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OPERATIONS AND MAINTENANCE
PROGRAM DOCUMENTATION FOR THE PT 1471

by

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I. INTRODUCTION

This manual is the final report on work performed by The Dikewood Corporation for Sandia Corporation under Sandia Purchase Order 2206, Suborders 007, 011, and 012.

This work consisted of the development of PDP-8/S computer programs for the PT 1471 Product Tester to operate a semiautomatic test system to perform evaluation tests on multi-pin electrical connectors in the Division 1432 laboratory. This report provides an operations and maintenance manual for the resulting programs.

II. GENERAL OPERATIONS OF THE PT 1471

PT 1471 is a Sandia Production Tester^{*} designed to perform high-potential, insulation-resistance, and contact-resistance evaluation tests of all multi-pin electrical connectors including the JT, LJT, R&P, and DWARF series. These three tests are included in one semiautomatic test system that replaces the manually operated test equipment currently in use in the Division 1432 laboratory. This new system requires only manual selection of test conditions for a specific connector before it automatically records and reduces data for that connector.

All testing is controlled by a Digital Equipment Corporation PDP-8/S digital computer. The PDP-8/S is a single-address, fixed-word-length, serial computer with a word length of 12 bits plus parity, a 4096-word random access magnetic core memory, and two's complement arithmetic. A Teletype Model 33 Automatic Send/Receive unit provides the input-output data in the form of either typewritten hard copy or punched paper tape.

The programs to control these three evaluation tests were written in the PDP-8/S symbolic machine language (PAL). Although these tests cannot be performed concurrently, the programs do reside in the computer at the same time, and each operates independently of the others. However, to reduce the computer storage required, these programs utilize common subroutines and share data storage locations.

^{*} See Sandia Corporation Development Report SC-DR-66-505 for tester specifications.

Operator-computer communication is established via the PDP-8/S console switch register. However, it was presupposed that a "conversation" program to control all three tests would be written, utilizing the ASR-33 teletype. With this in mind, the communication portions of the test programs were placed together to allow for relatively easy modification whenever the "conversation" program is written.

III. HIGH-POTENTIAL TEST

Purpose

The high-potential ("hi-pot") test (also called the over-potential, voltage breakdown, dielectric withstanding voltage, or dielectric strength test) consists of the application, for a specific time, of a voltage higher than the rated voltage between mutually insulated portions of a connector or between insulated portions and ground. This determines whether the insulating materials and spacings in the connector are adequate. Application of the test voltage to a faulty component (connector pin) will result in either transient breakdown (arcing) or deterioration due to leakage.

Procedure

Figure 1 is a simplified block diagram of the PT 1471 high-potential test circuit. A connector to be tested is wired to one of the insulated adapter boards provided with the PT 1471. There are a maximum of 71 contacts on each adapter board, so any connector with up to 71 pins may be tested.

Briefly the "hi-pot" testing procedure is as follows:

A 210-megohm standard resistor is switched into the circuit to provide an equipment check. If the equipment is operating satisfactorily, the first connector pin (really the first adapter board contact) is switched into the circuit. Voltage is applied to this (and every) pin as a ramp of 500 volts per second until the specified test voltage is reached (Fig. 2). This voltage is monitored every 15 milliseconds to detect a transient

R_p = Pin Resistance

Fig. 1--Block Diagram of High-potential Test Circuit

Fig. 2--Application of the Test Voltage for High-potential Test

breakdown. If a breakdown occurs, testing is stopped and the maximum voltage reached is printed. If the test voltage is reached, it is held for approximately two seconds while still being monitored for a breakdown.

After two seconds, the steady state leakage current through the pin is determined using the voltage drop across an effective 1000-ohm resistance. This leakage current value is printed and then compared to a specified maximum limit. Testing is stopped for an out-of-tolerance value. If the leakage is acceptable, the test voltage is again monitored for a breakdown.

If the pin under test is not found to be faulty, testing automatically proceeds to the next sequential pin until the specified number of pins have been tested. When the last pin has been tested, the 210-megohm standard is again used to check the test equipment. If the equipment is operating satisfactorily, the maximum and minimum test voltages reached and the maximum and minimum leakage currents determined are printed, and the test is over.

Program Operation

The following procedure must be followed:

1. Key the address 0177₈ into the PDP-8/S console switch register; then press the LOAD ADDRESS key.
2. Press the START key.
3. The computer will halt with 0001₈ in the accumulator. Key, in octal, the number of pins on the connector to be tested into the switch register and press the CONTINUE key. For example, to test 50 pins, key 0062₈ into the switch register.

4. The computer will halt with 0002_8 in the accumulator. Key the maximum acceptable steady state leakage current into the switch register and press the CONTINUE key. This current must be in the range of 25 microamperes to five milliamperes. To specify microamperes, key the octal value of the acceptable leakage current into the switch register. To specify milliamperes, key a 1 into bit 0 of the switch register, and key the octal value into the rest of the switch register. For example: To specify 50 microamperes, key 0062_8 into the switch register. To specify three milliamperes, key 4003_8 into the switch register.
5. The computer will halt with 0003_8 in the accumulator. Key one-tenth of the test voltage required into the switch register and press CONTINUE. This value must be in the range of 50 volts to 400 volts (actually 500 to 4000 volts). * It must be in the octal representation of 4-2-2-1 binary-coded-decimal (BCD) code. (See Table 1 of App. B, which is a table for converting 4-2-2-1 BCD code to octal code.) For example: To specify 1000 volts as the actual test voltage, key $0400_8 = 0100_{10}$ into the switch register. To specify 3760 volts as the test voltage, key $1734_8 = 376_{10}$ into the switch register.

Testing will automatically proceed from Pin 1 sequentially through the number of pins specified unless an error is detected. The possible errors and the messages printed are:

1. BRKDWN AT XXXXXXXX-2V. This message occurs when a transient breakdown has been detected. XXXXXXXX is the maximum voltage reached before the breakdown occurred. Testing is stopped but may be resumed at the next sequential pin by pressing CONTINUE.
2. LKGE BAD. This message occurs when the steady state leakage current determined is more than the maximum limit specified. Testing is stopped but may be resumed at the next sequential pin by pressing CONTINUE.
3. BAD STD. This message occurs when the 210-megohm

* See Program Maintenance, p. 9.

standard indicates a resistance not equal to 210 ± 5 megohms. This indicates the equipment is not operating satisfactorily. Testing is stopped and may be resumed using the standard again by pressing CONTINUE.

Program Maintenance*

A factor in the circuit causes the program to read only one-tenth of the voltage being applied to a pin. Since the voltage read by the program is accurate to ± 1 (really ± 10), the criterion of an actual 20-volt drop between successive readings is used in monitoring to detect a transient breakdown.

This program requires 1408 PDP-8/S core storage locations. Of these, 242 are used by only the high-potential test. The remainder are subroutines and data storage common to all three tests (see the program listing for the actual storage locations required).

* Flow charts and program listings are found in Appendixes D and E.

IV. INSULATION-RESISTANCE TEST

Purpose

This test measures the resistance of the insulating members of a connector to an impressed direct voltage of 500 volts, which tends to produce a leakage of current through or on the surfaces of these members. This is especially helpful in determining the extent to which insulating properties are affected by such deteriorating influences as heat, dirt, moisture, oxidation, or loss of volatile materials.

Procedure

Figure 3 is a simplified block diagram of the PT 1471 insulation-resistance test circuit. A connector to be tested is wired to one of the insulated adapter boards provided. Each adapter board has a maximum of 71 contacts, so any connector with 71 pins or less may be tested.

Briefly, the insulation-resistance (IR) testing procedure is as follows:

A 210-megohm standard is used to provide an equipment check. If the tester is operating satisfactorily, the first connector pin (actually the first adapter board contact) is switched into the circuit. A voltage of 500 volts DC is applied to the pin. This voltage is monitored and must be 500 ± 5 volts, or the test is stopped. If the voltage is acceptable, it is applied continuously for a specified length of time, called the electrification time. This allows the current to stabilize and the resistance to become reasonably close to a steady state value. After this time the

R_p =Pin Resistance

Fig. 3--Block Diagram of Insulation-resistance Test Circuit

leakage current through the pin is determined, using an effective 10,000-ohm (10K) resistance. From this current and the known voltage, the insulation resistance is calculated and printed on the teletype in megohms. This resistance is then compared to a specified minimum limit. Testing is stopped for an out-of-tolerance value.

If the resistance is acceptable, testing automatically proceeds to the next sequential pin until the specified number of pins have been tested. When the last pin has been tested, the standard is again used to check the equipment. If it is operating satisfactorily, the maximum and minimum resistances calculated are printed and the test is over; if not, testing is stopped.

Program Operation

The following procedure must be followed:

1. Key the address 0176_8 into the PDP-8/S console switch register; then press the LOAD ADDRESS key.
2. Press the START key.
3. The computer will halt with 0001_8 in the accumulator. Key the number of pins on this connector to be tested into the switch register in octal and press CONTINUE. For example: To test 47 pins, key 0057_8 into the switch register.
4. The computer will halt with 0002_8 in the accumulator. Key the minimum acceptable resistance into the switch register and press the CONTINUE key. This resistance must be in the range of 10 megohms to 10,000 megohms. To specify megohms, key the octal value into the switch register. To specify thousands of megohms, key a 1 into bit 0 of the switch register, and key the octal value into the remaining bits of the switch register. For example. To specify 50 megohms, key 0062_8 into the switch register. To specify 10,000 megohms, key 1012_8 into the switch register.

5. The computer will halt with 0003_8 in the accumulator. Key the electrification time required (octal seconds) into the switch register and press CONTINUE. The time must be in the range of 1-4095 seconds. For example: To specify two minutes = 120 seconds, key 0170_8 into the switch register.

Testing will automatically proceed from Pin 1 sequentially through the specified number of pins unless an error occurs. The possible errors and error messages are:

1. BAD VLTGE. This message occurs when the voltage applied is not equal to 500 ± 5 volts. Testing is stopped but may be resumed at the pin being tested by pressing CONTINUE.
2. SHORT. This message occurs when the voltage applied is less than 250 volts. Testing is stopped but may be resumed at the next sequential pin by pressing CONTINUE.
3. BAD PIN. This message occurs when the pin resistance calculated is less than the minimum limit specified. Testing is stopped but may be resumed at the next sequential pin by pressing CONTINUE.
4. BAD STD. This message occurs when the resistance of the 210-megohm standard is not calculated as 210 ± 5 megohms. This indicates the equipment is not operating properly. Testing is stopped but may be resumed, using the standard again, by pressing CONTINUE.

Program Maintenance

The calculated pin insulation resistance is in megohms and is accurate to ± 1 percent. The resistance is calculated by the following formula:

V_A = applied voltage ≈ 500 volts

V_L = voltage drop across the 10K resistance

$$I_L = \text{leakage current} = \frac{V_L}{10^5}$$

$$R_p = \text{pin resistance} = \frac{V_A}{I_L}$$

Combining terms,

$$R_p = \frac{V_A}{V_L / 10^5} = 10^5 \cdot \frac{10}{10} \cdot \frac{V_A}{V_L} = 10^6 \cdot \frac{V_A}{10V_L} \text{ ohms}$$

$$R_p = \frac{V_A}{10V_L} \text{ megohms}$$

If the voltage drop across the 10K resistance is read on the 1V voltmeter scale, the effective resistance is not 10K but rather 11.111K. In this case the voltage V_L is multiplied by the factor 9.1 to compensate for this error ($9.1 \cdot 11.111 = 10,000$).

This program requires 1365 PDP-8/S core storage locations. Of these, 200 are used by only the insulation-resistance test. The remainder are subroutines and data storage common to all three tests (see the program listing for the actual storage locations required).

V. CONTACT-RESISTANCE TEST

Purpose

This test determines the resistance offered to a flow of current during its passage between the electrical conducting surfaces of a connector. On the PT 1471, eight currents are available for use. These are 20, 12, 7.5, and 3 amperes, and 100, 25, and 5 milliamperes.

Procedure

Figure 4 is a simplified block diagram of the contact-resistance test circuit. Each connector pin is wired to two LJT-06-25-29S connectors (one for current and one for voltage). The four LJT connectors are then mated to connectors provided in the PT 1471. Up to 10 connectors constitute one contact-resistance test. Each connector can have a maximum of 29 pins.

Briefly, the contact-resistance testing procedure is as follows:

The first connector is mated to the tester. The number of pins to be tested at each current is specified for this connector. The currents always start with 20 amperes and continue consecutively to 5 milliamperes. If any pins are specified at 20 amperes, then the first pin is connected into the circuit. A 0.1-ohm standard is used to verify that the current is accurate to ± 1 percent. If it is accurate, it is applied to the pin, and the voltage drop is recorded and printed on the teletype. If this drop is greater than 300 millivolts, testing is stopped; if not, testing automatically proceeds to the next sequential pin until the number of pins specified at this current

Fig. 4--Block Diagram of Contact-resistance Test Circuit

has been tested. If any pins are specified at the next current, the next sequential pins are used until the specified number has been tested. Testing continues in this manner until the total number of pins to be tested on this connector has been used. Testing is halted until the next connector has been placed in the tester. Then the test proceeds by requesting specification of the number of pins on this new connector to be tested at each current.

For each current the following are computed and printed after the last pin of the last connector has been tested:

1. The maximum voltage drop over all the pins tested
2. The minimum voltage drop over all the pins tested
3. The average voltage drop over all the pins tested
4. The average + (3 times the standard deviation voltage drop)
5. The average - (3 times the standard deviation voltage drop)

The test is over when the last of these has been printed.

Program Operation

The following operating procedure must be used.

1. Key the address 0200₈ into the PDP-8/S console switch register and press the LOAD ADDRESS key.
2. Press the START key.
3. The computer will halt with 0000 in the accumulator. Key the octal number of connectors to be tested into the switch register and press CONTINUE. For example: To test 10 connectors, key 0012₈ into the switch register.
4. CONXXXXX will be printed, with XXXX representing the connector number.

5. The computer will next halt with 0001_8 in the accumulator. Key the octal number of pins on this connector to be tested at 20 amperes into the switch register and press CONTINUE. The number must be in the range 0-29. For example: To specify nine pins, key 0011_8 into the switch register.
- 6-12. The computer will next consecutively halt with 0002_8 - 0010_8 in the accumulator. Key the octal number of pins on the connector to be tested at (6) 12 amperes, (7) 7.5 amperes, (8) 5 amperes, (9) 3 amperes, (10) 100 milliamperes, (11) 25 milliamperes, and (12) 5 milliamperes into the switch registers, pressing CONTINUE each time.*

Testing automatically proceeds through the number of pins specified and returns to Step 4 waiting for another connector specification. However, if an error occurs, testing is stopped. The following errors and error messages may occur.

1. BAD CURRENT. This message occurs when the standard indicates the current being used is not accurate to ± 1 percent. Testing is stopped but may be resumed at the same standard by pressing CONTINUE.
2. BAD PIN. This message occurs when the voltage drop across a pin is more than 300 millivolts. Testing is stopped but may be resumed at the next sequential pin by pressing CONTINUE. The bad voltage drop is not included in the statistics for this current. The test is over when the statistical results have been printed.

Program Maintenance

A special statistical package was written for the PT 1471 contact-resistance test. It calculates so-called "running" statistics. That is, a

*The total number of pins specified for 5-12 must not exceed 29. To specify the same numbers at Steps x-12 as those for the previous connector, simply key a 1 into bit 0 for the number at Step x. For example, to keep the same specifications for the currents 7.5 amperes to 5 milliamperes, key 4000_8 into the switch register at Step 7.

fixed number of values are not required, and the statistics are simply updated with every new value. This package is described in detail in App. A.

This program requires 1920 PDP-8/S core storage locations. Of these, 997 are used by only the contact-resistance test. The remainder are subroutines and data storage common to all three tests (see the program listing for the actual storage locations required).

Appendix A

STATISTICAL PACKAGE FOR CONTACT-RESISTANCE TEST

Purpose

This package is designed to compute the maximum, minimum, mean ($\bar{X}$) and standard deviation (σ^2) for each of eight different series of data values. All the calculations are in double precision fixed point. A double precision square root routine is included to compute σ .

Procedure

Briefly the package operates in the following manner:

The content of Location 0110_8 is used to indicate to which of the eight series this data value belongs. The main control program (DSTATS) sets corresponding addresses and updates the maximum and minimum for this series using this data value. Subroutines DXBAR and DSIGMA are used to update the $\bar{X}$ and σ^2 computed for this series. Since these subroutines do not know when the testing is completed and the last data value has been received, the contact-resistance program (at the proper time) must call Subroutine ENDTST to instruct the square root subroutine (DSQRT) to compute 3σ from σ^2 .

Program Operation

This package is entered with an effective instruction, JMS DSTATS. Location 0110_8 must contain the series number of this data value. That is,

$C(110) = 0001_8$ - 20 ampere series

$C(110) = 0002_8$ - 12 ampere series

$C(110) = 0003_8 \rightarrow 7.5$ ampere series
 $C(110) = 0004_8 \rightarrow 5$ ampere series
 $C(110) = 0005_8 \rightarrow 3$ ampere series
 $C(110) = 0006_8 \rightarrow 100$ milliampere series
 $C(110) = 0007_8 \rightarrow 25$ milliampere series
 $C(110) = 0010_8 \rightarrow 5$ milliampere series

Locations $0105-0106_8$ must contain the double precision data value.
 Locations $2000-2137_8$ are used to store the package results. Initialization
 of Locations $2000-2137_8$ must occur outside of this package. The maxi-
 mums must be initially set to 0 and the minimums to 37777777_8 so that the
 first reading in each series will be both a maximum and a minimum for
 that series.

Program Maintenance

This package takes the first data value in each series and uses it
 as a bias for every other data value in that series. That is, the value used
 in the computations is not the actual value, but rather the actual value
 minus the bias. This is done so that much larger numbers can be accom-
 modated in the calculation of the means. At the end of the test, the bias is
 added to the calculated mean to provide the actual mean. This bias does
not affect the σ^2 computation.

To accommodate larger numbers in the σ^2 computation, a scale fac-
 tor of $\frac{1}{64}_2$ is used. That is, each data value is divided by eight so that
 actually $\frac{\sigma^2}{64}$ is calculated. This is compensated for in the square root rou-
 tine by computing $8 \cdot \sqrt{\frac{\sigma^2}{64}} = \sigma$. A larger scale factor may be used but the
 accuracy would be correspondingly decreased. The $\frac{1}{64}$ factor allows a

maximum deviation of 23, 168 with accuracy of as much as ± 10 . Because of this scale factor, no deviation smaller than eight is detectable by this package and an accuracy of only ± 10 is guaranteed. The algorithms used in the calculations are as follows:*

For $\bar{X}$: $\bar{X}_1 = 0$ $X(I) = \text{data value}$

$$X_I = \frac{(I-1) \cdot X_{I-1} + X(I)}{I} \quad I = 2, 3, 4, \dots$$

For σ^2 : $\sigma_1^2 = 0$ $\bar{X}_1 = 0$ $X(I) = \text{data value}$

$$\sigma_I^2 = \left(\frac{I-2}{I-1}\right) \cdot \sigma_{I-1}^2 + \frac{(X(I) - \bar{X}_{I-1})^2}{I \cdot 64} \quad I = 2, 3, 4, \dots$$

For σ : $X_0 = 2$

$$X_N = \frac{1}{2} \left(X_{N-1} + \frac{\sigma^2}{X_{N-1}} \right) \quad N = 1, 2, 3, \dots$$

Terminate when $X_N - X_{N-1} \leq 1$. Then with

$$R = \sigma^2 - X_N^2$$

we set

$$\sigma = \left(X_N + \frac{R}{2X_N} \right) \cdot 8$$

The following simple example illustrates the techniques involved (no scaling will occur).

Let the data values for a series be

$$X_1 = 50$$

$$X_2 = 60$$

$$X_3 = 40$$

* Algorithms are described in DECUSCOPE, Vol. 6, No. 7 (1967).

$$X_4 = 70$$

$$X_5 = 30$$

Then the bias is 50 and the input value to DXBAR and DSIGMA are

$$X_1^1 = 0$$

$$X_2^1 = 10$$

$$X_3^1 = -10$$

$$X_4^1 = 20$$

$$X_5^1 = -20$$

Then compute the following,

with

$$\bar{X}_1 = 0 \quad \sigma_1^2 = 0:$$

$$\sigma_2^2 = \left(\frac{2-2}{2-1} \right) \cdot 0 + \frac{(10-0)^2}{2} = \frac{100}{2} = 50$$

$$\bar{X}_2 = \frac{(2-1) \cdot 0 + 10}{2} = \frac{10}{2} = 5$$

$$\sigma_3^2 = \left(\frac{3-2}{3-1} \right) \cdot 50 + \frac{(-10-5)^2}{3} = 25 + 75 = 100$$

$$\bar{X}_3 = \frac{(3-1) \cdot 5 + (-10)}{3} = \frac{0}{3} = 0$$

$$\sigma_4^2 = \left(\frac{4-3}{4-1} \right) \cdot 100 + \frac{(20-0)^2}{4} \approx 166$$

$$\bar{X}_4 = \frac{(4-1) \cdot 0 + 20}{4} = \frac{20}{4} = 5$$

$$\sigma_5^2 = \left(\frac{5-4}{5-1} \right) \cdot 166 + \frac{(-20-5)^2}{5} \approx 250$$

$$\bar{X}_5 = \frac{(5-1) \cdot 5 + (-20)}{5} = 0$$

Hence, the computed values are

$$\sigma^2 \approx 250$$

and

$$\bar{X} = (\bar{X}_5 + X_1) = 0 + 50 = 50$$

To calculate σ , the starting value $X_0 = 2$ is used, and

$$X_1 = \frac{1}{2} \left(\frac{250}{2} \right) \approx 61$$

$$X_2 = \frac{1}{2} \left(61 + \frac{250}{61} \right) = \frac{1}{2} (65) \approx 33$$

$$X_3 = \frac{1}{2} \left(33 + \frac{250}{33} \right) \approx \frac{1}{2} (41) \approx 20$$

$$X_4 = \frac{1}{2} \left(20 + \frac{250}{20} \right) \approx \frac{1}{2} (32) = 16$$

$$X_5 = \frac{1}{2} \left(16 + \frac{250}{16} \right) \approx \frac{1}{2} (31) \approx 15$$

$$R = 250 - 15^2 = 250 - 225 = 25$$

$$\sigma = 15 + \frac{25}{2 \cdot 15} = 15 + .8 = 15.8$$

Therefore,

$$\bar{X} = 50$$

and

$$\sigma = 15.8$$

This package requires 1094 PDP-8/S core storage locations. Of these, 347 are used by only the PT 1471 statistical package. The remainder are subroutines and data storage common to all the test programs (see the program listing for the actual storage locations required).

Appendix B

REFERENCE TABLES FOR

PT 1471 PROGRAM

Table 1

Conversion Table from Decimal to the Octal Representation
Of the 4-2-2-1 Binary-coded decimal equivalent

	0	1	2	3	4	5	6	7	8	9
0000	0000	0001	0002	0003	0006	0007	0014	0015	0016	0017
0010	0020	0021	0022	0023	0026	0027	0034	0035	0036	0037
0020	0040	0041	0042	0043	0046	0047	0054	0055	0056	0057
0030	0060	0061	0062	0063	0066	0067	0074	0075	0076	0077
0040	0140	0141	0142	0143	0146	0147	0154	0155	0156	0157
0050	0160	0161	0162	0163	0166	0167	0174	0175	0176	0177
0060	0300	0301	0302	0303	0306	0307	0314	0315	0316	0317
0070	0320	0321	0322	0323	0326	0327	0334	0335	0336	0337
0080	0340	0341	0342	0343	0346	0347	0354	0355	0356	0357
0090	0360	0361	0362	0363	0366	0367	0374	0375	0376	0377
0100	0400	0401	0402	0403	0406	0407	0414	0415	0416	0417
0110	0420	0421	0422	0423	0426	0427	0434	0435	0436	0437
0120	0440	0441	0442	0443	0446	0447	0454	0455	0456	0457
0130	0460	0461	0462	0463	0466	0467	0474	0475	0476	0477
0140	0540	0541	0542	0543	0546	0547	0554	0555	0556	0557
0150	0560	0561	0562	0563	0566	0567	0574	0575	0576	0577
0160	0700	0701	0702	0703	0706	0707	0714	0715	0716	0717
0170	0720	0721	0722	0723	0726	0727	0734	0735	0736	0737
0180	0740	0741	0742	0743	0746	0747	0754	0755	0756	0757
0190	0760	0761	0762	0763	0766	0767	0774	0775	0776	0777
0200	1000	1001	1002	1003	1006	1007	1014	1015	1016	1017
0210	1020	1021	1022	1023	1026	1027	1034	1035	1036	1037
0220	1040	1041	1042	1043	1046	1047	1054	1055	1056	1057
0230	1060	1061	1062	1063	1066	1067	1074	1075	1076	1077
0240	1140	1141	1142	1143	1146	1147	1154	1155	1156	1157
0250	1160	1161	1162	1163	1166	1167	1174	1175	1176	1177
0260	1300	1301	1302	1303	1306	1307	1314	1315	1316	1317
0270	1320	1321	1322	1323	1326	1327	1334	1335	1336	1337
0280	1340	1341	1342	1343	1346	1347	1354	1355	1356	1357
0290	1360	1361	1362	1363	1366	1367	1374	1375	1376	1377
0300	1400	1401	1402	1403	1406	1407	1414	1415	1416	1417
0310	1420	1421	1422	1423	1426	1427	1434	1435	1436	1437
0320	1440	1441	1442	1443	1446	1447	1454	1455	1456	1457
0330	1460	1461	1462	1463	1466	1467	1474	1475	1476	1477
0340	1540	1541	1542	1543	1546	1547	1554	1555	1556	1557
0350	1560	1561	1562	1563	1566	1567	1574	1575	1576	1577
0360	1700	1701	1702	1703	1706	1707	1714	1715	1716	1717
0370	1720	1721	1722	1723	1726	1727	1734	1735	1736	1737
0380	1740	1741	1742	1743	1746	1747	1754	1755	1756	1757
0390	1760	1761	1762	1763	1766	1767	1774	1775	1776	1777
0400	3000	3001	3002	3003	3006	3007	3014	3015	3016	3017

Table 2

Input/Output Transfer (IOT) Instructions for the PT1471

Special hardware-wired instructions to operate the input/output (I/O) for the PT1471 were required. These codes are microinstructions and hence may be combined. The following table lists all the IOT instructions for the PT1471.

