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INTRODUCTION

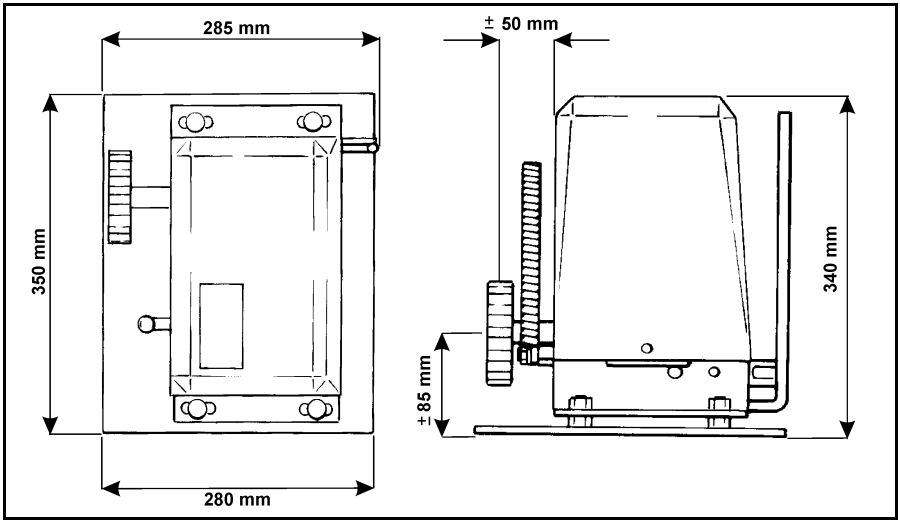
The GEMINI 12V dc domestic sliding gate system is a self contained unit, which comprise of a single 12 Volt direct current electrical motor that drives the rack pinion through a reduction gearbox. The electrical motor, carrier bearing and associated components are mounted in a rust treated base box. 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.

A 12 Volt battery is used as the power source for the electrical motor. A 220 Volt trickle charger maintains the battery in a fully charged state. The 220 Volt current for the transformer is derived from a normal 220 volt mains supply. The system can operate from a 17V ac supply if a more economical cable from the main power supply to the gate motor is required.

