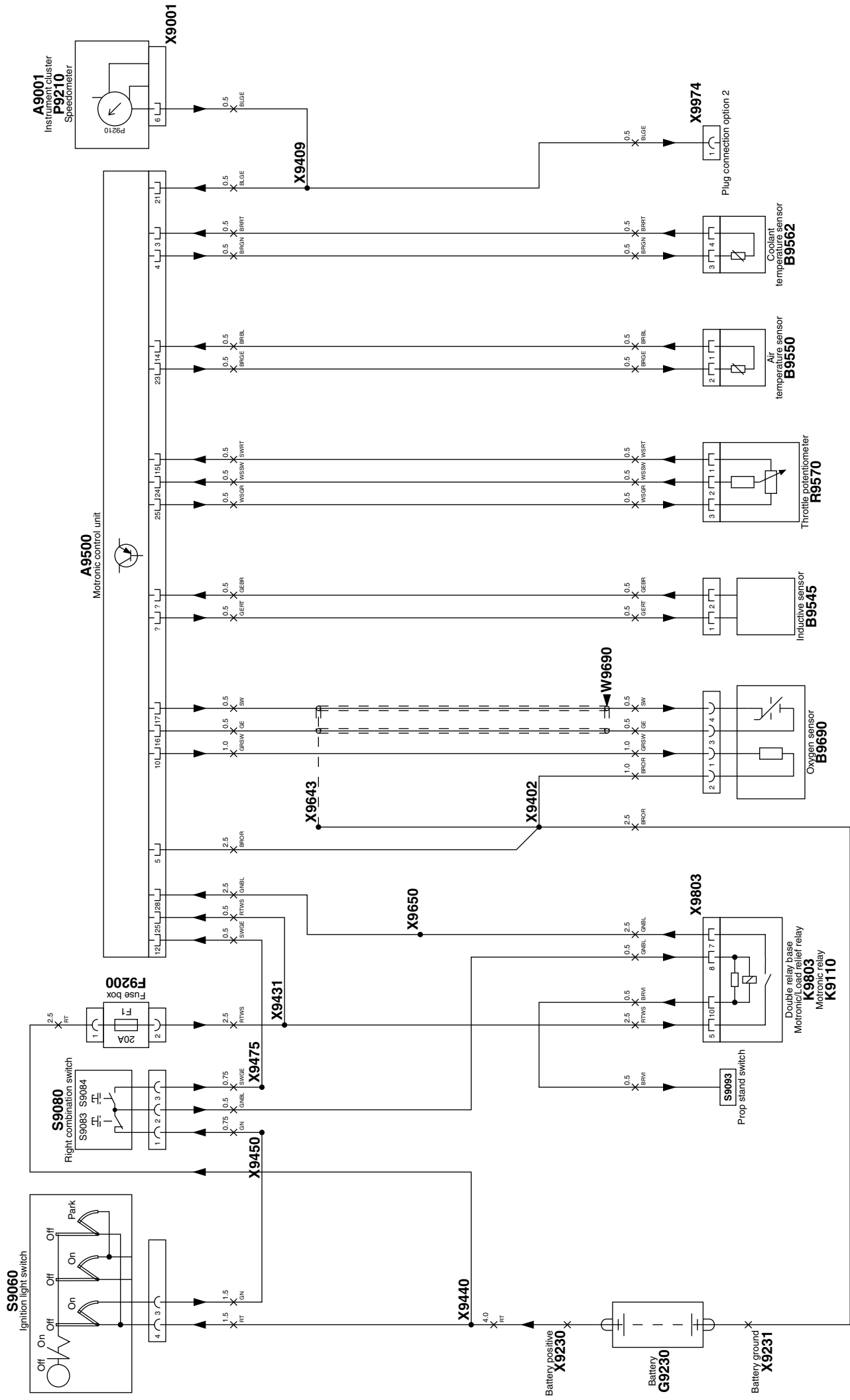
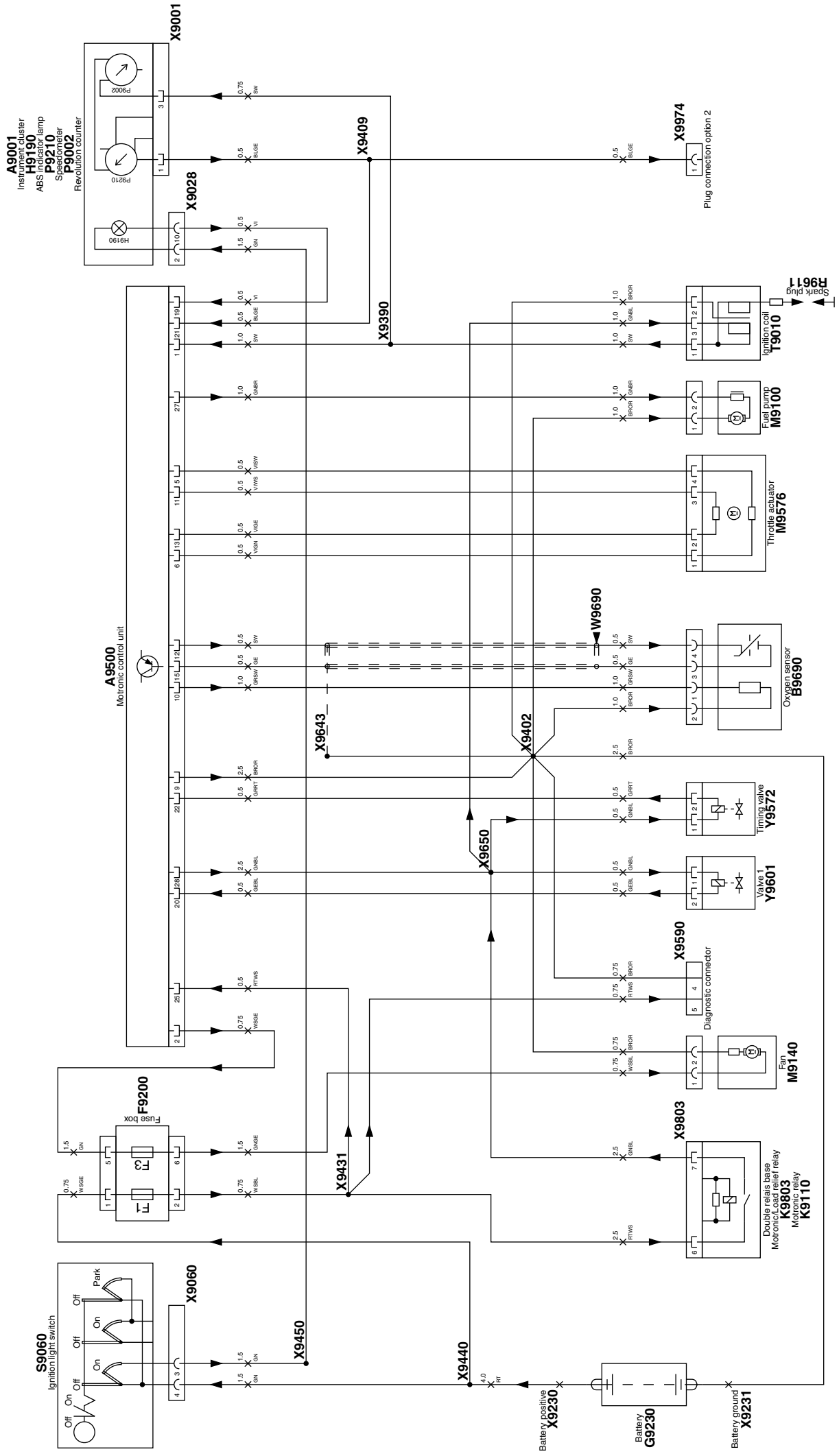


