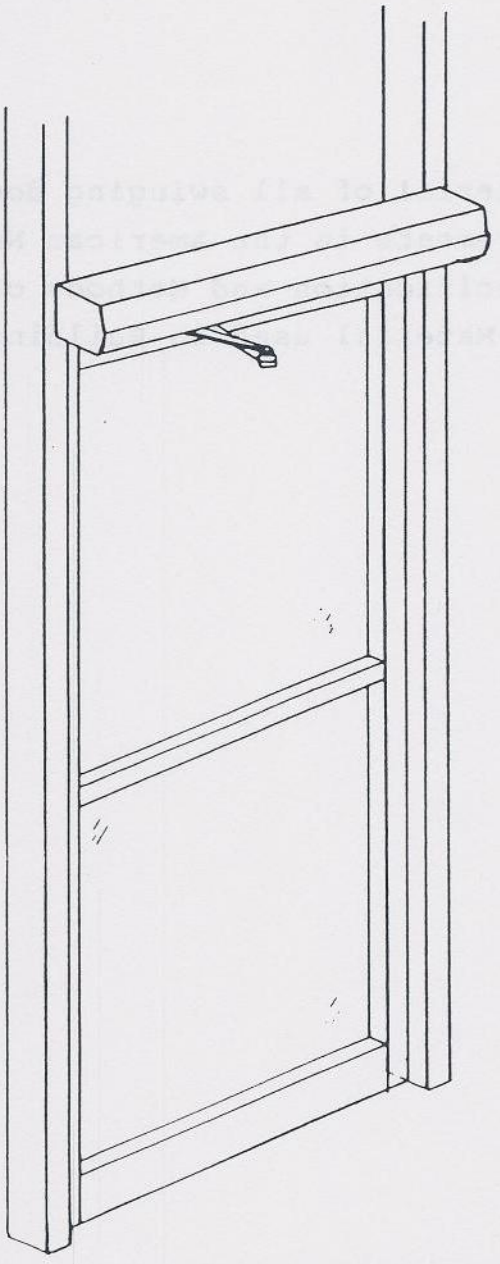
INSTALLATION-OWNERS MANUAL
#18-23-001

besam®

ELECTRA™ 150

Swing Door Operator

(With Slimline Cover)

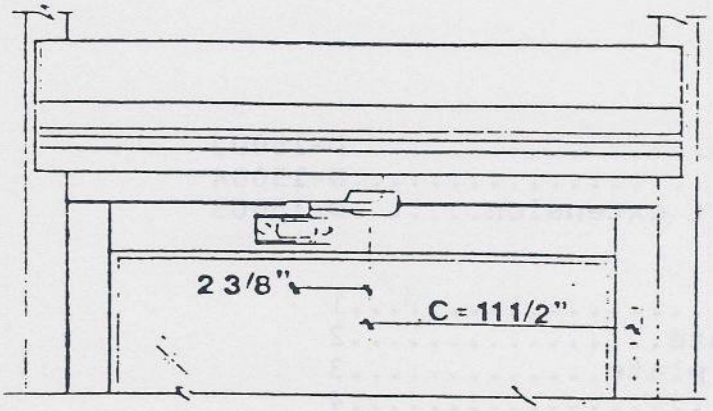


NOTE: The glazing material of all swinging doors shall comply with the requirements in the American National Standard Performance Specification and Methods of Test for Safety Glazing Material used in Buildings. z97.1-1972

CONTENTS

INSTALLATION STANDARD ARM SYSTEM

RIGHT HAND DOOR



LEFT HAND DOOR

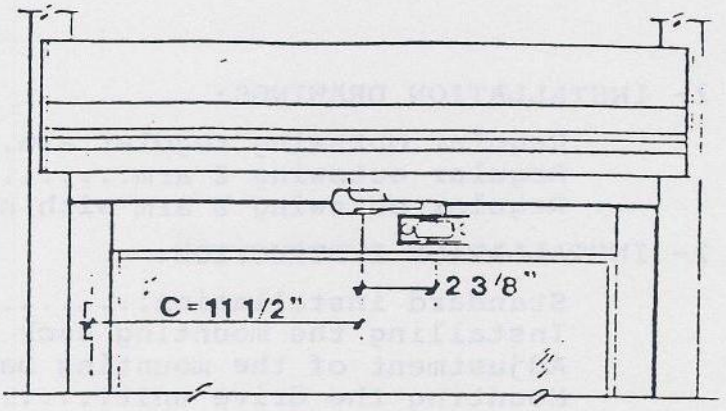


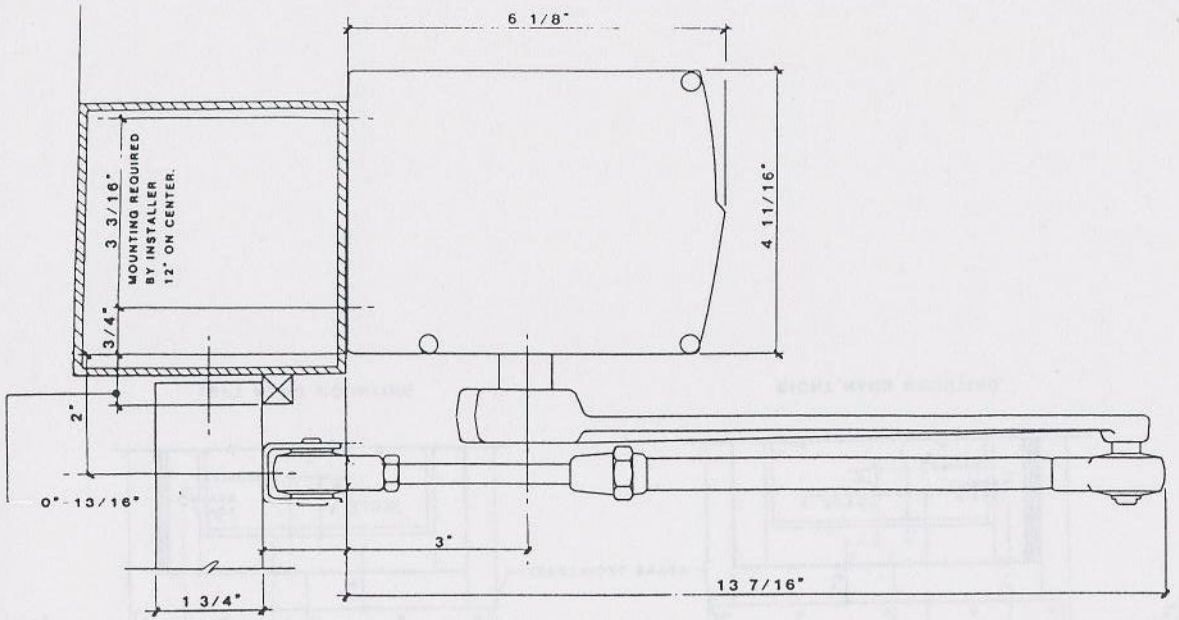
Fig.1

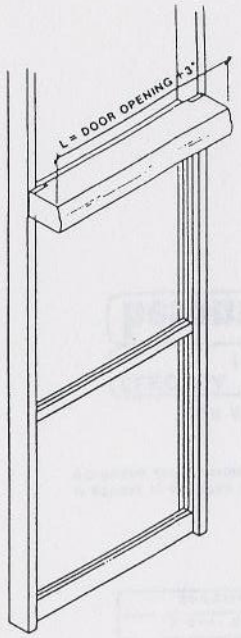
STANDARD INSTALLATION

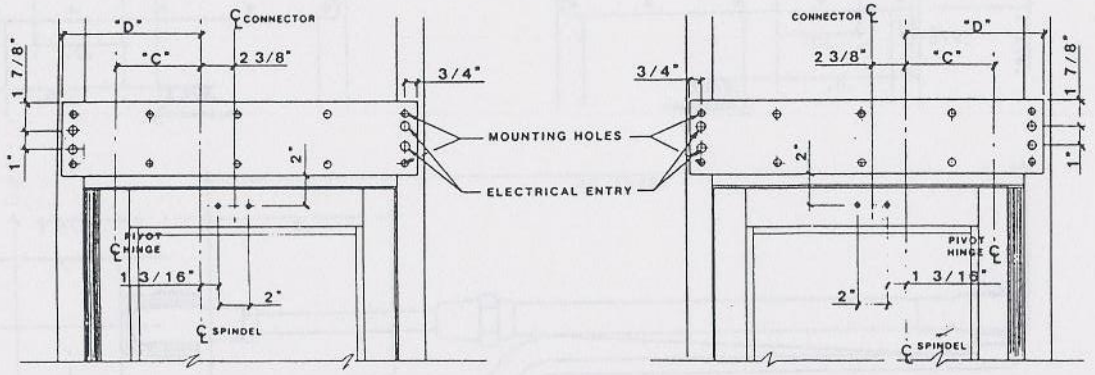
Standard installation implies that the measurement "C" which is the distance between the center line of the hinge/pivot and the center point of the operator is always 11 1/2". Standard installation applies only if the conditions below are fulfilled.

- The reveal (the distance between mounting plate and door may not exceed 6").
- The door weight may not exceed 200 lbs.
- The door width may not exceed48".
- No special demands on the opening angle of the door (will be approximately 90 degrees).

For standard installation with the above conditions fulfilled, an operator with fully acceptable function is obtained.







