

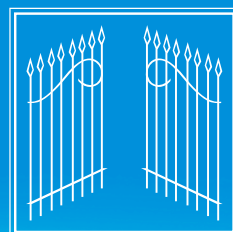
COMBI

740

- AUTOMATIC ELECTRO-HYDRAULIC GATE OPERATOR
- FULLY CONCEALED BELOW GROUND



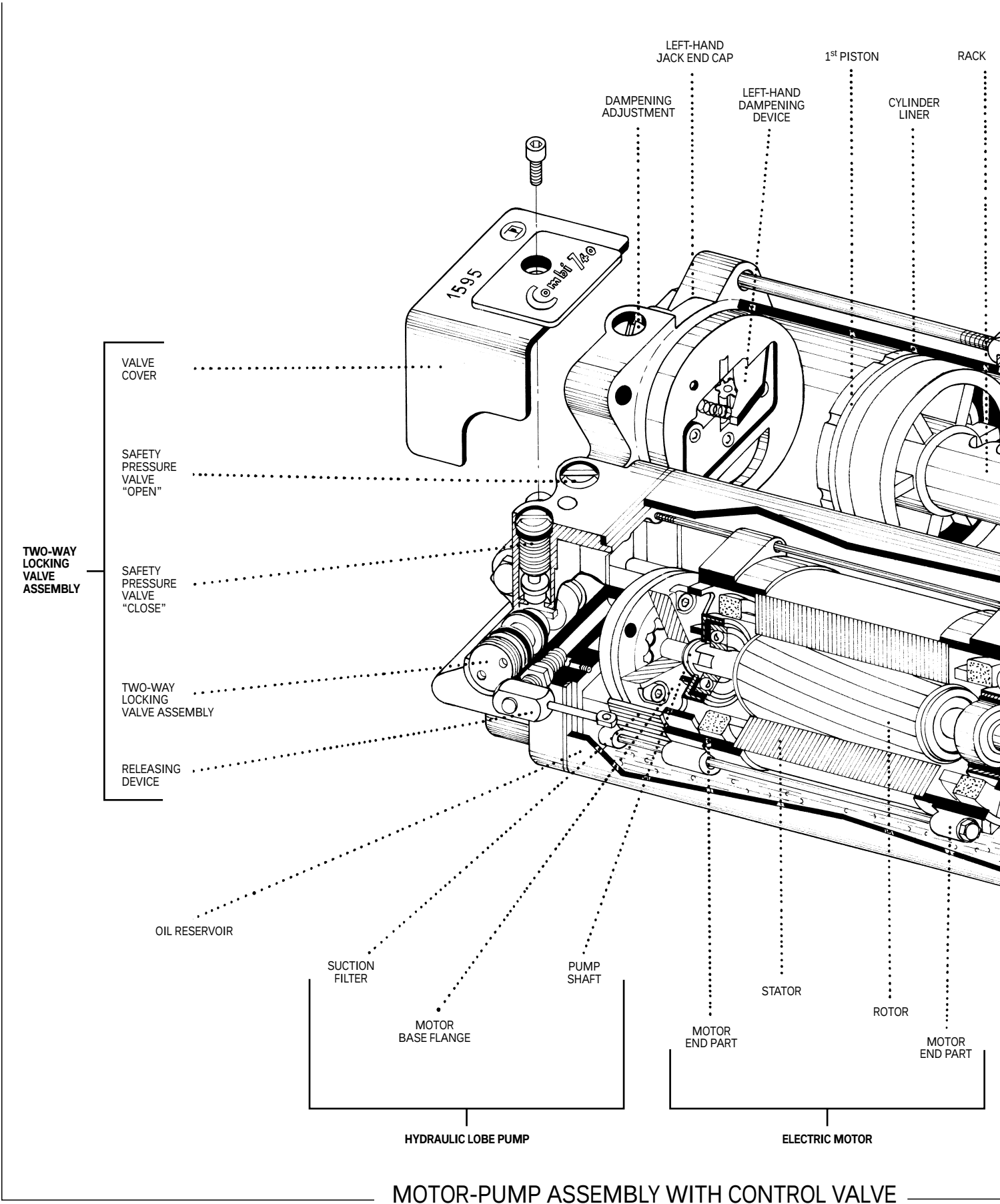
INSTALLATION MANUAL



FADINI[®]
the gate opener

COMBI 740 CUTAWAY GENERAL VIEW

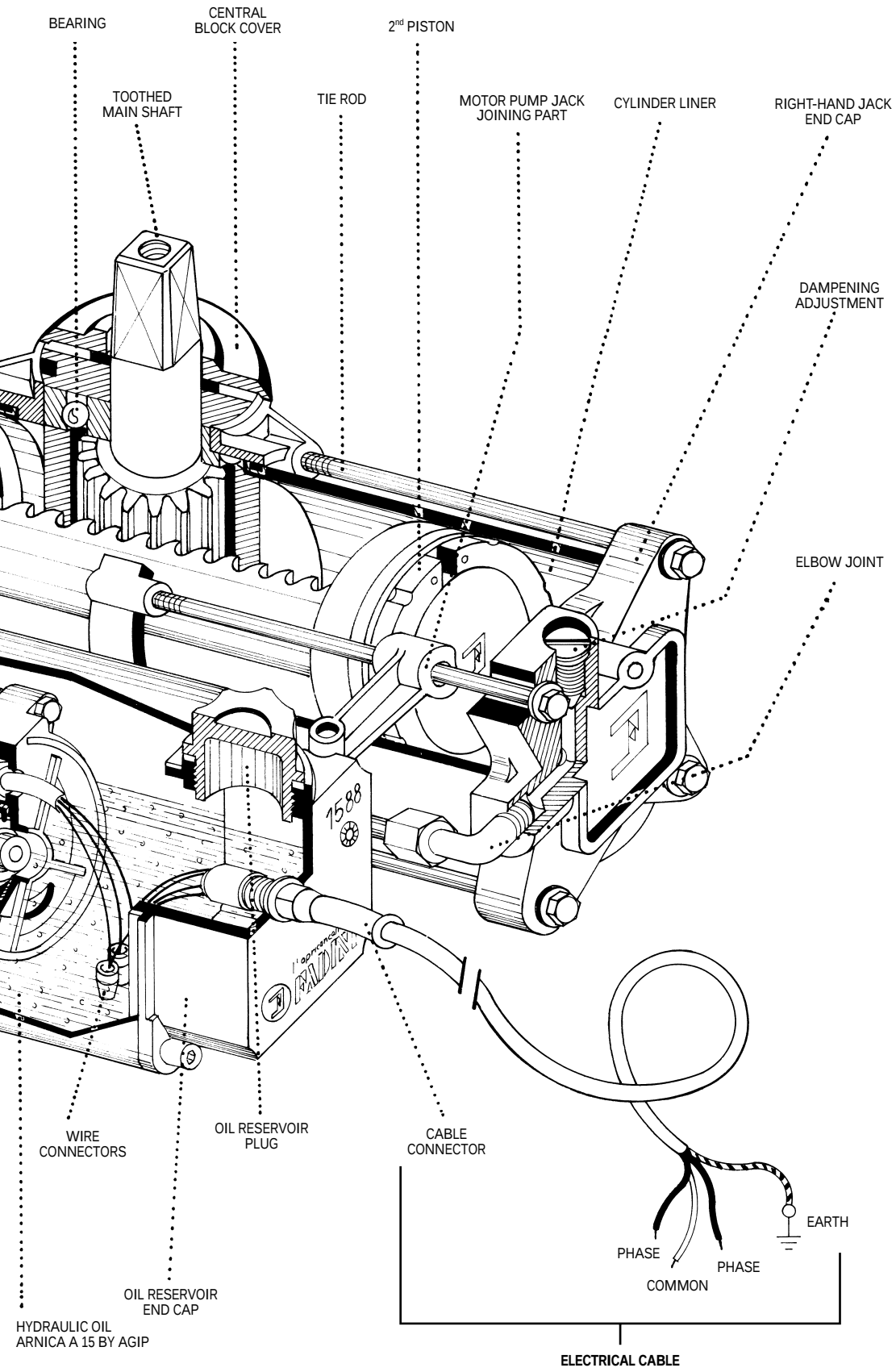
ELECTRIC MOTOR _____ HYDRAULIC JACK _____



