



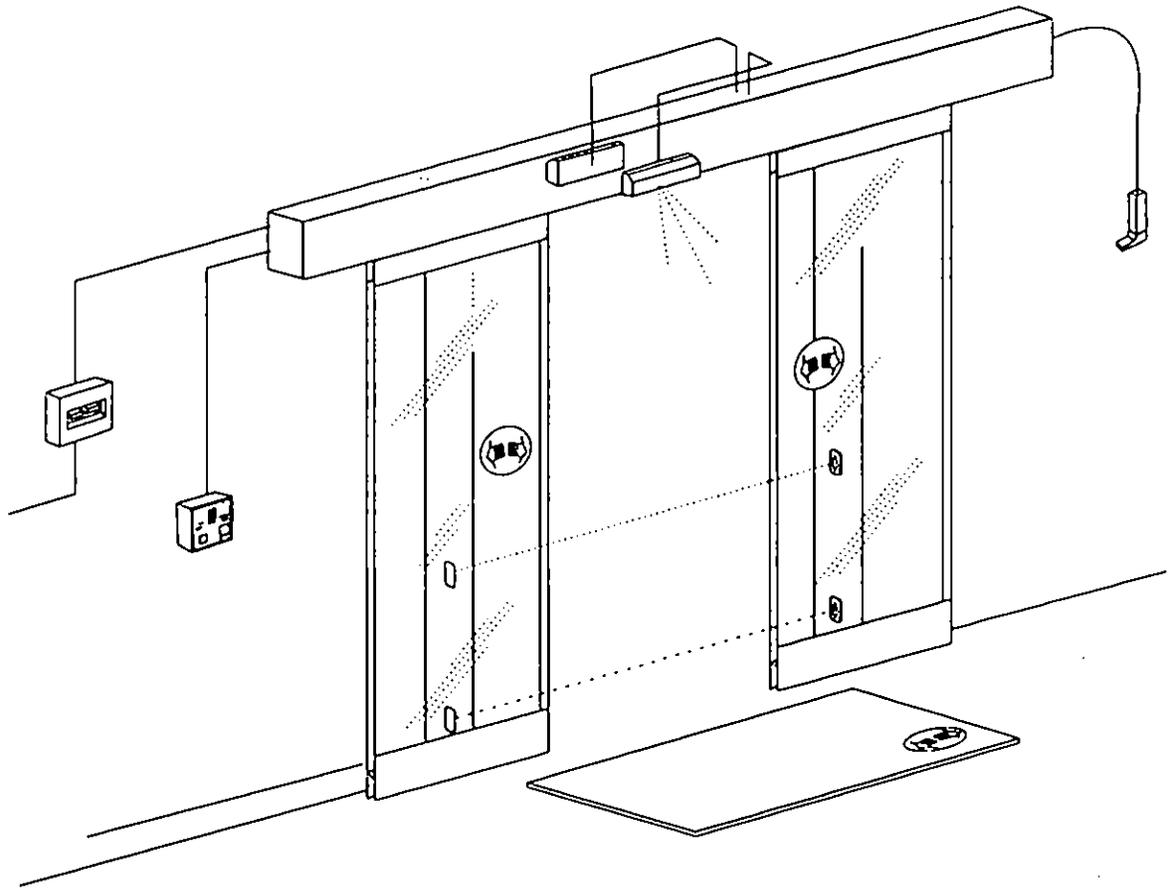
® SERIES

CORSA

AUTOMATION SYSTEM FOR SLIDING DOORS

Documentazione
Technica
M70
rev. 3.1
07/2000
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CANCELLI
AUTOMATICI
119PM70

