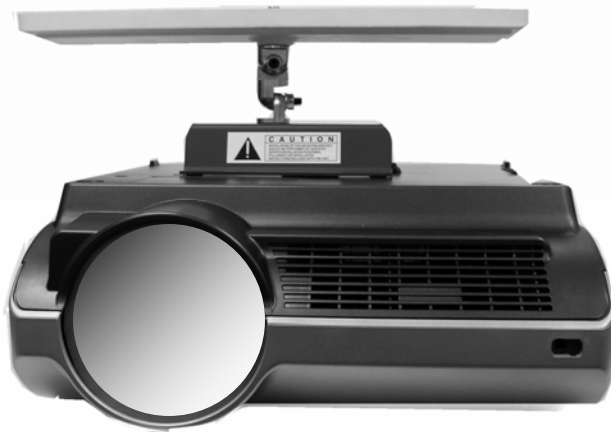


SHARP®

AN-PHCM20

**INSTALLATION INSTRUCTIONS
FOR
MOUNTING BRACKET FOR USE
ONLY WITH SHARP PROJECTOR
MODEL XG-PH50X**

**CEILING MOUNTING
BRACKET AN-PHCM20**



**CEILING MOUNTING
BRACKET COMBINED
WITH OPTIONAL
ADJUSTABLE
EXTENSION TUBE
MODEL AN-EP101B**



	C A U T I O N
	<p>INSTALLATION OF THIS ADJUSTABLE CEILING MOUNTING BRACKET SHOULD BE PERFORMED BY QUALIFIED SERVICE/ INSTALLATION PERSONNEL FOLLOWING THE INSTALLATION INSTRUCTIONS</p>

	<p>THE EXCLAMATION POINT WITHIN AN EQUILATERAL TRIANGLE IS INTENDED TO ALERT THE USER TO THE PRESENCE OF IMPORTANT OPERATING AND MAINTENANCE (SERVICING) INSTRUCTIONS IN THE LITERATURE ACCOMPANYING THE APPLIANCE.</p>
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IMPORTANT! THE INSTALLER SHOULD READ THESE INSTRUCTIONS THOROUGHLY BEFORE BEGINNING THE INSTALLATION AND SHOULD MAKE SURE THAT ALL THE WORK IS DONE IN COMPLIANCE WITH NEC AND ALL LOCAL BUILDING AND SAFETY CODES. SAVE THIS BOOKLET AFTER THE INSTALLATION IS COMPLETED. THE ACCESSORIES REFERRED TO IN THESE INSTRUCTIONS ARE INTENDED FOR USE ONLY WITH COMPATIBLE SHARP PROJECTORS. SEE SHARP PROJECTOR OWNER'S MANUAL OR SHARP DEALER TO DETERMINE

CAUTION: THE BRACKET MOUNTING SCREWS MUST GO DIRECTLY INTO THE BEAMS. SHEETROCK, LATH AND PLASTER, WILL NOT PROVIDE A SUFFICIENTLY SECURE SUPPORT.

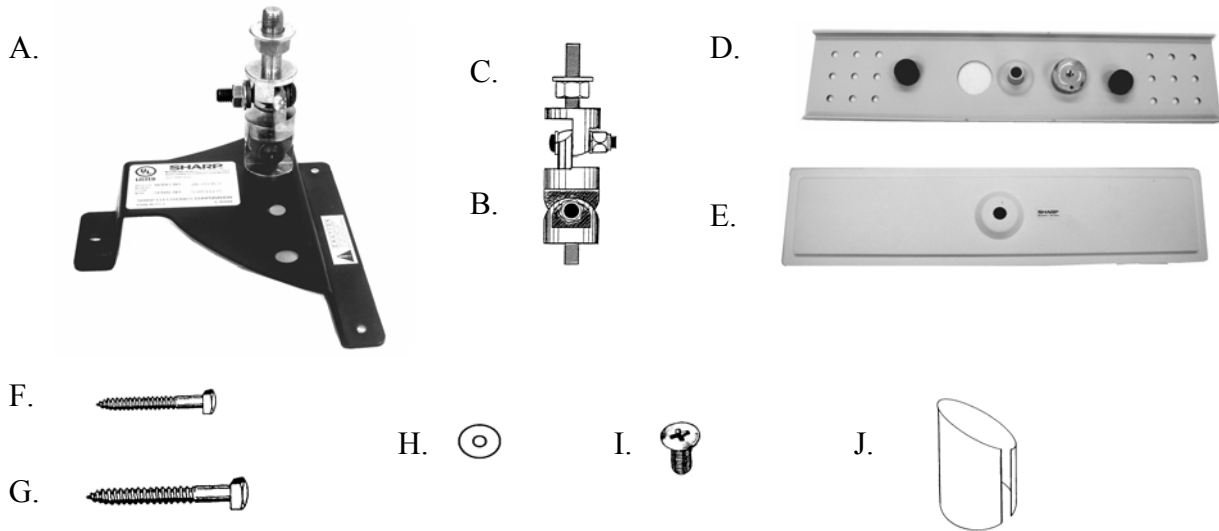
CAUTION: TO REDUCE THE RISK OF PERSONAL INJURY, USE ONLY THE COMPONENTS WHICH ARE INCLUDED IN THIS PACKAGE, OR SPECIFIED IN THESE INSTRUCTIONS.

