction flow limiter

Flow .....	95 and 105 L/min
Spring length setting.....	27 mm



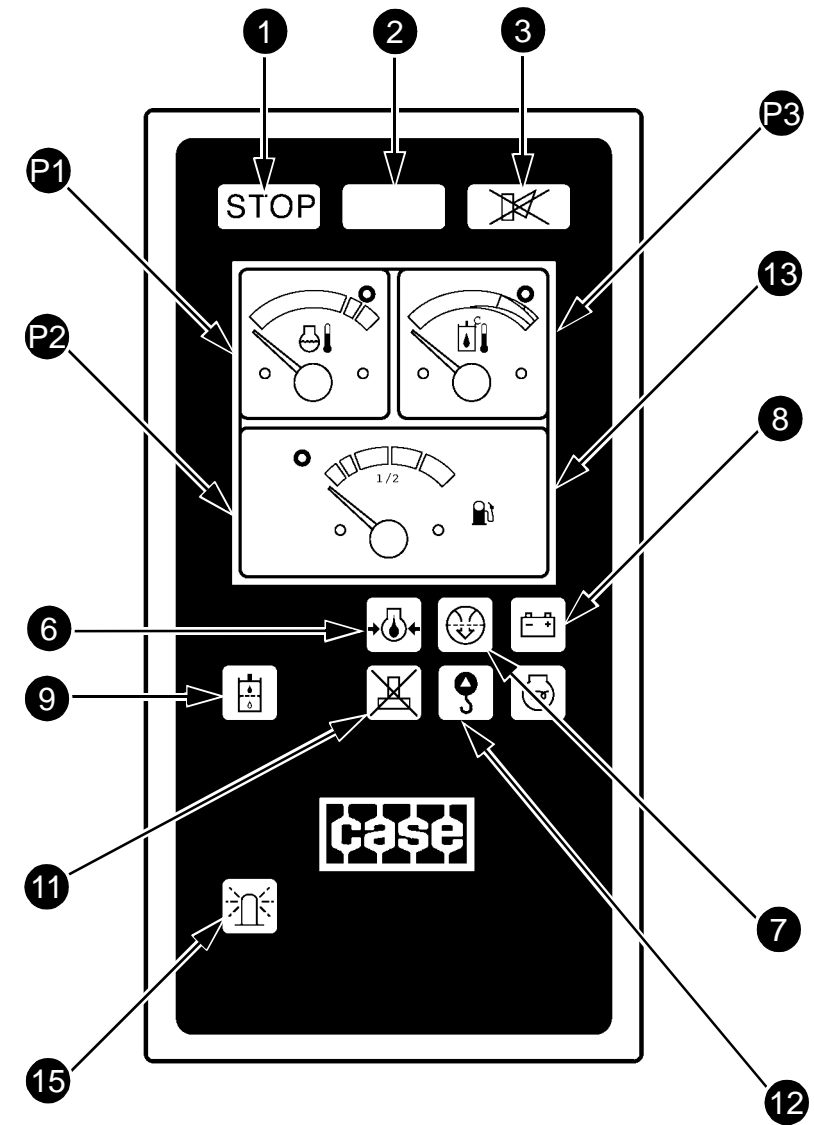
### INSTRUMENT PANEL WIRING



PDH0235

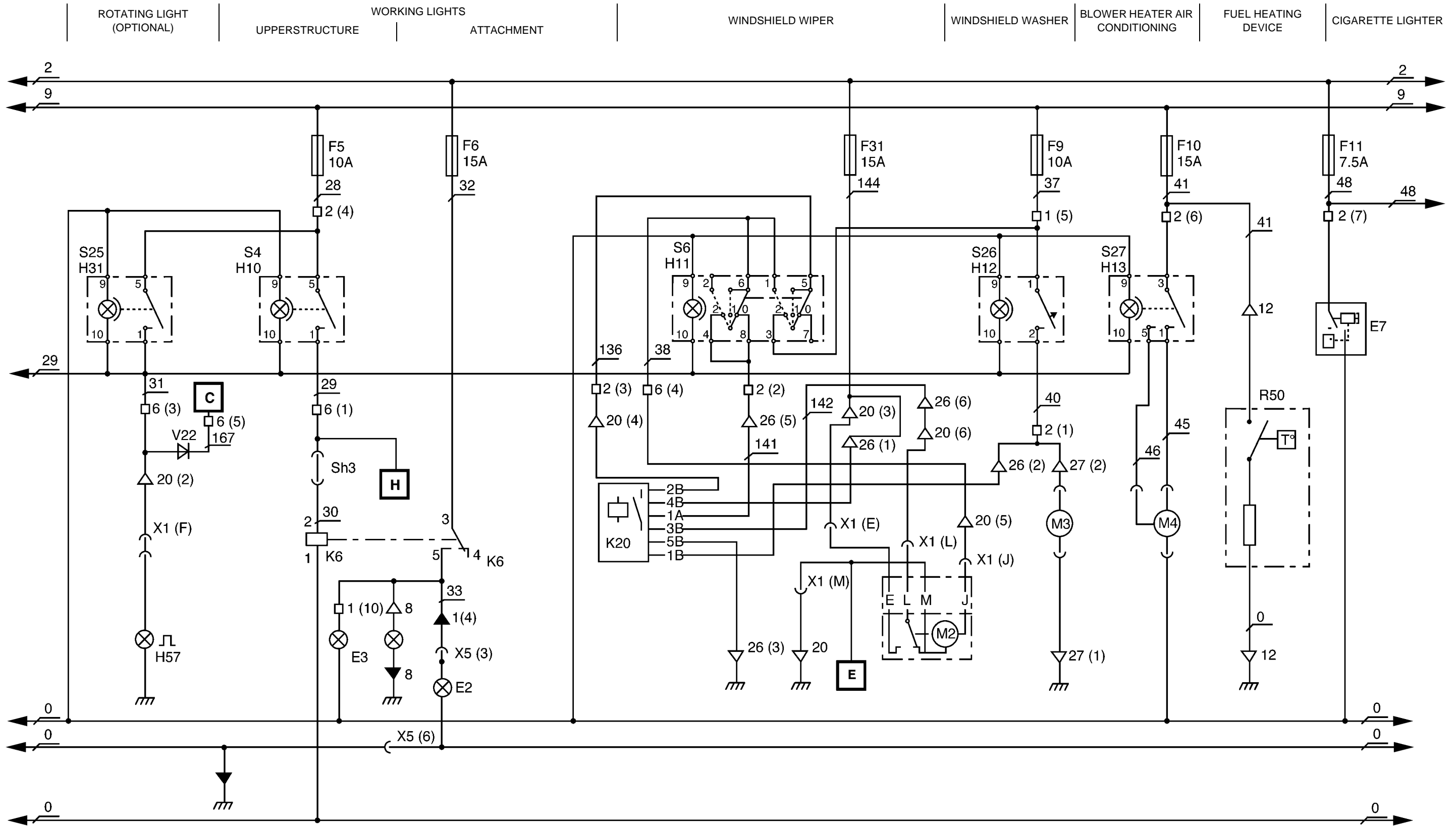
- A** 7- way connector : minimum pilot pressure red warning lamp, hydraulic oil temperature indicator, battery-charge red warning lamp, audible warning cut- out push button, engine oil pressure red warning lamp, alarm orange warning lamp, stop alarm red warning lamp.
- B** 7- way connector : 24 Volt supply, earth, fuel level gauge, indicator lighting, engine coolant temperature indicator.
- C** 7- way connector : air filter restriction red warning lamp, overload indicator orange warning lamp (optional).
- D** 7- way connector : hydraulic oil filter restriction red warning lamp.
- F** 7- way connector : rotary light orange indicator lamp (optional)

