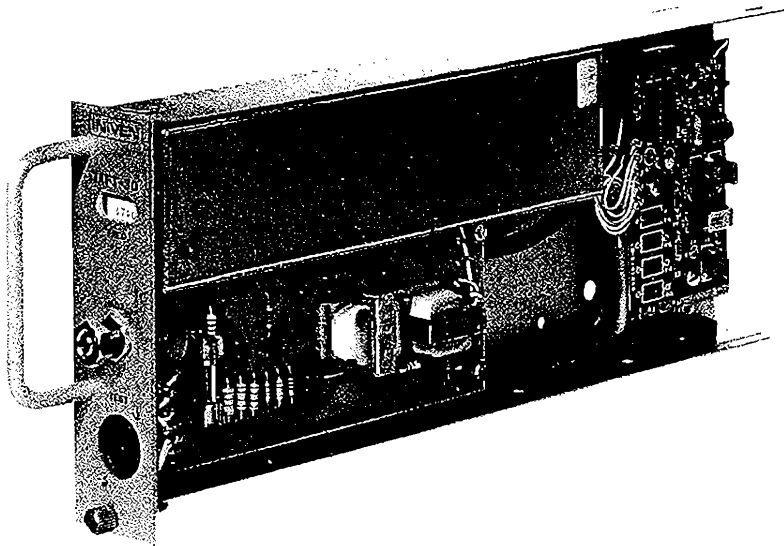


# INSTRUCTION MANUAL



## IAFT-30 ANALOG TRANSMITTER

### 1. DESCRIPTION

1.1 The Iniven IAFT-30 is a single analog (4-20 ma typical) to variable frequency (5-25 Hz) transmitter. The IAFT accepts standard current or voltage inputs and outputs a variable operating frequency suitable for transmission over a dedicated standard "voice grade" line.

1.2 The IAFT-30 is available in narrow and broad band channel spacings of 100 Hz, 120 Hz, 170 Hz, 240 Hz, and 340 Hz. The operating frequencies of the IAFT transmitter are determined by a plug-in IO-30 oscillator. Each oscillator is individually labeled by its center frequency and appears in the front-panel cutout of the IAFT-30 transmitter.

1.3 The IAFT-30A features a self-contained power supply for operation from 95-135 VAC. In addition, this model has provisions for direct mounting.

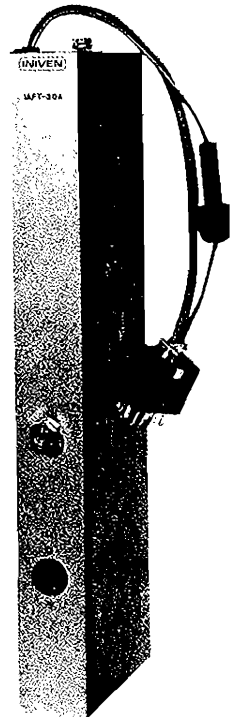
### 2. SPECIFICATIONS

INPUT: Current or voltage inputs (4-20 ma standard).

OUTPUT: Variable frequency (5-25 Hz) of operating oscillator.

ACCURACY:  $\pm 0.1\%$  at room temp.  
 $\pm 0.5\%$  at extreme temperature points.

TEMPERATURE RANGE:  $-30^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$



## IAFT-30A ANALOG TRANSMITTER

OUTPUT LEVEL: Front panel adjustment, continuously adjustable to +5 DBM.

OUTPUT IMPEDANCE: 600 ohms nominal with rising characteristics out of the passband.

POWER REQUIREMENT: 95-135 VAC IAFT-30A ( $\pm 12$  VDC IAFT-30) 38 mA.

PROTECTION: 1/2 amp fuse.

