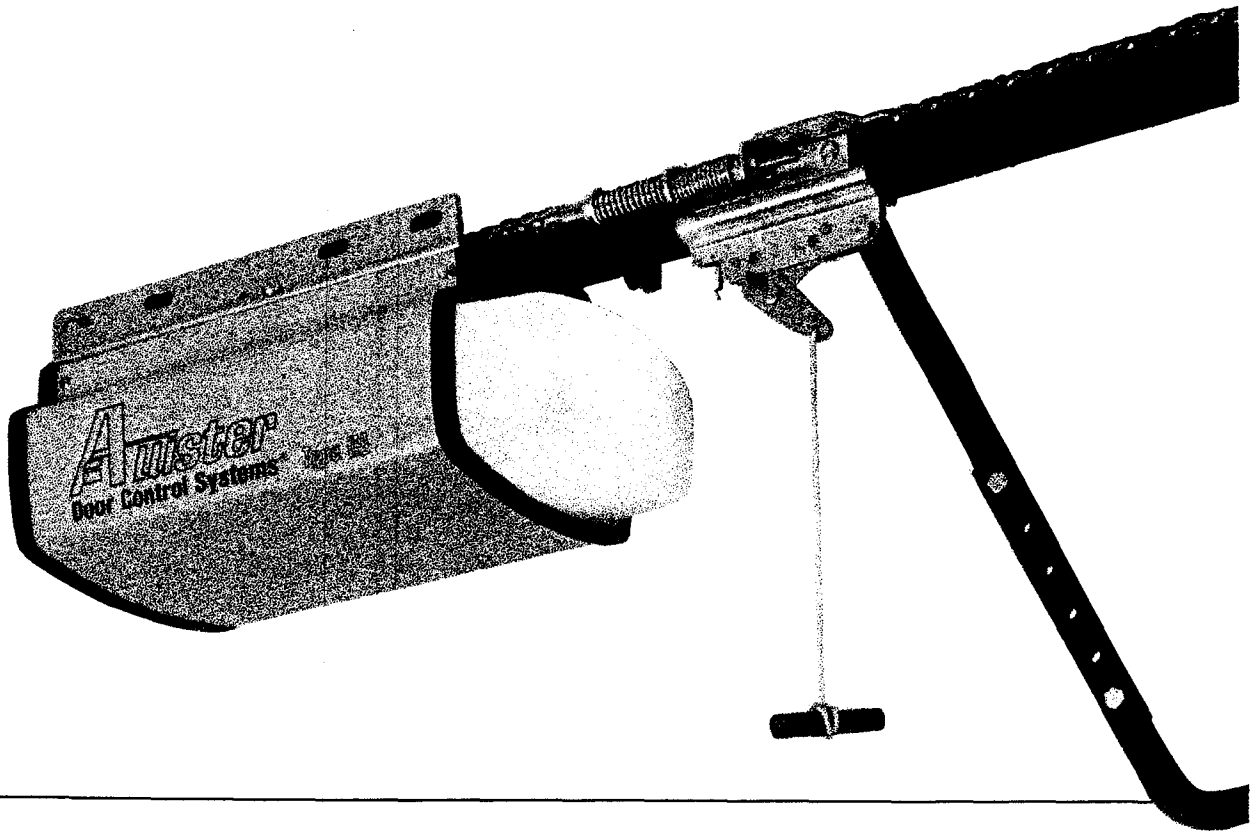
ATTN: Jerry Schaeffer

16 pages

Allister
DOOR CONTROL SYSTEMS



CONTENTS

OWNERS MANUAL AND INSTALLATION INSTRUCTIONS FOR ALLISTER MODEL ARD IIA

SECTION 1: SPECIAL INSTRUCTIONS

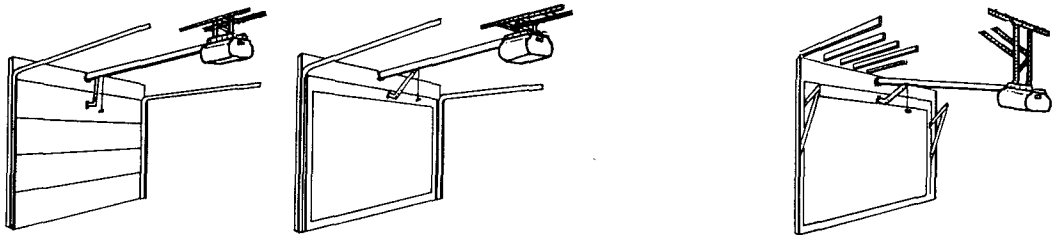
BEFORE INSTALLATION READ ENTIRE MANUAL, BE SURE THE DOOR IS PROPERLY BALANCED AND MOVES WITHOUT BINDING THROUGHOUT ITS FULL LIMIT OF TRAVEL.

NEVER ATTEMPT ADJUSTMENT OF COUNTERBALANCE SPRINGS, CABLES, OR ANY PART OF THE HARDWARE SUPPORTING OR CONSTRAINING THESE ITEMS OR THE DOOR. LARGE FORCES EXIST WITHIN THE DOOR HARDWARE CONFIGURATION AT ALL TIMES. ANY ATTEMPT TO WORK ON THE DOOR IS HAZARDOUS AND SERIOUS INJURY CAN RESULT. *CONTACT A PROFESSIONAL DOOR SERVICE PERSON FOR REPAIRS OR ADJUSTMENTS.* THIS OPERATOR IS TO BE PROFESSIONALLY INSTALLED. ALLISTER MANUFACTURING CO., INC. IS NOT RESPONSIBLE FOR INSTALLATION

DETERMINE DOOR TYPE BEFORE INSTALLATION

DOOR TYPE A

DOOR TYPE B



SECTIONAL DOOR ONE PIECE DOOR WITH TRACK ONE PIECE TRACKLESS DOOR

FIG. 1

FOR TYPE A DOORS USE MODEL ARDIIA-706/708 TO 7′ HIGH MAX.
ARDIIA-806/808 TO 8′ HIGH MAX.
ARDIIA-1006/1008 TO 10′ HIGH MAX.
ARDIIA-1/2-706 TO 7′ HIGH MAX.
ARDIIA-1/2-806 TO 8′ HIGH MAX.
ARDIIA-1/2-1006 TO 10′ HIGH MAX.

FOR TYPE B DOORS USE MODEL ARDIIA-612/608 TO 8′ HIGH MAX.

IMPORTANT

TO PREVENT BODILY INJURY OR DOOR DAMAGE, YOU *MUST* ADHERE TO THE FOLLOWING PROCEDURES:

1. Remove all ropes from the garage door that were used to open or close the door by hand. (This will prevent entanglement.)
2. Locate all pushbuttons, keyswitches, and other operator controls out of the reach of children.
3. Never allow anyone, especially a child, to play with an electrically operated garage door or to play in the area of the door.
4. The following tests are listed as a reminder of their importance. But before attempting to perform them, read the entire contents of this manual or review the contents if you have read them already.

4a. *Test the load sensing adjustments of the door and operator at least once a month.* Test both the up and down directions. (See Sec. 7)

4b. Test the door release at least once a month to insure that it is in correct working order. Lubricate the mechanism as described in Sec. 2. IF YOU MUST RELEASE THE DOOR FROM THE OPERATOR WHILE THE DOOR IS IN ANY POSITION OTHER THAN CLOSED, BE CERTAIN THAT THE DOOR OPENING IS CLEAR OF PERSONS OR OBJECTS AS THE DOOR MAY MOVE DOWNWARD.

4c. With the door disconnected from the operator, test the door balance and smoothness of operation at least once a month so that any changes in the door system can be detected.

4d. If the bottom edge of the door, when fully open, cannot be easily reached from a normal standing position, it will be necessary to temporarily attach a rope to the door to provide means to close it while performing the tests in 4b. and 4c. UNDER THESE CIRCUMSTANCES, NEVER WORK ALONE. With the door closed or opened 3 to 4 feet, remove power from the operator and secure one end of the rope to the door near the center. Test the door release and smoothness of door travel as described above. NEVER ALLOW ANYONE TO STAND IN THE PATHWAY OF THE DOOR WHEN PERFORMING TESTS. It may be necessary to use a 3′ to 4′ length of wood to push the bottom edge of the door to the fully open position. ALWAYS REMOVE THE ROPE *BEFORE* RETURNING TO ELECTRICAL OPERATION OF THE DOOR.

5. Periodically observe the operator and door in action to look for any unusual movements in the mounting hardware of the operator and/or the door.

6. An adhesive label with the following wording is supplied with the operator:

CAUTION: TO REDUCE THE RISK OF INJURY TO PERSONS, OPERATE THE DOOR ONLY WHEN FULLY VISIBLE, PROPERLY ADJUSTED AND FREE OF OBSTRUCTIONS. DO NOT PERMIT CHILDREN TO PLAY IN THE AREA OF THE DOOR. SEE INSTRUCTION MANUAL.

This label should be prominently displayed near the wall mounted actuating switch.

