

## GEMINI ROBOT KITS

## Head Cable Assembly Instructions

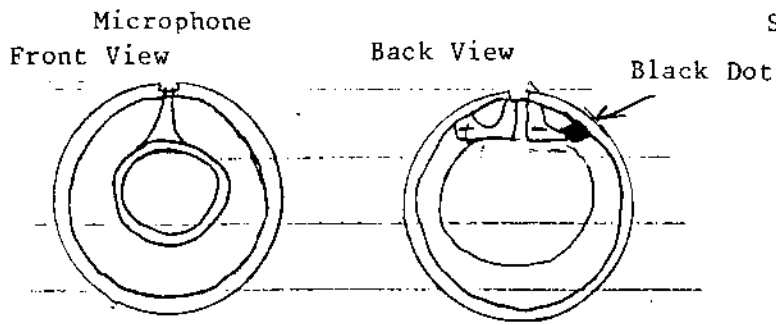
## PARTS LIST

Please review the following parts list to be sure that you have all the parts before you begin assembling your kit.

<u>Description</u>	<u>Quantity</u>	<u>Part #</u>
Microphone	3	25LM032
3 Pin molex connector	1	22-26-7033
Fork Lug	1	67F746
Molex Connector (36 pin male)	1	03-06-2364
Industrial sonar	1	604142
Commercial sonar	2	604029
Photo cell	1	276-116
Tie down	7	MB-3A
Motion Detector	1	EFR-OSB40K
Motion Detector	1	EFR-RSB40K
Tie wrap	10	T181
Tie wrap	50	T18S
Male Molex pins	26	02-06-2103
Red wire	15 ft.	7195-R
Black wire	15.5 ft.	7195-B
Orange wire	4.5 ft.	7195-O
Caterpillar grommet	15"	760-3181
Sonar clips	6	- - -
4-40 1/4 screws	4	917830106
Door edge reflector- detector with		SBLX1
mounting bracket		GIHD-15
and hardware	1	
#4 Hexnut	4	91841A005
#4 Lockwasher	4	92146A005
Smoke Detector	1	EGD-5B*
5.1K Resistor	1	CCF255.1K*
1/4" Nylon spacer	2	30F1436*
4-40 x 3/4" Nylon screw	1	32F657*
4-40 x 1/2" screw	1	91783A110*

\* Omit these parts if you have purchased a GEMINEX.

