

770

Underground Swing Gate Operator



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FAAC

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Read this instruction manual before you begin installing the product.
 = Information regarding personal safety and proper maintenance of the product.

IMPORTANT SAFETY INFORMATION

Important Safety Instructions

WARNING - TO REDUCE THE RISK OF SEVERE INJURY OR DEATH:

- READ AND FOLLOW ALL INSTRUCTIONS.
- Never let children operate or play with the gate controls. Keep remote controls away from children.
- Always keep people and objects away from the gate. **NO ONE SHOULD CROSS THE PATH OF A MOVING GATE.**
- Test the gate operator monthly. The gate **MUST** reverse on contact with a rigid object or when an object activates a non-contact sensor. If necessary, adjust the force or the limit of travel and then retest the gate operator. Failure to properly adjust and retest the gate operator can increase the risk of injury or death.
- Use the manual release mechanism only when the gate is not moving.
- **KEEP GATE PROPERLY MAINTAINED.** Have a qualified service person make repairs to gate hardware.
- The entrance is for vehicles only. Pedestrians must use a separate entrance.
- **SAVE THESE INSTRUCTIONS.**

Important Installation Instructions

1. Install the gate operator only when the following conditions have been met:
 - The operator is appropriate for the type and usage class of the gate.
 - All openings of a horizontal slide gate have been guarded or screened from the bottom of the gate to a minimum of 4 feet (1.25 m) above the ground to prevent a 2.25 inch (55 mm) diameter sphere from passing through openings anywhere in the gate or through that portion of the adjacent fence that the gate covers when in the open position.
 - All exposed pinch points are eliminated or guarded.
 - Guarding is supplied for exposed rollers.
2. The operator is intended for installation on gates used by vehicles only. Pedestrians must be provided with a separate access opening.
3. To reduce the risk of entrapment when opening and closing, the gate must be installed in a location that allows adequate clearance between the gate and adjacent structures. Swinging gates shall not open outward into public access areas.
4. Before installing the gate operator, ensure that the gate has been properly installed and that it swings freely in both directions. Do not over-tighten the operator clutch or pressure relief valve to compensate for a damaged gate.
5. User controls must be installed at least 6 feet (1.83 m) away from any moving part of the gate and located where the user is prevented from reaching over, under, around or through the gate to operate the controls. Controls located outdoors or those that are easily accessible shall have security features to prevent unauthorized use.
6. The Stop and/or Reset buttons must be located within line-of-sight of the gate. Activation of the reset control shall not cause the operator to start.
7. All warning signs and placards must be installed and easily seen within visible proximity of the gate. A minimum of one warning sign shall be installed on each side of the gate.
8. For gate operators that utilize a non-contact sensor (photo beam or the like):
 - See instructions on the placement of non-contact sensors for each type of application.
 - Exercise care to reduce the risk of nuisance tripping, such as when a vehicle trips the sensor while the gate is still moving.
 - Locate one or more non-contact sensors where the risk of entrapment or obstruction exists, such as at the reachable perimeter of a moving gate or barrier.
 - Use only FAAC "Photobeam" photoelectric eyes to comply with UL325.

Important Installation Instructions (continued)

9. For gate operators that utilize a contact sensor (edge sensor or similar):
 - Locate one or more contact sensors where the risk of entrapment or obstruction exists, such as at the leading edge, trailing edge, and post mounted both inside and outside of a vehicular horizontal slide gate
 - Locate one or more contact sensors at the bottom edge of a vehicular vertical lift gate.
 - Locate one or more contact sensors at the bottom edge of a vertical barrier (arm).
 - Locate one or more contact sensors at the pinch point of a vehicular vertical pivot gate.
 - Locate hard-wired contact sensors and wiring so that communication between sensor and gate operator is not subjected to mechanical damage.
 - Locate wireless contact sensors, such as those that transmit radio frequency (RF) signals, where the transmission of signals are not obstructed or impeded by building structures, natural landscaping or similar hindrances. Wireless contact sensors shall function under their intended end-use conditions.
 - Use only FAAC MSE MO, CN60 or M60 edge sensors.

**General Safety Precautions****Gate Construction**

Vehicular gates should be constructed and installed in accordance with ASTM F2200: Standard Specification for Automated Vehicular Gate Construction.

For more information, contact ASTM at: www.astm.org

Installation

- If you have any questions or concerns regarding the safety of the gate operating system, do not install the operator and consult the manufacturer.
- The condition of the gate structure itself directly affects the reliability and safety of the gate operator.
- Only qualified personnel should install this equipment. Failure to meet this requirement could cause severe injury and/or death, for which the manufacturer cannot be held responsible.
- The installer must provide a main power switch that meets all applicable safety regulations.
- It is extremely unsafe to compensate for a damaged gate by increasing hydraulic pressure.
- Install devices such as reversing edges and photo beams to provide better protection for personal property and pedestrians. Install reversing devices that are appropriate to the gate design and application.
- Before applying electrical power, ensure that voltage requirements of the equipment correspond to the supply voltage. Refer to the label on your gate operator system.

