



INSTALLATION TRAINING MANUAL

Zap[™] Models 800 and 8800 Series
QikFit[™] Jack Shaft Operators



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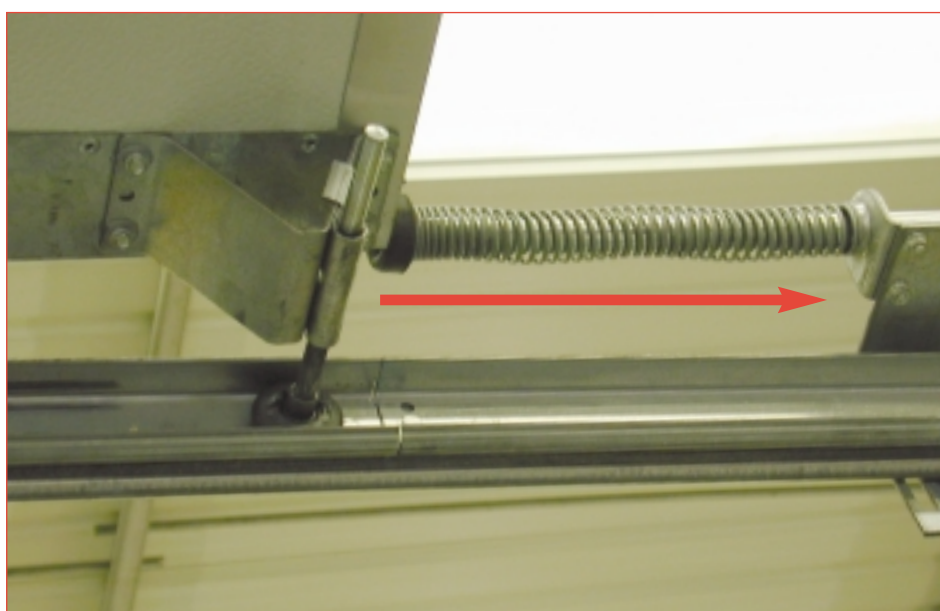
Patents Granted and Pending

The Zap Controls' range of Motor-Control Systems for Sectional Doors provides a new concept in safety control and the elimination of the inherent problems with a number of features with existing door operators.

The Zap 800 and 8800 series of low voltage DC Motor-Controls operate without limit switches and without a safety edge.

The control unit monitors the motor load and interprets a sudden increase in load as either an obstruction or the limit of door travel.

A set of buffer springs or leaf springs should be fitted at the fully open track position to provide a physical stop, which is sensed by the control unit.
(Pic 1)



Pic 1

The model 805, 815 & 816 include the model 800 control unit, the smaller Super-Drive Operator and a Manual Over-Ride kit. Optional clip-on motor cover kits are also available. **(Pic 2)**

(Pic 2) Model 805



The model 8805, 8815 & 8816 includes the model 8800 control unit, the larger Super-Drive Operator and Manual Over-Ride kit. **(Pic 3)**

(Pic 3) Model 8805



One man can easily carry out the installation of a Zap Super-Drive in significantly less time than that involved in fitting a conventional wall-mounting operator.

Models 816 & 8816 incorporate a chain hoist which is automatically engaged when the motordrive is released by the over-ride lever. The chain hoist provides an easier means of moving larger doors during a mains supply failure assuming a battery back-up unit is not fitted. **(Pic 4a & 4b)**

(Pic 4a) Model 816



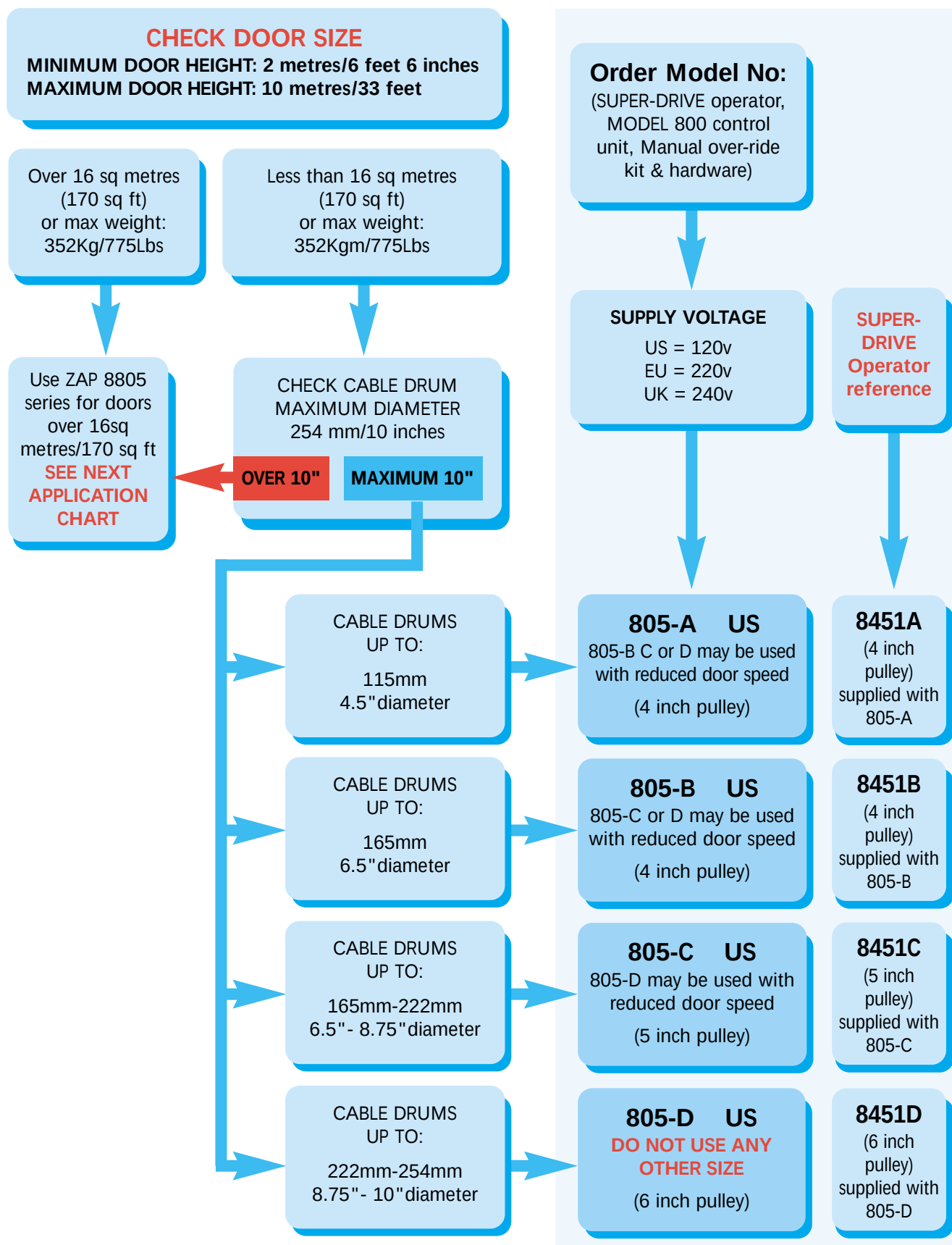
(Pic 4b) Model 8816



805 SUPER-DRIVES

(This chart also applies to the 815 and 816 Series)

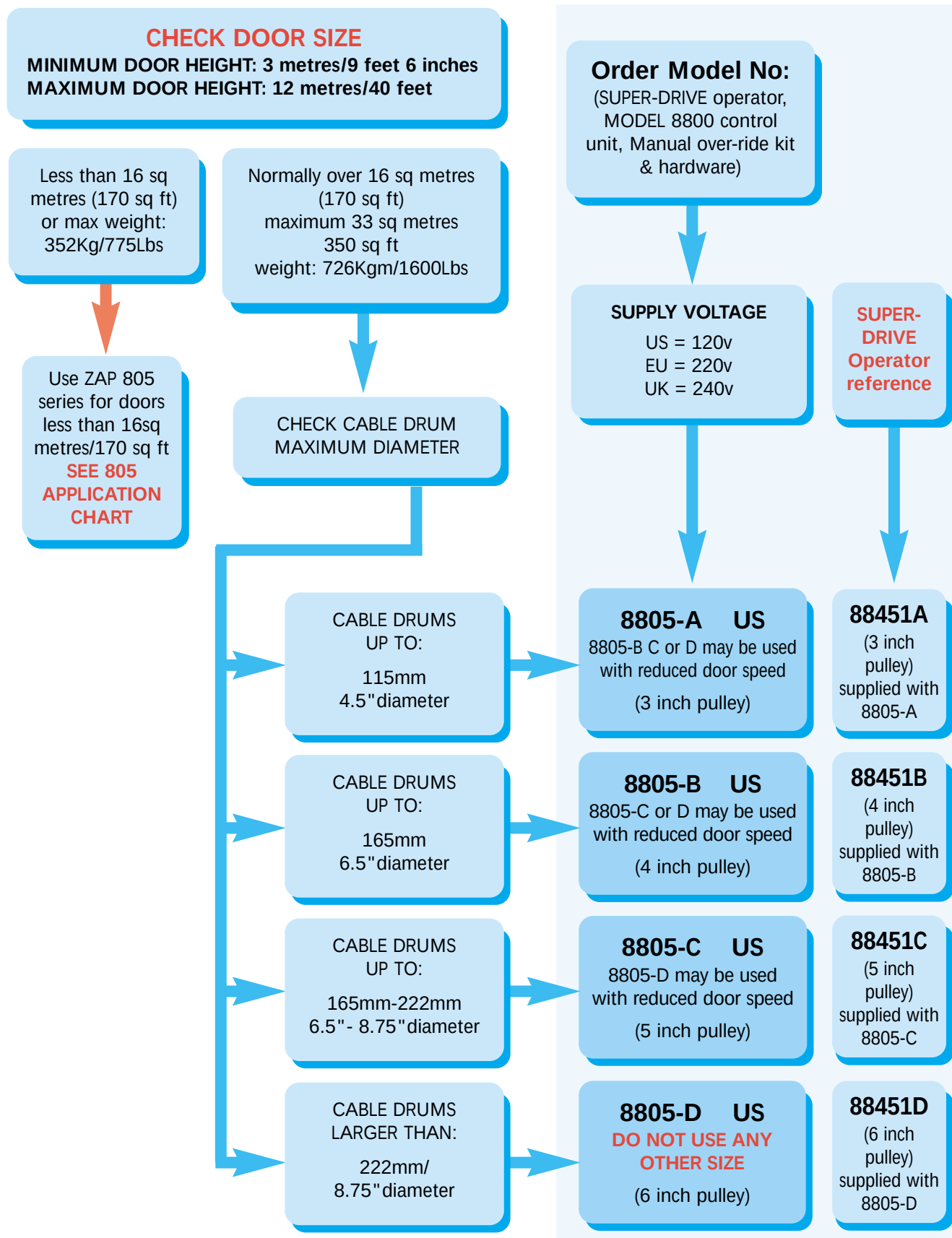
Application Chart for sectional overhead doors up to 16 sq metres (170 sq feet)