PARTS LIST FOR MODEL AN-PHCM20 CEILING BRACKET (SEE FIG. 1)

ITEM	DESCRIPTION	QUANTITY
A.	PROJECTOR ATTACHMENT PLATE WHICH INCLUDES THE DUAL KNUCKLE POSITIONING ASSEMBLY.	1
B.	DUAL KNUCKLE POSITIONING ASSEMBLY DETAIL	1
C.	LOCKING HEX NUT & WASHER	1
D.	STEEL CEILING MOUNTING PLATE WITH SECURITY FITTING	1
E.	PLASTIC TRIM FOR CEILING PLATE	1
F.	1/4 X 10 HEX HEAD LAG BOLTS 2-1/2" LONG	6
G.	1/4 X 10 HEX HEAD LAG BOLTS 3" LONG	6
H.	1/4" I.D. WASHERS FOR USE WITH LAG BOLTS	6
I.	M4 X 12mm MOUNTING SCREWS FOR USE WITH ATTACHMENT PLATE	3
J.	PLASTIC TRIM COLLAR	1



FIGURE 1. ILLUSTRATION OF PARTS FOR CEILING BRACKET



INVERT THE PROJECTOR IMAGE

Please refer to the owners manual for your LCD Projector for detailed instructions of how to electrically invert the projected image to accommodate its use in the ceiling mounted mode.

LOCATION OF THE CEILING BRACKET

Please refer to the owner’s manual for your SHARP LCD PROJECTOR for information which will help you to determine the best location for the placement of the ceiling mounting bracket assembly.

INSTALLATION OF THE CEILING BRACKET

After you have determined the appropriate location for the ceiling bracket, you must locate the exact location of the ceiling beams. Most standard residential construction uses 16 inches between centers for overhead beams. You can mount the ceiling bracket by straddling two beams, or you can install the bracket in line with a single beam.

CAUTION: THE BRACKET MOUNTING SCREWS MUST GO DIRECTLY INTO THE BEAMS. SHEETROCK, LATH AND PLASTER, WILL NOT PROVIDE A SUFFICIENTLY SECURE SUPPORT.

STEP 1. INSTALLATION OF THE METAL CEILING BRACKET

After the location for the ceiling bracket has been determined, (see LCD PROJECTOR Owner’s Manual), make sure to locate beams in the ceiling.



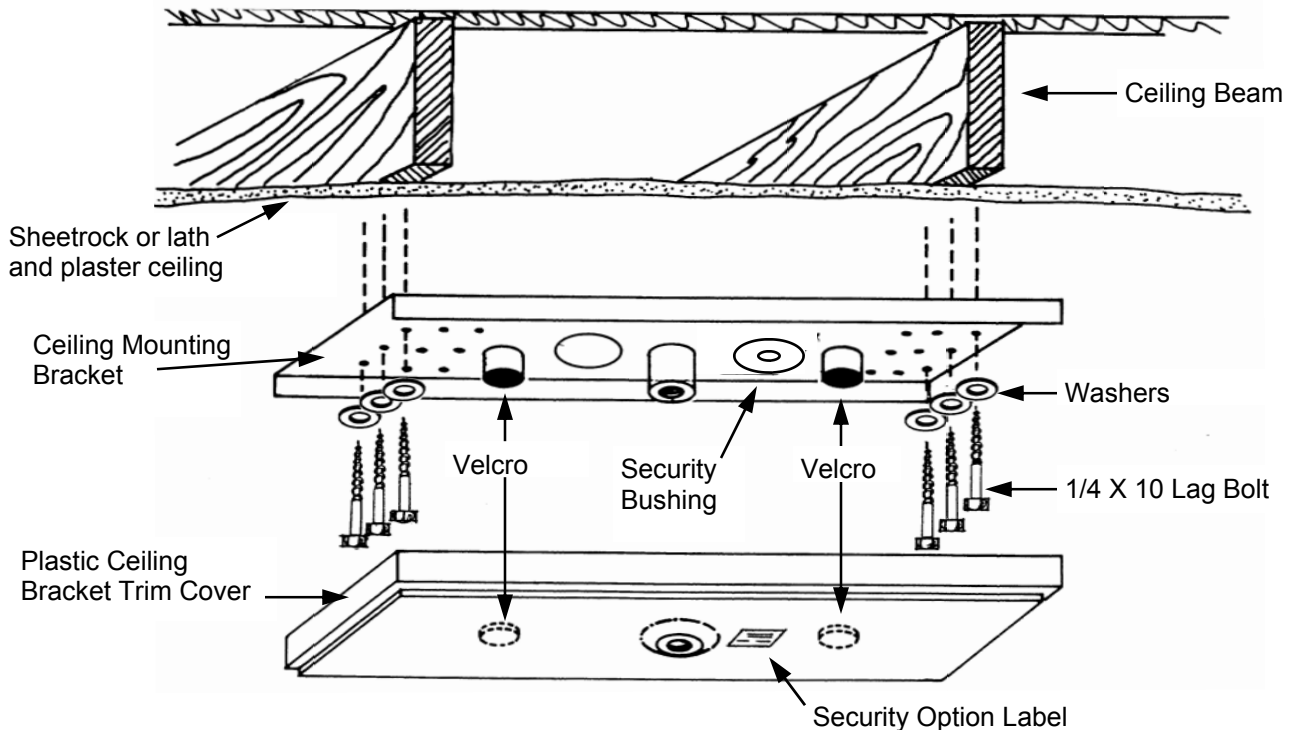
- 1.1
 - a. Select straddle beam or single beam installation.
 - b. Use the ceiling bracket as a template to mark the location where the pilot holes should be drilled.
 - c. Drill the pilot holes for the support screws using a 1/8" drill bit into the center of the beam. (See Figs. 2 and 3).
- 1.2 Screw the ceiling plate to the beams. Use at least 6 screws and metal washers supplied with the unit. These screws should be tightened firmly to insure a vibration-free support. (See Figs. 2 and 3).

