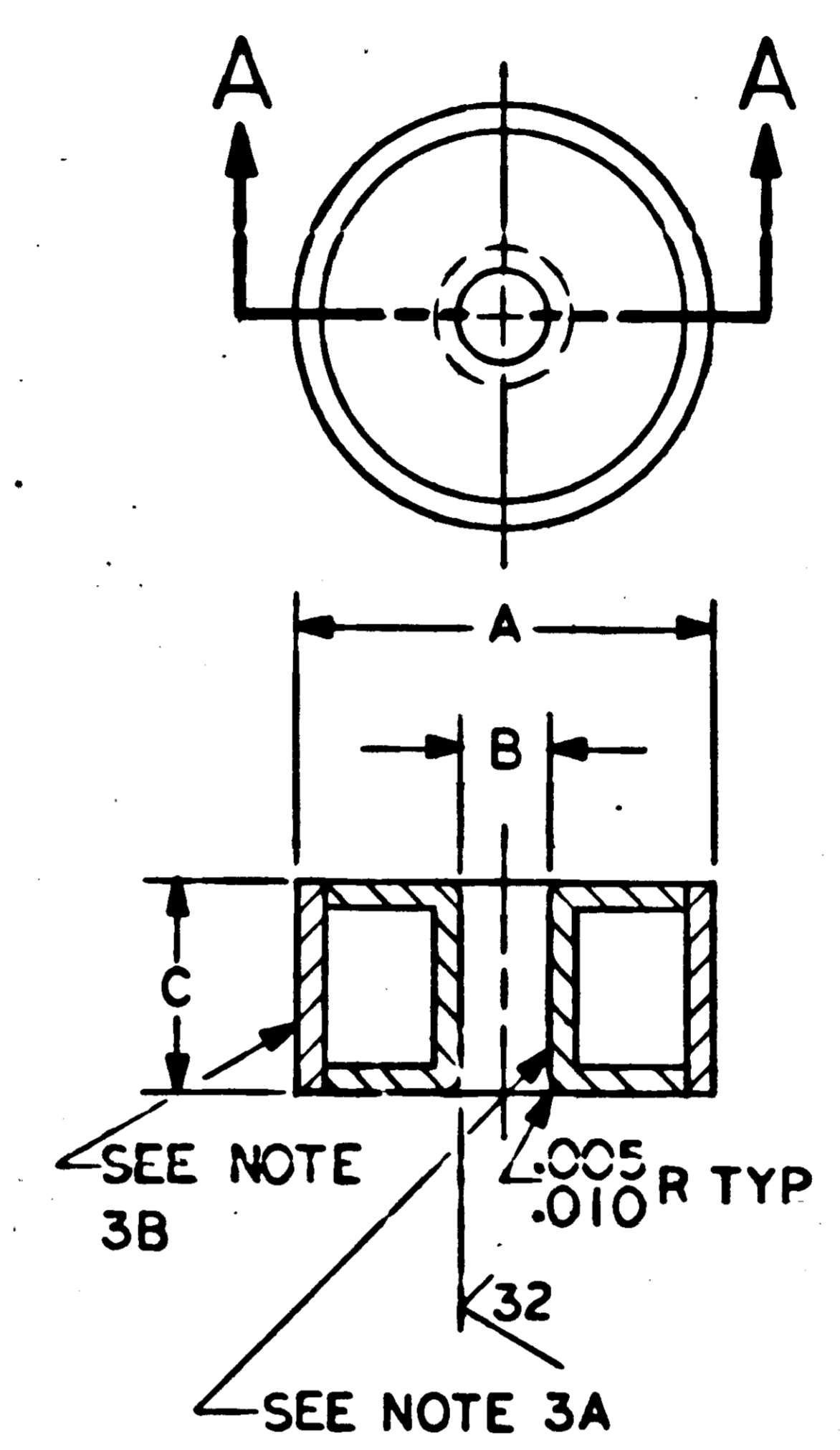


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1006773 G

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
F	REPLACES REV E WITH CHANGES AND UPGRADED TO CLASS A RELEASE PER TDRR 02008	7/17/62	W
G	REVISED AND ADDED SHEET 2 & 3 PER TDRR 03006	6/20/63	WK

