



GEMINI

Automation System



**INSTALLATION INSTRUCTIONS
FOR
220 VOLT AC DOMESTIC SYSTEM**

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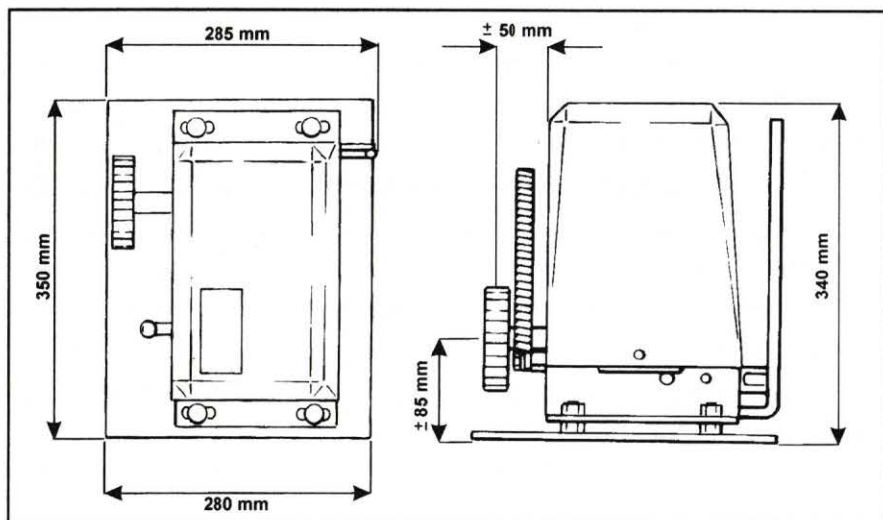
FEATURES

INTRODUCTION

The GEMINI 220 V domestic sliding gate system is a self contained unit which comprise of a single 220 Volt AC electrical motor that drives the rack pinion via a gearbox. The gearbox, electrical motor and associated components are mounted in a rust treated base box. The base box is secured to the base plate, which in turn is cemented or bolted to a concrete base. The complete unit is enclosed with a weather resistant lid.

The **GEMINI** system is rigidly build for reliability, but with safety as first priority. The electronic control card in conjunction with the limit switches makes provision for the several unique features, such as remote controlled gate opening, pedestrian opening facility, obstruction ("impact") sensing, adjustable "auto close" facility, infra red obstruction sensing facility (optional) and normal push button operation.