Instruction Code	Function
6111	Strobe first voltmeter word into the accumulator
6112	Strobe second voltmeter word into the accumulator
6114	Strobe third voltmeter word into the accumulator
6121	Connect to Pin 1 on the contact-resistance test
6122	Connect to Pin 2 on the contact-resistance test
6124	Connect to Pin 3 on the contact-resistance test
6131	Connect to Pin 4 on the contact-resistance test
6132	Connect to Pin 5 on the contact-resistance test
6134	Connect to Pin 6 on the contact-resistance test
6141	Connect to Pin 7 on the contact-resistance test
6142	Connect to Pin 8 on the contact-resistance test
6144	Connect to Pin 9 on the contact-resistance test
6151	Connect to Pin 10 on the contact-resistance test
6152	Connect to Pin 11 on the contact-resistance test
6154	Connect to Pin 12 on the contact-resistance test
6161	Connect to Pin 13 on the contact-resistance test
6162	Connect to Pin 14 on the contact-resistance test
6164	Connect to Pin 15 on the contact-resistance test
6171	Connect to Pin 16 on the contact-resistance test
6172	Connect to Pin 17 on the contact-resistance test
6174	Connect to Pin 18 on the contact-resistance test
6201	Connect to Pin 19 on the contact-resistance test
6202	Connect to Pin 20 on the contact-resistance test
6204	Connect to Pin 21 on the contact-resistance test
6211	Connect to Pin 22 on the contact-resistance test
6212	Connect to Pin 23 on the contact-resistance test
6214	Connect to Pin 24 on the contact-resistance test
6221	Connect to Pin 25 on the contact-resistance test
6222	Connect to Pin 26 on the contact-resistance test
6224	Connect to Pin 27 on the contact-resistance test
6231	Connect to Pin 28 on the contact-resistance test
6232	Connect to Pin 29 on the contact-resistance test
6234	Connect to the 0.1-ohm standard on the contact-resistance test

Table 2
(Continued)

Instruction Code	Function
6241 and 6271	Connect to Pin 1 on high-voltage or insulation-resistance tests
6241 and 6272	Connect to Pin 2 on high-voltage or insulation-resistance tests
6241 and 6274	Connect to Pin 3 on high-voltage or insulation-resistance tests
6241 and 6301	Connect to Pin 4 on high-voltage or insulation-resistance tests
6241 and 6302	Connect to Pin 5 on high-voltage or insulation-resistance tests
6241 and 6304	Connect to Pin 6 on high-voltage or insulation-resistance tests
6241 and 6311	Connect to Pin 7 on high-voltage or insulation-resistance tests
6241 and 6312	Connect to Pin 8 on high-voltage or insulation-resistance tests
6242 and 6271	Connect to Pin 9 on high-voltage or insulation-resistance tests
6242 and 6272	Connect to Pin 10 on high-voltage or insulation-resistance tests
6242 and 6274	Connect to Pin 11 on high-voltage or insulation-resistance tests
6242 and 6301	Connect to Pin 12 on high-voltage or insulation-resistance tests
6242 and 6302	Connect to Pin 13 on high-voltage or insulation-resistance tests
6242 and 6304	Connect to Pin 14 on high-voltage or insulation-resistance tests
6242 and 6311	Connect to Pin 15 on high-voltage or insulation-resistance tests
6242 and 6312	Connect to Pin 16 on high-voltage or insulation-resistance tests
6244 and 6271	Connect to Pin 17 on high-voltage or insulation-resistance tests
6244 and 6272	Connect to Pin 18 on high-voltage or insulation-resistance tests
6244 and 6274	Connect to Pin 19 on high-voltage or insulation-resistance tests
6244 and 6301	Connect to Pin 20 on high-voltage or insulation-resistance tests
6244 and 6302	Connect to Pin 21 on high-voltage or insulation-resistance tests
6244 and 6304	Connect to Pin 22 on high-voltage or insulation-resistance tests
6244 and 6311	Connect to Pin 23 on high-voltage or insulation-resistance tests
6244 and 6312	Connect to Pin 24 on high-voltage or insulation-resistance tests
6251 and 6271	Connect to Pin 25 on high-voltage or insulation-resistance tests
6251 and 6272	Connect to Pin 26 on high-voltage or insulation-resistance tests
6251 and 6274	Connect to Pin 27 on high-voltage or insulation-resistance tests
6251 and 6301	Connect to Pin 28 on high-voltage or insulation-resistance tests
6251 and 6302	Connect to Pin 29 on high-voltage or insulation-resistance tests
6251 and 6304	Connect to Pin 30 on high-voltage or insulation-resistance tests
6251 and 6311	Connect to Pin 31 on high-voltage or insulation-resistance tests
6251 and 6312	Connect to Pin 32 on high-voltage or insulation-resistance tests
6252 and 6271	Connect to Pin 33 on high-potential or insulation-resistance tests
6252 and 6272	Connect to Pin 34 on high-potential or insulation-resistance tests
6252 and 6274	Connect to Pin 35 on high-potential or insulation-resistance tests
6252 and 6301	Connect to Pin 36 on high-potential or insulation-resistance tests
6252 and 6302	Connect to Pin 37 on high-potential or insulation-resistance tests
6252 and 6304	Connect to Pin 38 on high-potential or insulation-resistance tests
6252 and 6311	Connect to Pin 39 on high-potential or insulation-resistance tests
6252 and 6312	Connect to Pin 40 on high-potential or insulation-resistance tests

Table 2
(Continued)

Instruction Code	Function
6254 and 6271	Connect to Pin 41 on high-potential or insulation-resistance tests
6254 and 6272	Connect to Pin 42 on high-potential or insulation-resistance tests
6254 and 6274	Connect to Pin 43 on high-potential or insulation-resistance tests
6254 and 6301	Connect to Pin 44 on high-potential or insulation-resistance tests
6254 and 6302	Connect to Pin 45 on high-potential or insulation-resistance tests
6254 and 6304	Connect to Pin 46 on high-potential or insulation-resistance tests
6254 and 6311	Connect to Pin 47 on high-potential or insulation-resistance tests
6254 and 6312	Connect to Pin 48 on high-potential or insulation-resistance tests
6261 and 6271	Connect to Pin 49 on high-potential or insulation-resistance tests
6261 and 6272	Connect to Pin 50 on high-potential or insulation-resistance tests
6261 and 6274	Connect to Pin 51 on high-potential or insulation-resistance tests
6261 and 6301	Connect to Pin 52 on high-potential or insulation-resistance tests
6261 and 6302	Connect to Pin 53 on high-potential or insulation-resistance tests
6261 and 6304	Connect to Pin 54 on high-potential or insulation-resistance tests
6261 and 6311	Connect to Pin 55 on high-potential or insulation-resistance tests
6261 and 6312	Connect to Pin 56 on high-potential or insulation-resistance tests
6262 and 6271	Connect to Pin 57 on high-potential or insulation-resistance tests
6262 and 6272	Connect to Pin 58 on high-potential or insulation-resistance tests
6262 and 6274	Connect to Pin 59 on high-potential or insulation-resistance tests
6262 and 6301	Connect to Pin 60 on high-potential or insulation-resistance tests
6262 and 6302	Connect to Pin 61 on high-potential or insulation-resistance tests
6262 and 6304	Connect to Pin 62 on high-potential or insulation-resistance tests
6262 and 6311	Connect to Pin 63 on high-potential or insulation-resistance tests
6262 and 6312	Connect to Pin 64 on high-potential or insulation-resistance tests
6264 and 6271	Connect to Pin 65 on high-potential or insulation-resistance tests
6264 and 6272	Connect to Pin 66 on high-potential or insulation-resistance tests
6264 and 6274	Connect to Pin 67 on high-potential or insulation-resistance tests
6264 and 6301	Connect to Pin 68 on high-potential or insulation-resistance tests
6264 and 6302	Connect to Pin 69 on high-potential or insulation-resistance tests
6264 and 6304	Connect to Pin 70 on high-potential or insulation-resistance tests
6264 and 6311	Connect to Pin 71 on high-potential or insulation-resistance tests
6264 and 6312	Connect to 210-megohm standard
6321	Start 500 v/sec ramp
6322	Hold the ramp
6331	Select the 5-milliampere current
6332	Select the 25-milliampere current
6334	Select the 100-milliampere current

Table 2
(Continued)

Instruction Code	Function
6341	Select the 3-ampere current
6342	Select the 5-ampere current
6344	Select the 7.5-ampere current
6351	Select the 12-ampere current
6352	Apply milliamper current
6354	Apply ampere current
6361	Apply 500 volts DC
6364	Switch to low current shunt (used in I-R test)
6371	Connect voltmeter to high-potential test
6372	Connect voltmeter to current shunt
6374	Connect voltmeter to contact-resistance test
6401	Set voltmeter to 1-second sampling
6402	Set voltmeter to 0.1-volt scale
6404	Set voltmeter to 1.0-volt scale
6411	Set voltmeter to 0.01-second sampling
6412	Set voltmeter to 1000-volt scale
6414	Set voltmeter to 10-volt scale
6421	Set voltmeter to 100-volt scale
6422	Set voltmeter to 0.1-second sampling
6424	Set voltmeter to autorange
6431	Reset 6121 through 6314 codes
6432	Reset 6371 through 6424 and 6331 through 6351 codes
6434	Reset 6321 through 6361 less 6331 through 6351 codes
6621	Read voltmeter
6622	Skip if voltmeter reading is complete

Appendix C

SANDIA CORPORATION DOCUMENTATION

PT1471 OPERATING PROCEDURES

AF362371

1. General

- 1.1 Part Tested. Any Connector
- 1.2 Tester Identification. PT1471 (362371)
- 1.3 Characteristics Tested on Part.

- a. Contact Resistance
- b. Insulation Resistance
- c. High Voltage Breakdown

2. Documents and Equipment

- 2.1 Required Documents. None.
- 2.2 Reference Documents. None.
- 2.3 Equipment.

- a. PT1471
- b. ASR-33 Teletype-writer

- 2.4 Facilities Required. Power Source, 115±10VAC, 60 HZ (15 amp).
- 2.5 Calibration Verification. Check that calibration interval, as shown on PT1471 calibration sticker, has not expired.

3. Procedure

3.1 Preliminary Preparation

- 3.1.1 Procedures in this section assume that PT1471 has been received with units installed in cabinets, in accordance with Dwg. 362371.

- 3.1.2 Connect cables in accordance with Dwg. WD362371.
- 3.1.3 Connect J1 of U5060 to specified AC power source, using a standard 3-wire AC power cable.
- 3.3 Testing Operation
 - 3.3.1 Preliminary Procedure
 - 3.3.1.2 On U3902-15, operate AC PWR to OFF.
 - 3.3.1.3 Verify that 2401C Digital Voltmeter, (DVM) power switch is to ON.
 - 3.3.1.4 Verify that 6264A DC power supply LINE switch is to ON.
 - 3.3.1.5 On ASR-33 Teletypewriter, verify that switch on front power is rotated to LINE. Paper tape punch ON or OFF as desired.
 - 3.3.1.6 On U3902-15, operate AC PWR to ON. AC PWR lamp lights.
 - 3.3.1.7 If lights on PDP-8/S computer are not lit, using key, rotate POWER switch clockwise. Lights appear on computer face. Disregard indication.
 - 3.3.1.8 Verify that PANEL LOCK key switch is full counterclockwise.
 - 3.3.1.9 Allow 30 minute warm-up time before continuing.
 - 3.3.1.10 On 2401C DVM, rotate SAMPLE PERIOD to 1 sec, FUNCTION to VOLT, RANGE to ZERO, and SAMPLE RATE to STOP.
 - 3.3.1.11 Press RESET on DVM. DVM reads zero ± 1 count. If not, adjust ZERO control below RANGE switch and repeat 3.3.1.11.
 - 3.3.1.12 Rotate RANGE to INT + IV.
 - 3.3.1.13 Press RESET on DVM. DVM reads $+1000.00 \pm 1$ count. If not, adjust CAL + control and repeat 3.3.1.13.
 - 3.3.1.14 Rotate range to INT-IV.
 - 3.3.1.15 Press RESET on DVM. DVM reads -1000.00 ± 1 count. If not, adjust CAL- control and repeat 3.3.1.15.

3.3.1.16 On DVM, rotate SAMPLE PERIOD and FUNCTION to EXT SEL, and range to 1000V.

3.3.2 Contact Resistance Tests (C-R)

3.3.2.1 Open door on front of U4987 Chassis and remove any connectors connected to J1 through J4.

3.3.2.2 Wire the item to be tested as follows: (P₁, P₂, P₃, and P₄ are SA 1444-1, LJT06-25-29S) TEST SETUP

A total of 29 contacts may be connected at one time, with contacts being grouped according to test current applied. The groups should be connected with the highest current group first, descending to lowest current group. Always begin highest current group with Pin A of P₁, P₂, P₃, and P₄, and continue in sequence.

Example:

- 3.3.2.3 Connect P1 through P4 of test setup to J1 through J4 in U4987. Close door.
- 3.3.2.4 On the PDP-8/S, with DATA FIELD and INSTR FIELD zero, set 0200 octal on the SWITCH REGISTER and press LOAD ADD key. 0200 appears in the PROGRAM COUNTER.
- 3.3.2.5 Verify that SING STEP and SING INST keys are down and press START key.
- 3.3.2.6 Teletype prints C-R and computer halts with 0000 in the ACCUMULATOR.
- 3.3.2.7 Enter number of connectors to be tested on the SWITCH REGISTER (in octal), and press CONT key. Teletype prints CON 0001 and computer halts with 0001 in the ACCUMULATOR.
- 3.3.2.8 Enter number of pins to be tested in octal, at 20 amps on the SWITCH REGISTER. Press CONT key. Computer halts with 0002 in the ACCUMULATOR.
- 3.3.2.9 Repeat 3.3.2.8, except enter pins to be tested as noted in Table 1, for all currents.

If ACCUMULATOR Reads

Set SWITCH REGISTER for number of pins (in octal) to be tested at -

0002	12 amps
0003	7.5 amps
0004	5 amps
0005	3 amps
0006	100 milliamps
0007	25 milliamps
0010	5 milliamps

- 3.3.2.10 Teletype prints voltage developed across contact under test, in microvolts, under heading of current applied.

- 3.3.2.11 If all connectors have been tested, skip steps 3.3.2.12 and 3.3.2.13
- 3.3.2.12 If additional connectors are to be tested, upon completion of the connector under test, the computer will halt with 0001 in the accumulator. Repeat steps 3.3.2.1 to 3.3.2.3 using new test setup.
- 3.3.2.13 If the new test setup is identical to the previous test setup, and all pins are to be tested at the same currents as corresponding pins of the previous test setup, set 4000 into the SWITCH REGISTER and press the CONT key. Repeat steps 3.3.2.10 and 3.3.2.11.

If new test setup is different from previous setup, or different currents are required, repeat steps 3.3.2.8 to 3.3.2.11.
- 3.3.2.14 The last connector, at the completion of testing the minimum and maximum readings noted for each current is printed, as well as the average and the average plus and minus 3 sigma.
- 3.3.2.15 Remove test setup from U4987.
- 3.3.2.16 If additional tests are to be made, refer to appropriate section. 3.3.2 for contact resistance, 3.3.3 for insulation resistance. and high voltage break down, or 3.3.6 for shutdown.
- 3.3.3 Insulation resistance and high voltage breakdown set up procedure.
 - 3.3.3.1 Open U4990 door, and remove test board, if one is in place.
 - 3.3.3.2 Wire unit to be tested to a test board, test board serial number up, beginning with the upper-left-most pin, and moving left to right. Wire each row left to right, without skipping any pins. Note number of pins to be tested.

- 3.3.3.3 Place test board and unit to be tested in the U4990 and clamp in place with toggle clamps. Close door.
- 3.3.3.4 For insulation resistance testing refer to 3.3.4, and for high voltage breakdown refer to 3.3.5.
- 3.3.4 Insulation resistance testing.
- 3.3.4.1 With the DATA FIELD and INSTR FIELD zero, set 0176 octal into the SWITCH REGISTER on the PDP-8/S, and press LOAD ADD key. 0176 appears in the PROGRAM COUNTER.
- 3.3.4.2 Verify that SING STEP and SING INST keys are down and press START key. Teletype prints I-R and computer halts with 0001 in the ACCUMULATOR.
- 3.3.4.3 Set the SWITCH REGISTER for the number (octal) of pins to be tested.
- 3.3.4.4 Press CONT key. Computer halts with 0002 in the accumulator.
- 3.3.4.5 Set the minimum acceptable resistance in megohms (octal) on the SWITCH REGISTER. For minimum resistance in kilo-megohms set bit "0" up on SWITCH REGISTER.

Example:

10 megohms set switch register to 0012

10 kilo-megohms set switch register to 4012

- 3.3.4.6 Press CONT key. Computer halts with 0003 in accumulator.
- 3.3.4.7 Set SWITCH REGISTER for electrification time in seconds (octal).
- 3.3.4.8 Press CONT key on computer.
- 3.3.4.9 The built-in standard resistor is checked first, followed by each pin in sequence. After all pins have been tested the standard resistor is once again checked.

The teletype records the pin number and the resistance value. The resistance is printed in megohms, regardless of what was set in 3.3.4.5.

3.3.4.10 After all pins have been tested, the teletype records the minimum resistance noted and the maximum resistance, disregarding the standard and all SHORTS and BAD PINS and the computer will halt.

3.3.4.11 Diagnostic Messages.

- A. BD VLTGE tester reads the applied 500V before each test and checks it to $\pm 1\%$. If at any time it is out of tolerance, but greater than 250V, the teletype will print BD VLTGE and the computer will halt. Pressing the CONT key will cause the tester to reread the 500V supply.
- B. SHORT. If the supply is less than 250V, indicating a short rather than the supply being out of tolerance, the teletype will print SHORT. Pressing the CONT key initiates the following test, ignoring the short.
- C. BAD STD. The first and last tests made check a built-in standard resistor of 210 megohms. If the resistance measured is greater than 215 meg, or less than 205 meg, the teletype will print BAD STD, and the computer will halt. Pressing the CONT key will cause the tester to reread the standard resistor.

D. BAD PIN. If, during any test, the resistance detected is less than the lower limit set in 3.3.4.5 the teletype will print BAD PIN and the computer will halt. Pressing the CONT key initiates the following test.

3.3.4.12 If additional tests are to be made, refer to appropriate section. 3.3.2 for contact resistance, 3.3.3 for insulation resistance or high voltage breakdown, or 3.3.6 for shut down.

3.3.5 High voltage breakdown test.

3.3.5.1 With the DATA FIELD and INSTR FIELD zero, set 0177 (octal) into the SWITCH REGISTER on the PDP-8/S and press the LOAD ADD key. 0177 appears in the PROGRAM COUNTER.

3.3.5.2 Verify that SING STEP and SING INST keys are down and press START key. Teletype prints HPT and computer halts with 0001 in the accumulator.

3.3.5.3 Set the switch register for the number (octal) of pins to be tested.

3.3.5.4 Press CONT key. Computer halts with 0002 in the accumulator.

3.3.5.5 Set the maximum acceptable leakage current that will be accepted, in micro amps (octal), on the SWITCH REGISTER.

For maximum leakage in milliamps set bit "0" up on SWITCH REGISTER.

Example:

5 microamps set SWITCH REGISTER to 0005

5 milliamps set SWITCH REGISTER to 4005

3.3.5.6 Press CONT key. Computer halts with 0003 in the ACCUMULATOR.

3.3.5.7 The maximum applied voltage must now be set into the SWITCH REGISTER. To do this, divide the maximum voltage desired by 10, and form a three digit number. Convert each digit to a 4-2-2-1 BCD (Binary Coded Decimal) representation. The combination of the three BCD representations forms the twelve bit word set into the SWITCH REGISTER.

Example:

3850₁₀ V - Max desired voltage.

385₁₀ - Three digit number, $3850 \div 10$

3₁₀ = 0011₂ - in 4-2-2-1 BCD

8₁₀ = 1110₂ - in 4-2-2-1 BCD

5₁₀ = 0111₂ - in 4-2-2-1 BCD

385₁₀ = 0011 1110 0111₂ - in 4-2-2-1 BCD

0011 1110 0111₂ = 1747₈

Decimal to 4-2-2-1 BCD

4 2 2 1

0 = 0 0 0 0

1 = 0 0 0 1

2 = 0 0 1 0

3 = 0 0 1 1

4 = 0 1 1 0

5 = 0 1 1 1

6 = 1 1 0 0

7 = 1 1 0 1

8 = 1 1 1 0

9 = 1 1 1 1

1747₈ would be set into the
SWITCH REGISTER

3.3.5.8 Press CONT key on computer.

3.3.5.9 The first test is made on the built-in 210 megohm standard resistor. The teletype records the maximum voltage applied (same as 3.3.5.5) and the leakage noted at the maximum voltage.

The tester will test each pin in sequence and the teletype will record the pin number, the maximum voltage applied, and the leakage noted.

The tester will recheck the built-in standard after all pins have been tested.

3.3.5.10 Upon completion of testing, the teletype will record the maximum noted leakage and the minimum noted leakage, disregarding the built-in standard, all BR DWN and all LKGE BAD pin readings.

3.3.5.11 Diagnostic Messages

A. BAD STD. If the leakage noted through the built-in standard resistor does not correspond to 210 megohms ± 5 megohms then the teletype prints BAD STD, and the computer halts. Pressing the CONT key causes the tester to retest the built-in standard.

B. BR DWN. If at any time during the test the applied voltage drops (indicating a breakdown) then the teletype records the highest voltage reached, followed by the message BR DWN.

The computer halts. It is possible that breakdown can occur just prior to, or following the leakage current portion of the test. In this case, the leakage noted would be recorded but would be followed by BR DWN and the leakage current recorded should be disregarded. To continue testing, press the CONT key.

C. LKGE BAD. This message is printed following a leakage current value that exceeds that set in 3.3.5.3. To continue testing, press the CONT key.

3.3.5.12 If additional tests are to be made refer to appropriate section. 3.3.2 for contact resistance, 3.3.3 for insulation resistance or high voltage breakdown, or 3.3.6 for shutdown.

3.3.6 Shutdown

3.3.6.1 Verify that RUN on PDP-8/S is NOT lit..

3.3.6.2 On U3902 operate AC PWR switch to OFF. All lamps go out.

PT1471 CALIBRATION PROCEDURES

CP 362371

1. General
- 1.1 Tester Description
 - 1.1.1 Physical Description. The PT1471 is defined by Dwg. 362371 and is designed to perform contact resistance, insulation resistance, and high voltage breakdown tests on cable connectors.
 - 1.1.2 Functional Description. A functional description of the various circuits is given in the maintenance procedures, MP 362371.
- 1.2 Calibration Log. Refer to Test Equipment Log and Service Report for PT1471 (Form SC7544-E)
- 1.3 Preparation for Use
 - 1.3.1 Procedures for this section assume that the PT1471 has been received with units installed in cabinets in accordance with Dwg 362371.
 - 1.3.2 Connect internal cables in accordance with Dwg WD 362371.
2. Documents and Equipment
 - 2.1. Required documents. None.
 - 2.2. Reference Documents.

AF362371

MP362371

"Model DY-2401C Integrating Digital Voltmeter Operating and Service Manual".

"Operating and Service Manual Model 6264A DC Power Supply".

"DC Power Supply Lab Series, Model 6202B".

Logic Handbook, Digital Equipment Corp.

Small Computer Handbook, Digital Equipment Corp.

2.3 Equipment. PT1472 and ASR-33 Teletypewriter

2.4 Facilities Required, Power Source, 115±10VAC, 60 HZ, 15 amps.

3. Inspection and Calibration

(STD BLURB)

TABLE I
CALIBRATION EQUIPMENT

SPECIFICATION	SUGGESTED EQUIPMENT
Voltmeter, Capable of Measuring 10.0, 15.0, and 28VDC $\pm$ 0.1%	CSC VA100A
Kelvin Bridge, Capable of Measuring 0.1 ohm $\pm$ 0.01%	Rubicon 1622 Kelvin Bridge
Wheatstone Bridge Capable of Measuring 1.0 K, and 10.111 K ohms $\pm$ 0.1%	CSC WB100A
Oscilloscope with High Voltage Probe, capable of measuring 0-4000 VDC at a Rate of 500V/sec	Type 535 scope with Type K Plug in. Type P6013 12KV 1000:1 Probe or Equivalent.

3.3 Calibration

3.3.1 Initial Setup

3.3.1.1 On U3902, operate AC PWR switch to OFF.

3.3.1.2 Verify that there is not a connector board or connector in the U4990 high voltage panel, and that door is closed.

3.3.1.3 Verify that all connectors are removed from the U4987 Contact Resistance Panel, and that door is closed.

3.3.1.4 On 2401C Digital Voltmeter operate Power Switch to ON.

3.3.2 Calibration of 0.1 Ohm Standard

3.3.2.1 Pull forward U4987 to gain access to bottom of chassis. Note large standard resistor near front.

3.3.2.2 Connect 1622 Kelvin Bridge to standard resistor using the thumb screws on the resistor. The voltage leads to the small thumb-screws, the current leads to the large thumb screws. Neglect the wires already connected as they are open at this time.

3.3.2.3 (CP-1) Standard resistor reads 0.0999 to 0.1001 ohm.

3.3.2.4 Disconnect Kelvin Bridge and push U4987 chassis back into the cabinet.

3.3.3 Calibration of 10, 15, and 28V power supplies.

3.3.3.1 Open left door viewed from rear to gain access to rear of U5057 power supply chassis.

3.3.3.2 Defeat door interlock near top of cabinet. INTERLOCK CHEATED lamp on U3902 lights.

3.3.3.3 On U3902 operate AC PWR switch to ON. AC PWR lamp lights.

NOTE: Allow a 30 minute warm-up time before continuing.

