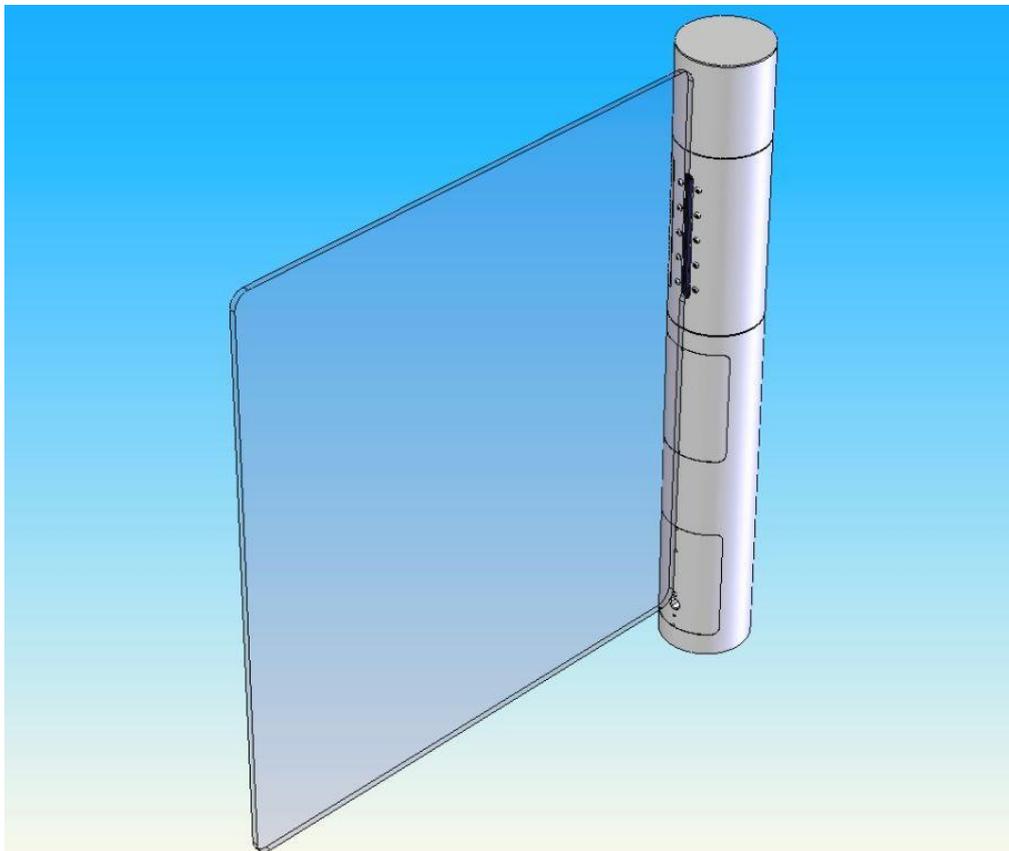




**GEOQUIP**  
WORLDWIDE

BROUGHTON

## Series 670 Bi-Directional Pedestrian Gate



### Operation & Maintenance Manual

#### Document History

Issue	Date	Description	Author	Approved
<i>C</i>	<i>15/07/15</i>	<i>Company details changed</i>	<i>C Holmes</i>	<i>M Horritt</i>
<i>D</i>	<i>04/08/15</i>	<i>Manual revised</i>	<i>C Holmes</i>	<i>M Horritt</i>

## Preface

## Thank You

Thank you for your custom. You have selected one of the highest quality products available for effective entrance control solutions. This manual will help you become familiar with your traffic barrier equipment and help you make the most of the equipment's features.

## Contacting Us

Any queries regarding the operation or maintenance of this equipment should be referred to:

Geoquip Worldwide  
33 Stakehill Industrial Estate  
Middleton, Manchester M24 2RW

Tel: 0161 655 1020  
Fax: 0161 655 1021

Web Site: [www.broughton-controls.co.uk](http://www.broughton-controls.co.uk)  
Email: [info@geoquip.com](mailto:info@geoquip.com)

All warranty issues and maintenance of Geoquip Worldwide equipment is carried out by our sister company contact details are shown below please make a note of your job reference number prior to contacting us (you will be advised of this on your completion certificate or delivery note):

Geoquip Worldwide  
33 Stakehill Industrial Estate  
Middleton, Manchester M24 2RW

Tel: 0800 073 0650  
Fax: 0161 655 1041



These instructions should be read fully prior to using the system!

## Twelve-Month Warranty

**Important Note:** If your equipment was not purchased directly from Geoquip Worldwide, then all warranty issues will need to be addressed to the supplier of the equipment.

### Comprehensive Warranty:

Where equipment has been purchased directly from Geoquip Worldwide and the installation has also been carried out by Geoquip Worldwide, then a comprehensive warranty is applicable to the equipment (subject to correct servicing and use of equipment).

### Return to Factory Warranty

Where equipment has been purchased directly from Geoquip Worldwide, but the installation has not been carried out by Geoquip Worldwide, then a return to factory warranty is applicable to the equipment (subject to correct servicing and use of equipment). This warranty does not include Engineer call out.

## Installation and Supply Reference

Each installation and all supply-only equipment is designated a unique job/supply reference. This reference will usually start with the letter J in front of a 5-digit number. Please quote the relevant installation reference in all communication and correspondence to us, this will help them to quickly access equipment details held on our system.

## Disclaimer

Whilst every effort has been made to ensure that the information contained in this manual is correct at the time of issue, no responsibility is accepted for any loss or damage arising from incorrect information.

This manual forms no part whatsoever of any contract or agreement between Geoquip Worldwide limited & others. In no circumstances will Geoquip Worldwide Limited be responsible or liable for any costs, damage or injury whatsoever arising from the use of this Manual.

Should the barrier be tampered with and/or any non-approved equipment is fitted to the barrier such as signs, weights, lights and other auxiliary items then the warranty will be considered void.

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### Declaration of conformity

In accordance with  
Machinery Directive: 2006/42/EC  
EMC Directive: 89/336/EEC  
Low Voltage Directive: 2006/95/EC

the manufacturer: ITAB Shop Products AB  
Box 9054  
550 09 Jönköping  
Sweden  
Phone: +46 36 299 46 00

declares that the following product  
Entrance Gate: Rotogate SI

is in conformity with the above directives.

The following (parts/clauses of) harmonising standards have been applied:

SS-EN 292-1, SS-EN 292-2, SS-EN 60204-01, SS-EN 418,  
SS-EN 349, SS-EN 294  
SS-EN 50082-2, SS-EN 50081-1, EN 61000-3-2, EN 61000-3-3  
AFS 1994:48 (transfer of 98/37/EC to Swedish legislation)

As the manufacturer, we declare on our sole responsibility that the product is in conformity with the specified directives.

A handwritten signature in blue ink, appearing to read 'David Dignam', is written over a horizontal dashed line.

David Dignam



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## **Series 670**

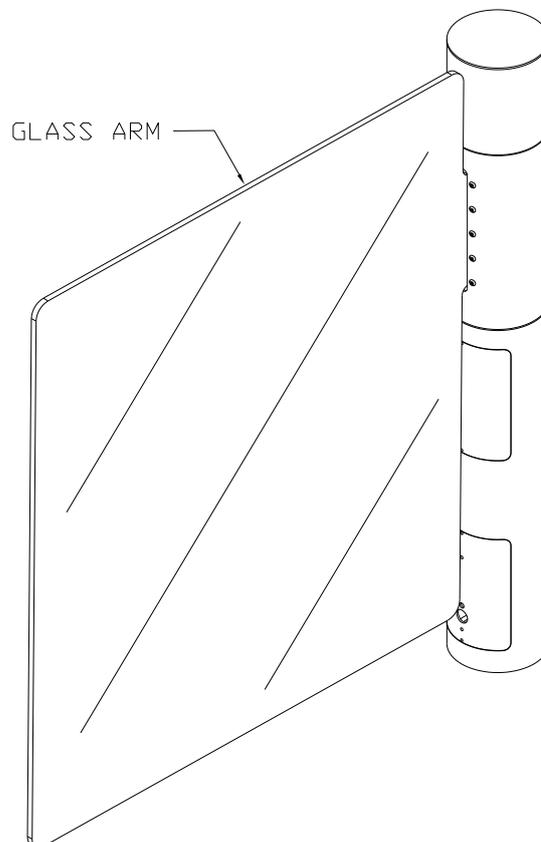
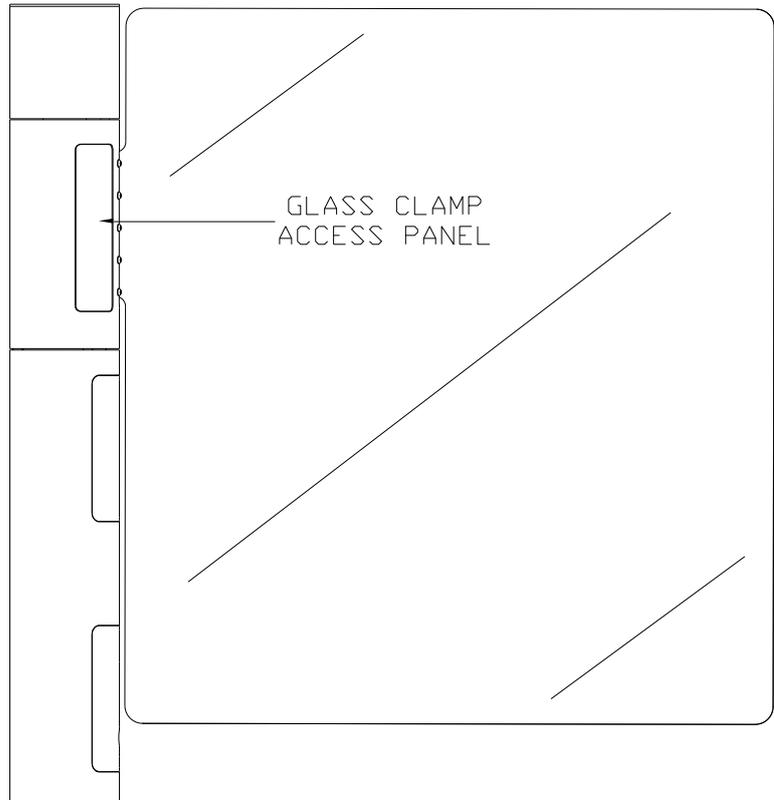
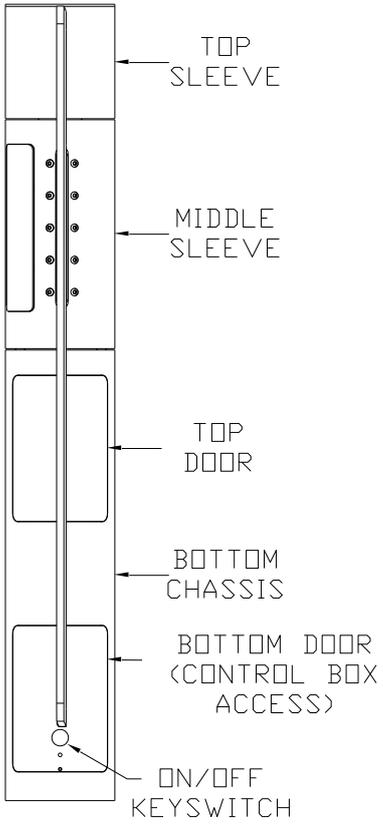
### **ENCODER VERSION**

# **ELECTRICAL OPERATION MANUAL**

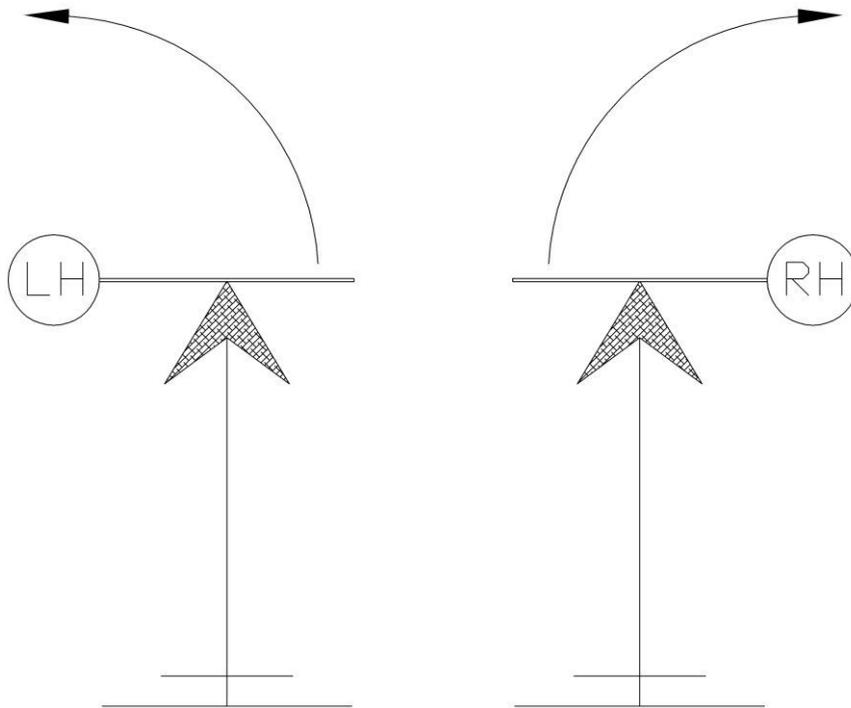
The Series 670 model incorporates an electro-mechanical drive assembly with a multi-function control box designed to be easily used by any person with a basic understanding of the gates many and varied options.

