

EC MACHINE DIRECTIVE COMPLIANCE DECLARATION

(DIRECTIVE 89/392 EEC, APPENDIX II, PART B)

Manufacturer: FAAC S.p.A.

Address: Via Benini, 1
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BOLOGNA - ITALY

Hereby declares that: the 746 automation system

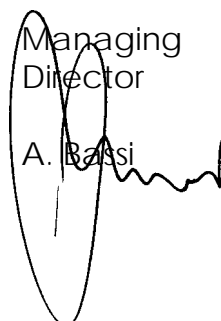
- is intended to be incorporated into machinery, or to be assembled with other machinery to constitute machinery in compliance with the requirements of Directive 89/392 EEC, and subsequent amendments 91/368 EEC, 93/44 EEC and 93/68 EEC;
- complies with the essential safety requirements in the following EEC Directives:

73/23 EEC and subsequent amendment 93/68 EEC.
89/336 EEC and subsequent amendments 92/31 EEC and 93/68 EEC.

and furthermore declares that unit must not be put into service until the machinery into which it is incorporated or of which it is a component has been identified and declared to be in conformity with the provisions of Directive 89/392 EEC and subsequent amendments enacted by the national implementing legislation.

Bologna, 1 January 1997

Managing
Director
A. Bassi



IMPORTANT NOTICE FOR THE INSTALLER

GENERAL SAFETY INSTRUCTIONS

- 1) **WARNING!** For reasons of safety, all the instructions in this manual must be observed scrupulously. Improper installation or misuse of the product may result in serious injury.
- 2) Read the instructions carefully before installing the product.
- 3) Packaging material (plastic, polystyrene etc.) is a potential hazard and must be kept out of reach of children.
- 4) Keep these instructions for future reference.
- 5) This product has been designed and manufactured only for the use stated in this manual. Any use other than that expressly indicated may result in damage to the product and/or risk of injury.
- 6) FAAC S.p.A. shall not be liable for any damage or injury caused by improper use of the automation or by any use other than that for which it is intended.
- 7) Do not install this device in explosive atmospheres: the presence of flammable gas or fumes is a serious hazard.
- 8) Mechanical structural elements must comply with UNI8612, CEN pr EN 12604 and CEN pr EN 12605 standards. For countries outside the EC, mechanical structural must comply with the above standards in addition to any national safety standards, in order to obtain a reasonable degree of safety.
- 9) FAAC cannot be held responsible for failure to observe technical standards in the construction of the gates on which the automation is installed, or for any deformation of the gates which may occur during use.
- 10) Installation must comply with UNI8612, CEN pr EN 12453 and CEN pr EN 12635. The degree of safety of the automation must be C+D.
- 11) Before carrying out any operations on the system, disconnect the electrical power supply.
- 12) Install a multi-pole switch on the supply line to the automation with a contact opening distance of 3 mm or more. We recommend the use of a 6A thermal magnetic circuit breaker with multi-pole switching.
- 13) Ensure that a residual current device with a trip threshold of 0.03A is installed upstream of the automation system.
- 14) Check that the earthing system is installed correctly and is efficient. Connect the metal parts of the gate and the yellow/green wire of the operator to the earthing system.
- 15) The automation is fitted with an anti-crushing safety system consisting of a torque control device which, in all cases, must be used in conjunction with other safety devices.
- 16) The safety devices (e.g. photocells, safety edges, etc.) protect areas where there is a **mechanical movement hazard**, e.g. crushing, entrapment and cutting.
- 17) Each installation must be fitted with at least one flashing light (e.g. FAAC LAMP, MINILAMP etc.) and a warning sign suitably fixed to the gate, in addition to the safety devices as per point 16 above.
- 18) FAAC cannot be held responsible for the safe and correct operation of the automation in the event that parts other than FAAC original parts are used.
- 19) Use only FAAC original spare parts for maintenance operations.
- 20) Do not carry out any modifications to automation components.
- 21) The installer must supply all information regarding manual operation of the system in the event of an emergency and provide the end-user with the "End-user Guide" supplied with the product.
- 22) Do not allow any persons, especially children, to stand in the vicinity of the automation when in operation.
- 23) Keep the remote radio controls and any other control devices out of the reach of children to prevent accidental operation of the automation.
- 24) The end-user must not attempt to repair or adjust the automation. These operations must be carried out exclusively by qualified personnel.
- 25) **Any operations not explicitly described in these instructions are not permitted.**

AUTOMATION 746 & 746 MPS

These instructions apply to the following models:

746 EMC Z20 - 746 EMC CAT - 746 EMC RF

The FAAC model 746 automation for sliding gates is an electromechanical operator which transmits movement to the gate leaf by means of a rack and pinion or drive chain coupled in appropriate manner to the sliding gate.

The irreversible system ensures that the gate is mechanically locked when the motor is not in operation and therefore it is not necessary to install a lock.

The gear motor is equipped with an adjustable mechanical clutch which, in conjunction with an electronic sensor, affords the necessary adjustable anti-crushing safety and guarantees that the gate motion is either stopped or reversed when an obstacle is encountered. A release device allows the gate to be operated manually in the event of a power failure or malfunction.

The electronic control unit is supplied with the gear motor and is housed inside the operator.

The 746 automation has been designed and built for vehicle access control. Do not use for any other purpose.

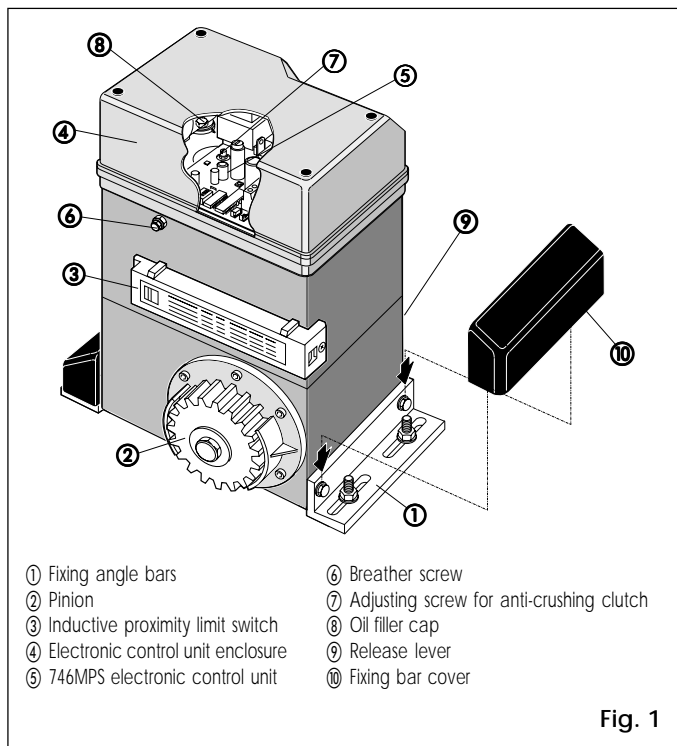


Fig. 1

1. DESCRIPTION AND TECHNICAL CHARACTERISTICS

1.1. MAXIMUM UTILISATION CURVE

The curve allows the maximum working time (T) to be obtained as a function of duty cycle (F).

E.g.: the 746 operators can work continuously at a duty cycle of 30%.

To ensure good operation, keep to the field of operation lying below the curve.

Important: The curve refers to a temperature of 24°C. Exposure to direct sunlight can result in a reduction in duty cycle to as low as 20%.

Calculating duty cycle

The duty cycle is the percentage of effective working time (opening + closing) with respect to the total cycle time (opening + closing + pause times).

It is calculated using the following formula:

$$\%F = \frac{T_a + T_c}{T_a + T_c + T_p + T_i} \times 100$$

where:

T_a = opening time

T_c = closing time

T_p = pause time

T_i = interval between one complete cycle and the next.

