

## GEMINI ROBOT KITS

## IR Beacon Receiver Assembly Instructions

## Parts List

DESCRIPTION	QTY	PART #
<u>Resistors</u>		
120 ohm (BRN-RED-BRN-GLD)	1	CCF25120
1K (BRN-BLK-RED-GLD)	1	CCF251K
2.2K (RED-RED-RED-GLD)	1	CCF252.2K
4.7K (YEL-VIO-RED-GLD)	2	CCF254.7K
10K (BRN-BLK-ORG-GLD)	1	CCF2510K
22K (RED-RED-ORG-GLD)	1	CCF2522K
68K (BLU-GRY-ORG-GLD)	1	CCF2568K
150K (BRN-GRN-YEL-GLD)	1	CCF25150K
10K Potentiometer	1	91ER10K
<u>Capacitors</u>		
100 picofarad (101)	1	21FK100
10 microfarad 16v Electrolytic	3	CRE10MF16V
.047 microfarad (473K)	2	CK05BX473K
.01 microfarad (103K)	1	CK05BX103K
470 picofarad (471K)	1	CK05BX471K
.1 microfarad (104)	2	SR205E104M-AA
.033 microfarad (green)	1	MY.003/100
1000 microfarad 16v Electrolytic	1	CRE1000MF16V
<u>Diodes</u>		
1N4740	1	1N4740
1N4733	1	1N4733
TIL-413 Photo diode	1	TIL-413
<u>Miscellaneous</u>		
PC Board	1	
SN76832 (IC-U1)	1	SN76832AN
PN2222A Transistor	1	PN2222A
16 Pin Socket	1	INC-163-S3-7
3 Pin Single Male Header	1	929834-01
Gold pins	2	86016-2
Lacing Cord 4"	1	3TF2219
2 3/4" Double Stranded Wire	1	SS1022-7B
1/4" Nylon Standoff	4	30F1436
Shrink Tubing 2"x 1/4"	1	37N406
4-40 X 1/2" Screw	1	91783A110
Inductor (light blue)	1	43LJ410

## Assembling the IR Beacon Receiver Board

1. Insert and solder the socket in position. Observe location of pin 1.

( ) U1 - 16 pin socket

2. Install resistors.

( ) R1 - 150K (BRN-GRN-YEL-GLD)

( ) R2 - 1K (BRN-BLK-RED-GLD)

( ) R5 - 22K (RED-RED-ORG-GLD)

( ) R4, R8 - 4.7K (YEL-VIO-RED-GLD)

( ) R6 - 10K (BRN-BLK-ORG-GLD)

( ) R7 - 2.2K (RED-RED-RED-GLD)

( ) R9 - 68K (BLU-GRY-ORG-GLD)

( ) R10 - 120 ohm (BRN-RED-BRN-GLD)

3. Install the following two diodes.

( ) Z1 - IN4733

( ) Z2 - IN4740

4. Install the 10K Potentiometer at R3 ( ).

5. ( ) L1 - 43LJ410 (Light Blue) Locate the inductor. You will notice that the location on the circuit board has the holes off center like the leads on the inductor. Insert the inductor such that the long lead faces Q1 and these should match up. Solder into place.

6. ( ) Q1 - P2N222 Install the transistor such that the emitter (marked E on the transistor), matches up with the E marked on the PC board.

7. Now, mount the capacitors to the board.

( ) C1 - 100 pf (101)

( ) C5, C8 - .047 mf (473K)

( ) C3 - 1000 mf 16v

( ) C2, C4, C12 - 10 mf 16v

( ) C7 - .1 mf (104)

( ) C6 - .01 mf (103K)

( ) C11 - .033 mf (green)

( ) C9 - 470 pf (471K)

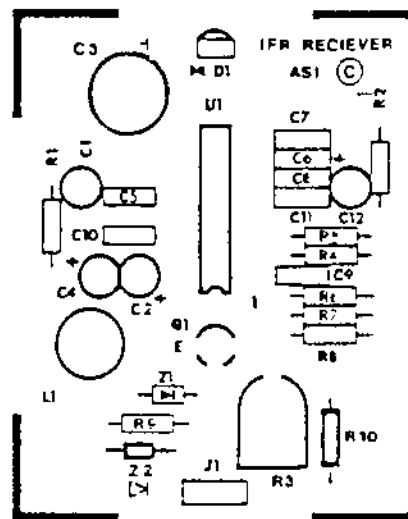
8. ( ) J1 Install the 3 pin single male header with short pins down.

9. At this point we recommend that you clean the board with either alcohol and a scrub brush or with Flux Remover available at your local electronics store.

10. ( ) Locate the two stranded wire supplied with this kit and snip between them at both ends. Split the wires approximately 1" in length. Next, strip off 1/8" of insulation on all 4 ends. Attach one end of the wires to the pc board at D1 by feeding them from the underside of the board and soldering. Install 2 gold pins to the other end of the wires. Make sure to carefully round the flaps over the wires. Cut the shrink tubing in half and place one over each gold pin not extending beyond the opening. Rub the shaft of your soldering iron along the shrink tubing to activate.

11. ( ) Insert the chip SN7832AN at U1. Check all pins for proper seating.

This completes this phase in the assembly of the IR board. Later, you will attach the board to its mounting bracket and parabolic dish assembly. Set the board safely aside for now.



IR BEACON RECEIVER  
CIRCUIT DIAGRAM