Stannah

MAXILIFT TRACTION

STANNAH PASSENGER LIFT

TRACTION A3 CONTROLLER
(FERMATOR DOOR GEAR)

ELECTRICAL WIRING MANUAL

ISSUE:

8

THIS MANUAL IS TO BE RETAINED WITHIN THIS LIFT CONTROLLER

Part Number:
9336000-8

Stannah

MAXILIFT PASSENGER LIFT

The information contained within this manual consists of wiring detail sub-section drawings.

Key wiring drawings detailing the complete lift electrical system is supplied with the lift and stored within the lift motor room.
Extra copies of the key wiring diagram can be obtained through the Spares Department. Please quote the lift contract number.

The Maxilift range is designed to operate from the standard electrical supply for a building, e.g. 400/415V a.c. three phase.

The control circuits are supplied from an isolating transformer to give 48V a.c., 24V rectified d.c. and 12V d.c. dedicated for Nexus power supply.

Cables are supplied to drawings series 9335-'X' to suit the installation.

NOTE:
For replacement copies ot this manual please contact.

Spares Department

IMPORTANT:
This manual is specific to this site, please quote the lift contract number when ordering replacements.

Maxilift passenger lift

Traction lift

Electrical installation manual

Issue: 8

History

Revision	Date	Change
1.00	14/01/09	First issue
1.01	16/01/09	Revision after first install
1.02	23/03/09	Addition of balancing of lift and emergency release.
1.03	24/04/09	Cable check list and program parameters updated.
1.04	29/04/09	Health and safety notices added to section 1.
2	09/06/09	CT inverter parameter list update for best ride.
3	01/06/10	Appendices updated and mod data removed.
4	08/09/10	Appendix A and D, Section 17 updated.
5	06/09/11	Motor terminal wiring updated for new arrangement. CT parameter list shortened to be more relevant.
6	26/10/11	Manual updated to included Fermator door gear – ECN 5111
7	23/01/12	Addition of A3 park control circuit – ECN 5126
8	29/03/12	Amendments to A3 solution – ECN 5276

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Drawing list:

Updated Drawing (*)	Drawing No	REV	Title
	9335/5	F	Overload weighing device loom assembly
	9335/8	G	Traction- Logo light and speaker cable
	9335/9	F	Traction- Inverter terminal box to motor connection diagram
	9335/24	E	Power supply cable car light cable in car top box
	9335/44	E	Motor terminal housing to brake cable loom assembly
	9335/50		Safety gear switch loom assembly
	9335-65		Safety gear switch cable with parking plate sensor
	9335-66		Traction over speed solenoid control cable
	9336/3	E	Traction shaft wiring diagram pit terminal box
	9336/7	E	Nexus car wiring traction car top optical proximity switch assembly
	9336/8	I	Nexus car wiring traction ‘compact 2’ pushbuttons
*	9336/9	G	Nexus car wiring traction full height infra red safety edge
*	9336/12	G	Traction control panel consumer unit
	9336/15	F	Traction lift installer safety chain wiring
	9336/16	F	Traction Inverter box site wiring
	9336/17	E	Traction Inverter power wiring
	9336/37	C	Nexus car wiring traction - through car test controls and Fermator door gear
	9336/35	C	Nexus car wiring traction Fermator door gear.
	9336/21	G	Nexus car wiring optical proximity switch (ops) assembly traction vane layout
	9336/22	D	Traction Shaft wiring shaft lighting and power socket
*	9336/23	D	MEMCO autodialer system wiring detail
*	9336/13	O	Traction manufacturing diagram - Terminal assemblies
*	9410/4	E	Traction AC circuit schematic
*	9411/1	K	Traction DC schematic

1. Safety and Warning notices:

Safety First!

Working on lifts can be dangerous and therefore safe practice for all personnel working on the lifts is essential. British Standard BS7255 2001, Code of practice for working on Lifts, is a vital guide and recommends safe practices for those working on all types of lifts and should be referred to for guidance.

On arriving on site, the installer must make his presence known to the site manager. The installer must comply with any site safety procedures and regulations that are in force and wear appropriate personal protection equipment (PPE).

Warning!

The drive contains capacitors that remain charged to a potentially hazardous voltage after the AC supply has been disconnected. If the drive has been energised, the AC supply must be isolated at least ten minutes before work may continue.

Warning!

Do not change controller or drive parameter values without careful consideration; incorrect values may cause damage or a safety hazard.

Warning!

Permanent magnet motors generate electrical power if they are rotated, even if the supply to the drive is disconnected. If it is possible for the machine to rotate there is a risk of electric shock.

2. Introduction

This manual is a reference to assist Lift Engineers when installing a Stannah traction lift. It is assumed that the Lift Engineer has previously been trained and has a high level of skill and knowledge in lift engineering.

Since there are often multiple ways of performing a particular operation satisfactorily and safely, instruction procedures have been kept to a minimum, but attention has been given to emphasize key points and safety aspects.

Within the manual the installation is split into set stages that represent the installation process, mainly; positioning of equipment, basic platform installation, control system installation and setup procedures for best ride. There are also check lists to ensure all necessary parts are in place before each stage is judged to be completed.

The control system has been designed to aid and reduce installation time. This has been achieved by the use of pre tested wiring looms to enable speedy installation and lessen wiring errors. These looms are part numbered and packaged with the relevant piece of kit, such that the cables connecting the control panel to the inverter terminal box are packaged with the inverter terminal box. The same is also true for the car top cable looms being placed with the car top box, this includes the trailer cables. A full list of where a cable is packed can be found in appendix B.

3. System overview

The control system for the Stannah traction lift is broken into five main sub assemblies, these are the control panel, inverter terminal box, inverter box, car top control box and landing control unit all are shown in block diagram form in Figure 2. The assemblies are interconnected with pre tested cables looms, except for the power supply and motor wiring. This is carried out by the installer using pre cut screened four core SY cable. The termination of the cable screens is important and P clips are provided to aid in terminating the screen, An example of how the screen must be terminated is shown below in Figure 1: SY cable termination.

To fully understand how the serial system is configured the Serial System Manual should be read.

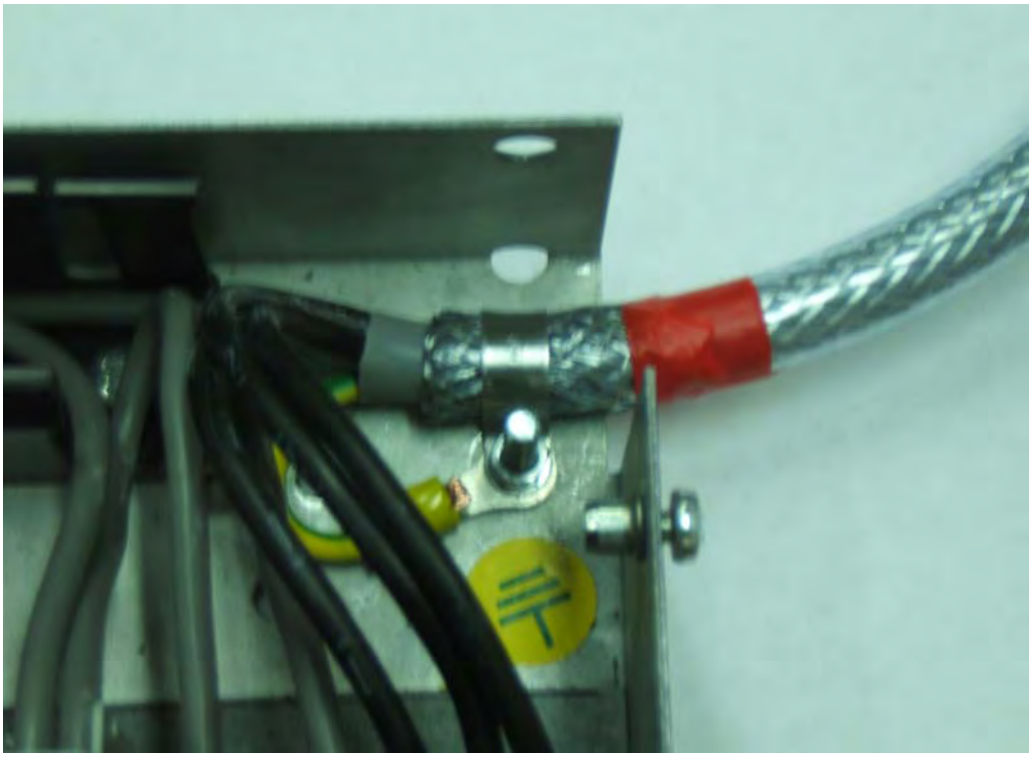


Figure 1: SY cable termination

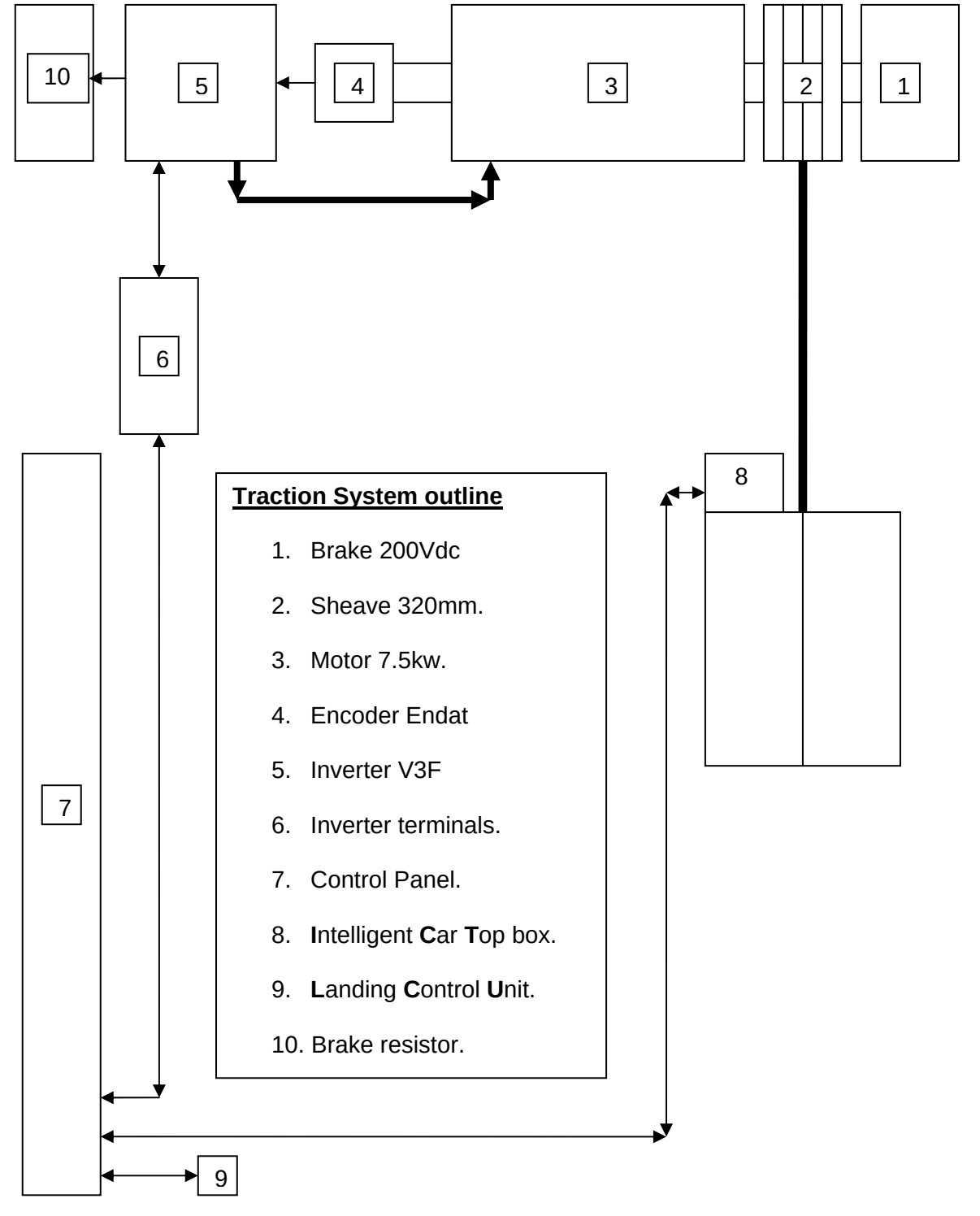


Figure 2: Block diagram of sub assemblies

4. Installation method.

The installation method is broken down into stages to enable pendant control of the lift. The stages are positioning of equipment, basic platform installation and then control system installation. The setup procedures are referred throughout the installation process.

5. Cable assembly check list.

On despatch of the electrical equipment the delivery of all the assemblies must be checked off against the table below to ensure the necessary parts are delivered. The installer is responsible for checking against this table to ensure that all the assemblies are in place before installation starts.

Location: Inverter box, motor, inverter terminal box and control panel.

Description	Part No	Dwg No	Pckd	Chkd
Inverter box assembly fitted with SY cable, 4 meters		9336/17		
Motor cable SY 4 core 4mm, 4 metres	916141	9336/16		
Power from control panel SY 4 core, 4mm, 10 metre	916141	9336/16		
Brake resistor cable SY 4 core, 4mm, 6 metres	916141	9336/16		
Inverter terminal box assembly with cables 9335033/34	2001162	9336/16		
Brake resistor thermostat cable 2 core, 0.5 mm, 4 m	9335007	9335/7		
Slack rope switch cable 2 core, 0.5 mm.				
Inverter terminal box to control panel cable assembly	9335030			
Inverter terminal box to control panel cable assembly	9335031			
Inverter terminal box to control panel cable assembly	9335032			
Motor to brake cable assembly	9335044	9335/44		

Location: Car top box and control panel.

Description	Part No	Dwg No	Pckd	Chkd
Overload device cable and unit	9335005	9335/5		
Ultimate limit cable assembly	9335012	9335/12		
Test up limit cable assembly	9335013	9335/13		
Safety gear cable	9335019	9335/19		
Door power cable	9335017	9335/17		
Door limits cable	9335018	9335/18		
Autodialer	9335045	9335/45		
Slack rope pit	9335020	9335/20		
Floor proximity assembly	9336007	9336/7		
Car operating panel assembly	9336008	9336/8		
Safety edge main doors	9336009	9336/9		
Trailer 1 cable assembly	9335035	9335/35		
Trailer 2 cable assembly	9335036	9335/36		
Safety gear switch cable with parking plate sensor	9335065	9335/65		
Traction over speed solenoid control cable	9335066	9335/66		

Location: Landing and well cable assembly check list.

Description	Part No	Dwg No	Pckd	Chkd
LCU to LCU serial cable	9335004	9335/04		
LCU to display unit	9335003			
LCU to landing push buttons pre-wired	9335011			
LCU to out of service legend Pre-wired	9335037			
Landing door lock cable	916042			
Cable 3 core csa 1mm length 40 metres				
Cable 3 core csa 1mm length 40 metres				
Cable 5 core csa 1.5mm length 40 metres				
Cable 5 core csa 0.5mm length 40 metres				
Cable 7 core csa 0.5mm length 40 metres				

6. Positioning of equipment.

From Figure 2 it can be seen that positioning of the assemblies is as follows:

6.1. Lift machine, brake, encoder and sheave mounted on bedplate at lift well head.

6.2. Inverter box mounted on bedplate at lift well head.

6.3. Inverter terminal box mounted in the well above top floor landing door.

6.4. Brake resistor mounted in the well above top floor landing door.

6.5. Control panel mounted in landing architrave at desired floor.

6.6. Landing control unit (LCU) mounted at each landing.

6.7. Intelligent car top unit (ICTU) mounted on car top.

7. Terminal numbering and motor wiring

The terminals of the control system are numbered to aid in identifying the location of the terminal. They are numbered as a range that indicates the location of the terminal, these are as follows. The terminal designation can be found on drawing 9336/13 site drawing.

7.1. Control panel terminal range is 1 to 199.

7.2. Inverter terminal box range is 200 to 299.

7.3. Car top box terminal range is 300 to 399.

7.4. Pit box terminal range is 400 to 499.

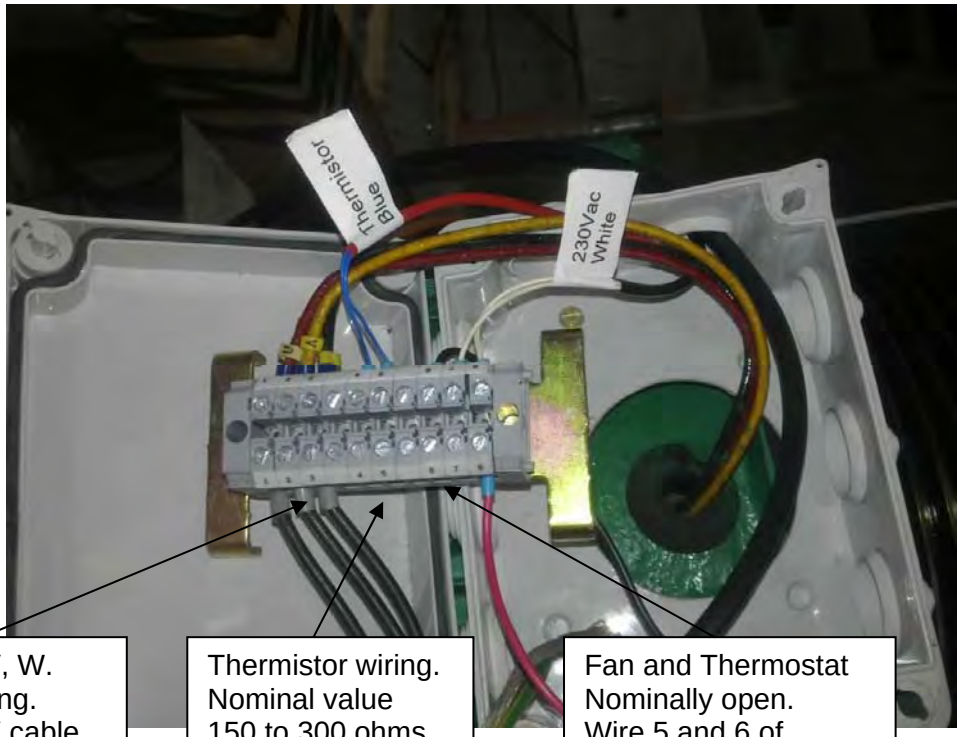
7.5. Through car test control terminal range is 500 to 507.

7.6. The terminal designation can be found on drawing 9336/13 site drawing.

7.7. Inverter plugs are numbered T1 to T11, T21 to T31 and T41 to 42.
These are plugged into the matching numbered terminal on the inverter.

7.8. Motor terminal wiring. Figure 2 identified the current terminal arrangement for the motor terminals. **Caution must be exercised in wiring these terminals as damage to the motor can occur if the terminals are not wired correctly.**

Figure 2: Motor terminal wiring



Motor U, V, W. Phase wiring. Wire to SY cable from inverter terminal box.

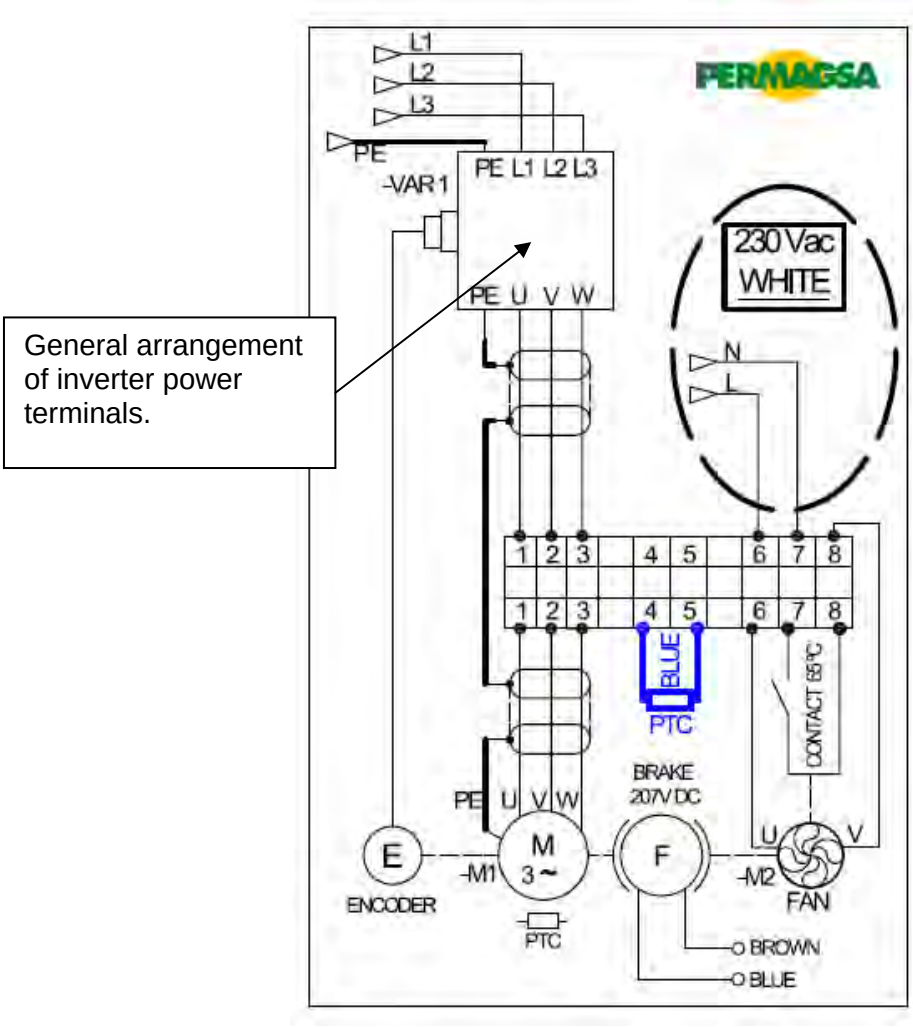
Thermistor wiring. Nominal value 150 to 300 ohms. Wire 1 and 2 of Cable 9335009.

Fan and Thermostat Nominally open. Wire 5 and 6 of Cable 9335009

Note: Cable 9335009 wires 3 and 4 are to the brake terminals as per drawing 9335/44

7.9. Permagsa motor terminal wiring diagram.

Caution must be exercised in wiring these terminals as damage to the motor can occur if the terminals are not wired correctly.



Motor connections for cable 9335009

Wire 1 = Motor PTC to terminal 4.
Wire 2 = Motor PTC to terminal 5.
Wire 3 = Brake positive to brake terminal block.
Wire 4 = Brake negative to brake terminal block.
Wire 5 = Fan Live feed to terminal 6.
Wire 6 = Fan Neutral feed to terminal 7.

8. Basic platform installation

For installation of the lift to run with the sling as a platform and under pendant control the following assemblies must be in position.

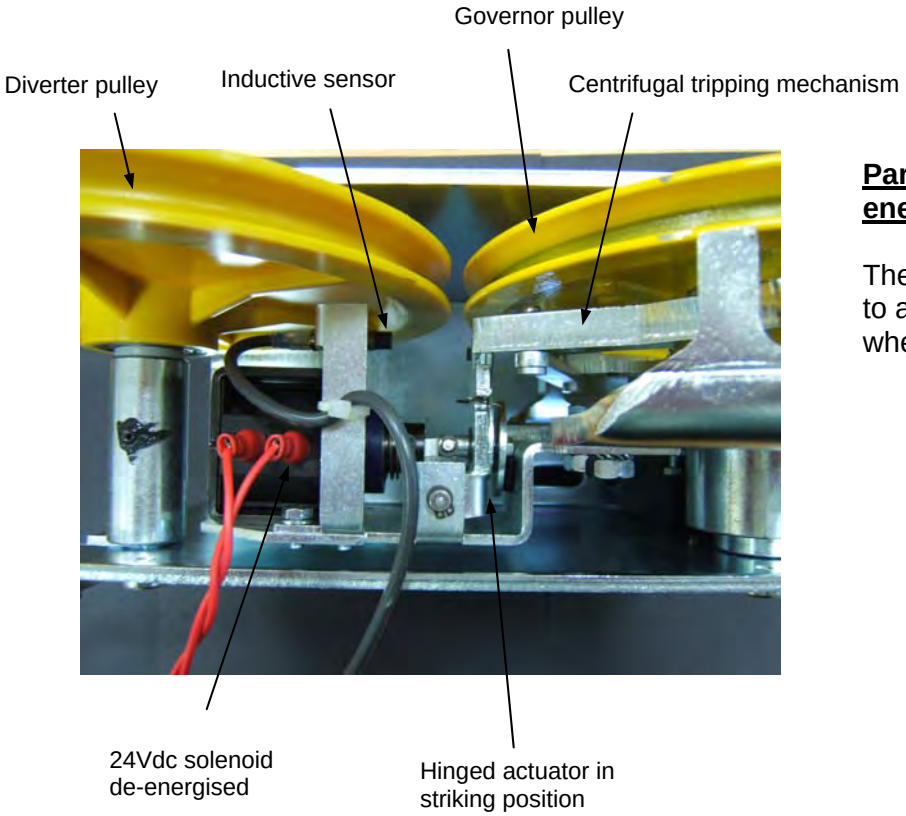
Check list for platform control	Location	Check
Lifting machine (motor, brake, sheave)	Bedplate at well head	
Inverter box	Bedplate at well head	
Inverter terminal box	Above top floor door in well	
Brake resistor	Above top floor door in well	
Control panel	Architrave at desired floor	
Pendant control wire to control panel	Fly lead box	

Once the assemblies are in position the power, basic safety chain and control wiring can be connected.