- 3.3.3.4 On rear of U5057 connect Standard Voltmeter to the + and - 10V Jacks.
- 3.3.3.5 (CP 2) Std Voltmeter reads 9.9 to 10.1VDC. If necessary, adjust to 9.99 + 10.011. Disconnect Standard Voltmeter.
- 3.3.3.6 Connect Standard Voltmeter to the + and - 15V Jacks on rear of U5057.
- 3.3.3.7 (CP-3) Std Voltmeter reads 14.85 to 15.15 VDC. If necessary, adjust to within 14.985 to 15.015 VDC. Disconnect Standard Voltmeter.
- 3.3.3.8 Connect Standard Voltmeter to the + and - 28V jacks on rear of U5057.
- 3.3.3.9 (CP-4) Standard Voltmeter reads 27.72 to 28.28 VDC. If necessary, adjust to within 27.972 to 28.028 VDC. Disconnect Standard Voltmeter.
- 3.3.3.10 Close rear door. All lamps go out
- 3.3.3.11 On U3902 Operate AC PWR switch to ON. AC PWR lamp lights.
- 3.3.4 Calibration of 1K and 10.11K
- 3.3.4.1 On PDP-8/S Computer, if computer is not already on, insert key in POWER lock and rotate clockwise. Lights appear on computer front panel. Disregard indications.
- 3.3.4.2 Insert key in PANEL LOCK on PDP-8/S and rotate key counter-clockwise. This allows use of Computer Control Panel. (Panel may already be unlocked.)
- 3.3.4.3 On computer front panel, set DATA FIELD to zero and INST FIELD to zero. (Zero 's down on switches.)

- 3.3.4.4 Set computer SWITCH REGISTER to 4000 octal.
- 3.3.4.5 Verify that SING STEP and SING INST are down.
Press LOAD ADDRESS switch. 4000 octal appears in the PROGRAM COUNTER register on the front of the computer.
- 3.3.4.6 Press START switch. Computer halts with 0005 in the accumulator.
- 3.3.4.7 Open cal panel on front of U5058 chassis to gain access to 10.111K and 10K ohm binding posts.
- 3.3.4.8 Connect Wheatstone Bridge between left 10.111K terminal and right 1K terminal. Center terminal is left open.
- 3.3.4.9 (CP-5) Wheatstone Bridge reads 995 to 1005 ohms.
- 3.3.4.10 On computer, press CONT. Computer halts with 0006 in the accumulator.
- 3.3.4.11 (CP-6) Wheatstone Bridge reads 11.100 to 11.122 K ohm
- 3.3.4.12 Disconnect Wheatstone Bridge.
- 3.3.5 Calibration of Digital Voltmeter.
- 3.3.5.1 Set sample period of 2401C Digital Voltmeter to 1 sec, function to volt and sampling rate to STOP.
- 3.3.5.2 Rotate range to ZERO and press RESET. Digital Voltmeter reads zero $\pm$ 1 count. If not, adjust ZERO control and repeat 3.3.5.2.
- 3.3.5.3 Rotate range to INT+1V and press RESET. Digital Voltmeter reads +1000.00 $\pm$ 1 count. If not, adjust CAL+ control and repeat 3.3.5.3.
- 3.3.5.4 Rotate range to INT-1V and press RESET. Digital Voltmeter reads -1000.00 $\pm$ 1 count. If not, adjust CAL- control and repeat 3.3.5.4.
- 3.3.5.5 Rotate FUNCTION to EXT SEL, SAMPLE PERIOD to EXT SEL, and RANGE to 1000V.
- 3.3.5.6 Connect standard voltmeter across the HI and LOW terminals of the 2401C Digital Voltmeter.

- 3.3.5.7 Set 4011 in the Switch Register and press LOAD ADD key.
- 3.3.5.8 Press START on PDP-8/S computer. 2401C Digital Voltmeter reads.
Computer halts with 0007 in accumulator.
- 3.3.5.9 (CP-7) Standard Voltmeter reads same as 2401C ± 0.100 MV (Reading 300.0 MV nominal.) Remove Standard Voltmeter.
- 3.3.5.10 If Standard Voltmeter does not agree, shutdown tester, remove 2401C Digital Voltmeter and recalibrate per service manual.
- 3.3.6 Calibration of Constant Currents
 - 3.3.6.1 On PDP-8/S Computer, set 40258 (Starting Address) into the Switch Register and press LOAD ADD key.
 - 3.3.6.2 Press START key on computer. Computer halts with 0010 (check) in the accumulator.
 - 3.3.6.3 (CP-8) Digital Voltmeter reads 0.494 to 0.506 MV, (as found).
 - 3.3.6.4 If necessary, adjust SMA on U5058 cal panel, press CONT key on computer.
 - 3.3.6.5 Digital Voltmeter reads 0.499 to 0.501 MV (as left), if not, repeat 3.3.6.4.
 - 3.3.6.6 Repeat 3.3.6.1 to 3.3.6.5 for other currents, by substituting values from Table 2.

TABLE 2

<u>Current</u>	<u>Starting Address (Octal)</u>	<u>Check (Octal)</u>	<u>CP</u>	<u>As Found (MV)</u>	<u>As Left (MV)</u>
25MA	4035	0011	CP9	2.474 to 2.526	2.496 to 2.503
100MA	4045	0012	CP10	9.900 to 10.100	9.990 to 10.010
3A	4055	0013	CP11	297.000 to 303.000	299.700 to 300.300
5A	4065	0014	CP12	495.00 to 505.00	499.50 to 500.50
7.5A	4075	0015	CP13	742.50 to 757.50	749.25 to 750.75
12A	4105	0016	CP14	1188.00 to 1212.00	1198.80 to 1201.20
20A	4115	0017	CP15	1980.00 to 2020.00	1998.00 to 2002.00

3.3.7 500V Calibration

- 3.3.7.1 On PDP-8/S computer, set 4200₈ into the SWITCH REGISTER and press LOAD ADD key.
- 3.3.7.2 Press START key. Computer halts with 0020₈ in accumulator.
- 3.3.7.3 (CP-16) Digital Voltmeter reads 495.000 to 505.000V.
- 3.3.7.4 If necessary, adjust 500V on U5058 Cal panel and press CONT key on computer.
- 3.3.7.5 Digital Voltmeter reads 499.500 to 500.500V. If not, repeat 3.3.7.4. Note final setting.

3.3.8 High Voltage Divider Calibration

- 3.3.8.1 On PDP-8/S computer, set 4217₈ into the SWITCH REGISTER and press LOAD ADD key.

3.3.8.2 Press START key. Computer hlt's with 0021g in accumulator.

3.3.8.3 Note Digital Voltmeter reading. Multiply this reading by ten (10).

3.3.8.4 (CP-17) Difference between reading noted in 3.3.7.5 and corrected reading noted in 3.3.8.3 shall be less than 5.00V.

3.3.9 High Voltage Ramp Calibration

3.3.9.1 Open front door of U4990 to gain access to high voltage output terminals.

3.3.9.2 Connect high voltage oscilloscope probe to red(+) Banana Jack in U4990, and probe ground to black (-) Banana Jack. Short jumpers will be required. Place Probe in U4990 Chassis. A notch is provided in the lower right corner of the door for the probe lead. Close door.

CAUTION: Verify that oscilloscope has a good ground through the AC Power cord. 4000V will be applied to the probe input.

3.3.9.3 Oscilloscope settings as follows: Trigger slope to INT+, triggering mode to DC, stability to preset, triggering level as required, time/cm to 1 sec, volts/cm to 1.

Adjust the triggering level such that triggering will take place within the first centimeter of vertical deflection.

3.3.9.4 On the PDP-8/S computer, set 4236g into the SWITCH REGISTER and press the LOAD ADD key.

- 3.3.9.5 While observing the oscilloscope trace press the START key on the computer.
- 3.3.9.6 If computer halts with 0022 in the AC the computer halts with 406 to 414 volts on the Digital Voltmeter, then skip step 3.3.9.7.
- 3.3.9.7 If computer did not halt then ramp did not reach 4100V. Press STOP key on computer. Rotate VOLTAGE ADJUST on HV RAMP GENERATOR clockwise a small amount and repeat 3.3.9.4, 3.3.9.5, and 3.3.9.6.
- 3.3.9.8 (CP-18) By dividing the vertical divisions traversed by the horizontal divisions during the linear portion of the trace, a rate of 450 to 550 volts per sec is obtained. (Total ramp time should be approximately 8 seconds.)
- 3.3.9.9 If necessary, adjust RATE ADJUST on HV Ramp Generator and repeat 3.3.9.5 to 3.3.9.8 except press CONT key rather than START key.

		LBL	CALIBR	
		REM		/CALIBR
		REM		/CALIBRATION PROGRAMS
		ORG	4000	
		REM		/CAL OF 10K AND 1K
4000	6437	OCT	6437	/RESET ABC
4001	7300	CLA CLL		
4002	1346	TAD	CP5	/0005 TO AC
4003	7402	HLT		/READ 1K
4004	7300	CLA CLL		
4005	6364	OCT	6364	/LIFT 10.111K SHORT
4006	1347	TAD	CP6	/0006 TO AC
4007	7402	HLT		/READ 11.111K
4010	5207	JMP	*-1	
		REM		/
		REM		/
		REM		/
		REM		/CAL OF VOLTMETER
4011	6437	OCT	6437	/RESET ABC
4012	6341	OCT	6341	/PROG 3A
4013	6354	OCT	6354	/APPLY A
4014	6234	OCT	6234	/CONNECT STD RES
4015	6374	OCT	6374	/VM TO CR
4016	6401	OCT	6401	/VM TO 1SEC
4017	6402	OCT	6402	/VM TO 0.1V
4020	6621	OCT	6621	/VM READ
4021	7300	CLA CLL		
4022	1350	TAD	CP7	/0007 TO AC
4023	7402	HLT		/READ
4024	5223	JMP	*-1	
		REM		/
		REM		/
		REM		/
		REM		/5MA CAL
4025	6437	OCT	6437	/RESET ABC
4026	7300	CLL CLA		
4027	1351	TAD	CP8	/0010 TO AC
4030	6331	OCT	6331	/PROG 5MA

4031	6352	OCT		6352	/APPLY MA
4032	4324	JMS		READ	
4033	7402	HLT			
4034	5231	JMP		*-3	
		REM		/	
		REM		/	
		REM		/	
		REM		/25MA CAL	
4035	6437	OCT		6437	/RESET ABC
4036	7300	CLA	CLL		
4037	1352	TAD		CP9	/0011 TO AC
4040	6332	OCT		6332	/PROG 25MA
4041	6352	OCT		6352	/APPLY MA
4042	4324	JMS		READ	
4043	7402	HLT			
4044	5241	JMP		*-3	
		REM		/	
		REM		/	
		REM		/	
		REM		/100MA CAL	
4045	6437	OCT		6437	/RESET ABC
4046	7300	CLA	CLL		
4047	1353	TAD		CP10	/0012 TO AC
4050	6334	OCT		6334	/PROG 100MA
4051	6352	OCT		6352	/APPLY MA
4052	4324	JMS		READ	
4053	7402	HLT			
4054	5251	JMP		*-3	
		REM		/	
		REM		/	
		REM		/	
		REM		/3A CAL	
4055	6437	OCT		6437	/RESET ABC
4056	7300	CLA	CLL		
4057	1354	TAD		CP11	/0013 TO AC
4060	6341	OCT		6341	/PROG 3A
4061	6354	OCT		6354	/APPLY A
4062	4324	JMS		READ	

4063	7402	HLT		
4064	5261	JMP	*-3	
		REM		/
		REM		/
		REM		/
		REM		/5A CAL
4065	6437	OCT	6437	/RESET ABC
4066	7300	CLA	CLL	
4067	1355	TAD	CP12	/0014 TO AC
4070	6342	OCT	6342	/PROG 5A
4071	6354	OCT	6354	/APPLY A
4072	4324	JMS	READ	
4073	7402	HLT		
4074	5271	JMP	*-3	
		REM		/
		REM		/
		REM		/
		REM		/7.5A CAL
4075	6437	OCT	6437	/RESET ABC
4076	7300	CLA	CLL	
4077	1355	TAD	CP13	/0015 TO AC
4100	6344	OCT	6344	/PROG 7.5A
4101	6354	OCT	6354	/APPLY A
4102	4324	JMS	READ	
4103	7402	HLT		
4104	5301	JMP	*-3	
		REM		/
		REM		/
		REM		/
		REM		/12A CAL
4105	6437	OCT	6437	/RESET ABC
4106	7300	CLA	CLL	
4107	1357	TAD	CP14	/0016 TO AC
4110	6351	OCT	6351	/PROG 12A
4111	6354	OCT	6354	/APPLY A
4112	4324	JMS	READ	
4113	7402	HLT		
4114	5311	JMP	*-3	

		REM	/
		REM	/
		REM	/
		REM	/20A CAL
4115	6437	OCT	6437 /RESET ABC
4116	7300	CLA	CLL
4117	1360	TAD	CP15 /0017 TO AC
4120	6354	OCT	6354 /APPLY A
4121	4324	JMS	READ
4122	7402	HLT	
4123	5320	JMP	*-3
		REM	/
		REM	/
		REM	/
4124	0	READ OCT	0000 /READ STD RES
4125	6401	OCT	6401 /VM TO ISEC
4126	6424	OCT	6424 /VM TO AUTO
4127	6374	OCT	6374 /VM TO CR
4130	6234	OCT	6234 /CALL STD RES
4131	4342	JMS	WAIT
4132	6621	OCT	6621 /VM READ
4133	4342	JMS	WAIT
4134	6622	OCT	6622 /VM DONE
4135	5334	JMP	*-1
4136	6434	OCT	6434 /YES, RESET C
4137	4342	JMS	WAIT
4140	6431	OCT	6431 /RESET A
4141	5724	JMP I	READ /EXIT
		REM	/
		REM	/
		REM	/
4142	0	WAIT OCT	0000 /330MS TIME DELAY
4143	2361	ISZ	CNTR
4144	5343	JMP	*-1
4145	5742	JMP I	WAIT
		REM	/
		REM	/
		REM	/

4146	5	CP5	OCT	5	
4147	6	CP6	OCT	6	
4150	7	CP7	OCT	7	
4151	10	CP8	OCT	10	
4152	11	CP9	OCT	11	
4153	12	CP10	OCT	12	
4154	13	CP11	OCT	13	
4155	14	CP12	OCT	14	
4156	15	CP13	OCT	15	
4157	16	CP14	OCT	16	
4160	17	CP15	OCT	17	
4161	0	CNTR	OCT	0000	
			ORG	4200	
		REM			/500V CAL
4200	6437	OCT	6437		/RESET ABC
4201	7300	CLA	CLL		
4202	1301	TAD		CP16	
4203	6371	OCT	6371		/VM TO HV
4204	6401	OCT	6401		/VM TO 1SEC
4205	6424	OCT	6424		/VM TO AUTO
4206	6363	AGAIN	OCT	6363	/SHORT MULT, APPLY 500V
4207	4704	JMS	I	WAITP	
4210	6621	OCT	6621		/VM READ
4211	4704	JMS	I	WAITP	
4212	6622	OCT	6622		/VM DONE
4213	5212	JMP		*-1	
4214	6435	OCT	6435		/YES, RESET AC
4215	7402	HLT			/READ 500V
4216	5206	JMP	AGAIN		/READ AGAIN
		REM			/
		REM			/
		REM			/
		REM			/HV DIVIDER CAL
4217	6437	OCT	6437		/RESET ABC
4220	7300	CLA	CLL		
4221	1302	TAD		CP17	/0021 TO AC
4222	6371	OCT	6371		/VM TO HV
4223	6401	OCT	6401		/VM TO 1SEC

4224	6424		OCT	6424	/VM TO AUTO
4225	6361	ONCEMO	OCT	6361	/APPLY 500V
4226	4704		JMS I	WAITP	
4227	6621		OCT	6621	/VM READ
4230	4704		JMS I	WAITP	
4231	6622		OCT	6622	/VM DONE
4232	5231		JMP	*-1	
4233	6435		OCT	6435	/YES, RESET AC
4234	7402		HLT		
4235	5225		JMP	ONCEMO	
			REM	/	
			REM	/	
			REM	/	
			REM	/HV RAMP CAL	
4236	6437	START	OCT	6437	/RESET ABC
4237	7300		CLA CLL		
4240	1306		TAD	M6	/CALL -6
4241	3305		DCA	CNTRR	/SET CNTR
4242	4704		JMS I	WAITP	/330NS DLY
4243	2305		ISZ	CNTRR	/2 SEC YET
4244	5242		JMP	*-2	
4245	6411		OCT	6411	/VM TO 0.01SEC
4246	6371		OCT	6371	/VM TO HV
4247	6412		OCT	6412	/VM TO 1000V
4250	6321		OCT	6321	/START RAMP
4251	4704		JMS I	WAITP	
4252	6621	READR	OCT	6621	/VM READ
4253	1307		TAD	M267	
4254	3305		DCA	CNTRR	/LOAD CNTR
4255	2305		ISZ	CNTRR	/15MS YET
4256	5255		JMP	*-1	
4257	6622		OCT	6622	/YES, VM DONE
4260	5257		JMP	*-1	
4261	6112		OCT	6112	/YES, VM LSB TO AC
4262	3120		DCA	120	
4263	1310		TAD	M3020	/CALL -41008CD
4264	1120		TAD	120	/ADD READING
4265	7710		SPA CLA		/LIMIT YET

4266	5252		JMP	READR	/NO, READ AGAIN
4267	6322		OCT	6322	/YES, HOLD RAMP
4270	1306		TAD	M6	/2 SEC DLY
4271	3305		DCA	CNTRR	/LOAD CNTR
4272	4704		JMS I	WAITP	/330MS DLY
4273	2305		ISZ	CNTRR	/2 SEC YET
4274	5272		JMP	*-2	
4275	6435		OCT	6435	/YES, RESET AC
4276	1303		TAD	CP18	/0022 TO AC
4277	7402		HLT		
4300	5236		JMP	START	
			REM	/	
			REM	/	
			REM	/	
4301	20	CP16	OCT	20	
4302	21	CP17	OCT	21	
4303	22	CP18	OCT	22	
4304	4142	WAITP	OCT	4142	
4305	7772	CNTRR	DEC	-6	
4306	7772	M6	DEC	-6	
			REM		/NOTE PAL III USES OCTA
			REM		/IBM 7090 ASSEMBLER USE
4307	7511	M267	DEC	-183	
			REM		/NOTE PAL III USES OCTA
			REM		/IBM 7090 ASSEMBLER USE
4310	4760	M3020	DEC	-1552	
			END		

NO MESSAGE FOR THIS ASSEMBLY.

AGAIN	4206
CNTRR	4305
CNTR	4161
CP10	4153
CP11	4154
CP12	4155
CP13	4156
CP14	4157
CP15	4160
CP16	4301
CP17	4302
CP18	4303
CP5	4146
CP6	4147
CP7	4150
CP8	4151
CP9	4152
M267	4307
M3020	4310
M6	4306
ONCENO	4225
RFADR	4252
READ	4124
STAR1	4236
WAITP	4304
WAIT	4142

Appendix D
FLOW CHARTS

Flow Chart for PT1471 High-potential Test

Flow Chart for PT1471 High-potential Test (Continued)

Flow Chart for PT1471 High-potential Test (Continued)

Flow Chart References

Ref. 1. The computer will halt three times with the numbers 0001_8 , 0002_8 , and 0003_8 in the accumulator. These are question numbers. Answer them as follows:

a. How many pins are to be tested?

Answer: Key in the octal number in the switch register and press CONTINUE.

b. What is the maximum acceptable pin leakage current?

Answer: Key in the octal number in the switch register and press CONTINUE.

(1) If bit 0 = 0, the answer is assumed to be in microamperes

(2) If bit 0 = 1, the answer is assumed to be in milliamperes

c. What is one-tenth of the test voltage (ramp top voltage) required?

Answer: Key in the number in the octal equivalent of 4-2-2-1 code* in the switch register and press CONTINUE.

Ref. 2. A DY-2401C Integrating Digital Voltmeter is used. Only one-tenth of the actual voltage being applied to the pin is read by the voltmeter. The voltmeter output is three 12-bit words in 4-2-2-1 code. The first two provide a 6-digit decimal number. The third word provides a 4-bit exponent and a 4-bit function code that designates the type of reading and whether it is positive or negative. The program then converts this output to a double precision binary number scaled according to the exponent.

Ref. 3. The maximum and minimum test voltage reached and leakage currents determined over all the pins tested is stored for output after the last pin has been tested.

Ref. 4. A "matrix" type arrangement is used to connect particular contacts in the adapter board. Table 2 of App. B lists the hardware codes necessary to connect to each of the 71 adapter board contacts and the 210-megohm standard.

* See Table 1 in App. B for a conversion table from decimal to the octal equivalent of 4-2-2-1 code (BCD).

5. The computer will print

"MAX = XXXXXXXXE-2V" "YYYYYYYE-9A"

"MIN = XXXXXXXXE-2V" "YYYYYYYE-9A"

where XXXXXXXX is test voltage and YYYYYYY is leakage current.

Flow Chart for PT1471 Insulation-resistance Test

Flow Chart for PT1471 Insulation-resistance Test (Continued)

Flow Chart References

Ref. 1. The computer will halt three times with the numbers 0001_8 , 0002_8 , and 0003_8 in the accumulator. These are question numbers. Answer them as follows:

a. How many pins are to be tested?

Answer: Key in the octal number in the switch register and press CONTINUE.

b. What is the minimum acceptable pin resistance?

Answer: Key in the octal number in the switch register and press CONTINUE.

(1) If bit 0 = 0, the number is assumed to be in megohms

(2) If bit 0 = 1, the number is assumed to be in kilomegohms

c. What is the electrification time in seconds?

Answer: Key in the octal number in the switch register and press CONTINUE.

Ref. 2. The maximum and minimum pin resistances over all pins tested is stored for output after the last pin has been tested.

Ref. 3. The same codes are used to connect the pins as in the high-potential test. (See p. 65 for more detail.)

Ref. 4. The computer will print

"MAX = XXXXXXXX" where XXXXXXXX is the pin resistance in megohms.

"MIN = YYYYYYYY" where YYYYYY is the pin resistance in megohms.

Flow Chart for PT1471 Contact-resistance Test

Flow Chart for PT1471 Contact-resistance Test (Continued)

Flow Chart References

1. The computer will halt up to eight times with a number 0001-0010₈ in the accumulator. These are question numbers. Answer them as follows.*

- a. How many pins to be tested at 20 amperes?

Answer: Key in the octal number in the switch register and press CONTINUE.

- b. How many pins to be tested at 12 amperes?
- c. How many pins to be tested at 7.5 amperes?
- d. How many pins to be tested at 5 amperes?
- e. How many pins to be tested at 3 amperes?
- f. How many pins to be tested at 100 milliamperes?
- g. How many pins to be tested at 25 milliamperes?
- h. How many pins to be tested at 5 milliamperes?

Answer for each of these: Key in the octal number in the switch register and press CONTINUE.

The total number of pins must not exceed 29.

2. The cycle through the currents is as follows:

- a. 20 amperes
- b. 12 amperes
- c. 7.5 amperes
- d. 5 amperes
- e. 3 amperes
- f. 100 milliamperes
- g. 25 milliamperes
- h. 5 milliamperes

3. a. A DY-2401C Integrating Digital Voltmeter is used to read the voltage (see p. for further description). The voltage across each pin (including the standard) is first read

* The answers apply only to this connector. If any answer is negative (i. e., bit 0 = 1), the answers to this question and all subsequent questions are assumed to be the same as those for the previous connector. (Initially all answers are 0.)

without applying current. This reading is then subtracted from the reading when the current is applied.

- b. If more than 29 pins per connector are specified, the results above the 29th pin are invalid.
4. a. The maximum and minimum voltage drops for each current are updated.
- b. The average voltage drop ($\bar{X}$) for each current is updated using the following algorithm.*

$$\bar{X}_I = \frac{(I-1) \cdot \bar{X}_{I-1} + \text{reading}}{I} \quad I = 2, 3, \dots \quad \bar{X}_1 = 0$$

- c. The square of the standard deviation (σ^2) for each current is updated using the following algorithm:*

$$\sigma_I^2 = \frac{I-2}{I-1} \cdot \sigma_{I-1}^2 + \frac{(\text{reading} - \bar{X}_{I-1})^2}{I} \quad I = 2, 3, \dots$$

$$\sigma_1^2 = 0$$

5. a. The square root of σ^2 is calculated using the following algorithm called Newton's Algorithm:

$$\sigma_0 = 2$$

$$\sigma_n = \frac{1}{2} \left(\sigma_{n-1} + \frac{\sigma^2}{\sigma_{n-1}} \right) \quad n = 1, 2, \dots$$

The algorithm terminates when $\sigma_n - \sigma_{n-1} \leq 1$. Then, with $R = \sigma^2 - \sigma_n^2$,

$$\sqrt{\sigma^2} = \sigma = \sigma_n + \frac{R}{2\sigma_n}$$

The result is σ , the standard deviation.

* See Appendix A.

- b. For each current the following are printed

"YYYY" = current "XXXX PINS" = number of pins

"MAX = XXXXXXXX" where XXXXXXXX is in microvolts.

"MIN = XXXXXXXX" where XXXXXXXX is in microvolts.

"AVG = XXXXXXXX" where XXXXXXXX is in microvolts.

"AVG + 3σ = XXXXXXXX" where XXXXXXXX + 3σ is in
microvolts.

"AVG - 3σ = XXXXXXXX" where XXXXXXXX - 3σ is in
microvolts.

Flow Chart for PT1471 Statistical Package Main Program (DSTATS)

Flow Chart for Subroutine DSIGMA

Flow Chart for Subroutine DXBAR

Flow Chart for Subroutine ENDTST

Flow Chart for Subroutine DSORT

Appendix E
PROGRAM LISTING

/ PT-1471 DECK 01 OF 20
 /PT 1471 TEST PROGRAMS
 / W.H. VANDEVENDER
 / FOR D.M. MORRISON
 /..... APRIL, 1963
 /START AT 0176 FOR I-R
 /START AT 0177 FOR H-V
 /START AT 0200 FOR C-R
 /.....

