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TECHNICAL  
HELPLINE  
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# *KRONO KIT*

## *Installation Instructions*

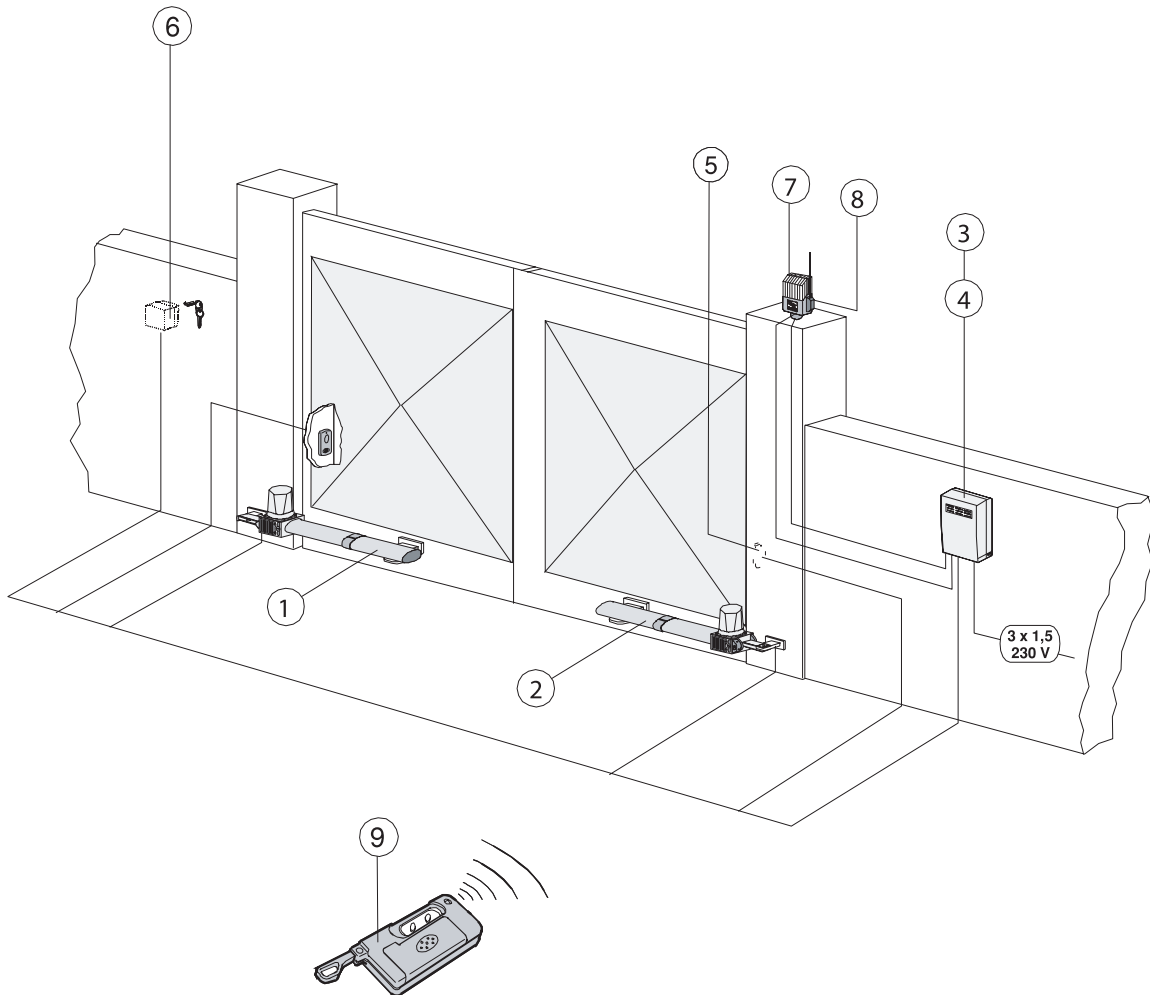


- 1) Left-hand motor unit
- 2) Right-hand motor unit
- 3) Control panel
- 4) Radio receiver
- 5) Safety photocell
- 6) Key-operated selector switch
- 7) Flashing light
- 8) Receiving antenna
- 9) Photocell column
- 10) Radio transmitter

# INTRODUCTION

These instructions will show you how to install a KRONO gearmotor external automatic opening system for wing gates.

Please read these instructions and diagrams carefully before starting any work.



## Standard Installation

- 1) Left-hand motor unit
- 2) Right-hand motor unit
- 3) Control panel
- 4) Radio receiver
- 5) Safety photocell
- 6) Key-operated selector switch
- 7) Flashing light
- 8) Receiving antenna
- 9) Radio transmitter

UNDER NO CIRCUMSTANCES SHOULD THIS EQUIPMENT BE OPERATED UNLESS FITTED TO A GATE.

**FAILURE TO COMPLY WILL INVALIDATE THE GUARANTEE.**

# INSTALLATION INSTRUCTIONS

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*“Time marches on but Came automation equipment stands the test of time...”*

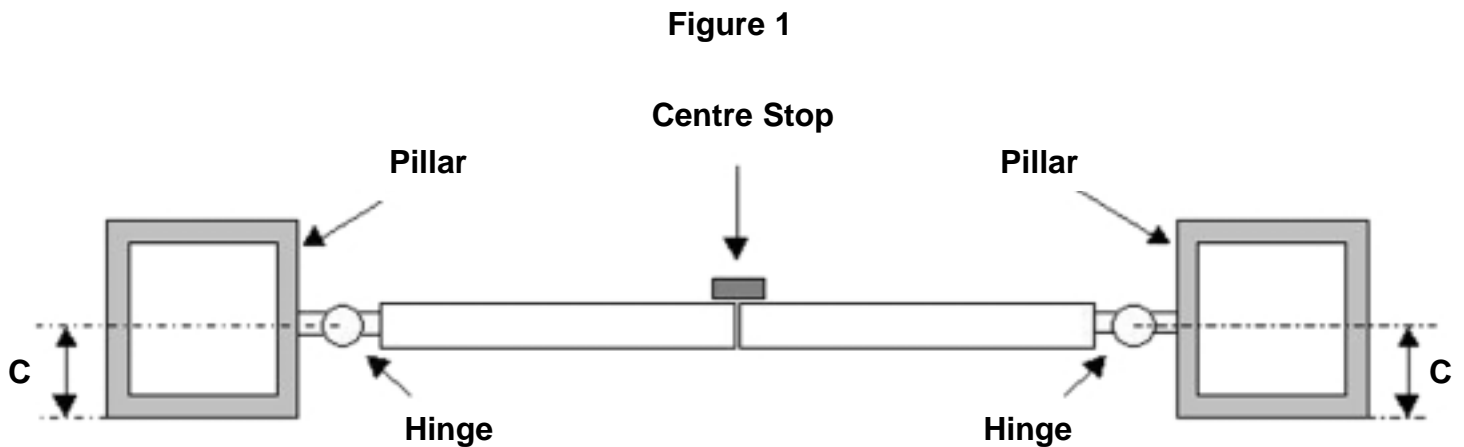
# STAGE 1

## CIVIL & MECHANICAL SECTION

### 1.1 - Basic Hinge Geometry

Before beginning your installation of your KRONO system, check the following:

- Your gate piers or posts are sufficiently strong enough to support the gates and operators and the gates swing freely and there is no friction between the moving parts.
- Measurement **C** must not be greater than the value shown below. If this is the case, it is necessary to modify the pillar so that this measurement corresponds.



*Dimension **C** must be no greater than 60mm for 90° opening and no greater than 50mm for a 120° opening.*

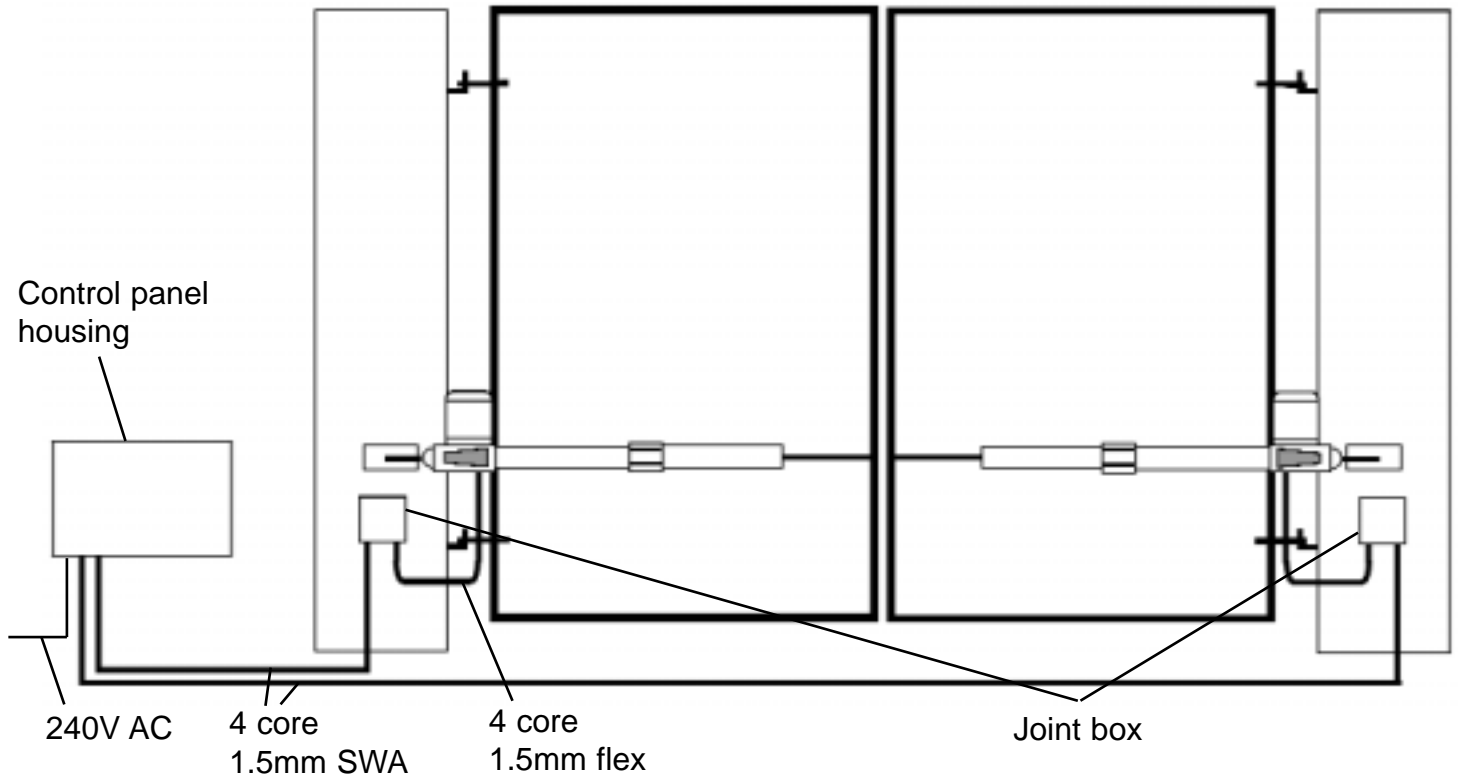
- Ensure that a centre stop is securely cemented into the ground. As a guide ensure that the centre stop protrudes no more than 65mm. Any higher and it might catch the underside of a car.