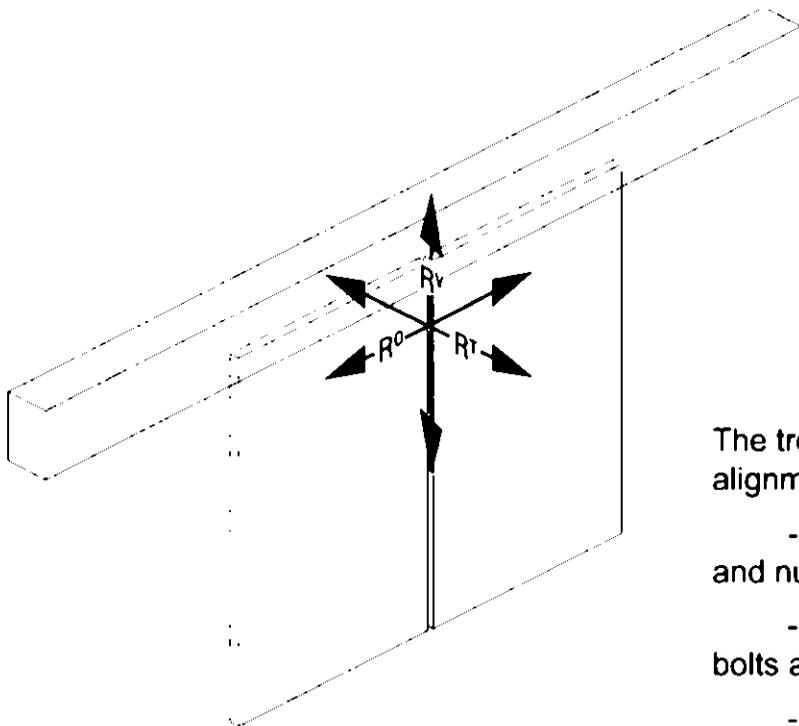
**AUTOMATION SYSTEM FOR SLIDING DOORS,
WITH MICROPROCESSOR CONTROL**



for door wings weighting

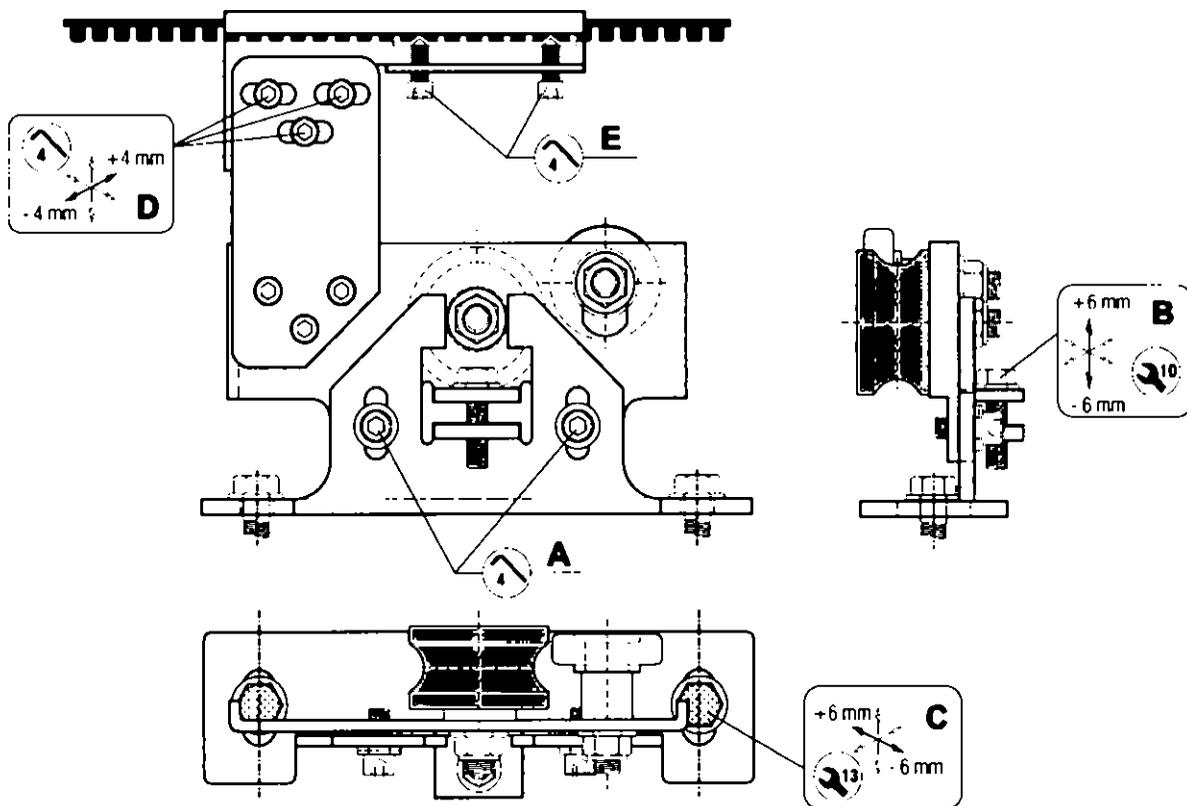
up to 75 kg each

MECHANICAL ADJUSTMENTS



The trolleys can be used to adjust the alignment of the door wings as follows:

- **vertical** adjustment R^V , with bolts and nuts **A** and **B**
- **transverse** adjustment R^T , with bolts and nuts **C**
- **horizontal** adjustment R^O , with bolts and nuts **D** and **E**

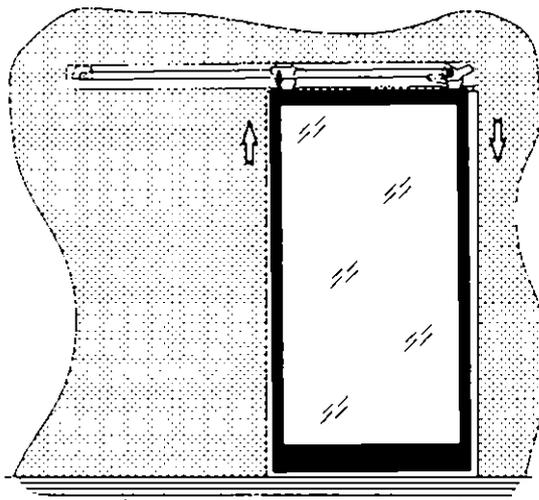


VERTICAL ADJUSTMENT R'

To obtain correct vertical alignment of the door wings, adjust the trolleys as follows :

- Loosen screws **A**.
- Turn vertical adjustment screw **B** until the door wing(s) is/ are as perpendicular to the ground as possible. If the automation system is being used to power two sliding door wings, adjust this screw so that no gap is left between the door wings when they are closed.
- After completing the adjustments, tighten screws **A** and move the door wing manually to make sure that there is no mechanical interference between the moving door wing(s) and the pavement along the entire line of movement.

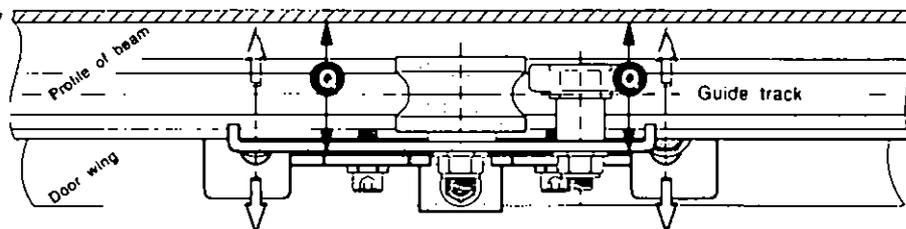
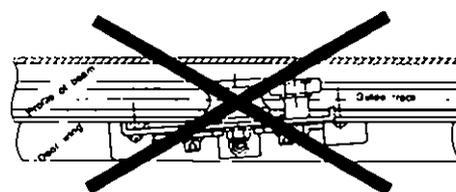
If necessary, the entire door wing can be raised by adjusting both trolleys.