*3

/..... WORKING STORAGE AREA

0003	0000	WORK1,	0
0004	0000	WORK2,	0
0005	0000	WORK3,	0
0006	0000	WORK4,	0

/..... VOLTMETER OUTPUT STORAGE

*101

0101	0000	HRAW,	0
0102	0000	LRAW,	0
0103	0000	WORK5,	0
0104	0000	WORK6,	0
0105	0000	HRDNG,	0
0106	0000	LRDNG,	0
0107	0000	EXPONT,	0

*110

0110	0000	ISTCNT,	0
------	------	---------	---

/..... SUBROUTINE ADDRESSES

0111	2211	LMTCHK,	2211
0112	2400	MILLI,	2400
0113	2433	MICRO,	2433
0114	2200	SELCT,	2200
0115	2240	DELAY1,	2240
0116	2255	DELAY2,	2255
0117	2266	OCTA,	2266
0120	2330	MAXMIN,	2330
0121	6000	CHEWER,	6000
0122	6155	PRNT,	6155
0123	6163	LNFEED,	6163
0124	6200	DMUL,	6200
0125	6400	DUBDIV,	6400
0126	6600	DPAOS,	6600
0127	6653	MSGE,	6653
0130	7000	UDPRNT,	7000
0131	7046	SDPRNT,	7046
0132	2330	READ1,	2330
0133	2336	READ2,	2336
0134	1572	RESET,	1572
0135	2477	SETUP,	2477
0136	2530	PIN,	2530
0137	0000	P20,	20
0140	2140	CVRT0,	2140
0141	0000	FIX,	0

0142	1105	TAD	105
------	------	-----	-----

0143	3023	DCA	23	-81-
------	------	-----	----	------

0144	1106	TAD	106
0145	3024	DCA	24
0146	5541	JMP I	FIX

/..... CONSTANTS USED

*161

0161	7777	M1,	7777
0162	7776	M2,	7776
0163	7775	M3,	7775
0164	7774	M4,	7774
0165	7773	M5,	7773
0166	7772	M6,	7772
0167	7771	M7,	7771
0170	7770	M10,	7770
0171	7767	M11,	7767
0172	0003	P3,	3
0173	0005	P5,	5
0174	2720	IR,	2720
0175	2661	HV,	2661
0176	5574	JMP I	IR
0177	5575	JMP I	HV

/START IR TEST

/START HV TEST

CHEWER	0121
CVRT0	0140
DELAY1	0115
DELAY2	0116
DMUL	0124
DPAOS	0126
DUBDIV	0125
EXPONT	0107
HRAW	0101
HRDNG	0105
HV	0175
IR	0174
LMCHK	0111
LNFEED	0123
LRAW	0102
LRDNG	0106
MAXMIN	0120
MICRO	0113
MILLI	0112
MSGE	0127
M1	0161
M10	0170
M11	0171
M2	0162
M3	0163
M4	0164
M5	0165
M6	0166
M7	0167
OCTA	0117
PIN	0136
PRNT	0122
P20	0137
P3	0172
P5	0173
READ1	0132
READ2	0133
RESET	0134
SDPRNT	0131
SELCT	0114
SETUP	0135
ISTICNT	0110
UDPRNT	0130
WORK1	0003
WORK2	0004
WORK3	0005
WORK4	0006
WORK5	0103
WORK6	0104

/ PT-1471 DECK 02 OF 20

/200

/PT-1471 CONTACT- RESISTANCE

/TEST PROGRAM.

/ W.H. VANDEVENDER

/ FOR D.M. MORRISON

/START AT 0200

*200

/INITIALIZE FOR A NEW C-R TEST

0200 4776 RSTNCE, JMS I ZERO /ZERO LOC 2000-2137

/..... SET MINIMUMS TO 37777777

0201 1256 TAD DTABL2 /ADDRESS OF MINT

0202 3010 DCA 10 /USE AUTOINDEX

0203 1170 TAD M10 /AC=-10

0204 3260 DCA DCNT

0205 1262 TAD D3777 /AC=3777

0206 3410 DCA I 10 / STORE

0207 7040 CMA /AC=7777

0210 3410 DCA I 10 / STORE

0211 0200 ISZ DCNT /THROUGH YET

0212 5005 JMP .-5 /NO

/..... GET NO. OF CONNECTORS FOR THIS TEST

0213 6040 TIS /SET PRINT FLAG

0214 4523 JMS I LNFEED

0215 4527 JMS I MSGE

0216 0355 0355 /C-

0217 2200 2200 /R

0220 7400 HLT

0221 7604 LAS / GET NO. OF CONNECTORS

0222 7041 CIA / TWOS COMPLEMENT

0223 3020 DCA NCON

0224 3661 DCA I NMBER

/.....

/ INITIALIZE FOR EACH CONNECTOR

0225 1263 NEWCON, TAD PINJ /PINJ = JMS I PINSI

0226 3241 DCA ADFINJ

0227 7001 IAC

0230 3110 DCA ISTCNT /TEST NUMBER = 1 INITIALLY

0231 1264 TAD N6114 /SET FOR PIN NO. 1

0232 3654 DCA I BASE

0233 3777 DCA I PNCNT /SET PIN COUNTER TO ZERO

/..... GET REST OF PARAMS FOR THIS CONNECTOR

0234 5657 JMP I NXICON /GET CONNECTOR PARAMS

/..... START AT 20 AMPS

0235 1255 RETRN, TAD TBLADR /LOAD AUTOINDEX WITH ADDRESS

0236 3012 DCA 12 / OF 1ST PARAMETER

0237 1412 LOOP3, TAD I 12 /GET NUMBER OF PINS

0240 7640 SZA CLA /IS IT ZERO

0241 4666 ADPINJ, JMS I PINSJ /NO, GO DO TESTING

0242 2241 ISZ .-1 /YES, SET UP FOR NEXT

0243 2110 ISZ ISTCNT / CURRENT

0244 6432 6432 /RESET 3

0245 1110 TAD ISTCNT /ALL 3

0246 1171 TAD M11 / CURRENTS

0247 7640 SZA CLA / YET

0250 5237 JMP LOOP3 /NO

0251 2020 ISZ NCON /ALL CONNECTORS DONE

0252 5205 JMP NEWCON /NO, GET SET FOR NEXT ONE

/..... PRINT TEST RESULTS

0253 5665 JMP I RESULT /YES, PRINT RESULTS

0255	0020	TBLADR,	20
0256	2017	DTABL2,	2017
0257	2600	NXTCON,	2600
0260	0000	DCNT,	0
0261	2646	NMBER,	2646
0262	3777	D3777,	3777
0263	4666	PINJ,	JMS I PINSJ
0264	6114	NG114,	6114
0265	1000	RESULT,	1000
0266	0400	PINSJ,	400
0267	0410		410
0270	0420		420
0271	0430		430
0272	0440		440
0273	0450		450
0274	0460		460
0275	0470		470

/ADDRESS OF PINS1
 /ADDRESS OF PINS2
 /ADDRESS OF PINS3
 /ADDRESS OF PINS4
 /ADDRESS OF PINS5
 /ADDRESS OF PINS6
 /ADDRESS OF PINS7
 /ADDRESS OF PINS3

/ PARAMETER TABLES FOR EACH CURRENT. PARAMETERS TO USE
 / IN THE APPLY SUBROUTINE

0276	7000	A1,	7000	/SELECT 20 AMP CURRENT
0277	6354		6354	/APPLY AMPS
0300	0346		LMT1	/20AMPS * .1 OHM
0301	0366		EPS1	/10 PERCENT OF LMT1
0302	2021		ISZ	NTEST1
0303	6351	A2,	6351	/SELECT 12 AMP CURRENT
0304	6354		6354	/APPLY AMPS
0305	0350		LMT2	/12 * .1
0306	0370		EPS2	/10 PERCENT OF LMT2
0307	2022		ISZ	NTEST2
0310	6344	A3,	6344	/SELECT 7.5 AMP CURRENT
0311	6354		6354	/APPLY AMPS
0312	0352		LMT3	/7.5 * .1
0313	0372		EPS3	/10 PERCENT OF LMT3
0314	2023		ISZ	NTEST3
0315	6342	A4,	6342	/SELECT 5 AMP CURRENT
0316	6354		6354	/APPLY AMPS
0317	0354		LMT4	/5 * .1
0320	0374		EPS4	/10 PERCENT OF LMT4
0321	2024		ISZ	NTEST4
0322	6341	A5,	6341	/SELECT 3 AMP CURRENT
0323	6354		6354	/APPLY AMPS
0324	0356		LMT5	/3 * .1
0325	0570		570	/10 PERCENT OF LMT5
0326	2025		ISZ	NTEST5
0327	6334	A6,	6334	/SELECT 100 MA CURRENT
0330	6352		6352	/APPLY MILLIAMPS
0331	0360		LMT6	/100 MILLIAMPS * .1 OHM
0332	0572		572	/10 PERCENT OF LMT6
0333	2026		ISZ	NTEST6
0334	6332	A7,	6332	/SELECT 25 MA CURRENT
0335	6352		6352	/APPLY MILLIAMPS
0336	0562		LMT7	/25 * .1
0337	0574		574	/10 PERCENT OF LMT7
0340	2027		ISZ	NTEST7
0341	6331	A8,	6331	/SELECT 5 MA CURRENT
0342	6352		6352	/APPLY MILLIAMPS
0343	0364		LMT8	/5 * .1
0344	0576		576	/10 PERCENT OF LMT8
0345	2030		ISZ	NTEST8

/VOLTAGES EXPECTED ACROSS THE
/0.1 OHM STANDARD FOR EACH
/CURRENT. VALUES IN MICROVOLT
/2,000,000

0346	0750	LMT1,	0750
0347	2200		2200
0350	0444	LMT2,	0444
0351	7600		7600
0352	0267	LMT3,	0267
0353	0660		0660
0354	0172	LMT4,	0172
0355	0440		0440
0356	0111	LMT5,	0111
0357	1740		1740
0360	0002	LMT6,	0002
0361	3440		3440
0362	0000	LMT7,	0
0363	4704		4704
0364	0000	LMT3,	0
0365	0764		0764
0366	0004	EPS1,	0004
0367	7040		7040
0370	0002	EPS2,	0002
0371	7340		7340
0372	0001	EPS3,	0001
0373	6514		6514
0374	0001	EPS4,	0001
0375	1610		1610
0376	3350	ZERO,	3350
0377	0733	PNCNT,	733

*20

0020	0000	NCON,	0	/NO OF CONNECTORS
0021	0000	NTEST1,	0	/NO OF PINS/CONNEC AT 20A
0022	0000	NTEST2,	0	/NO OF PINS/CONNEC AT 12A
0023	0000	NTEST3,	0	/NO OF PINS/CONNEC AT 7.5A
0024	0000	NTEST4,	0	/NO OF PINS/CONNEC AT 5A
0025	0000	NTEST5,	0	/NO OF PINS/CONNEC AT 3A
0026	0000	NTEST6,	0	/NO OF PINS/CONNEC AT 100MA
0027	0000	NTEST7,	0	/NO OF PINS/CONNEC AT 25MA
0030	0000	NTEST3,	0	/NO OF PINS/CONNEC AT 5MA

*110

0110	0000	ISTCNT,	0
		*123	
0123	6163	LNFEED,	6163
		*127	
0127	6653	MSGE,	6653
		*170	
0170	7770	M10,	7770
0171	7767	M11,	7767

ADPINJ	0241
A1	0276
A2	0303
A3	0310
A4	0315
A5	0322
A6	0327
A7	0334
A3	0341
BASE	0254
DCNT	0260
DTABL2	0256
D3777	0262
EPS1	0366
EPS2	0370
EPS3	0372
EPS4	0374
LMT1	0346
LMT2	0350
LMT3	0352
LMT4	0354
LMT5	0356
LMT6	0360
LMT7	0362
LMT3	0364
LNFEED	0123
LOOP3	0237
MSGE	0127
MID	0170
MII	0171
NCON	0020
NEWCON	0225
NMBER	0261
NTEST1	0021
NTEST2	0022
NTEST3	0023
NTEST4	0024
NTEST5	0025
NTEST6	0026
NTEST7	0027
NTEST3	0030
NXTCON	0257
N6114	0264
PINJ	0263
PINSJ	0266
PNCNT	0377
RESULT	0265
RETRN	0235
RSTNCE	0200
TBLADR	0255
TSTCNT	0110
ZERO	0376

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/400

*400

0400	0000	PINS1,	0	/20 AMP TEST
0401	1207	TAD	ADA1	/ADDRESS OF PARAM TABLE
0402	3013	DCA	13	/LOAD AUTOINDEX
0403	4301	JMS	A20	/PRINT 20A
0404	4523	JMS I	LNFEED	/PRINT CR-LF
0405	4700	JMS I	APPLY	/FINISH THE TESTING
0406	5600	JMP I	PINS1	
0407	0275	ADA1,	275	
0410	0000	PINS2,	0	/12 AMP TEST
0411	1217	TAD	ADA2	
0412	3013	DCA	13	/LOAD AUTOINDEX
0413	4310	JMS	A12	/PRINT 12A
0414	4523	JMS I	LNFEED	/PRINT CR-LF
0415	4700	JMS I	APPLY	/FINISH THE TESTING
0416	5610	JMP I	PINS2	
0417	0302	ADA2,	302	
0420	0000	PINS3,	0	/7.5 AMP TEST
0421	1227	TAD	ADA3	
0422	3013	DCA	13	/LOAD AUTOINDEX
0423	4317	JMS	A75	/PRINT 7.5A
0424	4523	JMS I	LNFEED	/PRINT CR-LF
0425	4700	JMS I	APPLY	/FINISH THE TESTING
0426	5620	JMP I	PINS3	
0427	0307	ADA3,	307	
0430	0000	PINS4,	0	/5 AMP TEST
0431	1237	TAD	ADA4	
0432	3013	DCA	13	/LOAD AUTOINDEX
0433	4326	JMS	A5	/PRINT 5A
0434	4523	JMS I	LNFEED	/PRINT CR-LF
0435	4700	JMS I	APPLY	/FINISH THE TESTING
0436	5630	JMP I	PINS4	
0437	0314	ADA4,	314	
0440	0000	PINS5,	0	/3 AMP TEST
0441	1247	TAD	ADA5	
0442	3013	DCA	13	/LOAD AUTOINDEX
0443	4334	JMS	A3	/PRINT 3A
0444	4523	JMS I	LNFEED	/PRINT CR-LF
0445	4700	JMS I	APPLY	/FINISH THE TESTING
0446	5640	JMP I	PINS5	
0447	0321	ADA5,	321	
0450	0000	PINS6,	0	/100 MA TEST
0451	1257	TAD	ADA6	
0452	3013	DCA	13	/LOAD AUTOINDEX
0453	4342	JMS	MA100	/PRINT 100MA
0454	4523	JMS I	LNFEED	/PRINT CR-LF
0455	4700	JMS I	APPLY	/FINISH THE TESTING
0456	5650	JMP I	PINS6	
0457	0326	ADA6,	326	
0460	0000	PINS7,	0	/25 MA TEST
0461	1267	TAD	ADA7	
0462	3013	DCA	13	/LOAD AUTOINDEX

0463	4352	JMS	MA25	/PRINT 25MA
0464	4523	JMS I	LNFEED	/PRINT CR-LF
0465	4700	JMS I	APPLY	/FINISH THE TESTING
0466	5660	JMP I	PINS7	
0467	0333	333		
0470	0000	0		/5 MA TEST
0471	1277			
		TAD	ADA3	
0472	3013	DCA	13	/LOAD AUTOINDEX
0473	4361	JMS	MA5	/PRINT 5MA
0474	4523	JMS I	LNFEED	/PRINT CR-LF
0475	4700	JMS I	APPLY	/FINISH THE TESTING
0476	5670	JMP I	PINS3	
0477	0340	340		
0500	0600	600		
		ADA3,		
		APPLY,		
		/ PRINT 20A		
0501	0000	A20,	0	
0502	4527	JMS I	MSGE	
0503	4543	4543		/CR-LF
0504	6260	6260		/20
0505	0140	0140		/A
0506	4000	4000		
0507	5701	JMP I	A20	
		/ PRINT 12A		
0510	0000	A12,	0	
0511	4527	JMS I	MSGE	
0512	4543	4543		/CR-LF
0513	6162	6162		/12
0514	0140	0140		/A
0515	4000	4000		
0516	5710	JMP I	A12	
		/ PRINT 7.5A		
0517	0000	A75,	0	
0520	4527	JMS I	MSGE	
0521	4543	4543		/CR-LF
0522	6756	6756		/7.
0523	6501	6501		/5A
0524	4000	4000		
0525	5717	JMP I	A75	
		/ PRINT 5A		
0526	0000	A5,	0	
0527	4527	JMS I	MSGE	
0530	4543	4543		/CR-LF
0531	6501	6501		/5A
0532	4000	4000		
0533	5726	JMP I	A5	
		/ PRINT 3A		
0534	0000	A3,	0	
0535	4527	JMS I	MSGE	
0536	4543	4543		/CR-LF
0537	6301	6301		/3A
0540	4000	4000		
0541	5734	JMP I	A3	
		/ PRINT 100MA		
0542	0000	MA100,	0	
0543	4527	JMS I	MSG	
0544	4543	4543		/CR-LF
0545	6160	6160		/10

0546	6015	6015	/OM
0547	0140	0140	/A
0550	4000	4000	
0551	5742	JMP I	MA100
	/ PRINT 25 MA		
0552	0000	MA25,	0
0553	4527	JMS I	MSGE
0554	4543	4543	/CR-LF
0555	6265	6265	/25
0556	1501	1501	/MA
0557	4000	4000	
0560	5752	JMP I	MA25
	/ PRINT 5 MA		
0561	0000	MA5,	0
0562	4527	JMS I	MSGE
0563	4543	4543	/CR-LF
0564	6515	6515	/5M
0565	0140	0140	/A
0566	4000	4000	
0567	5761	JMP I	MA5
0570	0000	EPS5,	0
			/3000
0571	5670	5670	
0572	0000	EPS6,	0
			/100
0573	0144	0144	
0574	0000	EPS7,	0
			/25
0575	0031	0031	
0576	0000	EPS3,	0
			/5
0577	0005	0005	

		*123	
0123	6163	LNFEED,	6163
		*127	
0127	6653	MSGE,	6653

ADA1	0407
ADA2	0417
ADA3	0427
ADA4	0437
ADA5	0447
ADA6	0457
ADA7	0467
ADA3	0477
APPLY	0500
A12	0510
A20	0501
A3	0534
A5	0526
A75	0517
EPS5	0570
EPS6	0572
EPS7	0574
EPS3	0576
LNFEED	0123
MA100	0542
MA25	0552
MA5	0561
MSGE	0127
PINS1	0400
PINS2	0410
PINS3	0420
PINS4	0430
PINS5	0440
PINS6	0450
PINS7	0460
PINS3	0470

/ PT-1471 DECK 04 OF 20

/600

*600

/THIS SUBROUTINE APPLYS A
/SPECIFIED CURRENT ACROSS A
/SPECIFIED NUMBER OF PINS,
/READS THE VOLTAGE DROPS,
/DETERMINES IF EACH READING
/IS VALID, FORMS THE MAXIMUM,
/MINIMUM, MEAN, AND STANDARD
/DEVIATION OVER ALL THE VALID
/READINGS FOR EACH CURRENT.
/AUTOINDEX REGISTER 13 MUST
/CONTAIN THE ADDRESS-1 OF THE
/FOLLOWING PARAMETER TABLE.
/1.IOT CODE TO SELECT CURRENT
/2.IOT CODE TO APPLY CURRENT
/3.ADDRESS OF THE READING
/ EXPECTED ACROSS THE SINDRD
/4.ADDRESS OF THE TOLERANCE
/ ALLOWED ON THIS READING.
/5.OCTAL CODE FOR DETERMINING
/ IF ALL PINS HAVE BEEN
/ TESTED AT THIS CURRENT

0600	0000	APLY,	0	
0601	1413	TAD I	13	/PICK UP PARAMETERS
0602	3215	DCA	CNGE1	/ USING AUTOINDEX REGISTER
0603	1413	TAD I	13	/ SET BEFORE ENTRY WITH THE
0604	3223	DCA	CNGE2	/ ADDRESS OF PARAM TABLE
0605	1413	TAD I	13	
0606	3247	DCA	CNGE3	
0607	1413	TAD I	13	
0610	3250	DCA	CNGE4	
0611	1223	TAD	CNGE2	
0612	3256	DCA	CNGE5	
0613	1413	TAD I	13	
0614	3315	DCA	CNGE6	
/..... PROGRAM DVM				
2615	0000	CNGE1,	0	/SELECT CURRENT
2616	6374		6374	/CONNECT TO DVM
2617	6401		6401	/SET 1 SEC SCAN
2620	6424		6424	/SELECT AUTORANGE
/.....				
0621	6234	/ CHECK .1 OHM STANDARD WITH EACH CURRENT		
		6234		/CONNECT TO STANDARD
/..... READ STANDARD WITH NO CURRENT				
0622	4320	JMS	NCRT	
0623	0000	CNGE2,	0	/APPLY AMPS OR M.AMPS
0624	4515	JMS I	DELAY1	/WAIT 1 SEC
0625	4533	JMS I	READ2	/READ DVM
0626	4517	JMS I	OCTA	/CONVERT BCD TO OCTAL
0627	4513	JMS I	MICRO	/CONVERT TO MICROVOLTS
0630	6431		6431	/RESET A
0631	4515	JMS I	DELAY1	/ WAIT 1 SEC


```

0632 6434          6434          /RESET C
/..... SUBTRACT NO CURRENT READING
0633 7100          CLL
0634 4526          JMS I  DPAOS
0635 0740          NOCRNT
0636 0105          105
0637 1003          TAD      3          /PUT RESULT INTO 105-106
0640 3105          DCA      105
0641 1004          TAD      4
0642 3106          DCA      106
/..... PRINT STANDARD READING
0643 4531          JMS I  SDPRNT
0644 0105          105
0645 4523          JMS I  LNFEED
0646 4511          JMS I  LMCHK  /CHECK IF WITHIN LIMITS
0647 0000  CNGE3,  0          /ADDRESS OF LIMIT VALUE
0650 0000  CNGE4,  0          /ADDRESS OF TOLERANCE
0651 7440          SZA          /SKIP IF OK
0652 5342          JMP      ERROR1 /CURRENT ERROR
/ CURRENT IS OK. APPLY TO PINS
0653 4514  NXTIPIN, JMS I  SELCT /GET PIN CONNECT CODE
0654 0000          0          /CONNECT TO CORRECT PIN
/..... READ ACROSS PIN WITH NO CURRENT
0655 4320          JMS      NCRT
0656 0000  CNGE5,  0          /APPLY CURRENT
0657 4515          JMS I  DELAY1 / WAIT 1 SEC
0660 4533          JMS I  READ2  /READ DVM
0661 4517          JMS I  OCTA   /CONVERT BCD TO OCTAL
0662 4513          JMS I  MICRO  /CONVERT TO MICROVOLTS
0663 6431          6431        /RESET A
0664 4515          JMS I  DELAY1 / WAIT 1 SEC
0665 6434          6434        /RESET C
/..... SUBTRACT NO CURRENT READING
0666 7100          CLL
0667 4526          JMS I  DPAOS
0670 0740          NOCRNT
0671 0105          105
0672 1003          TAD      3          /PUT RESULT INTO 105-106
0673 3105          DCA      105
0674 1004          TAD      4
0675 3106          DCA      106
/..... PRINT PIN NUMBER AND READING
0676 2333          ISZ      PINCNT /UPDATE PIN NUMBER
0677 1333          TAD      PINCNT
0700 4530          JMS I  UDPRNT /PRINT PIN NUMBER
0701 4531          JMS I  SDPRNT /PRINT VM READING
0702 0105          105          /RDNG IN 105,106
0703 4523          JMS I  LNFEED
0704 1107          TAD      107    /GET EXPONENT
0705 7710          SPA CLA
0706 5355          JMP      ERROR2 /NEGATIVE READING IS BAD
/..... MAKE SURE THE READING IS .LT. 300 MV
0707 4511          JMS I  LMCHK  /CHECK IF READING OK
0710 0734          LMT          /LIMIT VALUE = 0

```

0711	0736	EPSL	/300MV
0712	7640	SZA CLA	/SKIP IF GOOD READING
0713	5355	JMP ERROR2	/PIN READING BAD
/..... USE READING IN STATISTICS FOR THIS CURRENT			
0714	4732	JMS I STATS	/UPDATE STATISTICS
0715	0000	CNGE6, 0	/ALL PINS TESTED
0716	5253	JMP NXTPIN	/NO
0717	5600	JMP I APLY	/YES, EXIT
/.....			
0720	0000	NCRT, 0	
0721	4533	JMS I READ2	/READ DVM
0722	4517	JMS I OCTA	/CONVERT BCD TO OCTAL
0723	4513	JMS I MICRO	/CONVERT TO MICROVOLTS
0724	5365	JMP FIX	/SEE IF NEGATIVE
0725	1105	BACK, TAD 105	
0726	3340	DCA NOCRNT	/STORE RESULT
0727	1106	TAD 106	
0730	3341	DCA NOCI	
0731	5720	JMP I NCRT	
/.....			
0732	3000	STATS, 3000	
0733	0000	PINCNT, 0	
0734	0000	LMT, 0	
0735	0000	0	
0736	0111	EPSL, 0111	/300MV
0737	1740	1740	
0740	0000	NOCRNT, 0	
0741	0000	NOCI, 0	
/ PRINT BAD CURRENT			
0742	4527	ERROR1, JMS I MSGE	
0743	0201	0201	/2A
0744	0440	0440	/D
0745	0325	0325	/CU
0746	2222	2222	/RR
0747	0516	0516	/EN
0750	2445	2445	/T
0751	4300	4300	
0752	6432	6432	/RESET B
0753	7402	HLT	
0754	5215	JMP CNGE1	/RE-CHECK THE STANDARD
/ PRINT BAD PIN			
0755	4527	ERROR2, JMS I MSGE	
0756	0201	0201	/BA
0757	0440	0440	/D
0760	2011	2011	/PI
0761	1645	1645	/N
0762	4300	4300	
0763	7402	HLT	
0764	5315	JMP CNGE6	/GO TO THE NEXT PIN
/.....			
0765	1107	FIX, TAD 107	/GET SIGN
0766	7700	SMA CLA	/NEGATIVE
0767	5325	JMP BACK	/NO, RETURN
0770	1106	TAD 106	/YES, TAKE COMPLEMENT