- GENERAL:
  - INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-STD-70327.
  - SUPPLIER SHALL CONFORM TO THE QUALITY ASSURANCE PROVISIONS SPECIFIED IN ND 1015404, CLASS 2.
- INSPECTION AND ACCEPTANCE:
  - MECHANICAL REQUIREMENTS
    - PAINT THICKNESS TO BE UNIFORM FROM .002 - .005 ALL SURFACES
    - MARKING - PACKING SLIPS AND EXTERNAL OR INTERNAL CONTAINERS SHALL BE MARKED WITH THE MANUFACTURERS NAME, PART NUMBER, AND NASA DRAWING NUMBER, DASH NUMBER AND REVISION LETTER.
  - ELECTRICAL REQUIREMENTS(100%)
    - TESTING SHALL BE PERFORMED AS OUTLINED ON SHEET 2.
    - PARAMETERS SHALL BE IN ACCORDANCE WITH TABLE I
- DESIGN REQUIREMENTS:
  - BOBBIN MATERIAL SHALL BE 303 SST PER QQ-S-7638, PART SHALL BE FREE FROM BURRS
  - JACKET MATERIAL SHALL BE .011 THICK PHENOLIC SLEEVE
  - CORES SHALL BE FABRICATED FROM 1/8 MIL MO-PERM RIBBON WOUND ON AUSTENITIC STAINLESS STEEL.



G	G	G
SHEET 1	SHEET 2	SHEET 3
REVISION STATUS OF SHEETS		

NASA DRAWING NUMBER	DIM A	DIM B	DIM C	CHARACTERISTICS
1006773-1	.249 .240	.140 MIN	.105 .090	TABLE I
1006773-2	.187 .174	.100 MIN	.058 MAX	TABLE II

TABLE I  
26 MAXWELL  
CORE FUNCTIONAL CHARACTERISTICS

RAMP	Tp u SEC	Ts u SEC	VI MV	VO MV
200 MA u SEC	2.5 ± 5%	1.5 MIN 2.1 MAX	215 MIN 290 MAX	—
400 MA u SEC	1.4 MIN 1.6 MAX	1.3 MIN 1.5 MAX	325 MIN 430 MAX	—
1000 MA u SEC	—	—	—	15 MAX

TABLE II  
11 MAXWELL  
CORE FUNCTIONAL CHARACTERISTICS

RAMP	Tp u SEC	Ts u SEC	VI MV	VO MV
200 MA u SEC	2.2 ± 5%	1.5 MIN 2.1 MAX	100 MIN 130 MAX	—
400 MA u SEC	1.3 ± 5%	1.0 MIN 1.4 MAX	145 MIN 190 MAX	—
1000 MA u SEC	—	—	—	9 MAX

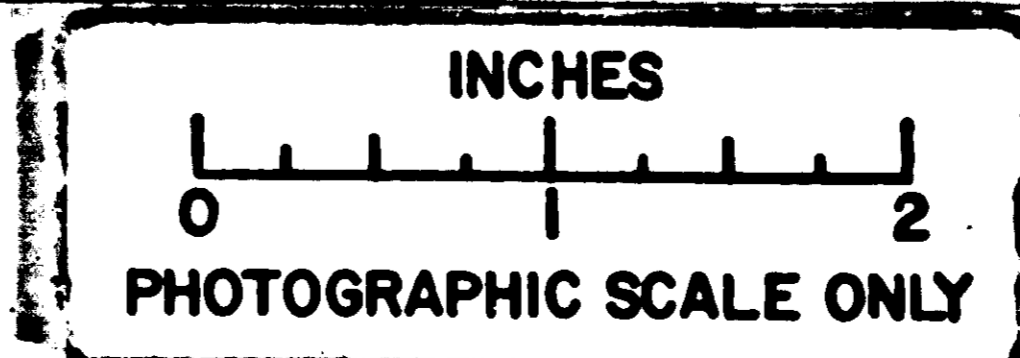
PROCURE ONLY FROM APPROVED SOURCES LISTED ON ND 1002034 FOR THIS DRAWING.

PROTECTOR

		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
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		FRACTIONS DECIMALS ANGLES
		± ± ±
		DO NOT SCALE THIS DRAWING
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		HEAT TREATMENT
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APPLICATION		

F REPLACES REV E WITH CHANGES

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.		
LIST OF MATERIALS					
MIT INSTRUMENTATION LAB CAMBRIDGE, MASS.		MANNED SPACECRAFT CENTER HOUSTON, TEXAS			
DRAWN <i>W. J. Kline</i> DATE <i>7/17/62</i>		CORE, MAGNETIC SPECIFICATION CONTROL DRAWING			
CHECKED <i>Frank Pinsky</i> DATE <i>12/1/62</i>					
APPROVAL <i>Edgar C. Hall</i> DATE <i>12/1/62</i>					
NASA APPROVAL <i>W. J. Kline</i> DATE <i>7-17-63</i>		CODE IDENT NO.	NASA DRAWING NO.		
MIT APPROVAL <i>W. J. Kline</i> DATE <i>7/17/62</i>		C	1006773		
		SCALE NONE	SHEET 1 OF 3		