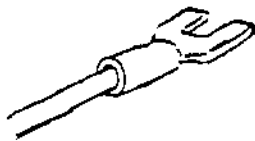
# Parts Identification



Small 3 pin molex connector

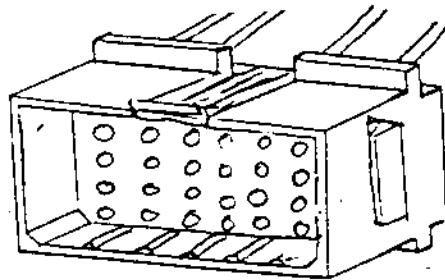


Fork Lug

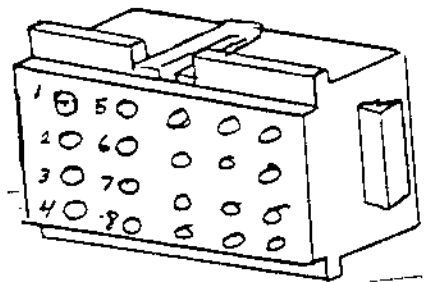


36 Pin male molex connector

Front View

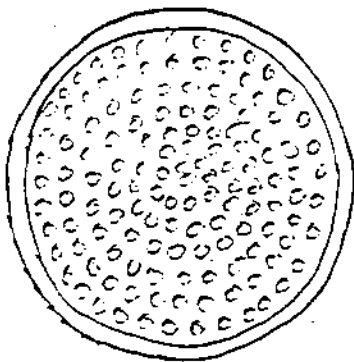


Back View



Sonar transducer

Front view



Back view

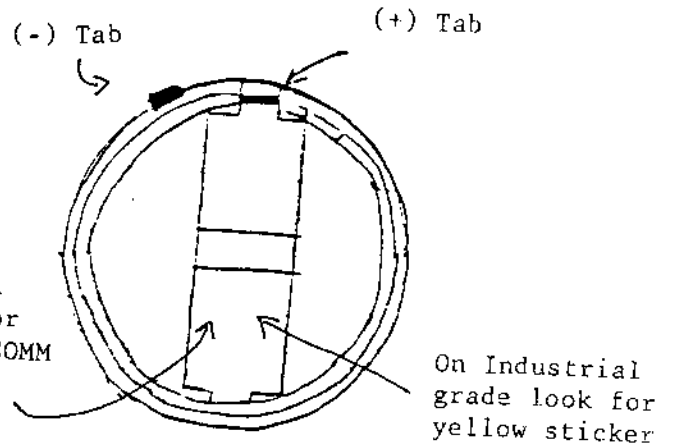


Photo cell

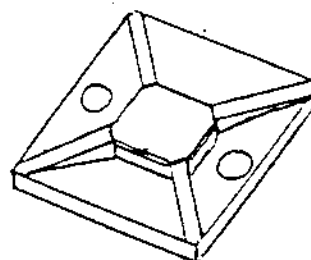
Front view



Back view



Tie down

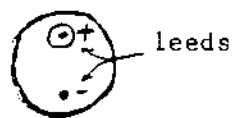


Motion Detector

