

RAYNOR GARAGE DOORS

MODELS

170-7
170-8
270-7
270-8
270-10

RESIDENTIAL OPENER INSTALLATION INSTRUCTIONS



WARNING **GARAGE DOOR SAFETY**



Please read these instructions before starting installation. It is important that this opener be installed properly and in accordance with all safety precautions in order to provide years of dependable operation.

The garage door is the largest, heaviest piece of moving equipment in most homes. Improper operation can result in trapping persons or animals under the door, causing serious injury or death. Become familiar with these instructions and directions for periodic testing. If a problem is suspected, discontinue use and contact only a trained service technician for diagnosis and repairs.

INSTALLER NOTE: Attach instruction sheet to wall next to pushbutton for future reference. Mount all warning tags and labels per instructions in this manual.



WARNING



SAFETY RULES AND PRECAUTIONS FOR INSTALLATION AND OPERATION

This garage door opener has been designed and manufactured in accordance with Underwriters Laboratory specification ANSI/UL 325 to offer safe operation provided it is installed and operated in strict accordance with the following safety guidelines and installation instructions.

IMPORTANT SAFETY INSTRUCTIONS

WARNING — To reduce the risk of severe injury or death to persons:

1. READ AND FOLLOW ALL INSTRUCTIONS.
2. Do not permit children to operate or to play with the operator. Keep remote control in a location inaccessible to children.
3. Operate opener only when the door is in full view and free from any obstruction. Keep the door in sight until it is completely closed. **NO ONE SHOULD CROSS THE PATH OF THE MOVING DOOR.**
4. Check reversal system monthly. The garage door must reverse on contact with a one inch obstacle placed on the floor. If an adjustment is made to either the force or the limit travel, both adjustments need to be made and the reversal system checked. Failure to properly adjust the opener may result in severe injury or death.
5. If possible, use the manual disconnect only when the door is in a closed position. Caution should be taken whenever the disconnect cord is actuated with the door open. Weak or broken springs may cause the door to fall rapidly, causing injury.
6. **KEEP GARAGE DOORS PROPERLY BALANCED.** See instruction manual. An improperly balanced door could result in severe injury. Repairs to cables, spring assemblies and other hardware are dangerous and must be made by a qualified serviceman.
7. **SAVE THESE INSTRUCTIONS.**

IMPORTANT INSTALLATION INSTRUCTIONS

8. Install only on a properly balanced garage door. An improperly balanced door could result in severe injury. Repairs to cables, spring assemblies and other hardware must be made by a qualified serviceman before installing operator.
9. To prevent entanglement, remove all handles, locks and ropes connected to the garage door before installing operator.
10. If possible, install door operator 7 feet or more above floor with the emergency disconnect rope mounted 6 feet above the floor.
11. Do not connect operator to source of power until all installation steps are completed.
12. Install control button at a minimum height of 5 feet (6 feet recommended) out of reach of small children. Locate button where door will be in full view and away from moving parts of the door.
13. Install user safety instruction label adjacent to control button and maintenance instruction label in a prominent location, such as the inside of the garage door, or as instructed in the installation instructions.
14. Upon completion of the installation, the door must reverse when it comes in contact with a one inch high obstruction located on the floor.

OPERATION

IMPORTANT

Before installing or operating this product, please read the safety rules on Page 2, along with the following operating instructions.

MANUAL OPERATION

Before operating the door electrically, perform the following test of the emergency disconnect system. The door should be in the fully closed position if possible. Weak or broken springs could allow the door to fall rapidly causing severe personal injury or property damage.

TO MANUALLY OPERATE THE DOOR:

1. Pull the red disconnect cord down sharply and back to disengage the pick-up arm from the operator.
2. Manually raise the door.
3. To automatically reconnect the pick-up arm to the operator, pull the red cord straight down. Lower the door to the half open position. With the door in full view, activate the operator from the wall mounted pushbutton. The pick-up arm will automatically reconnect to the operator.

USING YOUR OPENER

With the door in full view, activate the operator with any of these controls:

WALL MOUNTED BUTTON – Press the pushbutton once to start the door in motion.

RADIO CONTROL TRANSMITTER – Press the transmitter button to start the door in motion.

SPECIAL FEATURES

DOOR CLOSED – Pressing the pushbutton or radio control will open the door. The door will stop automatically when it reaches the full open position.

DOOR OPEN – Pressing the pushbutton or radio control will close the door. The door will stop automatically when it reaches the full down position.

DOOR IN MOTION – When the door is in motion, pressing the pushbutton or radio control will stop the door. Next push of the button, the door will reverse its direction and travel to the fully open or closed position.

SAFETY SYSTEM – When the door is opening, if an obstruction is encountered, the door will stop. Next push of the button will close the door. When the door is closing, if an obstruction is encountered, the door will reverse and travel to the full open position.

LIGHT DELAY – Light will turn on when the door is operated by the pushbutton or radio control, will remain on for approximately 5 minutes and then turn off.

POWER FAILURE – When power is restored, door travel will not occur until the pushbutton or radio control is used.

SAFETY SHUTOFF – If the door is closing and the limit switch or obstruction switch is not activated within 25 seconds, the operator will stop, reverse and travel to the full open position. When the door is opening and limit switch or obstruction switch is not activated within 25 seconds, the operator will stop.

EMERGENCY DISCONNECT – In case of a power failure, the red pull cord allows the door to be manually operated. When power is restored, an additional pull on cord will automatically reconnect the door when the pushbutton or radio control is activated.

COURTESY LIGHT OPTION – First press of button turns light on until button is pressed a second time. Opening or closing the door starts the time delay.

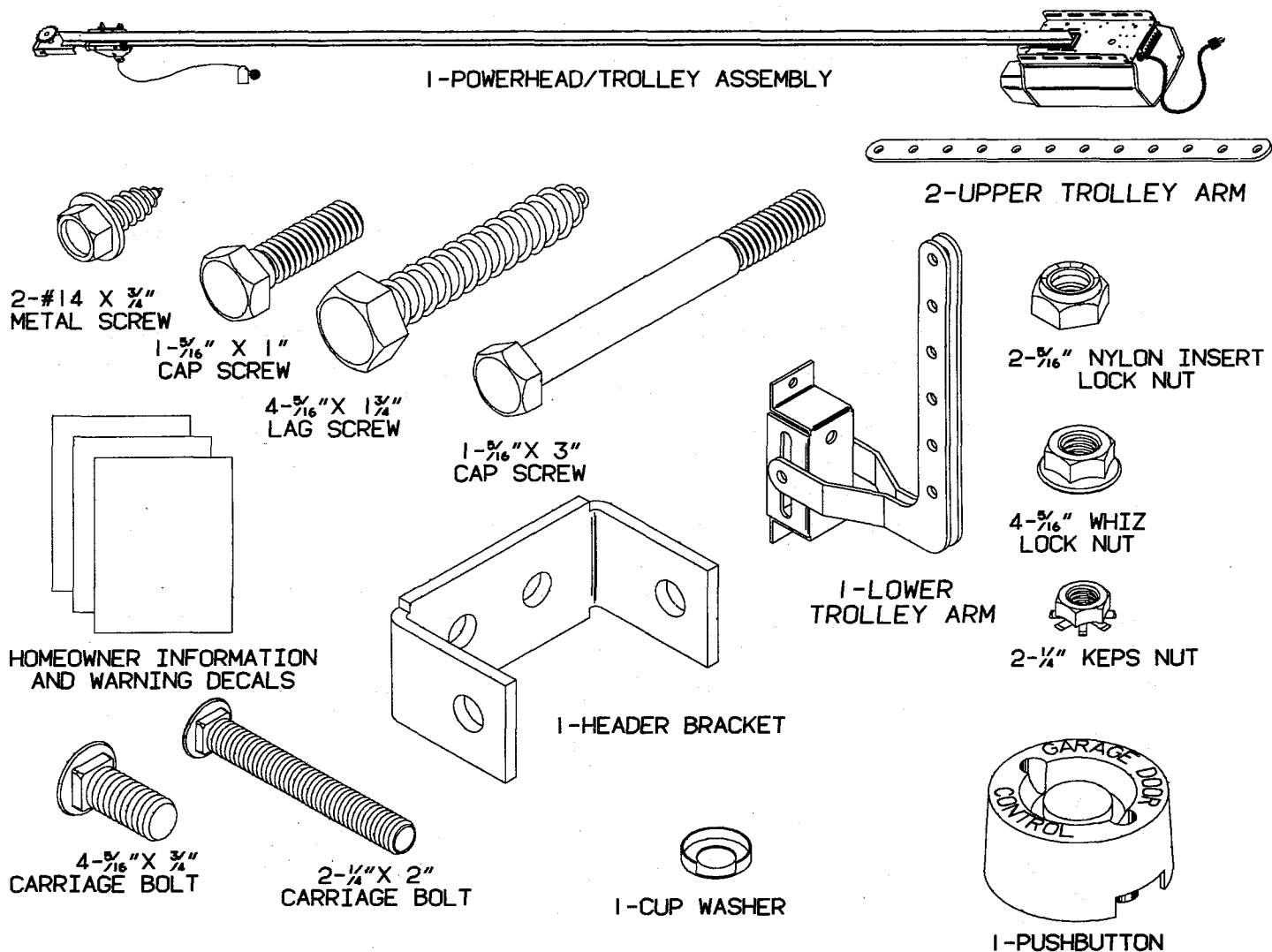
WARNING LIGHT OPTION – Door closing will be delayed 2 seconds and courtesy light will start flashing as a warning. After the door is closed, light will stop flashing and 5 minute light delay will turn light off automatically.

INSTALLATION REQUIREMENTS

- DOOR SIZE** – Use seven foot model for doors up to and including 7'0" (2.13m) high. Use eight foot model for doors over 7'0" (2.13m) high up to and including 8'0" (2.44m) high. Use ten foot model for doors over 8'0" (2.44m) up to and including 10'0" (3.05m) high with a maximum door width of 18' (5.49m) and a maximum door weight of 400 pounds. Door opener use should not exceed a maximum of 5 cycles per hour.
- HEADROOM REQUIRED** – (Typical installation) Minimum of 1 1/2" (3.81cm) over high point of door travel or spring hardware, whichever is greater.
- BACKROOM REQUIRED** – 10'5" (3.17m) from front wall to back of opener powerhead on seven foot models, 11'8" (3.56m) on eight foot models, and a minimum of 13'8" (4.17m) required for ten foot models.
- POWER REQUIREMENTS** – These units require a 115 volt AC, 60 Hertz, grounded power source. 1/3 horsepower openers are rated at 4.5 amps and 1/2 horsepower openers are rated at 5.0 amps. **THE USE OF GAS POWERED GENERATORS MAY DAMAGE SOLID STATE COMPONENTS.**
- SURGE PROTECTION** – Since your Raynor operator functions in much the same manner as a small computer, it is susceptible to line spikes, line noise and lightning; any of which could damage the sensitive components on the microprocessor control board. Even though the board is provided with a degree of protection from these problems, it is Raynor's recommendation that a surge suppressor be installed as an additional means of protection.