8805 SUPER-DRIVE

(This chart also applies to the 8815 and 8816 Series)

Application Chart for sectional overhead doors up to 33 sq metres (350 sq feet)



ZAP SUPER-DRIVE APPLICATIONS

This application chart also applies to 815/816 and 8815/8816 Series controllers

MODEL	MAX DOOR SIZE (SQ MTRS)	MAX DOOR SIZE (SQ FT)	MAX DOOR WEIGHT (Kgm)	MAX DOOR WEIGHT (Lbs)	MIN DOOR HEIGHT	MAX DOOR HEIGHT	MAX CABLE DRUM DIA (Across the flange)	DRIVEN PULLEY DIA
805-A	16	170	352	775	2 Mtrs/6.5'	10 Mtrs/33'	115mm/4.5"	100mm/4"
805-B	16	170	352	775	2 Mtrs/6.5'	10 Mtrs/33'	150mm/6"	100mm/4"
805-C	16	170	352	775	2 Mtrs/6.5'	10 Mtrs/33'	222mm/8.75"	125mm/5"
805-D	16	170	352	775	2 Mtrs/6.5'	10 Mtrs/33'	254mm/10"	150mm/6"
8805-A	33	350	726	1600	3 Mtrs/9.5'	12 Mtrs/40'	115mm/4.5"	76mm/3"
8805-B	33	350	726	1600	3 Mtrs/9.5'	12 Mtrs/40'	150mm/6"	100mm/4"
8805-C	33	350	726	1600	3 Mtrs/9.5'	12 Mtrs/40'	222mm/8.75"	125mm/5"
8805-D	33	350	726	1600	3 Mtrs/9.5'	12 Mtrs/40'	330mm/13"	150mm/6"

In the example below the door is 4 metres wide by 5 metres high, which is 13 feet by 16.4 feet giving a total area of 20 square metres or 213 square feet. This is above the maximum door size for the 800 series, which is 16 square metres or 170 square feet. Therefore the larger 8800 series will be required. (Pic 5)

The height of this door is 5 metres or 13 feet, which is above the minimum door height of 3 metres or 9.8 feet and below the maximum height of 12 metres or 40 feet for the model 8805.



Pic 45

Ensure that you have the correct size of Super-Drive for the flange diameter of the cable drums. (Pic 6)

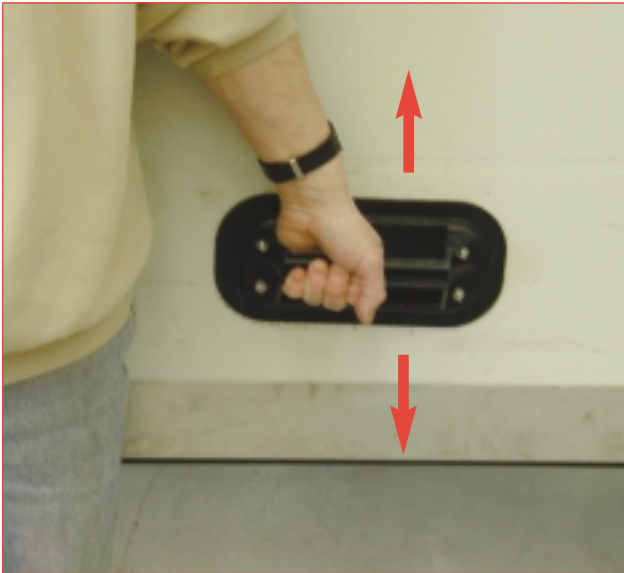


Pic 6

In our example the cable drums are 6 inches that is 150mm across the flange.

The correct size of Super-Drive is therefore size B

Ensure that the door is free to move by hand pressure. Check that it is balanced preferably with the spring tension biased slightly open. (Pic 7)



Pic 7

Counterbalance springs will weaken over time and the balance will become biased closed. The Zap obstruction sensing system automatically adjusts to changes in door balance over a period of time. However springs should be checked and adjusted on a service visit, at least every 2500 motor operations or 1250 door cycles, or every six months whichever is sooner.

A service-due reminder is provided in the control unit, which can be enabled to prompt the customer to call the installer after 2500 door operations. (see page 22)

If the door movement is stiff at any point, the roller wheels should be adjusted to allow the door to be moved by hand pressure without any significant force. Any misalignment of track sections should be corrected to ensure the door runs smoothly.

FITTING THE SUPER-DRIVE

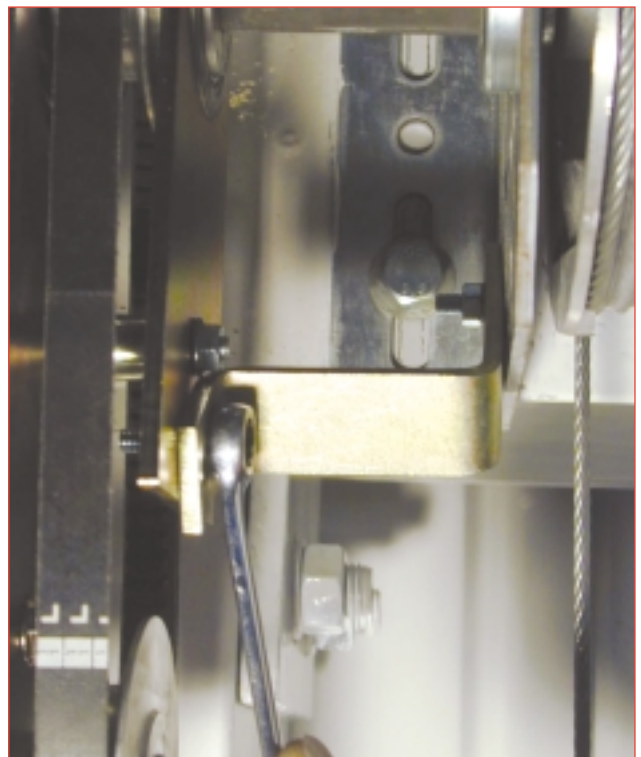
The Super-Drive kit includes an anti-torque arm, which is bolted to the Super-Drive back plate and linked to a spare hole on the jackshaft bearing plate or onto the door frame.

It is preferable to lightly screw the torque arm to the bearing plate hole or door frame securing point before mounting the Super-Drive. (Pic 8)



Pic 8

Now slide the Super-Drive assembly onto the door shaft and bolt the torque arm to the Super-Drive back plate. (Pic 9)



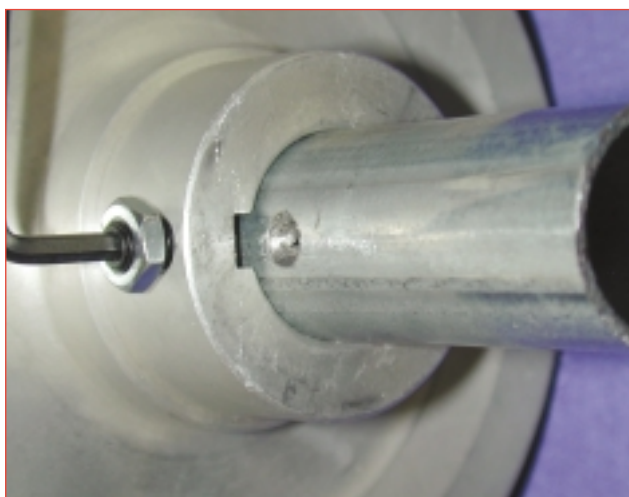
Pic 9

Align the Super-Drive keyway with the door shaft keyway and fit the key supplied with the package. Ensure that the allen screw is firmly tight and then tighten the lock nut. (Pic 10) overleaf.



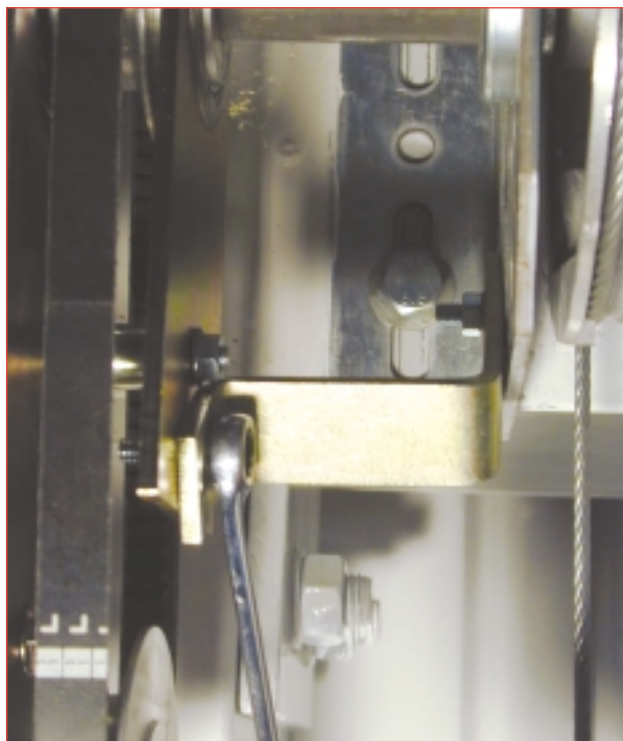
Pic 10

The wall of a hollow door shaft should be drilled with a 6mm, or 1/4 inch drill bit. This must be done without breaking right through the shaft and will provide a seat into which the allen screw can be seated to lock the pulley to the shaft. The lock nut should then be tightened to lock the allen screw into position (**Pic 11**)



Pic 11

Now tighten the torque arm screws then secure the 805 or 8805 Manual Over-Ride chain to the motor plate with a D shackle. (**Pic 12 & 13**)



Pic 12



Pic 13

FITTING THE MANUAL OVER-RIDE LEVER

Mark the hole positions for the Manual Over-Ride lever on the doorframe approximately shoulder height from the floor. Drill two M5 or 7/32nd of an inch size holes (**Pic 14**) overleaf.