## 1.2 - Basic Cable Layout

This diagram details the basic cable layout for a pair of motors.

The power supply to the control panel should be live and protected in accordance with the 16th edition electrical regulations. The supply should be rated at a minimum of 6 amps. When installing wires outdoors the cable approach to all devices must be from below to create a 'drip-loop' and thereby avoid unnecessary water ingress.

Fig 2

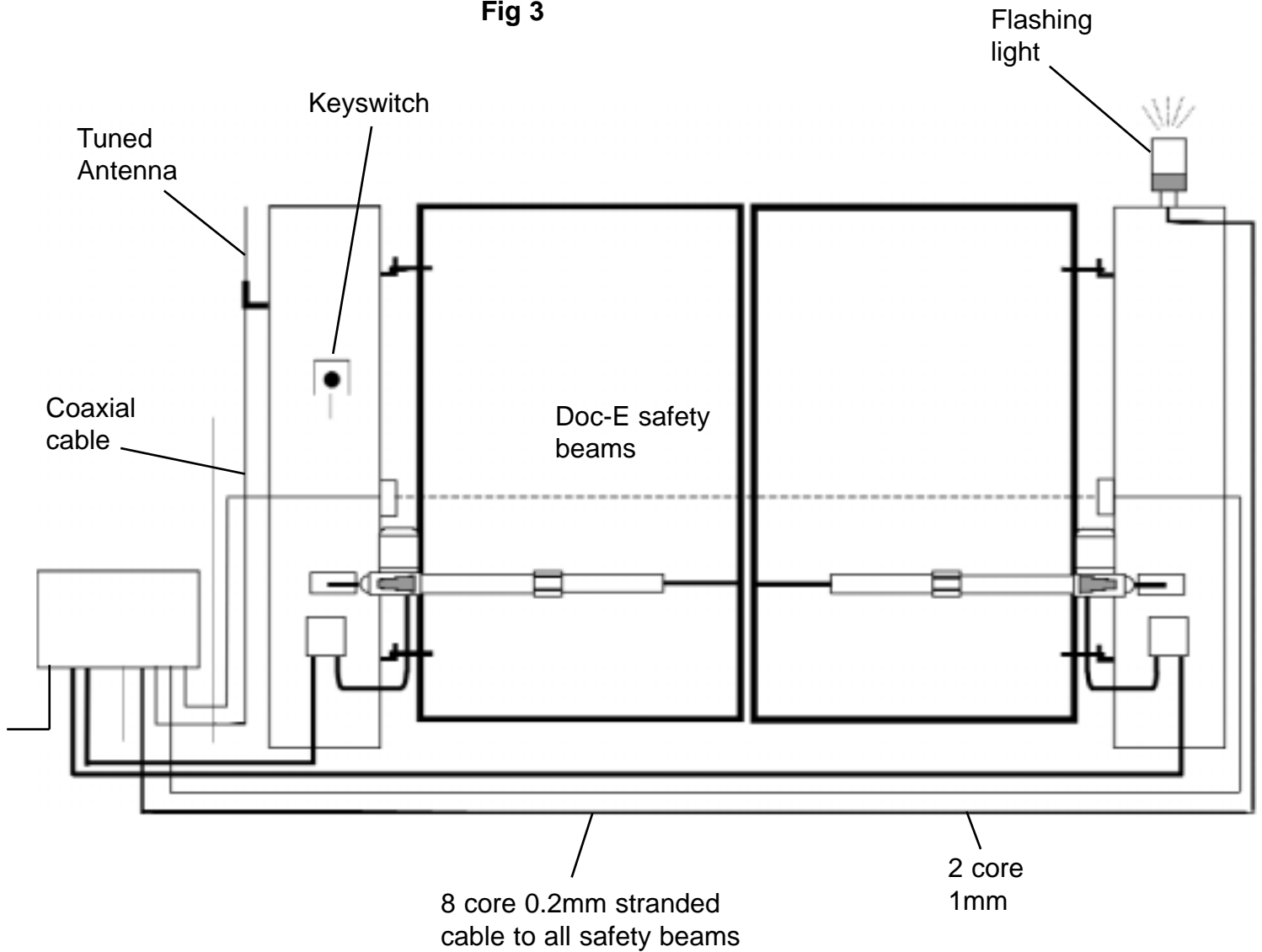


When installing low voltage cable around the gateway it is advised to put all low voltage cable in either ducting or alkathene piping. All cable jointing should be carried out above ground.

# 1.3 - Low Voltage Cable Layout

All CAME accessories can be wired 0.2m stranded cable (burglar alarm type). The tuned antenna should be wired with coaxial cable (RG59).

Fig 3

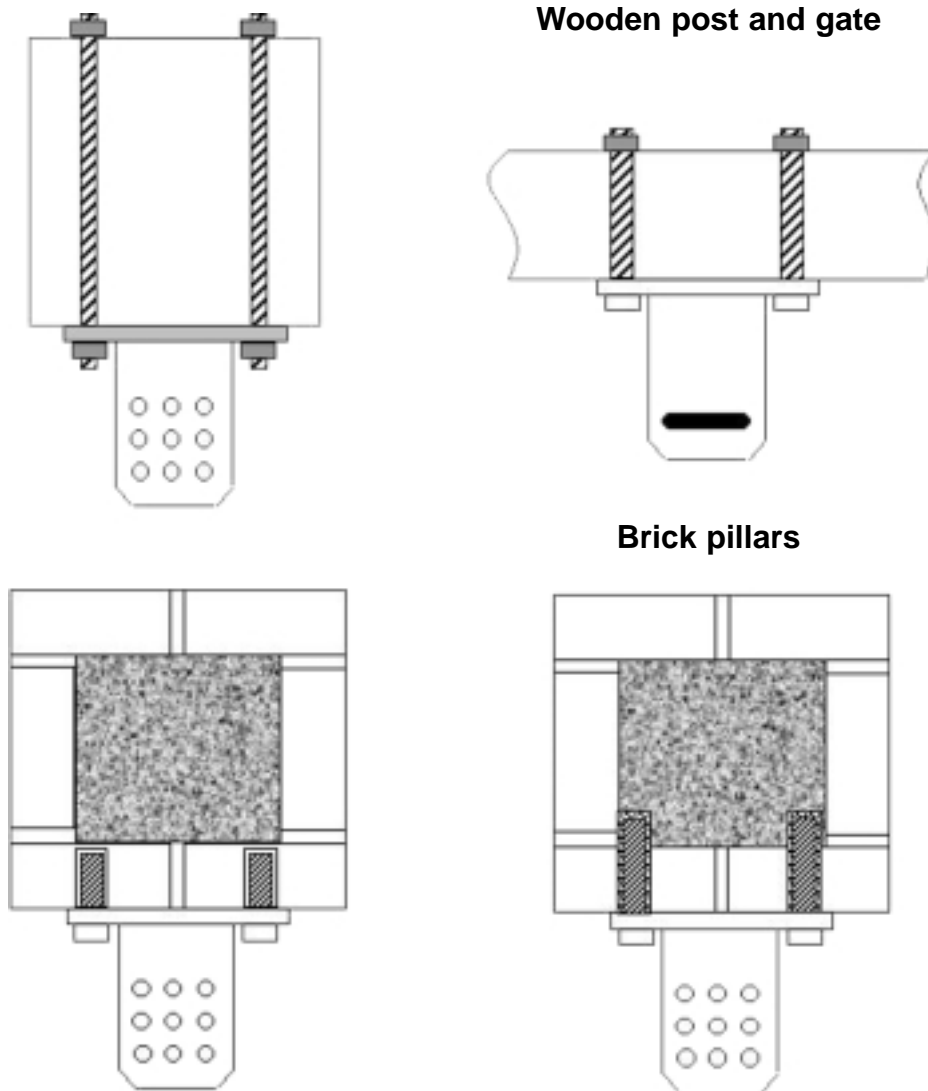


# 1.4 - Attaching the Rear Bracket

The rear bracket can be lengthened or shortened to suit individual installations, site and the position of the gate (with respect to the bracket).

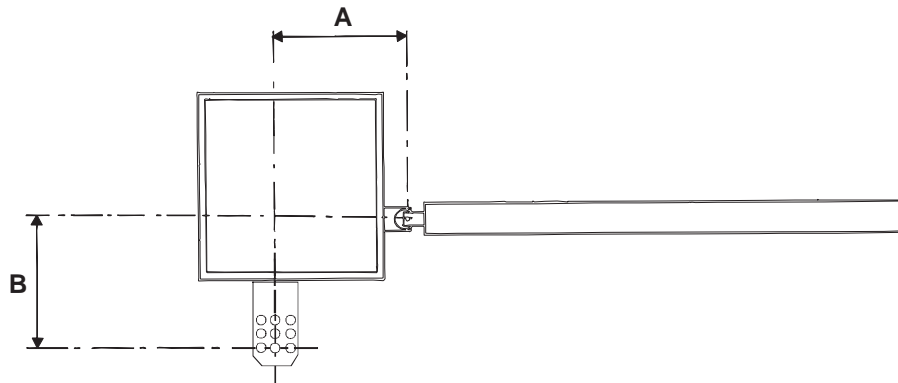
When attaching the rear bracket to the post or pillar use suitable expansion bolt or chemical fixings. If fitting to a wooden post it is advised to use threaded bar bolted through the post for added strength.

**Fig4**



Type	Opening Angle	A mm	B mm	C mm
KRONO	90°	130	130	60
	120°		110	50

**Fig 5**



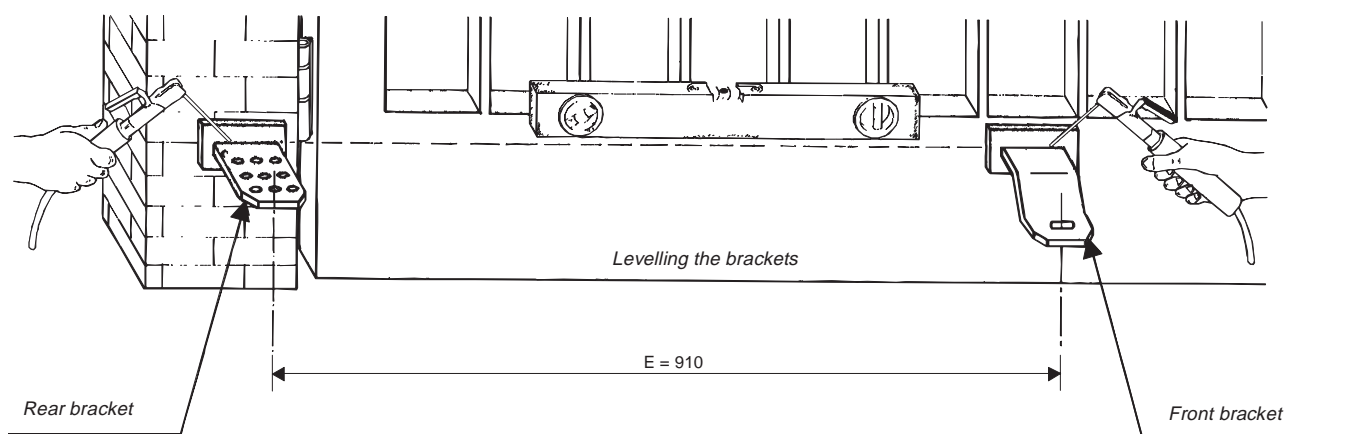
Attach the rear bracket while respecting distances A and B between the hinge on the gate and the hole in the centre of the bracket (which is used to hold the gear motor). To make the operation easier, the KRONO installation kit contains two cardboard templates (for 90° and 120° openings). The rear bracket is equipped with additional hole to make the fitting of the motor easier, or to change the opening angle of the gate.



