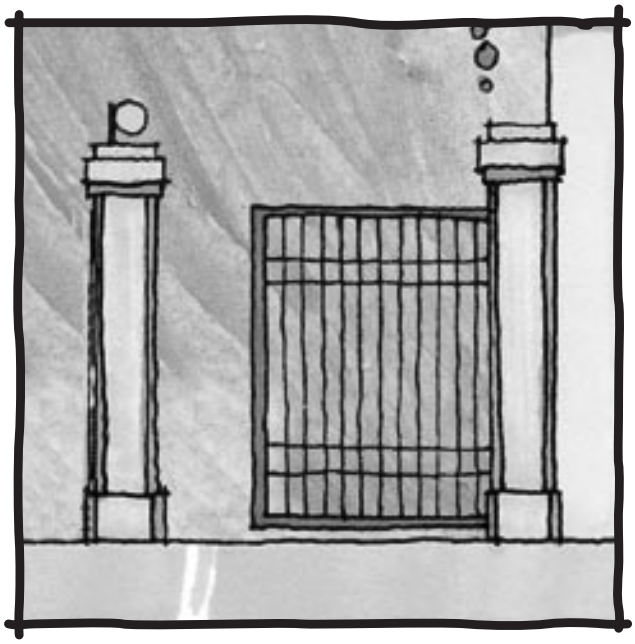


ONDA 500
ONDA 800

MOTORIDUTTORE PER CANCELLI AD ANTE SCORREVOLI PER USO RESIDENZIALE
Istruzioni per l'installazione

Scopo del manuale

Questo manuale è stato redatto dal costruttore ed è parte integrante del prodotto.
Le informazioni sono dirette agli operatori esperti che eseguono l'installazione e la manutenzione straordinaria. Essi devono possedere competenze specifiche e particolari capacità per eseguire correttamente ed in sicurezza gli interventi di loro competenza.
La costante osservanza delle informazioni garantisce la sicurezza dell'uomo, l'economia di esercizio ed una più lunga durata di funzionamento del prodotto.
Al fine di evitare manovre errate con il rischio di incidenti, è importante leggere attentamente questo manuale, rispettando scrupolosamente le informazioni fornite.
Considerando che tale prodotto va installato in abitazioni residenziali, l'operatore esperto, dopo aver effettuato l'intervento dovrà constatarne la corretta installazione ed il regolare funzionamento. Succcessivamente dovrà istruire l'utente sull'uso corretto del prodotto rilasciando tutta la documentazione prevista del costruttore.
L'indice descrittivo, posto all'inizio, consente facilmente la rintracciabilità degli argomenti di interesse.

GEARED-MOTOR FOR SLIDING GATES AND DOORS FOR RESIDENTIAL USE
Installation Instructions

Purpose of the manual

This manual has been prepared by the manufacturer and is an integral part of the product.
The information is aimed at expert installers and those carrying out extraordinary maintenance operations.
These persons must be specifically qulified to carry out this work correctly and under the maximum safety conditions.
Scrupulous observance of the instructions will ensure safety for man, economic running and a long product functioning life. To avoid incorrect manoeuvres and therefore the risk of accidents, it is essential to read this manual with care and strictly follow all the instructions given.
As this is a product to be installed in residential buildings, the expert installer, after completing installation must verify that this has been performed correctly and that the product functions smoothly. Subsequently, it is necessary to instruct the user on the correct use of the product providing all the documentation envisaged by the manufacturer.

MOTOREDUCTEUR POUR PORTAILS COULISSANTS POUR USAGE RESIDENTIEL
Instructions pour l'installation

Objectif de la notice

Ce manual a été rédigé par le fabricant et fait partie intégrante du produit.
Les informations qui y sont contenues s'adressent aux opérateurs spécialisés qui effectuent les opérations de pose et d'entretien extraordinaire. Ceux-ci doivent posséder des compétences et des qulités spécifiques pour effectuer de façon correcte et en toute sécurité les interventions relevant de leur compétence directe.
La constante observation de ces informations garantit la sécurité des personnes, une économie d'utilisation et une plus longue durée de fonctionnement du produit.
Lire attentivement ce manual et en respecter scrupuleusement les informations pour éviter toute fausse manoeuvre qui pourrait entratener des accidents.
Ce produit doit être posé dans des habitations résidentielles. Après en avoir effectué la pose, l'opérateur devra en vérifier la bonne installation et le bon fonctionnement.
Il devra ensuite informer l'utilisateur sur la bonne utilisation du produit et lui remettre toute la documentation prévue par le fabricant.
Le sommaire détaillé, placé au début du manuel, permet de retrouver facilement les sujets à consulter.

GETRIEBEMOTOR FÜR SCHIEBETORE FÜR PRIVATEN GEBRAUCH
Installationsanleitung

Zweck der montageanleitung

Das vorliegende Handbuch wurde vom Hersteller vertaßt und ist Bestandteil des Produkts.
Die darin enthaltenen informationen richten sich an erlahrenes Personal, das sowohl die installation als auch außerordentliche Wartungsarbeiten durchführt.
Dieses Personal muß über spezifische Fähigkeiten und Kompetenzen verfügen, um die Arbeit korrekt und unter sicheren Bedingungen durchfüren zu konnen.
Die ständige Beachtung der Anweisungen gewährleistet Sicherheit, wirtschaftlichen Betrieb der Anlage und eine längere Lebensdaurer des Produkts. Zur Vermeidung von Fehlern, die zu Unfällen führen könnten, muß das vortiegene Handbuch aufmerksam durchgelesen und die darin enthaltenen Anweisungen genau befolgt werden.
Da das Produkt im Privatwohnbereich installier wird, muß das erfahrene Personal nach der installation die korrekte Montage und den einwandfreien Betrieb überprüfen. Anschließend muß es den Benutzer in den richtigen Gebrauch des Produkts einweisen und ihm die vom Hersteller vorgesehene Dokumentation aushändigen.
Das Inhaltsverzeichnis am Anfang des Handbuchs ermöglicht eine schnelle Ermittlung der jeweiligen Punkte.

MOTORREDUCTOR PARA PUERTAS CORREDERAS DE USO RESIDENCIAL
Instrucciones de instalación

Objetivo del manual

Este manual ha sido redactado por el constructor y forma para integrante del producto. Las informaciones que contiene van dirigidas a los operadores especializados encargados de las operaciones de installación y mantenimiento extraordinario. Dichos operadores deberán poseer la competencia especifica y las capacidades necesarias para llevar a efecto correctamente y en condiciones de seguridad las operaciones de las que están encargados. El cumplimiento constante de estas instrucciones garantiza seguridad del personal, economia de uso y un funcionamiento más duradero del producto.
Afin de evitar maniobras incorrectas con el consiguiente riesgo de accidentes cabe leer con atención este manual y respetar escrupulosamente las instrucciones proporcionadas. Puesto que el producto está destinado a la instalación en viviendas, el operador especializado, después de realizar la instalación, tendrá que comprobar la correcta ejecución de la misma y el buen funcionamiento del producto. Luego tendrá que ense-ar al cliente la forma correcta de utilización del producto, entregando toda la documentación facilitada por el constructor. El índice descriptivo inicial permite encontrar con facilidad los temas que interesen.

PER UN CORRETTO MONTAGGIO LEGGERE ATTENTAMENTE LE ISTRUZIONI.
FOR A CORRECT ASSEMBLY, CAREFULLY READ THE FOLLOWING.
POUR UN ASSEMBLAGE CORRECT, LIRE ATTENTIVEMENT LES ISTRUCTIONS.
FÜR EINE KORREKTE INSTALLATION, DIESE ANLEITUNGEN SORGFÄLTING LESEN.
LEER ATENTAMENTE LAS INSTRUCCIONES PARA UN MONTAJE CORRECTO.

COD.67954-0024700 3/99

CE

Aprimatic®
L' APERTURA AUTOMATICA

Phasing	*SINGLE*
Power supply (V)	*230V + 10% (50+60 Hz)*
Max. absorbed power (W)	*260*
Capacitor (µF)	*ONDA 500= 20µF ONDA 800 = 25µF*
Working temperature (°C):	
With internal control unit	*–25/+70*
With external control unit	*–25/+90*
Weight (kg)	*14*

GEARED-MOTOR/MAX. GATE WEIGHT	***ONDA 500***	***ONDA 800***
Geared-motor with Z 16 pinion (kg)	*500 / 300*	*800 / 500*
Geared-motor with Z 20 pinion (kg)	*300 / 200*	*500 / 300*
Geared-motor with Z 16 C pinion (kg)		*- - / 500*
** S2=15 min; S3=25%*	*/**	*/**

*** S2=30 min; S3=50%*

⚠ WARNING

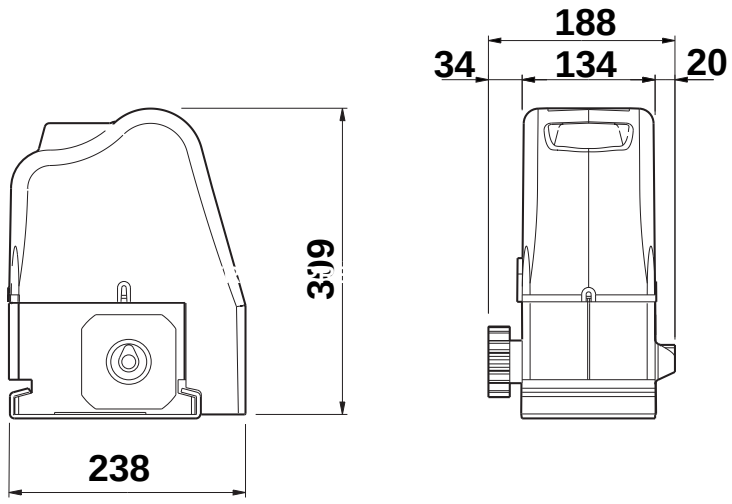
The maximum gate weight is only a partial parameter; to determine the type of geared-motor it is also essential to allow for the smooth sliding of the gate.

MAX. SHAFT TORQUE *(daNm)*	*3*	*4*
GEARED-MOTOR/MAX. THRUST FORCE		
Geared-motor with Z 16 pinion (daN)	*94*	*125*
Geared-motor with Z 20 pinion (daN)	*75*	*100*
Geared-motor with Z 16 C pinion (daN)	*92*	*123*
GEARED-MOTOR/MAX. GATE SPEED		
Geared-motor with Z 16 pinion (m/min)	*9.7*	*9.7*
Geared-motor with Z 20 pinion (m/min)	*12*	*12*
Geared-motor with Z 16 C pinion (m/min)	*9,8*	*9,8*

GENERAL CHARACTERISTICS

- ✔ *Geared-motor on sliding gates and doors up to 500 kg (ONDA 500) or 800kg (ONDA 800) for residential use;*
- ✔ *Irreversible worm reduction gear (ratio 1/30) with permanent grease lubrication.*
- ✔ *Adjustable torque limiter clutch on fast shaft.*
- ✔ *Pinions: Z16 (standard), Z20*, Z16 for chain*.*
- ✔ *Electromechanical limit switch (IP55 protection)*
- ✔ *Secured to the ground with foundation plate or screw anchors.*
- ✔ *Diametral pitch 4 rack: either the plastic or the galvanized steel one can be used; the end travel plates are the same for both.*
- ✔ *Triangular key for manual release.*
- ✔ *Suitable for T2B control units.*
- ✔ *Control unit can be fitted inside the geared-motor .*
- ✔ *Ready for internal fitting of the Aprimatic receiver.*
- ***** ***The pinions Z20 and Z16/Chain can be ordered separately.***

GEARED-MOTOR DIMENSIONS



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AP006001

⚠ *WARNING*

- ***The gate structure must comply with the current safety regulations.***
- ***The main feature that must be assessed is SMOOTH SLIDING: a good gate MUST be easy to move by hand (with more or less effort, depending on the weight), to allow opening in the event of manual release.***

A list is given below of the main factors that affect the sliding of the gate and its constant performance over time.

GATE CONSTRUCTION

The gate must be stiff, straight and in good condition: eliminate, where present, any type of automatic lock.

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LOWER GUIDES (B1)

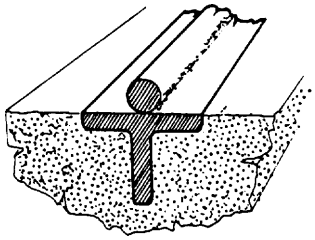
The lower guide must be straight, level, and in good condition.
The wheels must be appropriate to the type of slides used.

⚠ ***WARNING***

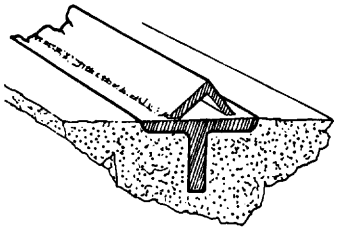
- ***The structure of the gate must comply with the existing safety regulations, specially in the points where there could be a squashing or cutting danger.***
- ***A mechanical stop of the gate in opening (B1 ①) must be welded to the lower guide, to prevent the gate leaf from slipping off the guide and, consequently, the DANGER OF FALLING OVER.***

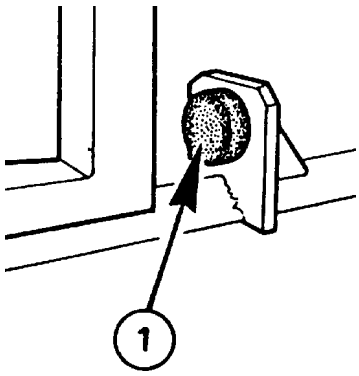
B 1

ROUNDED-PROFILE GUIDE



V-PROFILE GUIDE

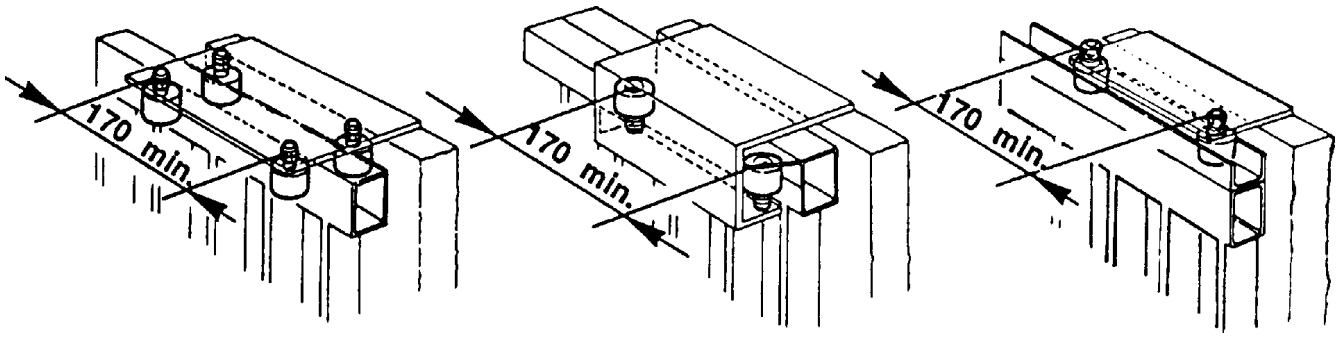




UPPER GUIDES

There must be at least two upper guides fitted linear with the gate, which must prevent the gate from swaying during its travel, and they should not create a hindrance to movement. Fig. B2 shows some examples of installation.