Two sizes of hex head lag bolts are provided. Use shorter screws for sheet rock surfaces and use the longer screws if the ceiling surface is constructed of a wood lath and plaster.



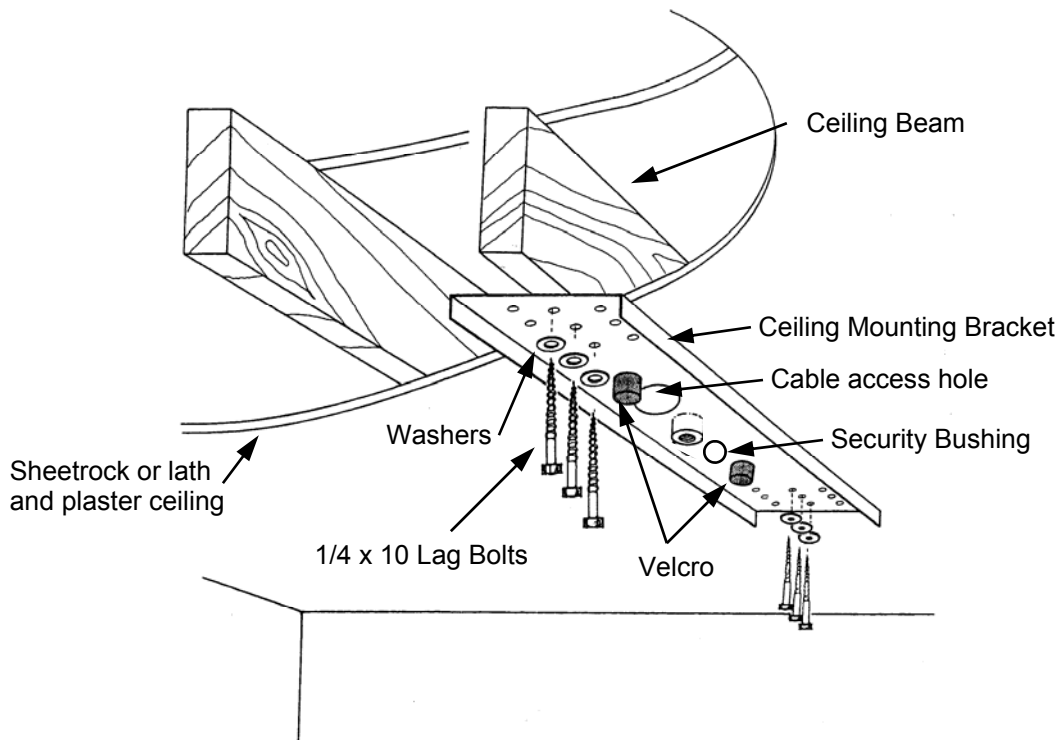
CAUTION: THE BRACKET MOUNTING SCREWS MUST GO DIRECTLY INTO THE BEAMS. SHEETROCK OR LATH AND PLASTER WILL NOT PROVIDE A SUFFICIENTLY SECURE SUPPORT.

FIGURE 2. ILLUSTRATION OF STRADDLE BEAM CEILING BRACKET INSTALLATION



NOTE: THE OUTER ROW OF HOLES ARE 16" BETWEEN CENTERS WHICH IS THE MOST COMMON BEAM SPACING IN RESIDENTIAL WOOD FRAME CONSTRUCTION.