# 1.5 - Attaching the Brackets

With the gate closed, install the front bracket on the gate wing. The front bracket, when installed, must be aligned along the horizontal axis of the rear bracket (see figure) and the distance between the centre axes of the brackets must be 910mm.

Fig 6



# END OF INSTALLATION STAGE 1

**BEFORE STARTING STAGE 2 - Wiring and Electrical  
PLEASE CHECK THAT YOU HAVE CORRECTLY:**

	<b>Ref</b>	<b>Page</b>
<b>1. Prepared the cabling correctly</b>	<b>1.2</b>	<b>4</b>
<b>2. Correctly attached the brackets</b>	<b>1.4</b>	<b>6</b>

**NOW STAGE 1 IS FULLY COMPLETED YOU ARE READY TO BEGIN  
STAGE 2 OF YOUR KRONO AUTOMATION KIT INSTALLATION.**

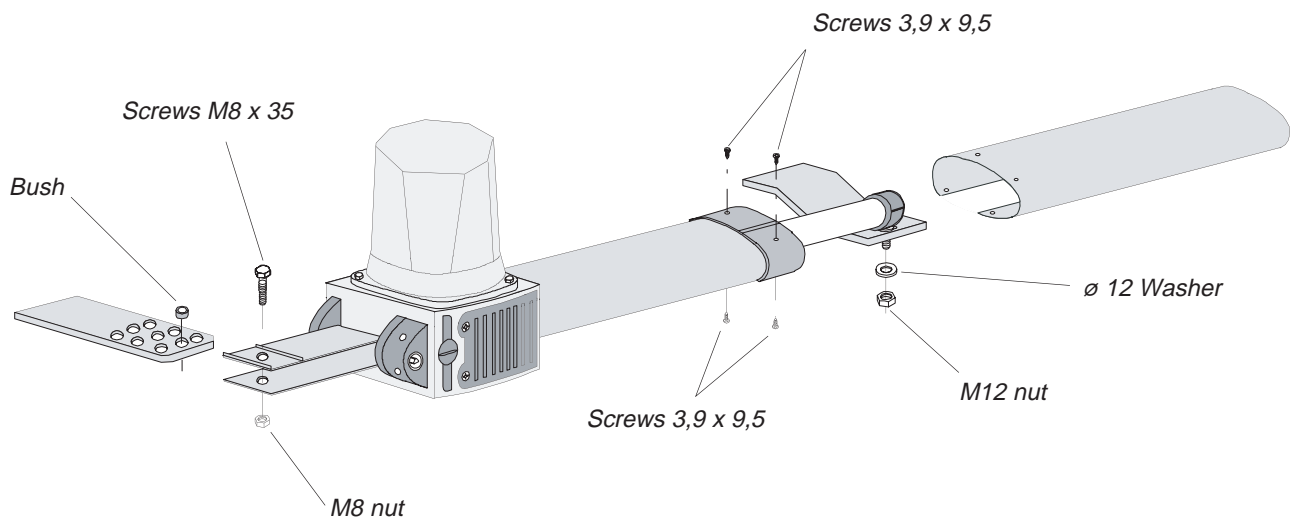
# STAGE 2

## WIRING AND ELECTRICAL

### 2.1 - Installing the Motors

Fit the motors to the brackets with the nuts and bolts provided. Ensure that the metal insert is inserted into the rear bracket to ensure free movement.

Fig 7

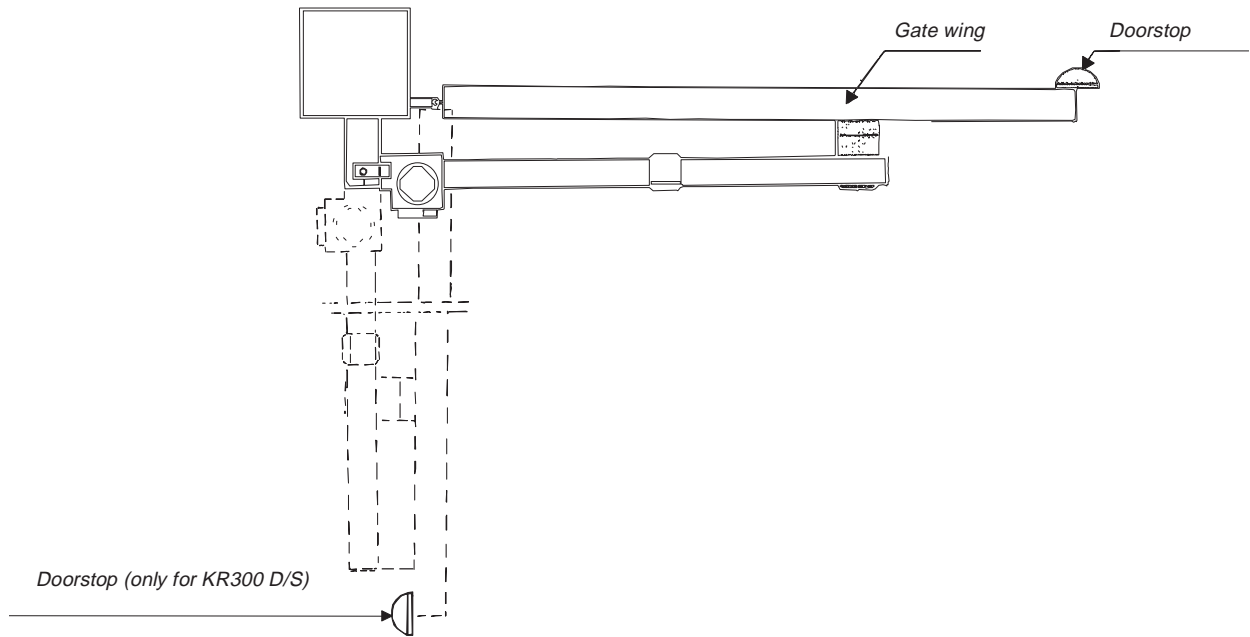


Make sure that there is no interference between the motor shaft and the gate wing at any point in the gate travel. If interference is found, lengthen the front bracket to the minimum length that provides interference-free operation.

## 2.2 - Installing Centre Stops

Install a centre stop and an open/stop securely in the ground to prevent the gate wing from exceeding its' maximum travel at the open and closed position.

Fig 8

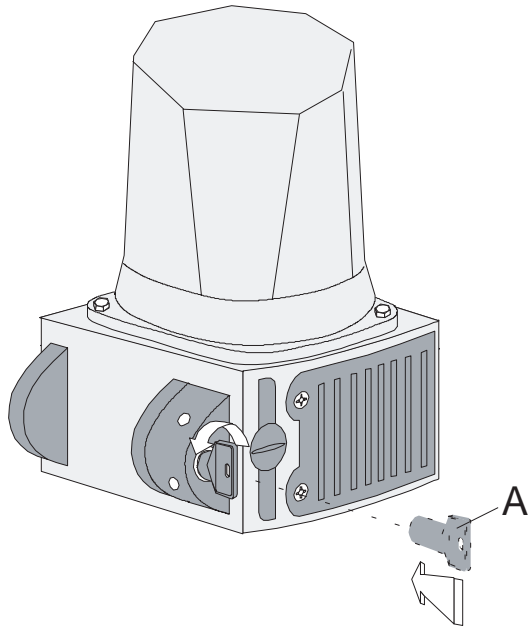


## 2.3 - Manual Release

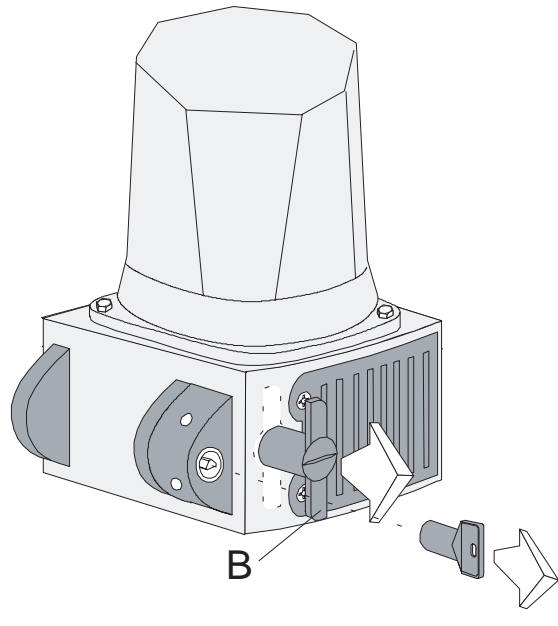
In the event of a power failure, use the key to release the locking system. Insert key (A) in the keylock, turn it to allow the release lever (B) to unlock and remove the key (fig 9 - 10); then turn the release level 90° in either direction (fig 11).

To relock the door, reset the release lever to the initial position (fig 12).