NOTES

PHYSICAL DIMENSIONS



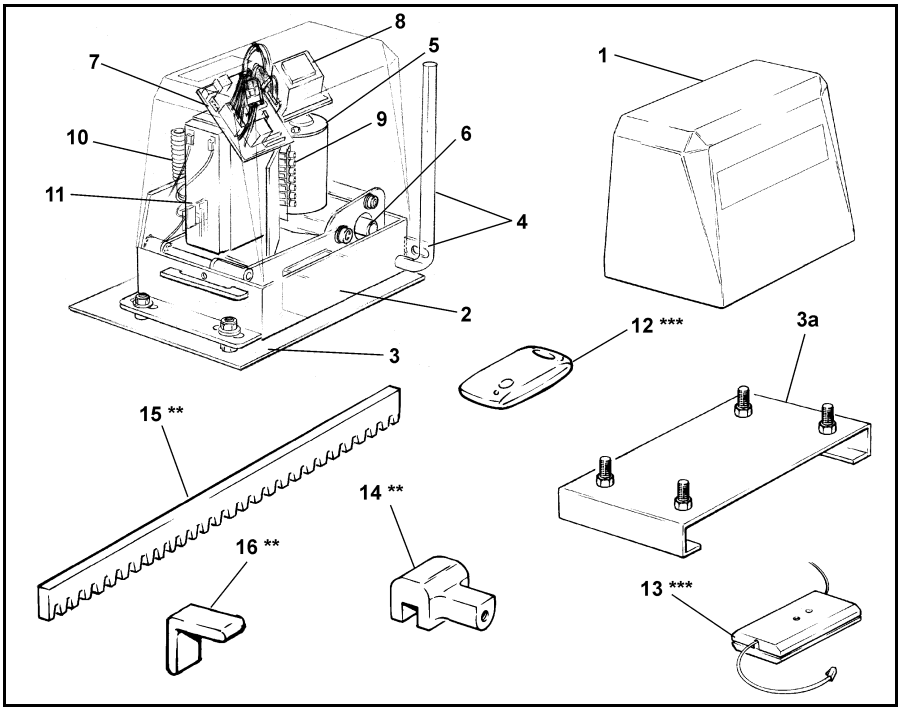
TECHNICAL SPECIFICATIONS

Motor	12V dc
Gate speed	16,5 meter per min
Limit switches	Independent in both directions
Obstruction	Electronically adjustable obstruction sensing in both directions
Activation	By using any Normal Open electrical circuit push button or remote control
Other characteristics	i. Automatic closing facility ii. LED display for gate mode iii. Buzzer during gate movement iv. Infra Red beam sensing compatible v. Pedestrian open/close facility vi. Mechanical override in case of a malfunction or power failure vii. Soft start and stop
Weight	±26,5 kg (Includes rack and base plate)
Battery	12 Volt, 7,5 Ah sealed lead-acid type, maintenance free
Maximum gate weight ...	500 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** 12 Volt dc 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. 12 Volt electrical motor.
6. Gearbox
7. **GEMINI** electronic control card.
8. 220V/17V Transformer
9. Electrical connector blocks
10. Gate “open and close” limit switch spring.
11. 12 Volt maintenance free battery
12. Remote control transmitter. ***
13. Remote control receiver. ***
14. Alluminium limit stops. **
15. Rack. **
16. 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

MAKE SURE THAT THE GATE YOU FIT THIS UNIT TO WILL UNDER NO CIRCUMSTANCES OVERRUN ITS TRACK, EVEN BY BRUTE FORCE.

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 of 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.

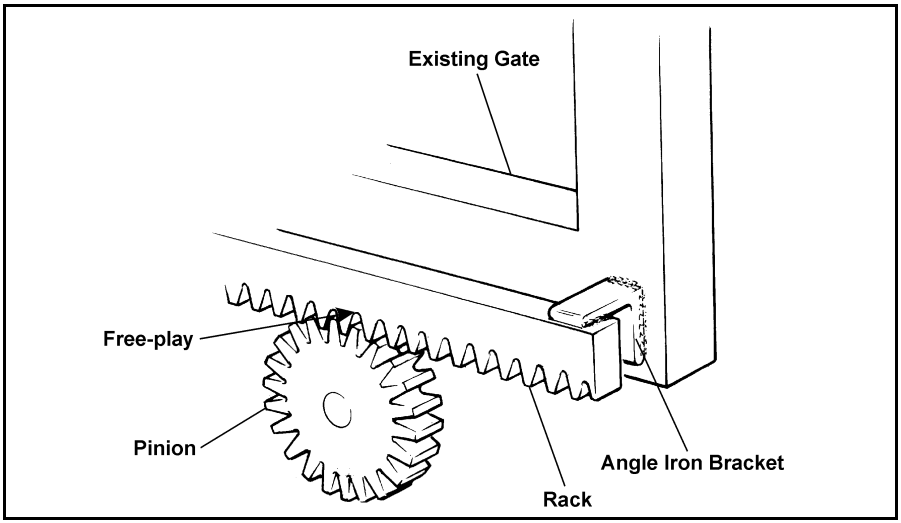
Remove the base plate from the unit.

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

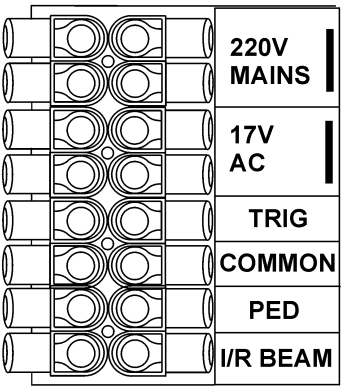


Starting at one end of the gate, weld the rack in position by using the angle iron brackets. The following critical points must be considered:

- ❖ 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 VOLT OR 17 VOLT AC 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.

220 V Electrical power supply -	Connect the two terminal blocks marked: **220V MAINS** to a 220V supply.
Ground (earth) connection -	Connect the ground (earth) wire to position marked: **GRND.**

OR

17V AC power supply -	Connect the two terminal blocks marked: **17V AC** to a 17V ac supply.
Ground (earth) connection -	Connect the ground (earth) wire to position marked: **GRND.**

NOTE: Either the 220 Volt **OR** the 17V ac is to be connected to the unit. Do **NOT** connect the 220 Volt and 17V ac to the unit.