Usage

- Use this equipment only in the capacity for which it was designed. Any use other than that stated should be considered improper and therefore dangerous.
- The manufacturer cannot be held responsible for damage caused by improper, erroneous or unreasonable use.
- If a gate system component malfunctions, disconnect the main power before attempting to repair it.
- Do not impede the movement of the gate, you may injure yourself or damage the gate system as a result.
- This equipment may reach high thermal temperatures during normal operation, therefore use caution when touching the external housing of the gate operator.
- Use the manual release mechanism according to the procedures presented in this manual.
- Before performing any cleaning or maintenance operations, disconnect power to the equipment.
- All cleaning, maintenance or repair work must be performed by qualified personnel.

UL325 Gate Operator Classifications

RESIDENTIAL VEHICULAR GATE OPERATOR CLASS I

A vehicular gate operator system intended for use in a single family dwelling, garage or associated parking area.

COMMERCIAL / GENERAL ACCESS VEHICULAR GATE OPERATOR CLASS II

A vehicular gate operator system intended for use in commercial locations or buildings such as multi-family housing units (five or more single family units), hotels, parking garages, retail stores or other buildings that service the general public.

INDUSTRIAL / LIMITED ACCESS VEHICULAR GATE OPERATOR CLASS III

A vehicular gate operator system intended for use in industrial locations or buildings such as factories, loading docks or other locations not intended to service the general public.

RESTRICTED ACCESS VEHICULAR GATE OPERATOR CLASS IV

A vehicular gate operator system intended for use in guarded industrial locations or buildings such as airport security areas or other restricted access locations that do not service the general public, and in which unauthorized access is prevented via supervision by security personnel.

Installing the Warning Signs

This FAAC swing gate operator is supplied with two warning signs to alert people that a possible hazard exists and that appropriate actions should be taken to avoid the hazard or to reduce exposure to it.

Permanently install one warning sign on each side of the gate so they are fully visible to traffic and pedestrians.

Use appropriate hardware such as metal screws (not supplied) to permanently install each warning sign.



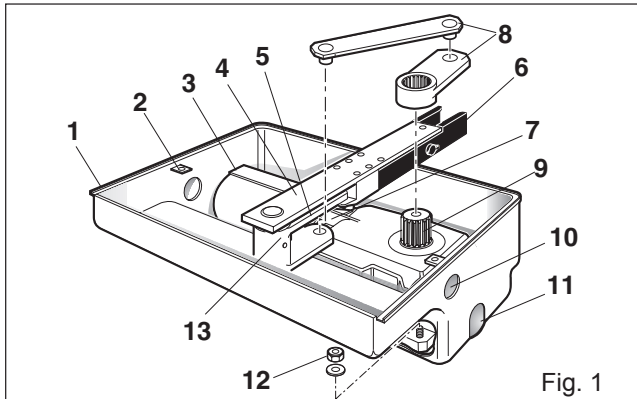
FAAC Model 770 Underground Swing Gate Operator

1. DESCRIPTION & CHARACTERISTICS

The FAAC 770 is an electromechanical operator for swing gates. It is designed for underground installation and therefore does not alter the appearance of the leaf.

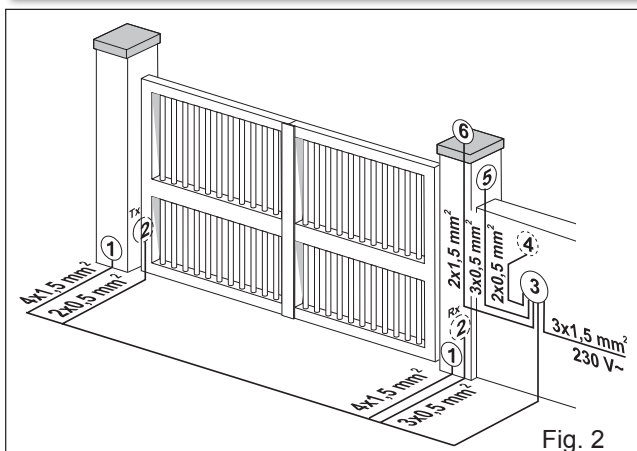
The supplied foundation box allows you to setup the gate before actually installing the operator.

The 770 electromechanical operator is irreversible, so it ensures a mechanical stop and eliminates the need to install an electric lock.



