3. DESIGN:

A. OPERATING TEMPERATURE RANGE: -55°C TO +35°C.

B. CONSTRUCTION AND MATERIAL: PARTS SHALL BE A PERMANENTLY TYPE RIBBON MATERIAL WOUND ON A BOBBIN, SLEEVED WITH AN INSULATING MATERIAL AND COATED EXTERNALLY WITH AN INSULATING COMPOUND TO EFFECT A HERMETIC SEAL.
   (1) BOBBIN: NON-MAGNETIC ANNEALED CORROSION-RESISTING STEEL.
   (2) CORE: 1/8 MIL NOMINAL THICKNESS NO-PERM RIBBON (OR EQUIVALENT).
   (3) SLEEVE (JACKET): .011 THICK PHENOLIC SLEEVE (OR EQUIVALENT).
   (4) CORE -001 ONLY SHALL HAVE AN AIR SPACE OF .008 MINIMUM FROM THE TOP LAYER OF TAPE TO THE BOBBIN EDGE. COMPLIANCE SHALL BE CERTIFIED.

C. TEST METHOD:

(1) EQUIPMENT:
   TEXTRONIX 530-340 SERIES OSCILLOSCOPE WITH TEXTRONIX TIME-MARK GENERATOR OR EQUIVALENT.
   A TEST UNIT CAPABLE OF SUPPLYING A "SET CURRENT" PULSE SUFFICIENT IN AMPLITUDE AND DURATION TO SATURATE THE CORE UNDER TEST. THIS PULSE TO BE FOLLOWED BY AN ESSENTIALLY LINEAR CURRENT RAMP WHOSE SLOPE MAY BE MEASURED.

AT LEAST 5 STANDARD CORES TOGETHER WITH CALIBRATION DATA FOR EACH, SUPPLIED BY THE PROCUREMENT AGENCY, TO BE USED FOR INSTRUMENT CALIBRATION.

(2) CALIBRATION AND MEASUREMENT PROCEDURE:
   EQUIPMENT SHALL BE CONNECTED TO A WELL REGULATED SUPPLY LINE AND ALLOWED TO STABILIZE FOR ONE HOUR PRIOR TO MEASUREMENT.
   CALIBRATE SCOPE AMPLIFIER WITH A KNOWN VOLTAGE TO BE USED FOR INSTRUMENT CALIBRATION.
   USING THE CORE ANALYZER PLUG-IN, CALIBRATE THE VERTICAL SCOPE AMPLIFIER WITH A KNOWN VOLTAGE ±1%. THE INTERNAL SCOPE CALIBRATOR MAY BE USED IF ITS ACCURACY HAS BEEN VERIFIED.

   (a) ADJUST THE "SET" PULSE SO THAT AMPLITUDE AND DURATION ARE AT LEAST 0.5 AMPERES AND 10 MICROSECONDS RESPECTIVELY.
   ADJUST RAMP FOR APPROXIMATELY 200, 400, OR 1000 MILLIAMPERES/MICROSECOND.
   USING ONE OF THE STANDARD CORES, ADJUST THE RAMP SLOPE FOR EITHER 200, 400, OR 1000 MA/USEC AS APPROPRIATE TO YIELD THE 1%, 1.5%, AND 2% VALUES SUPPLIED WITH THE STANDARD.
   NOTE: WHEN CALIBRATING OR MEASURING FOR 1000 MA/USEC RAMP, DISCONNECT "SET" PULSE AND USE THE INTEGRATING CIRCUIT OF FIGURE 2. MEASURE ELECTRICAL PARAMETERS FOR CORES UNDER TEST, IN ACCORDANCE WITH TABLES I AND II, FOR EITHER 200, 400, OR 1000 MA/USEC.
   REPEAT THE CALIBRATION PROCEDURE AT LEAST EVERY HALF HOUR WHILE TESTING.

   (b) FOR 200, 400, OR 1000 MA/USEC RAMP, DISCONNECT "SET" PULSE AND USE THE INTEGRATING CIRCUIT OF FIGURE 2.
   MEASURE ELECTRICAL PARAMETERS FOR CORES UNDER TEST, IN ACCORDANCE WITH TABLES I AND II, FOR EITHER 200, 400, OR 1000 MA/USEC.
   REPEAT THE CALIBRATION PROCEDURE AT LEAST EVERY HALF HOUR WHILE TESTING.

   (c) FOR 1000 MA/USEC RAMP, DISCONNECT "SET" PULSE AND USE THE INTEGRATING CIRCUIT OF FIGURE 2.
   MEASURE ELECTRICAL PARAMETERS FOR CORES UNDER TEST, IN ACCORDANCE WITH TABLES I AND II, FOR EITHER 200, 400, OR 1000 MA/USEC.
   REPEAT THE CALIBRATION PROCEDURE AT LEAST EVERY HALF HOUR WHILE TESTING.