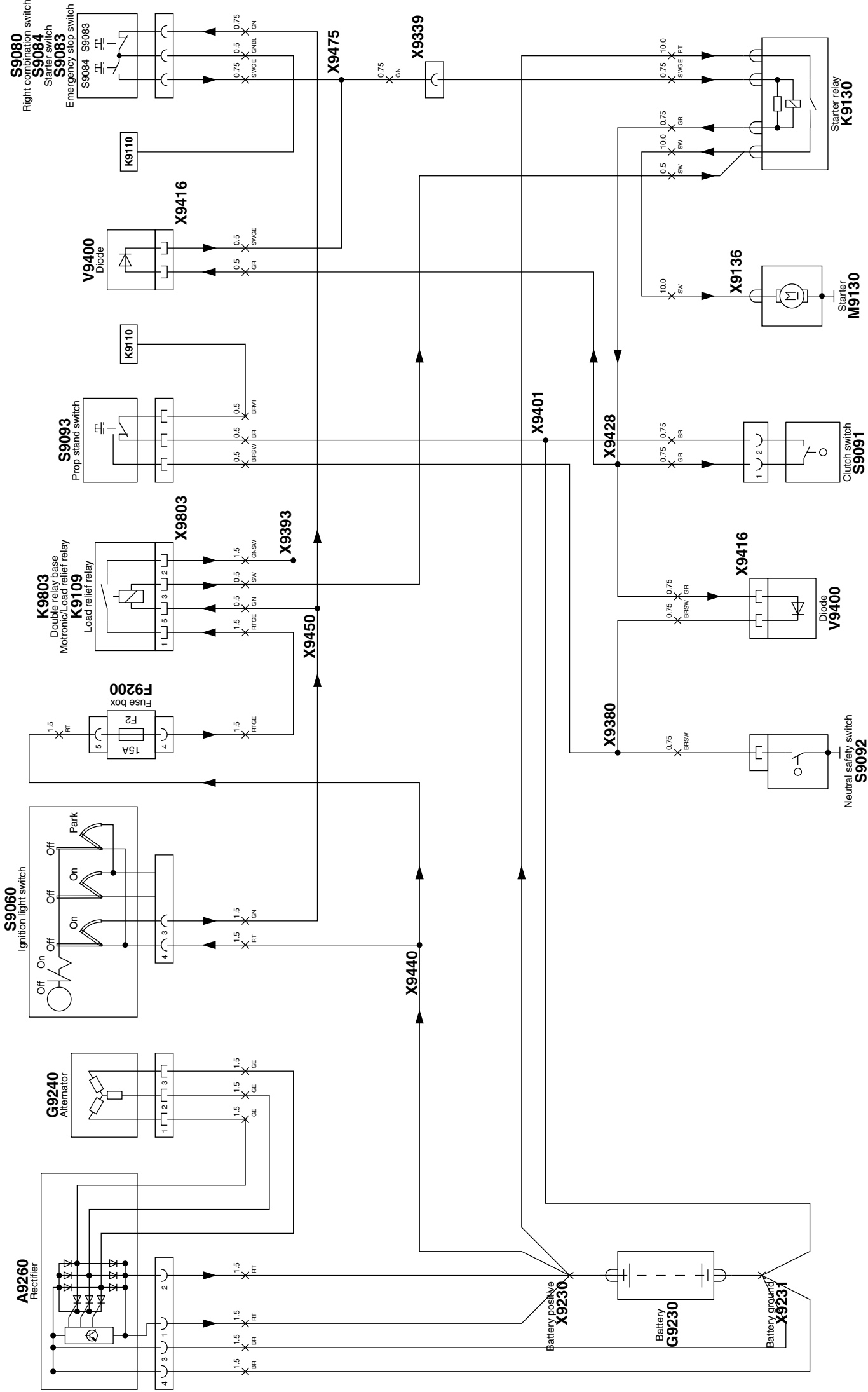
BMW

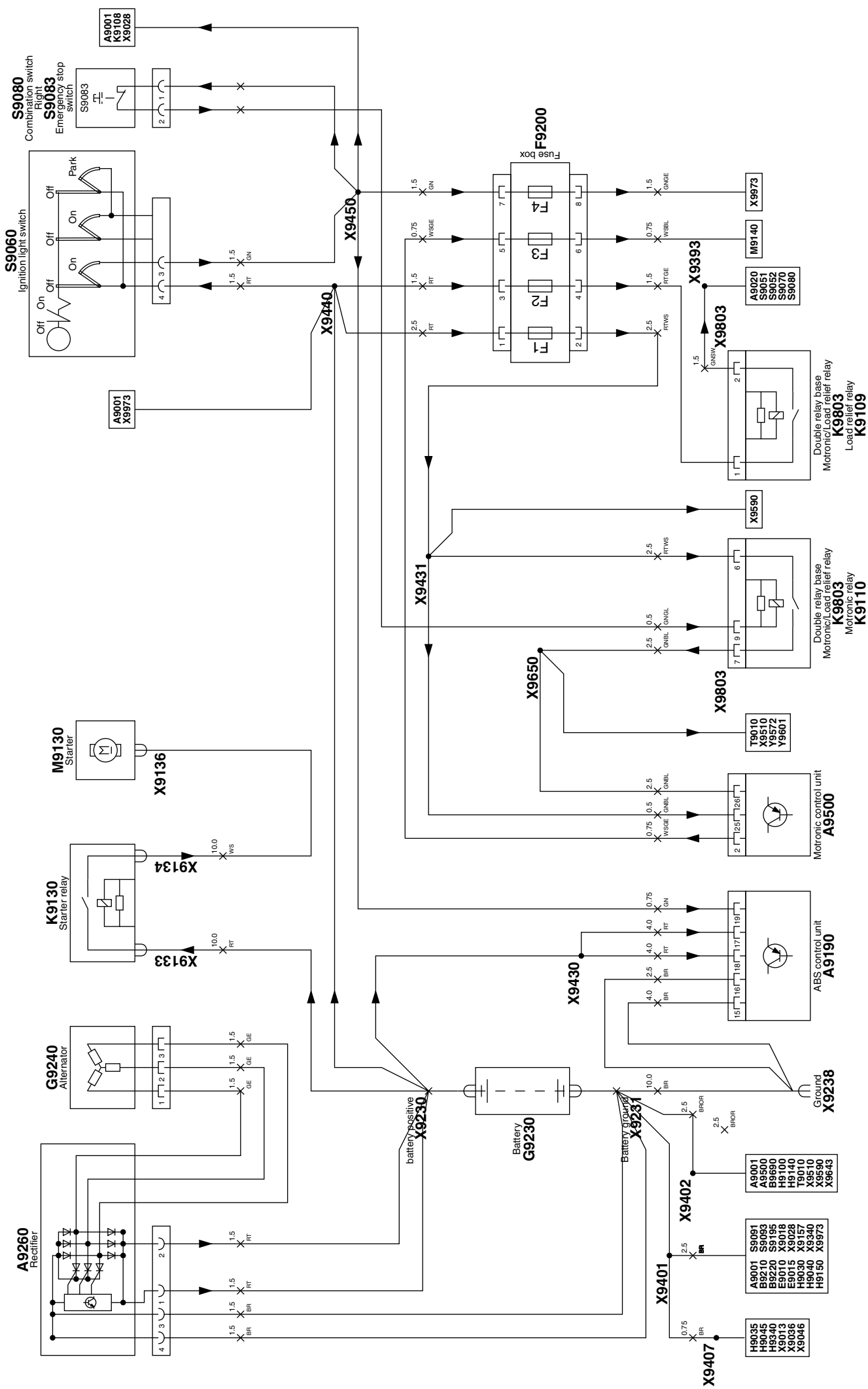
F650GS (+Dakar)