PHYSICAL DIMENSIONS



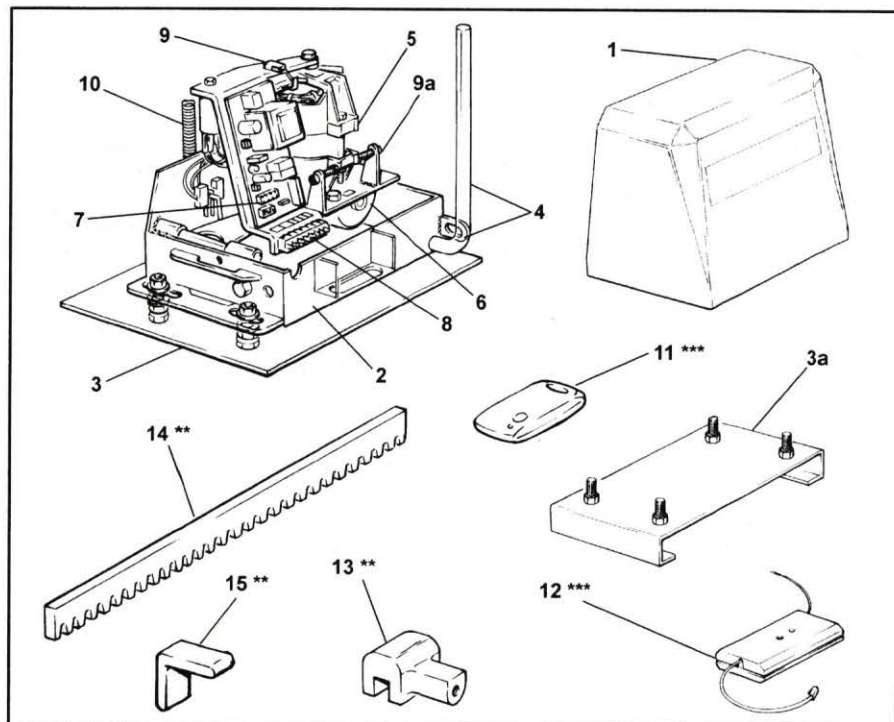
TECHNICAL SPECIFICATIONS

Motor	220V single phase
Gearbox	Oil filled WORM DRIVE
Gear ratio	30:1
Gate speed	14 meter per min
Motor protection	Thermal overload
Limit switches	Independent in both directions, each with a double action for additional reliability
Obstruction	Mechanical adjustable obstruction sensing in both directions. Can accommodate I/R beam sensors
Activation	By using any N/O electrical circuit, push button or remote control
Other characteristics	i. Automatic closing facility ii. LED display for gate mode iii. Mechanical override in case of a malfunction or power failure
Weight	±23 kg (Includes rack and base plate)
Electricity consumption ..	±2,3 A
Motor size	180 Watt
Duty cycle	50%
Torque	±50 N.m
Maximum gate weight	400 kg *

* Provided that track wheels with a minimum diameter of 76 mm, fitted with roller bearings on a straight and level track are used. Gate must move with ease.

STANDARD INSTALLATION KIT

Your **GEMINI** 220 Volt AC domestic sliding gate opener system comprise of the following:



1. Weather resistant lid.
2. Rust treated base box.
3. Base plate with attachment bolts, or
- 3a. Alternative base plate for concrete mounting.
4. Manual override lever and padlock lug.
5. 220 Volt electrical motor.
6. Gearbox.
7. **GEMINI** electronic control card.

Continues on next page

8. MAINS connector block.
9. Gate obstruction ("impact") switch.
- 9a. Gate obstruction sensing adjustment.
10. Gate "open and close" limit switch spring.
11. Remote control transmitter. ***
12. Remote control receiver. ***
13. Aluminium limit stops. **
14. Rack. **
15. Angle iron brackets (weld item). **

Items marked with ** are loose items but part of the kit, and items marked with * are not part of the kit.**

WARNINGS

NEVER WORK ON THE SYSTEM WITH THE ELECTRICAL POWER ON.

NEVER ALLOW PERSONS OR ANIMALS TO STAND ON THE GATE OR TRACK WHILE THE GATE IS IN MOTION.

KEEP HANDS CLEAR OF THE RACK AND PINION GEAR WHILE THE MOTOR IS IN OPERATION.

DO NOT ALLOW ANYONE TO PUT THEIR HAND THROUGH THE GATE TRELLIS WHILE GATE IS MOVING.

TEST ALL OPERATING SYSTEMS ON A REGULAR BASIS, ESPECIALLY THOSE RELATED TO THE SAFETY FEATURES.

INSTALLATION OF THE UNIT

INITIAL PREPARATIONS FOR MOUNTING THE BASE PLATE

To determine the position for installing your **GEMINI**, fully close the gate and place the unit (with base plate attached) in position so that the pinion gear is approximately 15 mm away from the gate. Locate the base plate against the existing gate track (the base plate is to be welded to this track at a later stage).

NOTE

The securing holes in the base box are slotted; ensure that the base plate bolts are located in the center of these holes and that the base box and base plate are parallel.

Ensure that the centerline of the gate is parallel with the centerline of the pinion. This will ensure that the centerline of the rack will run on the centerline of the pinion.

Clearly mark the position of the base plate. Remove the complete unit and prepare a foundation for the base plate. Consult your local Builders Supply Store for the necessary information on concrete strengths, mix ratios and hardening times.

