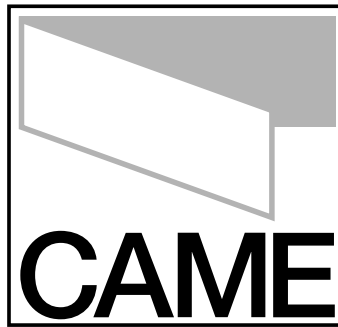


CAME UNITED KINGDOM LTD
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E-MAIL - enquiries@cameuk.com



**TECHNICAL
HELPLINE
0115 921 0430**

FERNI KIT

***Installation Instructions
for a "Pair" of gates...***



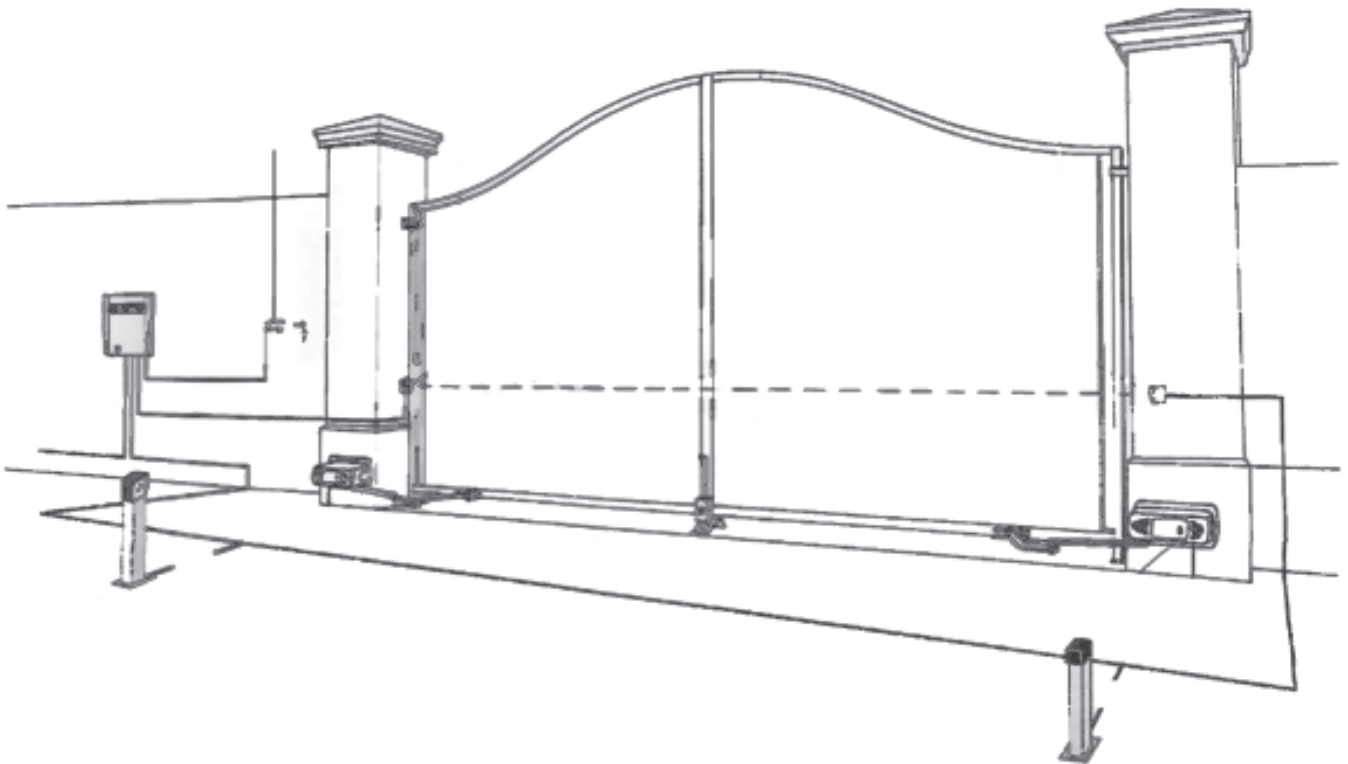
THE FERNI-P KIT CONSISTS OF:

- 2 X FERNI MOTORS***
- 1 X CONTROL PANEL***
- 1 X RADIO FREQUENCY CARD***
- 1 X TUNED ANTENNA***
- 2 X REMOTE CONTROL TRANSMITTERS***
- 1 X PAIR SAFETY PHOTOCELLS***

INTRODUCTION

THESE INSTRUCTIONS WILL SHOW YOU HOW TO INSTALL
A FERNI GATE KIT TO A PAIR OF GATES.

PLEASE READ THESE INSTRUCTIONS AND DIAGRAMS
CAREFULLY BEFORE STARTING ANY WORK.



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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STAGE 1

CIVIL & MECHANICAL SECTION

1.1 - Pre-Installation Check

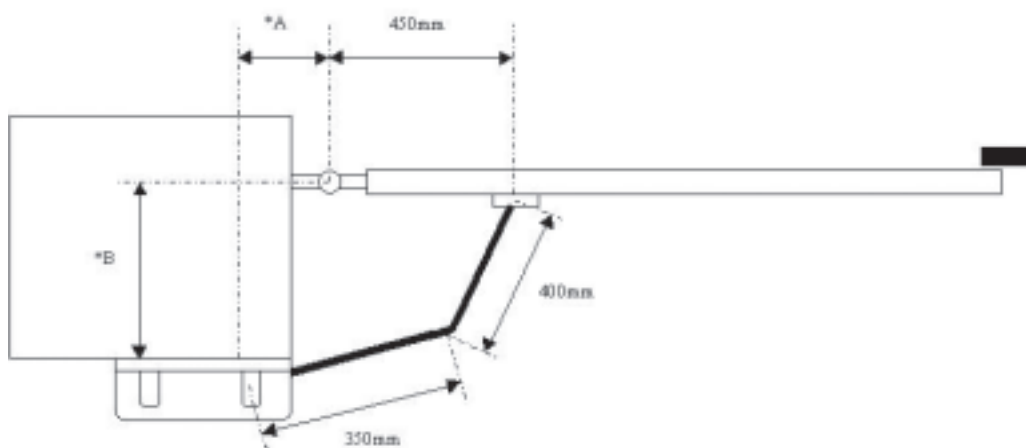
BEFORE BEGINNING YOUR FERNI P GATE INSTALLATION CHECK THE FOLLOWING:

THE GATE POSTS OR PIERS ARE STRONG ENOUGH TO SUPPORT THE GATES AND THE MOTORS

THE GATES ARE STRONG ENOUGH TO BE AUTOMATED.

THE GATES SWING FREELY FROM OPEN TO CLOSE AND THERE IS NO FRICTION ON THE HINGS.

Fig 1

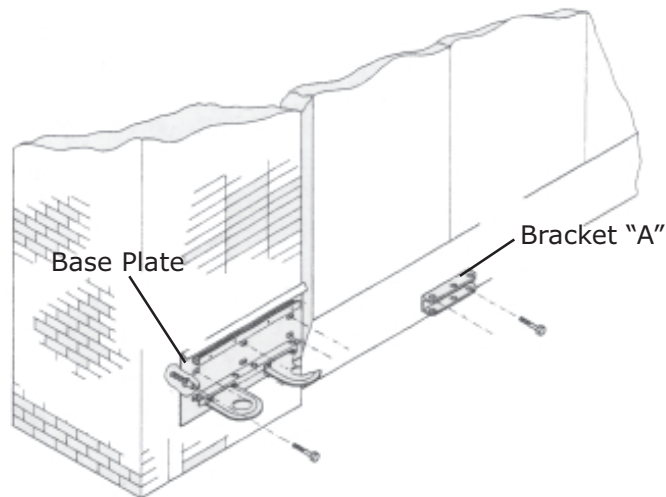


IF DISTANCE B IS 0 TO 300mm: DISTANCE A MUST BE AT LEAST 110mm.

IF DISTANCE B IS 300mm TO 380mm: DISTANCE A MUST BE AT LEAST 150mm.

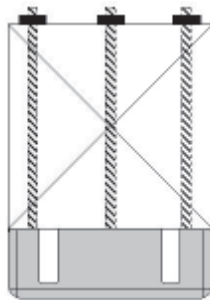
1.2 - Mounting the Motor Base Plate

Fig 2

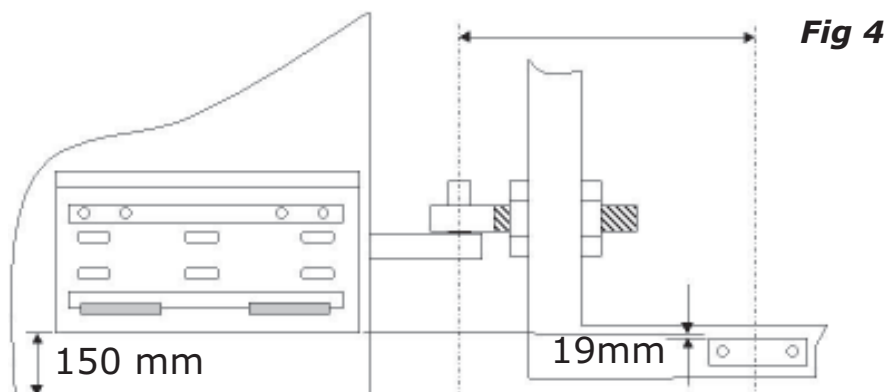


USING SUITABLE ANCHOR BOLTS OR CHEMICAL RESIN FOR BRICK PIER SECURITY MOUNT THE MOTOR PLATE TO THE BRICK PIER. FOR WOODEN POSTS IT IS ADVISED TO FIX THE MOTOR PLATE TO THE POST. A THREADED BAR SHOULD BE PLACED ALL THE WAY THROUGH THE POST THEN BOLTED.