LEFT HAND MOUNTING

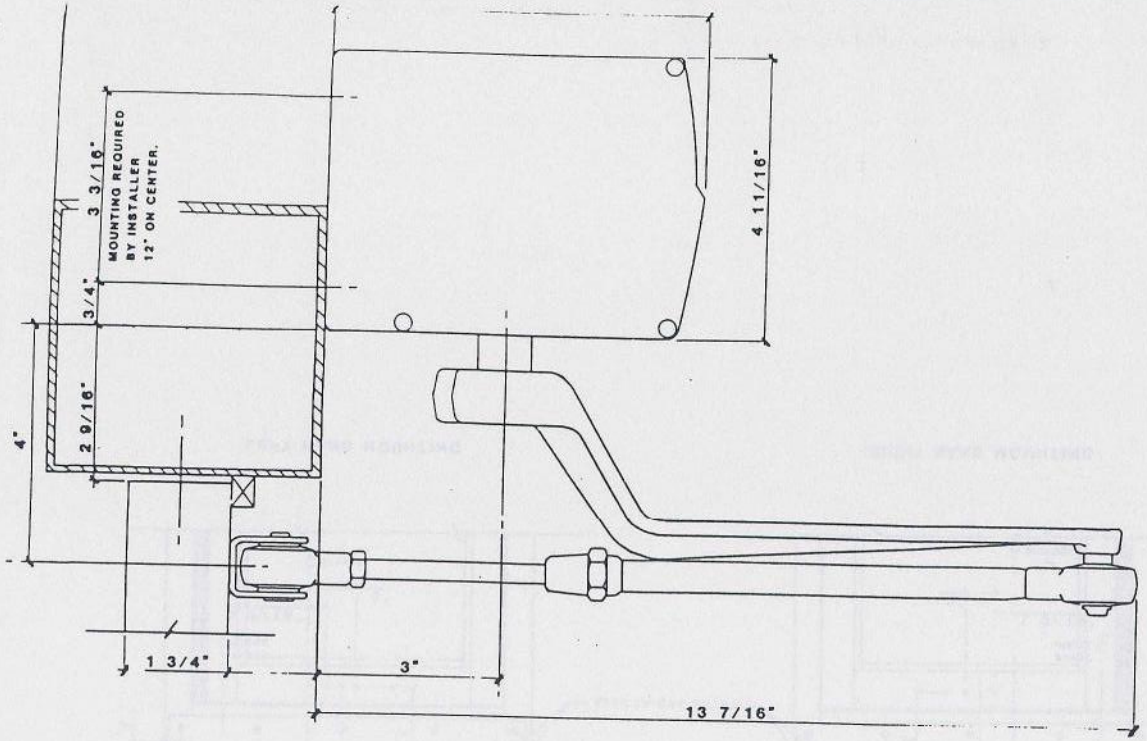
RIGHT HAND MOUNTING

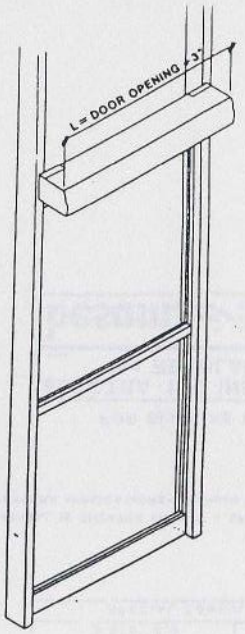
TYPE APPLICATION	"C"	"D"
HINGE HUNG	11 1/2"	12 7/8"
2 3/4" C.P.	11 1/2"	15 5/8"
3 3/4" C.P.	11 1/2"	16 5/8"
SPECIAL CONSULT FACTORY		

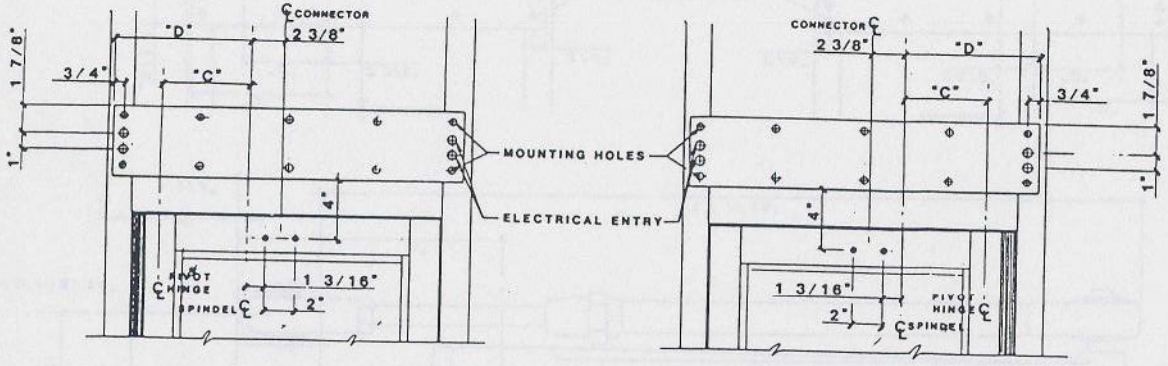
IF REVEAL IS GREATER THAN 3" A SPECIAL TELESCOPIC ROD IS REQUIRED.
STANDARD APPLICATIONS-MAXIMUM REVEAL IS 6"

FOR SLIMLINE HEADER

TITLE: ELECTRA 150 INSTALLATION for REGULAR ARM	DATE: 2/20/86
besam 171 TWIN RIVERS DR. EAST WINDSOR, N.J. 08520 609-443-5800	DWG NO: D-15003







LEFT HAND MOUNTING

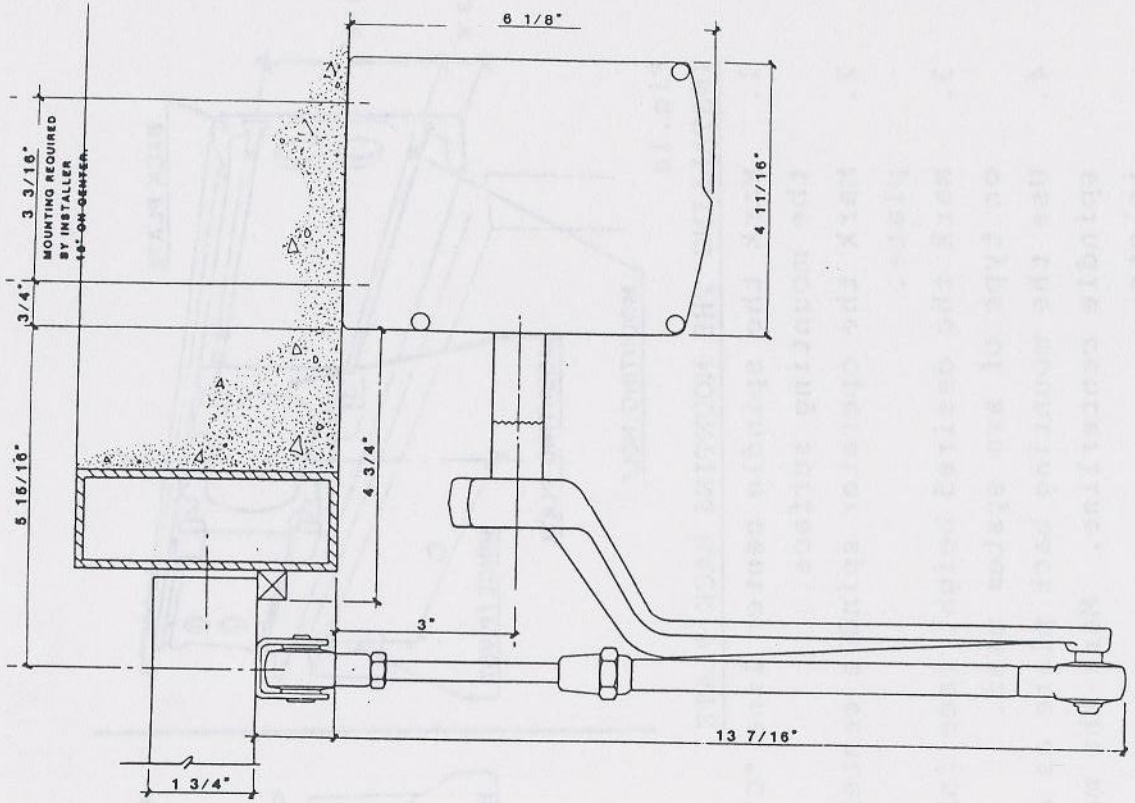
RIGHT HAND MOUNTING

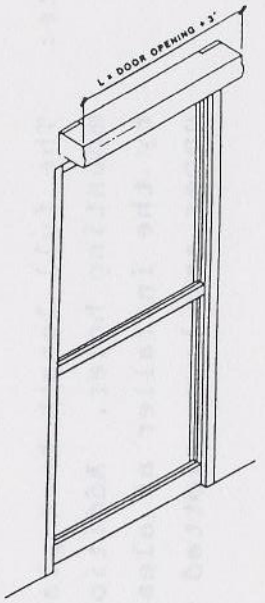
TYPE APPLICATION	"C"	"D"
HINGE HUNG	11 1/2"	12 7/8"
2 3/4" C.P.	11 1/2"	15 5/8"
3 3/4" C.P.	11 1/2"	16 5/8"
SPECIAL CONSULT FACTORY		

