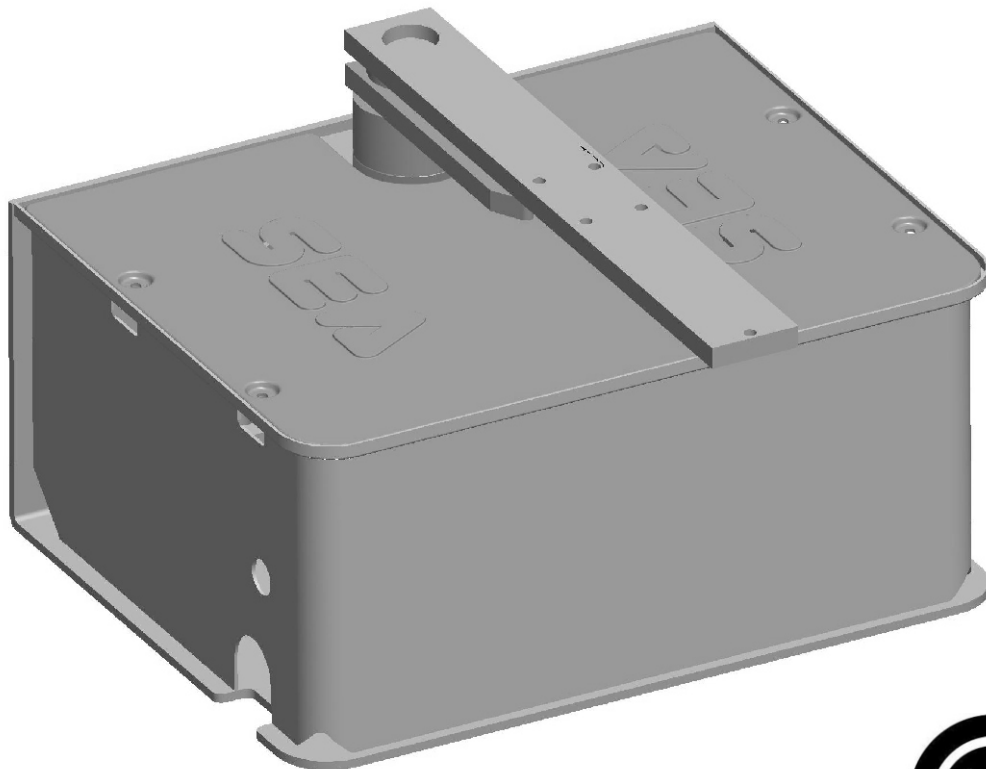


SEA® USA
ELECTRONIC
OPENING
SYSTEMS
International registered trademark n. 2.777.971

COMPACT



INSTALLATION MANUALS AND SAFETY INFORMATION

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Details

General

An appliance shall be provided with an instruction manual. The instruction manual shall give instructions for the installation, operation, and user maintenance of the appliance.

The installation instructions shall specify the need for a grounding-type receptacle for connection to the supply and shall stress the importance of proper grounding.

The installation instructions shall inform the installer that permanent wiring is to be employed as required by local codes, and instructions for conversion to permanent wiring shall be supplied.

Information shall be supplied with a gate operator for:

- a) The required installation and adjustment of all devices and systems to effect the primary and secondary protection against entrapment (where included with the operator).
- b) The intended connections for all devices and systems to effect the primary and secondary protection against entrapment. The information shall be supplied in the instruction manual, wiring diagrams, separate instructions, or the equivalent.

Vehicular gate operators (or systems)

A vehicular gate operator shall be provided with the information in the instruction manual that defines the different vehicular gate operator Class categories and give examples of each usage. The manual shall also indicate the use for which the particular unit is intended as defined in Glossary, Section 3. The installation instructions for vehicular gate operators shall include information on the Types of gate for which the gate operator is intended.

A gate operator shall be provided with the specific instructions describing all user adjustments required for proper operation of the gate. Detailed instructions shall be provided regarding user adjustment of any clutch or pressure relief adjustments provided. The instructions shall also indicate the need for periodic checking and adjustment by a qualified technician of the control mechanism for force, speed, and sensitivity.

Instructions for the installation, adjustment, and wiring of external controls and devices serving as required protection against entrapment shall be provided with the operator when such controls are shipped with the operator.

Instructions regarding intended installation of the gate operator shall be supplied as part of the installation instructions or as a separate document. The following instructions or the equivalent shall be supplied where applicable:

- a) Install the gate operator only when:
 - 1) The operator is appropriate for the construction of the gate and the usage Class of the gate,
 - 2) All openings of a horizontal slide gate are guarded or screened from the bottom of the gate to a minimum of 4 feet (1.22 m) above the ground to prevent a 2-1/4 inch (57.2 mm) diameter sphere from passing through the openings anywhere in the gate, and in that portion of the adjacent fence that the gate covers in the open position,
 - 3) All exposed pinch points are eliminated or guarded, and
 - 4) Guarding is supplied for exposed rollers.
- b) The operator is intended for installation only on gates used for vehicles. Pedestrians must be supplied with a separate access opening. The pedestrian access opening shall be designed to promote pedestrian usage. Locate the gate such that persons will not come in contact with the vehicular gate during the entire path of travel of the vehicular gate.
- c) The gate must be installed in a location so that enough clearance is supplied between the gate and adjacent structures when opening and closing to reduce the risk of entrapment. Swinging gates shall not open into public access areas.
- d) The gate must be properly installed and work freely in both directions prior to the installation of the gate operator. Do not over-tighten the operator clutch or pressure relief valve to compensate for a damaged gate.
- e) (not applicable)
- f) Controls intended for user activation must be located at least six feet (6') away from any moving part of the gate and where the user is prevented from reaching over, under, around or through the gate to operate the controls. Outdoor or easily accessible controls shall have a security feature to prevent unauthorized use.



g) The Stop and/or Reset button must be located in the line-of-sight of the gate. Activation of the reset control shall not cause the operator to start.

h) A minimum of two (2) WARNING SIGNS shall be installed, one on each side of the gate where easily visible.

i) For gate operators utilizing a non-contact sensor:

- 1) See instructions on the placement of non-contact sensors for each Type of application,
- 2) Care shall be exercised to reduce the risk of nuisance tripping, such as when a vehicle, trips the sensor while the gate is still moving, and
- 3) One or more non-contact sensors shall be located where the risk of entrapment or obstruction exists, such as the perimeter reachable by a moving gate or barrier.

j) For a gate operator utilizing a contact sensor:

- 1) One or more contact sensors shall be located where the risk of entrapment or obstruction exists, such as at the leading edge, trailing edge, and postmounted both inside and outside of a vehicular horizontal slide gate.
- 2) One or more contact sensors shall be located at the bottom edge of a vehicular vertical lift gate.
- 3) One or more contact sensors shall be located at the pinch point of a vehicular vertical pivot gate.
- 4) A hardwired contact sensor shall be located and its wiring arranged so that the communication between the sensor and the gate operator is not subjected to mechanical damage.
- 5) A wireless contact sensor such as one that transmits radio frequency (RF) signals to the gate operator for entrapment protection functions shall be located where the transmission of the signals are not obstructed or impeded by building structures, natural landscaping or similar obstruction. A wireless contact sensor shall function under the intended end-use conditions.
- 6) One or more contact sensors shall be located on the inside and outside leading edge of a swing gate. Additionally, if the bottom edge of a swing gate is greater than 6 inches (152 mm) above the ground at any point in its arc of travel, one or more contact sensors shall be located on the bottom edge.
- 7) One or more contact sensors shall be located at the bottom edge of a vertical barrier (arm).

Revised 56.8.4 effective February 21, 2008

Instruction regarding intended operation of the gate operator shall be provided as part of the user instructions or as a separate document. The following instructions or the equivalent shall be provided:

IMPORTANT SAFETY INSTRUCTIONS

WARNING – To reduce the risk of injury or death:

1. READ AND FOLLOW ALL INSTRUCTIONS.
2. Never let children operate or play with gate controls. Keep the remote control away from children.
3. Always keep people and objects away from the gate. **NO ONE SHOULD CROSS THE PATH OF THE MOVING GATE.**
4. Test the gate operator monthly. The gate **MUST** reverse on contact with a rigid object or stop when an object activates the non-contact sensors. After adjusting the force or the limit of travel, retest the gate operator. Failure to adjust and retest the gate operator properly can increase the risk of injury or death.
5. Use the emergency release only when the gate is not moving.
6. **KEEP GATES PROPERLY MAINTAINED.** Read the owner's manual. Have a qualified service person make repairs to gate hardware.
7. The entrance is for vehicles only. Pedestrians must use separate entrance.
8. **SAVE THESE INSTRUCTIONS.**