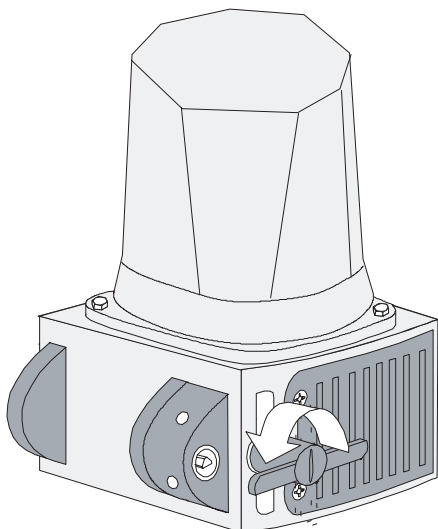
**Fig 9**



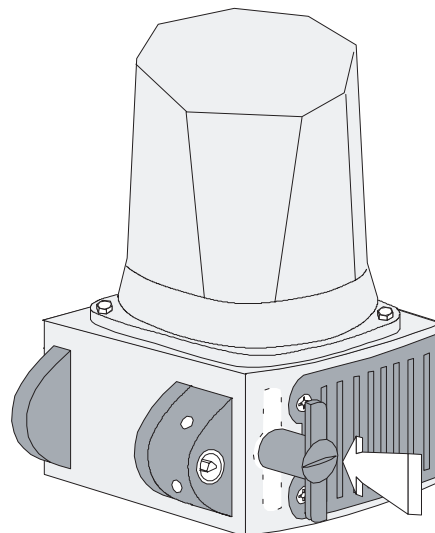
**Fig 10**



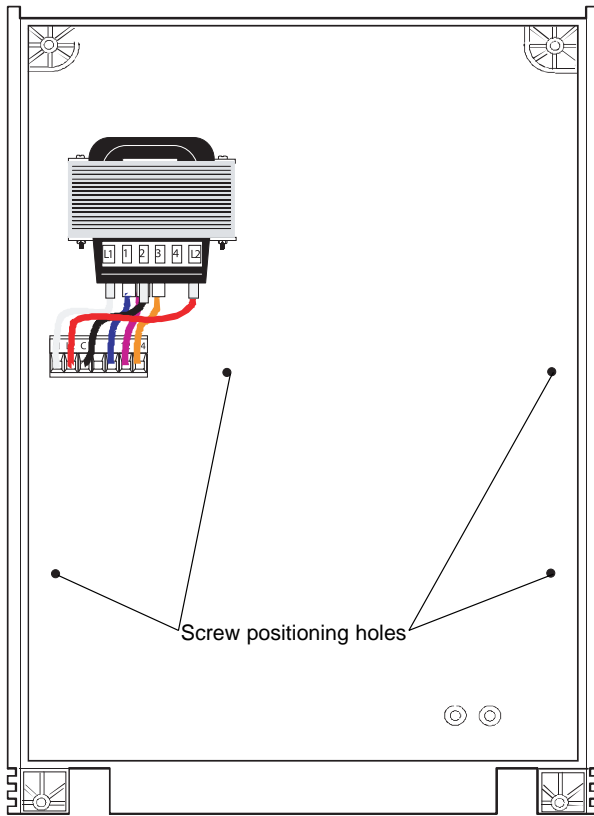
**Fig 11**



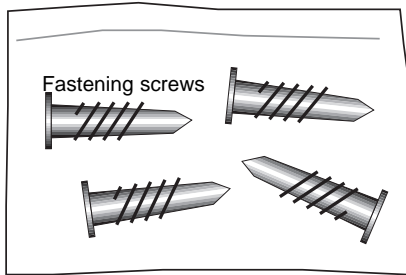
**Fig 12**



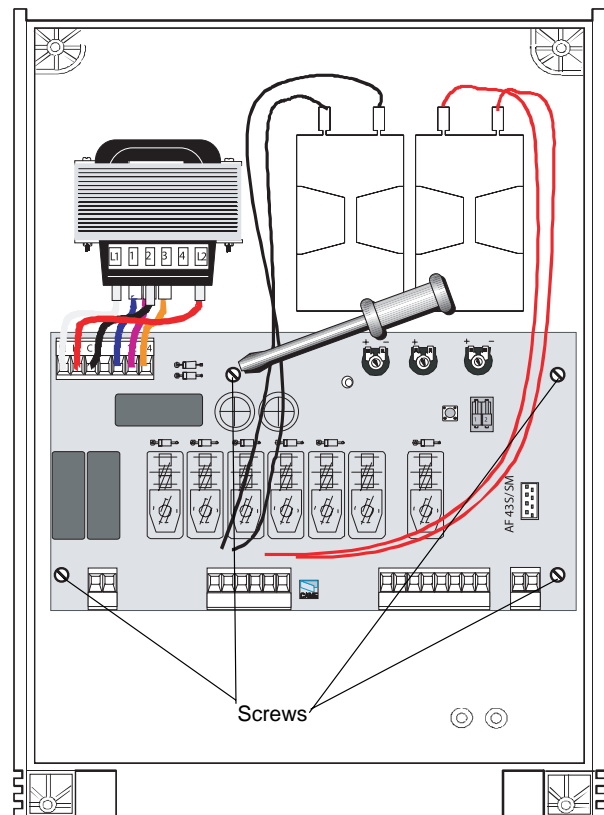
## 2.4 - Fitting the Control Panel in the Casing



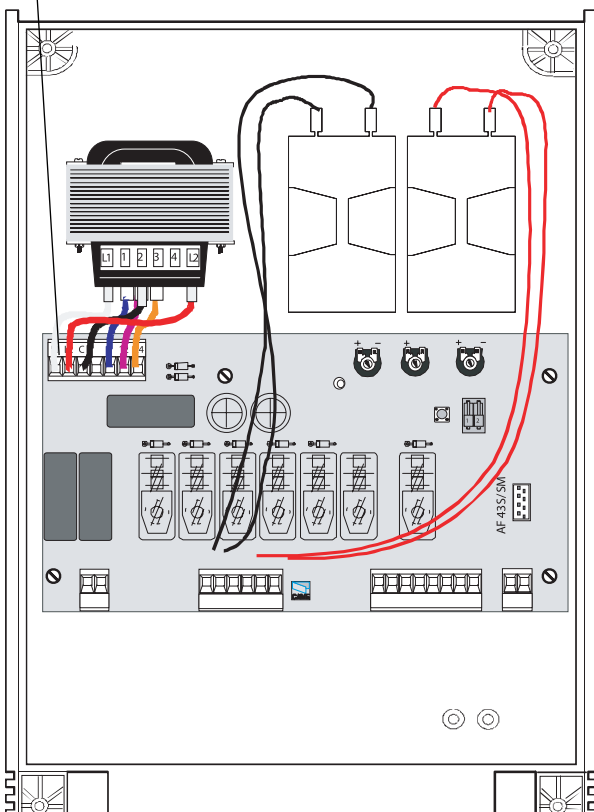
Securely fasten the control panel PCB to the casing with the screws supplied.



Green connector point



Plug the green connector from the transformer to the PCB ensuring that it connects the correct way.

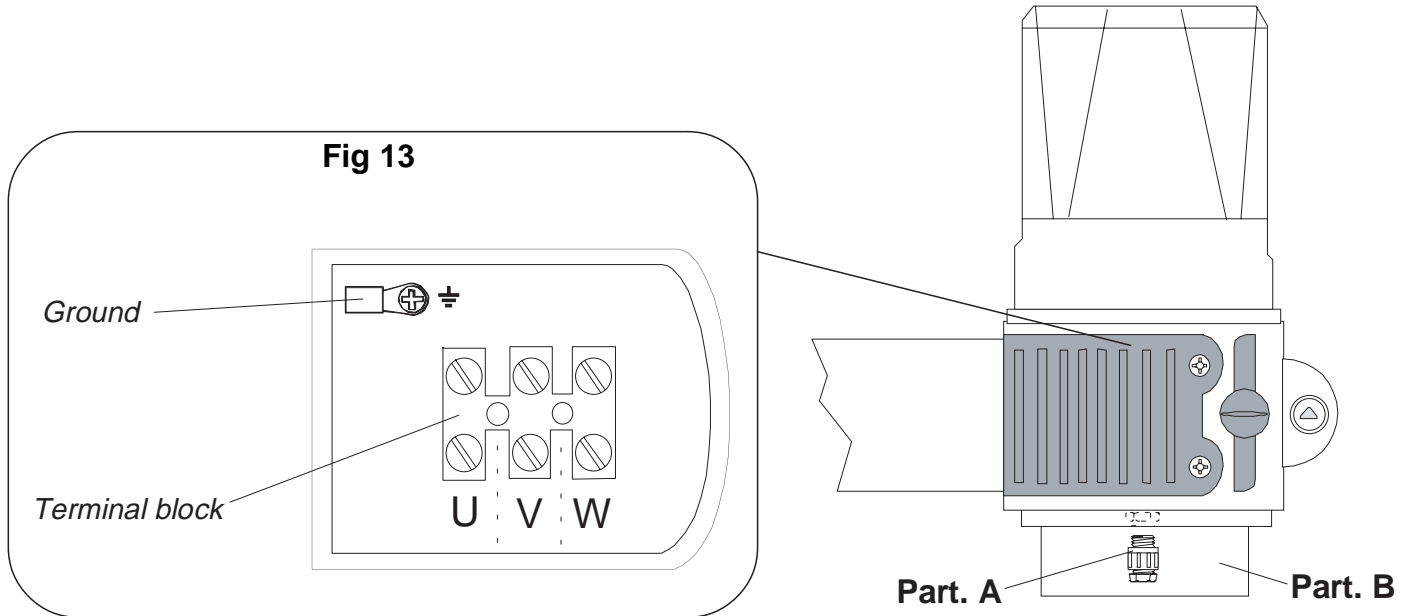


**NB FROG Series Motors:** connect the black wires coming out of the board to one capacitor and the red wires to the other.

## 2.5 - Wiring the Motors

Wire the gear motor by following the wiring diagram on the label which is fastened to the gear motor (fig 13).

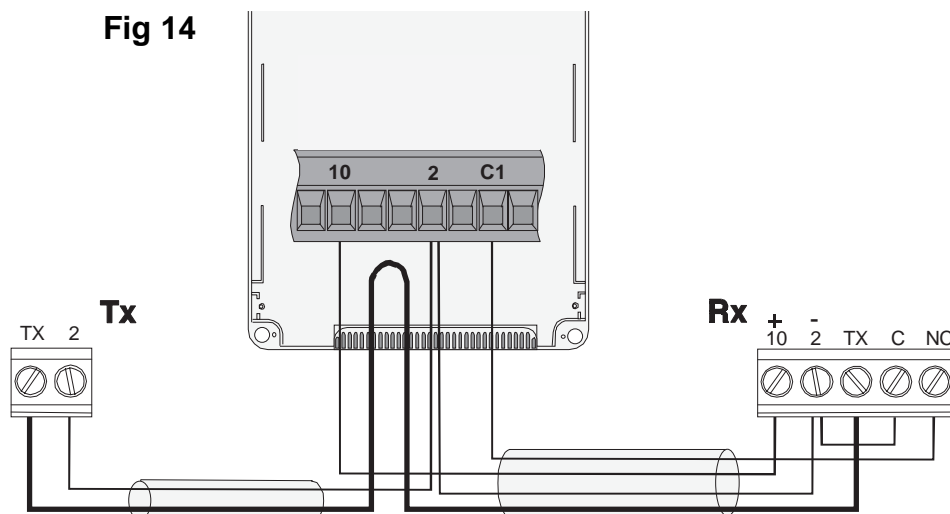
For the cable connection, use the appropriate cable clamp (part A) supplied, fixing it to the capacitor support (part B).



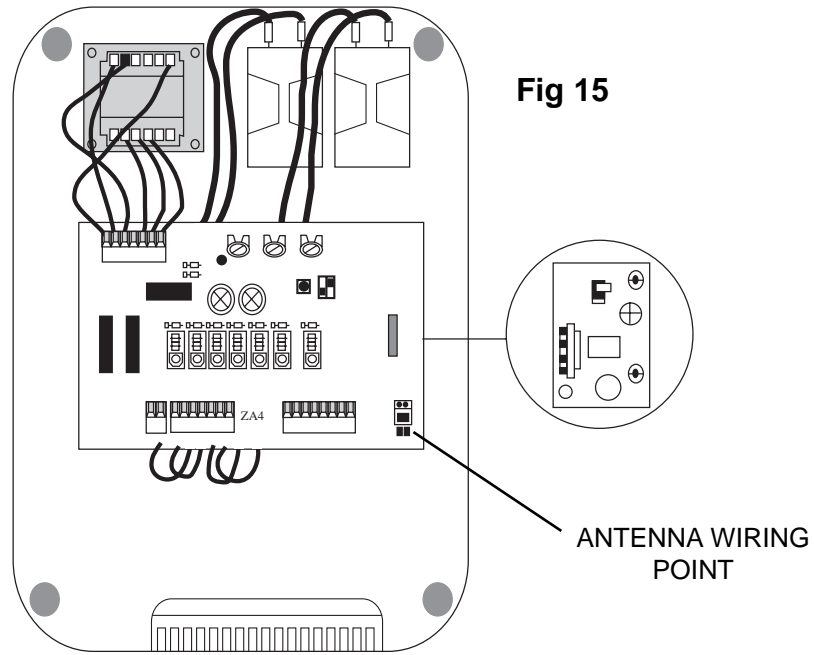
## 2.6 - Wiring in the Safety Photocells

Safety beams should be fitted approximately 15 inches from ground level.