MOTOR-PUMP ASSEMBLY WITH CONTROL VALVE

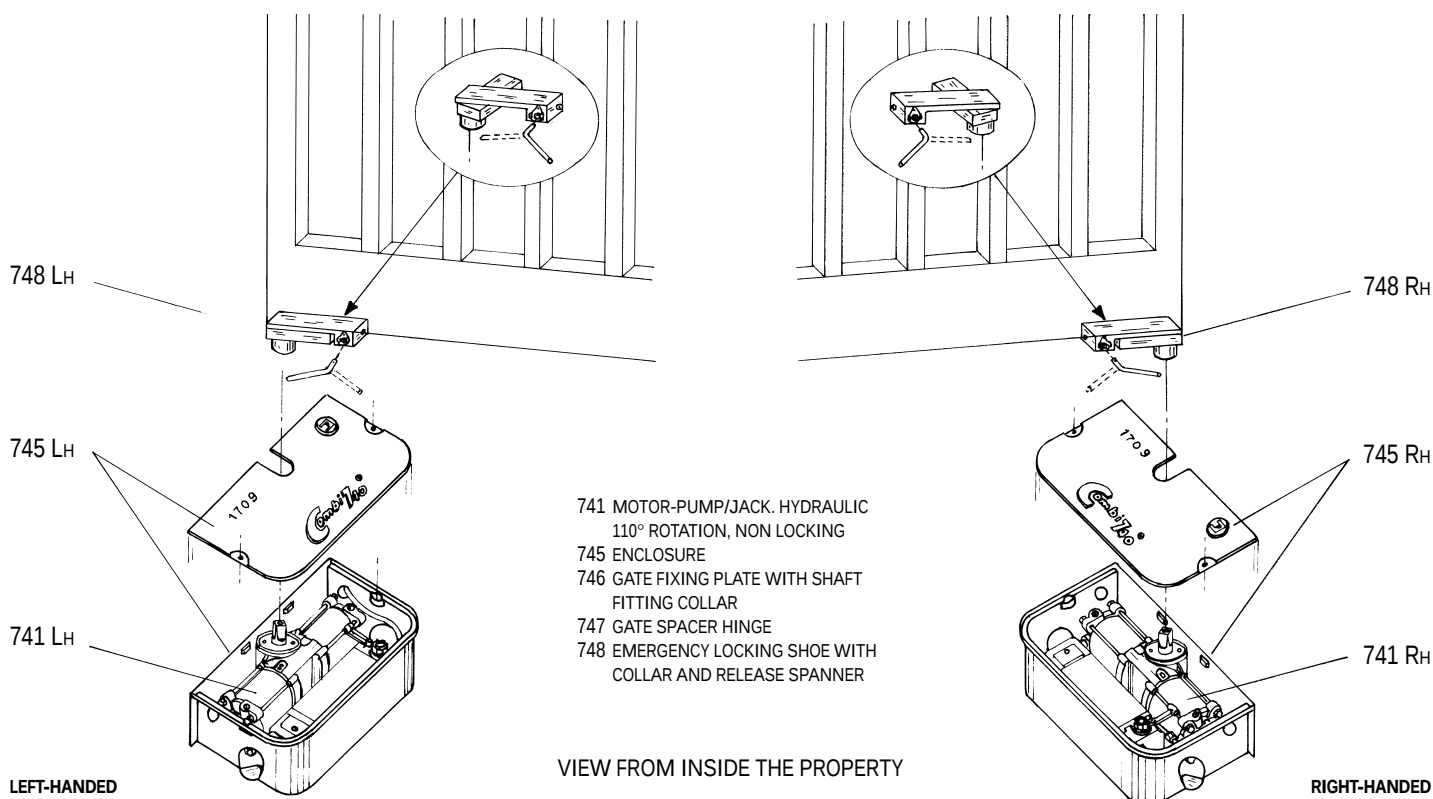
PIC. 1

JACK ASSEMBLY AND MOVEMENT SYSTEM



INSTRUCTIONS FOR THE INSTALLATION OF COMBI 740, ELECTRO-HYDRAULIC, BELOW GROUND, ALL-IN-ONE, WITH ANTI-CRUSH SYSTEM.

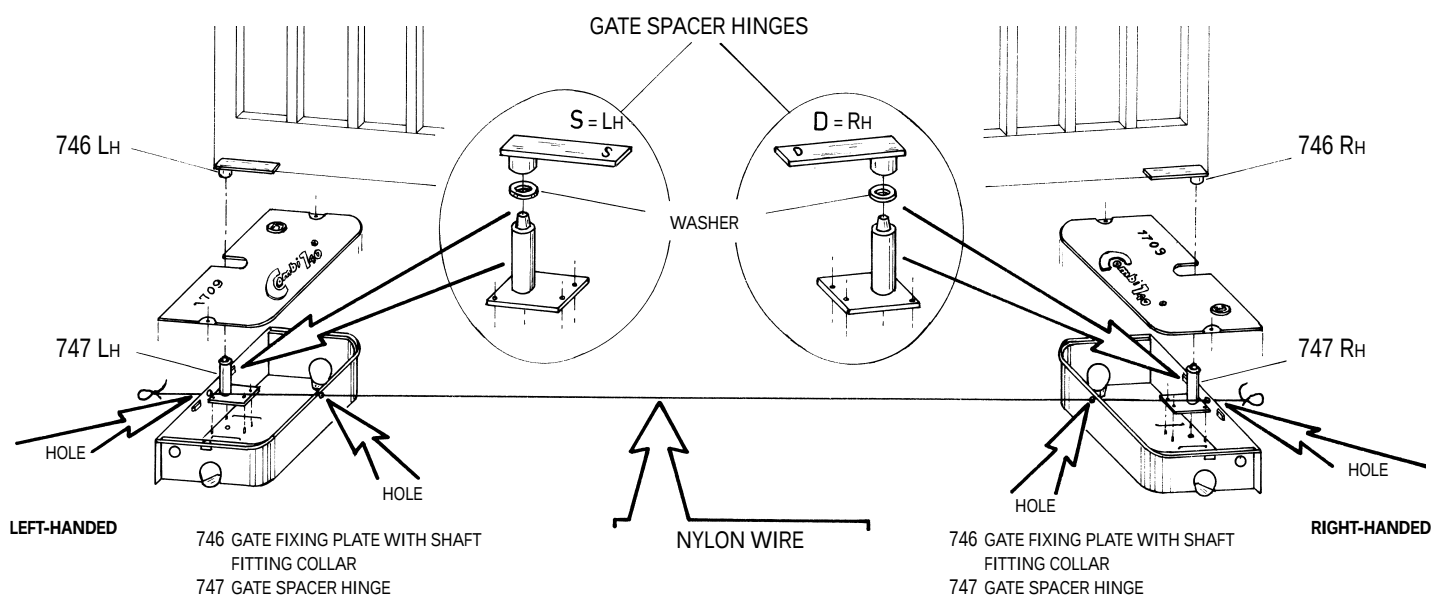
It is recommended to keep to these instructions to install the equipment in the correct way to get a perfect working system. Electro-hydraulic operator consisting of a jack combined to a motor pump unit for the operation of swinging gates. All-in-one in a specially designed enclosure to be sunk in the ground under the gates as shown in picture No. 2.



