GENERAL ELECTRIC

68A9447244 CONT ON SHEET 2 SH NO. 1

REV NO. A

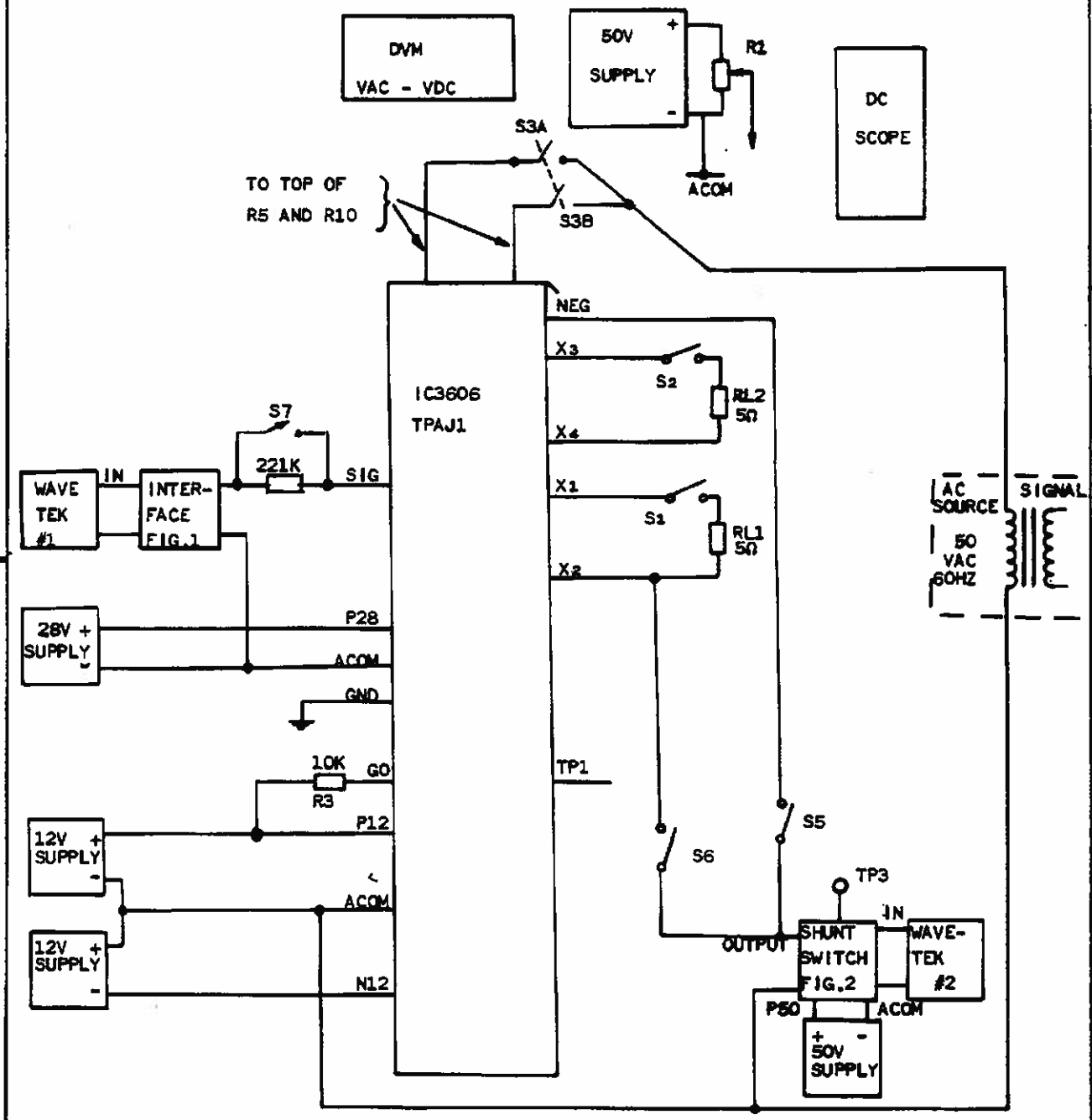
68A9447244 CONT ON SHEET 2 SH NO. 1

TITLE TEST INSTRUCTIONS - PULSE AMPLIFIER AND VOLTAGE SENSOR

FIRST MADE FOR IC3606TPAJ1

REVISIONS

1. TEST SET UP



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PRINTS TO

MADE BY M. A. CONNER

ISSUED 7-11-72

APPROVALS

INDUSTRY CONTROL DIV OR DEPT.

SALEM, VA LOCATION

68A9447244 CONT ON SHEET 2 SH NO. 1

CODE IDENT NO

FF-803-WF (10/70) PRINTED IN U.S.A.