   (d) FOR 1000 MA/USEC RAMP, DISCONNECT "SET" PULSE AND USE THE INTEGRATING CIRCUIT OF FIGURE 2.
   MEASURE ELECTRICAL PARAMETERS FOR CORES UNDER TEST, IN ACCORDANCE WITH TABLES I AND II, FOR EITHER 200, 400, OR 1000 MA/USEC.
   REPEAT THE CALIBRATION PROCEDURE AT LEAST EVERY HALF HOUR WHILE TESTING.

   (e) FOR 1000 MA/USEC RAMP, DISCONNECT "SET" PULSE AND USE THE INTEGRATING CIRCUIT OF FIGURE 2.
   MEASURE ELECTRICAL PARAMETERS FOR CORES UNDER TEST, IN ACCORDANCE WITH TABLES I AND II, FOR EITHER 200, 400, OR 1000 MA/USEC.
   REPEAT THE CALIBRATION PROCEDURE AT LEAST EVERY HALF HOUR WHILE TESTING.

   (f) FOR 1000 MA/USEC RAMP, DISCONNECT "SET" PULSE AND USE THE INTEGRATING CIRCUIT OF FIGURE 2.
   MEASURE ELECTRICAL PARAMETERS FOR CORES UNDER TEST, IN ACCORDANCE WITH TABLES I AND II, FOR EITHER 200, 400, OR 1000 MA/USEC.
   REPEAT THE CALIBRATION PROCEDURE AT LEAST EVERY HALF HOUR WHILE TESTING.
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA REVISIONS ARE MADE, USE REVISED DRAWINGS, SPECIFICATIONS, OR DATA.

FIG. 2. INTERGRATING CIRCUIT

FIG. 3. TYPICAL OUTPUT VOLTAGES AFTER INTEGRATION

TABLE I
26 MAXWELL CORE FUNCTIONAL CHARACTERISTICS

<table>
<thead>
<tr>
<th>urrent</th>
<th>Rise Time USEC</th>
<th>Fall Time USEC</th>
<th>Output Voltage V</th>
<th>Output Voltage V</th>
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</thead>
<tbody>
<tr>
<td>200 MA</td>
<td>2.375 MIN</td>
<td>1.5 MIN</td>
<td>215 MIN</td>
<td>240</td>
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<tr>
<td>USEC</td>
<td>2.675 MAX</td>
<td>2.1 MAX</td>
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<td>209</td>
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<tr>
<td>300 MA</td>
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<td>360</td>
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<tr>
<td>USEC</td>
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<td>1.5 MAX</td>
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<tr>
<td>1000 MA</td>
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<td></td>
<td></td>
<td>15 MAX</td>
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TABLE II
11 MAXWELL CORE FUNCTIONAL CHARACTERISTICS

<table>
<thead>
<tr>
<th>urrent</th>
<th>Rise Time USEC</th>
<th>Fall Time USEC</th>
<th>Output Voltage V</th>
<th>Output Voltage V</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 MA</td>
<td>2.09 MIN</td>
<td>1.5 MIN</td>
<td>100 MIN</td>
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</tr>
<tr>
<td>USEC</td>
<td>2.31 MAX</td>
<td>2.1 MAX</td>
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<td>154</td>
</tr>
<tr>
<td>400 MA</td>
<td>1.24 MIN</td>
<td>1.0 MIN</td>
<td>145 MIN</td>
<td>150</td>
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<tr>
<td>USEC</td>
<td>1.37 MAX</td>
<td>1.4 MAX</td>
<td>190 MAX</td>
<td>204</td>
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<tr>
<td>1000 MA</td>
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<td></td>
<td>9 MAX</td>
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TABLE III

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<th>DASH NUMBER</th>
<th>DIM A MAX</th>
<th>DIM B</th>
<th>DIM C MAX</th>
<th>CHARACTERISTICS</th>
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</thead>
<tbody>
<tr>
<td>001</td>
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<td>1.40 MIN</td>
<td>1.065 MAX</td>
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</tr>
<tr>
<td>002</td>
<td>1.87</td>
<td>1.10 MIN</td>
<td>0.965 MAX</td>
<td>TABLE II</td>
</tr>
</tbody>
</table>

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CORE, MAGNETIC SPECIFICATION CONTROL DRAWING

ERECTIONS:

A REvised PER TDRR 16365
B REvised PER TDRR 19194