B 2



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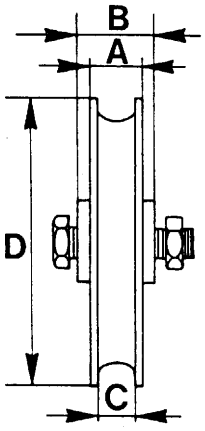
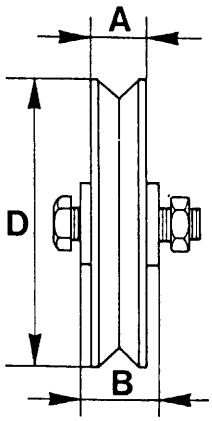
The wheels must match the guide profile and must be in good condition. If not, REPLACE THEM. Moreover, they should NOT BE MORE THAN TWO, placed close to either end of the gate. Aprimatic supplies different types of wheels; the sizes and relative capacities are indicated in figure B3. When choosing the wheels, apart from the bearing, it must be considered that greater is the diameter, better is the sliding movement of the gates. We suggest not to use wheels with diameters greater than 120 mm.

B 3



D	A	B	C	portata *capacity* portée *leistung* peso
120	30	34	20	420 Kg
160	30	44	20	530 Kg
200	30	44	20	600 Kg

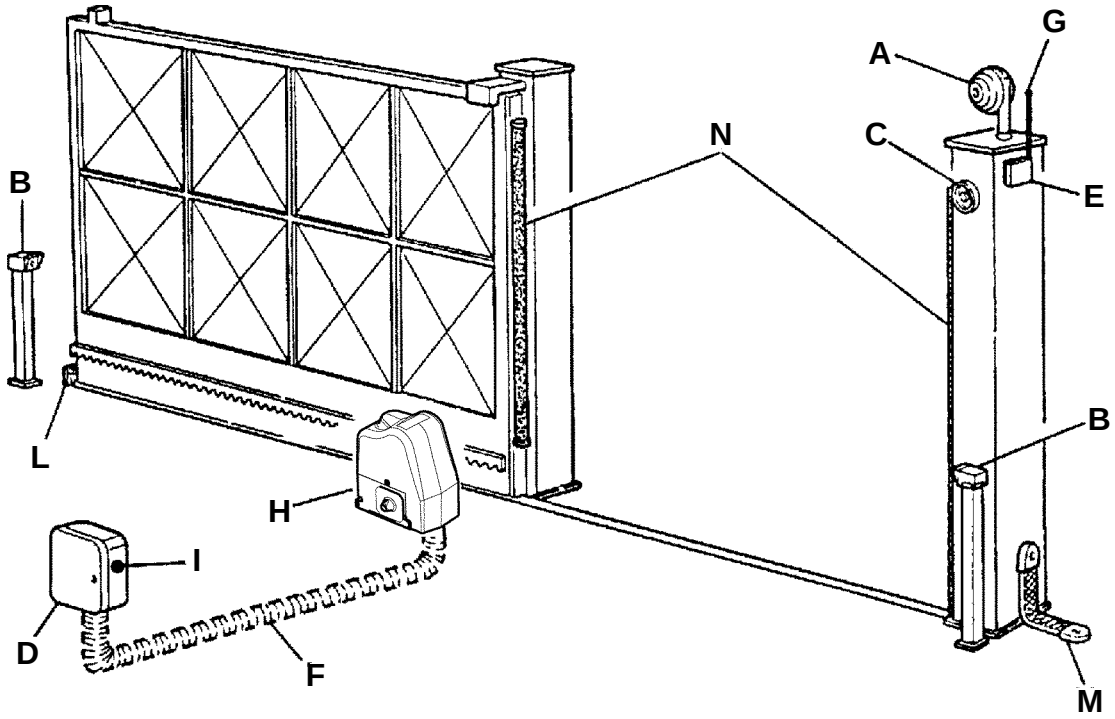


D	A	B	portata *capacity* portée *leistung* peso
120	30	34	350 Kg
160	30	44	440 Kg
200	30	44	560 Kg

ARRANGEMENT OF THE COMPONENTS (B4)

A - Aprimatic flashing lamp (place in a position that is clearly visible from either side)
B - Aprimatic safety photocell
C - Manual key control device (magnetic, digital, pushbutton combination, etc.)
D - Aprimatic microprocessor control unit (shelter, where possible, from atmospheric agents or inside the geared-motor
Note: in ONDA 500E/ONDA 800E, the T2B appliance is located on the motor
E - Aprimatic Radio-receiver unit - see price list.
F - Cable-way for power supply for geared-motor from the control unit.
G - Antenna
H - Aprimatic geared-motor ONDA 500 or ONDA 800
I - Card for partial sliding opening (pedestrians) - OPTIONAL (see Aprimatic price list)
L - Mechanical opening stop
M - Earth for metal structures
N - Safety edge (active or not active profile) (see price list)
N.B. For other safety devices (OPTIONAL) refer to price list.

B 4



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ASSESSING AUTOMATION SELECTED

For a correct choice of the type of geared-motor and the type of installation to be used, experience is very important; there are however some objective criteria that can be of help, as described below:

- *Select the pinion according to the estimated weight of the gate (see TECHNICAL DATA). If the gates are less than 300 kg, it is possible to use the Z 20 pinion, but only if the sliding movement is particularly good (the Z 20 pinion must be ordered separately).*
- *With wooden or very old gates use the Z 16 pinion.*
- *With wooden gates, it is better to use the plastic rack by verifying the good conditions of the wood in the fixing points.*
- *The ONDA 500 / ONDA 800 isn't totally waterproof: therefore we recommend installing the geared-motor slightly raised off the ground. In some areas (where heavy snow occurs or there are flooding risks) the geared-motor can be placed at a height of 20-30 cm.*
- *Choose the type of fixing (with a foundation plate or with screw anchors) on the basis of the available consistency. Remember that the fixing with screw anchors can be done if the fixing base is good, the support is flat and levelled.*

SELECTING SAFETY DEVICES

Apart from the flashing lamp and the photocells, the ONDA 500 / ONDA 800 series make available the following safety systems:

- *Clutch (part of geared-motor)*
- *Active safety edges*

All the electric safety devices can be handled by the Aprimatic control units.

ATTENTION

- ***The selection and installation of the components and safety devices should be performed in compliance with the existing safety regulations.***

DEVICES TO PREVENT SQUASHING (ADVICE AND WARNINGS)

CLUTCH

To ensure the safety of the automatic control unit, the geared-motor clutch must be accurately calibrated. If the weight and the smooth sliding of the door require clutch adjustment beyond the limits established by the safety regulations, it is necessary to increase the automation safety level by adding other devices to comply with the safety requirements.

SAFETY EDGES

The safety edges can be used in almost all situations; but they are essential with heavy gates and extreme clutch settings. They can be fitted as opening and closing protective devices on open bar gates.

LIST OF COMPONENTS

PACKAGE CONTENTS (B7)

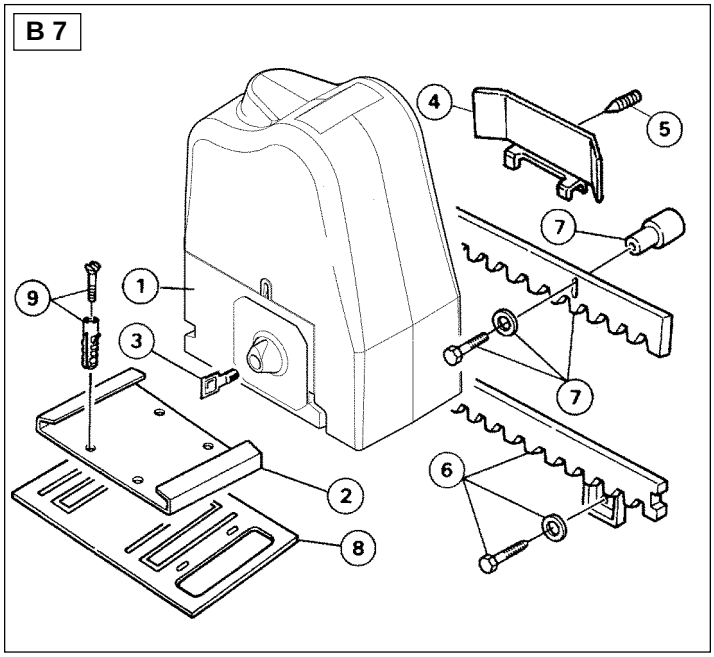
Pos.	Description
1	Geared-motor
2	Sliding securing plate
3	Release key
4	End travel plate
5	Plate securing dowel

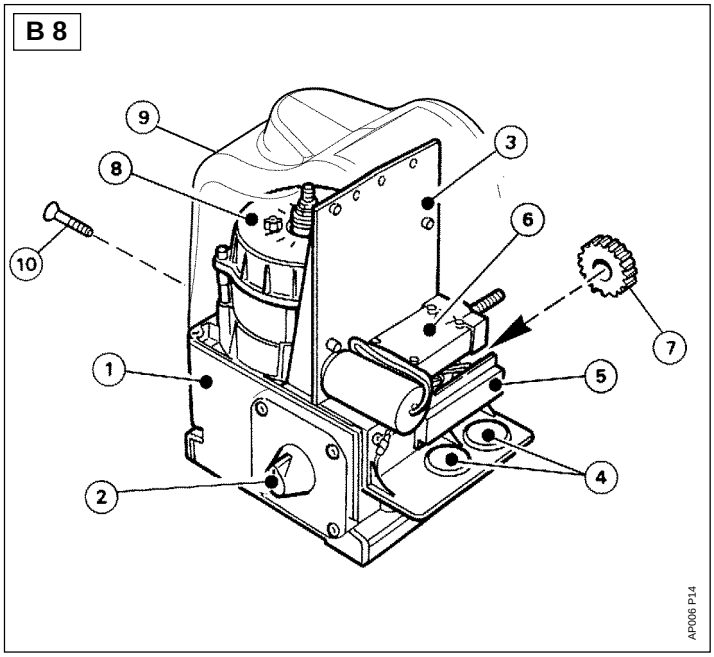
To order separately (OPTIONAL)

6	Plastic rack + installation accessories
7	Galvanized steel rack + installation accessories
8	Foundation plate
9	Sliding plate securing screw anchors FISCHER S 10 RS 100 or equivalent type (for assembly without plate foundation) - must be bought separately

Internal description (B8)

Pos.	Description
1	Geared-motor base
2	Key release
3	Plastic support plate
4	Cable fittings
5	Terminal board with cover
6	Limit switch
7	Pinion
8	Electrical motor
9	Cover
10	Cover securing screw





montar como protección tanto en el cierre como en la apertura con puertas no taponadas

PREPARATION FOR INSTALLATION

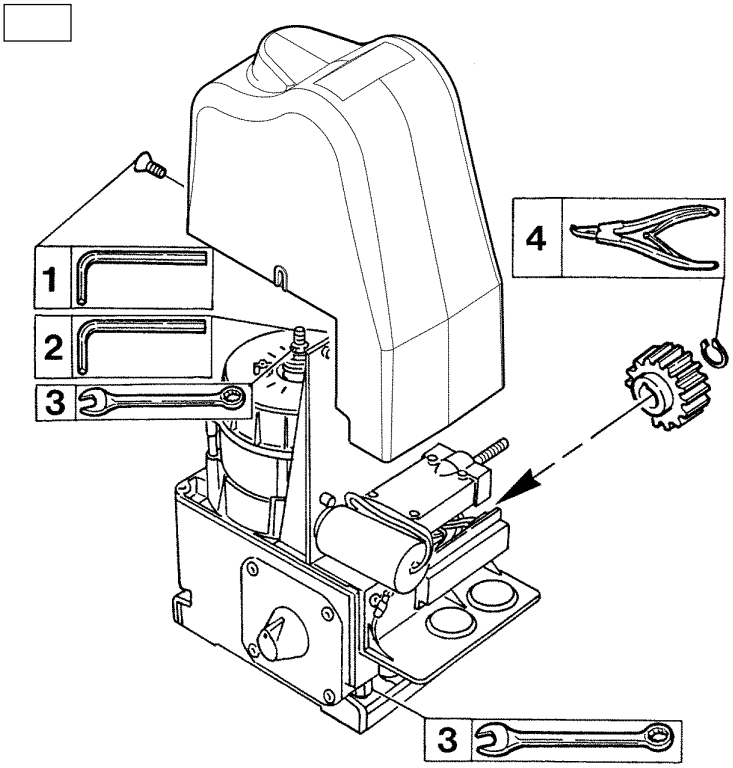
The installation of the geared-motor requires a series of preparatory operations on the gate to be automated, if the gate is already installed, at the installation site; it is therefore necessary to prepare the equipment that will give the installer maximum autonomy.

