

**425 Hz**

**DISCRIMINATOR**

**INSTRUCTION  
MANUAL**



**HAL COMMUNICATIONS CORP.  
BOX 365  
URBANA, ILLINOIS 61801**

*QUALITY COMMUNICATIONS EQUIPMENT*

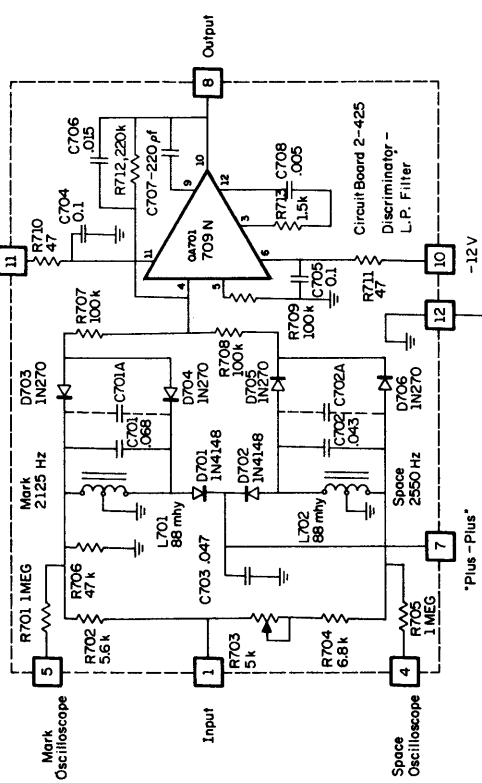
**425 Hz**

**DISCRIMINATOR**

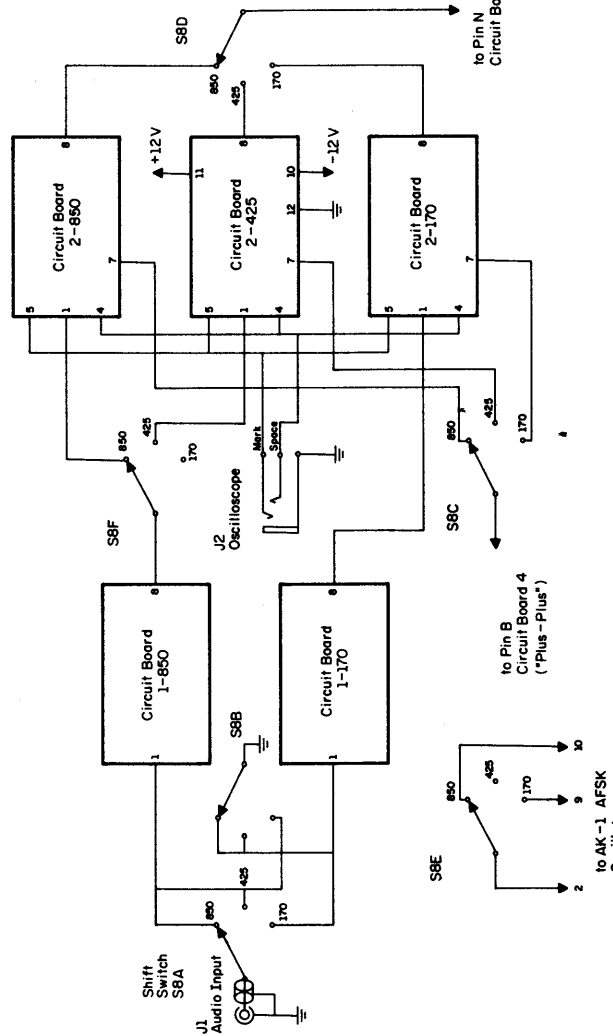
January, 1983

**Notes:**

1. All resistors 1/4W unless otherwise noted.
2. Capacitors C701A, B, C702A are additional circuit board locations to assist in tuning filters.
3. Low-pass filter is shown with 100 wpm equalization; for 60 wpm only, change C706 to .022  $\mu$ fd (see Manual).
4. C702 is .033  $\mu$ fd in parallel with .01  $\mu$ fd.
5. Component Numbering System:  
X001-X099, Main Frame  
X701-X999, Circuit Board 2-425.