Fig 3



WHEN MOUNTING THE MOTOR PLATE BE SURE TO RESPECT THE 150mm DIMENSION FROM THE BOTTOM OF THE MOTOR PLATE TO GROUND LEVEL. THIS IS TO ENSURE SUFFICIENT CLEARANCE FOR THE TRANSMISSION DRIVE ARM TO BE INSERTED THROUGH THE MOTOR. ENSURE THAT THE DISTANCE BETWEEN THE CENTRE OF THE FRONT BRACKET 'A' 450mm. THE FRONT GATE BRACKET MUST BE FIXED LOWER THAN THE MOTOR PLATE BY 19mm AS SHOWN



END OF INSTALLATION STAGE 1

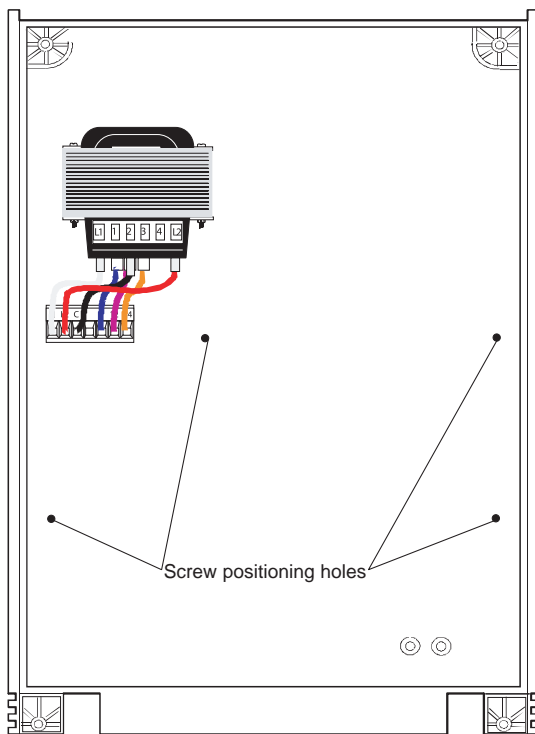
**BEFORE STARTING STAGE 2 - Wiring & Electrical
PLEASE CHECK THAT YOU HAVE CORRECTLY:**

	Ref	Page
1. Checked Requirements	1.1	3
2. Mounted Motor Base Plate	1.2	4

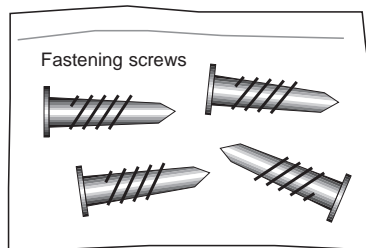
**NOW STAGE 1 IS FULLY COMPLETED YOU ARE READY TO
BEGIN STAGE 2 OF YOUR FERNI AUTOMATION KIT
INSTALLATION**

STAGE 2 - WIRING & ELECTRICAL

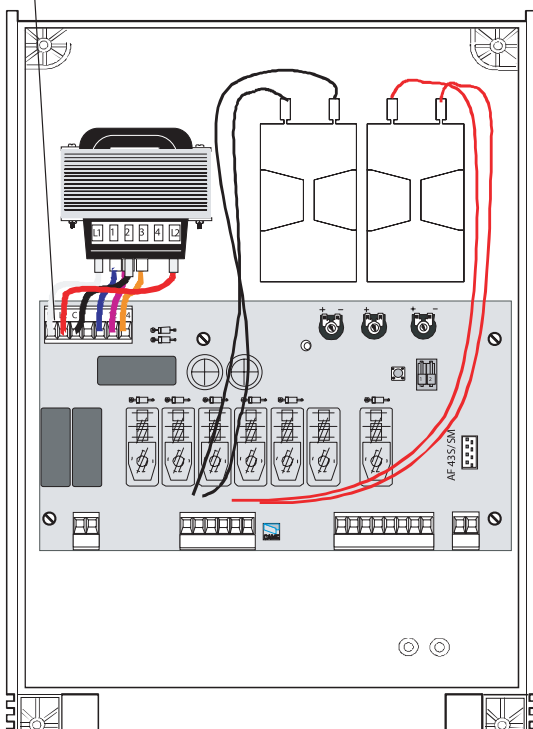
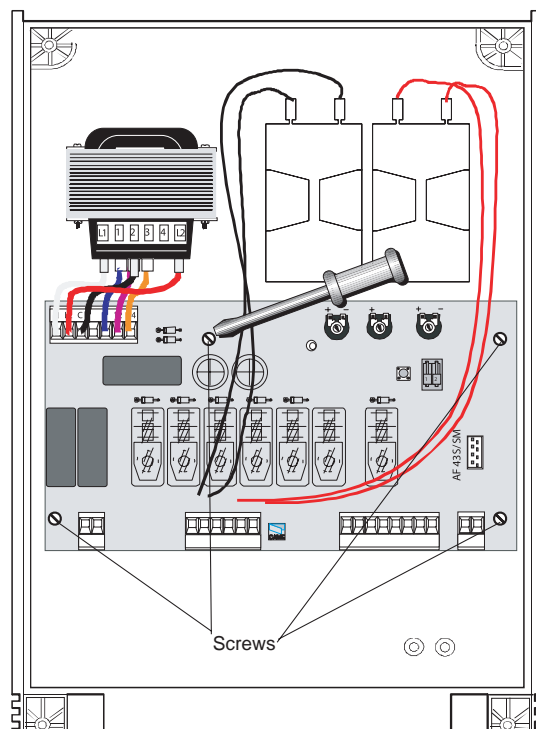
2.1 - Fitting the Control Panel in the Casing



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



Green connector point



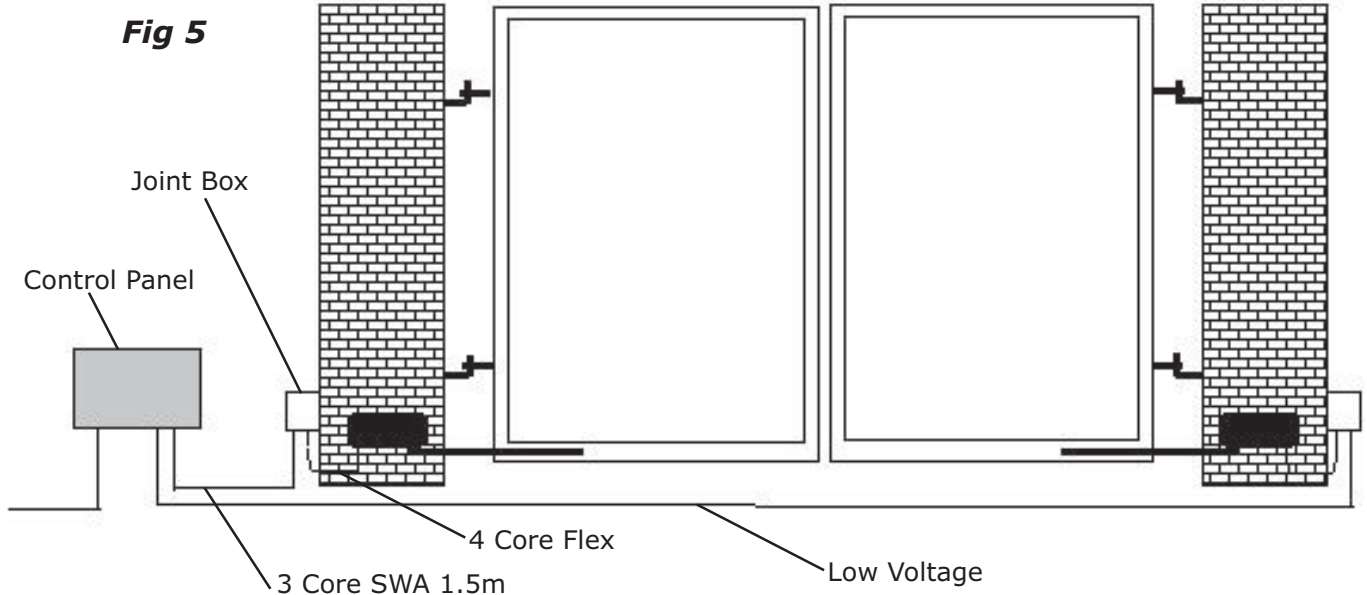
Plug the green connector from the transformer to the PCB ensuring that it connects the correct way.

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

2.2 - Basic Cable Layout

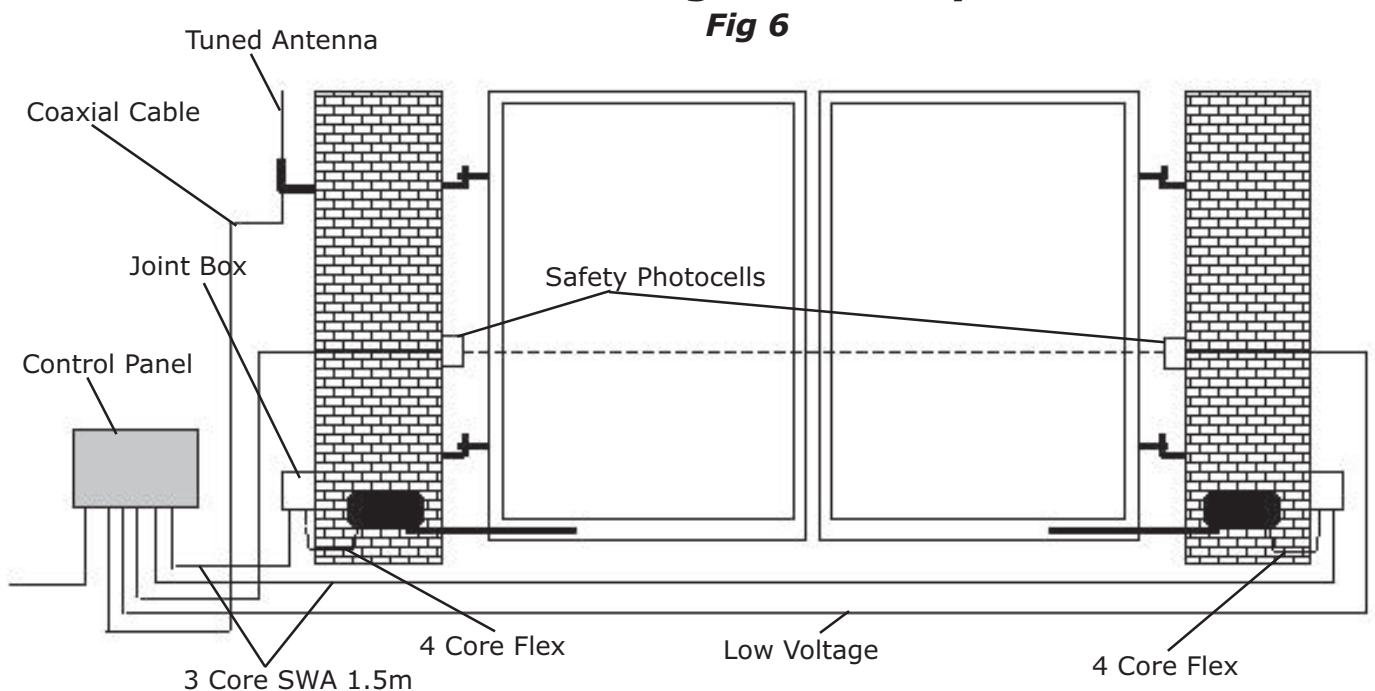
THIS DIAGRAM DETAILS THE BASIC CABLE LAYOUT FOR A PAIR OF MOTORS.