### INSTRUMENT PANEL (FRONT FACE)



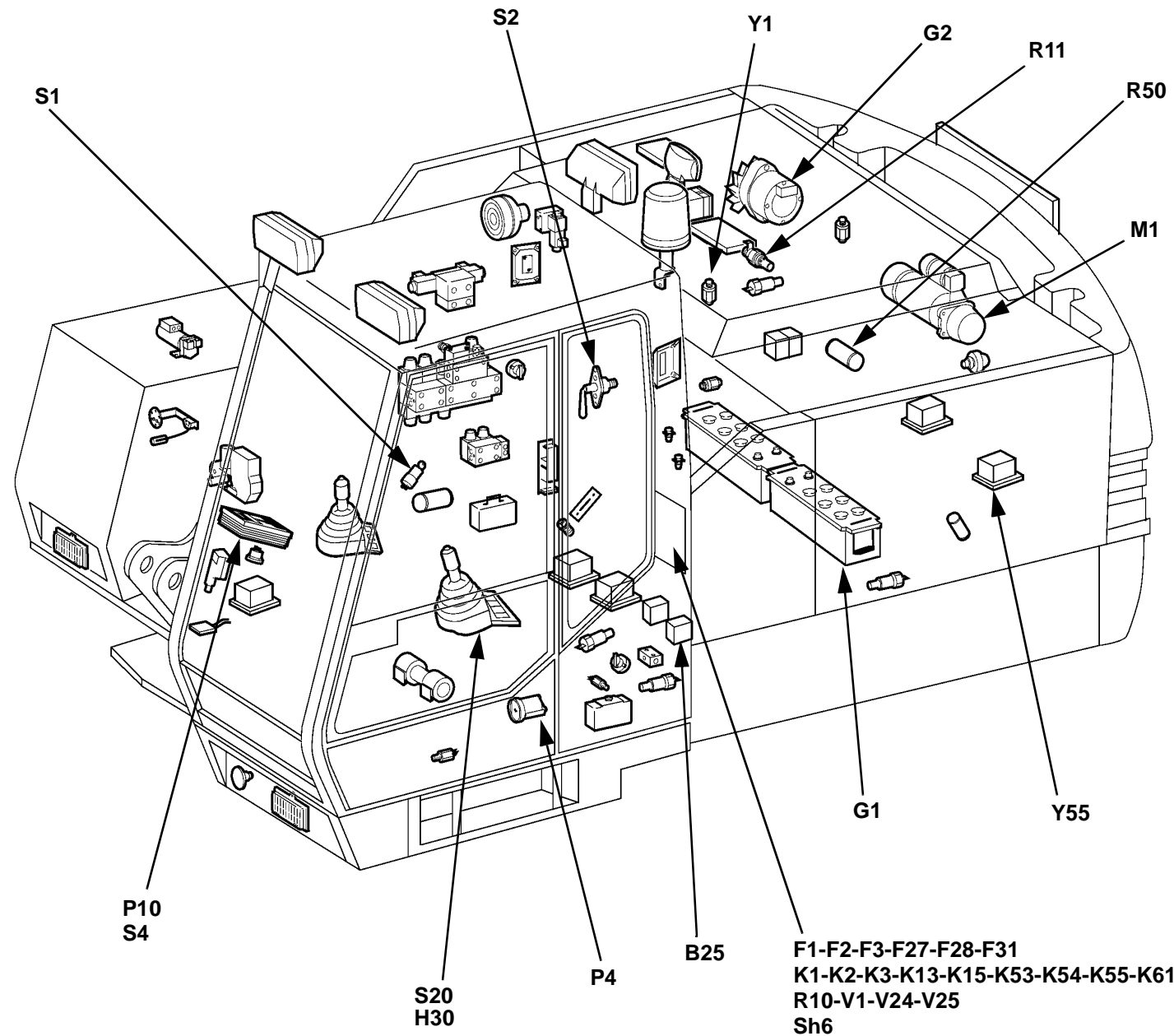
PDH0234

- |   |  |
|---|--|
| <b>1</b> Stop alarm red warning lamp                        | <b>P1</b> Engine coolant temperature indicator |
| <b>2</b> Alarm orange warning lamp                          | <b>P2</b> Fuel level indicator                 |
| <b>3</b> Audible warning cut- out push button               | <b>P3</b> Hydraulic oil temperature indicator  |
| <b>6</b> Engine oil pressure red warning lamp               |  |
| <b>7</b> Air filter restriction red warning lamp            |  |
| <b>8</b> Battery charge red warning lamp                    |  |
| <b>9</b> Hydraulic oil filter restriction red warning lamp  |  |
| <b>11</b> Minimum pilot pressure red warning lamp           |  |
| <b>12</b> Overload indicator orange warning lamp (optional) |  |
| <b>13</b> Indicator lighting lamp                           |  |
| <b>14</b> Not used  |  |
| <b>15</b> Rotary light orange indicator lamp (optional)     |  |