Check list for power supply wiring	Cable type	Drawing
Wire 3 Phase power supply from isolator	4 core, 4mm and earth	9336/12
Wire control panel to inverter box	SY 4 core, 4mm	9336/16
Wire brake resistor to inverter	SY 4 core, 4mm use 2 cores only	9336/16
Wire inverter to inverter terminal box	SY 4 core, 4mm	9336/16
Wire motor to inverter terminal box	SY 4 core, 4mm	9336/16

Check list for control wiring	Cable type	Drawing
Plug the encoder cable into the inverter encoder port, left of the input terminals	Encoder cable	
Plug keypad RJ45 cable into inverter	RJ45 cable in control cabinet	
Motor control to inverter terminal box	9335009	9336/16
Inverter control to inverter terminal box	9335033/34	9336/16
Cable 9335030 to inverter terminal box	9335030	9336/16
Cable 9335031 to inverter terminal box	9335031	9336/16
Cable 9355032 to inverter terminal box	9335032	9336/16
Brake resistor thermostat to inverter terminal box.	9335007	9336/16
Safety chain to inverter terminal box	csa 0.75mm	9336/15
Short out safety 88 to 92	Use approved shorting link	9336/15
Short out parking system 52 to 18	Use approved shorting link	9411/1
Pendant control common to 113	Pendant box cable	
Pendant up control to 114	Pendant box cable	
Pendant down control to 115	Pendant box cable	
Pendant earth to 116	Pendant box cable	

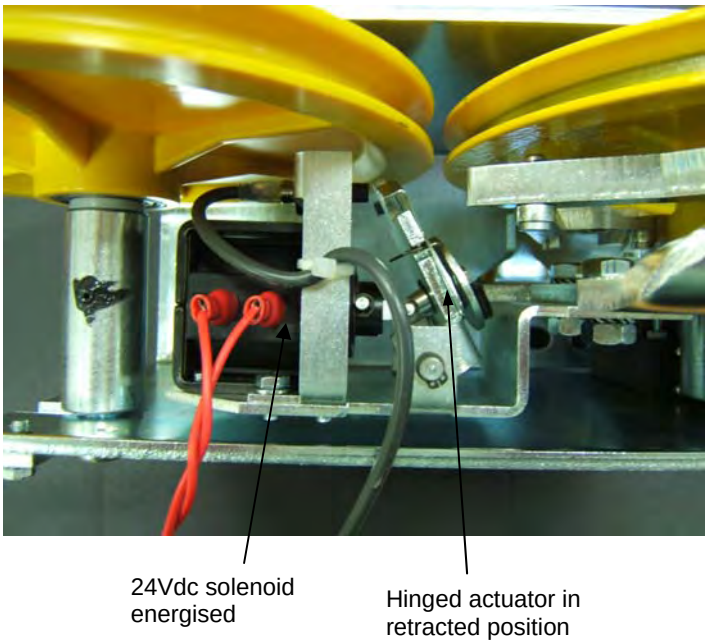
Note :-
During the installation phase, to run the lift up or down using the pendant controller, the parking system actuator must be mechanically tied back with a highly visible tag to prevent engaging the overspeed governor. The assembly will still function as normal for overspeeding. This tag must be removed once the lift car is fully wired.



Parking system with solenoid de-energised:

The actuator is in this condition ready to activate the overspeed governor when:

1. The lift is at a standstill with doors open or closed.
2. When remote tripping of the overspeed governor is activated as part of test procedure (fuse removed).



Parking system with solenoid energised:

The actuator is in this condition allowing free rotation of the overspeed governor when:

1. The lift is travelling up or down either on mains power or via the emergency UPS supply during manual release.

9. Auto tune procedure

Before the motor can be run the Inverter and motor must be tuned to work together. To enable auto tuning the sheave must be free to rotate and the ropes not in place. **Do not attempt to use the pendant control until the auto tune process is complete.**

9.1. CT inverter programming interface

The programming keypad consists of:
1. Joy pad - used to navigate the parameter structure and change parameter values.
2. Mode button - used to select display modes: Parameter view, parameter edit or status.
3. Three control buttons - used to control the drive if keypad mode is selected. Not used.
4. Help button - displays text briefly describing the selected parameter. Not used.

The help button toggles between other display modes and parameter help mode; the up and down on the joy pad scroll the help text to allow the whole string to be viewed. The right and left of the joy pad have no function when help text is being viewed.

The joy pad is used to navigate through the menus using the left and right keys to select a menu then the up and down are used to select a menu parameter. To edit the selected parameter press the ‘M’ key, this will enable the joy pad to modify the required parameter, the left and right key can be used to select the digit then the up and down to enter the value. Once the required value has been set press the ‘M’ key to save the parameter and return to the parameter menu list.

Note: New keypads may be programmed for ‘F parameters’ menu only. This must be disabled by setting parameter F51 = Normal and then resetting the drive. The menus displayed will then be as required per the manual.

Important note: The auto tune parameters must be saved to permanent memory before the power is turned off. To save parameters to permanent memory:

- **Select parameter 00.00 using the joy pad.**
- **Press the ‘M’ key.**
- **Using the joy pad enter the value 1001.**
- **Press the ‘M’ key.**
- **Press the red reset key to save to memory.**
- **When the value field changes to ‘0’ the parameters have been saved.**

For auto tuning the lift must be on punch control, this means that terminal 60 must be off. To achieve this switch the emergency release switch, to the ‘Emergency release position’.

9.2. Procedure for auto tune

Using an Ohm meter measure that the motor windings are shorted by contactor C2.

The motor windings must be wire to terminals 230, 231 and 232 for C2 to short the windings.

Ensure the 3 phase circuit breaker on the consumer unit is in the closed position.

Turn on the power supply and isolator on the consumer unit.

The Inverter programmable interface should display ‘Inh’.

If not check control input wiring. The inverter terminals are numbered 1 to 11 and 21 to 31, it is common for these plugs to be swapped resulting in a thermistor fault or for them not to be fully inserted, you must check the green plugs are fully inserted and correct at inverter input as identified.

Using the joy pad check the inverter motor parameter 00.48 = Servo.

Using the joy pad and ‘M’ key set parameter 00:40 = 2, this sets the lift for auto tune mode.

The inverter is now ready for auto tune. Before running auto tune check the sheave is free to rotate and stand clear.

With use of the pendant control set and hold the motor to run in either direction until the auto tune is complete, this is indicated when the brake drops out. At this point the inverter may log a Trip 75 fault. This fault can be ignored and the drive will reset and clear the fault.

Note: If the inverter trips with an encoder direction fault, the fault can be fixed by swapping two of the motor wires in terminals 230, 231 or 232 and repeat the auto tune process from setting 00.40 = 2.

On successful completion of the auto tune the motor will make a grinding noise due to the current gains being too high. To remove the grinding noise check and modify the following parameters using the joy pad and ‘M’ key.

Parameter	value	Comment
04.13	100	Current loop P Gain. Too high a value will cause noise in the motor
04.14	1400	Current loop I Gain. Too high a value will cause noise in the motor
18:25	1000	Increase value to improve true running during travel. Motor noise if set too high.
18:26	100	High value reduces deviation, low values reduce overshooting during travel.
18:27	1400	Increase value to improve speed tracking at start. Noise from motor if set too high.
18:28	1000	Increasing value reduces jolting at start. Noise from motor if set too high.

Motor rotates in wrong direction? DO NOT SWAP THE MOTOR TERMINALS!

Swap these program parameters	8.24 = 18.44 8.25 = 19.44	Direction input controls.

WARNING: The auto-tune procedure ensures proper control of the motor and relates the motor encoder to the phase of the motor power wiring. If motor U, V, W wiring is modified the wire to terminal allocation should be noted and reconnected in the same order. Failure to do this can result in uncontrolled movement of the machine.

IMPORTANT! Note the value for the motor parameter 00.43 = :

Save parameters to permanent memory:

- **Select parameter 00.00 using the joy pad.**
- **Press the 'M' key.**
- **Using the joy pad enter the value 1001.**
- **Press the 'M' key.**
- **Press the red reset key to save to memory.**
- **When the value field changes to '0' the parameters have been saved.**

9.3. Finally back up to smart card.

Note: Before backing up to the smart card ensure lift operation is correct.

To back up the parameters the smart card should be inserted in the drive,

Procedure for backing up to smart card.

- **Select parameter 00.00 using the joy pad.**
- **Press the 'M' key.**
- **Using the joy pad enter the value 4001.**
- **Press the 'M' key.**
- **Press the red reset key to save to memory.**
- **When the value field changes to '0' the smart card.**

10. Control system installation

The control system is supplied with pre tested cable looms for interconnecting the system. These are labelled with their part numbers and the location they should be plugged into. The check lists below are divided up by location.

Check list for car top box wiring	Cable ident and plug ID	Drawing
Direction arrows and gongs	9335002 / PL39	ICTU PL39
Display unit PL1	9335003 / PL1	ICTU PL1
Overload device	9335005/PL21	9335/5
Logo light and speaker	9335008/ terms 312, 313	9335/8
Ultimate limit	9335012 / PL13	ICTU PL13
Test up limit	9335013 / PL20	ICTU PL20
Door power wiring	9335017 / PL38	9336/20
Door limit wiring	9335018 / PL12	9336/20
Safety gear wiring	9335019 / PL14	9336/18
Car light cable	9335024 / PL42	9335/24
Floor proximity switches	9336007 / PL15	PL15
Car operating panel drawing	9336008 / PL11 / PL26 / PL27	9336/8
Safety edge	9336009 / PL29 / PL30	9336/9
Auto dialer	9335045/PL4	9335/45
Trailer 1	9335035 / PL1 / PL2 / PL3	ICTU Plugs
Trailer 2	9335036 / PL8 / PL9 / PL10	ICTU Plugs
Safety gear switch cable with parking plate sensor	9335065	9335/65
Traction over speed solenoid control cable	9335066	9335/66

Check list for control panel wiring	Cable ident and plug ID	Drawing
Trailer 1	9335035	
Trailer 2	9335036	
Cable 9335030 to Inverter terminal box	9335030, already fitted	
Cable 9335031 to Inverter terminal box	9335031, already fitted	
Cable 9335032 to Inverter terminal box	9335032, already fitted	
Safety chain wiring	Wired by installer	9336/15
Control panel to pit box	7 core and 5 core wired by installer	9336/3

Check list for pit box wiring	Cable type	Drawing
Pit box	Wired by installer	9336/3

11. Serial system connections

The serial link cables are terminated with Molex connectors at each end and these are plugged into the mating half PL7 (serial 2) on the Nexus CPU and the common communication connector on the Landing Control Unit (LCU). An LCU is mounted on every landing and the serial link cable daisy chains between them. Figure 3 shows the Molex connectors on the LCU. The call buttons are wired at the factory to the LCU. Further details of the serial wiring can be found in the Serial system manual.

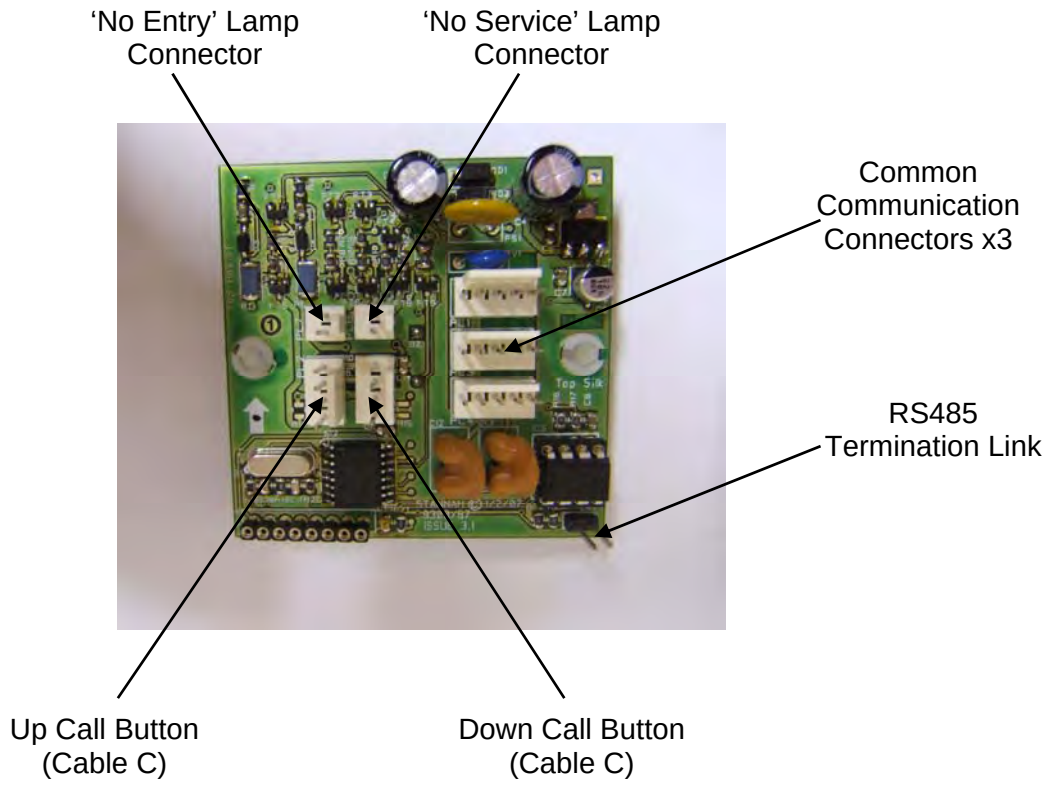
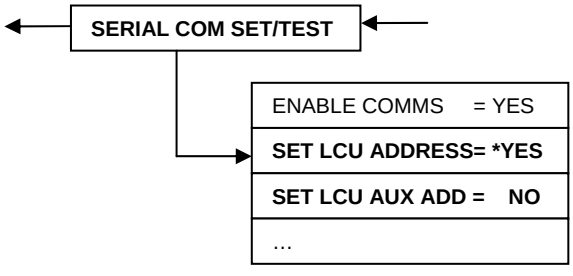


Figure 3: LCU terminal identification

11.1. Programming of LCU with floor identification number

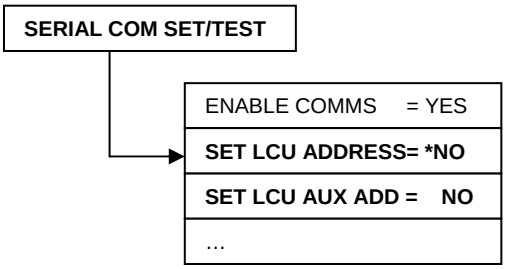
Scroll left through the Nexus menu and select 'SET LCU ADDRESS'.
Set this to 'YES' for programming of LCUs..



Drive the lift car to the lowest floor and press the landing call button. Once pressed the FP1 call button will continually flash the sequence flash-pause...i.e. 1 flash for FP1.
Run the lift to floors 2 press an FP2 floor landing call button. Once pressed the call button will continually flash the sequence flash-flash-pause…i.e. 2 flashes for FP2.

This process is repeated for all landing call buttons and when complete the buttons at each floor should flash the amount times for their given floor allocation. 1 flash for FP1, 2 flash for FP2, 3 flash for FP3.

Once all the landing call buttons have been programmed disable the LCU address setting ‘SET LCU ADDRESS’ to ‘NO’.



Reset the Nexus lift controller. The lift is now ready to run to landing calls.

11.2. Main and auxiliary door landing button LCU programming.

For a lift car with two sets of doors the landing control units must be programmed to assert the main or auxiliary doors enable signal. Once the LCU is programmed it will assert the door enable signal for the main or auxiliary door sets when a call is placed.

To program the LCU to a particular set of doors the ‘SET LCU ADDRESS’ is used for the main set of doors and the ‘SET LCU AUX ADR’ for the auxiliary doors. The procedure for programming the LCUs should be program all the main door buttons by using ‘SET LCU ADDRESS = YES’ and then program the auxiliary door buttons by setting ‘SET AUX ADR = YES’. **Do not have both options on at the same time.** Once all the LCUs are programmed both options should be set to ‘NO’ and the unit reset. The lift will now run to the landing call button and the correct set of doors should open.

12. Loading the counterweight for rated load.

The counterweight must be loaded for 50% of the rated load for the lift. This is achieved by loading the lift car with half rated load and then monitoring the active current (parm 00.11), this current should be reduced to less than 2 Ampere for either direction of travel when balanced condition is achieved.

12.1. Procedure for balancing lift for rated load.

- Set high speed run value to 0.5 m/s (parm 00.17 = 500).
- Set the CT keypad to monitor active current parm 00.11.
- Load the lift car to 50% of rated load.
- Run the lift between terminal floors and note the current.
- If the current is greater for lift car running up weight must be added to the counterweight to reduce this current.
- If the current is greater with the lift car running down then weight must be removed from the counterweight.
- Note: It has been found that two counterweights will equal a 1 Ampere change in current.
- When a balance condition is reached the current in either direction should roughly be equal.
- Reset the high speed to 1 m/s (parm 00.17 = 1000).

13. Lift running currents.

For an empty lift car running in the downward direction the active current will range from 17 Ampere to a 24 Ampere peak during a journey. As load in introduced the running current will decrease up to half load but then will increase again as the lift approaches full load.

If it is found that the running currents are two high under a fully out of balanced condition then the depth between guides (DBW) should be checked for tight spots. Also the lubrication of the guides will need to be checked, it has been found that for an initial install if the guides and pads of the oilers are coated with WD40 it aids the initial wicking and hence lubrication of the guides. This has been found to reduce the running currents.

Tight spots can be checked for by running the lift at 0.5 m/s for a full cycle and monitoring the running current on parameter 00.11. To set the speed to 0.5 m/s program parameter 00.17 = 500. For 1 m/s set parameter 00.17 = 1000.

14. Tuning drive for best ride: This operation is only to be carried out by a trained engineer.

The auto tune process sets the lift machine for basic operation but in this mode the lift will suffer from rollback and jerk at the start of the journey. The best ride procedure sets the inverter parameters to their optimum values.

To obtain a smooth journey the lift feedback loop gains need to be set to a value to minimize rollback and jerk. This involves setting the drive parameters for feedback gains higher than the auto tune values. Note, if the values are set too high the motor will become noisy and vibrate. This indicates that motor instability is beginning to occur.

14.1. Setup procedure for best ride.

First program the drive to match Appendix A: CT Inverter parameters.

It is recommended that the gains should be set with the lift at balanced load and focused on the start gains 18.27 and 18.28. Set these initially to nominal values listed below. Test the lift starting from a mid travel floor in both directions. If instability occurs trim them down in steps of 100 to remove motor noise that can occur with a balanced load starting from mid travel.

Set the run gains 18.25 and 18.26 to nominal values listed below, again the lift should be at a balanced load condition. Set the lift speed to 0.5 m/s (0.17 = 500) and test with a balanced load running the full length of the journey in low speed. As the lift passes mid travel the motor should be monitored for motor noise, if noise occurs the values should be dropped in steps of 100 until motor noise does not occur. If the lift feels bouncy the gains should be increased but if motor noise occurs further adjustment will be required.

14.2. Explanation of gain parameters.

Parm 18.25: **Travel** speed loop proportional gain. (Nominal value 1000).

- The higher the gain the more precise the speed will be to the demand.
- If gain set too high acoustic noise is generated by the motor.
- If gain too low, oscillations can be felt when running at constant speed.

Parm 18.26: **Travel** speed loop integral gain. (Nominal value 1200).

- High values reduce shaft displacement when applying load to the motor.
- If gain set too high acoustic noise is generated by the motor.
- If gain too low, overshoot can be felt at reaching rated speed.

Parm 18.27: **Start** speed loop proportional gain. (Nominal value 1400).

- The higher the gain the more precise the speed will be to the demand.
- If gain set too high acoustic noise is generated by the motor.
- If gain too low overshoot can be felt during speed change

Parm 18.28: **Start** speed loop integral gain. (Nominal value 1800).

- The higher the value the less amount of roll back at start.
- If gain set too high acoustic noise is generated by the motor.
- If gain too low the motor will struggle to track speed demand.

14.3. Always save parameters before switching power off or leaving site.

Save parameters to permanent memory:

- **Select parameter 00.00 using the joy pad.**
- **Press the 'M' key.**
- **Using the joy pad enter the value 1001.**
- **Press the 'M' key.**
- **Press the red reset key to save to memory.**
- **When the value field changes to '0' the parameters have been saved.**

14.4. Finally back up parameter to smart card.

Procedure for backing up to smart card.

- **Select parameter 00.00 using the joy pad.**
- **Press the 'M' key.**
- **Using the joy pad enter the value 4001.**
- **Press the 'M' key.**
- **Press the red reset key to save to memory.**
- **When the value field changes to '0' the smart card.**

15. Load cell set up.

To enabled a smooth start independent of changes in load, a load cell is used to feedback the weight in the lift car to the inverter, the inverter then adjusts the start current to ensure a smooth start. The load cell must be set up to provide the correct feedback and overload warnings. The procedure below enables this.

Load cell feedback is used to further improve the start jerk and reduce the roll back of the lift car. This requires the load cell to be set up to give a representative feedback of the actual load. The load cell and control unit are also used to measure the load in the lift car to indicate 80% and 110% load condition for the overload inputs to the lift controller.

The load cell controller must first be setup to provide proportional feedback and the programming procedure is listed below.

15.1. Programming interface.

MENU key: Pressing the MENU key will successively step you through the programming options.

key: Pressing this key allows you to select the menu item.

key: Pressing this key will modify the selected digit.

15.2. Calibration of the control unit.

- Setting the load cell to zero.
  - Place the empty lift car at the lowest floor.
  - Select menu ‘CERO’,
  - press  Then MENU.
  - A count down will commence, Step OFF the lift car.
  - Once the measurement is complete the display will read ‘PESO’.
  - Press MENU key twice to store value.
  - If ‘CERO’ is displayed an error has occurred, so repeat the measurement.
- Setting with load.
  - Load the lift with 50% rated load (315kg)
  - Select menu ‘PESO’.
  - Press 
  - Then program the unit with the weight in the lift car (315 kg) using arrow keys.
  - Press MENU key twice, a countdown will commence, step of the lift car.
  - Once the measurement has been completed the display will read ‘CELL’.
  - If ‘ PESO is displayed an error has occurred so repeat measurement.

15.3. Overload setting for 80% and 110%.

- Program ‘AL C’ to value 504kg for 80% load.
- Set ‘AL C’ to OFF.
- Program ‘AL S’ to value 693kg for 110% overload.
- Set ‘AL S’ to OFF.
- This ensures the correct state of the overload outputs.
- The overload conditions are now set.
- For further information refer to the Dinacell Manual.

16. CT Drive and load cell interface programming. (This section not required at present).

- The input to the drive must be scaled to represent the load in the lift car, this can be seen on parameter 04.09 as a percentage value.
- The following drive parameters must be set for the correct load cell feedback.
- Scale 19:21 and 19:22 accordingly

Inverter parameter	Enter value	Comment
18:46	OFF	Enable load cell feature
04.10	OFF	Activate compensation
07.02		Source input analogue 2
19:21	Adjust	With maximum load in the lift car adjust scaling value 19.21 until 04.09 = 50%.
19:22	Adjust	With balanced load in the lift car adjust the offset value 19:22, so that parameter 04.09 = 0.
19:23		Load cell filter

16.1. Save parameters to permanent memory.

- **Select parameter 00.00 using the joy pad.**
- **Press the 'M' key.**
- **Using the joy pad enter the value 1001.**
- **Press the 'M' key.**
- **Press the red reset key to save to memory.**
- **When the value field changes to '0' the parameters have been saved.**

16.2. Finally back up parameter to smart card.

Procedure for backing up to smart card.