The surge suppressor guards against component failure by acting as a filter to regulate the consistency of the voltage entering the microprocessor control board. The use of a surge suppressor greatly reduces the chances of board failure. Such devices can be purchased at your local hardware store or from your Raynor distributor.

OPEN CARTON AND CHECK CONTENTS BEFORE STARTING

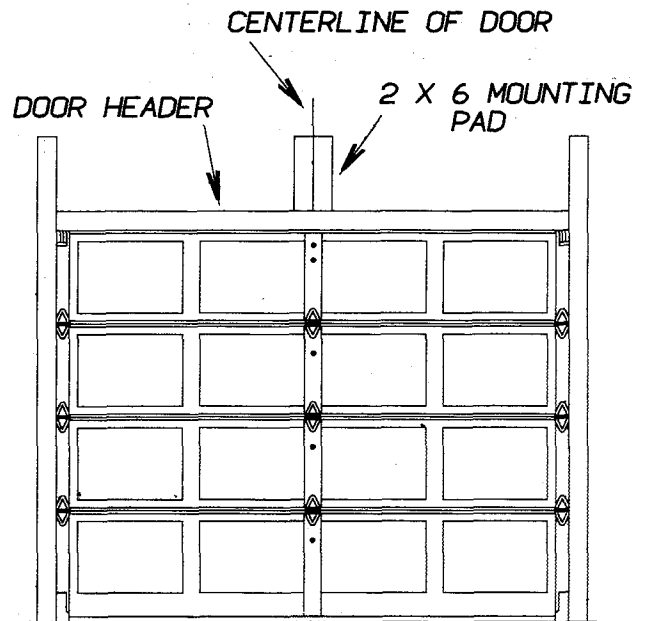
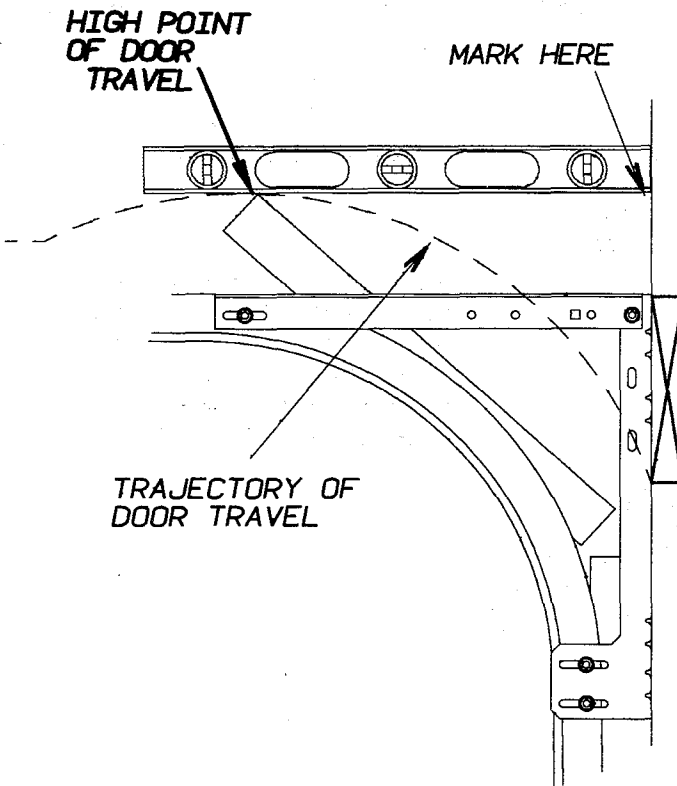


STEP 1 INSTALL HEADER BRACKET



The header bracket must be securely fastened to the front wall framing. If necessary, reinforce the front wall with a 2" x 6" mounting pad.

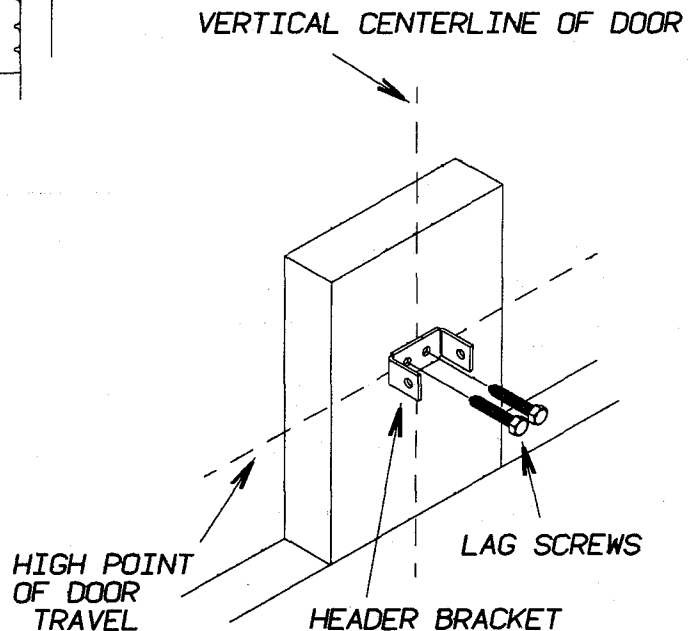
Measure the width of the door to determine the center. Using a pencil, mark the centerline on the door header above the door.



TYPICAL SECTIONAL DOOR
INSIDE LOOKING OUT

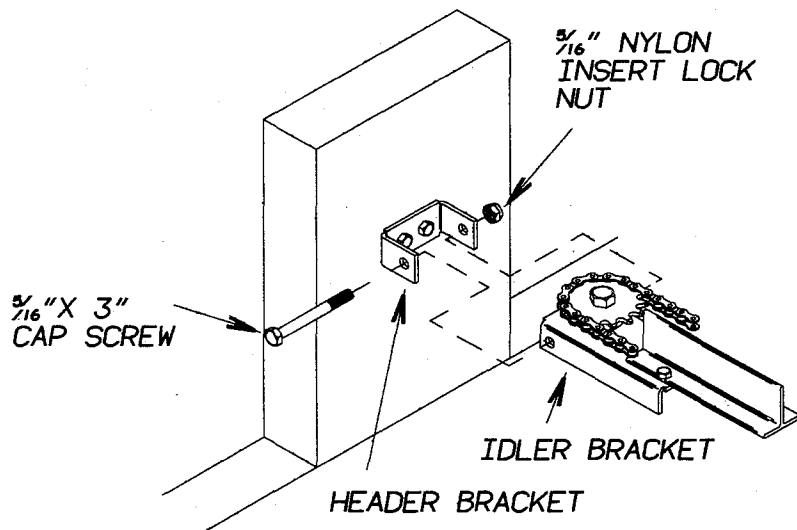
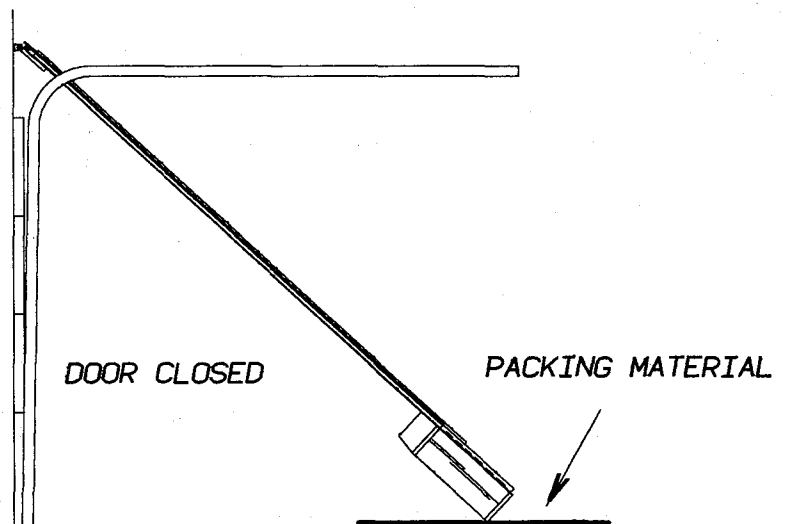
Raise door and locate the highest point of the door travel. Place level across the top of the door section and up against the door header. Using a pencil, mark the door header where the bottom of the level crosses the centerline of the door.

Locate the header bracket mounting holes directly centered over the horizontal mark for the high point of travel and the vertical centerline of the door. Attach the header bracket to the header using two (2) 3/16" x 1 3/4" lag screws. Pre-drill pilot holes for lag screws to prevent mounting pad from splitting. Be sure bracket is level.



STEP 2 ATTACH OPERATOR TO HEADER BRACKET

Place operator powerhead on packing material. With the door in the closed position, raise the front end of the operator up to the header bracket.

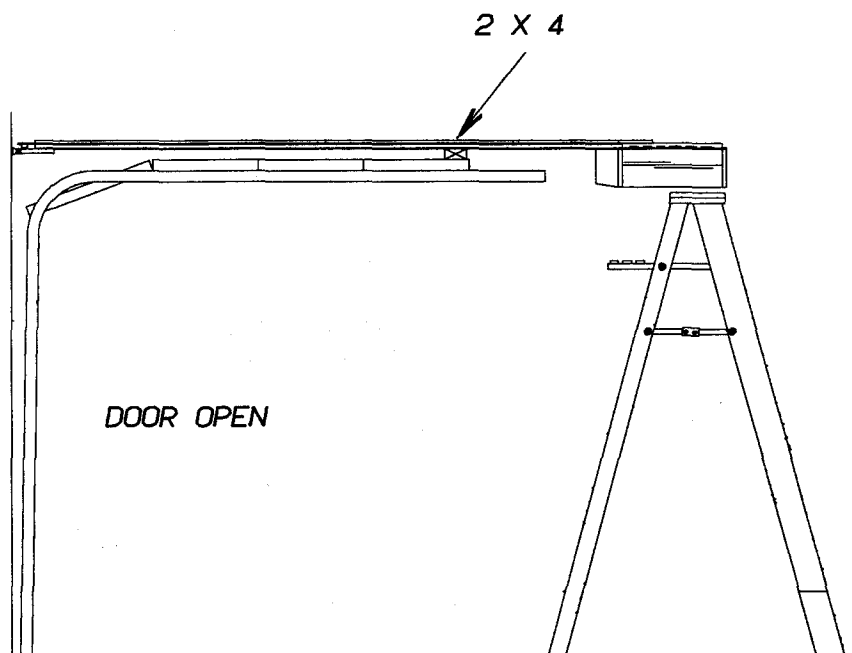


Insert the 5/16" x 3" hex head cap screw through the header bracket and front idler bracket. Screw one 5/16" nylon insert locking nut to the screw. DO NOT COMPLETELY TIGHTEN AT THIS TIME.