- | | |
|-------------------------------------|--------------------------------------|
| 1 Foundation Box | 8 Crank and Connecting Rod Assembly |
| 2 Bores for Fastening Box Cover (3) | 9 Pinion |
| 3 770 Operator | 10 Bore for Power Supply Cable Pipe |
| 4 Support Bracket for Gate | 11 Bore for Drain Pipe |
| 5 Locking Bracket | 12 Fastening Screws for Operator (4) |
| 6 Release Device with Key | 13 Lubrication Bore |
| 7 Operator Ground Connection | |

2. STANDARD INSTALLATION LAYOUT



- ① 770 Operators (require 2 junction boxes)
- ② Photocells
- ③ Control Unit
- ④ T10 Pushbutton
- ⑤ Receiver
- ⑥ Flashing Light

- 1) Use suitable rigid/flexible pipes for laying power cables.
- 2) Always keep low voltage accessory cables separated from 230V~ power cables. To avoid interference, use separate sheaths.

Table 1a: Operator Specifications

Operator	770
Reduction Ratio	1400:1
Motor Winding Thermal Cutout (°F)	284
Temperature Range	-4°F to +131°F
Maximum Torque (Nm)	300
Angular speed (°/sec)	6
Opening Time (secs)	1 (90°), 8 (110° and 180°), 10.5 (140°)
Operator Weight (lbs)	26.5 lbs (carrying box: 31 lbs)
Type and Frequency of Use at 68°F	100%
Indicative Hour Cycles at 68°F	100 (100° and 180°), 170 (140°)
Max. leaf opening angle	110° (140° and 180° with kit)
Max. leaf weight (lbs)	1100
Power cable length (inches)	78.75
Housing protection	IP 67
Operator dimensions (inches)	14.25 x 6 x 5.5
Max. leaf length (inches)	138 (110°), 118 (180°), 98.5 (140°)

Table 1b: Electric Motor Specifications

Power Supply	24 VDC
Absorbed power (W)	70
Current Drawn (A)	3
Electric Motor (rpm)	1400

3. INSTALLING THE SYSTEM

3.1. PRELIMINARY CHECKS

To ensure trouble-free operation, ensure that the gate (whether existing or yet to be installed) adheres to the following specifications:

- Max. single leaf weight: 1100 lbs.
- Max. single leaf length: 98.5 inches.
- Strong and rigid leaf frame.
- Smooth gate movement, with no stiff points.
- Proper minimum clearance between bottom edge of gate and ground. See Fig. 6a (where 's' = thickness of guide bracket)
- Mechanical travel stops.

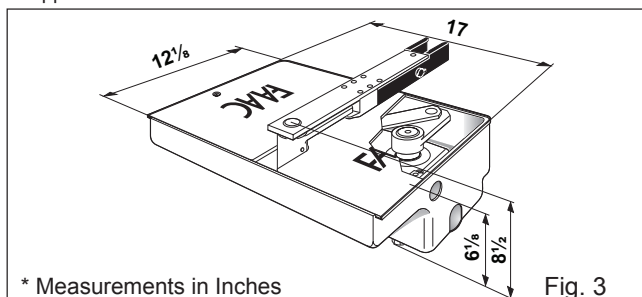
The condition of the gate directly affects the reliability and safety of the automation system. If any welding has to be done on the gate, complete it before installing the automation system.

3.2. INSTALLING THE LEAF SUPPORTING FOUNDATION BOX (Fig. 3)

a) For Existing Gates with Fixed Hinges:

- Remove the gate.
- Remove the bottom hinge.

If the gate cannot be removed, place blocks under its bottom edge to support it.



* Measurements in Inches

Fig. 3

b) For Existing Gates with Adjustable Hinges:

- Remove the bottom hinge.
- Slacken the top hinge.
- Swing the leaf around the axis of the top hinge (Fig. 4).

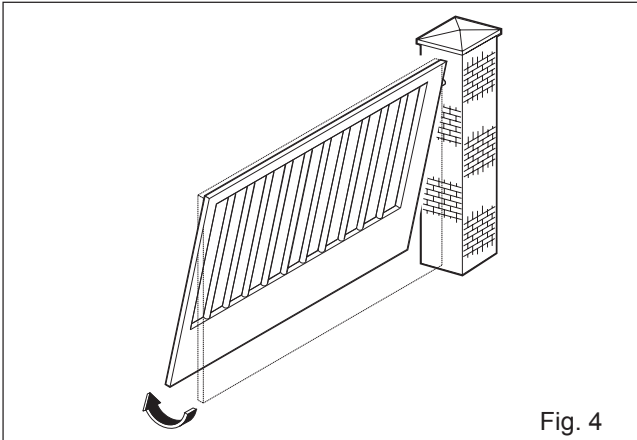
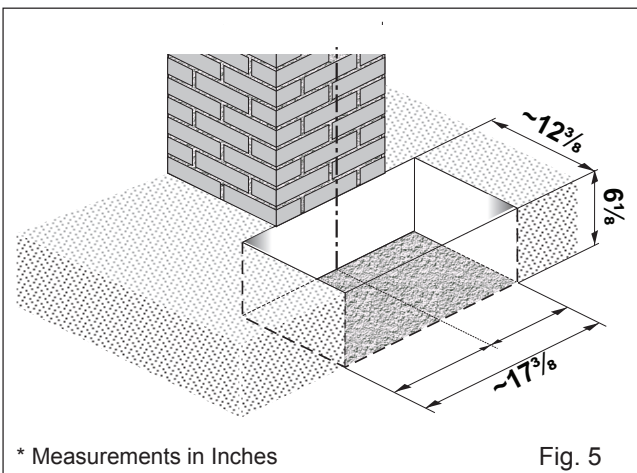


Fig. 4

c) Installing a New Gate:

Fit just the top hinge. If possible use an adjustable hinge.