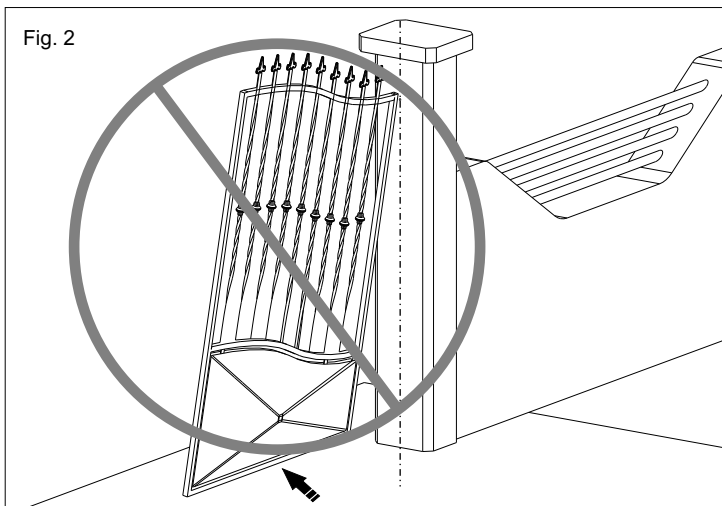
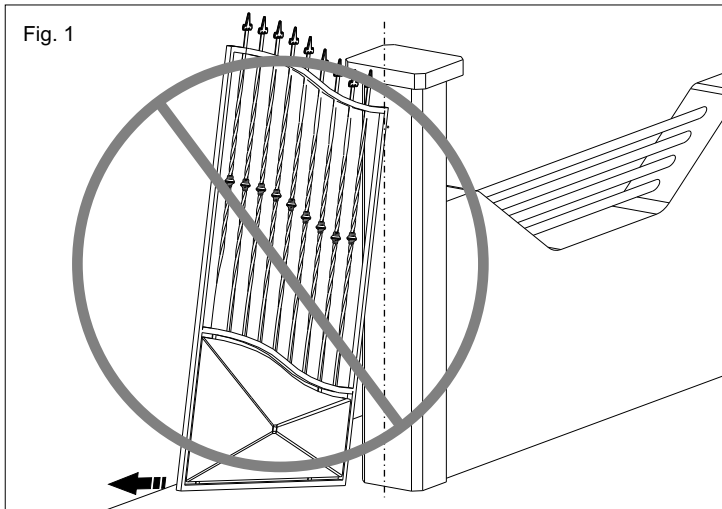


GATE WARNINGS AND PRECAUTIONS

GATE WARNINGS

The first thing to check is that the gate is in good running order as follows:

- A. (Make sure that) the fixed and moving parts of the gate are strong and non-deformable;
- B. the weight of each gate leaf must not exceed 1600 Pound;
- C. the hinges and general structure must be in good condition and the gate must move smoothly throughout its travel;
- D. the upper hinge alone is sufficient to install the unit; those which are unnecessary can be eliminated (the lower and that in the middle if exists)

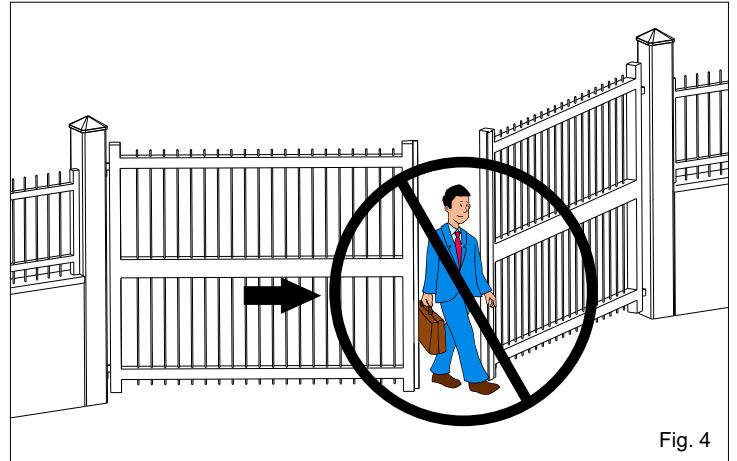


- Not for pedestrian opening



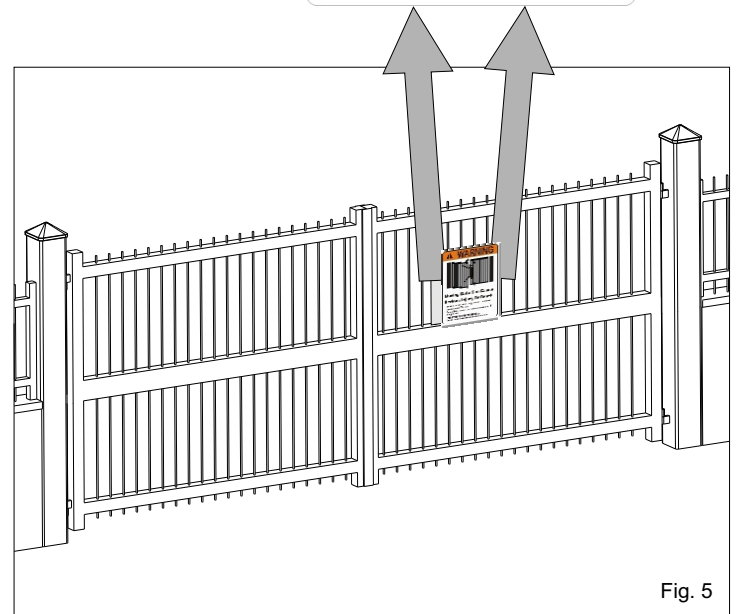
PRECAUTIONS

COMPACT 1600 has been created for the automation of gates used by vehicles only. Be aware to avoid the crossing of the gate path because it is very dangerous for pedestrians (fig. 4).



Install the warning signs, on each side of the gate and in avisible zone which informs the pedestrians about the danger they run when passing or resting in the environment of the gate (fig. 5).

Important:
For a higher security, SEA advices to install infrared photocells.





MECHANICAL INSTALLATION

1. FEATURES AND SPECIFICATIONS

The **Compact 120V/230V** consists of a hydraulic pump and a hydraulic jack, both of which coupled in a **supporting box treated with cataphoresis**.

The pump unit casing, which is used as an oil tank, contains the electric motor, fluid pump, distributor and hydraulic oil.

It is also provided with an **adjustable slowing-down device** in the two stop phases of the leaf (versions with slow-down only).

The wheeling unit is composed by a double piston connected to a rack which engages with the pinion of the leaf dragging shaft.

Gates up to 6,5 feet long can be securely locked using the operators internal hydraulic locking system, thus ensuring perfect keeping in closing and in opening.

For gate in excess of stated value: A hydraulic non locking operator should be used in conjunction with a separate electrical locking device to ensure keeping in closing.

On the operators with hydraulic slow down it is present only during the last 15° of rotation.

The system comes with a release which allows the manual opening of the leaves in case of power failure.

MAIN PARTS NOMENCLATURE

- 1 Braking regulation screw (where provided)
- 2 Emergency release (authorized staff only)
- 3 By-pass regulation
- 4 Exit hole for electric cables
- 5 Filling oil Cap
- 6 Water draining hole
- 7 Oil level indicator
- 8 Draining screw
- 9 Greaser
- 10 Crank

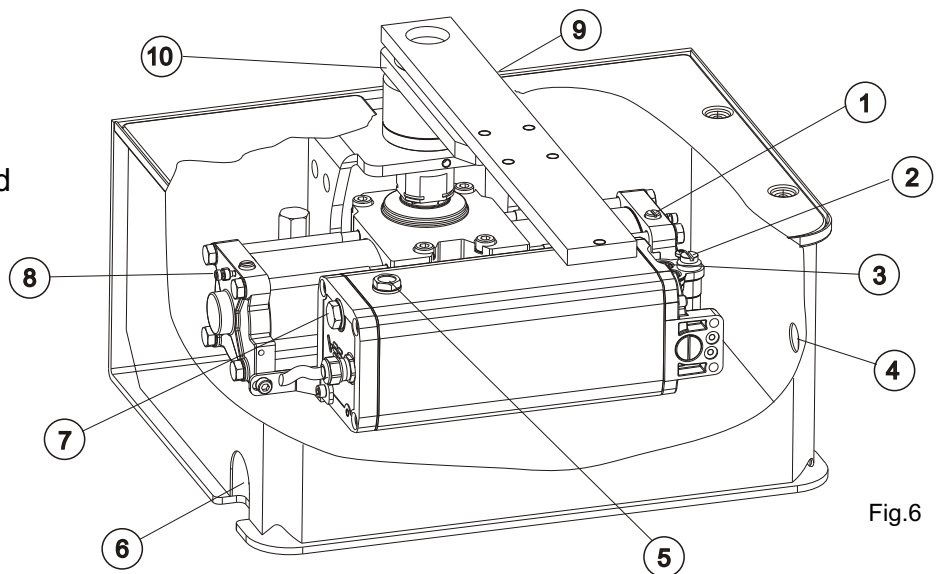


Fig.6

TECHNICAL DATA	<i>Compact 120V</i>	<i>Compact 230V</i>
Power supply	120V (50/60 Hz)	230V (50/60 Hz)
Motor Power	300 W	220 W
Absorbed current	2,45 A	1,35 A
Motor rotation speed	1635 rpm	
Cycles hour (with a 68°F temperature)	45	
Max Pressure 0,13 Gal. pump in use	50 bar	
Max Pressure 0,20 Gal. pump in use	40 bar	
Operating temperature	-4°F +131°F	
Thermal protection intervention	266°F	
Max torque	1056 lbf	
Starting capacitor	60 uF	
Weight	30,4 Pound	
Protection class	3R Type	
Maximum weight of the gate	1600 Pound	
Braking regulation	Versions with slow-down	



MECHANICAL INSTALLATION

DIMENSIONS (inches)