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9 229001

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
G	THIS SHEET ADDED PER TDRR 03006	5/4/63	W/K

#### 4. TEST REQUIREMENTS: INSPECTION AND/OR TEST

- TEST EQUIPMENT: CORES ARE TO BE TESTED IN AN EQUIPMENT WHICH PERMITS APPLICATION OF A "SET" PULSE OF SUFFICIENT AMPLITUDE AND DURATION TO SATURATE THE CORE UNDER TEST, FOLLOWED BY A LINEAR (APPROX) RAMP WHOSE SLOPE MAY BE MEASURED.
- CALIBRATION OF TEST EQUIPMENT: STANDARD CORES FURNISHED BY MIT ARE TO FORM THE BASIS OF THIS SPECIFICATION AND ARE TO BE USED FOR THE PURPOSE OF CALIBRATING THE TEST EQUIPMENT.
- CALIBRATION PROCEDURE: EQUIPMENT SHALL BE CONNECTED TO A WELL-REGULATED LINE SUPPLY AND ALLOWED TO STABILIZE FOR ONE HOUR BEFORE MEASUREMENTS ARE MADE.
  - CALIBRATE SWEEP OF TEKTRONIX 530-340 SERIES OSCILLOSCOPE WITH TEKTRONIX TIME-MARK GENERATOR OR EQUIVALENT.
  - USING TYPE D HIGH-GAIN DIFFERENCE AMPLIFIER PLUG-IN, CALIBRATE VERTICAL AMPLIFIER WITH A CALIBRATOR WHICH PERMITS THE APPLICATION OF A KNOWN ( $\pm 1\%$ ) VOLTAGE TO THE VERTICAL AMPLIFIER. THE INTERNAL CALIBRATOR OF THE OSCILLOSCOPE MAY BE USED PROVIDING ITS ACCURACY HAS BEEN VERIFIED.
  - ADJUST THE AMPLITUDE AND DURATION OF THE SET PULSE SO THAT THEY ARE RESPECTIVELY AT LEAST  $1/2$  AMPERE AND  $10 \mu\text{SEC}$ .
  - ADJUST THE SLOPE OF THE RAMP SO THAT IT INITIALLY APPROXIMATES  $200 \text{ ma}/\mu\text{SEC}$ . USING ONE OF THE MIT-FURNISHED STANDARD CORES, ADJUST RAMP SLOPE SO THAT MEASUREMENTS OF TIME TO PEAK, SWITCHING TIME, AND AMPLITUDE CORRESPOND TO THE DATA FURNISHED WITH THE CORES FOR THIS PARTICULAR RAMP SLOPE.
  - MEASURE "1" SWITCHING WAVE FORM.
  - READJUST RAMP SLOPE SO THAT IT APPROXIMATES  $400 \text{ ma}/\mu\text{SEC}$ . USING THE MIT-STANDARD CORE, ADJUST RAMP SLOPE SO THAT THE MEASUREMENTS OF SWITCHING TIME, TIME TO PEAK, AND AMPLITUDE CORRESPOND TO THE DATA FURNISHED WITH THE CORE FOR THIS PARTICULAR RAMP SLOPE.
  - MEASURE "1" SWITCHING WAVE FORM  $V_2$ .
  - READJUST RAMP SLOPE SO THAT IT APPROXIMATES  $1000 \text{ ma}/\mu\text{SEC}$ . DISCONNECT SET PULSE. USING MIT-STANDARD CORE, ADJUST RAMP SLOPE SO THAT THE MEASUREMENTS OF PEAK "ZERO" OUTPUT VOLTAGE IS OBTAINED. USE INTEGRATING CIRCUIT, SHOWN IN FIGURE 1, WHEN PERFORMING THIS MEASUREMENT.
  - MEASURE "ZERO" OUTPUT  $V_0$  ON CORES, USING INTEGRATION CIRCUIT.
  - REPEAT CALIBRATION PROCEDURE AFTER TESTING EACH 100 CORES OR AFTER 8 OPERATION HOURS, WHICHEVER IS SOONER.
- DEFINITIONS:
  - TIME TO PEAK SHALL BE MEASURED FROM THE START OF THE RAMP TO THE PEAK OF THE OUTPUT VOLTAGE WAVEFORM. THE START OF THE RAMP MAY BE FOUND BY EXTENDING THE RAMP BACK UNTIL IT CROSSES THE "ZERO CURRENT" AXIS.