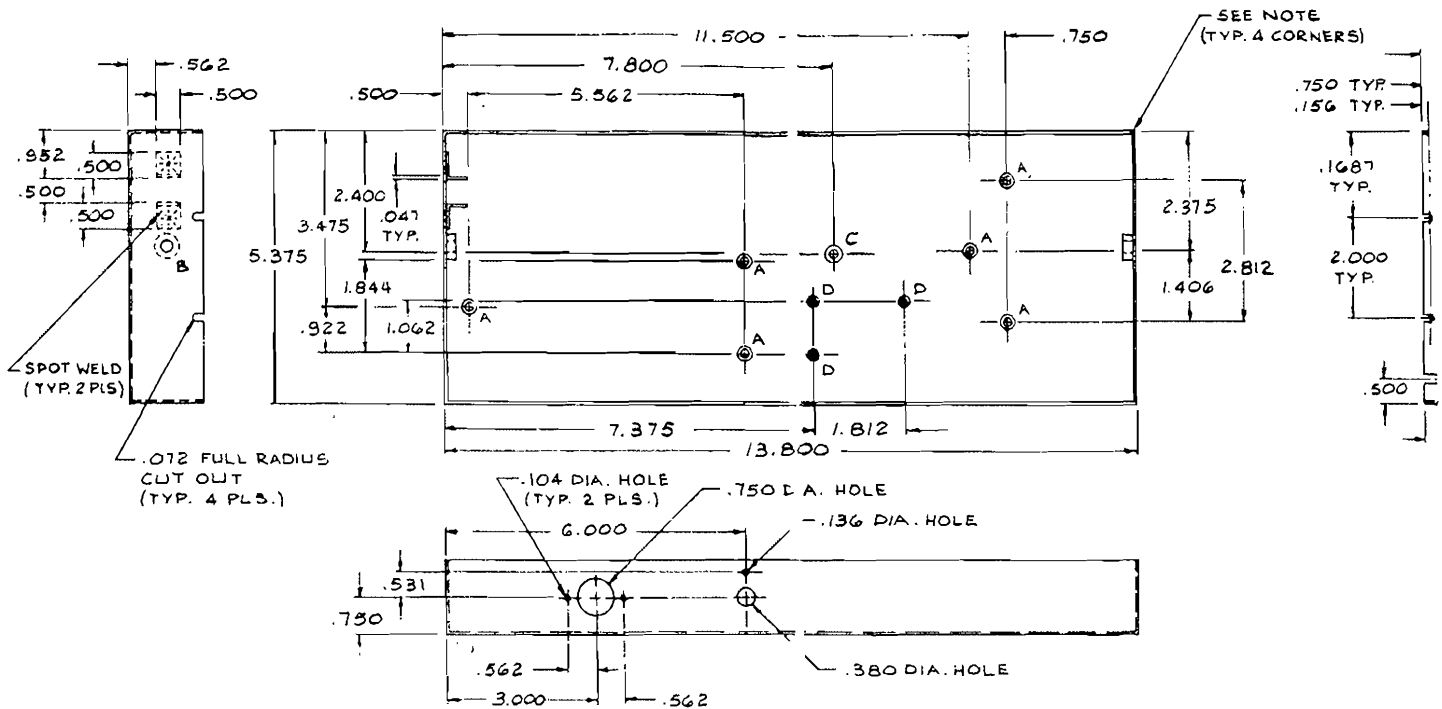
WEIGHT: 2-3/4 lb. approx. (1.25 Kg).

DIMENSIONS: 13.8" x 5.38" x 1.5" IAFT-30A  
13.0" x 5.25" x 1.5" IAFT-30

### 3. FEATURES

3.1 Output Level Adjustment—an output level adjustment (ADJ) control is accessible on the front panel of the IAFT-30. This control allows the transmitter output level to be adjusted up to a maximum level of +5 DBM.

3.2 Test Socket—A TEST socket is located on the transmitter front panel. For normal operation, a plug is installed in this socket. When the plug is removed for testing purposes, the transmitter output is disconnected from the communication circuit (terminals 3 and 4). The TEST socket provides access to the following functions:



**PIN NUMBER FUNCTION**

1 and 2	Tone output
3	Positive side of 12 Vdc power supply input
4	Negative side of 12 Vdc power supply input

3.3 Calibration Switch/Pot—A calibration switch and pot are located internally to allow the user to switch the analog input to the transmitter from the external transducer to an internal source.

The switch has provisions for checking 10%, 50%, and 90% of full scale of the system.