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.



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.

2.3 - Low Voltage Cable Layout



ALL CAME ACCESSORIES CAN BE WIRED 0.2m STRANDED CABLE (BUGLAR ALARM TYPE). THE TUNED ANTENNA SHOULD BE WIRED WITH COAXIAL CABLE (RG59).

END OF INSTALLATION STAGE 2

**BEFORE STARTING STAGE 3 - Installation
PLEASE CHECK THAT YOU HAVE CORRECTLY:**

	Ref	Page
1. Installed Basic Cable Layout	2.1	6
2. Installed Low Voltage Cable Layout	2.2	7

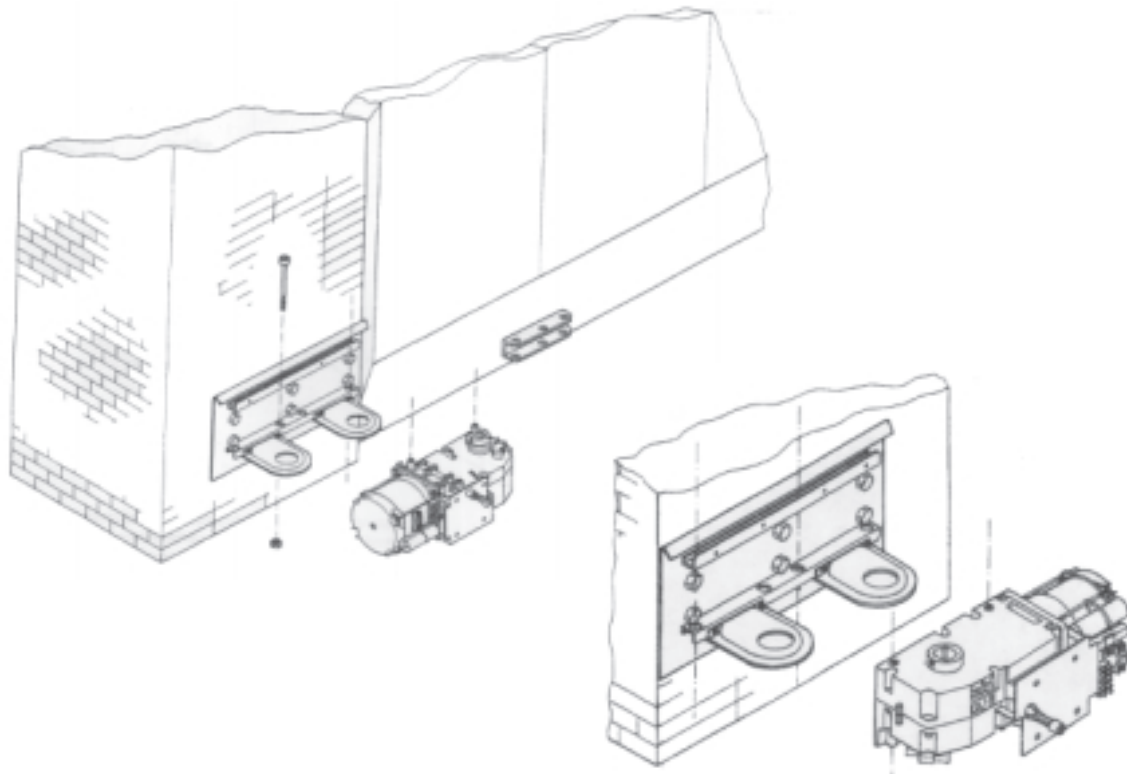
**NOW STAGE 2 IS FULLY COMPLETED YOU ARE READY TO
BEGIN STAGE 3 OF YOUR FERNI AUTOMATION KIT
INSTALLATION**

STAGE 3

INSTALATION SECTION

3.1 - Installing the Motors

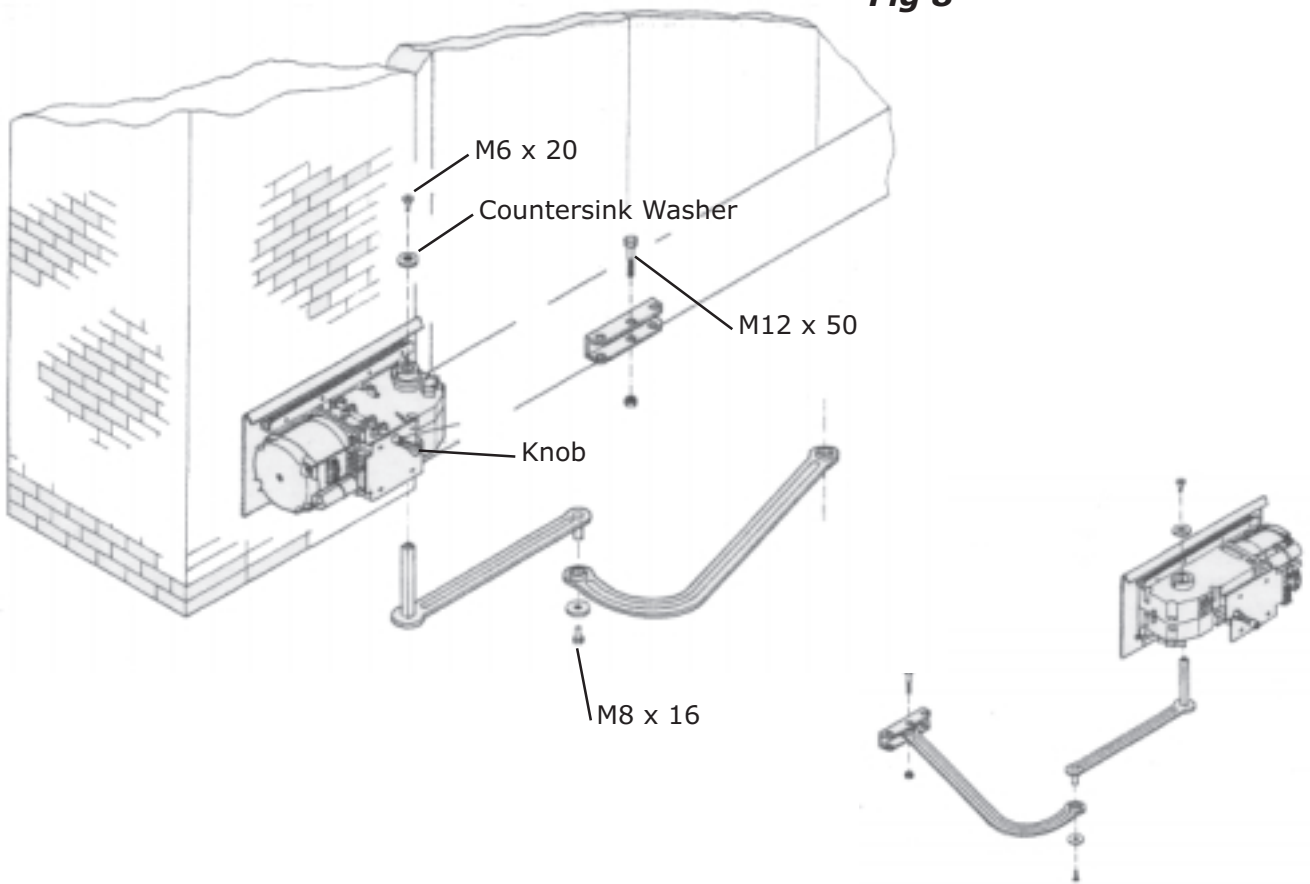
Fig 7



INSERT THE MOTOR INTO THE MOTOR BASE PLATE IN ALIGNMENT WITH THE 4 PRE-DRILLED HOLES AND FIX IT WITH THE TWO M8 X 110 BOLTS & NUTS SUPPLIED. FOR RIGHT HAND INSTALLATIONS, REVERSE THE POSITION OF THE MOTOR AND USE THE SECOND PAIR OF HOLES (SEE FIGURE 7)