1. Dig a hole for the foundation box as shown in Fig. 5.

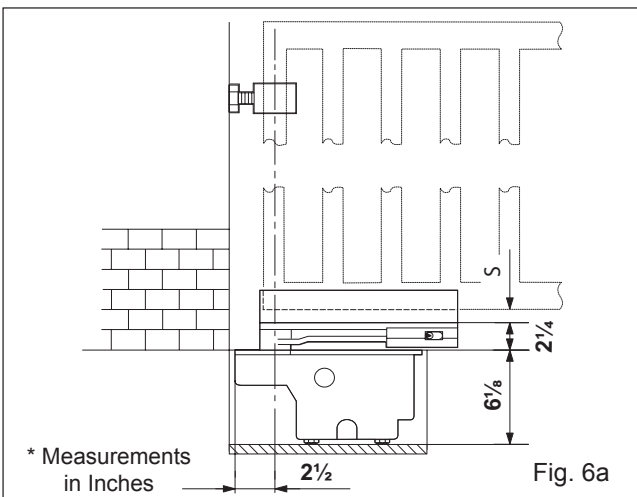


* Measurements in Inches

Fig. 5

Depending on the nature of the ground, it may be necessary to cast a bed of quick-setting concrete at the bottom of the hole to avoid subsidence in future.

2. Place the foundation box in the hole, refer to the dimensions provided in Figs. 6a and 6b.



* Measurements in Inches

Fig. 6a

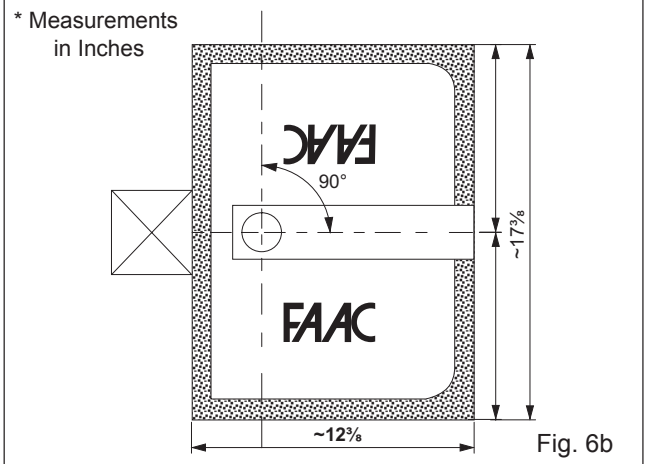
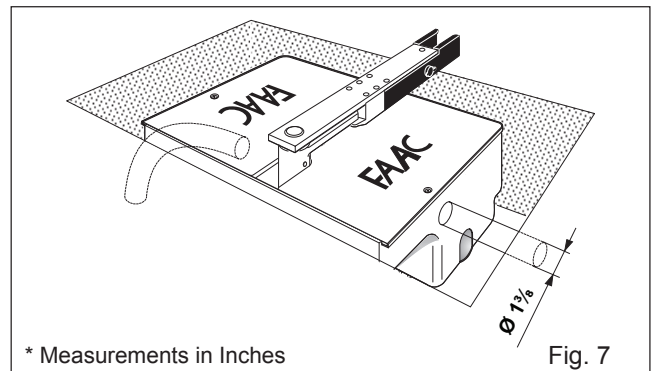


Fig. 6b

The center of the pivot on the foundation box must be perfectly aligned with the leaf's axis of swing (Figs 6a and 6b).

3. Lay down a 1.5 inch diameter PVC tube through which a 4 core electrical cable can pass. The tube must reach from the box to the control unit (Fig. 7). Lay a second tube to drain rain water from the box to the nearest drain (also Fig. 7).
4. Fix the box in place with a casting of concrete.



* Measurements in Inches

Fig. 7

3.3 SETTING UP THE GATE

Allow cement to set before starting this operation.

1. Assemble the release levers on the support bracket, and fit the latter on the pivot in the foundation box, also inserting the ball supplied (Fig. 8).

Note: grease both the pivot and the ball.