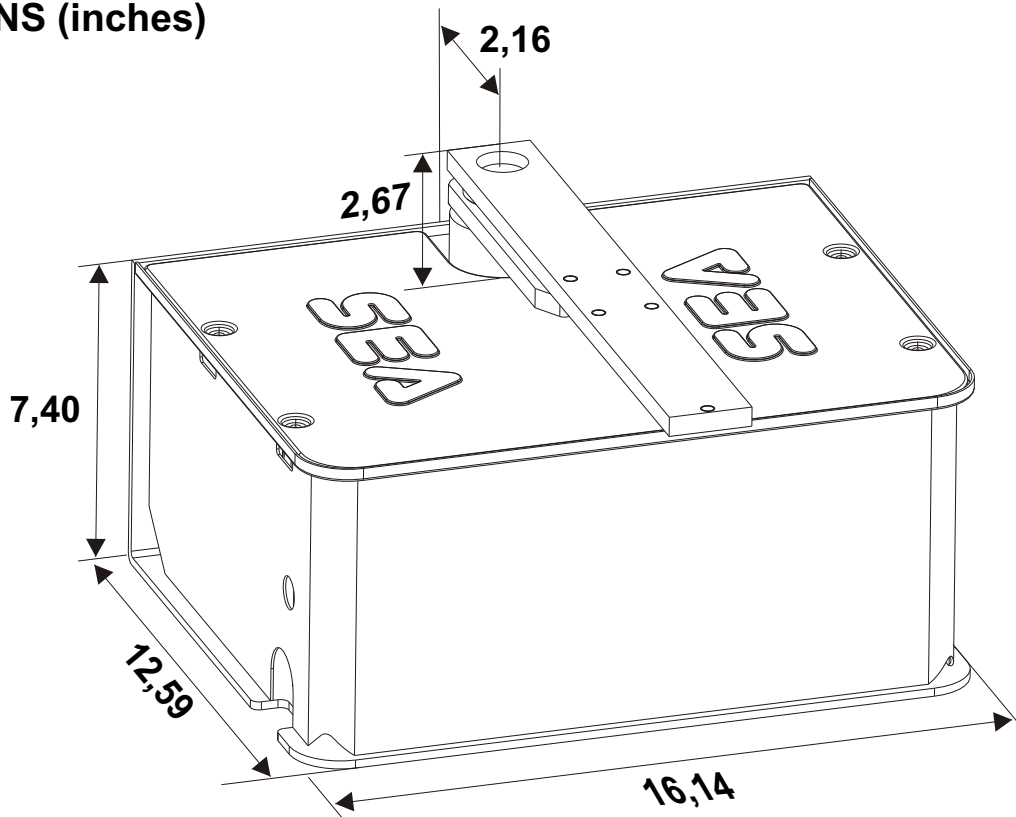
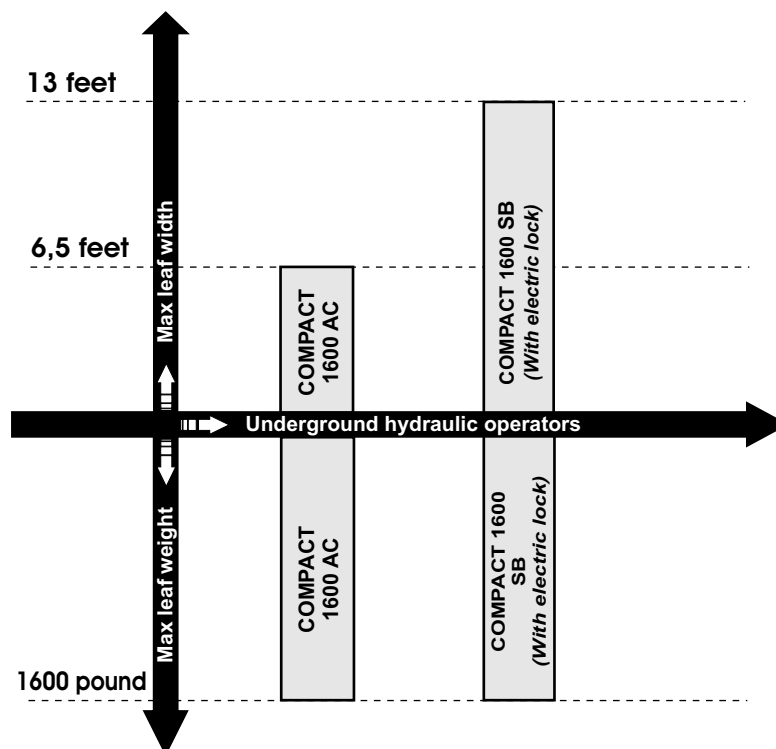


Fig.7

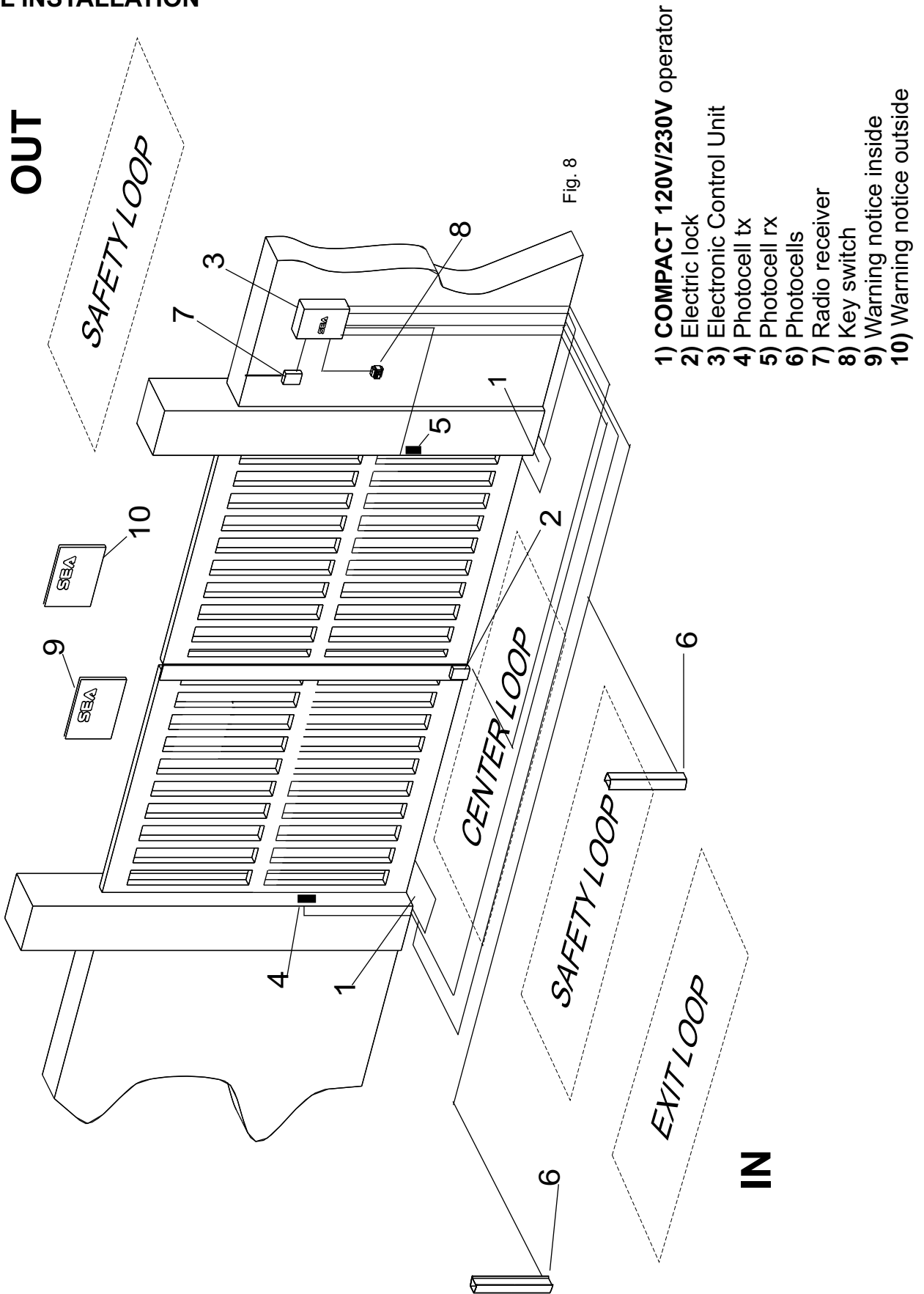
GRAPHIC FOR THE USE OF COMPACT 120V/230V OPERATORS





MECHANICAL INSTALLATION

2. TYPICAL INSTALLATION



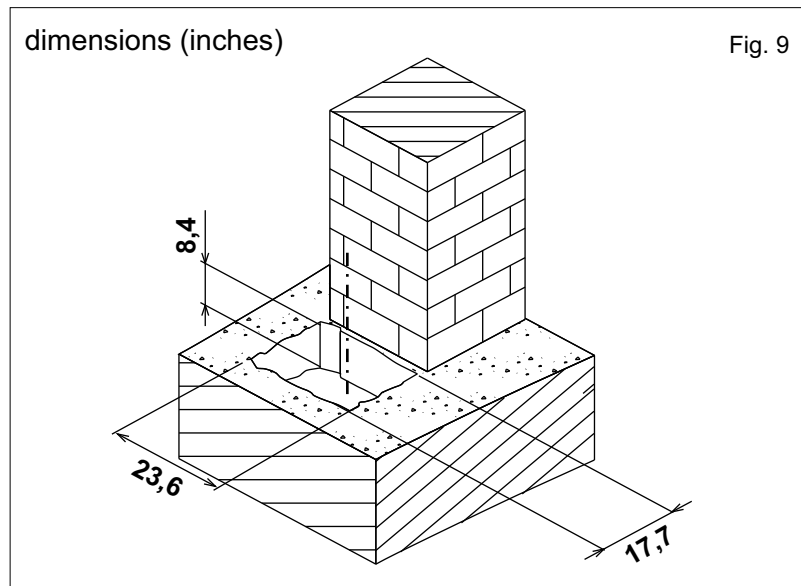
- 1) COMPACT 120V/230V operator
- 2) Electric lock
- 3) Electronic Control Unit
- 4) Photocell tx
- 5) Photocell rx
- 6) Photocells
- 7) Radio receiver
- 8) Key switch
- 9) Warning notice inside
- 10) Warning notice outside