Carefully place the powerhead of the garage door operator up onto a stepladder. Slowly open the door to avoid hitting the trolley rail with the top section of the door. Space the height of the powerhead such that a short 2 x 4 placed on the top section of the door will clear the trolley rail by 1/8".

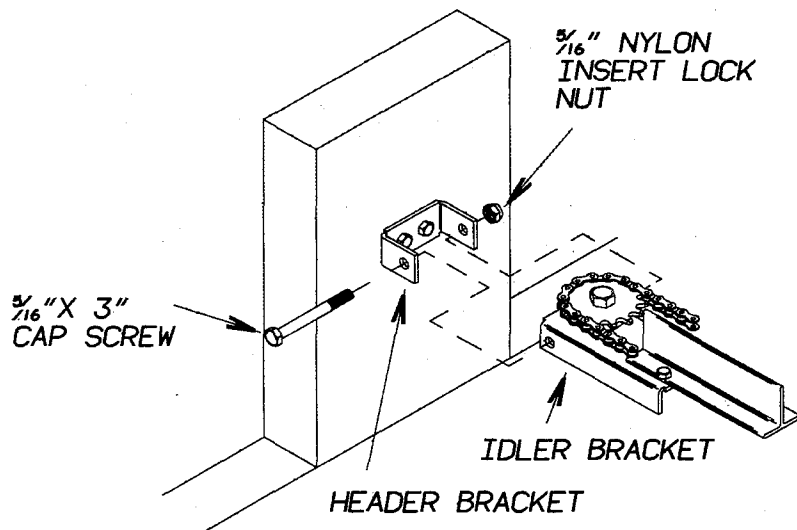
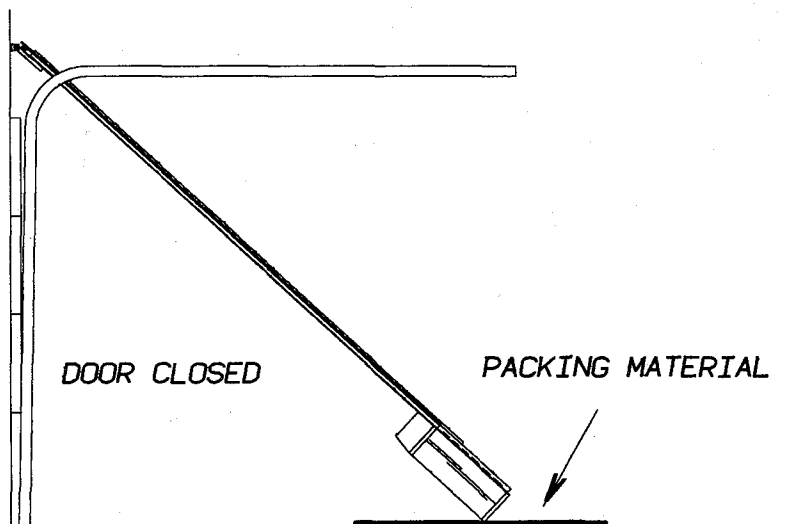


Do not allow the weight of the operator to rest on the top section of the door or 2 x 4. Doing so may cause permanent damage to the door.



STEP 2 ATTACH OPERATOR TO HEADER BRACKET

Place operator powerhead on packing material. With the door in the closed position, raise the front end of the operator up to the header bracket.

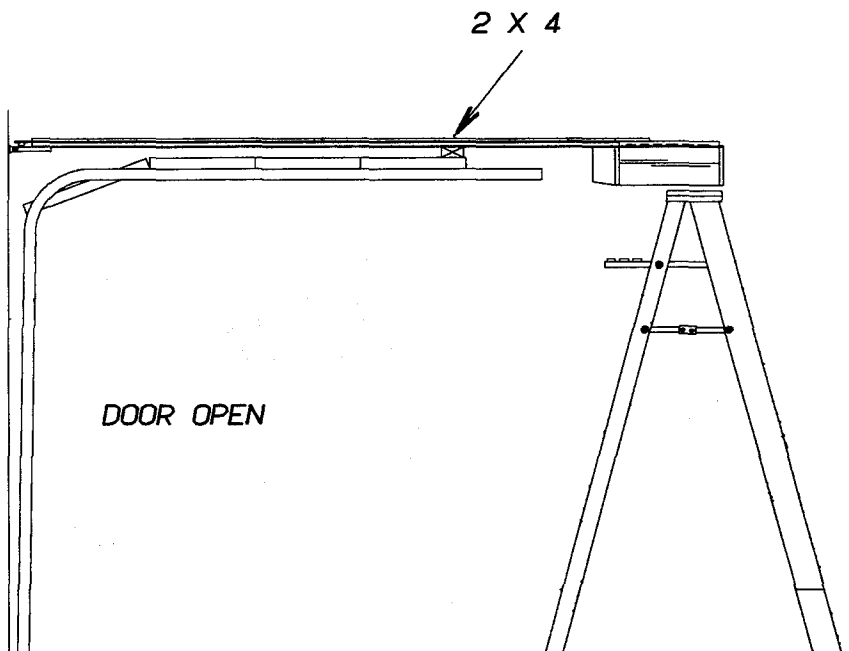


Insert the 5/16" x 3" hex head cap screw through the header bracket and front idler bracket. Screw one 5/16" nylon insert locking nut to the screw. DO NOT COMPLETELY TIGHTEN AT THIS TIME.

Carefully place the powerhead of the garage door operator up onto a stepladder. Slowly open the door to avoid hitting the trolley rail with the top section of the door. Space the height of the powerhead such that a short 2 x 4 placed on the top section of the door will clear the trolley rail by 1/8".



Do not allow the weight of the operator to rest on the top section of the door or 2 x 4. Doing so may cause permanent damage to the door.



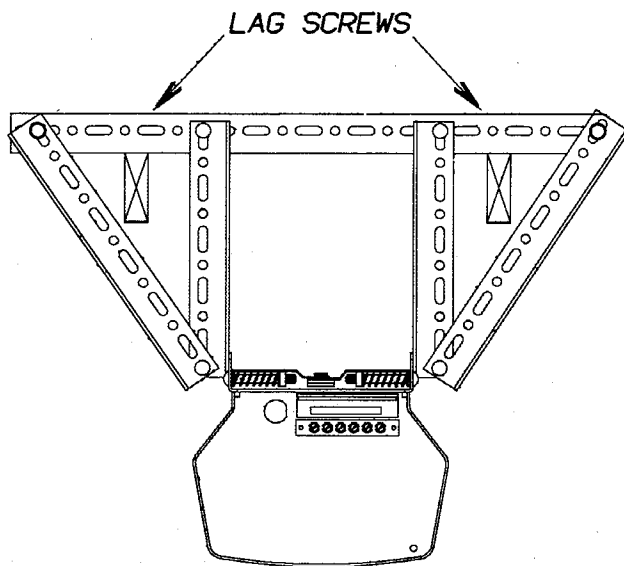
STEP 3 INSTALL POWERHEAD SUPPORTS



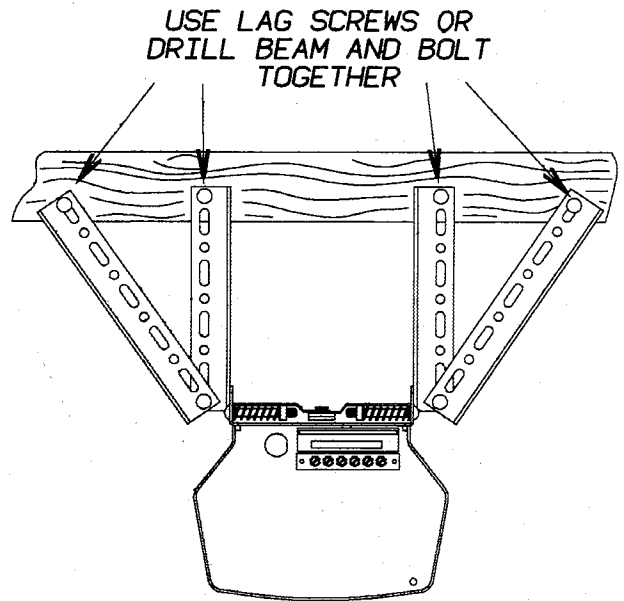
Do not allow entire weight of operator to rest on the top section of the door while securing the powerhead. The weight may cause the door to bend, causing damage to the door or improper operator clearance.

With trolley rail centered on the door, use pre-punched hanger angle or other suitable material (not supplied), to mount the operator to the ceiling or a beam as shown in the illustration below. Using diagonal bracing will prevent side sway. Make sure the powerhead is level and tighten all fasteners used for supports. Make sure operator is mounted solid. Close the door and tighten header bracket bolt and nut. Be careful not to overtighten.

Do not mount directly to drywall or plaster ceiling. Mount only to structural framing.



CEILING MOUNT



BEAM MOUNT

Mounting options are not limited to only those shown here; other situations may exist.

STEP 4 INSTALL LIGHT BULB AND COVER

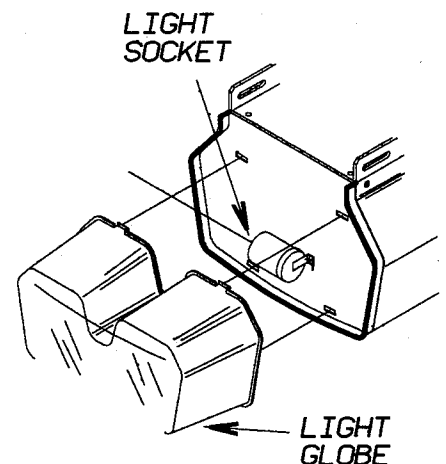


DISCONNECT POWER BEFORE SERVICING OPERATOR. Light bulb must not exceed 60 watts. Excessive heat generation can cause damage.