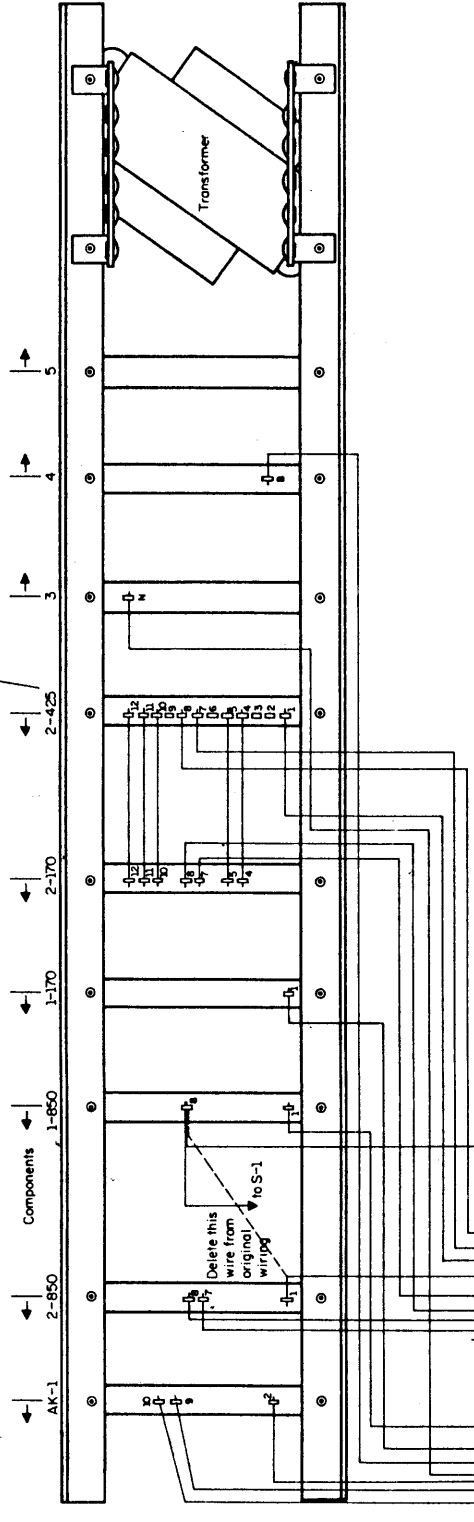
Circuit Board 2-425 Schematic



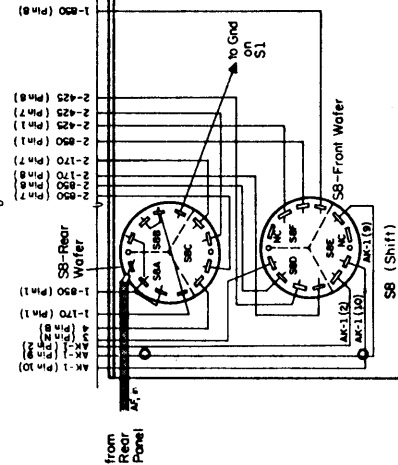
Modification to Shift-Switch Circuitry to include Third Discriminator

<b>COMMUNICATIONS CORP.</b> BOX 365, URBANA, ILLINOIS, 61801	
<b>ST-6 Demodulator</b> Three-shift Modification	
DATE	July 8, 1972
SCALE	---
APPROVED	<b>No. ST-6, S4</b>

for 3-shift Option,  
Add This Edge Connector



**Note:** For clarity, only wires and connections directly affected by the 3-shift modification are shown. See Wiring Diagram ST-6, W1 for complete details.