TRANSVERSE ADJUSTMENT R'

The vertical plane of the rollers on the trolleys must be parallel with the beam. If the trolleys are out of alignment (i.e., if the door wing does not slide easily), proceed as follows:

- Loosen nuts and bolts **C**;
- Align the trolleys with the guide track (for example, by measuring distance **Q** between the body of the trolley and the beam);
- Move the door wing manually to make sure that there is no mechanical interference between the moving door wing(s) and non-moving parts/door wings along the entire line of movement.
- Tighten the bolts firmly to fasten the trolleys.

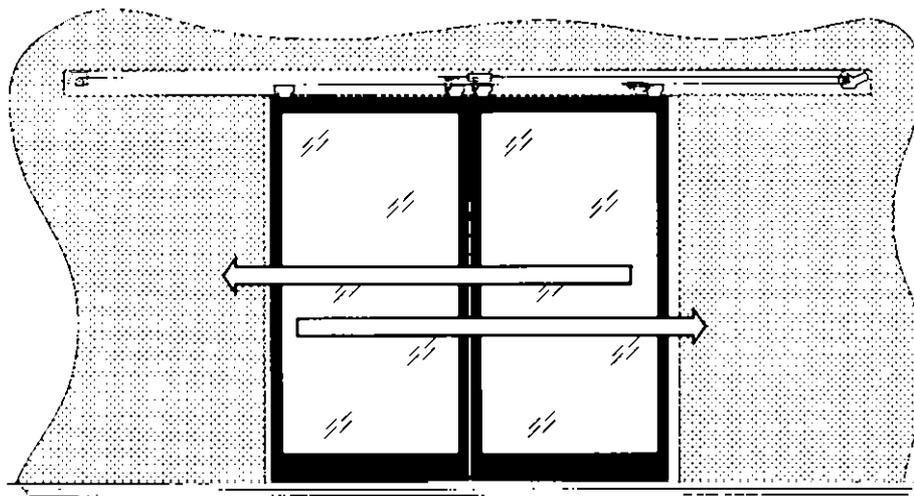


HORIZONTAL ADJUSTMENT R'' (for Corsa 2, only)

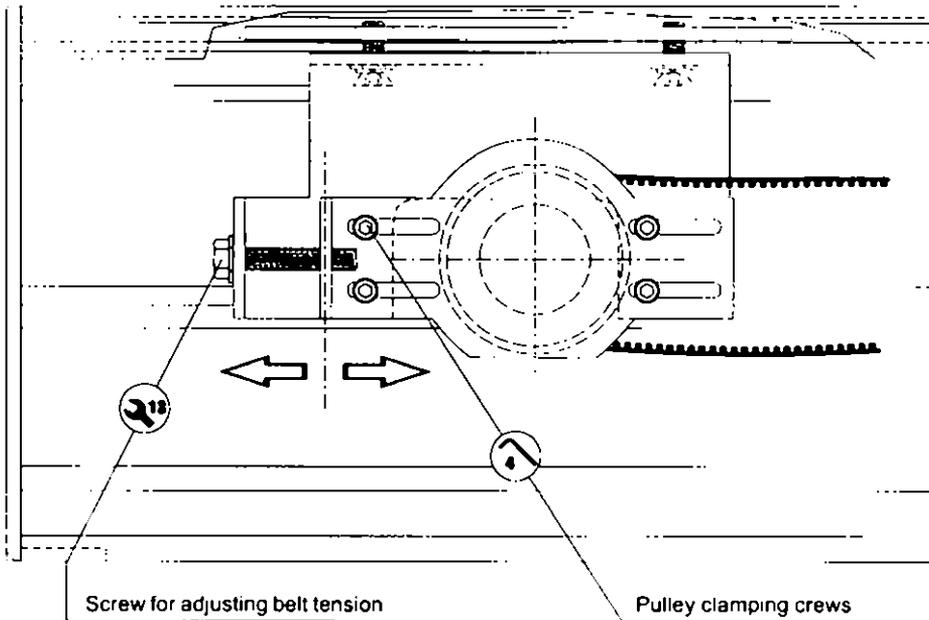
For fine adjustment (± 4 mm) of the point where the two door wings meet, loosen nuts and bolts **D** and move the two door wings at the same time.

To obtain a coarser adjustment, remove the belt attachment system by loosening nuts and bolts **E**.

After adjustment, tighten the bolts back down.



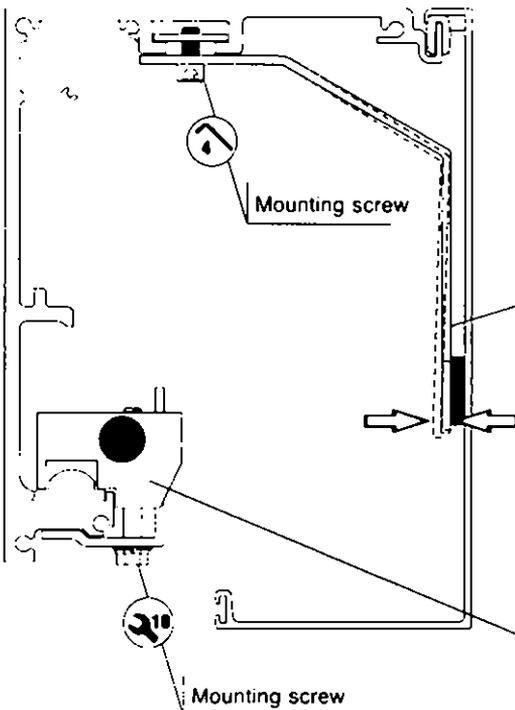
MECHANICAL ADJUSTMENTS



ADJUSTING THE BELT TENSION

If necessary, the idle pulley can be used to adjust the tension on the belt. Proceed as follows:

- 1) Loosen the mounting screws on the pulley.
- 2) Rotate the adjustment screw until the correct belt tension is obtained.
- 3) Tighten the mounting screws carefully to maintain the correct tension.