⚠ ***WARNING***

The list of tools necessary is given in the figure, including the table, (B9)

BASIC EQUIPMENT AND DISPOSABLE MATERIAL REQUIRED

- *Electric disk grinder: 230V*
- *Protective goggles*
- *Electric welder: 230V/100 Amp minimum*
- *Protective mask*
- *Electrodes minimum dia. 2*
- *Soft soldering iron*
- *Electric drill: 230V*
- *Drill bits*
- *Cup milling cutter dia. 67 for photocell and push-button housing holes*
- *Extension cable for electrical equipment*
- *Electric cable 1.5 mm 2 in various colours+various types of cable terminals*
- *Electrician's scissors*
- *Cable terminal grippers*
- *Tester*
- *Calliper in twentieths*
- *Measuring stick*
- *Protractor*
- *Dynamometer*



POS.	UTENSILE/*TOOL*/OUTIL/*WERKZEUG*/UTENSILIOS	
1	*Allen key 2,5* C Allen mâle 2,5 *Imbusschlüssel 2,5* Llave Allen macho 2,5	USAG USAG 280/2,5
2	Chiave a brugola maschio 4 *Allen key 4* Clé Allen mâle 4 *Imbusschlüssel 4* Llave Allen macho 4	USAG USAG 280/4
3	Chiave combinata 13 *Combination wrench 13* Clé combinée 13 *Kombischlüssel 13* Llave combinata 13	USAG 285/13
4	Pinza per seeger esterni *Gripper for external snap rings* Pinces pour bagues seeger extérieures *Zange für Außenseeger* Pinza para anillos de retención exteriores	USAG 128 P/10÷25

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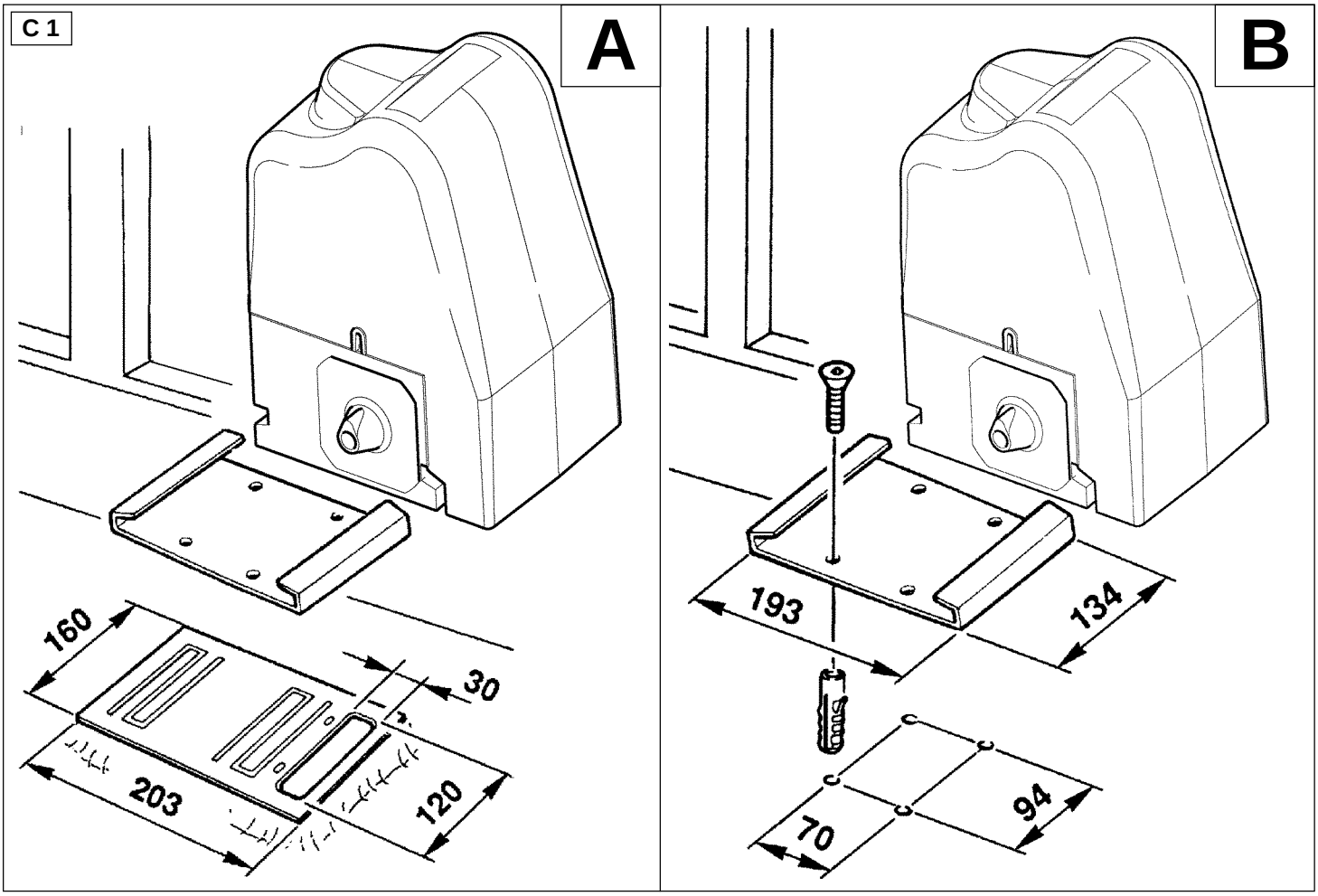
INSTALLATION OF AUTOMATIC CONTROL UNIT (MODALITY - LAYOUTS)

The installation shown in figure C1 A-B considers the one in which the gate is driven by a rack and pinion system. Geared-motor is secured into the ground with the appropriate sliding plate which permits an easy adjustment of the axial position.
The sliding plate itself can be welded to a foundation plate (C1 A), or (if the base is strong enough) secured into the ground with screw anchors (C1 B) and chemical ones.
A description is also given of the typical layout that must be controlled when the site is inspected (see also fig. C11 for the layout and the positioning of the rack).

The ONDA 500 / ONDA 800 pinion is compatible both with the plastic rack (with a steel core) and with the galvanized steel rack.

ATTENTION
It is essential that, when the site is inspected, the installer makes sure that there is sufficient room near the gate for the layouts illustrated in the drawings.



FOUNDATION

Correct functioning of any automatic sliding system depends on the geared-motor being firmly anchored to a structure designed to hold it securely, and good alignment with the gate.

⚠ ***ATTENTION***

It is essential that the foundation be prepared precisely with the foundation plate in the right position with respect to the gate. The geared-motor must be correctly aligned with the gate guide, at the correct distance from the gate, at the right depth, and the electric cable passage bore in the correct position (C2).

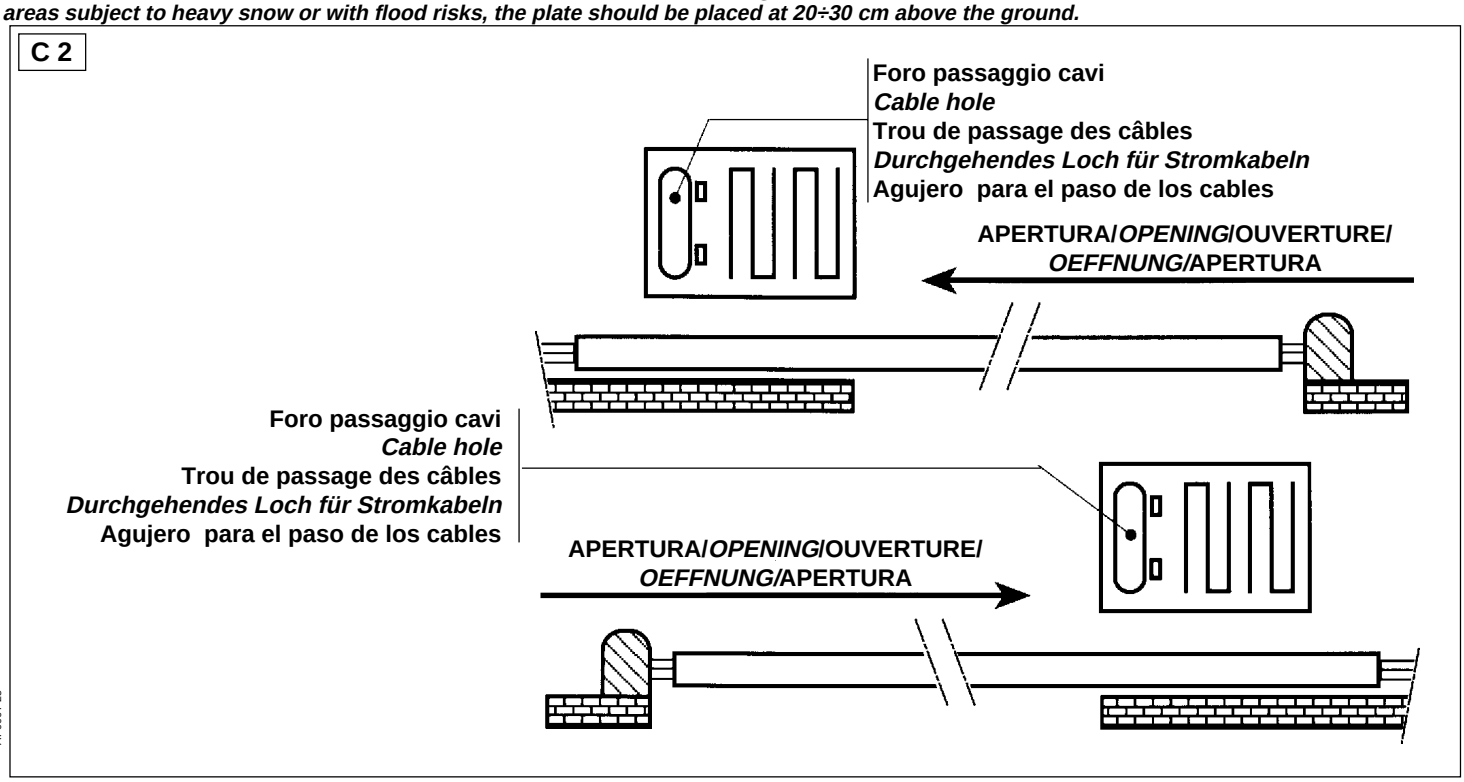
Remember also the following points:

- *Check the gate opening direction in relation to the position of the cable hole (C2).*
- *Consider the fixing position of the rack for the vertical position of the supporting surface (C11-C12).*
- *Avoid executing the foundation with the supporting base below the surface of the ground surrounding the installation; it should be raised a few cm.*

⚠ ***WARNING***

In areas subject to heavy snow or with flood risks, the plate should be placed at 20÷30 cm above the ground.

C 2



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If the area where the geared-motor is to be fitted already has a good level cement surface, the securing plate can be screwed directly into the ground with COMPACT BUILDING SCREW ANCHORS. (Use Fischer S 10 RS 100, or equivalent, or securing with chemical screw anchors).

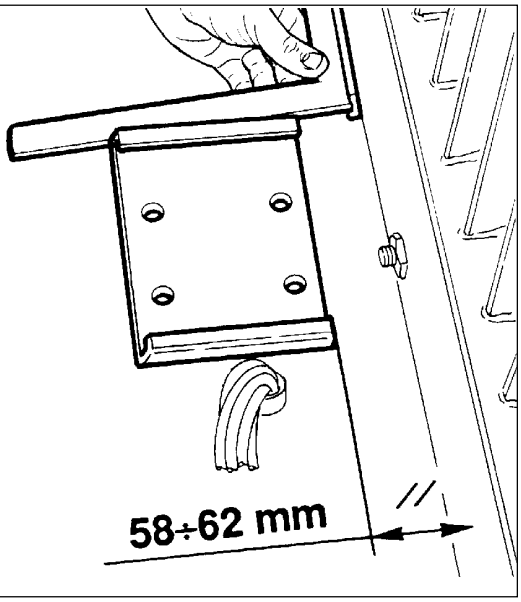
ATTENTION

The plate must be aligned with the sliding gate and at the correct distance from the supporting surface of the rack (58+62 mm - C3); moreover, if there is a hole for the fitting of the cables, it must be positioned at the correct distance from it (C4).

ATTENTION

Use all four fixing holes (C4 ①) and make sure the plate is integral with the ground.

C 3



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B - SECURING WITH A FOUNDATION PLATE

The securing with a foundation plate requires the positioning of a foundation, ex novo, where the plate is embedded.

ATTENTION
Position the foundation plate with the cable hole placed adequately with the correct direction of the gate opening (see C2 at page 23).

Foundation plate positioning

- *Execute a hole for the fitting of the cables for 30 mm diameter tubes MAX. in connection with the slot in the foundation plate.*
- *Fold the four straps of the foundation plate in the way indicated in C5.*
- *Fill the hole with good quality cement, insert the plate in the hole and check the perfect positioning and aligning of the plate with the gate (C6 ①).*

ATTENTION
The surface of the foundation plate must be protected with Zinc spray or rust inhibitor paint.