- **Select parameter 00.00 using the joy pad.**
- **Press the 'M' key.**
- **Using the joy pad enter the value 4001.**
- **Press the 'M' key.**
- **Press the red reset key to save to memory.**
- **When the value field changes to '0' the smart card.**

17. Save parameters to smartcard.

To back up the parameters the smart card should be inserted in the drive. The drive should be supplied with a smart card fitted.

Before backing up to the smart card ensure lift operation is correct.

17.1. Procedure for backing up to smart card.

- **Select parameter 00.00 using the joy pad.**
- **Press the 'M' key.**
- **Using the joy pad enter the value 4001.**
- **Press the 'M' key.**
- **Press the red reset key to save to memory.**
- **When the value field changes to '0' the smart card.**

17.2. Procedure for uploading from smart card.

WARNING: NOTE THE AUTOTUNE PARAMETER 0.43 BEFORE UPLOADING TO DRIVE . IF 0.43 IS NOT CORRECT TO THE MOTOR UNCONTROLLED SPEED CAN OCCUR.

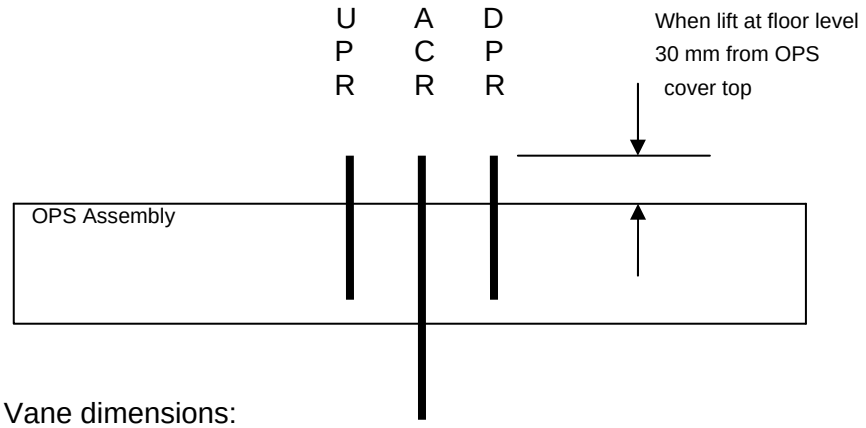
- NOTE: VALUE FOR 00.43 = :

- **Using the joy pad select parameter 00.00.**
- **Press the M key and using the joy pad set the value to 6001.**
- **Press the M key, 0.00 should now be flashing.**
- **Press the red reset key.**
- **When the display changes to '0' the parameters have been stored.**
- **Press the M key and using the joy pad set the value to 1001.**
- **Press the M key.**
- **Press the red reset button to save the values to permanent memory.**

18. Setting vanes for accurate floor levelling.

To aid in accurate floor level setting the method of measuring for the fitting of the floor level vanes has been revised. For traction lift installations it is now recommended to have the UPR, ACR and DPR level across the top edge.

For setting the floor level the lift should be position at or close to floor level, any error should be measured. The vanes are then positioned by measuring from the top of the OPS assembly bracket to the top edge of the vanes. This dimension should be 30 mm plus or minus any floor level error. See diagram below.



Vane dimensions:

UPR = 150 mm
DPR = 150 mm
ACR = 300 mm

For short floors < 400 mm ACR can be shortened to 200 mm.

Figure 1: Floor level setting dimensions.

18.1. Slowing vanes UPR and DPR distance for given speed.

Lift rated speed:	1 m/s	Leading edge of slowing vane 1500 mm.
	0.8 m/s	Leading edge of slowing vane 1100 mm.
	0.6 m/s	Leading edge of slowing vane 800 mm.
	0.4 m/s	Leading edge of slowing vane 550 mm.
	0.2 m/s	Leading edge of slowing vane 300 mm.

Terminal floor reset vanes must be set 80mm in advance of the slowing vane.

See Drawing 9336/21: Traction vane layout at the back of this manual for vane dimensioning.

19. Emergency release procedure.

The emergency release of trapped passengers is achieved by electrical release of the Lifting machine brake. It is not possible to effect hand wind release because the lifting machine is gearless and hence the force required is too high. The direction of movement will be determined by the load.

19.1. Procedure for release of passengers.

- Turn the main isolator at bottom of the control cabinet to the OFF position.
- Switch the emergency release switch to the release position.
- The UPS power source will now switch into circuit and power the control panel.
- If the UPS is running it should beep every few seconds. If this is not case check that the UPS it is turned ON, the power switch for the UPS is on the front of the UPS, to the left had side as viewed from the front of the control panel.
- If the UPS is beeping and the power supply still fails to engage check the S+ (12vdc) back up circuit. If this is not present then terminal 107 must be fed from a 12 vdc source to power relay RL13 and engage the UPS to power the circuit. Terminal 99 (common) should be wired to the dc negative.
- With the circuit powered it should be possible to affect the release of trapped passengers. The movement of the lift car will be dependent upon the load in the lift. A load of more than four passengers will cause the lift car to move downward, less than four the car will move upward.
- To move the lift car press the emergency release button on front of the panel. The lift car will now move in the direction of the load.
- Monitor the floor level LED to indicate that the lift has reached floor level and release the emergency button when the LED turns ON. The lift is now be at the nearest floor to the where the lift stopped.
- Release the passenger using the lock release key.

PLEASE NOTE:

- **If a balanced condition occurs the lift will fail to move and additional weight will have to be added to the lift car.**

- **Also, the lift car will not move if the car is at a floor level or the lift car will not move if the lift is on car top control.**

20. Standby operation (BREEAM).

The introduction of an energy saving mode for the Stannah Maxi traction lift from November 2010 and the software upgrade to version 5.89 onwards, means that all Maxi traction lifts will switch to standby mode after a programmable delay; the default delay time is 15 minutes.

The reason for switching to standby mode is to save energy and also to comply with requirements for energy efficient buildings as laid out by the Building Research Establishment Environmental Assessment Method (BREEAM): This is a method used by the building industry to assess the energy efficiency of a building.

Standby mode operation will occur from software version 5.89 onwards. In the event of this not being a BREEAM lift only the car lights will turn off. Note: Shortening the default 15 minute delay will shorten the life of high efficiency bulbs, for LED lighting the delay can be reduced if desired.

20.1. How does this affect the site engineer

The Nexus lift controller will display the current status of the lift. Such as ‘Normal service’, ‘Running up’, Doors open, Doors closed and so on. From November 2010 and software version 5.89 the display will read as ‘Standby mode’ after a default of period of 15 minutes of the lift being idle. What this means is that the lift has switched to standby mode to save power. In the case of a BREEAM compliant lift this means that the car lights and motor drive have been isolated from the power feed.

All Maxi traction lifts manufactured from November 2010 comply with the requirements of BREEAM and hence isolate the feed to the drive via a contactor. With the current build this is mounted at the base of the control cabinet.

The car lights are controlled from the car top box via a relay mounted on the intelligent car top unit (ICTU) and this has been the case since the lifts introduction.

20.2. How does the lift recover from standby

The lift will take 3 seconds to return to normal service when a call is placed on the system or when the mode of operation changes. This could mean the lift being switched to shutdown mode and in this case the lift would return to service, home to the shutdown floor then once the doors had closed go to standby mode. Note if the doors remain open standby mode is disabled.

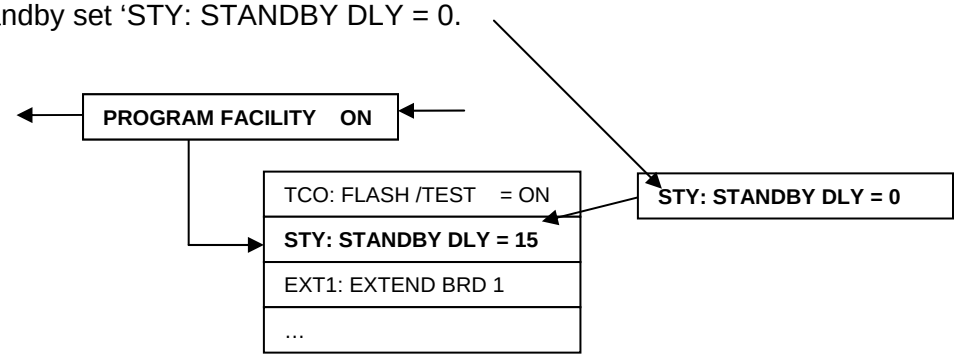
To return the lift to service either:

- Place a landing or car call.
- Press a key on the Nexus key pad.
- Change the mode of operation.

20.3. Can I disable standby mode.

Standby mode is a programmable option that is enabled by default. To disable the lift from going to standby mode the programmable standby delay must be set to zero.
This is achieved selecting the standby delay from the program facility menu:

The programming dongle must be plugged in to the Nexus to enable programming.
To disable standby set 'STY: STANDBY DLY = 0.



The standby mode will be disabled under the following operational modes:

- The programming dongle plugged in to Nexus disables standby.
- Disabled by setting standby delay to zero in the Nexus parameter 'STY'.
- Lift is out of service.
- Lift on car top test control.
- Car preference on.
- Doors parked open.
- Lift not in a door zone.
- If there is a major fault on the system: Minor faults such as calls cancelled due to the safety edge being held will not stop the lift from going to standby mode, unless the doors are open.
- Fire shutdown: Shutdown 2 (SDL2) and fire control (FMC) inputs.
- Shutdown mode 1 will home the lift and then place the lift on standby once to doors have closed.

20.4. Where can I find further information?

For information on how to program the Nexus lift controller refer to the Nexus reference manual.

Appendix A: CT Inverter parameters

Parameter	Value	Description
1.06	65	RPM
2.11	0.4	Acceleration rate
2.21	0.75	Deceleration rate
3.08	72	RPM over speed threshold
4.13	100	Current controller KP gain
4.14	1400	Current controller Ki gain
5.07	15.5	Motor rated current
5.08	60	RPM Rated load rpm/ rated speed
18.18	10	Speed for start optimizer
18.24	500	Holds motor until brake engages at stop. Nominal value is 500ms.
18:25	**1000**	**Increase value to improve running during travel. Motor noise if set too high.**
18:26	**1200**	**High value reduces deviation, low values reduce overshooting during travel.**
18:27	**1400**	**Increase value to improve tracking at start. Noise from motor if set too high.**
18:28	**1800**	**Increasing value reduces jolting at start. Noise from motor if set too high.**
18:20		**For short floor installations this value must be set to the short floor minus 100 mm**
		So for a short floor of 300 mm set 18:20 to value 200.
18.29	60	Nominal lift RPM
18.30	1000	Nominal lift speed
19.12	0	High values cause quick position change thus reducing jerk at start.
19.20	20	Increase value to reduce jerk at start
19.25	500	Brake release delay
19.28	500	Time for start optimizer

Appendix B: CT Menu 10 drive trip codes

Introduction

Under various fault conditions the drive will trip and put the lift out of service. A trip condition is indicated by the keypad display flashing the code for the trip. Alternatively if the keypad is not connected an LED on the front of the drive unit will flash when the drive has tripped. After the drive has tripped it will attempt to reset after 5 seconds or can be manually reset by pressing the red reset button on the keypad, cycling the power will also reset the drive

General causes of trips with possible causes are listed in table 1. Tables 2 and 3 list auto tune and encoder trip codes, Table 4 can be used to note additional trip codes. For further trip codes the Control Techniques Unidrive SP manual should be consulted.

To access the trip codes select the menu 10. The trip codes are listed from **10:20 to 10.29**. Only the trip code is displayed. The date and time of the occurrence are not listed.

Table 1: General Alarms and Trips

Trip code	Description	Diagnosis
br.rS	Brake resistor overload	The drive has reached 75% of the value at which the drive will trip and the breaking resistor will trip.
Hot	Heatsink or control board over temp alarm	The drive heatsink temperature has reached threshold. The ambient temp around the control PCB is approaching over temperature threshold.
OVLd	Motor overload	The motor drive has reached 75% of the value at which the drive will trip.
T070	Speed error trip	Excessive speed error detection. **This feature should be switched off.** Set parm 19.24 = 0 to disable speed error detection.
T071	Distance error trip	Excessive distance error detected. This can occur during acceleration when running on sliders. Set parm 19.18 = 0 to disable distance error detection this is advised when running on sliders.
T075	Secure disable input detected	This is a common trip when auto tuning or when running on test control. The secure disable input fails to turn off quick enough due to the capacitor on the enable relay hence the drive will trip. **This fault can be ignored.**
T076	Motor fluxed detection trip	Motor not fluxed above defined thrshold. Check integrity of wiring.
T077	Motor phase loss trip	Bad connection between motor and drive. Check integrity of wiring.
T079	Software version trip	The features used are not supported by the software. Software version should be V1.15 or above. Check Parm 00.50 > version 1.15.
T080	Inverter encoder trip	Detected inverter orientation of the encoder from the following error detection.

Appendix B: CT Menu 10 drive trip codes

Table 2: Auto tune Trips

Trip code	Description	Diagnosis
TunE 18	Auto tune stopped before completion.	The drive tripped during auto tune or stopped prematurely. Redo auto tune from the start. Parm 00.40 = 2.
TunE1 11	The position feedback did not change.	Ensure motor free to turn, has the brake released.
TunE2 12	Position feedback direction incorrect	If trip occurs during auto tune swap two motor wires to get correct rotation. Check encoder connections and encoder parms are correct.
TunE3 13	Drive encoder signals incorrect	Check motor cable wiring is correct. Check encoder connections.
TunE4 14	Encoder fault	Check encoder connections. Replace encoder.
TunE5 15	Encoder fault	Check encoder connections. Replace encoder.
TunE6 16	Encoder fault	Check encoder connections. Replace encoder.
TunE7 17	Motor number of poles set incorrectly	Check drive parameters. Check encoder is correct type.

Table 3: Encoder Trips

Trip code	Description	Diagnosis
enc1 189	Encoder trip power supply overload	Check encoder power supply.
enc2 190	Encoder wire break	Check cable continuity Check wiring of feedback signals Check encoder power supply is set correct
enc3 enc5 enc10	Phase offset not correct while running	Check encoder signal for noise Check encoder cable shielding Check encoder mounting Repeat autotune to correct phase angle.
enc4 192	Feedback device comms error	Ensure power supply is correct Ensure correct baud rate Check encoder wiring
enc6 194	Encoder error	Replace device
enc7 enc14	Initialization error	Check encoder and parameters match Check encoder connection

Appendix B: CT Menu 10 drive trip codes

Table 4: Trip notes

Trip code	Description	Diagnosis
OI.AC 3	Current greater 225%	Short circuit on outputs. Brake still on or lift stuck. Acceleration or deceleration may be too short
Th or Ths 24 25	Motor thermistor > than 3000 Ohm trip level.	Check motor temperature is not excessive Check thermistor wiring and nominal value is approx 300 ohms. Check CT plugs correct and fully inserted.
O.Ld1 26	Digital output overload	Check total load on digital outputs. Check for short ciruit on digital outputs.
O.Spd 7	Overspeed exceeded	The motor has exceeded to set over speed point in parm 3.08 Check motor and encoder connections have not change since autotune.
PH 32	Phase loss or large supply imbalance	Ensure all three phases are present and balanced Check input voltage levels at full load are correct
PH.P 107	Power module loss detection	Ensure all three phases are present and balanced Check input voltage levels at full load are correct
PS 5	Internal supply fault	Replace drive
PS.10V 8	10V output overcurrent	Check wiring to terminal 4.
PS.24V 9	24V PSU overload	Reduce load and reset. Check wiring for short circuit.
PS.P 108	Power module failure	Replace solutions module.
rs 33	Failure to measure resistance during autotune.	Check motor connection continuity.

Appendix C: Cable assemblies check list

Car top box cable assemblies

Part number	Description	Dwg Number	Location
9335039	Autodialer	9335/39	Provided in car top box.
9335002	Direction arrows and gong	9335/2	Attached to car door post
9335003-2	Display unit PL1	9335/3	Provided in car top box.
9335005	Overload device	9335/5	Attached to weighing device
9335008	Logo light + speaker	9335/8	Attached to C.O.P
9335012	Ultimate limit	9335/12	Provided in car top box.
9335013	Test up limit	9335/13	Provided in car top box.
9335017	Door power	9335/17	Provided in car top box.
9335018	Door limits	9335/18	Provided in car top box.
9335019	Safety gear	9335/19	Provided in car top box.
9335024	Car light cable	9335/24	Pre- wired to car top lights.
9336007	Floor proximity assy	9336/7	Pre-built assembly
9336008	Cop wiring	9336/8	Attached to C.O.P
9336008	Car call wiring	9336/8	Attached to C.O.P
9336009	Safety edge for main door	9336/9	Attached to Safety edge
9336009	Safety edge for main door	9336/9	Attached to Safety edge
9335035	Trailer 1	9335/35	Provided in box.
9335036	Trailer 2	9335/36	Provided in box.
9335065	Parking plate sensor cable	9335/65	Provided in car top box.
9335066	Traction over speed solenoid	9335/66	Provided in car top box.

Inverter terminal box

Part number	Description	Dwg Number	Location
9335007	Terminal box to brake resistor	9335/7	Packed with inverter box.
9335009	Motor control cable	9335/9	Packed with inverter terminal box
9335044	Terminal box to motor	9335/44	Packed with inverter box.
9335021	Slack rope to inverter	9335/21	Packed with inverter box.
9335033	Terminal box relay board to inverter	9335/33	Attached to Inverter terminal box
9335034	Terminal box to CT inverter	9335/34	Attached to Inverter terminal box

Control panel to Inverter Terminal Box

Part number	Description	Dwg Number	Location
9335030	Control panel A- Terminal box	9335/30	Provided in inverter box.
9335031	Control panel B- Terminal box	9335/31	Provided in inverter box.
9335032	Control panel C- Terminal box	9335/32	Provided in inverter box.

Landing cables per floor

Part number	Description	Dwg Number	Location
9335004	LCU to LCU serial cable	9335/4	Provided in Architrave

Cable for shaft wiring

Part number	Description	Dwg Number	Location
9335020	Slack rope switch in pit	9335/20	Attached to pit box.

Note:- Additional length of 3 core cable supplied to wire the two slack rope switches in parallel.

Appendix D: Short floor installation

1. Summary

A short floor can be defined as a floor travel where the lift cannot reach contract speed before the slowing signal for the floor has been seen. For the Maxi traction lift with a contract speed of 1 m/s this is less than 3.3m. There are two short floor solutions possible depending on the distance between floors:

1. **Peak Curve** → Automatically reduced speed for short floor >1m but < 3.3m.
2. **Short Floor** → Short floor operation selected on Nexus short floor travel menu. Distance between floors 0.3m to 1.5.

Note: The shortest floor must be programmed into Drive parameter 18:20. The value entered must be the gap for the shortest floor minus 100mm. This value will determine the maximum speed possible between short floors.

Selection of short floor option

The **peak Curve** operation is set by default and will ensure the lift will reach the maximum possible peak speed between floors: **Peak curve** operation in valid for floors distances down to one metre, below this value **short floor operation must be selected**.

Selection of **short floor** operation will be necessary if the gap between floors is less than one metre. The shortest floor possible using the standard vane arrangement is 300 mm; though the gap can be reduced further to 200 mm by shortening the ACR vane by 100 mm. It should be noted that when **short floor** operation is selected the soft start feature is disabled and hence there will be a sharp jolt or jerk when the lift starts.

Short floor selection is achieved by programming the Nexus lift controller menu ' Short floor option' to the value 'YES' for the floors with the short floor. So for a six floor installation with a short floor between floor 3 to 4 and floor 5 to 6 the display menu will read as below this will tell the lift controller to select the intermediate speed for short floor operation:

Short floor travel option menu:
FP1 <-> FP 2 = NO.
FP2 <-> FP 3 = NO.
FP3 <-> FP 4 = YES.
FP4 <-> FP 5 = NO.
FP5 <-> FP 6 = YES.

The CT Drive parameter 18:20 must also be programmed with the distance for shortest floor. This will determine the speed for all short floors. In that one short floor speed is possible and this will determine the shortest floor speed.

The value for shortest floor distance parameter 18:20 must be set to the shortest distance between floor levels minus 100 mm. As an example for a 0.5 metre travel the parameter 18:20 must be set to 400. This is to allow for the creep to floor distance.

Shortest floor parm 18:20 = 400. (Travel of 500 mm – 100 mm creep distance).

Appendix D: Short floor installation

Procedure for setting short floor

1. Programming the short floor is only necessary if the travel is less than 1 metre.
2. Note it is not possible to have consecutive short floors of less than 1 metre.
3. To program the short floors the Dongle must be plugged into the Nexus.
4. Program the Nexus menu ‘Short floor travel’ to ‘YES’ between the short floors. For a short between floor 1 and 2 this would read as:

   FP1 <-> FP2 = YES.

   The floor 1 to floor 2 is now programmed as a short floor. The lift controller will now output a short floor speed signal to the drive when running between these floors.
5. Program the drive short floor speed parameter 18:20 with the shortest floor for the installation minus 100 mm creep distance.

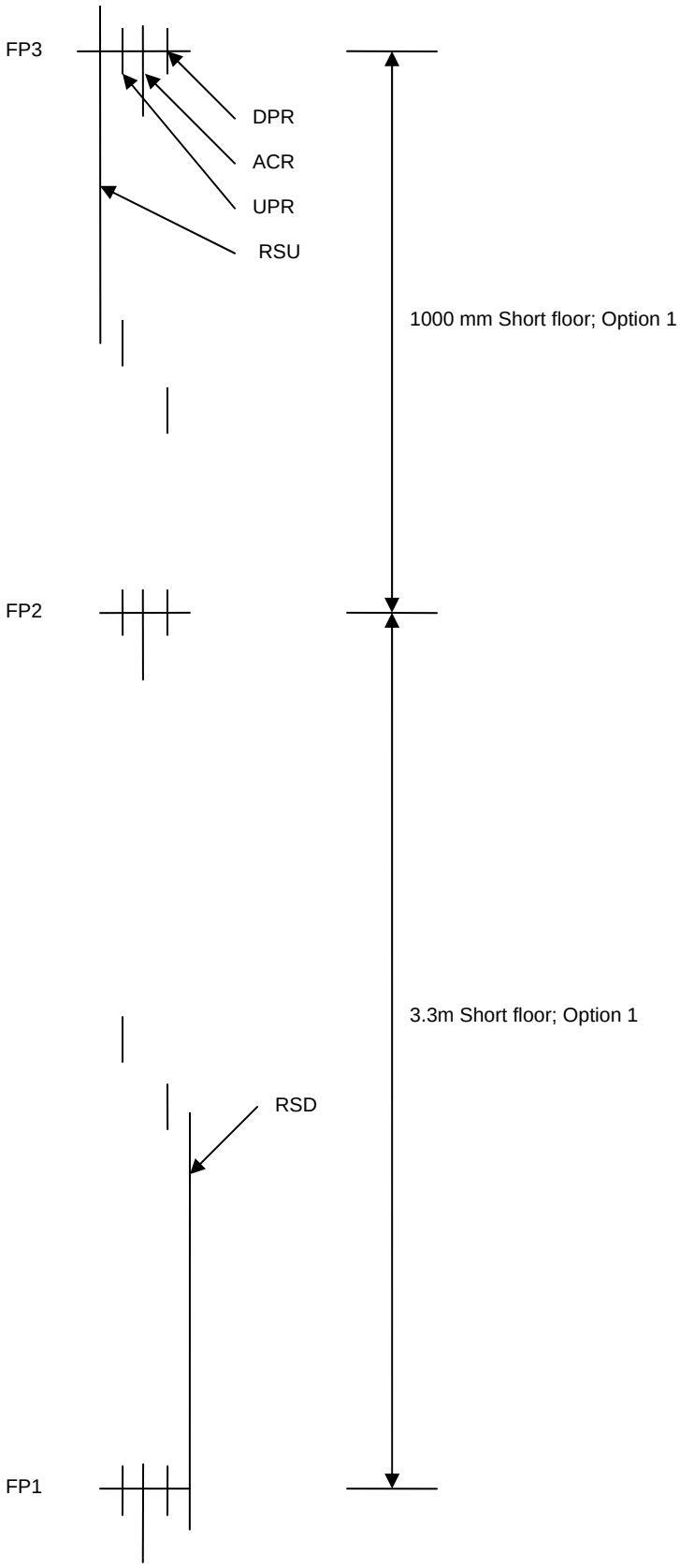
   Drive Parameter 18:20 = Shortest floor distance – 100 mm.
6. The lift will now travel between floor 1 and 2 at the speed determined by the shortest floor. This will be the speed for all short floors.