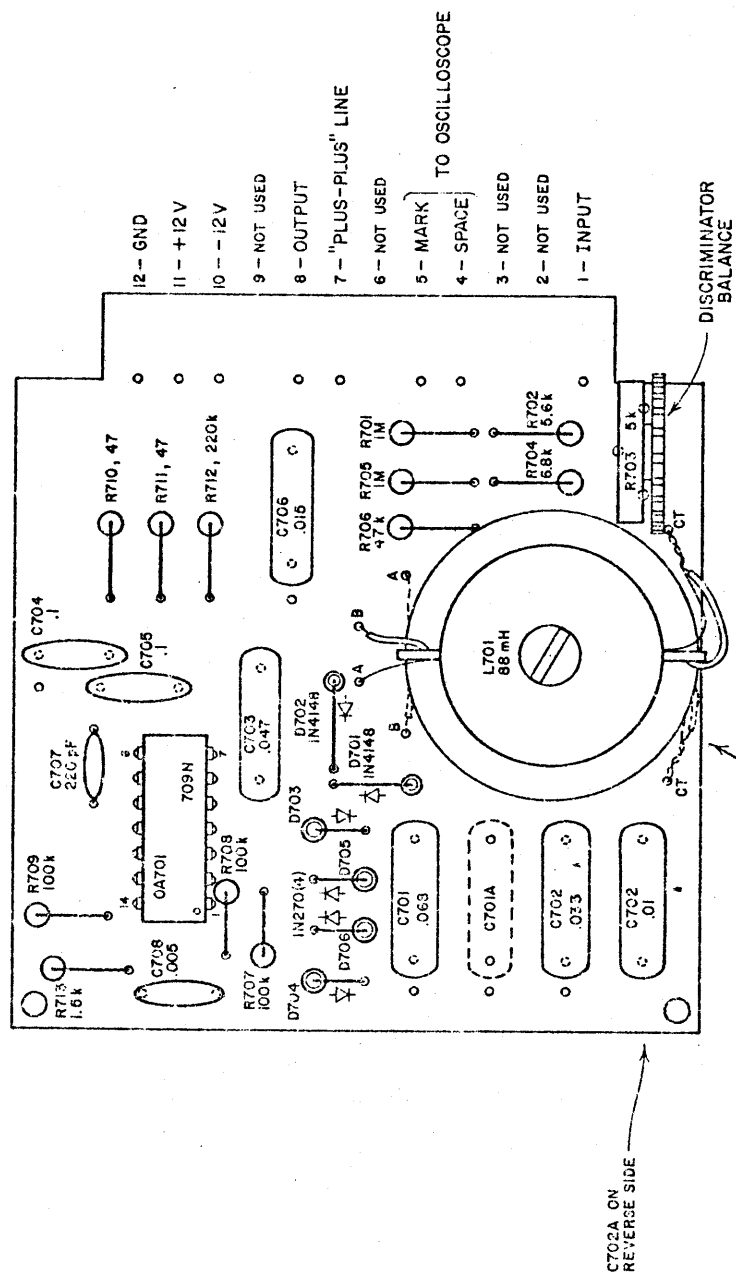
For 3-shift Option, substitute 6P3T Switch for SB

Front Panel

**FAL COMMUNICATIONS CORP.**  
BOX 365, URBANA, ILLINOIS, 61801

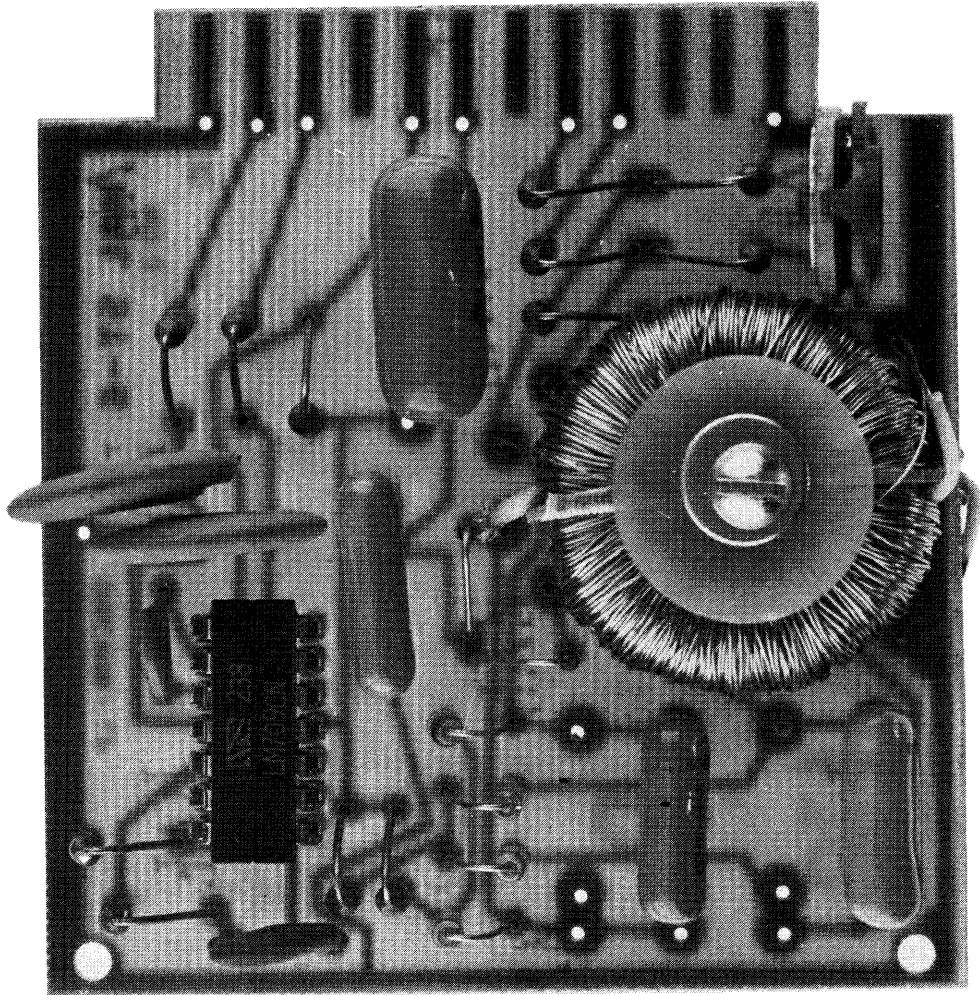
Wiring Changes Required to Add 3-shift  
Option, ST-6 Wiring Diagram