3.4 Span Adjustment—A Span potentiometer allows the user to calibrate the transmitter for 100% full scale input (20 ma).

3.5 Offset Adjustment—An offset potentiometer allows the user to calibrate the transmitter for 0% full scale (4 ma).

**4. INSTALLATION**

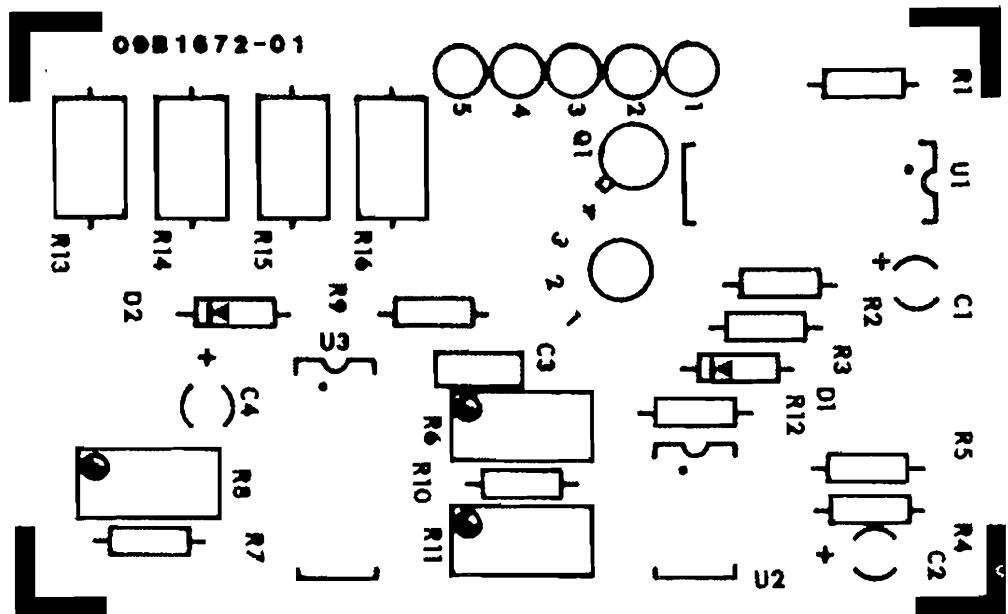
4.1 Electrical Connections—All wiring is done externally through the connectors as follows:

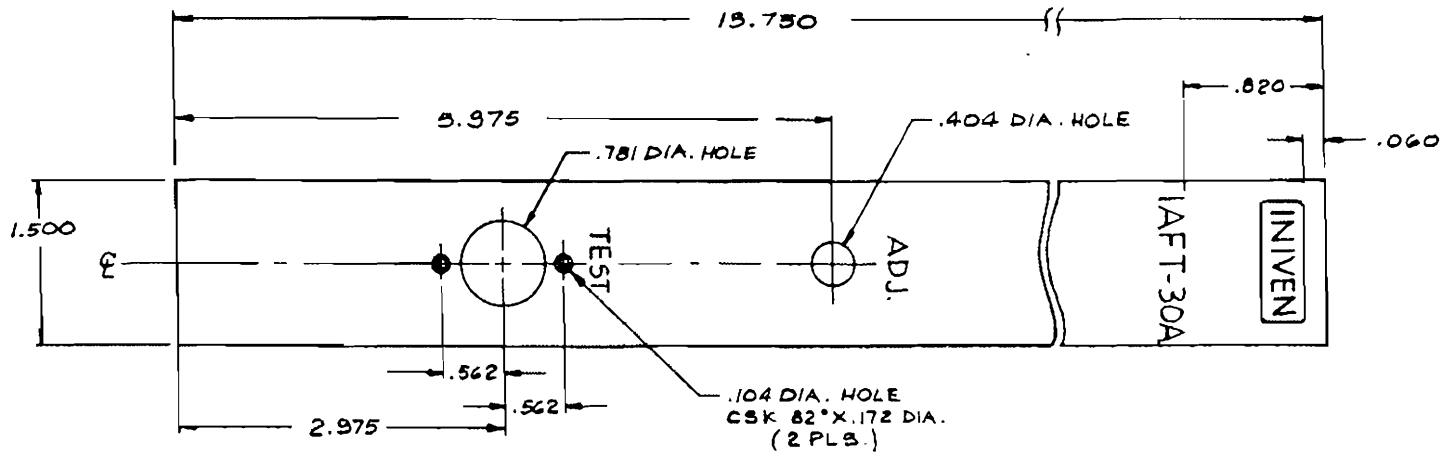
TERMINAL	SIGNAL
1 & 2	A.C. Power IAF-30A (± 12 Vdc IAF-30)
3 & 4	Tone Output
13 & 14	Analog Input