OTHER CONNECTIONS

Battery	Make sure the red lug is on + and the black lug on –
Push button -	Connect to terminal blocks marked: **COMMON** and **TRIG.**
Pedestrian push button -	Connect to terminal blocks marked: **COMMON** and **PED.**
Infra red sensor -	Connect to terminal blocks marked: **COMMON** and **I R BEAM.**
Keypad -	Connect to terminal blocks marked: **COMMON** and **TRIG** or **PED** (optional).
Receiver -	Plug in on electronic control card marked: **RX - PLUG**

CAUTION

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

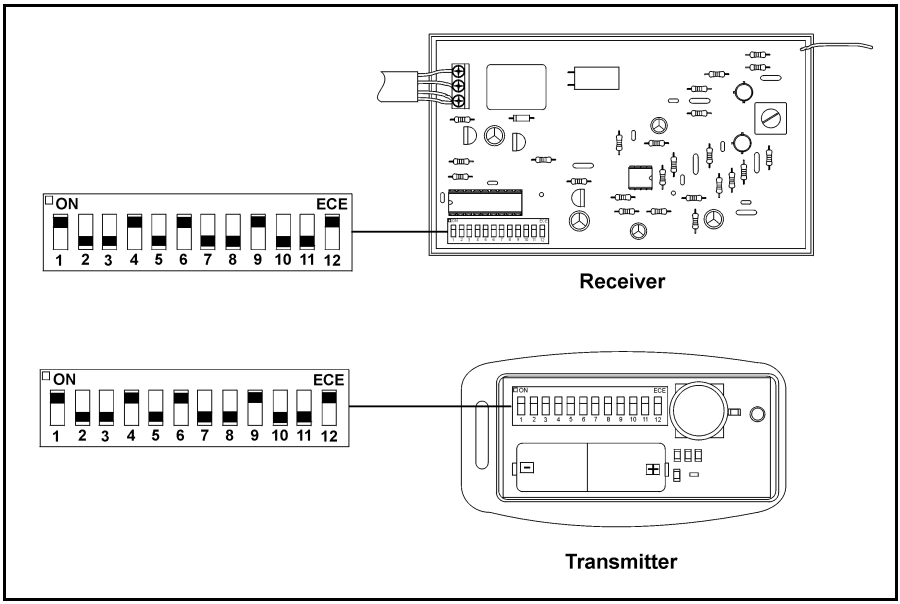
SETTING THE REMOTE CONTROL SECURITY CODE DIP SWITCHES

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 therefor 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

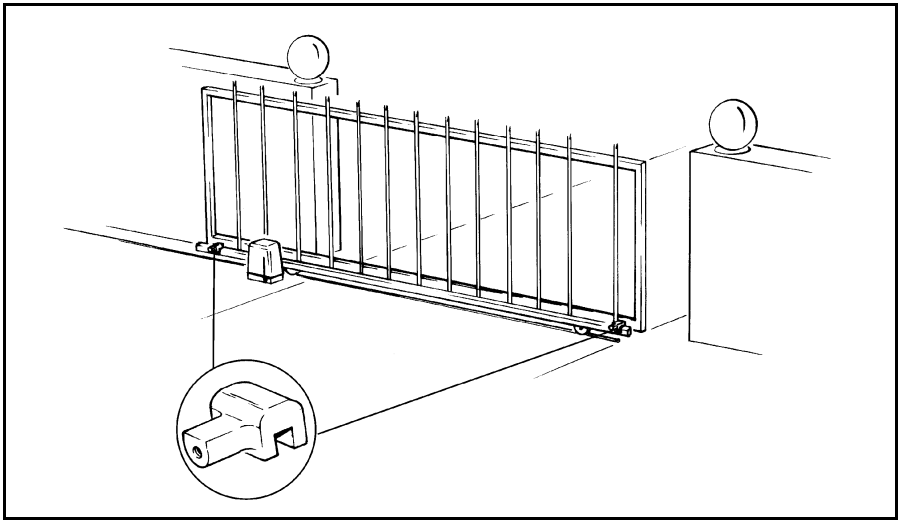
Using a small screwdriver, remove the rear covers from the transmitter and receiver. Place the units so that the numbers on the dip switches starts with No. 1 from the left.



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” alluminium 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. The electrical motor direction default is set by positioning the gate direction jumper on the electronic control card either to the left or right.