It is strongly recommended that you read the following operation manual thoroughly before making any changes to the operation your new gate.

## IDENTIFYING THE SI GATE



## **LEFT AND RIGHT HANDED OPTIONS**



### **NORMAL ACTION**

**NOTE:** The gate arm is shown in its rest position (0 degrees) and viewed from above. The arrows indicate direction of movement when activated.

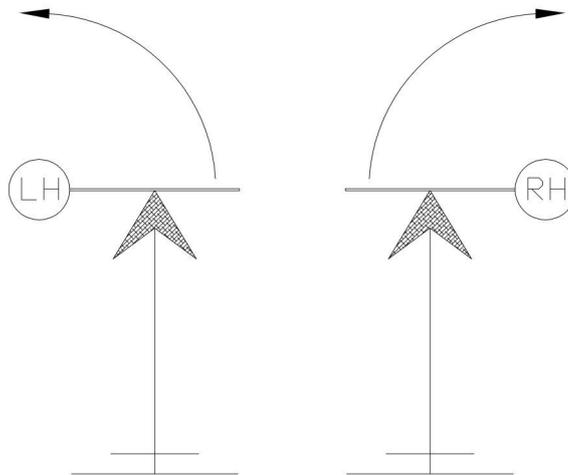
It can be seen from the above that there are two options of gate arm swing available for 90-degree action.

The gate can be set into any configuration on site by a competent person; the instructions to complete this operation are on the Set-up sheet included in this manual.

### **NORMAL ACTION:**

This term is used to describe a gate, which opens when activated; therefore the aisle is normally closed.

## LINKED PAIR OPERATION



### NORMAL ACTION LINKED PAIR

**NOTE:** The gate arms are shown in their rest position (0 degrees) and viewed from above. The arrows indicate direction of movement when activated.

When the gates are activated both of the gate arms will open and close together for use in wider aisle applications.

It can be seen that in each case when a pair of gates are facing each other that the operation of each gate is of the opposite hand, i.e. Left hand and right hand facing each other.

In order for the gates to operate effectively together, the control boxes are linked as diagram 07499 on page 29.

## **OPERATING PARAMETERS**

The Rotogate can be set into various operating modes as described throughout this manual. The operating parameters that are controlled by the microprocessor are defined as being the 0 (zero) degree, 90 (ninety) degree and 180 (one hundred and eighty) degree positions.

**The 0 (zero) degree position is defined as being the position of the gate arm while at rest.**

**The 90 (ninety)-degree position is defined as the position that the gate arm moves to, once activated.**

**The 180 (one hundred and eighty) degree position is defined as the position that is opposite the 90 (ninety) degree.**

Therefore the 0 (zero) degree, 90 (ninety) degree and 180 (one hundred and eighty) degree positions that are set are relevant to the mode that the Rotogate is to be used in, i.e. normal left / right hand.

## **EMERGENCY BREAKOUT OPERATION OF ROTOGATE**

The Si Rotogate incorporates an emergency breakout facility. This is a necessary safety feature that allows rapid exit from a building in the event of an emergency.

The emergency breakout facility is operated by manually forcing the gate in the direction required for exit; the gate will automatically reset after breakout.

Once the gates have been forced into emergency breakout mode the alarm will operate as described on page 8.

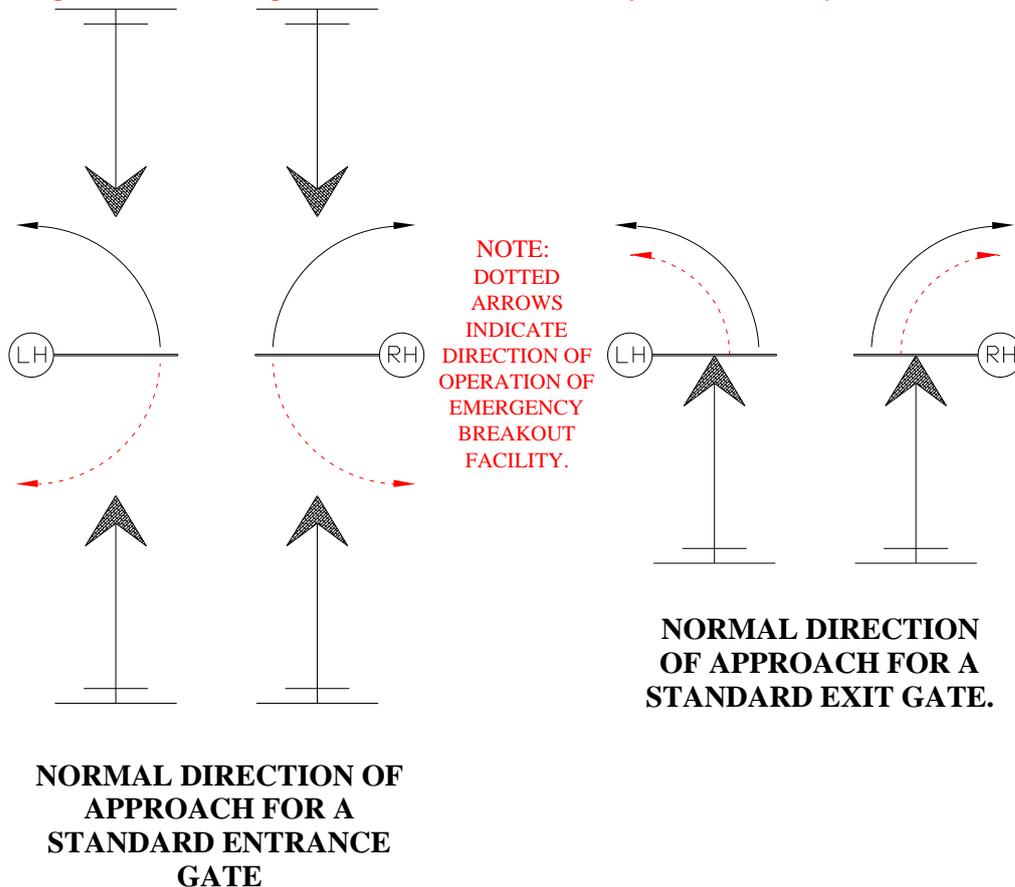
The breakout force can be adjusted on the control box to between 60 and 120 N/m.

### **Failsafe operation mode:**

In the event of removing the mains power supply to the Rotogate, the gate arm is able to be manually pushed with a minimal force (less than 6 Nm) to open in both directions.

The gate arm will stay in any position it is moved to until power is restored.

On power being restored, the gate arm will automatically reset to the preset normal position.



**NOTE:** The gate arms are shown in their rest position (0 degrees) and viewed from above, the bold arrows indicate direction of movement when triggered.

## **ALARM OPERATING OPTIONS**

### **ALARM OPERATION**

There is a DIP switch on the control box facia panel, which when set to 'audible', enables the alarm to operate. When breakout occurs, the alarm will pulse for 10 seconds. Then the gate automatically resets to rest position.

### **GENERAL DESCRIPTION OF GATE OPERATION**

The Si Rotogate is an automatic gate utilising microprocessor control technology in order to achieve consistently accurate operation. The gate can easily be configured to suit specific customer requirements.

Options include; configuration, gate arm type and length, sensor types, alarm modes, and operational parameters (i.e. left / right hand and linked pair operation).

Whichever configuration is chosen the electrical operating system remains the same. The parameters are usually factory pre-set to specific customer requirements and should not require further attention. However should changes be required then any competent person should be able to carry out the necessary operations.

During operation the control box is constantly monitoring the position of the gate arm using "through beam" sensors mounted under the top cover, activated by a pin, which rotates with the swing of the gate arm.

If during normal operating conditions, the gate arm is registered by the microprocessor, as being within plus or minus 5 degrees of either of the operating parameters (i.e. 0 or 90 degrees) for more than a second then the input signal to the microprocessor will be deemed indeterminate. This indeterminate state will activate any pre-set alarm options i.e. sounder.

## **GENERAL DESCRIPTION OF GATE TRIGGERING**

The SI Rotogate has several triggering options available, which can be utilised in different ways to achieve optimum operating conditions for the environment in which it is to be installed. Various control mechanisms can be interfaced with the control box depending upon customer requirements (for further information see; control mechanisms pages 11).

However the low voltage output and input switching configuration remains constant throughout the gates electrical operation, where an arrangement of three connections is made available for interfacing to the required control mechanisms.

Both of the connections of each of the outputs of the control box are an extra low voltage supply +12Vdc and 0Vdc.

There are two types of triggering functions recognised by the control box, these being termed “approach sensor”, “safety sensor”.

### **Approach sensor trigger:**

This trigger can be interfaced to a wide variety of control mechanisms (see also; control mechanisms pages 11 for further information).

**The approach sensor input trigger** when activated will cause the gate to move from rest position to the open position (refer to page 4 for further information.) subject to settings. There are two sets of parallel connections made available. The “approach sensor is via a DIN plug output / input from the control box (see also the schematic S0487).

Once activated the gate arm will remain in the 90 degree position until the “approach sensor time delay” has elapsed. In the event that the input is either, held low (i.e. less than 1Vdc) or re-triggered before the initial triggering time delay has elapsed, the gate arm will remain in the 90 degree position. The gate arm will only move to the 0 degree position once the “approach sensor time delay” has elapsed from the last triggering action.

**There are separate triggers for right hand and left hand operation.**

***This trigger may be over-ridden by either or both of the other triggering inputs.***

### **Safety sensor trigger:**

This trigger can be interfaced to a wide variety of control mechanisms. (See also control mechanisms; “rear safety zone” on pages 11).

The safety sensor input trigger when activated renders the gate arm “inoperative” i.e. the arm will not move until the “safety sensor time delay” has elapsed. It will also override approach sensor signals.

Once this trigger is activated the gate arm will remain inoperative until the “safety sensor time delay” has elapsed. In the event that the output is either held low (i.e. less than 1v) or re-triggered before the initial triggering time delay has elapsed the gate arm will remain motionless and will only move again once the “safety sensor time delay” has elapsed from the last triggering action.

This trigger is commonly used as a safety feature to stop a gate opening on somebody. It is highly recommended that this safety feature be incorporated in the design of the installation.

There are separate triggers for right hand and left hand operation.

## **CONTROL MECHANISMS**

### **General:**

Controlled gates can be interfaced to a wide variety of control systems, for example from simple push button switches operated manually, to fully automatic Ultrasonic or Autosensors. Our product range is also able to interface directly with a customers own sophisticated bespoke control system, i.e. in conjunction with fire alarm or bespoke computer control systems.

### **Push Button**

A push button is the simplest means of controlling a gate. It can be used in any application where direct control or monitoring of persons through the gate is required.