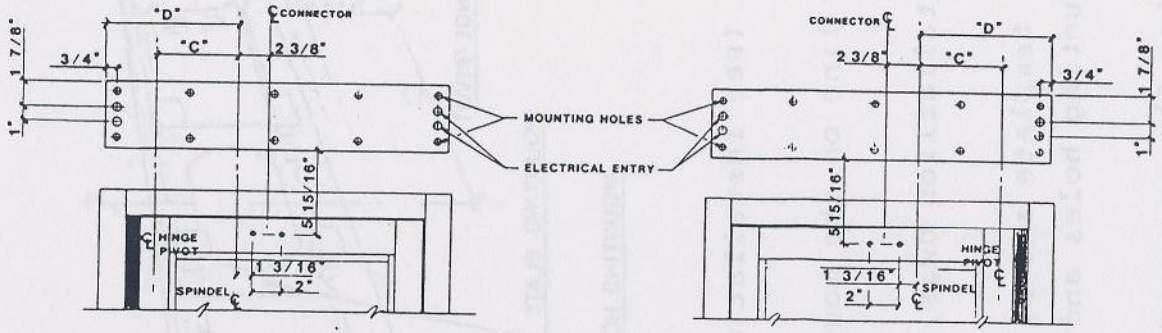
IF REVEAL IS GREATER THAN 3" A SPECIAL TELESCOPIC ROD IS REQUIRED.
STANDARD APPLICATION-MAXIMUM REVEAL IS 6"

FOR SLIMLINE HEADER

TITLE: ELECTRA 150 INSTALLATION for Z ARM	DATE: 2/20/86
besam — 171 TWIN RIVERS DR. EAST WINDSOR, N.J. 08520 609-443-5800	DWG. NO.: D-15004







LEFT HAND MOUNTING

RIGHT HAND MOUNTING

TYPE APPLICATION	"C"	"D"
HINGE HUNG	11 1/2"	12 7/8"
2 3/4" C.P.	11 1/2"	15 5/8"
3 3/4" C.P.	11 1/2"	16 5/8"
SPECIAL CONSULT FACTORY		

IF REVEAL IS GREATER THAN 3" A SPECIAL TELESCOPIC ROD IS REQUIRED.
STANDARD APPLICATIONS-MAXIMUM REVEAL IS 6"

FOR SLIMLINE HEADER

TITLE: ELECTRA 150 INSTALLATION for SHAFT EXTENSION

DATE: 2/20/86

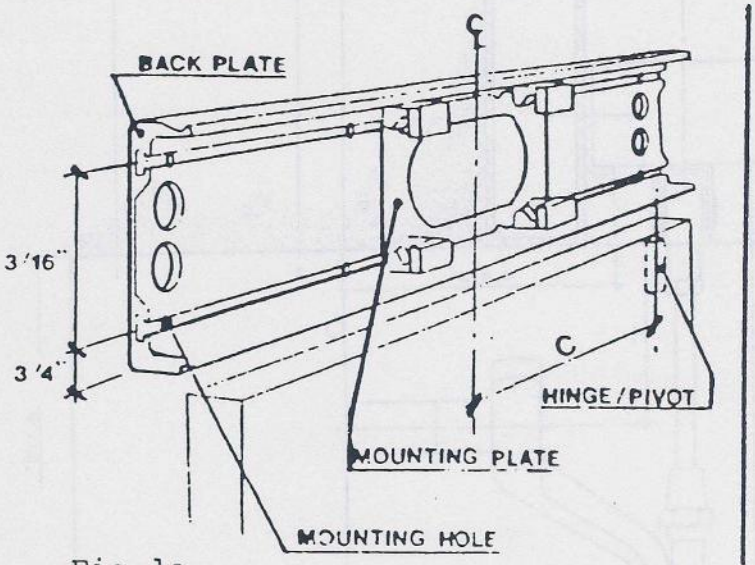
besam

171 TWIN RIVERS DR.
EAST WINDSOR, N.J. 08520
609-443-5800

DWG NO. D-15005

INSTALLATION STANDARD ARM SYSTEM

RIGHT HAND DOOR



LEFT HAND DOOR

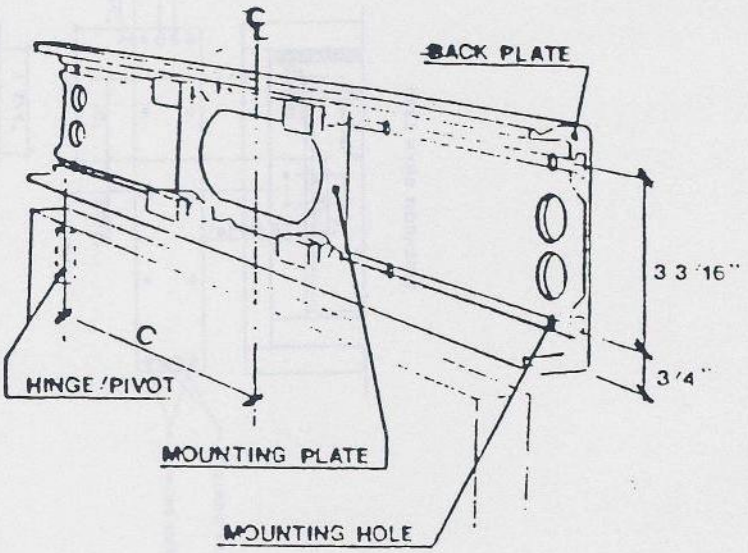


Fig.1a

INSTALLING THE MOUNTING BACK PLATE

1. Mark the spindle center line "C" (see installation dwgs.) on the mounting surface.
2. Mark the operator spindle center line on the mounting back plate.
3. Mark the desired height (see installatiion dwgs.) depending on type of arm system used.
4. Use the mounting back plate as a template and align the spindle centerline. Mark the mounting holes and electrical inlets.
5. Check that the mounting surface has the necessary reinforcement. Drill and tap or install rivnuts (Fig.1b). Run Electrical power.
6. Ensure that the mounting back plate is level.

Note: The full length back plate has only 4 predrilled mounting holes. Additional holes must be prepared by the installer at aleast 12" on center in both the upper and lower slotted nut areas.

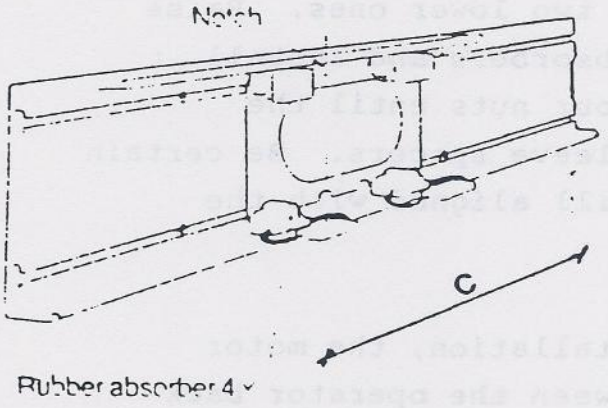
INSTALLATION STANDARD ARM SYSTEM

MOUNTING MATERIAL	MINIMUM REQUIREMENT
Steel	3/16"*
Aluminum	1/4"*
Reinforced Conrete	2" from the under-side
Wood	2"

*Thin-wall profiles must be reinforced with Rivnut.

Fig.1b Note: Back plate is not self supporting

RIGHT HAND DOOR



LEFT HAND DOOR

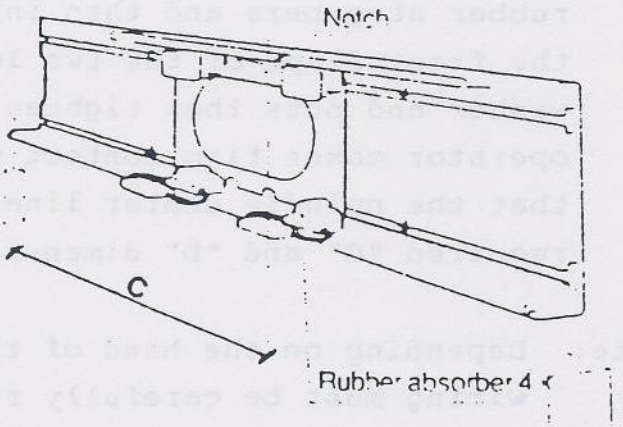


Fig.2

ADJUSTMENT OF THE MOUNTING BACK PLATE

7. Adjust the operator mounting plate so that the notch is aligned with the "C" and "D" spindle locations on installation drawings. (Fig.2)
8. Unscrew the two lower nuts and lower the front flaps of the rubber absorbers, lossen the two upper nuts, without unscrewing them so loose that the front flaps come loose.