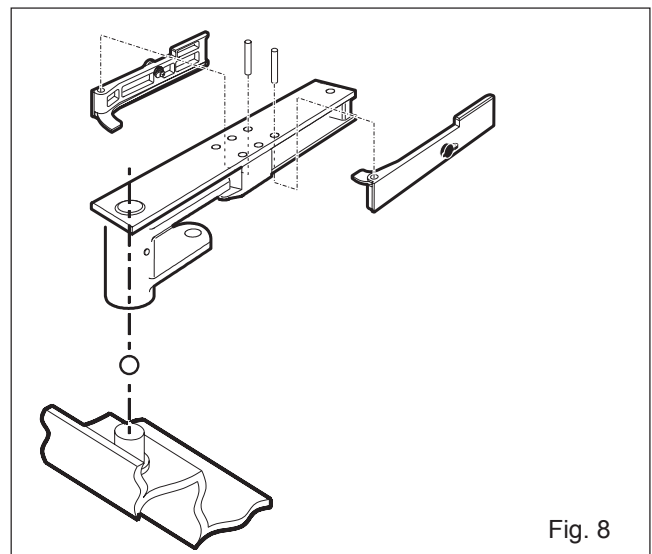
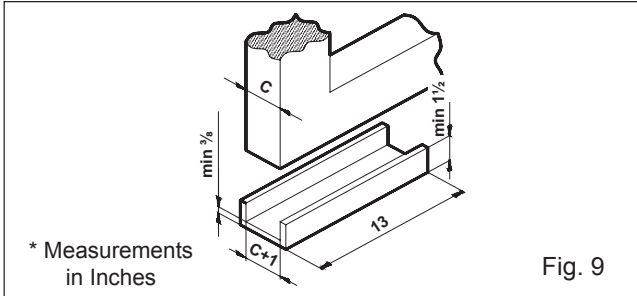


Fig. 8

2. Prepare the guide bracket, as follows:

- Use a "U" profile with dimensions indicated in Fig. 9.



* Measurements in Inches

Fig. 9

- Ascertain the correct location of the leaf on the "U" profile with reference to the axis of rotation (Figs. 10a and 10b);
- Seal the "U" profile on the post side with a plate, as shown in Figs. 10a and 10b.

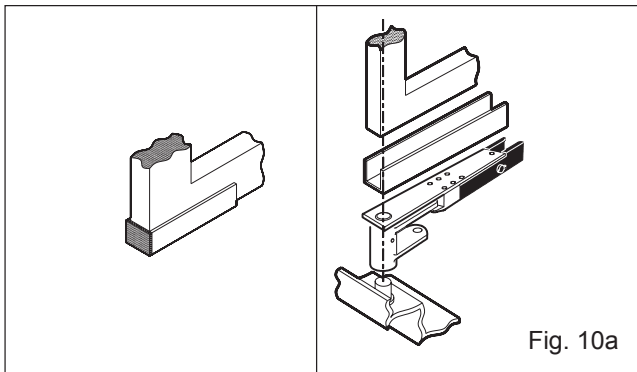


Fig. 10a

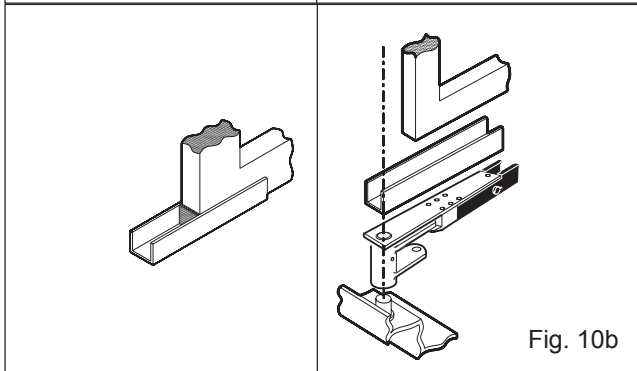


Fig. 10b

3. Carefully weld the guide bracket to the support bracket (Fig. 11).

4. Fit the gate into the guide bracket and fix the top hinge in place.

IMPORTANT: To ensure trouble-free operation, do NOT weld the gate leaf to the guide bracket or to the support bracket.

5. Manually verify whether the gate opens and closes completely and smoothly, stopping at the mechanical travel stops.

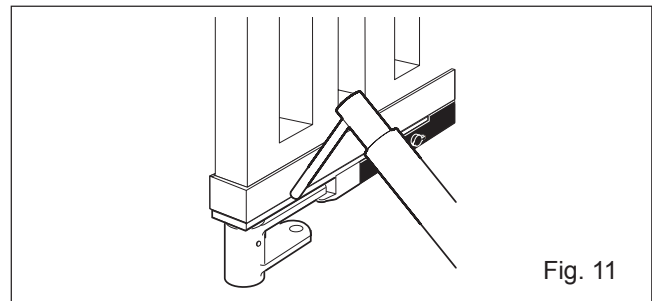


Fig. 11

3.4 INSTALLING THE OPERATOR

1. Open the gate leaf.
2. Place the operator on the fastening screws on the foundation box, and fix it by means of the supplied nuts and washers (Fig. 13).

Note: the exact position of the operator is shown in Fig. 12. In any case, the operator pinion must be on the opposite side of leaves opening direction.