### **Autosensors:**

Autosensors are generally used in applications where space is limited, or a more open plan store layout is desired. One internally mounted sensor is required per gate. They are only able to detect movement and so can not be used as a presence detector, i.e. in place of a safety detector. Each sensor is factory set, but due to the variable nature of each installation, it may be necessary to alter the detection range on site. When optimising the Autosensors performance it is necessary to understand that if a one centimetre 'target' is detected at one metre range, then equally a ten centimetre 'target' will be detected at ten metres range. I.e. range is proportional to 'target' size. Care should be taken when positioning an Autosensor as cross pedestrian traffic flow can lead to false opening of the gate.

### **Ultrasonic Sensors:**

Ultrasonic sensors are presence detectors, which may be used, where it is not desirable to use lead out rails with six eye rear safety zones (They can be used in place of Autosensors). One internally mounted Ultrasonic sensor is required per gate. As the detection zone is not visible, consideration must be given to ensure that it is kept free of obstructions because this will prevent the gate from opening.

## **LINKED PAIR SET-UP ROUTINE**

If linked pair operation of the SI Rotogate is required then the following set-up procedure must be carried out.

- 1/ Remove mains power from gates.
- 2/ Connect the link loom as per drawing 07499 included in this manual.
- 3/ Turn on gates.
- 4/ Set the required “approach sensor time delay on the left hand gate control box. This is now the Master gate. The second gate becomes the Slave.
- 5/ On the Slave gate control box adjust the approach sensor time delay to match the Master gate closing gate arm.
- 6/ If a “safety sensor” is fitted, set the required “safety sensor” time delay on both of the control boxes. Note that the “safety sensor “ time delay on each of the control boxes work independently of each other when the control boxes are linked. Therefore, the user must fine-tune the operation of the gates when the safety sensor is triggered.
- 7/ The gates will now be working as a linked pair.

# **GENERAL FAULT FINDING PROCEDURE**

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## **POWER SUPPLY**

If the LED indicator mounted on the gate panel does not illuminate when the key switch is turned on, check and repair where necessary the following.

That the key switch is turned on and is not faulty.

The main power input fuse located in the bottom of the gate.

That there is a power supply to the gate.

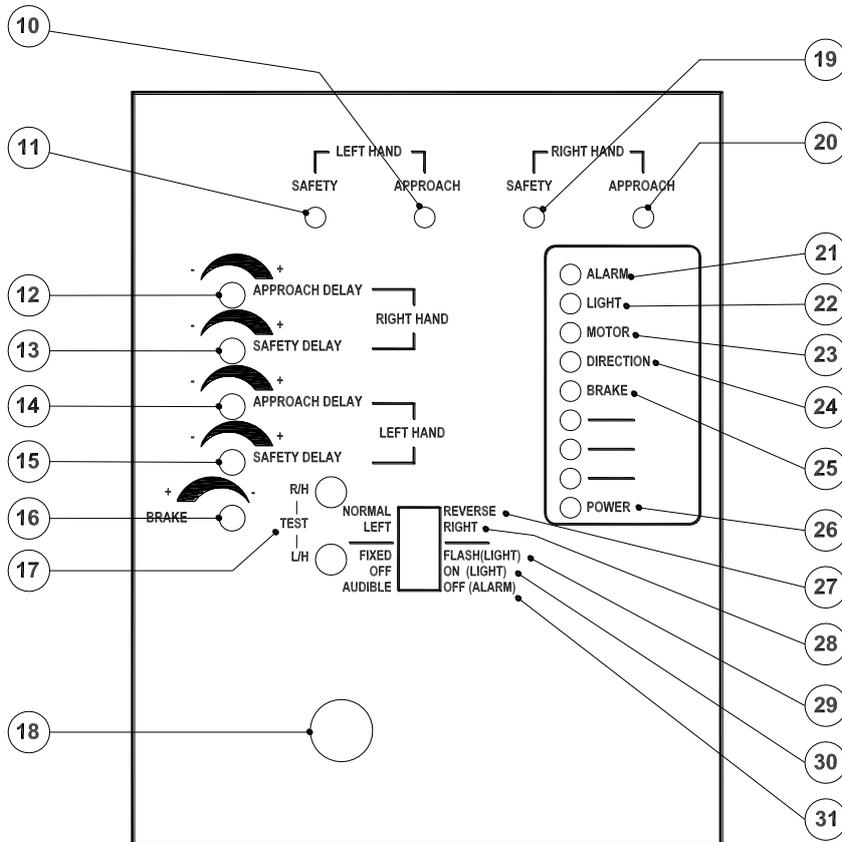
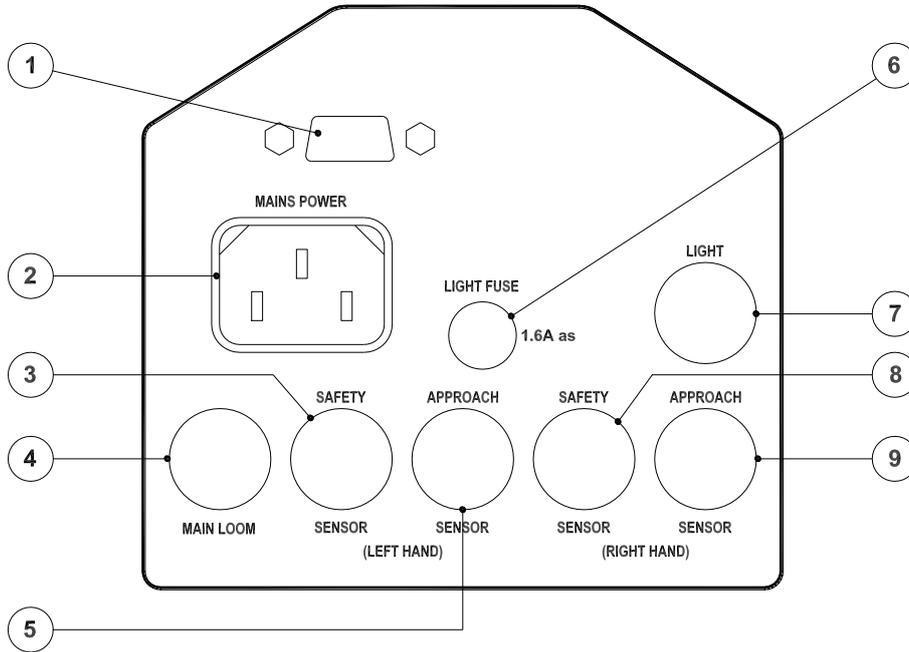
That the power input loom is correctly connected to the control box and has full circuit continuity.

The main control box fuse.

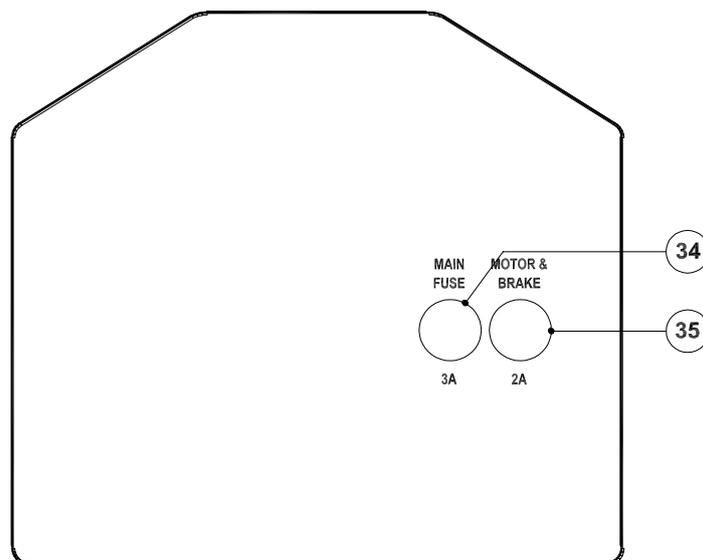
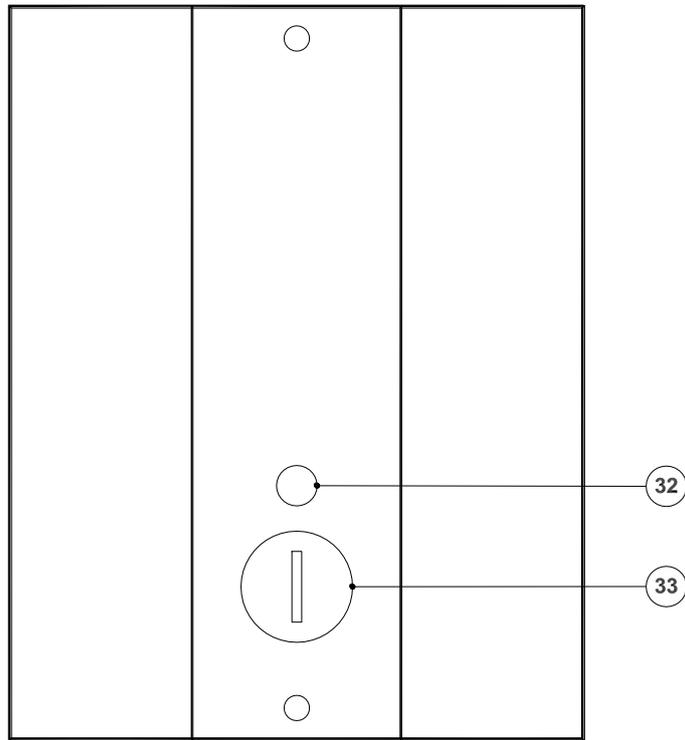
The control box light fuse.

The control box motor & brake fuse.

# CONTROL BOX LAYOUT



## CONTROL BOX LAYOUT (contd.)



## NUMBER CROSS REFERENCE TABLE

NUMBER	DESCRIPTION	FURTHER INFORMATION ON PAGE/S:
1	9-PIN D-TYPE SOCKET FOR LINK PAIR OPERATION	6, 16, 22, 23 & 26
2	IEC 320 PANEL PLUG MAINS INLET	18, 22 & 26
3	3-PIN DIN SOCKET LEFT HAND SAFETY SENSOR INPUT / OUTPUT	13 & 24
4	8-PIN DIN TYPE SOCKET FOR MAIN WIRING LOOM	-
5	3-PIN DIN SOCKET LEFT HAND APPROACH SENSOR INPUT / OUTPUT	12 & 24
6	LIGHT FUSE 1.6Aas	22.
7	5-PIN DIN SOCKET LIGHT OUTPUT	-
8	3-PIN DIN SOCKET RIGHT HAND SAFETY SENSOR INPUT / OUTPUT	13 & 24
9	3-PIN DIN SOCKET RIGHT HAND APPROACH SENSOR INPUT / OUTPUT	12 & 27
10	LED INDICATING TRIGGERING OF LEFT HAND APPROACH SENSOR	22 & 24
11	LED INDICATING TRIGGERING OF LEFT HAND SAFETY SENSOR	22 & 24
12	ADJUSTABLE RIGHT HAND APPROACH SENSOR TIME DELAY	24
13	ADJUSTABLE RIGHT HAND SAFETY SENSOR TIME DELAY	24
14	ADJUSTABLE LEFT HAND APPROACH SENSOR TIME DELAY	24
15	ADJUSTABLE LEFT HAND SAFETY SENSOR TIME DELAY	24
16	ADJUSTABLE BRAKE TORQUE SETTING	9 & 25
17	SELF-TEST OPERATION MODE.	22
18	CABLE OUTLET FOR MAIN LOOM	-
19	LED INDICATING TRIGGERING OF RIGHT HAND SAFETY SENSOR	22 & 24
20	LED INDICATING TRIGGERING OF RIGHT HAND APPROACH SENSOR	22 & 24
21	LED INDICATING ALARM OUTPUT ACTIVATED	22 & 23
22	LED INDICATING LIGHT OUTPUT FROM CONTROL BOX ACTIVATED	22
23	LED INDICATING MOTOR DRIVE CIRCUITRY OPERATION	22 & 24
24	LED INDICATING MOTOR DIRECTION CHANGE	24
25	LED INDICATING BRAKE ACTIVATED	22
26	LED INDICATING POWER ON TO CONTROL BOX	18 & 22
27	DIP SWITCH SETTING NORMAL / REVERSE ACTION.	5, 6, 10 13 & 24
28	DIP SWITCH SETTING LEFT / RIGHT HAND OPERATION.	4, 5, 7 & 24
29	DIP SWITCH SETTING LIGHT FIXED / FLASH OPERATING MODE.	10, 11 & 22
30	DIP SWITCH SETTING LIGHT OFF / LIGHT ON OPERATING MODE.	10, 11 & 22
31	DIP SWITCH SETTING ALARM AUDIBLE / OFF MODE.	10, 11 & 23
32	LED INDICATING MAINS ON (THROUGH FRONT PANEL)	18 & 22
33	MAINS ON / OFF KEYSWITCH (THROUGH FRONT PANEL)	18
34	MAIN FUSE 3A	18
35	MOTOR & BRAKE FUSE 2A	18 & 24

## **CONTROL BOX**

If the control box is suspected as being faulty, check and repair / replace the following where necessary.