NOTE

Install conduit piping in the foundation to correspond with the opening in the base box, through which the electrical cables are routed.

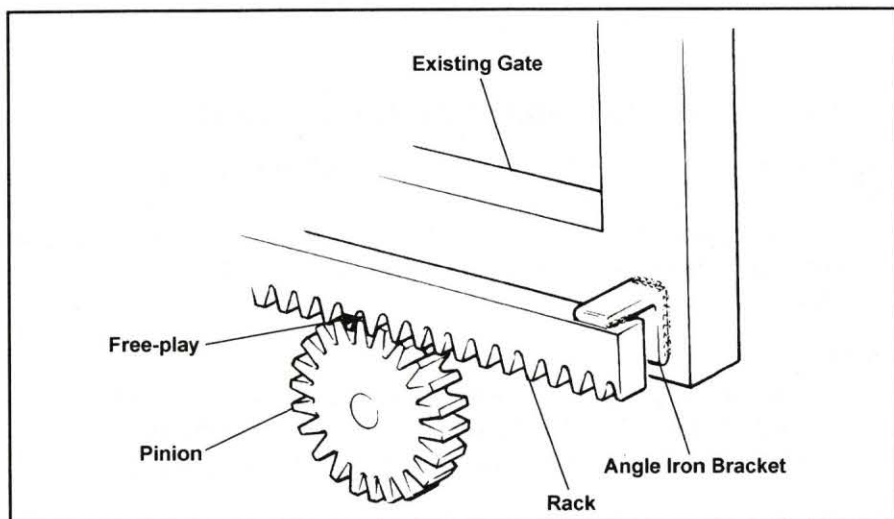
Remove the base plate from the unit.

Cast concrete into the previously prepared foundation. Ensure that the exact position (previously marked) is maintained to ensure correct mounting of the unit.

Stitch weld the base plate to the existing gate track.

Mount the **GEMINI** on the base plate and align as previously described.

MOUNTING THE RACK

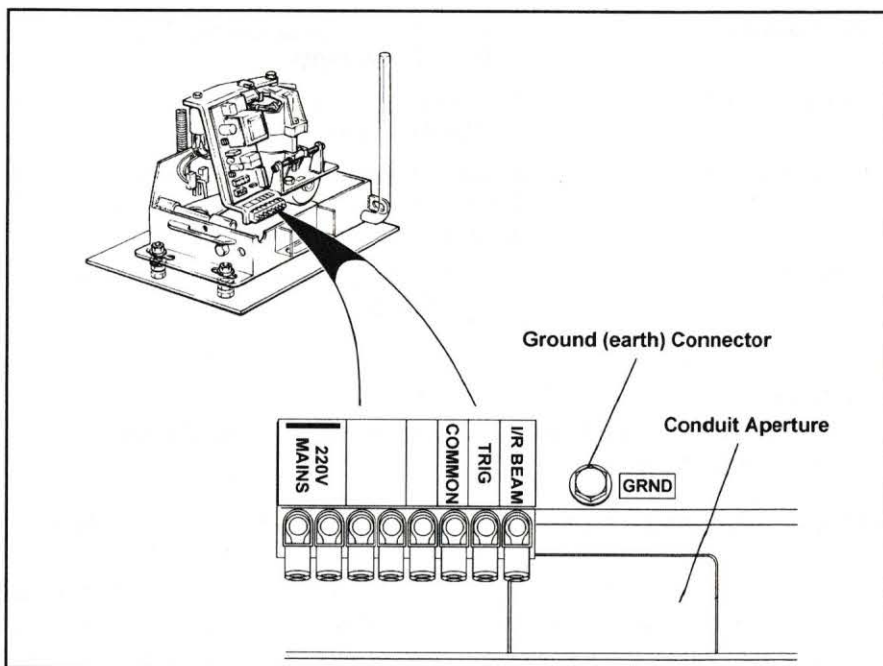


Starting at one end of the gate, weld the rack in position by using the angle iron brackets. The following critical points must be considered:

- ❖ When determining the position of the rack, the manual override lever must be in the upright position.
- ❖ The angle iron brackets must not be more than 600 mm apart.
- ❖ Allow a free play of approximately 1 mm between the pinion and the rack.
- ❖ When moving the gate to the next position, the manual override lever must be lowered.
- ❖ For wooden gates, drill two holes in the angle iron bracket and secure to the gate with wood screws. To prevent the gate from burning, mark the position of the angle brackets and weld to rack before securing to the gate.