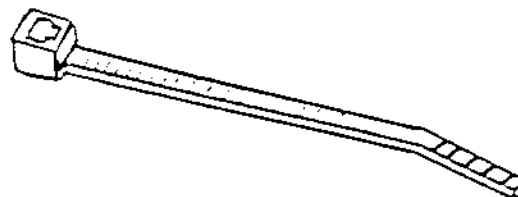
Front view



Back view



Tie wrap



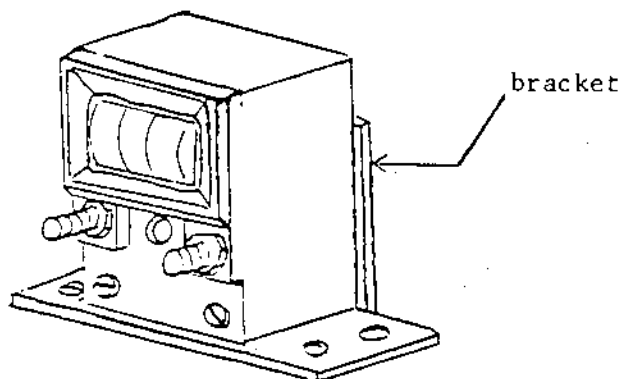
Male Molex pin



Caterpillar grommet



Door Edge Reflector-Detector

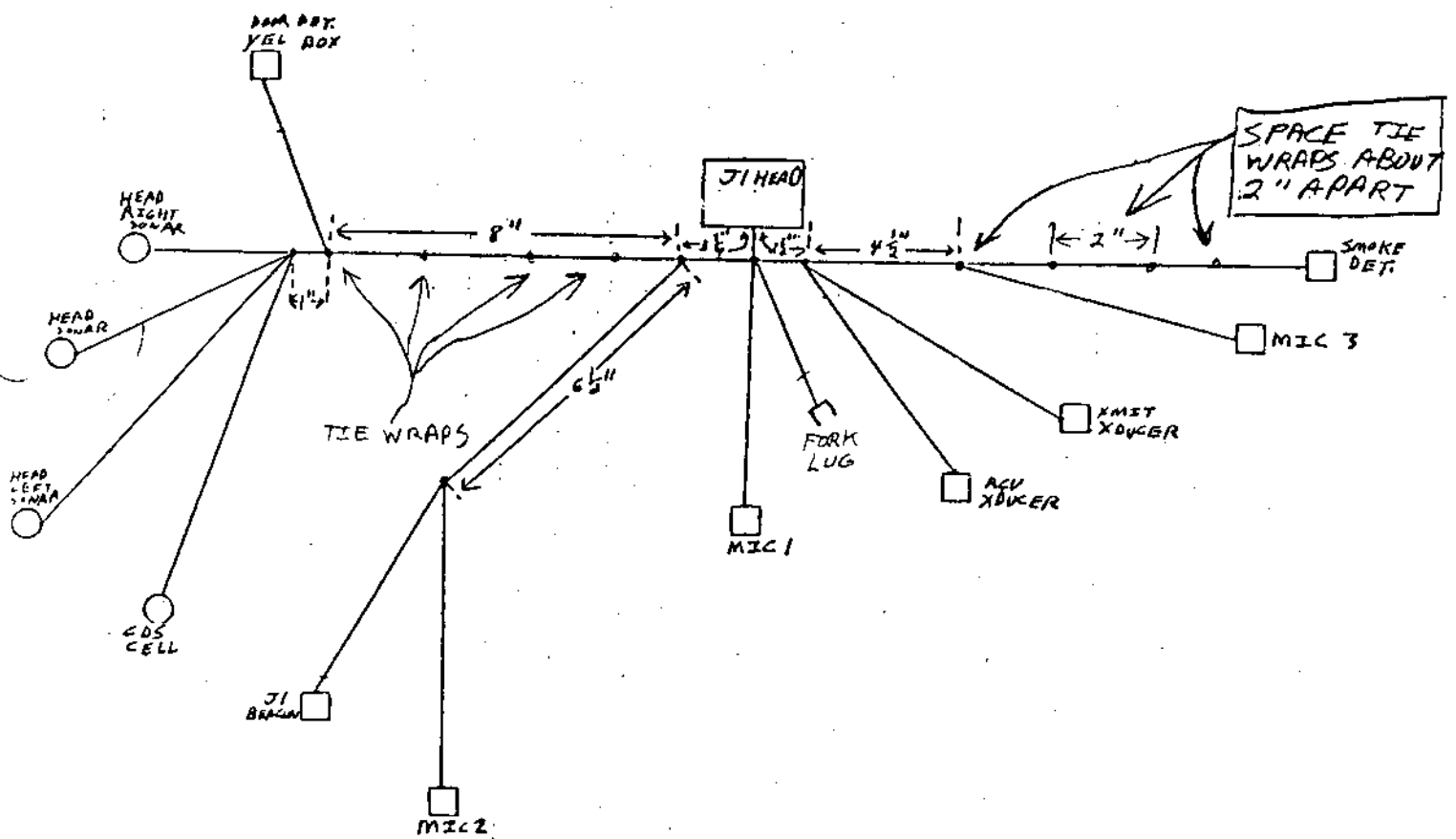


4-40 1/4 Machine screw

Sonar clip

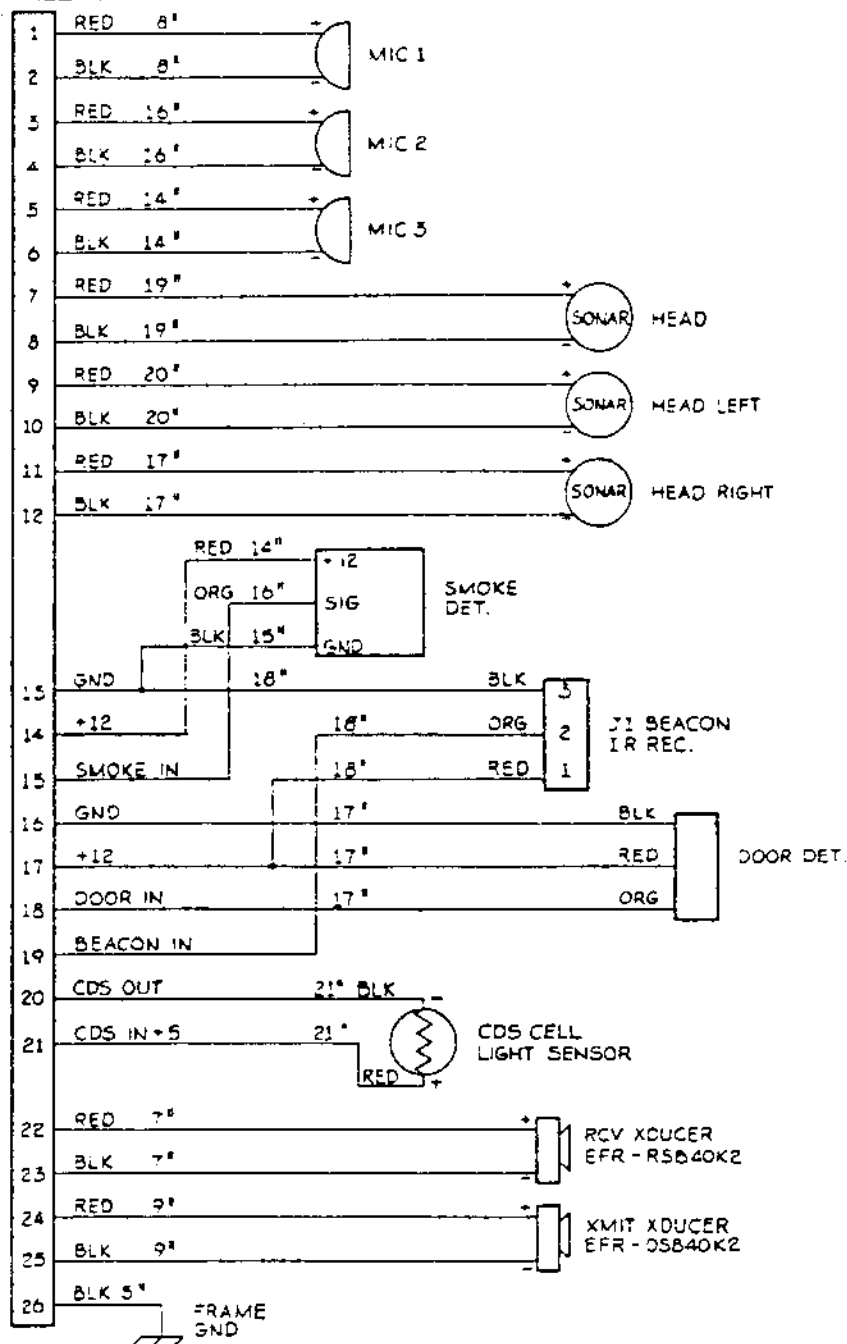


Lacing diagram



# Head Cable Wiring Diagram

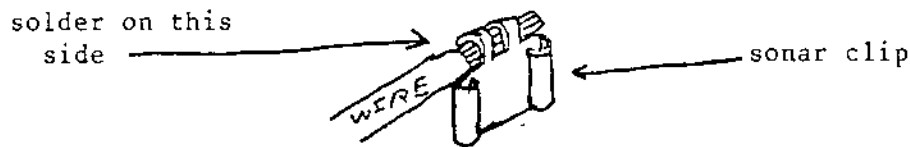
J1 HEAD  
MALE



## Head Cable Assembly Instructions

Refer to the head cable wiring diagram for the following steps.