Lifts not set to run at rated speed: Slowing vane settings.

Rated Speed (m/s)	Set slowing vane from floor (mm)	Minimum Floor distance (mm)	Comment
1	1500mm	1800	• **Speed set to shortest floor.** • **All floors have same speed.** • **600mm minimum travel due to vane length limitations.** • **For terminal floors set the reset limits RSU and RSD 100mm behind the slowing vanes.** • **Consecutive Peak Curve short floors are possible.**
0.9	1300mm	1600	
0.8	1100mm	1400	
0.7	950mm	1250	
0.6	800mm	1100	
0.5	700mm	1000	
0.4	550mm	850	
0.3	400mm	700	
0.2	300mm	600 *	

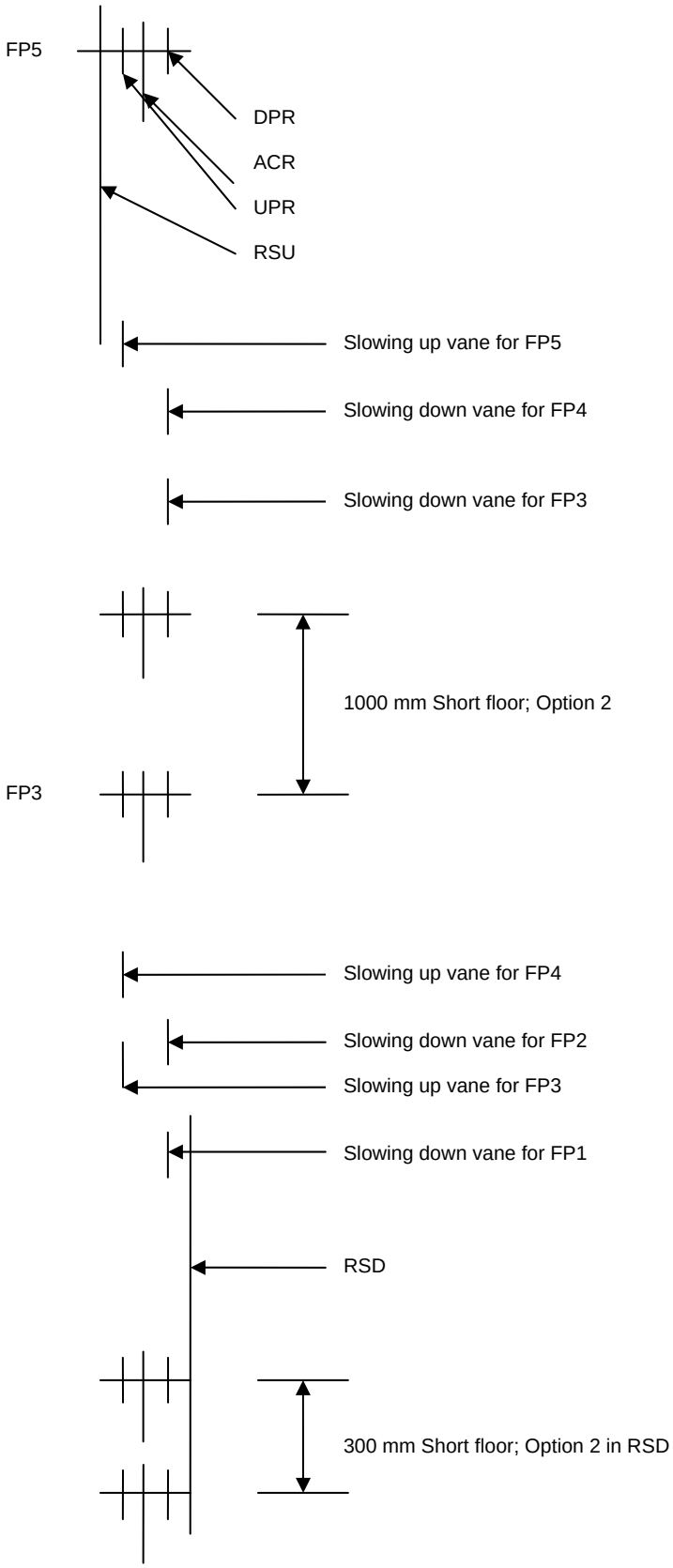
Appendix D: Short floor installation: Note new floor level vane arrangement.

Option 1- Standard and peak curve vane arrangement.



Appendix D: Short floor installation: Note new floor level vane arrangement.

Option 2- Short Floor vane arrangement.



Appendix E: Group call allocation

1. Introduction

For a group of lifts the landing calls are connected to all the lifts but only one lift controls the call allocation and call acceptance. This lift is referred to as the master while the other lifts assume the role of slave lifts and are allotted calls to service. The lift with the lowest 'lift number' will assume the role of the master. Therefore for a duplex pair lift number one will be the master and lift number two the slave. For a triplex where the lift number one is out of service then lift number two will assume the role of master.

2. Call allocation

The master will allocate calls to slave lifts by passing the call to the lift and send a message to the other lifts to cancel the call from their local call register. The lift to service the call is determined by it being in normal service though this may not always be the nearest lift to the call.

Lifts are not passed calls when they are not in normal service, overloaded with call bypass on, have more than four calls or homing. The lift must also be able to service the calls, such as having doors enabled to open at the floor where the call was placed. This allows main or auxiliary landing calls to be passed to the lift that can service the call. Calls are not passed to a lift at a floor with its doors open this is to allow time for the car calls to be placed. The exception to this is if the lift already has a direction of travel.

The main aim of the call allocation is to ensure that all calls are serviced, only one lift is despatched to the call and the work load on the lifts is balanced. This ensures the lift that has done the least amount of journeys in a 15 minute period is considered first to service the call. The journey counter on all lifts is cleared to zero after 15 minutes to ensure that over a period of time that the lifts do the same amount of work.

Speed of service is also considered but for example; if car calls are already accepted for the direction of travel of a landing call, the call will be passed to the lift servicing the car calls, even if one of the other lifts is at the floor. In this case speed of service may appear not to be correct but it ensures that both lifts are not running to the same floor and that a lift is available to service other calls. Exceptions to this do occur such as if the lift running has more than four calls then it will not be passed the call but the next available lift will be passed the call. Also, when a call is placed the call acceptance for all the lifts is checked and if the call is already accepted the call will be cancelled as a lift already has call acceptance on for the lift.

Appendix E: Group call allocation

3. **Summary:** calls will be passed to a lift that meets the following criteria.

- The call is not already accepted.
- Lift is in normal service.
- Lift is not overloaded with 80% or more.
- Lift has less than 4 calls.
- Lift not homing.
- The lift has a door zone set to open the doors at the floor.
- The lift has a direction of travel.
- The doors are closed.
- The lift can service the floor. This allows for odd floor installations.

With the above conditions met the master lift then looks for the lift that can service the call starting with the one that has done the least amount of journeys in the last 15 minutes. The call will be passed to the lift that meets the first criteria as listed below:

- Is the lift at the floor where the call is placed?
- Does the lift have a car call to this floor in direction of the call?
- A down call is placed below a lift running down.
- An up call is placed above a lift running up.
- A down call below a lift not running up.
- An up call above a lift not running down.
- A down call above lift.
- An up call above lift.

The lift will repeat the above loop to find an available lift but if after 5 seconds a free lift has not been found then the call will be cancelled. Though, this may change so that the master services the call rather than the call being lost.

Appendix F: Blocked lift release (release of safety gear).

Introduction

For the installation and test process the safety gear operation must be tested. Once engaged the release of the safety gear can cause problems with the drive current limiting and cutting out due to an over current condition. The CT drive offers a feature to allow for increased current and a sharp jolt at start to overcome a stuck lift condition, as in the case of the safety gear mechanical lock being engaged

The safety gear fault condition must first be reset and then the drive parameter 19.45 set to On to program the drive jolt the lift free. The drive will generate maximum torque by the following sequence:

- Following error detection disabled.
- Soft start function disabled.
- Ramps disabled.
- Creep speed selected.
- The operation is that the lift will drive for to current limit for 150 ms, the reverse direction for 50 ms to release to lift.

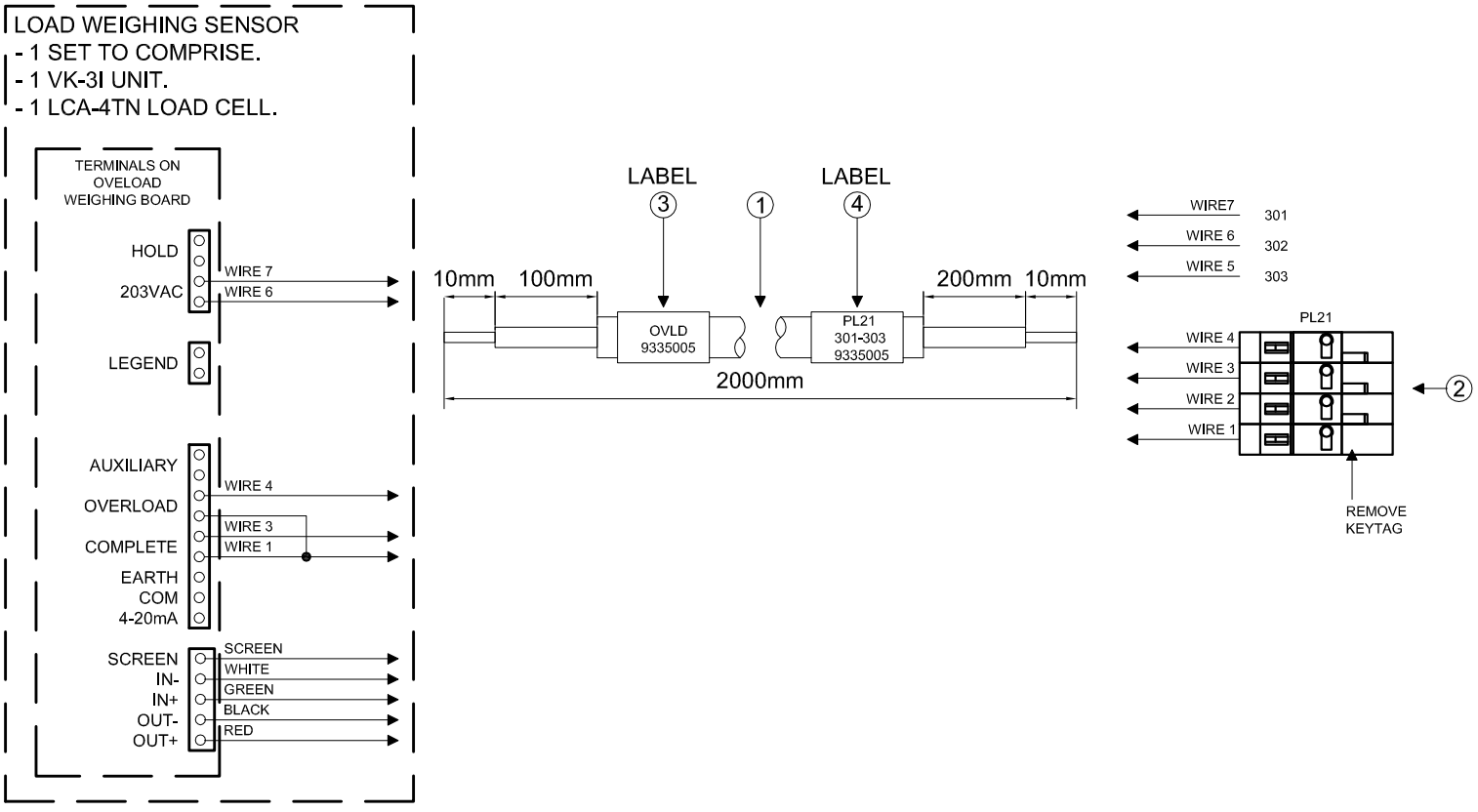
Once the drive is enabled along with blocked lift function 19:45 = On, the blocked elevator condition is detected and speed ramps are disabled, creep speed is selected and the direction on the lift is reversed to release the to release the elevator.

Procedure for releasing safety gear

1. Clear the fault condition that caused the safety gear to engage.
2. Fit a shorting link between terminal 89 and 90 to bypass the safety gear switch.
3. Select punch control on the control panel by setting the lift to emergency release.
4. Set Drive parameter 19:45 = On.
5. Using the punch control short 113 to 114 for up or 115 for down.
6. The lift will then run for 150 ms in one direction then reverse direction for 50 ms.
7. Once the punch control is de-selected the selection of block lift parameter 19.45 is automatically set to Off.
8. If the lift fails to release it will be necessary to add or remove weight from the lift car.
9. Repeat attempt from item 3.
10. If this fails then an alternative method must be attempted such as driving the lift with additional load away from the direction of safety gear operation.
11. Remember to remove the shorting link between terminals 89 and 90 .

OVERLOAD WEIGHING DEVICE

Item	Part Number	Description	Qty
1	910074	YY Control Cable 7 x 0.5mm² 1 - 7	2m
2	906212	4Way Wago Connector 231-104/026-000	1
3	911175	OVLD Label to Dwg 9335-40	1/42
4	911175	PL21 301-303 Label to Dwg 9335-40	1/42



Rev F: Rmovescreened cable. 16/11/10 GC
Rev E: Updated for new logo and text font. 03/08/10 JN
Rev D: Strip length reduced to 50mm 25/08/2009 JN
Rev C: As installed. 08/04/2009 JN
Rev B: Final Build. 23/03/2009 JN
Rev A: Production standard. 12/10/2008 JN

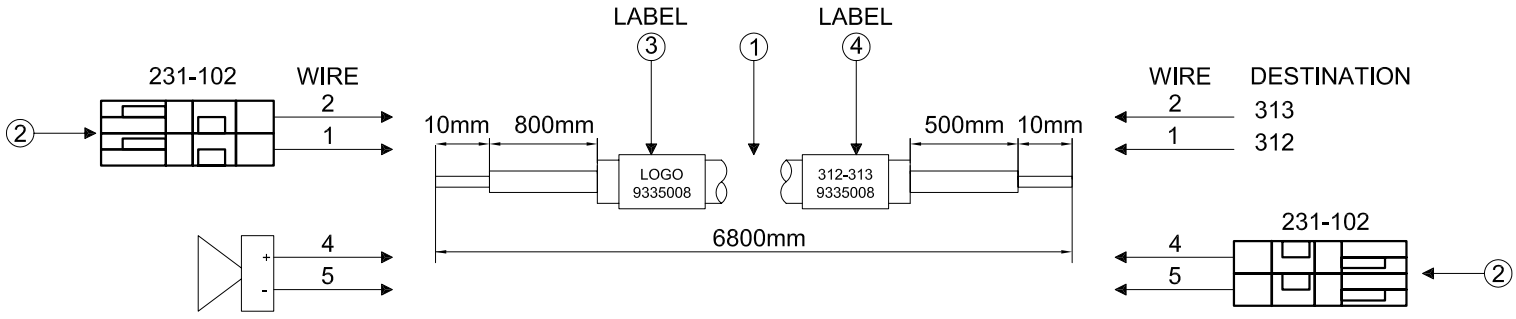
NAME: S.JACKSON DATE: 10/06/08
CHECKED: G.COOPER DATE: 10/06/08

OVERLOAD WEIGHING DEVICE
LOOM ASSEMBLY

Stannah
HEAD OFFICE:
Anton Mill
Andover Hampshire
SP10 2NX England
Tel: 01264 339090 Fax: 337942

DRAWING NO: 9335/5 REV: F

Item	Part Number	Description	Qty
1	910062	YY Control Cable 5 x 0.5mm² 1 - 5	6.8m
2	906099	2Way Wago Connector 231-102/026-00	2
3	911175	LOGO Label to Dwg 9335-40	1/42
4	911175	312-313 Label to Dwg 9335-40	1/42



NOTE: CUT OFF WIRE 3

NAME: G.COOPER	DATE: 25/08/08
CHECKED: K. CANTILLON	DATE: 26/08/08

TRACTION - LOGO LIGHT
AND SPEAKER CABLE

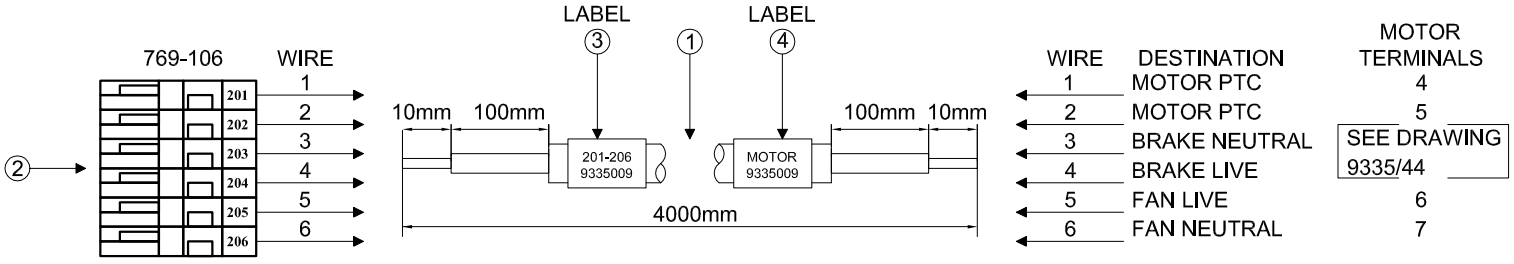
Stannah

HEAD OFFICE:
Anton Mill
Andover Hampshire
SP10 2NX England
Tel: 01264 339090 Fax: 337942

DRAWING NO: 9335/8 | REV: G

Rev G: Cable dimensions changed. 13/10/2011 JN.
Rev F: Note added to cut off wire 3. 16/11/10 GC
Rev E: Updated for new logo and text font. 03/08/10 JN
Rev D: Overall length a strip length increased. 30/09/2009 JN
Rev C: As installed. 27/03/2009 JN
Rev B: Final build. 23/03/2009 JN
Rev A: Production standard. 12/10/2008 JN

Item	Part Number	Description	Qty
1	910074	YY Control Cable 7 x 0.5mm² 1 - 7	4m
2	916121	6Way Wago Connector 769-106	1
3	911175	201-206 Label to Dwg 9335-40	1/42
4	911175	MOTOR Label to Dwg 9335-40	1/42



Rev F: Motor Terminals Added. 16/11/10 GC
Rev E: Motor End Identities Changed. Updated for new logo and text font. 05/07/10 GC
Rev D: Strip lengths increased. 20/10/2009 JN
Rev C: As installed. 27/03/2009 JN
Rev B: Final build. 23/03/2009 JN
Rev A: Production standard. 12/10/2008 JN

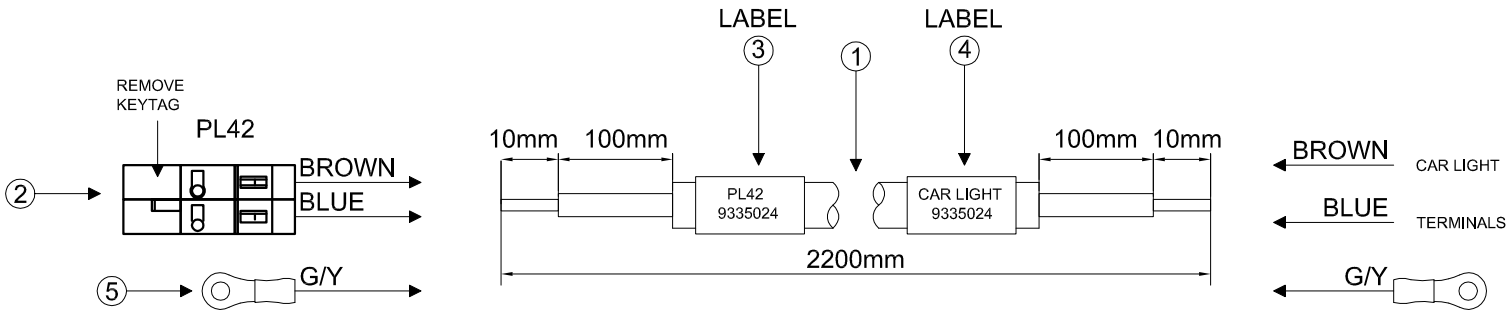
NAME: G.COOPER DATE: 25/06/08
CHECKED: K.CANTILLON DATE: 26/08/08

TRACTION - INVERTER TMNL BOX
TO MOTOR CONNECTION WIRING

Stannah
HEAD OFFICE:
Anton Mill
Andover Hampshire
SP10 2NX England
Tel: 01264 339090 Fax: 337942

DRAWING NO: 9335/9 REV: F

Item	Part Number	Description	Qty
1	910066	Control Cable 3x 0.75mm²	2.2m
2	906099	2Way Wago Connector 231-102/026-000	1
3	911175	PL42 Label to Dwg 9335-40	1/42
4	911175	CAR LIGHT Label to Dwg 9335-40	1/42
5	906034	Connect Pre-Insul Eyelet 2BA	2



Rev E: Updated for new logo and text font. 03/08/10 JN
Rev D: Strip length reduced & overall length increased. 01/10/2009 JN
Rev C: As installed. 27/03/2009 JN
Rev B: Final build, cable changed to include earth. 10/03/2009 JN
Rev A: Production standard. 12/10/2008 JN

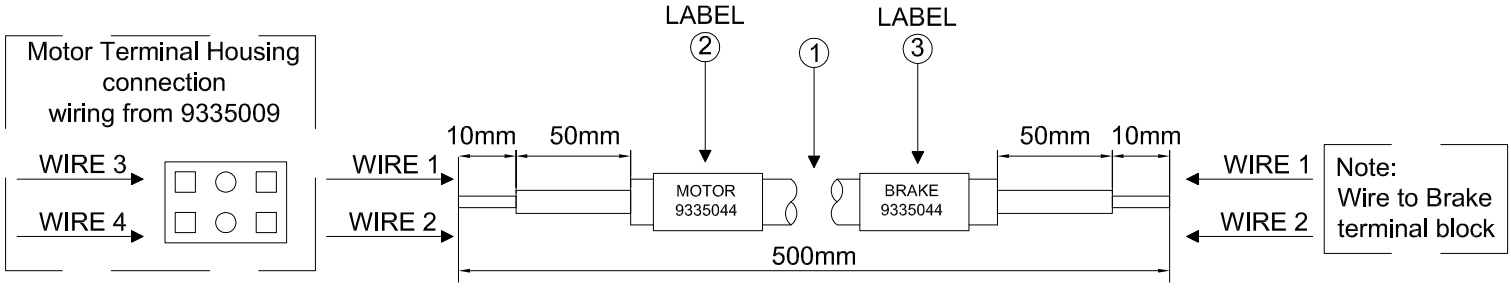
NAME: S.JACKSON DATE: 10/08/08
CHECKED: G.COOPER DATE: 10/08/08

SWITCH CAR LIGHT CABLE
IN CAR TOP BOX

Stannah
HEAD OFFICE:
Anton Mill
Andover Hampshire
SP10 2NX England
Tel: 01264 339090 Fax: 337942

DRAWING NO: 9335/24 REV: E

Item	Part Number	Description	Qty
1	910139	2 Core Flexible Cable (Type YY) 1-2	0.5m
2	911175	Motor Label to Dwg 9335-40	1/42
3	911175	Brake Label to Dwg 9335-40	1/42



Rev E: Updated for new logo and text font. 03/08/10 JN
Rev D: Strip length increased. 01/10/2009 JN
Rev C: As installed. 27/03/2009 JN
Rev B: Final build. 23/03/2009 JN
Rev A: Production standard. 12/10/2008 JN