7. Safety standards require that this instruction manual be mounted in a prominent position adjacent to the door or the wall button. Use the transparent envelope provided.

8. Repair or maintenance work on the operator can be extremely hazardous and is not recommended, except for the lubrication of the carrier slides and the release mechanism. The tests outlined in this manual are intended to inform you of an abnormal condition in the system. The release has been provided for several purposes, one of which is to allow door use until such time as the operator can be repaired. It is recommended that the belt and chain be inspected by a professional service person once a year.

ALWAYS CONTACT YOUR INSTALLING DEALER OR OTHER PROFESSIONAL OPERATOR SERVICE PERSON FOR SERVICE OR REPAIRS.

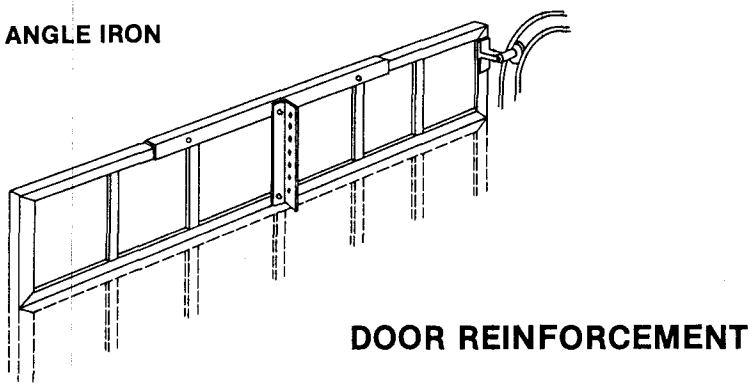


FIG. 2

Because of the nature of some types of contemporary door construction relating to insulating qualities and/or decorative styling, the designs and materials used to manufacture the door do not necessarily produce the equivalent of a resilient, solid or framed wood door.

The original concept of the drawbar operator was developed years ago when almost all doors were constructed of wood. The principle of the drawbar operator relies on the ability of the door itself to transfer a force applied to the top section of the door to the bottom section regardless of the direction it is traveling. The nature of the system does not allow the force on the top section of the door to be applied in the most ideal direction at every point in its travel. Following good installation procedures will minimize this condition.

It is recommended that all doors of non-wood construction be evaluated at the time of operator installation for the need to have the top structure reinforced to prevent unnecessary damage to the door.

All doors and installations are sufficiently different to permit only a suggested method of reinforcement. (See Fig. 2)

SECTION 2: GENERAL INFORMATION

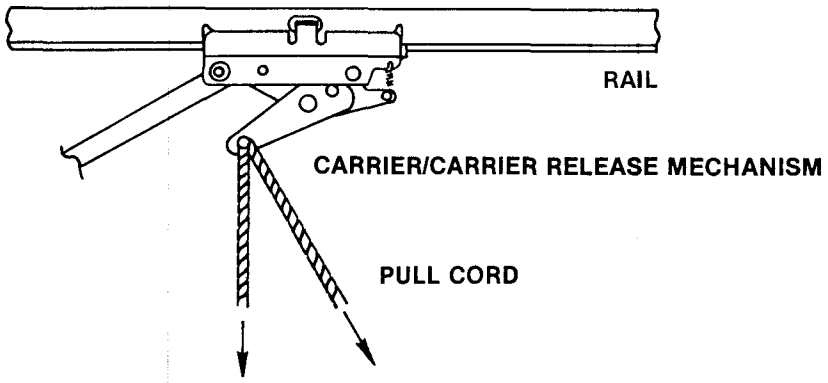
An electric garage door operator is designed to replace manual operation and control of a door. If a door cannot be easily operated by hand, an operator is not the solution to the problem. It is not a winch and should never be used as one.

Your operator is fitted with a lamp socket which, when fitted with a 60 watt bulb, will illuminate the immediate area around the operator. This bulb will be switched on when the operator is activated and remain on for from two to four minutes and then will be switched off automatically.

Should you wish to operate your door by radio control, see the installation instructions packed with the radio control for correct connections to the operator. Other connections should be made according to the diagram in this manual. Be certain that all means of controlling the door are kept inaccessible to children.

To comply with standards, all motors in operators are provided with thermal protectors. Should the motor become overheated, the protector will prevent the motor from running. After a cooling period of from 3 to 5 minutes, the operator can be operated again. This time interval will vary according to the model, motor and type of protector used. Should it be necessary to move the door during this time, use the door release and operate the door manually.

The operator can be disconnected from the door as shown:



THIS ACTION WILL ALLOW MANUAL OPERATION OF THE DOOR.

FIG. 3

The operator is provided with a release mechanism in the carrier. The actuating lever for the mechanism is operated with the pull cord. The lever remains in a vertical position after the cord is pulled downward and will allow the door to be manually raised or lowered without the automatic reconnect feature functioning. When automatic connection is desired, the lever cord should be pulled forward toward the door opening so the lever assumes an angular position. The reconnect will take place when the positions of the two parts of the carrier come together. **IF THE DOOR AND OPERATOR ARE DISCONNECTED WHEN THE DOOR IS FULLY CLOSED, THE RECONNECT WILL NOT OCCUR WHEN THE DOOR IS MANUALLY RETURNED TO THE FULLY CLOSED POSITION. THE OPERATOR MUST BE ACTUATED TO RUN IN THE OPEN DIRECTION FOR AT LEAST A FEW INCHES BEFORE THE CONNECTION CAN OCCUR.**

The carrier and carrier release mechanism of this operator require periodic maintenance. At the recommended test intervals the release should be actuated. With the inner and outer slides of the carrier separated, spray the outside surface of the inner slide, top and bottom. Also spray the portion of the outer slide around the pivot points and contact areas of the release lever. Use a quality general purpose spray lubricant. Wipe any excess that may run onto the pull cord or drip onto objects below.

On the rail, just in front of the light diffuser, is a rubber bumper which is intended to limit the travel of the outer slide of the carrier during manual operation of the door. **THROWING THE DOOR OPEN WITH EXCESSIVE SPEED OR FORCE CAN CAUSE HIGH IMPACT WITH THE BUMPER. IF DONE REPEATEDLY IT WILL UNNECESSARILY STRAIN THE MOUNTING POINTS OF BOTH THE DOOR AND OPERATOR.** During manual operation of the door, maintain control of the door's speed if possible.

SECTION 3: DESCRIPTION OF OPERATION

When activated by a momentary contact of the pushbutton, the door will open or close to its full limit of travel. The door may be stopped while running in either direction, at any position, by momentary contact of the pushbutton. When activated from any intermediate position, the door's direction will be opposite that of the previous movement.

Should the door be obstructed during its opening cycle, a load sensing device will activate the control circuit which will stop the motor. The next press of the button will start the door down, removing it from the obstruction. If the door is obstructed during its closing cycle, a load sensing device will activate the control circuit which will stop the motor and then automatically start it in the reverse direction to remove it from the obstruction.

WARNING:

SOME FORCE MUST BE EXERTED FOR THE LOAD SENSING DEVICE TO REACH ITS TRIP POINT. THE FORCE VARIES AS EXPLAINED IN LATER INSTRUCTIONS. (Sec. 6). DO NOT ATTEMPT A TEST WITHOUT FIRST READING THIS MANUAL.

When correctly adjusted according to installation procedures outlined in this manual, the auto reverse function will not occur in the last 1" of door travel. The motor will stop but in order for the door to move off an obstruction less than 1" in height, you must activate the operator with the pushbutton or other control device. Remember that some objects larger than 1" may be compressed by the force of a descending door to less than 1" where they may remain under pressure even though the motor has stopped running.

MAKE SURE THE AREA IS FREE AND CLEAR OF SUCH OBJECTS BEFORE ACTIVATING THE DOOR. BE CERTAIN TO MAINTAIN VISUAL CONTACT WITH THE DOOR WHILE IT IS OPERATING.

The force adjustments for the sensing device for both the open and close directions are on the sides of the operator. These adjustment screws are provided to optimize the sensitivity of the operator to the particular door and installation and must be adjusted independently for the up and down direction. Their purpose is to limit the amount of force that the driving mechanism will exert on the carrier. Follow the outline and recommendations in the manual if there is a need to change these adjustments after a proper installation.

The control circuit is provided with a timer which determines if the motor has been running longer than necessary to open or close the door. This effectively provides a backup for the normal sensing functions. If the door has met an obstruction while traveling downward and does not respond by stopping and reversing within 30 seconds, then the control circuit will automatically reverse the motor. Likewise, if within the same time frame, the door meets an obstruction while traveling upward, at any point, or downward within 1" of the floor, the motor will stop.

When power has been disconnected to the operator and then restored, the convenience lamp will illuminate and remain illuminated for the same time period as it does in normal use. Also, the first push of the wall button or other means of control will cause the operator to run in the open direction. If the operator is already in the full open position, there will be no motion response to the first push of the button. The second push will start the operator in the close direction.