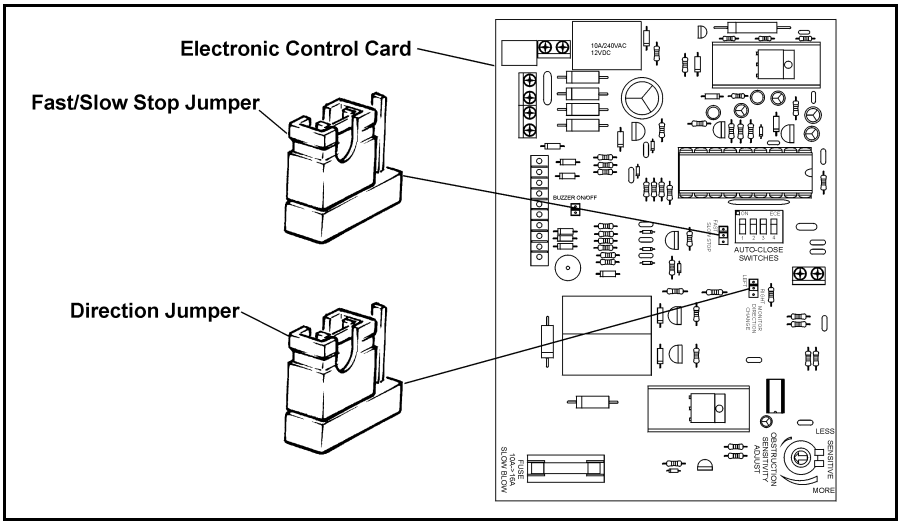
The electronic control card is equipped with three small pins; the center pin is the common pin, the left-hand pin for the left direction and the right hand pin for the right direction.

SETTING THE FAST/SLOW STOP DEFAULT

This function is utilised in order to adjust the intensity of the “soft stop” mode. Correct setting will ensure smooth operation of the gate.

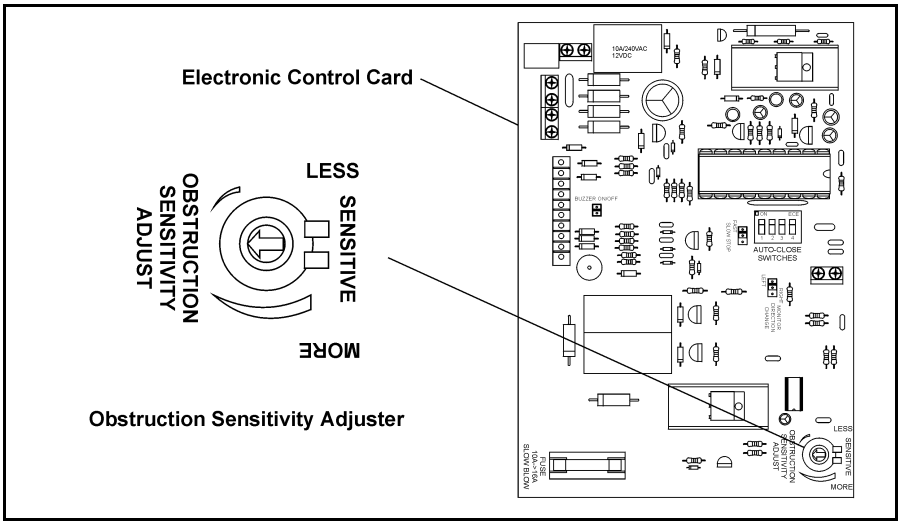
Refer to the electrical diagram. The electrical motor fast/slow stop default is set by positioning the fast/slow stop jumper on the electronic control card either to the left or right.

The electronic control card is equipped with three small pins; the center pin is the common pin, the left-hand pin for the fast stop (heavy gates) and the right hand pin for the slow stop (light gates).