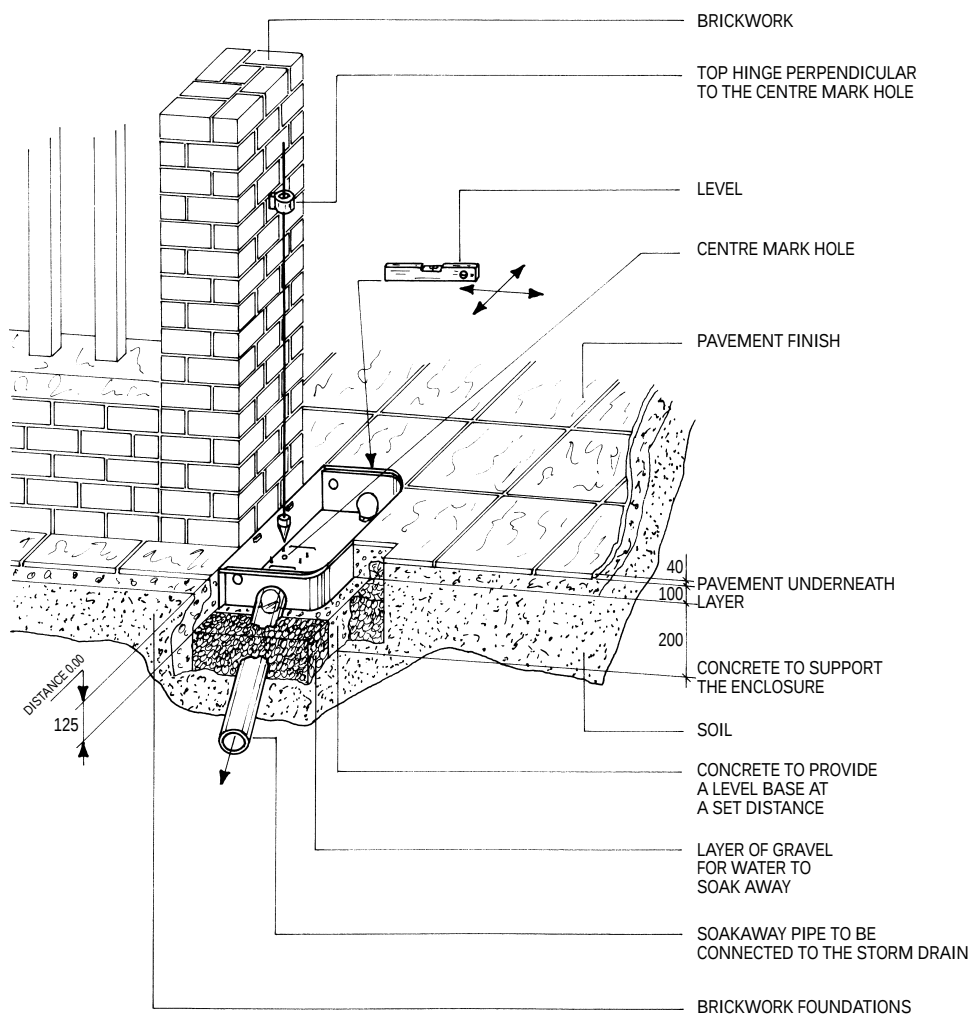
PIC. 2

Pre-arrangements are possible in the case that the mechanism is installed at a later stage after mounting the gate and finishing the pavement. You will have to set the enclosure and fit the special gate spacer hinge which is designed to temporary replace the mechanism. Picture No. 3.

The two enclosures must be perfectly aligned one opposite the other. The simple operation described below will ensure this: a nylon wire must pass through the centres of the holes which are factory made in the enclosures to this purpose. Picture No. 3.



PIC. 3

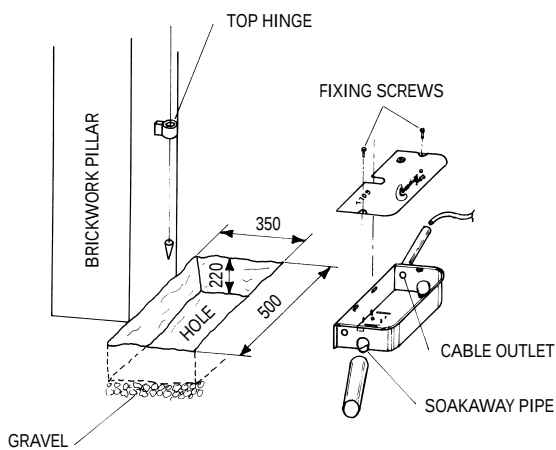


PIC. 4

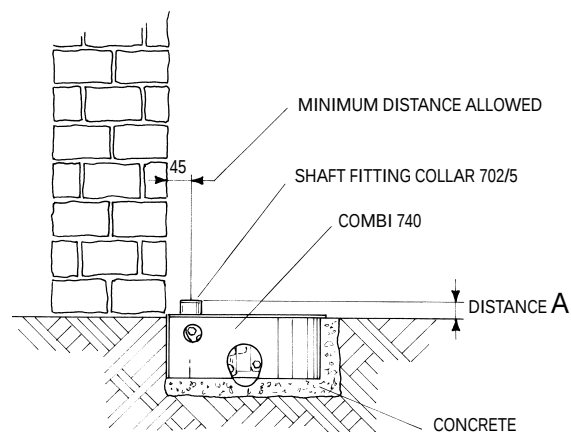
First of all make sure that the gates are adequate to take the mechanism inspect all the critical parts and see if they need reinforcement or adjustment, specially those parts which are most subject to friction such as the upper hinge. Picture 4. Dig a hole in the ground close to the gate post (dimensions as indicated in picture No. 5) and lay the enclosure in it perfectly horizontal with the help of a level. The upper edge of the enclosure must be levelled with the pavement finish. Picture No. 7.

Important: the centre line of the gate hinges must coincide with the centre of the hole in the bottom of the enclosure to provide a reference mark for alignment. Suitable holes are also provided in the enclosure for the electric cable and soak away tube. The distance from the top edge of the enclosure to the pavement level (after finishing all works) must be zero. Picture 6.

It is important that the full weight of the gates is directly on the gate operator. Also that only a top hinge is used.

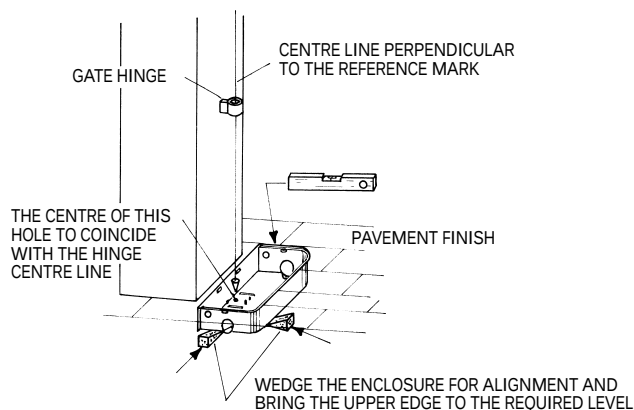


PIC. 5



DISTANCE A	ITEM No.	DESCRIPTION
30 mm	702/5	Ferrule with square hole
42 mm	746	Shaft fitting collar welded to the gate fixing plate
70 mm	748	Emergency locking shoe complete with collar and release spanner

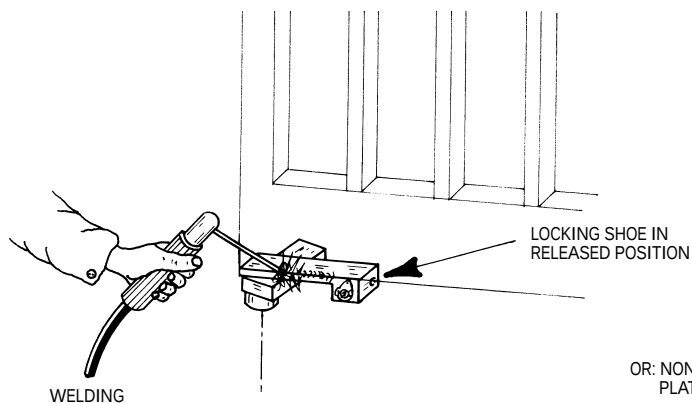
PIC. 6



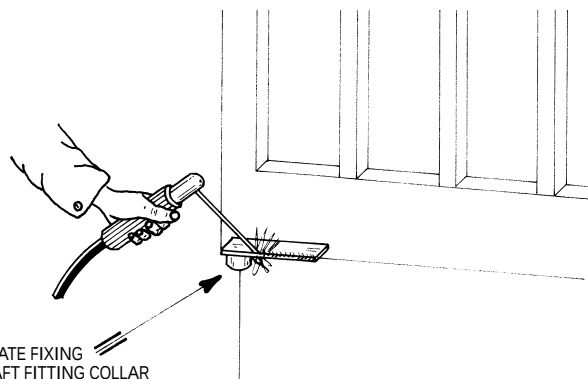
PIC. 7

Once the concrete has set, put the combined unit in the enclosure and screw it down by means of the two long bolts supplied with the equipment, see picture No. 10.

Attention: follow the wiring and connecting procedure on page 9 and picture 18. Allow the operators to run full movement 3 times before hanging the gates. Weld the fixing plate to the gate, either the non-locking type or locking type, which can be released for emergency. Picture 8 or 9.

