



## Inter-Office Communication

To:

Date:

From: Max Brown  
Service Support 58/511

Subject: S.

The attached calibration procedure, used with the PROBE SIMULATOR, 067-0802-99, will replace AM503 Instruction Manual calibration procedure as noted below:

1. B. GAIN, Page 6-3
2. C. COMPENSATION, Page 6-4

Regards,

Max

mam

## I. CALIBRATION OF AM503 USING PROBE SIMULATOR (067-0802-99)

1. SET UP PER FIGURE 1. (attached)
2. INITIAL CONTROL SETTINGS:
  - A) "VOLTS/CURRENT" SWITCHED TO VOLTS
  - B) "MODE" SWITCHED TO P6302
3. CONNECT PROBE SIMULATOR TO AM503
4. NOTE THE FOLLOWING LIGHTS LIT:
  - A) "PROBE UNLOCK" ON AM503
  - B) + AND - HALL BIAS
  - C) LEFT ATTENUATOR LIGHT ON AM503
5. PRESS DEGAUSS BUTTON
  - A) IF OVERLOAD LIGHT WAS NOT ON PREVIOUSLY, IT SHOULD BE AT THIS TIME
6. SWITCH TO P6303
  - A) NOTE ATTENUATOR LIGHT SWITCHES FROM LEFT TO RIGHT
  - B) RETURN MODE SWITCH TO P6302
7. CONNECT SQUARE WAVE GENERATOR TO BNC INPUT
8. SWITCH "VOLTS/CURRENT" TO CURRENT
  - A) NOTE OVERLOAD LIGHT IS OFF
9. WITH 1 VOLT IN FROM GENERATOR, THE DISPLAY SHOULD BE 20 mA.

(Note if Generator used has other than a 50  $\Omega$  output impedance, a 50  $\Omega$  Terminator must be used on the coax to terminate the generator. Adjust the Generator for the 1 VOLT Output. Remove 50  $\Omega$  terminator before connecting the Generator Coax to the Probe Simulator.)

  - A) ADJUST GAIN (R344) IF NOT WITHIN 3 PERCENT.
10. SWITCH "VOLTS/CURRENT" TO VOLTS
11. SWITCH ATTENUATOR ON AM503 TO 5MA, BW TO FULL.
12. ADJUST GENERATOR FOR 6 DIVISIONS DISPLAY
13. ADJUST R345, R363, and R364 FOR MINIMUM ABERRATION
  - A) CHECK RISE TIME IS LESS THAN 4 NS
  - B) CHECK ABERRATION IS WITHIN SPECIFICATIONS:  
+3%, -3% or less  
TOTAL NOT TO EXCEED 4% pp
  - C) NOTE: R345 IS FOR LEADING EDGE  
R363 IS FOR FIRST 20 NS  
R364 IS FOR 5USEC

14. SWITCH TO P6303

A) ADJUST R346 FOR 3.2 DIV OUT. GAIN IS NOW SET FOR P6303 PROBE.  
SWITCH MODE BACK TO "P6302".

15. SWITCH "VOLTS/CURRENT" TO CURRENT.

A) ADJUST GENERATOR FOR DISPLAY OF 5 DIVISIONS

B) CHECK THAT PULSE DISPLAYED HAS RISE TIME OF 7NSEC MAXIMUM AND  
ABERRATION CONTENT AS FOLLOWS:

BEFORE FIRST 100 NSEC; +5%, -5% OR LESS

TOTAL NOT TO EXCEED 7%pp

AFTER 100 NSEC; +3%, -3% OR LESS

TOTAL NOT TO EXCEED 4%pp.