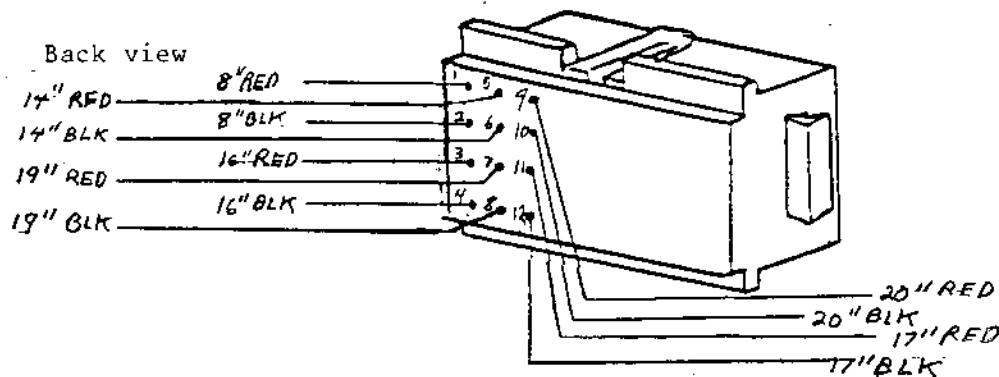
1. Cut the red 22 gauge wire into the following lengths:  
8", 16", 14", 19", 20" and 17". Remove Insulation from both ends of these wires.
2. Cut the black 22 gauge wire into the following lengths:  
8", 16", 14", 19", 20" and 17". Remove insulation from both ends of these wires.
3. Install one male molex pin (see how to section) on only one end of each of the red and black wires.
4. Install one sonar clip (how to section) on the other end of the 19", 20" and 17" red and black wires.