INSTALLATION STANDARD ARM SYSTEM

RIGHT HAND DOOR **LEFT HAND DOOR**

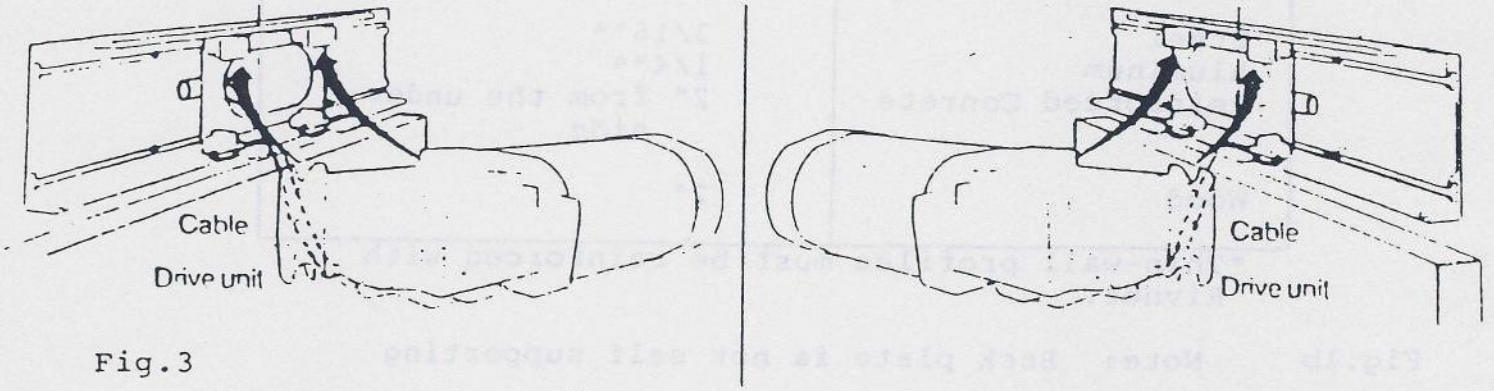


Fig.3

MOUNTING THE DRIVE UNIT

9. Insert the operator drive unit first into the two upper rubber absorbers and then into the two lower ones. Raise the front flaps of the two lower absorbers and install washer and nuts then tighten all four nuts until the operator makes firm contact with sleeve spacers. Be certain that the spindle center line is still aligned with the required "C" and "D" dimensions.

Note: Depending on the hand of the installation, the motor wiring must be carefully run between the operator back plate. Be certain that it is not damage during Step 9. (Fig. 3)

INSTALLATION STANDARD ARM SYSTEM

RIGHT HAND DOOR **LEFT HAND DOOR**

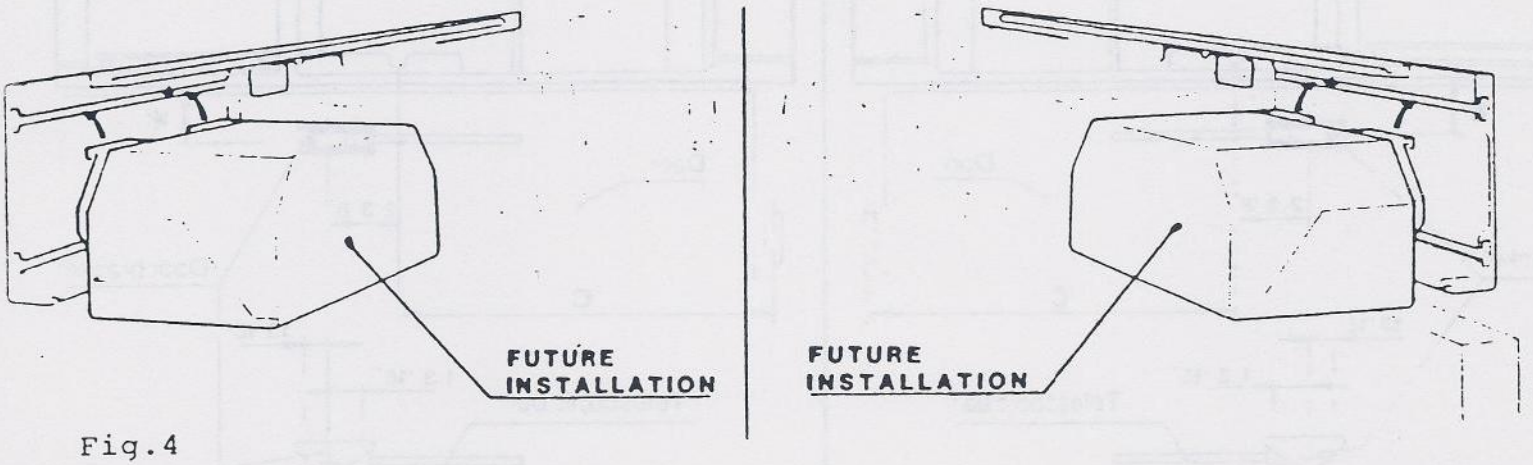


Fig.4

MOUNTING THE CONTROL UNIT

Install the control unit to the two bolts provided in the back plate. Be certain to ground the control unit with the green ground wire coming from it to the additional nut located between the two mounting bolts. Fig. 4 shows the proper location of the control and future controls will snap into place.

INSTALLATION STANDARD ARM SYSTEM

RIGHT HAND DOOR

LEFT HAND DOOR

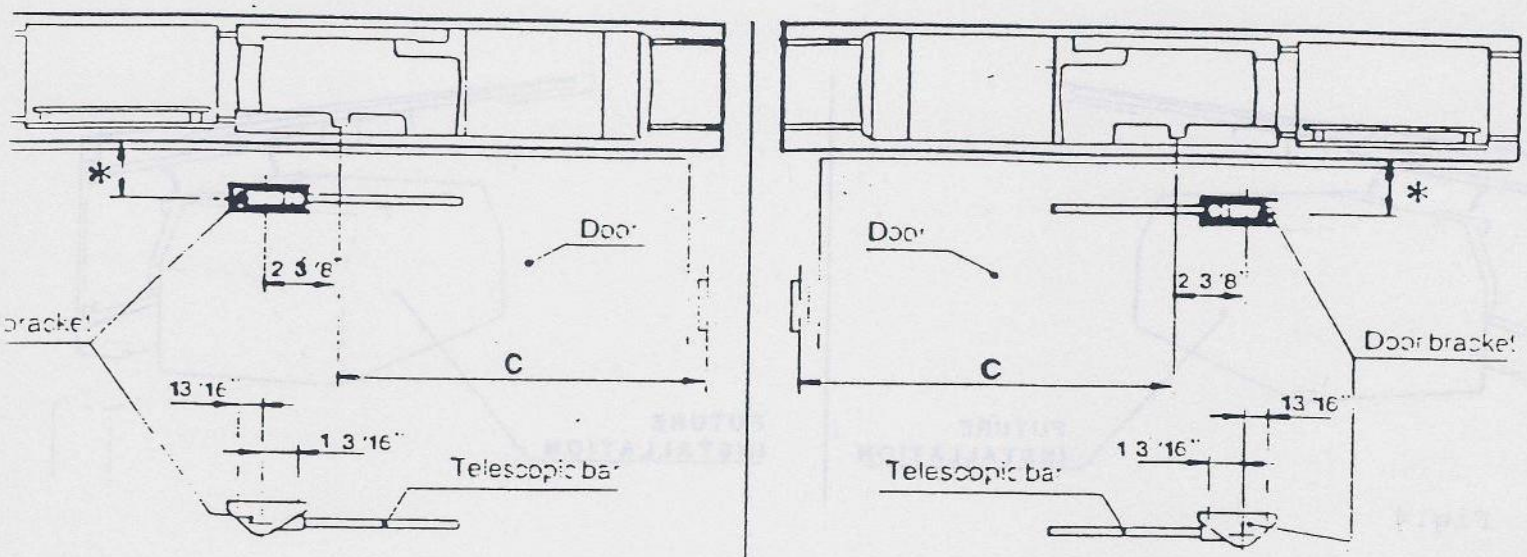


Fig.5

MOUNTING THE DOOR BRACKET WITH TELESCOPIC BAR

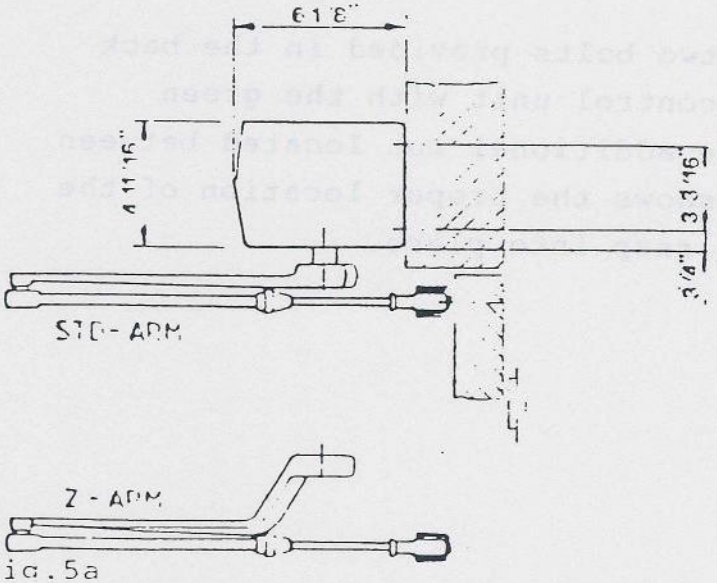


Fig.5a

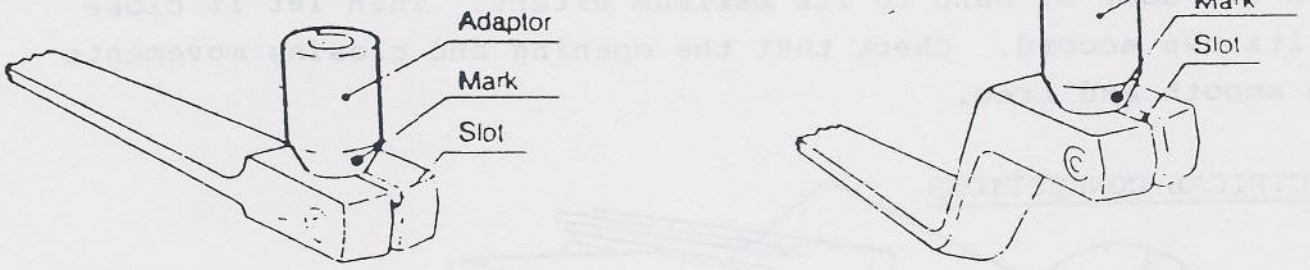
* SEE INSTALLATION DRAWINGS

1. Remove the door bracket and the telescopic bar from the arm system. Check that the door has the necessary reinforcement. Close the door and transfer the spindle center line to the door.
2. Establish the door bracket center lines from the appropriate installation drawings.
3. Install the door bracket so that the connecting rod end center line is 2 3/8" from the spindle center line.