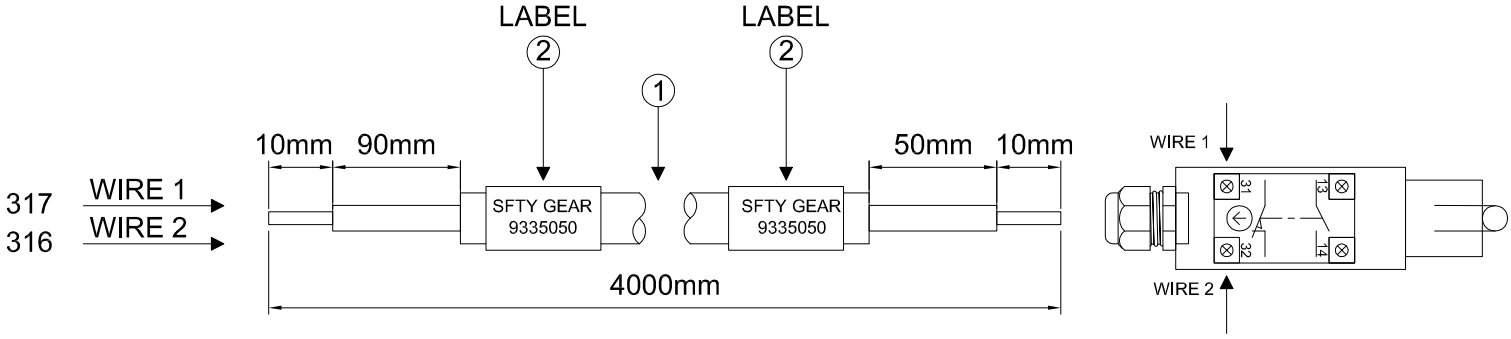
NAME: J.NICHOLLS	DATE: 15/04/09
CHECKED: G.COOPER	DATE: 15/04/09

MOTOR TERMINAL HOUSING
TO BRAKE
CABLE LOOM ASSEMBLY

Stannah
HEAD OFFICE:
Anton Mill
Andover Hampshire
SP10 2NX England
Tel: 01264 339090 Fax: 337942

DRAWING NO: 9335/44 REV: E

Item	Part Number	Description	Qty
1	910139	YY Control Cable 2 x 0.5mm² 1 - 2	4m
2	911175	SAFETY GEAR SWITCH Label Dwg 9335-40	2/42



SWITCH CALLED FOR ON
MECHANICAL ASSEMBLY

NAME: G.COOPER	DATE: 01/07/10
CHECKED: K.CANTILLON	DATE: 01/07/10

SAFETY GEAR SWITCH
LOOM ASSEMBLY

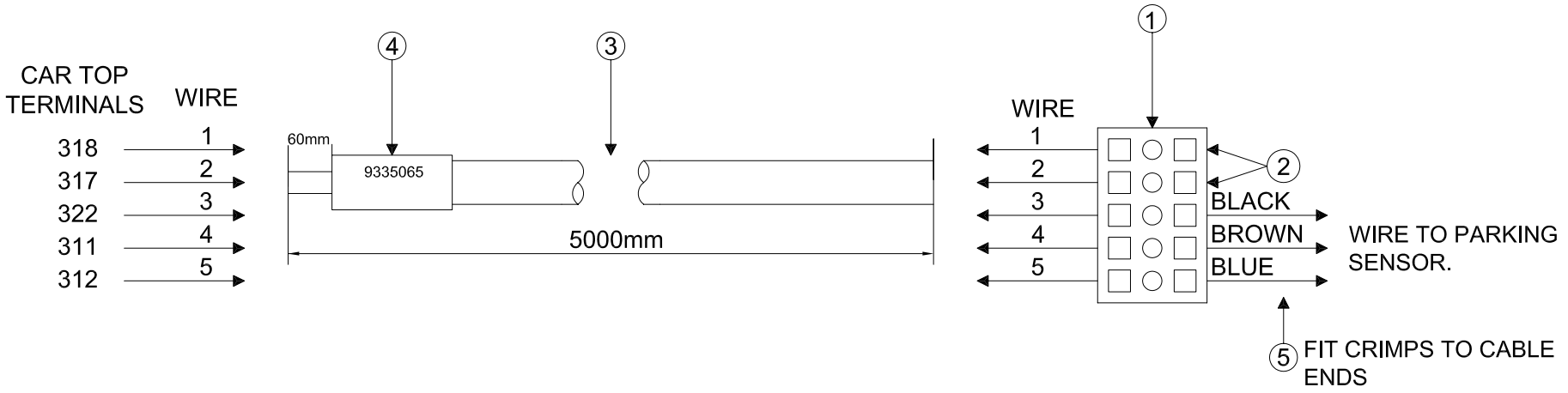
Stannah

HEAD OFFICE:
Anton Mill
Andover Hampshire
SP10 2NX England

Tel: 01264 339090 Fax: 337942

DRAWING NO: 9335/50 | REV:

Item	Part Number	Description	Qty
1	906108	5 Way Connector Block	1
2	REF ONLY	Wire Overspeed Switch Here	
3	910062	YY Control Cable 5x0.5mm2 1-5	5m
4	911175	317 - 321 Label to Dwg 9335-40	1/42
5	906032	Pin Crimp Connector	3



NAME: G.COOPER DATE: 29/06/10
CHECKED: K.CANTILLON DATE: 30/06/10

TRACTION - SAFETY GEAR
SWITCH CABLE
WITH PARKING SENSOR

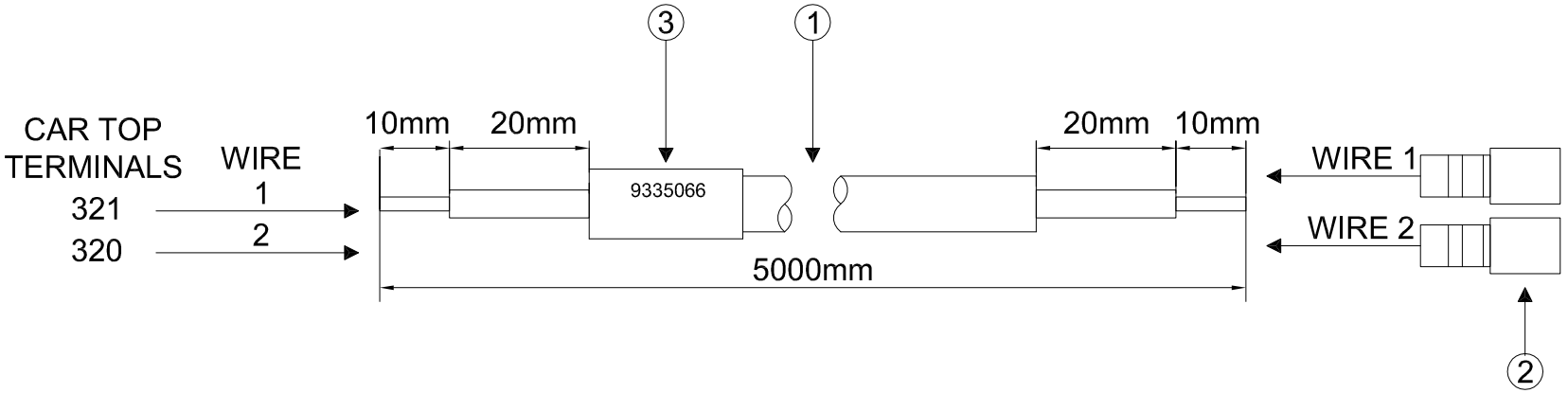
HEAD OFFICE:
Anton Mill
Andover Hampshire
SP10 2NX England
Tel: 01264 339090 Fax: 337942

Stannah

DRAWING NO: 9335-65

REV:

Item	Part Number	Description	Qty
1	910139	2 Core Flexible Cable (Type YY) 1-2	5m
2	906029	6.3mm Insulated Spade Female Crimp	2
3	911175	Label to Dwg 9335-40	1/42



NAME: M. HOOD DATE: 10/01/12

CHECKED: K.CANTILLON DATE: 10/01/12

TRACTION - OVERSPEED GOVERNOR
SOLENOID CONTROL CABLE

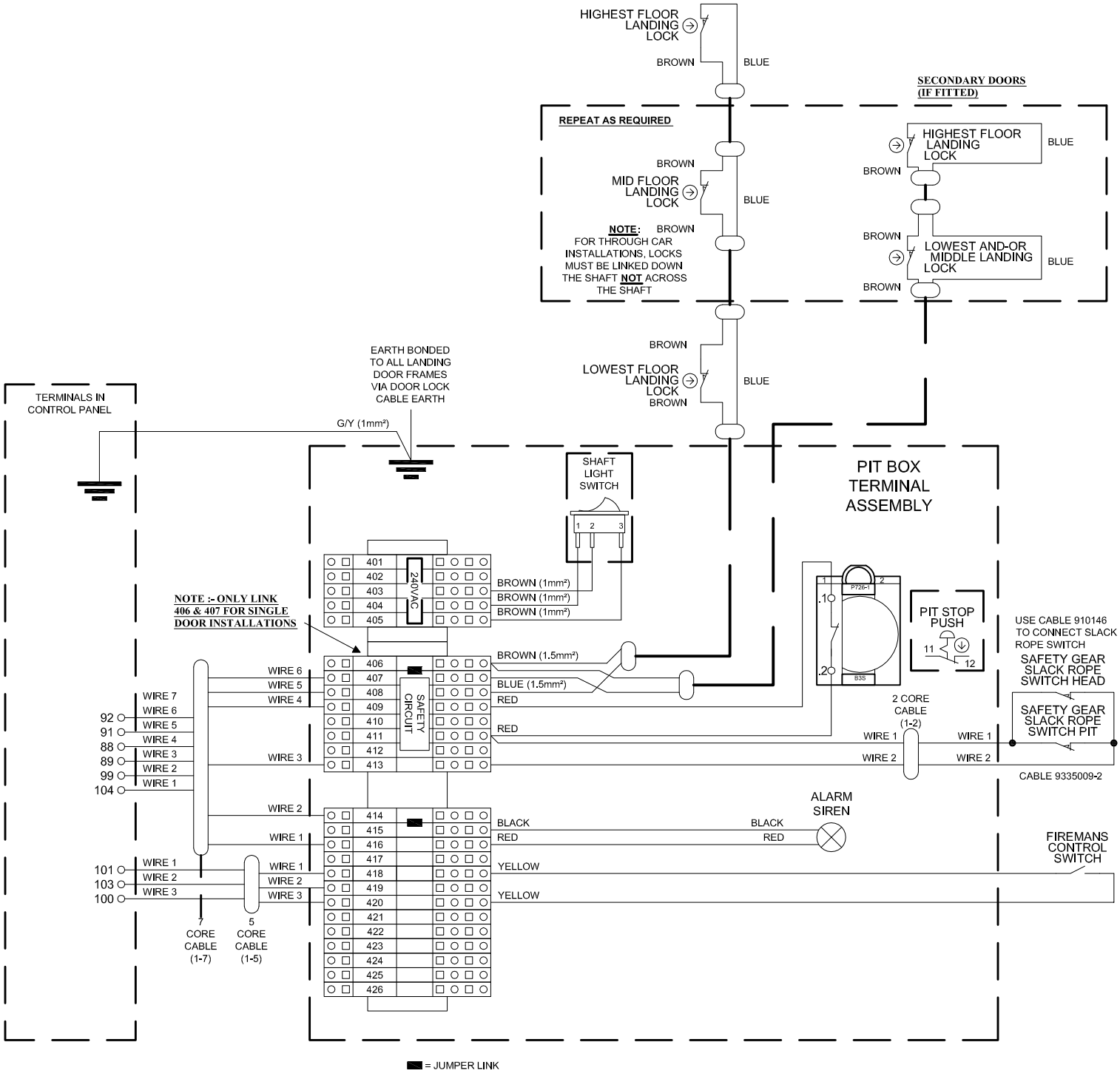
HEAD OFFICE:
Anton Mill
Andover Hampshire
SP10 2NX England
Tel: 01264 339090 Fax: 337942

Stannah

DRAWING NO: 9335-66

REV:

NOTE :- CABLE FOR LANDING LOCK SHAFT WIRING PART No.910146
STRIP OFF OUTER SLEAVING FOR 75mm ADJACENT TO TERMINATION POINT
ONLY CUT BROWN WIRE FOR INSERTION IN TERMINALS.
AT HIGHEST LANDING STRIP BACK AND TERMINATE BLUE AND BROWN CABLE.
USE EARTH CORE FOR ALL LANDING DOOR FRAMES.



REV E : UPDATED FOR NEW LOGO AND TEXT FONT. 03/08/10 JN.
REV D : SLACK ROPE SWITCHES NOW PARALLEL. 19/01/10 GC.
REV C : AS INSTALLED. 25/03/09 GC.
REV B : LANDING LOCK CABLE CHANGE. 03/03/09 GC.
REV A : AS BUILT STANDARD. 21/10/08 GC.

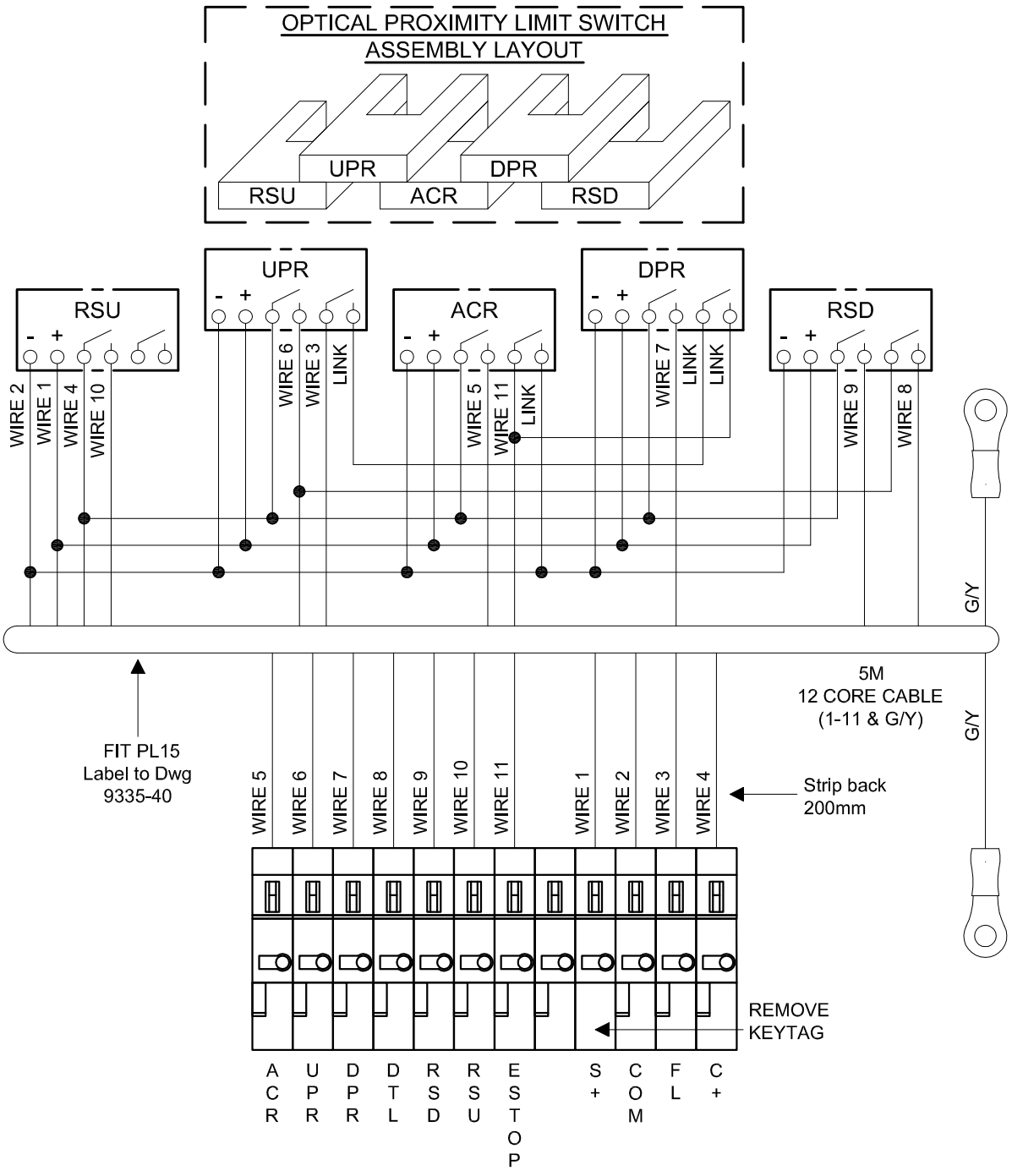
NAME: G.COOPER	DATE: 23/09/08
CHECKED: K.CANTILLON	DATE: 24/09/08

TRACTION SHAFT WIRING DIAGRAM - PIT TERMINAL BOX

Stannah
HEAD OFFICE:
Anton Mill
Andover Hampshire
SP10 2NX England
Tel: 01264 339090 Fax: 337942

DRAWING NO: 9336/3 REV: E

Item	Part Number	Description	Qty
1	910116	YY Control Cable 12 x 0.5mm² 1-11 & G/Y	5m
2	915168	12Way Wago Connector 231-112/026-000	1
3	906034	Connect Pre-Insul Eyelet 2BA	2
4	911175	PL15 Label to Dwg 9335-40	1/42



PL15 ON ICTU

NAME: G.COOPER	DATE: 10/06/08
CHECKED: S.JACKSON	DATE: 10/06/08

NEXUS CAR WIRING - TRACTION -
CAR TOP OPTICAL PROMIMITY SWITCH
ASSEMBLY

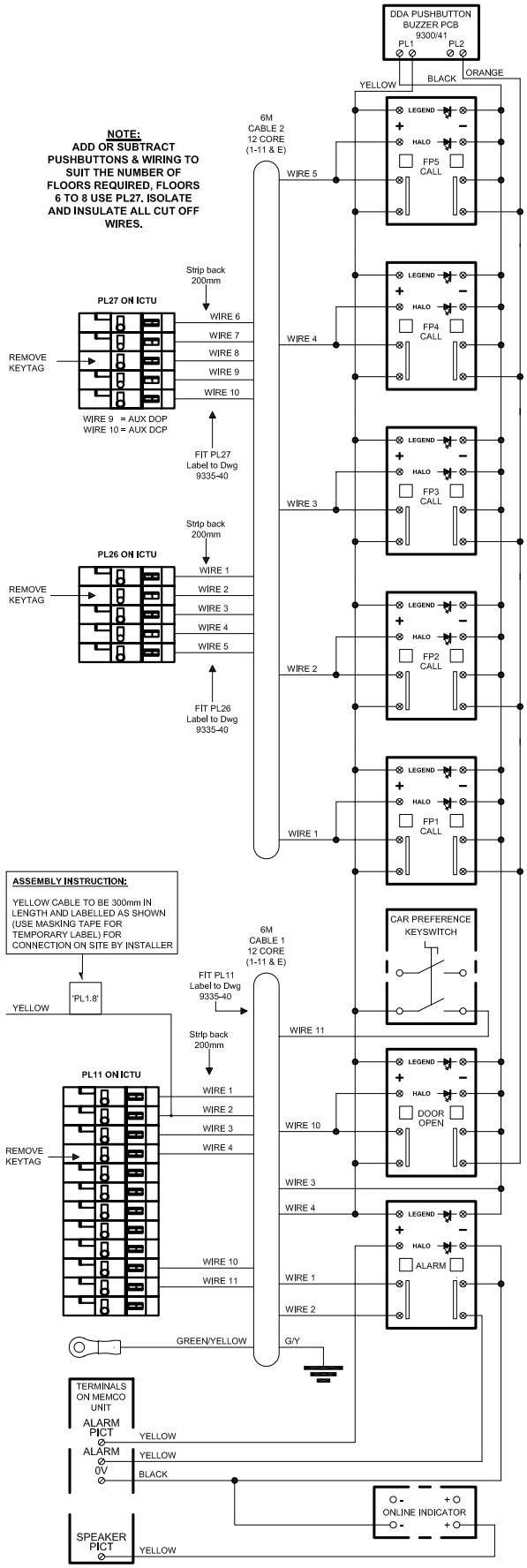
Stannah

HEAD OFFICE:
Anton Mill
Andover Hampshire
SP10 2NX England

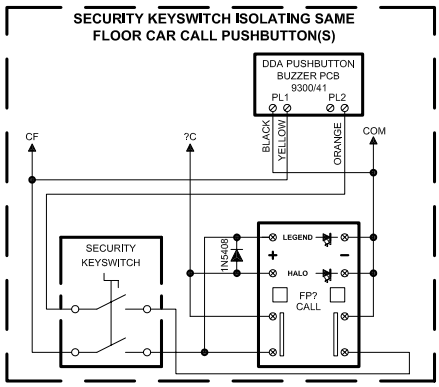
Tel: 01264 339090 Fax: 337942

DRAWING NO: 9336/7 REV: E

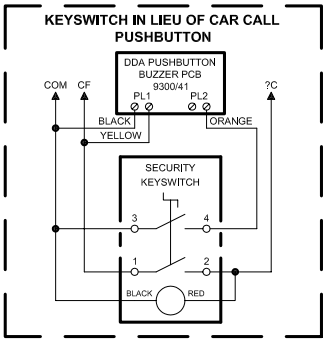
Rev E: Updated for new logo and text font. 03/08/2010 JN
Rev D: Strip length increased. 01/10/2009 JN
Rev C: As installed. 30/03/2009 JN
Rev B: Final build. 23/03/2009 JN
Rev A : As built standard. 21/10/08 GC.



Item	Part Number	Description	Qty
1	910116	YY Control Cable 12 x 0.5mm² 1-11 & G/Y	12m
2	905133	5Way Wago Connector 231-105/026-000	2
3	915168	12Way Wago Connector 231-112/026-000	1
4	906034	Connect Pre-Insul Eyelet 2BA	2
5	911175	PL27 Label to Dwg 9335-40	1/42
6	911175	PL26 Label to Dwg 9335-40	1/42
7	911175	PL11 Label to Dwg 9335-40	1/42
8	910182	Yellow cable (0.75mm)	300mm



NOTE:
'?' DENOTES THE FLOOR POSITION CALL INPUT
e.g. 1C FOR KEYSWITCH TO FP1 CALL INPUT



Rev I: Link wiring moved to assembly drawing. 26/10/11. JN. ECN 5111
Rev H: Aux DOP and DCP text ammended. 16/11/10. GC.
Rev G: UPDATED FOR NEW LOGO AND TEXT FONT. 03/08/10. JN.
Rev F: UPDATED FOR MEMCOM UNIT. 09/04/10. SAJ.
Rev E: Cable length increased, strip length reduced. 01/10/09 JN.
Rev D: Introduction of M20 push buttons. ECN - L4010 29/05/09 JN.
Rev C: As installed. 27/03/2009 JN
Rev B: Final build. 23/03/2009 JN
Rev A: Production standard. 12/10/2008 JN

NAME: G.COOPER DATE: 10/06/08
CHECKED: S.JACKSON DATE: 10/06/08

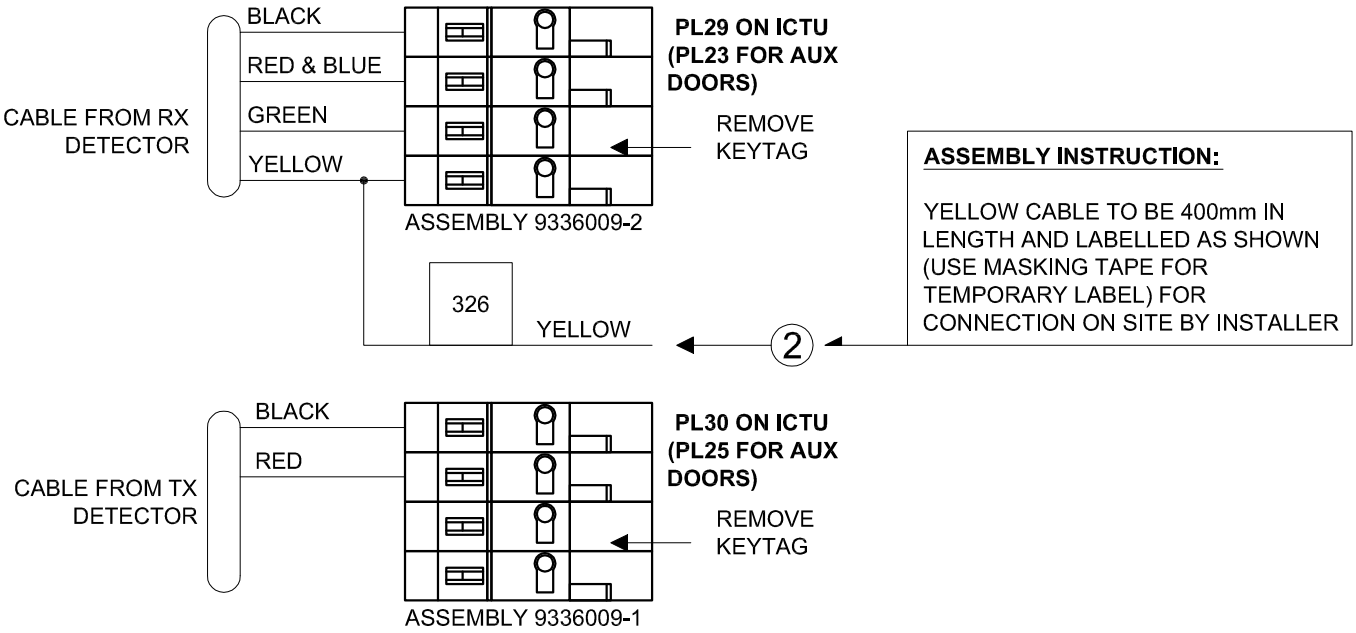
NEXUS CAR WIRING - TRACTION
"M20" PUSHBUTTONS

Stannah

HEAD OFFICE:
Anton Mill
Andover Hampshire
SP10 2NX England
Tel: 01264 339090 Fax: 337942

DRAWING NO: 9336/8 REV: I

Item	Part Number	Description	Qty
1	906212	4Way Wago Connector 231-104/026-000	2
2	910182	Yellow cable (0.75mm)	400mm



MODEL E10-32 PART CODE 510719

DETECTOR LED STATUS FAULT FINDING KEY

LED STATUS	POSSIBLE CAUSE
☐ No LED ON	No Power. Check the RED (100) and BLACK (99) wires for 24VDC.
✳ LED flashing 0.5 sec on 0.5 sec off	Detectors not synchronised. TX not powered; All beams blocked.
✳ LED flashing 1 sec on 1 sec off	One or more diodes timed out.
✳ LED flashing 0.5 sec on 2 sec off	Normal (unobstructed) operation.
■ LED ALWAYS ON	Obstruction between detectors.