3. Manually close the leaf and fit the driving levers supplied, as shown in Fig. 13.

Note: grease the operator pinion and the fixing pivots of the two levers.

4. Install the second operator, if required, by repeating the operations described above.
5. Install the electronic control unit. Refer to the dimensions indicated in these instructions.
6. Fasten the box cover by means of the supplied screws (Fig. 14).

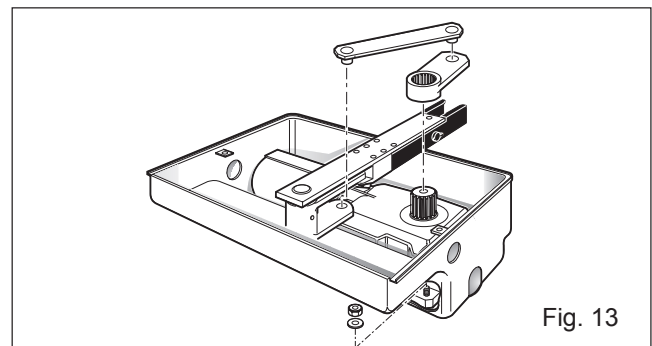


Fig. 13

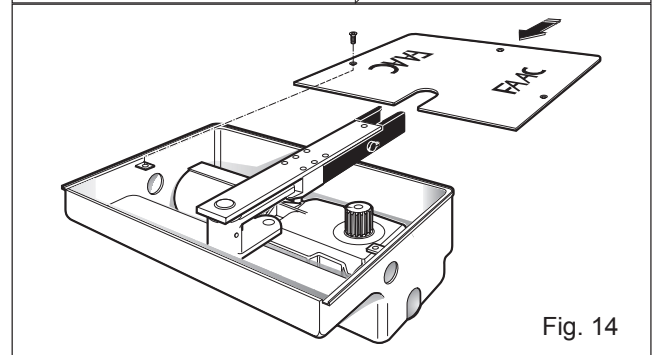


Fig. 14

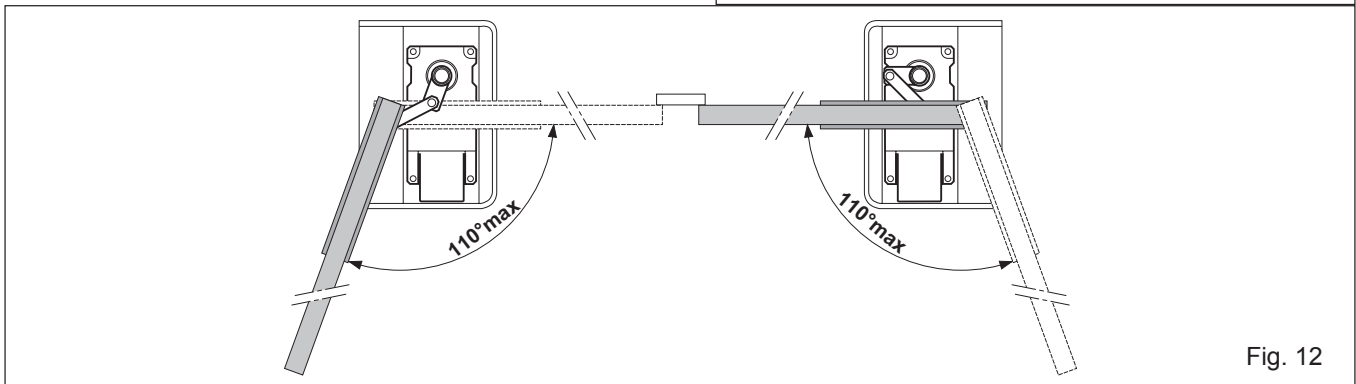


Fig. 12

4. START-UP

1. Program the electronic control unit according to your requirements, following the relevant instructions.
2. Connect the system to the power supply and check the status of the LEDs (refer to the instructions for the electronic control unit).

5. TESTING THE AUTOMATION SYSTEM

Carefully test the operation of the automation system and of all connected accessories.

Give the customer the User's Guide page, and show them the correct operation and use of the automation system.

6. MANUAL OPERATION

Should the need arise to operate the gate manually because of a power failure or malfunction, the release device with key fitted on the support bracket (Fig. 1 - Ref. 6) makes it possible to release the system from both the inside and the outside.

To operate the leaf manually, proceed as follows.

- Open the lid of the lock (Fig. 15 - Ref. 1).
- Insert the release key in the lock (Fig. 15 - Ref. 2).
- Turn the key in the direction of the post, as far as it will go (Fig. 15 - Ref. 3).
- Pull the lever out (Fig. 15 - Ref. 4).
- Operate the leaf manually.