Pic 14

Fit the M5 screws provided with the screw heads on the side of the lever plate. Fit shake-proof washers and M5 nuts.

Secure the hook in a convenient link of the chain or cable D-shackle if the 815, 816, 8815 or 8816 are installed. (**Pic 15**)



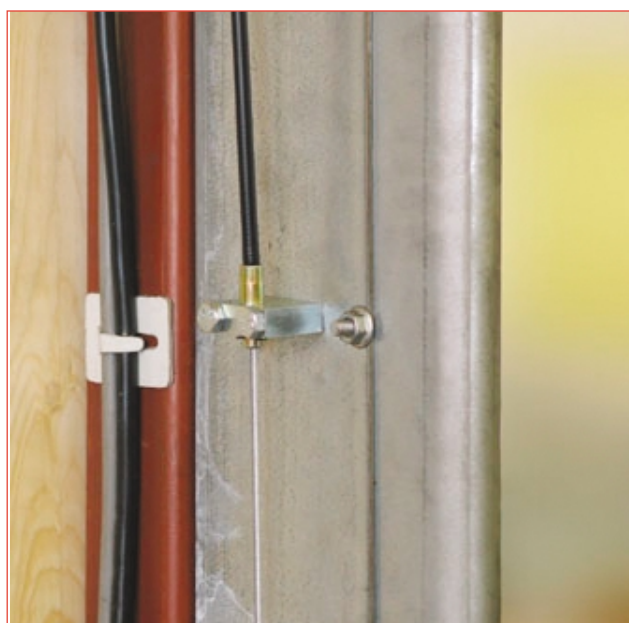
Pic 15

If the 816 or 8816 series over-ride cable is not long enough for the height of the door then the cable can be extended using the accessory length of chain supplied. (**Pic 16**)



Pic 16

The cable post, which secures the cable outer sheath is fixed to the door frame using two M6 screws and flange nuts supplied. Drill two M6 or 1/4 inch holes in the door frame in a position at least 50mm or two inches higher than the fully extended position of the outer cable, as the chain hoist slide block will slide up and down with the cable sheath as the over-ride lever is operated. (**Pic 17**)



Pic 17

Ensure that the lever is horizontal when the tension is taken up. (**Pic 18**) overleaf.



Pic 18



Pic 19

It is important that sufficient tension is achieved to ensure that the drive belt does not slip on either of its pulleys. The lever should require reasonable hand pressure to lock it into place. The lever hook position is adjustable to allow the Super-Drive V-Belt to be correctly tensioned. Adjust the hook position to increase, or decrease tension by screwing it in or out of its bush. **(Pic 18 & 19)** Showing arrow pointing to bush.

When the lever tension is correct push the lever completely down to correctly tension the V-Belt drive. **(Pic 20)**



Pic 20

Note that the 816 & 8816 manual over-ride lever will simultaneously engage and disengage the chain hoist as the v-belt drive is disengaged and engaged by operation of the lever.

FITTING THE CONTROL UNIT

Check that the control unit supply voltage is correct.

The control unit model number has a suffix, which relates to the supply voltage.

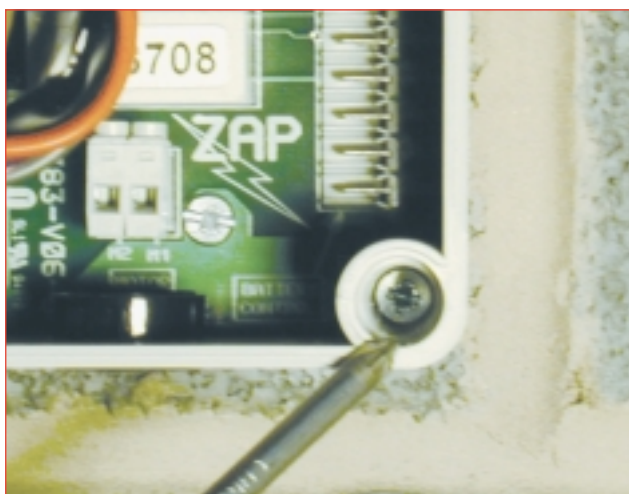
US is 120 volts

EU is 220 volts

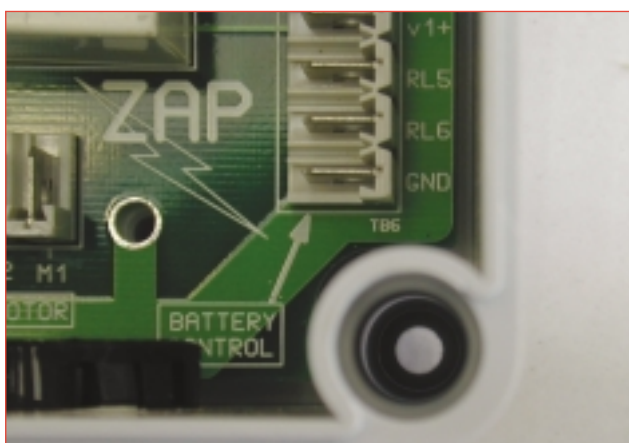
UK is 240 volts

The control unit will operate on 50 or 60 cycle single-phase supplies.

The control unit is mounted in a convenient position with screws passed through the mounting holes in the corner pillars, which are outside of the waterproof gasket. **(Pic 21 & 22)**



Pic 21



Pic 22

Do not drill holes in the back of the case, as this is liable to allow water ingress and cause damage to the back of the printed circuit board.

Site the control unit so that any conduits are routed to the BOTTOM of the case. DO NOT drill the top or sides of the case as condensation within the conduit will run down onto the panel and cause operating problems and probable damage. We recommend the use of 20mm or 0.8 inch glands as these will match the pre-drilled holes in the bottom of the case.

(Pic 23)

If the printed circuit board has to be removed from its case, ensure that it is handled with care and not placed on its back on any hard surfaces as this may damage the ceramic surface mount components on the rear of the printed circuit board



Pic 23

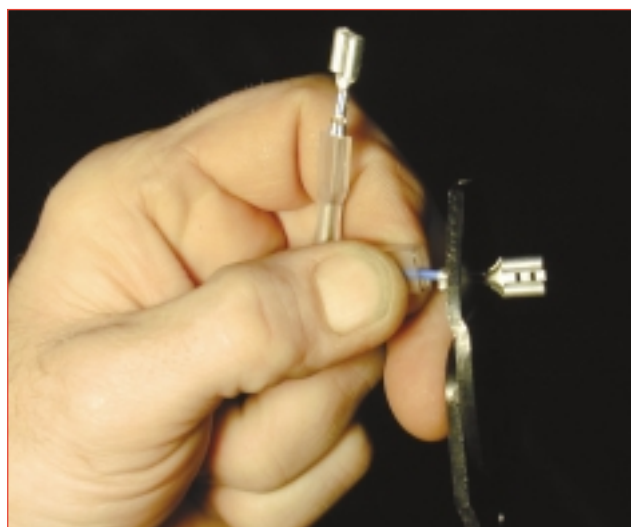
The control unit lid can be temporarily secured to the case side screw positions to prevent it hanging by the cables during the setting up process. **(Pic 24)**



Pic 24

The motor cable should be fitted next either using a Zap pre-terminated cable or by using standard two core cable rated at least at 15 amps. The cable should be a minimum of .75 SQ MM or 18 AWG. The Zap pre-terminated cable harnesses are model No. 8035 for the 800 series of systems and model No. 8036 for the 8800 series of systems.

Two crimp connectors and insulating sleeves are provided for terminating your motor cable if the Zap Motor Cable is not utilized. Strip the insulation 6mm or 1/4 inch from each wire and fit the sleeves first before crimping the terminals. Ensure that both the wire crimp and the insulation crimps are firmly tight. Pre-insulated terminals are not recommended as the wire crimp section of the terminal may be inadvertently crimped to the insulation rather than the bare wire. (Pic 25)



Pic 25

The polarity of the motor cable connections will depend on whether the motor is mounted at the right side or left side of the door. Please refer to the Installation Instruction booklet if necessary.

The motor terminals are at the bottom right hand side of the panel. NOTE THAT ALL TERMINALS ARE PLUG-IN FOR EASE OF WIRING and that all terminal functions are labeled on the panel. (Pic 26)

However you may connect the cable bearing in mind that the polarity of the two wires may have to be reversed at the control unit terminals, if the door runs in the opposite direction to that of the control unit push buttons.



Pic 26

FITTING THE MOTOR COVER KIT

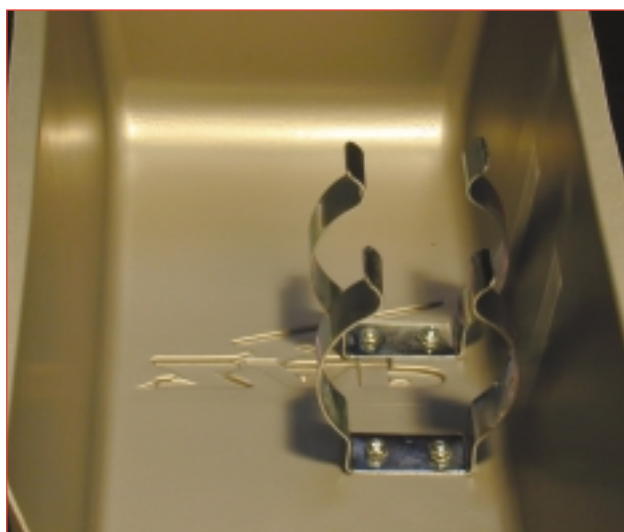
Two types of motor cover kits are available:

- The model 8042 fits the range of 805 and 815 Super Drives.
- The model 8052 fits the range of 8805 and 8815 Super Drives.

The fitting sequence is the same for both types.

The kit includes two motor clips with a set of screws and nuts.