INSTALLATION STANDARD ARM SYSTEM

RIGHT HAND DOOR **LEFT HAND DOOR**

MOUTNING THE ADAPTOR ON THE ARM



STD-ARM Z-ARM

Fig.6

Mount the adaptor on the arm with the mark aligned with the slot in the arm. Tighten the screw properly.

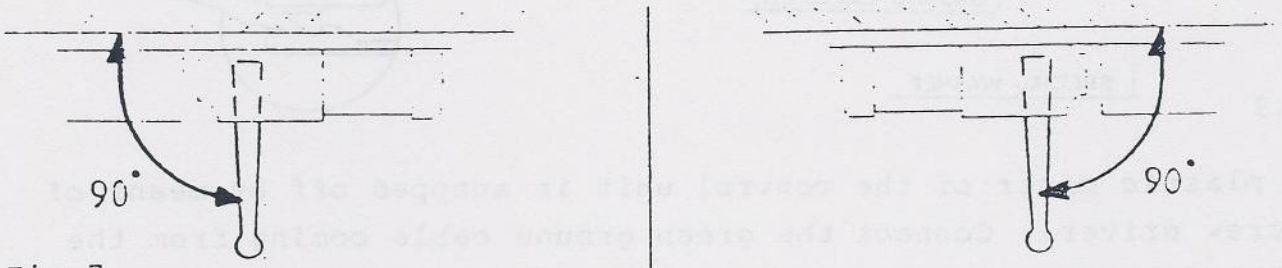


Fig.7

MOUNTING THE ARM

Mount the arm on the shaft of the operator at an angle of 90 degrees to the wall. Ensure that the grooves fit correctly, so they do not get damaged when the arm is tightened.

ADJUSTING THE ANGLES OF THE ARM

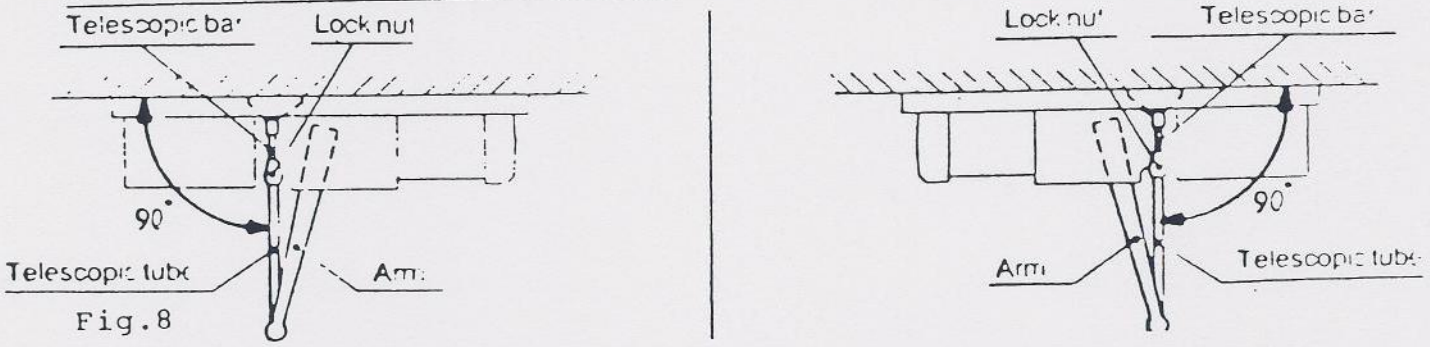


Fig.8

Insert the telelcopic bar in the telescopic tube (do not tighten the lock nut). Close the door and keep it closed. Turn the arm until the telescopic bar/telescopic tube are at an angle of 90 degrees to the door. Tighten the telescopic bar by means of the lock nut.

INSTALLATION STANDARD ARM SYSTEM

CHECKING THE DOOR MOVEMENT

Open the door by hand to its maximum extent. Then let it close of its own accord. Check that the opening and closing movements are smooth and free.

ELECTRICAL CONNECTIONS

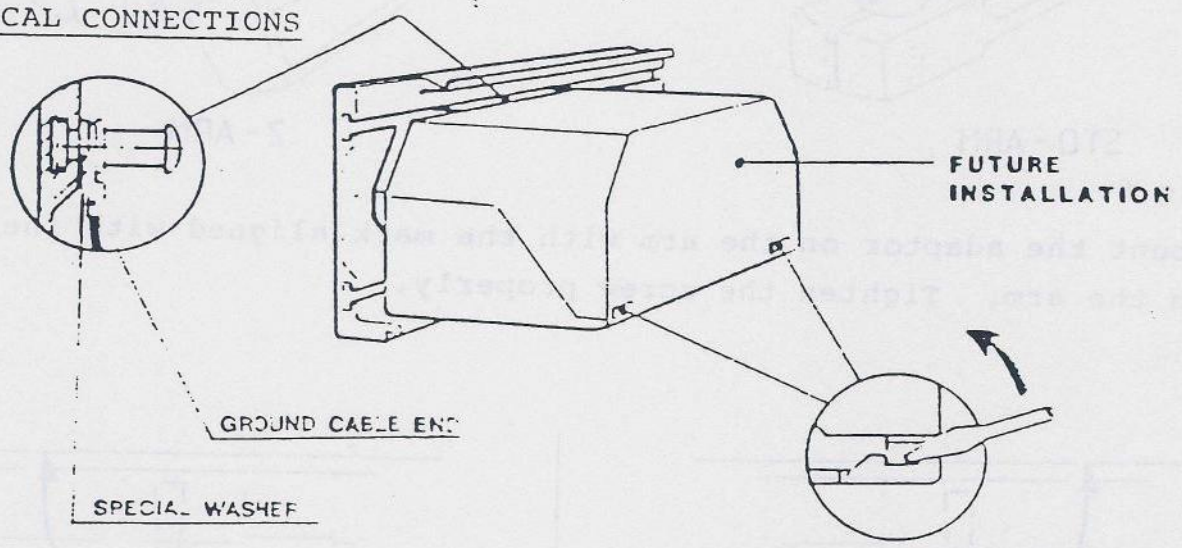


Fig.9

The plastic cover of the control unit is snapped off by means of a screw driver. Connect the green ground cable coming from the PC-board to the ground screw, positioned in the upper T-groove at the recess in the control unit.

Note: It is of great importance that the special washer is placed between the mounting back plate and the ground cable end.