That the LED labelled “power” is illuminated when the gate is turned on.  
All the fuses mounted on the upper and underneath side of the control box.

Once it has been established that there is no fault on the power supply to the control box it is possible to test both the inputs and outputs of the control box for correct operation.

To test that the **OUTPUTS** are being driven by the control box press the buttons labelled “test”.(R/H & L/H).

When pressed, the control box should independently run each output (i.e. motor, motor direction, light, alarm and close signal), illuminating the relevant LED’s as it does so. If any equipment is connected then that will also be driven.

To test that the **INPUTS** are being driven by the control box falsify the sensor input signals to the control box. To falsify sensor input signals short out the sensor input signal to the control box to ground i.e. pin 1 & pin 2 of the relevant DIN socket outlet (refer to drawing number S0487 if further information is required). By monitoring the relevant LED’s it is possible to determine if the control box is correctly receiving the input signals.

If the control box is found to be faulty, it should be returned to the locally appointed representative for repair or replacement.

## **ALARM**

If the alarm is not working, check and repair / replace the following where necessary.

The Main 3A fuse mounted on the control box.

That the LED labelled “alarm” is illuminated to indicate that the alarm is being driven by the control box.

That the DIP switch for the alarm on the control box is set correctly.

That the alarm functions correctly, by connecting to a constant 12Vdc supply.

That the main wiring loom is correctly connected, (refer to drawing number S0487 for further information).

That the link loom is correctly connected (linked pair only).

If the alarm is sounding continually, check and repair / replace the following where necessary.

That the gate arm is not in “emergency breakout” mode.

That the through beam sensors mounted at the top of the gate are working correctly.

That both gates (linked pair only) are turned on at the key switch and have power to their control boxes.

That the main wiring loom is correctly connected, (refer to drawing number S0487 for further information).

That the link loom is correctly connected (linked pair only).

## **MOTOR**

First ensure that power is being supplied to the gate and that the sensor is correctly triggering the control box. The LED indicator labelled “motor” should then illuminate to indicate that the motor is receiving power from the control box.

If the motor is receiving power, and the motor does not try to turn, then the motor windings may be faulty. This can be tested by isolating the gate and disconnecting the 3 pin connector between the motor and the control box. Then by using a resistance tester, checking for circuit continuity on both of the internal coil windings of the motor (live1-neutral & live2-neutral refer to drawing number S0487 for further information).

If the motor is trying to turn in the wrong direction, then the control box has been set-up incorrectly. The most common fault made is the incorrect setting of the DIP switches. If the motor is trying to drive too far, then the through beam control sensing may be faulty. Refer to the Definitions section of this manual if in doubt.

Check that the main wiring loom is correctly connected and repair where necessary.

## **SENSORS**

Read thoroughly pages 9 of this manual to ensure a full understanding of triggering inputs recognised by the control box.

Any sensor when triggered will illuminate the relevant control box LED. i.e. safety sensor triggering will illuminate the safety sensor LED until the time delay has elapsed. By using the LEDs it is possible to determine if a sensor is operating correctly, and therefore enables the user to accurately and quickly diagnose sensor related faults.

A common fault with Autosensors and Ultrasonic sensors is range control and direction, both of which can be adjusted to suit the specific site installation. This is best achieved by adjusting the range control potentiometer or physically moving the sensor to suit. However this should only be attempted by a competent person. Again there is an LED mounted on each sensor to aid in the correct setting of the sensor.

If a sensor is found to be faulty, it should be returned to the nearest appointed service department for repair / replacement.

## **MK 4 150 GATE TECHNICAL SPECIFICATION**

Standard height of gate :	1120mm.
Diameter of gate :	152mm (6").
Standard gate arm lengths :	650 - 900mm.
Standard fixing method :	see drg 07226
Maximum Breakout torque :	120 Nm.
Recommended Breakout torque:	60Nm
Variable Breakout torque via in line torque limiter :	60 – 120 Nm.
Driving torque :	8 Nm.
Gate arm speed (Si gate - glass panel):	3 rpm.
Gate arm speed (Si gate - Makralon panel):	5 rpm.

## **TECHNICAL SPECIFICATION OF CONTROL BOX**

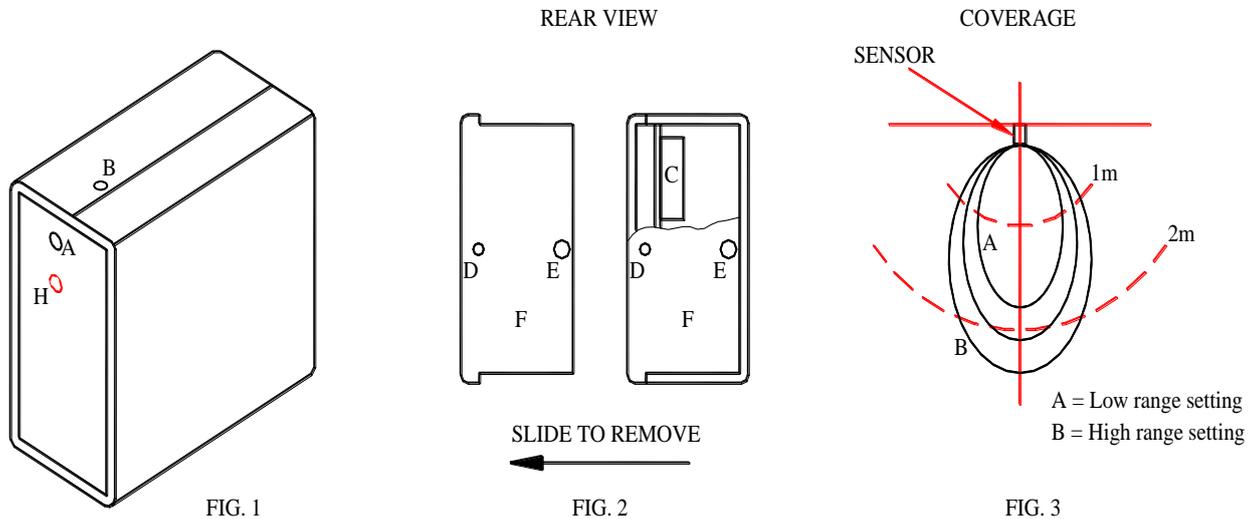
Input power:	240V $\pm$ 10% single-phase ac supply 50-60hz.
Transformer:	24VA, 240V i/p, 12V o/p, laminated type.
Extra low voltage output power:	12Vdc regulated. Maximum 1A output.
Output ripple:	200mV @ 300mA load 300mV @ 400mA load. 1.75V @ 1000mA load.
Motor output:	Triac output 240Vac, 6A max.
Brake output :	Triac output, adjustable 14 - 240Vac. 6A max.
Input Capture: seconds.	4 independent capture controls, adjustable from 0 to 18
Delay inputs:	Each delay triggered from negative going edge. Minimum duration to trigger 3.3ms. Current required 10mA min, 65mA max.
Gate arm open cycle	8 minimum seconds (non-adjustable)
Suppression:	Relay contacts suppressed with 100R / 100nF shunt load. Resistors 1000V rated, capacitors 240V mains rated.
Connections:	Mains via 3 pin mains rated IEC 320 plug and socket Motor via 3-pin mains rated, plug and socket. Adjustable torque brake via 4-pin mains rated, plug and socket. Main wiring loom (ELV) via 8-pin DIN plug and socket. Sensors via 3-pin DIN plugs and sockets. Link (if used) via 9-pin D-type plug and socket.
Environmental protection:	The unit is protected to IP54 Temperature ranges 0-65 °C. Relative humidity 20% - 90% non-condensing.
Colour:	Box body - Cream All text - Blue
Size:	Approximately 145mm x 112mm x 100mm.
Weight:	Approximately 1.4Kg.

## **CONTROLLING SPECIFICATIONS**

A/	BS 5733	General electrical accessories (where applicable).
B/	BS 1363	Plugs and sockets.
C/	BS 5304	Safety of machinery (where applicable).
D/	BS 7671	IEE 16 <sup>th</sup> edition wiring regulations.
E/	BS EN 60204 PT-1.	
F/	EMC/EMI (Emissions test) BS EN 50081-1 (1997).	
G/	EMC/EMI (Immunity test) BS EN 50082-1 (1997).	
H/	BS 7036	Safety at powered doors for pedestrian use

## **AUTOSENSOR: INSTALLATION & SETTING UP INSTRUCTIONS**

**ACCESS** to the connector of the Autosensor is obtained by removing the back cover of the unit. This is achieved by levering the bottom rear edge of the case slightly outwards and sliding off the back cover. The connector block can be connected or



- |                     |                    |                   |                        |
|---------------------|--------------------|-------------------|------------------------|
| A) Range adjustment | B) Mounting points | C) Connector      | D) Back cover retainer |
| E) Cable entry      | F) Back cover      | G) Clircuit board | H) Indicator LED       |

### **WIRING:**

Brown ..... + positive 12vdc  
 Blue ..... - negative 0v  
 Black ..... Relay output-close on detect  
 (Relay common is internally connected to negative)

removed as required. Thus it is NOT necessary to cut the connector cable when changing a sensor.

### **SETTING UP:**

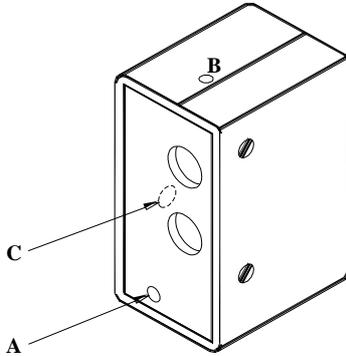
- 1) The ground plan (fig.3) illustrates the possible coverage patterns, and indicates the approximate coverage depending on the range setting.
- 2) Adjust the sensitivity (Range control) by removing the cover 'A' in the front panel and turning the control with a fine terminal screwdriver. (Clockwise for range increase). When you enter the detection zone the red indicator will be visible through the front panel.
- 3) Optimise the shape of the detection pattern by adjusting range control 'A' – refer to Fig.3
- 4) Check the detection pattern by walking tests at various walking speeds and directions. When a satisfactory coverage is obtained, replace the range control cover.

## FAULTS

- 1) If the gate re-opens by itself, this could be caused by the gate movement itself, activating one or both of the sensors.
  - Insecure mounting of the gate or the sensor to the gate causing excessive vibration. Check the tightness of the gate to floor mounting bolts and that the gate end stop positions are correctly set up.
  - Reduce the range setting.
  - A combination of both of the above may be necessary.
  
- 2) If for no visible reason the gate periodically opens and closes, the following should be checked:
  - Movement or objects such as ventilating fans or fluorescent lights that set up excessive vibration, cause movement or produce signals within the detection zone.
  
- 3) Door opening by movement outside the desired detection pattern.
  - Range setting too high and/or radar tilted too far from the door face.
  
- 4) No detection occurs when angle of approach is close to face of door.
  - Range setting too low and/or radar tilted too far away from the face of the door.