0771	7041	CIA		/ NO CURRENT READING MUST BE
0772	3106	DCA	106	/LESS THAN 4095 OR THIS
0773	7040	CMA		/COMPLEMENT IS INVALID
0774	3105	DCA	105	
0775	5325	JMP	BACK	
*111				
0111	2211	LMTCHK,	2211	/LIMIT CHECK
0112	2400	MILLI,	2400	
0113	2433	MICRO,	2433	/CONVERTS TO MICROVOLTS
0114	2200	SELCT,	2200	
0115	2240	DELAY1,	2240	/1 SEC DELAY
0116	2255	DELAY2,	2255	/15 MS DELAY
0117	2266	OCTA,	2266	
*123				
0123	6163	LNFEED,	6163	
*126				
0126	6600	DPAOS,	6600	
0127	6653	MSGE,	6653	
0130	7000	UDPRNT,	7000	
0131	7046	SDPRNT,	7046	
0132	2330	READ1,	2330	
0133	2336	READ2,	2336	

APLY 0600
 BACK 0725
 CNGE1 0615
 CNGE2 0623
 CNGE3 0647
 CNGE4 0650
 CNGE5 0656
 CNGE6 0715
 DELAY1 0115
 DELAY2 0116
 DPAOS 0126
 EPSL 0736
 ERROR1 0742
 ERROR2 0755
 FIX 0765
 LMT 0734
 LMTCHK 0111
 LNFEED 0123
 MICRO 0113
 MILLI 0112
 MSGE 0127
 NCRT 0720
 NOCRNT 0740
 NOCI 0741
 NXIPIN 0653
 OCTA 0117
 PINCNT 0733
 READ1 0132
 READ2 0133
 SDPRNT 0131
 SELCT 0114
 STATS 0732
 UDPRNT 0130

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/1000

*1000

/ PRINT RESULTS OF STATISTICAL PACKAGE

1000	4731	RESULT,	JMS I	OVER	/COMPUTE SQR(SIGMA)
1001	1170		TAD	M10	/SET UP FOR 3 CURRENTS
1002	3326		DCA	CNT	
		/..... USE FLAGS FOR STATISTICS TO SEE IF CURRENT J			
		/..... WAS USED			
1003	1327		TAD	NFLAG1	/LOAD AUTOINDEX WITH
1004	3011		DCA	11	/ ADDRESS
1005	1411	LOOP,	TAD I	11	/GET FLAG(J)
1006	7640		SZA	CLA	/IS IT ZERO
1007	5213		JMP	.+4	/NO, PRINT RESULTS THIS CURNT
1010	2326	LOOP3,	ISZ	CNT	/ YES, IS J=3
1011	5205		JMP	LOOP	/NO, CHECK NEXT CURRENT
1012	7402		HLT		/YES, WE ARE THRU
		/..... PRINT WHICH CURRENT AND HOW MANY PINS AT IT			
1013	1011		TAD	11	/GET ADDRESS OF FLAG(J)
1014	0333		AND	P7	/GET LAST DIGIT = J-1
1015	1332		TAD	POINT	/USE AS POINTER TO PRINT A
1016	3217		DCA	.+1	/HEADER FOR THIS CURRENT
1017	0000				
1020	1011		TAD	11	/GET ADDRESS FLAG(J)
1021	1334		TAD	P10	/ADD 10 TO IT
1022	3242		DCA	MAX	/TEMPORARY LOCATION
1023	2642		ISZ I	MAX	/INCREMENT PIN COUNTER
1024	1642		TAD I	MAX	/GET PIN COUNT
1025	4530		JMS I	UDPRNT	/PRINT IT
1026	4527		JMS I	MSGE	
1027	4020		4020		/P
1030	1116		1116		/IN
1031	2345		2345		/S
1032	4300		4300		
		/ PRINT MAXIMUM READING AT THIS CURRENT			
1033	4353		JMS	MAXX	/PRINT MAX=
1034	1011		TAD	11	
1035	0333		AND	P7	/GET LAST DIGIT = I
1036	7104		CLL	RAL	/ 2*I
1037	1330		TAD	P2000	/FORM ADDRESS OF MAX(J)
1040	3242		DCA	MAX	
1041	4531		JMS I	SDPRNT	/PRINT MAXIMUM VALUE
1042	0000	MAX,	0		/ADDRESS OF MAXIMUM
1043	4523		JMS I	LNFEED	/CR-LF
		/ PRINT MINIMUM READING AT THIS CURRENT			
1044	4361		JMS	MINN	/PRINT MIN=
1045	1242		TAD	MAX	
1046	1367		TAD	P20	/FORM ADDRESS OF MIN(J)
1047	3251		DCA	MIN	
1050	4531		JMS I	SDPRNT	/PRINT MINIMUM VALUE
1051	0000	MIN,	0		/ADDRESS OF MINIMUM
1052	4523		JMS I	LNFEED	
		/ PRINT AVERAGE OF READINGS AT THIS CURRENT			

```

1053 4346 JMS AVG
1054 4527 JMS I MSGE
1055 7540 7540
1056 0000 0
1057 1251 TAD MIN
1060 1335 TAD P40 /FORM ADDRESS OF XBAR
1061 3263 DCA XBAR
1062 4531 JMS I SDPRNT /PRINT AVERAGE VALUE
1063 0000 XBAR, 0 /ADDRESS OF XBAR
1064 4523 JMS I LNFEED /CR-LF
/ PRINT AVERAGE + 3*STANDARD DEVIATION
1065 4346 JMS AVG
1066 4527 JMS I MSGE
1067 5363 5363 /+3
1070 2375 2375 /S=
1071 4000 4000
1072 1251 TAD MIN
1073 1367 TAD P20 /FORM ADDRESS OF 3*SIGMA
1074 3301 DCA SIGMA
1075 1263 TAD XBAR
1076 3302 DCA .+4
1077 7120 STL
1100 4526 JMS I DPAOS /FORM XBAR + 3*SIGMA
1101 0000 SIGMA, 0 /ADDRESS OF 3*SIGMA
1102 0000 0 /ADDRESS OF XBAR
1103 4531 JMS I SDPRNT /PRINT RESULT
1104 0003 3
1105 4523 JMS I LNFEED /CR-LF
/ PRINT AVERAGE - 3*STANDARD DEVIATION
1106 4346 JMS AVG
1107 4527 JMS I MSGE
1110 5563 5563 /-3
1111 2375 2375 /S=
1112 4000 4000
1113 1301 TAD SIGMA
1114 3320 DCA .+4
1115 1263 TAD XBAR
1116 3321 DCA .+3
1117 4526 JMS I DPAOS /FORM XBAR - 3*SIGMA
1120 0000 0 /3*SIGMA
1121 0000 0 /XBAR
1122 4531 JMS I SDPRNT /PRINT RESULT
1123 0003 3
1124 4523 JMS I LNFEED
/..... GO TO THE NEXT CURRENT
1125 5210 JMP LOOP3
/.....
1126 0000 CNT, 0
1127 2117 NFLAG1, 2117
1130 2000 P2000, 2000
1131 3102 OVER, 3102
1132 4736 POINT, JMS I HDR1
1133 0007 P7, 7

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1134	0010	P10,	10	
1135	0040	P40,	40	
1136	0501	HDR1,	501	/PRINT 20A
1137	0510	HDR2,	510	/PRINT 12A
1140	0517	HDR3,	517	/PRINT 7.5A
1141	0526	HDR4,	526	/PRINT 5A
1142	0534	HDR5,	534	/PRINT 3A
1143	0542	HDR6,	542	/PRINT 100MA
1144	0552	HDR7,	552	/PRINT 25MA
1145	0561	HDR8,	561	/PRINT 5MA

/.....

/PRINT AVG

1146	0000	AVG,	0	
1147	4527	JMS I	MSGE	
1150	0126	0126		/AV
1151	0700	0700		/G
1152	5746	JMP I	AVG	

/PRINT MAX=

1153	0000	MAXX,	0	
1154	4527	JMS I	MSGE	
1155	1501	1501		/MA
1156	3075	3075		/X=
1157	4000	4000		
1160	5753	JMP I	MAXX	

/PRINT MIN=

1161	0000	MINN,	0	
1162	4527	JMS I	MSGE	
1163	1511	1511		/MI
1164	1675	1675		/N=
1165	4000	4000		
1166	5761	JMP I	MINN	
1167	0020	P20,	20	

0123	6163	LNFEED,	6163
		*123	

0126	6600	DPAOS,	6600
0127	6653	MSGE,	6653
0130	7000	UDPRNT,	7000
0131	7046	SDPRNT,	7046
		*170	
0170	7770	MI0,	7770

AVG	1146
CNT	1126
DPAOS	0126
HDR1	1136
HDR2	1137
HDR3	1140
HDR4	1141
HDR5	1142
HDR6	1143
HDR7	1144
HDR3	1145
LNFEED	0123
LOOP	1005
LOOP3	1010
MAX	1042
MAXX	1153
MIN	1051
MINN	1161
MSGE	0127
M10	0170
NFLAGI	1127
OVER	1131
POINT	1132
P10	1134
P20	1167
P2000	1130
P40	1135
P7	1133
RESULT	1000
SDPRNT	0131
SIGMA	1101
UDPRNT	0130
XBAR	1063

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/1200

*1200

/PT-1471 HIGH-VOLTAGE TEST
/PROGRAM
/ FOR D.M. MORRISON
/ W.H. VANDEVENDER
/ START AT 0177

/.....

/..... INITIALIZE

1200	4535	HIPOT,	JMS I	SETUP	
1201	1162		TAD	M2	/SET UP STANDARD CHECK
1202	3365		DCA	FSILST	
/..... CHECK EQUIPMENT USING 210 MEGOHM STANDARD					
1203	6264	STD,	6264		/CONNECT TO
1204	6312		6312		/ STANDARD
1205	7040		CMA		/SHOW 1ST PIN
1206	3366		DCA	FLAG	/IS THE STANDARD
1207	4523		JMS I	LNFEED	

/..... START RAMP

1210	1362	UP,	TAD	M50	/SET FOR 50 READINGS AT
1211	3363		DCA	CNT50	/THE TOP OF THE RAMP
1212	3024		DCA	PEAKI	
1213	6371		6371		/VM TO HV
1214	6413		6413		/1000V, .01 SEC
1215	4515		JMS I	DELAYI	/WAIT 1 SEC
1216	6321		6321		/START RAMP 500V/SEC
1217	4515		JMS I	DELAYI	/WAIT ONE SECOND

/..... READ ROUTINE ON WAY UP RAMP

1220	4532	MORUP,	JMS I	READI	/READ DVM
1221	6112		6112		/GET LOWER HALF
1222	3023		DCA	PEAK	/STORE IT

/..... SEE IF TOP OF RAMP YET

1223	1023		TAD	PEAK	
1224	1022		TAD	TOP	/AC= READING - RAMP TOP
1225	7700		SMA	CLA	/TOP OF RAMP YET
1226	5240		JMP	HOLD	/YES, HOLD RAMP

/CONVERT TO OCTAL, RETURN WITH LAST READING IN ACC

1227	4540		JMS I	CVRTIO	
1230	7041		CIA		/COMPLEMENT
1231	1004		TAD	4	/ADD CONVERTED RDNG
1232	7001		IAC		/AC = RDNG - (LAST-1)
1233	7710		SPA	CLA	/GE. 0
1234	5771		JMP I	FAIL3	/NO, BREAKDOWN
1235	1004		TAD	4	/ GET CONVERTED RDNG
1236	3024		DCA	PEAKI	/UPDATE LAST READING
1237	5220		JMP	MORUP	/READ AGAIN
1240	6322	HOLD,	6322		

/..... CONVERT TOP OF RAMP

1241	4517		JMS I	OCTA	/CON/ERT BCD TO OCTAL
1242	4512		JMS I	MILLI	/CONVERT TO MILLIVOLTS

/..... UPDATE PEAK VOLTAGE

1243	1105	LOOP,	TAD	105	
1244	3023		DCA	PEAK	

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1245 1106      TAD 106
1246 3024      DCA PEAK1
/..... READ AT TOP OF RAMP FOR 1 SECOND
1247 4532      JMS I READ1 /READ DVM
1250 4517      JMS I OCTA /CONVERT BCD TO OCTAL
1251 4512      JMS I MILLI
/..... SEE IF VOLTAGE DROPPED
1252 4511      JMS I LMTCHK
1253 2166      LMT2
1254 0023      PEAK /OLD PEAK VOLTAGE
1255 7650      SNA CLA /DID IT DROP
1256 5767      JMP I FAIL1 /YES, INDICATE FAILURE
1257 2363      ISZ CNT50 /READS 50 TIMES PER SECOND
1260 5243      JMP LOOP /READ AGAIN
/..... PRINT MAX VLTGE FOR THIS PIN
1261 4531      JMS I SDPRNT
1262 0023      PEAK
1263 4772      JMS I E1 /E-2V
/..... RE-PROGRAM DVM
1264 6432      6432 /RESET 3
1265 4516      JMS I DELAY2 /WAIT 15 MS
1266 6372      6372 /VM TO CURRENT SHUNT
1267 6424      6424 /AUTORANGE
1270 6401      6401 /1 SEC SCAN
/..... READ LEAKAGE CURRENT
1271 4515      JMS I DELAY1 /WAIT 1 SEC
1272 4533      JMS I READ2 /READ DVM
1273 4517      JMS I OCTA
1274 4513      JMS I MICRO /CONVERT TO MICROVOLTS
/..... PRINT LEAKAGE FOR THIS PIN
1275 4531      JMS I SDPRNT
1276 0105      105
1277 4773      JMS I E2 /E-9A
1300 2366      ISZ FLAG /SKIP IF STANDARD
1301 7410      SKP
1302 5337      JMP STNDRD /PERFORM STANDARD CHECK
/..... SEE IF WITHIN LIMIT ON LEAKAGE
1303 4511      JMS I LMTCHK
1304 0734      LMT
1305 0020      LEAKGE
1306 7640      SZA CLA /.LT. MAX LEAKAGE
1307 5770      JMP I FAIL2 /NO, INDICATE FAILURE
/..... UPDATE MAX, MIN ON LEAKAGE CURRENT
1310 4520      JMS I MAXMIN
1311 2004      MAXLKG /OLD MAXIMUM LEAKAGE
/.....
1312 1023      TAD PEAK
1313 3105      DCA 105
1314 1024      TAD PEAK1
1315 3106      DCA 106
1316 5327      JMP 1327

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/..... To 1327 BYPASSED 5/17/68

1317	4533	JMS I	READ2	/READ DVM
1320	4517	JMS I	OCTA	/CONVERT BCD TO OCTAL
1321	4512	JMS I	MILLI	/CONVERT TO MILLIVOLTS
1322	4511	JMS I	LMTCHK	/SEE IF VOLTAGE DROPPED
1323	2166	LMT2		
1324	0023	PEAK		
1325	7650	SNA CLA		/DID IT
1326	5767	JMP I	FAIL1	/YES
1327	4534	JMS I	RESET	/RESET ABC
/..... CHECK IF NEW MAX OR MIN PEAK VLTG OVER ALL PINS				
1330	4520	JMS I	MAXMIN	
1331	2000	MAXVLT		/OLD MAXIMUM PEAK VOLTAGE
1332	2110	NXPIN,	ISZ	TSTCNT /IS THIS THE LAST PIN
1333	7410	SKP		/NO, GO TO NEXT PIN
1334	5203	JMP	STD	/CHECK STANDARD AGAIN
/..... CONNECT TO NEXT PIN AND PRINT PIN NUMBER				
1335	4536	NXPIN3,	JMS I	PIN /CONNECT TO NEXT PIN
1336	5210	JMP	UP	/START TESTING IT
/.....				
/ CHECK STANDARD BEFORE AND AFTER THE TEST. IF AFTER				
/ PRINT THE MAXIMUM AND MINIMUM PEAK VOLTAGES, THE				
/ MAXIMUM AND MINIMUM LEAKAGE CURRENTS, AND HALT				
1337	4534	STNDRD,	JMS I	RESET /RESET ABC
/ COMPUTE RESISTANCE AND COMPARE WITH 210 MEGS				
1340	4524	JMS I	DMUL	
1341	0023	PEAK		/FORM 10 * PEAK
1342	2431	TEN		
1343	4525	JMS I	DUBDIV	
1344	0105	105		/DIVIDE BY LEAKAGE VM RDNG
1345	0003	3		
1346	1003	TAD	3	
1347	3105	DCA	105	
1350	1004	TAD	4	
1351	3106	DCA	106	
1352	4511	JMS I	LMTCHK	
1353	2162	TWOTEN		
1354	2164	EPSLON		
1355	7640	SZA CLA		/STANDARD OK
1356	5774	JMP I	BAD	
1357	2365	ISZ	FSTLST	/BEFORE OR AFTER TEST
1360	5335	JMP	NXPIN3	/BEFORE, GO TO 1ST PIN
1361	5764	JMP I	REST	/AFTER, PRINT RESULTS
/.....				
1362	7716	M50,	7716	
1363	0000	CNT50,	0	
1364	1400	REST,	1400	
1365	0000	FSTLST,	0	
1366	0000	FLAG,	0	
1367	1435	FAIL1,	1435	
1370	1451	FAIL2,	1451	
1371	1465	FAIL3,	1465	

1372	1475	E1,	1475	
1373	1503	E2,	1503	
1374	1422	BAD,	1422	
		*20		
0020	0000	LEAKGE,	0	/LEAKAGE
0021	0000		0	/ CURRENT IN MICROAMPS
0022	0000	TOP,	0	/RAMP CUTOFF IN 4,2,2,1
0023	0000	PEAK,	0	/PEAK VOLTAGE REACHED
0024	0000	PEAK1,	0	
		*110		
0110	0000	ISTCNT,	0	
0111	2211	LMTCHK,	2211	/LIMIT CHECK
0112	2400	MILLI,	2400	
0113	2433	MICRO,	2433	
0114	2200	SELCT,	2200	
0115	2240	DELAY1,	2240	/1 SEC DELAY
0116	2255	DELAY2,	2255	/15 MS DELAY
0117	2266	OCTA,	2266	
0120	2344	MAXMIN,	2344	
		*121		
0121	6000	CHEWER,	6000	
		*123		
0123	6163	LNFEED,	6163	
0124	6200	DMUL,	6200	
0125	6400	DUBDIV,	6400	
		*131		
0131	7046	SDPRNT,	7046	
0132	2330	READ1,	2330	
0133	2336	READ2,	2336	
0134	1572	RESET,	1572	
0135	2477	SETUP,	2477	
0136	2530	PIN,	2530	
		*140		
0140	2140	CVRTIO,	2140	
		*162		
0162	7776	M2,	7776	
		*734		
0734	0000	LMT,	0	
0735	0000		0	
		*2000		
2000	0000	MAXVLT,	0	/MAXIMUM PEAK VOLTAGE OVER
2001	0000		0	/ ALL THE PINS
2002	0000	MINVLT,	0	/MINIMUM PEAK VOLTAGE OVER
2003	0000		0	/ ALL THE PINS
2004	0000	MAXLKG,	0	/MAXIMUM LEAKAGE CURRENT OVER
2005	0000		0	/ ALL THE PINS
2006	0000	MINLKG,	0	/MINIMUM LEAKAGE OVER
2007	0000		0	/ ALL THE PINS
		*2162		
2162	0000	TWOTEN,	0	/210 MEGOHMS
2163	0322		322	
2164	0000	EPSLON,	0	/5 MEGOHMS

2165 0005 5
2166 7777 LMT2, 7777
2167 3000 3000
*2431
2431 0000 TEN, 0 /10
2432 0012 12

BAD	
CHEWER	0124
CNT50	1363
CVRT0	0140
DELAY1	0115
DELAY2	0116
DMUL	0124
DUBDIV	0125
EPSLON	2164
E1	1372
E2	1373
FAIL1	1367
FAIL2	1370
FAIL3	1371
FLAG	1366
FSTLST	1365
HIPOT	1200
HOLD	1240
LEAKGE	0020
LMT	0734
LMTCHK	0111
LMT2	2166
LNFEED	0123
LOOP	1243
MAXLKG	2004
MAXMIN	0120
MAXVLT	2000
MICRO	0113
MILLI	0112
MINLKG	2006
MINVLT	2002
MORUP	1220
M2	0162
M50	1362
NXPIN	1332
NXPIN3	1335
OCTA	0117
PEAK	0023
PEAK1	0024
PIN	0136
READ1	0132
READ2	0133
RESET	0134
REST	1364
SDPRNT	0131
SELCT	0114
SETUP	0135
STD	1203
SINDRD	1337
TEN	2431
TOP	0022
ISTCNT	0110
TWOTEN	2162
UP	1210

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/1400

*1400

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1400 4523 RSLT, JMS I LNFEED /PRINT H-V RESULTS
/..... PRINT MAXIMUM VOLTAGE AND LEAKAGE
1401 4633 JMS I MAX /PRINT MAX=
1402 4531 JMS I SDPRNT
1403 2000 MAXVLT /PRINT VOLTAGE
1404 4275 JMS E1 /E-2V
1405 4531 JMS I SDPRNT
1406 2004 MAXLKG /PRINT CURRENT
1407 4303 JMS E2 /E-9A
1410 4523 JMS I LNFEED
/..... PRINT MINIMUM VOLTAGE AND LEAKAGE
1411 4634 JMS I MIN /PRINT MIN=
1412 4531 JMS I SDPRNT
1413 2002 MINVLT /PRINT VOLTAGE
1414 4275 JMS E1 /E-2V
1415 4531 JMS I SDPRNT
1416 2006 MINLKG /PRINT CURRENT
1417 4303 JMS E2 /E-9A
1420 4523 JMS I LNFEED
1421 7402 HLT /WE ARE THRU
/.....
1422 4527 BAD, JMS I MSGE
1423 0201 0201 /BA
1424 0440 0440 /D
1425 2324 2324 /ST
1426 0400 0400 /D
1427 4523 JMS I LNFEED
1430 7402 HLT
1431 5632 JMP I RTRN /RECHECK STANDARD
1432 1203 RTRN, 1203
1433 1153 MAX, 1153
1434 1161 MIN, 1161
/.....
/ PRINT BRKDOWN AT XXXXXX MILLIVOLTS
1435 4534 PFAIL1, JMS I RESET /RESET ABC
1436 4527 PFAIL1, JMS I MSGE
1437 4543 4543
1440 0222 0222 /BR
1441 1304 1304 /KD
1442 2716 2716 /WN
1443 4001 4001 / A
1444 2400 2400 /T
/..... PRINT PEAK VOLTAGE IN MILLIVOLTS
1445 4531 JMS I SDPRNT
1446 0023 PEAK
1447 4275 JMS E1
1450 5261 JMP FIXER
/.....
/ PRINT LKGE BAD
1451 4534 PFAIL2, JMS I RESET /RESET ABC
1452 4527 JMS I MSGE
1453 4543 4543
1454 1413 1413 /LK
```

```

1455 0705 0705 /GE
1456 4002 4002 / B
1457 0104 0104 /AD
1460 4000 4000
1461 4523 FIXER, JMS I LNFEED
1462 7402 HLT
1463 5664 JMP I NXTPIN /GO TO NEXT PIN
1464 1332 NXTPIN, 1332
/..... CONVERT DVM RDNG AND PRINT IT AND FAIL
1465 3105 PFAIL3, DCA 105
1466 1024 TAD PEAK1
1467 3106 DCA 106
1470 1172 TAD P3
1471 3107 DCA 107
1472 4512 JMS I MILLI /CONVERT TO MILLIVOLTS
1473 4141 JMS 141
1474 5235 JMP PFAIL1
/..... PRINT E-2V
1475 0000 E1, 0
1476 4527 JMS I MSGE
1477 0555 0555
1500 6226 6226
1501 4000 4000
1502 5675 JMP I E1
/..... PRINT E-9A
1503 0000 E2, 0
1504 4527 JMS I MSGE
1505 0555 0555
1506 7101 7101
1507 4000 4000
1510 5703 JMP I E2
/.....
/ PRINT BAD VOLTAGE
1511 4527 ERR1, JMS I MSGE
1512 0204 0204 /3D
1513 4026 4026 / V
1514 1424 1424 /LT
1515 0700 0700 /G
1516 4523 JMS I LNFEED
1517 6346 6346 /RESET BC
1520 7402 HLT
1521 5722 JMP I IAP500
1522 1610 IAP500, 1610
/ PRINT BAD PIN
1523 4527 ERR2, JMS I MSGE
1524 0201 0201 /BA
1525 0440 0440 /D
1526 2011 2011 /PI
1527 1600 1600 /N
1530 4534 JMS I RESET
1531 7402 HLT
1532 5733 JMP I NXT
1533 1714 NXT, 1714
/ PRINT SHORT
1534 4527 ERR3, JMS I MSGE

```


1535	2310		2310	/SH
1536	1722		1722	/OR
1537	2400		2400	/T
1540	4523		JMS I	LNFEED
1541	4534		JMS I	RESET
1542	7402		HLT	
1543	5733		JMP I	NXT
1544	4527	ERR4,	JMS I	MSGE
1545	0201		0201	/BA
1546	0440		0440	/D
1547	2324		2324	/ST
1550	0400		0400	/D
1551	4523		JMS I	LNFEED
1552	4534		JMS I	RESET
1553	7402		HLT	
1554	5755		JMP I	STND
1555	1603	STND,	1603	
		/.....		
		/ COMPENSATE FOR ERROR FOR IV RANGE		
1556	0000	CPSATE,	0	
1557	4524		JMS I	DMUL /MULTIPLY BY 91
1560	2172		NIN	
1561	0105		105	
1562	4525		JMS I	DUBDIV /DIVIDE BY 100
1563	2170		HNDRD	
1564	0003		3	
1565	1003		TAD	3 /RESULT IS EFFECTIVE .91
1566	3105		DCA	105
1567	1004		TAD	4
1570	3106		DCA	106
1571	5756		JMP I	CPSATE
		/.....		
				/THIS SUBROUTINE CLEARS IOT
				/CODES 6321-6324, 6352-6364,
				/WAITS 1 SECOND, CLEARS 6121-
				/6314, 6331-6351, 6371-6424,
				/WAITS 1 SECOND, THEN EXITS
1572	0000	RSET,	0	
1573	6434		6434	/RESET C
1574	4515		JMS I	DELAY1
1575	6433		6433	/RESET AB
1576	4515		JMS I	DELAY1
1577	5772		JMP I	RSET
		*23		
0023	0000	PEAK,	0	/PEAK VOLTAGE REACHED
0024	0000	PEAK1,	0	
		*112		
0112	2400	MILLI,	2400	
		*115		
0115	2240	DELAY1,	2240	
0116	2255	DELAY2,	2255	

0117	2266	OCTA,	2266
		*123	
0123	6163	LNFEED,	6163
0124	6200	DMUL,	6200
0125	6400	DUBDIV,	6400
		*127	
0127	6653	MSGE,	6653
0130	7000	UDPRNT,	7000
0131	7046	SDPRNT,	7046
		*134	
0134	1572	RESET,	1572
		*172	
0172	0003	P3,	3
		*2000	
2000	0000	MAXVLT,	0
2001	0000		0
2002	0000	MINVLT,	0
2003	0000		0
2004	0000	MAXLKG,	0
2005	0000		0
2006	0000	MINLKG,	0
2007	0000		0
		*2172	
2172	0000	NIN,	0
2173	0123		123
		*2170	
2170	0000	HNDRD,	0
2171	0144		144

/MAXIMUM PEAK VOLTAGE OVER
 / ALL THE PINS
 /MINIMUM PEAK VOLTAGE OVER
 / ALL THE PINS
 /MAXIMUM LEAKAGE CURRENT OVER
 / ALL THE PINS
 /MINIMUM LEAKAGE OVER
 / ALL THE PINS

/91

/100

BAD	1422
CPSATE	1556
DELAY1	0115
DELAY2	0116
DMUL	0124
DUBDIV	0125
ERR1	1511
ERR2	1523
ERR3	1534
ERR4	1544
E1	1475
E2	1503
FIXER	1461
HNDRD	2170
IAP500	1522
LNFEED	0123
MAX	1433
MAXLKG	2004
MAXVLT	2000
MILLI	0112
MIN	1434
MINLKG	2006
MINVLT	2002
MSGE	0127
NIN	2172
NXI	1533
NXIPIN	1464
OCTA	0117
PEAK	0023
PEAK1	0024
PFAIL1	1435
PFAIL2	1451
PFAIL3	1465
PFAIL11	1436
P3	0172
RESET	0134
RSET	1572
RSLT	1400
RTRN	1432
SDPRNT	0131
STND	1555
UDPRNT	0130

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/1600

*1600

/PT-1471 INSULATION-RESISTANCE
/TEST PROGRAM
/ FOR D.M. MORRISON
/ W.H. VANDEVENDER
/ START AT 0176

/.....