DATE July 31, 1972  
APPROVED G. W. H.  
SCALE  
No. ST-6, W2

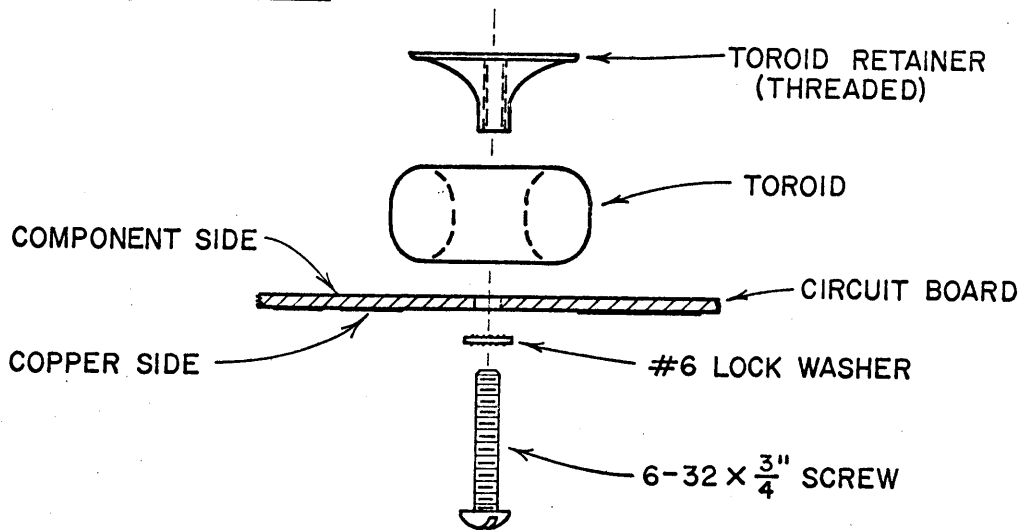


NOTE: 1. TUNING FREQUENCIES ARE:  
 MARK (L701 + C701) = 2125 Hz  
 SPACE (L702 + C702) = 2550 Hz  
 C701A AND C702A ARE ADDITIONAL  
 LOCATIONS FOR TUNING

