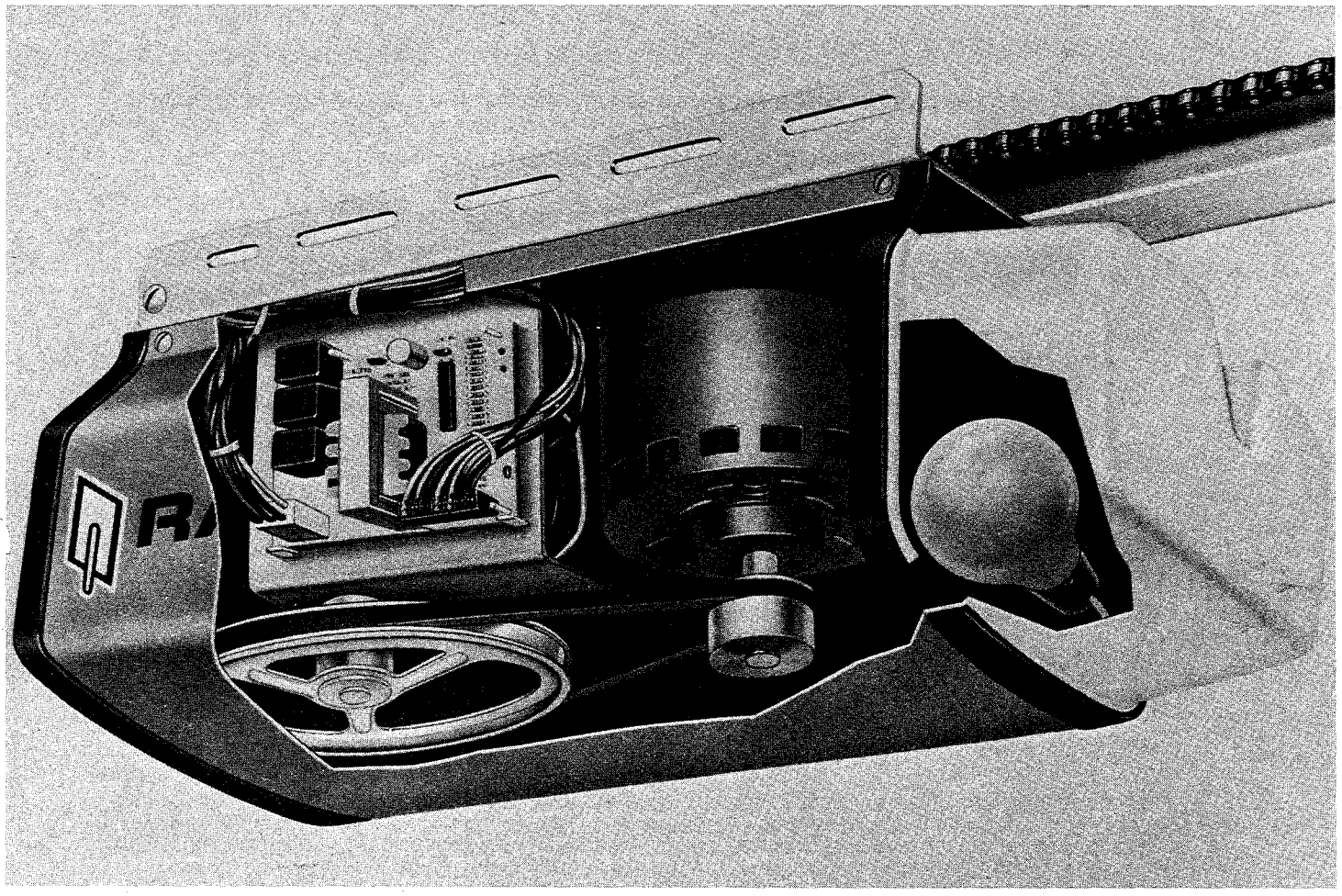
RAYNOR

RESIDENTIAL OPERATOR

130-7
130-8



INSTALLATION INSTRUCTIONS

IMPORTANT

PLEASE READ THESE INSTRUCTIONS BEFORE STARTING INSTALLATION. IT IS IMPORTANT THAT THIS OPERATOR BE INSTALLED CORRECTLY IN ORDER TO ACHIEVE PROPER OPERATION.

INSTALLER NOTE: ATTACH INSTRUCTION SHEET TO WALL NEAR PUSHBUTTON FOR FUTURE REFERENCE.

RAYNOR MANUFACTURING COMPANY, DIXON, ILLINOIS 61021

MARCH, 1988
INSTR. SHT. 5970244

SAFETY RULES AND PRE-CAUTIONS FOR INSTALLATION AND OPERATION

1.) Door must be properly balanced and free working before installing operator. Improperly balanced door can be hazardous and cause severe injury. Repairs to cables, spring assemblies and other hardware must be made by a qualified door installer or service man. Operator damage may result if installed on an improperly working door. Safety features of operator will not function properly if door is out of balance.

2.) Do not connect to electric power until installation is completed.

3.) Remove or make inoperative any locking device.

4.) Remove all ropes, step plates and lift handles connected to the door before operating the garage door opener.

5.) Installation and wiring must conform to local building and electrical codes.

6.) Do not operate the transmitter or wall push button unless the garage door is in sight.

7.) Do not allow children to play with or in the area of the door and controls.

8.) When cover is removed from operator, do not place hands in area of pulleys and V-belt.

9.) Install emergency disconnect instruction label on wall next to pushbutton.

10.) Attach instruction booklet to wall near pushbutton.

11.) Operator should be mounted a minimum of 7′ above the floor.

12.) **IMPORTANT NOTE:**

Since your Raynor operator functions in much the same manner as a small computer, it is susceptible to line spikes, line noise and lightning that could damage the sensitive components of the microprocessor control board. Even though the board is protected from this problem, it is recommended that a surge suppressor be installed for further 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 will greatly reduce the chances of microprocessor component failure. Such devices can be purchased at your local hardware store.

INSTALLATION REQUIREMENTS

1.) **DOOR SIZE** - Use Model 130-7 for doors up to and including 7′-0″ high. Use Model 130-8 for doors over 7′-0″ high, up to and including 8′-0″ high, and maximum of 5 cycles per hour.

2.) **HEADROOM REQUIRED** - (Typical Installation) 1½″ above highest point of door travel or above spring hardware whichever is greatest.

3.) **BACKROOM REQUIRED** - 10′-5″ from front wall to back of operator powerhead on Model 130-7, 11′-8″ on Model 130-8.

FEATURES

1.) **DOOR CLOSED -** Pressing push button or radio control will open door. Door will stop automatically when it reaches the full open position.

2.) **DOOR OPEN -** Pressing push button or radio control will close door. Door will stop automatically when it reaches the full down position.

3.) **DOOR IN MOTION -** When door is opening or closing, pressing the push button or radio control will stop the door movement. Next push of button, the door will reverse its direction of travel until either fully open or closed.

4.) **SAFETY SYSTEM -** When the door is opening, if an obstruction is encountered the door will stop. Next push of button, door will close.

When door is closing, if an obstruction is encountered the door will reverse after a momentary delay and return to the full open position.

5.) **LIGHT DELAY -** Light will turn on when door is operated by push button or radio control, and will remain on for approximately five (5) minutes and then turn off automatically.

