

WHELEN[®]

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Installation Guide:
ECE Strobe Beacon
Models: 2022HC/VP422HC
2022RC

Warnings to Installers

Whelen's emergency vehicle warning devices must be properly mounted and wired in order to be effective and safe. Read and follow all of Whelen's written instructions when installing or using this device. Emergency vehicles are often operated under high speed stressful conditions which must be accounted for when installing all emergency warning devices. Controls should be placed within convenient reach of the operator so that they can operate the system without taking their eyes off the roadway. Emergency warning devices can require high electrical voltages and/or currents. Properly protect and use caution around live electrical connections. Grounding or shorting of electrical connections can cause high current arcing, which can cause personal injury and/or vehicle damage, including fire. Many electronic devices used in emergency vehicles can create or be affected by electromagnetic interference. Therefore, after installation of any electronic device it is necessary to test all electronic equipment simultaneously to insure that they operate free of interference from other components within the vehicle. Never power emergency warning equipment from the same circuit or share the same grounding circuit with radio communication equipment. All devices should be mounted in accordance with the manufacturer's instructions and securely fastened to vehicle elements of sufficient strength to withstand the forces applied to the device. Driver and/or passenger air bags (SRS) will affect the way equipment should be mounted. This device should be mounted by permanent installation and within the zones specified by the vehicle manufacturer, if any. Any device mounted in the deployment area of an air bag will damage or reduce the effectiveness of the air bag and may damage or dislodge the device. Installer must be sure that this device, its mounting hardware and electrical supply wiring does not interfere with the air bag or the SRS wiring or sensors. Mounting the unit inside the vehicle by a method other than permanent installation is not recommended as unit may become dislodged during swerving; sudden braking or collision. Failure to follow instructions can result in personal injury. Whelen assumes no liability for any loss resulting from the use of this warning device. **PROPER INSTALLATION COMBINED WITH OPERATOR TRAINING IN THE PROPER USE OF EMERGENCY WARNING DEVICES IS ESSENTIAL TO INSURE THE SAFETY OF EMERGENCY PERSONNEL AND THE PUBLIC.**

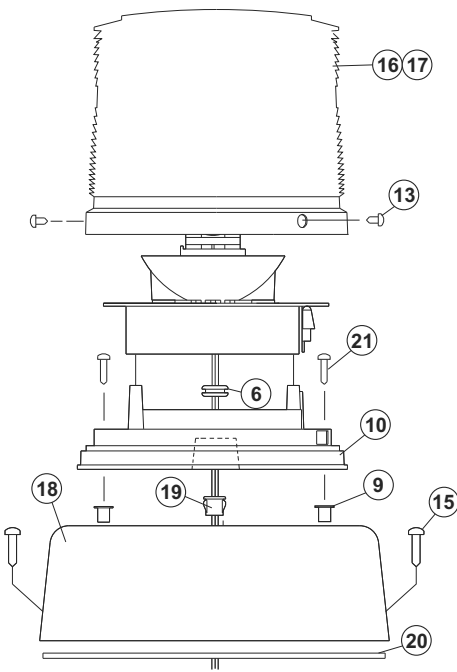
Warnings to Users

Whelen's emergency vehicle warning devices are intended to alert other operators and pedestrians to the presence and operation of emergency vehicles and personnel. However, the use of this or any other Whelen emergency warning device does not guarantee that you will have the right-of-way or that other drivers and pedestrians will properly heed an emergency warning signal. Never assume you have the right-of-way. It is your responsibility to proceed safely before entering an intersection, driving against traffic, responding at a high rate of speed, or walking on or around traffic lanes. Emergency vehicle warning devices should be tested on a daily basis to ensure that they operate properly. When in actual use, the operator must ensure that both visual and audible warnings are not blocked by vehicle components (i.e.: open trunks or compartment doors), people, vehicles, or other obstructions. It is the user's responsibility to understand and obey all laws regarding emergency warning devices. The user should be familiar with all applicable laws and regulations prior to the use of any emergency vehicle warning device. Whelen's audible warning devices are designed to project sound in a forward direction away from the vehicle occupants. However, because sustained periodic exposure to loud sounds can cause hearing loss, all audible warning devices should be installed and operated in accordance with the standards established by the National Fire Protection Association.