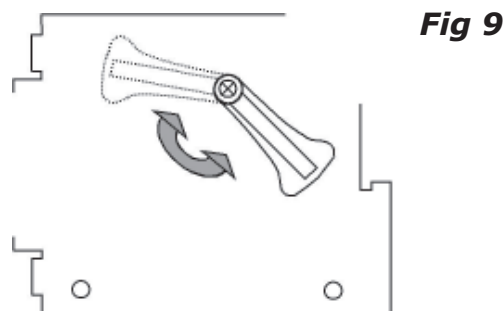
3.2 - Installing the Drive Arms

Fig 8



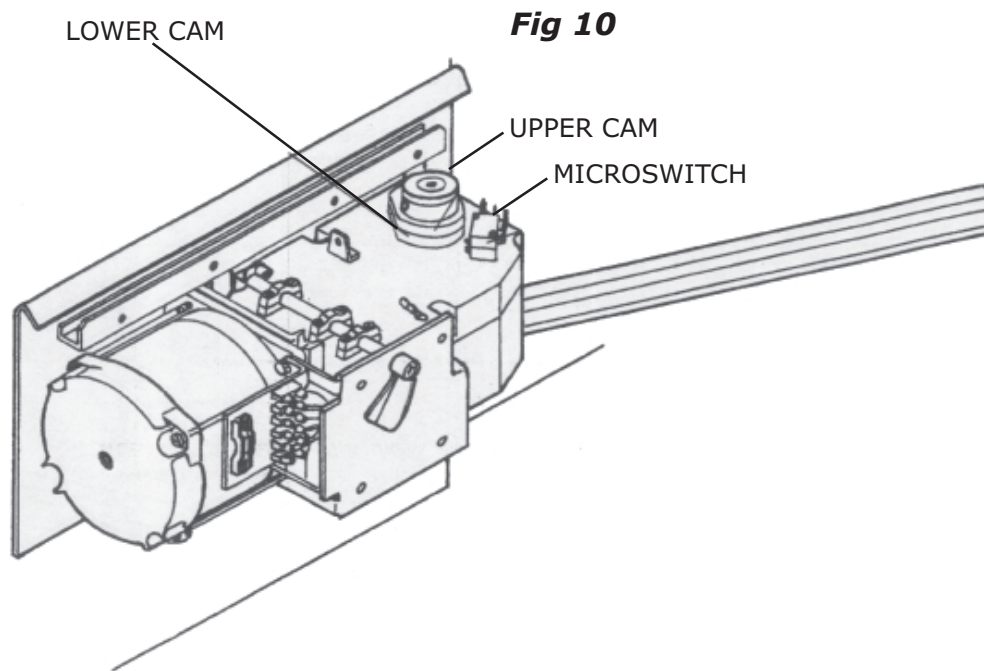
INSERT THE STRAIGHT ARM THROUGH THE GEARBOX, HOLDING IT IN PLACE FIT THE FLARED WASHER USING THE M6 X 20 COUNTER SUNK SCREW. GRIP THE SHAFT IN PLACE BY TIGHTENING THE FOUR GRUB SCREWS TOP AND BOTTOM OF THE GEARBOX. JOIN AND FIX THE TWO ARMS TOGETHER WITH THE WASHER AND THE M8 X 16 BOLT.

RELEASE THE MOTOR (ROTATING THE HAND GRIP IN THE DIRECTION OF THE ARROW).



FIT THE CURVED ARM TO THE FRONT MOUNTING BRACKET USING THE M12 X 50 BOLT AND M12 NUT.

3.3 - Adjusting the Open & Closed Cams



OPEN POSITION

RELEASE THE GATE MOTOR AND MOVE THE GATE TO THE DESIRED OPEN POSITION. NOW ROTATE THE UPPER CAM UNTIL IT MAKES CONTACT WITH THE MICROSWITCH. CLOSE THE GATE AND TIGHTEN THE SCREW IN THE CAM.

CLOSED POSITION

RELEASE THE GATE MOTOR AND MOVE THE GATE TO THE DESIRED CLOSED POSITION. NOW ROTATE THE LOWER CAM UNTIL IT MAKES CONTACT WITH THE MICROSWITCH. OPEN THE GATE AND TIGHTEN THE SCREW IN THE CAM.

END OF INSTALLATION STAGE 3

**BEFORE STARTING STAGE 4 - Wiring & Electrical (2)
PLEASE CHECK THAT YOU HAVE CORRECTLY:**

	Ref	Page
1. Installed the Motors	3.1	9
2. Installed the Drive Arms	3.2	10
3. Adjusted the Open & Closed Cams	3.3	11

**NOW STAGE 3 IS FULLY COMPLETED YOU ARE READY TO
BEGIN STAGE 4 OF YOUR FERNI AUTOMATION KIT
INSTALLATION**

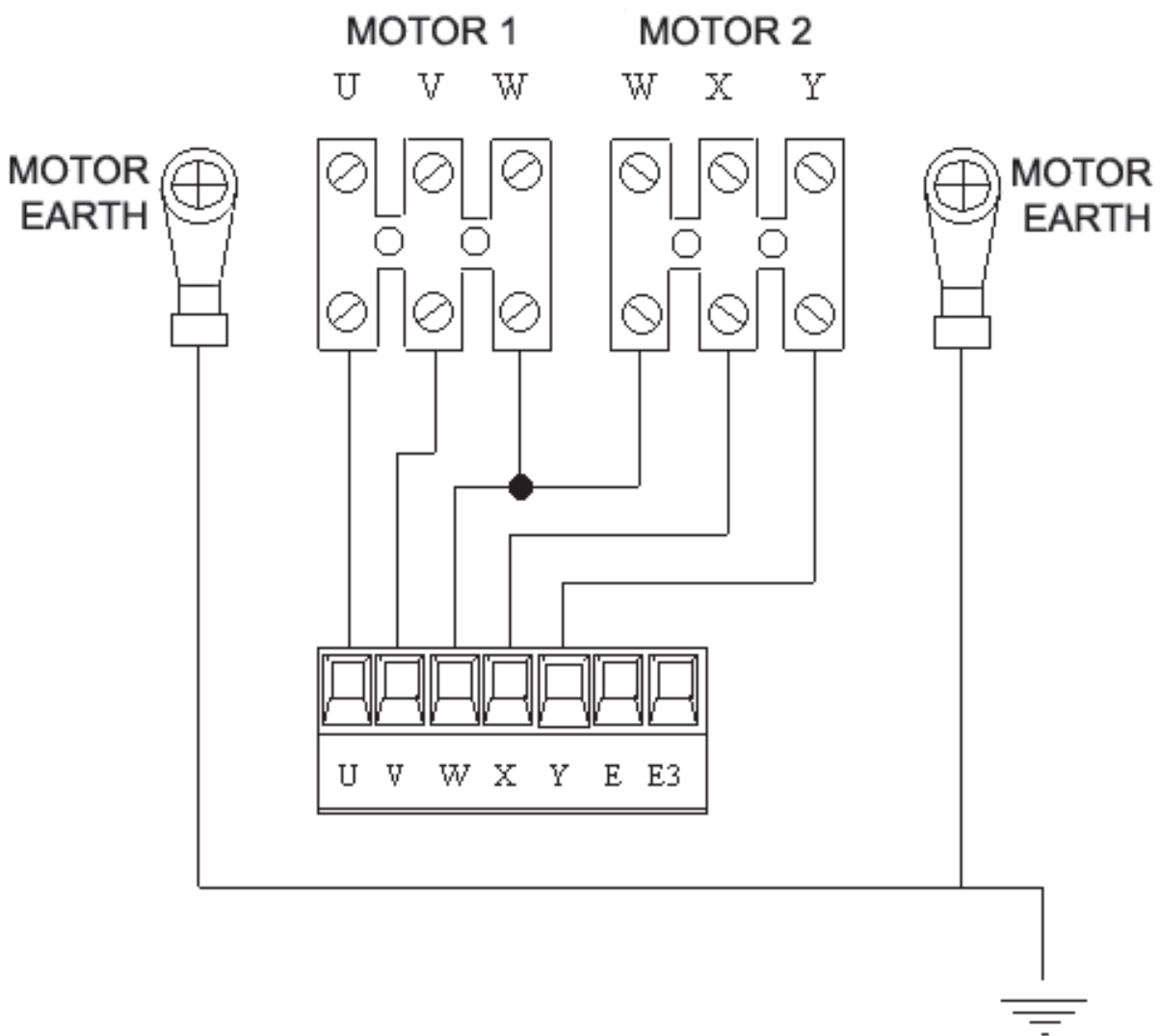
STAGE 4

WIRING & ELECTRICAL (2)

4.1 - Wiring the Motors

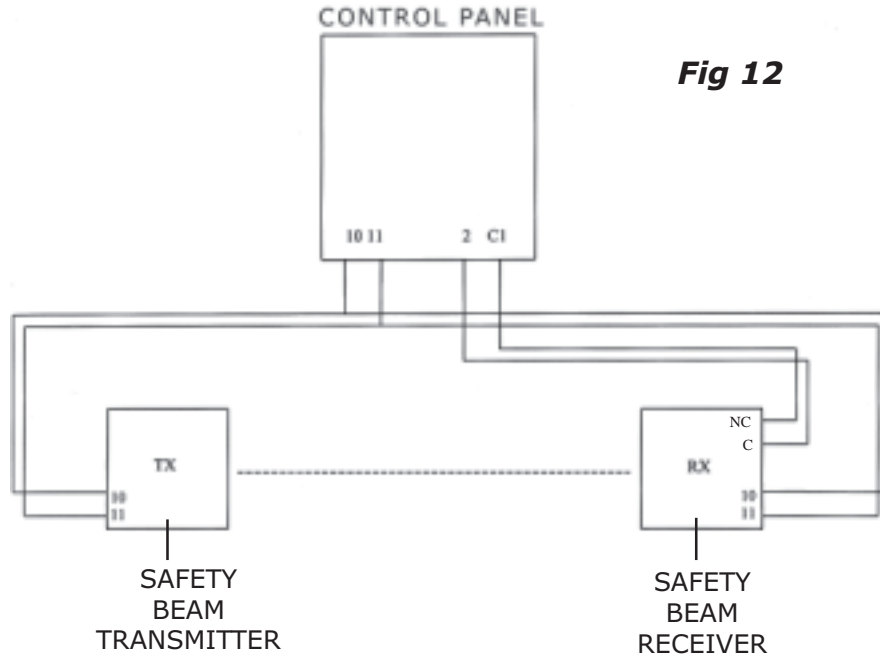
ENSURE BOTH MOTORS ARE ADEQUATELY EARTHED.