SECTION 4: INSTALLATION, TYPE A DOORS

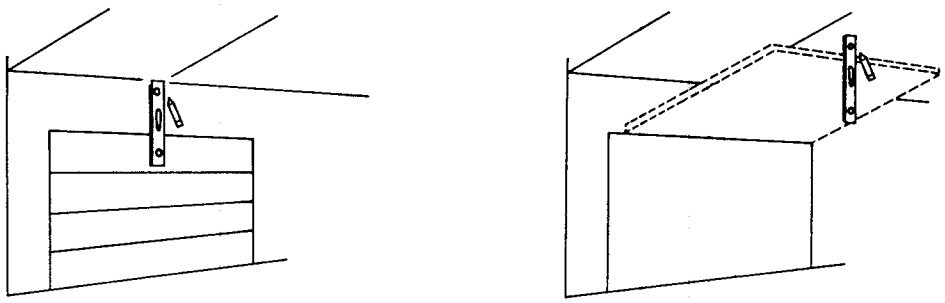
FOR TYPE B DOORS SEE SEC. 5

STEP 1. Mark the top of the door at its center. Using a 24" level, transfer this point to the structure above the door by plumbing the level and drawing a line along its edge. (See Fig. 4A). If a ceiling surface suitable to be marked exists, then continue the vertical line and mark the ceiling above the center of the door. Raise the door to the high arc point. (See Fig. 4B). Again with the level, span the distance between the top edge of the door and the mounting face of the structure at the vertical line. Maintain a level and mark the mounting face at the top surface of the 24" level. This will be the height of the rail bottom above the high arc of the door and is about 2". If necessary the rail bottom can be mounted within 1/2" of the high arc of the door when a low headroom condition exists. **DO NOT MOUNT THE FRONT END BRACKET HIGHER THAN 2" ABOVE THE HIGH ARC OF THE DOOR IF IT IS NOT NECESSARY.** This will be helpful when making final adjustments.

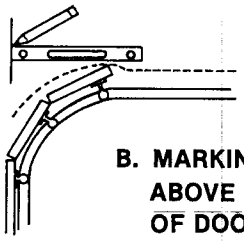
STEP 2. Should there be no suitable portion of the structure at the point you would mark as the front bracket mounting point then an addition to the structure must be provided and mounted to the structure. This addition and its means of attachment should be capable of withstanding an omnidirectional force of 200 lbs. The addition should provide a mounting face which is flush (+/– 1″) to the inside plane of the door opening. This will allow maximum travel of the carrier. If this step is required then repeat **STEP 1.**

STEP 3. Attach one of the angle brackets provided directly to the structure or the addition with lag screws or bolts and self locking nuts so that one leg of the bracket provides a shelf upon which the front end of the rail may be rested and subsequently attached. (See Fig. 4 C). The leg of the bracket forming the shelf should be at the horizontal mark made in **STEP 1.** The center hole in this leg should be aligned with the center of the door opening or the vertical line. The other leg of the bracket which is to be attached to the structure may be above or below the mark as the situation requires.

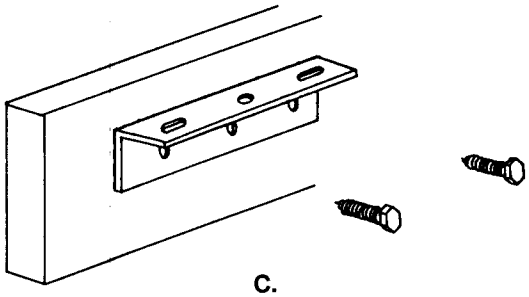
If a ceiling exists, before proceeding with **STEP 4**, open the door and with the door in its fully open position, plumb from the center of the top edge of the door to the ceiling and mark the ceiling. (See Fig. 4 A). Return the door to its fully closed position. Between the ceiling mark made in **STEP 1** and this mark, a string or chalk line can be pulled to define a center line about 2 to 3 ft. behind the door when it is fully open. This will be helpful in **STEP 5.**



A. MARKING CENTERLINE OF DOOR



B. MARKING 2″ ABOVE HIGH ARC OF DOOR



C.

FIG. 4

STEP 4. Place the front end of the rail on the bracket attached in **STEP 3** and drop one of the 1/4″ × 2″ carriage bolts through the hole in the end of the rail and the center hole in the bracket. Run one of the 1/4″ nuts on the end of the bolt a few turns. This will temporarily hold the front of the rail in place while the back end is swung upward and rested on a step ladder. CAUTION: IF ADDITIONAL HEIGHT IS REQUIRED, BE CERTAIN THAT THE MEANS USED PROVIDES A STURDY AND STABLE NON-SKID PLATFORM. PULL THE CARRIER RELEASE LEVER TO A VERTICAL POSITION AND SLIDE THE OUTER HALF OF THE CARRIER TO THE REAR OF THE RAIL. THIS WILL PREVENT THE DOOR FROM STRIKING THE LEVER. At this time the door can be opened and a block can be placed on top of the door which will support the rail. Using the mark made in **STEP 3**, position the rail over the center of the top section of the door.

STEP 5. A rear mount must be constructed to secure the rear of the operator to the ceiling. The distance from the operator to the ceiling structure can be measured at this time to determine the approximate length of perforated angle iron or other suitable metal required to suspend the operator. The operator frame plate is 6-1/2″ wide. The vertical supports should be 3-1/4″ from each side of the center line. (See Fig. 5 for an example of possible structures). The mount must be braced to minimize lateral movement in all directions.

STEP 6. After the rear of the operator is suspended, remove the blocks from the top of the door and close the door. Go to the front end and remove the 1/4″ × 2″ carriage bolt and nut and secure the front end idler plate with a 5/16″ × 1″ bolt and lock nut.