5. Insert male molex pins (how to section) into the 36 pin male molex connector as follows:

8"red to pin 1	19"red to pin 7
8"blk to pin 2	19"blk to pin 8
16"red to pin 3	20"red to pin 9
16"blk to pin 4	20"blk to pin 10
14"red to pin 5	17"red to pin 11
14"blk to pin 6	17"blk to pin 12

Label this connector J1 head

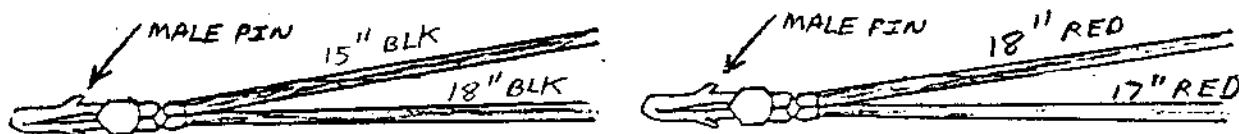


6. Cut the black 22 gauge wire into the following lengths:  
15", 18", 17", 21", 7", 9" and 5". Remove insulation from both ends of these wires except the 18" wire. Remove insulation from one end of the 18" wire.
7. Cut the red 22 gauge wire into the following lengths:  
14", 18", 17", 21", 7" and 9". Remove insulation from both ends of these wires except the 18" wire. Remove insulation from one end of the 18" wire.
8. Cut the orange 22 gauge wire into the following lengths:  
16", 18" and 17". Remove insulation from both ends of these wires except the 18" wire. Remove insulation from one end of the 18" wire.
9. Install one male molex pin (how to section) on both the 15" and 18" black wires together. Do the same for the 18" and 17" red wires.
10. Install one male molex pin on one end of each of the remaining black, red and orange wires.
11. Install male molex pins into the 36 pin male molex connector as follows:
 

15" and 18" blk pair to pin 13	18" org to pin 19
14" red to pin 14	21" blk to pin 20
16" org to pin 15	21" red to pin 21
17" blk to pin 16	7" red to pin 22
18" and 17" red pair to pin 17	7" blk to pin 23
17" org to pin 18	9" red to pin 24
	9" blk to pin 25
	5" blk to pin 26

Back view

6. Cut the black 22 gauge wire into the following lengths:  
15", 18", 17", 21", 7", 9" and 5". Remove insulation from both ends of these wires except the 18" wire. Remove insulation from only one end of the 18" wire.
7. Cut the red 22 gauge wire into the following lengths:  
14", 18", 17", 21", 7" and 9". Remove insulation from both ends of these wires except the 18" wire. Remove insulation from only one end of the 18" wire.
8. Cut the orange 22 gauge wire into the following lengths:  
16", 18" and 17". Remove insulation from both ends of these wires except the 18" wire. Remove insulation from only one end of the 18" wire.
9. Install one male molex pin (how to section) on one end of both the 15" and 18" black wires together. Do the same for the 18" and 17" red wires.