If fitting a second arc line of safety beams then C & NC must be wired in 'series'.

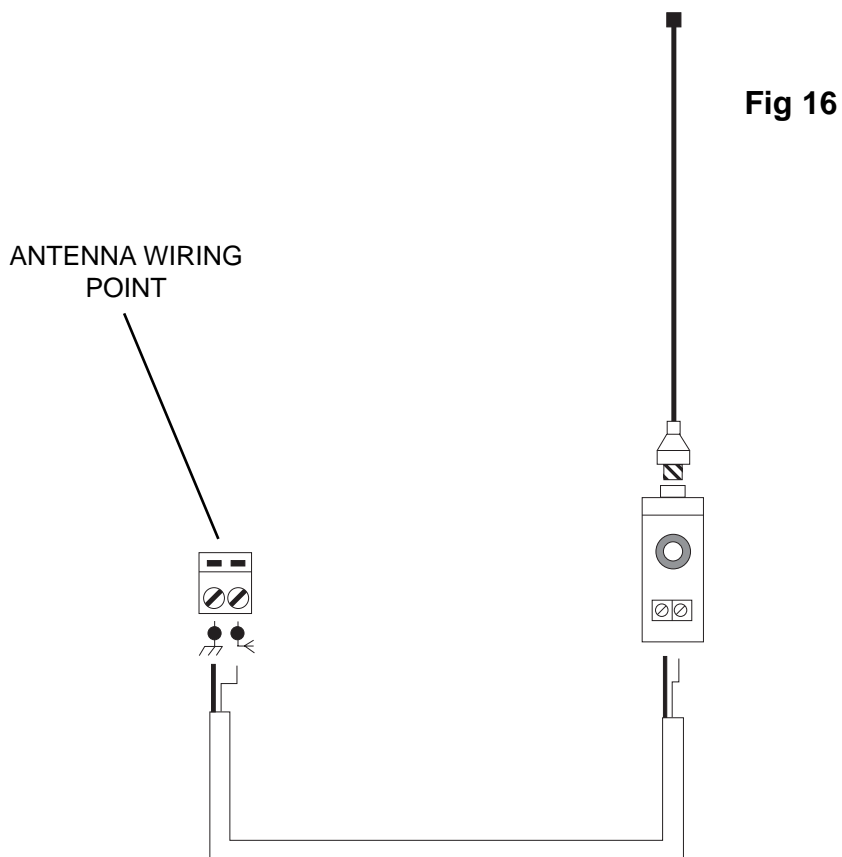


## 2.7 - Inserting the Radio Frequency Card



Insert the radio frequency card into the small socket on the control panel (ensure that the power is turned **OFF** to the control panel before inserting the frequency card).

## 2.8 - Wiring in the Tuned Antenna



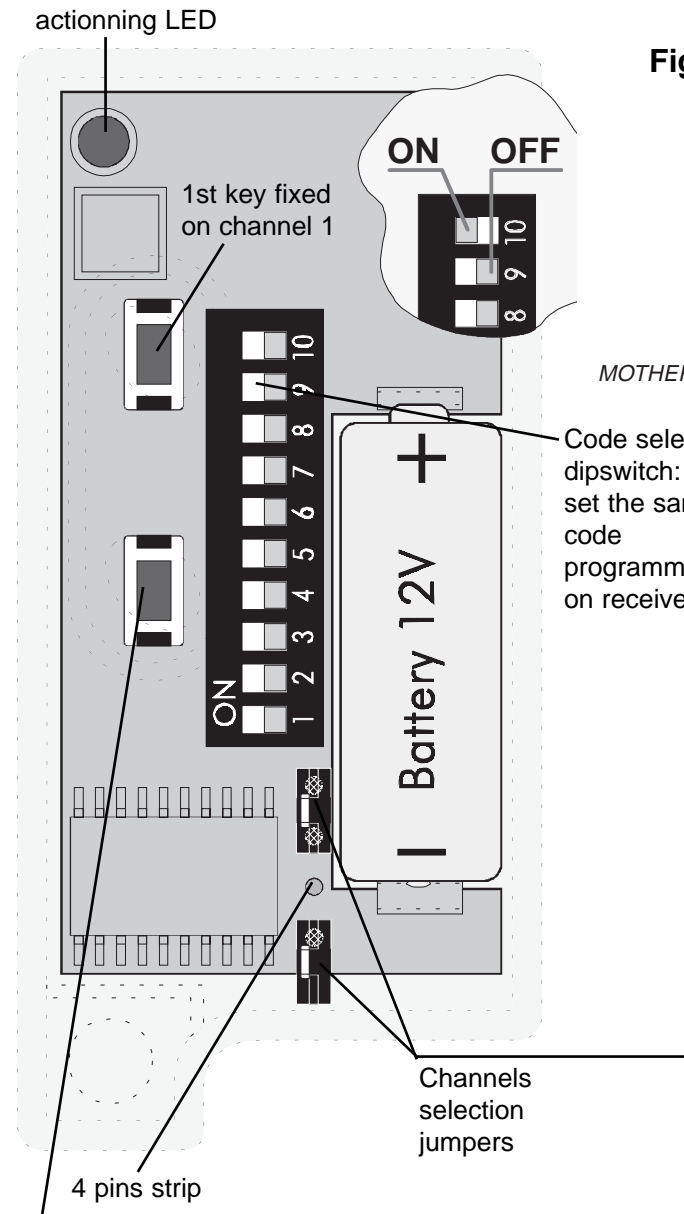


# 2.9 - Coding the Remote Controls

## T432S (MINI-PINK) Remotes

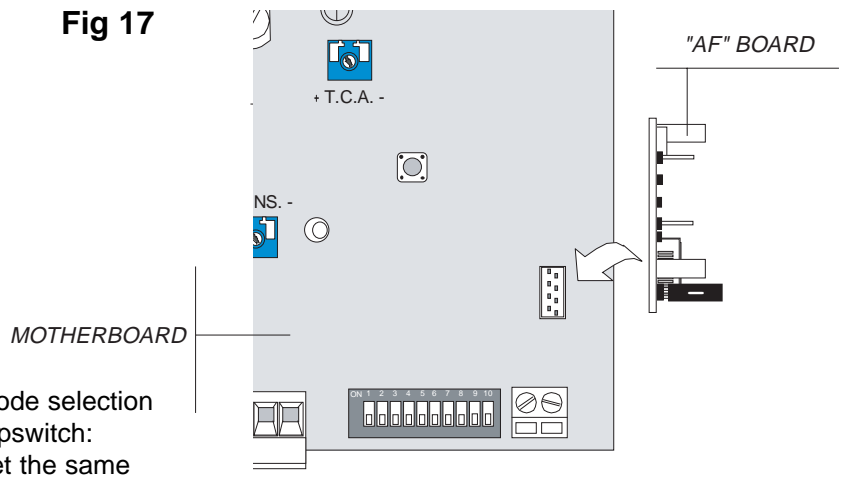
Remove the battery cover off of the remote and change the Factory set code to a unique code for the installation via the 10 dipswitches.

Insert the frequency card into the control panel (item 5 on motherboard). Identify the little yellow button on the motherboard and press and hold the little yellow button in and an LED will flash. Then press the button on the remote control you wish to operate the equipment with and then let go of both buttons. Make sure any additional remotes are the same code. You do not have to program these into the board - they should work.

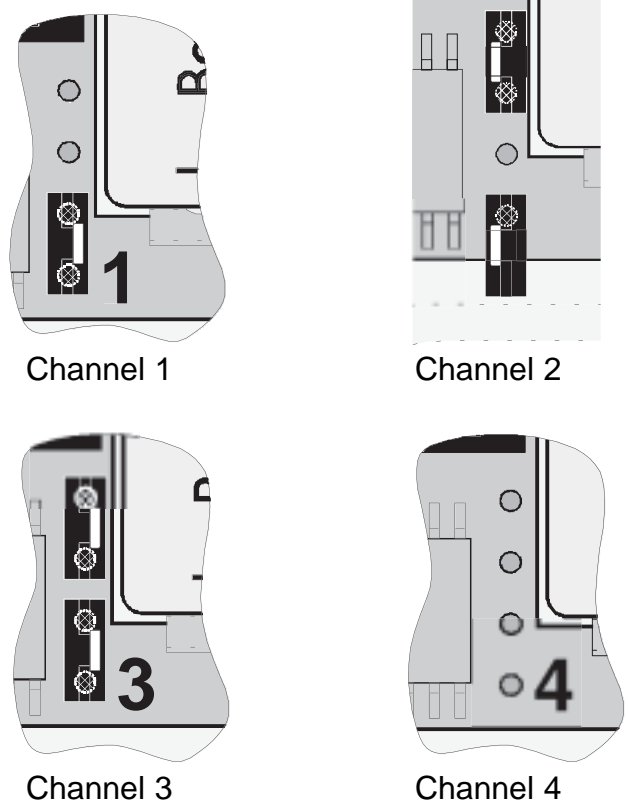


2nd key preset on channel 2; put the jumpers as shown in figures to change

Fig 17



### Channels Scheme



# 2.10 - Powering up the Control Panel

Connect protected mains power to terminals L1 + L2 in the control panel (L2 being **LIVE!**). Ensure that the control panel is adequately earthed.

## END OF INSTALLATION STAGE 2

**BEFORE STARTING STAGE 3 - Installation  
Commissioning the Control panel  
PLEASE CHECK THAT YOU HAVE CORRECTLY:**

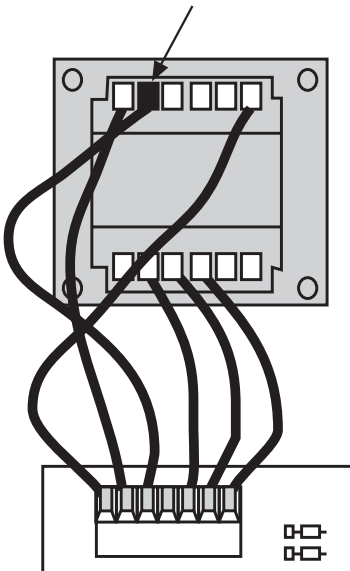
	<b>Ref</b>	<b>Page</b>
<b>1. Installed Motors</b>	<b>2.1</b>	<b>10</b>
<b>2. Installed Centre Stops</b>	<b>2.2</b>	<b>11</b>
<b>3. Checked Manual Release</b>	<b>2.3</b>	<b>12</b>
<b>4. Fitted the Control Panel in the Casing</b>	<b>2.4</b>	<b>13</b>
<b>5. Wired the Motors</b>	<b>2.5</b>	<b>14</b>
<b>6. Wired the Safety Photocells</b>	<b>2.6</b>	<b>14</b>
<b>7. Inserted the Frequency Card</b>	<b>2.7</b>	<b>15</b>
<b>8. Wired the Tuned Antenna</b>	<b>2.8</b>	<b>15</b>
<b>9. Coded the Remote Controls</b>	<b>2.9</b>	<b>16</b>
<b>10. Powered up the Control Panel</b>	<b>2.10</b>	<b>17</b>

**NOW STAGE 2 IS FULLY COMPLETED YOU ARE READY TO BEGIN  
STAGE 3 OF YOUR KRONO AUTOMATION KIT INSTALLATION.**

# STAGE 3 COMMISSIONING THE CONTROL PANEL

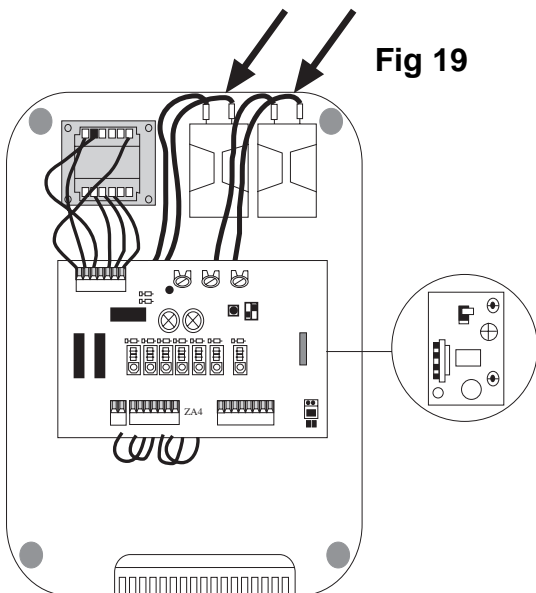
## 3.1 - Initial Wiring & Control Panel Setup

Fig 18



1. Connect power terminals L1 - L2 and a suitable earth (**L2 being LIVE!**)
2. Select the motor power setting on the transformer to level 1 for commissioning.