The clips are fitted to the inside of the main cover. Pass the screws through the cover holes from the outside. Secure the assembly in position with the shake proof washers and nuts provided. (Pic 27 & 28) overleaf.



Pic 27



Pic 28

The cover is then clipped onto the Super-Drive motor. (**Pic 29 & 30**)



Pic 29



Pic 30

The back plate is then fitted to the cover flange using the U clips supplied. (**Pic 31**)



Pic 31

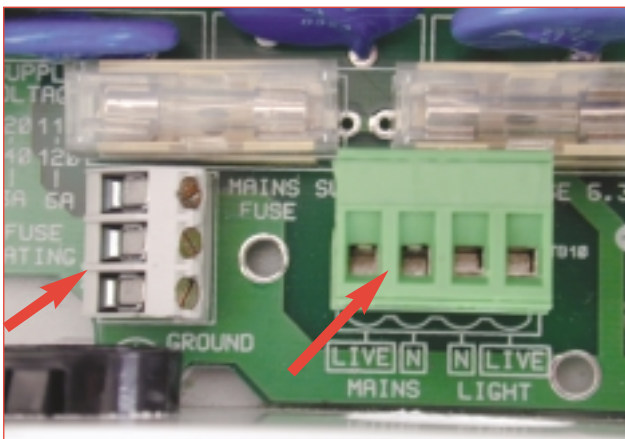
FITTING THE MAINS SUPPLY CABLE

The Mains supply cable should be fitted next. The three-core cable should be rated at 10 Amps continuous.

The Live and Neutral wires are connected to the two left-hand terminals of the GREEN Mains supply connector on the panel.

The Earth or Ground wire is connected to one of the terminals of the GROUND terminal block.

(Pic 32)



Pic 32

If the Lighting output is to be used to operate a Dock Light or a Flood light then the lighting wires should be routed to the two right hand terminals of the GREEN supply connector. The lighting circuit wiring should be rated at 10 Amps.

If the Lighting output is to be used, then the lighting MODE switch No. 6 should be set as required. The 6 way DIP switch is located at the top right hand side of the printed circuit board panel.



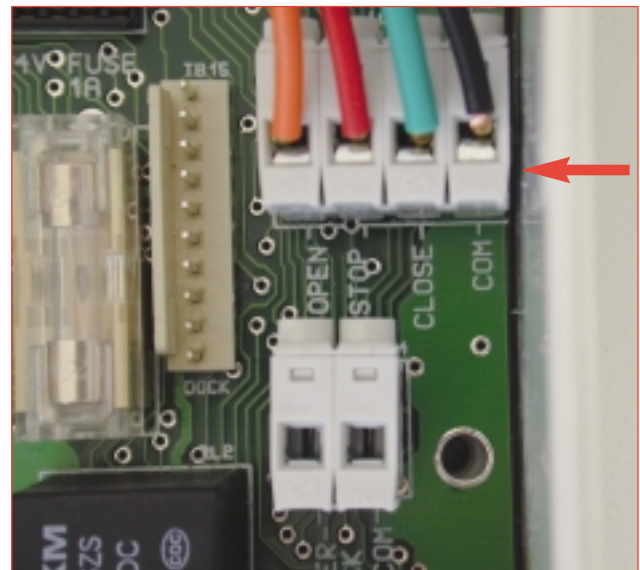
Pic 33

DIP switch No.6 should be set to the OFF position if the light is required to switch on when the door is operated and turn off three minutes from the last operation.

Switch No. 6 should be switched ON if the light is required to switch ON when the door is opened, the light will switch OFF when the door is closed.

This mode of operation is normally used for a Loading Bay Dock light.

If a Remote Push Button station is to be fitted then both the OPEN and CLOSE push buttons may be wired in Parallel with the case mounted buttons and terminated in the push button connector on the printed circuit board. (Pic 34)



Pic 34

The remote STOP push button should be wired to the interlock terminals and the interlock over-ride switch No. 3 should be set to the off position. A model 871plug-in module may be used to terminate a remote button station for easier wiring. (See page 19)

TESTING THE DOOR OPERATION

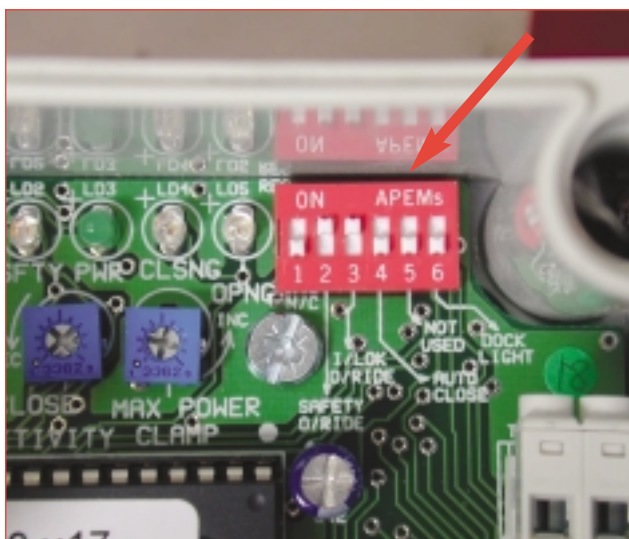
When the basic wiring is complete the door operation may be tested. Switch on the mains power and note that the power indicator LD3 is illuminated. (Pic 35)



Pic 35

Note the factory set positions of each of the DIP switches at the top right hand side of the panel will be: (Pic 36)

SW1	SAFETY MODE:	OFF/N/C
SW2	SAFETY OVER-RIDE:	ON
SW3	INTERLOCK O/RIDE	ON
SW4	AUTO-CLOSE:	OFF
SW5	NOT USED.	
SW6	LIGHTING MODE:	OFF



Pic 36

Release the Manual Over-Ride lever and move the door to a part open position, then re-engage the lever.

Now press the control unit OPEN push button.

If the door moves in the open direction then the motor wiring polarity is correct.

If the door moves in the close direction press the stop button, isolate the mains supply and reverse the two motor wires in the control unit terminal block.

Release the Manual Over-Ride lever and move the door back to the fully closed position, then re-engage the lever.

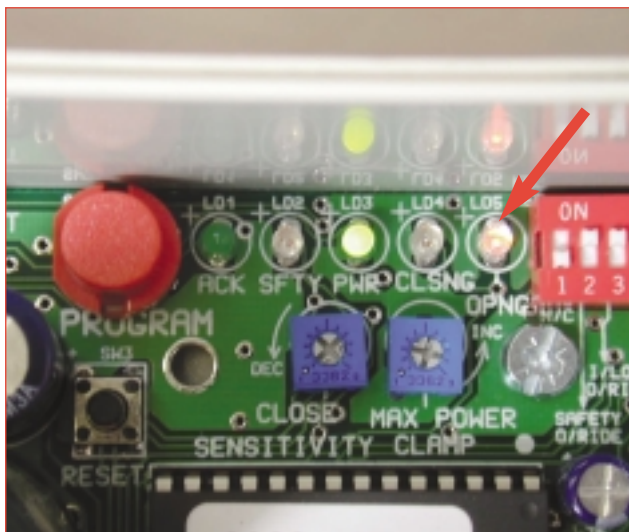
DOOR SPEED CHANGE POINT CALIBRATION

After closing the door the microprocessor reference for the door start position should be reset either by pressing the black reset button or by isolating the mains supply for at least 10 seconds. (Pic 37)



Pic 37

Now press the control unit OPEN push button. Note that the opening LED is illuminated whilst the door is opening. (pic 38) overleaf.



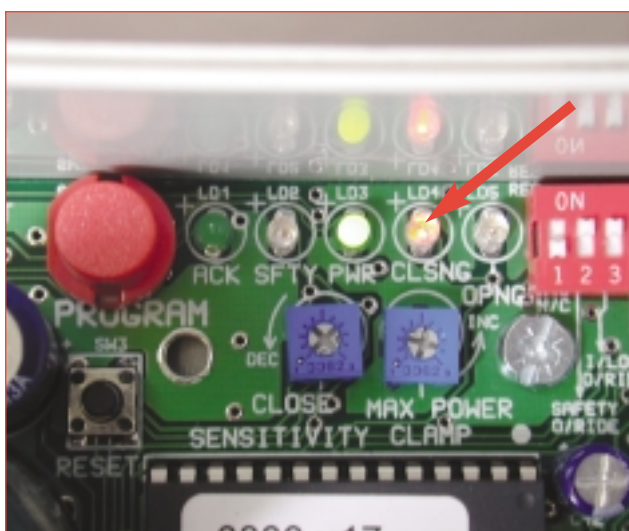
Pic 38

The door will run in fast speed for a few seconds then change to slow speed and stop when it compresses the buffer springs or leaf springs.

The microprocessor now knows the door opening height and will calibrate the speed change point after the next run, until it is set a few seconds from each limit of door travel

Now press the CLOSE push button.

Note that the CLOSING LED, LD4, is illuminated whilst the door is closing. (Pic 39)



Pic 39

After the door has stopped, press the OPEN push button again.

Note that after the second open and close door cycle the microprocessor continually updates and stores the door position in the controllers memory and the speed change point will be maintained within a few seconds from each limit of door travel.

If the roller wheels are too tight or if there is some damage to the door track then the door may stop before it reaches the limit position. If track damage or stiffness is minimal then the motor power may be increased to overcome the restriction by adjusting the MAXIMUM POWER CLAMP preset control slightly anti-clockwise.