Once the rack is in position, ensure that the unit (pinion) is correctly aligned with the rack. Final adjustments can be made by sliding the unit in the slotted holes to achieve the correct alignment. Tighten the mounting nuts.

CONNECTING THE 220 V ELECTRICAL SUPPLY



CAUTION

Under no circumstances must the main electrical supply be wired directly from a power source. As a safety precaution, an ON/OFF switch must be incorporated into the electrical circuit, normally within 1 meter from the unit.

Electrical power supply -

Connect to the two terminal blocks marked: **220V MAINS**.

Ground (earth) connection -

Connect the ground (earth) wire to position marked: **GRND**.

OTHER CONNECTIONS

Push button -	Connect to terminal blocks marked: COMMON and TRIG.
Infra red sensor -	Connect to terminal blocks marked: COMMON and I/R BEAM.
Loop detector -	Connect to terminal blocks marked: COMMON and TRIG. (Depending on Application)
Receiver -	Plug in on electronic control card where marked: RX IN.

CAUTION

Ensure that all the legal requirements for your local area are complied with.

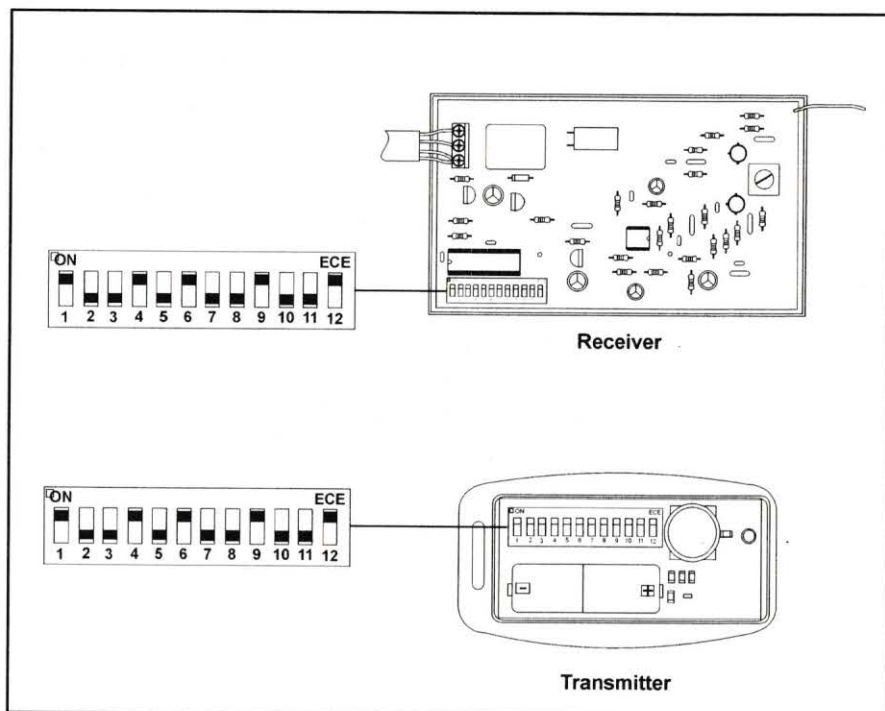
SETTING THE REMOTE CONTROL SECURITY CODE DIP SWITCHES

Once the electrical supply is correctly connected, the remote control transmitter and receiver security code must be set. Note that the manufacturers set all the transmitters and receivers to a standard code and therefore it is imperative to change these codes to your own personalised code.