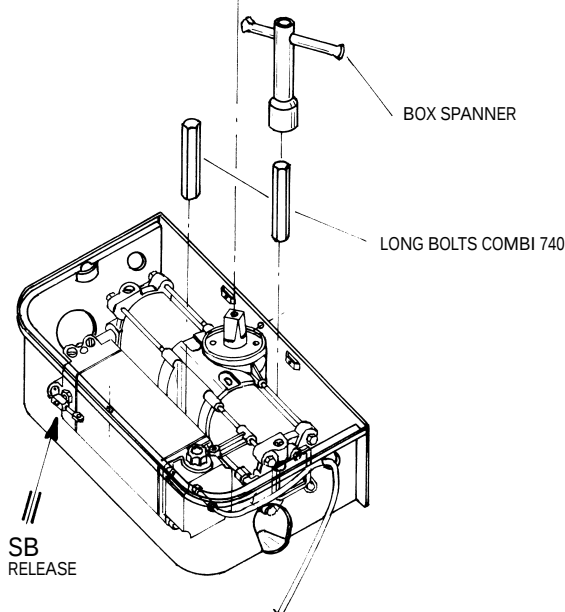


PIC. 8

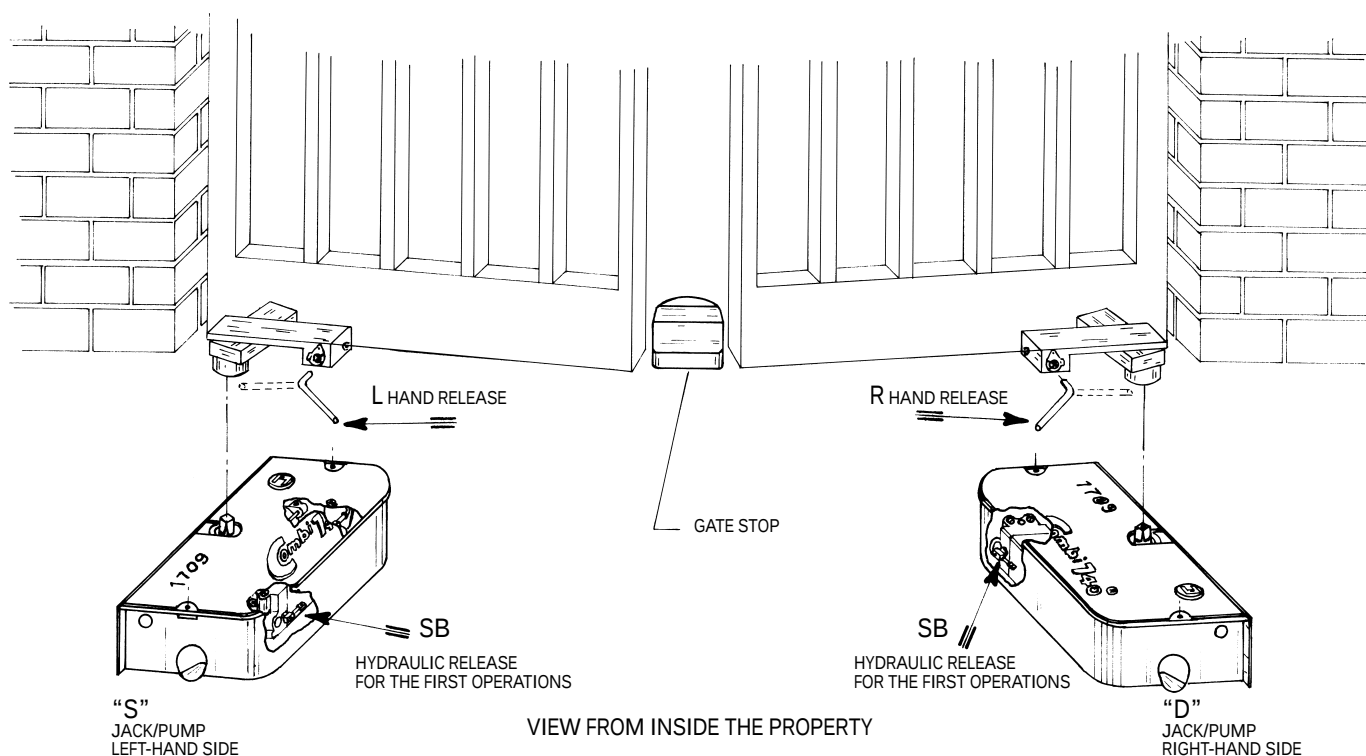


PIC. 9

Once satisfied that everything has been done as described so far, make sure that the two units are mounted on the correct side of the gate, view from inside the property: the unit marked "D" on the right-hand side and "S" on the left-hand side. The COMBIs are designed as handed operators, the correct position is essential to the performance of the system. Picture 11.