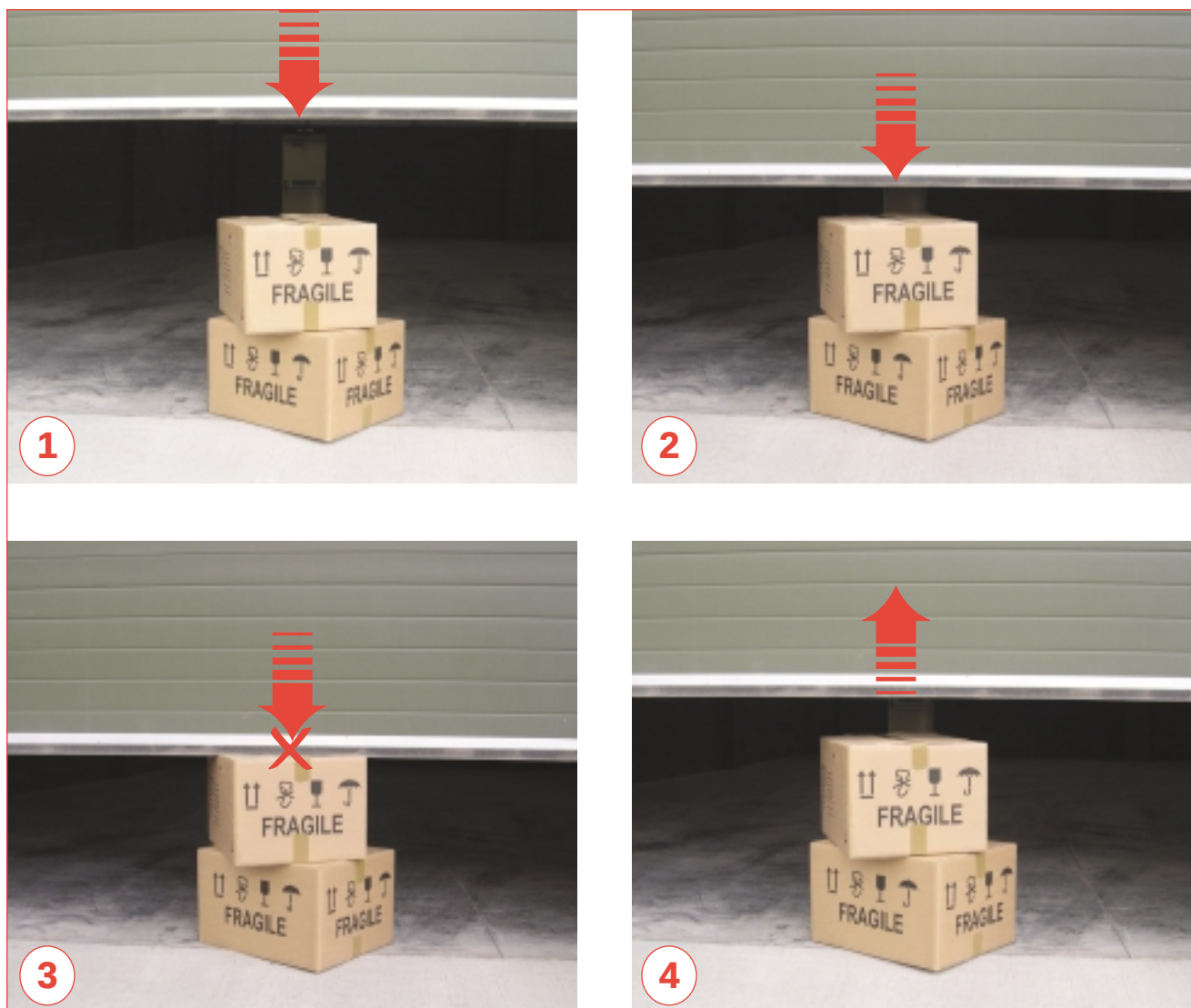
(Pic 40)



Pic 40

The adjustment direction relates to the analogy of the operation of a water tap. A tap is generally turned anti-clockwise to increase the water flow. Likewise if the control is turned anti-clockwise it will allow an increase in current to flow to the motor and consequently provide extra power to move the door.

The sensitivity of the door detecting an obstruction in fast speed in the CLOSE direction may be adjusted with the CLOSE SENSITIVITY preset.



Pic 41

If it is required to increase the obstruction sensing capabilities of the control unit if the door strikes an obstruction during the fast speed run of the close cycle, then this adjuster should be turned further clockwise. Please note that this will also increase the possibility of the controller reacting to slight abnormalities in the track, these may cause fluctuations in the motor current and this may result in the door stopping and re-opening. (Pic 41)

The close sensitivity preset should be turned clockwise to increase sensitivity and make the door more sensitive to obstructions. (Pic 42)



Pic 42

Both preset controls are factory set to the one o'clock position. Providing the door runs smoothly by hand in both directions it is unlikely that you will need to adjust these presets.

During a build up of snow and ice for example, the door speed change point will automatically recalibrate to account for the new ground position.

If the door strikes an abnormal obstruction twice in the same position then the speed change point will recalibrate to account for the change. For example where a pallet has been left in a position obstructing the closing door. **(Pic 43)**



Pic 43

This feature also takes care of recalibration of the door position if it has been moved by hand during a power supply failure. The speed change points will automatically recalibrate with reference to the new limit of door travel positions following manual repositioning of the door.

A significant advantage of the Zap drive system with its fast obstruction sensing, is that when an object obstructs the doors travel, the cables will probably never jump off the cable drums.

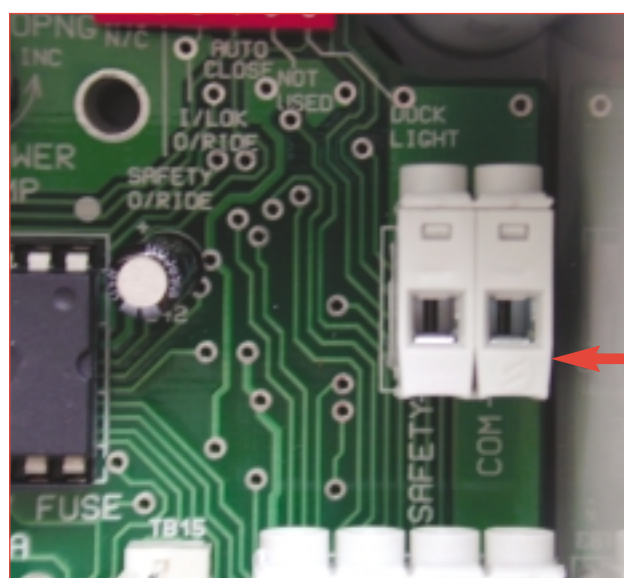
SAFETY CIRCUIT WIRING

If the door is to be operated without any safety devices then the SAFETY OVER-RIDE SWITCH, DIP switch No. 2 should be set to the ON position.

However if it is required to operate the door close function in DEAD MAN or PUSH TO RUN mode then the safety over-ride switch should be set to the OFF position.

The door will then stop if the CLOSE button is released while the door is closing.

If a safety device such as a Photo-Beam is to be fitted then the SAFETY OVER-RIDE switch, DIP Switch No. 2 should be set to the OFF position. This provides a Safety STOP and RE-OPEN control of the door if the safety circuit becomes active whilst the door is closing.

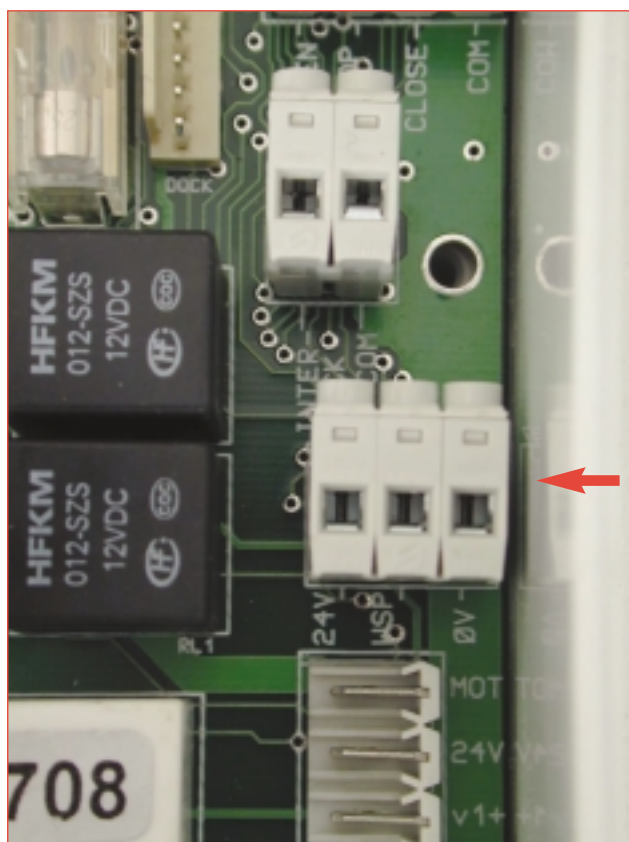


Pic 44

If a Photo-Beam with a Normally Closed relay circuit is fitted then the relay contact wires are connected to the SAFETY terminals at the top right hand side of the panel. **(Pic 44)**

If two or more Photo-Beams, or any other safety devices are fitted then each switching circuit should be wired in series.

A 24-volt Photo-Beam or other accessory may be powered from the 24-volt DC accessory supply terminals at the lower right hand side of the panel. The 24-volt accessory supply may be used to power other accessories such as a Magnetic Loop Detector, Radar units or an accessory radio receiver (non Zap). **(Pic 45)** overleaf.



Pic 45

The range of Zap Photo-Beam units have been designed for universal supply operation. They can be powered from 12 to 240 volts DC or 24 to 240 volts A/C.

Each time the Safety circuit is activated LED LD2 will illuminate. This is useful when testing the operation of the photo-beam or other safety device without running the door. (**Pic 46**)



Pic 46

In Europe it is necessary to arrange for the safety circuit to be monitored for both an open circuit and a short circuit in which case the circuit must include an 8.2 K resistor at the furthest point in the external circuit.

DIP Switch No. 1 should be set to ON which is the position marked RES for resistive.

When the circuit is to be operated as Normally Closed then DIP switch No. 1 should be set to OFF. This position is marked N/C on the panel for Normally Closed.

If the safety circuit is interrupted whilst the door is operating with the Auto-Close timer DIP switch No. 4 set to ON then the timer will reset during each interruption of the safety circuit, whilst the door is open.

INTERLOCK CIRCUIT WIRING

A pair of terminals is provided to enable a pass door switch or a key switch to be interlocked to the control unit, to prevent the main door opening if the interlock terminals are open circuit.

An Inter-Lock Over-ride switch, DIP switch No. 3, is provided if the interlock circuit is not used.

A Slide Lock switch may be fitted and wired to the interlock terminals. However this is not essential as the Control unit will detect the obstruction and stop the door if the slide lock is left in the locked position.