If a non-Gemini remote control is used, program the remote control as per the supplier's instruction.

Programming a GEMINI Remote Control

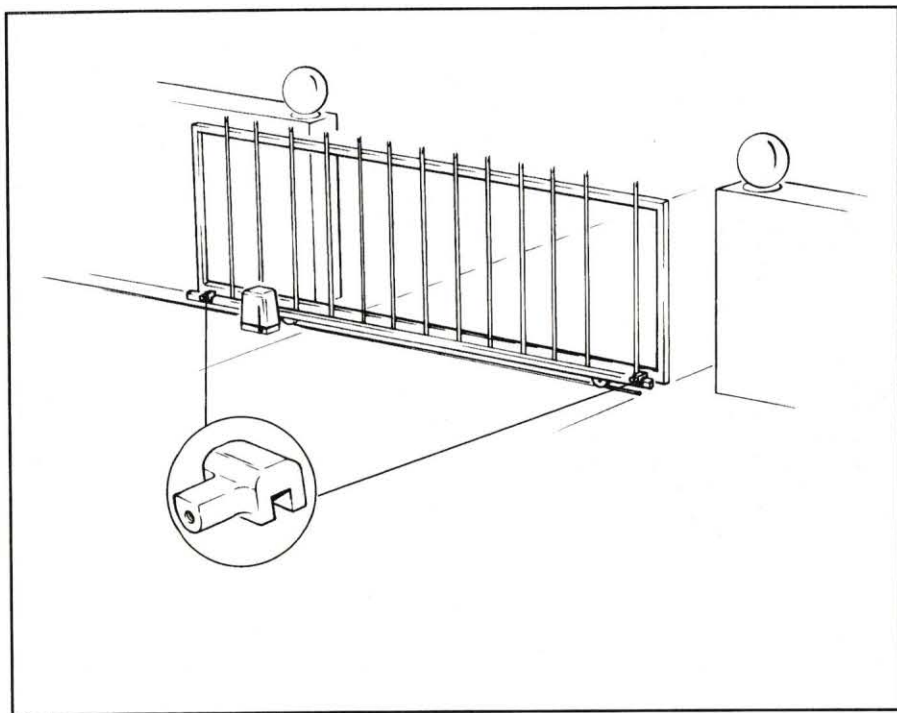
Using a small screwdriver, remove the rear covers from the transmitter and receiver. Place the units so that the numbers on the dip switches starts with No. 1 from the left.



On a single function transmitter, place dip switch No. 1 to the ON position. Do the same on the receiver. From dip switch No. 2 to No. 12 place the switches in random sequence to the ON or OFF positions. Ensure that the receiver dip switch settings match the transmitter settings.

Your security code is now set. Replace the rear covers on the transmitter and receiver.