II. THE PROBE SIMULATOR CAN ALSO BE USED TO MAKE THE FOLLOWING PERFORMANCE CHECKS  
ON THE AM503:

1. OUTPUT AMPLIFIER NOISE: 4MV TANG MAXIMUM WITH AM503 IN FULL, CURRENT DIV  
IN 1 or 2 MA/DIV.

2. ATTENUATOR ACCURACY:  $\pm 3\%$  IN 1, 2, 5 SEQUENCE

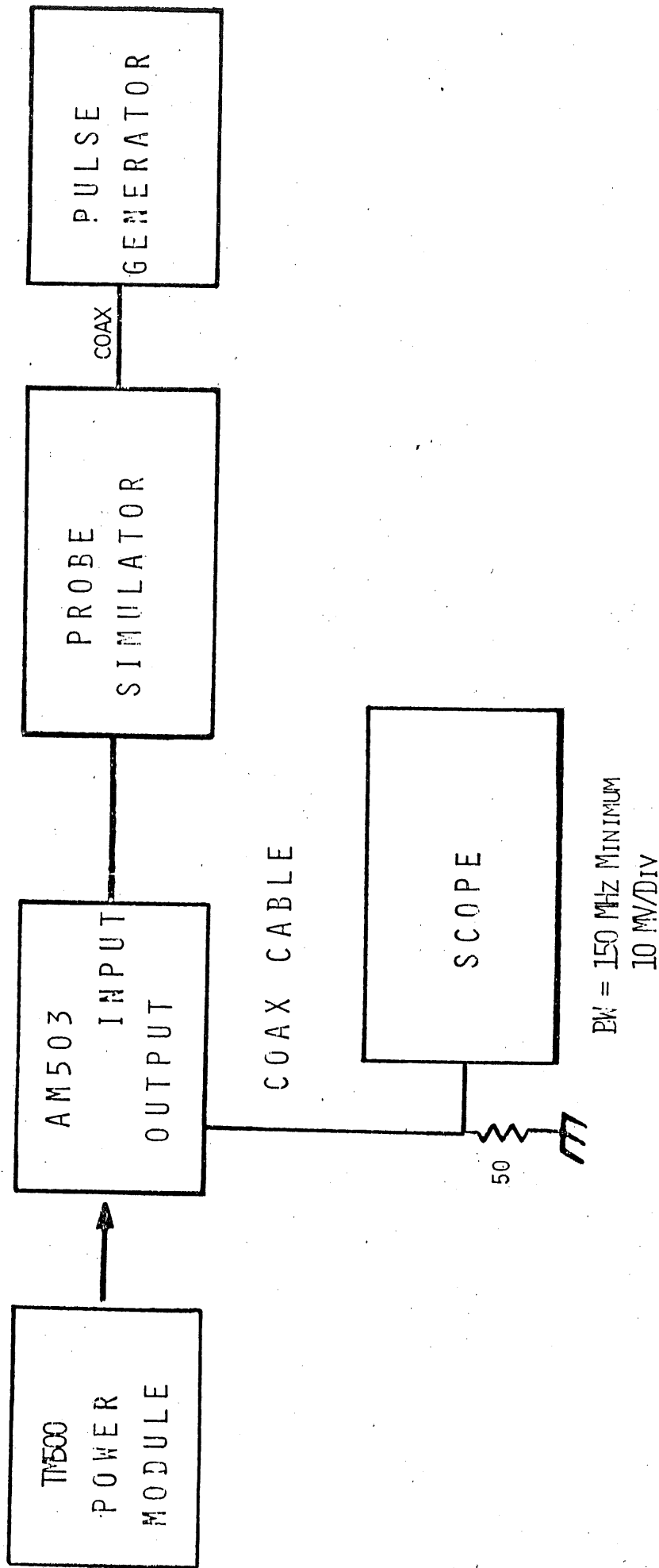
3. BANDWIDTH = FULL, 100 MHz, MINIMUM; 5MHz,  $5 \pm 1$  MHz