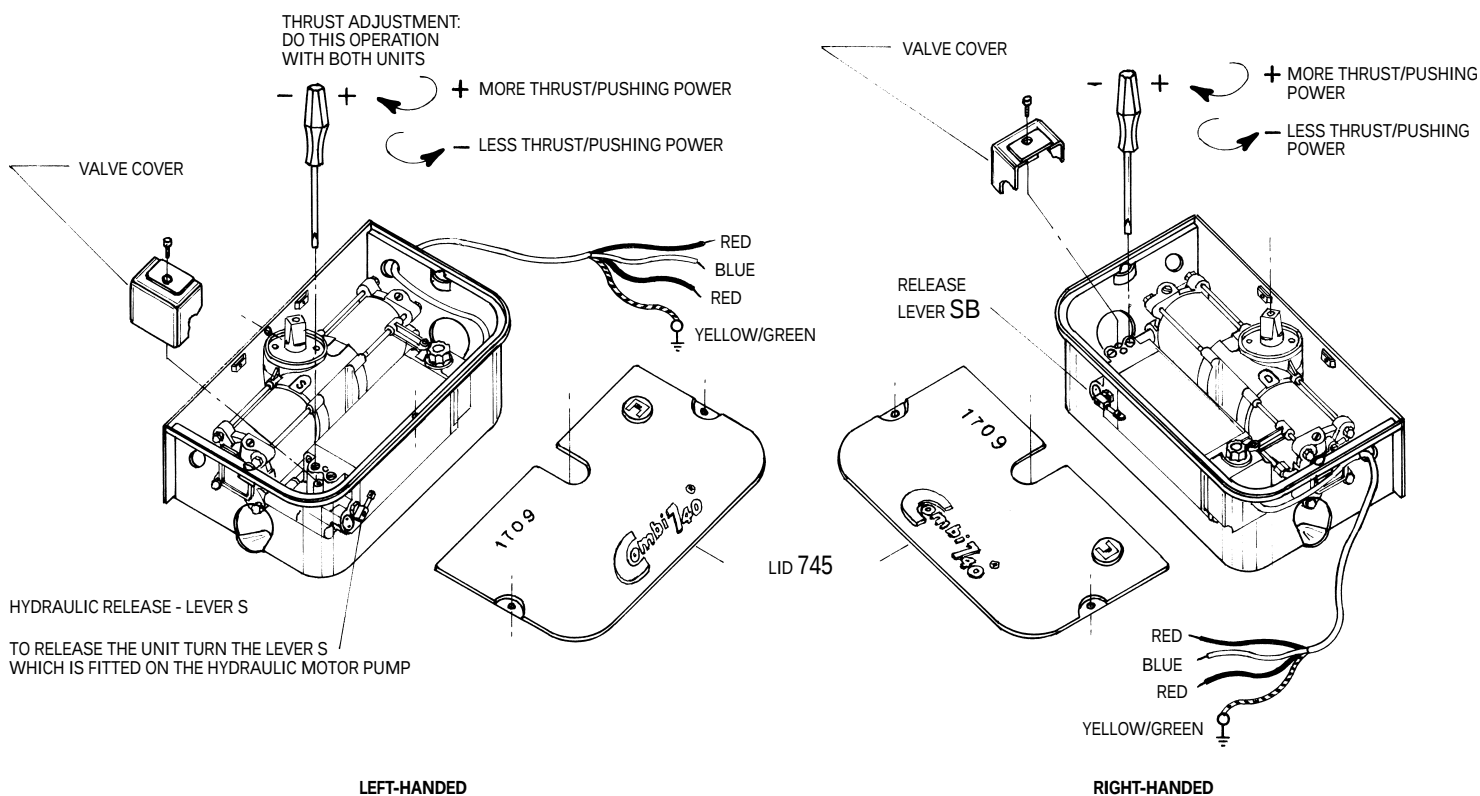


PIC. 10



PIC. 11

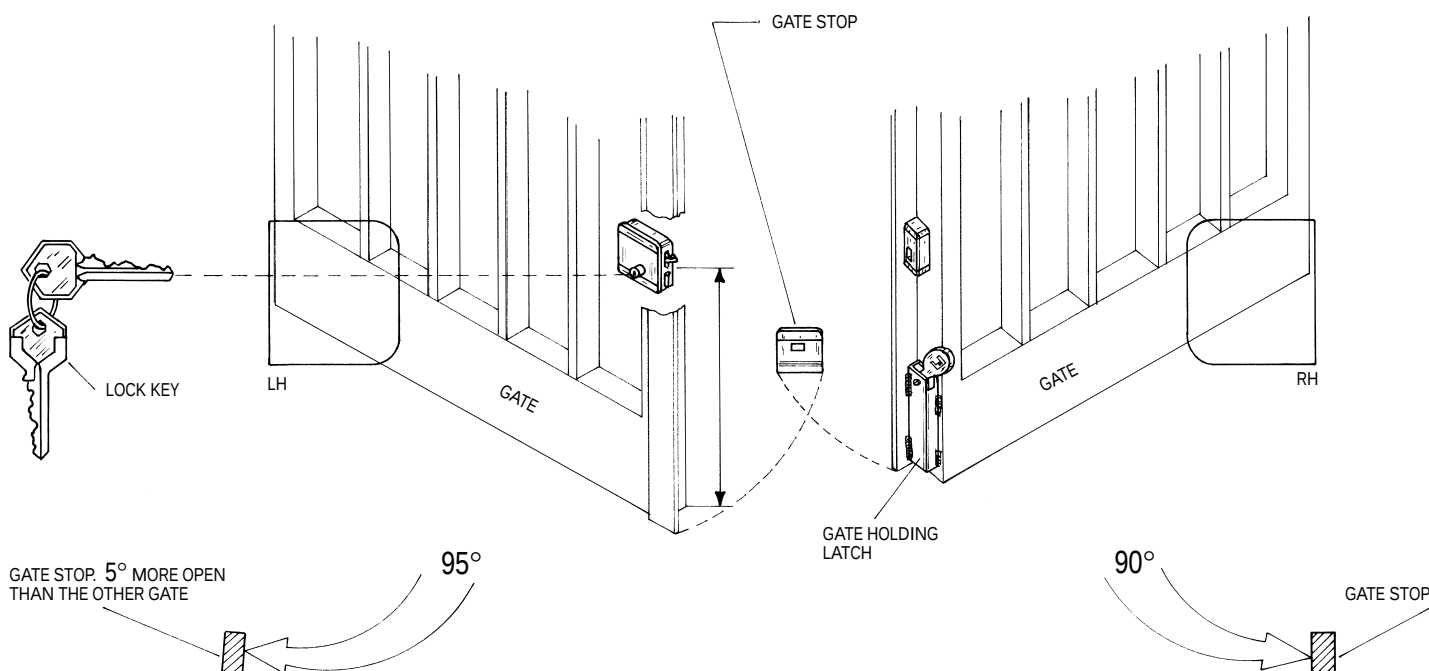
Anti-crush safety is ensured by the pressure valves which allow for a very fine adjustment of the required pushing power depending on the gate size and weight; after setting no further adjustment is required thanks to their precise design. Also they are adequately protected to prevent misuse. See pictures No. 12-13.



PIC. 12 **PIC. 13**

With single gates the electric lock is to be installed horizontally in the most suitable way to meet the application requirements. Double gates can be fitted with an electric lock at a height as indicated in the picture and with a mechanical latch for a better hold of the gates in the close position. See picture No. 14.

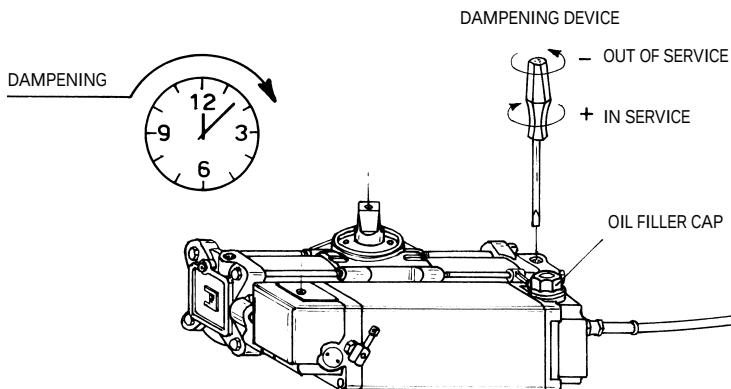
PLEASE NOTE: it is compulsory to fit gate stops in open gate position so that both gates stop 5° before the end of the permitted piston stroke.



PIC. 14

The hydraulic jacks are designed right-handed and left-handed. Their correct application on the respective gate side will allow the gates to move out of phase by 5 degrees. See the picture: the gate with the lock keep will reach the close gate stop position earlier than the other one and will be ready to take the lock when the second gate reaches the closed position.

Should the model with the dampening device be required to install adjustment in the open and close cycles is by means of a screw on the top of the jack end cap: with a screwdriver give one turn clockwise. The dampening device is now in service and the gate will "brake", ie. slow down speed over the last 40 cm of its angular motion. One turn anti-clockwise will re-set to the standard operating mode. Picture No. 15.



PIC. 15

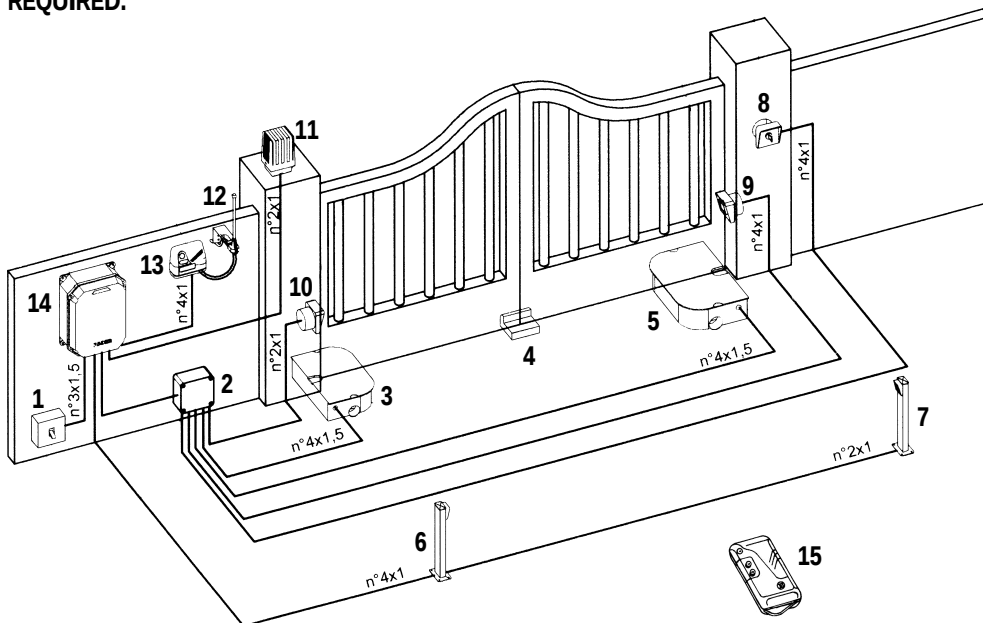
Now commence the electrical work. Connect the control panel ELPRO 13 exp as per pictures 16 and 18.

Important: Should N.C. contacts eg. Photocells, Stop Button and safety contact not exist, link out individually. If the operators run in wrong direction reverse 17, 18 or 20, 21 respectively.

Once the connections have been made, set the dip-switch "B" as required but with No. 3 "ON" automatic, pulse the radio transmitter or short out terminals 7 - 8 momentarily and make sure that the operating run and dwell times is that as required, adjust through the rotary timers 7-8-9. See diagram ELPRO 13 exp. Picture 18. The electrical equipment must be properly earthed.