FITTING THE ALLUMINIUM STOPPERS

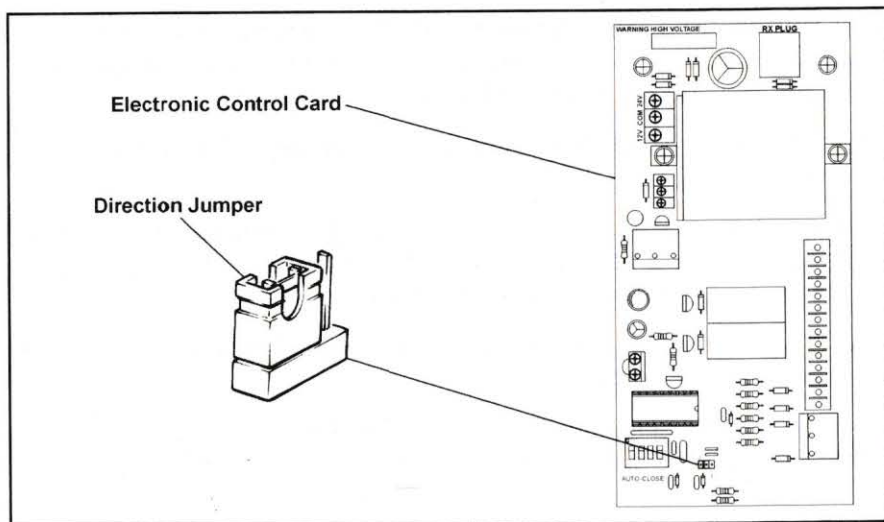


Position the “open and close” aluminium stops on the rack so that they will push the limit switch spring in time to stop the gate in the correct position. Once the stops are in position, tighten the grub screws, using an Allen key.

REVERSING THE ELECTRICAL MOTOR DIRECTION

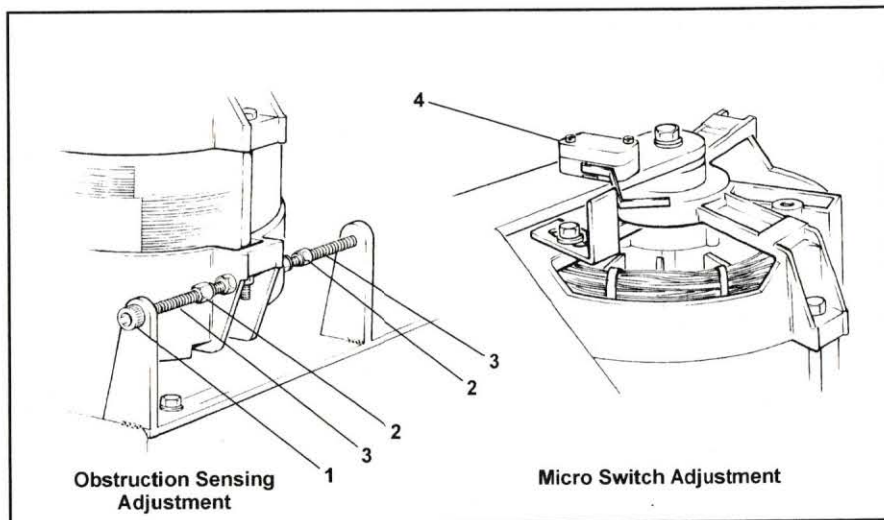
Refer to the electrical diagram on Page 22. The electrical motor direction default is set by positioning the gate direction jumper on the electronic control card either to the left or right.

The electronic control card is equipped with three small pins; the center pin is the common pin, the left hand pin for the left direction and the right hand pin for the right direction.



When the gate is initially activated (during installation) and the gate direction is incorrect, the gate direction jumper must be unplugged and moved to the opposite set of pins. Ensure that the jumper is fully plugged in.

OBSTRUCTION SENSING ADJUSTMENT



Obstruction sensing should be set so that the gate will stop and reverse on impact while closing. The obstruction sensors are set at the factory, but it will be necessary to adjust these sensors to suit your gate.

Impact sensitivity is adjusted by adjusting the screws (1) on either side of the electrical motor.