ANTI-VIBRATION BRACKET ON THE PROFILE HOUSING

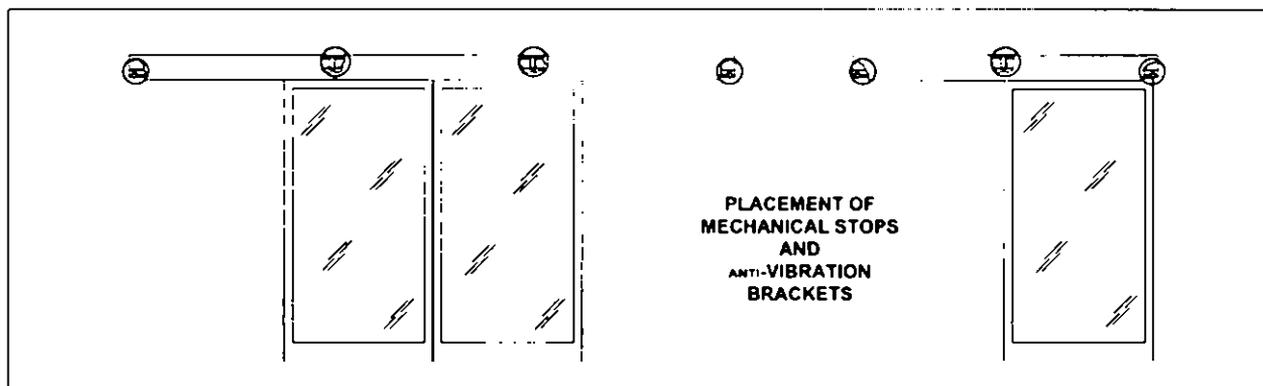
This bracket prevents the (optional) profile housing from oscillating and bending longitudinally. One bracket can be installed when the beam is mounted at a height of up to 2.80 m, while both brackets should be installed if beam height exceeds 2.80 m. If necessary, the bracket may be bent into the required shape.

ADJUSTING THE MECHANICAL STOPS

The mechanical stops are used to set and adjust the opening width of the door wings so that they do not move beyond the ends of their travel.

Loosen the mounting screws and move these stops to the proper positions.

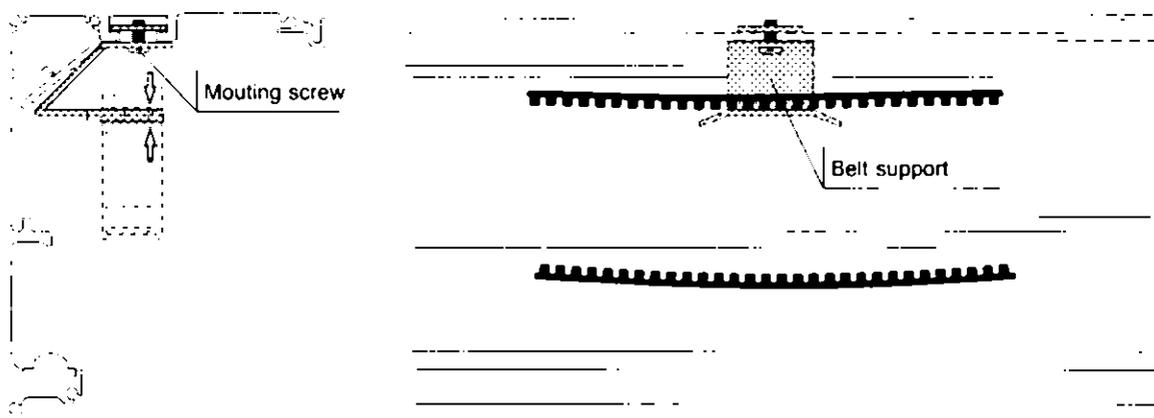
N.B.: The mechanical stops must be correctly placed and tightened to prevent damage to the guide track and permit its adjustment.



BELT SUPPORT

The belt support is used to control belt vibration. It is installed at the centre of automation systems powering two door wings whose support profile exceeds 3020 mm in length. If necessary, the support may be bent into the required shape.

N.B. Make sure that the belt support does not come into contact with moving parts during operation.