Gently squeeze top and bottom of light globe together while pulling away from powerhead to reveal light bulb socket. Screw any standard incandescent light bulb rated 60 watts or less (NOT INCLUDED) into the light socket.

Replace light globe.

If bulb life seems extremely short, some stores offer light bulbs packaged for use in garage door openers and rough service applications.



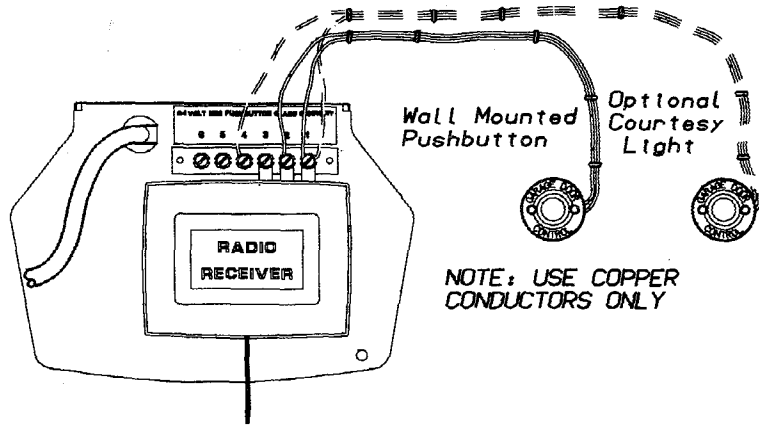
STEP 5

INSTALL PUSHBUTTON, RADIO CONTROL AND AUXILIARY ENTRAPMENT PROTECTION SYSTEM



All connections to terminal strip MUST be performed prior to connecting the operator to power to prevent accidental operation and damage to the microprocessor control board.

Pushbutton wiring is a 24 volt NEC Class 2 circuit. Attach two conductor bell wire, 22 AWG or larger, to the two screws in the pushbutton backer and tighten. Mount the pushbutton only to a non-conductive surface. The button should be a minimum of 5 feet above the floor or step, and away from moving objects. Route wire to operator; being careful of sharp edges that may damage wire. Connect wires to terminals 1 and 2 on the operator.



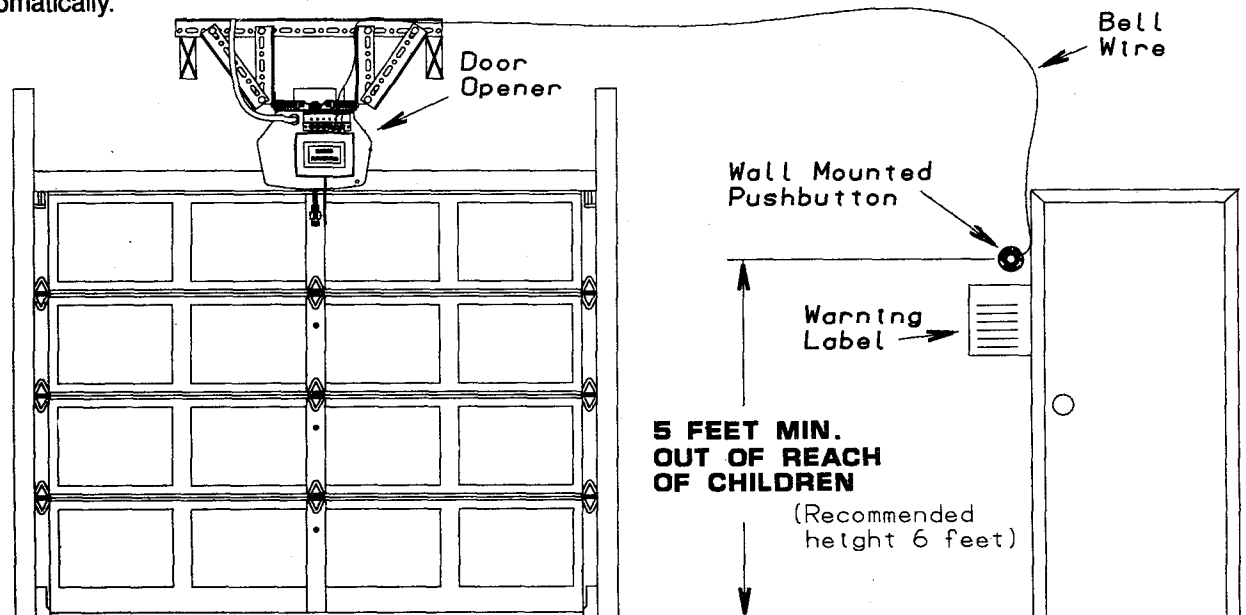
Radio control receiver is mounted to Terminals 1, 2 and 3 on the rear of the operator either with clips provided with the radio control or by three conductor wire.

Although this operator is equipped with a built-in safety reverse feature, an auxiliary entrapment protection device must be installed before the operator will function properly. If it is not connected, then the operator will require constant pressure on the wall button in order to close the door. Release of the button before the door is closed will reverse the door to the open position. The radio transmitter will only function to open the door, it will not allow the door to close.

Use only Raynor "Safety Sentinel" photo electric sensor or Raynor "Safety Sure" electric bottom edge sensor systems. Install according to installation instructions packaged with entrapment protection system.

Mount Warning Label, found in homeowners package, to wall next to pushbutton.

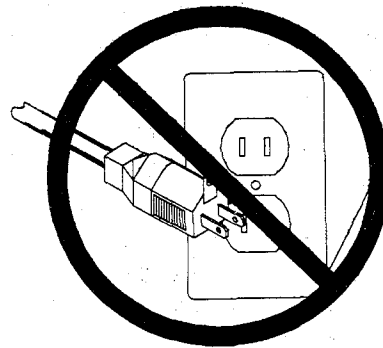
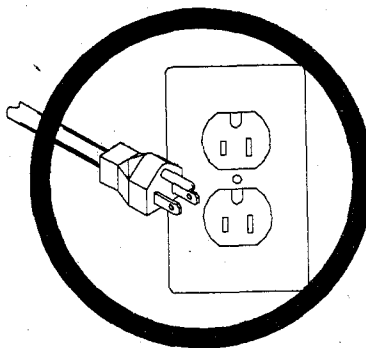
Optional Courtesy Light—attach a second pushbutton (not supplied) to terminals 1 and 4 on the rear of the operator. First push of the courtesy light pushbutton turns the light on. The second push of the button will turn the light off. If the light is on and in the timing mode, pushing the courtesy light button will turn the light off. If the light has been turned on by the courtesy light button and the door button or radio control is activated, the light will then time out and turn off automatically.



STEP 6 CONNECT POWER



To reduce the risk of electrical shock, this equipment has a grounding type plug that has a third pin (grounding pin). This plug will only fit a grounding type outlet. If the plug does not fit into the outlet provided, contact a qualified electrician to install the proper outlet. Do not change the plug in any way. **DO NOT USE AN ADAPTER.**

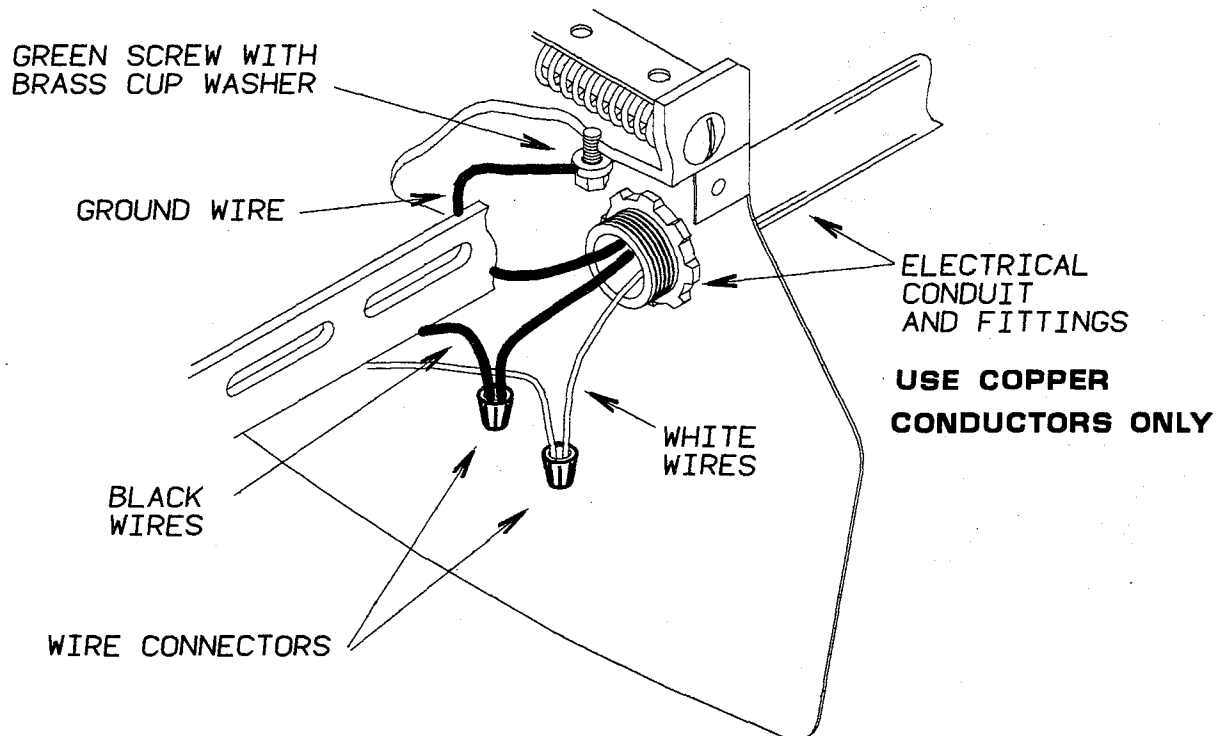


IF LOCAL CODES REQUIRE PERMANENT WIRING, PROCEED AS FOLLOWS:

PERMANENT WIRING INSTRUCTIONS

1. Turn power off at electrical panel or breaker box.
2. Remove cover from powerhead by removing the four (4) cover screws.
3. Remove green ground lead by removing green ground screw.
4. Remove wire connectors from black and white wires and strip insulation from wires 7/16" (1.11cm).
5. Remove strain relief bushing and line cord.
6. Install permanent connections through the same hole that contained the strain relief bushing and cord.
7. Connect black wire to black wire and white wire to white wire using suitable U.L. listed wire connectors.
8. Remove brass cup washer from hardware package and install in green ground screw with cup side up. Install green ground wire around screw and tighten.
9. Replace powerhead cover.