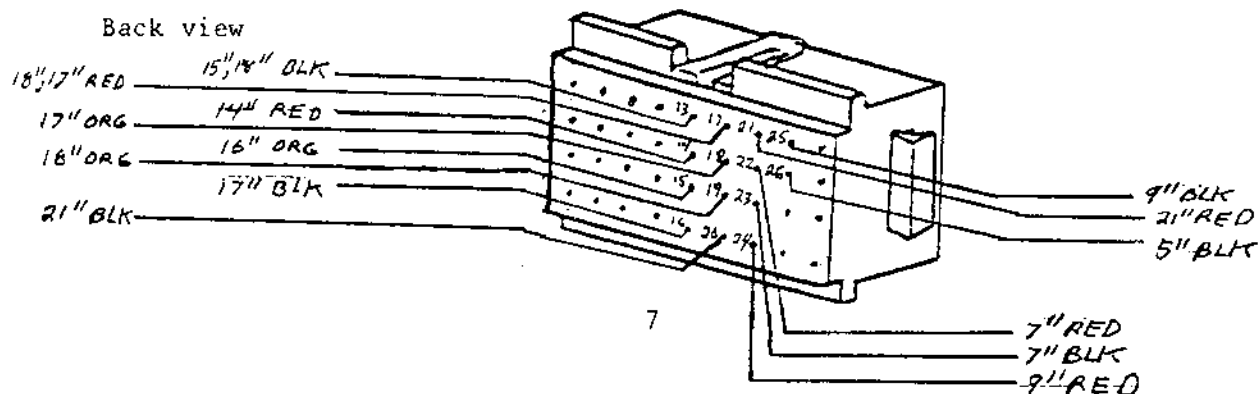


10. Install one male molex pin on only one end of each of the remaining black, red and orange wires.

11. Install male molex pins into the 36 pin male molex connector as follows:

15" and 18" blk pair to pin 13	18" org to pin 19
14" red to pin 14	21" blk to pin 20
16" org to pin 15	21" red to pin 21
17" blk to pin 16	7" red to pin 22
18" and 17" red pair to pin 17	7" blk to pin 23
17" org to pin 18	9" red to pin 24
	9" blk to pin 25
	5" blk to pin 26

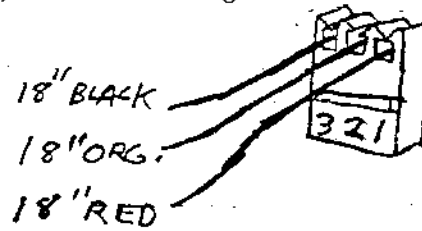
13





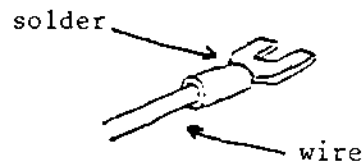
12. Install the small 3 pin molex connector (how to section) on the other ends of the 18" black, red and orange wires.

Label connector J1 Beacon



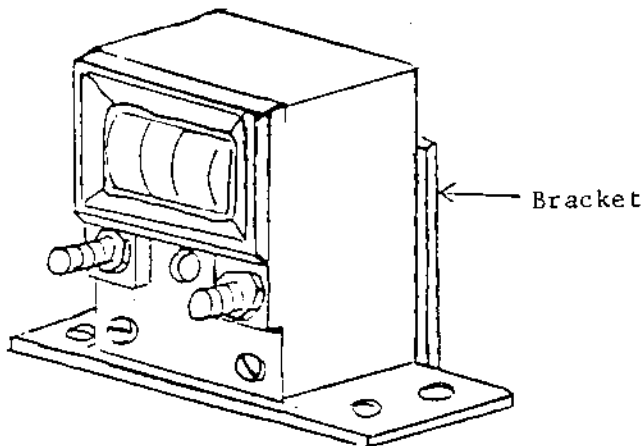
13. Using the small tie wraps, lace the cable as described. Space your tie wraps about 2" apart. It is important that the cable be laced according to the lacing diagram.

14. Install fork lug on the other end of the 5" black wire and solder.

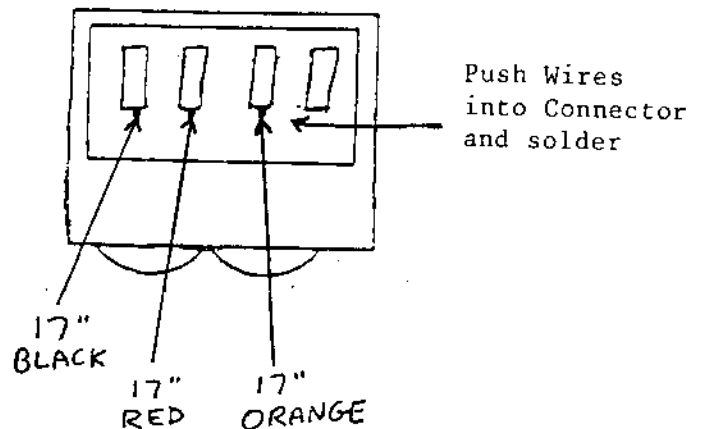


15. Install the other ends of the 17" black, red and orange wires off of pins 16, 17 and 18 into the bottom of the door edge reflector-detector. You must take the bracket off to install wires. After you install wires put the bracket back on detector.