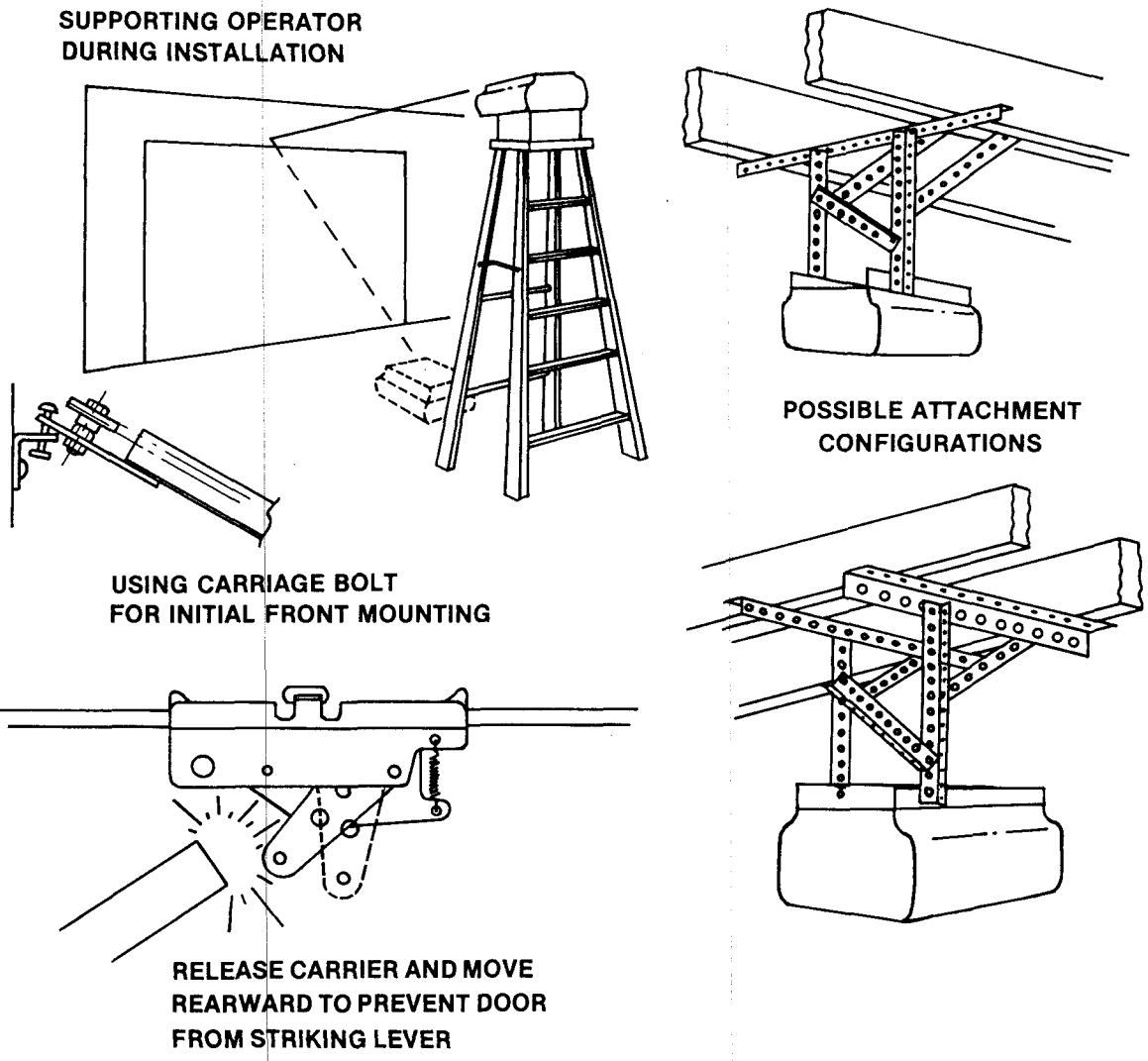


FIG. 5

STEP 7. Mark the approximate position for the door bracket as shown in Fig. 6A. Generally accepted practice places the center line of the round center hole even with the axis of the top set of door rollers on sectional doors. Assemble the curved portion of the arm to the door bracket with a 3/8″ × 1″ bolt and self-locking nut from the hardward bag. Make this connection as secure as possible while still allowing the parts to move. The arm should be fastened so it is INSIDE of the angle of the door bracket (See Fig. 6B). Next, bring the outer half of the carrier to the front of the rail and position it so that its front edge is approximately 7″ from the vertical plane formed by the inside face of the door. Do not be concerned with the position of the inner slide at this time. Assemble the straight part of the arm to the carrier using the 3/8″ × 1″ self-locking nut and bolt already fastened on the carrier. Now, holding the door bracket in the position previously marked on the door, bring the two halves of the arm together until they overlap. Note which set of holes on the two halves of the arm correspond most closely and fasten them together with two 5/16″ × 1″ nuts and bolts from the hardware package. When completed, the assembly hanging from the carrier should look like Fig. 6B. To fasten the bracket to the door, swing this assembly forward until the door bracket rests on the surface of the door. Check to insure that it is close to your original reference mark. Check vertical alignment of the door arm assembly, moving the bracket left or right until the arm is plumb. Mark the mounting holes (use the top and bottom holes in the bracket), drill two 1/4″ holes and secure the bracket to the door with the carriage bolts provided. (NOTE: When drilling these holes, make sure that the drill, exiting through the front surface of the door, does not damage any overlapping trim.)

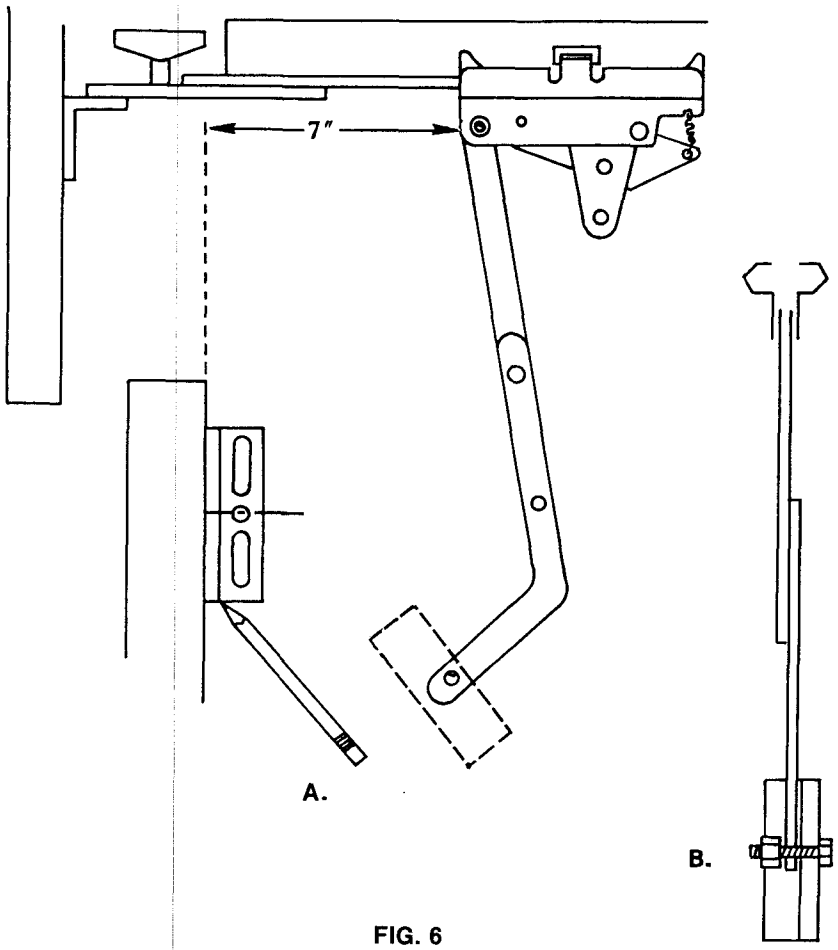


FIG. 6

STEP 8. This operator is designed to operate on a 115 Volt, 60 Hz single phase supply. A three conductor grounded line cord is furnished. It is necessary that the unit be grounded to protect against electrical shock hazards. For line cord connection locate a grounded outlet approximately 2 FT. behind the drive head. A **GFI** type receptacle is recommended. Use No. 14 wire or heavier to wire the receptacle and be sure grounding connections are properly made.

If local codes require permanent wiring, it is recommended that the circuit breaker protecting the line used be a **GFI** type. Remove the strain relief bushing where the line cord enters the head. Withdraw the line cord exposing the three insulated conductors. Cut the wire at the rubber jacket of the line cord. Strip and wire in permanently, employing good wiring practices as required by local electrical codes. The strain relief anti-rotation plate is not used with permanent wiring. Be sure it is removed from the operator.

STEP 9. Three terminal screws are provided at the back of the operator. They are numbered from right to left as 1, 2, 3. Terminals 1 and 3 provide 24 VAC to power a radio receiver. Terminals 1 and 2 are for the wall button connection. Connect the radio receiver according to the instructions provided with the radio. Connect the wall button wires according to Fig. 7. Avoid using solid wire and be certain that the placement of the wall button is **OUT OF THE REACH OF CHILDREN.** Attach the pull cord securely to the release lever at this time but do not cut the cord. It is to be adjusted later.

STEP 10. While the disconnect is still in the release position (lever down), apply power to the operator. With the wall button or radio transmitter, activate the operator and the inner slide will move to the preset UP limit position on the rail. Now raise the door manually to its open parking position. If the carrier's inner slide and outer slide positions coincide within 1/2", then no adjustment to the UP limit is necessary. If not, determine which way the inner slide should move. Set the release to reconnect (Pull cord toward the door opening) and manually move the door up or down to reconnect the slides. Activate the operator again so that the door moves downward a few feet and the UP limit roller assembly is exposed. (As one faces the door from inside the garage, it is on the right side of the rail.) The limit roller assembly can be moved in 1" increments. (Toward the operator head to decrease up travel, toward the door to increase up travel). Make the adjustment according to the distance and direction the inner slide must move.

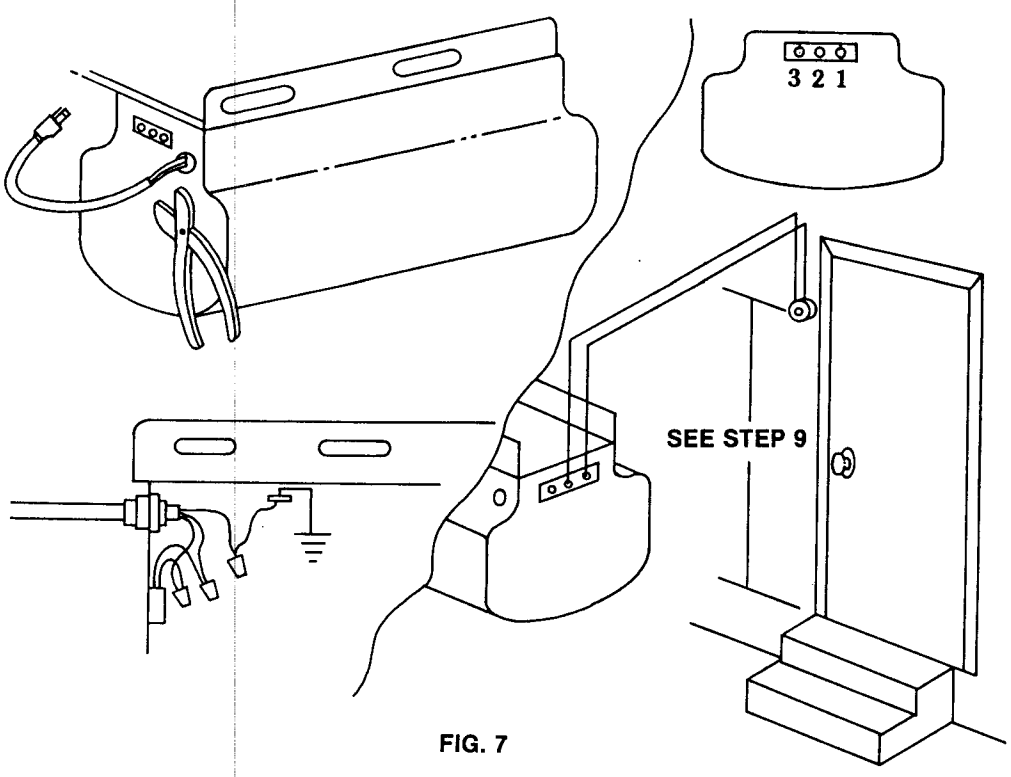


FIG. 7

Activate the operator as before and move the door and carrier to the new UP limit position. Pull the release cord. The door should remain in its current position +/- 1/2". This is the proper UP limit position.