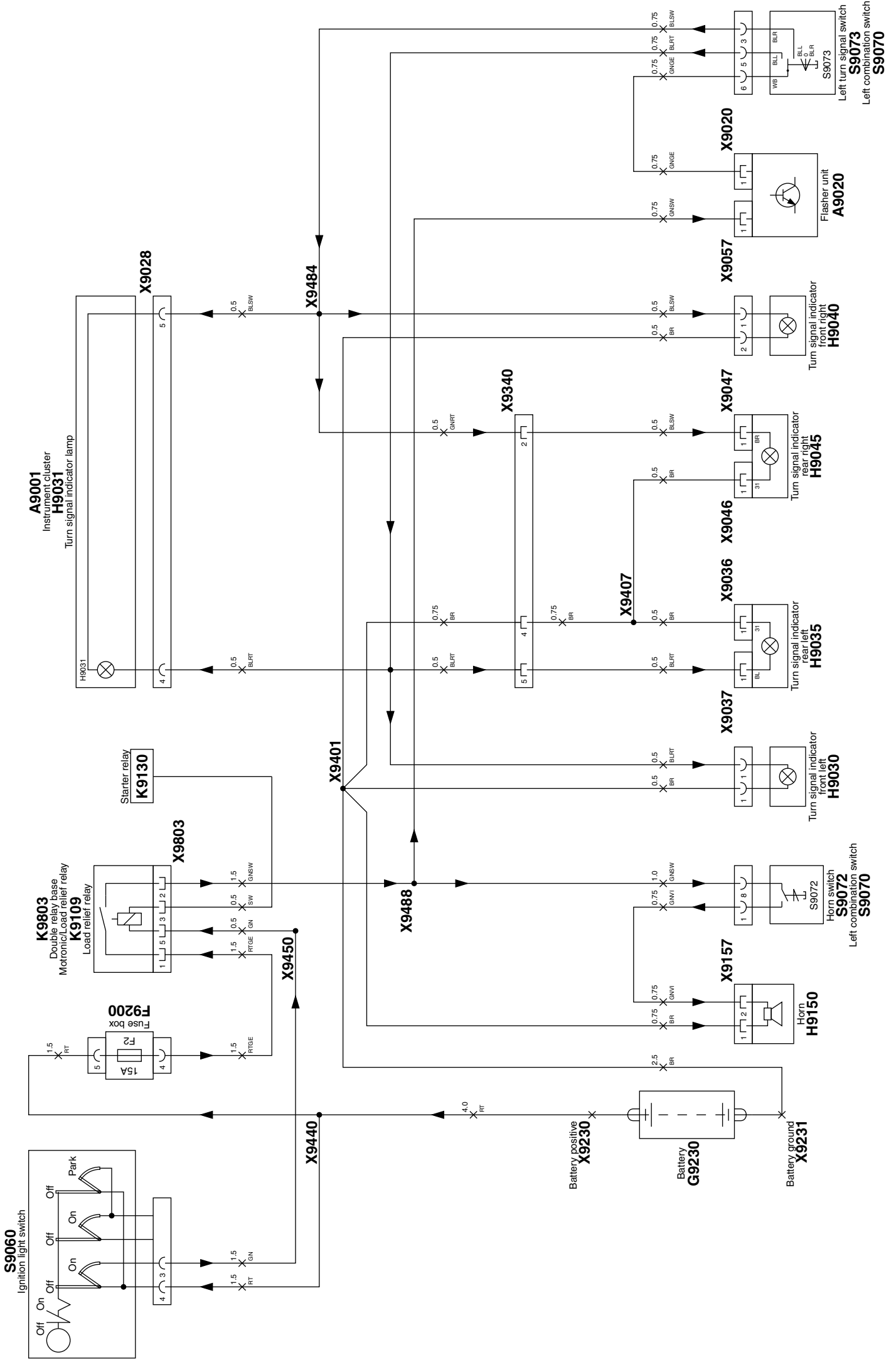
Schematics

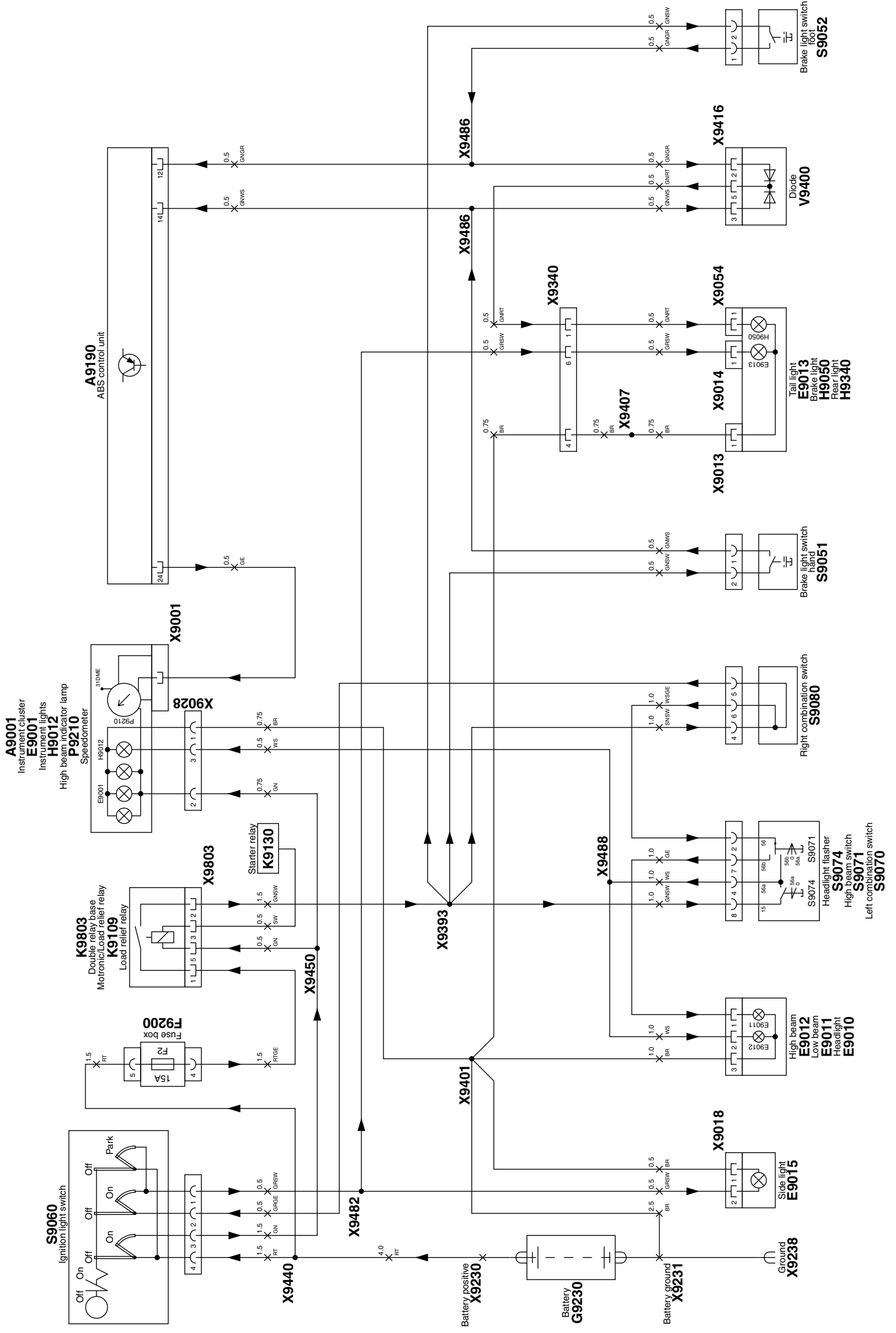


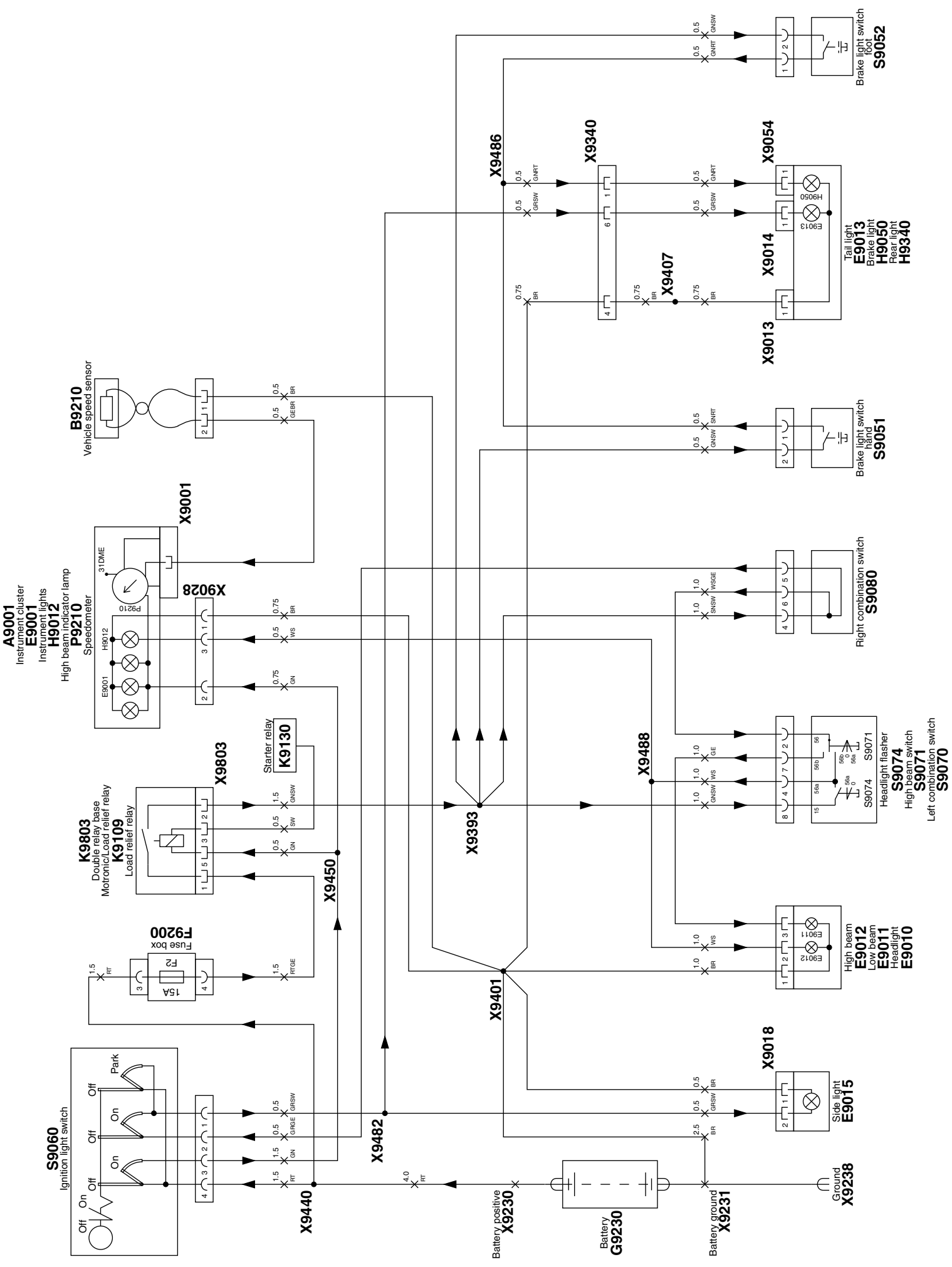




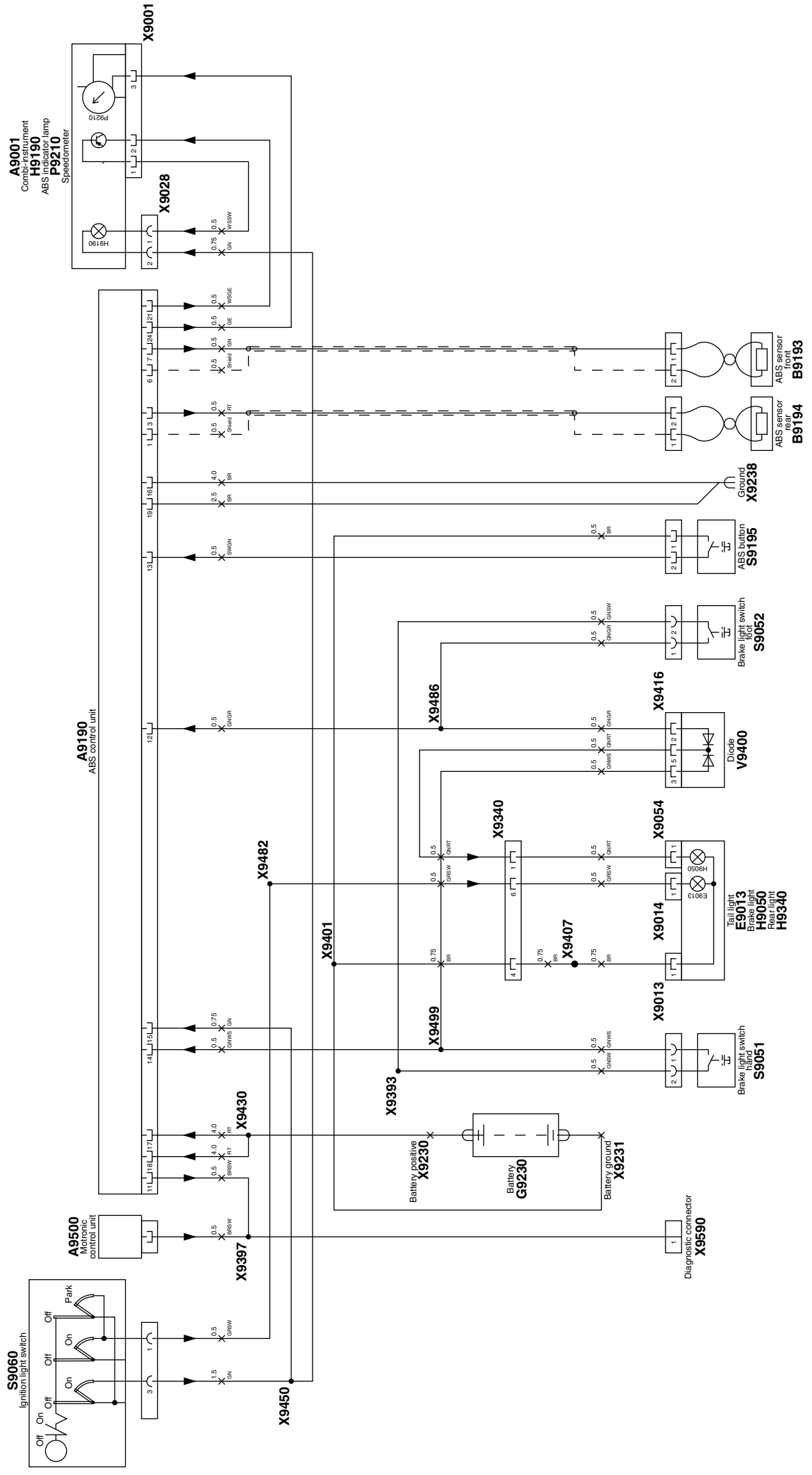


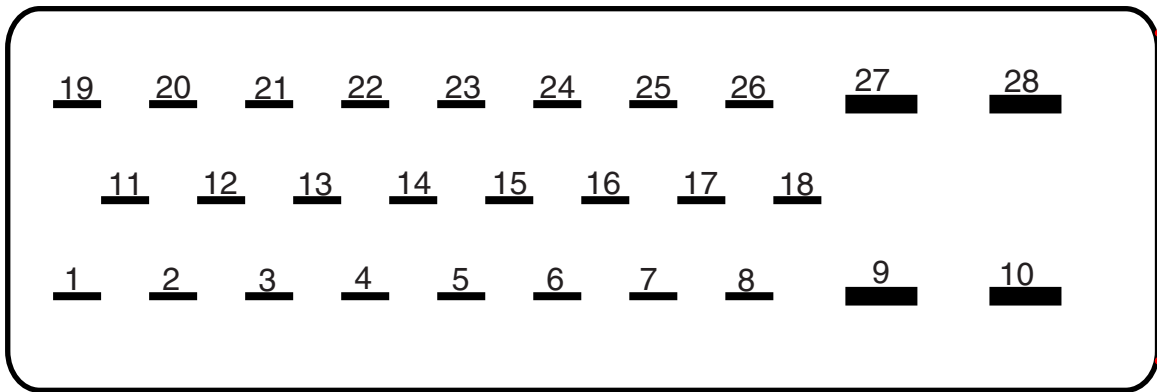












- Pin 1= To ignition coil and rev. counter -----[Z1 and kl 115] -- Black
- Pin 2= To fuse F3 and cooling fan -----[Fan] -- White and yellow
- Pin 3= To water temp. sensor -----[TMOT-] -- Brown and red
- Pin 4= From water temp. sensor -----[TMOT+] -- Brown and green
- Pin 5= Throttle valve actuator -----[D] -- Violet and black