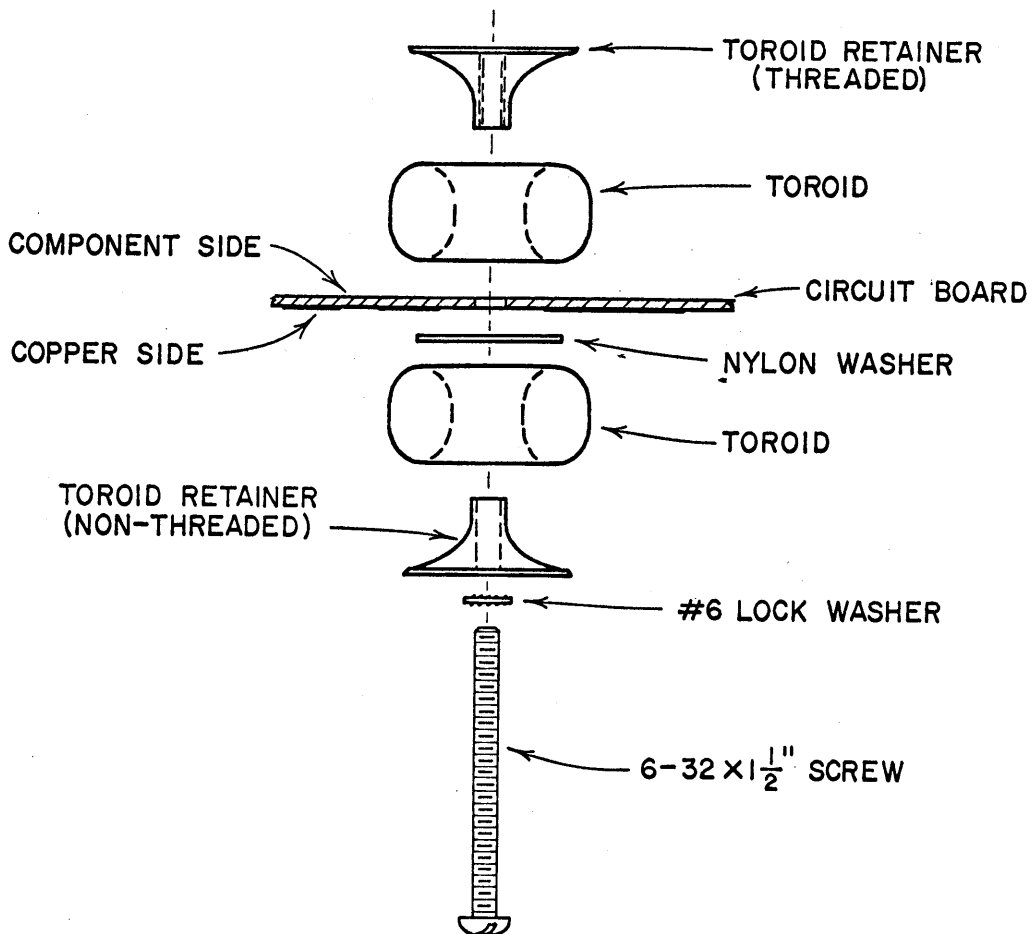
2. LOW-PASS FILTER EQUALIZATION:  
 60 WPM - C706 = 0.022  $\mu$ F  
 100 WPM - C706 = 0.015  $\mu$ F (RECOMMENDED)



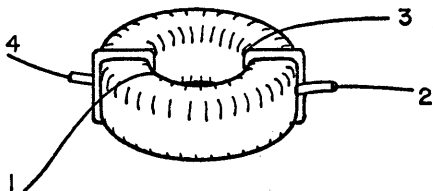
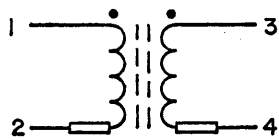
SINGLE TOROID



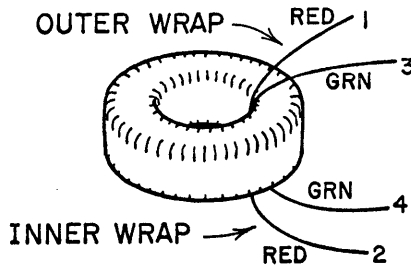
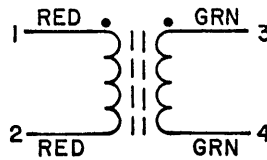
STACKED TOROIDS



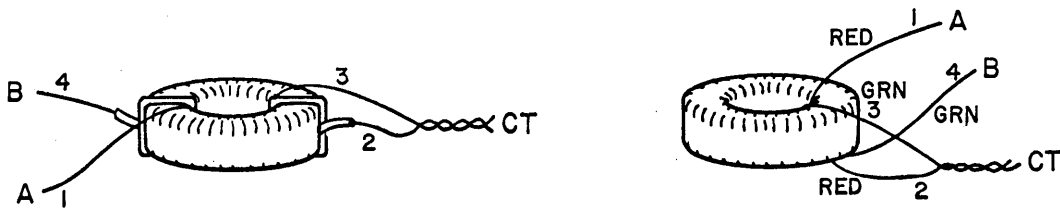
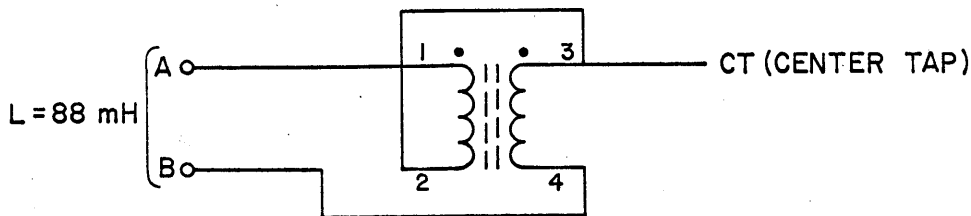
STANDARD