STEP 11. With the door and operator still disconnected, manually return the door to the floor. Activate the operator. The inner slide will move toward the door and stop. The correct initial **DOWN** limit setting will position the inner slide from 1/2" to 1-1/2" closer to the door than the outer slide is positioned with the door fully closed.

If the inner slide position is already correct, no adjustment at this time is necessary. If it is not, then observe which direction the inner slide must move and adjust the **DOWN** limit.

The operator must be activated and then stopped in a mid travel position. The limit roller assembly controlling the down travel will be on the left side of the rail as one faces the door from inside the garage. It can be moved in 1" increments. (Toward the operator head to reduce down travel, toward the door to increase down travel). After each adjustment check the first part of this STEP.

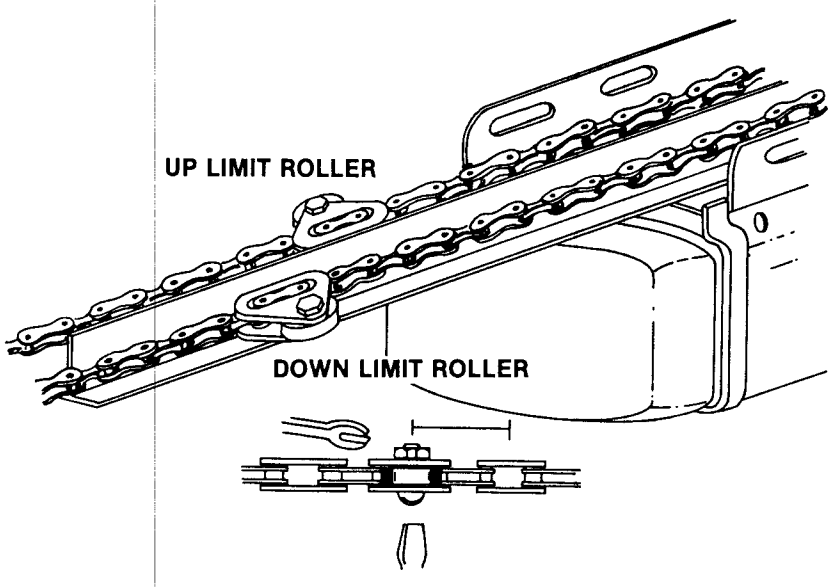


FIG. 8

TYPICAL OPERATOR INSTALLATION (TYPE A DOOR)

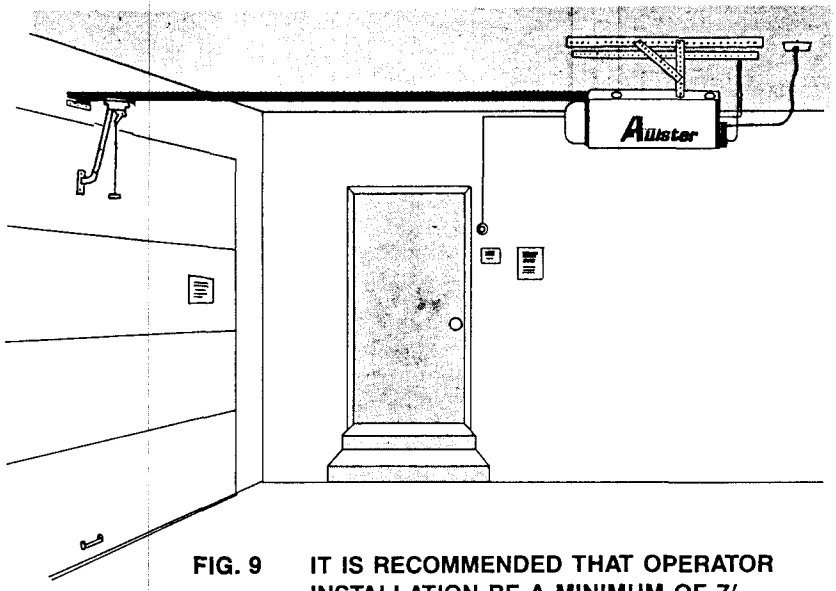


FIG. 9 IT IS RECOMMENDED THAT OPERATOR INSTALLATION BE A MINIMUM OF 7' ABOVE FLOOR LEVEL

SECTION 5: INSTALLATION, TYPE B DOORS

STEP 1. Locate the center of the top edge of the garage door and mark it on the inside face. With a level set plumb at this mark, draw a vertical line on the mounting surface above the door. (If a ceiling surface suitable for marking exists, extend the line to the ceiling and mark the ceiling. (See Fig. 4A). If no suitable mounting surface exists, see Sec. 4 Step 2, and follow the procedure outlined. Open the door and plumb up from the center mark made on the door to the ceiling, if one exists, and mark the ceiling. Determine the rise of the high arc of the door. Use level to measure rise on mounting surface above door. (See Fig. 4B). Use the table below to determine the distance the front end bracket should be mounted above the top of the door when closed.

HIGH ARC RISE	MOUNTING DISTANCE
4 inches	8 inches
4 to 8 inches	13 inches
8 to 12 inches	18 inches

Make the appropriate measurement and mark the vertical line at this point.

STEP 2. Attach the bracket provided directly to the structure or the addition with lag screws or bolts and self locking nuts so that one leg of the bracket provides a shelf upon which the front end of the rail may be rested and subsequently attached. The leg of the bracket forming the shelf should be at the horizontal mark made in **STEP 1**. The center hole in this leg should be aligned with the center of the door opening or the vertical line. The other leg of the bracket which is to be attached to the structure may be above or below the mark as the situation may require. (See Fig. 4C).

STEP 3. Place the front end of the rail on the bracket attached in **STEP 2**, and drop one of the 1/4" x 2" carriage bolts through the hole in the end of the rail and the center hole in the bracket. (See Fig.5). Run one of the 1/4" nuts on the end of the bolt a few turns. This will temporarily hold the rail in place while the back end is swung upward and rested on a step ladder. **CAUTION: IF ADDITIONAL HEIGHT IS REQUIRED, BE CERTAIN THAT THE MEANS USED PROVIDES A STURDY AND STABLE NON-SKID PLATFORM. PULL THE CARRIER RELEASE ARM TO A VERTICAL POSITION AND SLIDE THE OUTER HALF OF THE CARRIER TO THE REAR OF THE RAIL. THIS WILL PREVENT THE DOOR FROM STRIKING THE LEVER.** At this time the door can be opened to its high arc position. It will be necessary to support the door so that it will remain in this position. Position the rail over the center of the top section of the door.

Lower and back end of the operator so that the bottom of the rail is about 1/2" above the door edge at the high arc position (Fig. 10). Do not allow the door to support the operator as this will cause a false measurement to be taken and possibly damage the door. Support the operator in the same fashion as before and measure the distance from the ceiling to the selected frame mounting slot. The length of the rear vertical supports will not be greater than this dimension.

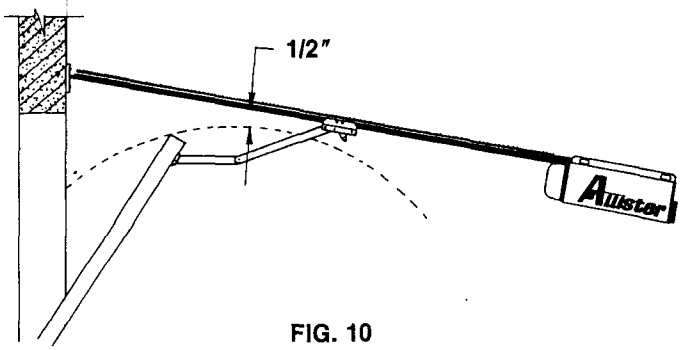


FIG. 10

STEP 4. A rear mount must be constructed to secure the rear of the operator to the ceiling. The distance from the operator to the ceiling structure has already been determined in **STEP 3**. Measure and cut the appropriate length of perforated angle iron or other suitable metal required to suspend the operator. The operator frame plate is 6-1/2" wide. The vertical supports should be 3-1/4" from each side of the center line. (See Fig. 5 for an example of a possible construction). Construct the mount and secure it to the structure in the ceiling. Secure the operator to the mount. The mount must be braced to minimize lateral movement in all directions.

STEP 5. After the rear of the operator is suspended, remove the door support and close the door. Remove the 1/4" × 2" carriage bolt and nut that was used to temporarily hold the front end of the rail to the bracket and secure with a 5/16" × 1" bolt and lock nut. Attach the straight portion of the door arm to the carrier by means of the 3/8" × 1" bolt and self locking nut already on the carrier. Assemble the angled portion of the door arm to the door bracket with a 3/8" × 1" bolt and self locking nut from the hardware bag. This connection should be made to the top round hole on the door bracket with the door arm on the **INSIDE** of the angle. (See Fig. 11). Next, connect the two sections of the arm together with three holes overlapping using two 5/16" × 1" bolts. (Make the nuts only finger tight at this time).