MECHANICAL INSTALLATION

3. CARRYING BOX INSTALLATION

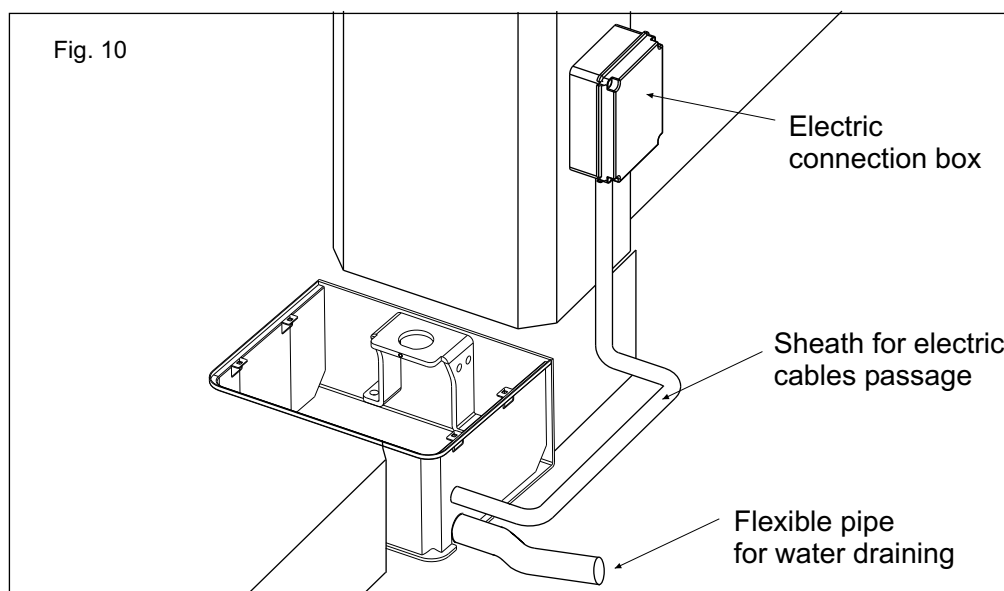
3.1. The hole which contains the carrying box must have the approximate dimensions mentioned in Fig. 9. For a correct placing, it is obligatory to follow closely the quote of 2,16 inches which corresponds to the minimum distance of the rotation axis from the pillar.



3.2.

Inside the excavated pit you have to plan:

- **rain water drainage;**
- a water waste pipe in flexible plastic of about 1,5 inches of diameter to put inside the provided hole of the box before it is concreted (Fig. 10). **It must be brought until the drain of the sewer line;**
- a sheath for the passage of electrical cables of about 0,8 inches of diameter which must be brought to the proximity of the electric connection box (Fig. 10).



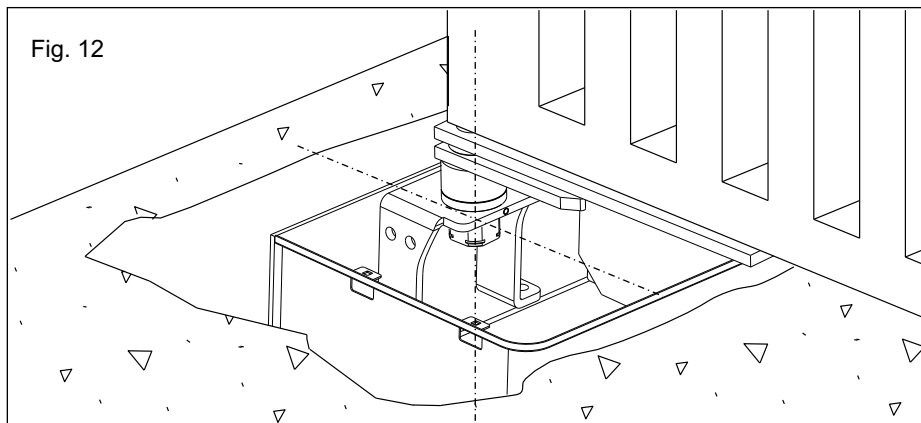
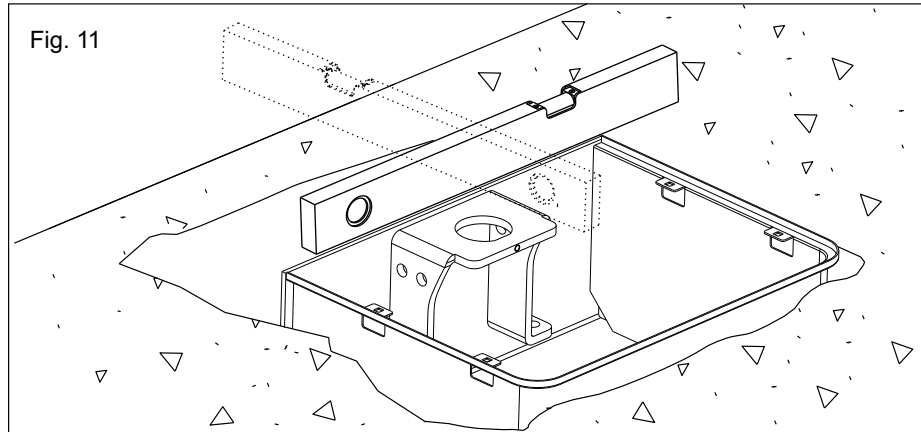


MECHANICAL INSTALLATION

3.3.

Before concreting the carrying box, use a level to make it perfectly horizontal to the ground (Fig. 11) and perpendicular to the axis of the gate (Fig. 12).

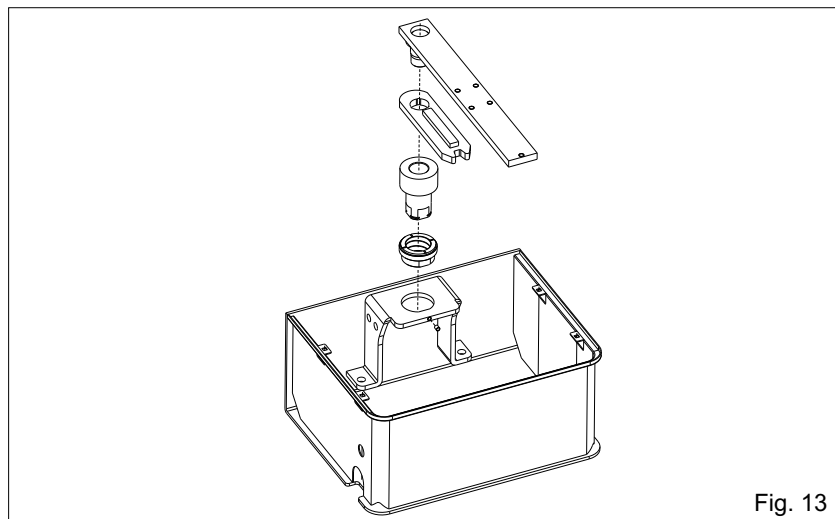
The axis of the upper hinge of the gate must correspond exactly to the axis of the carrying box shaft.



3.4. introduce the buckle of creeping in the box and fix it with the special screws (Fig. 13).

3.5. Insert the units as in Fig. 13.

N.B.: During the insertion of the units lubricate them with the supplied grease.



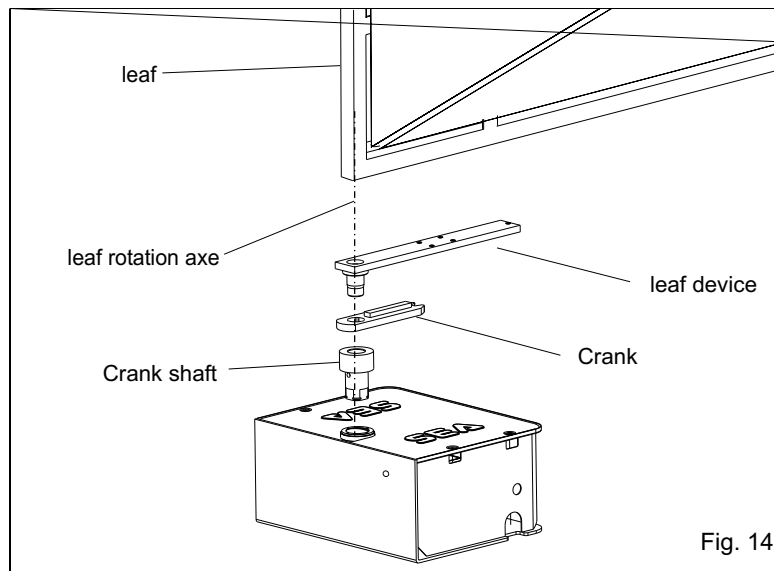


MECHANICAL INSTALLATION

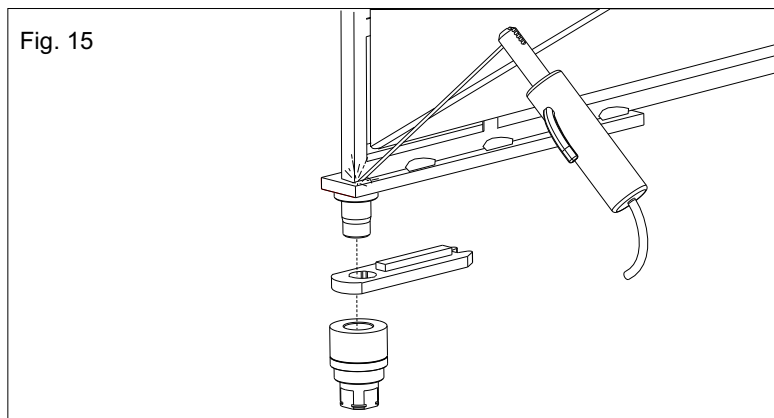
4. LEAF ASSEMBLING

Before installing the gate make sure that the concrete has hardened into the foundation hole.