Safety First

This document provides all the necessary information to allow your Whelen product to be properly and safely installed. Before beginning the installation and/or operation of your new product, the installation technician and operator must read this manual completely. Important information is contained herein that could prevent serious injury or damage.

- **Proper installation of this product requires the installer to have a good understanding of automotive electronics, systems and procedures.**
- **Whelen Engineering requires the use of waterproof butt splices and/or connectors if that connector could be exposed to moisture.**
- **Failure to use specified installation parts and/or hardware will void the product warranty.**
- **If mounting this product requires drilling holes, the installer MUST be sure that no vehicle components or other vital parts could be damaged by the drilling process. Check both sides of the mounting surface before drilling begins. Also de-burr the holes and remove any metal shards or remnants. Install grommets into all wire passage holes.**
- **If this manual states that this product may be mounted with suction cups, magnets, tape or Velcro®, clean the mounting surface with a 50/50 mix of isopropyl alcohol and water and dry thoroughly.**
- **Do not install this product or route any wires in the deployment area of your air bag. Equipment mounted or located in the air bag deployment area will damage or reduce the effectiveness of the air bag, or become a projectile that could cause serious personal injury or death. Refer to your vehicle owner's manual for the air bag deployment area. The User/Installer assumes full responsibility to determine proper mounting location, based on providing ultimate safety to all passengers inside the vehicle.**
- **For this product to operate at optimum efficiency, a good electrical connection to chassis ground must be made. The recommended procedure requires the product ground wire to be connected directly to the NEGATIVE (-) battery post (this does not include products that use cigar power cords).**
- **If this product uses a remote device for activation or control, make sure that this device is located in an area that allows both the vehicle and the device to be operated safely in any driving condition.**
- **Do not attempt to activate or control this device in a hazardous driving situation.**
- **This product contains either strobe light(s), halogen light(s), high-intensity LEDs or a combination of these lights. Do not stare directly into these lights. Momentary blindness and/or eye damage could result.**
- **Use only soap and water to clean the outer lens. Use of other chemicals could result in premature lens cracking (crazing) and discoloration. Lenses in this condition have significantly reduced effectiveness and should be replaced immediately. Inspect and operate this product regularly to confirm its proper operation and mounting condition. Do not use a pressure washer to clean this product.**
- **It is recommended that these instructions be stored in a safe place and referred to when performing maintenance and/or reinstallation of this product.**
- **FAILURE TO FOLLOW THESE SAFETY PRECAUTIONS AND INSTRUCTIONS COULD RESULT IN DAMAGE TO THE PRODUCT OR VEHICLE AND/OR SERIOUS INJURY TO YOU AND YOUR PASSENGERS!**



SPECIFICATIONS:

INPUT VOLTAGE
12.8V & 25.6V NOM.

INPUT CURRENT
2.5A & 1.25A AVERAGE

INPUT POWER
31.5 WATTS (TYP)