STEP 6. Release the carrier for manual operation of the door. Swing the door arm and door bracket up and forward until the door bracket rests against the inside surface of the door with the arm attachment point close to the top edge of the door (See Fig. 11). Note the position of the outer slide of the carrier on the rail and make a mark for later reference. Prepare the operator for electrical operation. (See Sec. 5).

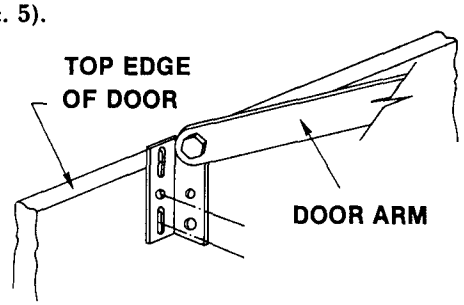


FIG. 11

STEP 7. With the disconnect still in the release position, start the operator in the closing direction (carrier forward) by means of the pushbutton and allow it to stop on the DOWN limit setting. Should the position of the inner carrier slide not coincide with the position of the outer slide determined in **STEP 6.**, it will be necessary to re-position the DOWN limit cam so that the outer slide of the carrier stops as close as possible to this point. Move the DOWN limit roller assembly on the chain toward the door if more travel is needed; toward the operator head to reduce travel of the carrier. (See Fig. 8).

STEP 8. When the **DOWN** limit position of the inner carrier slide and the position of the outer slide determined in **STEP 6.** coincide as closely as possible following the **DOWN** limit adjustment, re-connect the carrier slides. Swing the door arm up and forward until the door bracket rests against the inside face of the door. If the point of attachment of the door arm on the door bracket is within 1" of the top edge of the door, check vertical alignment of the door arm then mark the door for mounting holes. Use center hole and bottom of the lower slot. Drill two 1/4" holes and secure the bracket to the door with the carriage bolts provided. (NOTE: When drilling these holes, make sure that the drill, exiting through the front surface of the door, does not damage any overlapping trim.) Tighten the two 5/16" × 1" nuts and bolts which hold the two sections of the door arm together.

STEP 9. Again, release the carrier for manual operation. Using the pushbutton, run the carrier to its fully open (rear) position. Manually, raise the door to its fully open position and note the relative positions of the inner and outer carrier slides. If the two halves of the carrier do not concide exactly, re-position the UP limit roller assembly on the chain until the inner slide stops, during electrical operation, just AHEAD of the outer slide. (toward the door). Do not permit the inner slide to attempt to travel beyond the maximum rearward travel of the outer slide with the door in the fully open position.

STEP 11. Proceed to Sec. 6 for final adjustments.

TYPICAL OPERATOR INSTALLATION (TYPE B DOOR)

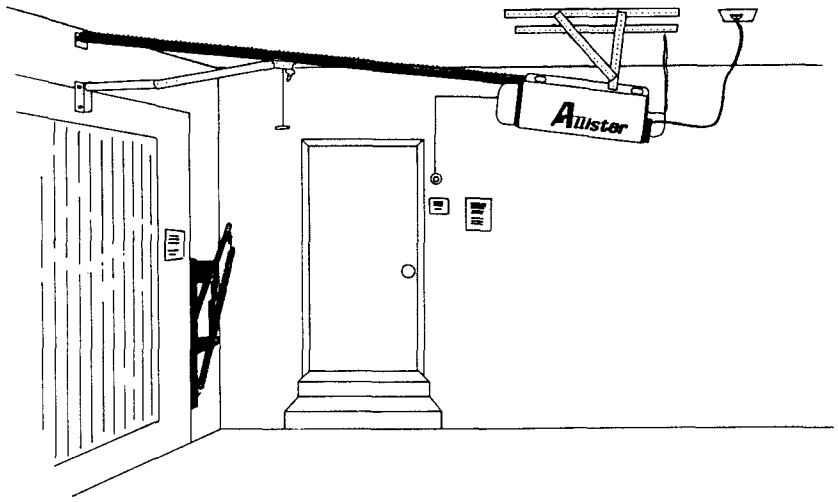


FIG. 12

SECTION 6: FINAL ADJUSTMENTS

This operator has been provided with a range of sensitivity adjustments sufficient to make it useful in installations with doors and balancing systems that are reasonably varied but, ***most importantly,*** in good and proper working condition. Door and balance system characteristics can change over a period of time and it is essential that the sensing system periodically be checked to ensure that only the minimum force required to operate the door is being exerted by the operator.

The sensitivity adjusting screws are located on the sides of the operator frame plate. In the metal surrounding the screw head they are marked, **"OPEN"** and **"CLOSE"**. Turning these screws **CLOCKWISE** will **INCREASE** the force the operator will exert in the direction indicated. **COUNTERCLOCKWISE** rotation will **DECREASE** the force the operator will exert in the direction indicated.

CAUTION:
IT IS IMPORTANT TO UNDERSTAND THAT FORCES EXERTED BY THE OPERATOR ON THE DOOR ARE MULTIPLIED AS THE DOOR APPROACHES THE FLOOR. THIS ADJUSTMENT AND TEST PROCEDURE DOES NOT REQUIRE ANY PART OF THE BODY TO REMAIN UNDER A MOVING DOOR AS IT NEARS THE FLOOR. DO NOT ATTEMPT TO REPOSITION A TEST OBSTRUCTION PIECE WHILE THE DOOR IS MOVING. INJURY CAN RESULT.

Open the door. Place a 1-1/2″ object on the floor at a point where the center of the door edge meets the floor. (Two 3/4″ boards stacked would be ideal.) Activate the operator to close the door. The door should reverse on this 1-1/2″ obstruction. If the door does not reverse on this obstruction then move the **DOWN** limit 1″ to increase the down travel. This should be done only once. On subsequent attempts, if required, the door arm should be lengthened one increment.

Remove the 1-1/2″ obstruction and close the door again. The operator should shut off when the door reaches the floor. Open the door and place a 3/4″ obstruction at the same point you have been using and close the door again with the operator. If it reverses on the 3/4″ obstruction then try a thinner piece (1/2″) and close the door again. If it still reverses then make a small adjustment to the sensitivity screw. About 1/2 turn clockwise, not more. Try once again to the floor and then again on the 1/2″ piece. If the operator continually reverses on the 1/2″ object, then move the **DOWN** limit roller assembly one outside link closer to the head and repeat the entire test.

If the system is correctly adjusted the door and operator will reverse on a 1″ obstruction but shut off on an obstruction less than 1″. The head of a 16 oz. claw hammer laid flat is a good approximation of 1″. Test the door and operator on a 1″ obstruction to be sure the reverse function responds.

REMEMBER THAT THIS TEST SHOULD BE REPEATED AT LEAST ONCE A MONTH DURING THE LIFE OF THE INSTALLATION. THERE IS NO OTHER WAY TO DETERMINE IF THE DOOR WILL REVERSE DOWN TO THE 1″ HEIGHT.

Before proceeding with the next test, be sure the carrier has been lubricated as recommended in Sec. 2. Make any adjustments to the length of the pull cord at this time. The handle is to be 6′ above the floor. Secure the cord to the release lever. Make sure the cord attachment method is as strong as the cord itself. (Approximately 200 lbs.) A double knot is required as a minimum. Singe the bare end of the cord to prevent unravelling.

The door release must be tested for correct operation while the door is in contact with a tolerable obstruction. (An object less than 1″ in height). Place a 3/4″ board or thickness on which the operator will stop, rather than reverse, on the floor at the center of the door opening. Activate operator to close the door and the door should stop and not reverse on this obstruction. At this time pull the release cord. The pull to actuate the release must be less than 50 lbs. Equally important is the action of the inner and outer slides with respect to one another. The slides should separate slightly and it should be possible to raise the door manually with only slightly more effort than normal in the first two inches of travel.

If the pull requirement or the manual operation requirement cannot be met then the door arm length must be increased one increment and the complete procedure must be repeated from "Final Adjustments."