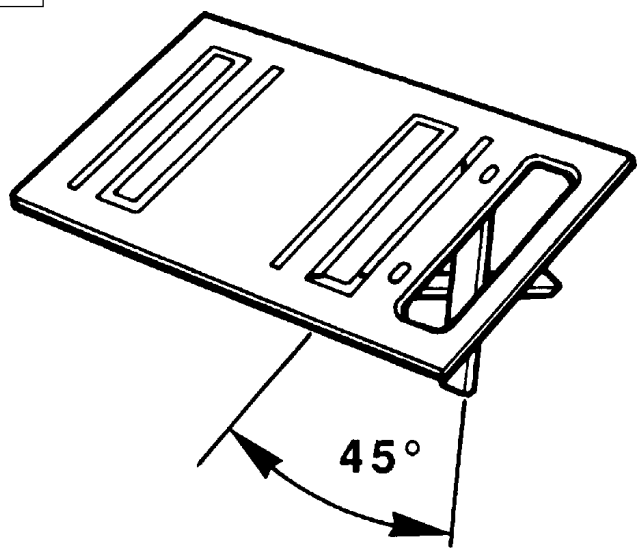
Fitting the sliding plate

- *Clean possible cement splashes or rust on the surface of the plate, specially on the reference marks (C6 ②).*
- *Position the sliding plate in connection with the reference marks (C6 ②) and align it at the correct distance from the gate (C7).*
- *Weld ONLY on the shorter sides.*

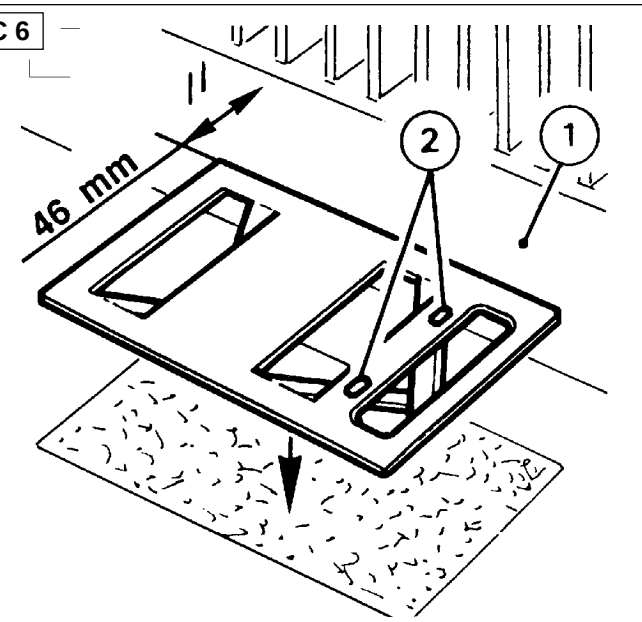
ATTENTION
Protect the welds and the projecting part of the foundation plate with Zinc spray.

⚠

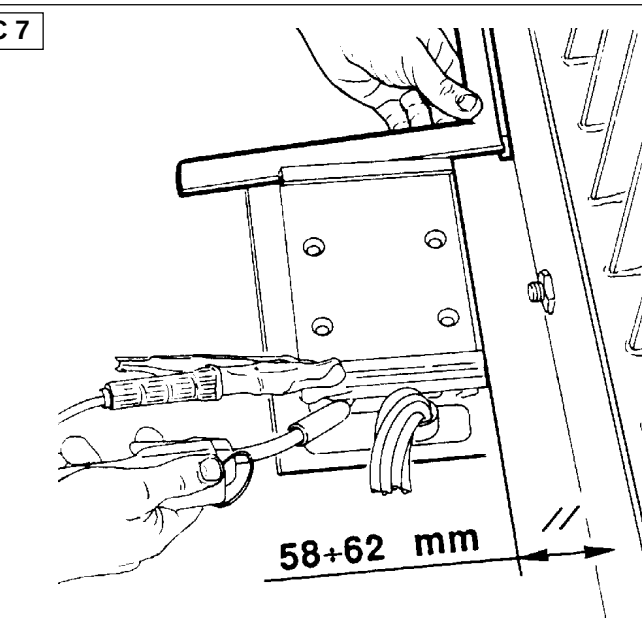
C 5



C 6



C 7



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POSITIONING ON THE SLIDING PLATE

⚠ ***ATTENTION***
Do not handle the ONDA 500 / ONDA 800 by grasping it by the plastic cover; the stop screw can cut the cover.

Proceed as follows:
Unscrew the stop screw (C8 ①) and remove the cover pulling upwards (C8 ②).

⚠ ***ATTENTION***
The cover slides vertically on two guides (C8 ③). Refer to them when mounting the cover (see D8 page 50).

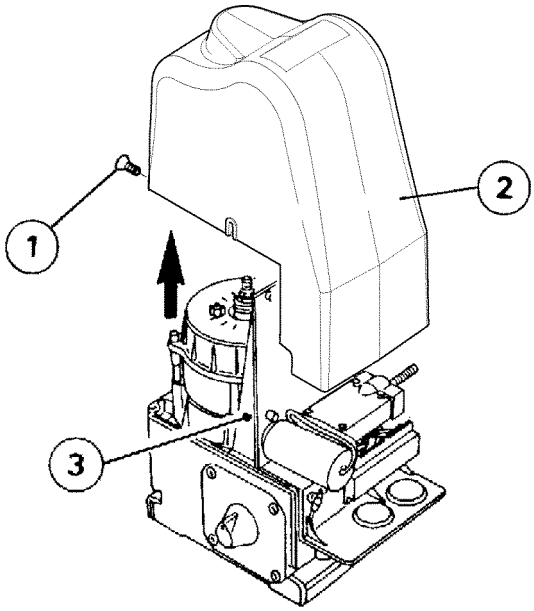
Fit the ONDA 500 / ONDA 800 in the support plate and make sure that the geared-motor is perfectly parallel to the gate (C9 ④) and at the CORRECT DISTANCE from the rack support surface (58-62 mm).
Secure the geared-motor to the plate with the securing screws (C10 ⑤) by unscrewing them and placing them on the plate.

⚠ ***ATTENTION***
Push the geared-motor against the plate on the opposite side of where the securing screws (C10) are to have a correct securing.
TIGHTEN BUT NOT EXCESSIVELY THE SCREWS UNSCREWING THEM.

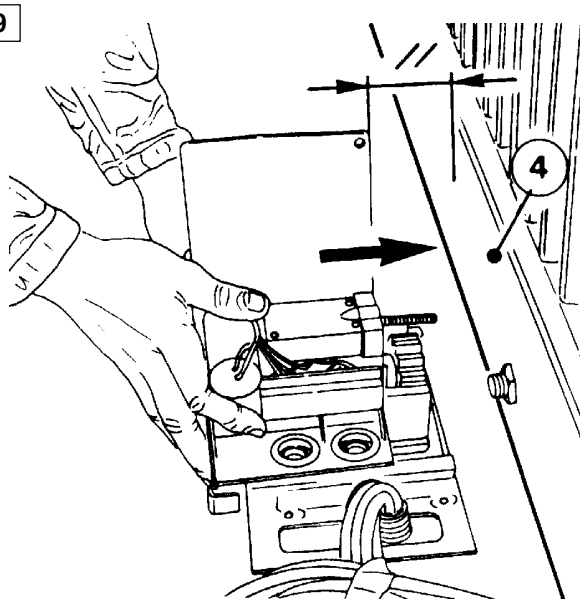
⚠ ***ATTENTION***
If you have difficulties with the screw securing key, the ONDA 800 has two additional threaded holes (C10 ⑥) on the opposite side to where the screws are moved (MOVE BOTH OF THEM ALWAYS ON THE SAME SIDE).

Close the plastic cover temporarily to protect the inner parts while the rack is being fitted (see D8 page 50).

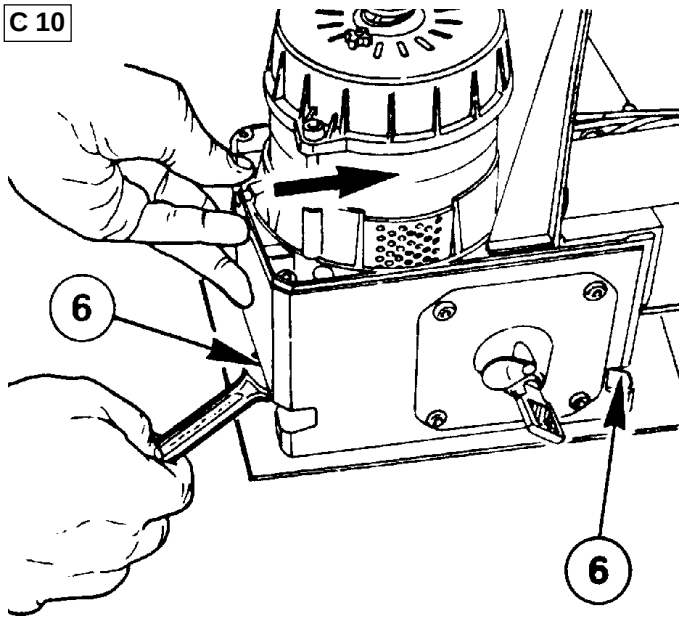
C 8



C 9



C 10



AP006 P30

FITTING OF THE RACK

The following rules must be respected by the rack fitting for the correct functioning and endurance of the automated system:

- *The various rack pieces must be lined up correctly , one with the other.*
- *In the joints the pitch of the teeth must be kept constant between one section and the next (see the following paragraphs).*
- *The height of the rack (C11 - A measurement) must be observed and adjusted to prevent the weight of the gate falling on the geared-motor.*

⚠ ***ATTENTION***
NEVER WELD WHEN THE GEARED-MOTOR IS CONNECTED TO THE MAINS

If the lower edge of the gate is too low to fit the rack, it is necessary to create a base support; in fig. C 12 an example is given of a base created with a section bar; if the plastic rack is used and the thickness of the section bar doesn't allow the use of self-tapping screws, use the M 6 bolts.

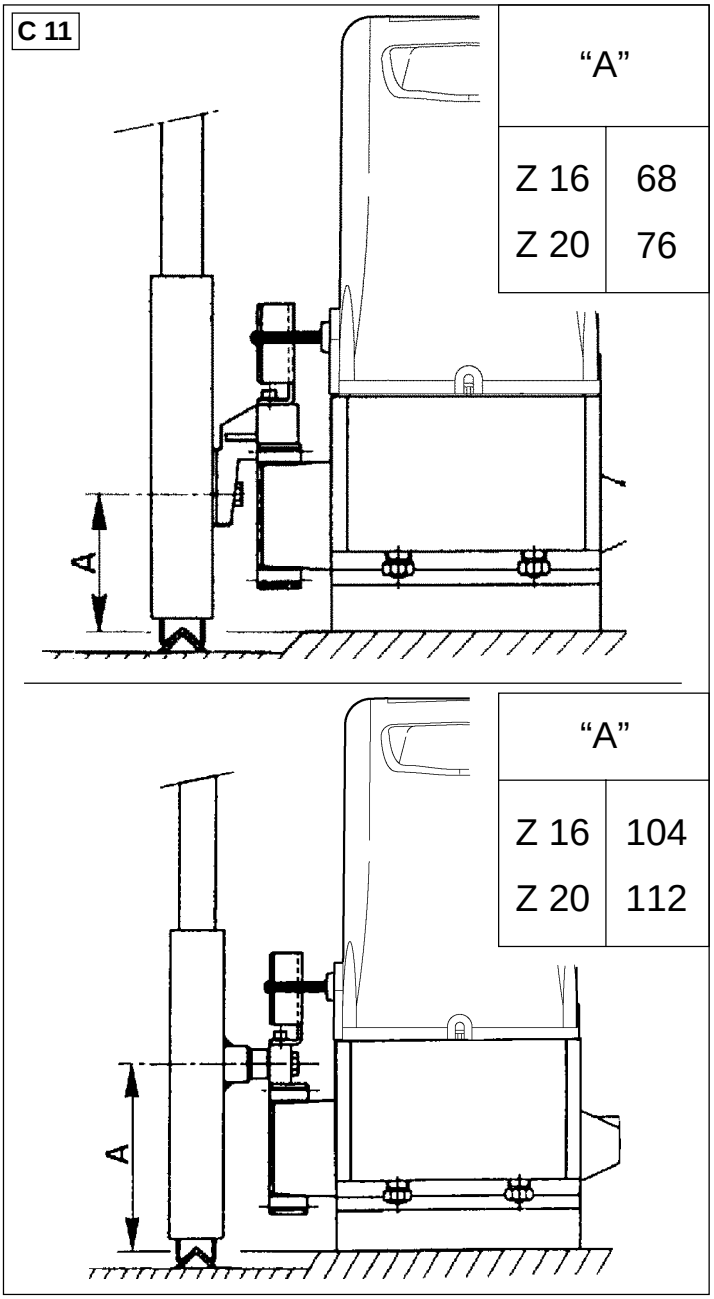
⚠ ***ATTENTION***
The A measurement depends on the type of pinion and the type of rack used (see tables in C11).

The ONDA 500 / ONDA 800 can use two types of racks:
A - Plastic rack with a steel core
B - Galvanized Steel rack

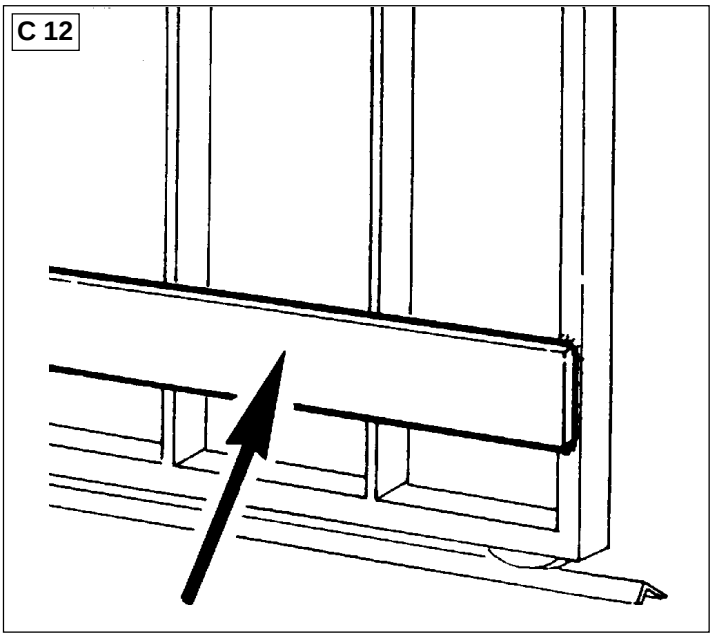
In both, the length of each piece is 1 m.