4.2 Span Adjustment—The Span adjustment procedure is as follows:

- Input a 20 ma signal into terminals 13(+) and 14(-) of the transmitter.
- Observe the output of the transmitter at TP1 with a frequency counter.
- Adjust pot R8 until the frequency counter reads 25 Hz.

4.3 Offset Adjustment—The Offset adjustment procedure is as follows:





- a) Input a 4 ma signal into terminals 13(+) and 14(-) of the transmitter.
- b) Observe the output of the transmitter at TP1 with a frequency counter.
- c) Adjust R6 until the frequency counter reads 5 Hz.

4.4 Calibration Procedure—The following table shows the appropriate calibration signals for the IAF-T/IFAR system:

Switch Position	Output IAF-T @ TP1	Output IFAR @ TP1
0%	5 Hz	4.0 ma
10%	7 Hz	5.6 ma
50%	15 Hz	12.0 ma
90%	23 Hz	18.4 ma
100%	25 Hz	20.0 ma

4.5 Level Adjustment Procedure

- a) Pull red plug out of unit to be adjusted and plug Test Socket Adapter (TSA) into TEST socket on the faceplate of the unit.

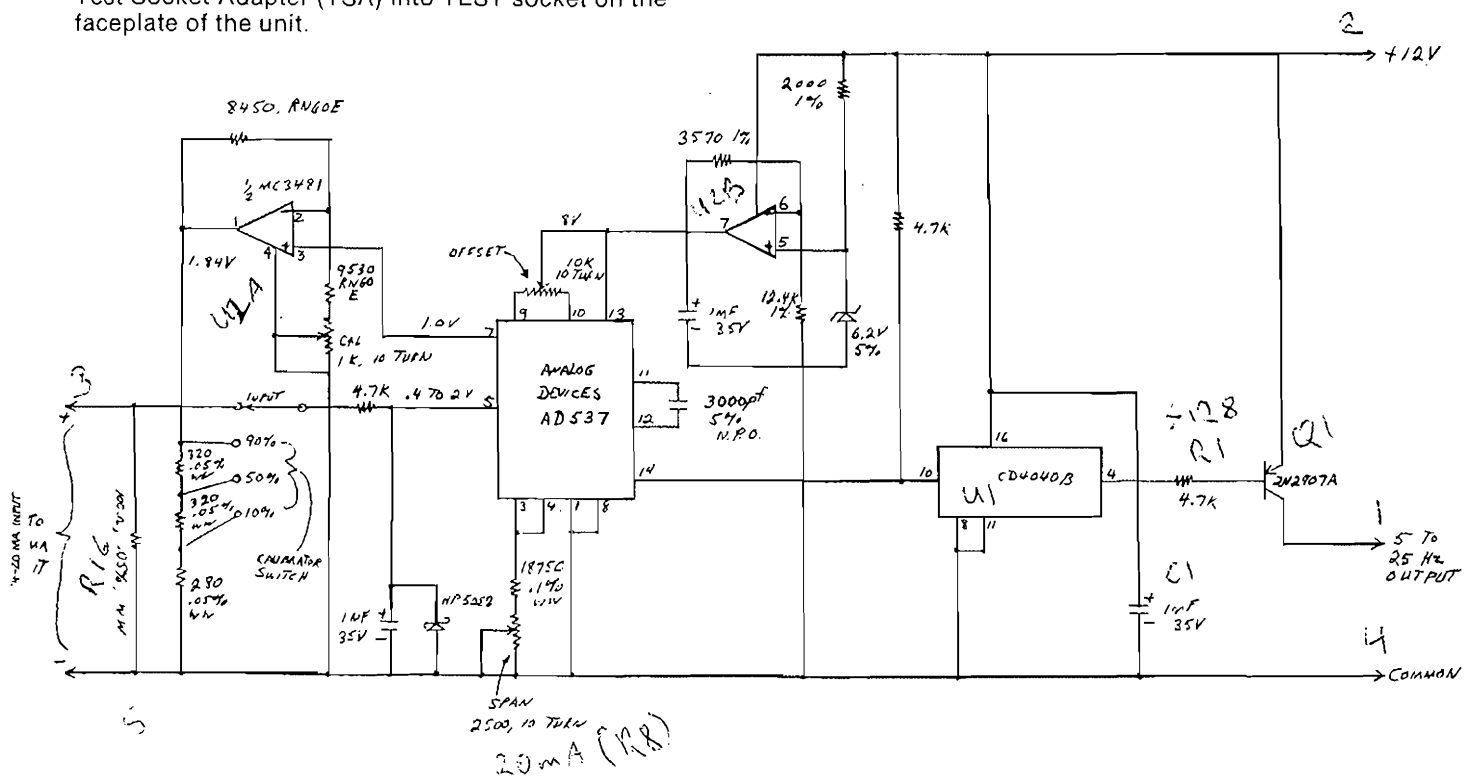
- b) Install a 600 ohm load between pins 1 and 2 of TSA.
- c) Insert probes of multimeter into 1 and 2 of TSA.
- d) Adjust gain to appropriate reading.
- e) Un-plug TSA and reinstall red plug into unit.