6.) **POWER FAILURE -** When power is restored, door travel will not occur until operating the push button or radio control.

7.) **SAFETY SHUTOFF -** If operator is closed and the limit switch or obstruction switch is not activated within twenty five (25) seconds, the operator will stop then reverse direction to open position.

If operator is opening and limit switch or obstruction switch is not activated within twenty-five (25) seconds, the operator will shut off.

8.) **PET OPENING -** Door may be stopped in any position between fully opened and closed position.

9.) **EMERGENCY DISCONNECT -** In case of power failure or emergency, pull cord allows door to be manually operated. When power is restored, additional pull on cord allows door to be automatically reconnected when radio control or push button is activated.

10.) **COURTESY LIGHT OPTION -** First press of button turns light on and light stays on continuously. Second press of button turns light off.

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

OPERATOR LIMITED WARRANTIES

Raynor Manufacturing Company (Raynor) warrants each electric operator and its component parts to be free from defects in material and workmanship for a period of one (1) year from date of delivery to the original purchaser. Raynor further warrants each electric operator motor and its component parts to be free from defects in material and workmanship for a period of ten (10) years from date of delivery to the original purchaser. If, within the one (1) year period for the electric operator, or within the ten (10) year period for the operator motor, the electric operator, operator motor, or component part is found to be defective upon inspection by authorized Raynor personnel, Raynor will replace the defective operator, motor, or component parts. Labor charges for installation are the responsibility of the owner. To make a claim under these warranties, contact your nearest Raynor Distributor.

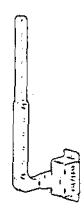
RAYNOR SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES.

ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY, ARE HEREBY EXPRESSLY EXCLUDED.

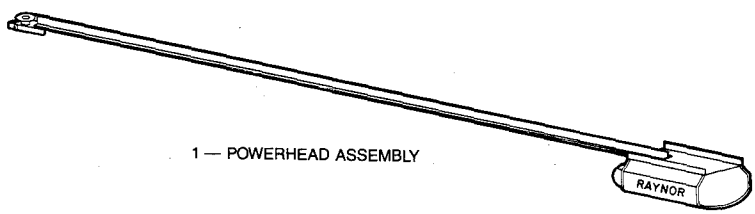
Some states do not allow the exclusion or limitation of consequential or incidental damages, so the above limitation or exclusion may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

BEFORE BEGINNING INSTALLATION, OPEN CARTON AND CHECK CONTENTS

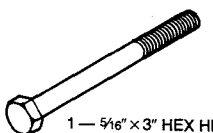


1 — TROLLEY ARM



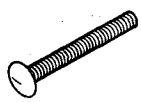
1 — POWERHEAD ASSEMBLY

NUT/BOLT PACKAGE

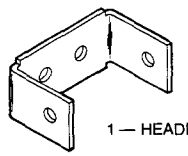


1 — 5/16" × 3" HEX HEAD CAP SCREW

4 — 5/16" × 1 3/4" HEX HEAD LAG SCREW



2 — 1/4" × 2" ROUND HEAD CARRIAGE BOLT



1 — HEADER BRACKET

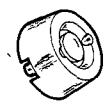
4 — 5/16" WHIZ LOCK NUT

2 — 5/16" NYLON INSERT LOCK NUT

1 - 5/16" × 1" HEX HEAD CAP SCREW

4 — 5/16" × 3/4" SHOULDER BOLT

2 — #14 × 3/4" SHEET METAL SCREW



1 — RESIDENTIAL PUSHBUTTON

2 — 1/4" KEPS NUT

INSTALLATION

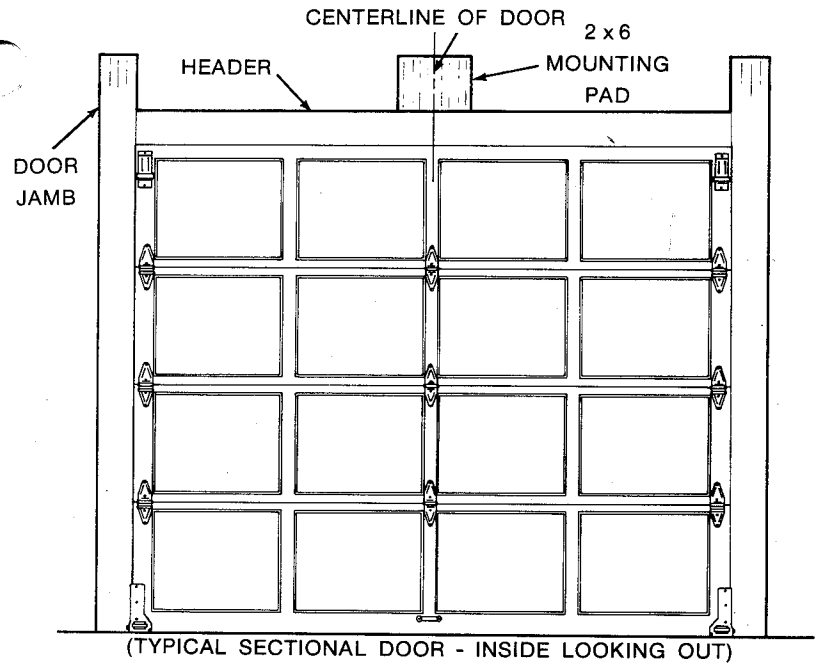


FIGURE 1.

1.) Measure width of door to determine center. Using a pencil, mark centerline on the door header above the door. (See Figure 1.)

2.) Raise door and locate high point of door travel (see Figure 2.). Place level across the top of the door to the door header. Mark the bottom edge of level where it touches header.

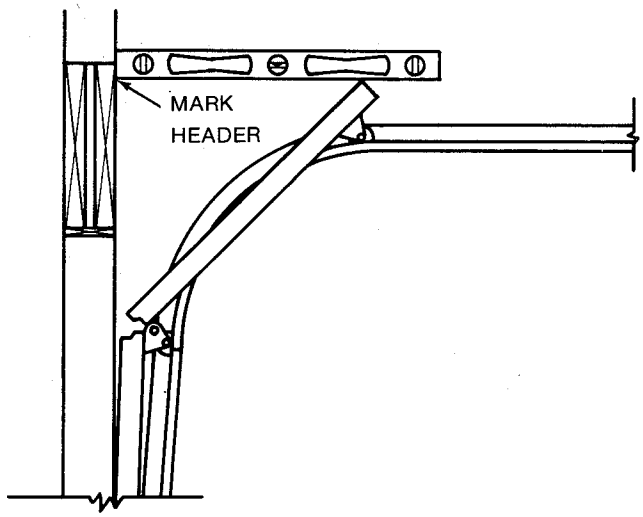


FIGURE 2.

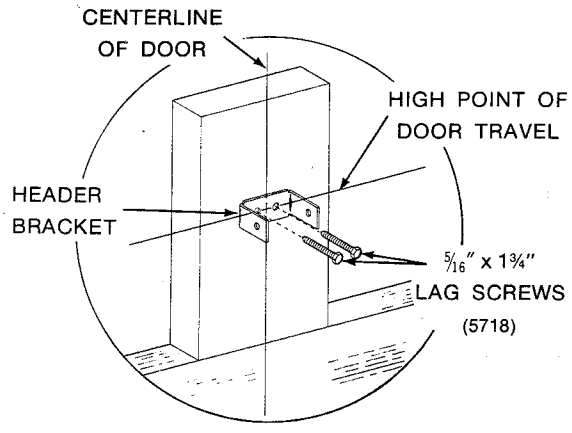


FIGURE 3.