Graph of duty cycle

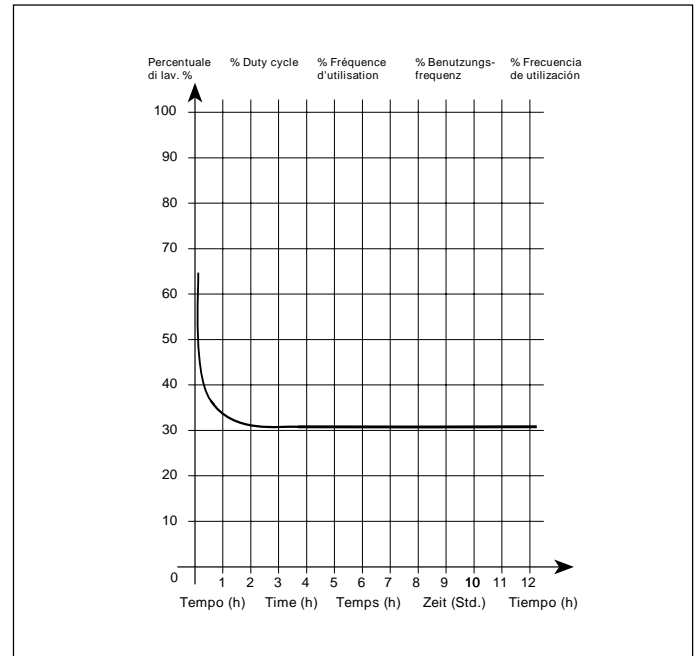


Table 1 TECHNICAL SPECIFICATIONS OF 746 OPERATOR

MODEL	746
Power supply	230V- (+ 6 % - 10 %) 50Hz
Power consumption (W)	300
Reduction ratio	1 ÷ 30
No. of pinion teeth	Z20
Rack	4 module pitch 12,566
Max. thrust (daN)	50 (Z20)
Max. torque (Nm)	20
Winding thermal protection	120 °C
Duty rating	30 % (see graph)
Oil quantity (l)	1.8
Type of oil	FAAC XD 220
Temperature range	-20 to +55 °C
Gear motor weight (kg)	14
Housing protection	IP 55
Max. gate weight (kg)	400 (Z20)
Gate speed (m/min)	12 (Z20)
Max. gate length	50m (Z20)
Clutch	bidisk in oil bath
Housing treatment	cataphoresis
Control unit	746 MPS
Limit switches	inductive with stop plates
Gear motor dimensions LxHxD (mm)	see Fig. 2
Electric motor technical specifications	
Motor speed (rpm)	1400
Power consumption (W)	300
Current draw (A)	1.5
Starting capacitor	25µF
Power supply	230V- (+ 6 % - 10 %) 50Hz

2. DIMENSIONS

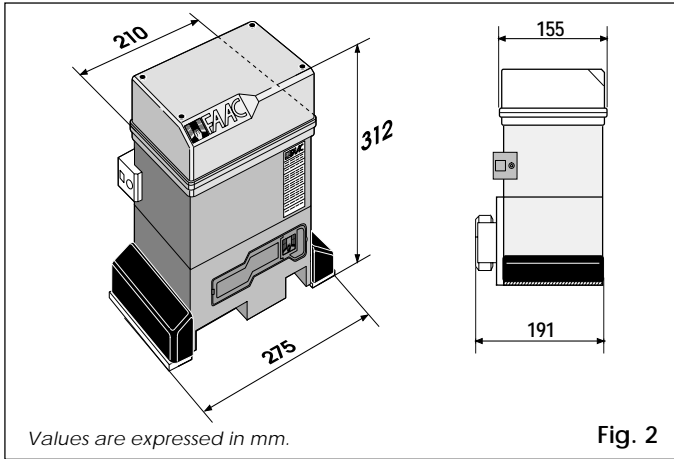


Fig. 2

3. ELECTRICAL SET-UP (standard system)

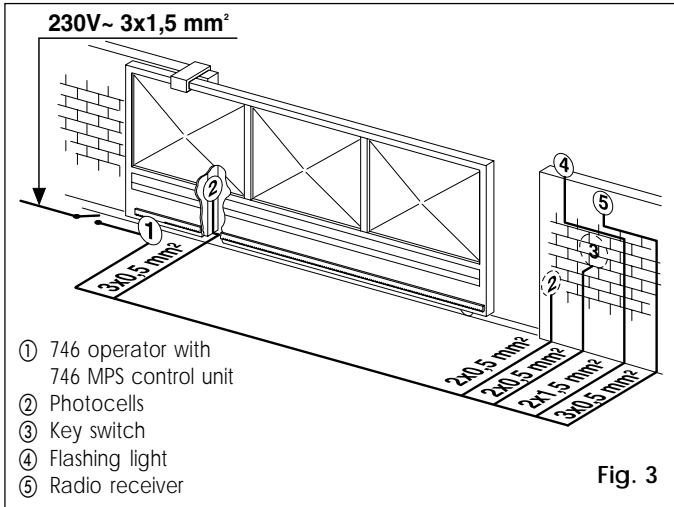


Fig. 3

4. INSTALLING THE AUTOMATION

4.1. PRELIMINARY CHECKS

For safe, correct operation of the automation, make sure that the following requirements are met:

- The gate's structure must be suitable for automation. Take special care to ensure that the wheels are large enough to support the full weight of the gate, that a top runner is installed and that physical limit stops are fitted to prevent the gate from coming off the runner.
- The characteristics of the ground must ensure sufficient support for the foundation plinth.
- There must be no pipes or electrical cables in the area to be dug for installing the foundation plinth.
- If the gear motor is located in a vehicle transit area, it is advisable to provide protection against accidental collisions.
- Check that there is an efficient ground point for the gear motor connection.

4.2. INSTALLING THE BASE PLATE

- 1) Assemble the base plate as shown in Fig. 4.
- 2) The base plate must be positioned as shown in Fig. 5 (right-handed closure) or Fig. 6 (left-handed closure) to ensure that the pinion and rack mesh correctly.
- 3) Prepare a foundation plinth as shown in Fig. 7 and install the base plate providing one or more conduits for electrical cables. Use a level to check that the plate is perfectly horizontal and wait for the cement to set.
- 4) Lay the electrical cables for connection to the accessories and the electricity supply as shown in Fig. 3. For ease of

connection, ensure that the cables protrude by about 40 cm from the hole in the base plate (Figs. 5-6 ref. ①).

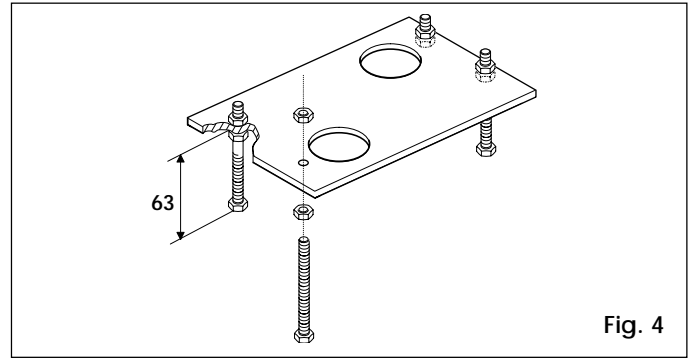


Fig. 4

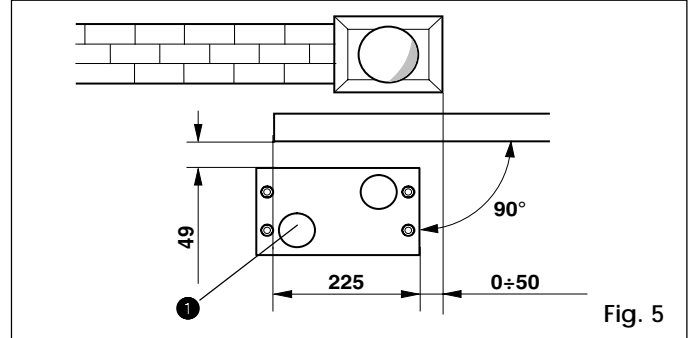


Fig. 5

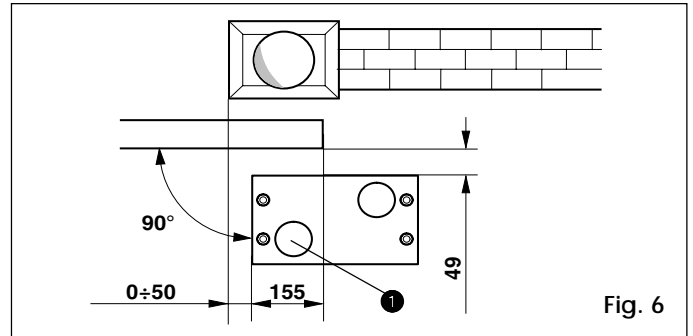


Fig. 6

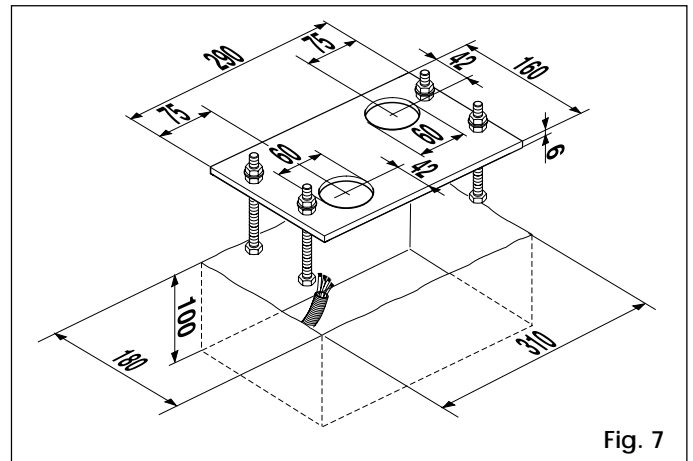


Fig. 7

4.3. MECHANICAL INSTALLATION

- 1) Fix the angle bars and the vibration dampers to the operator as shown in Fig. 8.
- 2) Open the cover of the operator by unscrewing the 4 retaining screws.
- 3) Fix the operator to the base plate using the nuts and washers supplied (Fig. 9). During this operation, route the cables through the conduit in the lower half of the operator (Fig. 10). To access the electronic equipment, route the cables through the holes provided using the grommets supplied.
- 4) Adjust the height of the feet and the distance from the gate as shown in Fig. 11.