Fig 19



3. Ensure that the motors are adequately earthed.

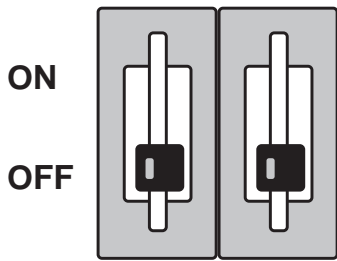


Fig 20

5. Select dipswitches 1 & 2 **OFF** for commissioning.
6. Ensure hard wire link is fitted between terminals 1 & 2 and 2 & C1.

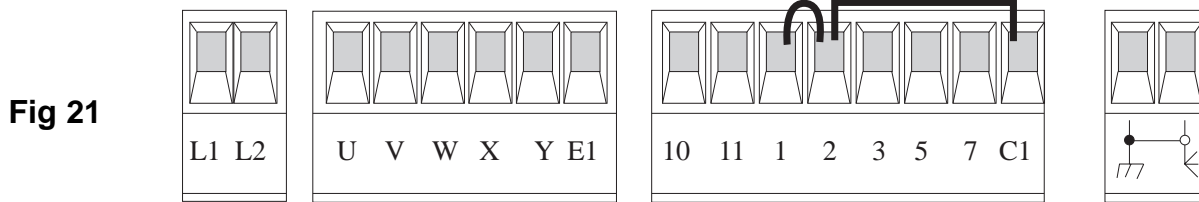


Fig 21

## 3.2 - Opening & Closing the Gates

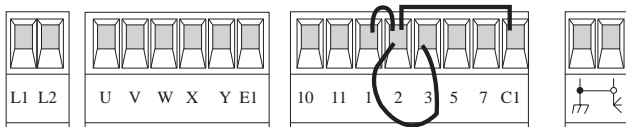


Fig 22

1. Momentarily pulse terminals 2 & 3 with a piece of wire trailing from terminal 2 and momentarily touching terminal 3.

The gates should start to open. If they start to close turn the power off to the control panel and change around either U-V (motor 1) or X-Y (motor 2) to change the motor direction.

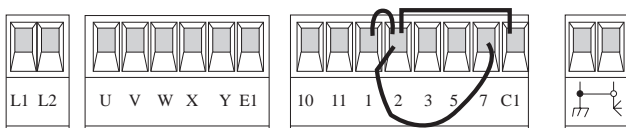
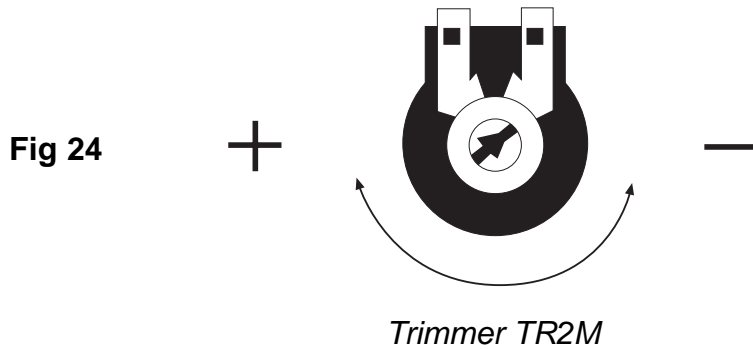


Fig 23

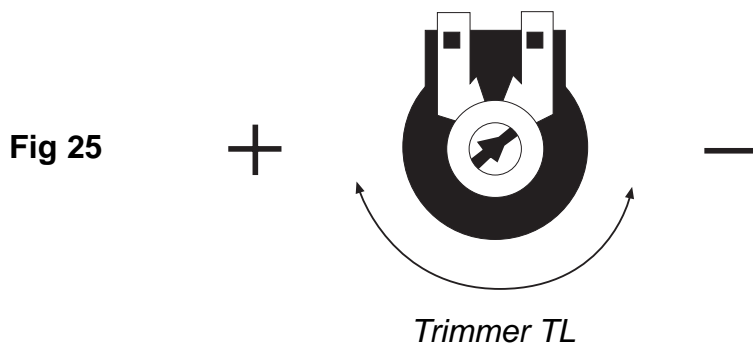
2. Once you have proven the motor direction use terminals 2 & 7 to open and close the gates with a trailing wire once again into terminal 2, momentarily touching terminal 7.

## 3.3 - Control Panel Adjustments

1. To delay one gate leaf, adjust potentiometer TR2M to delay the closing of gate no.2 in the closing cycle.

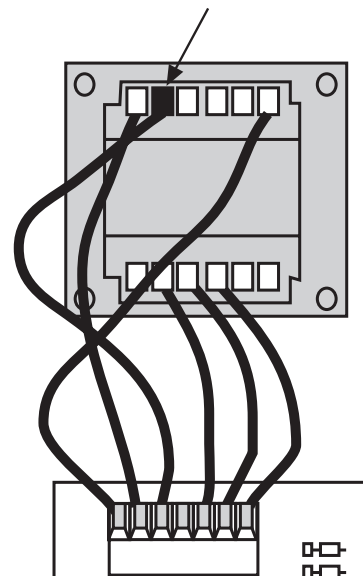


2. To set the total running time of the motors, adjust potentiometer TL to allow the motors to run for a further 5-7 seconds after the movement cycle has been completed (ie fully open or fully closed).

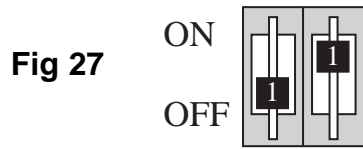


3. Check the sensitivity of the gates by trying to physically stop the gate and adjust the power settings on the transformer accordingly. If more power is needed for heavier gates then switch off power and move transformer wire up to setting 2. For rechecking sensitivity, repeat process up to 3 or 4 if even more power is needed.

Fig 26

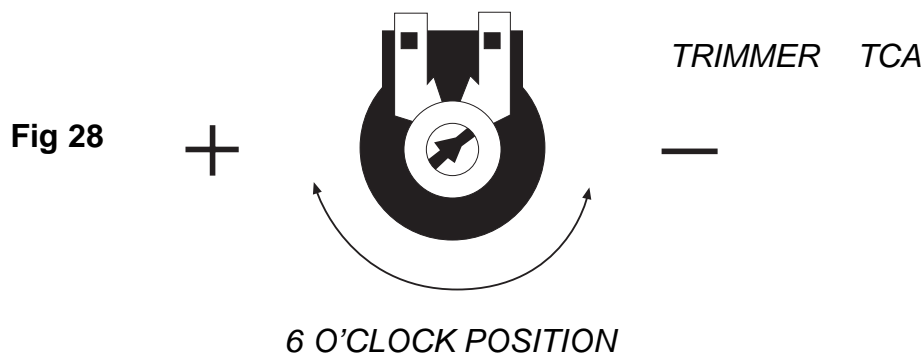


# 3.4 - Automatic Close & Activating Safety Photocells



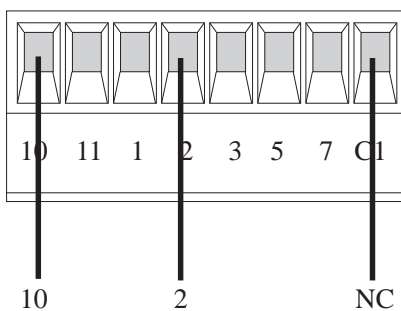
1. To select automatic closing, select dipswitch 2 **ON**.

Set the automatic closing time by adjusting potentiometer TCA.



Fully anti-clockwise will automatically close the gates after approximately 10 seconds and fully clockwise will close the gates after approximately 80 seconds. A sensible setting is about halfway (ie 6 o'clock position) which will automatically close the gates after approximately 30 seconds.

**Fig 29**



2. For re-opening during closing. Remove hard wire link between 2 & C1 and insert safety beam wires as shown.

# 3.5 - Programming the Remote Controls to the Control Panel

*To use the remote control system, proceed as follows:*

- A) Turn power OFF and insert AF radio frequency board then turn power back on
- B) Code the transmitter. See the relevant instruction sheet (See Fig 11)
- C) To store the code on the circuit board Proceed as follows:

Press and hold down the programming button on the radio receiver card (the signal LED will start to flash)

At the same time transmit on the top button of your remote control; keep both the top button and the yellow receiver button pressed until the LED stops flashing and remains on constant. It will then go out to indicate that the code has been successfully stored.

- N.B.** If you wish to change the code on your transmitter in the future, simply repeat the procedure above with all the remotes on the installation.