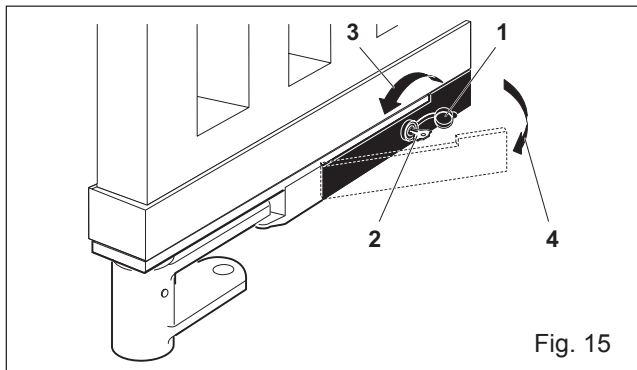


Fig. 15

7. RETURNING TO NORMAL OPERATION

To restore normal operation, proceed as follows:

1. Push the lever back into its home position (Fig. 16 - Ref. 1).
2. Insert the release key into the lock and turn it as far as it will turn in the direction opposite the post (Fig. 16 - Ref. 2).
3. Operate the leaf manually until the lock is engaged in the locking bracket (Fig. 16 - Ref. 3).
4. Close the lid on the lock.

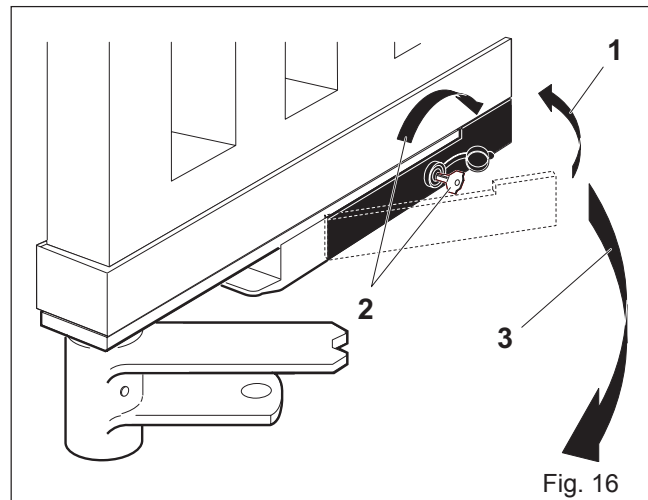


Fig. 16

8. MAINTENANCE

At regular intervals, check the structure of the gate and make sure that the hinges are in perfect working order.

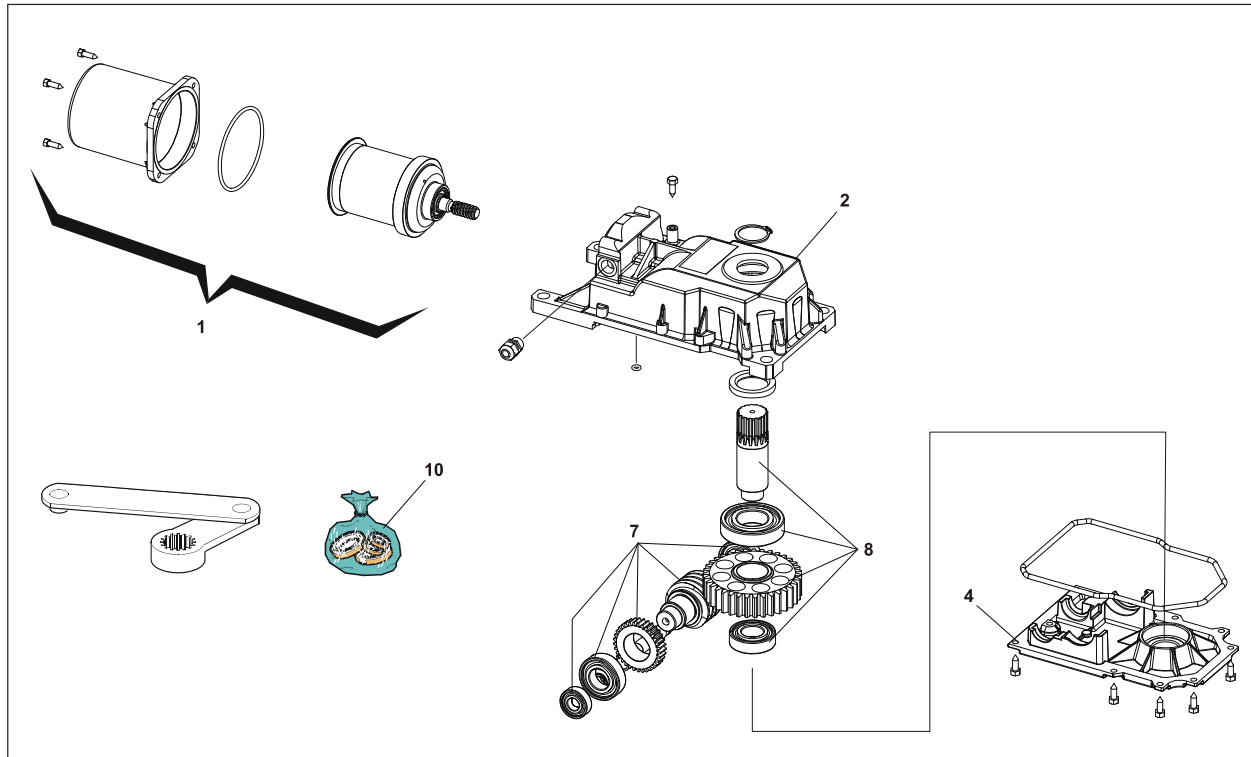
Periodically lubricate the pivot and ball in the support bracket, through the lubricating bore shown in Fig. 1 - Ref. 13. Make sure that the pivots of the lever systems, the pinion and the engagement of the lock on the locking bracket (Fig. 1 - Ref. 5) are always well lubricated, and check the efficiency of the manual operation.