/..... INITIALIZE

1600	4535	IR,	JMS I	SETUP	
1601	1162		TAD	M2	/SET FOR STANDARD CHECK
1602	3354		DCA	PNTR	/ BEFORE AND AFTER

/..... START TEST

1603	6264	STND,	6264		/CHECK STANDARD
1604	6312		6312		
1605	7040		CMA		
1606	3353		DCA	PFLAG	/SET FLAG
1607	4523		JMS I	LNFEED	

/..... APPLY 500 VOLTS

1610	6361	AP500,	6361		/APPLY
1611	6371		6371		/VM TO HV
1612	6401		6401		/1 SEC SCAN
1613	6424		6424		/AUTORANGE

1614	1025		TAD	TIME	
1615	3355		DCA	TMCNT	/SET ELECTRIFICATION TIME

/..... NOTE 500V IS RECORDED AS 50V ON DVM

1616	4516		JMS I	DELAY2	/WAIT 15 MS
1617	4533		JMS I	READ2	/READ DVM
1620	4517		JMS I	OCTA	/CONVERT BCD TO OCTAL
1621	4512		JMS I	MILLI	/CONVERT TO MILLIVOLTS

/..... VERIFY 500 VOLTS

1622	4511		JMS I	LMTCHK	/SEE IF ACTUALLY 500V
1623	2154		FIFTY		/50,000 MV
1624	2156		EPSIL		/500 MV
1625	7640		SZA CLA		/OK
1626	5345		JMP	NO	/NO, SEE IF .GT. 250V
1627	4515		JMS I	DELAY1	/WAIT 1 SEC
1630	2355		ISZ	TMCNT	
1631	5227		JMP	.-2	/WAIT ELECTRIFICATION TIME

/..... CHECK 500V AGAIN

1632	4532		JMS I	READ1	/READ DVM
1633	4517		JMS I	OCTA	/CONVERT BCD TO OCTAL
1634	4512		JMS I	MILLI	
1635	4511		JMS I	LMTCHK	
1636	2154		FIFTY		
1637	2156		EPSIL		
1640	7640		SZA CLA		/OK
1641	5345		JMP	NO	/NO, SEE IF .GT. 250V
1642	1105		TAD	105	/STORE THE 500V READING
1643	3356		DCA	VLIGE	

```

1644 1106      TAD      106
1645 3357      DCA      VLTGE1
/..... REPROGRAM VM
1646 6432      6432      /RESET B
1647 4516      JMS I    DELAY2 /WAIT 15MS
1650 6372      6372      /VM TO CVR
1651 4515      JMS I    DELAY1 /WAIT 1 SEC
1652 6401      6401      /1 SEC SCAN
1653 6424      6424      /AUTORANGE
1654 6364      6364      /LOW CURRENT SHUNT
/..... READ LEAKAGE CURRENT
1655 4533      JMS I    READ2 /READ DVM
1656 4517      JMS I    OCTA  /CONVERT BCD TO OCTAL
1657 4513      JMS I    MICRO /CONVERT TO MICROVOLTS
1660 7200      CLA
1661 1107      TAD      107    /GET EXPONENT = E
1662 1165      TAD      M5     /E - 5
1663 7650      SNA CLA      /IS E = 5
1664 4760      JMS I    CPNSAT /YES, COMPENSATE FOR 1V RANGE
/..... CONVERT TO MEGOHM PIN RESISTANCE
/..... BY FORMING (50,000*100)/LEAKAGE VOLTAGE
1665 4524      JMS I    DMUL
1666 1756      VLTGE
1667 2170      HNDRD
1670 4525      JMS I    DUBDIV
1671 0105      105
1672 0003      3
1673 1003      TAD      3      /STORE THE RESULT AS THE
1674 3105      DCA      105    /PIN RESISTANCE
1675 1004      TAD      4      / MEGOHMS
1676 3106      DCA      106
1677 4531      JMS I    SDPRNT
1700 0105      105
1701 2353      ISZ      PFLAG  /STANDARD
1702 7410      SKP      /NO
1703 5321      JMP      CKSTND /STANDARD CHECK
/..... MAKE SURE RESISTANCE IS .GT. LIMIT GIVEN
1704 4511      JMS I    LMTCHK
1705 0734      LMT      /LMT=0
1706 0026      MINOHM
1707 7650      SNA CLA      /IS IT
1710 5764      JMP I    ERR2  /NO, A PIN ERROR
1711 4534      JMS I    RESET /RESET ABC
/..... UPDATE MAX, MIN ON PIN RESISTANCE
1712 4520      JMS I    MAXMIN
1713 2000      MAXOHM
1714 2110      ISZ      TSTCNT /LAST PIN YET
1715 7410      SKP
1716 5203      JMP      STND  /YES, CHECK STANDARD AGAIN
/..... CONNECT TO NEXT PIN AND PRINT PIN NUMBER
1717 4536      NEXI,     JMS I    PIN
1720 5210      JMP      AP500
/.....
/..... MAKE SURE STANDARD IS 210 MEGOHMS
1721 4511      CKSTND,   JMS I    LMTCHK

```

1722	2162	TWOTEN	
1723	2164	EPSLON	
1724	7640	SZA CLA	/IS IT
1725	5766	JMP I ERR4	/NO, A STANDARD ERROR
1726	4534	JMS I RESET	/RESET ABC
1727	4523	JMS I LNFEED	
1730	2354	ISZ PNTR	/BEFORE OR AFTER
1731	5317	JMP NEXT	/BEFORE, GO TO 1ST PIN

/ PRINT RESULTS OF I-R TEST

1732	4523	FNAL, JMS I LNFEED	
1733	4534	JMS I RESET	
1734	4761	JMS I MAXE	
1735	4531	JMS I SDPRNT	/PRINT MAX RESISTANCE
1736	2000	MAXOHM	
1737	4523	JMS I LNFEED	
1740	4762	JMS I MINE	
1741	4531	JMS I SDPRNT	/PRINT MIN RESISTANCE
1742	2002	MNOHM	
1743	4523	JMS I LNFEED	
1744	7402	HLT	/TEST IS OVER

/.....

/..... CHECK 500V SUPPLY FOR .GT. 250V

1745	4511	NO, JMS I LMTCHK	
1746	0734	LMT	
1747	2160	TWFTY	/250 V
1750	7650	SNA CLA	/IS IT
1751	5765	JMP I ERR3	/NO, A SHORT
1752	5763	JMP I ERR1	/YES, JUST BAD VOLTAGE

/.....

1753	0000	PFLAG,	0
1754	0000	PNTR,	0
1755	0000	TMCNT,	0
1756	0000	VLGE,	0
1757	0000	VLGE1,	0
1760	1556	CPNSAT,	1556
1761	1153	MAXE,	1153
1762	1161	MINE,	1161
1763	1511	ERR1,	1511
1764	1523	ERR2,	1523
1765	1534	ERR3,	1534
1766	1544	ERR4,	1544

*25

0025	0000	TIME,	0	/ELECTRIFICATION TIME
0026	0000	MINOHM,	0	/RESISTANCE LIMIT FOR I-R
0027	0000		0	/ IN MEGOHMS

*110

0110	0000	TSTCNT,	0	
0111	2211	LMTCHK,	2211	/LIMIT CHECK

0112	2400	MILLI,	2400
0113	2433	MICRO,	2433
0114	2200	SELCT,	2200
0115	2240	DELAY1,	2240
0116	2255	DELAY2,	2255
0117	2266	OCIA,	2266
0120	2344	MAXMIN,	2344

*123

0123	6163	LNFEED,	6163
------	------	---------	------

0124	6200	DMUL,	6200	
0125	6400	DUBDIV,	6400	
		*131		
0131	7046	SDPRNT,	7046	
0132	2330	READ1,	2330	
0133	2336	READ2,	2336	
0134	1572	RESET,	1572	
0135	2477	SETUP,	2477	
0136	2530	PIN,	2530	
		*162		
0162	7776	M2,	7776	
		*165		
0165	7773	M5,	7773	
		*734		
0734	0000	LMT,	0	
0735	0000		0	
		*2000		
		/ I-R DATA		
2000	0000	MAXOHM,	0	
2001	0000		0	
2002	0000	MNOHM,	0	
2003	0000		0	
		*2154		
2154	0014	FIFTY,	0014	/50,000 MILLIVOLTS
2155	1520		1520	
2156	0000	EPSIL,	0	/500 MILLIVOLTS
2157	0764		0764	
2160	0006	TWFTY,	0006	/25,000 MILLIVOLTS
2161	0650		0650	
2162	0000	TWOTEN,	0	/210 MEGOHMS
2163	0322		322	
2164	0000	EPSLON,	0	/5 MEGOHMS
2165	0005		5	
		*2170		
2170	0000	HNDRD,	0	/100
2171	0144		144	

AP500 1610
 CKSTND 1721
 CPNSAT 1760
 DELAY1 0115
 DELAY2 0116
 DMUL 0124
 DUBDIV 0125
 EPSIL 2156
 EPSLON 2164
 ERR1 1763
 ERR2 1764
 ERR3 1765
 ERR4 1766
 FIFTY 2154
 FNAL 1732
 HNDRD 2170
 IR 1600
 LMT 0734
 LMTCHK 0111
 LNFEED 0123
 MAXE 1761
 MAXMIN 0120
 MAXOHM 2000
 MICRO 0113
 MILLI 0112
 MINE 1762
 MINOHM 0026
 MNOHM 2002
 M2 0162
 M5 0165
 NEXT 1717
 NO 1745
 OCTA 0117
 PFLAG 1753
 PIN 0136
 PNTR 1754
 READ1 0132
 READ2 0133
 RESET 0134
 SDPRNT 0131
 SELCT 0114
 SETUP 0135
 STND 1603
 TIME 0025
 TMCNT 1755
 TSTCNT 0110
 TWFTY 2160
 TWOTEN 2162
 VLIGE 1756
 VLIGE1 1757

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/2000

*2000

/ C-R STATISTICAL DATA

/.....

/ MAXIMUM VOLTAGES FOR EACH OF 8 CURRENTS (20A-5MA)

2000	0000	MAX1,	0
2001	0000		0
2002	0000	MAX2,	0
2003	0000		0
2004	0000	MAX3,	0
2005	0000		0
2006	0000	MAX4,	0
2007	0000		0
2010	0000	MAX5,	0
2011	0000		0
2012	0000	MAX6,	0
2013	0000		0
2014	0000	MAX7,	0
2015	0000		0
2016	0000	MAX3,	0
2017	0000		0

/ MINIMUM VOLTAGES FOR EACH OF 8 CURRENTS (20A-5MA)

2020	0000	MIN1,	0
2021	0000		0
2022	0000	MIN2,	0
2023	0000		0
2024	0000	MIN3,	0
2025	0000		0
2026	0000	MIN4,	0
2027	0000		0
2030	0000	MIN5,	0
2031	0000		0
2032	0000	MIN6,	0
2033	0000		0
2034	0000	MIN7,	0
2035	0000		0
2036	0000	MIN3,	0
2037	0000		0

/SIGMA OF VOLTAGES FOR EACH OF 8 CURRENTS (20A-5MA)

2040	0000	SIGMA1,	0
2041	0000		0
2042	0000	SIGMA2,	0
2043	0000		0
2044	0000	SIGMA3,	0
2045	0000		0
2046	0000	SIGMA4,	0
2047	0000		0
2050	0000	SIGMA5,	0
2051	0000		0
2052	0000	SIGMA6,	0
2053	0000		0

2054	0000	SIGMA7,	0
2055	0000		0
2056	0000	SIGMA8,	0
2057	0000		0
/ AVERAGE VOLTAGES FOR EACH OF 8 CURRENTS (20A-5MA)			
2060	0000	XBAR1,	0
2061	0000		0
2062	0000	XBAR2,	0
2063	0000		0
2064	0000	XBAR3,	0
2065	0000		0
2066	0000	XBAR4,	0
2067	0000		0
2070	0000	XBAR5,	0
2071	0000		0
2072	0000	XBAR6,	0
2073	0000		0
2074	0000	XBAR7,	0
2075	0000		0
2076	0000	XBAR8,	0
2077	0000		0
/BIAS FOR VOLTAGES FOR EACH OF 8 CURRENTS (20A-5MA)			
2100	0000	BIAS1,	0
2101	0000		0
2102	0000	BIAS2,	0
2103	0000		0
2104	0000	BIAS3,	0
2105	0000		0
2106	0000	BIAS4,	0
2107	0000		0
2110	0000	BIAS5,	0
2111	0000		0
2112	0000	BIAS6,	0
2113	0000		0
2114	0000	BIAS7,	0
2115	0000		0
2116	0000	BIAS8,	0
2117	0000		0
/ FLAGS TO INDICATE IF ANY PINS AT EACH CURRENT			
2120	0000	FLAG1,	0
2121	0000	FLAG2,	0
2122	0000	FLAG3,	0
2123	0000	FLAG4,	0
2124	0000	FLAG5,	0
2125	0000	FLAG6,	0
2126	0000	FLAG7,	0
2127	0000	FLAG8,	0
/ NUMBER-1 OF READINGS USED IN THE ABOVE STATISTICS			
2130	0000	COUNT1,	0
2131	0000	COUNT2,	0
2132	0000	COUNT3,	0
2133	0000	COUNT4,	0
2134	0000	COUNT5,	0
2135	0000	COUNT6,	0
2136	0000	COUNT7,	0

2137	0000	COUNT8,	0	
2140	0000	OCVRT,	0	
2141	3105	DCA	105	/ZERO LOC 105
2142	1023	TAD	PEAK	/GET THIS READING
2143	3106	DCA	106	/PUT IN 106
2144	4521	JMS I	CHEWER	/USE CHEW TO CVRT TO OCT
2145	0105		105	
2146	1024	TAD	PEAK1	/GET LAST READING
2147	5740	JMP I	OCVRT	/EXIT
		*2154		
2154	0014	FIFTY,	0014	/50,000 MILLIVOLTS
2155	1520		1520	
2156	0000	EPSIL,	0	/500 MILLIVOLTS.
2157	0764		0764	
2160	0006	TWFTY,	0006	/25,000 MILLIVOLTS
2161	0650		0650	
2162	0000	TWOTEN,	0	/210 MEGOHMS
2163	0322		322	
2164	0000	EPSLON,	0	/ 5 MEGOHMS
2165	0005		5	
2166	7777	LMT2,	7777	
2167	3000		3000	
2170	0000	HNDRD,	0	/100
2171	0144		144	
2172	0000	NIN,	0	/91
2173	0123		123	
2174	0000	THSND,	0	/1000
2175	1750		1750	
2176	0363	MILON,	0363	/1,000,000
2177	7100		7100	
		*23		
0023	0000	PEAK,	0	/PEAK VOLTAGE REACHED
0024	0000	PEAK1,	0	
		*121		
0121	6000	CHEWER,	6000	

BIAS1 2100
 BIAS2 2102
 BIAS3 2104
 BIAS4 2106
 BIAS5 2110
 BIAS6 2112
 BIAS7 2114
 BIAS3 2116
 CHEWER 0121
 COUNT1 2130
 COUNT2 2131
 COUNT3 2132
 COUNT4 2133
 COUNT5 2134
 COUNT6 2135
 COUNT7 2136
 COUNT8 2137
 EPSIL 2156
 EPSLON 2164
 FIFTY 2154
 FLAG1 2120
 FLAG2 2121
 FLAG3 2122
 FLAG4 2123
 FLAG5 2124
 FLAG6 2125
 FLAG7 2126
 FLAG8 2127
 HNDRD 2170
 LMT2 2166
 MAX1 2000
 MAX2 2002
 MAX3 2004
 MAX4 2006
 MAX5 2010
 MAX6 2012
 MAX7 2014
 MAX3 2016
 MILON 2176
 MIN1 2020
 MIN2 2022
 MIN3 2024
 MIN4 2026
 MIN5 2030
 MIN6 2032
 MIN7 2034
 MIN3 2036
 NIN 2172
 OCVRT 2140
 PEAK 0023
 PEAK1 0024
 SIGMA1 2040
 SIGMA2 2042
 SIGMA3 2044
 SIGMA4 2046
 SIGMA5 2050
 SIGMA6 2052
 SIGMA7 2054

SIGMA8	2056
THSND	2174
TWFTY	2160
TWOTEN	2162
XBAR1	2060
XBAR2	2062
XBAR3	2064
XBAR4	2066
XBAR5	2070
XBAR6	2072
XBAR7	2074
XBAR3	2076

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/2200

*2200

/THIS SUBROUTINE GENERATES
/THE NEXT IOT CODE IN THE
/SEQUENCE ABC1,ABC2,ABC4,ABD1
/WHERE D=C+1, ETC. E.G. 6121,
/6122,6124,6131,6132,6134....
/THE NEXT LOCATION AFTER THE
/JMS MUST CONTAIN THE CURRENT
/IOT CODE. UPON EXIT THE NEXT
/SEQUENTIAL IOT REPLACES THE
/CURRENT ONE, AND EXIT IS TO
/LOCATION JMS+1, HENCE THE
/NEW IOT IS EXECUTED.

2200	0000	PNSLCT,	0	
2201	7200		CLA	
2202	1600	TAD I	PNSLCT	/GET OLD CODE (ENDS IN 1,2,4)
2203	0172	AND	P3	/GET LAST 2 BITS
2204	7450	SNA		/DID OLD CODE END IN 4
2205	1173	TAD	P5	/YES, ADD 5 TO THE OLD
2206	1600	TAD I	PNSLCT	/NO, ADD 1 OR 2 TO THE OLD
2207	3600	DCA I	PNSLCT	/REPLACE THE OLD
2210	5600	JMP I	PNSLCT	/EXIT

/.....

/DOUBLE PRECISION LIMIT CHECK
/THIS SUBROUTINE DETERMINES
/IF THE NUMBER X IN LOCATIONS
/105-106 IS SUCH THAT
/ ABS(X-Y) .LT. E , WHERE Y
/AND E ARE SPECIFIED.
/LOCATION JMS + 1 MUST
/CONTAIN THE ADDRESS OF THE
/HIGH ORDER PORTION OF Y.
/LOCATION JMS + 2 MUST
/CONTAIN THE ADDRESS OF THE
/HIGH ORDER PORTION OF E. IF
/ABS(X-Y) .LT. E , EXIT IS
/WITH ZERO ACC. OTHERWISE
/EXIT IS WITH NON-ZERO ACC.
/ NOTE ABS= ABSOLUTE VALUE
/CONFIRM OK READING

2211	0000	LIMCK,	0	
2212	7300		CLA CLL	
2213	1611	TAD I	LIMCK	/GET ADRS OF LMT VALUE HIGH
2214	3216	DCA	GETLIM	
2215	4526	JMS I	DPAOS	
2216	0000	GETLIM,	0	
2217	0105		105	/FORM READING - LMT VALUE = T
2220	1003	TAD	3	/GET HI T
2221	7710	SPA	CLA	
2222	4637	JMS I	COMP	/NO, I=-T
2223	2211	ISZ	LIMCK	/YES
2224	1611	TAD I	LIMCK	/GET ADRS OF TOLERANCE HIGH
2225	3230	DCA	TOLNCE	
2226	7100	CLL		
2227	4526	JMS I	DPAOS	

2230	0000	TOLNCE,	0	
2231	0003		3	/FORM /I/ - TOLERANCE
2232	1003		TAD 3	/GET HI RESULT
2233	7700		SMA CLA	/LT. 0
2234	7001		IAC	/NO, EXIT WITH NON-ZERO AC
2235	2211		ISZ LIMCK	
2236	5611		JMP I LIMCK	/YES,EXIT WITH AC=0
2237	2554	COMP,	2554	
		/.....		

/THIS SUBROUTINE DELAYS
/ 1.00849 SECONDS
/WAIT 1 SEC

2240	0000	DELAY,	0	
2241	7200		CLA	
2242	3254		DCA CNT2	/INITIALIZE CNT2
2243	1164		TAD M4	
2244	3253		DCA CNT1	/INITIALIZE CNT2
2245	2253		ISZ CNT1	/1 SEC YET
2246	7410		SKP	/NO
2247	5640		JMP I DELAY	/YES,EXIT
2250	2254		ISZ CNT2	/4096 TIMES YET
2251	5250		JMP -1	/NO
2252	5245		JMP -5	/YES,DO AGAIN
2253	0000	CNT1,	0	
2254	0000	CNT2,	0	
		/.....		

/THIS SUBROUTINE DELAYS
/ 15.052 MILLISECONDS

2255	0000	DLY2,	0	
2256	7200		CLA	
2257	1264		TAD M132	
2260	3265		DCA DLYCNT	
2261	2265		ISZ DLYCNT	
2262	5261		JMP -1	
2263	5655		JMP I DLY2	
2264	7512	M132,	7512	
2265	0000	DLYCNT,	0	
		/.....		

/THIS SUBROUTINE TAKES THE
/3 WORD RESULT OF A VOLTMETER
/READ IN 4221 (GRAY) CODE AND
/CONVERTS TO OCTAL USING PAL
/0021A = CHEW. THE DOUBLE
/WORD OCTAL MANTISSA IS
/STORED IN 105-106. THE FUNCT
/ION CODE IS EXAMINED AND IF
/OVERFLOW OCCURRED, OVFL0
/WILL BE PRINTED AND THE
/COMPUTER WILL HALT.
/THE OCTAL EXPONENT IS STORED
/IN LOC 107. IF THE READING
/IS NEGATIVE, BIT 0 OF LOC
/107 IS SET TO 1. USES PAGE
/0 LOCATIONS 101-107

2266	0000	CVOCT,	0	
2267	6111		6111	/HIGH DVM TO AC

2270	3101	DCA	101	/STORE PAGE 0
2271	6112	6112		/LOW DVM TO AC
2272	3102	DCA	102	/STORE PAGE 0
2273	3105	DCA	105	/105=0 FOR DBL WORD EXPONENT
2274	6114	6114		/GET EXPONENT AND FUNCTION
2275	0326	AND	T0017	/MASK OFF FUNCTION
2276	3106	DCA	106	
2277	4521	JMS I	CHEWER	/CONVERT EXPONENT
2300	0105	105		
2301	1004	TAD	4	/GET RESULT
2302	3107	DCA	107	/STORE LOC 107
2303	6114	6114		/GET EXPONENT AND FUNCTION
2304	0325	AND	T400	/CHECK SIGN
2305	7650	SNA CLA		/IS IT MINUS
2306	1324	TAD	T4000	/YES, MAKE 400X IN 107
2307	1107	TAD	107	
2310	3107	DCA	107	/STORE EXPONENT AND SIGN
2311	4521	JMS I	CHEWER	/USE CHEW TO CONVERT READING
2312	0101	101		/ADDRESS OF HIGH
2313	1003	TAD	3	/PUT RESULT
2314	3105	DCA	105	/INTO LOCATIONS
2315	1004	TAD	4	/105,106
2316	3106	DCA	106	
2317	6114	6114		/GET EXPONENT AGAIN
2320	0324	AND	T4000	/CHECK FOR OVERFLOW
2321	7640	SZA CLA		/ DID IT
2322	5727	JMP I	OVRFLO	/YES
2323	5666	JMP I	CV OCT	
2324	4000	T4000,	4000	
2325	0400	T400,	400	
2326	0017	T0017,	17	
2327	2567	OVRFLO,	2567	

/.....

/THIS SUBROUTINE INITIATES A
/VOLTMETER READ, WAITS 15 MS,
/AND EXITS WHEN READING IS
/COMPLETE.

2330	0000	RD1,	0	
2331	6621	6621		/INITIATE READ
2332	4516	JMS I	DELAY2	/WAIT 15 MS
2333	6622	6622		/VM DONE
2334	5333	JMP	.-1	/NO
2335	5730	JMP I	RD1	

/.....

/THIS SUBROUTINE INITIATES A
/VOLTMETER READ, WAITS 1 SEC,
/AND EXITS WHEN THE READING
/IS COMPLETE.