3.) Locate header bracket mounting holes at high point of door travel and center directly on the centerline mark. Attach header bracket to header using two (2) 5/16" × 1¾" lag screws. Be sure header bracket is level. (See Figure 3.)

4.) Place operator powerhead on packing material. (See Figure 4.) With door closed, raise front of operator and attach to header bracket using one (1) 5/16" × 3" hex head cap screw and one (1) 5/16" nylon insert lock nut. (See Figure 5.) Do not tighten nut completely at this time.

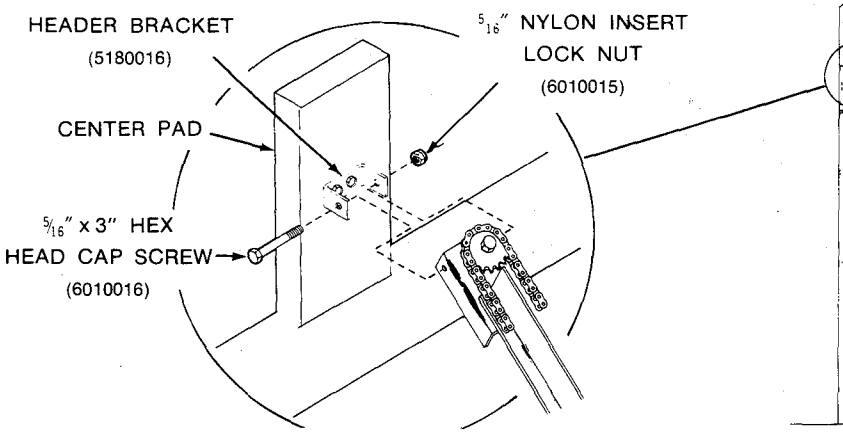


FIGURE 5.

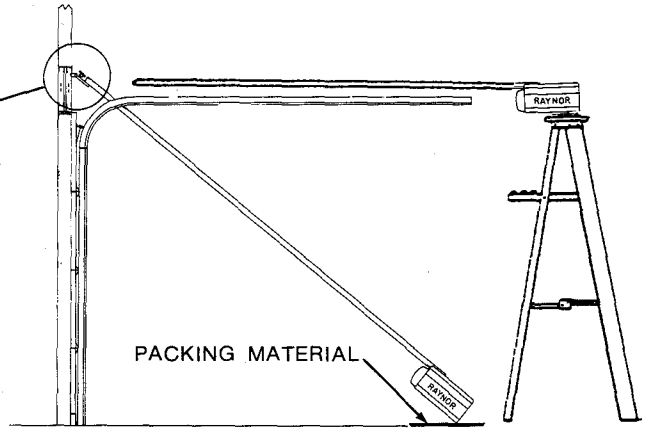


FIGURE 4.

5.) Swing powerhead of operator up onto stepladder. (see Figure 4.) Open door and place a 2×4 flat along top section of door. Place T-rail on 2×4. (See Figure 6. and 7.)

6.) Make sure centerline of operator T-rail is in alignment with centerline of door. (See Figure 7.)

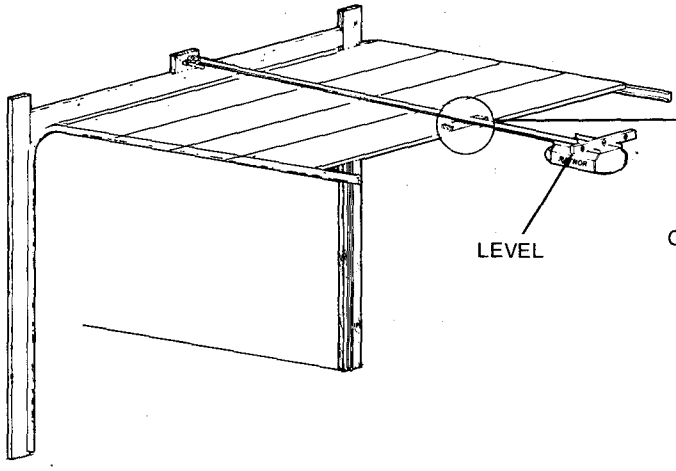


FIGURE 6.

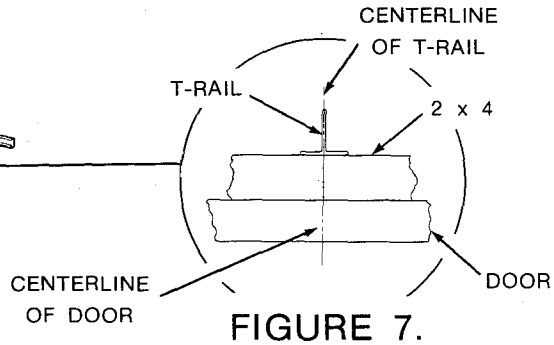


FIGURE 7.

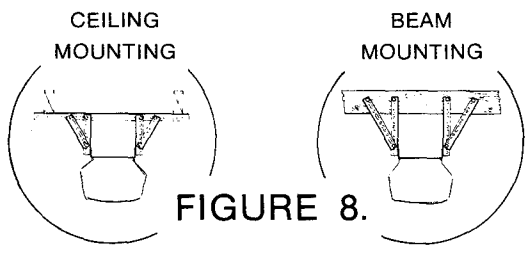


FIGURE 8.

7.) Using pre-punched hanger angle or other suitable material (supplied by installer), mount the operator to overhead beam or ceiling. (See Figure 8.)

NOTE: Use of diagonal brace will prevent side sway.

8.) Make sure powerhead is level. (See Figure 6.) Tighten all nuts on hangs and check to make sure operator is mounted solid.

9.) Close door, tighten nut and bolt on header bracket. Do not overtighten. (Refer to Figure 5.)

10.) Locate the vertical centerline of door and the centerline of the top rollers and mark this point on the door as shown in Figure 9.

11.) Attach upper trolley arm to carriage assembly using one (1) 5⁄16″ × 1″ hex head cap screw and one (1) 5⁄16″ nylon insert lock nut. Do not overtighten, arm should move freely. (See Figure 10.)

With door in fully closed position, connect lower trolley arm to upper trolley arm using two (2) 5⁄16″ × 1″ hex head cap screws and two (2) 5⁄16″ whiz lock nuts. Centerline of door bracket should be in line with top rollers and vertical centerline of the door. At this point mark top of door bracket.