FIGURE 3 ILLUSTRATION OF SINGLE BEAM CEILING BRACKET INSTALLATION

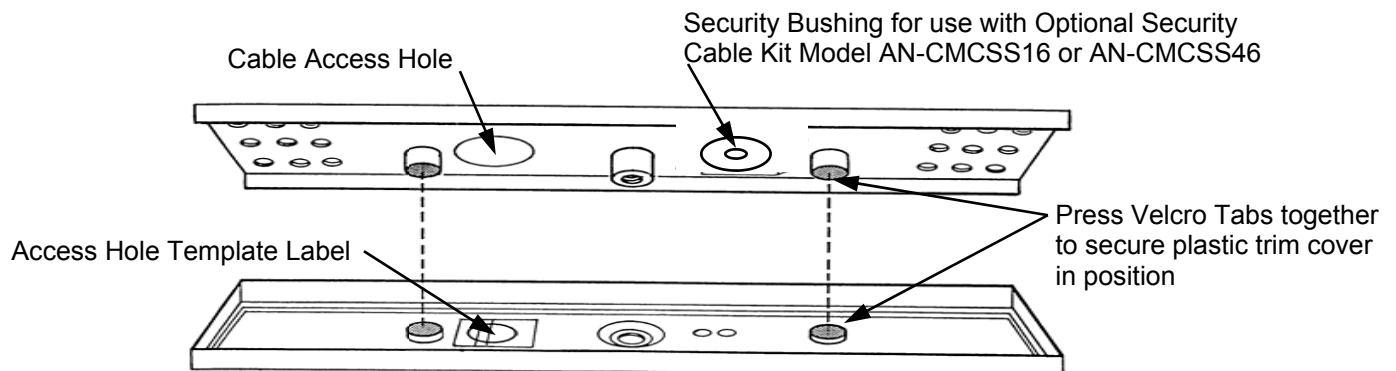


DO NOT RUN THE AC POWER CORD THROUGH THE CEILING PLATE AND TRIM COVER

STEP 2. INSTALL THE CEILING MOUNT PLASTIC TRIM

- 2.1 The Access Hole (See Fig. 4) in the ceiling attachment plate is large enough to accommodate the molded connectors commonly used with projector.
- 2.2 Audio, Video and other low voltage connections may be passed through the access hole in the ceiling plate and may also be passed through the plastic trim cover. There is a label (See Fig. 4) on the inside of the plastic trim cover, adjacent to the center mounting bushing.
- 2.3 Select the contour appropriate for your application and cut out the opening along the line indicated on the label. Use a very sharp cutting tool.
- 2.4 Thread the cable through the plastic trim cover. Place the plastic trim cover in place over the ceiling plate and press the velcro tabs together.

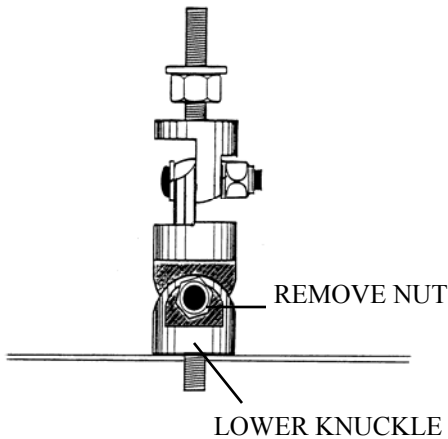
FIGURE 4 INSTALLATION OF PLASTIC TRIM ON THE CEILING BRACKET



STEP 3 DETACH THE POSITIONING ASSEMBLY FROM THE PROJECTOR ATTACHMENT PLATE.

FIGURE 5

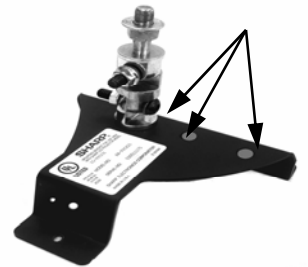
POSITIONING KNUCKLE ASSEMBLY



NOTE: PLEASE LOOK OVER THE EXACT MANNER IN WHICH THE POSITIONING ASSEMBLY AND THE ATTACHMENT PLATE GO TOGETHER SO THAT YOU WILL BE ABLE TO REASSEMBLE THEM WHEN YOU HANG THE PROJECTOR.

3.1 Using 9/16" box wrench, remove the nut and split lock washer from the lower knuckle (vertical position) and slide the center and upper knuckle assembly apart from the bottom knuckle which is part of the attachment plate. (See Fig. 5)

SPECIAL NOTE TO INSTALLERS: The positioning knuckle is mounted to provide correct static balance when the standard lens is used. When any of the other lens options are used the lens is heavier and in order to improve the static balance, move the 3 piece knuckle assembly to one of the other mounting holes on the attachment plate. If the larger and heavier lens is selected, use the furthest hole. All other mounting and adjustment procedures remain the same.