AUTO-OPEN ACCESSORIES

Where it is required to automatically open the door by the operation of an accessory device such as a Magnetic Loop vehicle detector, a Radar unit, a Photo-Beam unit or other remote switch then the Normally Open switching circuit of the device should be connected in parallel with the OPEN push button wiring at the panel terminal block.

One wire should be connected to the OPEN terminal together with the OPEN push button wire from the case lid button. The other wire should be connected to the COMMON terminal with the existing common wire.

Alternatively a Zap model 871 plug-in module can be fitted. This incorporates separate open, stop and close terminals for direct wiring of accessories such as a remote push button station, magnetic loop detector and radar units etc.

ACCESSORY RADIO RECEIVER WIRING

If a three wire accessory radio receiver is to be used with the system to OPEN the door and the CLOSE function is under the control of the Auto-Close timer, then the radio receiver 24 volt supply wires may be connected to the 24 volt accessory supply terminals on the panel and the third wire, which is the switching wire, should be connected with the existing OPEN push button wire in the OPEN terminal of the push button panel terminal block

The Auto-Close function is enabled by setting DIP switch No. 4 to the ON position. The default auto-close time is 15 seconds. This can easily be reprogrammed for a delay of 2 seconds to 3 minutes. Re-programming the Auto-Close function is covered later.

If a two function accessory radio receiver is to be used with the system to OPEN and CLOSE the door, then the OPEN and CLOSE switching wires from the radio should be connected to the case lid push button OPEN and CLOSE wires in the panel terminal block.

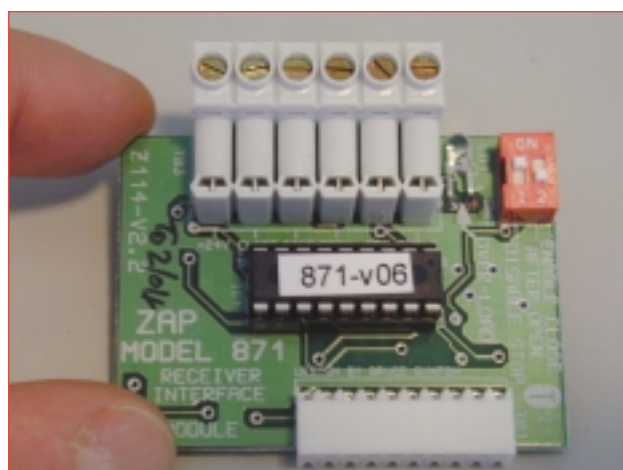
The 24 volt supply wire should be connected to the 24 volt accessory supply terminal on the 3-way terminal block. The Common wire should be connected to the 0 volt terminal.

If a 3 function accessory radio receiver is to be used with the system to OPEN, CLOSE and STOP the door, then the OPEN and CLOSE switching wires from the radio should be connected with the case lid OPEN and CLOSE push button wires in the panel terminal block. The two wires from the receiver STOP relay should be connected to the control panel INTERLOCK terminals and the INTERLOCK OVER-RIDE switch should be set to the OFF position.

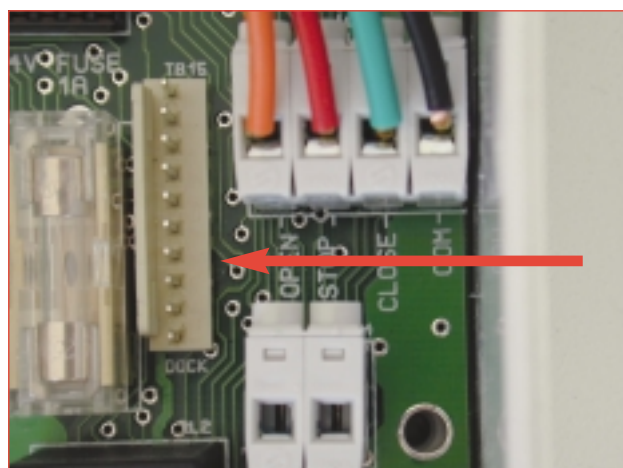
The 24 volt supply wire should be connected to the 24 volt accessory supply terminal on the 3-way terminal block. The Common wire should be connected to the 0 volt terminal.

ACCESSORY RADIO RECEIVER INTERFACE MODULE 871

If an accessory three-wire remote control radio receiver is required to provide a cyclic operation to OPEN, STOP and CLOSE the door, then a model 871 Interface module should be fitted to the white 10-way connector on the panel. (Pic 47 - 49)



Pic 47



Pic 48



Pic 49

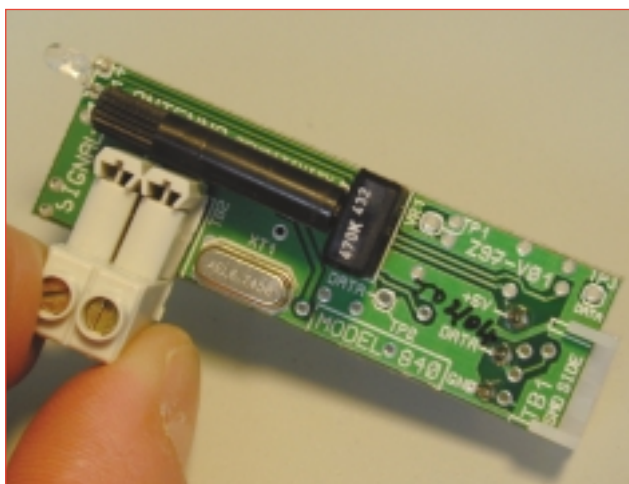
The module terminal block provides a 24-volt supply for the accessory radio receiver and a cycle switching terminal for the third wire of the accessory radio.

Two and three function accessory receivers may also be used with the 871 Interface module for the convenience of simple wiring. Separate terminals are provided for OPEN, STOP and CLOSE switching functions.

A DIP switch is provided to over-ride the STOP function if a separate STOP facility is not available on the radio receiver.

A second DIP switch inhibits a CLOSE operation until the door is fully open.

ZAP MODEL 840 PLUG-IN RADIO RECEIVER



Pic 50

The Zap 840 Radio Receiver (**Pic 50**) simply plugs into the 3-way socket at the left side top edge of the panel. (**Pic 51**)



Pic 51

Two optional aerials or antennas are available. An internal antenna model 2416, plugs into the radio antenna socket and lies along the left hand side of the panel just below the case lid.

(**Pic 52**)



Pic 52

If the optimum operating range is required then model 2414 wall mounting antenna kit should be fitted. The antenna should be mounted on the outside wall of the building in close proximity to the door. The antenna cable should be routed through the bottom of the control unit case and along the left-hand side of the panel to the receiver antenna connector. (Pic 53 & 54)

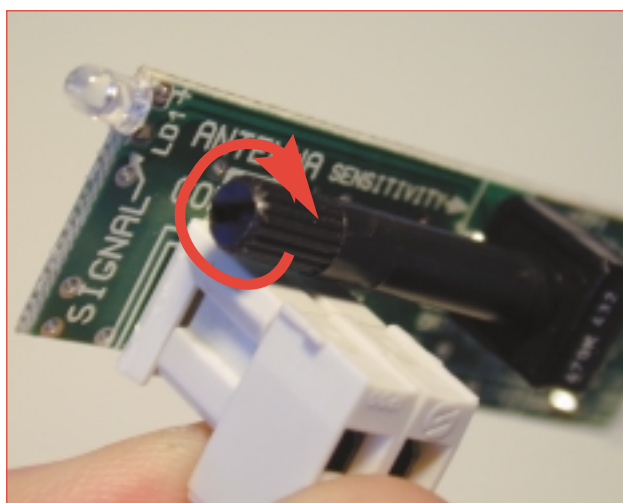


Pic 53



Pic 54

The receiver incorporates a sensitivity control to limit the maximum operating range if necessary. The control should be turned clockwise to provide maximum sensitivity and maximum range. (Pic 55)



Pic 55

The operation of a number of different doors is achievable by using the Zap Radio System with one of a variety of multibutton transmitters, a single button of which is programmed to operate each door. (Pic 56)



Pic 56

The normal transmitter operation with the Auto-Close DIP switch No. 4 set to the OFF is PRESS TO OPEN - PRESS TO STOP - PRESS TO CLOSE - PRESS TO STOP.

If the Auto-Close operation is selected with the Auto-Close DIP switch No. 4 set to ON then the remote control operation will only OPEN the door. The CLOSE function is under the control of the Auto-Close timer.

The Auto-Close time delay will be reset if the transmitter button is pressed while the door is in the fully open position.

An initial momentary press of the transmitter button will switch on the lighting relay without moving the door. The lights will turn off after three minutes.

An initial press of the transmitter button longer than 1 second will switch on the lighting relay and move the door.

The model 840 Radio Receiver incorporates an LED signal indicator and provides storage for up to 60 different transmitter codes, these are retained during a power interruption.

MODEL 850 PLUG-IN BLEEPER MODULE

An optional plug-in Bleeper module is available, which provides a prompt for the customer to call the installer when the door service due reminder is activated. It also provides audible interrogation of a built-in door operations counter, provides a warning prior to a door movement, and provides an audible prompt during programming of a number of operating options, such as the auto-close timer

The Bleeper also sounds in conjunction with the ACKNOWLEDGE Light Emitting Diode Indicator or L.E.D. (Pic 57)



Pic 57

The Bleeper module plugs into the small 3-way socket at the top left hand side of the panel. (Pic 58)



Pic 58 Bleeper shown fitted to model 8800 (The bleeper socket is in the same position on the model 800 controller)

PROGRAMMING

The following functions can be programmed using the Program Button, which is located at the top of the panel. (Pic 59)



Pic 59



When the program button is pressed and held a sequence of flashes of the Acknowledge LED follows at 4-second intervals. If the Bleeper is fitted then the Bleeper sounds with the flashes of the LED.

The first flash or bleep indicates the remote control transmitter program mode.

The second flash or bleep indicates the Auto-Close timer program mode.

The third flash or bleep indicates the Close Delay program mode, which allows the optional Warning Speaker to sound before the door starts to close.

The fourth flash or bleep indicates the transmitter code memory erasure mode.

The fifth flash or bleep indicates the door part-open program mode

The program button should be released after the appropriate flash or bleep to enter the required program mode.

All of the programmed functions are stored in a non-volatile memory, which is retained during a power interruption.