Whenever you perform a maintenance operation, check that the anti-crushing system and the safety devices installed on the automation system are correctly set.

9. REPAIRS

For repairs, refer to an authorized FAAC service center.

10. 770 PARTS DIAGRAM



POS.	P/N	DESCRIPTION
01	770770	770 24V MOTOR
02	716078	770 GEAR BOX
04	727158	770 GEAR BOX COVER
07	718078	SW. G. O. THIRD INTERNAL SHAFT GROUP
08	719165	SW. G. O. 770 INTERNAL SLOW SHAFT
10	390451	770 SEAL KIT

LIMITED WARRANTY**To the original purchaser only:**

FAAC International, Inc., warrants, for twenty-four (24) months from the date of invoice, the gate operator systems and other related systems and equipment manufactured by FAAC S.p.A. and distributed by FAAC International, Inc., to be free from defects in material and workmanship under normal use and service for which it was intended provided it has been properly installed and operated.

FAAC International, Inc.'s obligations under this warranty shall be limited to the repair or exchange of any part of parts manufactured by FAAC S.p.A. and distributed by FAAC International, Inc. Defective products must be returned to FAAC International, Inc., freight prepaid by purchaser, within the warranty period. Items returned will be repaired or replaced, at FAAC International, Inc.'s option, upon an examination of the product by FAAC International, Inc., which discloses, to the satisfaction of FAAC International, Inc., that the item is defective. FAAC International, Inc. will return the warranted item freight prepaid. The products manufactured by FAAC S.p.A. and distributed by FAAC International, Inc., are not warranted to meet the specific requirements, if any, of safety codes of any particular state, municipality, or other jurisdiction, and neither FAAC S.p.A. or FAAC International, Inc., assume any risk or liability whatsoever resulting from the use thereof, whether used singly or in combination with other machines or apparatus.

Any products and parts not manufactured by FAAC S.p.A. and distributed by FAAC International, Inc., will carry only the warranty, if any, of the manufacturer. This warranty shall not apply to any products or parts thereof which have been repaired or altered, without FAAC International, Inc.'s written consent, outside of FAAC International, Inc.'s workshop, or altered in any way so as, in the judgment of FAAC International, Inc., to affect adversely the stability or reliability of the product(s) or has been subject to misuse, negligence, or accident, or has not been operated in accordance with FAAC International, Inc.'s or FAAC S.p.A.'s instructions or has been operated under conditions more severe than, or otherwise exceeding, those set forth in the specifications for such product(s). Neither FAAC S.p.A. nor FAAC International, Inc., shall be liable for any loss or damage whatsoever resulting, directly or indirectly, from the use or loss of use of the product(s). Without limiting the foregoing, this exclusion from liability embraces a

purchaser's expenses for downtime or for making up downtime, damages for which the purchaser may be liable to other persons, damages to property, and injury to or death of any persons.

FAAC S.p.A. or FAAC International, Inc., neither assumes nor authorizes any person to assume for them any other liability in connection with the sale or use of the products of FAAC S.p.A. or FAAC International, Inc. The warranty herein above set forth shall not be deemed to cover maintenance parts, including, but not limited to, hydraulic oil, filters, or the like. No agreement to replace or repair shall constitute an admission by FAAC S.p.A. or FAAC International, Inc., of any legal responsibility to effect such replacement, to make such repair, or otherwise. This limited warranty extends only to wholesale customers who buy directly through FAAC International, Inc.'s normal distribution channels. FAAC International, Inc., does not warrant its products to end consumers.

Consumers must inquire from their selling dealer as to the nature and extent of that dealer's warranty, if any. This warranty is expressly in lieu of all other warranties expressed or implied including the warranties of merchantability and fitness for use. This warranty shall not apply to products or any part thereof which have been subject to accident, negligence, alteration, abuse, or misuse or if damage was due to improper installation or use of improper power source, or if damage was caused by fire, flood, lightning, electrical power surge, explosion, wind storm, hail, aircraft or vehicles, vandalism, riot or civil commotion, or acts of God.