2336	0000	RD2,	0	
2337	6621	6621		/INITIATE READ
2340	4515	JMS I	DELAY1	/WAIT 1 SEC
2341	6622	6622		/VM DONE
2342	5341	JMP	.-1	/NO
2343	5736	JMP I	RD2	

/.....

/THIS SUBROUTINE DETERMINES
/WHETHER THE DOUBLE PRECISION
/NUMBER IN LOC 105-106 IS
/.GT. X OR .LT. Y WHERE X
/AND Y ARE SPECIFIED. IF
/EITHER OR BOTH IS SATISFIED
/THEN X,Y, OR BOTH IS REPLACED
/BY 105-106. LOCATION JMS + 1
/MUST CONTAIN THE ADDRESS OF
/THE HIGH ORDER PORTION OF X.
/X,Y MUST BE STORED IN ARRAY
/ X HIGH
/ X LOW
/ Y HIGH
/ Y LOW

2344	0000	MAXMIN,	0	
2345	7300		CLA CLL	
2346	1744		TAD I MAXMIN	/GET ADDRESS OF HIGH MAX
2347	4362		JMS CHK	/DO COMPARISON
2350	7710		SPA CLA	/.GE. 0 MEANS NO NEW MAX
2351	4371		JMS PUT	/YES, REPLACE OLD
2352	1744		TAD I MAXMIN	
2353	1361		TAD P2	/GET ADDRSS OF HIGH MIN
2354	4362		JMS CHK	/DO COMPARISON
2355	7700		SMA CLA	/NEW MIN
2356	4371		JMS PUT	/REPLACE OLD
2357	2344		ISZ MAXMIN	/NO, EXIT
2360	5744		JMP I MAXMIN	
2361	0002	P2,	2	
2362	0000	CHK,	0	
2363	3366		DCA POINT	
2364	4526		JMS I DPAOS	
2365	0105		105	/READING
2366	0000	POINT,	0	/MAX
2367	1003		TAD 3	/GET HIGH RESULT
2370	5762		JMP I CHK	
2371	0000	PUT,	0	
2372	1105		TAD 105	
2373	3766		DCA I POINT	
2374	2366		ISZ POINT	
2375	1106		TAD 106	
2376	3766		DCA I POINT	
2377	5771		JMP I PUT	
0115	2240	*115 DELAY1,	2240	
0116	2255	DELAY2,	2255	
0121	6000	*121 CHEWER,	6000	
0126	6600	*126 DPAOS,	6600	
0164	7774	*164 M4,	7774	
0172	0033	*172 P3,	3	
0173	0005	P5,	5	

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CHEWER	0121
CHK	2362
CNT1	2253
CNT2	2254
COMP	2237
CVOCT	2266
DELAY	2240
DELAY1	0115
DELAY2	0116
DLYCNT	2265
DLY2	2255
DPAOS	0126
GETLIM	2216
LIMCK	2211
MAXMIN	2344
M182	2264
M4	0164
OVRFLO	2327
PNSLCT	2200
POINT	2366
PUT	2371
P2	2361
P3	0172
P5	0173
RD1	2330
RD2	2336
TOLNCE	2230
T0017	2326
T400	2325
T4000	2324

/2400

*2400

/THIS SUBROUTINE TAKES AN
 /OCTAL VOLTMETER READING IN
 /LOC 105-106-107 AND, BY
 /EXAMINING THE EXPONENT IN
 /LOC 107, CONVERTS THE DOUBLE
 /WORD READING IN 105-106 TO
 /ONE WITH AN EXPONENT OF 3.
 /I.E. CONVERTS IT TO MILLI-
 /VOLTS. THE EXPONENT IN 107
 /MUST BE .L2. 4 FOR THE
 /RESULTS OF THIS SUBR TO BE
 /VALID.

2400	0000	CVMILI,	0	
2401	7200		CLA	
2402	1107		TAD	107 /GET EXPONENT = E AND SIGN
2403	0366		AND	T3777 /IGNORE SIGN
2404	1163		TAD	M3 / E-3
2405	7450		SNA	/IS E = 3
2406	5600		JMP I	CVMILI /YES, NO MULTIPLY NEEDED
2407	7500		SMA	/IS E .GT. 3
2410	5217		JMP	DVTEN /YES, DIVIDE BY 10
2411	4262		JMS	MLTPLY /NO, PERFORM MULTIPLICATION
2412	1005		TAD	5 /PUT MILLIVOLT
2413	3105		DCA	105 / RESULT INTO
2414	1006		TAD	6 / LOC 105-106
2415	3106	DVTN2,	DCA	106
2416	5600		JMP I	CVMILI /EXIT
2417	7200	DVTEN,	CLA	
2420	3103		DCA	103 /MAKE FOUR WORD FOR
2421	3104		DCA	104 / DIVIDE ROUTINE
2422	4525		JMS I	DUBDIV /DIVIDE BY TEN
2423	2431		TEN	
2424	0103		103	
2425	1003		TAD	3 /STORE THE RESULT
2426	3105		DCA	105
2427	1004		TAD	4
2430	5215		JMP	DVTN2
2431	0000	TEN,	0	/10
2432	0012		0012	

/.....

/THIS SUBROUTINE TAKES AN
 /OCTAL VOLTMETER READING IN
 /LOC 105-106-107 AND, BY
 /EXAMINING THE EXPONENT IN
 /LOC 107, CONVERTS THE DOUBLE
 /WORD READING IN LOC 105-106
 /TO ONE WITH AN EXPONENT OF 6
 /I.E. CONVERTS TO MICROVOLTS.
 /IF THE CONVERTED RESULT
 /OVERFLOWS TWO WORDS THEN
 /37777777 IS PLACED IN LOC

/105-106. HENCE THE LARGEST
/VOLTAGE WHICH CAN BE CNVRTD
/TO MICROVOLTS IS 8.388608
/VOLTS.

2433	0000	CVMCRO,	0		
2434	7200		CLA		
2435	1107		TAD	107	/GET EXPONENT = E AND SIGN
2436	0366		AND	T3777	/IGNORE SIGN
2437	1166		TAD	M6	/ E-6
2440	7450		SNA		/IS E = 6
2441	5633		JMP I	CVMCRO	/YES, NO MLTPLY NEEDED
2442	4262		JMS	MLTPLY	/NO, DO MULTIPLICATION
2443	1004		TAD	4	
2444	7440		SZA		/ .GT. 16,777,216
2445	5255		JMP	MAXMUM	/YES
2446	1005		TAD	5	
2447	7510		SPA		/ .GT. 8,383,608
2450	5255		JMP	MAXMUM	
2451	3105		DCA	105	/NO, STORE RESULT
2452	1006		TAD	6	/ IN 105-106
2453	3106	MXM2,	DCA	106	
2454	5633		JMP I	CVMCRO	/EXIT
2455	7200	MAXMUM,	CLA		
2456	1366		TAD	T3777	/STORE 37777777
2457	3105		DCA	105	/ IN LOC 105-106
2460	7040		CMA		
2461	5253		JMP	MXM2	

/ MULTIPLY LOC 105-106 BY THE NUMBER OF TENS IN AC.

2462	0000	MLTPLY,	0		
2463	3276		DCA	INCNT	/HOW MANY TENS
2464	1105		TAD	105	
2465	3005		DCA	5	/PUT 105-106
2466	1106		TAD	106	/ INTO 5-6
2467	3006		DCA	6	
2470	4524		JMS I	DMUL	
2471	0005		5		/LOC 5-6 BY 10
2472	2431		TEN		
2473	2276		ISZ	INCNT	/LAST TEN YET
2474	5270		JMP	.-4	/NO
2475	5662		JMP I	MLTPLY	/YES, EXIT
2476	0000	INCNT,	0		

/.....

/THIS SUBROUTINE INITIALIZES
/FOR THE I-R AND H-V TESTS.
/SETS MAXS TO 0 AND MINS TO
/37777777 TO GUARANTEE THE
/FIRST READING IS BOTH A MAX
/AND A MIN. SETS FOR PIN 1 ON
/BOTH TESTS.

2477	0000	STUP.	0		
2500	7300		CLA CLL		
2501	1171		TAD	M11	
2502	3352		DCA	CNT9	/COUNTER = - 9
2503	155		TAD	N6264	/SET FOR
2504	3342		DCA	CI	/ PIN NUMBER

2505	1350	TAD	N6241	/ 1 INITIALLY
2506	3340	DCA	C2	
2507	3353	DCA	PNCNTR	/0 INITIALLY
2510	1163	TAD	M3	
2511	3326	DCA	DCNT	
2512	1327	TAD	DIABLI	
2513	3010	DCA	10	
2514	3410	DCA I	10	
2515	3410	DCA I	10	
2516	7040	CMA		
2517	7110	CLL RAR		/AC= 3777
2520	3410	DCA I	10	
2521	7040	CMA		
2522	3410	DCA I	10	
2523	2326	ISZ	DCNT	
2524	5314	JMP	.-10	
2525	5677	JMP I	STUP	
2526	0000	DCNT,	0	
2527	1777	DIABLI,	1777	

/.....

/THIS SUBROUTINE USES THE
/SUBROUTINE PNSLCT TO CONNECT
/TO THE PINS OF THE I-R AND
/H-V TESTS. TWO IOT CODES ARE
/REQUIRED FOR EACH PIN IN
/THESE TESTS. RUNS THROUGH
/THE CYCLE AS FOLLOWS

/PIN 1 6271 - 6241
/ 2 6272 - 6241
/ 3 6274 - 6241
/ 4 6301 - 6241
/ 5 6302 - 6241
/ 6 6304 - 6241
/ 7 6311 - 6241
/ 8 6312 - 6241
/ 9 6271 - 6242
/ 10 6272 - 6242

/
/ 70 6311 - 6264
/ 71 6312 - 6264

/ALSO PRINTS THE NUMBER OF
/THE PIN BEING CONNECTED.

2530	0000	GETPIN,	0	
2531	2352	ISZ	CNT9	/9TH TIME YET
2532	5340	JMP	C2	/NO
2533	1170	TAD	M10	/YES, SET UP
2534	3352	DCA	CNT9	/NEW COUNTER
2535	1351	TAD	N6264	/RESET RIGHT HALF
2536	3332	DCA	C1	
2537	4514	JMS I	SELCT	/GET LEFT HALF
2540	0000	C2,	0	/CONNECT IT UP
2541	4514	JMS I	SELCT	/GET RIGHT HALF
2542	0000	C1,	0	/CONNECT OTHER HALF
		/.....	PRINT PIN NUMBER	
2543	4523	JMS I	LNFEED	

2544	2353	ISZ	PNCNTR	/UPDATE PIN NUMBER
2545	1353	TAD	PNCNTR	
2546	4530	JMS I	UDPRNT	
2547	5730	JMP I	GETPIN	/EXIT
2550	6241	N6241,	6241	
2551	6264	N6264,	6264	
2552	0000	CNT9,	0	
2553	0000	PNCNTR,	0	/PIN NUMBER
		/.....		
				/SUBROUTINE TO FORM TWOS
				/COMPLEMENT OF LOC 3-4
2554	0000	COMP,	0	/TWOS COMP CONTENTS OF 3,4
2555	1004	TAD	4	/GET LOW
2556	7041	CIA		/TWOS COMP
2557	3004	DCA	4	/STORE IT
2560	1003	TAD	3	/GET HI
2561	7040	CMA		/ONES COMP
2562	7530	SZL CLL		/LINK = 0
2563	7001	IAC		/NO AC= AC+1
2564	3003	DCA	3	/YES STORE IT
2565	5754	JMP I	COMP	/EXIT
2566	3777	I3777,	3777	
		/.....		
		/ PRINT OVRFLO AND HALT		
2567	4527	OFLO,	JMS I	MSGE
2570	1726		1726	/OV
2571	0522		0522	/ER
2572	0614		0614	/FL
2573	1700		1700	/O
2574	6437		6437	/RESET ABC
2575	7402		HLT	
		*114		
0114	2200	SELCT,	2200	
		*123		
0123	6163	LNFEED,	6163	
0124	6200	DMUL,	6200	
0125	6400	DUBDIV,	6400	
		*127		
0127	6674	MSGE,	6674	
		*130		
0130	7000	UDPRNT,	7000	
		*163		
0163	7775	M3,	7775	
		*166		
0166	7772	M6,	7772	
		*171		
0171	7767	M11,	7767	
		*170		
0170	7770	M10,	7770	

CNT3 2552
COMP 2554
CVMCRO 2433
CVMILI 2400
C1 2532
C2 2542
DCNT 2526
DMUL 0124
DTABLI 2527
DUBDIV 0125
DVTEN 2417
DVIN2 2415
GETPIN 2530
LNFEED 0123
MAXMUM 2455
MLTPLY 2462
MSGE 0127
MXM2 2453
M10 0170
M3 0163
M6 0166
N6241 2550
N6264 2551
OFLO 2567
PNCNTR 2553
SELCT 0114
STUP 2477
TEN 2431
TNCNT 2476
T3777 2566
UDPRNT 0130

/ PT-1471 DECK 12 OF 20

/2600

*2600

/ GET PARAMETERS FOR CONNECTOR ON C-R TEST

2600	3245	LOOP1,	DCA	QSTION	
2601	1250		TAD	PTABLE	/SET UP TO PUT PARAMETERS FOR
2602	3013		DCA	13	/THIS CONNECTOR ON THIS PAGE
2603	1247		TAD	TBLADR	/ ADDRESS OF PARAMETER TABLE
2604	3012		DCA	12	/ LOAD AUTOINDEX REGISTER
2605	2246		ISZ	NUMBER	/UPDATE CONNECTOR NUMBER
2606	4527		JMS I	MSGE	
2607	4543				/CRLF
2610	0317				/CO
2611	1640				/N
2612	4000				
2613	1246		TAD	NUMBER	/PRINT CONNECTOR NUMBER
2614	4530		JMS I	UDPRNT	/USE UNSIGNED DECIMAL PRINT
2615	4523		JMS I	LNFEED	/PRINT CR-LF

/ FILL PARAMETER TABLE FOR THIS CONNECTOR

2616	1170		TAD	MI0	/ -10 OCTAL
2617	3244		DCA	LPCNTR	/ SET LOOP COUNTER
2620	2245	LOOP2,	ISZ	QSTION	
2621	1245		TAD	QSTION	/AC = QUESTION NO.
2622	7402		HLT		
2623	7604		LAS		/GET ANSWER
2624	7510		SPA		/GT. 0
2625	5232		JMP	.+5	/NO, KEEP OLD PARAMS FOR REST
2626	7041		CIA		/YES, USE THIS ONE
2627	3413		DCA I	13	
2630	2244		ISZ	LPCNTR	/ALL ANSWERS YET
2631	5220		JMP	LOOP2	/NO

/ PICK UP PARAMS AND PUT ON PAGE ZERO

2632	7200		CLA		
2633	1250		TAD	PTABLE	
2634	3013		DCA	13	
2635	1170		TAD	MI0	
2636	3244		DCA	LPCNTR	
2637	1413		TAD I	13	
2640	3412		DCA I	12	
2641	2244		ISZ	LPCNTR	
2642	5237		JMP	.-3	
2643	5760		JMP I	CRTEST	/START THE C-R TEST
2644	0000	LPCNTR,	0		/LOOP COUNTER
2645	0000	QSTION,	0		/QUESTION NUMBER
2646	0000	NUMBER,	0		
2647	0020	TBLADR,	20		/ADDRESS OF PARAM TBL - 1
2650	2650	PTABLE,	PTABLE		
2651	0000	PARAM1,	0		/20A PINS
2652	0000		0		/12A PINS
2653	0000		0		/7.5A PINS
2654	0000		0		/5A PINS
2655	0000		0		/3A PINS


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2656 0000 0 /100MA PINS
2657 0000 0 /25MA PINS
2660 0000 0 /5MA PINS

/.....
/ GET PARAMETERS FOR THE HIPOT TEST
2661 6046 GET2, TLS /SET PRINT FLAG
2662 4523 JMS I LNFEED
2663 4527 JMS I MSGE
2664 1020 1020 /HP
2665 2400 2400 /I
2666 4523 JMS I LNFEED
2667 7001 IAC /QUESTION 1 = HOW MANY PINS
2670 7402 HLT
2671 7604 LAS /GET ANSWER
2672 7041 CIA
2673 3110 DCA TSTCNT /STORE COMPLEMENT
2674 7001 IAC
2675 7104 CLL RAL /QUESTION 2 = WHAT IS THE
2676 7402 HLT / LIMIT ON LEAKAGE CURRENT
2677 7604 LAS /GET ANSWER
2700 7510 SPA /BIT 0 DOWN
2701 4717 JMS I XMILON /NO, ANSWER IN MILLIAMPS
2702 4716 JMS I XTHSND /YES, ANSWER IN MICROAMPS
2703 1005 TAD 5
2704 3020 DCA LEAKGE
2705 1006 TAD 6
2706 3021 DCA LKGI
2707 7121 STL IAC
2710 7004 RAL /QUESTION 3 = WHAT IS RAMP
2711 7402 HLT / CUTOFF POINT IN VOLTS
2712 7604 LAS /4,2,2,1 CODE ONLY
2713 7041 CIA /COMPLEMENT
2714 3022 DCA TOP
2715 5761 JMP I HVTEST /START HIPOT TEST
2716 3547 XTHSND, 3547
2717 3557 XMILON, 3557

/.....
/ GET PARAMETERS FOR THE I-R TEST
2720 6046 GET3, TLS /SET PRINT FLAG
2721 4523 JMS I LNFEED
2722 4527 JMS I MSGE
2723 1155 1155 /I-
2724 2200 2200 /R
2725 4523 JMS I LNFEED
2726 7001 IAC /QUESTION 1 = HOW MANY PINS
2727 7402 HLT
2730 7604 LAS /GET ANSWER
2731 7041 CIA
2732 3110 DCA TSTCNT /STORE COMPLEMENT
2733 7001 IAC
2734 7104 CLL RAL /QUESTION 2 = WHAT IS THE
2735 7402 HLT / LIMIT ON RESISTANCE
2736 7604 LAS
2737 7500 SMA /BIT 0 UP
2740 5355 JMP MEGO /NO, ANSWER IN MEGOHMS

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2741	4716		JMS I	XTHSNL	/YES, ANSWER IN THSND MEGS
2742	1005		TAD	5	/PUT RESULT INTO
2743	3026		DCA	MINCHM	/ MINIMUM RESISTANCE LIMIT
2744	1006		TAD	6	
2745	3027		DCA	MNOMI	
2746	7121	GO,	STL IAC		/QUESTION 3 = WHAT IS THE
2747	7004		RAL		/ ELECTRIFICATION TIME
2750	7402		HLT		/ IN SECONDS
2751	7604		LAS		
2752	7041		CIA		
2753	3025		DCA	TIME	/STORE COMPLEMENT
2754	5762		JMP I	IRTEST	/START I-R TEST
2755	3027	ME30,	DCA	MNOMI	
2756	3026		DCA	MINOHM	
2757	5346		JMP	GO	
2760	0235	CRTEST,	235		
2761	1200	HVTEST,	1200		
2762	1600	IRTEST,	1600		
		*20			
0020	0000	LEAKGE,	0		/LEAKGE CURRENT IN NANOAMPS
0021	0000	LKGI,	0		
0022	0000	TOP,	0		/RAMP CUTOFF
0023	0000	PEAK,	0		/PEAK VOLTAGE REACHED
0024	0000	PEAKI,	0		
0025	0000	TIME,	0		/ELECTRIFICATION TIME
0026	0000	MINOHM,	0		/RESISTANCE LIMIT FOR I-R
0027	0000	MNOMI,	0		
		*110			
0110	0000	ISTCNT,	0		
		*123			
0123	6163	LNFEED,	6163		
		*127			
0127	6653	MSGE,	6653		
0130	7000	UDPRNT,	7000		
		*170			
0170	7770	M10,	7770		

CRTEST	2760
GET2	2661
GET3	2720
GO	2746
HVTEST	2761
IRTEST	2762
LEAKGE	0020
LKGI	3021
LNFEED	0123
LOOP1	2600
LOOP2	2620
LPCNTR	2644
MEGO	2755
MINOHM	0026
MNOM1	0027
MSGE	0127
MIO	0170
NMBER	2646
PARAM1	2651
PEAK	0023
PEAK1	0024
PTABLE	2650
QSTION	2645
TBLADR	2647
TIME	0025
TOP	0022
ISTCNT	0110
UDPRNT	0130
XMILON	2717
XTHSND	2716

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/3000

*3000

/PT1471 STATISTICAL PACKAGE
/FOR CONTACT RESISTANCE.
/COMPUTES THE FOLLOWING IN
/DOUBLE PRECISION FOR EACH
/CURRENT
/ 1. MAXIMUM VOLTAGE= MAXT
/ 2. MINIMUM VOLTAGE= MINT
/ 3. AVERAGE VOLTAGE= XBART
/ 4. STANDARD DEVIATION=SGMAT
/
/DSTATS IS THE MAIN PROGRAM

3000	0000	DSTATS,	0000	
3001	1110		TAD	110 /GET TEST NUMBER = T
3002	7104		CLL RAL	/ 2*T
3003	1365		TAD	DREF1 /ADDRESS OF MAXT = DREF1+2*T
3004	3234		DCA	DPNTR1 /SET ADDRESS FOR MAXT
3005	1234		TAD	DPNTR1
3006	1137		TAD	P20
3007	3342		DCA	DPNTR2 /SET ADDRESS FOR MINT
3010	1342		TAD	DPNTR2
3011	1137		TAD	P20
3012	3264		DCA	DPNTR3 /SET ADDRESS FOR SIGMAT
3013	1264		TAD	DPNTR3
3014	1137		TAD	P20
3015	3265		DCA	DPNTR4 /SET ADDRESS FOR XBART
3016	1265		TAD	DPNTR4
3017	1137		TAD	P20
3020	3255		DCA	DPNTR5 /SET ADDRESS FOR BIAST
3021	1110		TAD	110
3022	1376		TAD	P2117
3023	3374		DCA	DPNTR6 /SET ADDRESS FOR FLAGT
3024	1374		TAD	DPNTR6
3025	1377		TAD	P10
3026	3266		DCA	DPNTR7 /SET ADDRESS FOR CNTRT
3027	2774		ISZ	1 DPNTR6 /SKIP IF NOT 1ST READING
3030	5355		JMP	DFIRST
3031	7140	DBACK,	CLL CMA	/LINK=0 TO SUBTRACT
3032	3774		DCA	1 DPNTR6 /RESET FLAGT TO SKIP
3033	4526		JMS	1 DPAOS /FORM RDNG - MAXT
3034	0000	DPNTR1,	0	/ADDRESS OF MAXT
3035	0105		105	/READING IN 105,106
3036	1003		TAD	3 /GET HIGH RESULT
3037	7710		SPA CLA	/SKIP IF READING .GT. MAX
3040	5340		JMP	DMIN /CHECK IF RDNG .LT. MINT
		/ IF READING .GT. MAXT THEN MAXT = READING		
3041	1105		TAD	105 /GET HIGH READING
3042	3634		DCA	1 DPNTR1 /SLOPE HIGH MAX
3043	2234		ISZ	DPNTR1
3044	1106		TAD	106 /GET LOW READING

3045	3634		DCA I	DPNTRI	/STORE LOW MAX
3046	1375		TAD	DFLAG	/SKIP ON 1ST READING
3047	7510		SPA		
3050	5340		JMP	DMIN	/1ST READING = MAX AND MIN
3051	2375	DRETRN,	ISZ	DFLAG	
3052	7410		SKP		/SKIP IF NOT 1ST READING
3053	5600		JMP I	DSTATS	/EXIT
3054	4526		JMS I	DPAOS	/FORM RDNG-BIAST
3055	0000	DPNTR5,	0		/ADDRESS OF BIAST
3056	0105		105		
3057	1003		TAD	3	/GET HIGH RESULT
3060	3101		DCA	101	/STORE HIGH
3061	1004		TAD	4	/GET LOW
3062	3102		DCA	102	/STORE LOW
/ CALCULATE NEW SIGMAT					
3063	4767		JMS I	DSGMAT	
3064	0000	DPNTR3,	0		/ADDRESS OF SIGMAT
3065	0000	DPNTR4,	0		/ADDRESS OF XBART
3066	0000	DPNTR7,	0		/ADDRESS OF CNTRI
3067	2666		ISZ I	DPNTR7	/UP COUNTER BY 1
3070	1265		TAD	DPNTR4	
3071	3275		DCA	+.4	
3072	1266		TAD	DPNTR7	
3073	3276		DCA	+.3	
/ CALCULATE NEW XBART					
3074	4766		JMS I	DXBARI	
3075	0000		0		/XBART
3076	0000	DM3,	0		
3077	5600		JMP I	DSTATS	/EXIT
/.....					
/ IF TEST IS OVER SET XBART=XBART+BIAS					
/ SET SIGMAT=SQRT(SIGMAT)					
3100	0000	ENDIST,	0		/TEST IS OVER
3101	1170		TAD	M10	
3102	3276		DCA	DM3	
3103	7320	DLOOP,	STL CLA		/LINK=1 TO ADD
3104	4526		JMS I	DPAOS	/FORM XBART+BIAS
3105	2060	D1,	2060		
3106	2100	D2,	2100		
3107	1003		TAD	3	/ XBART+BIAS
3110	3705		DCA I	D1	
3111	2305		ISZ	D1	
3112	1004		TAD	4	
3113	3705		DCA I	D1	
3114	2306		ISZ	D2	
3115	2306		ISZ	D2	/NEXT BIAS
3116	2305		ISZ	D1	/NEXT XBART
3117	4770		JMS I	DSQRT	/TAKE SQRT(SIGMAT)
3120	2040	D3,	2040		
3121	1005		TAD	5	
3122	3720		DCA I	D3	/STORE HORDER ROOT
3123	2320		ISZ	D3	
3124	1006		TAD	6	
3125	3720		DCA I	D3	/STORE LORDER ROOT

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3126 2320 ISZ D3
3127 2276 ISZ DM3 /ALL 8 DONE YET
3130 5303 JMP DLOOP /NO
3131 1372 TAD D2060
3132 3305 DCA D1
3133 1373 TAD D2100
3134 3306 DCA D2
3135 1371 TAD D2040
3136 3320 DCA D3
3137 5700 JMP I ENDTST /EXIT