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

OBSTRUCTION SENSITIVITY ADJUSTMENT



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

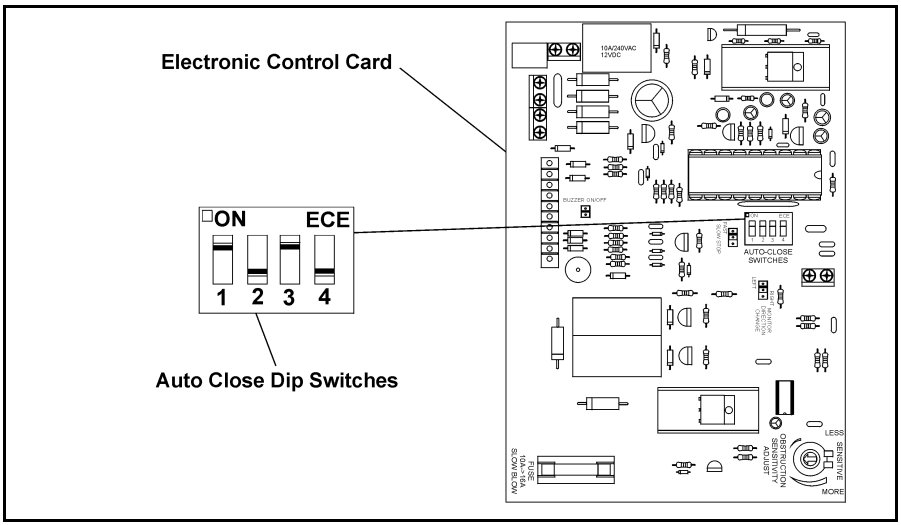
Obstruction sensitivity is adjusted by adjusting the sensitivity rheostat on the electronic control card. If adjustment is required, insert a small flat tip instrument type screwdriver into the rheostat adjustment slot and adjust as follows:

- ❖ Turn the adjuster clockwise to make sensitivity LESS.
- ❖ Turn the adjuster counterclockwise to make sensitivity MORE.

Test impact sensitivity by bumping the gate by hand in the opposite direction of movement, re-adjust until the ideal impact sensitivity is achieved.

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 alluminium stopper position on the rack.

NOTE

If the gate moves to the closed position on the first activation, the electrical motor direction is incorrectly set and must be reversed. Refer to "Reversing the Electrical Motor Direction" on page 13 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 alluminium stopper position on the rack.

4. Perform an obstruction-sensing test. If necessary, refer to "Obstruction Sensitivity Adjustment" on Page 14 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

BUZZER

1. A buzzer is mounted on the electronic control card and acts as an audible tell tale indicator conveying the following messages:

   - Continuous beeps (approximately one beep every second) – Gate is either opening or closing.
   - A single continuous beep (approximately two seconds) – Warning that gate is going to close.
   - Double beeps in succession – Indicates a Main Power Supply Problem.
   - Triple beeps in succession – Indicates a Low Battery Voltage.
   - Approximately one beep every 5 seconds after gate has closed – Gate is not fully closed.

2. The buzzer can be de-activated by removing the buzzer jumper from the electronic control card. This will have no effect on the operation of the gate.

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 battery connected?	a. Connect battery
	b. Is the electrical power correctly connected?	b. Check and rectify as necessary
	c. Fuse on the electronic control card blown	c. Replace with correct value fuse
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 properly connected	a. Check and rectify as necessary
	b. Electronic control card defective	b. Replace electronic control card

PROBLEM	POSSIBLE CAUSE	REMEDY AND/OR TEST
Motor operates by actuating the push button, but not with the remote control	a. Is the security code set correctly?	a. Check and if necessary, reset security code
	b. Remote control battery flat	b. Replace battery
	c. Remote control defective	c. Replace remote control
Motor is activated by the remote control, but not with the push button	a. Faulty wiring to the push button	a. Disconnect push button wiring from the GEMINI and bridge the **COMMON** and **TRIG** connections at the connector block. If motor operates, the wiring is faulty and must be repaired
	b. Push button faulty	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 to heavy for unit	a. Discuss problem with your local **GEMINI** agent
	b. Obstruction on track	b. Clear obstruction from track
	c. Obstruction sensitivity to high	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. Disconnect the battery and wait 10 seconds, then switch the power to ON again and reconnect battery
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

PROBLEM	POSSIBLE CAUSE	REMEDY AND/OR TEST
Buzzer sounds after gate has closed (approximately one beep every 5 seconds)	a. Gate is not fully closed. Motor has forced the gate against the gate post or an obstruction on the wheel track	a. Check and if necessary, adjust alluminium stoppers
Buzzer sounds double beeps in succession	a. Main power supply defective (220V mains or 17Vac) i. Is the main power switched ON? ii. 220V mains or 17Vac incorrectly connected iii. Electronic control card fuse blown	a. Check the following: i. Switch ON the main power supply ii. Check and rectify as necessary iii. Replace with fuse of the correct value
Buzzer sounds triple beeps in succession	a. Battery voltage low i. Is the main power switched ON? ii. Trickle charger fuse blown	a. Check the following: i. Switch ON the main power supply ii. Replace with fuse of the correct value
Buzzer does not sound at all	a. Is the buzzer jumper fitted? b. Buzzer defective	a. Replace buzzer jumper b. Replace electronic control card

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