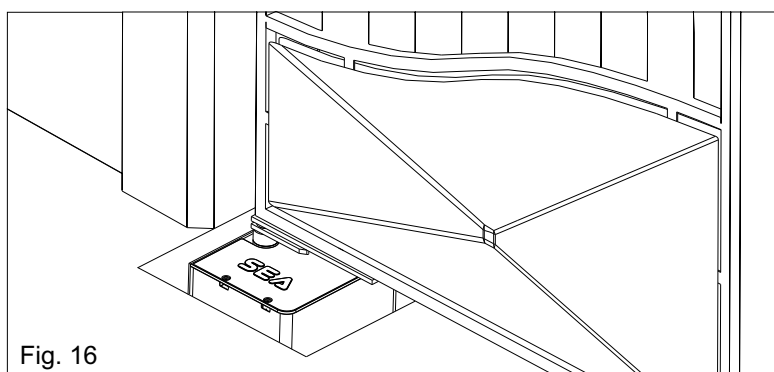
4.1. Position the leaf of the gate on the leaf device making reference to the rotation axe of the leaf hinge (Fig. 14);

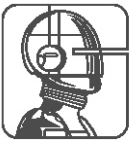


4.2. Weld with care the leaf device to the leaf of the gate realizing a tract fixation of ca. 1,2-1,6 inches along the surface of the contact, avoiding the welding next to the threaded holes, furthermore it is necessary to respect the perpendicularity to the axe of rotation (Fig. 15)



4.3. Be careful not to place the leaf outside the axis (Fig. 17 and 18), but make sure the shaft corresponds to the hinge rotation axis remembering that the minimum distance from the pillar is 2,16 inches (Fig. 19).





MECHANICAL INSTALLATION

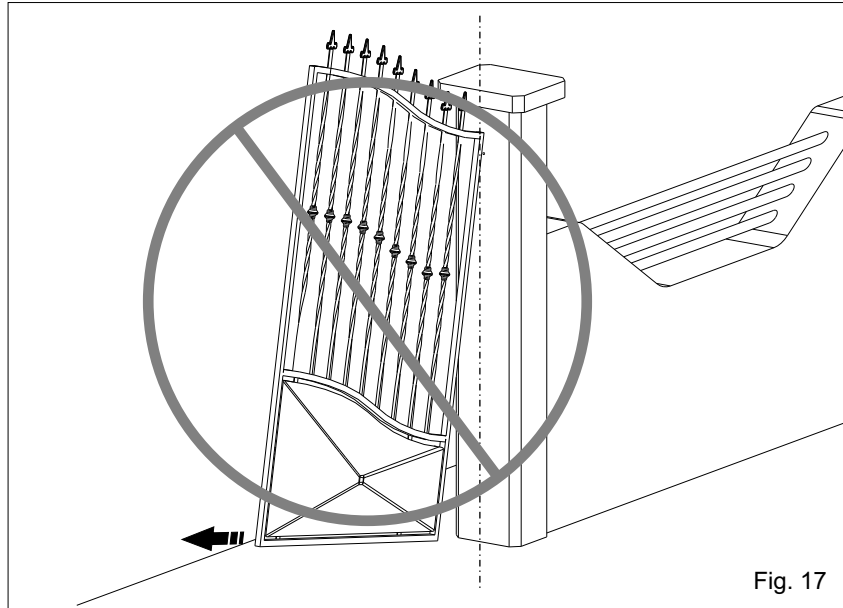


Fig. 17

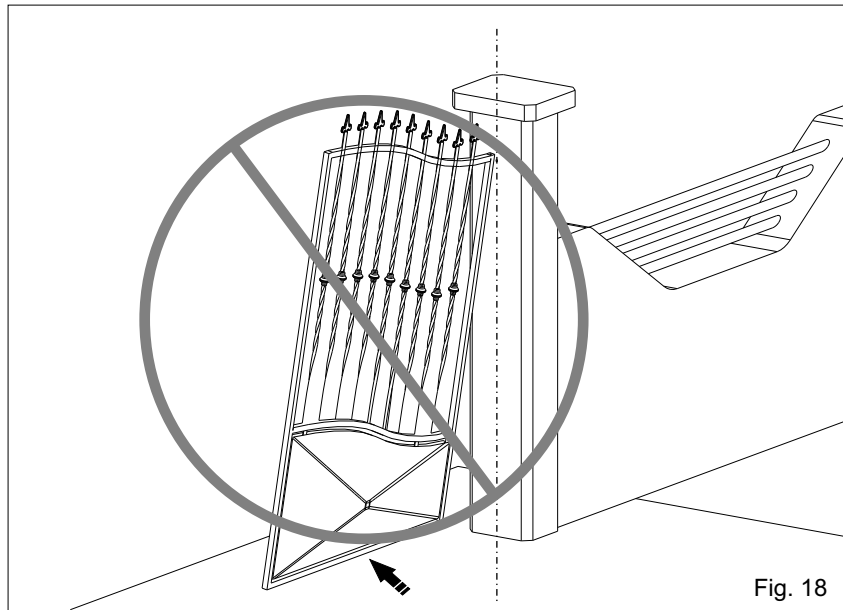


Fig. 18

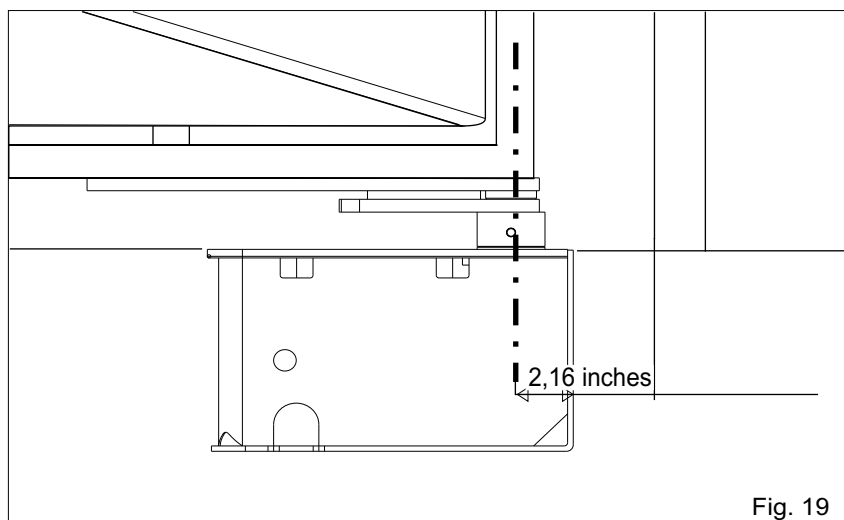


Fig. 19



MECHANICAL INSTALLATION

5. INSTALLATION OF THE OPERATOR

5.1. Insert manually the operator into the carrying box (Fig. 20) also insert the splined shaft of the operator into the splined bush of the box and fix the operator with the special screws as in Fig. 21.

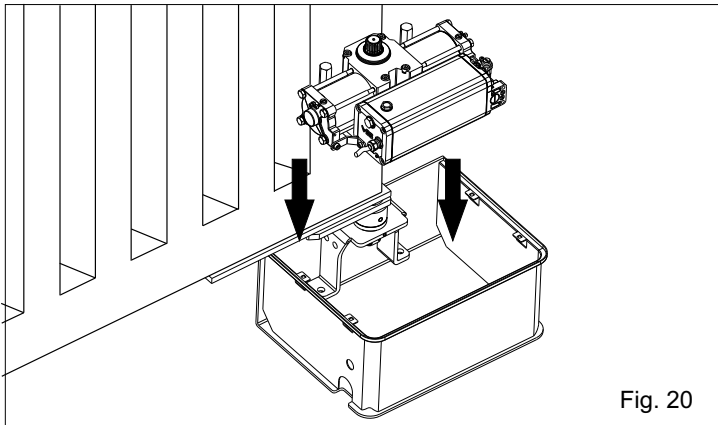


Fig. 20

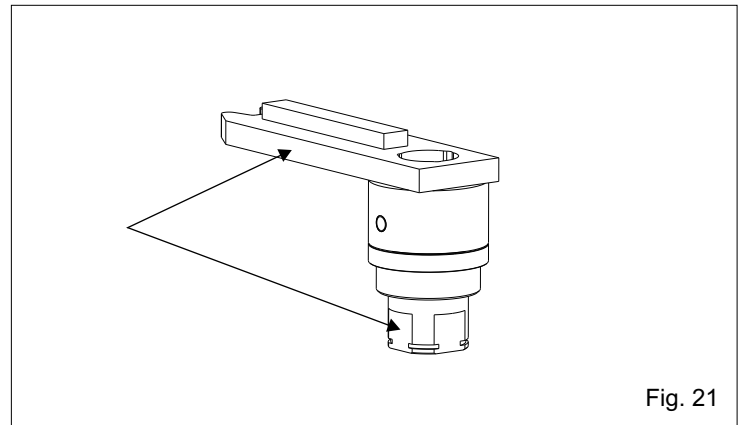


Fig. 21

N.B.: It is advisable to weld the crank with the crank shaft after having also installed the Compact, to use the whole available run and the point of beginning of the desired slowdown (version with hydraulic slowdown). Before welding, make sure that one of the level of the crank shaft corresponds with a side of the crank (see fig.21 and 22) to guarantee the maximum angle with the mechanical stops Kit.