INSTALLATION STANDARD ARM SYSTEM

RIGHT HAND DOOR **LEFT HAND DOOR**

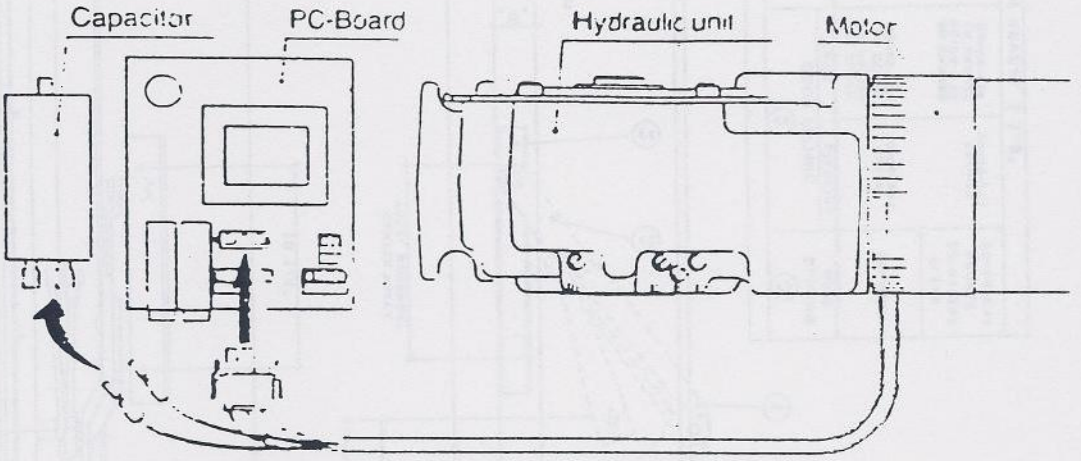
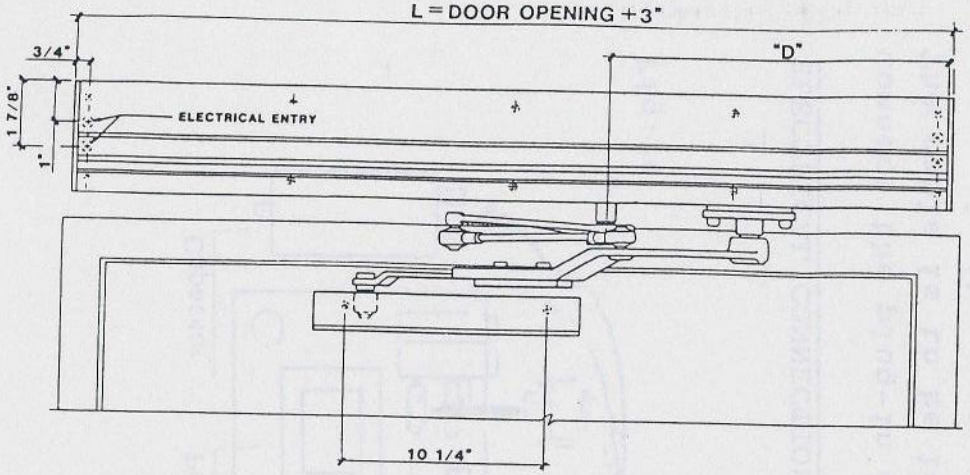
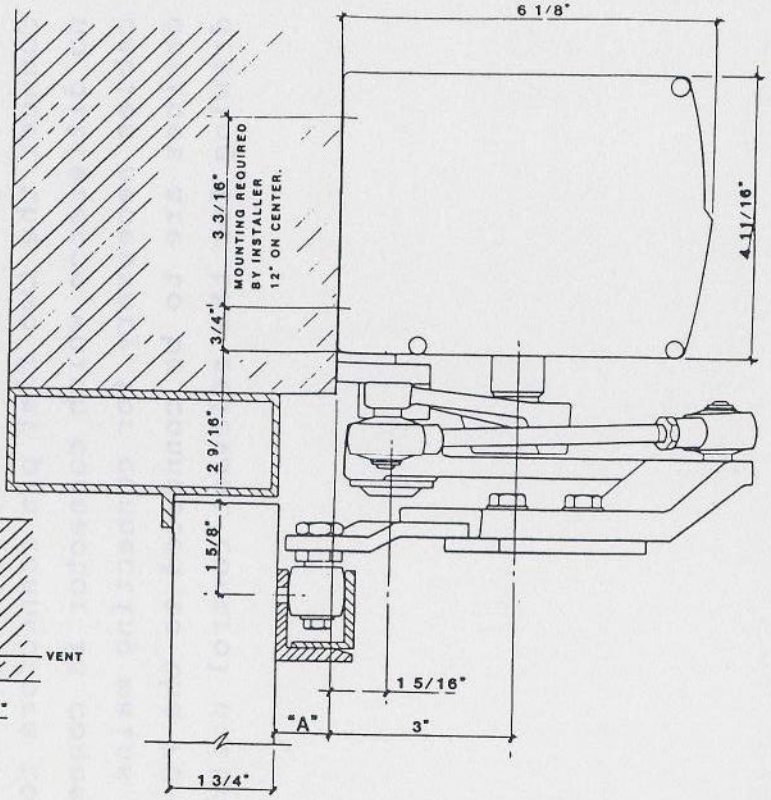


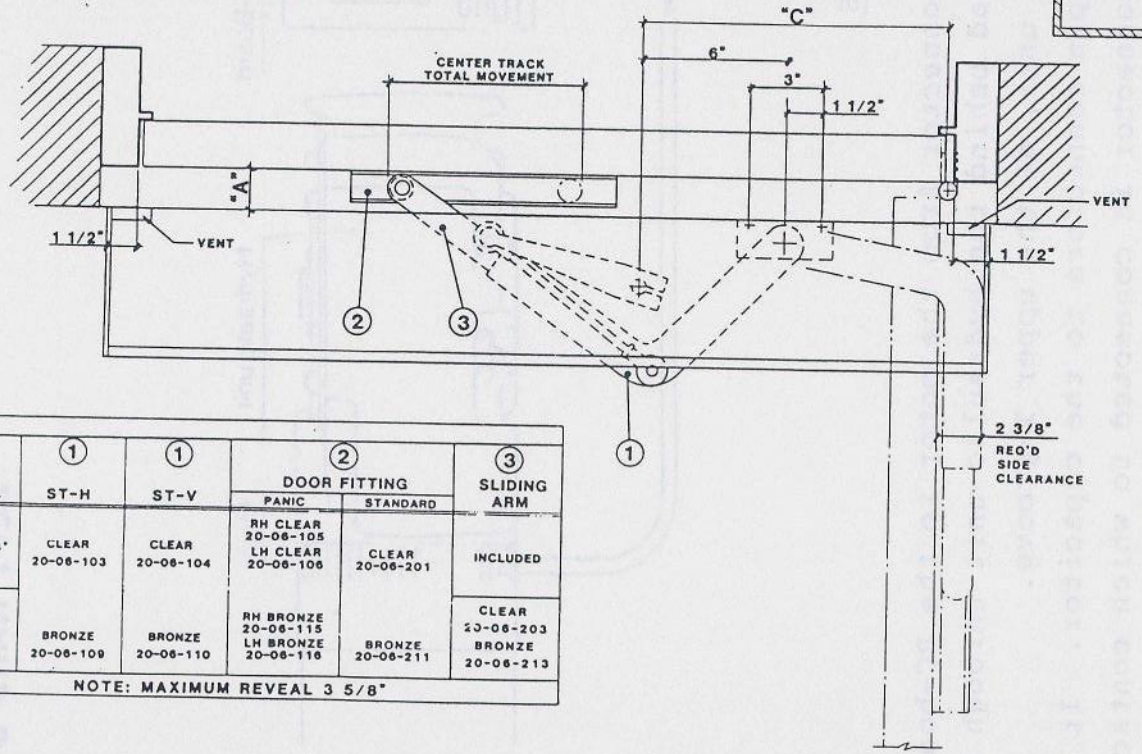
Fig.9a

ELECTRICAL CONNECTIONS

Connect the plug-in connector from the motor to the PC-board. The cable is to be lead behind the hydraulic unit through the recess in the control unit, at the upper T-groove.
Connect the two flat pin connectors to the capacitor. It makes no difference which connector is connected to which contact. The cables necessary for connecting mains voltage and actuating devices are to be connected to the PC-board. (See connection drawing for the relevant control unit/PC-board, page 20).







"A" REVEAL	① ST-H	① ST-V	② DOOR FITTING PANIC	② DOOR FITTING STANDARD	③ SLIDING ARM
0"-2 1/16"	CLEAR 20-06-103	CLEAR 20-06-104	RH CLEAR 20-06-105 LH CLEAR 20-06-106	CLEAR 20-06-201	INCLUDED
2 1/16" -3 5/8"	BRONZE 20-06-109	BRONZE 20-06-110	RH BRONZE 20-06-115 LH BRONZE 20-06-116	BRONZE 20-06-211	CLEAR 20-06-203 BRONZE 20-06-213
NOTE: MAXIMUM REVEAL 3 5/8"					

TYPE APPLICATION	"C"	"D"
HINGE HUNG	11 7/8"	13 1/4"
SPECIAL CONSULT FACTORY		

LEFT HAND SHOWN
(RIGHT HAND MIRROR IMAGE)

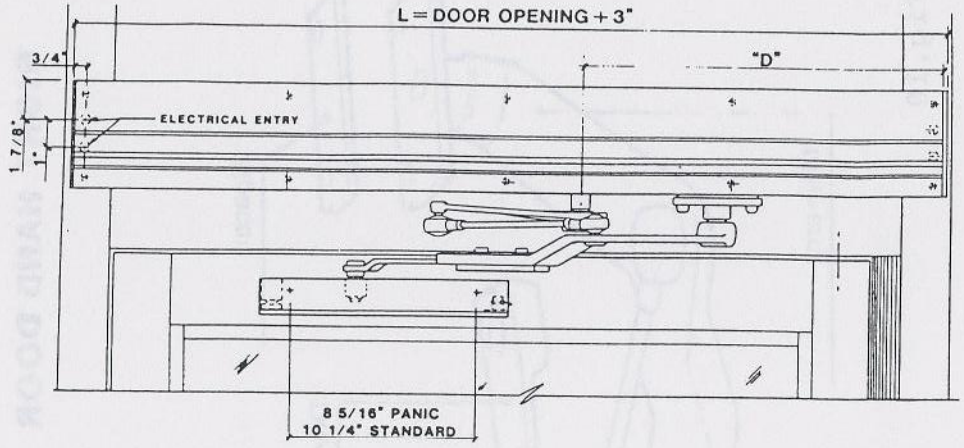
FOR SLIMLINE HEADER

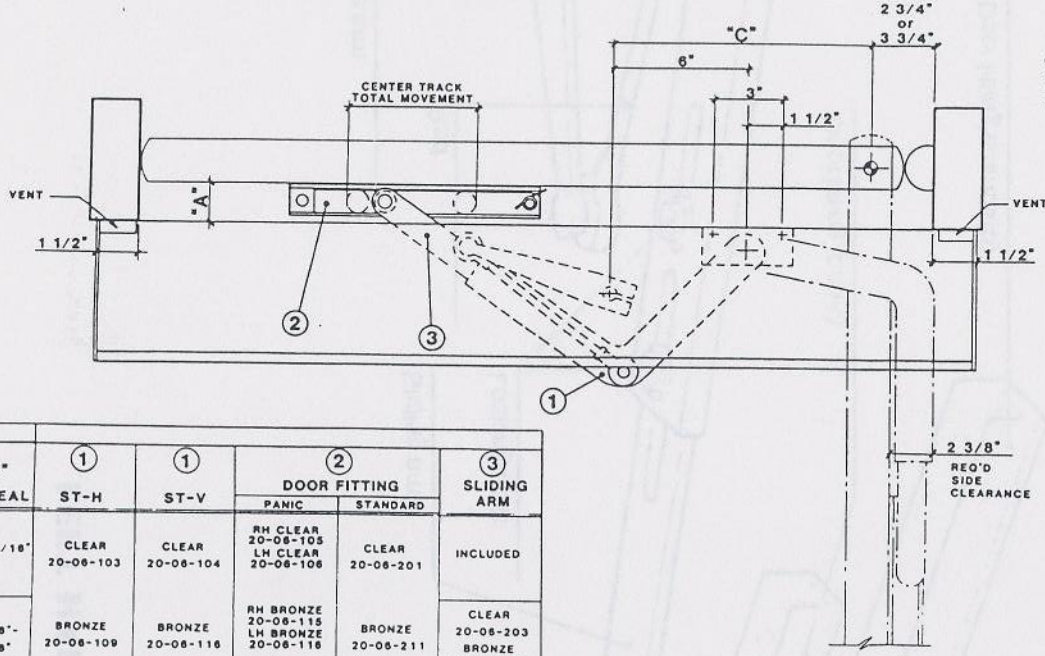
ELECTRA 150 INSTALLATION for HINGE HUNG DOORS