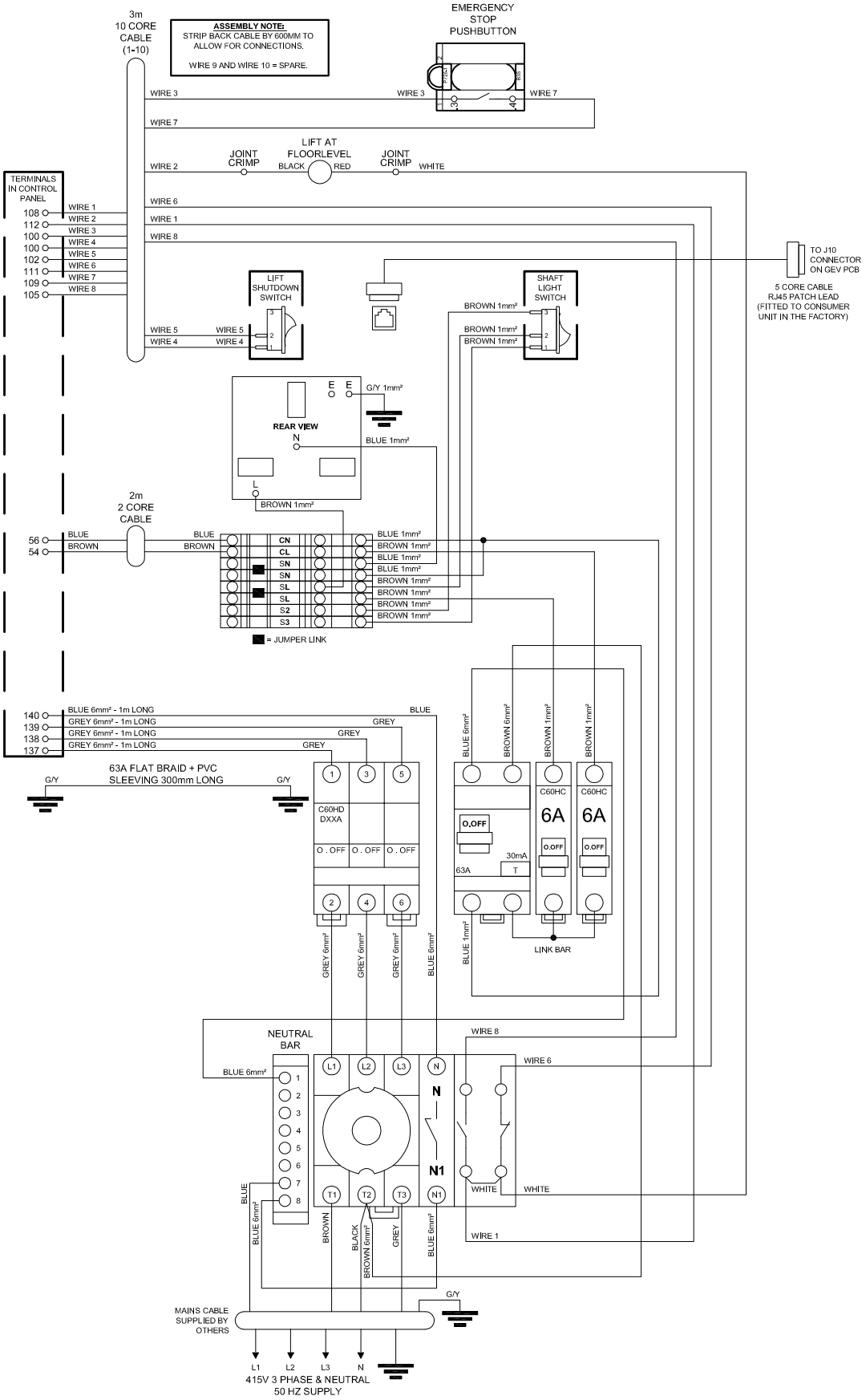
Rev G: New E Series Safety Edge. 06/03/12 GC. ECN 5223
Rev F: Label detailed updated. 01/12/11 JN. ECN 5126
Rev E: Yellow link cable added, dur to fermator door gear. 27/09/11 JN
Rev D: Updated for new logo and text font. 04/08/2009 JN
Rev C: As installed. 30/03/2009 JN
Rev B: Final build. 23/03/2009 JN
REV A : AS BUILT STANDARD. 21/10/08 GC.

NAME: G.COOPER DATE: 10/06/08
CHECKED: S.JACKSON DATE: 10/06/08

NEXUS CAR WIRING - TRACTION
FULL HEIGHT INFRA RED SAFETY EDGE

Stannah
HEAD OFFICE:
Anton Mill
Andover Hampshire
SP10 2NX England
Tel: 01264 339090 Fax: 337942

DRAWING NO: 9336/9 REV: G



NAME: G.COOPER	DATE: 12/06/08
CHECKED: K.CANTILLON	DATE: 12/06/08

TRACTION -
CONTROL PANEL CONSUMER UNIT
(ASSEMBLY PART No 2000863)

Stannah

HEAD OFFICE:
Anton Mill
Andover Hampshire
SP10 2NX England

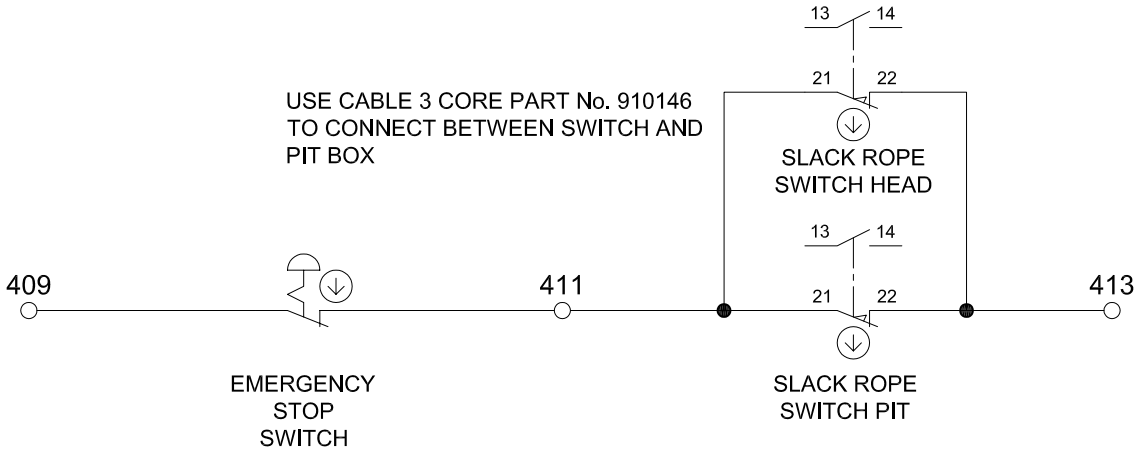
Tel: 01264 339090 Fax: 337942

DRAWING NO: 9336/12 | REV: G

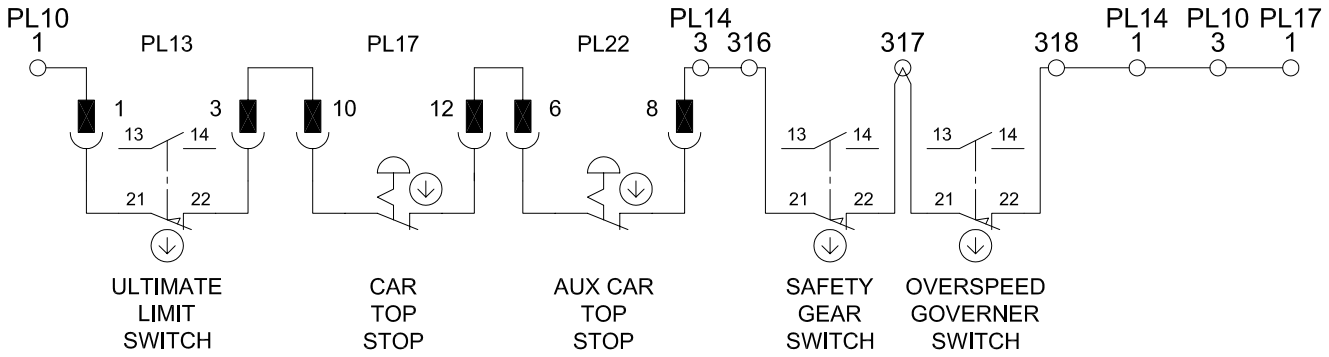
REV G: A3 COMPLIANCE AMMENDMENTS. ECN L 5265. 08/03/12. GC
REV F: UPDATED FOR A3 COMPLIANCE. ECN L 5126. 30/11/11. SAJ
REVE: UPDATED FOR NEW LOGO AND TEXT FONT. 04/08/10. JN.
REVD: TERMINALS 54 & 56 REASSIGNED. 01/02/10 GC.
REVC: AS INSTALLED. 26/03/09 GC.
REVB: FINAL BUILD. 21/01/09 GC.
REVA: AS BUILT STANDARD. 21/10/08 GC.

INVERTER TERMINAL BOX SAFETY CIRCUIT

PIT BOX SAFETY CIRCUIT



CAR TOP BOX SAFETY CIRCUIT



REV F : UPDATED FOR A3 COMPLIANCE. 11/01/12 MH L5126.
REV E : JUNCTION BOX REMOVED, SAFETY GEAR NOW WIRED TO TERMINALS. UPDATED FOR NEW LOGO AND TEXT FONT. 24/06/10 GC.
REV D : SLACK ROPE SWITCHES NOW IN PARALLEL. 19/01/10 GC.
REV C : AS INSTALLED. 25/03/09 GC.
REV B : FINAL BUILD STANDARD. 21/01/09 GC.
REV A : AS BUILT STANDARD. 21/10/08 GC.

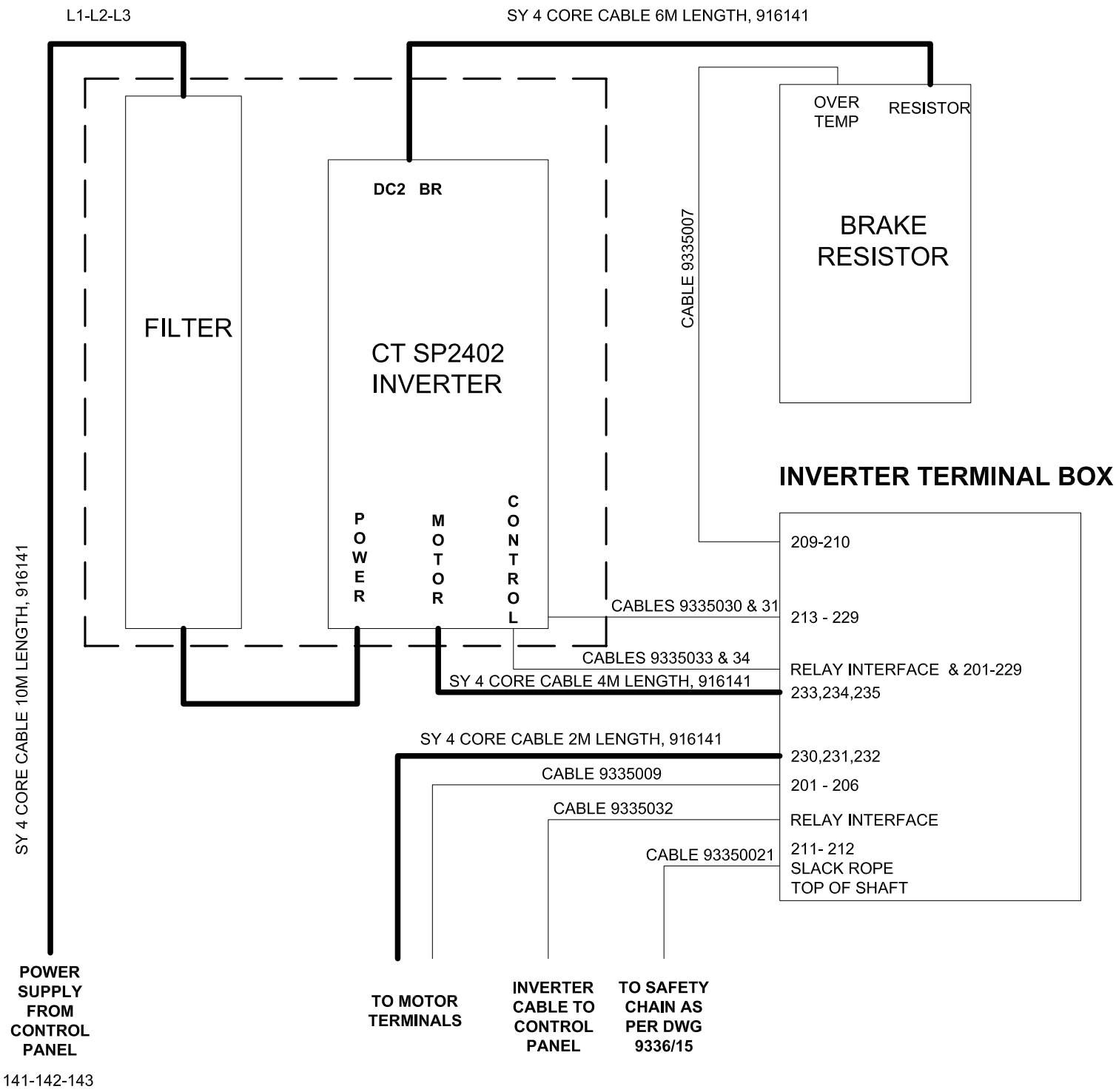
NAME: G.COOPER	DATE: 26/06/08
CHECKED: K.CANTILLON	DATE: 27/06/08

TRACTION LIFT - INSTALLER
SAFETY CHAIN WIRING

Stannah
HEAD OFFICE:
Anton Mill
Andover Hampshire
SP10 2NX England
Tel: 01264 339090 Fax: 337942

DRAWING NO: 9336/15 | REV: F

INVERTER BOX



REV F: POWER SUPPLY TERMINAL NUMBER CHANGES. 21/12/11 GC.
REV E: SY CABLE NOW 4MM2 916141. 30/09/10 GC. ECN L4722
REV D: UPDATED FOR NEW LOGO AND TEXT FONT. 04/08/10
REV C: AS INSTALLED. 01/04/09 JN.
REV B: FINAL BUILD. 21/01/09 GC.
REV A : AS BUILT STANDARD. 21/10/08 GC.

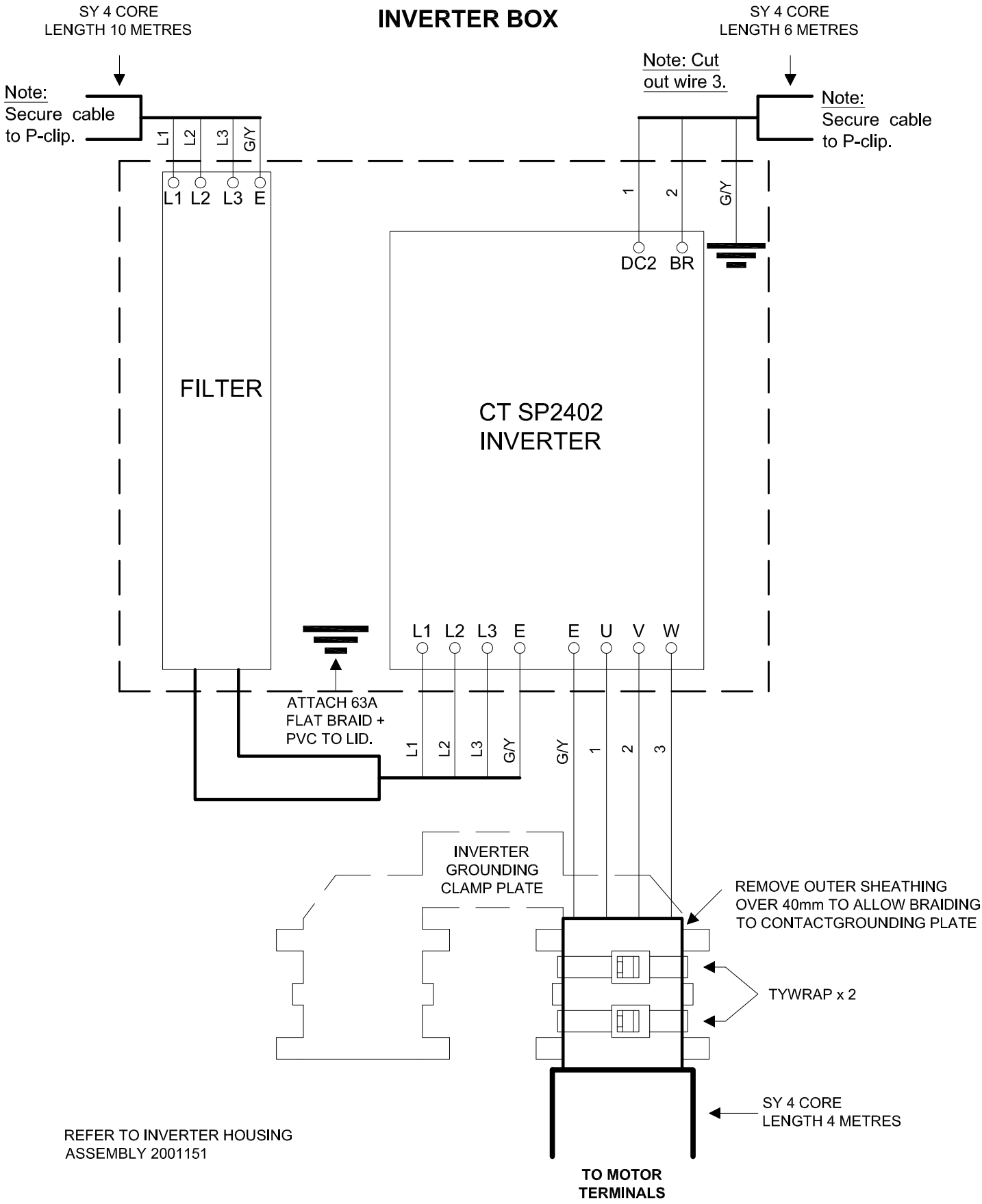
NAME: G.COOPER	DATE: 05/09/08
CHECKED: K.CANTILLON	DATE: 08/09/08

TRACTION - INVERTER BOX
SITE WIRING

Stannah
HEAD OFFICE:
Anton Mill
Andover Hampshire
SP10 2NX England
Tel: 01264 339090 Fax: 337942

DRAWING NO: 9336/16 REV: F

INVERTER BOX



NAME: G.COOPER	DATE: 05/09/08
CHECKED: K.CANTILLON	DATE: 08/09/08

TRACTION - INVERTER
POWER WIRING

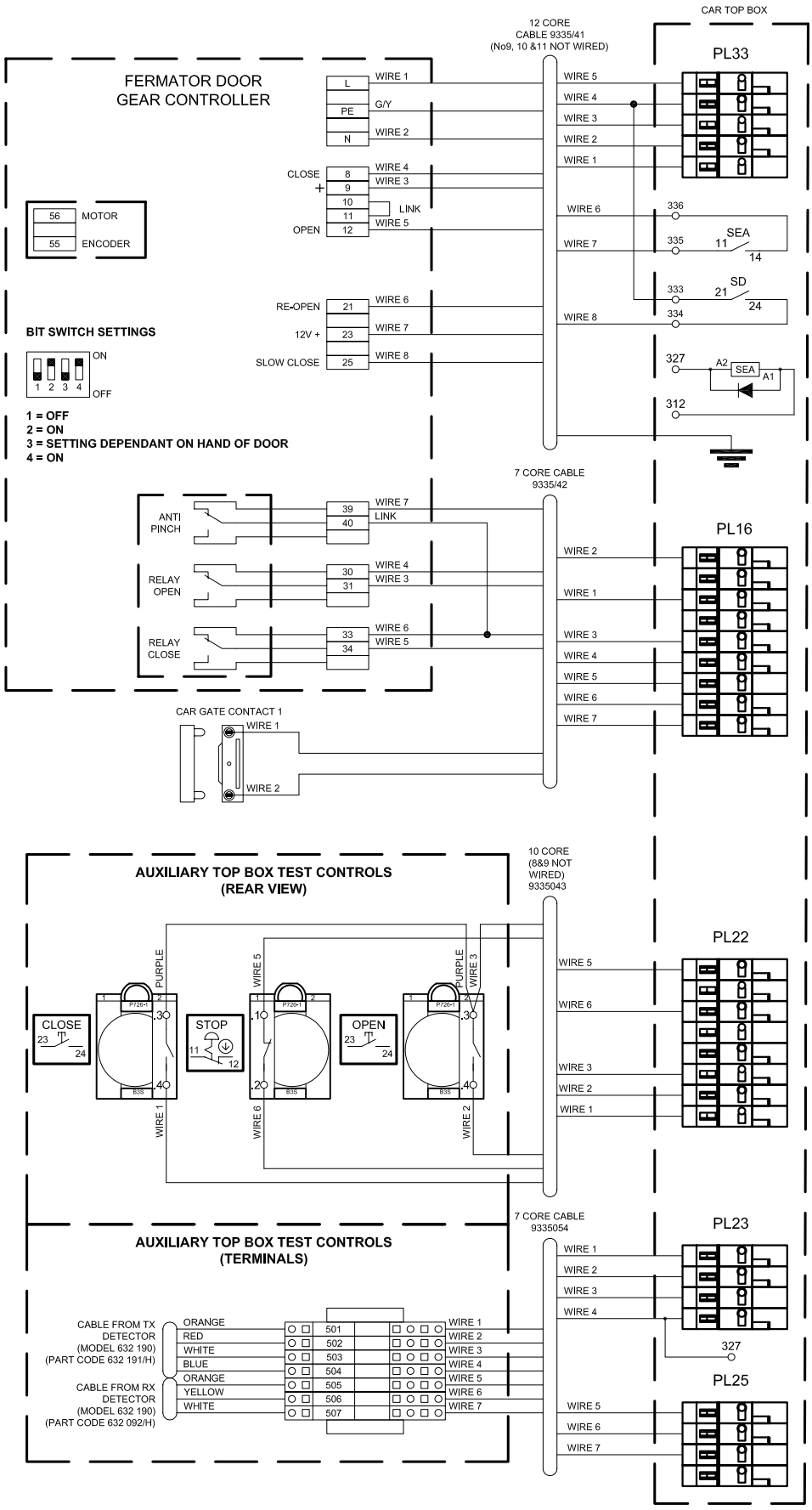
Stannah

HEAD OFFICE:
Anton Mill
Andover Hampshire
SP10 2NX England

Tel: 01264 339090 Fax: 337942

DRAWING NO: 9336/17 | REV: E

REV E: SY CABLE NOW 4MM2 916141. 30/09/10 GC. ECN L4722
REV D: UPDATED FOR NEW LOGO AND TEXT FONT. 04/08/10 JN.
REV C: AS INSTALLED. 01/04/09 JN.
REV B: FINAL BUILD. 21/01/09 GC.
REV A : AS BUILT STANDARD. 21/10/08 GC.