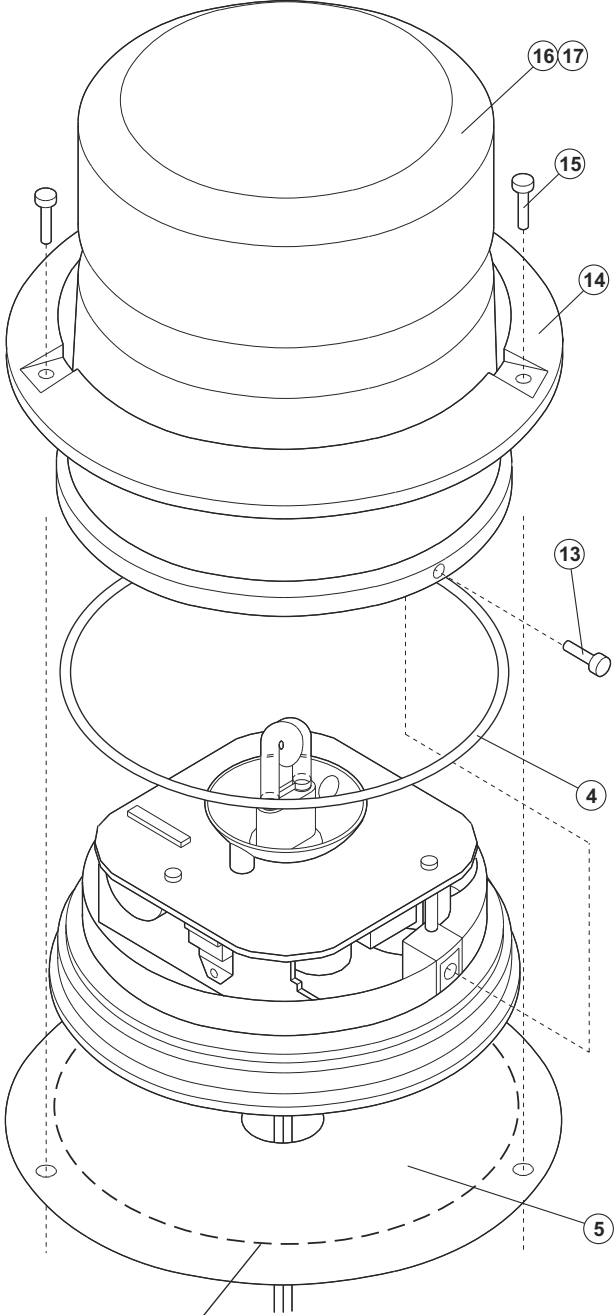
FLASH PATTERNS:
SingleFlash
DoubleFlash
ActionFlash™
ModuFlash™

OUTPUT POWER
22 WATTS (TYP)

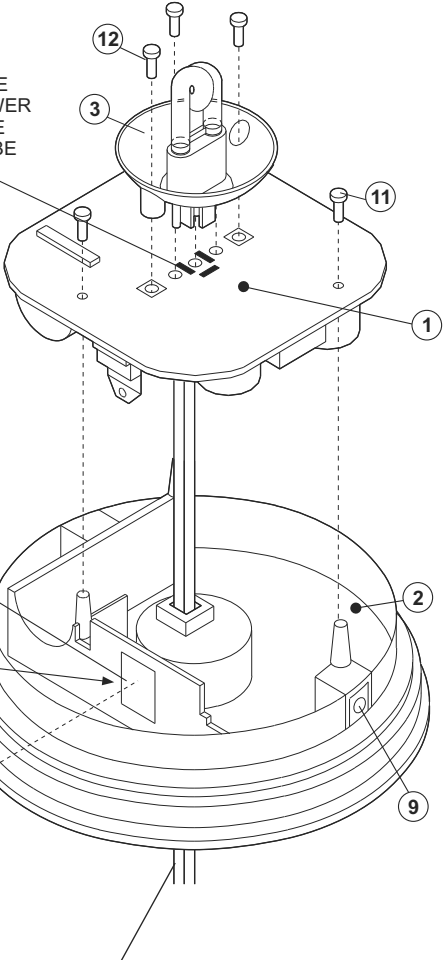
WARNING: The strobe power supply is a high voltage device. Do not remove strobe tubes or dismantle strobe light head assembly while in operation. Wait 10 minutes after turning off power before starting work or trouble shooting.