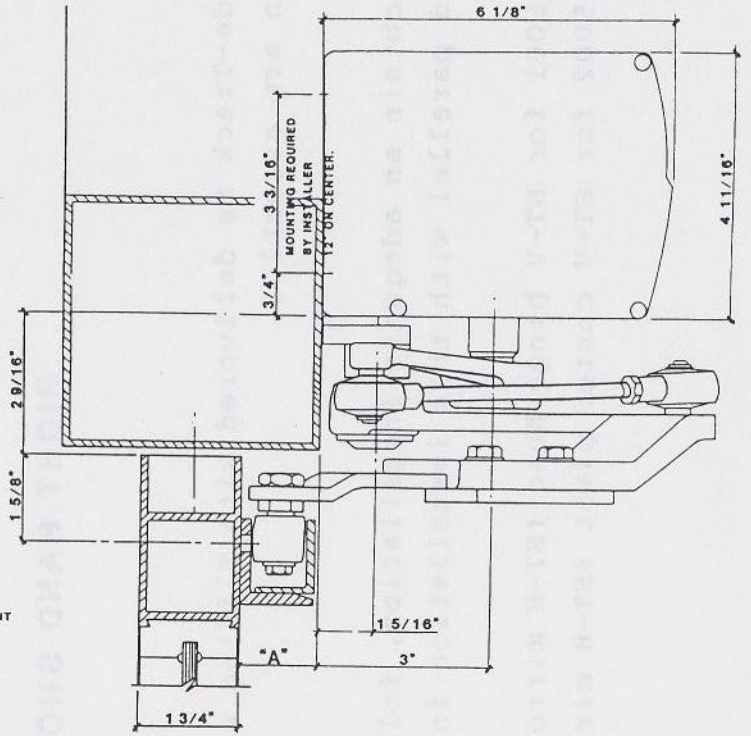
DATE 2/20/[illegible]

besam 171 TWIN RIVERS DR. EAST WINDSOR, N.J. 08520 609-443-5800

DWG NO. D-15001







"A" REVEAL	① ST-H	① ST-V	② DOOR FITTING PANIC	② DOOR FITTING STANDARD	③ SLIDING ARM
0"-2 1/16"	CLEAR 20-06-103	CLEAR 20-06-104	RH CLEAR 20-06-105 LH CLEAR 20-06-106	CLEAR 20-06-201	INCLUDED
2 1/16"-3 5/8"	BRONZE 20-06-109	BRONZE 20-06-116	RH BRONZE 20-06-115 LH BRONZE 20-06-116	BRONZE 20-06-211	CLEAR 20-06-203 BRONZE 20-06-213
NOTE: MAXIMUM REVEAL 3 5/8"					

TYPE APPLICATION	"C"	"D"
2 3/4" C.P.	11"	15 1/8"
3 3/4" C.P.	11"	16 1/8"
SPECIAL CONSULT FACTORY		

LEFT HAND SHOWN
(RIGHT HAND MIRROR IMAGE)
FOR SLIMLINE HEADER

ELECTRA 150 INSTALLATION for CENTER PIVOT DOORS

date 2/20/86

besam
171 TWIN RIVERS DR.
EAST WINDSOR, N.J. 08520
609-443-5800

D-15002

INSTALLATION PARALLEL ARM SYSTEM

RIGHT HAND DOOR **LEFT HAND DOOR**

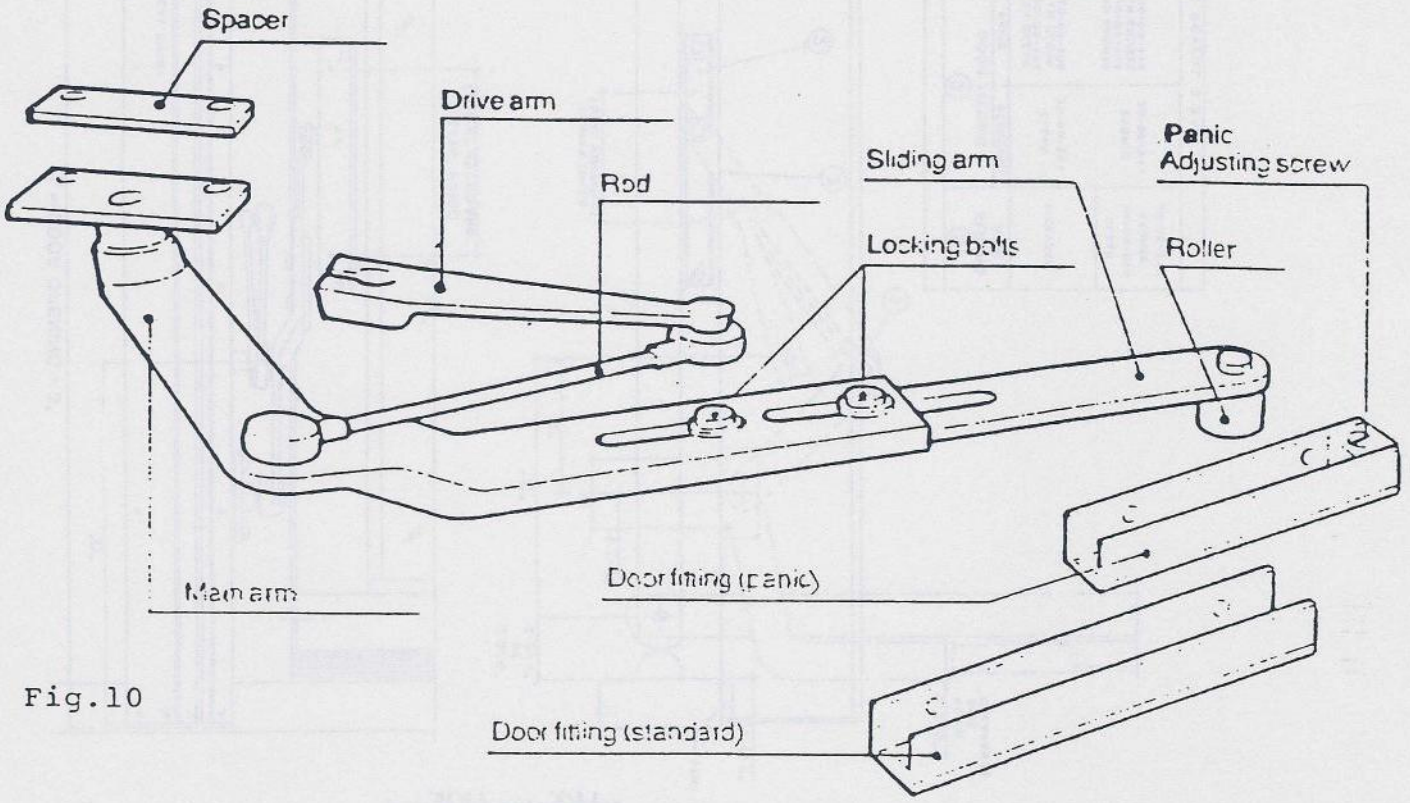


Fig.10

RIGHT HAND SHOWN

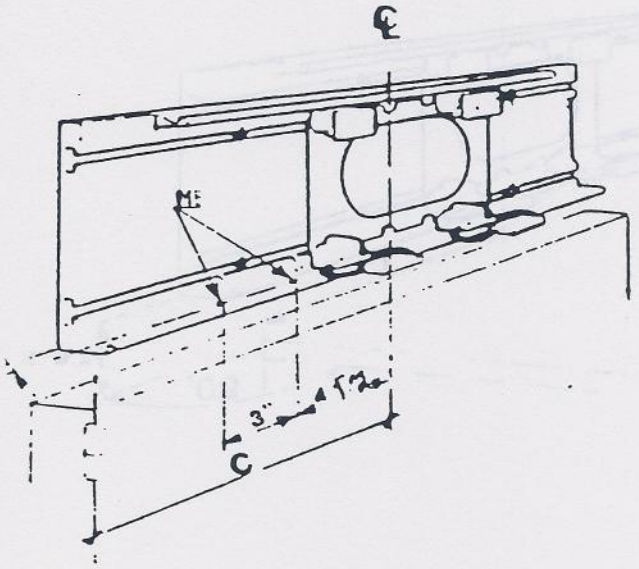
Slide-Track is delivered with Sliding arm, Drive arm, Rod and Main arm assembly.

To obtain an adequate installation, following drawings are to be used parallel with this installation instruction.