ALL WIRING, CONDUIT, AND CONNECTIONS MUST BE IN ACCORDANCE WITH LOCAL CODES.



STEP 7

ATTACH PICK UP ARM TO DOOR

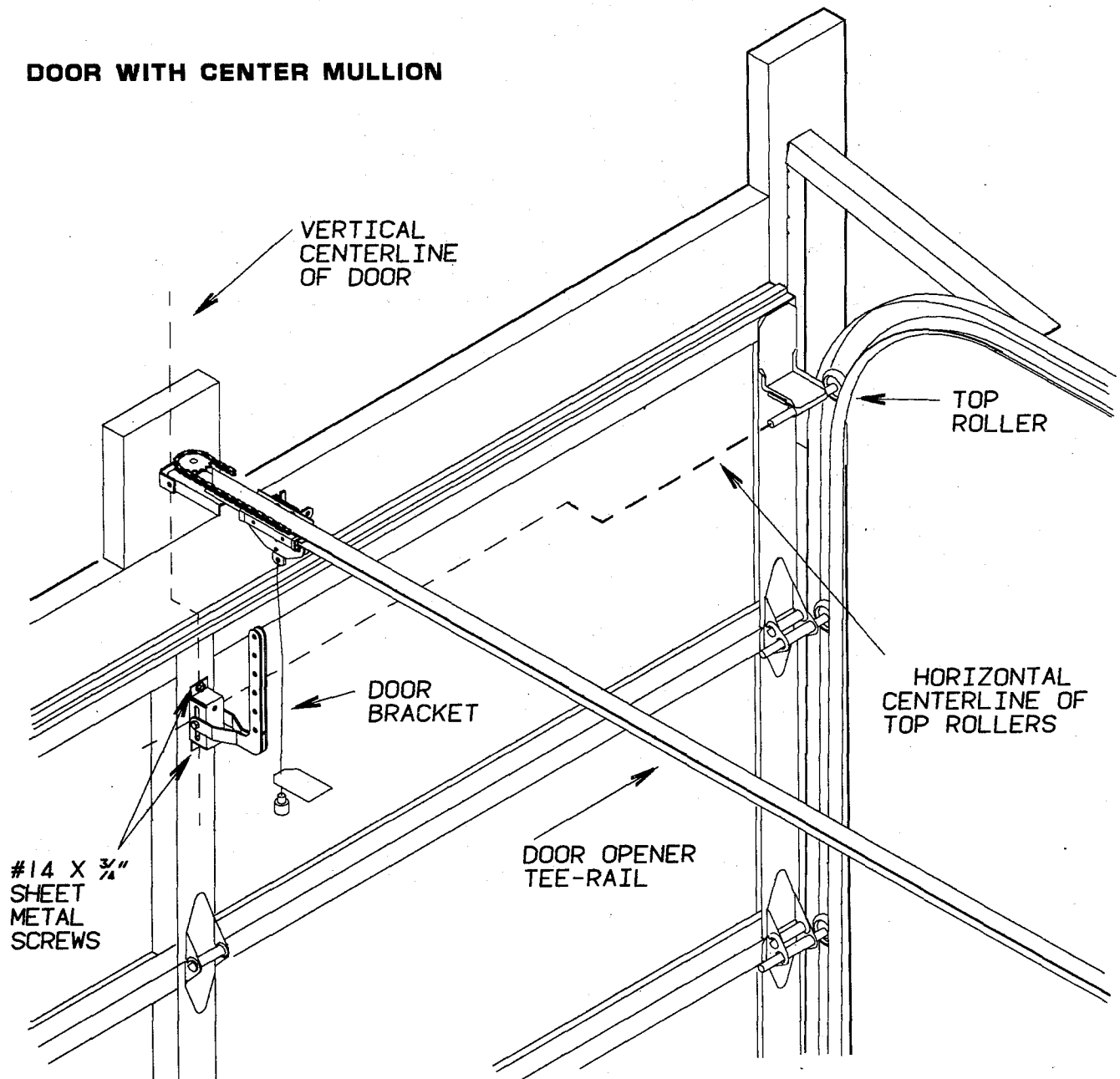


All lightweight garage doors and doors over 10 feet wide require additional horizontal reinforcement along the top edge of the top section to prevent top section damage.

The trolley arm for this operator is packaged with the upper and lower trolley arms assembled. It is necessary to remove the two 5/16" x 1" screws and whiz nuts at this time. Do not discard screws or nuts, they will be required for Step 8.

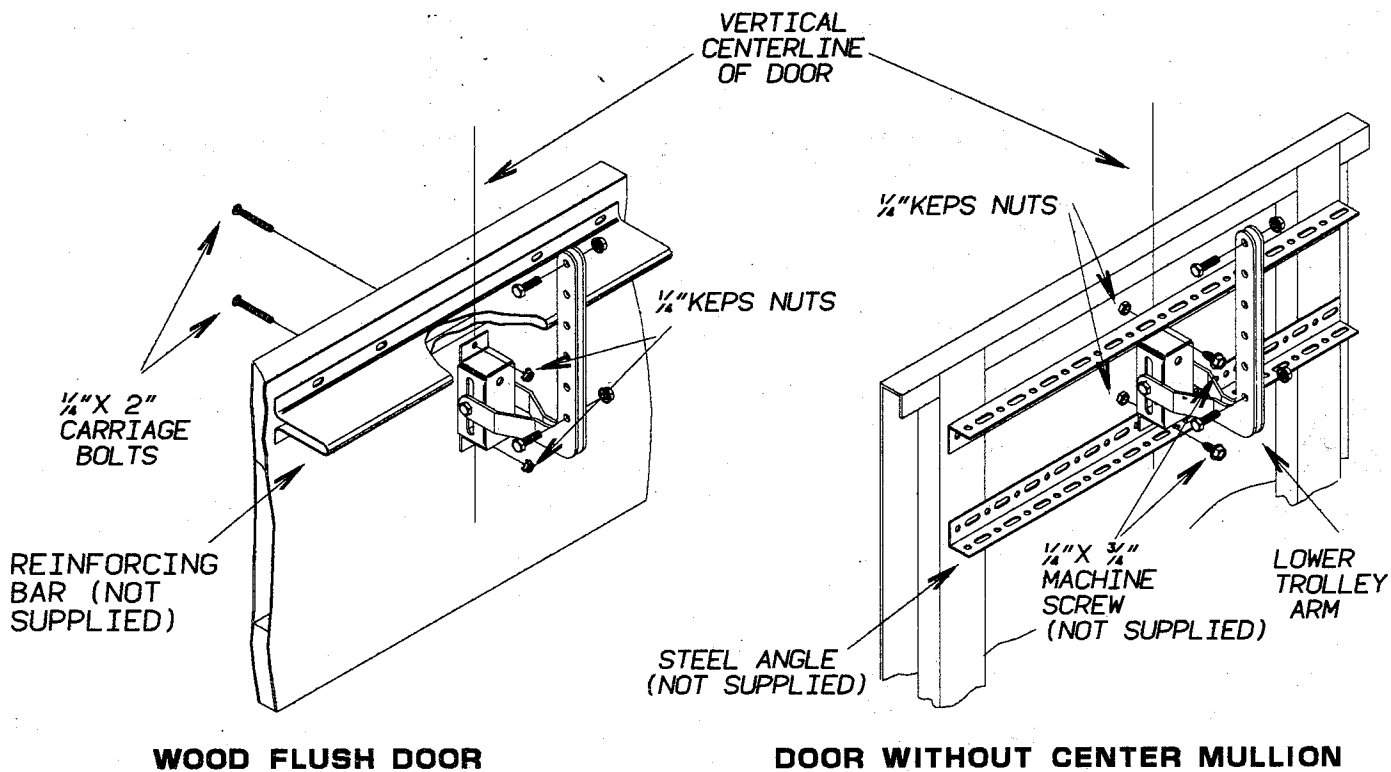
With the door in the fully closed position and the trolley carriage at the front of the trolley rail, locate the vertical centerline of the door and the horizontal centerline of the top rollers and mark this spot on the door. Center the door bracket of the lower trolley arm on the vertical centerline of the door and the horizontal centerline of the top rollers. Attach the door bracket to steel doors by drilling two 3/16" diameter holes and mounting with (2) #14 x 3/4" sheet metal screws. On wood doors, attach the door bracket to the top section by drilling two 1/4" diameter holes through the top section. Fasten with (2) 1/4" x 2" round head carriage bolts and 1/4" keps nuts.

DOOR WITH CENTER MULLION



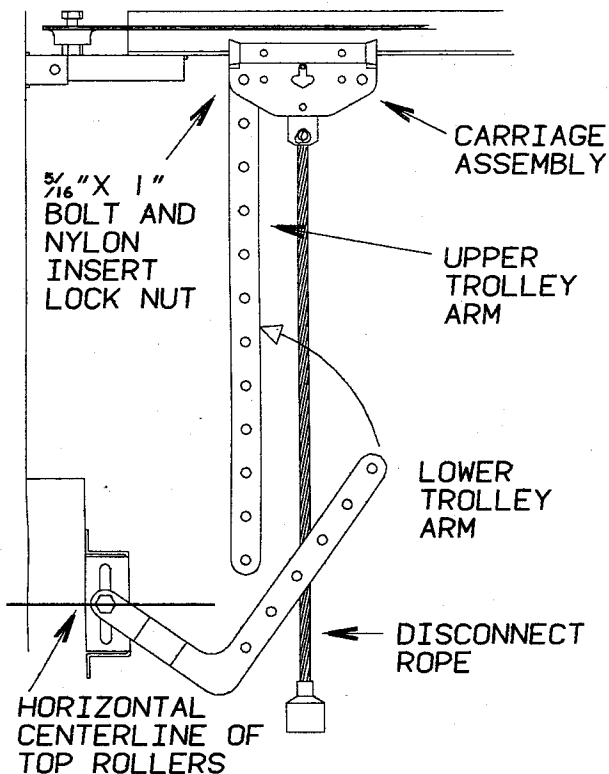
STEP 7

ATTACH PICK UP ARM TO DOOR (CONTINUED)



STEP 8

ATTACH PICK UP ARM TO OPENER



Mount upper trolley arm to carriage assembly by using (1) 5/16" x 1" hex head cap screw and (1) 5/16" nylon insert lock nut. DO NOT overtighten, the arm must move freely for proper operation.