NOTE: Trolly arm must be in vertical position with door fully closed

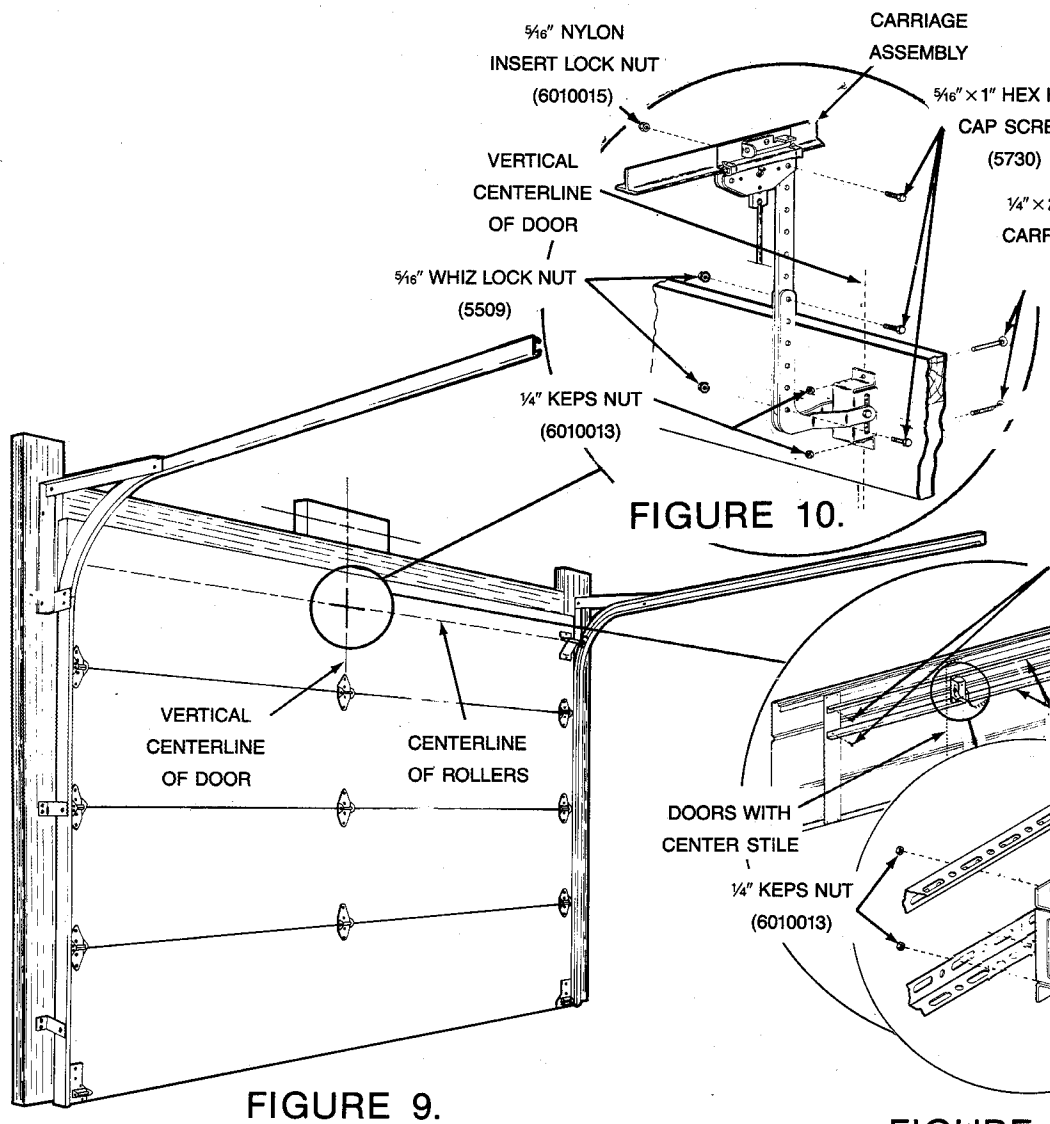


FIGURE 10.

FIGURE 9.

FIGURE 11.

12.) Referring to mark made in step 11, measure up 1″ from this mark and mount top of door bracket at this point. (see figure 10). This will preload spring in door bracket and insure proper down limit switch adjustment.

On steel doors containing a center mutten, drill two (2) 3⁄16″ diameter holes and mount door bracket using #14 × 3⁄4″ sheet metal screws.

On wood doors, attach door bracket to top section by drilling two (2) 1⁄4″ diameter holes for 1⁄4″ × 2″ round head carriage bolts. (see figure 10).

NOTE: If door is over 10 feet wide it is recommended that the top section be reinforced as shown in figure 11.

CAUTION

REMOVE OR DISABLE ANY LOCKING DEVICE ON THE DOOR. ACCIDENTAL LOCKING OF THE DOOR COULD RESULT IN DAMAGE TO THE DOOR AND/OR OPERATOR. THE OPERATOR WILL PROVIDE ADEQUATE LOCKING FOR THE DOOR.

13.) Push button control circuit is 24 volt. Attach bell wire to push button terminals and mount the push button at least 6' from the floor on the wall near entrance to house. Attach other end of bell wire to terminals 1 and 2 on rear of operator. (See Figure 12.)

NOTE: For courtesy light option, attach second pushbutton (not supplied) to terminals 1 and 4 on rear of operator. (For details, see Feature 10 on page 2 or Wiring Diagram on page 11.)

14.) Mount radio receiver to rear of operator as shown using terminals 1, 2, and 3. (Figure 12.)

IMPORTANT NOTE: Radio control must be attached before connecting operator to power supply to prevent damage to microprocessor operator control board.

15.) Operator is furnished with grounded type line cord, plug cord into a ground type 115 Volt 60 Hertz receptacle. If local codes require permanent wiring follow Permanent Wiring Instructions.

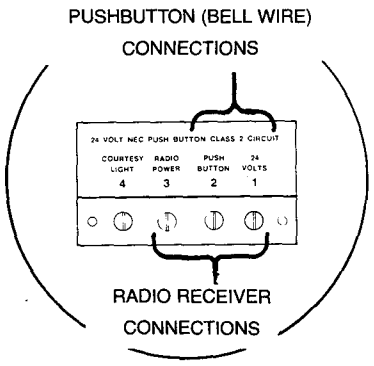


FIGURE 12.

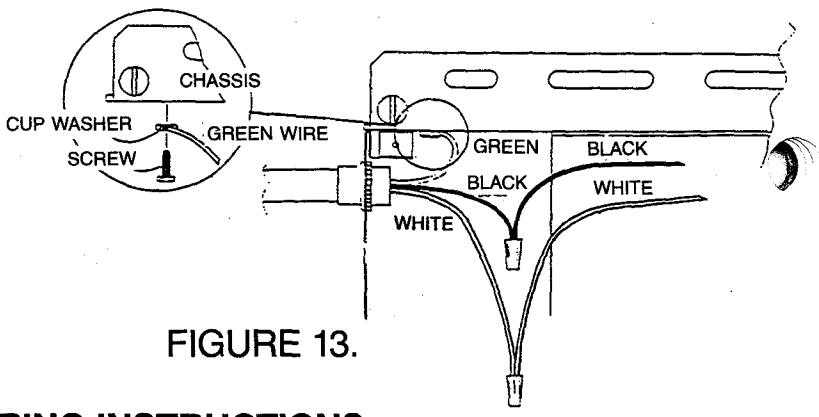


FIGURE 13.

PERMANENT WIRING INSTRUCTIONS

1.) Turn power off at electrical panel.

2.) Remove cover from powerhead by removing the four (4) cover screws.

3.) Remove green ground lead by loosening green ground screw.

4.) Remove orange wire nuts from black and white wire retaining orange wire nuts for future use.

5.) Remove strain relief bushing and line cord.

6.) Install permenant connections through the same hole that contained the strain relief bushing.

7.) Connect black wire to black wire and white wire to white wire using the orange wire nuts removed in Step 4.