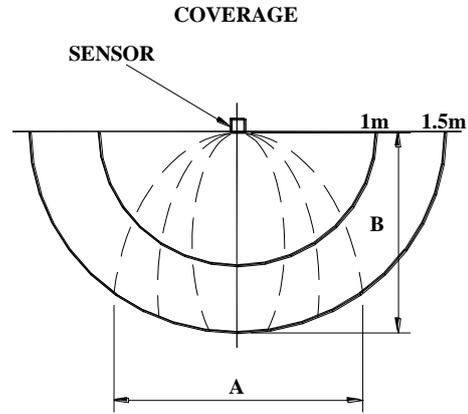
## ULTRASONIC: INSTALLATION & SETTING UP INSTRUCTIONS

**FIG. 1**



- |   |   |
|---|---|
| <p>A) Range adjustment cover</p> <p>B) Fixing points</p> <p>C) Sensitivity (volume) adjustment (Relay common is internally connected to negative)</p> | <p><b>WIRING</b></p> <p>Brown ..... + positive 11-15vdc</p> <p>Blue ..... - negative 0vdc</p> <p>Black ..... Relay output-close on detect</p> |
|---|---|

**FIG. 2**

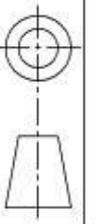


- A) Effect of SENSITIVITY adjustment
- B) Effect of RANGE adjustment

### SETTING UP:

- 1) The ground plan (fig.2) illustrates the possible coverage patterns
- 2) Adjust the range control 'A' situated at the front of the unit, using a fine terminal screwdriver to give the required range on the centre line of the detection pattern.  
When an object is within the detection zone the red indicator is lit.
- 3) Optimise the width (volume) of the detection pattern by adjusting the volume control at the side of the sensor case 'C'. This adjusts the beam width independently of the range.  
NOTE: Volume control adjusts anti-clockwise to increase.
- 4) Check the final detection pattern walking tests from various directions.
- 5) When it is required to operate 2 Ultrasonic sensors in the same area it is possible that 1 unit may interfere with the other.  
In order to avoid this occurrence it is essential that 1 sensor should be type SEN-00019 (DS-30A001 blue spot) and the other be type SEN-00015 (DS-30A002 orange spot).

A4



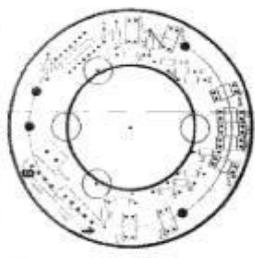
3rd ANGLE PROJECTION

DRWG. NO. S0487

SENSORS 1,2,3 & 4  
PCB SOCKETS

INTERNAL LOGIC LINK

ISSUE B006/05/02



ENCODER PCB TERMINATIONS

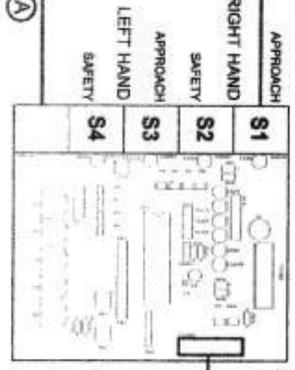
1	GREY	0V
2	ORANGE	+90
3	RED	CENTRE
4	BROWN	-90
5	PINK	+V
6	YELLOW	COUNT
7	GREEN	LAMP
8	GREEN	LAMP
9	EGG	LAMP

POSITION INPUT PCB SOCKETS

1	YELLOW	COUNT
2	ORANGE	+90
3	BROWN	-90
4	RED	CENTRE
5	PINK	+V
6	GREY	0V
7	GREY	0V

LAMP OUTPUT PCB SOCKETS

1	GREEN	LAMP
2	GREEN	LAMP
3	EGG	LAMP
4	EGG	LAMP
5	EGG	LAMP

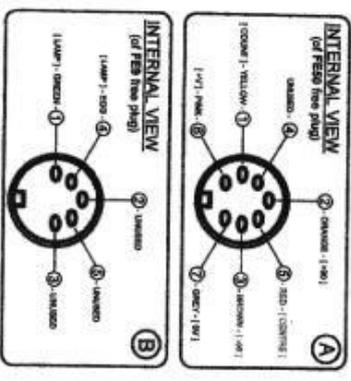
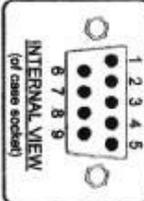


1	ALARM
2	ALARM
3	YELLOW
4	GREEN
5	BLACK
6	BROWN
7	PINK
8	GREY
9	GREY
10	WHITE
10	WHITE
10	WHITE

1	ALARM
2	ALARM
3	YELLOW
4	GREEN
5	BLACK
6	BROWN
7	PINK
8	GREY
9	GREY
10	WHITE

INTERNAL VIEW (of case socket)

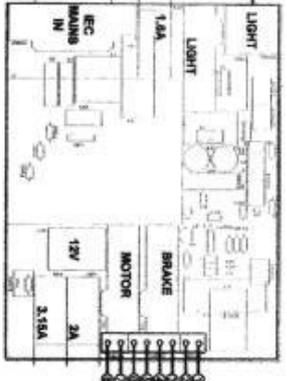
1	BLACK
2	BROWN
3	BROWN
4	PINK
5	GREY
6	YELLOW
7	GREEN
8	WHITE
9	WHITE



ENCODER CONNECTING LEAD - multi-core 1400mm

LOM-07495

PSU-07486

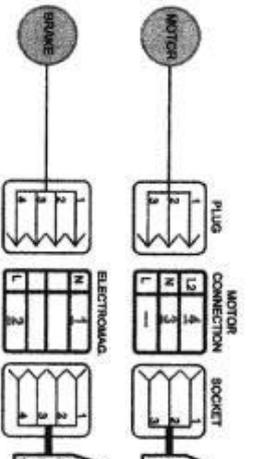


MOTOR / BRAKE TAIL - 500mm

POWER SUPPLY PCB TERMINATIONS

1	BLK 1	N
2	BLK 2	L
3	E	E
4	BLK 3	N
5	BLK 4	L2
6	BLK	L
7	CAP.	1.5uF
8	CAP.	1.5uF
9	CAP.	1.5uF

INTERNAL MOTOR BRAKE



MATERIAL  
XXXXXXXXXXXX  
FINISH  
AS PER ORDER

TOLERANCES UNLESS OTHERWISE STATED  
0 = ±0.5  
0.0 = ±0.1  
0.00 = ±0.01

TITLE  
150 ROTOGATE WIRING

DRAWING NUMBER  
S0487

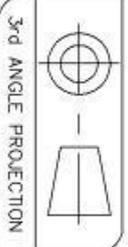
CHECKED  
DRAWN  
BA/ACAD

Z:\DESIGN\DESIGN\_GUIDANCE\WORKS\ELECTRICAL\SAPPHIRE\_DRAWINGS\150GATE\S0487ISSB.dwg

ISSUE B

DRAWN SCALE 1:1

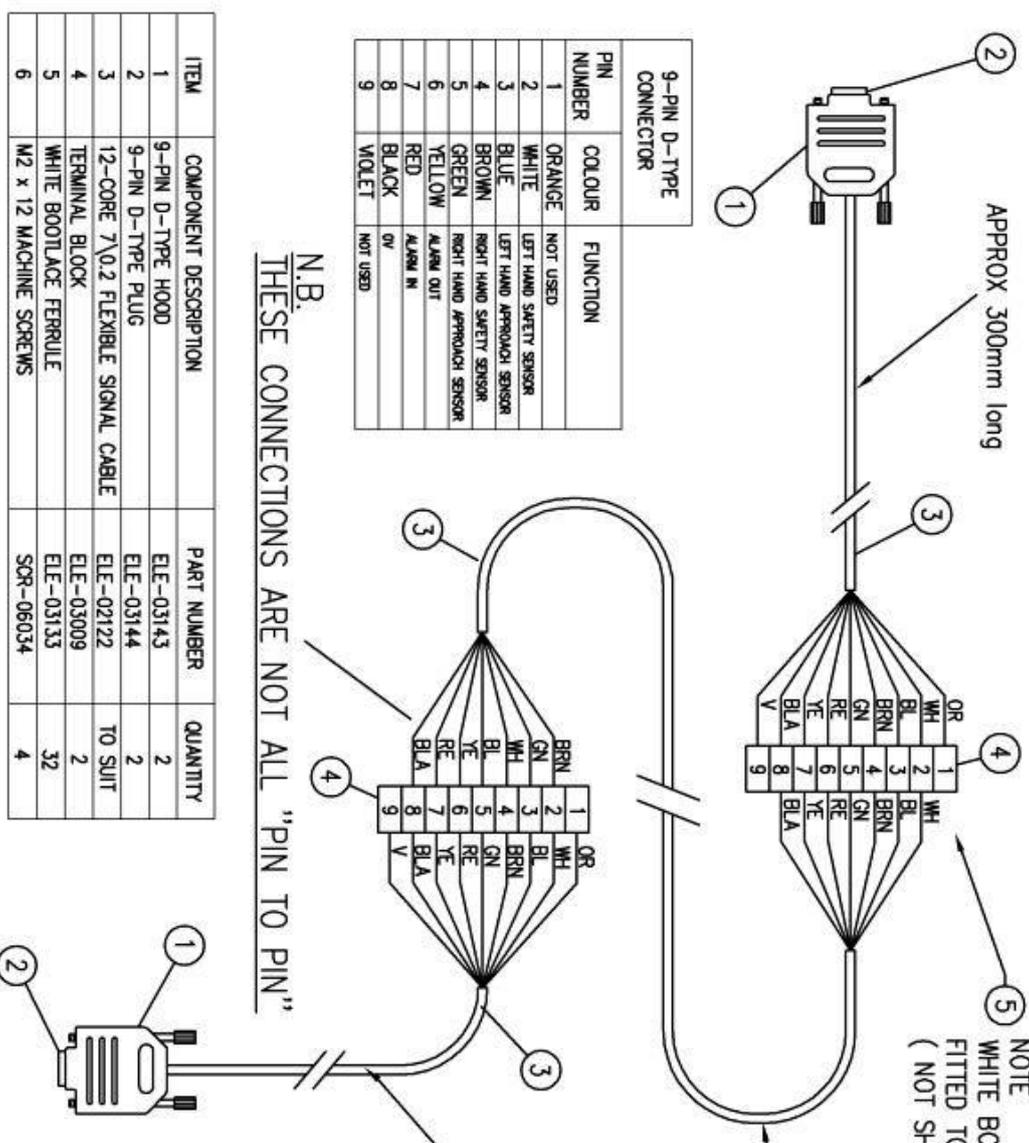
A4



3rd ANGLE PROJECTION

NOTE  
WHITE BOOTLACE FERRULE  
FITTED TO EACH CONNECTION  
( NOT SHOWN )

12-CORE ( 3 UNUSED ) 7\0.2 FLEX  
LENGTH TO BE 3 MTRS  
FINAL CONNECTIONS MADE BY  
INSTALLATION CONTRACTOR



PIN NUMBER	COLOUR	FUNCTION
1	ORANGE	NOT USED
2	WHITE	LEFT HAND SAFETY SENSOR
3	BLUE	LEFT HAND APPROACH SENSOR
4	BROWN	RIGHT HAND SAFETY SENSOR
5	GREEN	RIGHT HAND APPROACH SENSOR
6	YELLOW	ALARM OUT
7	RED	ALARM IN
8	BLACK	OV
9	VIOLET	NOT USED

PIN NUMBER	COLOUR	FUNCTION
1	ORANGE	NOT USED
2	WHITE	LEFT HAND SAFETY SENSOR
3	BLUE	LEFT HAND APPROACH SENSOR
4	BROWN	RIGHT HAND SAFETY SENSOR
5	GREEN	RIGHT HAND APPROACH SENSOR
6	YELLOW	ALARM OUT
7	RED	ALARM IN
8	BLACK	OV
9	VIOLET	NOT USED

**N.B.**  
THESE CONNECTIONS ARE NOT ALL "PIN TO PIN"

ITEM	COMPONENT DESCRIPTION	PART NUMBER	QUANTITY
1	9-PIN D-TYPE HOOD	ELE-03143	2
2	9-PIN D-TYPE PLUG	ELE-03144	2
3	12-CORE 7\0.2 FLEXIBLE SIGNAL CABLE	ELE-02122	TO SUIT
4	TERMINAL BLOCK	ELE-03009	2
5	WHITE BOOTLACE FERRULE	ELE-03133	32
6	M2 x 12 MACHINE SCREWS	SCR-06034	4