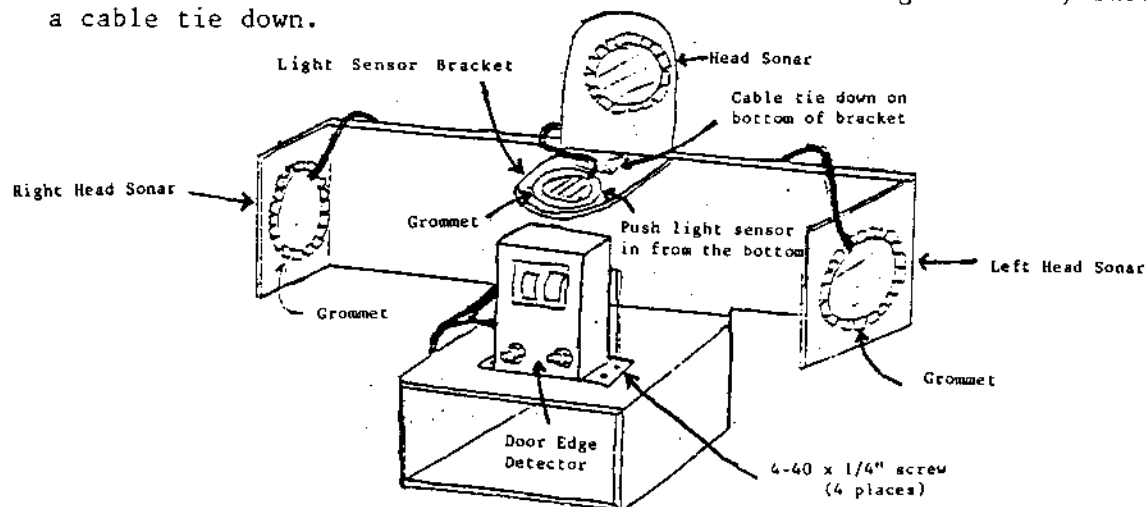
Door edge reflector-detector



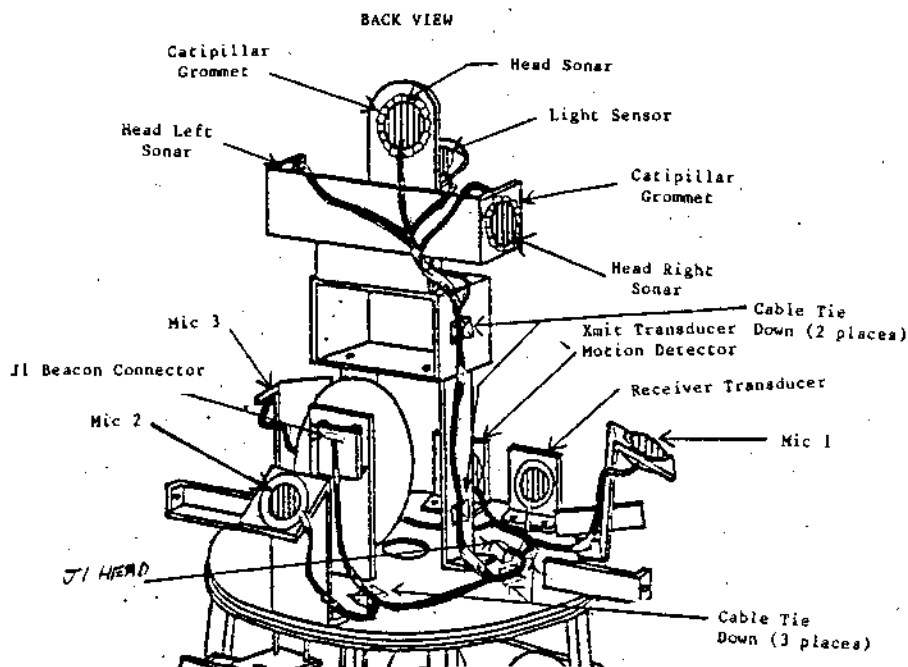
Bottom view of door detector



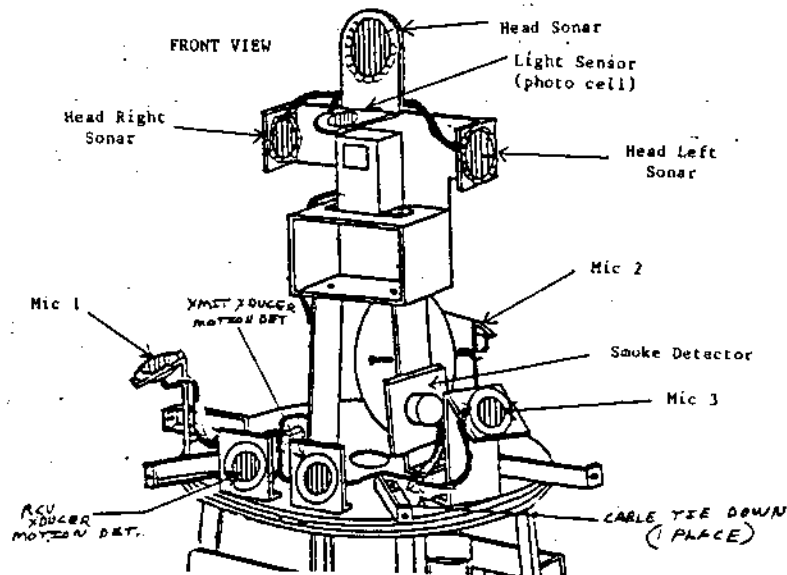
16. Cut the caterpillar grommet into 3 five inch lengths. Install the grommets onto the holes for the right, left and head sonars by pushing gently and making sure the grommets are properly seated. Install sonar transducers into these grommets. The industrial sonar goes into the head sonar hole. The commercial sonars go into the right and left holes. Install light sensor (photo cell) into its grommet from the bottom. Also on the bottom of the bracket for the light sensor, install a cable tie down.



17. Solder the 21" red and black wires onto the light sensor leads. Secure these wires to the cable tie using a large tie wrap. Using the 4-40 1/4 screws, mount the door edge detector below the light sensor.
18. Install 6 cable tie downs where shown. (see below) Run the 19" red and black wires to the head sonar and plug sonar clips onto the sonar. (observe correct polarity, see parts identification) The red wire is plugged into the plus side and the black wire is plugged into the minus side. Do the same for the 20" red and black wires. These go to the head left sonar. The 17" red and black wires go to the head right sonar (see cable wiring diagram).