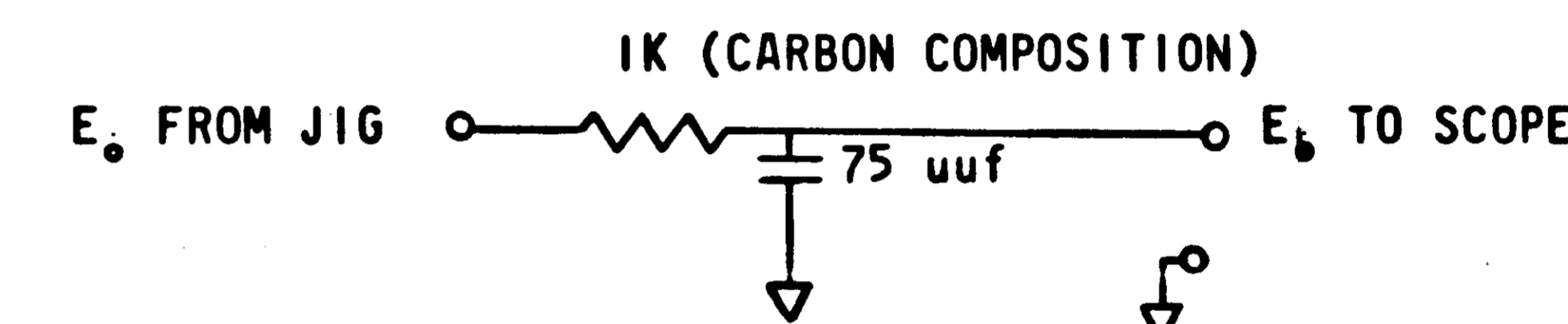


FIGURE 2. INTEGRATING CIRCUIT

THE VOLTAGE INDUCED BY THE TESTING JIG MUST BE TAKEN INTO ACCOUNT WHEN MEASURING  $V_0$ . A TYPICAL CASE IS SHOWN IN FIGURE 3. PEAK  $V_0$  IS DEFINED AS THE MAXIMUM OF  $V_{\text{ZERO}} - V_{\text{JIG}}$ .