G:\GUIDANCE DRAWINGS\WORKS\ELECTRICAL\SCHEMATIC\150\_GATE\150MK4\07499\issd.DWG

TOLERANCES UNLESS OTHERWISE STATED

WATERAL MAKE FROM LOM-06839

FINISH

TITLE

LOOM-LINKED PAIR  
ROTOGATE 150 MK4  
ENCODER VERSION

USED ON: L07069

DRAWING NUMBER

07499

ISSUE

A/B/C/D

DRAWN

BA/CAD

CHECKED

APPROVED

ISSUE

A)14/11/00

B)17/07/01

CN 1404

C)22/12/03

CN 1510

D 10.08.05

CN 1623

DO NOT SCALE

REMOVE ALL SHARP EDGES

A4

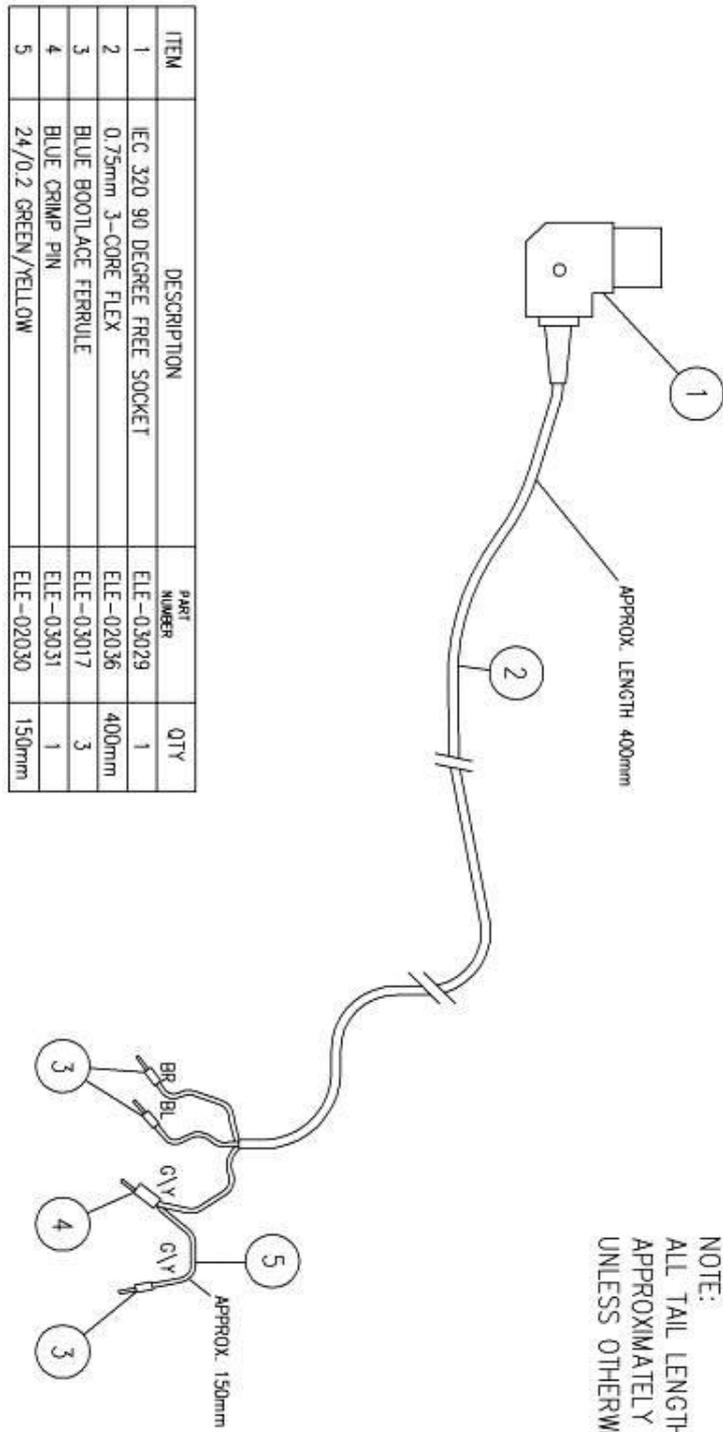


3rd ANGLE PROJECTION

ISSUE

A)18/04/01

NOTE:  
ALL TAIL LENGTHS  
APPROXIMATELY 100mm  
UNLESS OTHERWISE STATED.



ITEM	DESCRIPTION	PART NUMBER	QTY
1	IEC 320 90 DEGREE FREE SOCKET	ELE-03029	1
2	0.75mm 3-CORE FLEX	ELE-02036	400mm
3	BLUE BOOTLACE FERRULE	ELE-03017	3
4	BLUE CRIMP PIN	ELE-03031	1
5	24/0.2 GREEN/YELLOW	ELE-02030	150mm

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DRAWING PLOTTED N.T.S.

USED ON: IL 07069

DRAWN SCALE 1:1

DRAWN BA/ACAD

CHECKED

APPROVED

MATERIAL

N/A

FINISH

N/A

TOLERANCES UNLESS OTHERWISE STATED

0 = ±0.5  
0.0 = ±0.1  
0.00 = ±0.01

TITLE

LOOM-POWER INPUT  
ROTOGATE 150 MK4  
ENCODER VERSION

DRAWING NUMBER

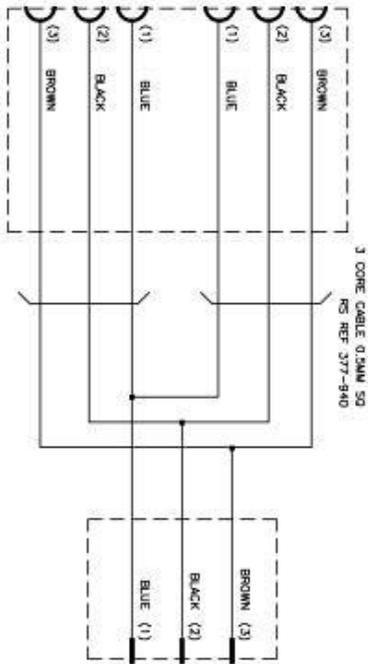
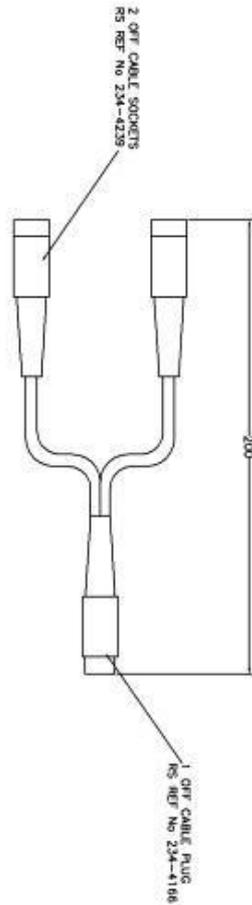
07578

ISSUE

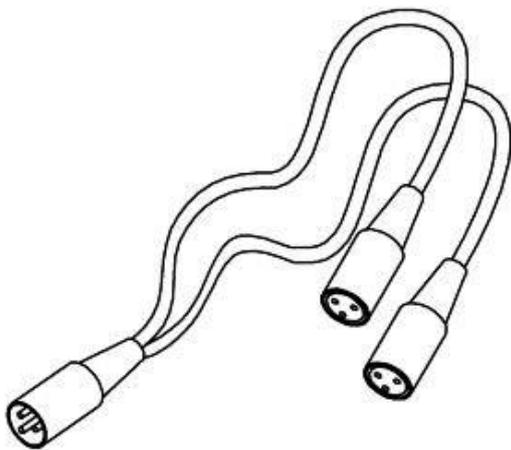
A

DO NOT SCALE

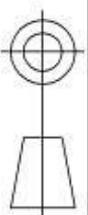
REMOVE ALL SHARP EDGES



WIRING DIAGRAM SCHEMATIC



A3



3RD ANGLE PROJECTION

ISSUE

- A) 15/06/99
  - B) 11/11/99
  - C) 27/03/01
- SEE CN 1389  
SEE CN 1389

C:\GUIDANCE DRAWINGS\WORKS\GATE5\150\_MK4\07235.dwg

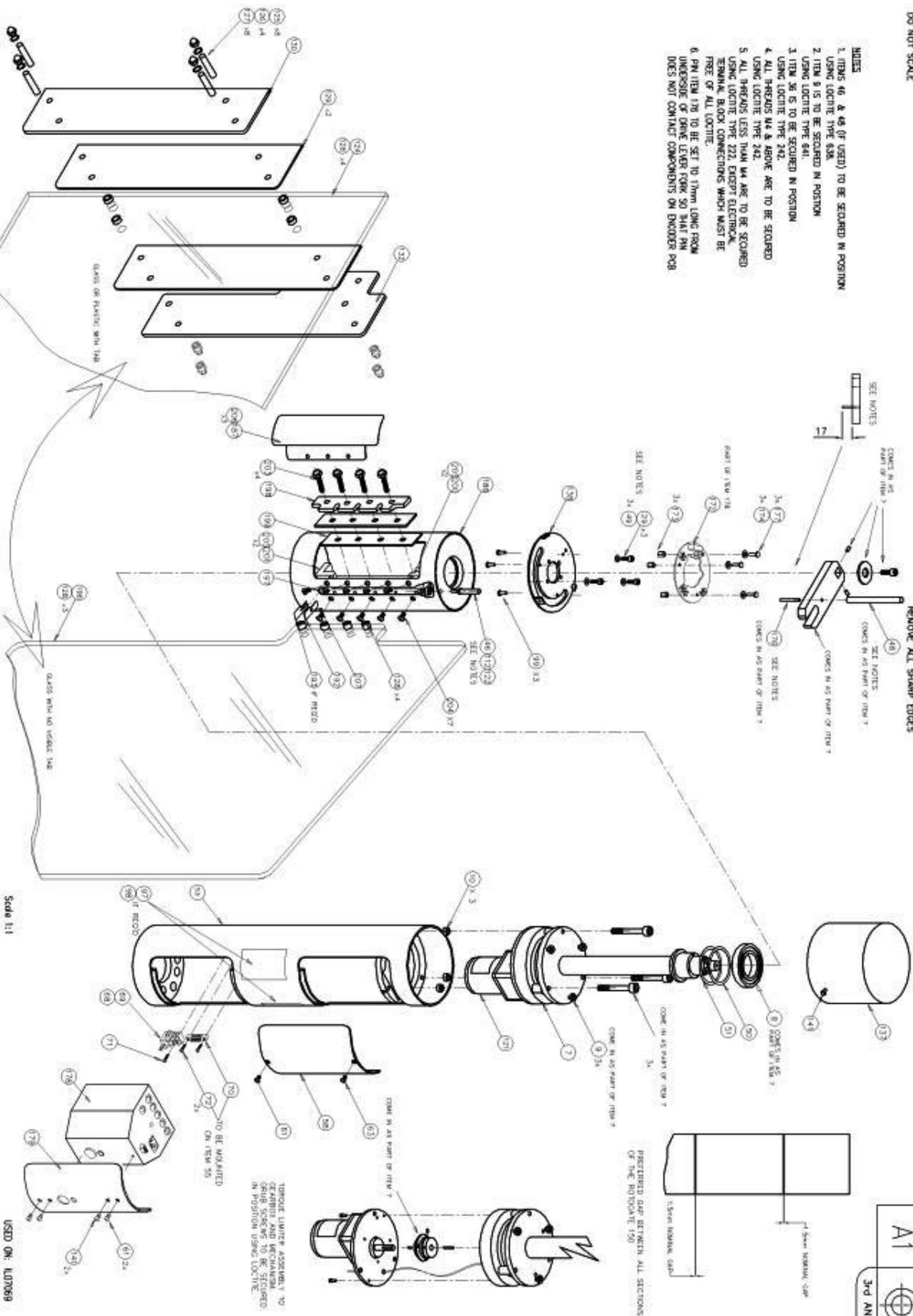
DRAWING PLOTTED N.I.S.