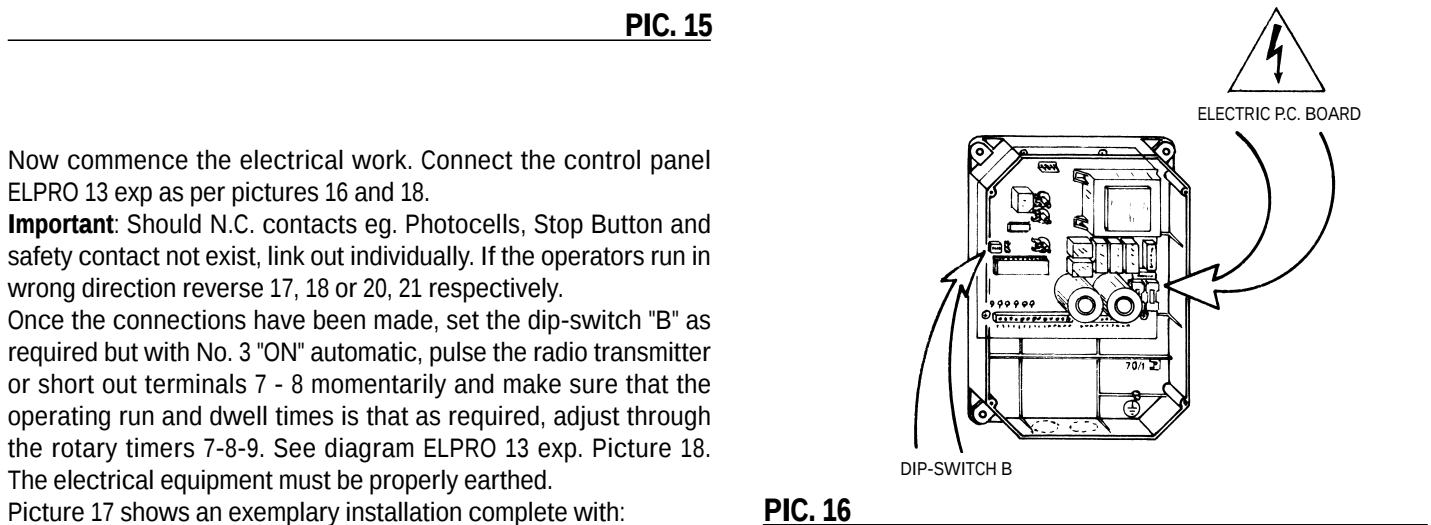
Picture 17 shows an exemplary installation complete with:

N.W: CARRY OUT A RISK ANALYSIS IN COMPLIANCE WITH EN 12445 AND EN 12453 NORMS AND FIT ANY SAFETY DEVICE WHERE REQUIRED.



NOTE WELL: EARTH CONNECT THE WHOLE SYSTEM

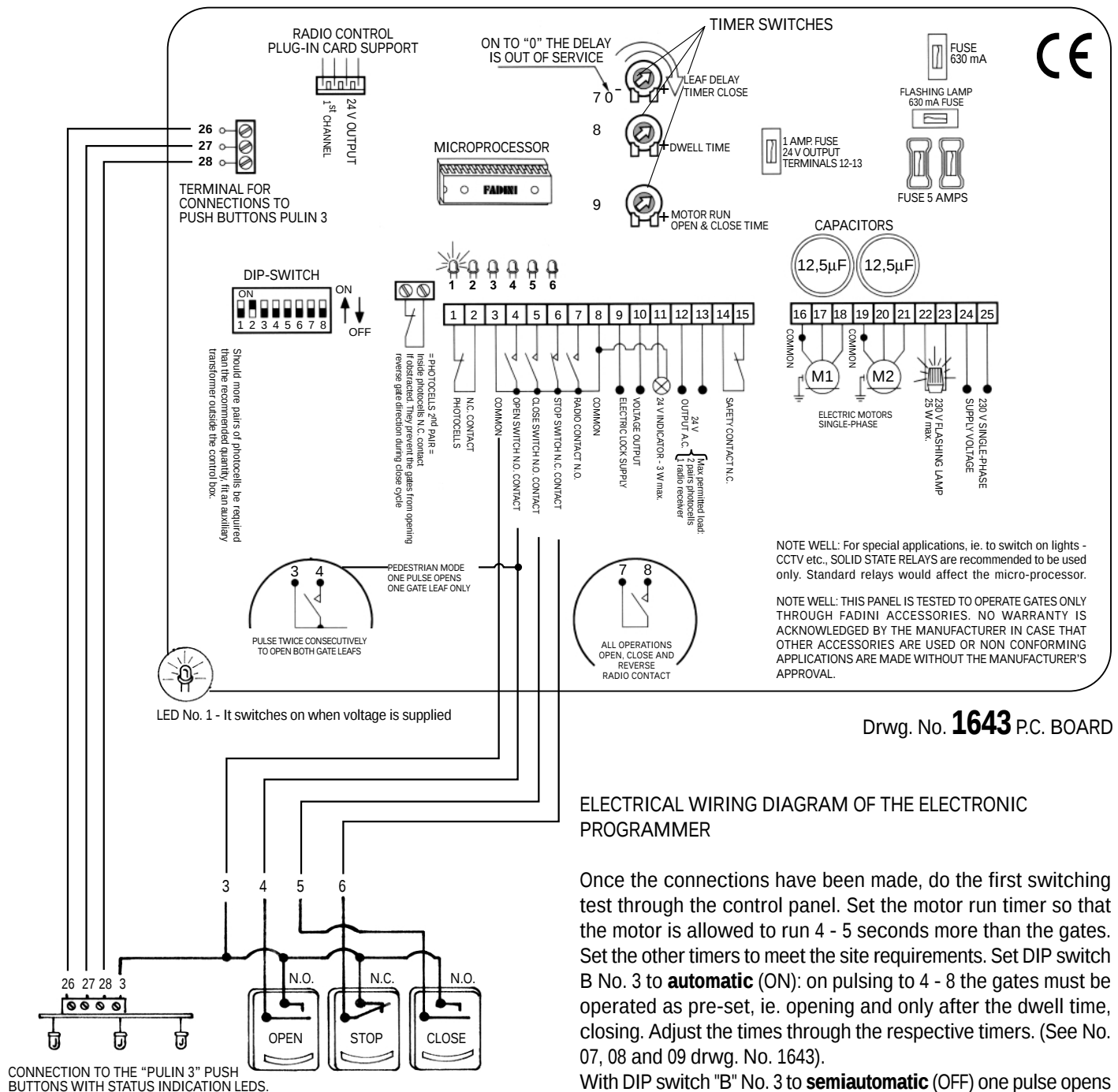
PIC. 17



PIC. 16

- 1) LINE SWITCH 230 V - 50 Hz
MAGNETIC-THERMAL DIFFERENTIAL 0.03 A
(CABLES LONGER THAN 100 m ø 2.5 mm)
- 2) JUNCTION BOX
- 3) COMBINED JACK/MOTOR PUMP LEFT-HANDED
- 4) GATE STOP
- 5) COMBINED JACK/MOTOR PUMP
RIGHT-HANDED
- 6) POST WITH PHOTOCELL RECEIVER DIFO 33
- 7) POST WITH PHOTOCELL PROJECTOR DIFO 33
- 8) KEYSWITCH
- 9) PHOTOCELL RECEIVER DIFO 33
- 10) PHOTOCELL TRANSMITTER DIFO 33
- 11) FLASHING LAMP LAPI 2
- 12) AERIAL A43
- 13) RADIO RECEIVER ASTRO 43 SAW
- 14) CONTROL BOX ELPRO 13 exp
- 15) RADIO TRANSMITTER ASTRO 43/2 TR

CONNECTION DIAGRAM FOR SWING GATES *Elpro.13_{exp}*



PIC. 18

ELECTRICAL WIRING DIAGRAM OF THE ELECTRONIC PROGRAMMER

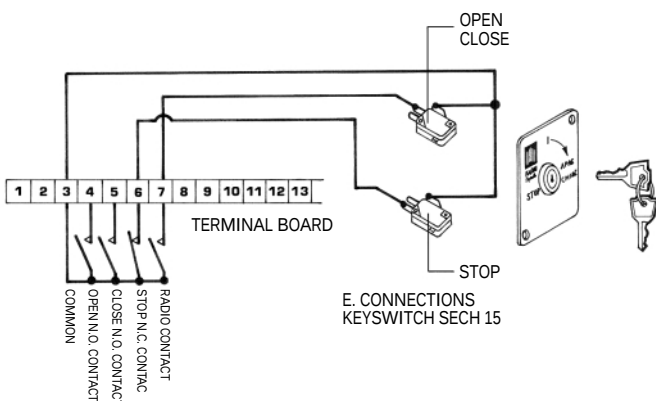
Once the connections have been made, do the first switching test through the control panel. Set the motor run timer so that the motor is allowed to run 4 - 5 seconds more than the gates. Set the other timers to meet the site requirements. Set DIP switch B No. 3 to **automatic** (ON): on pulsing to 4 - 8 the gates must be operated as pre-set, ie. opening and only after the dwell time, closing. Adjust the times through the respective timers. (See No. 07, 08 and 09 drwg. No. 1643).