- 5) Secure the gear motor onto the base plate by tightening the nuts as shown in Fig. 12.
- 6) Set the operator for manual operation as described in section 7.
- 7) Remove the breather screw as shown in Fig. 13 and keep it in a safe place.

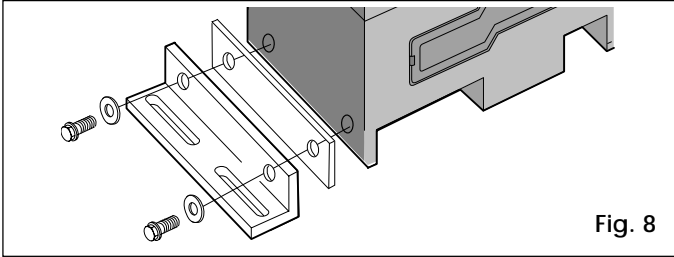


Fig. 8

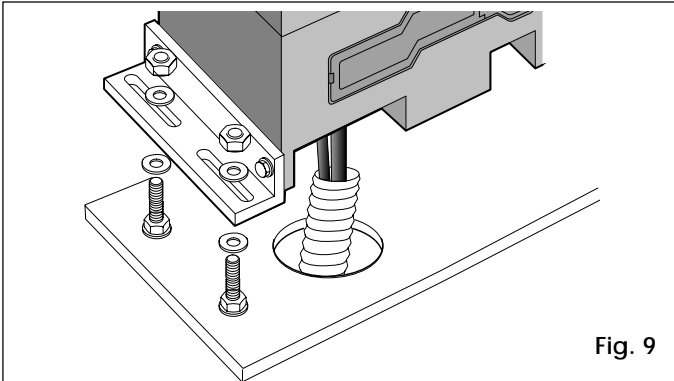


Fig. 9

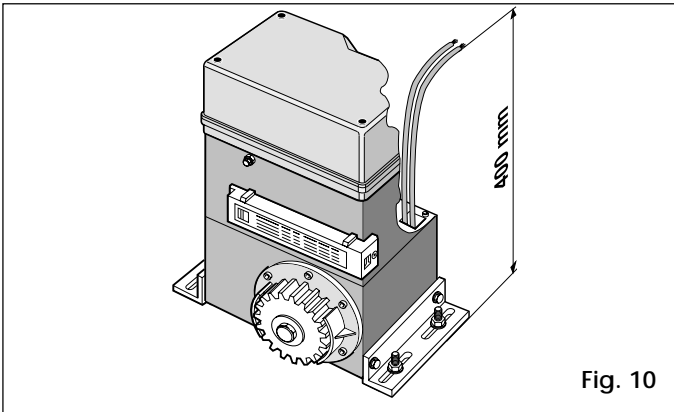


Fig. 10

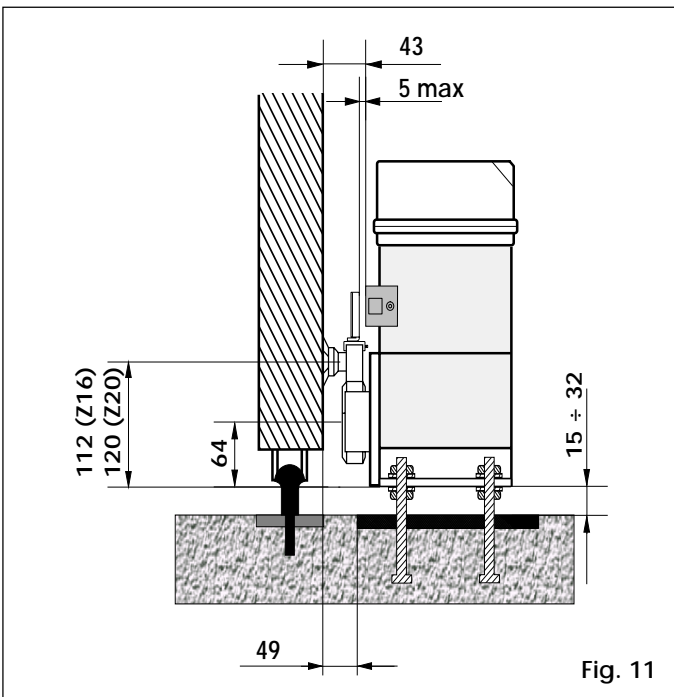


Fig. 11

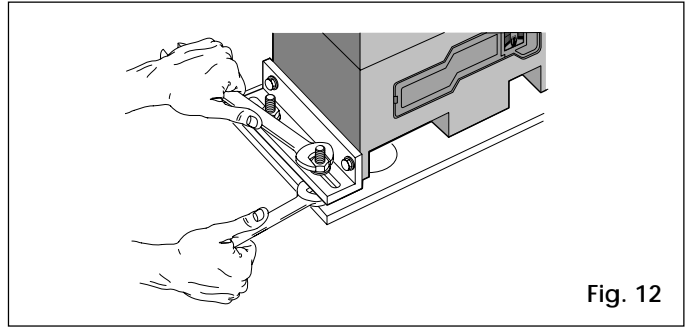


Fig. 12

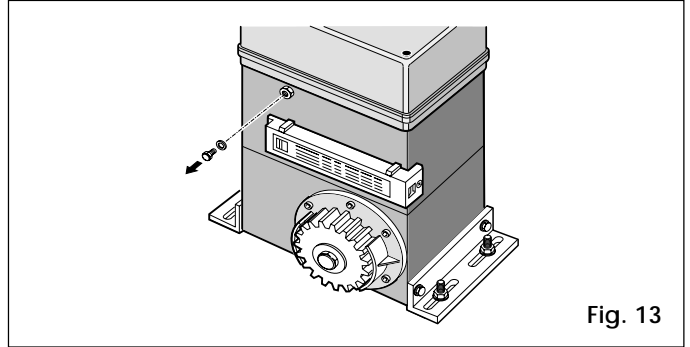


Fig. 13

4.4. FITTING THE RACK

4.4.1. WELD-ON STEEL RACK (Fig. 14)

- 1) Mount the three threaded bushes on the rack element, positioning them in the upper part of the slot. In this way the play provided by the slot will allow for future adjustment.
- 2) Slide the gate leaf manually to the closed position.
- 3) Rest the first rack element level on the pinion and weld the first threaded bush onto the gate as shown in Fig. 16.
- 4) Slide the gate manually making sure that the rack rests on the pinion. Weld the second and third bushes.
- 5) Position another rack element next to the first and use a section of rack to set the teeth of the two elements in phase as shown in Fig. 17.
- 6) Open the gate manually and weld the three threaded bushes. Proceed in this manner until the rack covers the entire length of the gate.

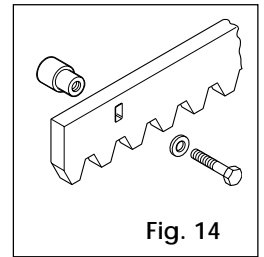


Fig. 14

4.4.2. SCREW-ON STEEL RACK (Fig. 15)

- 1) Slide the leaf manually to the closed position.
- 2) Rest the first rack element level on the pinion and insert the spacer in the upper part of the slot between the rack and the gate.
- 3) Mark the point to be drilled on the gate. Drill a 6.5 mm diameter hole and thread using 8 mm screw taps. Tighten the bolt.
- 4) Slide the gate manually making sure that the rack rests on the pinion and repeat the operations of point 3.
- 5) Place another rack element next to the first and use a section of rack to set the teeth of the two elements in phase as shown in Fig. 17.
- 6) Slide the gate manually and secure the rack element in the same manner as the first element. Proceed in this manner until the rack covers the entire length of the gate.

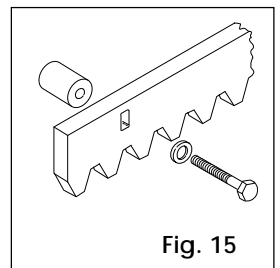


Fig. 15

4.4.3. SCREW-ON NYLON RACK (Fig. 15bis)

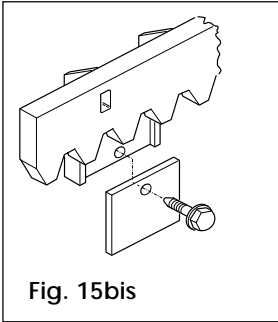


Fig. 15bis

- 1) Move the leaf manually to the closed position.
- 2) Rest the first rack element level on the pinion and mark the point to be drilled on the gate. Drill a 4 mm diameter hole and screw on the 6x20 mm self-tapping screw with reinforcement plate.
- 3) Move the gate manually making sure that the rack rests on the pinion and repeat the operations of point 2.
- 4) Place another rack element next to the first using a section of

rack to set the teeth of the two elements in phase as shown in Fig. 17.

- 5) Move the gate manually and carry out the fixing operations the same way as for the first element. Proceed in this manner until the entire gate has been covered.