IMPORTANT: All customer supplied wires, that connect to the positive (+) terminal of the battery, must be sized to supply at least 125% of the maximum operating current, and fused at the battery to carry the load.

IMPORTANT: The outer surfaces of this product may be cleaned with mild soap and water. Use of any other chemicals may void product warranty. Do not use a pressure washer.



WHEN INSERTING FLASH TUBE ASSEMBLY INTO STROBE POWER SUPPLY ASSEMBLY, ALIGN THE 3 PRONGS ON THE FLASH TUBE ASSEMBLY WITH THE SLOTS ON THE STROBE POWER SUPPLY ASSEMBLY.



IMPORTANT: SEE PAGE 3 FOR ASSEMBLY INSTRUCTIONS.

CRIMP WIRES TO CUSTOMER SUPPLIED 2 CONDUCTOR CABLE. RED / POSITIVE DC VOLTAGE. BLACK / NEGATIVE GROUND. CUSTOMER SUPPLIED SINGLE THROW (SPST) SWITCH MAY BE USED TO CONTROL ON/OFF FUNCTION.

PERFORATED CIRCLE IN BASE GASKET. REMOVE OUTER PART TO FIT DIAMETER OF ALUMINUM BASE FOR PERM. MTG.

QTY	QTY	ITEM	PART NUMBER	DESCRIPTION
	*		01-0684825H*P	MODEL 2022HC / VP422HC, ECE
	*		01-0684825H*R	MODEL 2022RC, ECE
1	1	1	02-0168490-01	PCB ASSY, MODEL 2022D SERIES, ECE
-	1	2	06-180842-002	BASE, DIE CAST, BLACK w/1" NPT
1	1	3	36-0341567-00	FLASH TUBE ASSY (FTU 20W)
1	1	4	38-0441331-00	"O" RING
-	1	5	38-0240821-00	SEAL, BASE
1	1	6	21-11091202-0	3/8 GROMMET
1	1	7	56-000000-100	TO-3P CHO-THERM INSULATOR
1	1	8	23-0320760-00	SPRING CLIP, TRANSISTOR MOUNT
4	2	9	13-062C40-16J	NUT, #6 FASTEX SCREW GROMMET
1	-	10	06-146115-000	BASE, MODEL 2022RC
3	3	11	15-066939-056	6-32 X 5/16 HEX WASHER HD SCREW
2	2	12	15-041416-080	#4 X 1/2 PPHDSMS
2	2	13	15-065419-080	6-32 X 1/2 PAN HD SCREW
-	1	14	11-760897-000	MOUNTING COLLAR, BLACK
2	3	15	15-101416-100	#10 X 5/8 PHSMS
A/R	A/R	16	68-2180483E1C	DOMES, WOODWAY AMBER (HIGH)
A/R	A/R	17	68-2180483E2C	DOMES, BLUE (HIGH)
1	-	18	11-481496-002	MODEL 1200 SANDBLASTED BASE
1	-	19	21-22081204-0	HEYCO PLASTIC HOLE BUSHING
1	-	20	38-0241540-00	GASKET, MODEL 1200 BASE
2	-	21	15-081416-080	#8 X 1/2 PPHSMS

PART NUMBER KEY

01-0684825H_P

Color
A = Woodway Amber
B = Blue

WARNING! All customer supplied wires that connect to the positive terminal of the battery must be sized to supply at least 125% of the maximum operating current and FUSED at the battery to carry that load. DO NOT USE CIRCUIT BREAKERS WITH THIS PRODUCT!

PCB ASSEMBLY (COMPONENT SIDE)
Refer to diagram on page 2 to dismantle strobe

FLASH PATTERNS	JU1	JU2
SingleFlash	IN	IN
DoubleFlash	IN	CUT
ActionFlash™	CUT	IN
ModuFlash™	CUT	CUT

FLASH PATTERN SELECTION
To achieve any of the 4 flash patterns, you must either cut-out or leave-in one, two, both or neither of the two jumpers. If you do not touch the jumpers the beacon will default to QuintFlash.