With DIP switch "B" No. 3 to **semiautomatic** (OFF) one pulse opens the gates, a second pulse to 5 - 9 is needed to close the gates. Any one pulse to 7 - 8 will open, close or reverse the gates independently from the operation being performed. It is recommended to carefully read the instructions in the control box to have all the functions performed correctly.

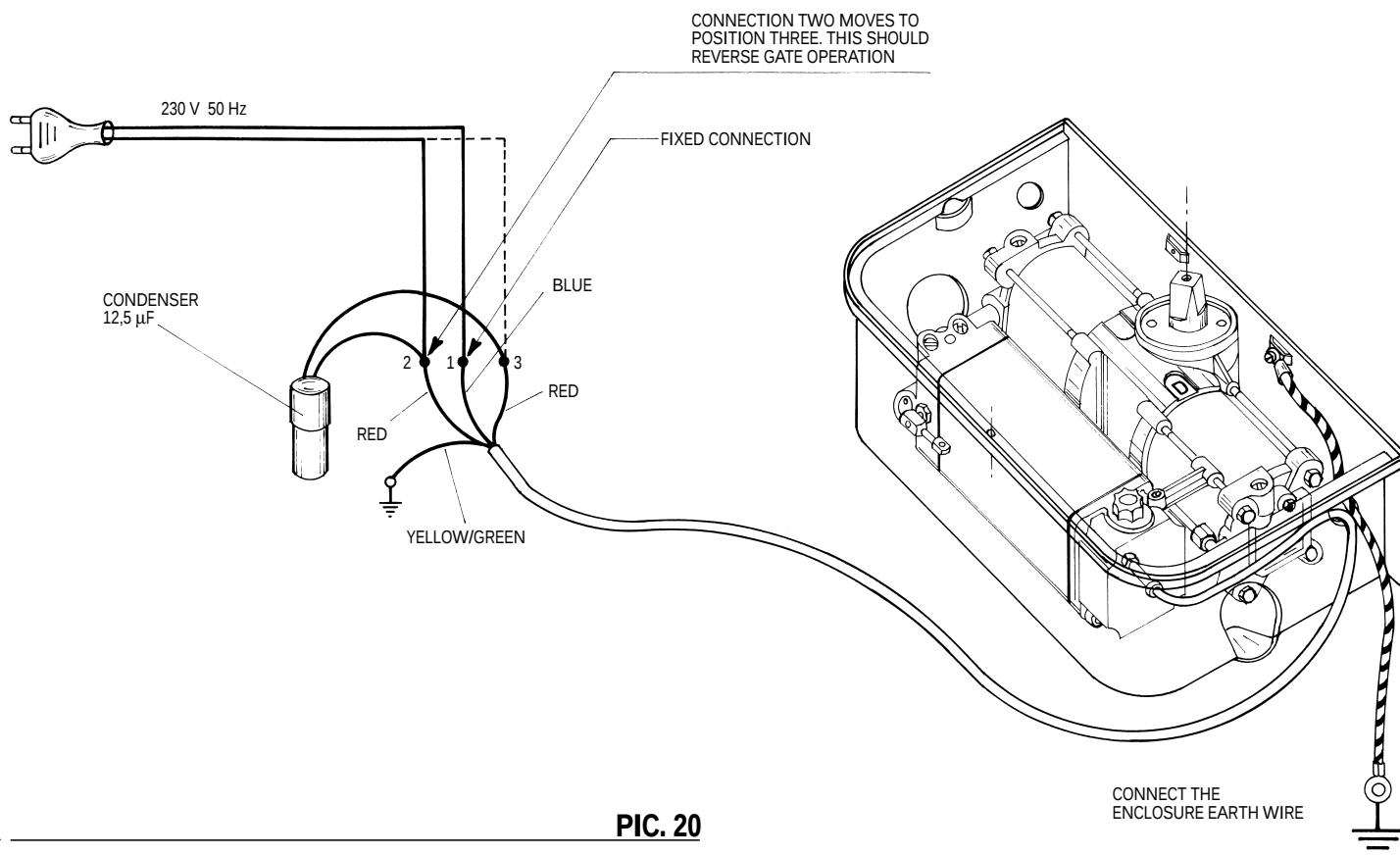
The 6 LEDs on the P.C. board indicate the following:

- Led No. 1 It switches on when voltage is supplied
- Led No. 2 Photocells - Normally on. It switches off when the photocells are obstructed
- Led No. 3 Open - It switches on when the respective switch is activated
- Led No. 4 Close - It switches on when the respective switch it activated
- Led No. 5 Stop - Normally on. it switches off when the respective switch is activated
- Led No. 6 Radio - It switches on whenever a pulse is given, either from remote control, keyswitch or push buttons.