PDH0226

## ELECTRICAL SCHEMATIC (PLATE 2)



### ELECTRICAL CABINET

- B25** Threshold detector (788)
- F1** Fuse, 30 A, starter motor solenoid, thermostart
- F2** Fuse, 5 A, starter key switch
- F3** Fuse, 7.5 A, instrument panel, hourmeter
- F27** Fuse, 5 A, remote controlled or articulated boom, tool quick coupler, air suspension seat, speed threshold detector (788P heavy lift)
- F28** Fuse, 40 A, engine stop/start solenoid (injection)
- F31** Fuse, 10 A, fuel heater
- K1** Starter motor relay
- K2** Battery relay
- K3** Hourmeter relay
- K13** Engine stop solenoid relay
- K15** Thermostart relay
- K53** Fuel heater relay
- K54** Frequency threshold detector relay (threshold: 1 = 1600 rpm) (788)
- K55** Frequency threshold detector relay (threshold: 2 = 1400 rpm) (788)
- K61** Battery relay (heater/air conditioner)
- R10** Resistor, 0.85 Ohms
- V1** Starter key switch diode
- V24** K54 relay diode
- V25** K55 relay diode
- Sh6** Shunt

### FLOOR

- P4** Hourmeter
- P10** Instrument panel
- H30** Cold start assistance switch lighting (optional)
- S1** Key switch
- S4** Working light switch
- S20** Cold start assistance switch (optional)

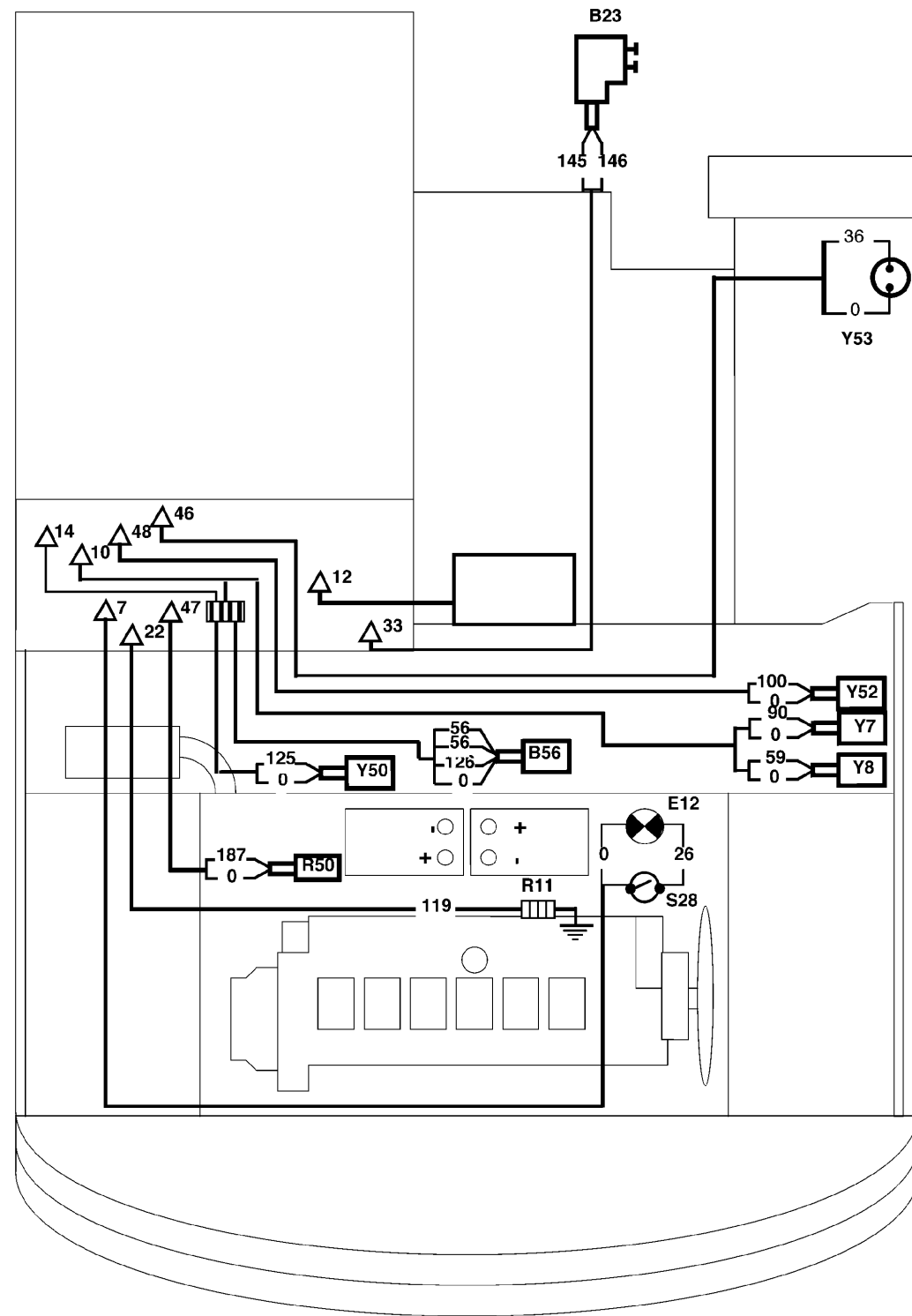
### UPPERSTRUCTURE

- G1** Batteries
- S2** Battery master switch
- Y55** Heavy lift solenoid valve (788)