- Pin 6= Throttle valve actuator -----[A] -- Violet and green
- Pin 7= To diagnostic plug -----[DIAG] -- Brown and black
- Pin 8= Inductive sensor -----[RPM-] -- Yellow and brown
- Pin 9= Common ground (Bat - ) -----[31] -- Brown and orange
- Pin 10= Lambda sensor -----[15] -- Gray and black
- Pin 11= Throttle valve actuator -----[C] -- White and violet
- Pin 12= Right combination sw. (start) -----[5D] -- Black and yellow
- Pin 13= Throttle valve actuator -----[B] -- Violet and yellow
- Pin 14= Air temp. sensor -----[TANS-] -- Brown and blue
- Pin 15= Throttle position potentiometer -----[DKP-] -- White and red
- Pin 16= Lambda sensor -----[31 LBDA] -- Yellow
- Pin 17= Lambda sensor -----[LBDA] -- Black
- Pin 18= Inductive sensor -----[RPM+] -- Yellow and red
- Pin 19= Coolant indicator lamp -----[KT] -- Violet
- Pin 20= Valve 1 ?????? -----[15] -- Yellow and blue
- Pin 21= Speedometer -----[VFZ] -- Blue and yellow
- Pin 22= Timing valve ?????? -----[TEV] -- Grey and red
- Pin 23= Air temp. sensor -----[TANS+] -- Brown and yellow
- Pin 24= Throttle position potentiometer -----[[DKPS] -- White and black
- Pin 25= Common + (Bat. +) -----[30] -- Red and white
- Pin 26= Throttle position potentiometer -----[DKP+] -- White and grey
- Pin 27= Fuel pump -----[EKP (15)] -- Green and brown
- Pin 28= Valve 1 ?????????? -----[15] -- Green and blue

## Keys to Schematics

### F 650 GS/GS Dakar

#### A

- A9001 Instrument cluster . . . . . ➔ I/II-35; III-43;  
 . . . . . IV-6, 10, 44, 63; VI-71; VII-70; VIII-68  
 A9020 Flasher unit . . . . . ➔ III-56 IV-50  
 A9190 ABS control unit . . . ➔ II-51; IV-22; VIII-41  
 A9260 Rectifier . . . . . ➔ IV-8; V-4  
 A9500 Motronic control unit . . . . . ➔ IV-10, 30;  
 . . . . . VI-45; VII-47; VIII-14

