

**305A2075 TEST INSTRUCTIONS**Page 1 of 4  
File Name: 305A2075.DOC**I. SCOPE**

The following describes the setup and test procedure for the Alterrex Volts/HZ Trip Input PWB 305A2075.

REF ELEM: 158C2488  
REF ML: 305A2075

**II. SPECIAL EQUIPMENT**

NONE

**III. POWER SUPPLY REQUIREMENTS**

<b><u>SUPPLY</u></b>	<b><u>NOM.</u></b>	<b><u>TOL.</u></b>	<b><u>PINS</u></b>
P15	+15.00V	+/- 5%	[1,2]
N15	-15.00V	+/- 5%	[5,6]
ACOM (P15,N15 COM)			[3,4]

**IV. INITIAL SETUP**

- A.** DAUGHTER BOARD SETUP (none)
- B.** TEST SETUP DESCRIPTION
1. Preset pots as follows.  
1P, 4P, 3P fully CCW

**V. TEST DEFINITIONS AND SPECIAL NOTES**

1. Unless otherwise specified, the following conditions apply throughout the test procedure.
  - a. Voltages are positive DC.
  - b. Any negative DC voltages are preceded with a "-".
  - c. Any AC voltages are RMS (.707 X peak).
  - d. DC inputs should be within 2 millivolts of nominal.
  - e. AC inputs should be within 10 millivolts of nominal.
  - f. Inputs are to be floating unless a signal is specifically applied.
  - g. Once an input is applied it should be left applied until specifically told to remove it.
  - h. Any pot settings should be adjusted as close to nominal as possible. Not just to within tolerance.
2. All measurements are with respect to TP1.

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**VI. TEST PROCEDURE**

1. Set up per section IV.
2. With all power removed, verify the proper resistance between the following sets of points.

<u>From</u>	To	Resistance
[27]	TP2	104.5K to 115.5K
[20]	TP7	10.25K to 11.75K
[16]	TP8	.95K to 1.05K

3. By inspection, verify the following resistors.

<u>R#</u>	<u>Value</u>
13R	10K
19R	10K
30R	10K
37R	10K
42R	100K
5R	5.1K
10R	6.2K
16R	6.2K
27R	1 Meg

4. Apply power per section III.
5. Verify 12.5 +/- .5V at [17,18]
6. Apply 24.0 +/- .2V through a 28V lamp to [13,14] with respect to [9,10].
7. Verify the proper output at TP3 for the various settings of 3P.

<u>SP Setting</u>	<u>TP3 OUTPUT</u>
fully CW	15.0 +/- .1V
fully CCW	6.4 +/- .4V
final setting	11.000 +/- .005V

8. Open 24V/lamp connection at [13,14].
9. Verify the proper output at TP5 for the various settings of 6P.

<u>6P Setting</u>	<u>TP5 OUTPUT</u>
fully CW	15.0 +/- .1V
fully CCW	6.0 +/- .4V
final setting	12.000 +/- .005V

10. Apply a 17.0 +/- .1 VAC 60HZ input at [11,12] with respect to TP1.
11. Verify the proper output at TP2 for the various settings of 2P.

<u>2P Setting</u>	<u>TP2 OUTPUT</u>
fully CCW	-2.9 +/- .3V
* fully CW	-7.2 +/- .3V
final setting	-5.000 +/- .005V

12. Remove input from [11,12] and reconnect 24V/lamp input at [13,14].  
Adjust 1P for  $-5.9V \pm .005$  at TP2 then readjust 3P for  
 $11.000 \pm .005V$  at TP3.

13. Verify the proper output at TP4 for the various settings of 4P.

<u>4P Setting</u>	<u>TP4 OUTPUT</u>
fully CCW	$5.2 \pm .2V$
fully CW	$14 \pm 1V$
final setting	$10.00 \pm .05V$

14. Verify a square wave at TP6 with peak amplitudes of  $12.5 \pm 1.0V$ .

15. Using a frequency counter, adjust 5P so that the frequency at TP6  
is  $222.22 \pm .50\text{HZ}$  (Period = .00449 to .00451 sec).

16. Open 24V/lamp connection at [13,14].

17. Connect a Time Interval Counter as follows.

Connect a n Oscilloscope to TP7. Set for Internal trigger. AUTO,  
5 sec. /Div.

18. Connect a Pulse Counter to IC4-6 (+) and TP1 (-). Set LOW for  
10,000 count, and HI for 11,000 count.

19. Reconnect 24V/lamp input at [13,14] and verify Pulse Counter starts  
to count and then stops  $10,000 \pm 1$  count later. With the  
Scope measure the time it takes the pulse counter to go from  
0 to 10000 counts. TP7 should go to a 0(ZERO) in  $45 \pm 1$  Sec.  
This step may be repeated by opening and reconnecting the 24V/lamp  
input at [13/14].

20. Verify a square wave at TP6 with peak amplitudes of  $12.5 \pm 1.0V$ .  
Reduce the setting of 6P until the frequency changes. Using the  
Frequency Counter, adjust 7P for  $5000 \pm 25\text{HZ}$  (Period = .000199  
to .000201 sec). Also verify  $11.8 \pm .1V$  at TP5. Then readjust  
6P for  $12.000 \pm .005V$  at TP5.

21. Repeat a. and b. until both limits are met without readjustment of  
4P and 3P.

a. Adjust 1P for  $-5.900 \pm .005V$  at TP2 and then adjust 4P for  
 $222.222 \pm .500\text{HZ}$  ( $4.50 \pm .01$  millisec) at TP6.

b. Adjust 1P for  $-5.600 \pm .005V$  at TP2 and then adjust 3P for  
 $55.555 \pm .500\text{HZ}$  ( $18.0 \pm .2$  millisec) at TP6.

22. Adjust 1P for the correct frequency at TP6 and then verify the  
proper voltage at TP2.

- | <u>TP6 Frequency</u>           | <u>TP2</u>     |
|--------------------------------|----------------|
| 166.666 +/- 2HZ (6+/- .07ms)   | -5.80 +/- .01V |
| 111.111 +/- 2HZ (9.0+/- .07ms) | -5.70 +/- .01V |
23. Open 24V/lamp connection at [13,14] and AC input at [11,12] with AC input set for -5.00 +/- .01V at TP2.
  24. Reconnect 24V/lamp input at [13,14] and adjust 1P for 222.22 +/- .50HZ (.00449 to .00451 sec) at TP6.
  25. Connect Oscilloscope to TP8. Ext. trigger on TP4. Positive Slope. Trigger 1V. Single Sweep.
  26. Open AC input, reset counter, and then close AC input. TP8 should go from -15V to +15v in less than 80 milliseconds.
  27. If cards all the above steps, place acceptance stamp on card

**END OF TEST**

<u>REV.</u>	<u>INIT.</u>	<u>DESCRIPTION OF CHANGE</u>	<u>DATE:</u>
000	REV	MISC CORRECTIONS	01-JAN-87
001	AWE	Changed VI.11 fully CW from -6.85 +/- .30v	29-SEPT-93
002	AWE	Chnaged VI.7 fully CCW from 6.0 +/- .4v	15-JUNE-94
003	JJW	Converted from Wordperfect file to a DOC file in Winword	15-AUG-95
004	AWE	a. Step 17 chgd to oscilloscope to measure time at TP7. b. Step 25 & 26 chgd to oscilloscope to measure time TP8.	16-OCT-95