### ENGINE

- G2** Alternator
- M1** Starter motor
- R11** Cold start assistance plug (optional)
- Y1** Engine shut-down solenoid valve
- R50** Fuel heater (optional)

## ENGINE MODULE AND UPPERSTRUCTURE WIRING (OPTIONAL)



### ELECTRICAL CABINET

1 Connecting strip

2 Air conditioner

△ ▽ See page 6

### UPPERSTRUCTURE

**B23** Overload indicator (optional)

**B56** Boom raising range limitation detector (optional)

**R50** Fuel heater (optional)

**Y7** Adjustable or articulated boom extending electro-valve (optional)

**Y8** Adjustable or articulated boom retracting electro-valve (optional)

**Y50** Adjustable boom raising height limiter solenoid valve (optional)

**Y52** Quick coupler solenoid valve (optional)

**Y53** Fuel filler pump (optional)

### ENGINE

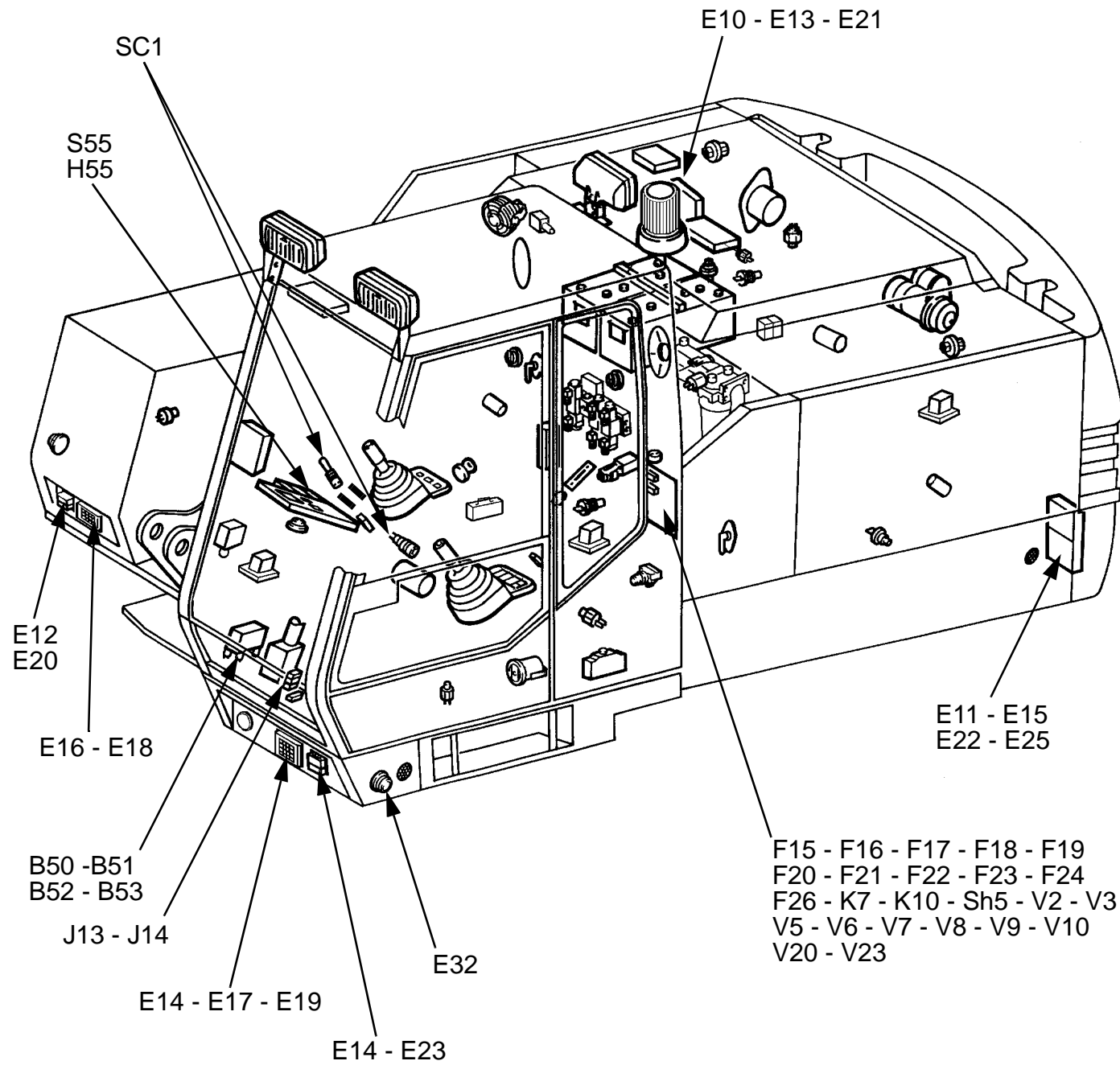
**E12** Engine compartment light (optional)