STEP 4 INSTALLATION OF THE PROJECTOR ATTACHMENT PLATE

- 4.1 Place the attachment plate over the bottom of the projector (See Fig. 6) and align the holes of the plate with the threaded fittings on the projector case.
- 4.2 Install the three M4 x 12mm long screws provided. Fasten these securely but DO NOT overtighten. (See Fig. 7)

FIGURE 6.



FIGURE 7.



STEP 5 ATTACH THE POSITIONING ASSEMBLY TO THE CEILING PLATE

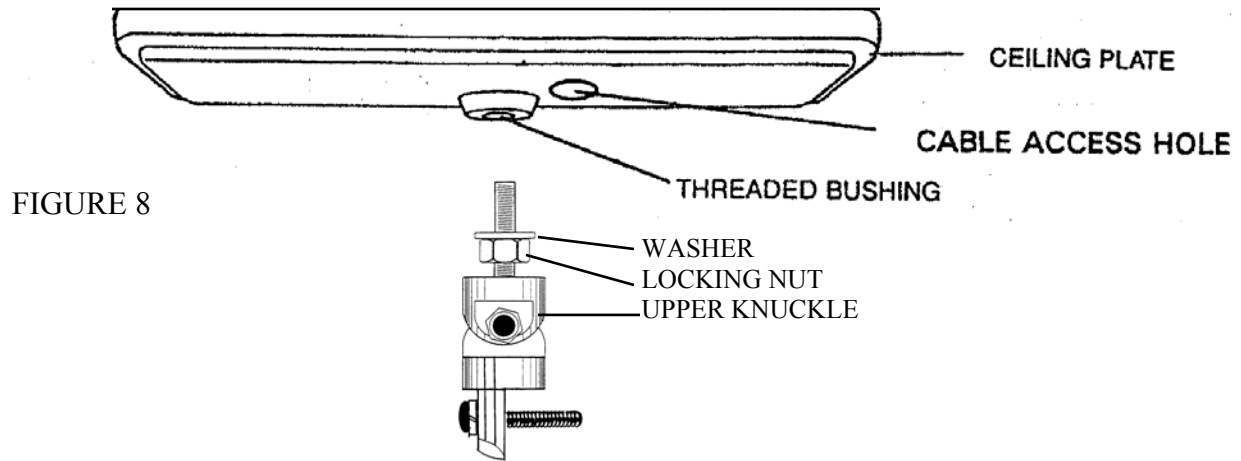


FIGURE 8

IF YOU INTEND TO RUN AUDIO OR VIDEO CABLES THROUGH THE CEILING PLATE PROCEED WITH STEP 5.1 AND 5.2, OTHERWISE PROCEED TO STEP 5.3:

- 5.1 Cut opening in the ceiling plate trim cover as indicated on the label inside cover near the center bushing.
- 5.2 Thread cables through the plastic trim cover.
- 5.3 Place the plastic trim cover in position over the ceiling plate and press the Velcro tabs together.
- 5.4 After completing step #3, screw the longer shaft with the locking nut and washer into the center threaded bushing on the ceiling plate as far as it will go. (See Fig. 8)
- 5.5 Tighten the locking nut against the ceiling plate using a 3/4" open end wrench or an adjustable crescent wrench.



DO NOT RUN THE AC POWER CORD INSIDE THE PLASTIC TRIM COVER. ALL WIRING MUST COMPLY WITH THE NEC AND ALL LOCAL BUILDING, ELECTRIC, AND SAFETY CODES.