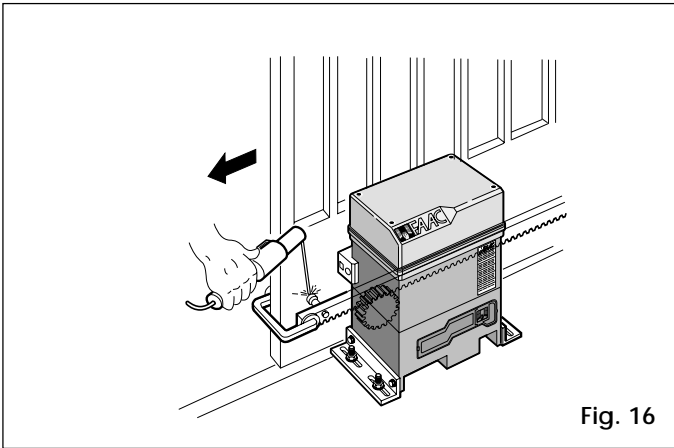


Fig. 16

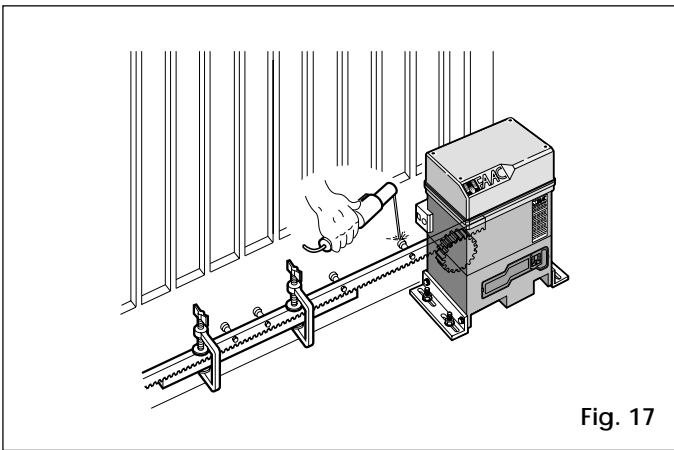


Fig. 17

Notes on the installation of the rack

- Check that none of the rack elements come off the pinion during the movement of the gate.
- Do not weld the rack elements either to the spacers or to each other.
- After installing the rack, lower the position of the gear motor by adjusting the feet (Fig. 18) by about 1.5 mm to ensure correct meshing with the pinion.
- Check manually that the gate reaches the mechanical travel limits correctly and that it does not encounter friction during its travel.
- Do not use grease or other lubricants between the pinion and the rack.

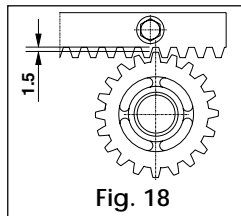


Fig. 18

4.5. MOUNTING THE CHAIN PINIONS

In versions with chain and sprocket drive transmissions, mount the Z16 or Z20 chain pinion. Proceed as follows:

4.5.1. MODEL 746 EMC CAT (Figs. 19 - 20)

- Insert the spring pin in the shaft with the aid of a hammer.
- Fit the chain pinion on the shaft, ensuring that the notch in the pinion coincides with the spring pin, fit the screw and washers and tighten.

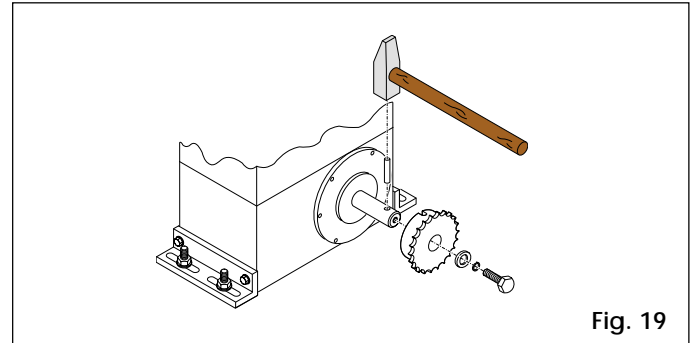


Fig. 19

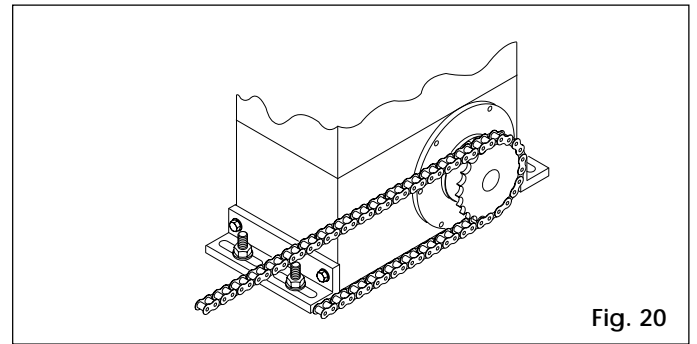


Fig. 20

4.5.2. MODEL 746 EMC RF (Figs. 21 - 22)

- Insert spring pin ⑦ in the shaft with the aid of a hammer.
- Fit the chain pinion on the shaft, ensuring that the notch on the pinion coincides with the spring pin; fit screw ④ and washers ⑤ and ⑥ and tighten.
- Fit the idle sprocket carrier plate on the gear motor flange, removing the four upper bolts and replacing them with the 5x12 hex bolts ① and washers ② in the kit as shown in Fig. 21.
- Fit the chain as shown in Fig. 22 and fit the casing with screws ① and washers ③ (Fig. 21).

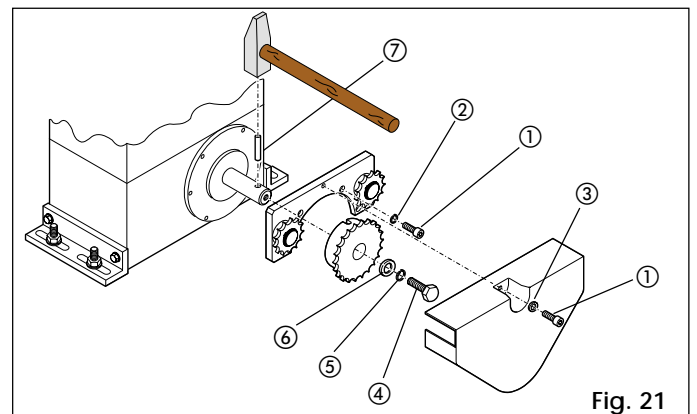


Fig. 21

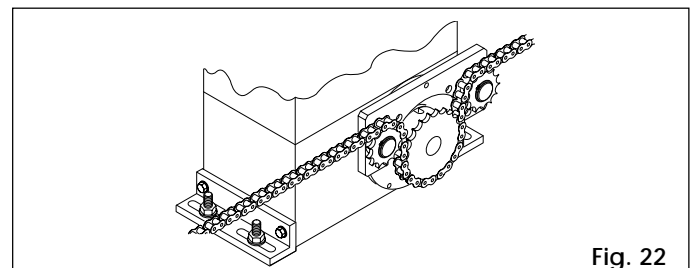


Fig. 22

5. START-UP

5.1. CONNECTION TO ELECTRONIC CONTROL UNIT

➤ Always disconnect the electrical power supply before carrying out any operations on the control unit (connections, programming, maintenance).

Warning: On disconnecting connector J6, high voltages may be present on the capacitor output.

Observe points 10, 11, 12, 13 and 14 in the GENERAL SAFETY INSTRUCTIONS.

Lay the cables in the conduits as shown in Fig. 3 and make the electrical connections to the chosen accessories.

Always route the power supply cables separately from the control and safety cables (keyswitch, receiver, photocells, etc.). Use separate conduits to avoid any interference.

5.1.1. 746MPS ELECTRONIC CONTROL UNIT

TABLE 2 TECHNICAL CHARACTERISTICS OF 746MPS

Power supply	230V~ (+6 -10 %) 50Hz
Motor max. load	300 W
Accessories power supply	24Vdc
Accessories max. load	360 mA
Warning light power supply	24V~ (3W max)
Temperature range	- 20°C + 55°C
Fuses	motor accessories
Quick connectors	- for decoding cards or RP receivers - - capacitor - limit switch -
Inputs	OPEN/STOP/CLOSING SAFETY/LIMIT-SWITCH
Outputs	warning light flashing light motor 24Vdc power supply for accessories pause time (5-10-30-120 sec.)
Programming	logic (automatic A1/A2 - semiautomatic E1/E2) pre-flashing
Motor braking	adjustable by trimmer
Safety timing	255 sec.