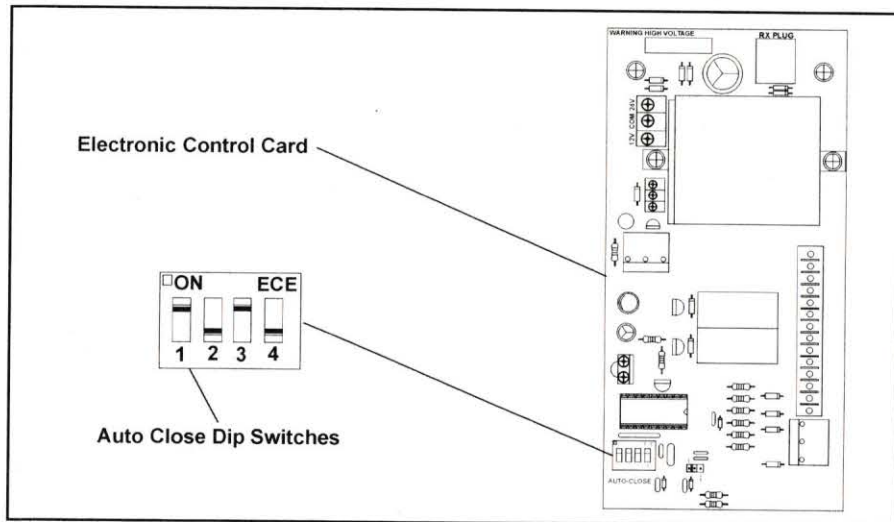
Turning nut (2) outwards, decreases the spring (3) tension, thus causing the impact sensing to be more sensitive. Test impact sensitivity by bumping the gate by hand in the opposite direction of movement.

Adjust the tension of both springs until the ideal impact sensitivity is achieved in each direction.

In extreme cases it may be necessary to adjust the micro switch lever (4) positioned above the electrical motor.

SETTING THE AUTO CLOSE DIP SWITCHES

After your **GEMINI** unit has been installed and you wish to alter the time delay for the Auto Close facility, proceed as follows:



0 = OFF 1 = ON

SWITCH No.& POSITIONS 1 2 3 4	TIME DELAY (in seconds)
0 0 0 0 =	Off
1 1 1 0 =	2
1 0 0 0 =	10
0 1 0 0 =	20
1 1 0 0 =	30
0 0 1 0 =	40
1 0 1 0 =	50
0 1 1 0 =	60

The dip switches are marked No. 1 to 4. Refer to the above table. Choose a time delay to suit your personal requirements i.e. 50 seconds; dip switch settings must be 1010.

Move the No. 1 dip switch to the ON position, the second switch to the OFF position, the third switch to the ON and the fourth dip switch to the OFF position. Your 50 second **Auto Close** time delay is now set.

Removing the Auto Close Loop on the electronic control card will disable the auto close function even if a time delay is set.

OPERATING PROCEDURES

INITIAL TESTING PROCEDURES AFTER INSTALLATION

1. Lower the manual override lever and move the gate to halfway open position. Raise the override lever to engage the pinion into the rack.
2. Press the remote control button. The gate must move to the open position and stop. If necessary, adjust the aluminium stopper position on the rack.

NOTE

If the gate moves to the closed position on the first actuation, the electrical motor direction is incorrectly set and must be reversed. Refer to "Reversing the Electrical Motor Direction" on page 12 for the correct procedure.

3. The gate will remain in the open position for the time as pre-selected during the **Auto Close** dip switch settings. Gate will move to the fully closed position and stop. If necessary, adjust the aluminium stopper position on the rack.
4. Perform an obstruction-sensing test. If necessary, refer to "Obstruction Sensing Adjustment" and adjust the obstruction sensitivity.
5. Test the operation of the gate from inside the house by using the push button.

DAILY OPERATION

1. The gate can now be operated by either the remote control or the push button inside the house.
2. If either the remote control or the push button is pressed while the gate is in motion, the gate will react as follows:
 - a. **If Gate Were Closing:** The gate will stop and open.
 - b. **If Gate Were Opening:** The gate will stop and wait for the next command. If the "Auto Close" function is selected, the gate will close after the preset time.

3. If the gate senses an obstruction while closing, the gate will stop and move to the open position.
4. If the gate senses an obstruction while opening, the gate will stop and wait for the next command. If the "Auto Close" function is selected, the gate will close after the preset time.

TROUBLE-SHOOTING GUIDE

Should a problem occur, consult the following table first before calling your local **GEMINI** agent.

The table is set out in Problem, Possible Cause and Remedy and/or Test, to enable quick identification and location of faults. Care has been taken in the compilation of this Trouble-Shooting Guide to include all likely malfunctions that could occur.