Fig 11



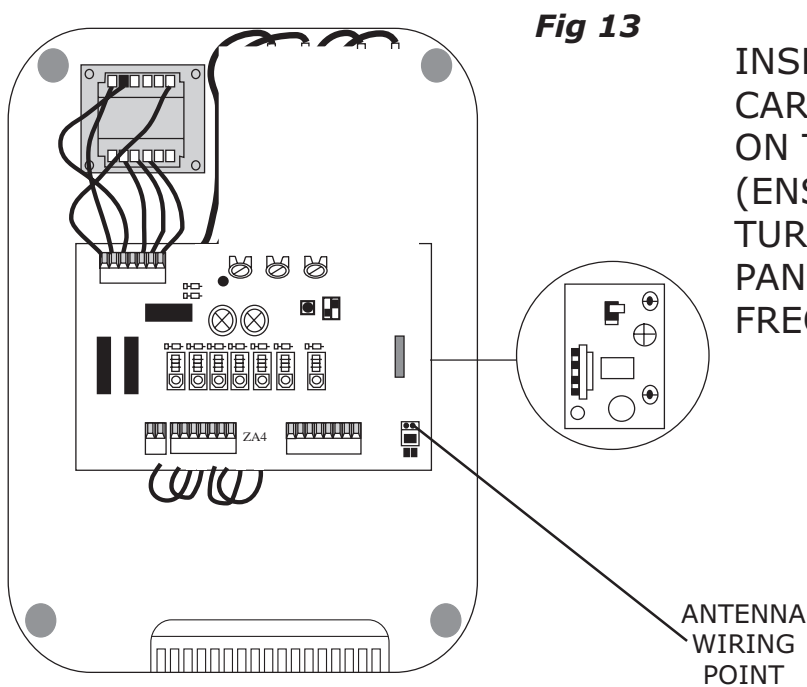
4.2 - Wiring in the Safety Photocells

SAFETY BEAMS SHOULD BE FITTED APPROXIMATELY
15 INCHES FROM GROUND LEVEL



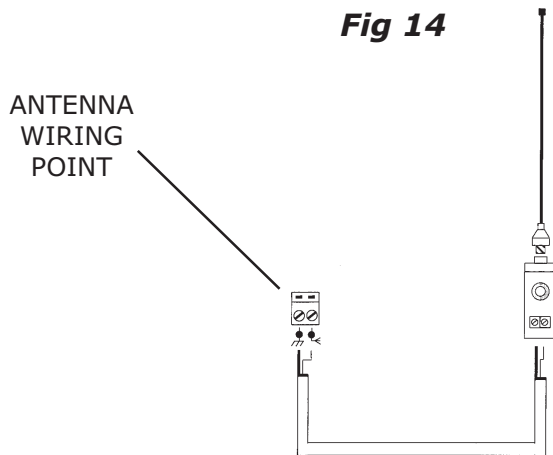
IF FITTING A SECOND ARC LINE SET OF SAFETY BEAMS THEN C & NC MUST BE WIRED IN "SERIES"

4.3 - Inserting the Radio Frequency Card



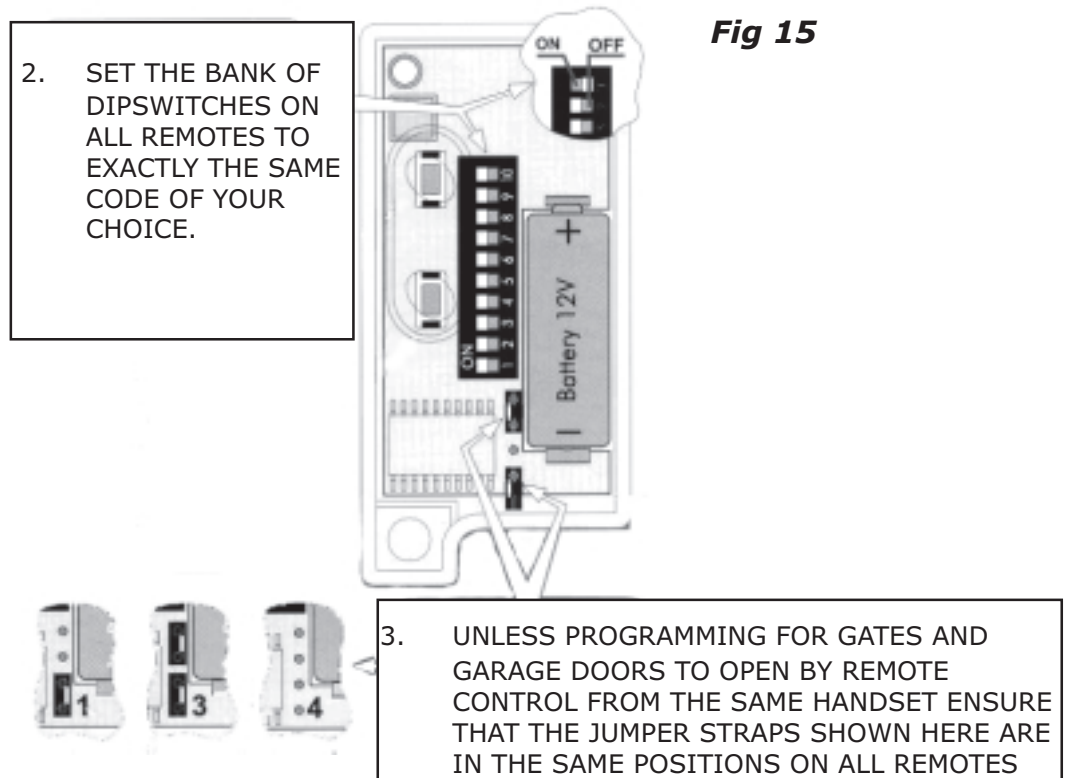
INSERT THE RADIO FREQUENCY CARD INTO THE SMALL SOCKET ON THE CONTROL PANEL (ENSURE THAT THE POWER IS TURNED **OFF** TO THE CONTROL PANEL BEFORE INSERTING THE FREQUENCY CARD)

4.4 - Wiring in the Tuned Antenna



4.5 - Coding the Remote Controls

1. REMOVE THE BATTERY COVER & CASING OF THE REMOTE CONTROL HANDSET TO REVEAL THE DIAGRAM BELOW



4.6 - 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 4

**BEFORE STARTING STAGE 5 - Commissioning the
Control Panel**

PLEASE CHECK THAT YOU HAVE CORRECTLY:

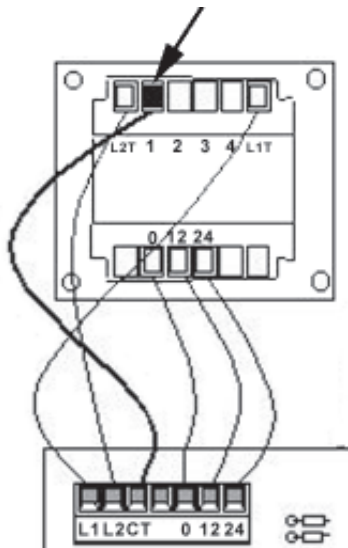
	Ref	Page
1. WIRED THE MOTORS AS SHOWN	4.1	13
2. WIRED IN THE SAFETY PHOTOCELLS	4.2	14
3. INSERTED THE RADIO FREQUENCY CARD	4.3	14
4. WIRED IN THE TUNED ANTENNA	4.4	15
5. PROGRAMMED THE REMOTE CONTROLS	4.5	15
6. POWERED UP THE CONTROL PANEL	4.6	15

**NOW STAGE 4 IS FULLY COMPLETED YOU ARE READY TO
BEGIN STAGE 5 OF YOUR FERNI AUTOMATION KIT
INSTALLATION**

STAGE 5 COMMISSIONING THE CONTROL PANEL

5.1 - Initial Wiring & Control Panel Setup

Fig 16



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 17

3. SELECT DIPSWITCHES 1 & 2 OFF FOR COMMISSIONING
4. ENSURE HARD WIRE LINK IS FITTED BETWEEN TERMINALS 1 & 2 AND 2 & C1

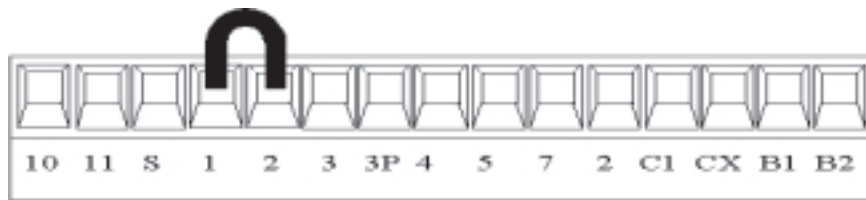


Fig 18

5.2 - Opening & Closing the Gates



Fig 19

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.



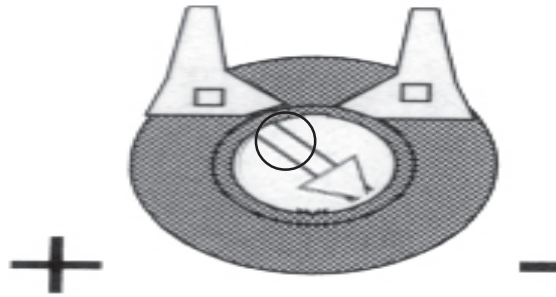
Fig 20

2. ONCE YOU HAVE PROVED 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.

5.3 - Control Panel Adjustments

1. TO DELAY ONE GATE LEAF, ADJUST POTENIOMETER TR2M TO DELAY THE CLOSING OF GATE NO. 2 IN THE CLOSING CYCLE

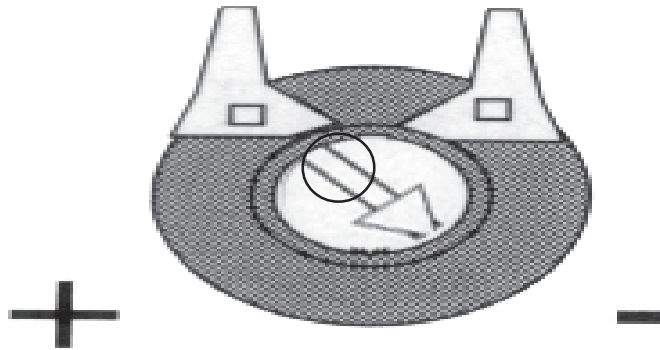
Fig 21



TRIMMER TR2M

2. TO SET THE TOTAL RUNNING TIME OF THE MOTORS, ADJUST POTENIOMETER TL TO ALLOW THE MOTORS TO RUN FOR A FURTHER 5-7 SECONDS AFTER THE MOVEMENT CYCLE HAS BEEN COMPLETED (I.E FULLY OPEN OR FULLY CLOSED)

Fig 22



TRIMMER TL

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.