HI/LOW POWER CONTROL
If you wish to control Hi/Low Power externally, cut the VIOLET wire off at this point and exit with the BLACK and RED wires. Ground this wire to go to high power. You may install an SPST switch (customer supplied).

Wiring:

Extend the RED wire to +VBAT via a SP/ST switch. Fuse this wire @ 5 amps.
Extend the BLK wire to chassis ground. See above section for Hi/Low power info.

MOUNTING INSTRUCTIONS:

This strobe beacon features a combination base which may be used for either FLANGE MOUNT, 1 INCH (NPT) PIPE MOUNT, or PERMANENT MOUNT. The threading for a 1 inch (NPT) pipe mounting is precast in the cast aluminum base,

FLANGE MOUNT

1. Select the mounting location taking into consideration visibility of the strobe light flash, mounting surface and ease of wiring.
2. Using the base gasket (ITEM 5) as a template, mark the 3 mounting holes and center wire access hole onto mounting surface.
3. Drill three mounting holes using a #29 drill (.136 inch, 3.5mm).
4. Drill the wire access hole using a 3/8 inch drill (.375 inch, 9.5mm). Be sure to remove burrs from access hole to prevent any damage to wires.
5. Place gasket (ITEM 5) on mounting surface aligned with the holes in the mounting surface. After connecting the beacon to the power cable, feed wires through wire access hole. Place beacon into proper position and slip mounting collar (ITEM 17) over beacon to fit around the base of the unit. Align the 3 holes in the mounting collar with the 3 mounting holes in the mounting surface. Use the 3 enclosed mounting screws (ITEM 18) to secure beacon to mounting surface.

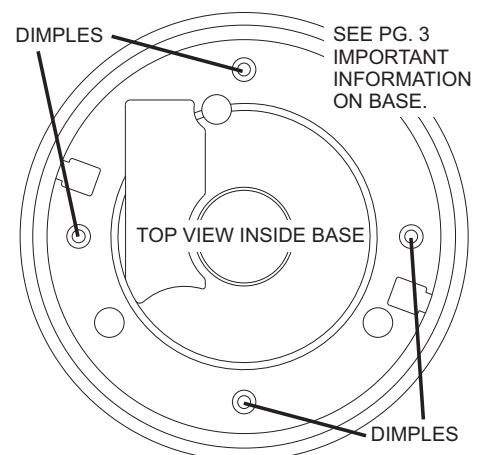
1 INCH (NPT) PIPE MOUNT.

1. Feed the power cable through the 1 inch pipe and connect the cable to the wires of the beacon.
2. Screw the beacon to the threads on the 1 inch pipe, taking precaution not to damage the connected power supply wires.

PERMANENT MOUNT

This mounting of the strobe beacon is a tamper-proof way to secure the unit to the mounting surface. Mounting screws are hidden inside the base, and aren't accessible unless unit is dismantled.

1. Remove the screws holding on the optic dome (ITEM 20) and remove the dome. Then remove the screws holding on the power supply (ITEM 1) and remove the power supply.
2. Locate all four of the 0.164 inch dimples within the perimeter of the cast aluminum base. (See illustration below). Punch these dimples out to create a hole for the mounting screws to fit through.
3. Using the base as a template mark the 4 mounting holes onto the mounting surface. Remove the base and mark in the center of the 4 mounting holes, the location of the wire access hole.
4. Drill the mounting holes into the mounting surface to fit customer supplied mounting hardware, drill the wire access hole using a 3/8 inch drill (.375 inch, 9.5mm). Remove burrs from wire access hole to prevent damage to wires. It is also recommended that you install a rubber grommet in each wire hole to protect the wires.
5. The gasket (ITEM 5) will be used between the base and the mounting surface. Cut the gasket along the perforated circle to fit diameter of base.
6. After connecting beacon to power cable, feed the wires through the cable access hole and place the base with the gasket on the mounting surface, lining up the mounting holes in the base with the ones in the mounting surface. Secure base firmly to mounting surface with customers hardware and reassemble beacon.