5. 1. 2. 746MPS LAY-OUT

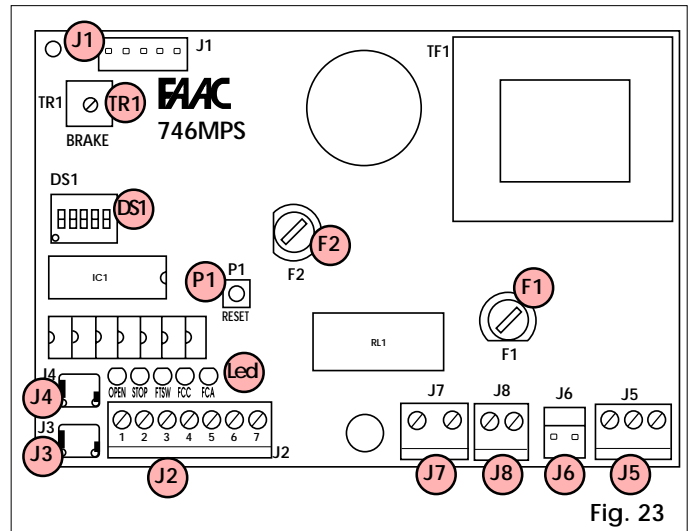


TABLE 3 746MPS Control unit components

F1	Fast-acting fuse F1 5x20 F5A/250V (motor)
F2	Time delay fuse F2 5x20 T500mA/250V (accessories)
P1	RESET button
TR1	Braking adjustment trimmer
DS1	Programming dipswitches
Led	Input status indicator LEDs
J1	Quick connector for decoding cards/RP receiver
J2	Low voltage inputs/accessories terminal block
J3	Quick connector for limit switch (LH closure)
J4	Quick connector for limit switch (RH closure)
J5	Motor output terminal block
J6	Quick connector for capacitor
J7	Line input terminal block
J8	Flasher unit output terminal block (230V- max 60W)

5. 1. 3. ELECTRICAL CONNECTIONS

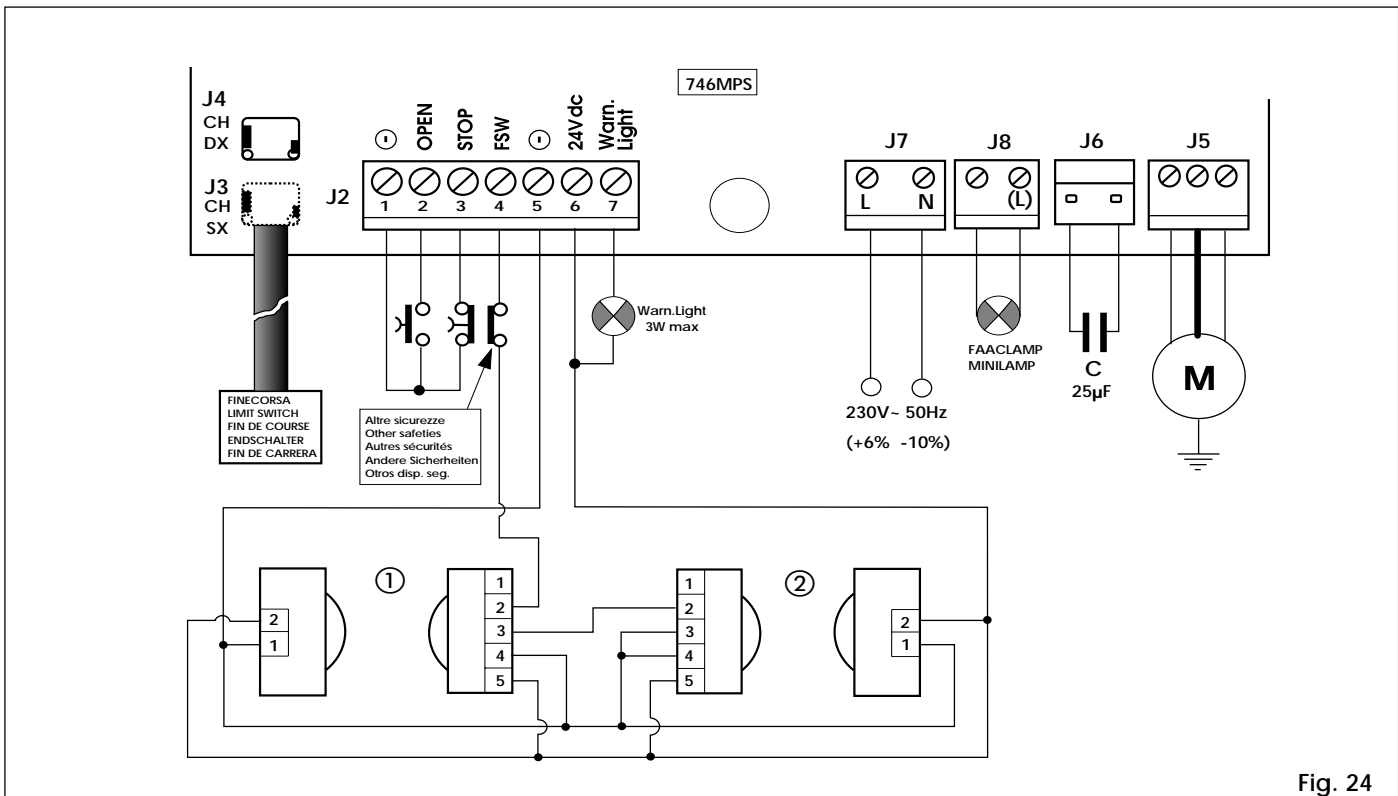
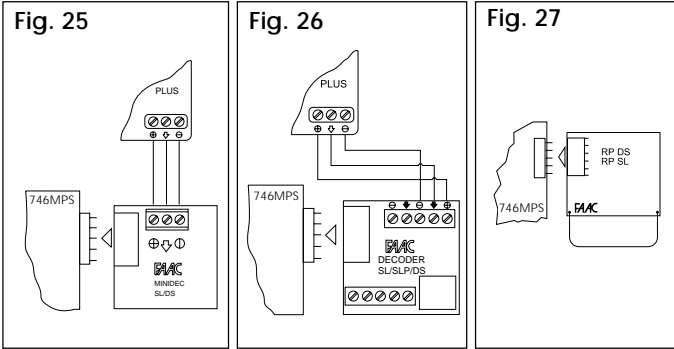


Fig. 24

5.2. DESCRIPTION

5.2.1. CONNECTOR J1

The connector J1 is used for the quick connection of MINIDEC, DECODER, RP RECEIVER boards (Figs. 25,26,27). Accessory boards are to be inserted with their component sides facing the inside of the 746MPS electronic control unit. Always disconnect the power supply before inserting or removing accessory boards.



5.2.2. TERMINAL BLOCK J2 (low voltage)

- 1&5 = Common/Negative of accessory power supply (-)**
- 2 = OPEN control device (N.O.)**

Any control device (pushbutton, detector,..) which, on closing the contact, relays an open and/or close impulse to the gate.

To install more than one Open control device, connect the N.O. contacts in parallel.

- 3 = STOP control device (N.C.)**

Any control device (e.g. pushbutton) which, on opening a contact, stops the movement of the gate. To install more than one Stop control device, connect the N.C. contacts in series.

➡ If no Stop control devices are to be connected, place a jumper across the input and the common terminal (terminal 1 or 5).

- 4 = FSW closure safety device (N.C.)**

Any control device (photocells, safety edges, magnetic loops) with an N.C. contact which reverses the movement of the gate when an obstacle is detected within the protected area during the closing movement. If a closure safety device is tripped when the gate is open or during a pause time, they will prevent gate closure. These devices do not intervene during gate opening movements.

To install more than one safety device, connect the N.C. contacts in series.

➡ If no closure safety devices are to be installed, place a jumper across this input and the common terminal (terminal 1 or 5).

- 6 = 24Vdc accessories power supply positive (+)**

The maximum load of the accessories is 360mA. To calculate power draw, refer to the instructions for the individual accessories.

- 7 = Warning Light output**

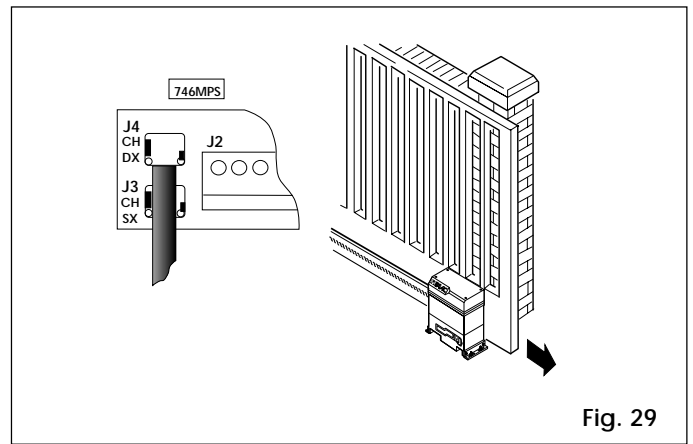
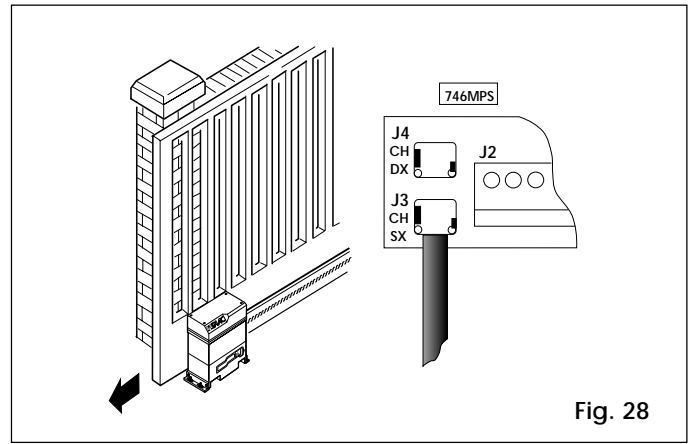
For information regarding operation of the warning light, refer to the table below.