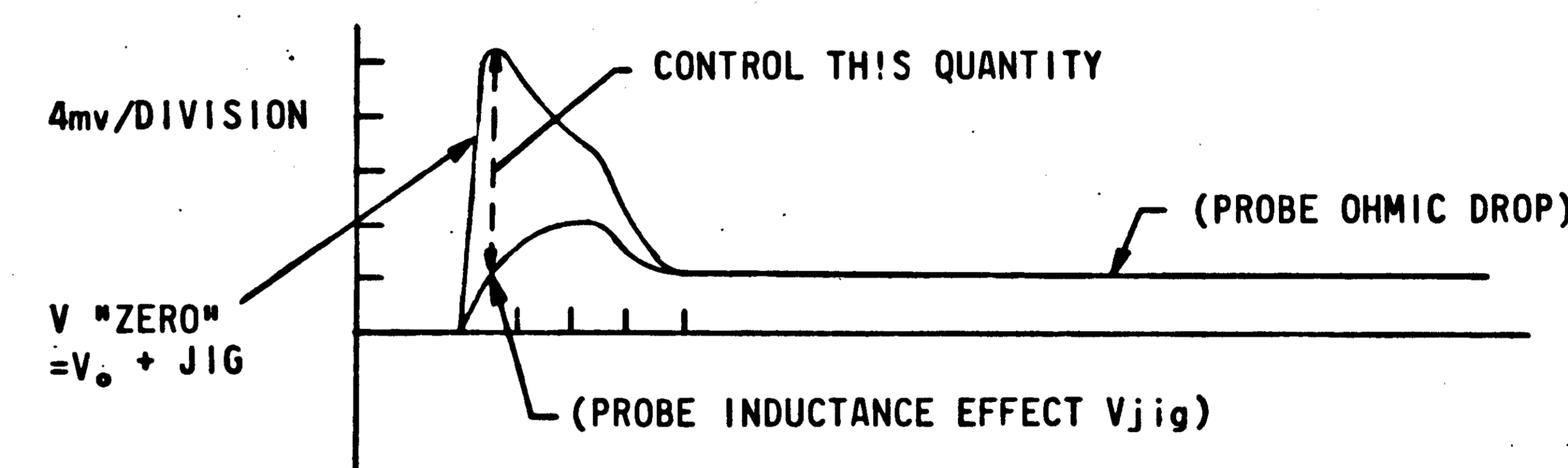


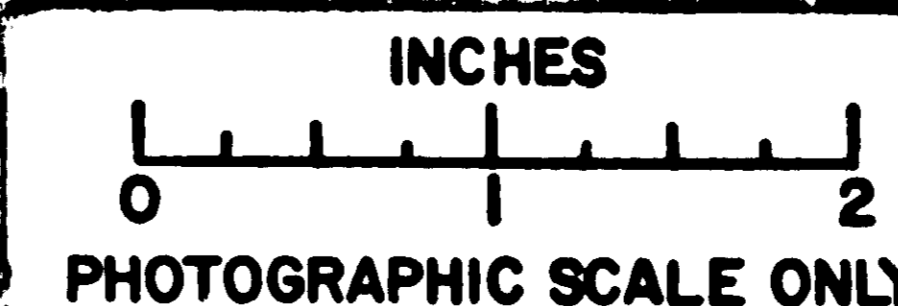
FIGURE 3

TYPICAL OUTPUT VOLTAGES, AFTER INTEGRATION, DUE TO JIG INDUCTANCE AND RESISTANCE; COMBINED JIG AND "ZERO" OUTPUTS: CURRENT SLOPE =  $1000 \text{ mA}/\mu\text{SEC}$ .

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		FRACTIONS                  DECIMALS                  ANGLE
		± _____ ± _____ ± _____
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		MATERIAL
		HEAT TREATMENT
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LIST OF MATERIALS									
MIT INSTRUMENTATION LAB CAMBRIDGE, MASS.				MANNED SPACECRAFT CENTER HOUSTON, TEXAS					
DWE. NO. CONTRACT				CORE, MAGNETIC SPECIFICATION CONTROL DRAWING					
DRAWN <i>R. Kane</i> DATE <i>5-8-63</i>									
CHECKED <i>W. K.</i> DATE <i>5-8-63</i>									
APPROVAL									
APPROVAL <i>E. C. Hall</i> DATE <i>5-24-63</i>									
NASA APPROVAL <i>W. J. S. Hall</i> DATE <i>5-15-63</i>				CODE IDENT NO.		SIZE		NASA DRAWING NO.	
MIT APPROVAL <i>W. J. S. Hall</i> DATE <i>5-15-63</i>						C		1006773	
				SCALE NONE		WT		SHEET 2 OF 3	



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2		1	
G 1006773		REVISIONS	
SYM	DESCRIPTION	DATE	APPROVAL
G	THIS SHEET ADDED PER TDRR 03006	5/4/63	WK

# DEFINITIONS: (CONT.)

- SWITCHING TIME SHALL BE MEASURED FROM 10% OF THE OUTPUT WAVEFORM TO 10% OF SAME WAVEFORM.
- PEAK AMPLITUDE SHALL BE MEASURED FROM ZERO VOLTS TO THE PEAK OF THE OUTPUT WAVEFORM.
- FOR MEASUREMENTS OF "ZERO" OUTPUT, THE INTEGRATING CIRCUIT SHOWN BELOW SHALL BE USED.

## E. LIMITS - (SEE FIGURE 1)

- TIME TO PEAK ( $T_p$ ) SHALL BE THE SAME AS THE NOMINAL CORE TO WITHIN  $\pm 5\%$  OF THE STANDARD CORE OUTPUT FOR BOTH RAMP SLOPES.
- SWITCHING TIME ( $T_s$ ) SHALL BE THE SAME AS THE NOMINAL CORE TO WITHIN  $\pm 10\%$  OF THE STANDARD CORE FOR BOTH RAMP SLOPES.
- PEAK "ONE" OUTPUT ( $V_1$ ) SHALL BE THE SAME AS THE NOMINAL CORE TO WITHIN  $\pm 10\%$  OF THE STANDARD CORE FOR BOTH RAMP SLOPES.
- PEAK "ZERO" OUTPUT ( $V_0$ ) SHALL BE THE SAME AS THE NOMINAL CORE TO WITHIN  $\pm 20\%$ .