**R11** Cold start assistance plug (optional)

**S28** Engine compartment lighting switch (optional)

CM99K028

## ELECTRICAL SCHEMATIC (PLATE 7)



### ELECTRICAL CABINET

- F15** Fuse 15A, main beam headlights
- F16** Fuse 5A, stop lights
- F17** Fuse 5A, LH stop light
- F18** Fuse 5A, RH front side light
- F19** Fuse 5A, LH front side light
- F20** Fuse 5A, RH front side lights
- F21** Fuse 5A, LH front side light
- F22** Fuse 5A, Rear foglight (specific to certain countries)
- F23** Fuse 5A, RH main beam headlight
- F24** Fuse 5A, LH main beam headlight
- F26** Fuse 7.5A, direction indicators and hazard warning
- K7** Upperstructure and attachment working light relay
- K10** Flasher unit
- Sh5** Shunt
- V2** K3 indicator relay diode
- V3** Dipped headlights diode
- V5** Rear foglight indicator lamp diode (specific to certain countries)
- V6** Headlight main beam indicator lamp diode
- V7** RH direction indicator - lamp diode
- V8** LH direction indicator - lamp diode
- V9** Hazard warning indicator lamp diode
- V10** LH direction indicator light diode
- V20** RH direction indicator light diode
- V23** Hazard warning diode

### CAB

- H55** Rear foglight switch lighting (specific to certain countries)
- S55** Rear foglight control (specific to certain countries)

### WIRING CONNECTION BETWEEN SCHEMATICS

- B** See schematic plate 2
- D** See schematic plate 3
- E** See schematic plate 3
- F** See schematic plate 3
- G** See schematic plate 3
- H** See schematic plate 3
- I** See schematic plate 3
- L** See schematic plate 3

- SC1** Direction indicator (commodo), main beam and dip switch, side lights and headlight flasher switch

### FLOOR

- B53** Steering pressure switch
- B52** Pressure switch for minimum braking pressure
- B51** Stop light pressure switch
- B50** Parking brake pressure switch
- J13, 14** Connectors