USED ON: XXXXXXXX

MATERIAL		TOLERANCES UNLESS OTHERWISE STATED		TITLE		DRAWING NUMBER		DRAWN	
FINISH		0 = ±0.5 0.0 = ±0.1 0.00 = ±0.01		MK4 150 ROTOGATE LINK FOR FIRST EYE OPTION 1		07235		DBE/CAD	
						ISSUE		CHECKED	
						A B C		APPROVED	

DO NOT SCALE

- NOTES**
- ITEMS 46 & 46 (IF USED) TO BE SECURED IN POSITION USING LOCITE TYPE 634.
  - ITEM 9 IS TO BE SECURED IN POSITION USING LOCITE TYPE 641.
  - ITEM 26 IS TO BE SECURED IN POSITION USING LOCITE TYPE 242.
  - ALL THREADS 24 & ABOVE ARE TO BE SECURED USING LOCITE TYPE 242.
  - ALL THREADS LESS THAN 24 ARE TO BE SECURED USING LOCITE TYPE 222, EXCEPT ELECTRICAL TERMINAL BLOCK CONNECTIONS WHICH MUST BE FREE OF ALL LOCITE.
  - PIN ITEM 176 TO BE SET TO 1/16" LONG FROM UNDERSIDE OF DRIVE LEVER FORK SO THAT PIN DOES NOT CONTACT COMPONENTS ON ENCODER PCB



A1  
3rd ANGLE PROJECTION  
ISSUE

A304/04/06  
B302/08/06  
CN 1710  
C307/12/06  
CN 1744  
D304/06/07  
CN 1777

01/10/06 DATE CHANGED/VERSION/0A/REV/00/LM4/10/04/55/STAMP/09003/REV 01/06/06

MATERIAL	AS PER DETAILS
FINISH	AS PER ORDER

TOLERANCES UNLESS OTHERWISE STATED	0.00 = .015
	0.00 = .010
	0.00 = .001

Scale 1:1  
TITLE  
GATE - ROTOGATE 150  
MK4 NEW SI G.A. '06

DRAWING NUMBER  
09003  
ISSUE  
A | B | C | D

ISSUED ON: L07069  
DRAWN  
M.L.R./CAD  
CHECKED  
APPROVED

STOCK CODE	DESCRIPTION	07069 STD	07230 07069	07282 07069	08003 07069	08013 07069	08055 07069	07347 07069	REMARKS			
1 GAT-07069	GATE - ROTOGATE 150 MK4 G.A. (STANDARD)	1							FINISH AS ORDER			
2 GAT-07240	GATE - ROTOGATE 150 MK4 (MILLENNIUM DOME)	1							FINISH AS ORDER			
3 LOM-06840	MAIN WIRING LOOM	1*	1*	1*	1*				* IF REQD. FOR USE WITH PSU-00045 ONLY SEE DRG 07183			
4 LOM-06838	POWER WIRING LOOM	1*	1*	1*	1*				* IF REQD. FOR USE WITH PSU-00045 ONLY SEE DRG 07183 AS REQD (FOR LINK PAIRS ONLY) FOR USE WITH PSU-00045 ONLY			
5 LOM-06839	WIRING LOOM - LINKED PAIR ONLY								FINISH AS ORDER			
6 GAT-07282	GATE - ROTOGATE 150 SI TYPE			1					FINISH AS ORDER			
7 GAT-06892	DRIVE ASSY	1	1	1	1	1	1	1	DRIVE MECH. TORQUE LIMITER MOTOR & G/BOX DRIVE FORK LEVER, BOTH PHS & BOLTS			
8 BRG-00022	LARGE TOP BEARING	1	1	1	1	1	1	1	6012 DEEP GROOVE			
9 BRG-00021	SMALL BOTTOM BEARING	3	3	3	3	3	3	3	626J DEEP GROOVE			
10 SPA-07070	SPACERS 6.00mm LG 1/D 8.5mm DIA	3	3	3	3	3			FINISH AS DRAWING 07070			
11 GAT-07347	GATE - ROTOGATE 150 MK4 VA GATE							1	FINISH AS ORDER			
12 MOT-00009	MOTOR - M7RA15G4GE	1	1				1	1	SIMPLAPOOL MOTOR - M7RA15G4GE			
13 MOT-00018	GEARBOX - B.3RPM - M7GA1B0B + BOLTS		1						SIMPLAPOOL G/BOX - M7GA1B0B			
14 MOT-00020	GEARBOX - 10RPM - M7GA150B + BOLTS	1			1		1	1	SIMPLAPOOL G/BOX - M7GA150B			
15 SLE-06903	TOP ASSEMBLY SLEEVE	1							FINISH AS ORDER			
16 SLE-05984	TOP SLEEVE	1							IS PART OF SLE-08903 ON STD GATE ONLY			
17												
18 DSC-06891	TOP DISC	1							IS PART OF SLE-08903 ON STD GATE ONLY			
19 PIN-05699	TOP COVER PIN	2							IS PART OF SLE-08903 ON STD GATE ONLY			
20												
21 ELE-07034	FESTOON LAMP 12V 10W	1*							* IF REQD FARNELL REF. 142-451			
22 ELE-07035	FESTOON LAMP HOLDER FOR 12V 10W LAMP	1*							* IF REQD COSMIC REF. No. C338			
23 SOU-00015	MINIATURE BUZZER SOUNDER	1*	1	1					* IF REQD			
24 ELE-03008	12 WAY TERMINAL BLOCK	1*	0.5	0.5					* IF REQD			
25 SCR-06313	M3 x 12mm SCREW SLOTTED PAN HD	4	2	2				6				
26 COV-05658/	COVER WHITE POLYCARBONATE	1*							* IF REQD			
ISSUE	P)08/11/04 CN 1565 R)07/04/05 CN 1596 S)12/04/06 CN 1666 T)02/08/06 CN 1666 U)01/09/06 CN 1666 V)07/12/06 CN 1744 W)08/02/07 CN 1759 X)04/06/07 CN 1777	TITLE	150 ROTOGATE MK4				DRAWING NUMBER	07069 SHT 1 OF 9		DISTRIBUTION: ASSEMBLY --- INSPECTION --- OFFICE --- PLANNING --- PURCHASING --- ENGINEERING --- CONTROLS --- SALES (ONLY) ---	DRAWN CHECKED APPROVED	DBE/CAO





STOCK CODE	DESCRIPTION	07069 STD	07280 DATE	07282 S	08023 S	08043	08053	07327 1/2	REMARKS			
79	ELE-03102 CONNECTOR 3 WAY	1	1	1	1			1				
80	ELE-03101 CONNECTOR 4 WAY	1	1	1	1			1				
B1	ELE-03097 CONNECTOR PIN	5	5	5	5			5				
82												
83	ELE-02092 CABLE TIE	5	5	5	5			5				
84	ELE-03133 WHITE BOOTLACE FERRULE	7	7	7	7			7				
85	ELE-02070 CABLE TIE - BASE	1	1	1	1			1				
86	ELE-02003 HEATSHRINK SLEEVING 12.7mm 80mm LG	AS REQD	AS REQD	AS REQD	AS REQD			AS REQD				
87	ELE-02048 CABLE SLEEVING BLACK	2	2	2	2			2				
88												
89	SCR-02112 M4 x 12mm GRUB SCREW	2*	3	2*	2*			2	*RS REF No 529-955 PART OF ITEM 7			
90	GRO-00006 BLANKING PLUG - BLACK							4	HEYCO REF 430 2817			
91	NUT-01305 20mm CONDUIT NUT	2*						2*	IF REQD SEE ORDER			
92	SLE-04983 SPLIT CUP SLEEVE	4*						4*	IF REQD SEE ORDER			
93	BUS-01581 CONDUIT BUSH	2*						2*	IF REQD SEE ORDER			
94	WAS-03177 WASHER	2*						2*	IF REQD SEE ORDER			
95	CUP-05737 SPLIT BASE CUP	2*						4*	IF REQD SEE ORDER			
96	SCR-02314 M5 x 6mm GRUB SCREW	8*						18	IF REQD SEE ORDER			
97	SEN-00019 ULTRASONIC SENSOR (DS-30)	1*				1*		1*	IF REQD SEE ORDER			
98	SEN-00020 AUTOSENSOR (DS-20W)	1*				1*		1*	IF REQD SEE ORDER			
99	SCR-06312 M3 x 10mm SCREW SLOTTED PAN HD	4*			3	3	3	7*	IF REQD SEE ORDER			
100	WAS-01305 M3 PLAIN WASHERS	4*						4*	IF REQD SEE ORDER			
101	COV-04520 AUTOSENSOR LENS - STANDARD	1*							IF REQD SEE ORDER			
102	COV-07477/							1*	IF REQD SEE ORDER			
103	COV-07332/							2	ALL GATES HAVE THESE BUT THEY ARE REMOVED IF NECESSARY SEE ORDER - FINISH AS ORDER			
104												
ISSUE	P)08/11/04 CN 1565 R)07/04/05 CN 1596 S)12/04/06 CN 1666 T)02/08/06 CN 1666 U)01/09/06 CN 1666 V)07/12/06 CN 1744 W)08/02/07 CN 1759 X)04/06/07 CN 1777	TITLE 150 ROTOGATE MK4					DRAWING NUMBER 07069 SHT 4 OF 9	DISTRIBUTION: ASSEMBLY OFFICE PURCHASE WAREHOUSE COSTING CONTROL SALES DRA(W)			DRAWN CHECKED APPROVED	DBE/CAAD

STOCK CODE	DESCRIPTION	07069 STD	07069 DOME	07069 S	06003 S	06003	06003	06003	07069 1/4	REMARKS
105	CHS-07205 CHASSIS ASSEMBLY (NO SENSORS)		1							FINISH AS ORDER
106	SLE-07206 BOTTOM SLEEVE (NO SENSOR)		1							IS PART OF CHS-07205
107	PLA-06220 POWER-IN PLATE		1							IS PART OF CHS-07205
108	RNG-06895 DRIVE MOUNTING RING		1							IS PART OF CHS-07206
109	RNG-05653 BASE RING		1							IS PART OF CHS-07206
110	PAN-06234 LOWER INSPECTION PANEL		1							IS PART OF CHS-07206
111										
112	SPA-08479 SPACER - MOTOR	1	1	1	1	1	1	1		
113	COV-07232 TOP COVER		1							FINISH AS ORDER
114	PIH-05699 TOP COVER PIN		2							IS PART OF COV-07232
115										
116	PLA-07231 TOP PLATE ASSEMBLY		1							
117	DSC-07233 TOP DISC		1							IS PART OF PLA-07231
118										
119	WAS-07302 WASHER - MUDGUARD 1 <sup>5</sup> / <sub>8</sub> x 5/16"	2*							4*	IF REQ'D - SEE ORDER
120	SCR-01168/02 M8 x 25 MODIFIED BOLT	2*							4*	IF REQ'D - SEE ORDER
121	MOT-00015 MOTOR AND GEARBOX ASSY 3 RPM		1	1	1				5*	SIMPLATRULL No PB-616338
122	NUT-02308 M8 FULL NUT - NYLOC	3*	1	1	1	1			3	IF REQ'D - SEE ORDER
123	WAS-07304 WASHER - MUDGUARD 1 <sup>1</sup> / <sub>4</sub> x 3/8"	2*							4*	IF REQ'D - SEE ORDER
124	PAN-06366/ 10mm TOUGHENED GLASS ARM		1						2	
125	NUT-03401 M10 DOME HD NUTS CHROME		8							
126	FIX-06302 STUDING M10 x 45mm		4							
127	WAS-01301 M10 FORM A WASHER		8							
128	SPA-07280 SPACER - NYLON		4	4						
129	GAS-07279 NEOPRENE GASKET		2							
130	TAB-07274 TAB - ARM		1							

ISSUE

P)08/11/04  
CN 1565

R)07/04/05  
CN 1596

S)12/04/06  
CN 1666

T)02/08/06  
CN 1666

U)01/09/06  
CN 1666

V)07/12/06  
CN 1744

W)08/02/07  
CN 1759

X)04/06/07  
CN 1777

TITLE

150 ROTOGATE MK4

DRAWING NUMBER

07069

SHT 5 OF 9

DISTRIBUTION:  
 ASSEMBLY \_\_\_\_\_  
 REVISION \_\_\_\_\_  
 OFFICE \_\_\_\_\_  
 PURCHASE \_\_\_\_\_  
 INVENTORY \_\_\_\_\_  
 COSTUMER \_\_\_\_\_  
 DRAWING \_\_\_\_\_  
 SALES \_\_\_\_\_  
 DESK \_\_\_\_\_