#### B

- B9193 Front ABS sensor . . . . . ➔ VIII-58  
 B9194 Rear ABS sensor . . . . . ➔ VIII-54  
 B9210 Vehicle speed sensor . . . . . ➔ I-44; IV-6  
 B9220 Fuel level sensor . . . . . ➔ IV-6  
 B9545 Inductive sensor . . . . . ➔ VII-46  
 B9550 Air temperature sensor . . . . . ➔ VII-55  
 B9562 Coolant temperature sensor . . . . . ➔ VII-59  
 B9690 Oxygen sensor . . . . . ➔ IV-10; VI-45; VII-40

#### E

- E9001 Instrument lights . . . . . ➔ I/II-33  
 E9010 Headlight . . . . . ➔ I/II-20; IV-6  
 E9011 Low beam . . . . . ➔ I/II-21  
 E9012 High beam . . . . . ➔ I/II-20  
 E9013 Tail light . . . . . ➔ I/II-51; VIII-31  
 E9015 Side light . . . . . ➔ I/II-11; IV-6

#### F

- F9200 Fuse box . . . . . ➔ VII-21; III-22;  
 . . . . . IV-57; V-33; VI-21; VII-26

#### G

- G9230 Battery . . . . . ➔ I/II-6; III-11; IV-13;  
 . . . . . V-7; VI-4; VII-4; VIII-17  
 G9240 Alternator . . . . . ➔ IV-16; V-13

#### H

- H9001 Coolant indicator lamp . . . . . ➔ VI-68  
 H9012 High beam indicator lamp . . . . . ➔ I/II-35  
 H9030 Front left turn signal indicator ➔ III-32; IV-6  
 H9031 Left turn signal indicator lamp . . . ➔ III-38  
 H9035 Rear left turn signal indicator ➔ III-38; IV-4  
 H9040 Front right turn sig. indicator ➔ III-49; IV-6  
 H9045 Rear right turn sig. indicator. ➔ III-44; IV-4  
 H9050 Brake light . . . . . ➔ I/II-52; VIII-32  
 H9150 Horn . . . . . ➔ III-18; IV-6  
 H9190 ABS indicator lamp . . . . . ➔ VIII-65  
 H9340 Rear light . . . . . ➔ I/II-50; IV-4; VIII-29

#### K

- K9109 Load relief relay . . . . . ➔ I/II-25;  
 . . . . . III-27; IV-46, 63; V-37  
 K9110 Motronic relay . . . . . ➔ IV-39;  
 . . . . . V-49, 55; VI-18; VII-25  
 K9130 Starter relay . . . ➔ I/II-29; III-31; IV-23, V-56  
 K9803 Double relay base  
 Motronic/Load relief relay . . . . . ➔ I/II-25;  
 . . . . . III-27; IV-39, 46; V-37; VI-18; VII-25

#### M

- M9100 Fuel pump . . . . . ➔ IV-10; VI-58  
 M9130 Starter . . . . . ➔ IV-29; V-50  
 M9140 Fan . . . . . ➔ IV-10, 52; VI-23  
 M9576 Throttle actuator . . . . . ➔ VI-53

#### P

- P9002 Revolution counter . . . . . ➔ VI-74  
 P9210 Speedometer . . . . . ➔ I/II-37;  
 . . . . . VI-70; VII-69; VIII-70

#### R

- R9570 Throttle potentiometer . . . . . ➔ VII-51  
 R9611 Spark plug 1 . . . . . ➔ VI-64

#### S

- S9051 Brake light switch, hand . . . . . ➔ I/II-43;  
 . . . . . IV-50; VIII-22  
 S9052 Brake light switch, foot . . . . . ➔ I-57;  
 . . . . . II-62; IV-50; VIII-42  
 S9060 Ignition light switch . . . . . ➔ I/II-10;  
 . . . . . III-6; IV-52; V-22; VI-8; VII-8; VIII-7  
 S9070 Left combination switch. . . . . ➔ I/II-27;  
 . . . . . III-22, 60; IV-50  
 S9071 High beam switch . . . . . ➔ I/II-28  
 S9072 Horn switch . . . . . ➔ III-22  
 S9073 Left turn signal switch . . . . . ➔ III-59  
 S9074 Headlight flasher . . . . . ➔ I/II-26  
 S9080 Right combination switch . . . . . ➔ I/II-37;  
 . . . . . IV-50, 59; V-58; VII-18  
 S9083 Emergency stop switch . . . . . ➔ IV-59;  
 . . . . . V-58; VII-17  
 S9084 Starter switch . . . . . ➔ V-57; VII-19  
 S9091 Clutch switch . . . . . ➔ IV-8; V-44  
 S9092 Neutral safety switch . . . . . ➔ V-37  
 S9093 Prop stand switch . . . . . ➔ IV-8; V-45; VII-21  
 S9195 ABS button . . . . . ➔ IV-8; VIII-46