⚠ ***WARNING***
Never lubricate or grease the rack.

C 11



C 12



AP006 P32

PLASTIC RACK (FITTING DATA)

The rack is made by thermoplastic; it has a steel core and can move gates up to 400kg. It is simple to install without the need of welding.

Fitting:
The plastic rack is normally fixed to the gate with screws. Four self-tapping screws (for each piece) are provided in the kit
which are fitted as in C13. With these screws, it is advisable to drill the hole depending on the thickness and on the material of the supporting base, according to the following table:

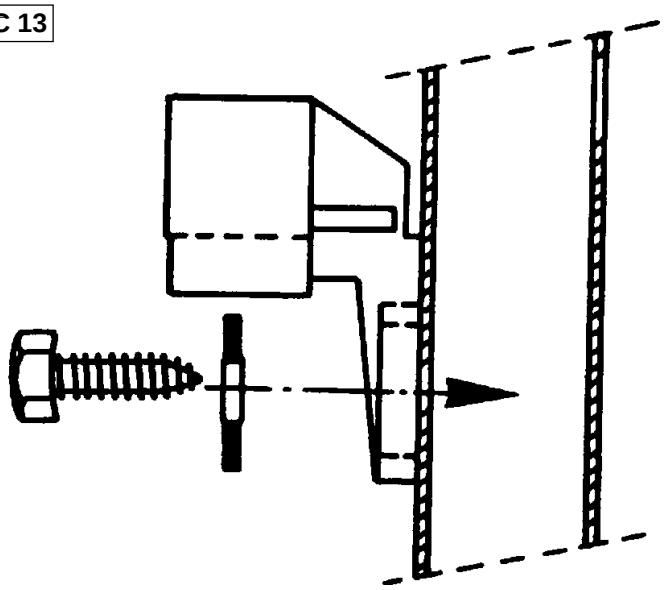
Thickness mm	***Material***	
	Steel/Brass	***Aluminium***
1,5 ÷ 1,9	*Ø 5,2*	*Ø 5,1*
1,9 ÷ 2,7	*Ø 5,3*	*Ø 5,2*
2,7 ÷ 3,4	*Ø 5,8*	*Ø 5,3*
3,4 ÷ 4,8	*Ø 6*	*Ø 5,4*
4,8 ÷ 5	*Ø 6*	*Ø 5,6*

Note: In case of wooden doors, check the good condition of the wood in the fixing points and use proper screws.

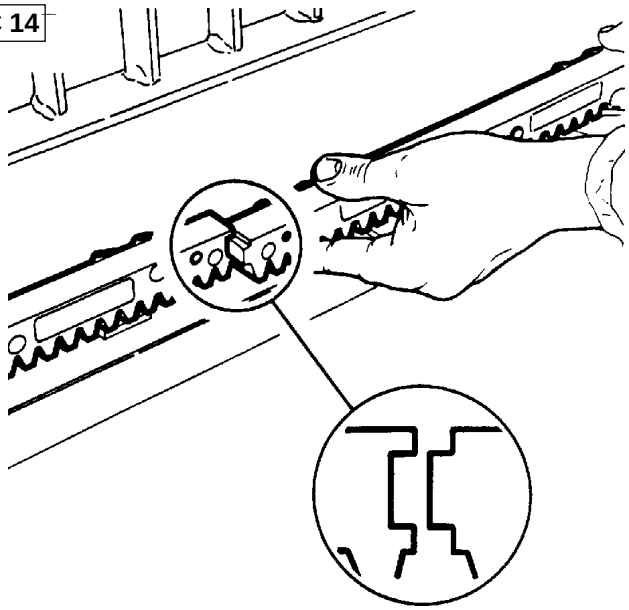
Joining and aligning of the pieces:
In the plastic rack, the joining of two sections of rack is facilitated by matching notches on the heads of the sections (C14) which helps the aligning.
Clean the possible trimmings on the angles of the matching notches.

⚠ ***ATTENTION***
To maintain correct alignment and pitch it is advisable to use a reference template (C15 ①); if necessary, make adjustments on the matching notches.

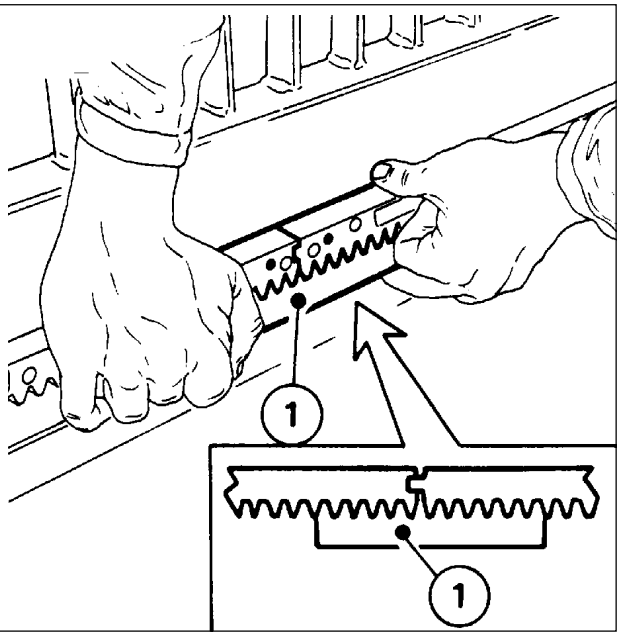
C 13



C 14



C 15



AP006 P34

GALVANIZED STEEL RACK (FITTING DATA)

Fitting:

The threaded supports must be welded to the gate (C16). It is advisable to weld the entire circumference.

⚠ ***ATTENTION***

- ***Do not weld the rack piece directly to the gate (this would impede any adjustments).***
- ***NEVER attach the spot-welder earth to the geared-motor.***

Joining and aligning of the pieces:

In the galvanized steel rack the pieces must be joined by using the counter reference template (C17) (see fitting instructions in the next paragraph).

⚠ ***ATTENTION***

- ***Never weld adjacent sections to one another or close the free space between them (this would impede any adjustment).***
- ***PROTECT ALL THE WELDS WITH ANTI-RUST TREATMENT USING ZINC SPRAY.***

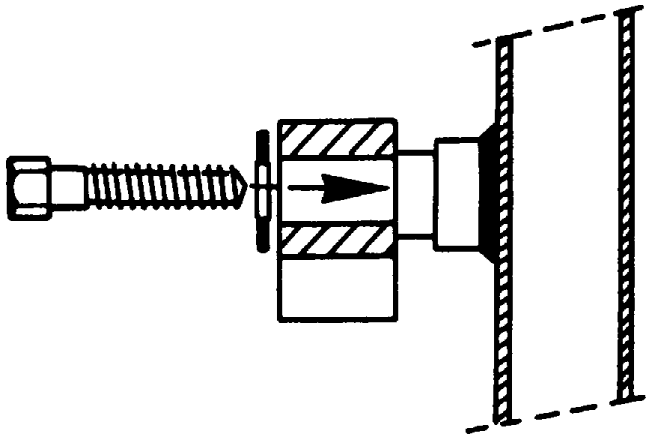
FITTING OF THE RACK (BOTH TYPES)

⚠ ***ATTENTION***

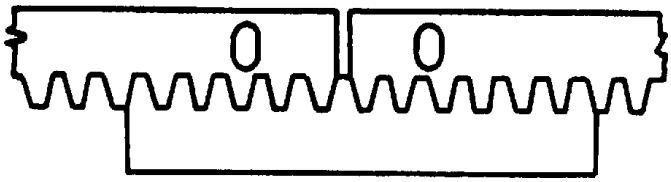
The figures of the following instructions refer to the steel rack, but the basis technics is the same of the plastic rack.

Open the gate completely and release the geared-motor pinion with the manual release key (see page 15); fit on the first rack section (C 18 ①), the spacers (C 18 ②) with their screws (C 18 ③) and washers (C 18 ④), making sure that the screws pass through the centre of the slot.

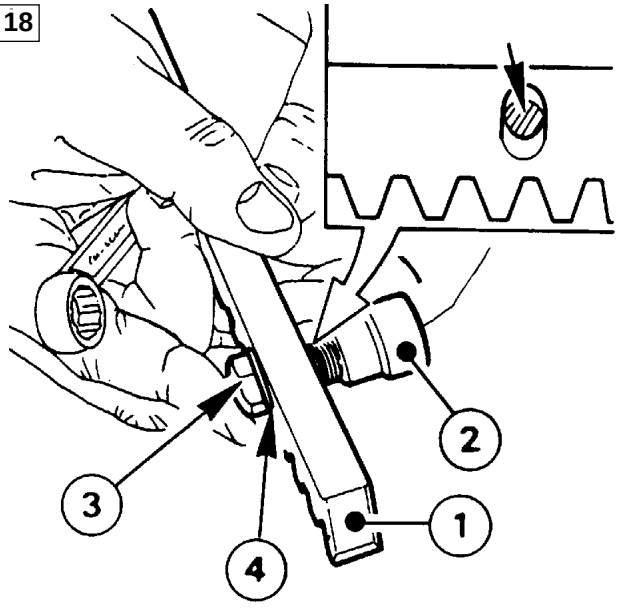
C 16



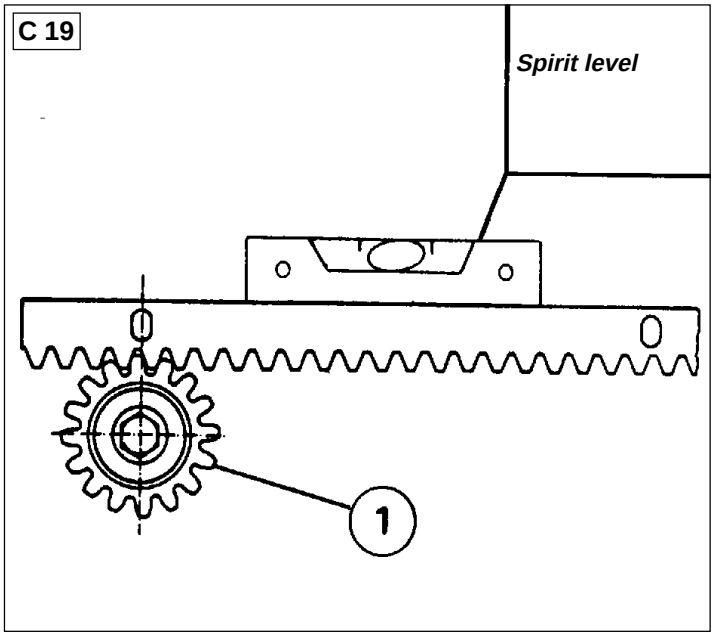
C 17



C 18



AP006 P36

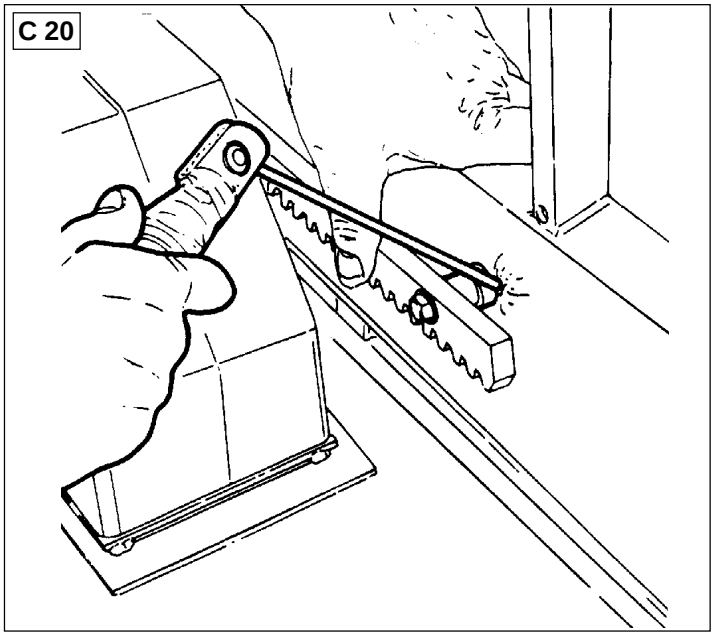


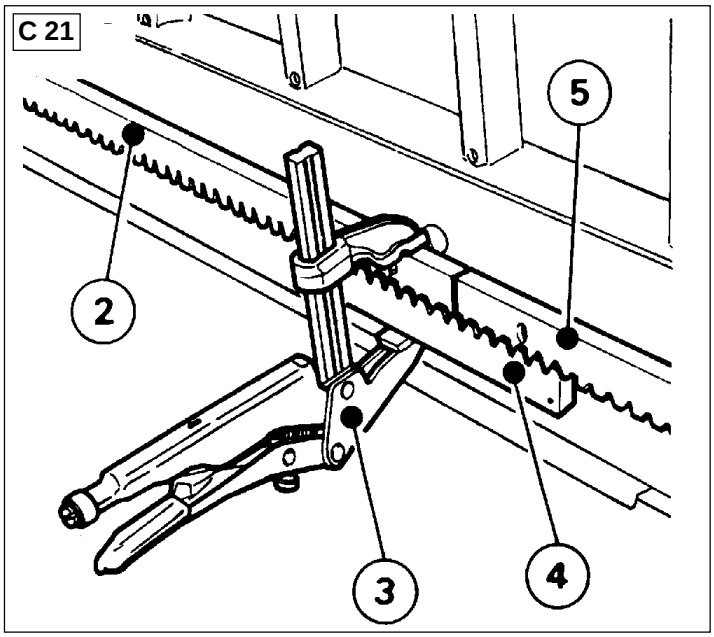
Rest the first rack section on the geared-motor pinion and move the spacers in contact with the gate until the first hole (complete with screw and spacer) is lined up with the vertical axis of the pinion (C19 ①), then fix the spacer to the gate with a spot weld.

Release the geared-motor pinion and manually move the gate until the second spacer is in line with the vertical axis of the pinion (C19 ①), the first space must be aligned with the first reference, then fix the spacer to the gate with a spot weld (C20).