ASSEMBLY INSTRUCTIONS OF STROBE LIGHT
POWER SUPPLY ASSEMBLY TO CAST ALUMINUM
BASE, TO PREVENT ELECTRICAL SHORT CIRCUIT
BETWEEN THESE TWO PARTS

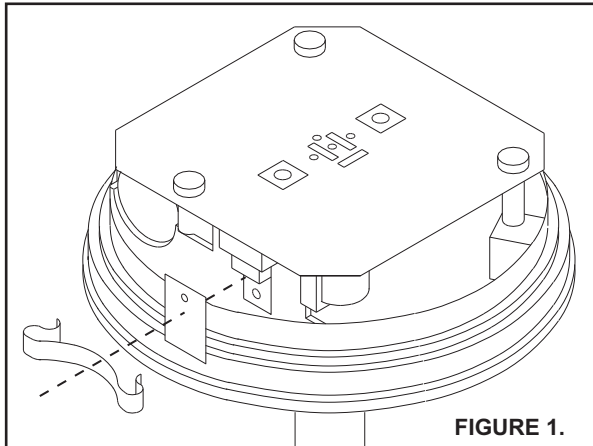


FIGURE 1.

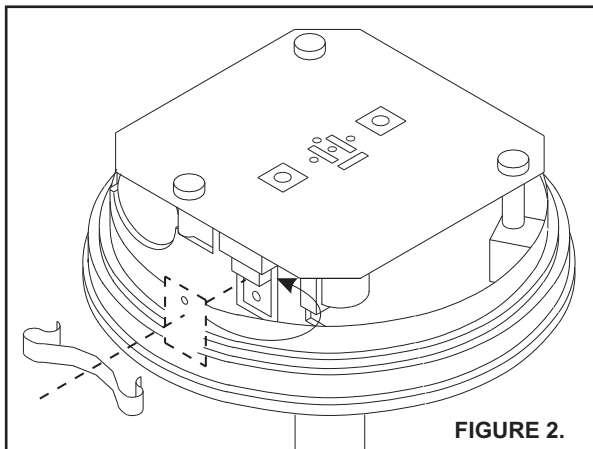


FIGURE 2.

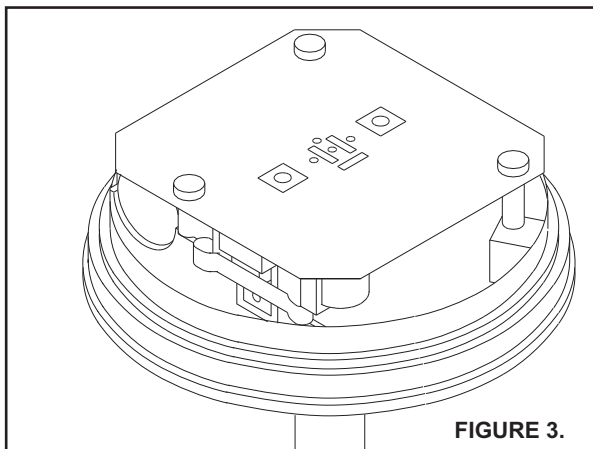


FIGURE 3.