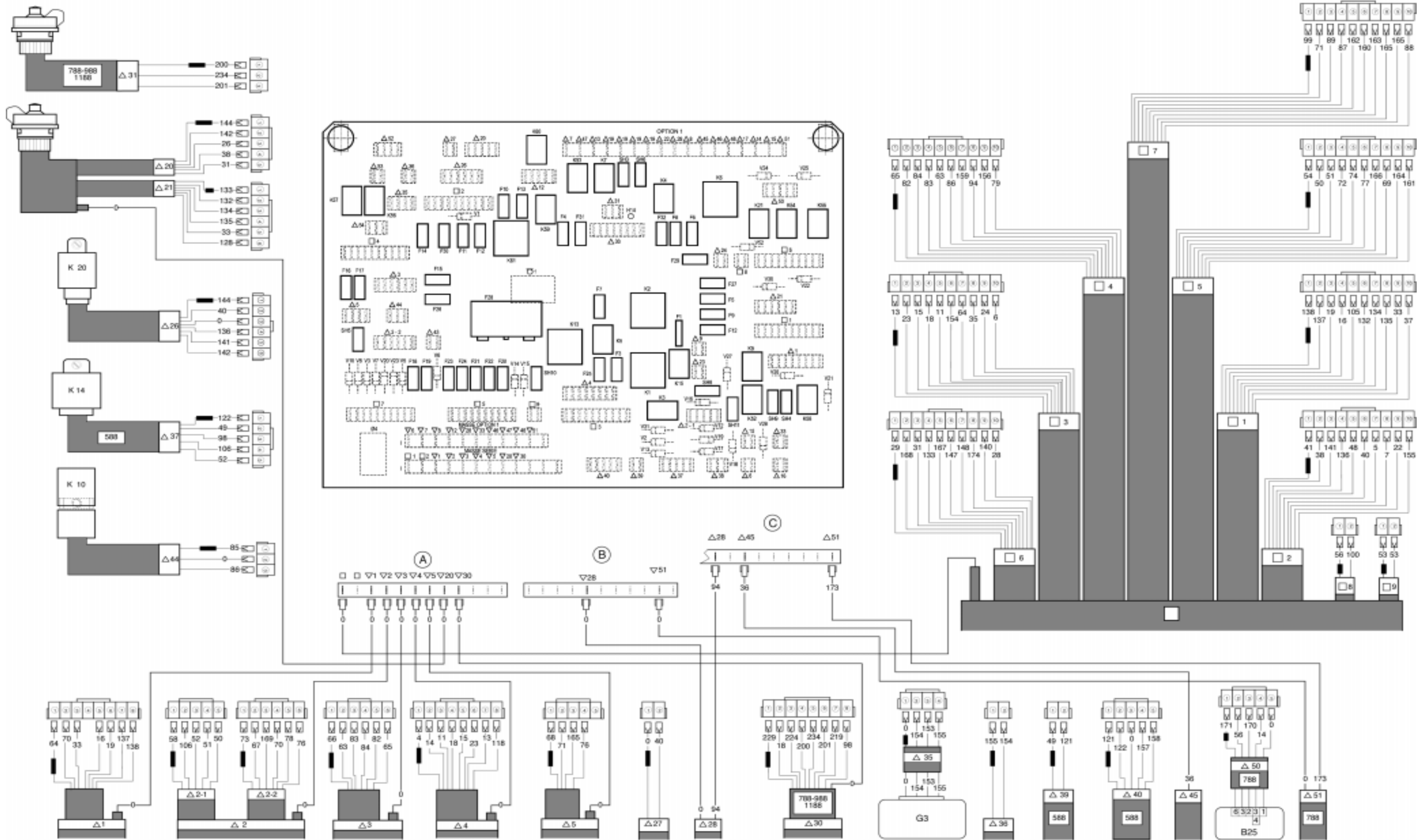
### UPPERSTRUCTURE

- E10** RH rear stop light
- E11** LH rear stop light
- E12** Front RH side light
- E13** Rear RH side light
- E14** Front LH side light
- E15** Rear LH side light
- E16** Front RH dipped headlight
- E17** Front LH dipped headlight
- E18** RH main beam headlight
- E19** LH main beam headlight
- E20** Front RH direction indicator light
- E21** Rear RH direction indicator light
- E22** Rear LH direction indicator light
- E23** Front LH direction indicator light
- E24** Dipper lighting (specific to certain countries)
- E25** Rear foglight (specific to certain countries)
- E29** Registration plate lighting (specific to certain countries)
- E31** Front RH side-mounted direction indicator
- E32** Front LH side-mounted direction indicator
- E33** RH marker light (specific to certain countries)
- E34** LH marker light (specific to certain countries)