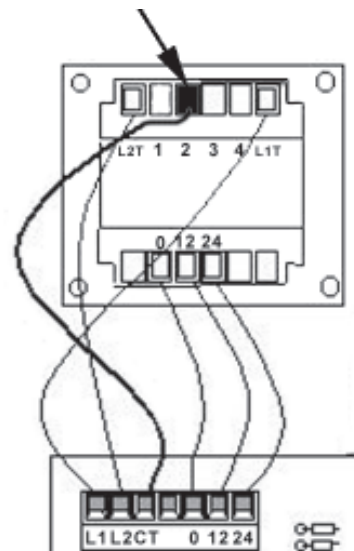


Fig 23

5.4 - Automatic Close & Activating Safety Photocells

Fig 24



1. TO SELECT AUTOMATIC CLOSING,
SELECT DIPSWITCH 2 **ON**.

SET THE AUTOMATIC CLOSING TIME BY ADJUSTING POTENTIOMETER TCA

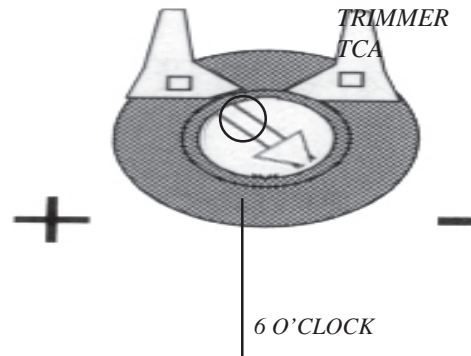
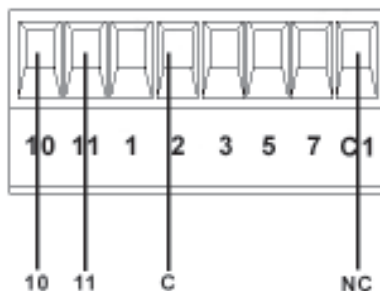


Fig 25

FULLY ANTI-CLOCKWISE WILL APPROX. AUTOMATICALLY CLOSE THE GATES AFTER 10 SECONDS AND FULLY CLOCKWISE WILL APPROX. CLOSE THE GATES AFTER 80 SECONDS. A SENSIBLE SETTING IS ABOUT HALWAY (I.E 6 O'CLOCK POSITION) WHICH WILL AUTOMATICALLY CLOSE THE GATES AFTER APPROX. 30 SECONDS.



2. FOR RE-OPENING DURING CLOSING,
REMOVE HARD WIRE LINK BETWEEN
2 & C1 AND INSERT SAFETY BEAM
WIRES AS SHOWN.

Fig 26

5.5 - 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)

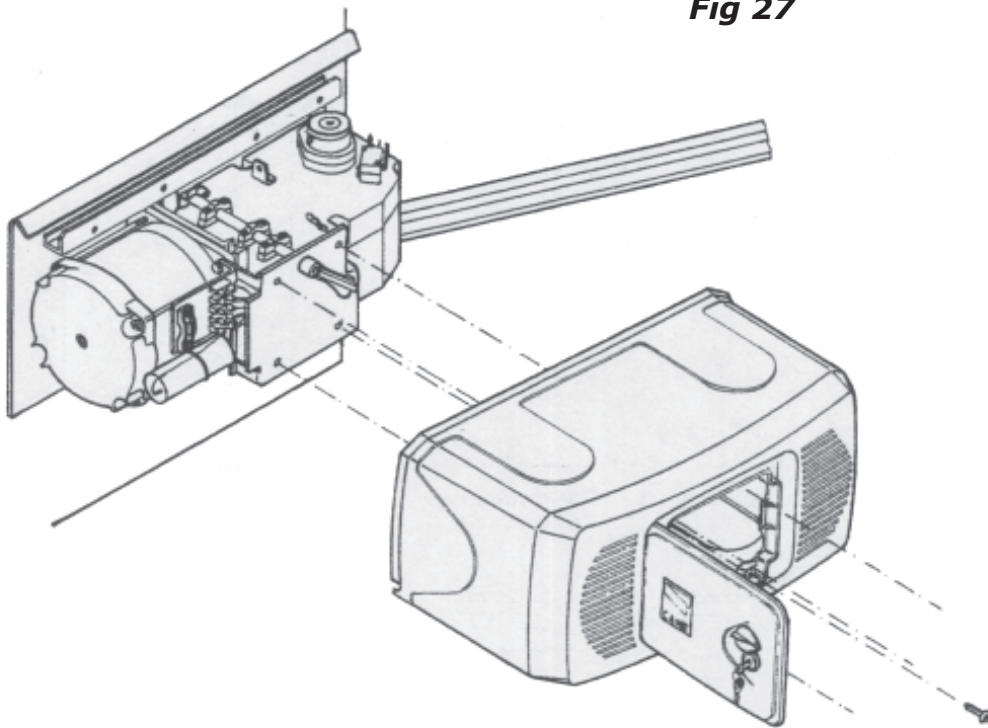
At the same time transmit on the top button of your remote control; keep both the top button and the yellow receiver button pressed until the LED stops flashing and remains on constant. It will then go out to indicate that the code has been successfully stored.

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.

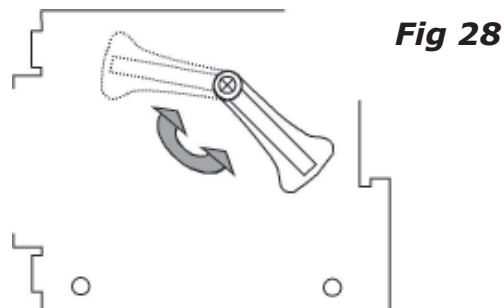
WARNING: Disconnect the power supply from the control board before inserting OR removing the AF radio-frequency card from the socket.

5.6 - Final Assembly

ONCE FINAL COMMISSIONING HAS BEEN COMPLETED FIT THE MOTOR COVER WITH THE 4 X 3.9 X 13 SCREWS PROVIDED.



EMERGENCY RELEASE (TO BE DONE WHILE THE MOTOR IS OFF)



IN THE CASE OF A POWER FAILURE OR MALFUNCTION, UNLOCK THE GEAR MOTOR BY USING THE KNOB PROVIDED.

END OF INSTALLATION STAGE 5

PLEASE CHECK THAT YOU HAVE CORRECTLY:

	Ref	Page
1. SET POWER SETTING, SET DIPSWITCHES FOR COMMISSIONING, ENSURE WIRE LINK IS FITTED BETWEEN TERMINALS 1 & 2 AND 2 & C1	5.1	17
2. SET THE OPENING AND CLOSING TIMES FOR GATES	5.2	18
3. ADJUSTED THE CONTROL PANEL	5.3	19
4. IF REQUIRED, ACTIVATED AUTOMATIC CLOSING AND SAFETY PHOTOCELLS	5.4	20
5. PROGRAMMED THE REMOTE TO THE CONTROL PANEL	5.5	21
6. FITTED MOTOR COVER	5.6	22

6. TROUBLESHOOTING GUIDE

A MULTIMETER WILL BE NEEDED

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

CONTINUED ON NEXT PAGE

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

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

0115 938 7200

THIS INSTALLATION WAS COMPLETED BY:

.....

NAME.....

ADDRESS.....

.....

.....

.....

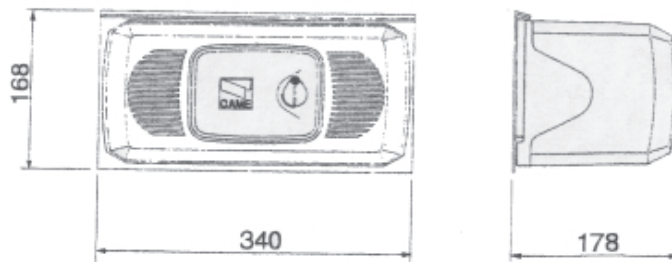
TEL..... MOBILE.....

DATE OF INSTALLATION.....

7. TECHNICAL INFORMATION

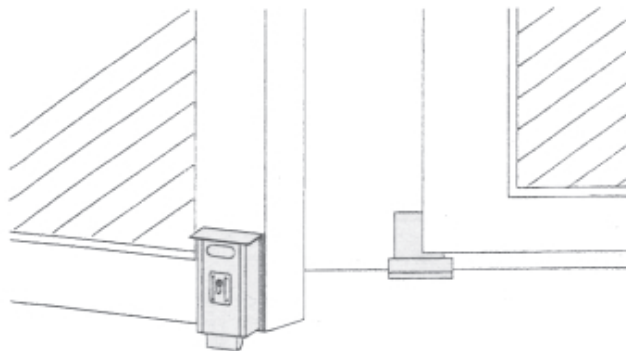
7.1 - Technical Specification

Type	Weight	Power Supply	Nominal Current	Motor Power	Duty Cycle	Torque	Capacitor
F 1000	14 Kg	230V a.c	1,3 A	150 W	30%	*320 N.m	10 uF



Width of Motor	Weight of Gate
2.00 m	800 kg
*2.50 m	600 kg
3.00 m	500 kg
3.50 m	450 kg
4.00 m	400 kg