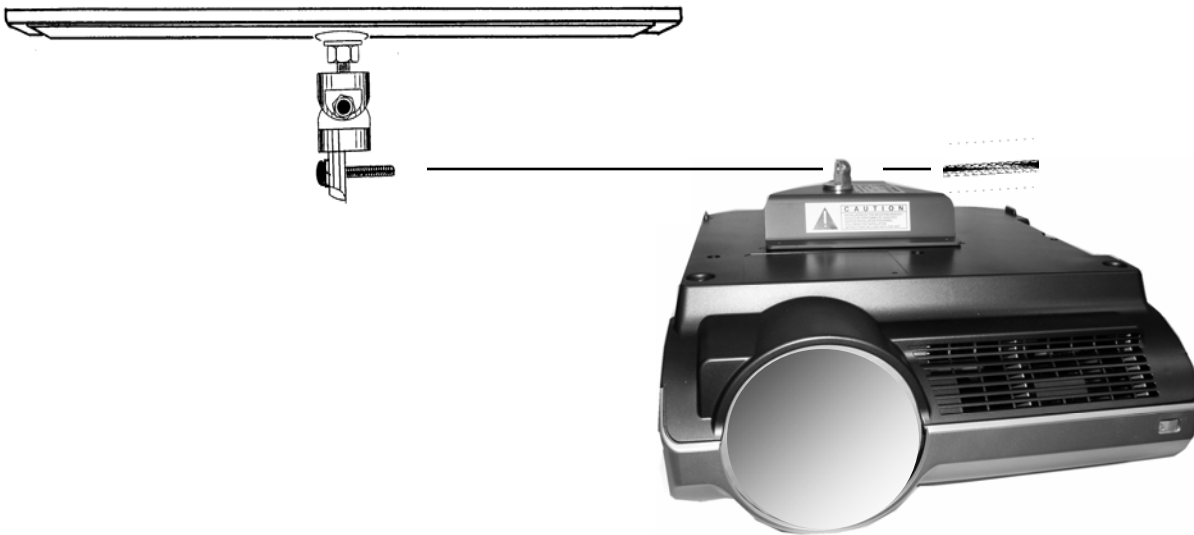


STEP 6 HANGING THE PROJECTOR FROM POSITIONING ASSEMBLY

IT IS RECOMMENDED THAT TWO PERSONS SUPPORT THE PROJECTOR WHEN RAISING IT UP IN ORDER TO HANG IT IN PLACE.

- 6.1 Raise the projector with the mounting plate attached and slide the fitting (See Fig. 9) over the support stud on the hanging position.
- 6.2 Replace the locking nut and split lock washer (removed in step 3.1). Using the 9/16" box wrench run the nut up but do not tighten all the way.

FIGURE 9



STEP 7 AIM THE PROJECTOR

CAUTION: DO NOT OVER-TIGHTEN THE POSITIONING NUTS. When doing image positioning alignment, tighten the nuts until the split ring washer flattens out and then only just enough additional tightening to hold the set position.

- 7.1 After the projector has been properly wired, turn it on and loosen the positioning assembly adjustment nuts just enough so that you can move the projector fairly easily. (See Fig. 10)
- 7.2 Set the Horizontal Centering by loosening the ceiling locking nut, move the projector to center the image and tighten the nut. (Use 3/4" open end wrench).
- 7.3 Set the vertical centering and secure the lower positioning adjustment nut. (See Fig. 10)
- 7.4 Set the Horizontal tilt and secure the upper positioning adjustment nut. (See Fig. 10)

SECURITY:

The ceiling plate and the projector attachment plate of this model mounting bracket kit are equipped with attachment facilities that enable the use of a SHARP Model AN-CMCSS16 or AN-CMCSS46 theft prevention security cable optional accessory.

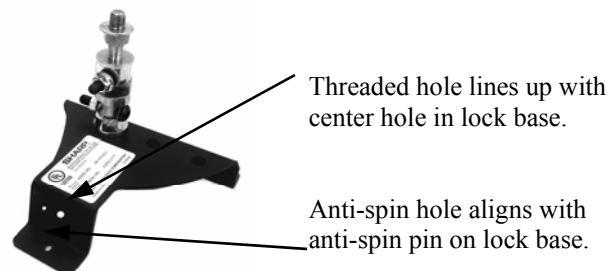
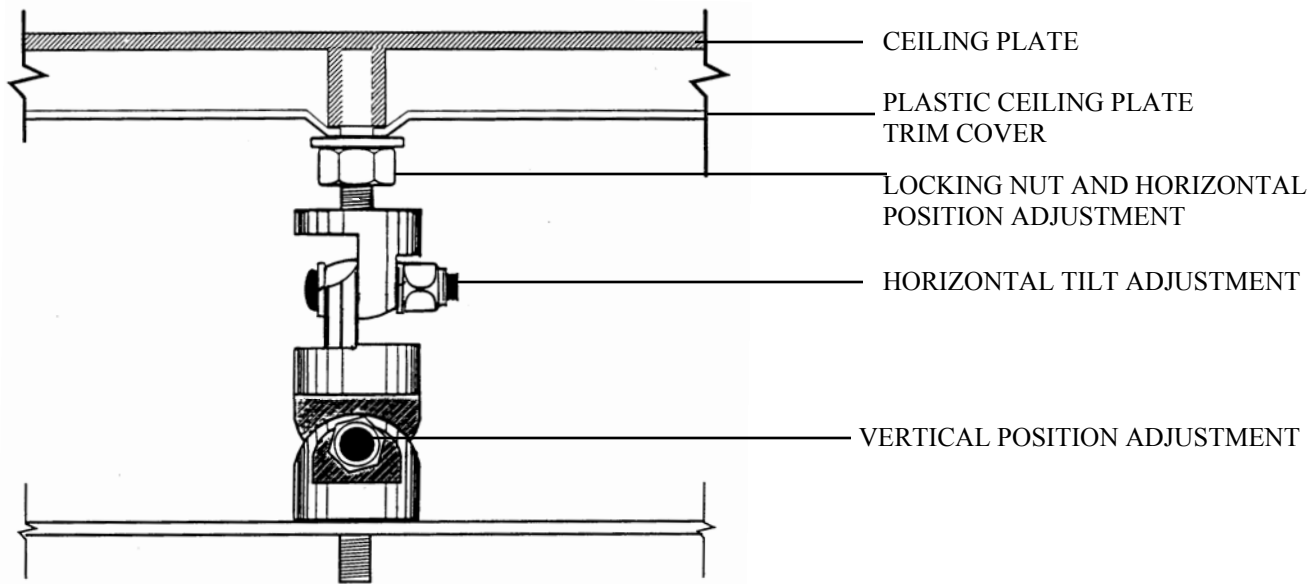