NAME: J. NICHOLLS	DATE: 30/09/11
CHECKED: S. JACKSON	DATE: 30/09/11

NEXUS CAR WIRING - TRACTION
FERMATOR DOORGEAR WITH
THROUGH CAR TEST COTROLS

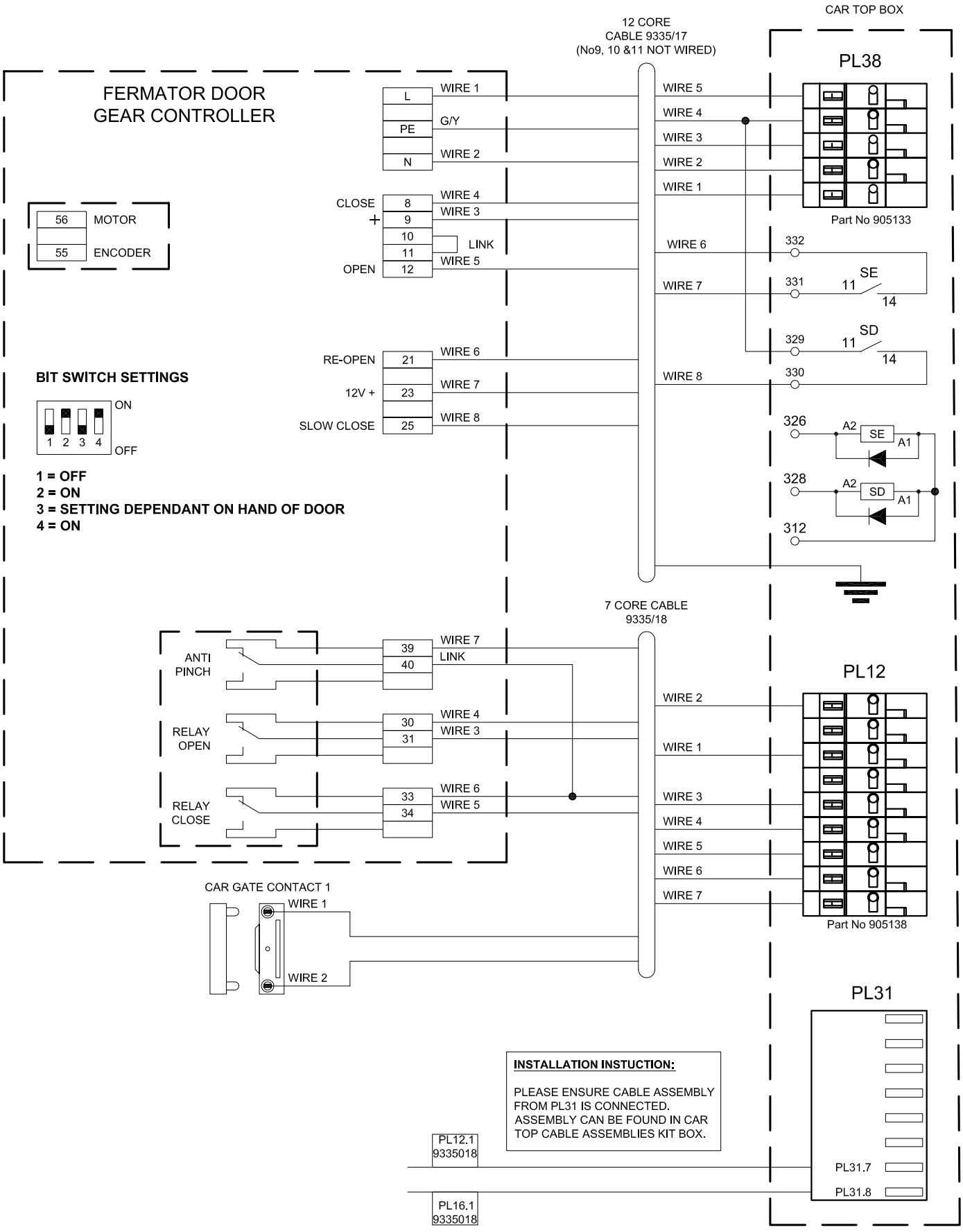
Stannah

HEAD OFFICE:
Anton Mill
Andover Hampshire
SP10 2NX England

Tel: 01264 339090 Fax: 337942

DRAWING NO: 9336/37 | REV: C

Rev C: Description of switches added. 25/01/12 JN. ECN 5254
Rev B: Link added Terminals clarified.13/01/12 GC. ECN 5144
Rev A: Terminal labels added. 01/12/11 JK. ECN 5126



NAME: J. NICHOLLS	DATE: 13/09/11
CHECKED: S. JACKSON	DATE: 13/09/11

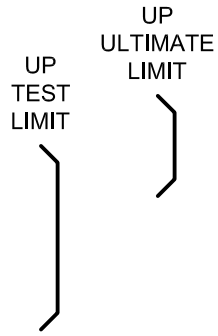
NEXUS CAR WIRING - TRACTION
FERMATOR DOORGEAR

Stannah

HEAD OFFICE:
Anton Mill
Andover Hampshire
SP10 2NX England
Tel: 01264 339090 Fax: 337942

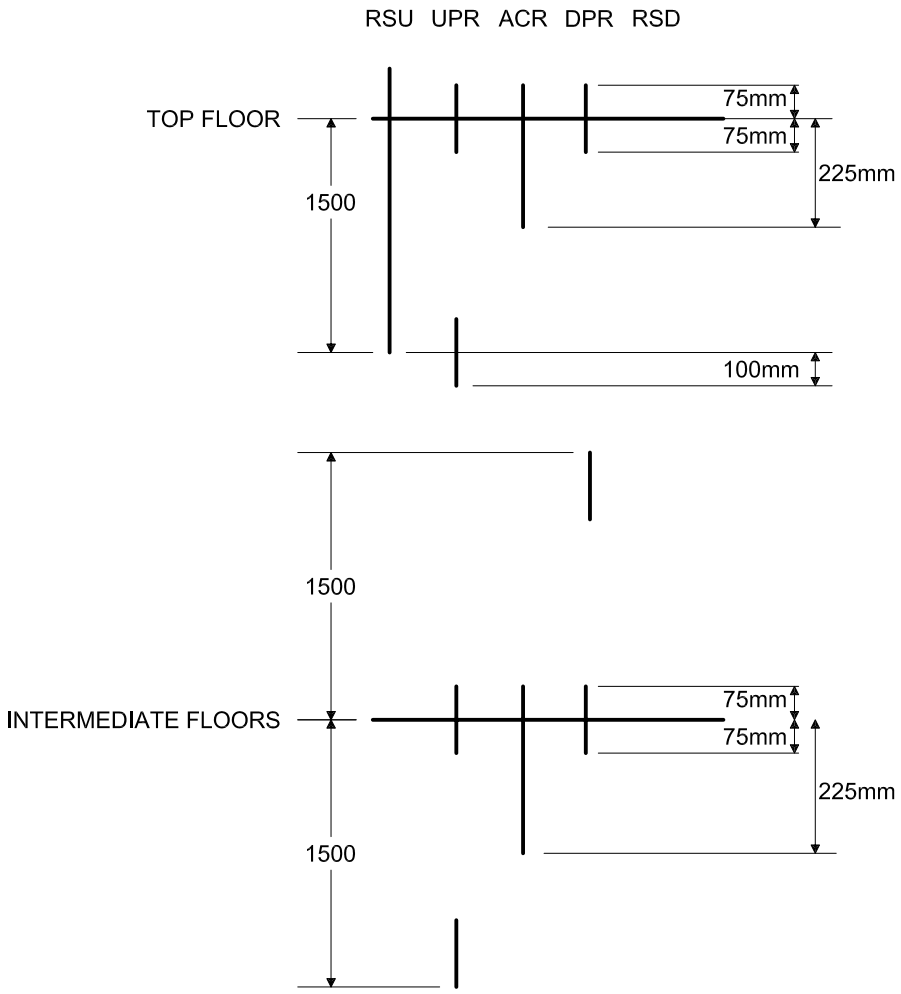
DRAWING NO: 9336/35 | REV: C

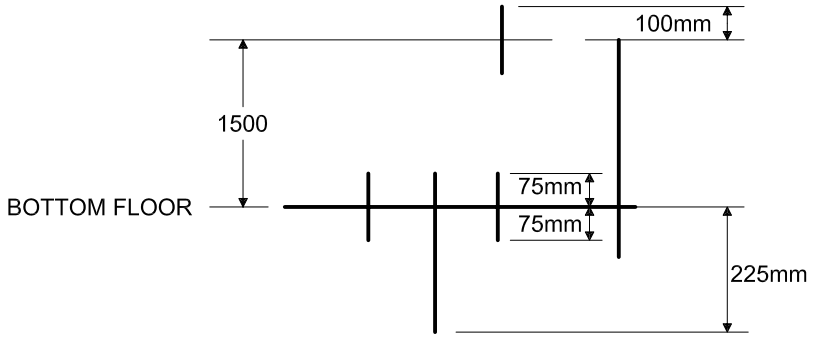
Rev C: Description of switches added. 25/01/12 JN. ECN 5254
Rev B: Link added and Terminals clarified. 13/01/12 GC. ECN 5144
Rev A: Terminal labels added. 01/12/11 JK. ECN 5126



UP ULTIMATE LIMIT
THE UP ULTIMATE LIMIT SHOULD ACTIVATE WHEN THE LIFT CAR SILL IS 50-75mm ABOVE THE TOP FLOOR LANDING SILL.

UP TEST LIMIT
THE UP TEST LIMIT SHOULD ACTIVATE WHEN THE LIFT CAR SILL IS 1500mm BELOW THE TOP FLOOR LANDING SILL.





VANE LENGTHS
ACR VANES = 2 x 150mm
UPR VANES = 150mm
DPR SLOWING VANES = 150mm
DPR FLOOR LEVEL VANES = 150mm
RSU VANES = 1600mm
RSD VANES = 1600mm

SLOWING VANES:
UPR = 1500 FROM FLOOR LEVEL
DPR = 1500 FROM FLOOR LEVEL

IMPORTANT NOTE:
THE VANE LAYOUT IS SHOWN AS THEY SHOULD BE FIXED TO THE ROPES IN RELATION TO THE FLOOR LEVELS
NOT AS THEY ARE SEEN BY THE OPS ASSEMBLY.

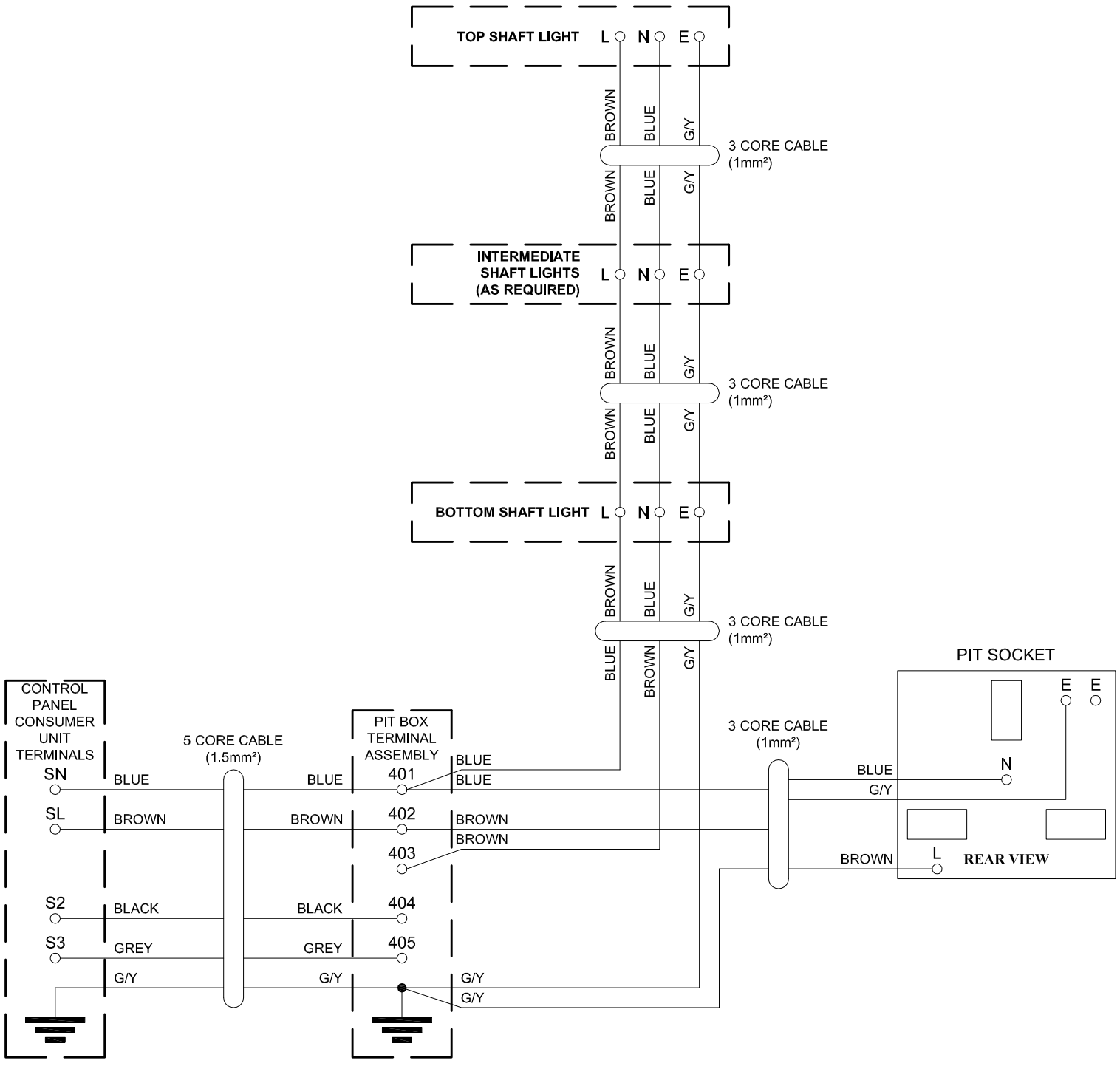
NAME: G.COOPER	DATE: 13/01/09
CHECKED: K.CANTILLON	DATE: 14/01/09

NEXUS CAR WIRING -
OPTICAL PROXIMITY SWITCH (OPS)
ASSEMBLY TRACTION VANE LAYOUT

Stannah
HEAD OFFICE:
Anton Mill
Andover Hampshire
SP10 2NX England
Tel: 01264 339090 Fax: 337942

DRAWING NO: 9336/21 | REV: G

REV G: RSU & RSD vane lengths increased and positions adjusted. 24/10/11 JN. ECN 5111
REV F: ACR Vane position adjusted. 16/11/10 GC.
REV E: UPDATED FOR NEW LOGO AND TEXT FONT. 29/07/01 JN.
REV D: 'RSU' & 'RSD' vane lengths now 1400mm. 'UPR' & 'DPR' vanes now 1400mm form floor level. 01/10/09 JN.
REV C: AS INSTALLED . 26/03/09 GC.
REV B: FINAL BUILD . 20/01/09 GC.
REV A: AS BUILT . 13/01/09 GC.



NAME: J.NICHOLLS	DATE: 29/04/09
CHECKED: G.COOPER	DATE: 29/04/09

TRACTION - SHAFT WIRING
SHAFT LIGHTING
& POWER SOCKET

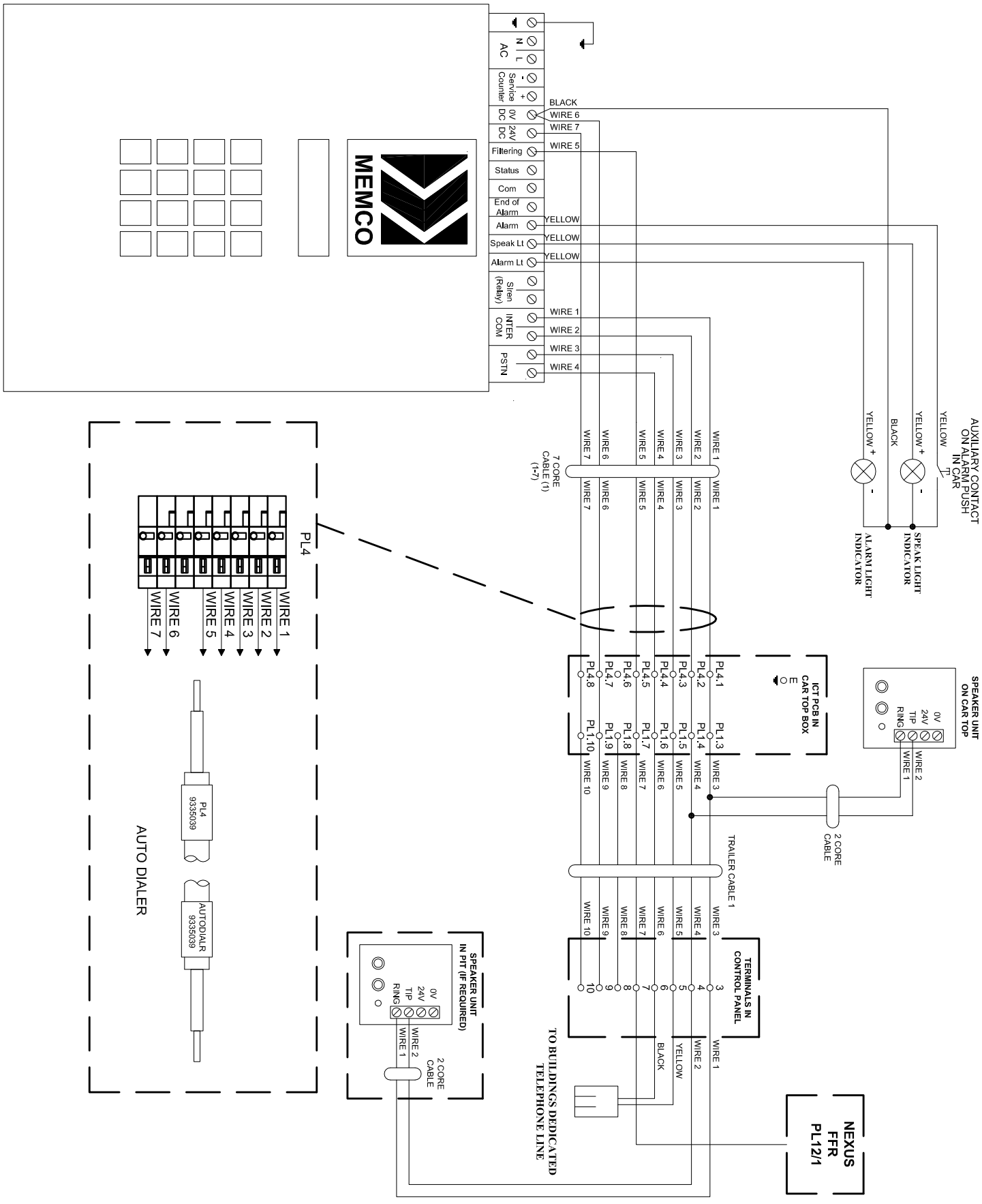
Stannah

HEAD OFFICE:
Anton Mill
Andover Hampshire
SP10 2NX England

Tel: 01264 339090 Fax: 337942

DRAWING NO: 9336/22 | REV: D

REV D: UPDATED FOR NEW LOGO AND TEXT FONT. 04/08/10 JN
REV C: AS INSTALLED. 30/03/09 JN
REV B : TERMINALS 106,107,114 &115 ADDED. 03/02/09 GC.
REV A : AS BUILT STANDARD. 21/10/08 GC.



NAME: S.JACKSON	DATE: 23/08/10	
CHECKED: G.COOPER	DATE: 23/02/10	

NEXUX LV -
MEMCOM AUTODIAL SYSTEM
FOR TRACTION

Stannah

HEAD OFFICE:
Anton Mill
Andover Hampshire
SP10 2NX England
Tel: 01264 339090 Fax: 337942

DRAWING NO: 9336/23 | REV: D

REV D: AMMENDMENT FOR FILTERING. 08/03/12 GC. ECN 5265
REV C: LINK CABLE REMOVED AN ADDED TO 9336/8. 26/10/11 JN. ECN 5111
REV B: WIRES 5 & 6 LABELS REVERSED ON MEMCOM UNIT. 20/04/11 SAJ
REV A: PL4 terminations reassigned.Now 7 core cable. 17/11/10 GC

Traction Lift Control Panel Terminal Identification

TERMINAL	Identification	Type	Function
End Stop		906132	Place End Stop Here
E	E	906144	
E	E	906144	
E	E	906144	
End Plate		906253	
1	C+	906252	24VDC Suppy
2	COM	906252	Common Connection Point
3	AD1	906252	Insert Key pin769-435. Autodialler
4	AD2	906252	Autodialler
5	AD3	906252	Autodialler
6	AD4	906252	Autodialler
7	AD5	906252	Autodialler Filter
8	AD6	906252	Autodialler
9	AD7	906252	Autodialler COM
10	AD8	906252	Autodialler 24V DC Feed
11		906252	
12		906252	
13		906252	
14		906252	Insert Key pin769-435. Not Used
15		906252	
16	COM	906252	Serial Common Connection Point
17	S+	906252	S+ 12 VDC Feed From Battery
18	PARK	906252	Parking plate sensor
19		906252	
20	ST	906252	ST
21		906252	
22	AF	906252	AF
23		906252	
24		906252	Not Used
25		906252	Insert Key pin769-435. Not Used
26		906252	Not Used
27		906252	Not Used
28		906252	Not Used
End Plate		906253	
29	ACR	906252	Door Zone Signal From Proximity Switch
30	UPR	906252	Up Slowing & Floor Level Signal
31	DPR	906252	Down Slowing & Floor Level Signal
32	DTL	906252	Down Test Limit. Not Used
33	RSU	906252	Reset Up Proximity Switch
34	RSD	906252	Insert Key pin769-435 Reset Down Proximity Switch
35	FL	906252	Floor Level Signal
36	TU	906252	Up Run Test Input
37	TD	906252	Down Run Test Input
38	ESTOP	906252	Emergency Release Stop Signal
39	COM	906252	Common Connection Point
40	RS485A	906252	Serial Link For RS485 Channel A
41	RS485B	906252	Serial Link For RS485 Channel B
42	CANL	906252	CAN Low Link
43	CANH	906252	CAN High Link
44	COM	906252	Serial Common Connection Point
45	ST	906252	Safety Chain ST Terminal
46		906252	Earth
47	AF	906252	Safety Chain AF Terminal
48		906252	Earth
49	G1	906252	Safety Chain G1 Terminal
50		906252	Earth
51	TR	906252	Car Top Test Switch Terminal
52	SGS	906252	Safety Gear Solenoid Test Feed
53		906252	
54	L	906252	Live Feed
55		906252	Insert Key pin769-435.
56	N	906252	Neutral Feed
End Plate		906253	
57	EN	906252	Enable Command From NEXUS OLW Output
58	HSR	906252	High Speed Run Command
59	LSR	906252	AC Output Terminal on NEXUS Low Speed Run Command
60	TR	906252	Car Top Test Control From Car Top Test Switch
61	FLR	906252	Feed From Floor Level Contact
62	DRR	906252	Insert Key pin769-435 Reset Down Proximity Switch
63	URR	906252	Run Up Command From NEXUS
64	RUN	906252	Monitor Feedback For Direction Run Command
65	SPD	906252	Insert Key pin769-435 Feedback For Speed Command
66	COM	906252	Common
67	C+	906252	24VDC Feed To Traction Relay Interface
68	CPS	906252	From Control Panel Stop
69	PS	906252	Safety Chain To Pit Stop Switch
70	G3	906252	Motor Contactors Monitor
71	COM	906252	Common
72	G2	906252	Landing Locks Safety Chain Return
73	C+	906252	24 VDC Supply
74	OVT	906252	Insert Key pin769-435. Over Temp for Brake Resistor
75	IOVT	906252	Over Temperature For Motor From Inverter
76	C4	906252	Emergency Release Contactor
77	C3	906252	Brake Contactor Feed
78	CBRK	906252	Brake Circuit Live Feed
79	CBRK	906252	Brake Circuit Neutral Feed
80	MOTOR FAN	906252	Motor Fan Live
81	MOTOR FAN	906252	Insert Key pin769-435. Fan Neutral
82		906252	
83	CALL	906252	Short Floor Signal
84	COM	906252	
Orange	End Plate	510488	
85	F48	906236	48 Vac Safety Chain Feed
86	PF	906236	Phase Failure
87	CPS	906236	Car Panel Stop Switch
88	PS	906236	Pit Stop Switch
89	ST	906236	Safety Chain Terminal ST
90	AF	906236	Safety Chain Terminal AF
91	G1	906236	Safety Chain Terminal For Car Gate Lock
92	G2	906236	Safety Chain Terminal For Landing Locks
93		906236	Spare
94		906236	Spare
95	PUP	906236	Punch Up Control
96	PDN	906236	Punch Down Control
97	PCOM	906236	Punch Control Feed
Orange	End Plate	510488	
98	Earth Terminal	906144	
99	COM	906233	Common Connection Point
99	COM	906233	Common Connection Point
99	COM	906233	Common Connection Point
99	COM	906233	Common Connection Point
	End Plate	906253	
100	C+	906233	24VDC Suppy
100	C+	906233	24VDC Suppy
100	C+	906233	24VDC Suppy
100	C+	906233	24VDC Suppy
101	FMC	906233	Fire Shutdown Input
102	SDL1	906233	Lift Shutdown 1 Input
103	SDL2	906233	Lift Shutdown 2 Input
104	ALA	906139	Alarm Siren
105	POWER	906233	Power Feed To RL13
106	CT1	906233	Current Sensor
107	CT2	906241	Current Sensor - Diode terminal
108	S+	906233	S+ 12 VDC Feed
109	EML	906233	Emergency Lower Switch
110	ERR	906233	Emergency Release Relay
111	ER	906233	Emergency Release Relay
112	FL	906233	Floor Level Signal
113	PCOM	906233	Punch Control Common
114	PUP	906233	Punch Up Control
115	PDN	906233	Punch Down Control
	End Stop		
	Orange		
116	Earth	906144	Earth
117	L	906235	Live Feed
118	N	906235	Neutral Feed
119	E	906144	Earth
120	L	906235	Live Feed
121	N	906235	Neutral Feed
122	E	906144	Earth