8.) Remove brass cup washer from hardware package and install in green ground screw with cup up. Install green ground wire around screw and tighten (Figure 13).

9.) Replace powerhead cover.

NOTE: All wiring, conduit and connections are to be in accordance with local codes.

CAUTION

DISCONNECT POWER BEFORE MAKING ADJUSTMENTS TO LIMIT SWITCHES. ONCE ADJUSTMENT IS MADE, RECONNECT POWER AND TEST.

16.) LIMIT SWITCH ADJUSTMENT

A. Remove powerhead cover for access to limit switch assembly.

B. **OPEN LIMIT ADJUSTMENT -** Pull spring loaded retaining road away from limit nut and hold in this position. Move Nut "A" on threaded shaft downward for more door travel and upward for less door travel.

C. **CLOSE LIMIT ADJUSTMENT -** Pull retaining rod away from limit nut and hold in this position. Move Nut "B" on threaded shaft upward for more door travel and downward for less door travel.

NOTE: One revolution of the nut is approximately 3" of door travel.

NOTE: After each adjustment of the limit nuts and before starting operator, make sure the retaining rod is engaged in the slots of both nuts.

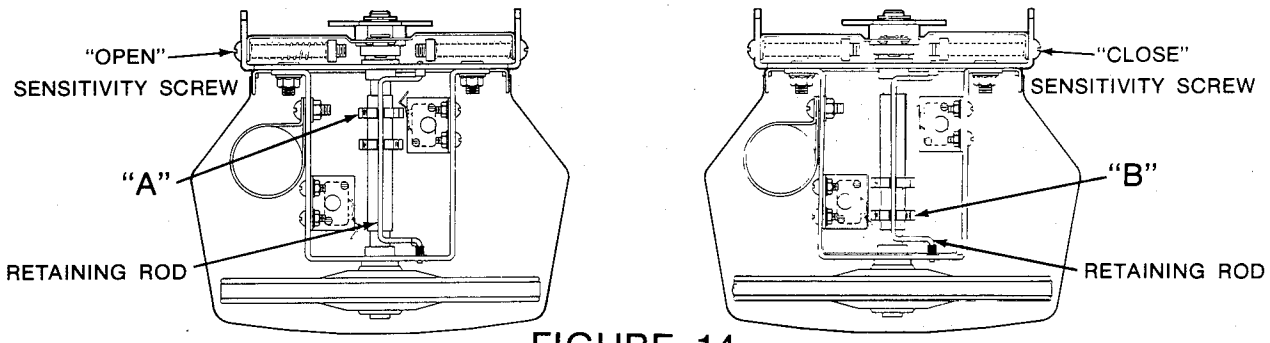


FIGURE 14.

D. **CAUTION:** Replace powerhead cover before reconnecting power supply.

17.) OBSTRUCTION SWITCH SENSITIVITY ADJUSTMENT

Except for the first twelve (12) inches of the door's downward travel, the obstruction sensitivity mechanism will cause the door to reverse if it meets an obstruction. Door will stop on upward travel if it meets an obstruction.

Adjustment screws are located at the rear of the upper chassis. (See Figure 14.) Close sensitivity screw is on the right (inside looking out), open sensitivity screw is on the left.

Turning the screw clockwise will require more force to reverse or stop the door. Adjust the screw so that the door will close without reversing under normal operating conditions but will reverse if it meets an obstruction.
NOTE: On the open cycle the door should stop when it meets an obstruction.

Press button to close the door. When door is approximately halfway down, try stopping it by holding with both hands. Door should reverse easily.

CAUTION

DO NOT PLACE OBJECT UNDERNEATH DOOR OR STAND DIRECTLY UNDERNEATH THE DOOR TO CHECK FUNCTION OF OBSTRUCTION SWITCH SENSITIVITY.

18.) Press wall button to raise door to open position. If door does not open fully refer to trouble shooting check list. Press push button to lower door to full closed position. If door does not close fully or reverses without hitting an obstruction, refer to trouble shooting check list.

19.) Remove light cover and install one (1) 60 watt (maximum) bulb.

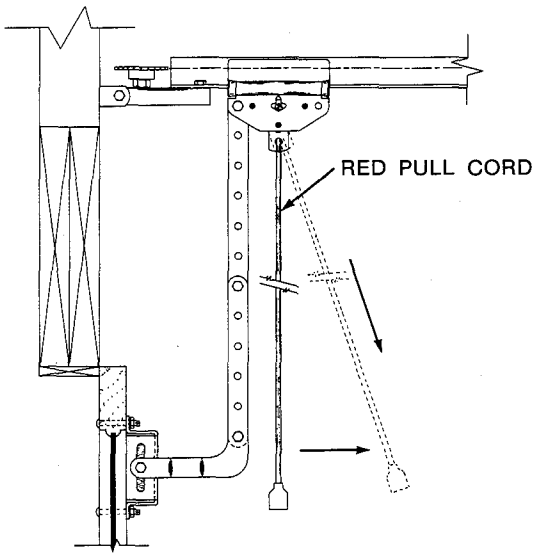


FIGURE 15.

20.) Emergency operation - To permit manual operation of door, pull red cord down and back releasing trolley arm from drive mechanism. (See Figure 15.) To reconnect trolley arm to drive mechanism, pull red cord downward. **NOTE:** Door must be raised a minimum of 12" from floor. Press push button to automatically reconnect.

21.) Adjust red pull cord to a maximum height of 6 feet above the floor.