DRAWN \_\_\_\_\_  
 CHECKED \_\_\_\_\_  
 APPROVED \_\_\_\_\_

DBE/CAO



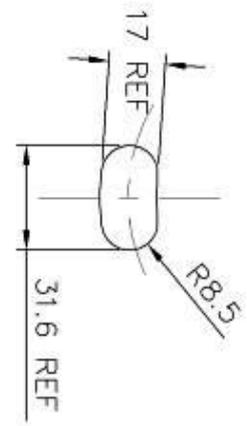
ISSUE	STOCK CODE	DESCRIPTION	07069 STD	07280 D065	07282 S	08043 S 08	08943	08953	07327 1A	REMARKS
	158	SLE-07326/	MIDDLE SLEEVE ASSY STD. & 150VA	1				1	1	TO DWG 07326
	159	RNG-06907/	RING - TOP BEARING	1					1	PART OF SLE-07326
	160	SPI-01228/01	ARM SPIGOT TOP	1					1	PART OF SLE-07326
	161	SPI-01228/02	ARM SPIGOT BOTTOM	1					1	PART OF SLE-07326
	162	SLE-05686/	SLEEVE - MIDDLE	1					1	PART OF SLE-07326
	163									
	164	SLE-07325/	TOP SLEEVE ASSY						1	TO DWG 07325
	165	DSC-07329/	DISC- TOP ASSY 150VA						1	PART OF SLE-07325
	166									
	167	DSC-09194/	DISC- ENCODER SHIELD	1 *					1 *	IF REQD - PART OF ITEM 178
	168									
	169	ELE-06008	'SNAP IN' NEON INDICATOR WITH LENS - RED						1 *	RS REF 571-005 ONLY USED WITH PSU-00045
	170	LOM-07499	LOOM - LINKED PAIR ONLY						1 *	ONLY USED WITH PSU-07466
	171	LOM-07578	LOOM - POWER WIRING						1 *	ONLY USED WITH PSU-07466
	172	PSU-07467	ENCODER ASSY - SUPPLIED WITH PSU-07466	1 *				1	1 *	IF REQD
	173	SPA-00008	SPACER M3 HEX x 12 LNG	3 *				3	3 *	IF REQD RS REF 222-402
	174	WAS-01305	WASHER M3 PLAIN FORM A	3 *				3	3 *	IF REQD
	175	ELE-07025	LAMP 12V	1 *					1 *	IF REQD
	176	FIX-07106	M2 x 25 LNG SPIROL PIN	1 *				1	1 *	IF REQD C H MORGAN
	177	SCR-06321	M3 x 6 LNG SCREW SLOTTED PAN	3 *				3	3 *	IF REQD
	178	PSU-07466	CONTROL BOX - ENCODER VERSION	1 *				1	1 *	IF REQD
	179	PAN-07503/	LOWER PANEL - FOR USE WITH PSU-07466	1 *						ONLY USED WITH PSU - 07466
	180	ELE-03108	CERAMIC TERMINAL BLOCK 36A						1 *	ONLY USED WITH CONTROL BOX PSU-00045
	181	SPA-07409/	CONTROL BOX MOUNTING SPACERS						2 *	ONLY USED WITH CONTROL BOX PSU-00045
	182	COV-05658/02	COVER WHITE POLYCARBONATE						1 *	TO DWG 05258/02
	183	ELE-06006	PROTECTION DIODE - ONLY USED WITH PSU-00045	2 *	2	2 *				IF REQD SEE 07163 (NOT ON 'VA')





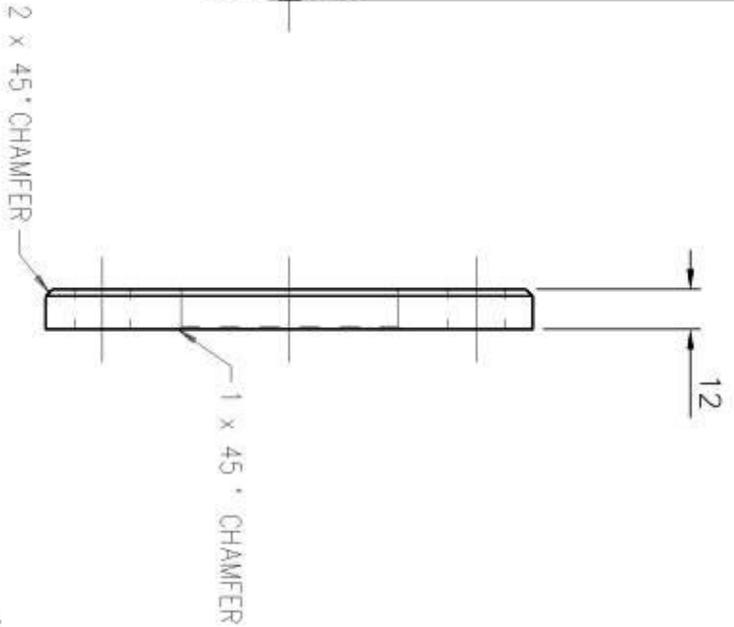
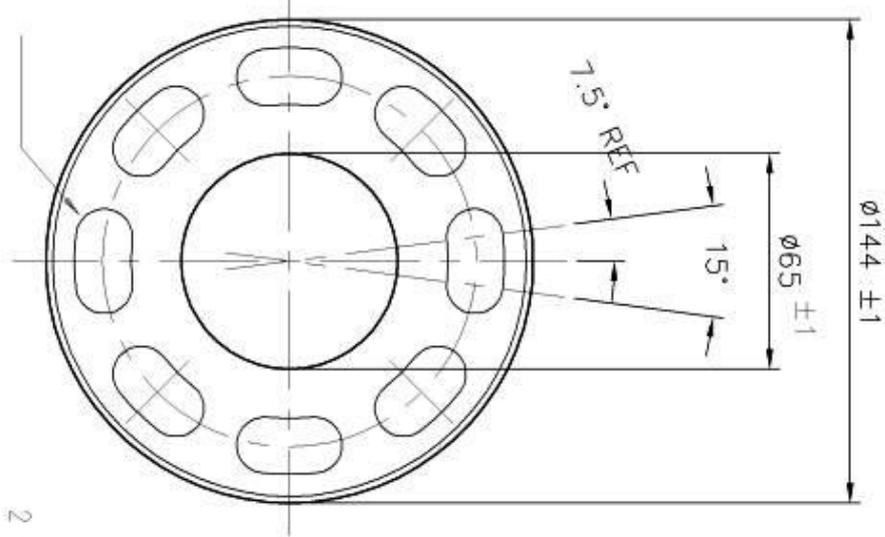
DO NOT SCALE

REMOVE ALL SHARP EDGES



SLOT DETAILS

8 RADIAL SLOTS  
EQUI SPACED  
ON 112 ±1 P.C.D.



A4



3rd ANGLE PROJECTION

ISSUE

- A) 18/04/95  
Ø145.3/4 WAS  
#145.7  
CN 1166
- B) 13/06/95  
WAS 4 HOLES  
NOW 8 SEE  
CN 1240
- C) 19/03/98
- D) 14/06/99  
CN 1282
- E) 10/12/99  
CN 1308
- F) 02/05/01  
CN 1394

USED ON: IL07069

- IL 05709
- IL 06208
- IL 06307
- IL 06900

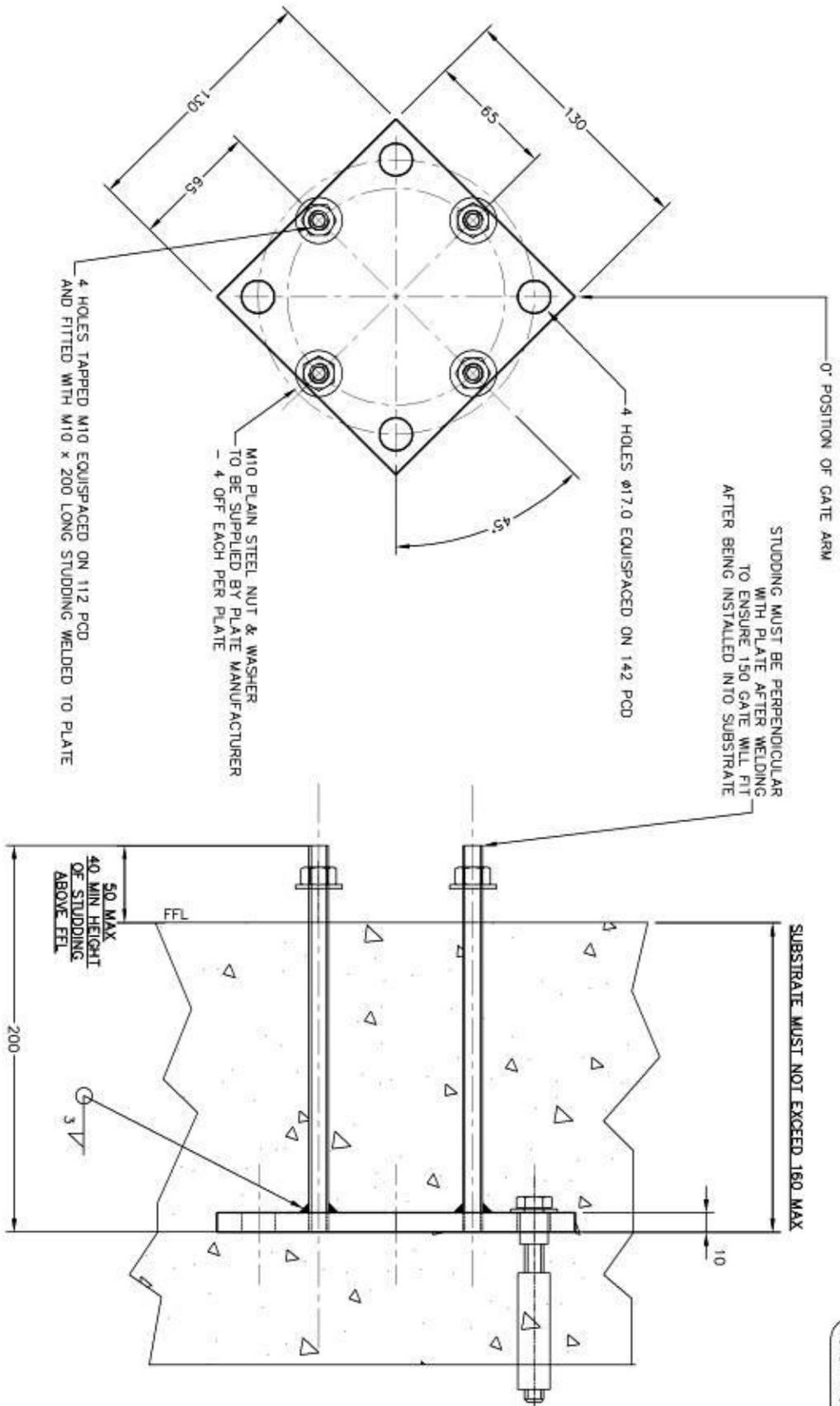
Scale 1:2

O:\GUIDANCE DRAWINGS\WORKS\GATES\PROTOGATE\05653.rvt DWG

MATERIAL EN1A		TOLERANCES UNLESS OTHERWISE STATED		TITLE RING-BASE		DRAWING NUMBER 05653		DRAWN AGE/CAD	
FINISH CLEAN		0 = ±0.5 0.0 = ±0.1 0.00 = ±0.01				ISSUE		APPROVED	
						<input checked="" type="checkbox"/>			

DO NOT SCALE

REMOVE ALL SHARP EDGES



A3

3rd ANGLE PROJECTION

ISSUE

B)24/05/05

G:\DODDAGE DRAWINGS\WORKS\GATES\150-MK4\150-MK4\07496.DWG

DRAWING PLOTTED N.T.S.

USED ON: 150 GATE

DRAWN SCALE 1:1

DRAWN BA/ACAD

CHECKED

APPROVED

MATERIAL MILD STEEL

FINISH ZINC PLATE

TOLERANCES UNLESS OTHERWISE STATED

0 = ±0.5

0.0 = ±0.1

0.00 = ±0.01

TITLE PLATE - UNDERFLOOR MOUNTING 150 MK4 ROTOGATE

DRAWING NUMBER 07496

ISSUE B