TITLE TEST INSTRUCTIONS
PULSE AMPLIFIER AND VOLTAGE SENSOR

FIRST MADE FOR 1C3606TPAJ1

REVISIONS

II. EQUIPMENT LIST

1. DC SCOPE
2. 50VDC 10MA POWER SUPPLY (2 EA)
3. 28VDC 700MA POWER SUPPLY
4. 12VDC 50MA POWER SUPPLIES (2 EA)
5. 50VAC 60HZ @ ≥ 10MA SIGNAL SOURCE
6. WAVE TEK (SQUARE WAVE), OUTPUT AMPLITUDE GREATER THAN +3.0 VOLTS AND LESS THAN 10 VOLTS
7. LOAD RESISTORS
   A) RL1 - TWO 10Ω 2W 5% IN PARALLEL
   B) RL2 - " " " " " "
   C) R3 - 10KΩ, 1/2W, 5%
   D) R4 - 221K, 1/2W, 1% 68A7030P221G
8. INTERFACE CIRCUIT - SEE FIG. 1
9. SHUNT SWITCH CIRCUIT - SEE FIG. 2
10. MISC. SWITCHES S1-S6
11. POTENTIOMETER 5 TO 10KΩ 1 WATT
12. DIGITAL VOLTMETER

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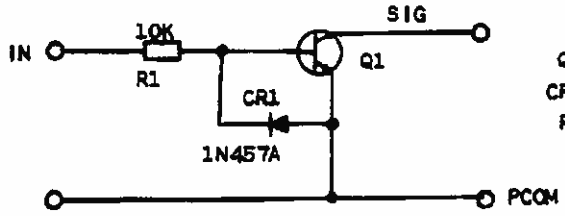
III. SPECIAL CIRCUITS

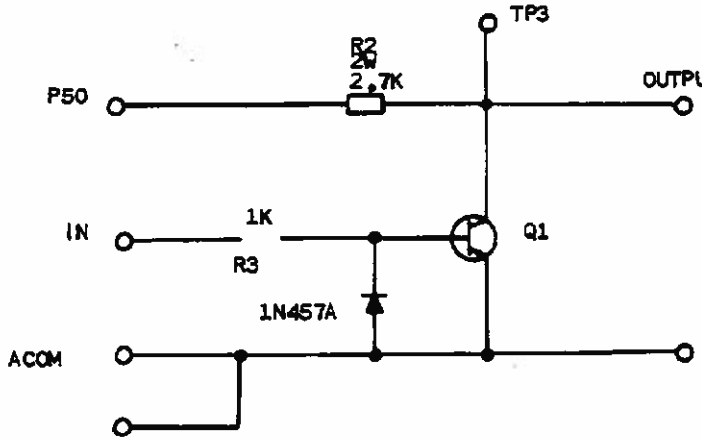
1. INTERFACE CIRCUIT



Q1	68A7711P1
CR1	68A7261P1
R1	68A7000P103

FIG. 1

2. SHUNT SWITCH



Q1	68A7363
CR1	68A7261P1
R1,R2	68A7002P272
R3	68A7000P102

FIG. 2

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IV. PROCEDURE

A. COMMON MODE NULL

1. CLOSE SWITCH S3
2. APPLY 50 VAC ± 10 VAC AT AC SIGNAL SOURCE
3. MONITOR "TP1" WITH DC SCOPE (TP1 TO ACOM)
4. ADJUST R43 SO AS TO MINIMIZE THE PEAK TO PEAK VOLTAGE EXCURSIONS AT "TP1". PEAK TO PEAK AMPLITUDE SHALL BE LESS THAN 20mv.
5. CHECK THAT "TP1" OUTPUT SWING IS WITHIN ±272mv FROM "ACOM".
6. OPEN ALL SWITCHES. AND DISCONNECT WIRE LEADS TO R5 AND R10.

B. GAIN

1. CONNECT SCOPE BETWEEN "ACOM" AND "GO"
2. CONNECT WIPER OF R1 TO "NEG"
3. ADJUST WIPER OF R1 FOR LESS THAN 10 VOLTS
4. "GO" SHALL BE AT ZERO VOLTS ± 0.4 VOLTS
5. CHANGE WIPER OF R1 SO AS TO INCREASE VOLTAGE UNTIL "GO" CHANGES STATE.
6. "GO" SHALL BE EQUAL TO P12± 0.1%
7. WIPER OF R1 SHALL BE 40 VOLTS ± 6.6 VOLTS
8. RETURN WIPER OF R1 TO LESS THAN 10 VOLTS
9. REMOVE WIPER OF R1 FROM "NEG"
10. CONNECT WIPER OF R1 TO "X_2"
11. ADJUST R1 TO POINT WHERE "GO" CHANGES STATE. R1 WIPER SHALL BE EQUAL TO 40 VOLTS ± 6.6 VOLTS
12. OPEN ALL SWITCHES