TRANSMITTER CODE PROGRAMMING

To program a transmitter code into memory:

First press and hold the required transmitter button. Then press and hold the Program button.

Release the program button after the first LED flash or bleep.

Two flashes or bleeps confirm that the code has been stored into memory.

Now release the transmitter button.

Three flashes or bleeps indicate that no code data was present in which case repeat the programming sequence.

Up to 60 transmitter codes can be stored in memory. In which case repeat the programming sequence for each of the new transmitters.

To erase all transmitter codes: Press and hold the Program button and release it after the FOURTH flash or bleep.

Two flashes or bleeps acknowledge that all of the transmitter codes have been erased.

AUTO-CLOSE TIMER PROGRAMMING

The factory set Auto-Close timer delay is 15 seconds.

In order to confirm the operation of the Auto-Close timer first set DIP switch No. 4 to ON. Then press the OPEN push button. The door will open and re-close after the time delay.

To change the time delay first ensure that DIP switch No. 4 is set to the ON position and that the door is fully closed.

Now press and hold the program button. Release the button after the SECOND flash or bleep.

Next press the OPEN push button.

After the door has fully opened and after the required delay press the CLOSE push button. This new delay is now stored into the memory and will be retained during any power interruptions.

A sequence of 6 flashes and bleeps follow to prompt you to decide if you want the door to auto-close regardless of the door reopening after striking an obstruction.

It is preferable that the door should reopen and stay open following an obstruction strike. However it may be required for security reasons, when used as a car wash door for example, that the door should auto-close after reopening after hitting a large build-up of snow and ice in winter, in which case it will make two attempts to close onto the ice. On the third run it will then stop on the ice.

If you require the door to Auto-Close regardless of obstructions then press the close button a second time during the 6 flashes and bleeps.

If the CLOSE button is not pressed during the flashes and bleeps the controller will default to stay open after an obstruction reopen sequence.

If it is required to change the programmed delay then repeat the programming sequence.

PROGRAMMING USING THE CASE LID BUTTONS

A Door OPERATIONS counter is incorporated. The number of door operations can be counted more easily by fitting the plug-in Bleeper module, which sounds in conjunction with flashes of the Acknowledge LED indicator.

The Door OPERATIONS counter may be used at any time by pressing and holding both the STOP push button and the OPEN push button and releasing them after a bleep is heard.

The bleeper will then indicate the total door operations since the door was installed by sounding long bleeps for 1000's of operations and short bleeps for 100's of operations.

Two long bleeps and three short bleeps for example indicate that the door has completed 2300 operations. If there is not response after releasing the buttons the door has completed less than 100 operations.

A SERVICE DUE reminder is incorporated in the control unit. This prompts the customer to call the installer when the door requires servicing.

The SERVICE DUE reminder operates after 2500 door operations, which equates to a six month service period for an average door operating ten times each day.

The SERVICE DUE reminder is NOT enabled during manufacture. It may easily be enabled during the installation by pressing and holding the STOP pushbutton. Then press and hold the OPEN button.

Release the buttons after the SECOND bleep.

Two bleeps confirm that the SERVICE DUE reminder is enabled.

The SERVICE DUE reminder can be reset during the service visit by repeating the enable sequence.

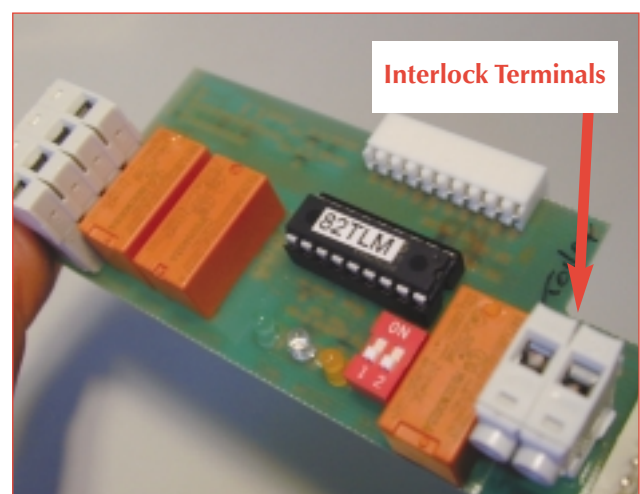
AUTO-CLOSE STAY OPEN PROGRAMMING

If the Auto-Close DIP switch No. 4 is set to the ON position to provide Auto-Close operation of the door and it is required to disable the auto-close function for example when it is required to hold the door open on a warm summers day, then the Auto-Close can be temporarily disabled by opening the door and waiting for the door to stop in the open position. Then press and hold the STOP button, then press and hold the CLOSE button. Release the buttons after the bleep. (The analogy being - STOP CLOSING).

The Auto-Close function will operate normally after the door is next closed using the close push button.

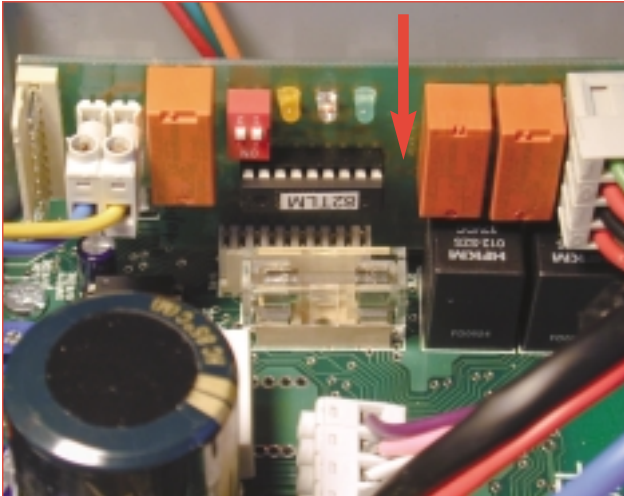
TRAFFIC LIGHT CONTROL

The optional plug-in Traffic Light Control module 82 TLM is available, this also incorporates an interlock relay. (Pic 60)



Pic 60

The Traffic Light Control module plugs into the white 10-way connector on the panel. (Pic 61) overleaf.



Pic 61

The model 82TLM general access control Traffic Light module operates a RED traffic light when the door is closed or moving and switches a GREEN Traffic light on when the door has stopped in the open position. (Pic 62 & 63)



Pic 62



Pic 63

A DIP switch is provided to cause the RED light to optionally flash whilst the door is moving. A second DIP switch causes the RED traffic light to switch off after 3 minutes to conserve bulb life.

The Traffic Light module incorporates an Interlock relay, the contacts of which CLOSE when the door is fully closed. The Interlock function can be used to control a second door for an AIRLOCK scheme whereby one door cannot be opened unless the other door is closed.

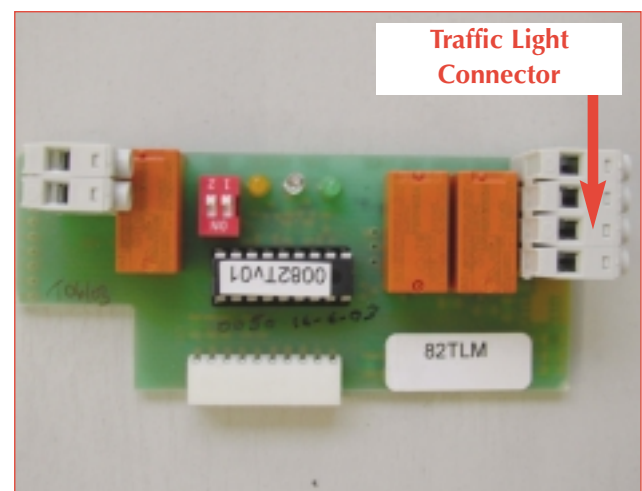
A second version of the Traffic Light module is available for loading bay DOCK Traffic Light control. This is model 82DTLM. which operates the GREEN traffic light when the door is closed. The RED traffic light is illuminated at all other times. The INTERLOCK relay contacts are closed when the door is OPEN and may be connected to inhibit the operation of a dock leveler until the door is open.

The terminals of both the Traffic Light modules and the main Control panel are PLUG-IN for ease of wiring.

The four way terminal block on both versions of the Traffic Light module provides the connections for switching the power to each of the Traffic Lights.

The end terminal is connected to power the GREEN Traffic Light.

The second terminal is connected to power the RED Traffic Light. (Pic 64)



Pic 64

The third terminal is the common supply to the RED and GREEN relays. If the traffic light bulbs operate off the same voltage as the main power supply to the control unit, then this terminal should be linked to the Live supply terminal on the GREEN mains supply terminal block on the main panel.

However if the traffic light bulbs operate off a 24volt supply then the third terminal should be linked to a supply from an auxiliary transformer.

If the Traffic lights are LED lights, which are powered from a 24volt 100mA regulated supply, then the third and fourth terminals should be linked together. The fourth terminal provides an on-board regulated 24volt 100mA supply.

AUTOMATIC LOCKING

An optional Automatic Locking system model 8070 is available, which operates a solenoid locking mechanism when the door is opened.

(Pic 65)



Pic 65

The system automatically locks the door when it stops in the fully closed position.

A lock-retaining pin is provided to hold the solenoid in the unlocked position in the event of a power failure to enable the door to be opened by hand. (Pic 66 & 67)



Pic 66



Pic 67

Fully close the door before starting the installation of the Automatic Locking solenoid unit.

The solenoid bolt is positioned so that it prevents the door being opened by blocking the movement of a roller wheel. The solenoid bracket can be fitted in a convenient position on the outside of the door track with the solenoid bolt positioned above any convenient roller wheel.

Mark the position for the solenoid bolt at least 18mm or 3/4 inch above the selected wheel and centrally in the track. This 12mm or 1/2 inch clearance allows the bolt freedom of movement and time to retract before the door moves. (Pic 68) overleaf. Release the Manual Over-Ride lever and move the door clear to enable the mounting holes to be drilled in the track.



Pic 68

A hole 10.5mm or 13/32nds of an inch diameter should be drilled for the solenoid bolt. Do not drill an over-size hole, as the track wall, above the top of the bolt, must support the bolt if an attempt is made to force the door open.

Next offer the solenoid assembly with the solenoid at the bottom of the U bracket, up to the inside of the track with the bolt passing through the hole. Ensure that the solenoid bolt is central in the hole and that its movement is not restricted. Then mark the positions of the mounting bracket holes.