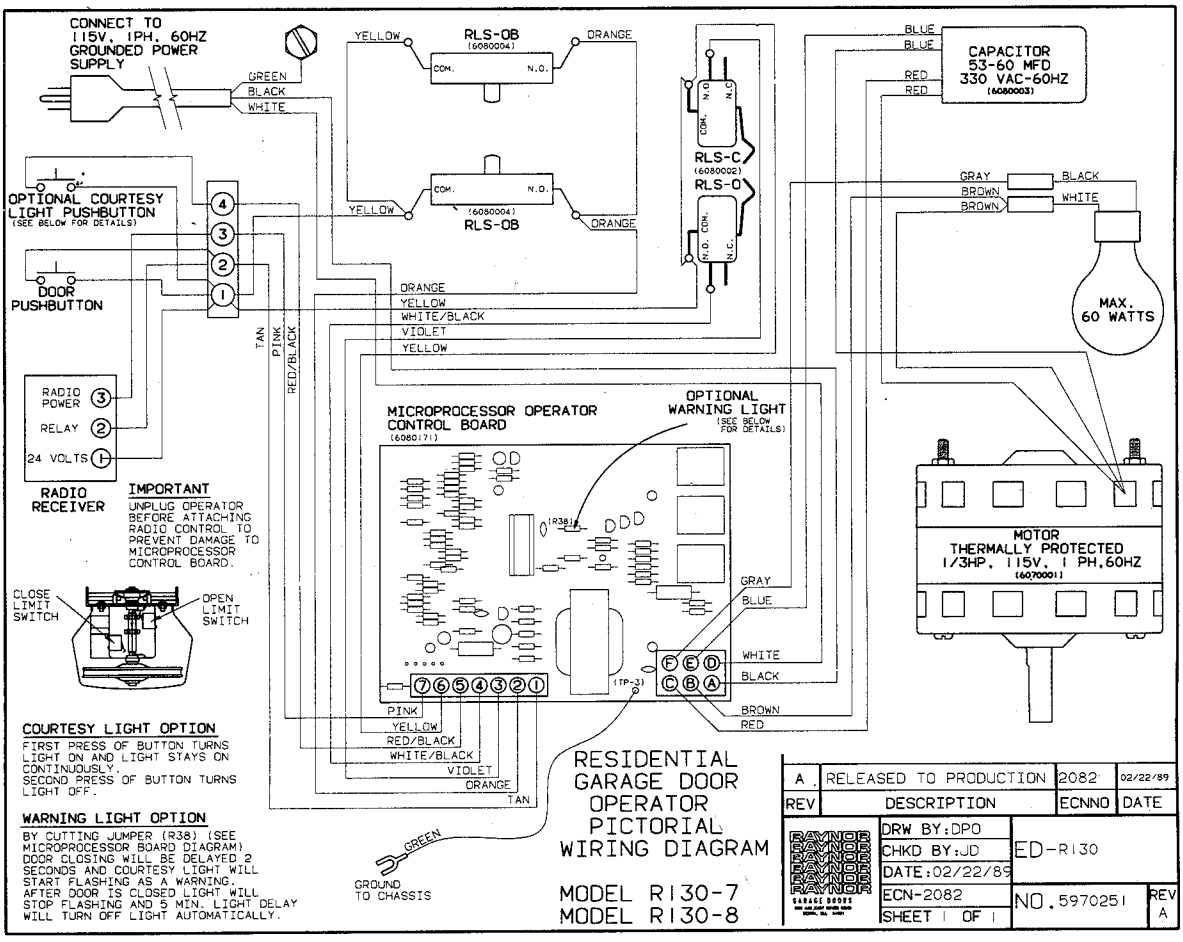
TROUBLE SHOOTING CHECK LIST

SYMPTOM	PROBABLE SOLUTION
OPERATOR RUNS FROM RADIO CONTROLS BUT NOT FROM PUSHBUTTON	Check connections at push button and operator terminals. Wire may be broken under staples or at terminals. Place a momentary jumper across terminals 1 and 2 on the 4 position terminal board. If the operator runs, the pushbutton is defective.
OPERATOR RUNS FROM PUSHBUTTON BUT NOT FROM RADIO CONTROL	Check battery in transmitter. Check to make sure that the frequency settings in transmitter are the same as the receiver. Measure voltage between terminals 1 and 3 on the 4 position terminal board. With terminal #1 being negative and #2 being positive. Voltage should read between 20 - 28 VDC. If it is necessary to return radio controls for repair, the transmitter and receiver both must be returned as a set.
OPERATOR DOES NOT RUN FROM RADIO CONTROL OR PUSHBUTTON	Check power supply: 1. Operator plugged into oulet 2. Burned out fuse or open breaker 3. Pull power plug and plug back in Replace microprocessor operator control board.
OPERATOR STOPS FUNCTIONING AFTER REPEATED CYCLING	Motor may be over heated. Wait 15 to 20 minutes and try again. Replace microprocessor operator control board
LESS THAN 25 FEET OPERATING RANGE FROM RADIO CONTROL	Change battery in transmitter Change location of transmitter in auto. Faulty radio control - return to distributor for repair.

DOOR STOPS ON WAY UP. DOOR REVERSES ON WAY DOWN	Check to make sure there is no obstruction keeping the door from opening or closing. Disconnect door arm and check operation of door by hand. Readjust spring tension on obstruction switch sensitivity. Turning the screw clockwise will require more force to reverse or stop the door.
OPERATOR WILL NOT REVERSE WHEN DOOR MEETS AN OBSTRUCTION WHILE CLOSING	Readjust spring tension on obstruction switch sensitivity. Turning the screw counter-clockwise will require less force to reverse the door. Check electrical connections to the switch.
LIGHT WILL NOT COME ON	Check light bulb and replace if burned out. Check electrical connections. Contact distributor to service micrprocessor operator contrc board.
LIGHT WILL NOT GO OFF	Press wall button, radio control or courtesy light button to reactivate timer. Wait 10 minutes before initiating another signal. Light should go off. Contact distributor to service microprocessor operator control board.
DOOR DOES NOT FULLY OPEN OR FULLY CLOSE	Check to make sure there is no obstruction keeping the door from opening or closing. Operator limit switch settings need adjustment. Refer to step 16 under installation instructions.
MOTOR HUMS BUT WILL NOT OPEN OR CLOSE DOOR	Jammed or hard moving door. Disconnect door from operator and check door for correct balance and operating condition. **CAUTION:** Repairs and adjustments, especially to cables and spring assembly, can be hazardous and should be performed by qualified door installer only. Bad capacitor—visually check capacitor MOTOR - Disconnect and test motor windings and thermal protector with ohmmeter. Replace if windings or thermal protector are open. (Test only when motor is cool.) Check motor shaft for free rotation. Check for proper electrical connections. Check for loose or broken V-belt. Check set screws on pulleys. **NOTE:** If operator is activated but does not open or close door, motor will shut off after approximately 20 seconds.
UNWANTED (PHANTOM) OPERATIONS	Short in pushbutton circuit. Check where stapled or fastened to wall. Check connections. Caused by signal from another radio control in the area. Change frequency of radio control.