PIC. 19



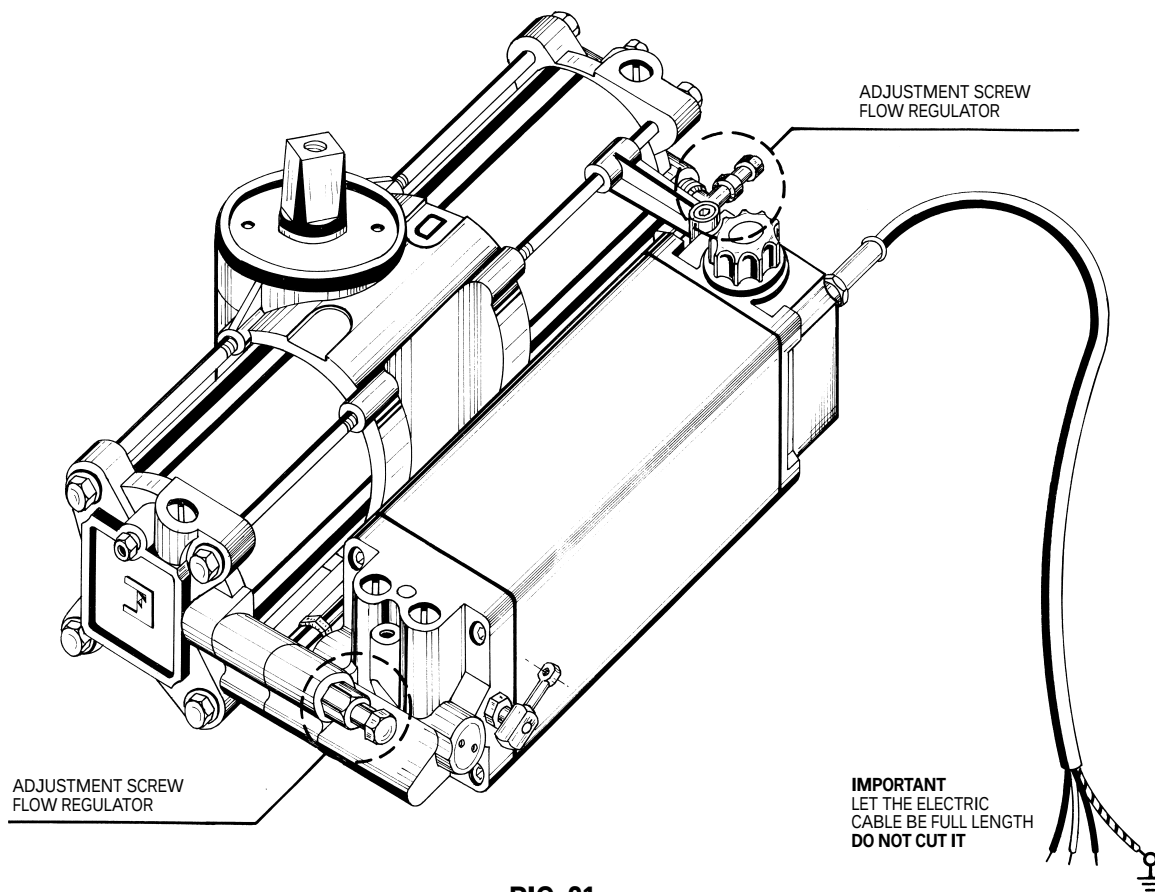
MANUAL TEST FOR COMBI 740



PIC. 20

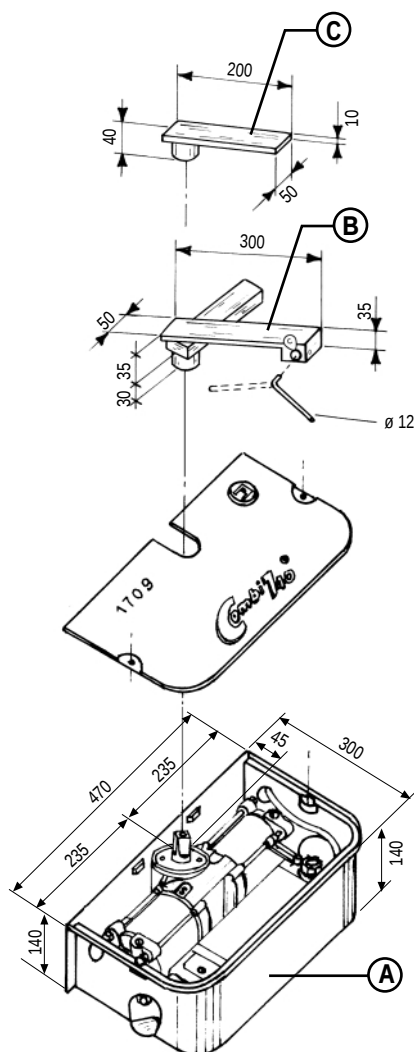
SPECIAL VERSIONS

FLOW REGULATORS FOR COMBI 740



PIC. 21

TECHNICAL SPECIFICATIONS



PIC. 22

- A** The combined motor and jack of the COMBI 740 employs the latest technology with a quiet-running steel lobe pump at its heart, creating and holding greater pressures for hydraulic locking and drive than most other underground gate operators.
- B** Gate fixing device (locking version) is welded or screwed to gate foot. Lock can be released by special key.
- C** Gate fixing device (non locking version) is welded to gate foot.
- D** Fix to the ground proper gate stops both in the open and closed gate position. See page 7 in the installation manual.

Left-handed unit.

View from inside property.

Suitable for gate width from 2 up to 3.5 m max. with or without locking/dampening depending on gate size and site requirements.

DOUBLE STROKE JACK AND OIL-HYDRAULIC PUMP

Pump flow rate - P3	0.85 l/min.
Working pressure	1 MPa (10 bars)
Max. pressure	3 MPa (30 bars)
Working temperature	-20°C +80°C
Rotation time (110°)	23 s
Oil type	A 15 FADINI by AGIP
Shaft rotation angle	110°
Rated torque	137.3 Nm
Cylinder bore	75 mm
Stroke	52 mm
Weight with accessories	27 Kg
Static gate weight	700 Kg
IP Standards	IP 673

DAMPENING

Pump flow rate - P3	0.85 l/min.
Rotation time (175°)	28 s

CLASS H, TWO-PHASE, ELECTRIC MOTOR

Power output	0.18 KW (0.25 HP)
Supply voltage	230 V - 50 Hz
Absorbed current	1.2 A
Absorbed power	250 W
Capacitor	12.5 µF
Motor rotation speed	1' 350 r.p.m.
IP Standards	IP 673
Intermittent service	S 3

Duty cycle	23 sec. Open - 30 sec. Dwell - 23 sec. Close
Time of one complete cycle	76 s
No. of complete cycles Open - Dwell - Close	47/hour
No. cycles a year, 8 hours a day	137'000

 meccanica FADINI ... s.p.a.		 Combi 740	
Via Mantova, 177/A - 37053 Cerea (VR) Italy - Tel. 0442 330422 r.a. - Fax 0442 331054			
MOTOR	2 PHASE		
W	250	HP	0.25
VOLTS	230	A	1.2
r.p.m.	1' 350	Hz	50
Nm	137.3	µF	12.5
Shaft ro. 110° - 23 sec. - P3 - 0.85 l/min.			
Shaft ro. 175° - 28 sec. - P3 - 0.85 l/min.			
Temperature -20°C +80°C			
Degree of protection IP 673			
Working pressure max. 3 MPa (30 Bars)			
OIL FADINI A15 BY AGIP			
MADE IN ITALY			

STICKER WITH ELECTRIC MOTOR SPECIFICATIONS

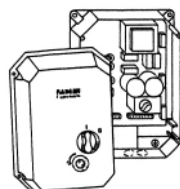
PRODUCT FEATURES

- Pre-oiled and pre-set for immediate installation.
- Close proximity of pump and jack gives fast response.
- Close pivot point (45 mm) to gate pier.
- Manual release from inside and outside of property.
- Choice of 110° or 175° rotation angle.
- Braking or non-braking versions available.
- Locking or non-locking versions available.
- Conforming to UNI 8612 safety standards.
- All-in-one pump and jack unit, contained in a single enclosure, is sunk into the ground at the foot of the left-hand and right-hand gate to achieve synchronised operation. The unit should be piped into a soak-away to allow for water drainage.

Meccanica Fadini recommends the control panel **ELPRO 13 CEI** to achieve an installation that is in conformity to the existing safety standards as illustrated in our chart.

The electronic programmer ELPRO 13 incorporates and can provide all the functions which are required by the most demanding applications with swinging gates.

In addition to the standard features of ELPRO 9 (Drwg. No. 1310) the following requirements can be provided: "stroke reversing pulse", pedestrian mode, stop in any gate position by holding down the remote control button. Among the added features and improvements of ELPRO 13 in conformity to the European safety standards, there is the mains rotary switch: it is fitted to the box cover and switches off the mains voltage whenever the cover is removed.



Elpro 13 CEI

SINGLE-PHASE

CUT OFF MAINS SWITCH

The "CE" mark certifies that the operator conforms to the essential requirements of the European Directive art. 10 EEC 73/23, in relation to the manufacturer's declaration for the supplied items, in compliance with the body of the regulations ISO 9000=UNI EN 29000. Automation in conformity to EN 12453, EN 12445 safety standard.



EUROPEAN MARK CERTIFYING CONFORMITY TO THE ESSENTIAL REQUIREMENTS OF THE STANDARDS 98/37/EC

- DECLARATION OF CONFORMITY
- GENERAL WARNINGS
- EN 12453, EN 12445 STANDARDS
- CEI EN 60204-1 STANDARDS
- WARRANTY CERTIFICATE ON THE CUSTOMER'S REQUEST



AUTOMATIC GATE MANUFACTURERS

WARNINGS

- Before installing the equipment carry out a **Risk Analysis** and fit any required device in compliance with EN 12445 and EN 12453 Safety Norms.
- Should the combined unit jack/hydraulic motor pump be removed for maintenance, servicing or repair, disconnect the electric motor cable from the junction box.
- Never cut off the cable from the electric motor.
- Make sure that the oil plug is properly tightened.
- Do not throw away oil from repaired or serviced units, waste oil must be disposed of properly through a specialised company.
- Do not throw away packaging such as cardboard, polystyrene and nylon, which must be disposed of properly through a specialised company.
- The electrical equipment must be properly earthed.

* Best performance can only be achieved by keeping to these instructions.

CHECKING AND MAINTENANCE:

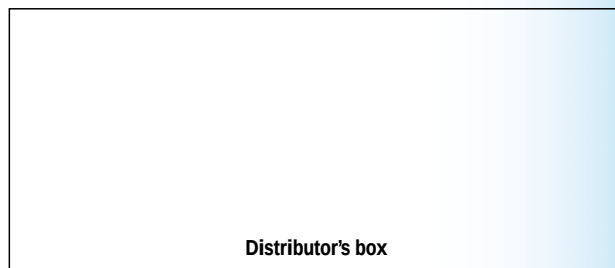
To achieve an optimum performance and longer life of the equipment and in observance of the safety regulations, it is recommended that inspections and proper maintenance are made by qualified technicians to the whole installation ie. both the mechanical and electronic parts, as well as wiring.

- Mechanical parts: maintenance every 12 months approx.
- Electronic apparatus and safety equipment: maintenance every 6 months approx.



FADINI
the gate opener
Made in Italy

The growth of MECCANICA FADINI has always been based on the development of guaranteed products thanks to our "TOTAL QUALITY CONTROL" system which ensures constant quality standards, updated knowledge of the European Standards and compliance with their requirements, in view of an ever increasing process of improvement.



Distributor's box

The manufacturers reserve the right to change the products without any previous notice