**WARNING:** *Disconnect the power supply from the control board before inserting OR removing the AF radio-frequency card from the socket.*

# END OF INSTALLATION STAGE 3

PLEASE CHECK THAT YOU HAVE CORRECTLY:

	Ref	Page
<b>1. Set power setting, inserted motor capacitors, set dipswitches for commissioning, ensure wire link is fitted between terminals 1 &amp; 2 and 2 &amp; C1.</b>	<b>3.1</b>	<b>17</b>
<b>2. Set the opening and closing times for gates.</b>	<b>3.2</b>	<b>18</b>
<b>3. Adjusted the control panel.</b>	<b>3.3</b>	<b>19</b>
<b>4. If required, activated automatic closing and safety photocells.</b>	<b>3.4</b>	<b>20</b>
<b>5. Programmed the remote to the control panel.</b>	<b>3.5</b>	<b>21</b>



## 4. TROUBLESHOOTING GUIDE

### A MULTIMETER WILL BE NEEDED

PROBLEM	SOLUTION
GATE WILL NOT RESPOND WHEN GIVEN A COMMAND	<ol style="list-style-type: none"> <li>1. CHECK POWER SUPPLY TO THE CONTROL PANEL.</li> <li>2. CHECK CONTROL PANEL FUSES.</li> <li>3. CHECK HARD WIRE LINK FITTED BETWEEN TERMINALS 1 &amp; 2.</li> <li>4. CHECK THAT CAPACITORS ARE FITTED AND WIRED CORRECTLY.</li> </ol>
GATES ARE OPEN BUT WILL NOT CLOSE AND GREEN LED IS FLASHING	<ol style="list-style-type: none"> <li>1. CHECK SAFETY BEAMS ARE WIRED CORRECTLY. (IF MORE THAN ONE SET OF BEAMS ARE FITTED THEY MUST BE WIRED IN SERIES.)</li> <li>2. CHECK THAT THERE IS POWER GOING TO THE BEAMS, IF NOT RESTORE POWER.</li> <li>3. IF SAFETY BEAMS ARE NOT FITTED ENSURE THAT A HARD WIRE LINK IS FITTED BETWEEN TERMINALS 2 &amp; C1</li> <li>4. REMOVE SAFETY BEAM WIRES 2 &amp; C1 FROM CONTROL PANEL AND CHECK IF YOU HAVE A NORMALLY CLOSED CIRCUIT COMING FROM THE BEAMS.</li> </ol>
WHEN COMMISSIONING GATE AUTOMATICALLY OPENS BUT DOES NOT AUTOMATICALLY CLOSE	<ol style="list-style-type: none"> <li>1. MOTOR WIRES ARE WRONG WAY ROUND. CHECK AND PROVE MOTOR DIRECTION BY MOMENTARILY PULSING TERMINALS 2 &amp; 3. THE GATE SHOULD OPEN UP. TURN AUTOMATIC CLOSING <b>OFF</b> (DIP SWITCH 2) UNTIL MOTOR DIRECTION HAS BEEN PROVEN.</li> </ol>

PROBLEM	SOLUTION
<p>GATES WILL NOT RESPOND TO REMOTE CONTROL COMMAND</p>	<ol style="list-style-type: none"> <li>1. AF FREQUENCY CARD NOT FITTED TO CONTROL PANEL.</li> <li>2. REMOTE CONTROL HAS NOT BEEN PROGRAMMED INTO THE CONTROL PANEL.</li> <li>3. REMOTE CONTROL HAS THE WRONG CODE SETTING.</li> <li>4. "OPERATOR PRESENT" HAS NOT BEEN SELECTED TO DEACTIVATE RADIO REMOTE CONTROLS (DIPSWITCH 1).</li> <li>5. WRONG FREQUENCY CARD FITTED FOR THE REMOTE CONTROL.</li> </ol>

IF THE PROBLEM IS STILL APPARENT CONTACT THE  
**CAME TECHNICAL HELPLINE:**

**0115 921 0430**

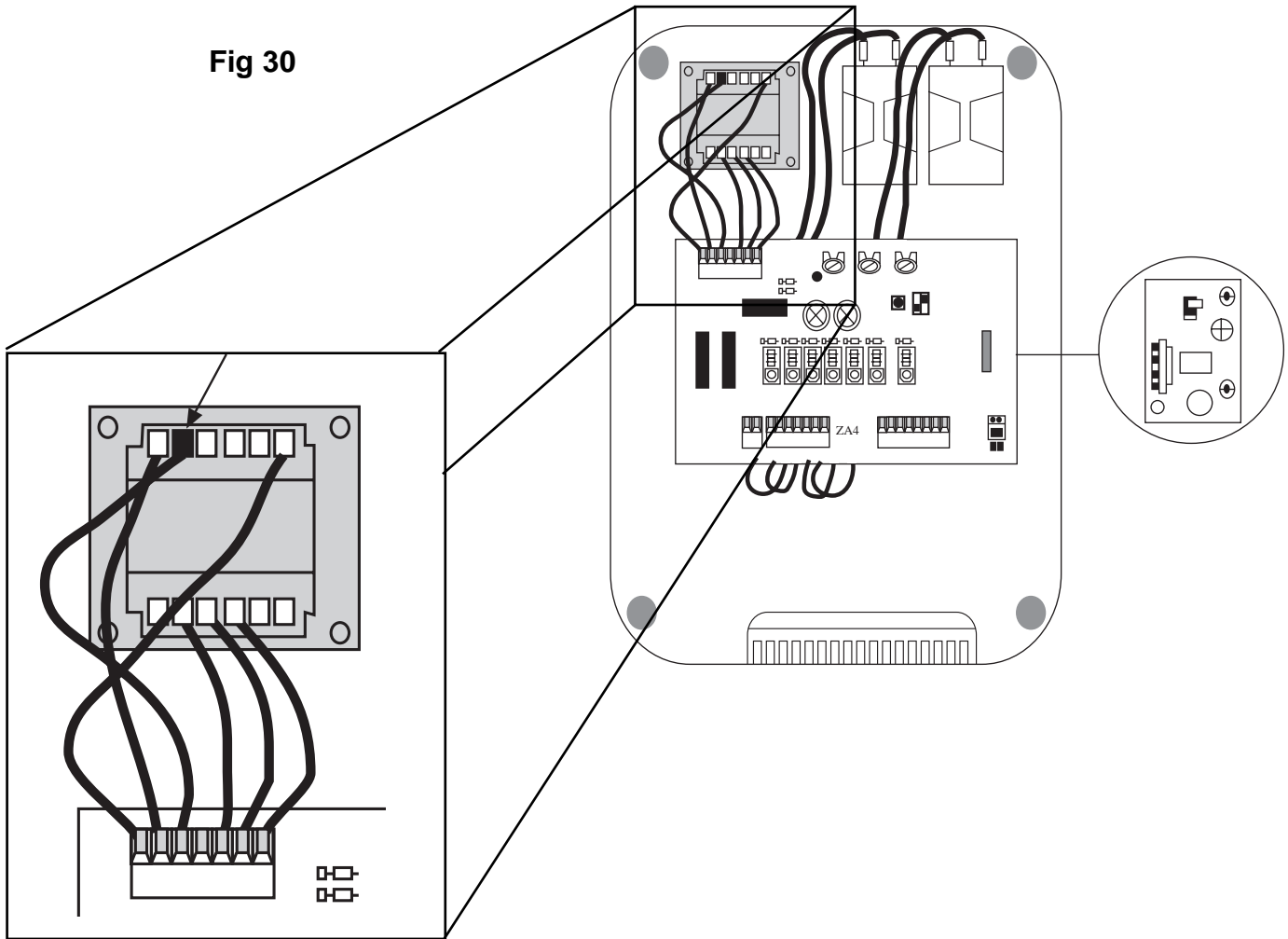
THIS INSTALLATION WAS COMPLETED BY:	
.....	
NAME.....	.....
ADDRESS.....	.....
.....	.....
.....	.....
.....	.....
TEL.....	MOBILE.....
DATE OF INSTALLATION.....	

# 5. TECHNICAL INFORMATION

## 5.1 - Motor Torque Settings

To vary the motor torque, move the indicated spade connector to one of the four position :  
1=min, 4=max.

**N.B.** It is always best to start from position one and increase the torque setting as required.



## 5.2 - ZA4 Control Panel Description

### Description of Control Panel:

Micro-processor controlled electrical cabinet powered by 230V (a/c) at 50-60Hz, single phase. Designed for control of CAME (ATI/FERNI/FROG), for hinged gates, hinged industrial doors. Designed and built entirely by CAME to meet UNI8612 safety standards at an IP 54 level of protection. Housing made of ABS is equipped with vents to provide internal air circulation. Guaranteed for 3 years, unless tampered with. This control panel is powered 230V a.c across terminals L1 and L2, and is protected by a 5A fuse on the main power line. Control systems are powered by low voltage and protected by a 2A fuse. The accessories total wattage (24V) must not exceed 20W.

***The control panel and motors should be suitably earthed.***

### Safety:

SAFETY BEAMS CAN BE CONNECTED TO OBTAIN:

*Re-Opening:* During closing (2-C1), if the beam is broken while the gate is closing, they will reverse the direction of movement until the gate is completely open and will stay open until the obstacle is removed.

*Total Stop:* (1-2) Creates immediate stop of gate movement without automatic closing: (a pushbutton or radio remote control must be actuated to resume movement).

**N.B IF A NORMALLY CLOSED SAFETY CIRCUIT (2-C1, 1-2) IS OPENED, THE L.E.D WILL FLASH TO INDICATE THE FACT THAT THE BEAM IS BROKEN.**

### Accessories that can be Connected to this Unit:

*“Gate in Motion” Lamp:* The lamp that lights the manoeuvring zone: it remains lit from the the moment the gate begins to open until they are completely closed (including the time required for the automatic closure). When automatic closure is not enabled, the lamp remains lit only during movement (E-E3).

### Other functions available:

*Automatic closing:* The automatic closing timer is automatically activated at the end of the opening cycle. The pre-set, adjustable automatic closing time is automatically interrupted by the activation of any safety system, and is deactivated after a STOP command or in case of power failure.

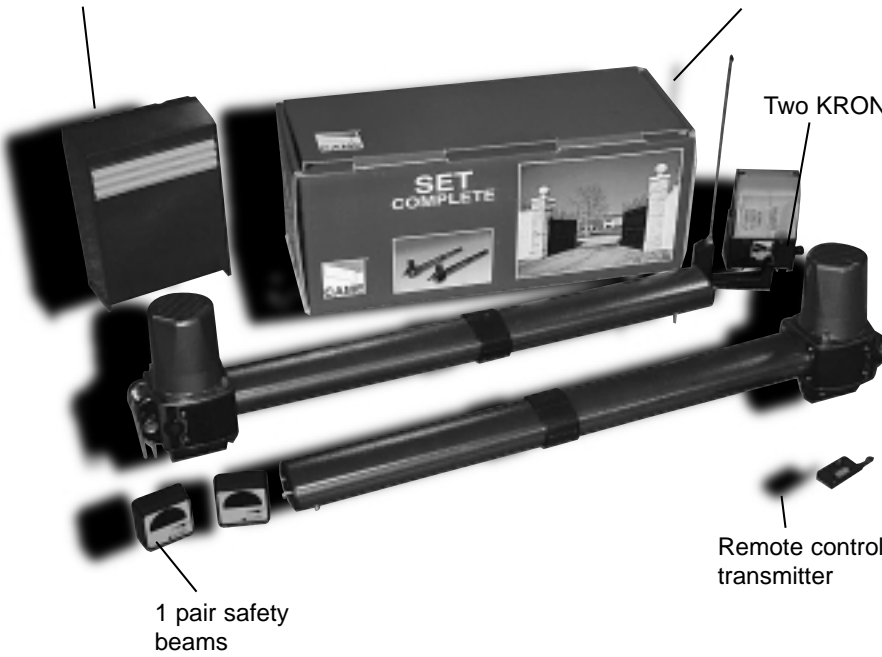
*“Operator present” function:* Gate operates only when the pushbutton is held down (the radio control system is deactivated)