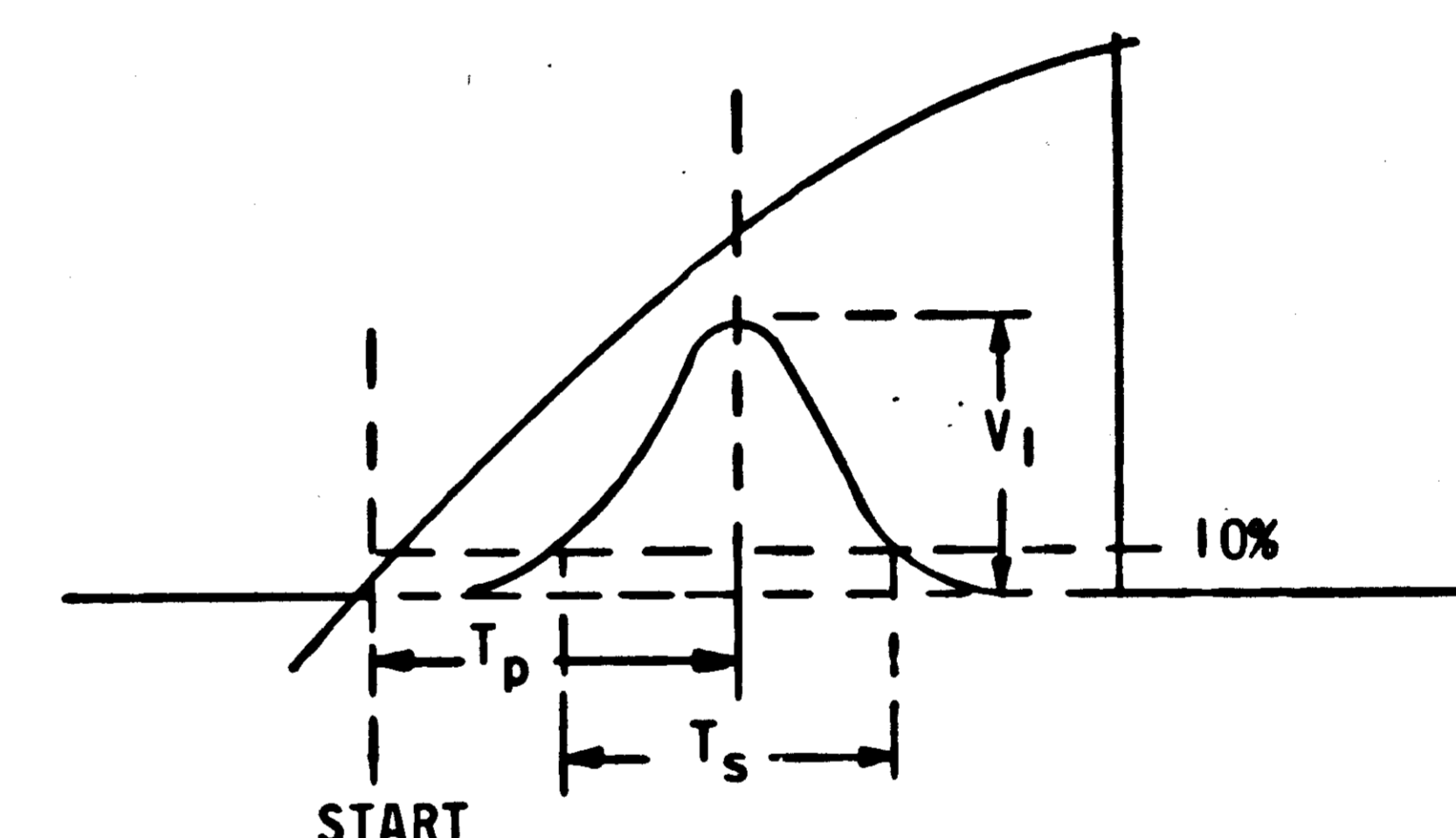


FIGURE 1

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DRAWN <i>R. Kane</i> DATE <i>5 Sept 63</i> CHECKED <i>Joe P. Hays</i> <i>5 Sept 63</i> APPROVAL <i>Edwin C. Hill</i> <i>5 Sept 63</i>		CORE, MAGNETIC SPECIFICATION CONTROL DRAWING	
NASA APPROVAL <i>W. J. ...</i> <i>9/15/63</i> MIT APPROVAL <i>W. J. ...</i> <i>5 Sept 63</i>		CODE IDENT NO. <b>C</b>	NASA DRAWING NO. <b>1006773</b>
SCALE NONE		WT	SHEET 3 OF 3

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