#### T

- T9010 Ignition coil . . . . . ➔ IV-10, 34; VI-65

#### V

- V9400 Diode . . . . . ➔ II-57; V-40, 52; VIII-36

#### W

- W9690 Screen, oxygen sensor . . . ➔ VI-48; VII-43

## Keys to Schematics

### F 650 GS/GS Dakar

GB

#### X

- X9001 Plug connection ..... → I/II-41;  
 ..... VI-76; VII-73; VIII-74
- X9013 Plug connection ..... → I/II-47; IV-4; VIII-27
- X9014 Plug connection ..... → VII-50; VIII-33
- X9018 Plug connection ..... → I/II-13; IV-8
- X9020 Plug connection ..... → III-57
- X9028 Plug connection ..... → I/II-37;  
 ..... III-51; IV-8, 63; VI-89; VIII-66
- X9036 Plug connection ..... → III-40; IV-4
- X9037 Plug connection ..... → III-37
- X9046 Plug connection ..... → III-43; IV-4
- X9047 Plug connection ..... → III-46
- X9054 Plug connection, stop light .....  
 ..... → I-53; II-54; VIII-33
- X9057 Plug connection ..... → III-54
- X9060 Plug connection,  
 ignition and lighting switch ..... → VI-11
- X9129 Plug connection ..... → V-55
- X9130 Plug connection ..... → V-57
- X9133 Plug connection ..... → IV-20; V-58
- X9134 Plug connection ..... → IV-24; V-54
- X9136 Plug connection ..... → IV-28; V-51
- X9157 Plug connection ..... → III-20; IV-8
- X9230 Battery positive ..... → VII-7; III-14; IV-14;  
 ..... V-6; VI-7; VII-7; VIII-20
- X9231 Battery ground ..... → VII-7; III-12;  
 ..... IV-14; V-6; VI-5; VII-5; VIII-16
- X9238 Ground ..... → I/II-9; IV-15; VIII-52
- X9339 Plug connection ..... → V-58
- X9340 Plug connection:  
 Lighting/rear direction indicator, ... → I-54;  
 ..... II-53; III-46; IV-8; VIII-33
- X9380 Solder point ..... → V-36
- X9390 Solder point ..... → VI-63
- X9393 Solder point ..... → I/II-25; III-29;  
 ..... IV-51; V-40; VIII-21
- X9397 Solder point ..... → VIII-15
- X9401 Solder point ..... → I/II-18;  
 ..... III-33; IV-8; V-46; VIII-29
- X9402 Solder point, ..... → IV-11; VI-43; VII-38
- X9407 Solder point, ..... → VII-49; III-40; IV-7; VIII-27
- X9409 Solder point, ..... → VI-72; VII-64
- X9415 Plug connection ..... → V-42
- X9416 Solder point, ..... → II-59; V-50; VIII-38
- X9428 Solder point, ..... → V-43
- X9430 Solder point, ..... → IV-23; VIII-20
- X9431 Solder point, ..... → IV-41; VI-18; VII-23
- X9440 Solder point, ..... → I/II-7; III-14;  
 ..... IV-36; V-21; VI-5; VII-5
- X9450 Solder point, ..... → I/II-23; III-25;  
 ..... IV-55; V-36; VI-8; VII-16; VIII-7
- X9475 Solder point, ..... → V-56; VII-20
- X9482 Solder point, ..... → VII-12; VIII-32
- X9483 Solder point, ..... → III-37
- X9484 Solder point, ..... → III-51
- X9486 Solder point, ..... → I-53; II-59; VIII-38
- X9488 Solder point, ..... → I/II-28
- X9499 Solder point, ..... → II-55; VIII-24
- X9510 Plug connection ..... → IV-10, 34; VI-65

- X9590 Diagnostic connector ..... → IV-10, 42;  
 ..... VI-30; VIII-12
- X9643 Solder point, ..... → IV-10; VI-43; VII-38
- X9650 Solder point, ..... → IV-36; VI-36; VII-28
- X9803 Plug connection ..... → I/II-27; III-29;  
 ..... IV-36, 49; V-40; VI-21; VII-28
- X9973 Plug connection, option 1, ... → IV-8, 44, 54
- X9974 Plug connection, option 2, ... → VI-72; VII-64

#### Y

- Y9572 Timing valve ..... → IV-34; VI-38
- Y9601 Valve 1 ..... → IV-34; VI-34

F

I

E

NL

S

P

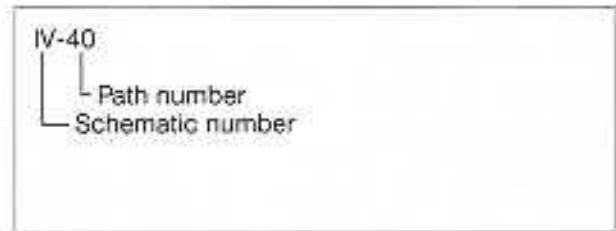
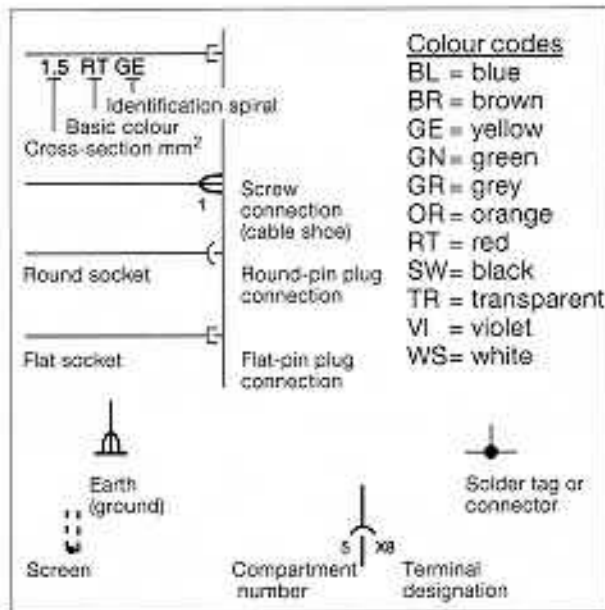
J

Schematics

D

**Keys to Schematics**  
**F 650 GS/GS Dakar**

**GB**



**F**

**I**

**E**

**Schematic diagram**

**Schematic number**

Frame, stop light, instrument cluster (without ABS) . . . . .	I
Frame, stop light, instrument cluster (with ABS) . . . . .	II
Direction indicator with horn . . . . .	III
Relay with fuses . . . . .	IV
Starter/alternator . . . . .	V
Motronic with outputs . . . . .	VI
Motronic with inputs . . . . .	VII
ABS . . . . .	VIII

**NL**

**S**

**P**

**J**

**D**