Move the gate beyond the first rack section; fit the template (a rack section at least 200 mm long C21 ④) to the rack (C21 ②) using a clamp (C21 ③), as shown in the figure.
Move the second rack section (C21 ⑤) up to the first one and rest it on the section acting as a template (C21 ④). Then rest the final part of the second section against the geared-motor pinion, sliding the gate by hand.
Place the spacers of the second section against the gate and fix them with two spot welds.
Carry out the operation described above for all the rack sections required, ***then weld all the spacers firmly to the gate****.*

At this point to prevent the weight of the gate from bearing on the geared-motor pinion, it is necessary to raise the entire rack by 1.5 mm by means of the slot clearances in the various sections, then screw down firmly all the rack securing screws.





AP006 P38

ELECTRIC CONNECTIONS

⚠ ***ATTENTION***

Before making the connections, it is essential to read and follow the instructions for the electronic control unit used.

The electric connections with the accessories (photocells, flashing lights, etc.) are done as described in the control unit manual and in the figure D1; it is advisable to use adequate cables (see D1 for the minimum sections to use).

⚠ ***ATTENTION***

When making the connections, make sure that the control unit is not connected to the mains. Furthermore, the unit should be protected by an automatic differential switch (D1).

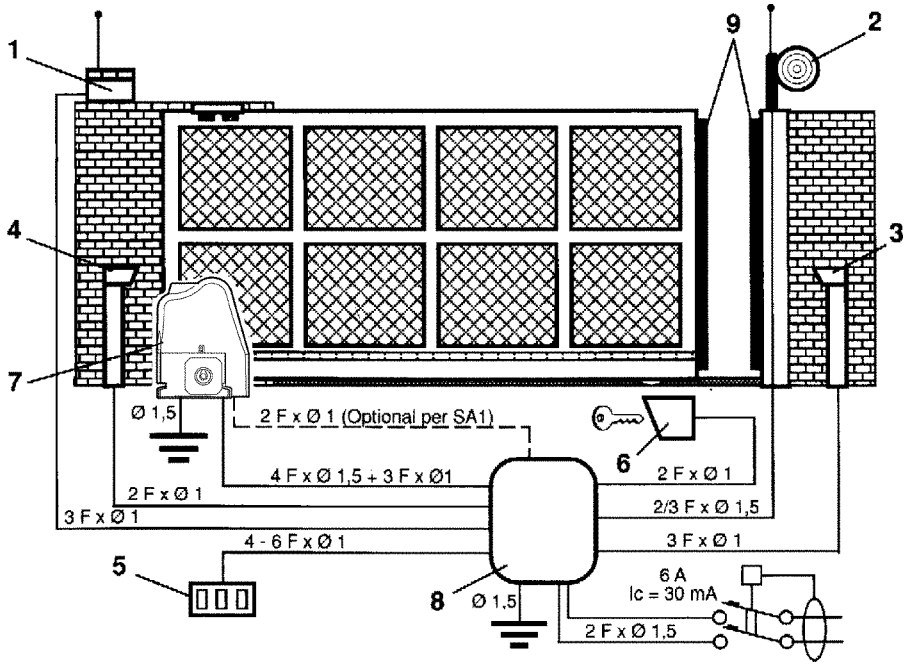
⚠ ***ATTENTION***

The electric connections should be made, observing the existing safety regulations, by qualified personnel.

NOTE: On ONDA 500 E / ONDA 800 E, ref. "8" is on the motor gear unit

D 1

1 ***Radio-receiver***
2 ***Flashing light***
3 ***Photocell receiver***
4 ***Photocell transmitter***
5 ***Internal pushbutton***
6 ***Pushbutton panel, card reader or key control***
7 ***Geared-motor***
8 ***Electronic control unit***
9 ***Safety edge***



AP006 P40

CONNECTIONS OF THE CONTROL UNIT T2B

The ONDA 500 / ONDA 800 can be controlled by the Aprimatic T2B control units.
In D2 the two connecting terminal-board of the ONDA 500 / ONDA 800 are shown, ***as to be used with external control unit.***
The T2B control unit can be also installed inside the geared motor; in these case see further instruction in appendix.

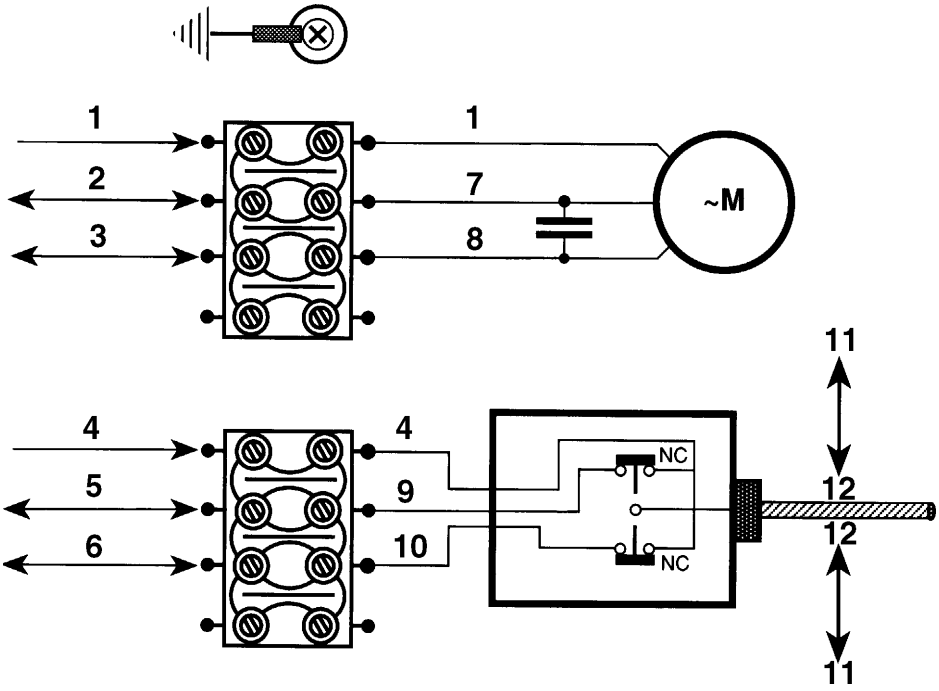
The motor connections and those of the end sensor signals may be inverted, this is to ensure the correct direction of the movement for the opening and closing commands, as well as the correct timing of the limit switches.

ATTENTION

The connections shown with a double arrow (↔) relative to the motor and the limit switch vary according to the gate sliding direction and depending on this, may or may not be inverted. To establish the correct wiring, tests can be made when the control unit starts up. At the end of the connection protect the connecting terminals with the supplied pressure cover.

Do not move the plastic dividers which divide the low voltage area from the high voltage area.

D 2



1
Blue (common)
)
2
Brown/Black (open/close)
3
Black/Brown (close/open)
4
Black (common)
5
Violet/White (open/close)
6
White/Violet (close/open)

7
8 */ Black /*
9 *Violet /*

10 */ White /*
11 *Close*
12 */ Open*

AP006 P42

FITTING OF END TRAVEL PLATES

The ONDA 500 / ONDA 800 is fitted with mechanical limit switch with a spring rod. It is activated by two metal plates (D3) that are fitted on the rack and come into contact with the switch in the fully open and fully closed gate positions (D4).

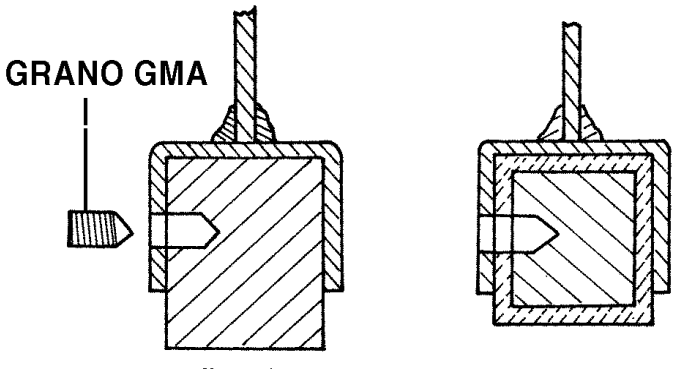
When fitting, remember a few important rules:

- *A safety distance must be maintained between the gate and the posts, that must comply with the existing safety regulations.*
- *It is better to adjust the control unit to avoid violent braking; this will reduce noise and vibrations which can quicken the wear of the mechanical members, of the pinion and of the rack.*

⚠ ***ATTENTION***

The gate must never, for any reason, knock against the mechanical stops, when opening or closing, it should ALWAYS stop before these.

D 3



FIXING MODES

On the plastic rack:
Dowel M6

Predrilling data:
bore dia : ø 3,9 mm (standard)
Use ø 3,5 mm drill - min. depth 18 mm

On the steel rack:
Either like for the plastic rack, or by welding.

AP006 P44

FITTING OF THE PLATES

- *Set an appropriate braking time on the control unit to avoid violent stops of the gate.*
- *Move the gate to the closed position leaving sufficient space to guarantee the braking distance and safety clearance.*
- *Place the plate (D5 ①) according to the click of the end of stroke microswicth (D5 ¡) and lock it on the rack through the proper dowels.*
- *Follow the same procedure for the open end travel plate.*

ATTENTION

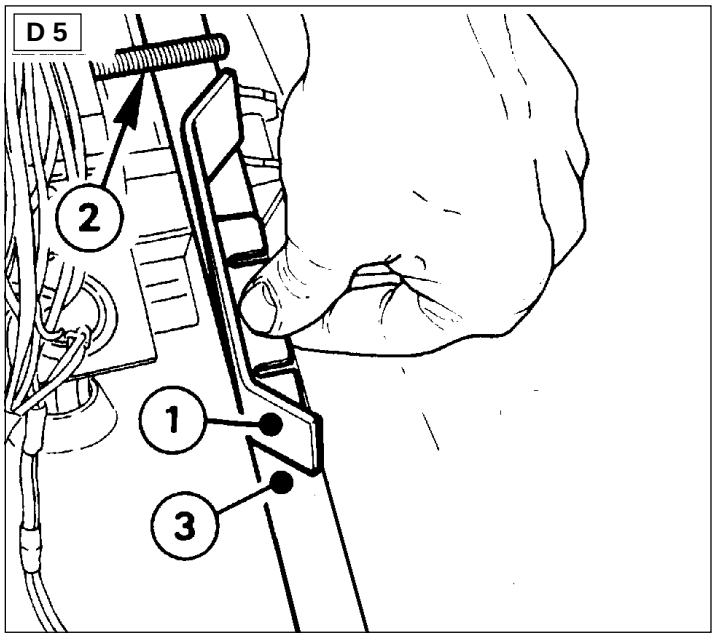
After the first tenth of travels there is normally a settlement of the gate/gear-motor system; for this reason the stop positions of the gate may be found over the ones initially set. To avoid to reset the end-travel plates, we suggest, during the initial setting, to anticipate (see arrow in D6) the stop position of the gate by placing the end travel plates about 2÷3 cm over the positions where the click of the switch is heard.

Connect the power supply and check the following:

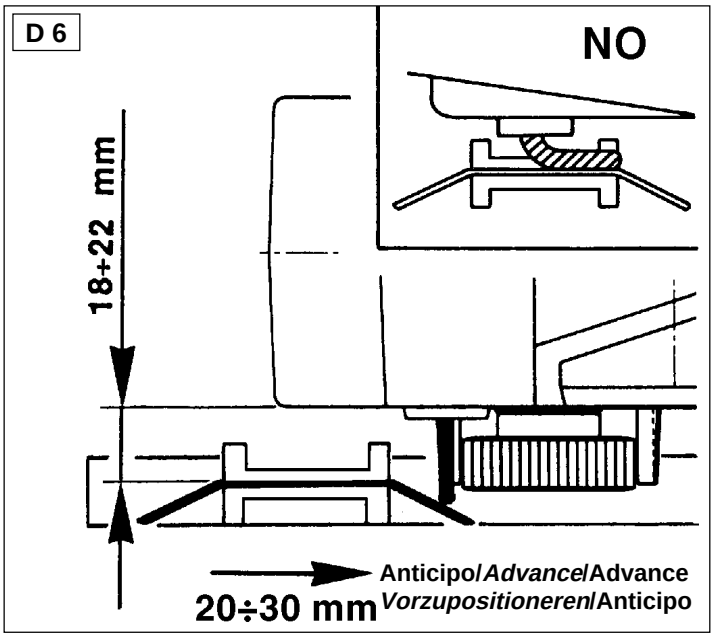
- *With an opening signal, the opening end sensor must stop the gate; (if not, invert the end sensor leads).*
- *Activate the gate and adjust the braking trimmer: the gate must be stopped in the desired position; if the gate knocks against the end stop or brakes suddenly to reach the position, readjust the plate positions.*

ATTENTION

Repeat the tests 10÷15 times to bed the entire mechanical system checking the positioning of the gate.
If after the bedding the result is satisfactory, fix definitely the plates to the rack by tightening the dowels D5.



AP006 P47



AP006 P46

CLUTCH ADJUSTMENT

⚠ ***ATTENTION***

The adjustment of the clutch and all the safety devices must be performed only by qualified personnel.

The ONDA 500 / ONDA 800 is fitted with an mechanical clutch in accordance with the safety regulations for automatic devices. The clutch intervenes by limiting the pressure of the gate on any obstacle in its path.