Swing the lower arm up and attach to upper arm using (2) 5/16" x 1" hex head cap screws and 5/16" whiz lock nuts.

NOTE: Several holes are provided for arm attachment. Select holes that will compress the springs in the door bracket when the upper trolley arm is vertical. It may be necessary to disconnect trolley carriage from trolley as explained in the emergency operation on Page 14 to allow for bolting upper and lower arms.

Adjust the red disconnect rope to a maximum height of 6 feet (1.83m) above the floor.

STEP 9 LIMIT TRAVEL ADJUSTMENT

The open and close limits are preset at the factory for a typical 7, 8, or 10 foot installation, depending on the model. Because installation conditions may vary, the open limit may require adjustment.

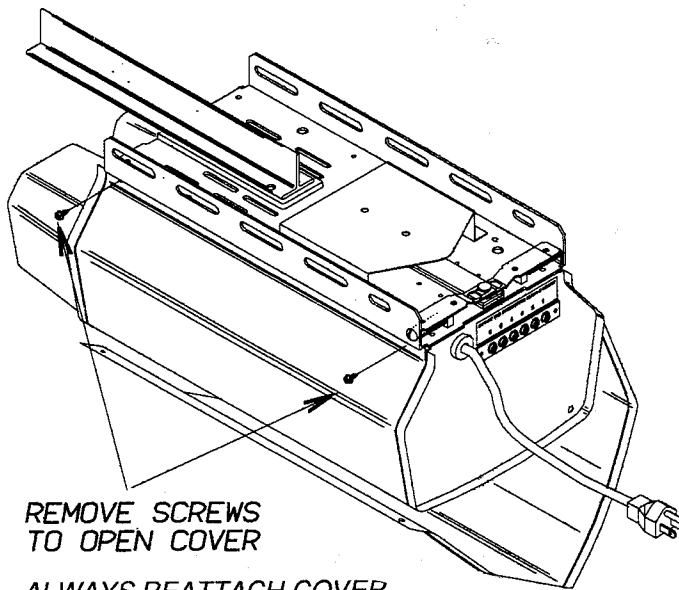
To check open limit adjustment, disconnect outer trolley carriage as shown in Step 12, **EMERGENCY OPERATION**. Activate opener from the pushbutton or radio control. The inner carriage should travel in the open direction and stop when the open limit switch is activated.

Raise the door to the desired open position. The inner and outer carriages should be in approximate alignment for reconnection. If carriages do not line up, adjust open limit as follows:



Disconnect power before making adjustments to limit switches. After each adjustment is made, replace cover, reconnect power and test limit travel as well as the SAFETY REVERSE SYSTEM.

- A. Remove powerhead cover for access to limit switch assembly.
- B. **OPEN LIMIT ADJUSTMENT**—Pull the retaining rod away from the limit nuts and hold in this position. Turn the open limit on the threaded shaft downward for more door travel or upward for less door travel.



REMOVE SCREWS
TO OPEN COVER

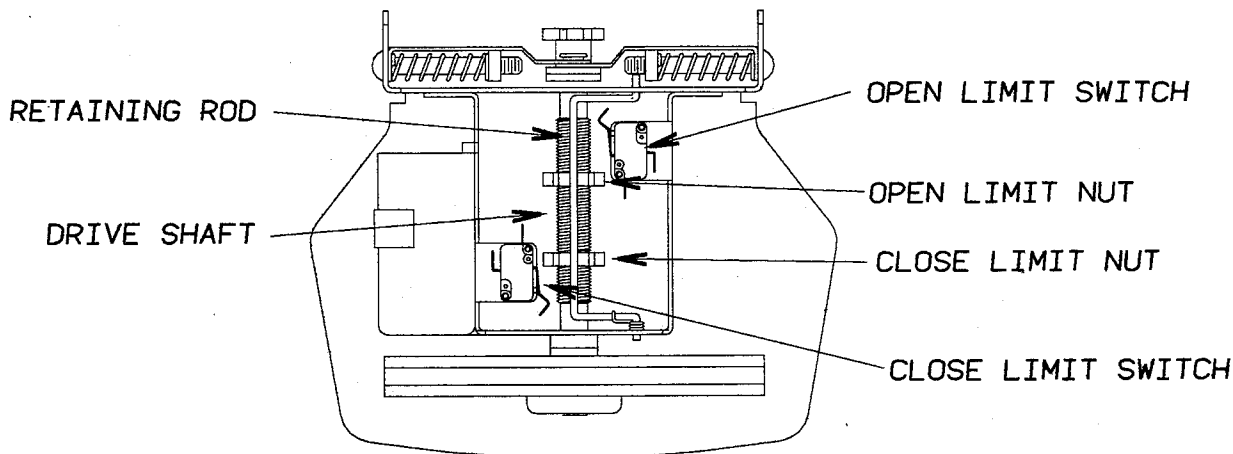
ALWAYS REATTACH COVER
BEFORE RECONNECTING
OPERATOR TO POWER SUPPLY.

NOTE: One revolution of the limit nut is approximately 3 inches of door travel. After each adjustment of the limit nuts and before replacing cover, make sure the retaining rod is engaged in the slots of both limit nuts.

Reconnect power and test limit adjustment. Repeat above procedure until alignment is correct.

When the desired alignment is achieved, reconnect inner and outer carriage. Test open and close limit adjustment by activating the pushbutton or radio control to run the door to the full open and full closed position. If the door does not fully open or close, force adjustments may be required as shown in Step 10 or the close limit may require adjusting as follows:

CLOSE LIMIT ADJUSTMENT – Pull the retaining rod away from the limit nuts and hold in this position. Turn close limit nut on threaded shaft upward for more door travel or downward for less door travel.



STEP 10 FORCE ADJUSTMENT



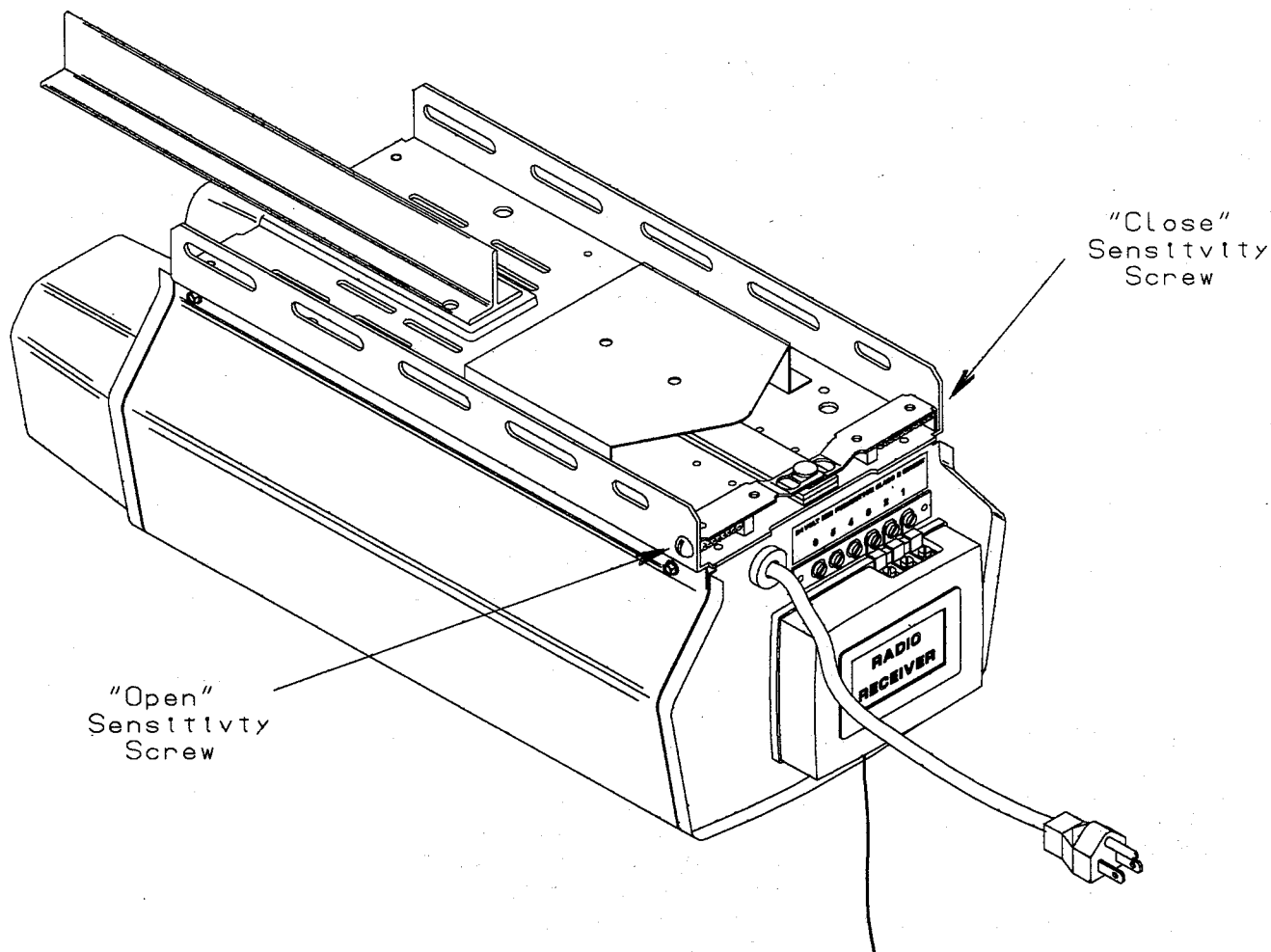
Force adjustment is an important factor in the safe operation of the garage door operator. **DO NOT** use force adjustments to compensate for a binding, sticking, or improperly balanced garage door.

Except for the first 12 inches (30.48cm) of the door's downward travel, the obstruction sensitivity mechanism will cause the door to reverse if the door contacts an obstruction while closing. The door will stop if contacting an obstruction while opening.

The force sensitivity adjustment screws are located at the rear of the upper chassis. The close sensitivity screw is on the left, open sensitivity screw is on the right. See below.

Turning the screw clockwise will allow more force to be applied to the door before it reverses or stops. Adjust the screws so that a properly working door will open and close completely but reverse or stop when meeting an obstruction.

ALWAYS PERFORM THE SAFETY REVERSE TEST, AS SHOWN IN STEP 11, AFTER MAKING ANY ADJUSTMENTS.