WARNING

DURING SOME OF THE FOLLOWING CHECKS/TESTS, IT WILL BE NECESSARY TO WORK ON THE UNIT WHILE THE ELECTRICAL POWER IS SWITCHED ON (LIVE), THEREFORE UTMOST CARE MUST BE TAKEN TO PREVENT ELECTRICAL SHOCKS.

TABLE 1 - PROBLEMS DURING THE INSTALLATION/OPERATING PHASE

PROBLEM	POSSIBLE CAUSE	REMEDY AND/OR TEST
Electrical motor does not turn	a. Is the main power switched ON? b. Is the electrical power correctly connected?	a. Switch power ON b. Check and rectify as necessary
Electrical motor turns but gate does not move	a. Is the manual override lever in the UP position?	a. Move override lever to the UP position
Power is ON (LED indicating), but motor does not react	a. Wiring to electronic control card not correctly connected b. Electronic control card defective	a. Check and rectify as necessary b. Replace electronic control card

PROBLEM	POSSIBLE CAUSE	REMEDY AND/OR TEST
Motor operates by activating with the push button, but not with the remote control	a. Is the security code set correctly? b. Remote control battery flat c. Remote control defective	a. Check and if necessary, reset security code b. Replace battery c. Replace remote control
Motor activates by remote control, but not with the push button	a. Faulty wiring to the push button b. Push button faulty	a. Disconnect push button wiring from the GEMINI and momentarily bridge the COMMON and TRIG connections at the connector block. If motor operates, the wiring is faulty and must be repaired b. Disconnect push button wiring at the push button. Momentarily bridge the wires at the push button. If motor operates, the push button is faulty and must be repaired or replaced
Gate (motor) direction incorrect	a. Incorrect setting	a. Refer to "Reversing Electrical motor Direction" and use alternative positioning of the jumper
Motor opens the gate for a short travel only, then closes again	a. Gate mass too heavy for unit b. Obstruction on track c. Obstruction sensitivity too high	a. Discuss problem with your local GEMINI agent b. Clear obstruction from track c. Adjust obstruction sensitivity to suit your gate.

PROBLEM	POSSIBLE CAUSE	REMEDY AND/OR TEST
Motor makes a "clicking" sound but does not switches ON	a. Motor has forced the gate against the gate post and cannot release by itself. Alluminium stoppers incorrectly adjusted b. A power surge has caused a problem on the electronic control card	a. Lower the manual override and move gate away from gate post. Adjust the alluminium stoppers b. Switch the main electrical power to the OFF position and wait 10 seconds, then switch the power to ON again
Gate opens and closes by itself	a. Faulty push button wiring b. Faulty remote control receiver c. Somebody in your area is using the same security code as yours	a. Check and rectify as necessary b. Replace the remote control receiver c. Change your security code
Receiver reception insufficient	a. Transmitter battery flat b. Receiver range is obstructed	a. Replace battery b. Place in different position
Gate moves with difficulty	a. Wheel track is dirty b. Wheel track has burrs or markings c. Insufficient free play between pinion and rack (wheel track has sagged). Weight of gate is laying on pinion	a. Clean wheel track b. Repair burrs and/or markings c. Repair the sagging problem and restore free play between pinion and rack

MAINTENANCE

The **GEMINI** domestic sliding gate opener system is a maintenance free unit and needs very little attention other than checking the gate track for obstructions (excessive dirt, sand, stones, etc).

On a 6-monthly basis, it is advisable to remove the protection lid and blow off all accumulated dust and dirt from the unit with low pressure compressed air.

REPLACING THE REMOTE CONTROL BATTERY

Using a small Phillips screwdriver, remove the rear cover from the remote control unit.

Remove the battery from its holder.

Check that the holder and contact points are clean (signs of corrosion, etc).

Fit a new battery, noting the position of the (+) and (-) end of the battery. The (-) end of the battery faces towards the spring connection.

ELECTRICAL DIAGRAM