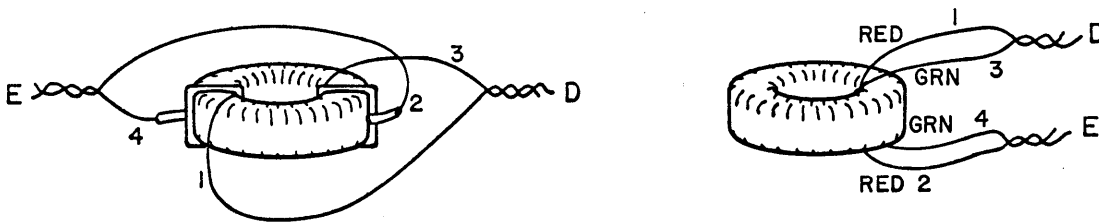
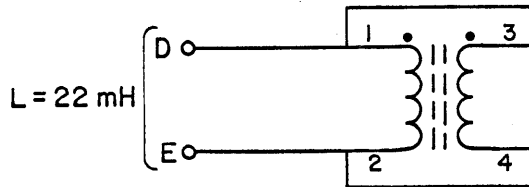
MULTICOLOR



SERIES CONNECTION , 88 mH



PARALLEL CONNECTION , 22 mH





HAL Communications Corp.  
Box 365 Urbana, IL 61801

ST-6 425 Hz Discriminator

Parts List

Resistors ( $\frac{1}{2}$  watt)

2 - 47 ohm  
1 - 1500  
1 - 5600  
1 - 6800  
1 - 47K  
3 - 100K  
1 - 220K  
2 - 1 meg.  
1 - 5K trimpot

Capacitors

1 - 220 pf ceramic  
1 - .005 mfd ceramic  
1 - .015 mfd mylar (100 wpm)  
1 - .022 mfd mylar ( 60 wpm)  
1 - .047 mfd mylar  
1 - .068 mfd mylar  
2 - .1 mfd ceramic  
1 - .033 mfd mylar  
1 - .01 mfd mylar

Semiconductors

4 - 1N270 Ger. Diode (G)  
2 - 1N4148 Silicon Diode (S)  
1 - 709N Integrated Circuit

Miscellaneous

2 - 88 mhy toroids  
1 - 14 pin IC socket  
1 - 6-32 x  $1\frac{1}{2}$ " screw  
1 - Toroid retainer (threaded)  
1 - Toroid retainer (not threaded)  
1 - #6 Lockwasher  
1 - Nylon insulating washer  
1 - ST-6 No. 2 circuit board  
1 - 12 pin edge connector  
1 - 6P3T rotary switch

HAL COMMUNICATIONS CORP  
P.O. BOX 365  
URBANA, IL 61801

LIMITED WARRANTY

HAL Communications Corp of Urbana, Illinois, hereby warrants to the original purchaser only that any new equipment manufactured by HAL Communications Corp shall be free from defects in materials and workmanship for a period of one year from the date of original purchase. In the case of parts kits, this warranty applies only to materials and not to workmanship in kit assembly.

In the event of a defect in materials or workmanship during the warranty period, HAL Communications Corp will, at its own expense, repair the defective unit and replace any defective parts. Costs of shipping the unit to HAL Communications Corp shall be paid by the purchaser, as well as costs of removal and reinstallation of the unit. HAL Communications Corp will bear the shipping costs incurred in returning the unit to the purchaser.

To obtain service under this warranty, the original purchaser should do the following:

1. Notify, as soon as possible, the Customer Service Department at HAL Communications Corp, Urbana, Illinois, either in writing or by telephone, of the existence of a possible defect;
2. At the time of notification, identify the model or serial number, the approximate date of purchase, the place of purchase, and the possible defect;
3. Hold the unit until a written return authorization is received.
4. Return the unit, freight prepaid, upon the receipt of the written return authorization.

Correct installation, use, maintenance, and repair are essential for proper performance of this product. The purchaser should carefully read the technical manual.

This warranty does not apply to any defect which HAL Communications Corp determines is due to any of the following:

1. Improper maintenance or repair, including the installation of parts or accessories that do not conform to the quality and specifications of the original parts;
2. Misuse, abuse, neglect, improper installation, or improper operation (including operation without a proper safety ground connection);
3. Accidental or intentional damage.

All implied warranties, if any, are limited in duration to a period of one year from the date of original purchase. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

HAL Communications Corp disclaims any liability for incidental or consequential damages arising out of the use of, or inability to use, this product. Some states do not allow the exclusion or limitation of incidental or consequential 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.