	Gate status	
Closed	Opening/Open	Closing
Off	On	Flashing

5.2.3. CONNECTORS J3-J4 (limit switch)

- J3 = Connection of limit switch for left-hand closure**
- J4 = Connection of limit switch for right-hand closure**

Refer to Figs. 28-29 for quick connection of the inductive limit switch sensor for the corresponding gate closure direction.



5.2.4. TERMINAL BLOCK J5 (high voltage)

Terminal block for motor connection. Connect the wires to the terminals of J5 as shown in Fig.30.

BLACK AND BROWN WIRES = electric motor supply phases

BLUE WIRE= electric motor common

5.2.5. CONNECTOR J6 (high voltage)

Connector for quick connection of the capacitor.

5.2.6. TERMINAL BLOCK J7 (high voltage)

230V - terminal block for connection of the flashing light (max 60W).

5.2.7. TERMINAL BLOCK J8 (high voltage)

Terminal block for connection of the 230V - 50Hz power supply (L=Phase N=Neutral)

Connect the earth wire to the operator as shown in Fig.31

5.2.8. INDICATOR LEDS

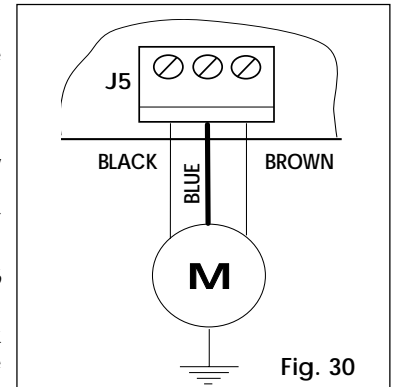
5 LEDs on the board indicate the status of the terminal inputs:

LED ON = contact closed

LED OFF = contact open

TABLE 4 MEANING OF STATUS INDICATOR LEDS

LED	ON	OFF
OPEN	Command active	Command not active
STOP	Command not active	Command active
FSW	Safeties disengaged	Safeties engaged
FCC	Closing limit disengaged	Closing limit engaged
FCA	Opening limit disengaged	Opening limit engaged



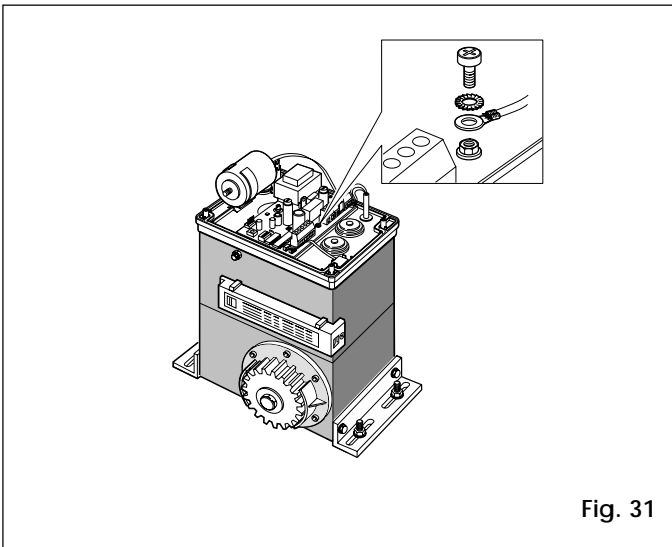
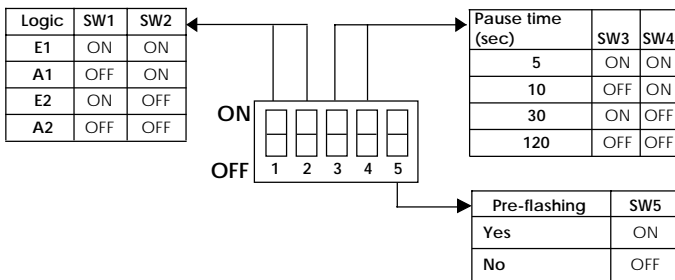


Fig. 31

5.3. DIPSWITCH SETTINGS

To program the operation of the automation, set the dipswitches as shown in the diagram above.

- Press the RESET button after all programming operations.



Operating logics

There are four operating logics available:

- A1** = Automatic **A2** = Automatic Plus
- E1** = Semi-automatic **E2** = Semi-automatic Plus

Operation of the different logics is described in tables 5-6-7-8.

Pause time

The pause time is amount of time the gate remains open before it recloses when an automatic control logic is selected. Pause times include the pre-flashing time, if selected.

Pre-flashing

It is possible to select 5 seconds pre-flashing of the flashing light before any gate movement. This serves to warn any persons in the vicinity that the gate is about to start moving.

TABLE 5 LOGIC A1 (AUTOMATIC)

LOGIC A1	IMPULSES		
	OPEN	STOP	SAFETY
CLOSED	opens and recloses after pause time (1)	no effect	no effect
OPEN	recloses after 5" (2)	stops counting	freezes pause until disengagement
CLOSING	inverts motion	stops	inverts motion
OPENING	no effect	stops	no effect
STOPPED	recloses immediately (1)	no effect	no effect

TABLE 6 LOGIC E1 (SEMI-AUTOMATIC)

LOGIC E1	IMPULSES		
	OPEN	STOP	SAFETY
CLOSED	opens (1)	no effect	no effect
OPEN	recloses (1)	no effect	no effect
CLOSING	inverts motion	stops	inverts motion
OPENING	stops	stops	no effect
STOPPED	recloses (reopens when safety devices are engaged) (1)	no effect	no effect

TABLE 7 LOGIC A2 (AUTOMATIC PLUS)

LOGIC A2	IMPULSES		
	OPEN	STOP	SAFETY
CLOSED	open and recloses after pause time (1)	no effect	no effect
OPEN	recloses after 5" (2)	stops counting	on disengagement recloses after 5" (1)
CLOSING	inverts motion	stops	stops and inverts motion when disengaged (1)
OPENING	no effect	stops	no effect
STOPPED	recloses immediately (1)	no effect	no effect

TABLE 8 LOGIC E2 (SEMI-AUTOMATIC PLUS)

LOGIC E2	IMPULSES		
	OPEN	STOP	SAFETY
CLOSED	opens (1)	no effect	no effect
OPEN	recloses (1)	no effect	no effect
CLOSING	invert motion	stops	stops and inverts motion when disengaged (1)
OPENING	stops	stops	no effect
STOPPED	recloses (reopens when safety devices are engaged) (1)	no effect	no effect

- (1) With the pre-flashing selected, movement starts after 5 seconds.
- (2) If the impulse is sent during pre-flashing, the timer is reset to zero.

5.4. FAULT CONDITIONS

The following conditions effect normal operation of the automation:

- ① microprocessor error
 - ② intervention of the electronic safety timer (interruption of operation after continuous working time exceeds 255 seconds).
 - ③ disconnection of the limit switch cable connector
- Conditions ① and ② have the sole effect of causing the automation to stop.
 - Condition ③ causes an alarm condition inhibiting all operation:

normal operation is only resumed after the cause of the alarm has been eliminated and the RESET button has been pressed (or the power supply has been momentarily interrupted).

To signal this condition, the warning light must be connected: an alarm condition is signalled by rapid flashing (0.25 sec) of the warning light.

5.5. POSITIONING THE TRAVEL STOP PLATE

The 746 operator is fitted with an inductive proximity limit switch (Fig.1 - ref.3). When the latter detects the passage of a plate fastened to the top of the rack, it stops the movement of the gate.

To position the two travel stop plates correctly, proceed as follows:

- 1) Connect the limit switch connector to the 746MPS control unit in accordance with the direction of gate closure (paragraph 5.2.3. and Figs. 28/29).
- 2) Assemble the limit switch, positioning the stop plate centrally relative to the threaded studs of the bracket (Fig.32).
- 3) Switch on the power supply.
- 4) Move the gate by hand towards it closed position, stopping approximately 2 cm from the physical travel stop.
- 5) Set brake-adjusting trimmer TR1 approximately to its central position (Fig.23 - ref.TR1).