NOTE: ALL SWITCHES OPEN UNLESS SPECIFIED

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C. DELAY TIME

1. CLOSE SWITCH S5 AND TIE X_2 TO A COM
2. ADJUST WAVETEK #2 FOR 5KHZ ± 1KHZ
3. TRIGGER SCOPE FROM TP3 OR WAVETEK #2 OUTPUT (POSITIVE EDGE ON WAVETEK, NEGATIVE EDGE AT TP3)
4. MONITOR "GO" WITH SCOPE. ("GO" TO "ACOM")
5. RECORD TIME DELAY BETWEEN NEGATIVE GOING EDGE AT TP3 AND NEGATIVE GOING EDGE AT "GO".
6. TIME DELAY SHALL BE LESS THAN 40μSEC.
7. OPEN SWITCH S5
8. CLOSE SWITCH S6 AND TIE NEG. TO A COM
9. RECORD TIME DELAY BETWEEN NEGATIVE GOING EDGE AT TP3 AND NEGATIVE GOING EDGE AT "GO"
10. TIME DELAY SHALL BE LESS THAN 40μSEC.
11. OPEN SWITCH S6.

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D. PULSE AMPLIFIER #1

1. CLOSE SWITCH S1
2. MONITOR "X1" TO "X2" ON SCOPE
3. ADJUST WAVETEK #1 FOR SQUARE WAVE AT FREQUENCY OF 1.0KHZ ± 100HZ.
4. MEASURE VOLTAGE RISE TIME ON RL1 - OF LESS THAN 1.0 µSEC AT 75% OF MAXIMUM AMPLITUDE.
5. AMPLITUDE OF PULSE SHALL BE 4.7 VOLTS ± 0.5 VOLTS.
6. ADJUST WAVETEK #1 FOR SQUARE WAVE AT FREQUENCY OF 2.0 KHZ ± 200HZ.
7. NOTE PULSE AMPLITUDE OF 3.5 VOLTS ± 0.7 VOLTS.
8. NOTE PULSE WIDTH AT BASE OF 250µSEC ± 50µSEC.
9. NOTE GENERAL SHAPE AND PULSE FALLING EDGE WITH 1 VOLT MINIMUM AS SHOWN IN FIG. 3
10. OPEN SWITCH S1.

E. PULSE AMPLIFIER #2

1. CLOSE SWITCH S2
2. MONITOR "X3" TO "X4" ON SCOPE
3. ADJUST WAVETEK #1 FOR SQUARE WAVE AT FREQUENCY OF 1.0KHZ ± 100HZ.
4. MEASURE VOLTAGE RISE TIME ON RL2 OF LESS THAN 1.0µSEC AT 75% OF MAXIMUM.
5. AMPLITUDE OF PULSE SHALL BE 4.7 VOLTS ± 0.5 VOLTS
6. ADJUST WAVETEK #1 FOR SQUARE WAVE AT FREQUENCY OF 2.0KHZ ± 200HZ
7. NOTE PULSE AMPLITUDE OF 3.5 VOLTS ± 0.7 VOLTS
8. NOTE PULSE WIDTH AT BASE OF 250µSEC ± 50µSEC
9. NOTE GENERAL SHAPE AND PULSE FALLING EDGE WITH 1 VOLT MINIMUM AS SHOWN IN FIG. 3

F. PULSE AMPLIFIER GAIN CHECK

1. OPEN SWITCH S7 , CLOSE S1, S2
2. NOTE ABSENSE OF PULSES "X1" TO "X2" AND "X3" TO "X4". VOLTAGE ACROSS TERMINALS SHALL BE LESS THAN ±.1V.

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G. PULSE AMPLIFIER WAVE SHAPES (2KHZ, R_L = 5Ω)

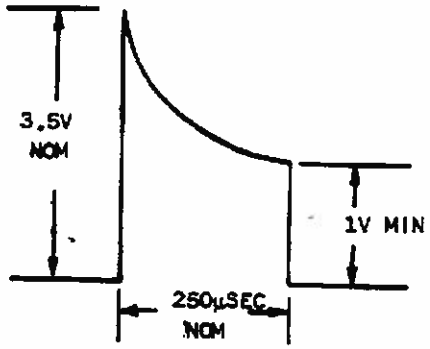

FIG. 3
NORMAL PULSE

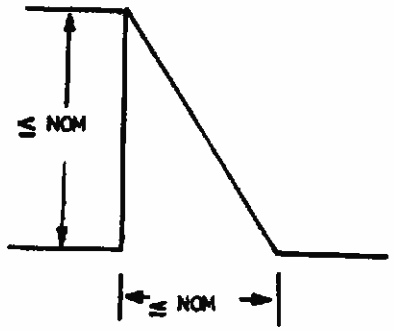

FIG. 4
LOSS OF RESET

G. LIGHT RESISTORS

1. MEASURE DC RESISTANCE OF 120KΩ ± 6KΩ BETWEEN "NEG" AND "LT4"
2. " " " " " " " "X4" AND "LT3"
3. " " " " " " " "X4" AND "LT2"
4. " " " " " " " "X2" AND "LT1"

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