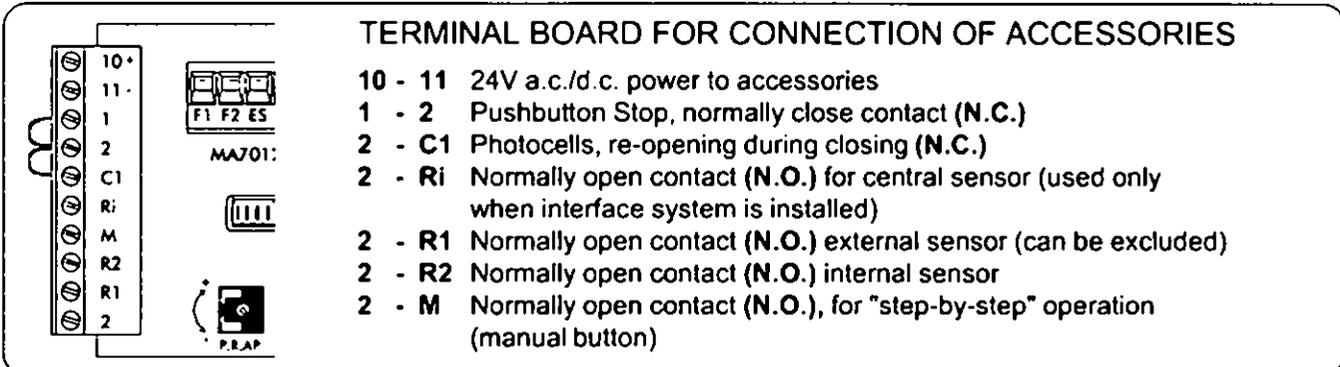
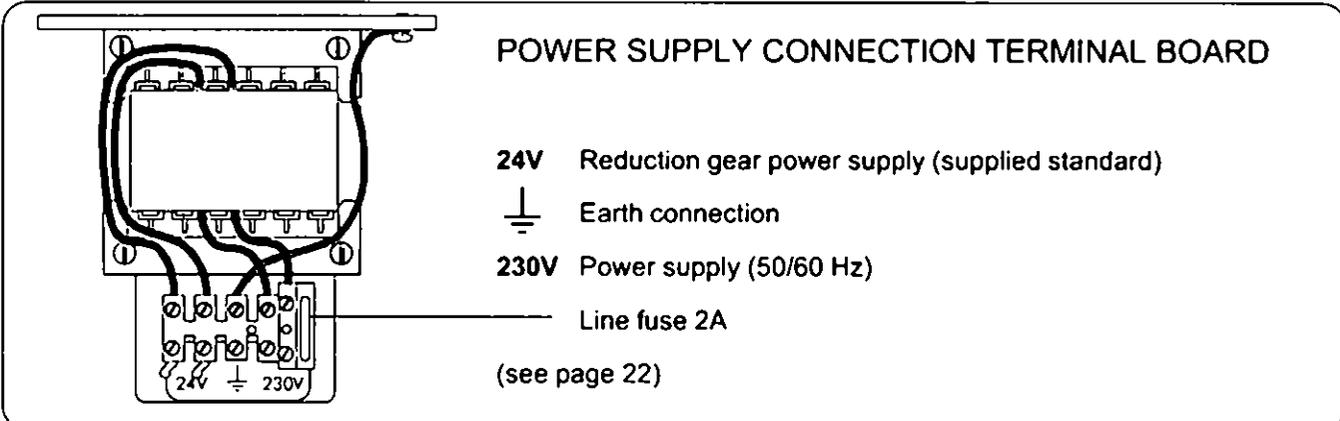
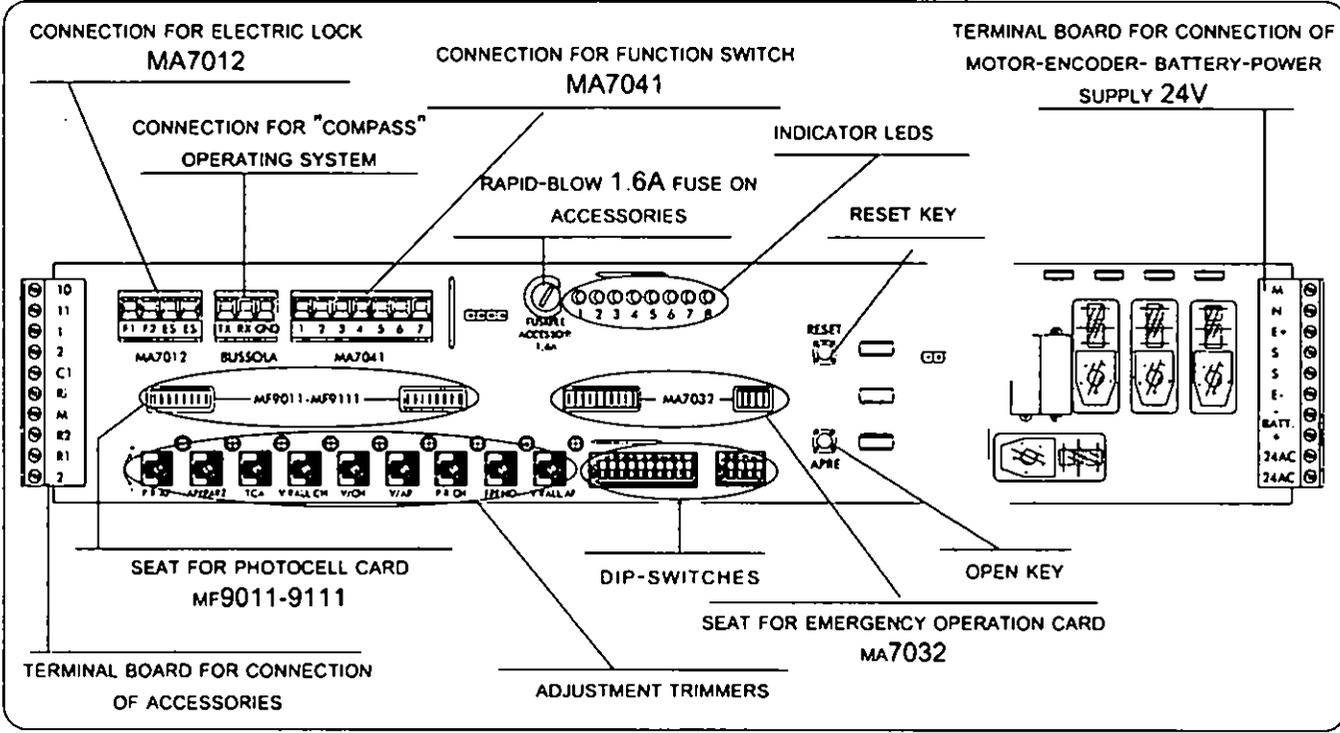


CHECKING FOR PROPER ASSEMBLY

After the beam has been installed and all mechanical adjustments have been made, make sure that:

- _ no scraps of materials left by manufacturing processes remain on the guide track, which would damage the track and/or the trolley wheels;
 - _ no foreign objects and/or tools have been left on the inside of the beam;
 - _ the door wings are properly aligned and the mechanical stops have been correctly positioned as described above.
- Before applying power to the automation system, check for proper operation by opening and closing the system manually (push directly on the door wings to perform this check).