SAFETY CIRCUIT

Traction Lift Control Panel Terminal Identification

TERMINAL	Identification	Type	Function
	End Stop	906132	Place End Stop Here
123/124	SGS	906175	SGS T2A Fuse For Safety Gear Switch Test
	End Plate	906189	
125/126	F48	906175	F6 T2A Fuse For Safety Chain 48 Vac
	End Plate	906189	
127/128	FBL	906175	F4 T5A Fuse For Safety Chain Transformer L1
	End Plate	906189	
129/130	FBN	906175	F5 T5A Fuse For Feed To Control Panel Live
	End Plate	906189	
131/132	FL1	906175	F1 T2A Fuse For Safety Chain Transformer L1
	End Plate	906189	
133/134	FL2	906175	F2 T2A Fuse For Brake Circuit Feed L2
	End Plate	906189	
135/136	FL3	906175	F3 T2A Fuse For Safety Chain Transformer L3
	End Plate	906189	

Traction Lift Control Panel Terminal Identification

TERMINAL	Identification	Type	Function
	End Stop	906132	Place End Stop Here
137	L1	906246	L1 Phase Cable To Inverter Box
137	L1	906246	L1 Phase Cable To Inverter Box
138	L2	906246	L2 Phase Cable To Inverter Box
138	L2	906246	L2 Phase Cable To Inverter Box
139	L3	906246	L3 Phase Cable To Inverter Box
139	L3	906246	L3 Phase Cable To Inverter Box
140	MN	906246	Neutral
140	MN	906246	Neutral
141	L3	906246	Feed To Inverter
142	L2	906246	Feed To Inverter
143	L1	906246	Feed To Inverter
144	Earth	906246	Earth
	End Plate	906175	
	End Stop	906132	

Traction Lift Inverter Box Terminal Identification

TERMINAL	Identification	Type	Function
End Stop		906132	
201	Motor PTC	906252	Site Wire
202	Motor PTC	906252	Site Wire
203		906252	
204		906252	
205	Motor Fan L	906252	Live Feed To Motor Fan
206	Motor Fan N	906252	Neutral Feed To Motor Fan
207	CT1	906252	Current Sensor
208	CT2	906252	Current Sensor
209	Brake Thermo	906139	Site Wire
210	Brake Thermo	906139	Site Wire
	End Plate	906253	
211		906236	Link
212		906236	Link
	End Plate	906253	
213	CPS	906252	Site Wire
214	PS	906252	Site Wire
215	G3	906252	Contactor Monitor
216	COM	906252	Common
217	G2	906252	Landing Lock Circuit
218	C+	906252	24Vdc
219	OVT	906252	Over Temperature
220	LTS	906252	Insert Key Pin 769-435
221	C4	906252	Brake Contactor
222	C3	906252	Emergency Release
223	CBRK L	906252	Brake Feed
224	CBRK N	906252	Brake Feed
225	Motor Fan L	906252	Fan Feed
226	Motor Fan N	906252	Fan Feed
227	Load Cell scrn	906252	Site Wire
228	Load Cell Red	906252	Site Wire - Insert Key Pin 769-435
229	Load Cell Blk	906252	Site Wire
End Stop		906132	
End Stop		906132	
230	MU	906141	Motor Phase Terminal - U
231	MV	906141	Motor Phase Terminal - V
232	MW	906141	Motor Phase Terminal - W
233	IU	906141	Inverter Phase Terminal - U
234	IV	906141	Inverter Phase Terminal - V
235	IW	906141	Inverter Phase Terminal - W
End Stop		906132	

Traction Lift Inverter Box Component Identification

TERMINAL	Identification	Type	Function
PL1-1	C+	231-111	Plug PL1 On Relay Interface Assembly
PL1-2	COM	231-111	Common
PL1-3	SPD	231-111	Speed
PL1-4	RUN	231-111	Run
PL1-5	URR	231-111	Up Run Relay
PL1-6	DRR	231-111	Down Run Relay
PL1-7	FLR	231-111	Floor Level Relay
PL1-8	TR	231-111	Test Relay
PL1-9	LSR	231-111	Low Speed Relay
PL1-10	HSR	231-111	High Speed Relay
PL1-11	EN	231-111	Enable Relay

Traction Lift Car Top Box Terminal Identification

TERMINAL	Identification	Type	Function
End Stop		906132	
301	L	906235	Live 240Vac Feed
301	L	906235	Live 240Vac Feed
302	N	906235	Live 240Vac Feed
302	N	906235	Live 240Vac Feed
303	E	906144	Earth
304	E	906144	Earth
	End Plate	906134	
305/306	F7	906175	Fuse For Car Lights 5 Ampere
	End Plate	906189	
307/308	F8	906175	Fuse For Main Door Gear 2 Ampere
	End Plate	906189	
309/310	F9	906175	Fuse For Aux Door Gear 2 Ampere
	End Plate	906189	
311	C+	906233	24Vdc Feed
312	COM	906233	Common
312	COM	906233	Common
313	S+	906139	S+ Battery
314	VDC	906139	12Vdc Feed
	End Plate	906134	
315	ST	906236	Safety Chain ST Terminal
316	PL14/3	906236	Safety Gear PL14/3
317	Safety Gear	906236	Safety Gear Switch
318	Overspeed	906236	Over Speed Switch
319	AF	906139	Safety Chain AF Terminal
320	PL14/5	906139	Safety Gear Solenoid
321	PL14/6	906139	Safety Gear Solenoid
322	PARK	906139	Parking plate sensor feedback
	End Plate	906134	
323		906236	
324		906236	
325		906236	
End Stop		906132	
End Stop		906132	
326	SE	906139	Safety Edge Relay
327	SEA	906139	Auxillary Door Safety Edge Relay
328	SD	906139	Safety Device Terminal
329	SD	906139	Safety edge disable - VF contact to door gear
330	SD	906139	Safety edge disable - VF contact to door gear
331	SE	906139	Safety Edge Contact - VF contact to door gear
332	SE	906139	Safety Edge Contact - VF contact to door gear
333	SD	906139	Safety edge disable - VF contact to door gear
334	SD	906139	Safety edge disable - VF contact to door gear
335	SEA	906139	Safety Edge Contact - VF contact to door gear
336	SEA	906139	Safety Edge Contact - VF contact to door gear
	End Plate	906134	
End Stop		906132	

SAFETY CIRCUIT

Traction Lift Pit Box Terminal Identification

TERMINAL	Identification	Type	Function
End Stop		906132	
401	SN	906235	
402	SL	906235	
403	SLS	906235	Shaft Light Switch Terminal 1
404	S2	906235	Shaft Light Switch Terminal 2
405	S3	906235	Shaft Light Switch Terminal 3
End Stop		906132	
406	G1	906236	
407	G1	906236	Landing Lock Circuit
408	G2	906236	Landing Lock Circuit
409	STOP	906236	Stop Switch Terminal 1
410		906236	
411	STOP	906236	Stop Switch Terminal 2 And Slack Rope Wire 1
412		906236	
413	SGS	906236	Slack Rope Wire 2
End Stop		906132	
414	COM	906233	Link To 415
415	COM	906233	Common
416	ALA	906233	Alarm Siren
417		906233	
418	FMC	906233	Firemans Control Switch
419		906233	
420	FMC	906233	Firemans Control Switch
421		906233	
422		906233	
423		906233	
424		906233	
425		906233	
426		906233	
End Stop		906132	

SAFETY CIRCUIT

CT Inverter Wire Terminal Identification

TERMINAL	Identification	Type	Function
T1	COM	CT Plug	Common
T2		CT Plug	24V EXT
T3	COM	CT Plug	Common
T4		CT Plug	10V Output
T5	ENABLE	CT Plug	Drive Enable
T6		CT Plug	Common
T7		CT Plug	Load Cell Red
T8	THERMIST	CT Plug	PTC
T9		CT Plug	Not Used
T10		CT Plug	Not Used
T11	THERMIST	CT Plug	PTC
T21	COM	CT Plug	Common
T22	24V	CT Plug	24V Output
T23	BRR	CT Plug	Brake Common
T24	OVT	CT Plug	Overtemperature Output
T25	BRR	CT Plug	Brake Output
T26	HSR	CT Plug	High Speed
T27	DN	CT Plug	Down
T28	UP	CT Plug	UP
T29	LSR	CT Plug	Low Speed
T30	COM	CT Plug	Common
T31	S-EN	CT Plug	Drive Enable
T41		CT Plug	Safety Chain
T42		CT Plug	Relay Contact

Traction Through Car Test Controls Component Identification

TERMINAL	Identification	Type	Function
End Stop		906132	
501	501	906139	COM For TX Detector
502	502	906139	24Vdc For TX Detector
503	503	906139	LKSEA
504	504	906139	Safety Edge Signal
505	505	906139	COM For RX Detector
506	506	906139	24Vdc For RX Detector
507	507	906139	LKSEA
End Stop		906132	

Traction Lift Inverter Box Terminal Component Identification

TERMINAL	Identification	Type	Function
Relay	RL1	48Vac	(DRR) Down Run Relay
Relay	RL2	48Vac	(URR) Up Run Relay
Relay	RL3	24Vdc	(TRI) Test Relay
Relay	RL4	48Vac	(HSR) High Speed Relay
Relay	RL5	48Vac	(LSR) Low Speed Relay
Relay	RL6	24Vdc	(BRAKE) Brake Relay
Relay	RL7	24Vdc	(EN) Enable Relay
Relay	RL8	48Vac	(GRR) Gate Run Relay
Relay	RL10	24Vdc	(FLR) Floor Level Relay, Turn On At Floor Level
Relay	RL11	24Vdc	(TRP) Test Control Relay, Turns Off When On Car Top Test
Relay	RL12	12Vdc	(ERR) Emergency Release Relay
Relay	RL13	12Vdc	(ERC) Emergency Release Power Relay
Contactor	C1	48Vac	(GR) Safety Chain Contactor
Contactor	C2	48Vac	(MC) Motor Run Contactor
Contactor	C3	24Vdc	(BRK) Brake Circuit Contactor
Contactor	C4	24Vdc	(ERC) Emergency Release Contactor
Contactor	C5	24Vdc	BREEAM Standby Contactor

Notes:

- Insert Wago connector key 769-435, part number 916132.
- Insert 2.5mm Wago Jumper link, part number 906125.
- Insert 6mm Wago Jumper link, part number 906127.
- Insert Tag 'LIVE' warning, part number 916063.

SAFETY CIRCUIT - Insert Tag 'Safety Circuit', part number 916064.

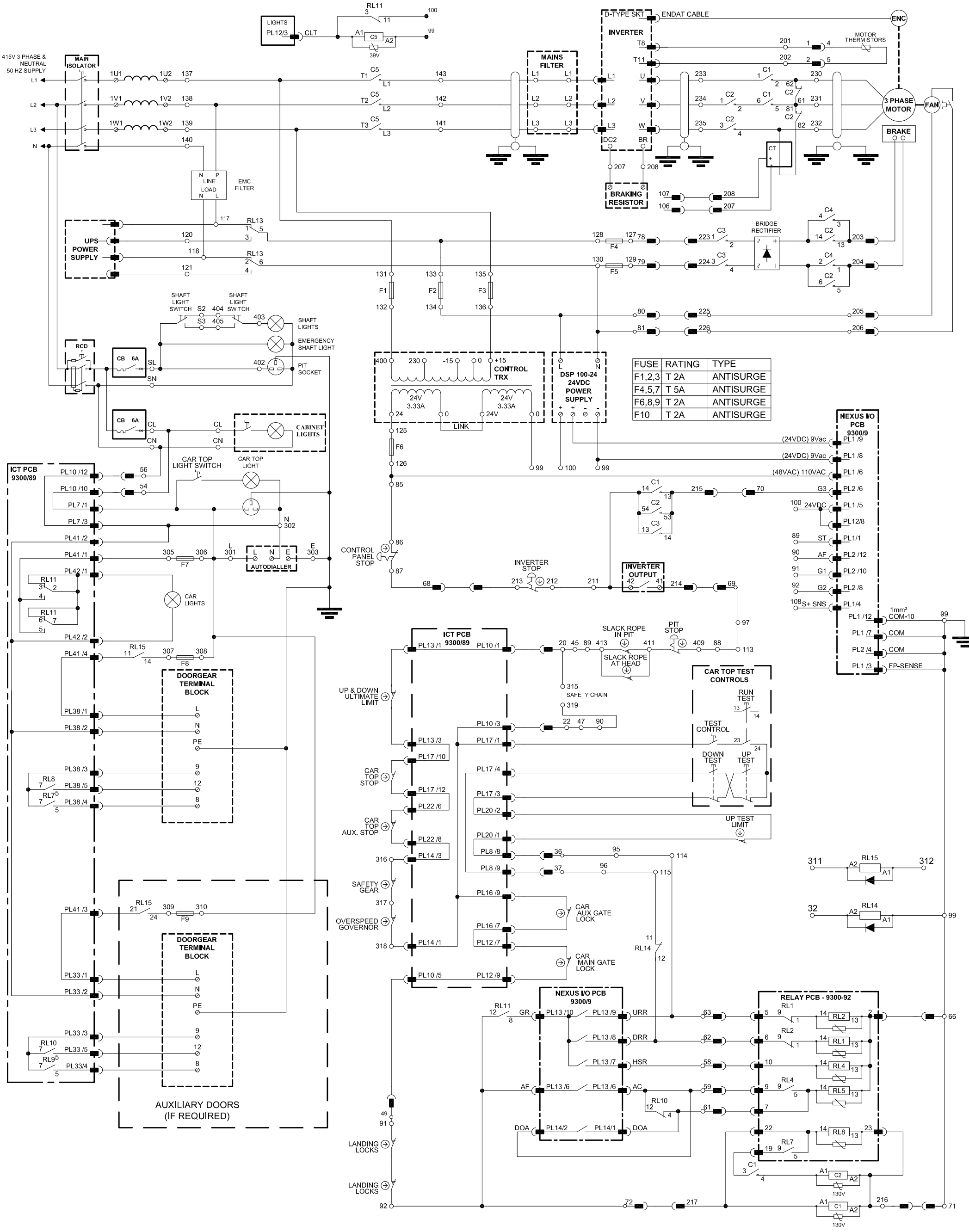
REV O: A3 ADDITIONAL AMMENDMENTS. ECN L5265. 08/03/12. GC
REV N: TERMINAL BOXES REDRAWN & TEXT UPDATED. UPDATED FOR A3 ADDITION. ECN L5126. 06/12/11. SAJ
REV M: SAFETY EDGE TERMINALS (326 to 328) AND THROUGH CAR TET CONTROL TERMINALS ADDED. 05/10/11 JN. ECN 5111
REV L: PUNCH CONTROL TERMINALS ADDED (95 to 97). 28/02/11 GC. ECN 4876
REV K: KEY POSITIONS CORRECTED, INVERTER TERMINAL BOX CONNECTIONS CORRECTED. 13/01/11 GC. ECN4732
REV J: DEFINITIONS FOR TERMINALS 315 TO 321 ADDED. 04/11/10 GC. ECN4732
REV H: ADDITION OF TERMINALS 142-144 FOR BREEAM, SHORT FLOOR TO TERMINAL 83 ADDED. 22/09/10 GC. ECN4714
REV G: UPDATED FOR NEW LOGO AND TEXT FONT. 04/08/10 JN.
REV F : BREEAM TERMINALS ADDED. 22/06/10 GC.
REV E : ADDED LINKS AND IDENTIFIERS. 19/01/10 GC.
REV D : ADDED CT TERMINALS AND RELAYS. 06/05/09 JN.
REV C : AS INSTALLED. 26/03/09 GC.
REV B : CURENT SENSOR ADDED. 16/02/09 GC.
REV A : AS BUILT STANDARD. 21/10/08 GC.

NAME: G.COOPER DATE: 27/08/08
CHECKED: K.CANTILLON DATE: 27/08/08

TRACTION MANUFACTURING DIAGRAM-
TERMINAL ASSEMBLIES
A3 BREEAM

Stannah
HEAD OFFICE:
Anton Mill
Andover Hampshire
SP10 2NX England
Tel: 01264 339090 Fax: 337942

DRAWING NO: 9336/13 REV: O



FUSE	RATING	TYPE
F1,2,3	T 2A	ANTISURGE
F4,5,7	T 5A	ANTISURGE
F6,8,9	T 2A	ANTISURGE
F10	T 2A	ANTISURGE

Rev E: A3 implementation AMMENDMENTS. 08/03/12 GC. ECN L5265
Rev D: A3 implementation. 10/01/12 MH. ECN L5126
Rev C: Fermator doorgear terminals added. 20/10/11 JN. ECN 5111
Rev B: Terminals 305 & 306 Transposed. 15/00/11. GC
Rev A: Punch terminals added 94-97.Relay R15 contcts added. 28/02/11. GC ECN 4875/4876

NAME:	G.COOPER	DATE:	13/01/11
CHECKED:	S.JACKSON	DATE:	13/01/11

TRACTION AC SCHEMATIC
A3 BREEAM

Stannah
HEAD OFFICE:
Anton Mill
Andover Hampshire
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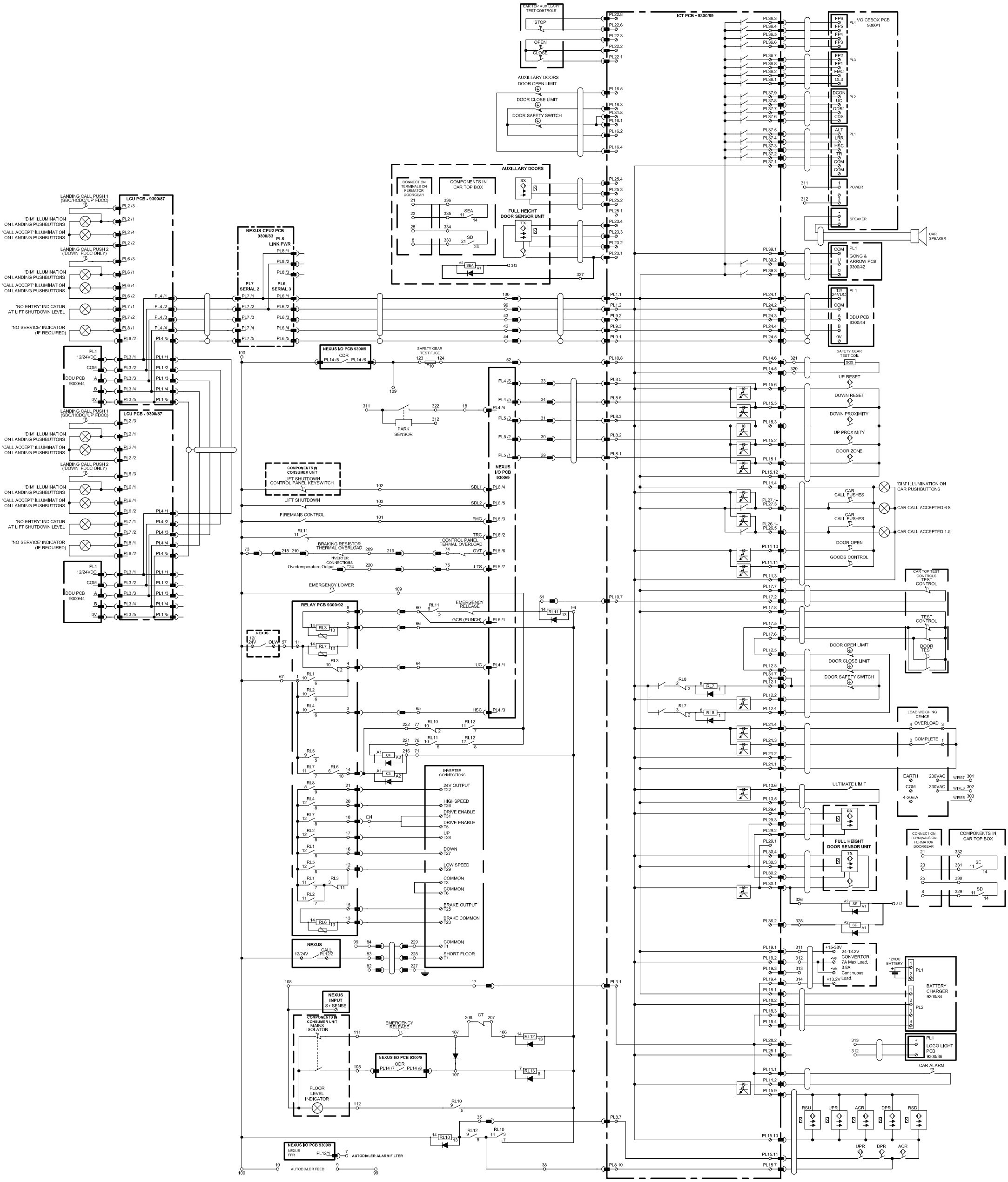
DRAWING NO: 9410/4 REV: E



REV K: AMMENDMENTS RELATING TO A3. ECN L 5265. 08/03/12. GC
REV J: UPDATED FOR A3 COMPLIANCE. ECN L 5126. 30/11/11. SAJ
REV I: FERMATOR DOORGEAR TERMINALS ADDED. 20/10/11 JN. ECN 5111
REV H: AUXILLARY CAR DOOR CONNECTIONS ADDED. 02/11/10 GC. ECN4732
REV G : C5 ADDED FOR BREEAM, PL2/21-23 REMOVED, PL12/2 ADDED FOR SHORT FLOOR. 20/09/10 GC. ECN4717
REV F : UPDATED FOR NEW LOGO AND TEXT FONT . CURRENT TX CONNECTIONS ADDED. 06/07/10 GC SAJ.
REV E : PL14 DESIGNATIONS CHANGED ON SAFETY SOLENOID.18/12/09 GC.
REV D : INVERTER TERMINALS T1 & T7 ADDED, RENAMED 'FLR' TO 'RL10' AND 'RL10' CHANGED CONTACT NUMBERS AROUND. 26/08/09 JN.
REV C : AS INSTALLED.15/04/09 GC.
REV B : CURRENT SENSOR ADDED.16/02/09 GC.
REV A : AS BUILT STANDARD. 21/10/08 GC.

NAME: D. CLARK	DATE: 27/02/08
CHECKED: K. CANTILLON	DATE: 21/05/08

TRACTION DC SCHEMATIC
A3 BREEAM

Stannah
HEAD OFFICE:
Anton Mill
Andover Hampshire
SP10 2NX England
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DRAWING NO: 9411/1 REV: K