** AN ELECTRIC LOCK IS SUGGESTED WHEN THE GATE WING IS WIDER THAN 2.5M*

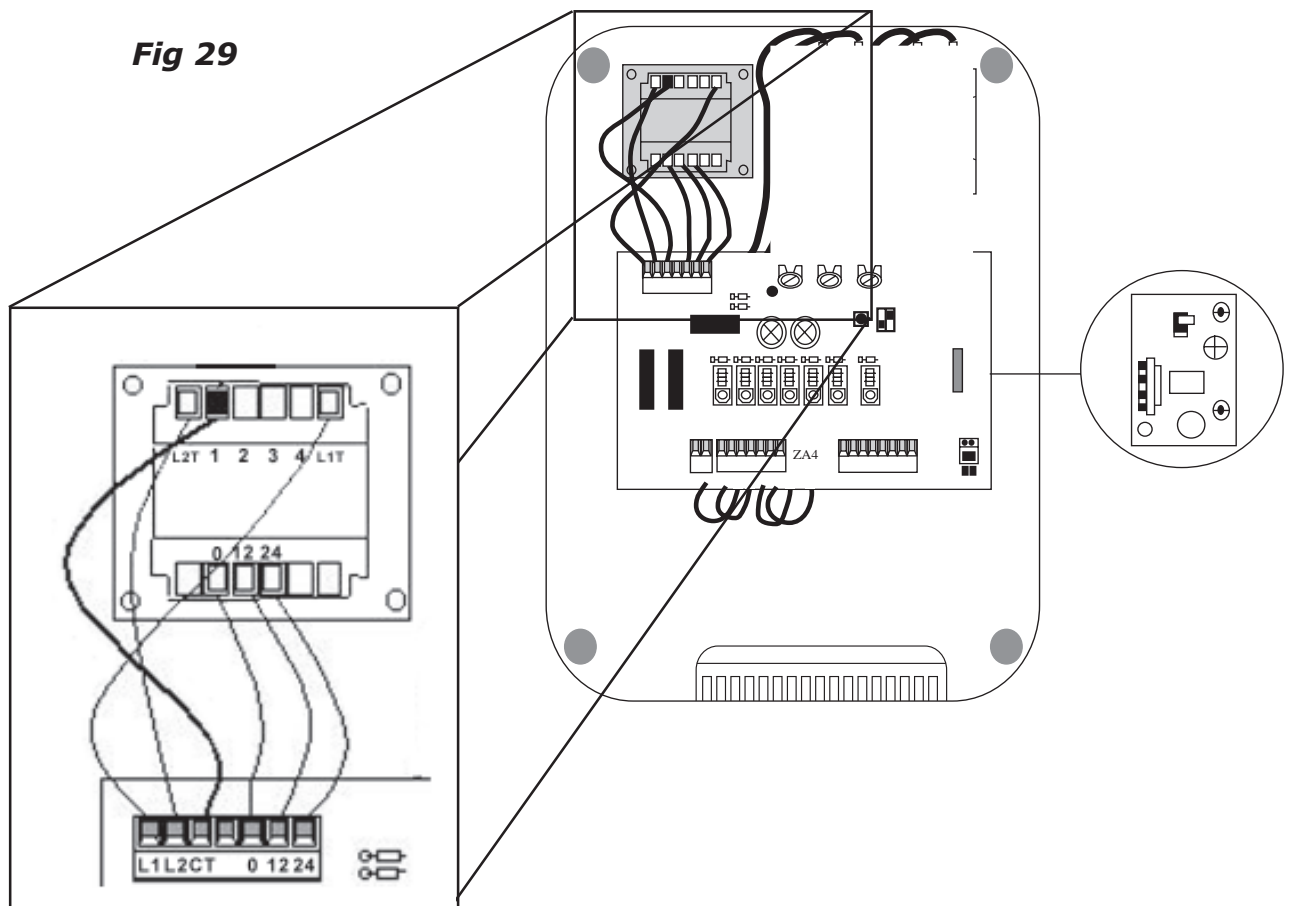


7.2 - Motor Torque Settings

SEE ALSO PAGE 14

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.



7.3 - 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).

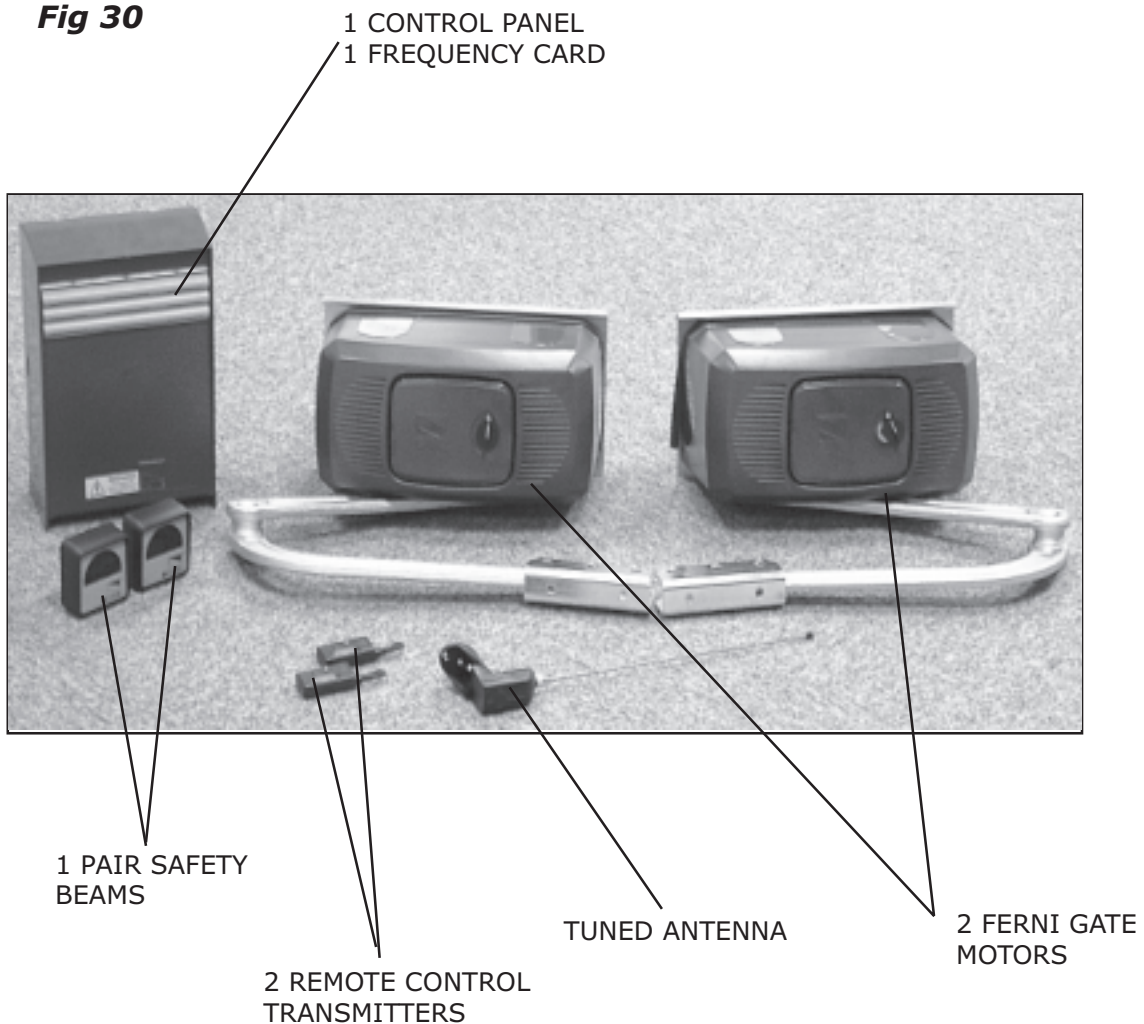
Other functions available:

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:

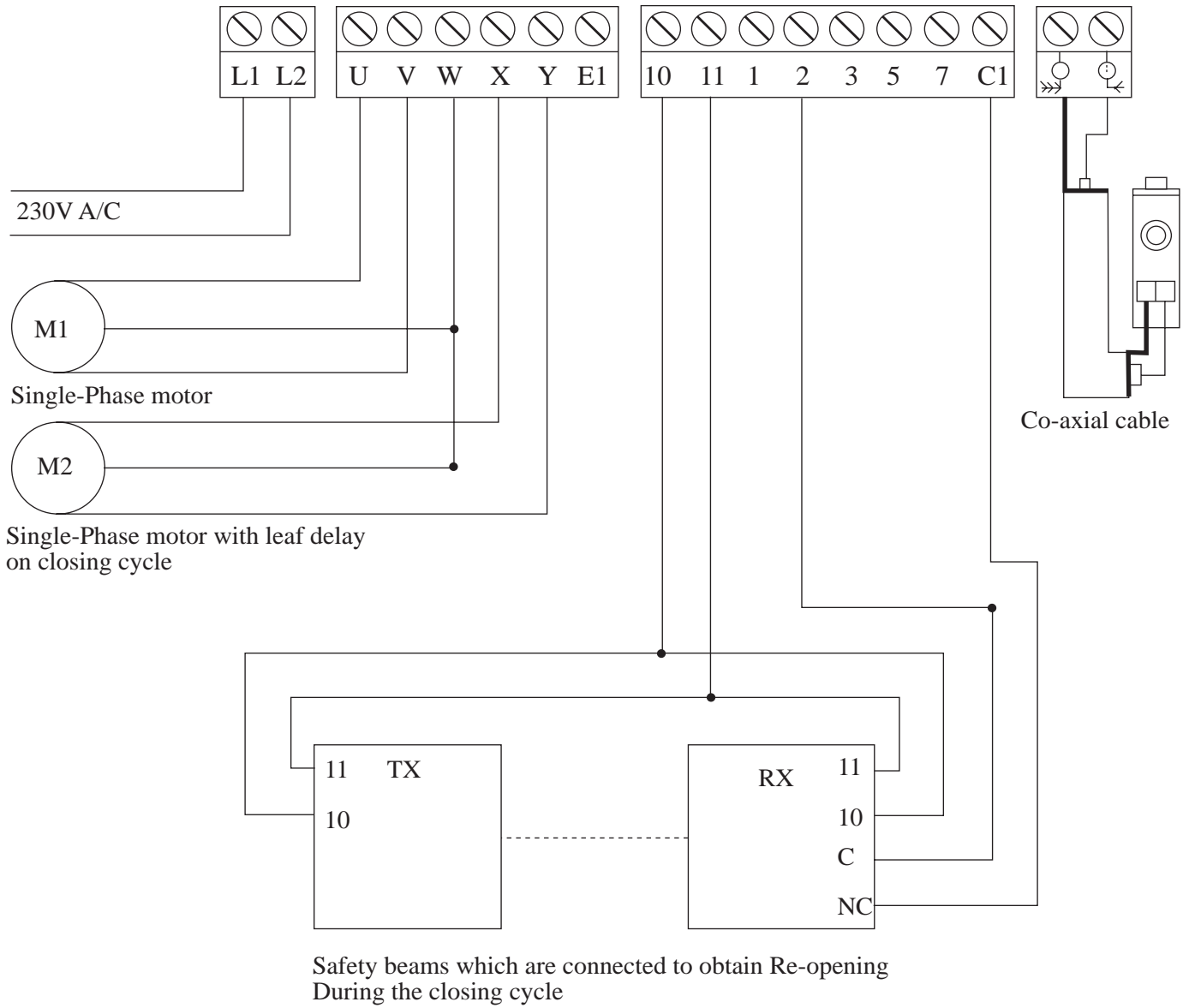
Gate operates only when the pushbutton is held down (the radio control system is deactivated)

Fig 30



7.4 - ZA4 Wiring Diagram

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



7.5 - 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.