5. ORDERING INFORMATION

5.1 When ordering please specify:

1. Model Number—Center Frequency—Shift, i.e. IAF-T-30-1775-25 would specify a Model IAF-T-30 transmitting at the center frequency of 1775 Hz with a shift to 1800 Hz to transmit Mark and a shift to 1750 Hz to transmit Space. ( $\pm 25$ Hz shift)
2. Special Features or Options

5.2 Refer to Table 5-2 for complete list of available frequencies.



**Table 5-1. Suggested Multiple Tone Transmitter Output Levels**

WHEN INFORMATION IS NOT AVAILABLE FROM TELEPHONE CO.

NUMBER OF TONE CHANNELS ON LINE	RECOMMENDED LEVELS	
	DBM	RMS VOLTS (600 $\mu$ )
1	0	0.78
2	-3	0.55

3	-5	0.45
4	-6	0.40
5	-7	0.35
6 to 7	-8	0.30
8 to 10	-10	0.25
12 to 16	-12	0.20
17 to 25	-13	0.17

Table 5-2.

<b>Channel Center Frequency (Hz)</b>						
Channel No.	Series Half Band Width	25	30	35 or 42	60	85
	Channel Spacing (Hz)	100	120	170	240	340
	Baud Rate	50	60	80	120	170
-01	365	420	425	480	850	
-02	465	540	595	720	1190	
-03	565	660	765	960	1530	
-04	665	780	935	1200	1870	
-05	765	900	1105	1440	2210	
-06	865	1020	1275	1680	2550	
-07	965	1140	1445	1920	2890	
-08	1075	1260	1615	2160	3230	
-09	1175	1380	1785	2400		
-10	1275	1500	1955	2640		
-11	1375	1620	2125	2880		
-12	1475	1740	2295	3120		
-13	1575	1860	2465	3360		
-14	1675	1980	2635			
-15	1775	2100	2805			
-16	1875	2220	2975			
-17	2000	2340	3145			
-18	2100	2460	3315			
-19	2200	2580	3485			
-20	2300	2700				
-21	2400	2820				
-22	2500	2940				
-23	2600	3060				
-24	2700	3180				
-25	2800	3300				
-26	2900	3420				
-27	3000					
-28	3100					
-29	3200					
-30	3300					
-31	3400					
-32	3500					