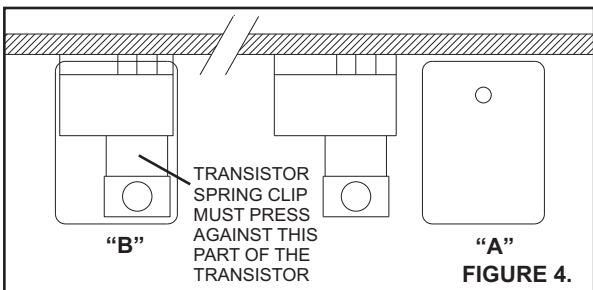
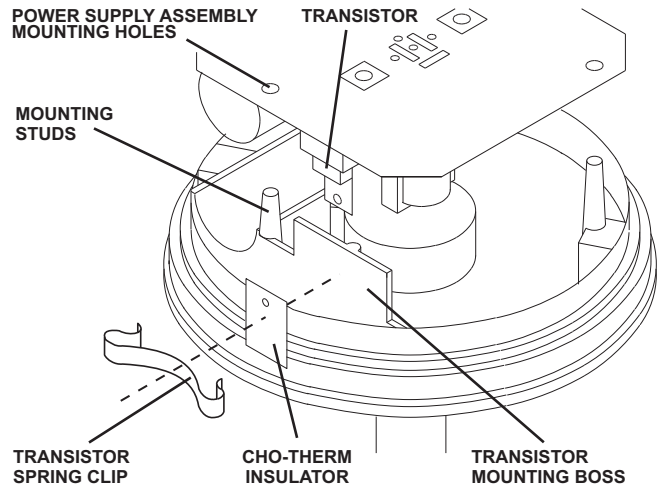


FIGURE 4.



WARNING: The strobe light power supply is a high voltage device. Do not touch or remove strobe tube assembly while unit is in operation. Wait at least 10 minutes after turning off power before starting work or any trouble shooting on the unit. On this page is described the assembly procedure of the strobe light power supply to the cast aluminum base. It is extremely important that the assembly steps, as described below, be followed exactly, to insure the proper insulation of the strobe light power supply from the cast aluminum base.

FIGURE 1. Lower the power supply assembly onto the cast aluminum base, with the three mounting holes lined up with the holes located on the three mounting studs of the cast aluminum base. During this assembly operation, the transistor on the power supply assembly has to be positioned on the outside of the transistor mounting boss. Secure the strobe light power supply assembly to the mounting studs with enclosed self tapping screws.

FIGURE 2. Slightly bend the transistor on the power supply away from the transistor mounting boss. Slip the Cho-Therm insulator behind the transistor with the hole directed towards the top (see figure 4 "A"). Position the top of the Cho-Therm insulator against the circuit board of the power supply assembly, making sure that some of it shows below the transistor (See figure 4 "B"). It is important that the transistor on the power supply assembly does not contact the transistor mounting boss at any place, as to prevent a damaging electrical short circuit between the strobe light power supply and the cast aluminum base.

FIGURE 3. Use the transistor spring clip to secure firmly the Cho-Therm insulator and the power supply assembly to the mounting boss of the cast aluminum base. Wrap one end of the clip around one side of the mounting boss, then press the other end in position using needle nose pliers. (See figure 5 and note in figure 4 "B").

TOP VIEW OF TRANSISTOR MOUNTING BOSS CHO-THERM INSULATOR AND TRANSISTOR TO BE SECURED BETWEEN TRANSISTOR SPRING CLIP AND TRANSISTOR MOUNTING BOSS (SEE NOTE IN FIGURE 4 "B")

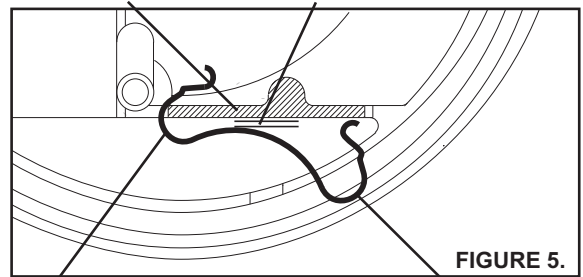


FIGURE 5.

SPRING CLIP AROUND ONE END OF TRANSISTOR MOUNTING BOSS PUSH OTHER END OF TRANSISTOR SPRING CLIP AROUND OTHER END OF TRANSISTOR MOUNTING BOSS