4. AC COUPLED LOWER BW LIMIT: 7Hz MAXIMUM

5. OUTPUT DYNAMIC RANGE =  $\pm 80$  MV WITH LESS THAN 5% COMPRESSION ON AN 80MV PP  
SINE WAVE OUTPUT

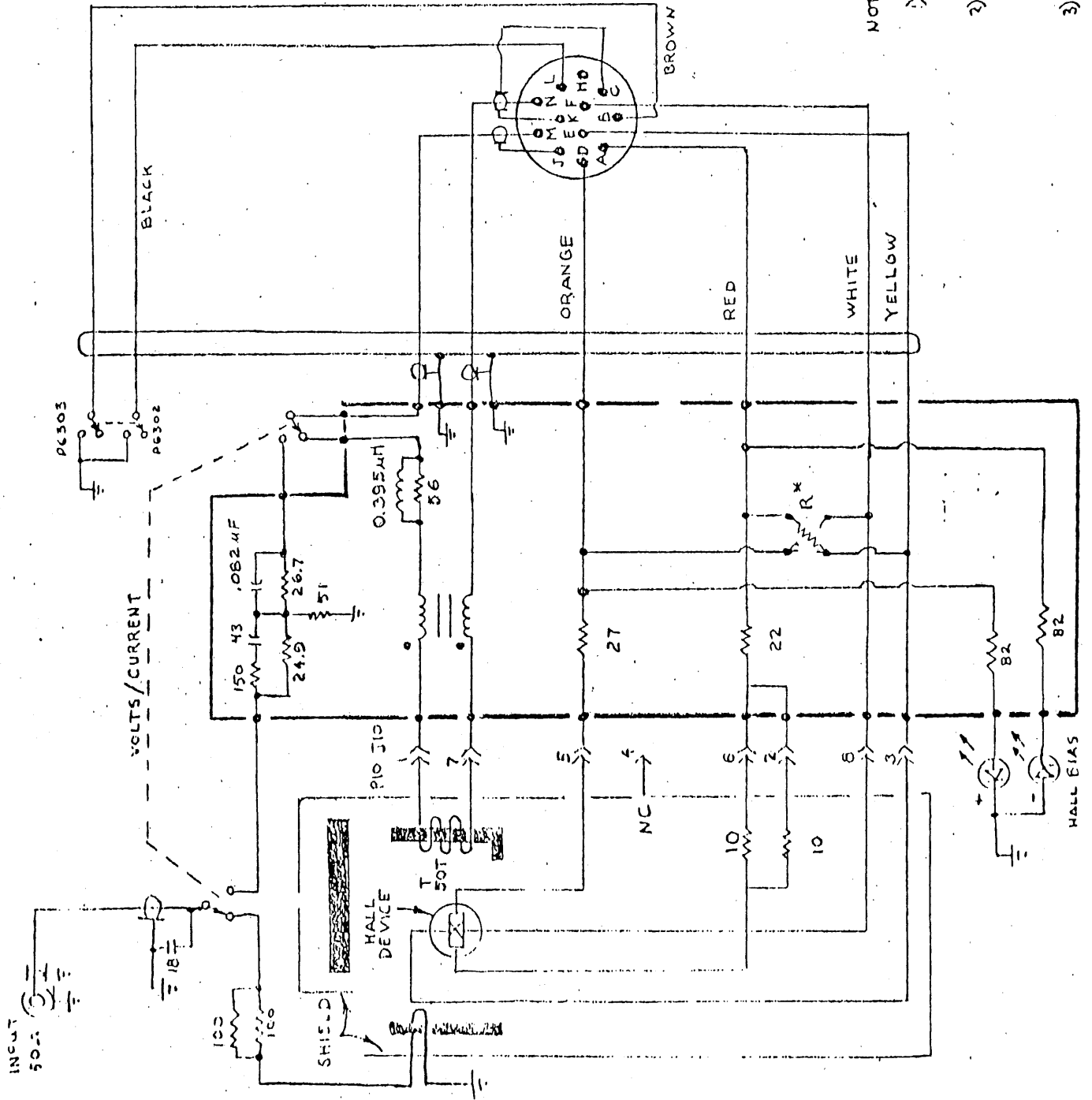
TEST SET UP

FIGURE ONE



PROBE SIMULATOR  
067-0802-99

DALE DORANDO  
OCT 5, 1976



NOTES:

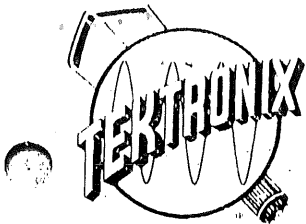
- 1) ALL CAPS IN PF UNLESS NOTED.
- 2) \*R IS SELECTED BETWEEN ORANGE OR RED AND WHITE OR YELLOW.
- 3) PIO IS COUNTED IN A CW DIRECTION STARTING AT KEY.

PREPRODUCTION INSTRUMENT REQUIREMENTS

KIT LEVEL # 10-14-76 KIT DESCRIPTION Current Probe Simulator (AM503) KIT # 004030 INST. 067-0802-99

NEW ITEM	or 1-3	PART NUMBER	TOTAL QUANT	QTY PER	DESCRIPTION	CIRCUIT #
	1	129-0157-00		05	Post, Stand-Off	
	1	131-1315-00		01	BNC Connector (Peltola)	
	1	131-1854-00		01	Connector	
	1	150-1001-00		02	L E D	
*	3	175-1758-01		01	Cable 6 Ft.	
	3	200-1960-00		02	Boot, Cable	
	1	210-0850-00		02	Washer	
	1	210-0863-00		01	Washer, Loop Clamp (Cable)	
	1	210-0940-00		02	Flat Washer	
	1	210-0994-00		05	Flat Washer	
	1	211-0022-00		05	Screw, 2-56 x .188	
	1	211-0087-00		05	Screw, 2-56 x .188 FH	
	1	260-0834-00		01	Switch	
	1	260-1840-00		01	Switch	
	1	324-0097-00		02	Resistor, 100Ω 1W	
	3	343-0002-00		01	Clamp, Cable	
	3	343-0622-00		01	Sleeve, Collar (Cable)	
	3	390-0170-00		01	Bottom	
	3	348-0048-00		04	Feet	
	3	386-3017-02		01	Side Panel, Left	
	3	386-3018-02		01	Side Panel, Right	
*	3	004-030D-70		01	Top Wraparound	
*	3	004-030B-71		01	Bracket, Transformer	





## Inter-Office Communication

To:

Date:

From: Max Brown  
Service Support 58/511

Subject:

The following parts are new set-up for AM503:

105-0651-00	Actuator Cam, SW: Units/Volts
105-0716-00	Actuator Cam, SW: AC-DC
108-0853-00	Coil, RF: 3.0 $\mu$ H
131-1855-00	Conn. Rcpt, Elect: 165 Series 12 Female cont.
155-0078-12	Microcircuit, selected
200-1950-00	Cover, Cam
214-2407-00	Heat Sink
384-1424-00	Shaft, Cam. SW.
386-3501-00	Subpanel, Front

The following parts are new set-up for P6302

120-0464-02	Transformer, cur, upper and lower
175-1836-00	CA Assy SP Elect; 50 $\Omega$ Coax.
175-1836-01	CA Assy, Elect; with circuit card
204-0714-00	Body Half, Probe/Contact, Ground Bottom
352-0287-00	Holder, CKT Card



## AM503 CALIBRATION HINTS

1. Q155 and Q165 have an actual failure rate higher than predicted when used in high temperature environment. Q155 and Q165 failure will also stress the regulator U410. When replacing Q155 and Q165 due to failure also replace U410. There is a mod pending to prevent U410 from self destruct.
2. B020286 and below when setting GAIN ADJUST R344, -R346 at .1 A/DIV, adjust gain 1 to 2% high. This will assure making gain specs at 1 and 2 ma/DIV.