⚠ ***ATTENTION***

- ***The calibration value must be established on the site once installation has taken place, and must comply with the existing Safety Regulations (15 daN).***
- ***If the max valve is exceeded, it is necessary to increase the number of safety devices, in accordance with the existing safety regulations.***
- ***Check the thrust force in both directions and at different gate positions.***

To do this:

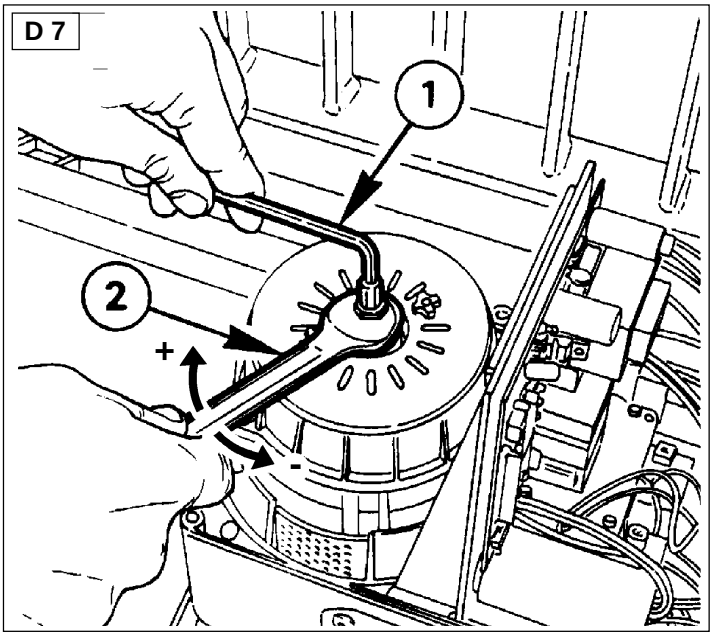
- ***Turn OFF the mains supply to geared-motor.***
- *Remove the cover from the geared-motor.*
- *Hold the screw (D7 ①) firm with an hexagonal key (CH 4), and adjust the nut (D7 ②) with a fixed spanner (CH 13); SCREW DOWN to increase pressure, UNSCREW to reduce it.*
- *Start up the geared-motor and* ***check the gate thrust with a DYNAMOMETER (D8 ③).***
- *Repeat the above operations until the correct thrust pressures are obtained for the different opening positions.*

CLOSING THE GEARED-MOTOR

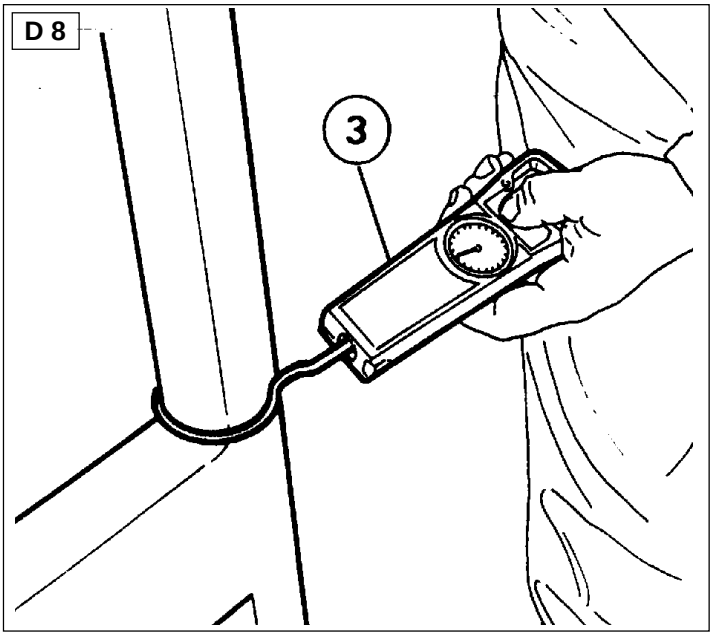
Close the geared-motor with its cover.

Be careful to insert the cover in its special guides (D9) and don't damage the electric cables when closing.

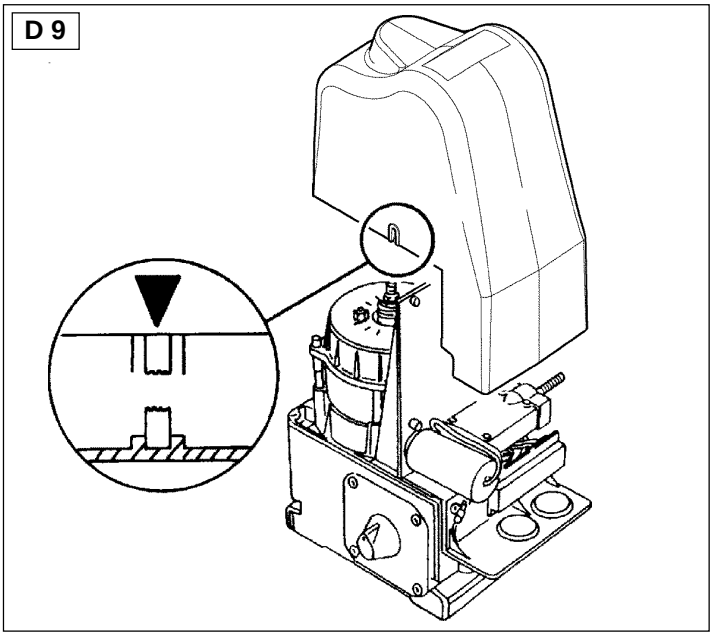
D 7



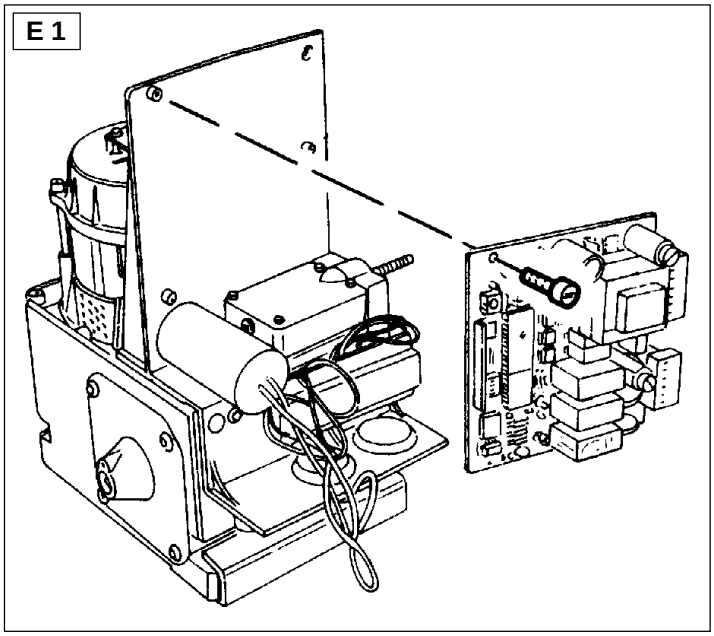
D 8

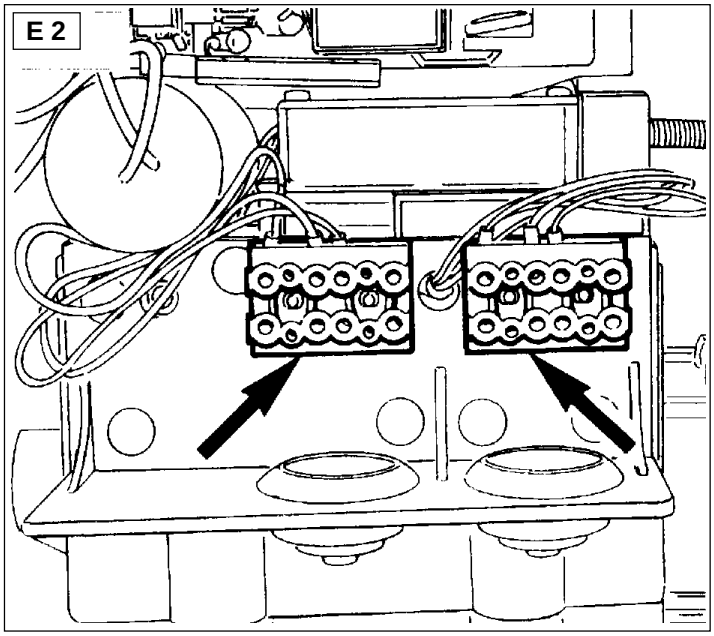


D 9



AP006 P48





MOUNTING OF THE CONTROL UNIT T2B INSIDE THE ACTUATOR

If you decide to install the control unit T2B inside the geared-motor, consider the following limits:

- *The environment and the operation modes must not cause to the geared-motor an operating temperature over 70°C.*
- *The electric line and wiring must be well designed, in good conditions ad protected by a differential switch.*
- *There must be an easy access to the zone where the T2B is placed.*
- *No flooding risks or water entries must be present (the ONDA 500 / ONDA 800 is not waterproof).*

The T2B control unit is normally supplied in its own plastic box; to install it inside the geared-motor, it is necessary to remove it from its box, by unscrewing its three fixing bolts.
The mounting position inside the ONDA 500 / ONDA 800 is shown in figure E1.
The fixing bolts are the same used in the box of the control unit.

Operate with care in order not to damage the control unit.

If you want a better protection, it is advisable to cut in measure the cable-fitting with respect to the entry cable to or use press-cables PG21.

ELECTRICAL CONNECTION

⚠ ***ATTENTION***

- ***To correctly wire the T2B, please refer to the wiring diagrams in the manual of the T2B control unit (see electric diagram in pages 42).***
- ***The electric connections of the external feeding should be preformed by using, as anchorage, the terminal-boards of the control unit with appropriate connections (E2)***
- ***Before making the connections, make sure that the control unit is not connected to the mains. The electrical connections should be made by qualified personnel.***

MOUNTING OF THE RADIO-RECEIVER RG INSIDE THE ONDA 500/ONDA 800

When the ONDA 500/ONDA 800 gearmotor is fitted with T2B appliance, it can also house the pluggable radioreceiver as shown in Fig. E3.

⚠ ***ATTENTION***

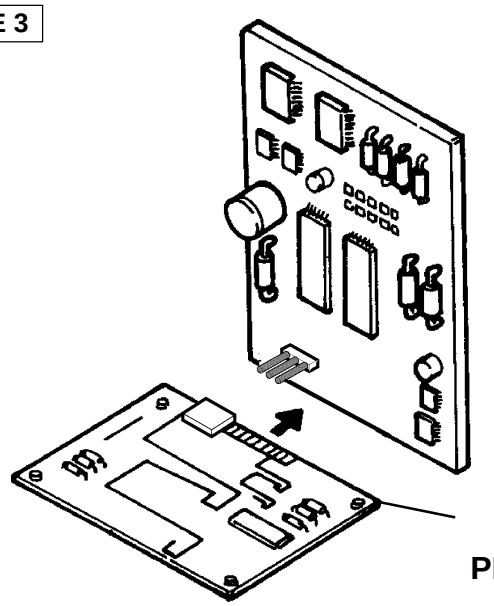
Follow the electric diagrams in the manual of the receiver and of the control unit.

- *Connect the wire to the external antenna making sure that the type of antenna chosen is appropriate to the radio-receiver. Close the geared-motor and check the functioning of the radio.*

⚠ ***ATTENTION***

It is advisable to perform the electric connections very carefully to avoid the fitting of electric cables on the diagram of the receiver: this could reduce the efficiency of the receiver.

E 3



PLUG-IN

AP006 P52

TYPE OF PROBLEM	PROBABLE CAUSE	SOLUTIONS
When the opening command is given the gate does not open and the motor does not start up.	No power supply.	Restore the power supply connections.
	The circuit is incorrectly connected.	Check that the control unit connections are correct and not disconnected.
	The remote control is faulty.	Check that the remote-control battery is charged.
		Check that the transmitter and receiver codes match.
		Check receiver functioning.
	The control unit is faulty.	Check the fuses.
		Check the control unit logic functions.
	The end sensor is incorrectly connected or faulty.	Check the functioning and connection of the end sensors.
When the opening command is given the motor starts up but the gate does not move.	The manual release has been used.	Close the manual release.
	The motor end sensor connection is inverted and the motor is pushing the gate in the wrong direction.	Restore correct connections of end sensors.
	The clutch is loose.	Set clutch correctly.
The gate moves with jerks, is noisy or stops halfway.	The rack is weighing on the pinion or the sections are not set at a correct distance.	Check the rack and restore correct position.
	The guide is uneven or the gate is stiff to move.	Check the guide and wheels and improve sliding smoothness.
	The clutch setting is too low.	Set the clutch correctly; **if this interferes with safety, add other safety devices.**
	The geared-motor is insufficient for the gate.	Use a more powerful geared-motor (see pragraph **TECHNICAL FEATURES**).
The closing command fails to close the gate.	The photocells are faulty.	Check the photocells and relative con-nections (see control unit).
	The connections are faulty.	Restore correct connections.
The key release is very stiff or is blocked and when the opening command is given, the motor starts but the gate does not move.	The gate stops against the mechanical stop before is stopped automatically causing loaded blocking of the gears.	Check the position of the end plates and the braking times.
		Check the correct functioning of the end sensors.
The geared-motor works very slowly by making sounds and vibrations (as if it were braked	The gate knocks against the mechanical stops, before or after the brake causing the breakdown of the electical brake.	Replace the electrical control unit and reposition cerrectlu the end travel plates.

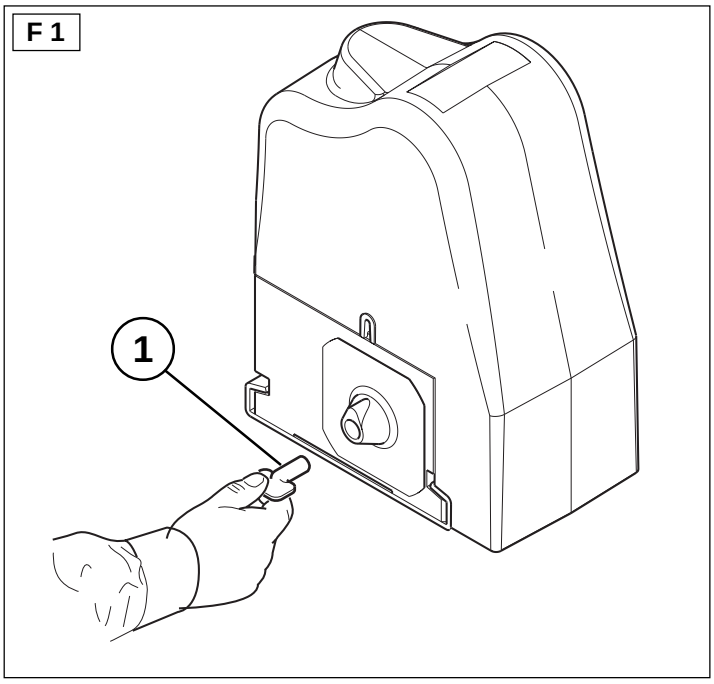
The release system that disengages the pinion allows the manual opening of the gate.
To release the geared-motor just insert the triangular key (F1 ①) in the special lock and turn it half way round in a clockwise direction; In order to lock it, perform the operation in reverse order and ensure correct engaging by pushing the gate a few centimetres.