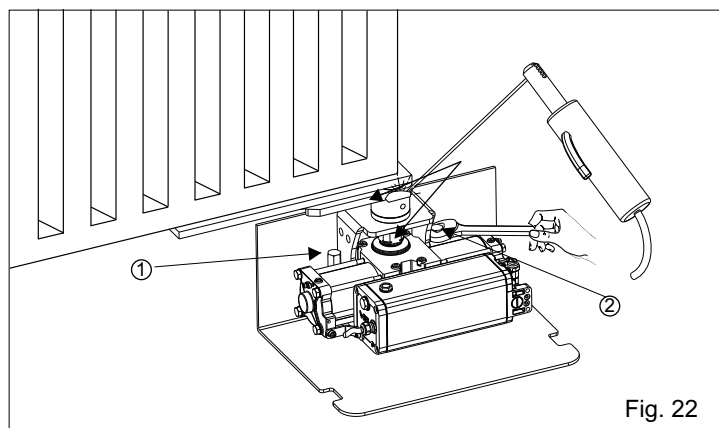


Fig. 22

N.B.: If the Compact is not installed immediately but in a second time, it is recommended to weld the crank shaft and the crank during the installation of the Compact.

5.2. Carry out the electrical connections to the control unit as described in the instructions supplied with SEA control unit.

After ending all the operations in the installation of the above mentioned carrying box, of the gate and the operator, try to do some moves slowly by hand verifying that there are not irregular frictions and that the movement is uniform for the whole range.

Notice: To do this last operation, release the operator as described in the next paragraph.



MECHANICAL INSTALLATION

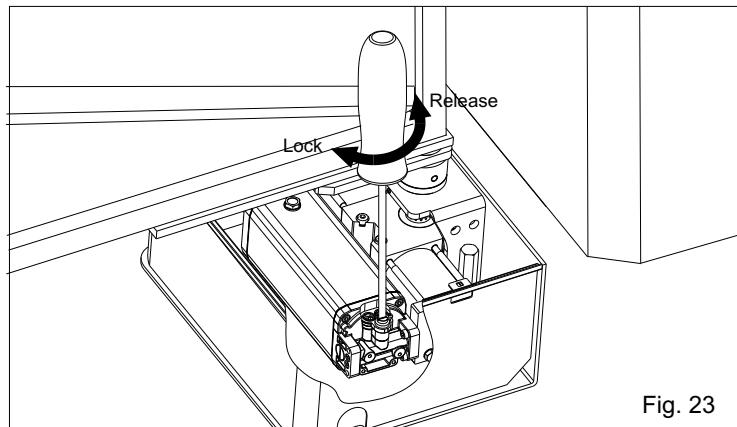
6. MOTOR RELEASE SYSTEM

6.1. To release act as follows:

-Turn the release screw with the screwdriver about 180° ca. in anti-clockwise direction (Fig. 23).

6.2. To stop again act as follows:

-Turn the release screw with the screwdriver into clockwise direction until it stops.

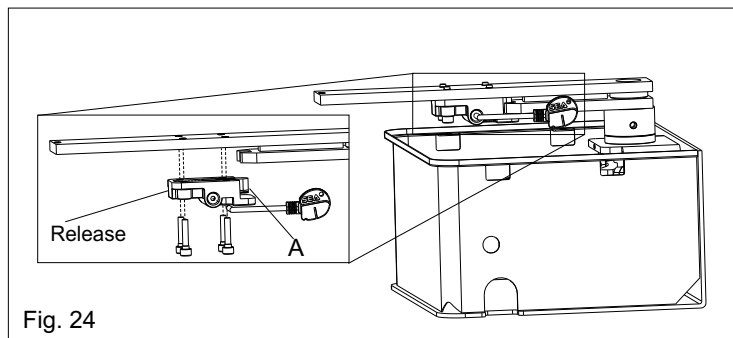


7. MOUNTING OF THE RELEASE

For the Compact there are foreseen two types of release: **RELEASE** (with personalised key) and **RELEASE PLUS** (with DIN key).

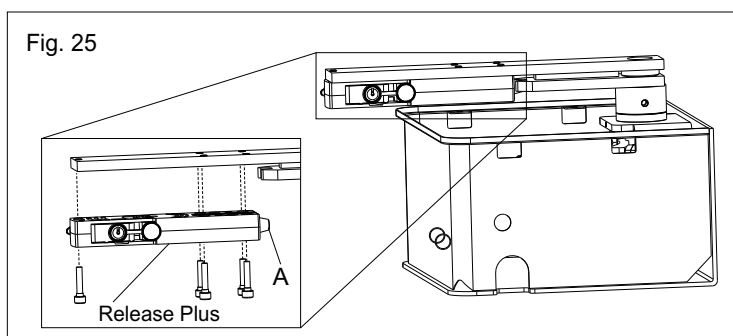
RELEASE

7.1. Grease the hinge (A) and mount the release system under the leaf device using the 4 furnished screws (Fig. 24)



RELEASE PLUS

7.2. Grease the hinge (A) and mount the release system under the leaf device using the 5 furnished screws (Fig. 25).



Carry out the electrical connections to the control unit as described in the instructions supplied with SEA control unit.