Drill the bracket mounting holes using an M6 or 1/4 inch drill.

Countersink the roller wheel side of the mounting holes to allow the countersunk screw heads to sit flush with the track to allow the roller wheels to pass without causing an obstruction. **(Pic 69 & 70)**



Pic 69



Pic 70

Now fit the mounting screws, shake proof washers and nuts. Tighten the nuts firmly and ensure that the solenoid bolt is sitting centrally and is free to move in the bolthole. Readjust the bracket screws if the solenoid binds in the hole.

Now fit the lock retaining pin to hold the solenoid in the unlocked position, then release the Manual Over-Ride and move the door back to the fully closed position.

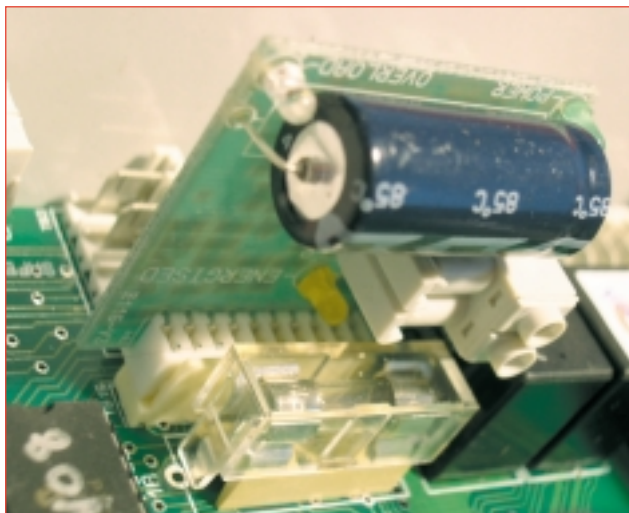
Use a low voltage twin cable rated at 2 amps to wire the solenoid to the control unit. Two female connectors and insulating sleeves are provided for terminating the solenoid end of the cable

The control unit end of the cable is terminated in the twin grey terminal block on the model 8067 plug-in module. The solenoid wires are not polarity sensitive. **(Pic 71)**



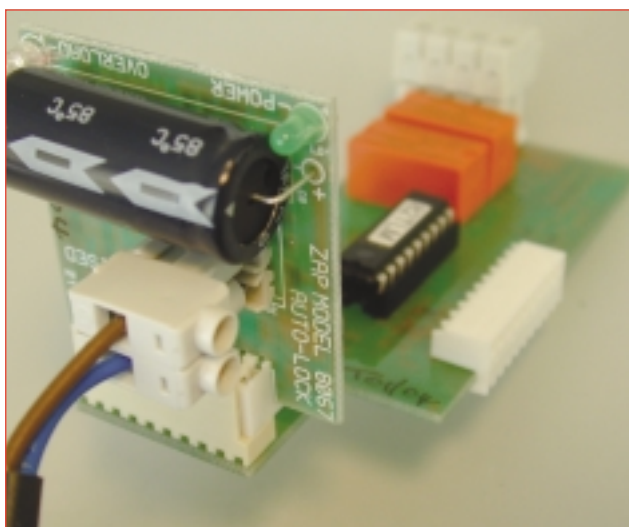
Pic 71

Ensure that the control unit mains power is isolated then plug the module onto the white 10-way connector on the control unit panel. Ensure that the 10-way plug is aligned correctly and is mated without any misalignment. (pic 72)



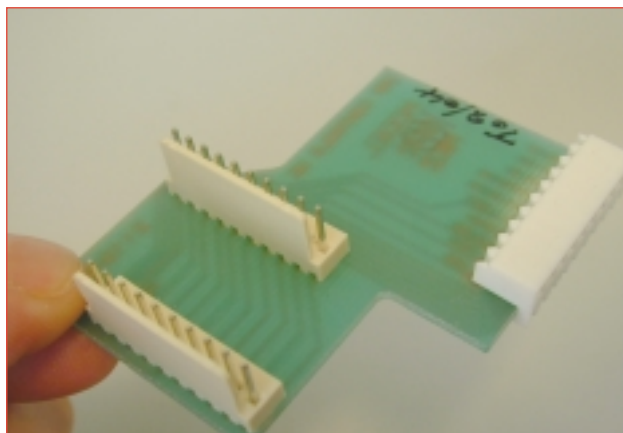
Pic 72

If a Traffic Light module is to be installed using the panel 10-way connector then the Automatic Locking module may be plugged into the spare 10-way connector on the end of the Traffic Light module. (Pic 73)

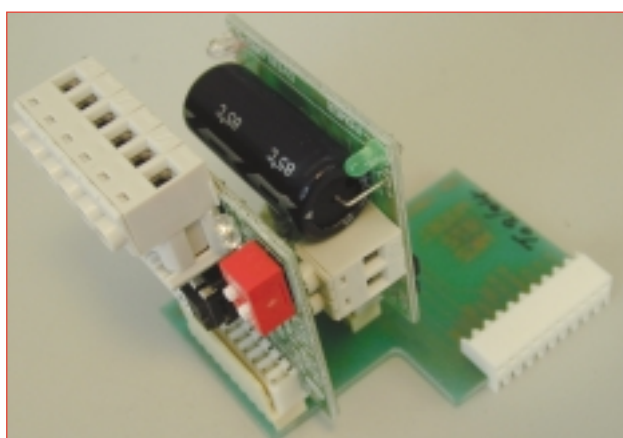


Pic 73

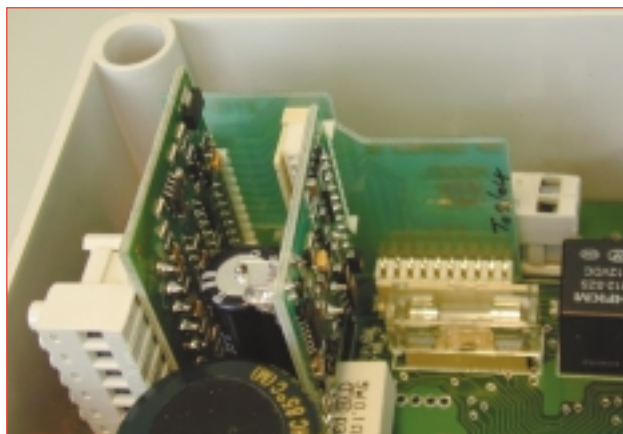
If an Automatic Locking module is to be installed together with a model 871 Accessory Radio Receiver Interface module then both of the modules may be plugged into a model 872 Interface card, the final assembly of which is plugged into the main control unit white 10-way connector. (Pic 74 - 76)



Pic 74



Pic 75



Pic 76

Switch on the control unit mains power and confirm that the GREEN LED on the module is illuminated.

Press the OPEN pushbutton and check that the solenoid is operating. Press the stop button and check that the solenoid releases a few seconds after the door has stopped.

Press the CLOSE button and allow the door to fully close.

Now remove the bolt-retaining pin and allow the bolt to spring to the locked position.

Press the OPEN button and confirm that the solenoid clears the roller wheel satisfactorily.

After the door has fully opened, press the CLOSE button and allow the door to fully close and reconfirm that the solenoid locks the door after the short delay.

BATTERY BACK-UP

A Battery Back-Up unit model 8830 is available, which enables the door to operate for approximately 24 hours during a failure of the mains supply. (Pic 77)



Pic 77

The Battery Back-Up unit is wired to the Battery Control terminals at the bottom right hand side of the door control panel.

Ensure that each of the four battery connectors and the battery back-up panel are DISCONNECTED and that the mains power is isolated to the main control unit before starting the wiring.

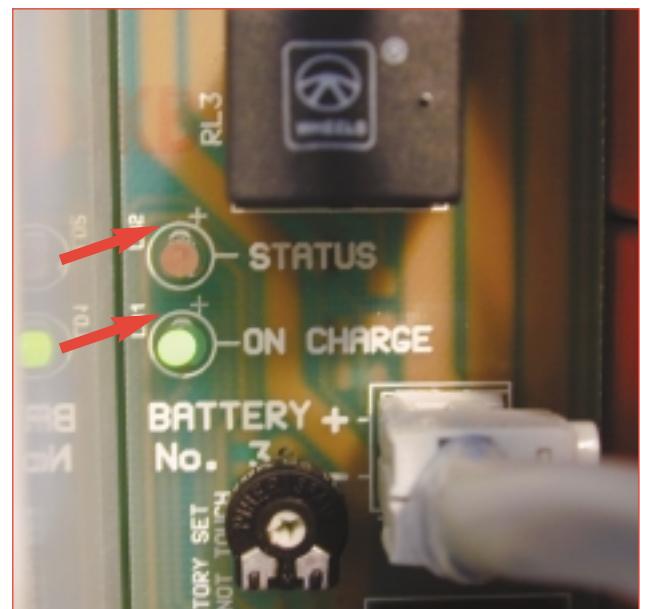
Prepare the 6 way wiring harness and remove the Control unit plug from the harness noting the wire colour positions.

Feed the harness through one of the cable entry points and re-wire the plug.

Follow the wiring guide in the Battery Back-Up installation instructions to ensure that your connections are correct.

Switch on the mains power and now connect each of the battery connectors.

Check that the Battery Back-Up GREEN LED is illuminated. The RED status LED will become dimmer as the batteries reach fully a charged state. (Pic 78)



Pic 78

Operate the door in both the open and close directions to confirm that the operation is normal.

The mains power should be maintained for at least 24 hours to ensure that the batteries are fully charged.

When you are satisfied that the batteries are fully charged you may test the operation of the Battery

Back-Up unit by isolating the mains supply to the control unit and check that the door runs correctly, under battery power, in both directions.

Re-connect the mains power and check that the Battery Back-Up GREEN LED is illuminated and that the RED LED illuminates brightly. It should gradually become dimmer as the batteries reach a fully charged state.

The batteries will be maintained with a regulated float charge. Battery Back-Up operation should be checked at least every six months. The batteries should be replaced after three years.

DO NOT leave the batteries connected if the control unit power is to be isolated for more than 24 hours.

This completes the training manual

We trust that you have appreciated this instructional manual and we hope that it has given you an understanding of the successful installation of our products.