⚠ ***ATTENTION***

Use the manual release with the electric motor OFF only.

⚠

F 1



Aprimatic
THE CHAMPION OF AUTOMATION

T2

GB Installation instructions

CE

Safety recommendations

- The manufacturer's instructions must be strictly observed.
- The installer must check the installation and the correct functioning of the device.
- The product must not be used incorrectly or for purposes that are not envisaged.
- The product must not be tampered with or modified in any way.
- Always use original spare parts.
- Cordon off the working area to prevent the access of unauthorised persons.
- Ensure that the working area is clear of obstacles and the floor is not slippery.
- All equipment used must be in good working condition.
- The working area must be sufficiently well lit and free of health hazards.
- Unauthorised persons must not enter the working area.
- The working area must not be left unattended.

Purpose of the manual

This manual was drawn up by the manufacturer and is an integral part of the product. The information it contains is addressed to expert operators that carry out the installation and extraordinary maintenance. They must have the specific qualifications and training to carry out the operations assigned to them correctly and under the maximum safety conditions. Strict observation of the instructions contained in the manual will ensure safety, optimum operation and prolonged functioning of the product. To avoid incorrect manoeuvres and the consequent risk of accidents, it is important to read this manual carefully, strictly observing the instructions given.

Application range

Device for Aprimatic operators to operate swing gates.

Contents

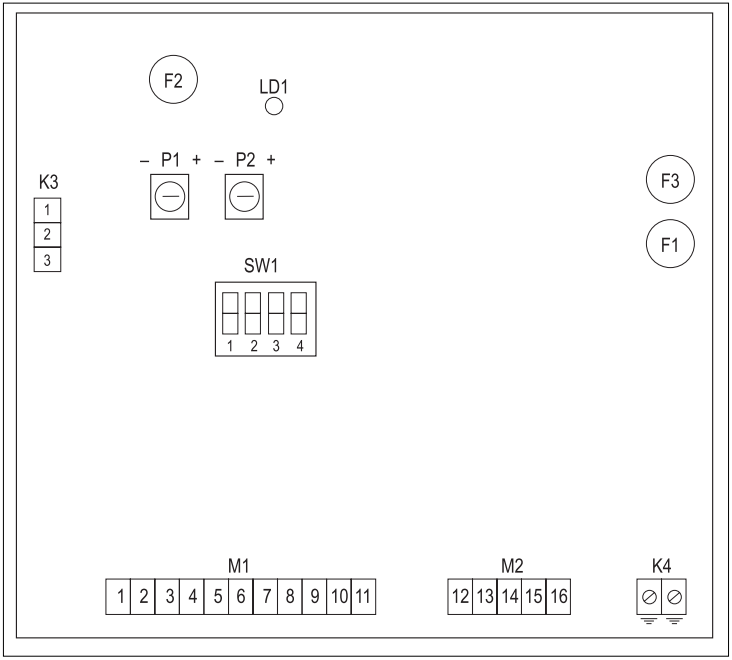
Aprimatic

1. DESCRIPTION

Device with Aprimatic microprocessor (15 Watt in stand-by) designed to drive 1 motor with a maximum power of 680 Watt.

1.1 BLOCK DIAGRAM OF THE DEVICE

P1 Pause time trimmer
P2 Electronic brake trimmer
F1 5A motor fuse
F2 Accessory 500 mA output 24V fuse
F3 200mA transformer fuse
SW1 Dip switch
LD1 Mains presence LED
M1 Signal terminal board
M2 Power terminal board
K3 Radio receiver socket for Aprimatic models only
N.B. Plug in the receiver as shown on the printed circuit.
K4 Earth connection for the device



T2.EPS

2. INSTALLATION

CAUTION - The product must only be installed by qualified servicing and/or installation personnel.

CAUTION - The electrical system must comply with the current regulations in the country where the product is installed.

CAUTION - Always disconnect the power supply before opening the container. Ensure that a good earthing system is available and connect it to the appropriate terminals.

2.1 PREPARATION

Before installing the device, prepare the tools required for securing it to the wall and to make the electrical connections. The following are also required:

1. expansion wall plugs dia. 6 mm
2. Skintop type PG16 cable clamps
3. a multipole switch with a minimum contact opening of 3 mm
4. an emergency pushbutton
5. approved cables for external use with minimum cross-section of 0.75 and 1.5 mm²

2.2 ASSEMBLY

It is not necessary to drill any holes to fit the device.

1. Secure the device at a minimum height of 30 cm, using the securing holes in the plastic container.
2. Insert the connecting cables, through the holes in the bottom of the container and the cable clamps indicated.
3. Fit a multipole switch upstream of the device.
4. Fit an emergency pushbutton in a position where the automation system can be seen and so that the power supply to the system can be completely cut-off.
5. Use 1.5 mm² section cables for the motor power supply and 0.75 mm² section cables for 24 VDC devices.

2.3 ELECTRICAL CONNECTIONS

CAUTION - Make sure that the mains power supply is turned OFF before making the connections.

CAUTION - Do not use intercom or telephone cables.

Make the electrical connections as indicated in the diagram alongside.

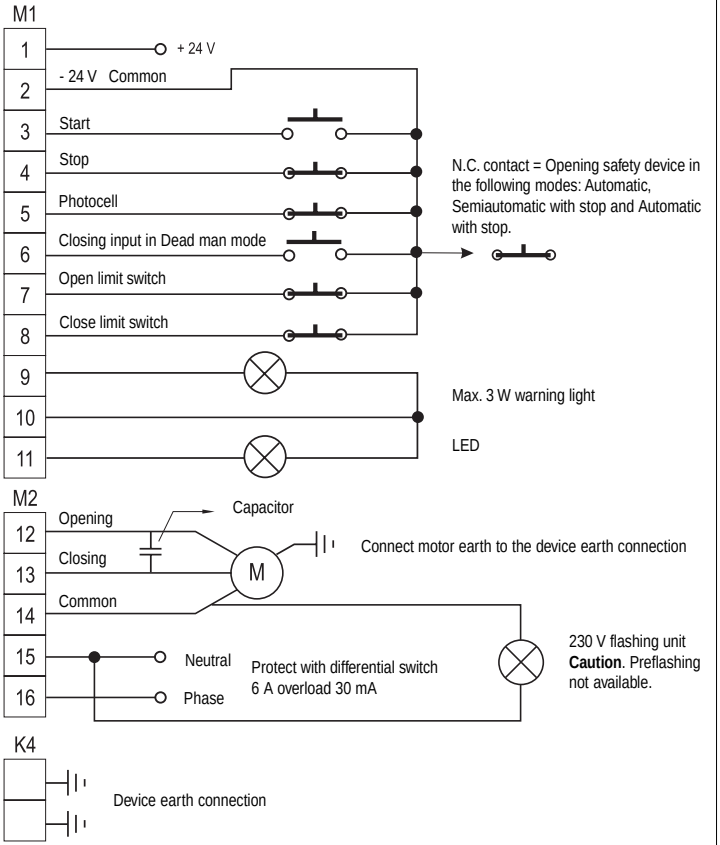
N.B. In accordance with the current standards, tie the connecting cables for the different commands separately (terminals 1-11) from the power cables (terminals 12-16).

3. STARTING UP

After completing the connections as indicated and checking the electrical connections carefully, turn ON the mains power supply and check that the system is functioning correctly, as explained below.

3.1 FUNCTIONING TESTS

When all the connections have been made, it is necessary to check the automation system. Due to the type of functioning of the T2 card, when the first Start pulse is given after Power Up or restoration of the power supply, if the gate is at a standstill but not in the open or the closed position and the safety devices are not tripped, the gate is automatically closed. If, on the contrary, the gate opens, the motor connections must be inverted.



N.B. If the terminal safety contacts 2 and 4 (stop input) and terminals 2 and 5 (photocell input) are not used, jumpers must be fitted.
The function of terminal input N. 6 depends on the setting of the dip switches or the logic selected and switches from N.O to N.C.

T2-MORS.EPS

3.2 TRIMMER ADJUSTMENT

Trimmer P1 - This trimmer is used to adjust the pause time before automatic closing of the automation, when the automatic functioning mode has been selected. The adjustment range of the pause time is between 0 and 120 seconds.

Trimmer P2 - This trimmer is used to adjust the intensity of the electronic brake, to eliminate the inertia accumulated by the gate during movement. The trimmer is used to adjust the brake delay, which blocks the gear motor during opening and closing. Therefore, the braking conditions must be adapted to the weight and the inertia of the gate.

Note - These adjustments are memorised by the microprocessor in real time, also when the device is functioning.

3.3 PROGRAMMING

It is now possible to program the device. The DIP-SWITCH SW1 is used to select the operating mode and other accessory functions.

WARNING – Every time you program the device, disconnect the electrical power supply to cancel the previously set program.

DIP-SWITCH 1 and 2 - These DIP-SWITCHES are used to select the following operating modes.

AUTOMATIC MODE – If you select this operating mode, when a pulse is given, opening is commanded as far as the limit switch, the gate remains open for the selected pause time and it then closes automatically.

- If a pulse is sent during opening, the control system ignores it and the gate continues to open.
- If a pulse is sent or the photocells are obscured during closing, the direction is inverted (the gate re-opens).
- During the pause stage and when the photocells are obscured, the device will remain in pause until the photocells are cleared.

SEMIAUTOMATIC MODE WITH STOP - If you select this operating mode when the gate is closed, when a start pulse is given, the gates open as far as the opening limit switch. If another start pulse is given during opening, the gates stop immediately until another start pulse is given: this closes the automation. A start pulse sent during closing re-opens the gate.

AUTOMATIC MODE WITH STOP

- Start pulse when gate is closed: opens the gate.
- Start pulse during gate opening: stops the gate and automatically starts pause time.
- Start pulse during gate pause: starts immediate pre-flashing and then gate closing.
- Start pulse during gate closing: changes the gate travel direction.

SW1 DIP-SWITCH

S1	S2	OPERATING MODE
ON	ON	Standard Automatic
OFF	ON	Semi-automatic with Stop
ON	OFF	Automatic with Stop
OFF	OFF	Dead Man

T2_gb.TBL

S3	PHOTOCELL FUNCTION
ON	Immediate re-closure
OFF	Pause time zero-ing

S4	PRE-FLASHING
ON	Enabled
OFF	Disabled

4. OPERATING CONTROL

After selecting the operating mode and times, check the external devices connected to the card and check the state of the LED's.

4.1 CHECK THAT THE EXTERNAL DEVICES ARE OPERATING CORRECTLY

Start input- N.O. type contact which supplies the start pulse to the automation

Stop input - N.C. safety contact which has priority in all states and functions. If the stop input is given, the device blocks the gate immediately and it only starts up again when the start push-button is pressed: this closes the automation. When the stop input is given, the device ignores all the commands.

Photocell input - N.C. safety contact which is only enabled during closing. If the photocell is obscured, the automation stops for 1 second and the gates then re-open as far as the limit switch. When the gate is open and the photocells are obscured, the photocells block gate closing.

Opening/closing safety device input - The function of this input connected to terminal 6 depends on the operating mode. The following is a list of the possible functions.

DEAD MAN MODE – This operating mode requires the physical presence of a human operator, who opens and closes the gate and the input of terminal 6 is used as the closing input. To open the gate, press the start push-button and hold it down (opening input). When the push-button is released, the gates are blocked. To close the gate, press the close push-button and hold it down; if the photocells are obscured, the device blocks the gates. In this case, the operator must release the push-buttons and press either close or open. This is also the case if the two push-buttons are pressed at the same time.

DIP SWITCH 3 (PAUSE PHOTOCELL) - This SWITCH is used to select the pause photocell function when the automatic functioning mode is enabled. When the SWITCH is in the ON position, if the photocell beam is interrupted and cleared with the automation in pause, the device will command pre-flashing for 3 seconds and will then close the gate, even if the pause time has not been concluded. When the SWITCH is in the OFF position, the gate will only close when the set pause time expires.

DIP-SWITCH 4 (PRE-FLASHING) - This SWITCH is used to enable or disable pre-flashing. It is possible for both the opening and closing stages. If the function is enabled, before the automation opens or closes, there will be a signal for 3 seconds and the warning light and flashing lights will come ON before the gates move.

Opening safety device input – N.C. contact enabled in automatic and in the two alternatives of the semi-automatic mode. This is a safety device input which is enabled during closing and opening. When the input is enabled, the gates are stopped immediately. When the input is disabled, the gates start to move in the same direction as before after a delay of 1 second. This function can be used to protect the areas where crushing may occur.

Closing input - Input which is only enabled when Dead Man mode is selected. It closes the automation when the close push-button is pressed and held down (terminal 6).

Warning light output - 24VDC output with maximum load of 3W, which commands the gate state warning light. Light OFF: gate closed. Steady light: gate open or opening. Flashing light: gate closing.

Flashing light output - 24 V output which commands the flashing light.
This output commands the flashing light with a pulsating power supply with frequency of 1 Hz: the light comes ON for 0.5 seconds and OFF for 0.5 sec. If pre-flashing is enabled, this output is enabled 3 seconds before the command to move the gates (opening and closing).
NOTE - Only use Aprimatic ET Series LED flashing lights or the output may be broken: this will cause the entire system to malfunction.