FIGURE 11 DETAIL OF POSITIONING ASSEMBLY



STEP 8 INSTALL THE PLASTIC TRIM COLLAR

- 8.1 The plastic trim collar may be used as a cosmetic concealment of the positioning adjustment knuckle assembly and the audio and video signal cables.
- 8.2 The slit side of the collar enables the installer to spread the collar enough to place it over the adjustment knuckle. It will curve back by its own spring action to wrap around itself enough to close the gap. (See Fig. 12)
- 8.3 If the projector is hung at a sharp angle, you may trim the collar for a better fit. (See Fig. 13)

FIGURE 12

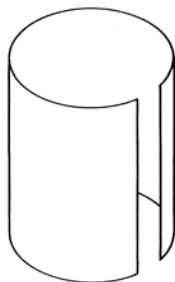
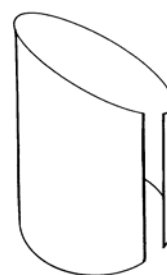


FIGURE 13



DO NOT RUN THE AC POWER CORD INSIDE THE PLASTIC TRIM COLLAR. ALL WIRING MUST COMPLY WITH THE NEC AND ALL LOCAL BUILDING, ELECTRIC AND SAFETY CODES.

NOTE: IN THE EVENT YOU WISH TO USE THE SHARP ADJUSTABLE EXTENSION ACCESSORY IN CONJUNCTION WITH THE CEILING MOUNTING BRACKET, PLEASE REFER TO THE INSTALLATION INSTRUCTION MANUAL INCLUDED IN THE EXTENSION TUBE PACKAGE.