MECHANICAL INSTALLATION

8. ADJUSTABLE MECHANICAL STOPS

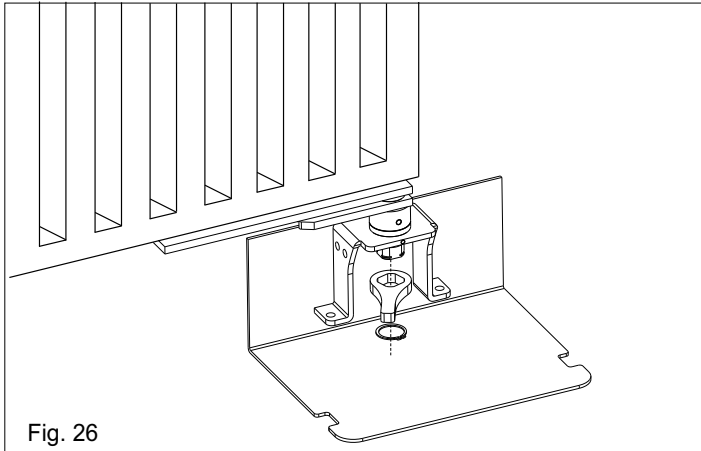


Fig. 26

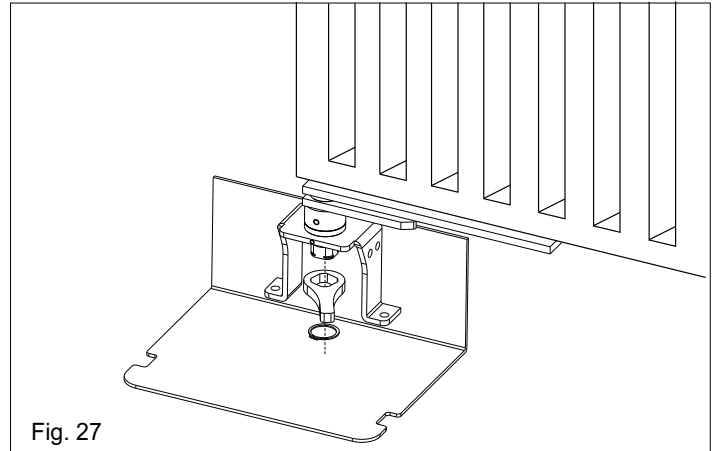


Fig. 27

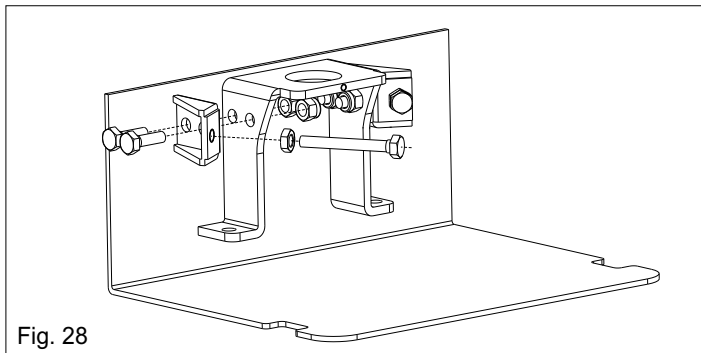


Fig. 28

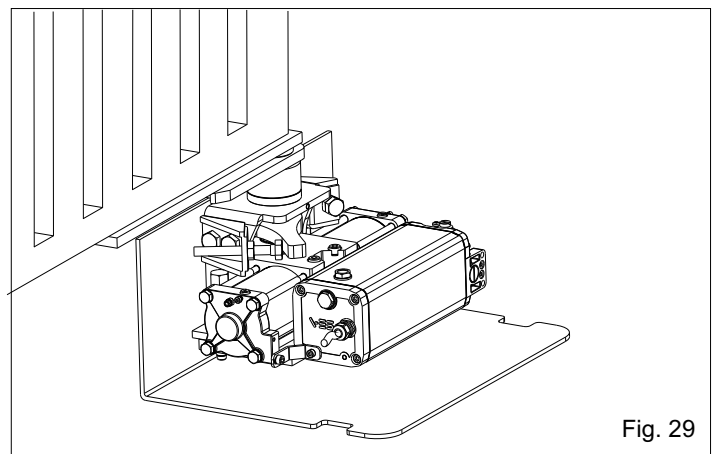


Fig. 29

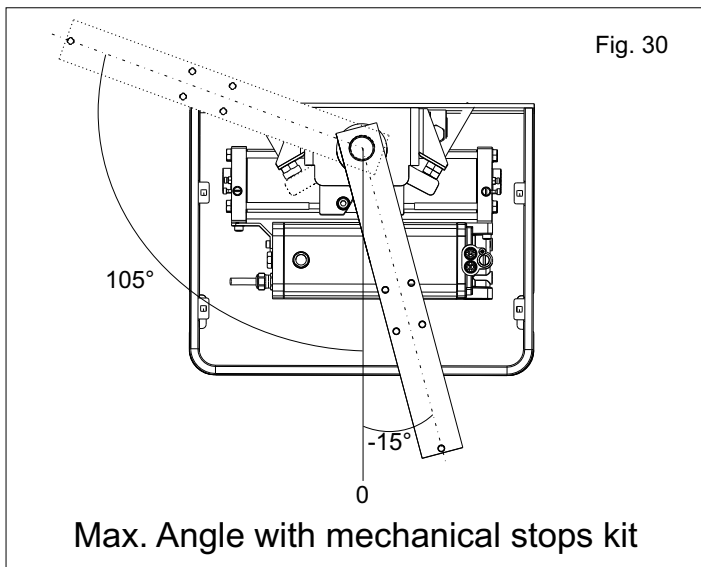


Fig. 30

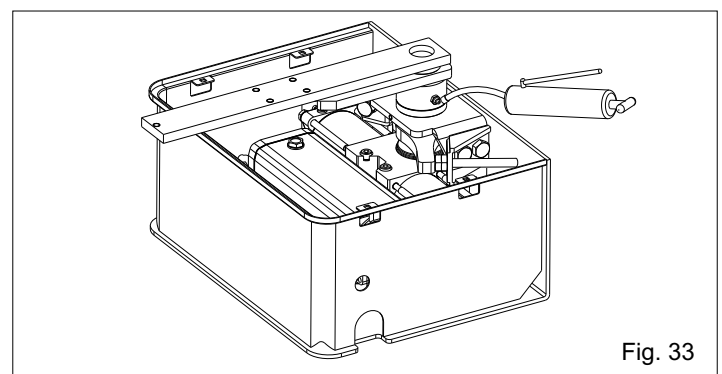
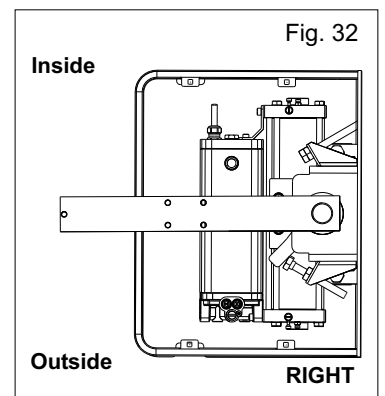
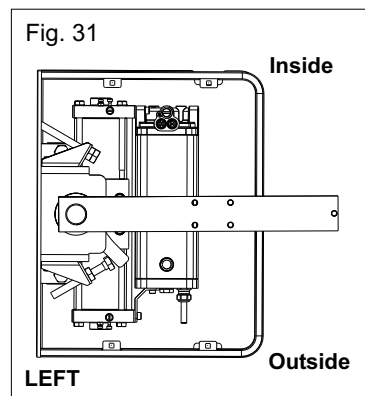


Fig. 33

When putting in function the installation it is peremptory to lubricate the box as in Fig. 31 until the grease comes out. (Use grease type DIN 51502 KP 2 N-20 - K 2 K-20).



MECHANICAL INSTALLATION

9. REGULATION OF THE PUSHING FORCE

The pushing force or anti-crushing force must be valued by hand or better with a dynamometer and in both the ways of rotation.

To regulate such force act as follow:
act on the by-pass valves with the provided key, given to the authorised installers, clockwise to increase the force, anti-clockwise to decrease it (Fig. 34).

The adjustment is carried out with the gate moving and will not change the speed of the leaf.

Notice: The maximum regulation is of 33 pound.

The motor run time is the last adjustment to make. It should be set 2 to 4 seconds higher than it takes to the gate to reach its stop. (this last regulation must be done on the electronic control unit).

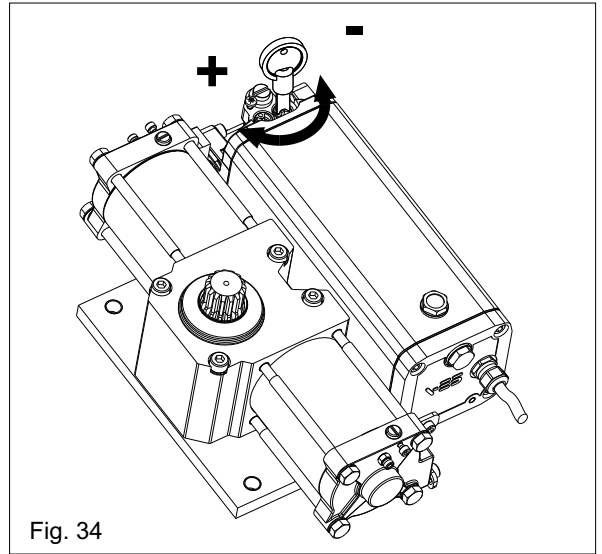


Fig. 34

10. BRAKING REGULATION (where present)

10.1. It is possible to regulate the leaf slowdown in opening and closing, through the braking adjusting screw (Fig. 35).

10.2. To regulate slowdown operate as follow:

- Loosen the blocking screw of braking regulation
- Act on the adjusting screw clockwise to have a higher braking and a speed decrease;
- Act on the adjusting screw anti-clockwise to have a lower braking and a speed increase;
- After the regulation fix the blocking screw of braking regulation.

On the operators with hydraulic slow down it is present only during the last 15° of rotation.

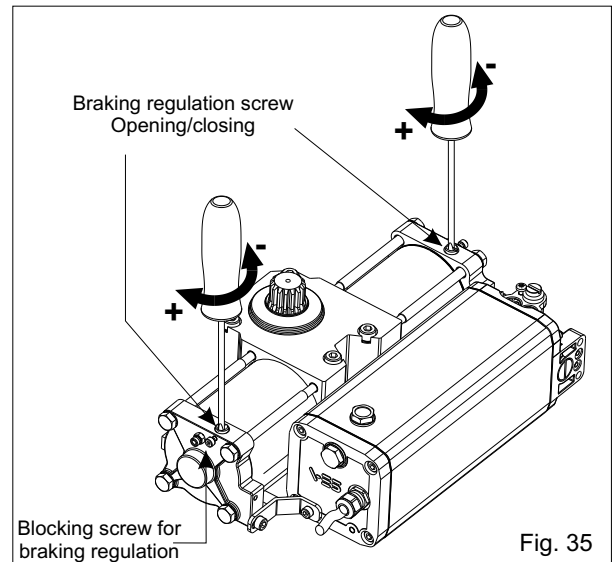
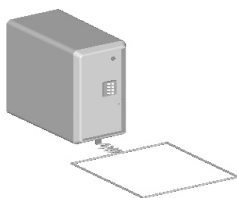


Fig. 35

11. COMPACT ACCESSORIES



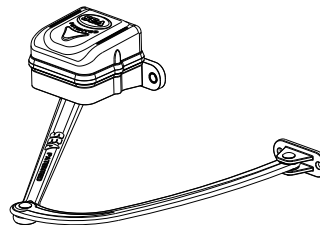
KEY SWITCH



EXTERNAL LOOP DETECTORS



RADIO RECEIVER



SAFETY GATE



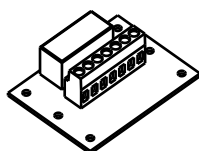
PHOTOCELLS



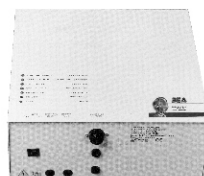
TRANSMITTER



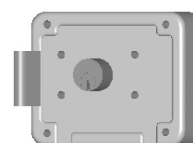
FLASHING LAMP



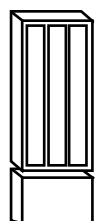
MAGNETIC LOCK CARD



BATTERY BACK-UP



ELECTRIC LOCK



MAGNETIC LOCK



MECHANICAL INSTALLATION

To the attention of users and technicians

12. RELEASE SYSTEM OF THE LEAVES

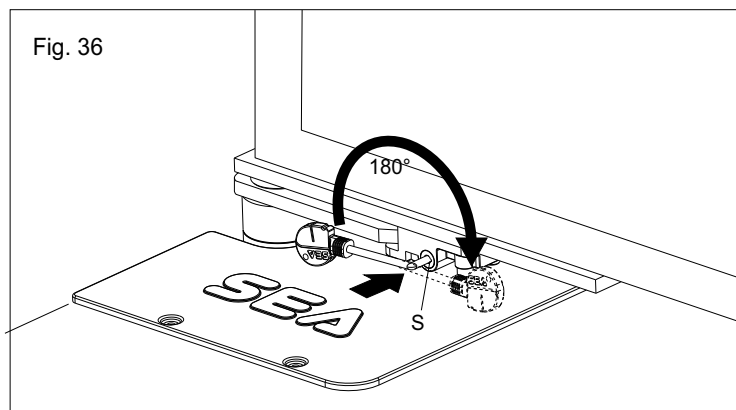
RELEASE

12.1. To release act as follows:

- Insert the enclosed key into the keyhole (S) and turn the handle about 180° against the centre of the gate (Fig. 36).
- Keep the key locked and move the leaf, now turn back the key to the normal position and extract it.