IF PROBLEM IS NOT SOLVED BY THE ABOVE STEPS

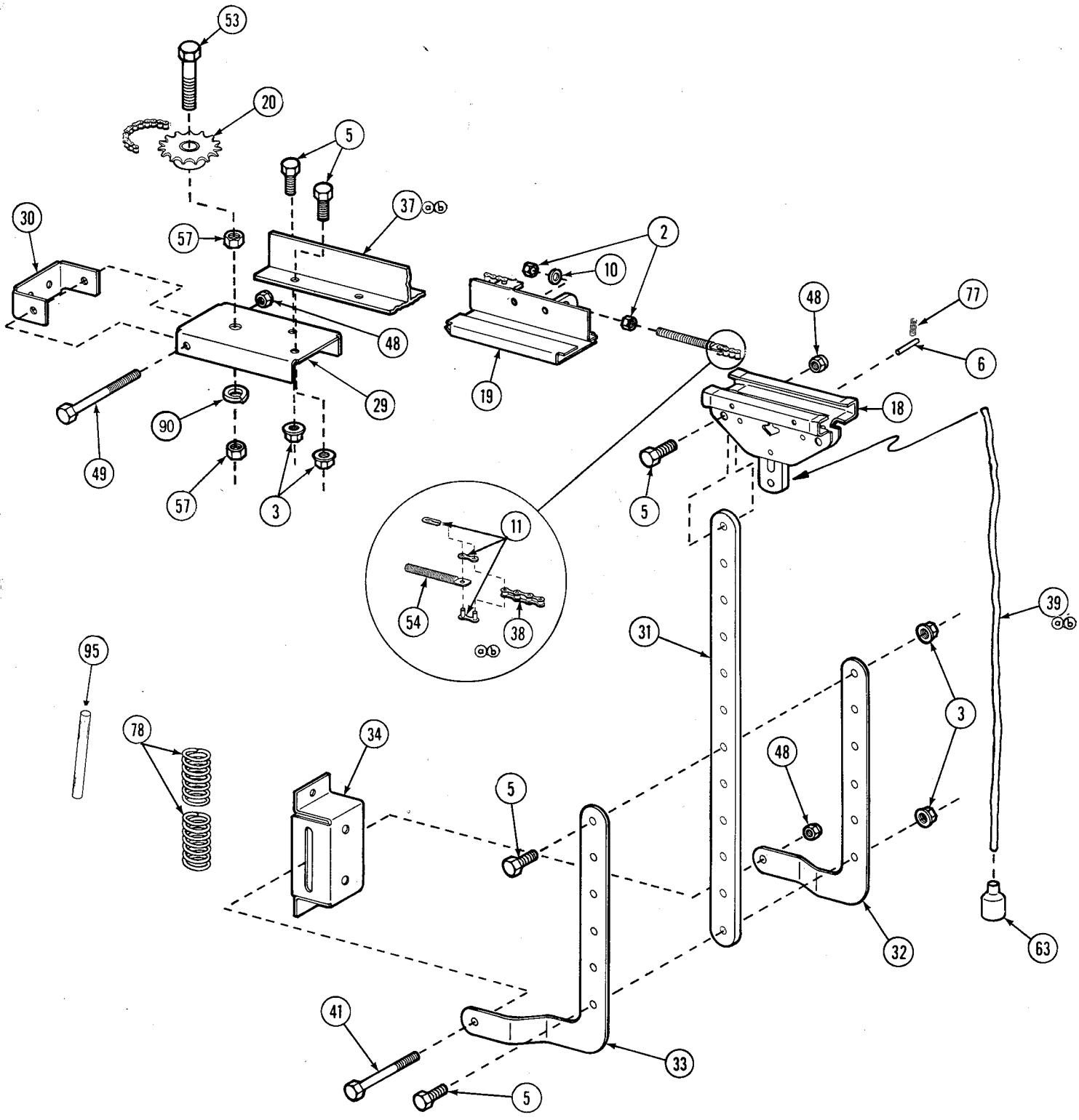
CONTACT YOUR DEALER FOR ASSISTANCE.



Trolley Parts List

REF. NO.	PART NUMBER	DESCRIPTION	REF. NO.	PART NUMBER	DESCRIPTION
2	5504	5/16" Hex Nut			
*3	5509	5/16" Whiz Lock Nut	39a	5190003	Disconnect Rope (7')
*5	5730	5/16" × 1" Hex Head Cap Screw	39b	5190007	Disconnect Rope (8')
6	12061	3/16" × 1 1/4" Roll Pin			
10	12073	5/16" Medium Lock Washer	41	6010006	5/16" × 2 3/4" Hex Head Cap Screw
11	12079	Master Link	*48	6010015	5/16" Nylon Insert Nut
18	4050052	Outer Carriage Assembly	*49	6010016	5/16" × 3" Hex Head Cap Screw
19	4050053	Inner Carriage Assembly	53	6010024	Front Idler Bolt
20	6100002	Sprocket	54	6010025	Adjusting Rod
29	5180015	Front Idler Bracket	57	5507	1/2" Nut
*30	5180016	Front Mounting Bracket	63	6030016	Vinyl Rope End
31	5180020	Upper Trolley Arm	77	6090002	Disconnect Spring
32	5180021	Lower Right Trolley Arm	78	6090003	Door Shock Spring
33	5180022	Lower Left Trolley Arm	90	5960	1/2" Lock Washer
34	5180023	Door Bracket	95	5210224	Pin, Spring Retainer
37a	5180027	Tee-Rail (7')	*46	6010013	1/4" Keps Nut
37b	5180028	Tee-Rail (8')	*87	5411	1/4" × 2" Round Head Carriage Bolt
			*88	5718	5/16" × 1 3/4" Lag Screw
38a	5190001	Chain (7')	*89	5743	1/4" × 3/4" Machine Screw
38b	5190002	Chain (8')	•96	4050057	Trolley Arm Assembly