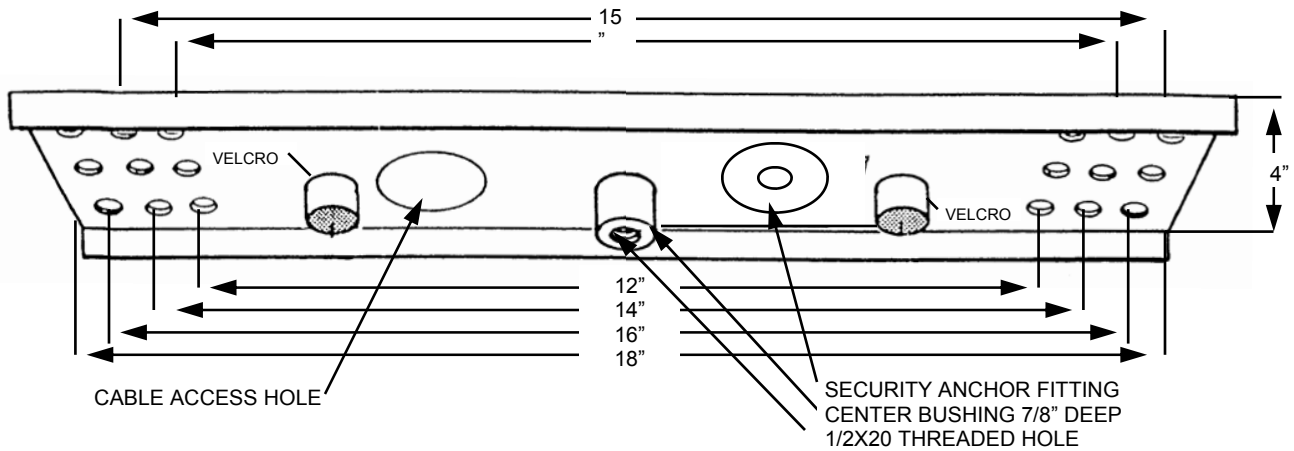
DIMENSIONS AND MEASUREMENTS OF COMPONENTS FOR SHARP MOUNTING BRACKET AN-MBCM10

CEILING PLATE 4" WIDE X 18" LONG

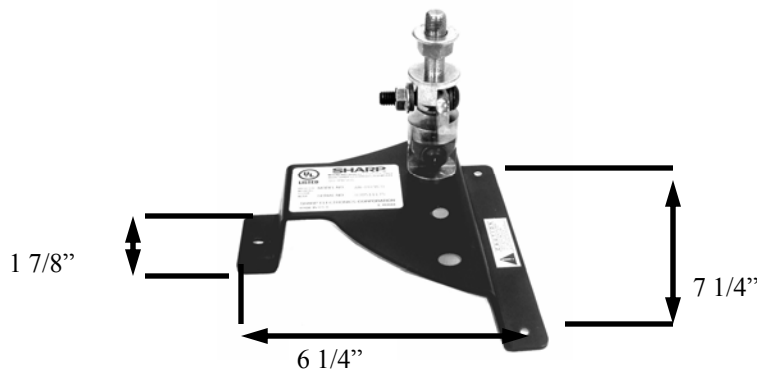
DISTANCE BETWEEN SETS OF MOUNTING HOLES: 1st SET 12", 2nd SET 14", 3rd SET 16"

ADDITIONAL POSSIBLE COMBINATIONS OF MOUNTING HOLE DISTANCE 13" & 15"

THREAD SIZE OF SWIVEL SHAFT & CEILING PLATE BUSHING 1/2" X 20



ATTACHMENT PLATE WITH POSITIONING ASSEMBLY:
SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE



- A. From ceiling to bottom of projector 13 5/8"
- B. Length of position adjustment knuckle assembly 3 5/8"
- C. Lens offset from center of lens to center of mounting bushing 1 5/8"
- D. Ceiling to center of lens 10 1/16"
- E. Ceiling to top of projector 6 1/2"
- F. Mounting screws M4 X 12mm long metric.

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

ONE YEAR LIMITED WARRANTY

SHARP Electronics Corporation warrants to the first end use purchaser, that this SHARP brand product (the "Product"), when shipped in its original container, will be free from defective workmanship and materials, and agrees that it will, at its option, either repair the defect or replace the defective product or part thereof at no charge to the purchaser for parts or for labor, excluding costs of removal and/or installation, for one year from date of purchase.

This warranty does not apply to any appearance items of the Product nor to any Product the exterior of which has been damaged or defaced, which has been subject to misuse, abnormal service or handling, or which has been altered or modified in design or construction.

In order to avail the purchaser of his/her rights under this limited warranty, the purchaser should carry in or ship the Product prepaid and insured, including proof of purchase, to:
SHARP Electronics, c/o AVDEX, 115 Henry Street, Freeport, NY 11520.

The limited warranty described above is in addition to whatever implied warranties may be granted to purchasers by law. To the extent permitted by applicable law ALL IMPLIED WARRANTIES INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR USE ARE LIMITED TO THE PERIOD(S) FROM THE DATE OF PURCHASE SET FORTH ABOVE. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

Neither the sales personnel of the seller nor any other person is authorized to make any warranties other than those described above, or to extend the duration of any warranties beyond the time period described above on behalf of SHARP.

The warranties described above shall be the sole and exclusive warranties granted by SHARP and shall be the sole and exclusive remedy available to the purchaser. Correction of defects, in the manner and for the period of time described herein, shall constitute fulfillment of all liabilities and responsibilities of SHARP to the purchaser with respect to the Product, and shall constitute full satisfaction of all claims, whether based on contract, negligence, strict liability or otherwise. In no event shall SHARP be liable, or in any way responsible, for any damages or defects in the Product which were caused by repairs or attempted repairs performed by anyone other than SHARP. Nor shall SHARP be liable or in any way responsible for incidental or consequential economic or property damage. Some states do not allow the exclusion of incidental or consequential damages, so the above exclusion may not apply to you.

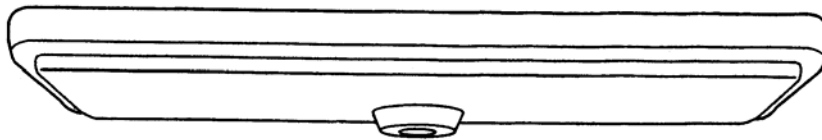
THE WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS. YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.

Specifications are subject to change without notice.

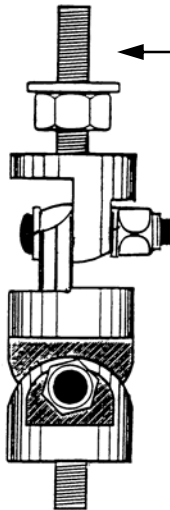
SHARP ELECTRONICS CORPORATION, SHARP PLAZA, MAHWAH, NJ 07430

SHARP®

SUPPLEMENTAL INSTRUCTIONS
FOR INSTALLATION OF 2" EXTENSIONS TO
LOWER MOUNTING BRACKET FROM CEILING.



CEILING PLATE
COVER



INSTALL
ONE 2" EXTENSION OR
TWO 2" EXTENSIONS
HERE AS NEEDED.

CONTINUE WITH STEP 5
OF THE INSTALLATION
INSTRUCTIONS.