SECTION 7: RECOMMENDED TESTS

BEFORE PERFORMING ANY OF THE TESTS DO THE FOLLOWING:

1. INFORM ANOTHER PERSON THAT YOU ARE UNDERTAKING THIS ACTIVITY. IT IS PREFERABLE TO HAVE AN ADULT ASSIST YOU.
2. LOCATE AND HAVE A LARGE BLOCK AVAILABLE FOR THE SENSITIVITY TEST. (A block 6″ square is suitable.)
3. LOCATE AND HAVE A CORRUGATED CARTON HANDY FOR THE BALANCE AND SMOOTHNESS TEST. (The box should be at least 12″ deep.)
4. LOCATE AND HAVE AVAILABLE A 1/2″ AND A 1″ THICK PIECE OF WOOD FOR THE 1″ REVERSE CUTOUT AND THE RELEASE TEST.
5. KEEP A REMOTE MEANS TO ACTUATE THE DOOR WITH YOU AT ALL TIMES.
6. **WARNING:** IF YOU HAVE ANY PHYSICAL IMPAIRMENT DUE TO PREVIOUS INJURY, AGE,POOR HEALTH OR HEART CONDITION, OR CANNOT REACH THE HANDLE ON THE GARAGE DOOR WHILE STANDING ON THE FLOOR,THEN HAVE ANOTHER PERSON FIT FOR THE TASK PERFORM THESE TESTS UNDER YOUR SUPERVISION AND OBSERVATION. THE **RELEASE** TEST AND THE **1″ REVERSE TEST** CAN BE PERFORMED WITHOUT EXCESSIVE PHYSICAL EXERTION OR HEIGHT REQUIREMENT.

RELEASE TEST: With the door closed grasp the red handle and pull downward and away from the door (Fig. 13). The sides of the carrier should separate slightly. Raise the door manually just enough to determine that it is free from the operator. (2″ or 3″ is sufficient). This is a convenient time to lubricate the carrier as recommended in Sec. 2. Set the release to reconnect by pulling the release cord slightly forward toward the door. Activate the operator. The inner slide of the carrier will reconnect with the outer slide and the door will move in the open direction. Stop the door with the wall button or transmitter and place a 1/2″ thick board under the door (Fig. 14). Activate the operator again and allow the door to close on this obstruction. The door and operator should stop and not reverse. Test the release under this circumstance just as was done previously. Set the door to reconnect and run the door open again.

1″ REVERSE CUT OUT TEST: Place the 1″ block under the door at its center and activate the operator to close the door. (As previously mentioned, the head of a standard 6 oz. claw hammer, laid flat, is a good approximation of 1″.) The door and operator should reverse on this 1″ obstruction. If the reversal does not occur and the operator has stopped running, consult Sec. 6, **Final Adjustments. If the operator continues to run, then stop the operator with the wall button or a transmitter. Remove the power from the operator (Unplug if cord connected) and contact your installer. Use the release for manual operation.**

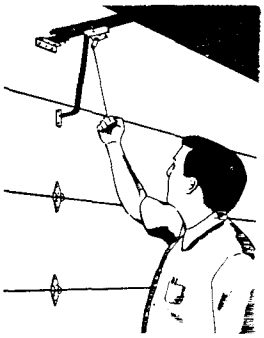


FIG. 13

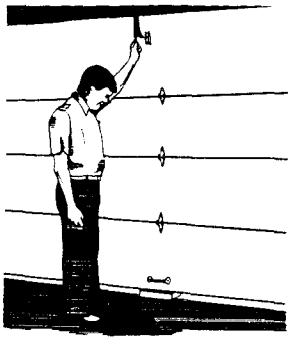


FIG. 14

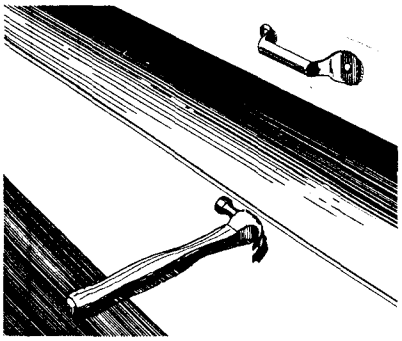


FIG. 15

SMOOTHNESS AND BALANCE TEST: Set the release for manual operation. Raise the door partially and place the corrugated box under the door. Move the door to various positions above the box and lightly restrain it so that you can determine if it has a tendency to move either up or down (Fig. 16). If the door can be held easily from moving in either direction the door balance is satisfactory. Move the door to its full open position. Allow the box to remain under the door. Standing on the floor, attempt to push the door from the rear by grasping the door arm and walking forward with a steady motion (Fig. 17). If a binding condition exists the door will be very difficult to move or it may even stop. In some cases, relaxing the pressure will allow the door to move again through this point. If such a condition exists, contact your installer. If no binding exists the door can move to a point where it may move downward unassisted. Your balance determination previously made should warn you of this fact. If the door does do this then let go of the door arm and let the door fall on the corrugated box.

If the preceding portion of the test cannot be done in the fashion described, then an alternate method is to observe the action of the rear shock take-up spring on the operator carrier during normal electric operation of the door. Small deflections in the spring are normal. A larger than normal deflection repeatedly occurring in the same travel position may indicate binding in the door.

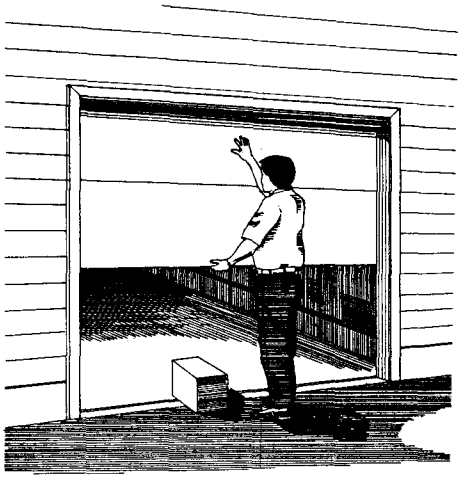


FIG. 16

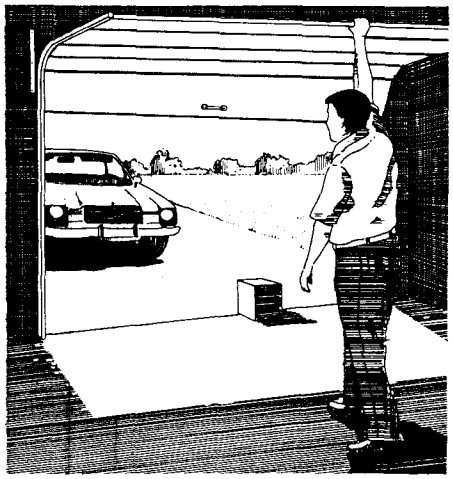


FIG. 17

SENSITIVITY TEST: (It is suggested that work-gloves be worn for this test). With the door already open, place the large block on the floor about 2 ′ off center but on the line of contact that the door makes with the floor. Make sure the immediate area in which you are about to stand is clear of objects on which you could stumble. Standing outside the door at its center, with the door traveling downward, grasp the bottom edge of the door with both hands palms up and attempt to restrain the door's downward motion (Fig. 18). The door should react to this restraint with reasonable force, and then reverse. If it does not, release the door edge and calmly step back. The door will contact the block and reverse to the full open position.

Consult the section of this manual on sensitivity settings and make the required adjustments, if any (See Sec. 6).

The force the operator exerts in the open direction is also to be tested. The operator should be able to start the door in an open direction from a position other than the floor and should be tested at least from 3 random mid-travel positions. This is achieved simply by running the door downward to a predetermined position, stopping the door with the wall button or transmitter, and pressing the button again. Should the operator shut off while trying to start the door upward from one of these positions, a sensitivity adjustment must be made. It is essential during an automatic reversal that the door move away from an obstruction.

After the open force adjustment is made, it is necessary to determine if the force the operator exerts in the open direction is reasonable. With the same precautions used in other parts of this test, activate the door to run in the open direction and while the door is about mid-travel grasp the handle and attempt to restrain the door. The door and operator should stop. Under no circumstance should the door be held as the handle nears the top of the opening. The expected force required to cause the door to stop generally will be greater than the force to reverse the door while traveling downward. It should not, however, be able to lift body weight.