12.2. To stop again act as follows:

- Move the leaf until the lock has coupled again.



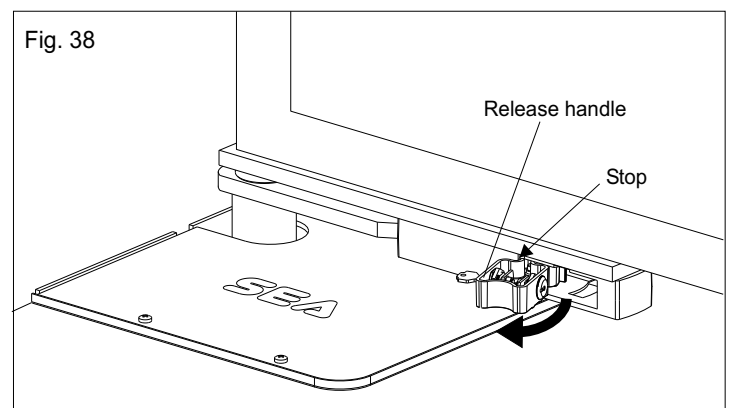
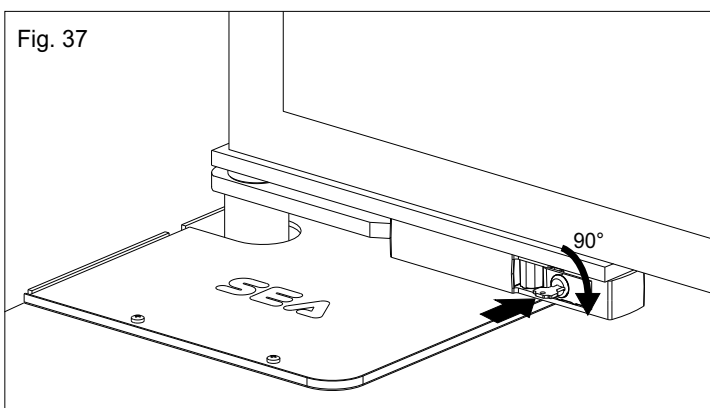
RELEASE PLUS

12.3. To release act as follows:

- Insert the enclosed key into the keyhole and turn it about 90° in clockwise direction (Fig. 37).
- Pull the key against the external of the release making come out the handle of the lock until it reaches the stop (Fig.38).
- Move the leaf and make return the handle of the release in its original position and extract the key.

12.4. To stop again act as follows:

- Move the leaf until the lock has coupled again.





MECHANICAL INSTALLATION

To the attention of users and technicians

13. RISK EXAMINATION

The points pointed by arrows in fig. 39 are potentially dangerous. The installer must take a thorough risk examination to prevent crushing, conveying, cutting, grappling, trapping so as to guarantee a safe installation for people, things and animals. (Re. Laws in force in the country where installation has been made.) As for misunderstandings that may arise refer to your area distributor or

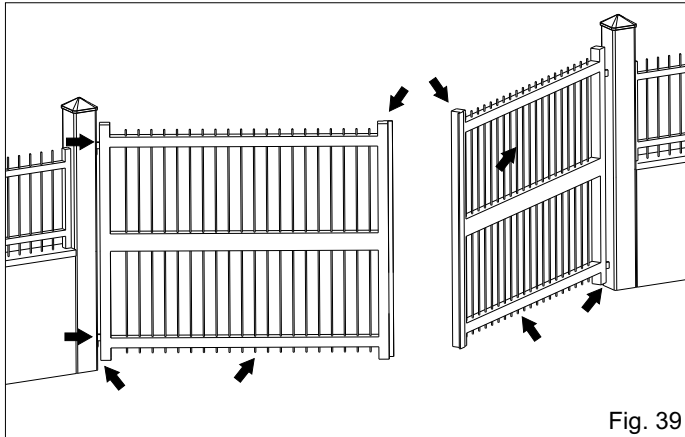


Fig. 39

call our help desk. These instructions are part of the device and must be kept in a well known place. The installer shall follow the provided instructions thoroughly. SEA USA Inc. products must only be used to automise doors, gates and lwings. Any initiative taken without SEA USA Inc. explicit authorization will preserve the manufacturer from whatsoever responsibility. The installer shall provide warning notices on not assessable further risks. SEA USA Inc. in its relentless aim to improve the products, is allowed to make whatsoever adjustment without giving notice. This doesn't oblige SEA USA Inc. to up-grade the past production. SEA USA Inc. can not be deemed responsible for any damage or accident caused by product breaking, being damages or accidents due to a failure to comply with the instructions herein. The guarantee will be void and the manufacturer responsibility will be nullified if SEA USA Inc. original spare parts are not being used. The electrical installation shall be carried out by a

professional technician who will release documentation as requested by the laws in force. Packaging materials such as plastic bags, foam polystyrene, nails etc must be kept out of children's reach as dangers may arise.

14. PERIODICAL MAINTENANCE

Check the oil level (Trasparent cap n.7 in Fig. 6)	Annual
Change the oil	4 years
Verify the functionality of the by-pass valves (check the force in opening and closing)	Annual
Check the release function	Annual
Verify the slowdown regulation (where present)	Annual
Check the correct drain of the rainwater	Annual
Check the integrity of the connection cables	Annual
Grease all the moving parts	Annual
Grease the rotation axis of the box as in Fig.33	Annual



All the above described operations **MUST** be made exclusively by an authorized installer.



SALES CONDITIONS and WARRANTY

To the attention of users and technicians

GENERAL WARNING: Installation must be realized using parts and accessories approved by SEA. SEA is not responsible for incorrect installations and/or non-compliance with safety standards according to the law in-force. SEA is in no way liable for any damages and/or malfunctioning due to using parts and accessories non-compliant with the UL325 safety standards.

ORDERS: Orders are processed upon approval by SEA. Buyers must confirm orders by sending a written Purchase Orders to SEA. Purchase Orders are intended as confirmation of orders and binding for the buyer, which accepts SEA sales condition.

QUOTATION: Quotation and special offers with a non-specified duration expires automatically after 30 days.

PRICES: Prices are based on the Price List in force. Discounts and quotation from Sales Rep. and other selling branches must be approved by SEA. Prices are F.O.B SEA Warehouse in Miami and do not include shipments costs. SEA reserves the right to modify the price list at any time and provide notice to its sales network.

PAYMENT: Method of payments and terms are notified by SEA and displayed on the commercial invoice.

DELIVERY: The delivery time on the invoice is not binding and represents an estimated delivery. Shipments costs will be charged to the buyer and SEA is not responsible for delays and/or damages occurred to the products during shipment.

COMPLAINS: Complains and/or claims must be notified to SEA within 7 business days after receiving the products. Claims and complains must be supported by original documents. Customer must contact the factory for instructions and authorization. Merchandise returned for credit must be current, uninstalled and unused and returned in its original packaging. Freight must be pre-paid on all authorized returns.

REPAIRS: Repairs and parts are subject to the availability in stock. Shipment of products for repairs must be pre-paid by the customer. Products shipped without authorization, sender's details and description of the problems will be refused. Customers must contact SEA for instructions.

WARRANTY: for the original buyer only:

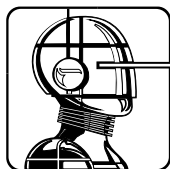
Hydraulic and oil-bath motors: 36 months warranty from the date of invoice on manufacturing, assembling and workmanship defects.

Electro-mechanic motors and electronic control systems: 24 months warranty from the date of invoice on manufacturing, assembling and workmanship defects.

Lepus and Full Tank Standard model: 60 months warranty from the date of invoice on manufacturing, assembling and workmanship defects.

No warranty will be recognized for damages due to incorrect installation and/or improper use for which the product was intended. SEA warranty obligations shall be limited to repair or replace the defective product/parts at SEA option, upon examination of the products by SEA technical Staff. All replaced parts must remain property of SEA. The warranty status of the product remains an unquestionable assessment of SEA. Buyer must ship pre-paid defective products. Products under warranty will be returned pre-paid by SEA. Recognized defects, whatever their nature, will not produce any responsibility and/or damage claims to SEA USA Inc and SEA s.r.l. Warranty shall not cover any required labor activities. Warranty will in no case be recognized if alterations and any other changes will be found on products. Warranty will not cover damages caused by carriers, expendable materials and faults due to improper use with the products specifications. No indemnities are recognized during repairing and/or replacing of the products under warranty. SEA USA Inc. and SEA s.r.l. decline any responsibility for damages to person and objects deriving from non-compliance with safety standards, installation instructions or use of the products sold. It is intended that warranty will be recognized only on products bought through the SEA authorized network. Products must be installed by professionals. No warranty will be recognized if products are installed directly by the final user. Warranty does not apply in case of unexpected events such as fire, flood, electrical power surge, lightning, vandalism and others.

SEA USA Inc. is not responsible for errors in technical information printed in catalogs and installation manuals.



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