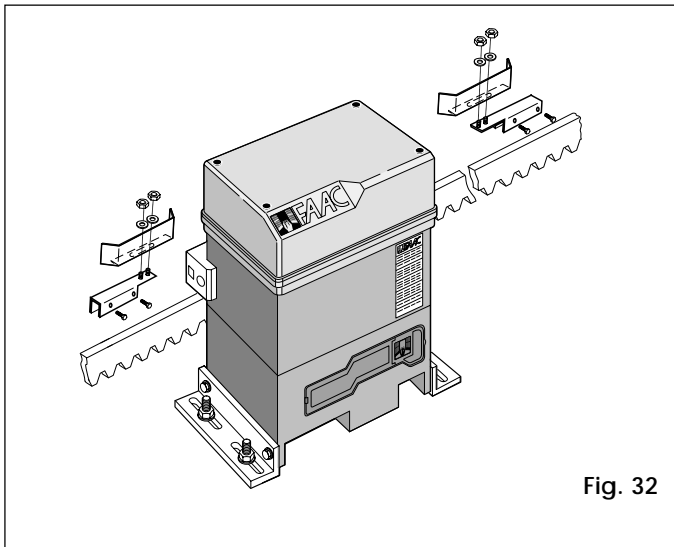


Fig. 32

- 6) Slide the travel stop plate on the rack in the opening direction. When the LED of the opening travel limit switch (FCA) in the 746 electronic control unit (Fig. 23) goes out, advance the travel stop plate by approximately 45 mm, and fix it to the rack by tightening the screws.
- 7) Move the gate by hand towards its closed position, stopping approximately 2 cm from the physical travel stop.
- 8) Slide the travel stop plate on the rack in the closing direction. When the LED of the closing travel end limit switch (FCC) in the 746 electronic control unit goes out (Fig. 23), advance the travel stop plate by approximately 45 mm, and fix it to the rack by tightening the screws.
- 9) Re-lock the system (see paragraph 8).
- 10) Run a complete cycle of the gate, to check whether the limit switch trips correctly. To adjust the limit switch positions, operate brake trimmer TR1: when the trimmer is rotated clockwise, the braking space is decreased; when the trimmer is rotated counterclockwise, the braking space is increased.

Notes on positioning the travel stop plates

- The distance between the limit switch and the travel stop plate must be $\leq 5\text{mm}$ (Fig.11).
- When nylon rack is used, the limit switch plate will be mounted without the support. Fix the plate directly on the rack with the self-tapering screws. Adjust the limit as mentioned above.
- To avoid damaging the operator and/or interruptions to service, leave a distance of at least 2 cm from physical travel stops of the gate.

5.6. TORQUE ADJUSTMENT

The 746 automation system is equipped with an anti-crushing system comprising an electronic sensor and a mechanical clutch which (according to the selected operation) either stops or reverses gate motion when the gate encounters an obstacle.

When the obstacle is removed, a new command impulse must be given before the gate resumes the opening or closing movement. The torque limiting clutch must be set in compliance with current standards.

To adjust the threshold of the anti-crushing system, proceed as follows:

- 1) **Switch off the power supply.**
- 2) Hold the driving shaft in position by means of the lever supplied, and adjust the clutch adjusting screw, as shown in Fig. 33.

To increase torque, turn the screw clockwise.

To decrease torque, turn the screw counterclockwise.

➔ **The operator is supplied with the clutch set to maximum torque. It will therefore be necessary to turn the adjuster**

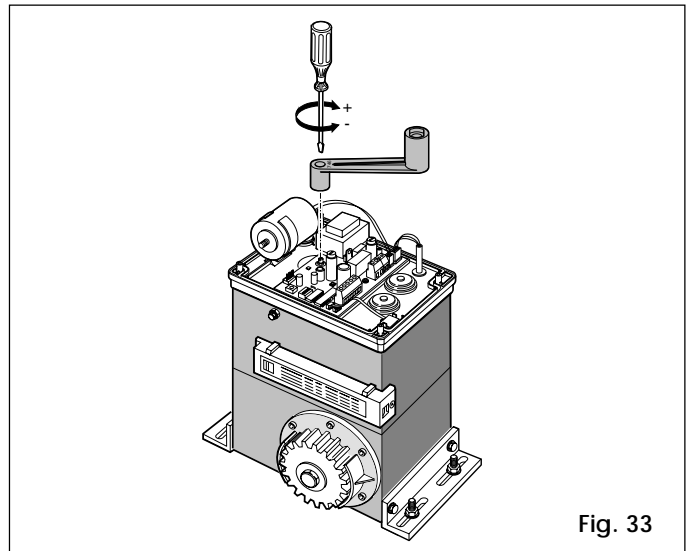


Fig. 33

screw counterclockwise to obtain the optimum adjustment.

- 3) Switch on the power supply and check whether the anti-crushing system operates correctly.
 - ➔ **When tripped, the anti-crushing system either stops the opening movement or reverses the closing movement.**

6. TESTING THE AUTOMATION

When installation is complete, press fit the covers over the operator fixing bars and fix the top cover using the screws and bushes supplied (Fig. 34).

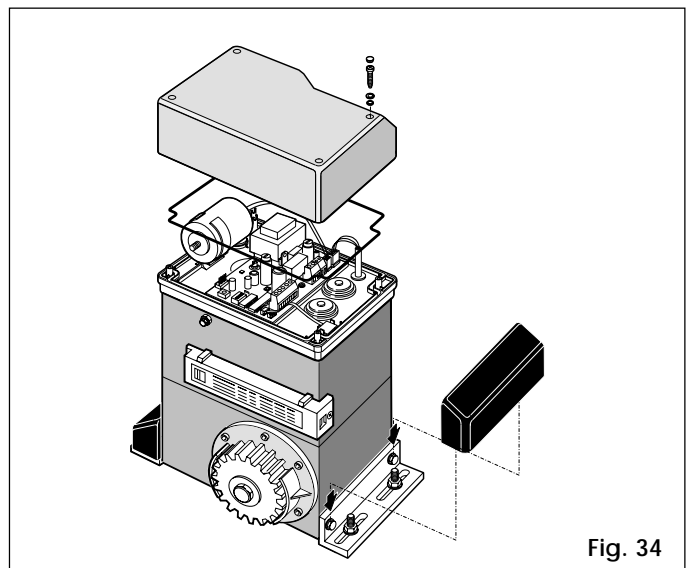


Fig. 34

Affix the danger warning label to the top cover (Fig. 35).

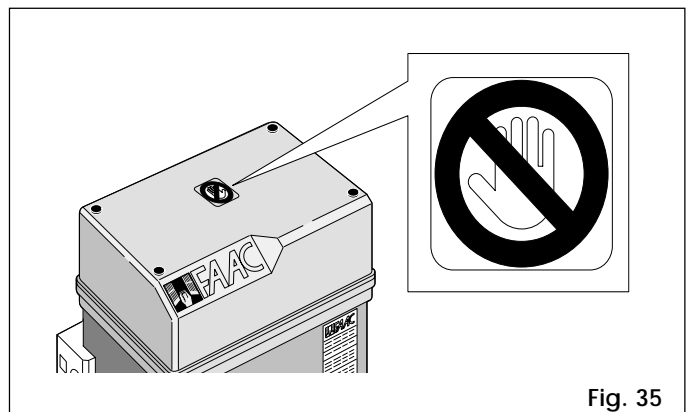


Fig. 35

Thoroughly check operation of the automation and all connected accessories.

Give the customer the User Guide. Explain correct use and operation of the gear motor and draw attention to the potential danger zones of the automation.

7. MANUAL OPERATION

If it is necessary to operate the gate manually due to a power failure or malfunction of the automation, operate the release device as follows.

- 1) Open the lock cover and insert the key supplied in the lock (Fig.36).

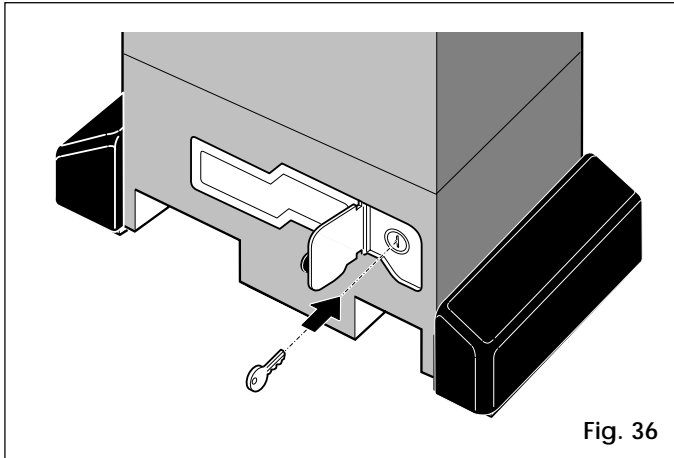


Fig. 36

- 2) Turn the key clockwise and pull out the release lever as shown in Fig.37.
- 3) Open or close the gate manually.