STEP 11

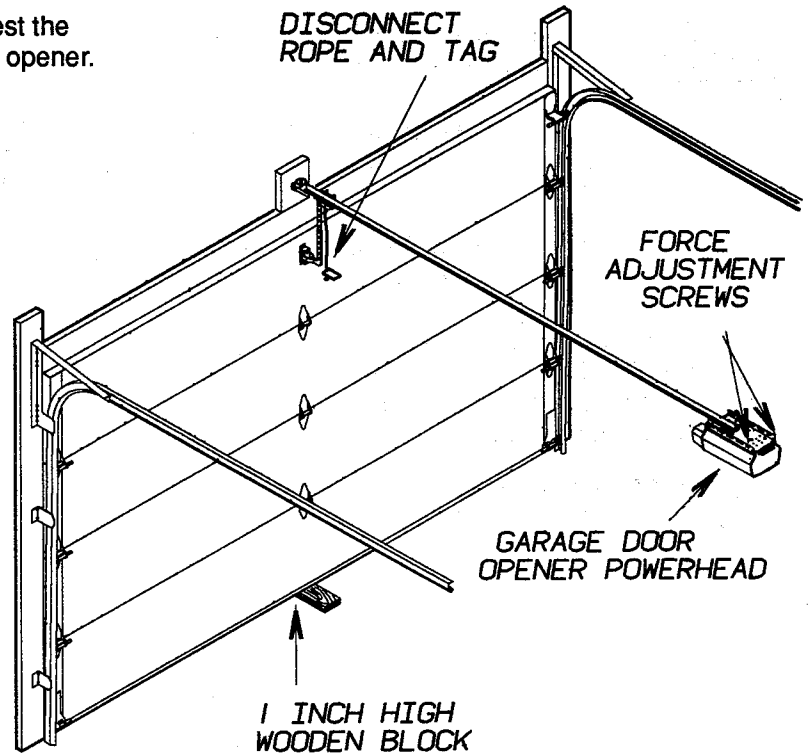
SAFETY REVERSE SYSTEM TEST



Never use any part of your body to test the reversing system of any garage door opener.

The following test of the safety reverse system should be conducted monthly:

1. With the door in the fully closed position, carefully disconnect the door from the opener as described in Step 12.
2. Lift door manually. If door is hard to open or close, contact an experienced door installer for repairs. Safety features will not function properly if the door is in need of adjustment. **DAMAGE TO THE DOOR OR OPENER MAY RESULT FROM TESTING AN IMPROPERLY ADJUSTED DOOR.**
3. With door properly adjusted, reconnect to opener and proceed with test.
4. Open and close force adjustment screws should only be tightened enough to raise and lower the door. Use lowest setting possible. See Step 10 on Page 13.
5. Open the door and place a 1 inch high block of wood on the garage floor located in line with the opener attachment.
6. Stand clear of the door and activate the opener from the wall button. The door should reverse within 2 seconds on contacting the wood block and then return to the full open position.
7. If the door does not reverse, review all installation instructions to be sure installation and adjustments have been performed properly.



STEP 12

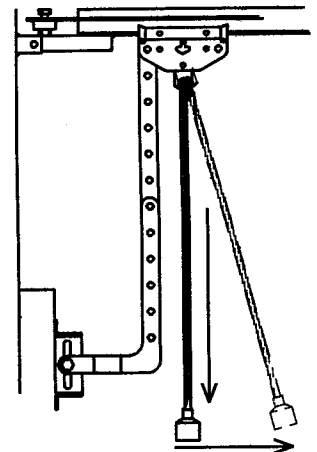
EMERGENCY MANUAL OPERATION

EMERGENCY MANUAL OPERATION



If possible, use the manual disconnect only when the door is in a closed position. Caution should be taken whenever the disconnect cord is pulled with the door open. Weak or broken springs may cause the door to fall rapidly causing injury.

To permit manual operation of the door, pull the red cord down and back, releasing trolley arm from drive mechanism. To reconnect trolley arm to drive mechanism, pull red cord straight down, raise the door at least 12 inches and press the wall button. The door will reconnect automatically.



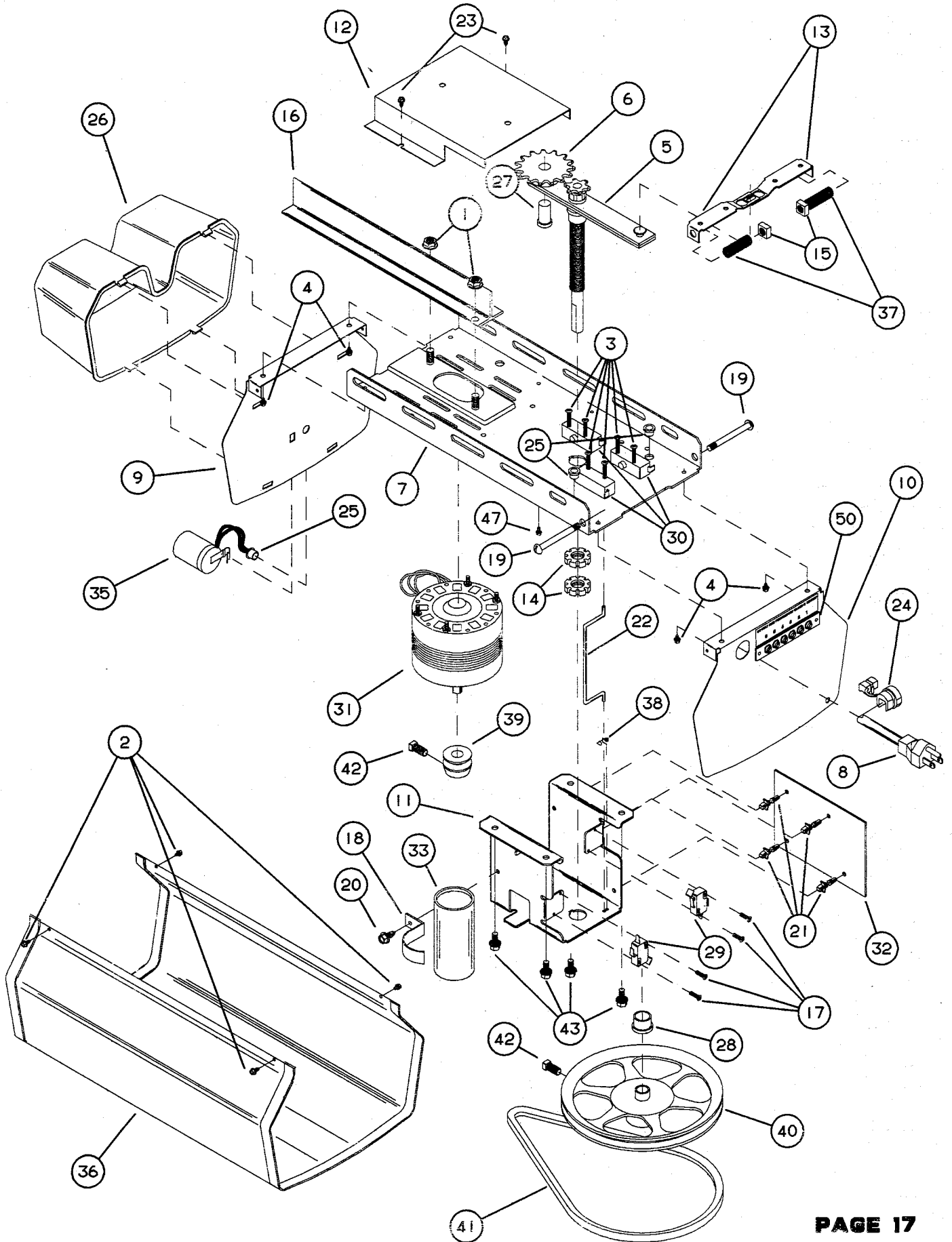
TROUBLESHOOTING CHECKLIST

SYMPTOM	PROBABLE SOLUTIONS
<p>OPERATOR RUNS FROM RADIO CONTROLS BUT NOT FROM PUSHBUTTON</p>	<p>Check connections at pushbutton and operator terminals. Wire may be broken under staples or at terminals.</p> <p>Place momentary jumper across terminals 1 and 2 on the 6 position terminal strip at the rear of the operator. If the operator runs, the pushbutton is defective.</p>
<p>OPERATOR RUNS FROM PUSHBUTTON BUT NOT FROM RADIO CONTROL</p>	<p>Check battery in transmitter.</p> <p>Check to make sure the switch settings in the transmitter are the same as the settings in the receiver.</p> <p>Measure the voltage at terminals 1 and 3 on the 6 position terminal strip at the rear of the operator. With terminal 1 being negative and terminal 3 being positive, voltage should read between 20–28 VDC.</p> <p>If it is necessary to return radio controls for repair, both the transmitter and receiver must be returned.</p>
<p>OPERATOR DOES NOT RUN FROM PUSHBUTTON OR RADIO CONTROL</p>	<p>Check power supply:</p> <ol style="list-style-type: none"> 1. Operator plugged into outlet. 2. Burned out fuse or open breaker. 3. Pull power plug and plug back in. If motor runs as soon as operator is plugged in, pushbutton or wires are shorted. 4. Check auxiliary entrapment protection system. <p>Replace microprocessor control board.</p>
<p>OPERATOR STOPS FUNCTIONING AFTER REPEATED CYCLING</p>	<p>Motor may be overheated. Wait 20 minutes and try again.</p> <p>Replace microprocessor control board.</p>
<p>LESS THAN 25 FEET OPERATING RANGE FROM RADIO CONTROL</p>	<p>Change battery in transmitter.</p> <p>Change location of transmitter in auto.</p> <p>Mount receiver to wall and wire to operator.</p> <p>If two or more operators are located within the same building, unplug all other operators and then test range.</p> <p>Faulty radio—return to distributor to repair or replace.</p>
<p>MOTOR HUMS BUT WILL NOT OPEN OR CLOSE THE DOOR</p>	<p>Jammed or hard moving door. Disconnect door from operator and check door for correct balance and operating condition.</p> <p>CAUTION—Do not disconnect an opened door, if door spring is broken the door may fall at high speed and cause injury or property damage.</p> <p>CAUTION—Repairs and adjustments, especially to cable and spring assembly, can be hazardous and should be performed by qualified door installers only.</p> <p>Bad capacitor—Visually inspect capacitor.</p> <p>Motor—Disconnect motor leads and test motor windings and thermal protector with ohmmeter. Replace motor if windings or thermal protector are open. (Motor must be cool to test.)</p> <p>Check for proper electrical connections.</p> <p>Check for loose or broken V-belt.</p> <p>Check set screws on pulleys.</p> <p>Remove belt and check motor shaft for free rotation.</p> <p>NOTE: If operator is activated but does not open or close door, motor will shut off after approximately 25 seconds.</p>