ZP7 ELECTRICAL CABINET



- **Contact 1-2 and 2-C1** are normally closed (N.C.) and bridged together at the factory. To use these functions, replace the bridge connections with the relative devices.

- The **2-C1** contact is used when a security system is desired (for example, photoelectric cells or other control devices), which is not capable of being housed in the special clip-in seat. **Note:** if the MA9011/9111 photoelectric cell card is not enabled, or if it is enabled and you wish to disable it, set dip switch 3 to ON (4-way module).

- The **2-M** contact is normally open (N.O.), and has a double function:

- 1) During normal functioning it is enabled for opening, even if the MA7041 function selector is set on "doors closed". This function can be used for preferential passage, (e.g., evening closure, opening command on key or magnetic switches).
- 2) By setting dip switch 5 to ON (10-way module), the "stepper" opening function is enabled (by pressing the button the door opens; pressing it again closes the door). **Attention,** by using this function contacts 2-R1 and 2-R2 are excluded.

6 7 8

RESET



The **RESET** key, resets the data and restarts the automation in question.

MA7032



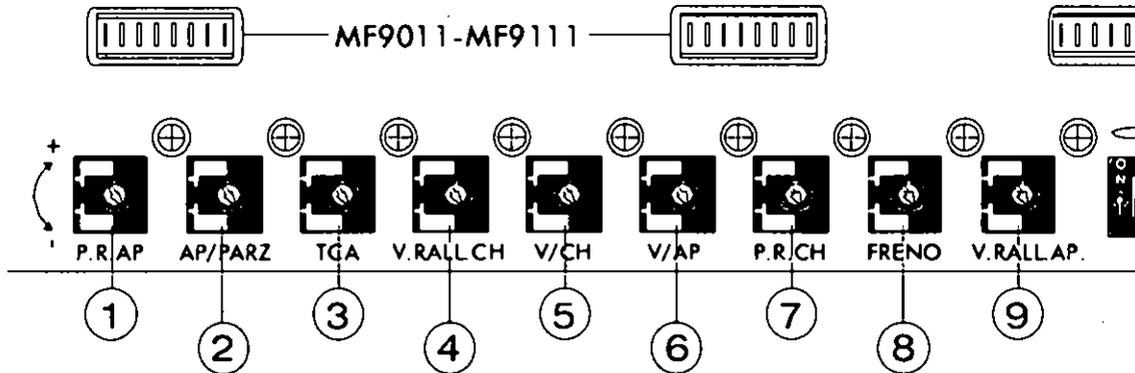
APRE

The **APRE** key, starts automation and completes an opening cycle.
Attention: The function of the open key is excluded if dip switch 5 (10-way module) is set to ON.

IMPORTANT:

Do not perform the following operations, electrical connections/wiring or replacement of circuit cards unless the mains power has been disconnected and the "+" (red) power terminal has been removed from the emergency battery (if installed).

ADJUSTMENT TRIMMERS



ADJUSTMENTS TRIMMERS

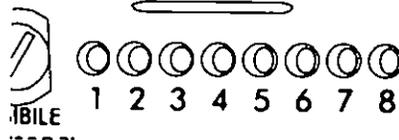
Nº	1	2	3	4	5	6	7	8	9		
FUNCTION	START POINT OF OPENING SLOWDOWN	PARTIAL OPENING	AUTOMATIC CLOSING	SLOWDOWN CLOSING	CLOSING SPEED		OPENING SPEED		START POINT OF CLOSING SLOWDOWN	BRAKING INTENSITY IN THE INITIAL SLOWDOWN PHASE	SLOWDOWN OPENING
VALUE	STARTING POINT	60 + 90 %	0.5 + 13 SEC.	5 + 12 CM/SEC.	CORSA 1 8,6+57 CM/SEC.	CORSA 2 17,2+102 CM/SEC.	CORSA 1 8,6+57 CM/SEC.	CORSA 2 17,2+102 CM/SEC.	STARTING POINT	5 + 12 CM/SEC.

SELECTION FUNCTIONS

Dip 10-way		SELECTION FUNCTIONS
1	ON	Parameter storage (used during calibration pag. 17).
2	ON	Checking the charge level on the emergency (whit MA7032, see pag.18).
3	-	Not used, keep the dip in position «OFF».
4	ON	Constant push while closing
5	ON	"Step-by-step" operation (see contact 2-M, pag.14).
6	ON	Interface with other automation system (see "installing the interface system" pag.20).
7/8	ON	Disabled electric lock (see pag.19).
7 8	ON OFF	Continuous operation of lock (locks doors open and closed) see pag.19
7 8	OFF ON	Continuous operation of lock (locks doors closed) see pag.19
7/8	OFF	Electric lock disengaged from local control (controlled by function switch MA7041) pag.19
9/10	ON	Emergency system closes doors in case of power failure (see pag.18)
9 10	OFF ON	Emergency system opens doors in case of power failure (see pag.18)
9/10	OFF	Normal operation powered by emergency battery in case of power failure (see pag.18)

Dip 4-way		SELECTION FUNCTIONS
1	ON	Activation of spring-loaded anti-panic device (set dip switch 4 to ON, constant push while closing, 10-dip function selector, see pag.19).
2	-	Not used, keep the dip in position «OFF»
3	ON	Excludes the photoelectric cell function (MF9011 or MF9111 card inserted into the control board, pag.22)
4	-	Not used, keep the dip in position «OFF»

FUNCTIONS OF INDICATOR LED



LED	STATUS	SIGNAL
1	flashing	-Encoder is inoperative
1	lit	-Encoder is inoperative
2	(*)	-emergency battery is discharged
3	lit	-pilot light on 24V a.c.
4	lit	-photocell contact open
5	lit	-interface function activated (see "installing the interface")
6	lit	-malfunction on electric lock
7	lit	-pilot light on amperometric sensor
8	flashing	-automatic closing cycle in progress
8	flashing	-"read" error during automatic calibration cycle
6/7/8	lits	-automatic calibration procedure terminated

(*) in this case, the LED signal remains lit to indicate that the anti-panic device batteries are run down only if the emergency battery status check is disabled (10-way dip 2 set to OFF); whereas it flashes if the battery check is activated (10-way dip 2 set to ON).