D-15001 for ST-V hinge hung (ST-H mirror image)
D-15002 for ST-V center pivot (ST-H mirror image)

INSTALLATION PARALLEL ARM SYSTEM

RIGHT HAND DOOR



LEFT HAND DOOR

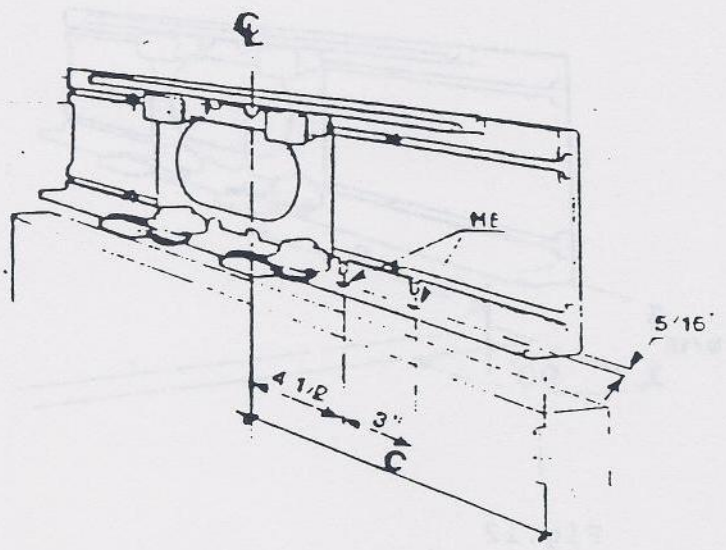


Fig.11

PREPERATION FOR MAIN ARM

1. Mark the spindle center line "C" dimension (see installation dwgs) on the mounting surface.
2. Mark the operator spindle center line on the mounting back plate.
3. Drill and install M-8 nut inserts for the Track system (Fig.11) as shown in installation drawings.

INSTALLATION PARALLEL ARM SYSTEM

RIGHT HAND DOOR

LEFT HAND DOOR

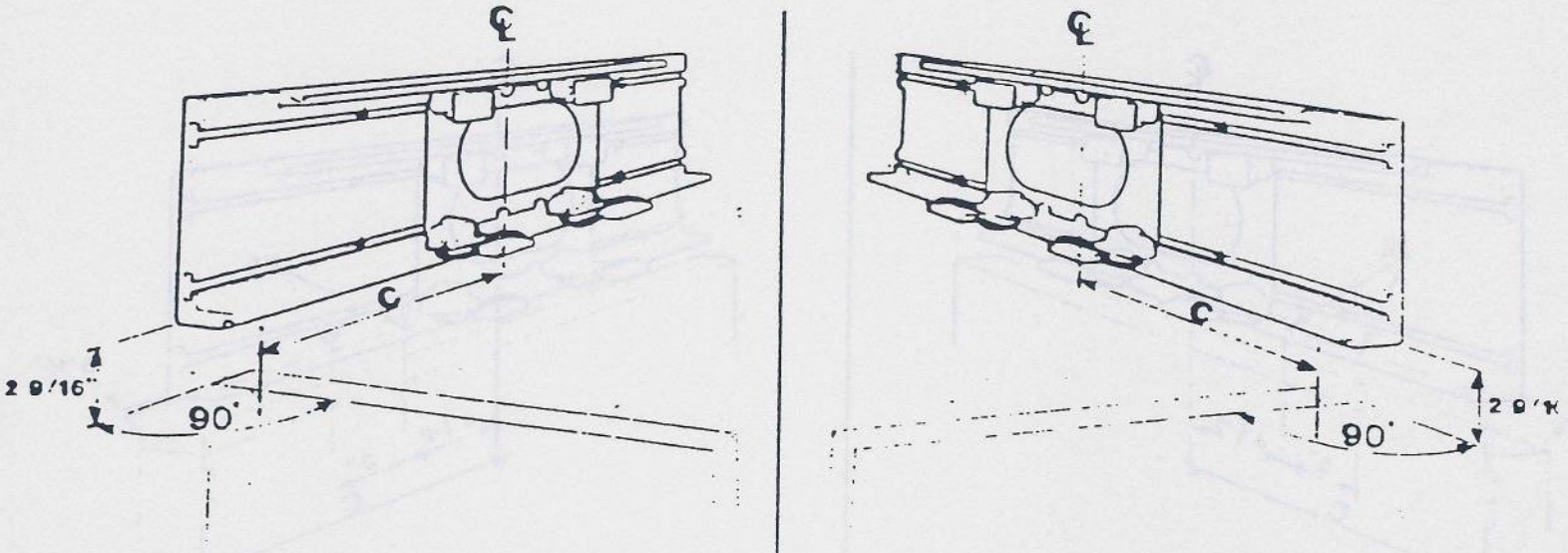


Fig.12

INSTALLING BACK PLATE

4. Mark the required height for the operator when using the Slide Track system (see installation dwgs).
5. Using the mounting back plate as a template, mark the mounting holes and electrical inlets.
6. Check that the mounting surface has the necessary reinforcement. Drill and tap or install rivnuts. Run electrical power.
7. Install and ensure that the mounting back plate is level.

NOTE: The full length back plate has only 4 pre-drilled mounting holes. Additional holes must be prepared by the installer at least 12" on center in both the upper and lower slotted nut areas.

8. Follow operator installation steps on page 4.
9. Install the Slide Track system to the operator.

INSTALLATION PARALLEL ARM SYSTEM

RIGHT HAND DOOR

LEFT HAND DOOR

MOUNTING OF THE MAIN ARM

Ensure that the proper Sliding arm is mounted on the Main arm. Two sizes for different reveals are available. The short one is always factory mounted on the Main arm and covers reveals up to 2 1/16" - 3 5/8". Slacken the two locking bolts, keeping the sliding arm in position, and move it to its inner position. Close the door. Mount the Main arm with enclosed spacer in the two M-8 nut inserts on the under side of the back plate, tighten the bolts properly.

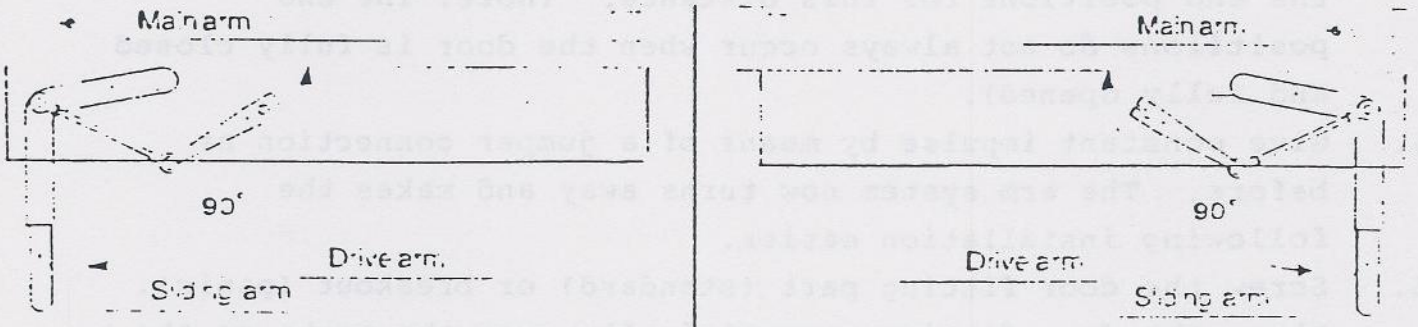


Fig.13

Create a constant impulse by means of a jumper between either the two inner or the two outer impulse input terminals on the PC-board. The motor will start and the shaft of the operator turns to its open position. Open the door approximate 90 degrees and let the Main arm touch to the door as shown in fig. 13. Mount the Drive arm on the operator shaft with door and Main arm in this position. Ensure that the grooves fit correctly so that they do not get damaged when the arm is tightened. Fasten the screw properly.

INSTALLATION PARALLEL ARM SYSTEM

RIGHT HAND DOOR **LEFT HAND DOOR**

MOUNTING OF THE DOOR FITTING

1. Remove the jumper connection. The motor turns off, and the arm system pulls the door towards closed position and stops when the Drive arm hits the wall. (Install a rubber tab at this location.)
2. Pull out the Drive arm from the wall and place a spacer about 3/8" thick between the wall and the Drive arm.
3. Adjust the Sliding arm so that it is in contact with the door, and fasten the two locking bolts properly.
4. During the opening and closing movements of the door, the Sliding arm will move a certain distance on the door. Mark the end positions for this distance. (Note: The end positiions do not always occur when the door is fully closed and fully opened).
5. Give constant impulse by means of a jumper connection as before. The arm system now turns away and makes the following installation easier.
6. Screw the door fitting part (standard) or breakout (panic). Place the door fitting symmectrically over the marks on the door with the center of the fastening holes 1 5/8" from the top edge of the door. Mark on the door the fastening holes. Drill, tap and fasten the door fitting with suitable screws.
7. Remove the jumper connection. The arm system moves back and stops when the roller on the Sliding arm hits the door fitting. Screw the door fitting together again (standard) or reset it (panic).
8. Push the door to its fully open position. Check that it can open at least 90 degrees and that the roller runs easily in the track of the door fitting. Check also that the arm system operates without any problems.
9. If the panic door fitting with requirements on panic breakout is installed, the panic force is to be adjusted to a suitable value. The adjusting screw is marked in fig.10, page 10. If panic door fitting is installed without requirements on panic breakout, the adjusting screw is to be screwed tight.