1 control panel  
1 frequency card

**Fig 31**

Tuned antenna

Two KRONO motors



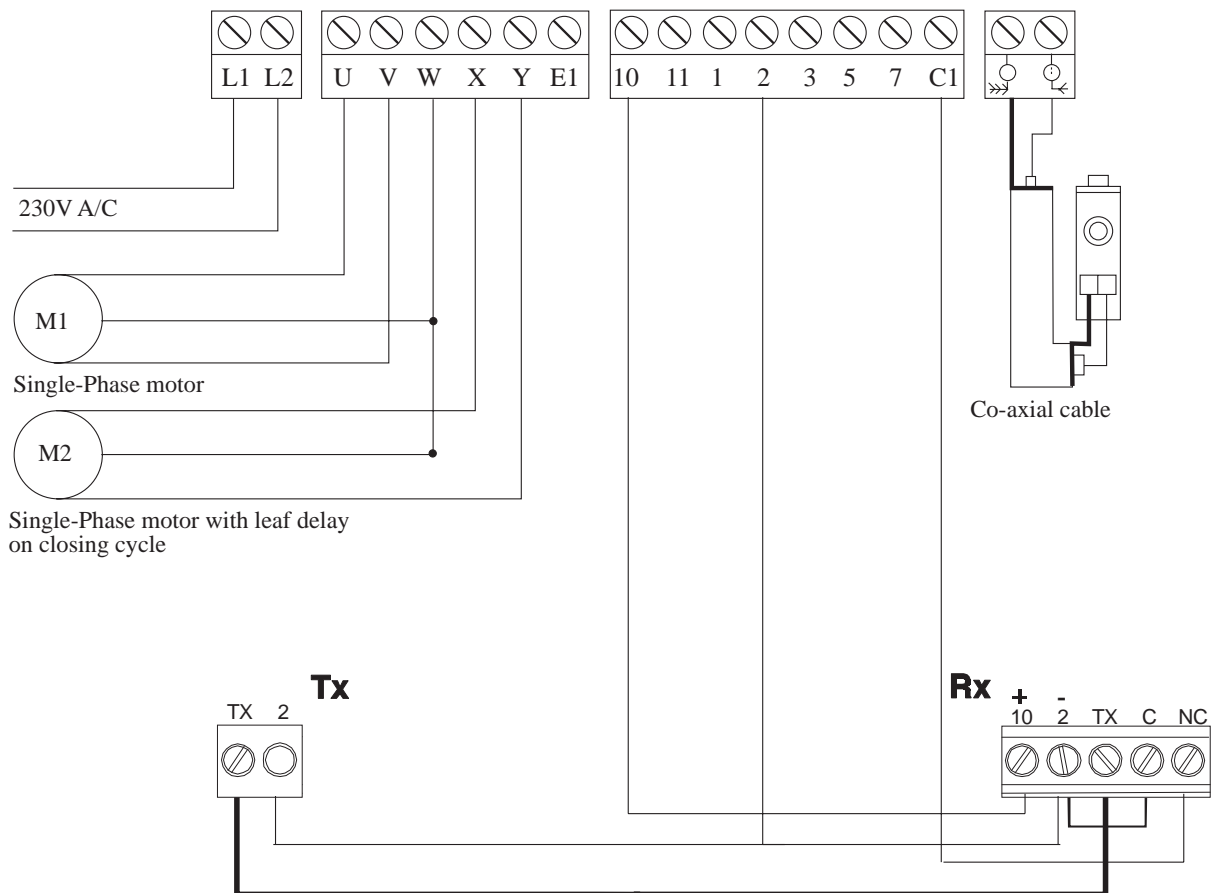
1 pair safety beams

Remote control transmitter

**Fig 32**

### 5.3 - ZA4 Wiring Diagram

Terminals 1 and 2, 2 and C1 are normally closed circuits and if they are not used they must be linked



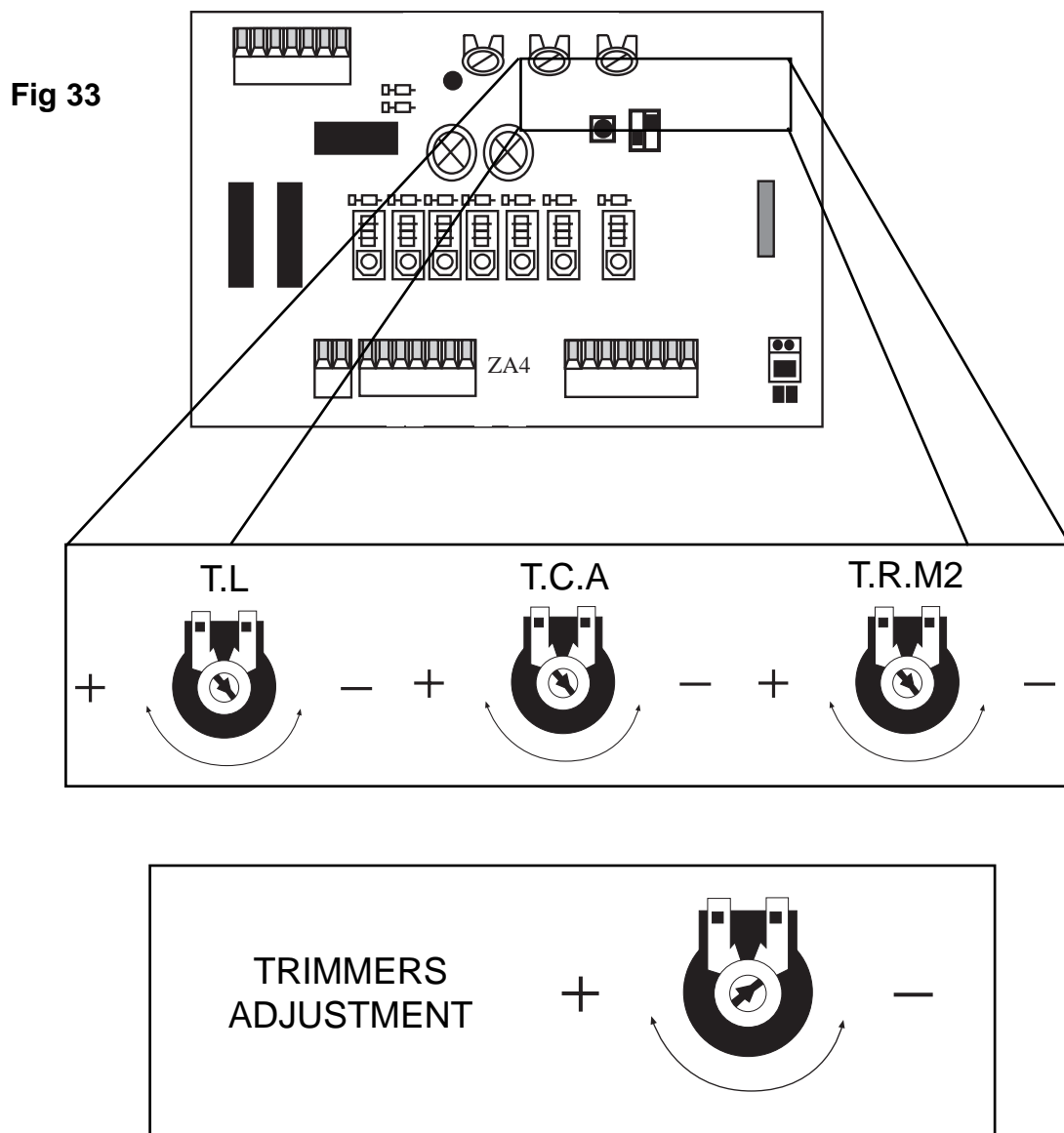
Safety beams which are connected to obtain Re-opening  
During the closing cycle

## 5.4 - Control Panel Adjustments

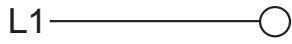
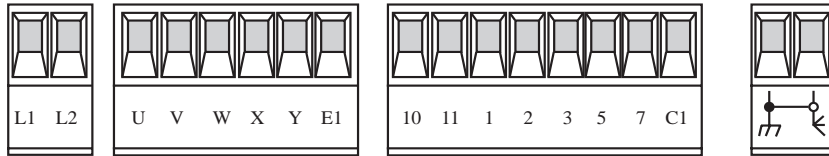
**Trimmer T.L** - Adjustment of operating time from a minimum of 0 seconds to a maximum of 120 seconds N.B. it is advised to let the motors run on for between 6 and 8 seconds after the last gate has fully close.

**Trimmer T.C.A** - Adjustment of automatic closing time from a minimum of 1 to a maximum of 120 seconds.

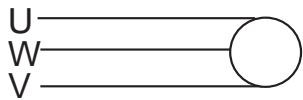
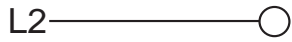
**Trimmer T.R.2.M** - Partial opening time adjustment and delay in closing of the second motor leaf delay from a minimum of 0 seconds to a maximum of 20 seconds.



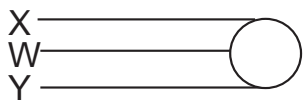
## 5.4 - Electrical Connections



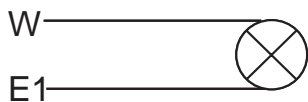
Power supply for control panel



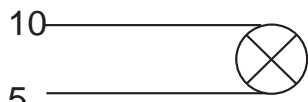
Connection for motor one (delay in opening)



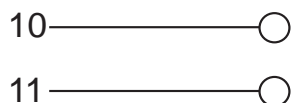
Connection for motor two (delay on closing)



230V (A.C) 25W max output in motion (e.g. flashing light)



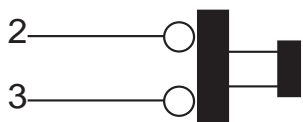
“Gate Open” signal light (24V 3W max)



24V (A.C) Output power supply to accessories (max 20W)



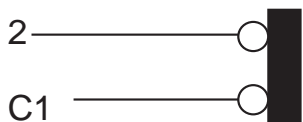
Stop button (N.C)



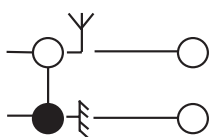
Open only button (N.O)



Contact for radio and or pushbutton control for open-close

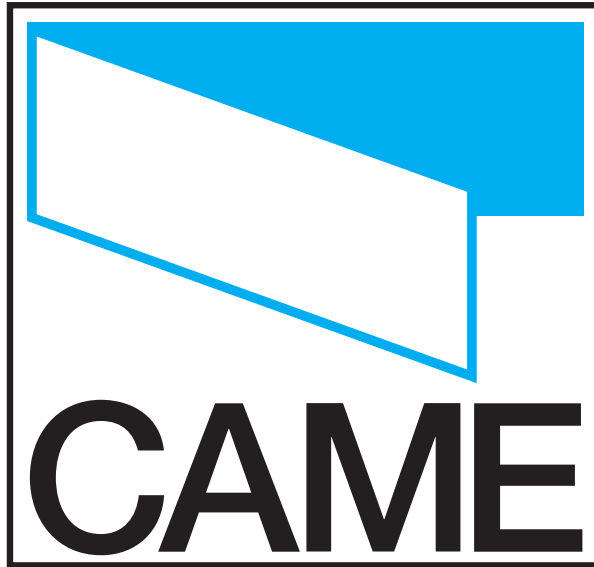


Contact (N.C) for re-opening during closing



Antenna connection

# CONTACT INFORMATION



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THIS INSTALLATION WAS COMPLETED BY:

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NAME.....

ADDRESS.....

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TEL..... MOBILE.....

DATE OF INSTALLATION.....