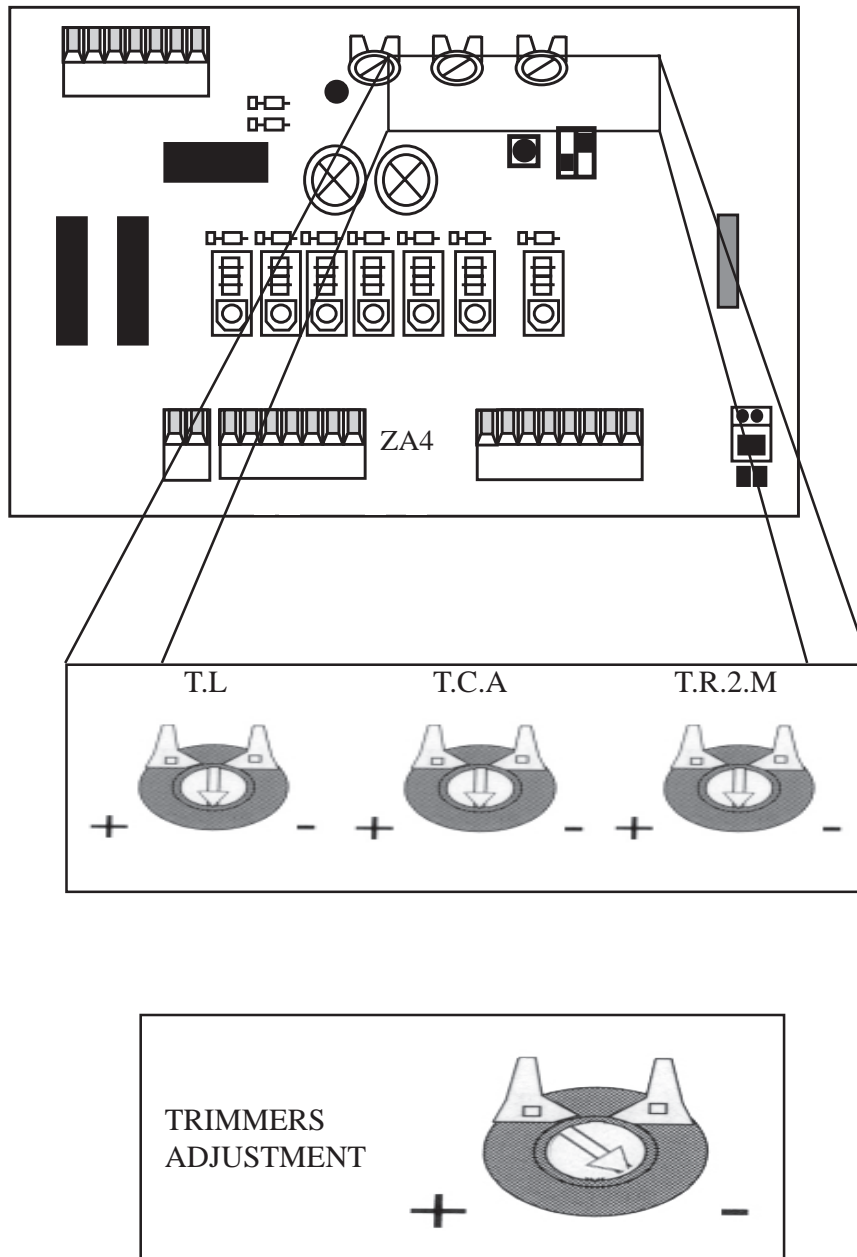
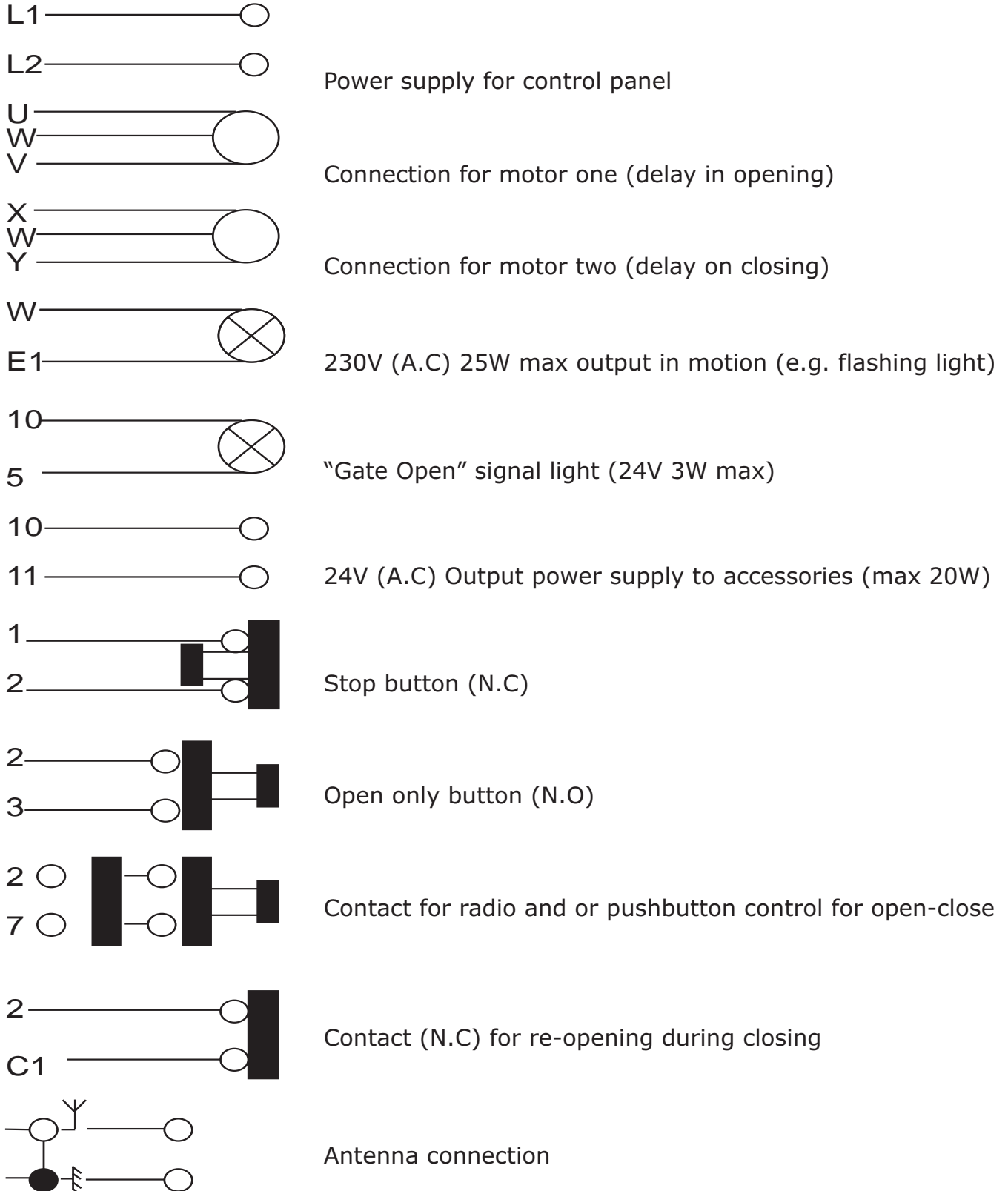
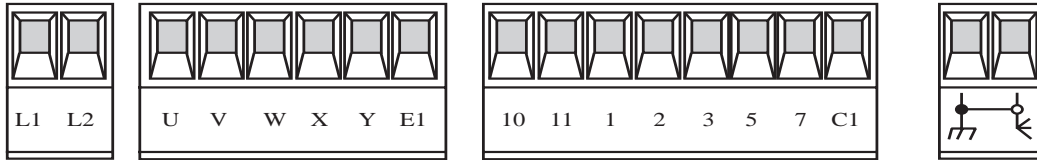


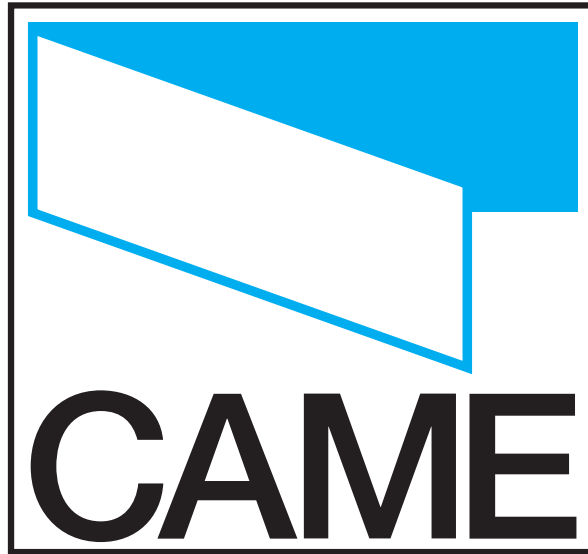
Fig 31

7.6 - Electrical Connections



NOTES

8. CONTACT INFORMATION



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UNIT 3

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THIS INSTALLATION WAS COMPLETED BY:

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NAME.....

ADDRESS.....

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