VERIFICHE PRELIMINARI

Before start-up, make sure that:

- ✓ The electric lock (if installed) has been manually released;
- ✓ The proper tension has been applied to the belt (see p. 12);
- ✓ The checks described on p. 13 (checking for proper assembly) have been performed;
- ✓ No objects are present along the path taken by the door wings as they move;
- ✓ All mounting hardware has been properly tightened;
- ✓ The sensors are correctly aligned and are not blocked;
- ✓ The desired functions have been correctly selected on the dip switches (see p. 16);
- ✓ The trimmers have been set to their midpoints (see p. 15).

START-UP/CALIBRATION

1. Turn on the power to the unit
 - LED no. 3 will light up
2. Move dip switch 1 to ON
 - LED no. 3 will turn off and LED no. 8 will light up
 - The system will execute a closing and opening cycle at reduced speed and will stop at the maximum open position ⁽¹⁾ at the end of the cycle
 - LEDs no. 6-7-8 will light up
3. Move dip switch 1 to OFF
 - LEDs no. 6-7-8 will turn off and LED no. 3 will light up
4. Make sure that function switch MA7041 (if installed) has been set to the "open" position (with the LEDs lit in sequence)
5. Enter an "open" command on 2-R1/2-R2 or by pressing the open key (see p.15).
 - the automation will position itself at the closing point
6. Send an opening signal
 - the automation will perform a complete manoeuvre
7. Adjust the movement of the doors using the door trimmers (see p.15).
8. Adjust trimmer 3 to obtain the desired delay before automatic closing
9. Trimmer 2 can be adjusted only if function switch MA7041 has been installed and if this switch has been set to the "partial opening" position
10. Use the lever on the manual release system to re-arm the electric lock (if installed)

⁽¹⁾ If the automation system stops during the closing cycle, the motor polarity may be incorrect. If this occurs, proceed as follows:

- Disconnect the mains power
- Make sure dip switch 1 is set to OFF
- Reverse connections M-N on the terminal board for the motor, which is located in the electrical cabinet (on the right)
- Begin another start-up/calibration procedure starting from point 1.

SAFETY FUNCTIONS - Actions taken by the automation system when a safety device trips

When the safety sensor detects an obstacle, the microprocessor control system in the electrical cabinet actuates:

- | | |
|--------------------|--|
| re-opening, | if the automation system is closing; |
| a stop, | if the automation system is opening. The system will then re-close when actuated by the automatic closing timer. |

If the obstacle is still detected:

- | | |
|-----------------------|--|
| during closing | the automation will automatically try 4 times to close the doors, and then it will stop them in the open position, awaiting a new command. |
| during opening | the automation system will stop with the door wings resting against the obstacle and will re-close when actuated by the automatic closing timer. The system will attempt to open the door three times, and then pause with the door wings resting against the obstacle until another command is given; |
- (In both cases, normal operation with the programmed settings will automatically resume when the obstacle is removed)

Changing the direction of door opening (Corsa 1)

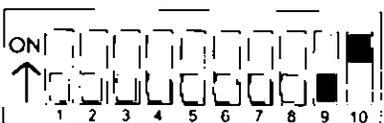
- With the door stopped, reverse connections M-N on the terminal board for the motor, which is located in the electrical cabinet (on the right);
- Re-align electric lock MA7012.
- Press the RESET key on the electrical cabinet (if the unit has already been calibrated, the relative settings will be deleted).
- Start up (or restart) the automation system as described in the section on start-up.

MA7032 - Battery-powered emergency system

This emergency system opens the door in case of power failure. It includes a pair of 12V (1.2Ah) batteries as well as a circuit card that keeps the batteries charged and distributes power to the automation system.

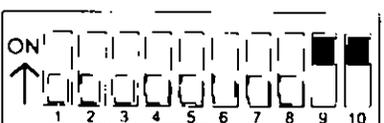
By using dip switches 9 and 10 (10-way module), the emergency system can be programmed to operate in the following ways when the power fails:

Note: When functioning is interlocked (see p. 20), the following functions are selected equally for both automations.



9 OFF
10 ON

Opening only. The doors open and remain open until current returns to the line. The same occurs even if the MA7041 selector is set to "doors closed".



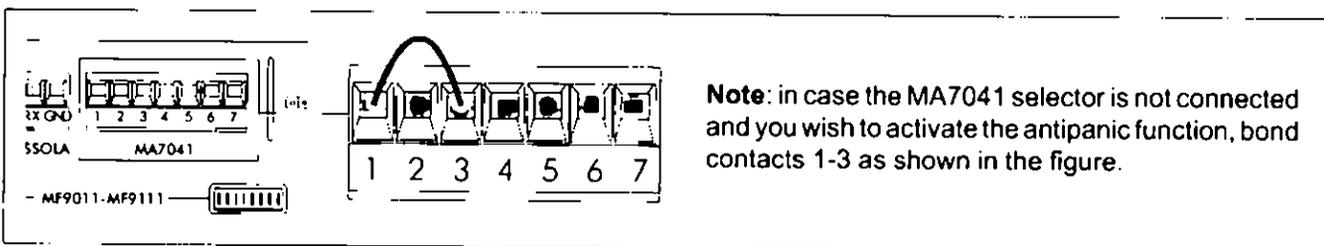
9 ON
10 ON

Closing only. The doors closes and stays closed (even if "door open" has been selected on MA7041) until the mains power is restored.