*Nut/Bolt Package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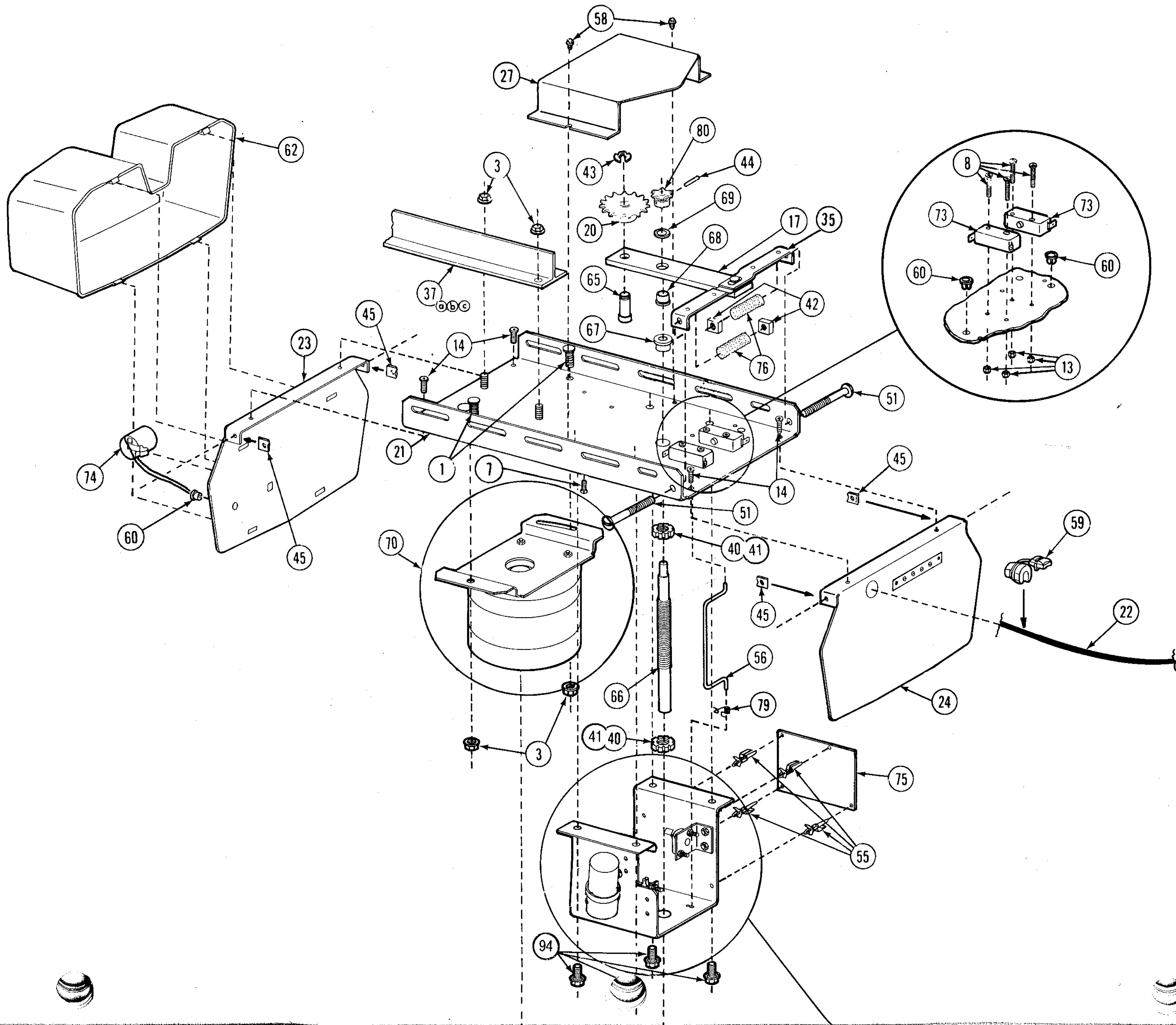
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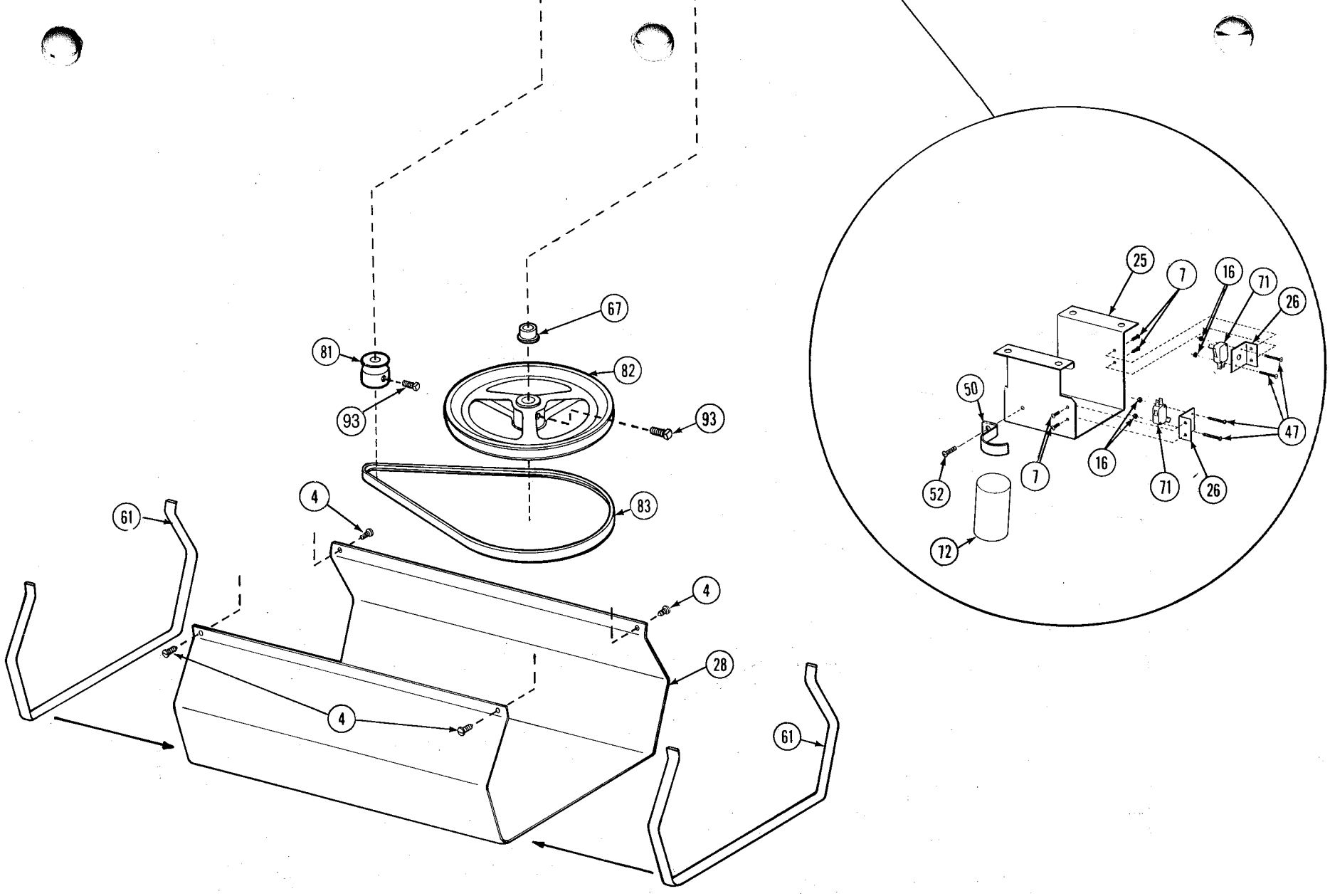
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Powerhead Parts List

REF. NO.	PART NUMBER	DESCRIPTION	REF. NO.	PART NUMBER	DESCRIPTION
1	5421	5/16" × 3/4" S-83 Shoulder Bolt	56	6010028	Limit Gear Keeper
*3	5509	5/16" Whiz Lock Nut	58	6010033	#8 × 1/4" Self Tap Screw
4	12075	#8-32 Sheet Metal Screw	59	6030012	Strain Relief Bushing
7	12075	#8-32 Sheet Metal Screw	60	6030013	Bushing (Open/Close)
8	12066	#6 × 1" Phillips Head Machine Screw	61	6030014	Cover Gasket
			62	6030015	Light Globe
13	12113	#6-32 Nylon Insert Nut	65	6040003	Idler Shaft
14	6010045	#10—32 × 1/4" Hex Head Self Tap	66	6040004	Drive Shaft
			67	6040005	Shaft Bushing
16	6010043	#4-40 Keps Nut	68	6040006	Reversing Lever Bushing
17	4050049	Reversing Lever Assembly	69	6040008	Thrush Bearing (3/8" × 3/4")
20	6100002	Sprocket (15 Tooth)	70	1200003	Motor Assembly
21	4050056	Chassis Assembly	71	6080002	Limit Switch
22	6080109	Power Cord Assembly	72	6080003	Capacitor
23	5180008	Front Panel	73	6080004	Reversing Switch
24	5180009	Back Panel	74	6080007	Light Socket
25	5180010	Shaft Support Bracket	75	6080171	Microprocessor Control Board
26	5180012	Limit Switch Bracket	76	6090001	Reversing Spring
27	5180013	Chain Guard	79	6090004	Limit Gear Spring
28	4050135	Cover	80	6100001	Sprocket (6 Tooth)
35	5180011	Reversing Spring Cage	81	6100003	Motor Pulley 3L
36	5180025	Limit Switch Cutout Bracket	82	6100004	Pulley 8"
37	5180027	Tee-Rail	83	6100005	V-Belt 3L-310
40	5980007	Limit Gear 7 & 8 High	93	12349	5/16" - 18 × 3/4" Set Screw
			94	6010042	1/4 × 1/2 Serrated Hex Head Screw
42	6010007	5/16" × 18 Square Nut			
43	6010008	Ring Retainer			
44	6010009	Groov-Pin	•87	4100016	Wiring Harness High Voltage
45	6010010	Speed Nut (U-Type)	•84	4100028	Wiring Harness Low Voltage
47	6010014	#4-40 × 1" Slotted R.D. Hd. M. Screw	•85	6010012	Wire Tire Mounts
50	6010266	Capacitor Strap	•86	6010029	#10-32 Ground Screw
51	6010268	Reversing Screw	•97	4020054	Nut/Bolt Package
52	6010036	#10-32 Selt Tap Screw			
55	6010027	Circuit Board Support	*91	6080013	Residential Pushbutton

•Not Pictured

*Nut/Bolt Package