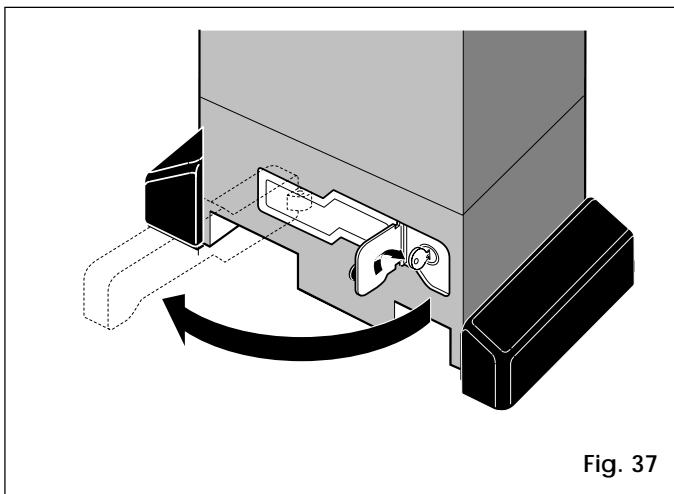


Fig. 37

8. RETURN TO NORMAL OPERATION

To prevent accidental operation of the gate during this procedure, turn off the electricity supply to the system before relocking the operator.

- 1) Close the release lever.
- 2) Turn the key anticlockwise.
- 3) Remove the key and close the lock cover.
- 4) Move the gate until the release device engages.

9. SPECIAL APPLICATIONS

There are no special applications.

10. MAINTENANCE

When performing maintenance, always check that the anti-crushing clutch is correctly adjusted and that the safety devices operate correctly.

10.1. TOPPING UP WITH OIL

Check the quantity of oil in the operator periodically.

For medium-low duty cycles an annual check is sufficient; for more intensive use, check every 6 months.

To access the oil reservoir, remove the oil filler cap (Fig.1 rif.8). The oil level should be up to the copper windings of the electric motor (Fig. 38).

To top up, pour in oil to the correct level.

Use exclusively FAAC XD 220 oil.

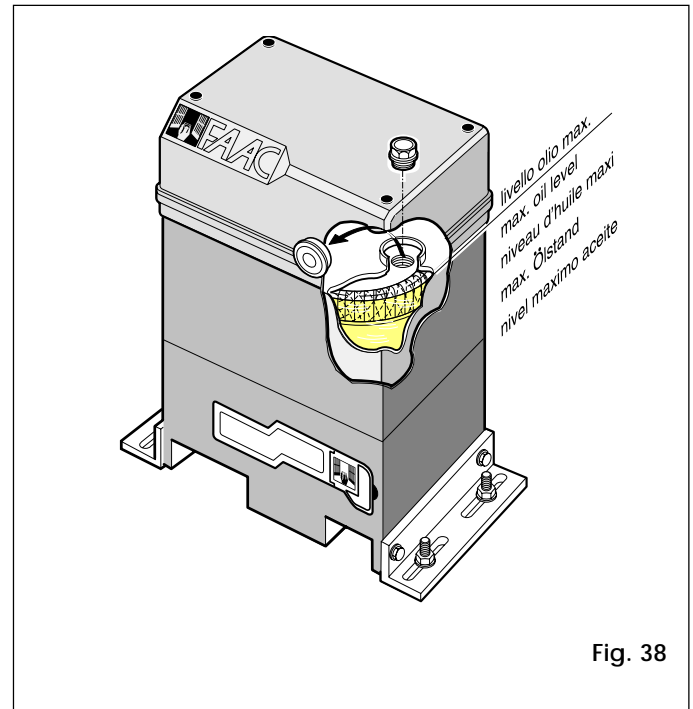


Fig. 38

11. REPAIRS

For repairs contact an authorised FAAC Repair Centre.

USER'S GUIDE

746 AUTOMATION

Read the instructions carefully before using the product and keep them for future reference.

GENERAL SAFETY INSTRUCTIONS

The 746 automation, when installed and used correctly, affords a high level of safety.

However, some simple rules should be followed to avoid accidents:

- Do not stand in the vicinity of the automation or allow anyone else, especially children, to do so, and do not place objects in the vicinity of the automation. This is particularly important during operation.
- Keep remote controls or any other control devices out of the reach of children to prevent them from accidentally operating the automation.
- Do not allow children to play with the automation.
- Do not deliberately obstruct the movement of the gate.
- Make sure that branches or bushes do not interfere with the movement of the gate.
- Ensure that the signalling lights are efficient and clearly visible.
- Do not attempt to move the gate manually without first releasing it.
- In the event of a malfunction, release the gate to allow access and call a qualified technician for service.
- After setting manual operation, disconnect the electricity supply from the system before returning to normal operation.
- Do not make any modifications to components of the automation system.
- Do not attempt to perform any repair work or tamper with the automation. Call FAAC qualified personnel for repairs.
- At least once every six months have the automation, the safety devices and the earth connection checked by a qualified technician.

DESCRIPTION

The FAAC 746 automation is ideal for controlling vehicle access areas with medium transit frequencies.

The FAAC model 746 automation for sliding gates are electromechanical operators which transmit movement to the leaf by means of a pinion with rack or chain coupled in appropriate manner to the sliding gate.

The operation of the sliding gate is controlled by an electronic control unit housed inside the operator.

When the gate is closed, on receipt of an opening impulse from a remote control or other suitable control device, the control unit will start the motor to move the gate to the open position.

If automatic operation has been selected, sending an impulse causes the gate to reclose on its own after the selected pause time.

If semiautomatic operation has been selected, a second impulse must be sent to reclose the gate.

An opening impulse sent while the gate is reclosing causes it to change direction of movement.

A stop command (if available) stops movement at any time.

For detailed information on operation of the sliding gate in the various operating modes, contact the installation technician.

The automations have safety devices (photocells) which prevent the gate from reclosing when an obstacle lies within the area they are protecting.

The system ensures mechanical locking when the motor is not in operation, so it is not necessary to install a lock.

For this reason the release system must be operated before the gate can be opened manually.

The gear motor has a mechanical clutch which, in conjunction with an electronic sensor, affords the necessary anti-crushing safety, reversing a closing movement or stopping an opening movement.

An inductive sensor detects the passage of the metal stop plates fixed to the rack in correspondence with the travel limit positions. The electronic control unit is incorporated in the gear motor.

A convenient manual release device allows the gate to be operated in the event of a power failure or malfunction.

The light flashes while the gate is moving.

MANUAL OPERATION

If the gate has to be operated manually due to a power failure or malfunction of the automation, use the release device as follows.

- 1) Open the lock cover plate and insert the key supplied in the lock (Fig.1).
- 2) Turn the key clockwise and pull the release lever as shown in Fig. 2.
- 3) Open or close the gate manually.

RETURN TO NORMAL OPERATION

To prevent accidental operation of the gate during this procedure, turn off the electricity supply to the system before relocking the operator.

- 1) Reclose the release lever.
- 2) Turn the key anti-clockwise.
- 3) Remove the key and close lock cover plate.
- 4) Move the gate until the release device engages.

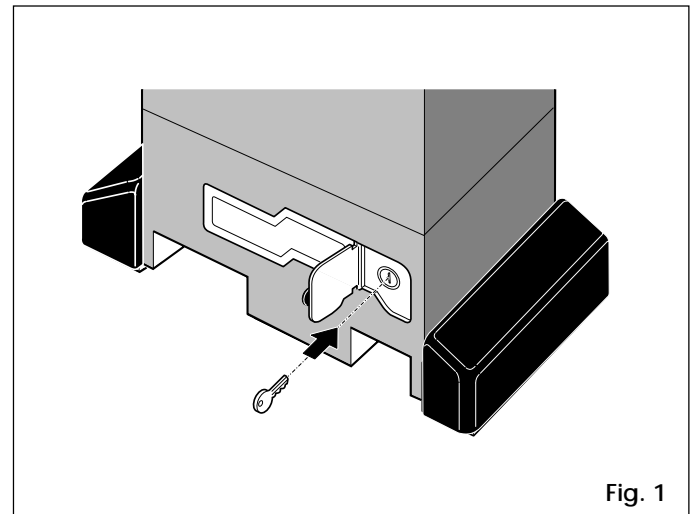


Fig. 1

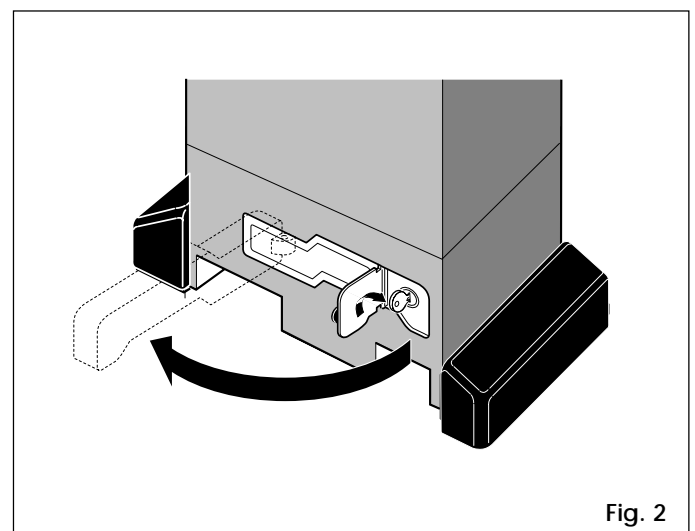


Fig. 2