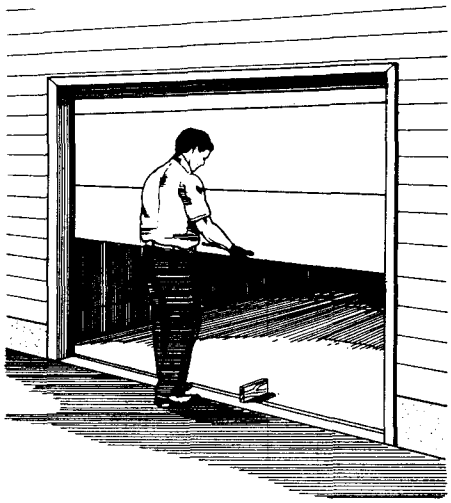


FIG. 18

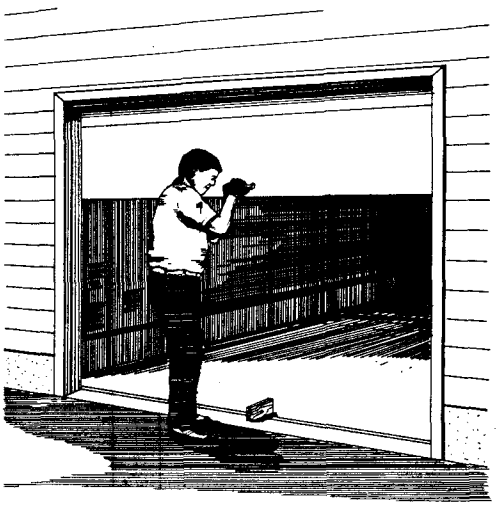
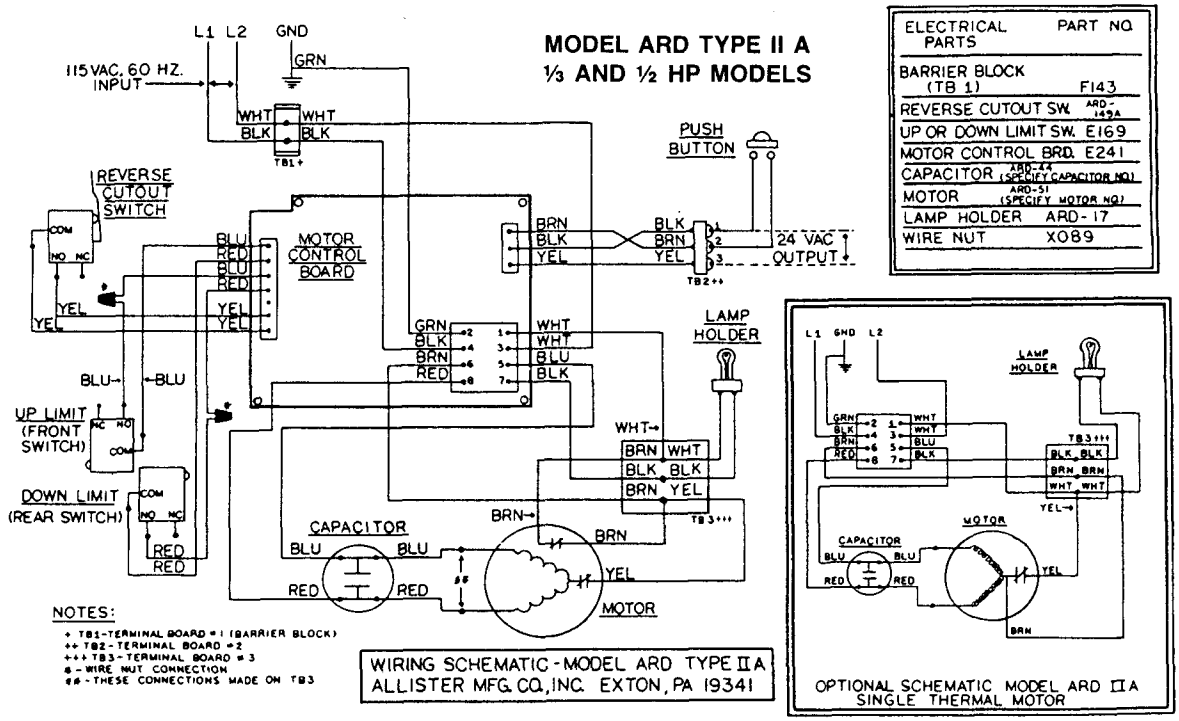


FIG. 19



ELECTRICAL PARTS	PART NO.
BARRIER BLOCK (TB 1)	F143
REVERSE CUTOUT SW.	ARD-149A
UP OR DOWN LIMIT SW.	E169
MOTOR CONTROL BRD.	E241
CAPACITOR	ARD-44 (SPECIFY CAPACITOR NO.)
MOTOR	ARD-51 (SPECIFY MOTOR NO.)
LAMP HOLDER	ARD-17
WIRE NUT	X089

WIRING SCHEMATIC - MODEL ARD TYPE II A
ALLISTER MFG. CO., INC. EXTON, PA 19341

OPTIONAL SCHEMATIC MODEL ARD II A
SINGLE THERMAL MOTOR

SECTION 8: CHECKLIST FOR INSTALLATION

MAKE SURE THAT...

1. THE FRONT AND REAR MOUNTS FOR THE OPERATOR ARE SOUND AND SECURE. THE RAIL IS AS CLOSE AS POSSIBLE TO 2" (FOR TYPE A DOOR) OR 1/2" (FOR TYPE B DOOR) ABOVE THE HIGH ARC OF THE DOOR. THE OPERATOR IS CENTERED OVER THE DOOR ACTION CENTERLINE WITHIN 1/2".
2. THE POSITION OF THE DOOR ARM WITH THE DOOR CLOSED IS SUCH THAT THE DOOR ARM CONNECTING POINT ON THE CARRIER IS 5" TO 8" BEHIND THE DOOR ARM CONNECTING POINT ON THE DOOR BRACKET. (FOR TYPE A DOOR).
3. THE DOOR RELEASE HANDLE AND CORD ARE SECURE TO THE RELEASE LEVER AND THE HANDLE IS APPROXIMATELY 6' ABOVE THE FLOOR. THE FORCE REQUIRED TO ACTIVATE THE RELEASE IS LESS THAN 50 LBS. THE CARRIER AND RELEASE MECHANISM ARE LUBRICATED.
4. THE WALL BUTTON IS MOUNTED IN SUCH A POSITION AND HEIGHT THAT IT CAN ONLY BE ACTUATED BY AN ADULT OF AVERAGE HEIGHT. THE CAUTION LABEL IS PROMINENTLY DISPLAYED NEXT TO THE WALL BUTTON.
5. THE WIRING IS CORRECT TO CODES OR BETTER. THERE IS GROUND CONTINUITY IN THE SUPPLY. THE GROUND PRONG ON THE POWER CORD PLUG IS INTACT.
6. ALL ROPES HAVE BEEN REMOVED FROM THE DOOR. THE DOOR MOVES FREELY WITHOUT BINDING WHEN MOVED BY HAND, EITHER FROM THE FRONT OR REAR.
7. THE DOOR IS CORRECTLY BALANCED AND LUBRICATED. ALL DOOR HARDWARE IS SECURE AND SOUND. THE SENSITIVITY HAS BEEN ADJUSTED TO MINIMUM FORCE FOR THE APPLICATION. THE APPROPRIATE WARNING STICKER HAS BEEN AFFIXED TO THE DOOR.
8. THE DOOR REVERSES ON OBSTRUCTIONS TO WITHIN 1" OF THE FLOOR. THE CONCRETE OR SURFACE BENEATH THE CLOSED DOOR PROVIDES UNIFORM CONTACT.
9. THE PLASTIC ENVELOPE FOR THIS MANUAL IS ATTACHED TO THE WALL NEAR THE WALLBUTTON WHERE THIS MANUAL IS TO BE PLACED FOR THE OWNER'S USE AND INFORMATION.

ADDITIONAL ITEMS RECOMMENDED...

1. ON DOORS WITH EXTENSION TYPE COUNTERBALANCE SPRINGS, THE INSTALLATION OF RESTRAINT CABLES THROUGH THE SPRINGS.
2. GFI PROTECTION ON THE LINE TO POWER THE OPERATOR OR IN THE RECEPTACLE. (ESPECIALLY RECOMMENDED ON INSTALLATIONS INVOLVING DOORS OF STEEL CONSTRUCTION)
3. ON DOORS WITH ADJUSTABLE BOTTOM EDGES, LOCK THE EDGES AFTER ADJUSTMENT SO THEY CANNOT MOVE.
4. IF THE GROSS DOOR WEIGHT IS EXCESSIVE FOR ITS SIZE, OR THE WIDTH-TO-HEIGHT RATIO NON-STANDARD, A SLOW SPEED MOTOR IS AVAILABLE. CONSULT THE FACTORY.

LIMITED WARRANTY

Allister Manufacturing Company, Inc. (the "Company") for a period of one year from date of purchase will repair or replace, at its option, this electric door opener if it fails as a result of defective manufacturing workmanship, subject to the following terms and conditions.

This warranty is made only to the original purchaser of the Company's product. This warranty does not cover any parts or services not provided by the Company and does not cover damage to or misuse, abuse, improper installations, connection to improper power source, fire or lightning, failure to follow the Company's recommended installation and maintenance procedures, or negligence on the part of anyone other than the Company. All work to be performed hereunder shall be rendered by the Company or its designated representatives. The Company will be not be responsible for or pay for work performed by anyone other than the Company or its designated representatives. The Company will use, at its discretion, new or factory rebuilt replacements for all repairs. Replacement parts are warranted hereunder only for the remaining, unexpired portion of the original warranty period.

This Warranty is given in lieu of any other express warranty. IN ADDITION, ANY IMPLIED WARRANTIES, INCLUDING WARRANTY OF MERCHANTABILITY ARE LIMITED IN DURATION TO THE TERM OF THIS WRITTEN WARRANTY. Some states do not allow limitations on how long an implied warranty lasts, so this limitation may not apply to you. This warranty does not cover and the Company shall not be responsible for loss of time, inconvenience, property damage, personal injury, or any other incidental or consequential damages. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

In order to receive service under this warranty, the defective equipment must be shipped to the Company's plant, F.O.B., at the address listed above along with a complete description of any problem or defect believed to exist. This warranty gives you specific legal rights and you may also have rights which vary from state to state.