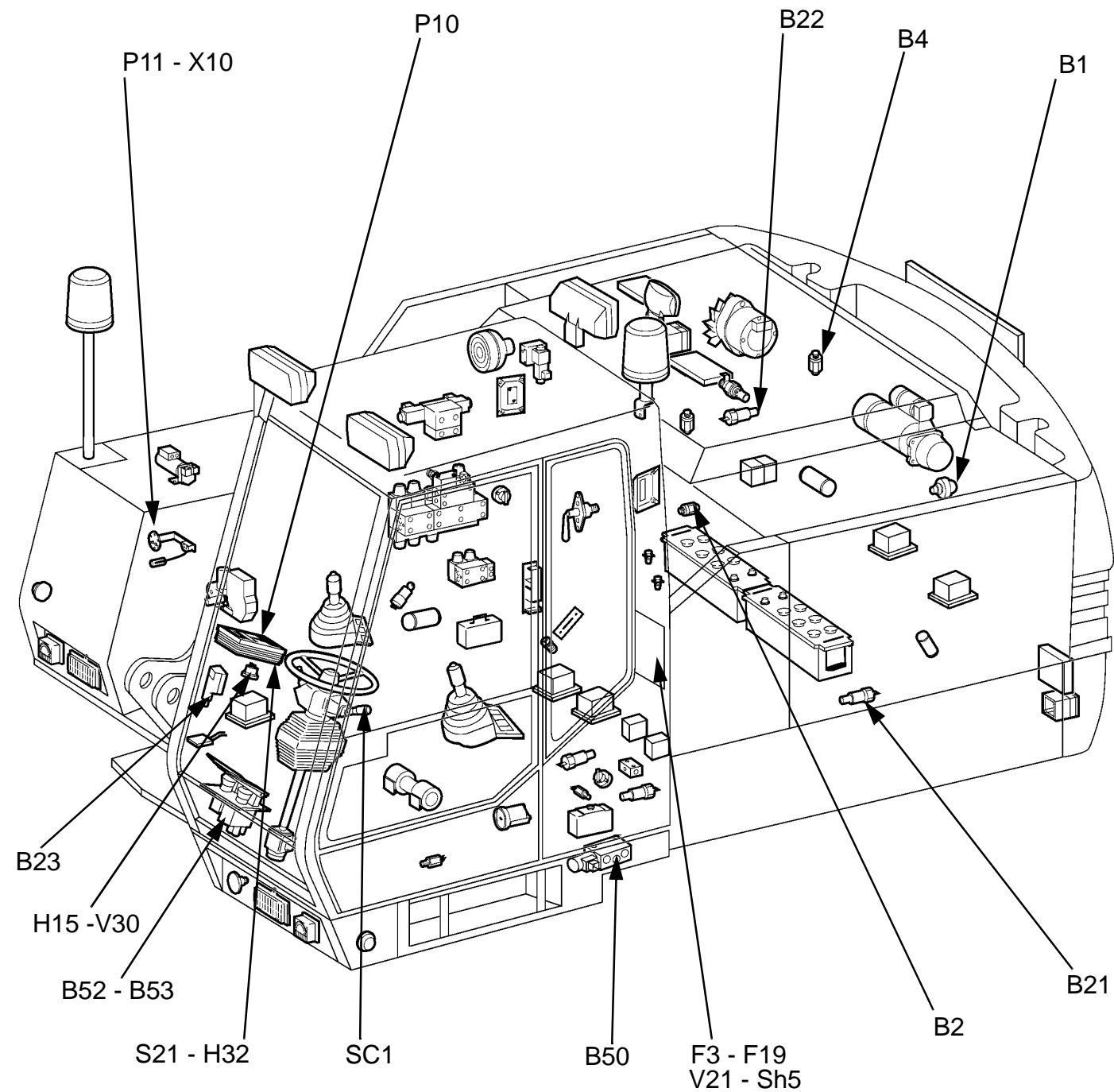
- M** See schematic plate 4
- N** See schematic plate 4
- S** See schematic plate 4
- V** See schematic plate 4 and 6
- W** See schematic plate 6
- X** See schematic plate 5

### WIRING CONNECTION WITH SCHEMATIC PLATE 6

Cables 2, and 0



## ELECTRICAL SCHEMATIC (PLATE 3)



### INSTRUMENT PANEL

- P10** Instrument panel
- H32** Overload indicator switch lighting (optional)
- S21** Overload indicator switch (optional)

### ELECTRICAL CABINET

- F3** Fuse, 7.5 A, instrument panel, hourmeter
- F19** Fuse, 5 A, LH front/rear sidelight + night lighting
- Sh5** Shunt Night lighting (switch) + P excavator registration plate
- V21** Overload indicator lamp diode on instrument panel
- V30** Buzzer diode

### CAB

- SC1** Direction indicator combination switch (commodo), main beam and dip switch, side lights and headlight flasher switch

### FLOOR

- B50** Parking brake pressure switch
- B52** Pressure switch for minimum braking pressure
- B53** Steering pressure switch
- E15** Rear LH side light

### UPPERSTRUCTURE

- B1** Air filter restriction pressure switch
- B2** Hydraulic oil filter restriction pressure switch
- B21** Hydraulic oil temperature sender
- B23** Overload indicator (optional)
- P11** Fuel level gauge
- X10** Fuel level indicator connector

### ENGINE

- B4** Engine oil pressure switch
- B22** Engine coolant temperature sender