9 OFF
10 OFF

Normal functioning. The doors continue to function until the current in the batteries drops below the safety level, in which case they stop. If the MA7041 function selector is set to "doors closed", the doors can only be opened by entering a command on the 2-M contact.



Note: in case the MA7041 selector is not connected and you wish to activate the antipanic function, bond contacts 1-3 as shown in the figure.

Anti-panic device with constant battery control

Setting dip switch 2 of the 10-way module to the ON position (on the interlock system, set it on both panels) activates the **constant control of the battery charge buffer**, which during normal functioning with 230V power mains voltage checks the minimum charge of the 20V batteries; if it falls below this level (on the interlock system the voltage of the batteries of one of the two automations) the function activates a safety procedure. This procedure consists in the opening or closing of the doors (depending on the settings of dip switches 9 and 10). For the interlock system, the safety procedure (signalled by a continual flashing of LED No. 2 on the MASTER panel) causes the doors to open on both the automatic system. After reset of the batteries, the LED goes out and the system re-starts normally after an 'open' command.



N.B.: For single automation installations, activating the battery control deactivates normal functioning (dip 9 OFF - 10 OFF).

- If function selector MA7041 is installed, make sure that the "EMERGENCY" function has been selected (which is indicated by a flashing yellow LED).
- In any event, normal operation with the programmed settings will automatically resume when the mains power is restored.

MA7012 - Electric lock

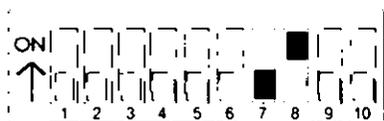
Electro-mechanical system for locking the door wings, with gravity-powered mechanical locking action and electric unlocking system. This device locks the door wing(s) in the closed position (and/or in the open position) by engaging a bracket installed on one of the trolleys.

By using dip switches 7 and 8 (10-way module), the electric lock can be programmed to operate as follows:



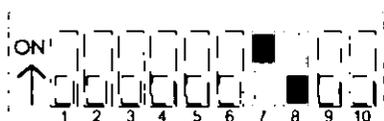
7 ON
8 ON

Deactivated. Use this setting when the electric lock is not installed.



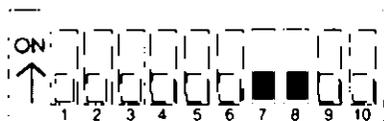
7 OFF
8 ON

Locking with doors closed. This is normal operation: the unit locks on closure and is released electrically when the open command is given. This is the default setting.



7 ON
8 OFF

Locking with doors closed and open. The unit locks both when open and closed (when positioned correctly ⁽¹⁾), and is released electrically by each open and close command.



7 OFF
8 OFF

Delayed locking. The electric lock is unlocked when the first "open" command is given at initial start-up or after a power failure, or when "door open" is selected on MA7041. The lock is locked when "door closed" or "output only" is selected on MA7041.

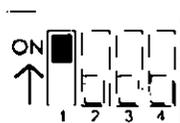
MI1010 - Spring-loaded Anti-panic device

Mechanical device to open the doors, made up of a spring-loaded system which operates without electric power supply. With this device, use the dip-switches as indicated.

DIP SWITCH
10-WAY



DIP SWITCH
4-WAY



4 ON Activation of constant push while closing.
(10-way dip switch)

1 ON Activation of spring-loaded anti-panic device.
(4-way dip switch)

MALFUNCTIONS	RIFERIMENTI
- The automation system does not open	A - B - C - D - E - F - J - K - N - S - T - U - V - X - Z
- The automation system does not close	D - E - F - G - H - K - I - J - N - R - S - V - Z
- The automation system does not open completely	C - D - K - O - P - Q - S - V - W - X - Y - Z
- The automation system does not close completely	C - H - K - O - P - Q - S - V - W - X - Z
- The automation system operates at reduced speed, only	S - Q - W - V - X - Y
- The automation does not maintain the initial settings	O - P - Q - S - V - W - X - Y - Z
- The electric lock does not unlock to allow the door to open	E - S - T - U
- The photocells do not operate	E - G - H - I - S
- The automation system does not operate in the manner selected on the function switch	E - J - S
- The emergency system does not operate	D - L - M - N - V - W - X - Y
- The automation system is excessively noisy	V - W - X - Y

ALSO, SEE THE SECTION ON THE "FUNCTIONS OF INDICATOR LEDS"

POSSIBLE CAUSES
A No power or incorrect power is being supplied from the power mains.
B The fuses are blown.
C Initial programming - lacking or unsuitable
D Function switch is set to the wrong position.
E Electrical connections are wrong.
F Bridge connection 1-2 is missing
G Safety devices are not connected to contacts 2 -C1 and the contacts have not been short-circuited.
H Safety photocells are improperly aligned or inoperative.
I Dip 3 (4-way module) to select
J Motor connections are wrong.
K Encoder is inoperative.
L Circuit card MA7032 for the emergency system is inoperative.
M Batteries are dead.
N Dip 2 (10-way module) activated (function verification on page 18)
O Slow-down adjustments (open and close) inadequate
P Adjustments of the slow-down points (open and close)
Q Speed adjustments (open and close) inadequate
R TCA adjustment, excessive
S ZP7 main board is inoperative.
T Microswitch on electric lock is inoperative.
U The bracket that engages the electric lock to the trolley is incorrectly positioned.
V Mechanical interference is occurring between moving door wings and non-moving parts (for example: door wings/pavement; non-moving door wings/moving door wings; moving door wings/pavement-mounted guides; weather stripping/non-moving door wings)
W There is mechanical interference with the drive system (for example: interference between trolleys and cables).
X Scraps of materials / objects are present in guide track.
Y Belt tension is incorrect.
Z Mechanical stops are incorrectly positioned.

SERVICE CENTRE	NOTES	DATE



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