TROUBLESHOOTING CHECKLIST

SYMPTOM	PROBABLE SOLUTIONS
UNWANTED (PHANTOM) OPERATIONS	Short in pushbutton circuit. Check where stapled to wall or ceiling. Check connections at both ends of the wire. Can be caused by signal from another radio control in the area. Change frequency of radio control.
DOOR STOPS WHILE IT IS OPENING DOOR REVERSES WHILE IT IS CLOSING	Make sure there is no obstruction keeping the door from opening or closing. Disconnect door arm and check door operation by hand. Adjust obstruction switch sensitivity. Turning the screw clockwise will require more force to stop or reverse the door. After making adjustments the safety reverse test on page 14 must be performed.
LIGHT WILL NOT COME ON	Check light bulb and replace if burnt out. Check electrical connections. Faulty microprocessor board.
LIGHT WILL NOT GO OFF	Press wall button or radio control to reactivate timer. Wait 5 minutes before initiating another signal. Light should go off. Faulty microprocessor board.
DOOR DOES NOT FULLY OPEN OR CLOSE	Make sure there is no obstruction keeping the door from opening or closing. Operator limit switch settings need adjustment. Refer to Step 9 under installation instructions.
OPERATOR WILL NOT REVERSE WHEN DOOR HITS AN OBSTRUCTION WHILE CLOSING	CAUTION —Do not use a door operator that does not reverse when coming in contact with a solid object 1 inch from the floor. If the operator cannot be made to function properly, disconnect and disable it until a qualified door installer can make repairs. Readjust spring tension on obstruction switch sensitivity. Turning the screw counterclockwise will require less force to reverse the door. Check electrical connections to the obstruction switches. Close limit not set properly—Refer to Step 9 under installation instructions. Adjust close limit for more travel. Defective obstruction switch.

POWERHEAD ASSEMBLY

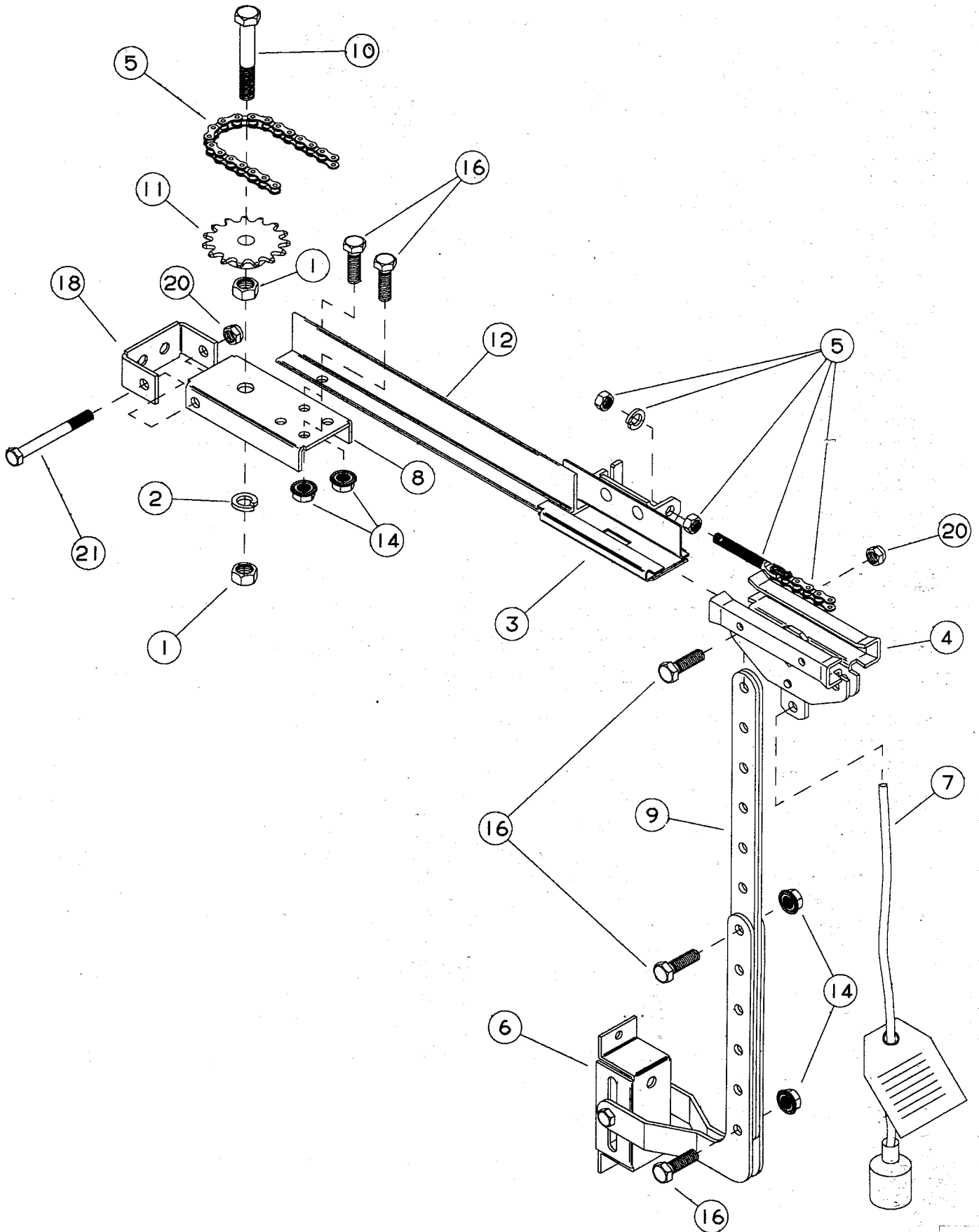


POWERHEAD PARTS LIST

REF. NO.	PART NUMBER	QTY REQ'D	DESCRIPTION
1	5509	2	5/16" Whiz Lock Nut
2	12075	4	#8-32 Sheet Metal Screw
3	6010171	6	#6 x 7/8" Hex Head Self Tapping Screw
4	6010045	4	#10-32 x 1/4" Hex Head Self Tapping Screw
5	4050049	1	Shaft, Sprocket, Reversing Lever Assembly
6	6100002	1	Idler Sprocket (15 Tooth)
7	4050056	1	Chassis Assembly
8	6080109	1	Power Cord Assembly
9	5180008	1	Front Panel
10	5180009	1	Back Panel
11	5180209	1	Shaft Support Bracket
12	5180421	1	Chain Guard
13	5180011	2	Reversing Spring Cage
14	5980007	2	Nylon Limit Gear
15	6010007	2	5/16" x 18 Square Nut
16A	5180027	1	Trolley rail (7 Foot High Door)
16B	5180028	1	Trolley rail (8 Foot High Door)
16C	5180050	1	Trolley rail (10 Foot High Door)
17	6010309	4	#4 x 5/8" Phillips Head Self Tapping Screw
18	6010266	1	Capacitor Strap
19	6010268	2	Slotted Round Head Reversing Screw
20	6010036	1	#10-32 Self Tapping Screw
21	6010027	4	Locking Circuit Board Support
22	6010325	1	Limit Gear Keeper
23	6010033	2	#8 X 1/4" Self Tapping Screw
24	6030012	1	Strain Relief Bushing
25	6030013	3	Bushing (Open/Close)
26	6030015	1	Light Globe
27	6040003	1	Idler Sprocket Shaft
28	6040005	1	Drive Shaft Bushing
29	6080002	2	Limit Switch
30	6080004	3	Reversing Switch
31A	1200004	1	1/3 HP Motor
31B	1200005	1	1/2 HP Motor
32	6080275	1	Microprocessor Control Board
33A	6080004	1	Capacitor (1/3 HP)
33B	6080124	1	Capacitor (1/2 HP)
35	6080007	1	Light Socket
36A	4050468	1	Cover Assembly (1/3 HP)
36B	4050469	1	Cover Assembly (1/2 HP)
37	6090001	2	Reversing Spring
38	6090004	1	Limit Keeper Spring
39	6100003	1	Motor Pulley 3L
40	6100004	1	Drive Shaft Pulley
41	6100005	1	V-Belt 3L-310
42	12349	2	5/16"-18 x 3/4" Set Screw
43	6010042	4	1/4" x 1/2" Serrated Hex Head Screw
(P)44	4100336	1	High Voltage Wiring Harness
(P)45	4100337	1	Low Voltage Wiring Harness
(P)46	6010012	2	Wire Tie Mounts
47	6010029	1	Green Ground Screw
(P)48	4020054	1	Nut and Bolt Package
(P)49	6080013	1	Residential Pushbutton
50	6080212	1	Six Position Low Voltage Terminal Strip

(P) Not Pictured

TROLLEY ASSEMBLY



TROLLEY PARTS LIST

MODELS

170-7
170-8
270-7
270-8
270-10

REF.NO.	PART NUMBER	QTY.REQ'D	DISCRIPTION
1	5507	2	1/2" Nut
2	5960	1	1/2" Lock Washer
3	4050053	1	Inner Carriage Assembly
4	1200008	1	Outer Carriage Assembly
5	1200006	1	#65 Chain, Adjusting Rod Assembly
6	1200009	1	Lower Trolley Arm, Door Bracket Assembly
7	1200007	1	Disconnect Rope Assembly
8	5180015	1	Front Idler Bracket
9	5180020	2	Upper Trolley Arm
10	6010024	1	Front Idler Bolt
11	6100002	1	Sprocket (15 Tooth)
12A	7110003	1	Tee Rail (7 Foot Door)
12B	7110004	1	Tee Rail (8 Foot Door)
12C	7110005	1	Tee Rail (10 Foot Door)
(P) *13	5411	2	1/4" x 2" Round Head Carriage Bolt
*14	5509	4	5/16" Whiz Lock Nut
(P) *15	5718	2	5/16" x 1 3/4" Hex Head Lag Screw
*16	5730	5	5/16" x 1" Hex Head Cap Screw
(P) *17	5743	2	#14 x 3/4" Machine Screw
*18	5180016	1	Header Bracket
(P) *19	6010013	2	1/4" Keps Nut
*20	6010015	2	5/16" Nylon Insert Nut
*21	6010016	1	5/16" x 3" Hex head Cap Screw

* NUT AND BOLT PACKAGE
(P) NOT PICTURED