19. Install the microphones into their grommets. Run the 8" red (plus) and black (minus) wires to microphone 1 and solder wires to the microphone. Do the same for the 16" red and black wires. They go to microphone 2. Again do the same for the 14" red and black wires. They go to microphone 3. Install the motion detectors into their grommets. Run the 7" red (plus) and black (minus) wires to the RCV transducer, motion detector and solder wires to the detector. Do the same for the 9" red and black wires; they go to the transmitter transducer motion detector. Ground the fork lug on the end of the 5" black wire to any convenient screw on the head chassis. Secure entire cable to chassis at the cable tie downs points, using the large tie wraps. The 3 pin molex connector plugs into J1 on the IR beacon receiver board.



If you purchased the smoke detector kit, you will need to follow the next few steps.

20. There are three wires extending from the smoke detector. Solder the 15" black wire from the J1 head connector to the black wire on the smoke detector board. Solder the 14" red wire from J1 head connector to the red wire on the smoke detector board. Solder the 16" orange wire from J1 to the orange wire on the smoke detector.
21. Insert the 4-40 1/2 metal machine screw through the hole at the top of the smoke detector board. Insert the nylon 4-40 3/4 screw through the hole at the bottom of the smoke detector board. Place the two nylon standoffs on these screws and attach the board to the head chassis as shown below.