/.....
/ DMIN CHECKS IF RDNG .LT. MINT
3140 7100 DMIN, CLL /LINK=0 TO SUBTRACT
3141 4526 JMS I DPAOS /FORM RDNG - MINT
3142 0000 DPNIR2, 0 /ADDRESS OF MINT
3143 0105 105 /READING
3144 1003 TAD 3
3145 7700 SMA CLA /SKIP IF READING .LT. MIN
3146 5251 JMP DRETRN /RETURN TO MAIN FLOW
/ IF READING .LT. MINT THEN MINT = READING
3147 1105 TAD 105 /GET HORDER READING
3150 3742 DCA I DPNIR2 /STORE HIGH
3151 2342 ISZ DPNIR2
3152 1106 TAD 106 /LORDER
3153 3742 DCA I DPNIR2 /STORE LOW
3154 5251 JMP DRETRN

/.....
/ IF 1ST READING FOR THIS CURRENT THEN
/ 1. SET BIAST = 1ST READING
/ 2. SET DFLAG = -1
3155 1105 DFIRST, TAD 105 /SET 1ST READING = BIAS
3156 3655 DCA I DPNIR5 /STORE HIGH
3157 2255 ISZ DPNIR5
3160 1106 TAD 106
3161 3655 DCA I DPNIR5 /STORE LOW
3162 7040 CMA
3163 3375 DCA DFLAG /SET DFLAG = -1
3164 5231 JMP DBACK /RETURN TO MAIN FLOW
3165 1776 DREF1, 1776
3166 3200 DXBAR1, 3200
3167 3255 DSGMA1, 3255
3170 3400 DSQRT, 3400
3171 2040 D2040, 2040
3172 2060 D2060, 2060
3173 2100 D2100, 2100
3174 0000 DPNIR6, 0
3175 0000 DFLAG, 0
3176 2117 P2117, 2117
3177 0210 P10, 10
*124
0124 6200 DMUL, 6200
0125 5400 DUBDIV, 5400
0126 6600 DPAOS, 6600
*137
0137 0020 P20, 20
*170
0170 7770 M10, 7770

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DBACK	3031
DFIRST	3155
DFLAG	3175
DLOOP	3103
DMIN	3140
DMUL	0124
DM3	3076
DPAOS	0126
DPNTR1	3034
DPNTR2	3142
DPNTR3	3064
DPNTR4	3065
DPNTR5	3055
DPNTR6	3174
DPNTR7	3066
DREF1	3165
DRETRN	3051
DSGMA1	3167
DSQRT	3170
DSTATS	3000
DUBDIV	0125
DXBAR1	3166
D1	3105
D2	3106
D2040	3171
D2060	3172
D2100	3173
D3	3120
ENDTST	3100
M10	0170
P10	3177
P20	0137
P2117	3176

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/3200

*3200

/THIS SUBROUTINE COMPUTES A
/RUNNING MEAN BY THE FOLLOWIN
/ONE PASS ALGORITHM. X(I) IS
/THIS READING. FOR I=1,2,...
/ XBART=(I-1)*XBART + X(I)/I
/WHERE THE RIGHT HAND XBART
/IS THE PREVIOUSLY CALCULATED
/ONE. LOCATION JMS + 1 MUST
/CONTAIN THE ADDRESS OF THE
/PREVIOUS XBART. JMS + 2 MUST
/CONTAIN THE ADDRESS OF THE
/PREVIOUS I. UPON EXIT THE
/NEW XBART HAS REPLACED THE
/OLD AND I HAS NOT BEEN INCR-
/EMENTED. X(I) IS ASSUMED TO
/BE IN LOC 101-102

3200	0000	DXBAR,	0000	
3201	1600		TAD I	DXBAR
3202	3212		DCA	DADRS1 /ADDRS OF XBART
3203	2200		ISZ	DXBAR
3204	1600		TAD I	DXBAR /GET ADDRESS OF CNRT
3205	3250		DCA	DCNT2
3206	1650		TAD I	DCNT2 /GET CNRT
3207	3250		DCA	DCNT2 /SET UP COUNTER
3210	4524		JMS I	DMUL /FORM (I-1)* XBART
3211	3247		DCNT1	/ADRS OF I-1
3212	0000	DADRS1,	0	/ADRS OF XBART OLD
3213	7320		CLA	STL
3214	4526		JMS I	DPAOS /FORM X(I) + XBART*(I-1)
3215	0005		5	/RESULT OF DMUL
3216	0101		101	/READING IN 101,102
3217	2250		ISZ	DCNT2 /I-1+1=I
		/ CHECK IF RESULT IS NEGATIVE IF SO MAKE 4 WORD NEGIVE		
3220	3251		DCA	X1 /ZERO
3221	3252		DCA	X2 / X1 AND X2
3222	1003		TAD	3 /GET RESULT OF DPAOS
3223	3253		DCA	X3 / AND PUT IT
3224	1004		TAD	4 / ON THIS
3225	3254		DCA	X4 / PAGE
3226	1003		TAD	3 /IF RESULT NEGATIVE, THEN
3227	7700		SMA	CLA / FORM 4 WORD NEGATIVE BY
3230	5235		JMP	+.5 / MAKING THE FOLLOWING
3231	7040		CMA	/ HOLD
3232	3251		DCA	X1 /= 7777
3233	7040		CMA	
3234	3252		DCA	X2 /= 7777
3235	4525		JMS I	DU3DIV /((I-1)*XBART +X(I)) / I
3236	3247		DCNT1	

3237	3251		XI	/DIVIDEND
3240	1003		TAD	3.
3241	3612		DCA I	DADRS1 /GET HIGH RESULT
3242	2212		ISZ	DADRS1 /STORE HORDER OF ANSWER
3243	1004		TAD	4
3244	3612		DCA I	DADRS1 /GET LOW
3245	2200		ISZ	DXBAR /STORE LORDER
3246	5600		JMP I	DXBAR /EXIT
3247	0000	DCNT1,	0	
3250	0001	DCNT2,	1	/COUNTER
3251	0000	X1,	0	
3252	0000	X2,	0	
3253	0000	X3,	0	
3254	0000	X4,	0	

/.....

/THIS SUBROUTINE COMPUTES A
 /RUNNING (SIGMAT)**2, WHERE
 /SIGMAT= STANDARD DEVIATION,
 /BY THE FOLLOWING ONE PASS
 /ALGORITHM. X(I)= READING
 / FOR I=2,3,.....
 /SIGMAT=(I-2)*SIGMAT/(I-1) +
 / (X(I)-XBART)**2/I*64
 /WHERE THE RHS SIGMAT IS THE
 /OLD ONE AND XBART IS THAT
 /XBART FOR I-1. THE FACTOR OF
 /64 IS A SCALING FACTOR TO
 /ALLOW A LARGER (SIGMAT)**2
 /TO BE CALCULATED. THIS IS
 /COMPENSATED FOR WHEN THE
 /SQUARE ROOT IS TAKEN BY
 /MULTIPLYING BY 8. LOCATION
 /JMS + 1 MUST CONTAIN THE
 /ADDRESS OF SIGMAT. JMS + 2
 /MUST CONTAIN THE ADDRESS OF
 /XBART. JMS + 2 MUST CONTAIN
 /THE ADDRESS OF I. UPON EXIT
 /THE NEW SIGMAT HAS REPLACED
 /THE OLD AND I HAS NOT BEEN
 /INCREMENTED.

3255	0000	DSIGMA,	0000	
3256	1655		TAD I	DSIGMA
3257	3271		DCA	DADRS3 / SIGMAT
3260	2255		ISZ	DSIGMA
3261	1655		TAD I	DSIGMA
3262	3315		DCA	DADRS4 / XBART
3263	2255		ISZ	DSIGMA
3264	1655		TAD I	DSIGMA /GET ADDRESS OF CNTRI
3265	3341		DCA	DCNT4
3266	1741		TAD I	DCNT4 /GET CNTRI
3267	3341		DCA	DCNT4 /SET UP COUNTER
3270	4524		JMS I	DMUL /FORM (I-2)*SIGMAT
3271	0000	DADRS3,	0	/ADRS OF OLD SIGMAT

3272	3340	DCNT3		
3273	2341	ISZ	DCNT4	/ I=I+1
3274	4525	JMS I	DUBDIV	/FORM (I-2)*SIGMAT/(I-1)
3275	3340	DCNT3		
3276	0003	3		/DIVIDEND
3277	1003	TAD	3	/GET HIGH RESULT
3300	3342	DCA	DT1	/STORE HIGH
3301	1004	TAD	4	/GET LOW
3302	3343	DCA	DT2	/STORE LOW
3303	2341	ISZ	DCNT4	/I=I+2
3304	4524	JMS I	DMUL	/FORM I*64
3305	3340	DCNT3		/I
3306	3346	SCALER		/64
3307	1005	TAD	5	/STORE
3310	3344	DCA	DT3	/ RESULT
3311	1006	TAD	6	/ IN
3312	3345	DCA	DT4	/ DT3,DT4
3313	7100	CLL		/LINK=2 TO SUBTRACT
3314	4526	JMS I	DPAOS	/FORM X(I) - XBAR
3315	0000	DADRS4,	0	/ADRS OF XBAR
3316	0101		101	/READING
3317	4524	JMS I	DMUL	/SQUARE THIS
3320	0003	3		/(READING-XBAR)**2
3321	0003	3		
3322	4525	JMS I	DUBDIV	/FORM (X(I)-XBAR)**2/I*64
3323	3344	DT3		/DIVISOR = I*64
3324	0003	3		/DIVIDEND
3325	7120	STL		/LINK=1 TO ADD
3326	4526	JMS I	DPAOS	/FORM NEW SIGMA
3327	3342	DT1		
3330	0003	3		
3331	1003	TAD	3	
3332	3671	DCA I	DADRS3	/STORE HORDER
3333	2271	ISZ	DADRS3	
3334	1004	TAD	4	
3335	3671	DCA I	DADRS3	/STORE LORDER
3336	2255	ISZ	DSIGMA	/SET UP TO EXIT
3337	5655	JMP I	DSIGMA	/EXIT
3340	0000	DCNT3,	0	
3341	0000	DCNT4,	0	
3342	0000	DT1,	0	
3343	0000	DT2,	0	
3344	0000	DT3,	0	
3345	0000	DT4,	0	
3346	0000	SCALER,	0	
3347	0100		100	
		/.....		
		/.....	ZERO LOC 2000-2137	
3350	0000	ZERO,	0	
3351	1361	TAD	MI40	
3352	3363	DCA	DCNT	
3353	1362	TAD	DTABL1	
3354	3010	DCA	10	/USE AUTO INDEX TO ZERO

3355	3410		DCA I	10	/ LOC 2000-2140
3356	2363		ISZ	DCNT	
3357	5355		JMP	.-2	
3360	5750		JMP I	ZERO	
3361	7640	M140,		7640	
3362	1777	DIABLI,		1777	
3363	0000	DCNT,		0	
		*124			
0124	6200	DMUL,		6200	
0125	6400	DUBDIV,		6400	
0126	6600	DPAOS,		6600	
		*170			
0170	7770	M10,		7770	

DADRS1	3212
DADRS3	3271
DADRS4	3315
DCNT	3363
DCNT1	3247
DCNT2	3250
DCNT3	3340
DCNT4	3341
DMUL	0124
DPAOS	0126
DSIGMA	3255
DIABLI	3362
DI1	3342
DI2	3343
DI3	3344
DI4	3345
DUBDIV	0125
DXBAR	3200
MI0	0170
MI40	3361
SCALER	3346
X1	3251
X2	3252
X3	3253
X4	3254
ZERO	3350

/3400

*3400

```

/THIS SUBROUTINE COMPUTES THE
/SQUARE ROOT OF A DOUBLE WORD
/NUMBER USING NEWTONS METHOD
/PLUS REMAINDER. NEWTONS
/ALGORITHM IS FOR N=1,2,....
/ D(N)= .5*(D(N-1)+ X/D(N-1))
/WHERE D(0)= 2, AND X IS THE
/NUMBER WHOSE SQUARE ROOT IS
/DESIRED. D(N) CONVERGES TO
/SQRT(X) AND WILL BE SAID TO
/HAVE CONVERGED WHEN
/ D(N)-D(N-1) .LE. 1
/LETTING N= D(N) WE FORM
/ R= X - N*N AND REQUIRE
/THAT R BE .GT. 0. WE THEN
/SAY SQRT(X) = N + R/2N .
/COMPENSATION FOR 64 FACTOR
/IS MADE HERE. ALSO SINCE
/SQRT(X)= SIGMAT WE ALSO FORM
/3*SIGMAT . LOCATION JMS + 1
/MUST CONTAIN THE ADDRESS OF
/X. UPON EXIT 3*SIGMAT IS IN
/LOC 5-6.

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```

3400 0000 DSQRT, 0
3401 1600 TAD I DSQRT
3402 3337 DCA DIV2 /TEMPORARY LOC
3403 1330 TAD DXZERO /INITIAL ROOT FOR NEWTON MTHD
3404 3332 DCA DROOTI
3405 3331 DCA DROOTI

/ PICK UP X AND PUT ON THIS PAGE FOR 4 WORD X
/ DX1 AND DX2 ARE 0

3406 1737 TAD I DIV2 /GET HIGH PART
3407 7450 SNA /SKIP IF HIGH .NE. 0
3410 7120 STL /LINK=1 IF HIGH = 0
3411 3335 DCA DX3 / STORE
3412 2337 ISZ DIV2
3413 1737 TAD I DIV2 /GET LOW PART
3414 7442 SZA /SKIP IF LOW = 0
3415 5223 JMP .+6 / CONTINUE STORING 4 WORDS
3416 7420 SNL /SKIP IF HIGH = 0
3417 5223 JMP .+4
3420 3035 DCA 5 /X=0 SO SORT(X) = 0
3421 3036 DCA 6
3422 5320 JMP OUT /EXIT
3423 3336 DCA DX4 / STORE
3424 4525 DNWTON, JMS I DUBDIV /FORM X/DROOT
3425 3531 DROOTI
3426 3533 DXI /DIVIDEND-
3427 7120 STL /LINK=1 TO ADD
3430 4526 JMS I DPAOS /FORM DROOT + X/DROOT
3431 0000 3
3432 3531 DROOTI

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3433	4337	JMS	DIV2	/ .5*(DROOT+X/DROOT)
3434	7100	CLL		/LINK=0 TO SUBTRACT
3435	4526	JMS I	DPAOS	/FORM NEW ROOT - OLD ROOT
3436	3531	DROOTI		/OLD ROOT
3437	0005	5		/NEW ROOT
3440	1003	TAD	3	/ARE THEY EQUAL
3441	7640	SZA	CLA	
3442	5247	JMP	.+5	/HIGH NOT ZERO, FORGET LOW
3443	1004	TAD	4	
3444	7010	RAR		
3445	7650	SNA	CLA	
3446	5254	JMP	DHERE	/ YES, NEWTON OVER
3447	1005	TAD	5	/ NO, SET
3450	3331	DCA	DROOTI	/ROOT = NEW ROOT
3451	1006	TAD	6	
3452	3332	DCA	DROOT	
3453	5224	JMP	DNWTON	/MORE ITERATION NEEDED
		/ NEWTON HAS CONVERGED TO N FORM R=X-N*N		
		/ MAKE SURE R .GT. 0		
3454	4524	DHERE,	JMS I DMUL	/FORM N*N
3455	3531		DROOTI	
3456	3531		DROOTI	
3457	7300		CLA CLL	/LINK=0 TO SUBTRACT
3460	4526		JMS I DPAOS	/FORM R=X-N*N
3461	0005		5	/N*N
3462	3535	DXSQR,	DX3	/ADRS OF X
3463	1003		TAD 3	/GET HIGH RESULT OF R
3464	7700		SMA CLA	/SKIP IF N*N .GT. X
3465	5272		JMP .+5	
3466	7040		CMA	/SET N=N-1
3467	1332		TAD DROOT	
3470	3332		DCA DROOT	
3471	5254		JMP DHERE	/TRY AGAIN
		/.....COMPENSATE FOR SCALE FACTOR		
3472	4524		JMS I DMUL	/FORM R*SCALE SCALE=3
3473	0003		3	
3474	3524		SCALE	
3475	4525		JMS I DUBDIV	/FORM R*SCALE/N
3476	3531		DROOTI	
3477	0003		3	/DIVIDEND
3500	4337		JMS DIV2	/FORM R*SCALE/2*N
3501	1006		TAD 6	/GET LOW RESULT
3502	3336		DCA DX4	
3503	3335		DCA DX3	/HIGH MUST BE ZERO
3504	4524		JMS I DMUL	/FORM N*SCALE
3505	3531		DROOTI	
3506	3524		SCALE	
3507	7320		CLA STL	/LINK=1 TO ADD
3510	4526		JMS I DPAOS	/FORM N*SCALE + R*SCALE/2*N
3511	3535		DX3	/= SCALE * (N + R/2N)
3512	0005		5	
		/... SIGMA IS IN LOC 3,4		
3513	7000		NOP	
3514	7001		NOP	
3515	4524		JMS I DMUL	/FORM 3*SIGMA
3516	0003		3	
3517	3526		THREE	
3520	2200	OUT,	ISZ DSQRT	
3521	5600		JMP I DSQRT	/ EXIT

3523	7000		NOP	
3524	0000	SCALE,	0	
3525	0010		10	
3526	0000	THREE,	0	
3527	0003		3	
3530	0002	DXZERO,	2	
3531	0000	DR00T1,	0	
3532	0000	DR00T,	0	
3533	0000	DX1,	0	
3534	0000	DX2,	0	
3535	0000	DX3,	0	
3536	0000	DX4,	0	
		/ DIV2 DIVIDES LOC 3,4 BY 2		
3537	0000	DIV2,	0	
3540	1003	TAD	3	/GET HIGH
3541	7110	CLL RAR		/ HIGH/2 LINK HOLDS AC 11
3542	3005	DCA	5	/STORE IT
3543	1004	TAD	4	/LOW/2
3544	7010	RAR		/LINK TO AC 0
3545	3006	DCA	6	/STORE IT
3546	5737	JMP I	DIV2	/ EXIT
		/.....		
		/ MULTIPLY AC BY 1000		
3547	0000	X1000,	0	
3550	0372	AND	T3777	/MASK
3551	3371	DCA	X2	/STORE AC
3552	3370	DCA	X1	/MAKE DOUBLE PRECISION
3553	4524	JMS I	DMUL	/MULTIPLY BY 1000
3554	3570	X1		
3555	2174	THSND		
3556	5747	JMP I	X1000	/EXIT
		/.....		
		/ MULTIPLY AC BY 1,000,000		
3557	0000	XMLN,	0	
3560	0372	AND	T3777	/MASK
3561	3371	DCA	X2	/STORE AC
3562	3370	DCA	X1	/MAKE DOUBLE PRECISION
3563	4524	JMS I	DMUL	/MULTIPLY BY 1000000
3564	3570	X1		
3565	2176	MILON		
3566	2357	ISZ	XMLN	
3567	5757	JMP I	XMLN	/EXIT

3570	0000	X1,	0	
3571	0000	X2,	0	
3572	3777	T3777,	3777	
		*124		
0124	6200	DMUL,	6200	
0125	6400	DUBDIV,	6400	
0126	6600	DPAOS,	6600	
		*170		
0170	7770	M10,	7770	
		*2174		
2174	0000	THSND,	0	/1000
2175	1750		1750	
2176	0363	MILON,	0363	/1,000,000
2177	7100		7100	

DHERE	3454
DIV2	3537
DMUL	0124
DNWTON	3424
DPAOS	0126
DR00T	3532
DR00T1	3531
DSQRT	3400
DUBDIV	0125
DXSQR	3462
DXZERO	3530
DX1	3533
DX2	3534
DX3	3535
DX4	3536
MILON	2176
M10	0170
SCALE	3524
THREE	3526
THSND	2174
T3777	3572
XMLN	3557
X1	3570
X1000	3547
X2	3571

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/6000

*6000

/CHEW-CONVERT ANY BCD TO BINARY-
/DOUBLE PRECISION PAL 00021 B

6000	0000	CHEW,	0	
6001	7300		CLA CLL	
6002	1327		TAD NEG24	
6003	3330		DCA CHK1	/SET COUNTER I=-30 OCTAL
6004	1164		TAD MN4	/-4 IN ACC
6005	3331		DCA CHK2	/ SET J=-4
6006	1166		TAD MNS	/-6 IN ACC
6007	3332		DCA CHK3	/ SET L=-6
6010	3333		DCA CHK4	/ SET M=0
6011	1600		TAD I CHEW	/ GET CONTENTS OF LOC AFTER JMS CHW
6012	3335		DCA ADRS	/ STORE LOC OF MOST SIG OF BCD=
6013	1735		TAD I ADRS	/ GET MOST SIG OF BCD= IN ACC
6014	3347		DCA HOLD	/STORE MOST SIG. OF BCD NO.
6015	2335		ISZ ADRS	/GET TO ADRS OF LEAST SIG.BCD NO.
6016	1735		TAD I ADRS	
6017	3350		DCA HOLD1	/STORE LEAST SIG.BCD NO.
6020	3003		DCA WORK1	/NOW CLEAR THESE TWO LOCATIONS FOR
6021	3004		DCA WORK2	/SUMMATION OF ANSWER
6022	1347		TAD HOLD	/MOST SIG. OF BCD NO. IN ACC
6023	3334	MID,	DCA TEMPY	/VALUE IN ACC.TO COMMON STORAGE
6024	7300	DO,	CLA CLL	/ STORE IT + GET IT BACK
6025	1334		TAD TEMPY	
6026	7004		RAL	
6027	3334		DCA TEMPY	/STORE ROTATED =
6030	7420		SNL	/IS THERE A BIT
6031	5256		JMP INCJ	/ NO INCREMENT COUNTERS
6032	1740		TAD I TABLE	/YES ADD ONE OF THE BIT VALUES
6033	3337		DCA CUM1	/PUT IT IN LEAST SIG OF MULTIPLICAT
6034	2333	AGN,	ISZ CHK4	/ M=M+1
6035	1333		TAD CHK4	/ GET M
6036	1332		TAD CHK3	/ M+(-L)
6037	7440		SZA	/ IS M=L
6040	5254		JMP MLTPY	/ NO GO MULTIPLY
6041	7300		CLL CLA	
6042	1337		TAD CUM1	/YES, GET LEAST SIG RESULT OF MULTIE
6043	1004		TAD WORK2	/ADD IT TO LEAST SIG. OF BINARY NO
6044	3004		DCA WORK2	/STORE RESULT IN BINARY NO.LOCATIO
6045	7004		RAL	/ ADD
6046	1336		TAD CUM	/ MOST SIG
6047	1003		TAD WORK1	/HALVES
6050	3003		DCA WORK1	/STORE FOR POSSIBLE EXIT
6051	3336		DCA CUM	/CLEAR FOR RESULT OF NEXT MULTIPLY
6052	3333		DCA CHK4	/ SET M=0
6053	5256		JMP INCJ	/ NO INCREMENT COUNTERS
6054	4303	MLTPY,	JMS MULT	/GO TO MULTIPLY BY 12 SUBROUTINE
6055	5234		JMP AGN	
6056	2340	INCJ,	ISZ TABLE	/ STORE=STORE+1

6057	2331		ISZ CHK2	/ J=J+100
6060	5270		JMP INCI	/ NO INCREMENT I
6061	1164		TAD MN4	/ -4 IN ACC
6062	3331		DCA CHK2	/ RESET J TO -4
6063	1341		TAD RESET	
6064	3340		DCA TABLE	/ PUT STORE BACK TO INITIAL VALUE
6065	7001		IAC	/ +1 IN ACC
6066	1332		TAD CHK3	/ L+1
6067	3332		DCA CHK3	/ L=L+1
6070	2330	INCI,	ISZ CHK1	/ I=I+1=0
6071	5275		JMP .+4	/ NO. GO SEE IF I EQUALS -14 OCTAL.
6072	2200		ISZ CHEW	/ INCREMENT RETURN LOC TO MAIN PROG
6073	7100		CLL	/ CLEAR FOR EXIT
6074	5600		JMP I CHEW	/ JUMPS BACK TO MAIN PROG PAST @LOC
6075	1330		TAD CHK1	/ ADD I TO ACC
6076	1342		TAD FRIN	/ ADD +14 OCTAL TO ACC
6077	7640		SZA CLA	/ DOES I=-12
6100	5224		JMP DO	/ NO, GO BACK AND LOOK FOR ANOTHER B
6101	1350		TAD HOLD1	/ YES. GET LEAST SIG. BCD NO. IN ACC
6102	5223		JMP MID	/ PUT LEAST SIG OF BCD IN TEMPY
6103	0000	MULT,	0	/ SUBROUTINE TO MULTIPLY THE VALUE
6104	7300		CLA CLL	/ IN CUM BY 12 OCTAL.
6105	1353		TAD NEG11	/ SET COUNTER TO---
6106	3354		DCA COUNT	/ NIMUS 11 OCTAL.
6107	1337		TAD CUM1	/ RESTORE STARTING VALUE SO IT CAN--
6110	3352		DCA NOW1	/ BE ADDED TO ITSELF 12 TIMES (OCTAL)
6111	1336		TAD CUM	/ AND STILL RETAIN THE RUNNING TOTAL
6112	3351		DCA NOW	/ IN CUM AND CUM+1.
6113	7100	REPEAT,	CLL	
6114	1337		TAD CUM1	/ ADD LEAST---
6115	1352		TAD NOW1	/ SIG. PARTS
6116	3337		DCA CUM1	
6117	7004		RAL	/ ADD ANY OVERFLOW IN LINK---
6120	1336		TAD CUM	/ TO THE SUM OF THE MOST SIGS.
6121	1351		TAD NOW	
6122	3336		DCA CUM	
6123	2354		ISZ COUNT	/ IF ZERO, NO. HAS BEEN ADDED TO ITSEE
6124	5313		JMP REPEAT	/ 12 OCTAL TIMES.
6125	7100		CLL	
6126	5703		JMP I MULT	/ EXIT TO MAIN PROGRAM
6127	7750	NEG24,	-30	/ OCTAL NO.
6130	0000	CHK1,	0	/ COUNTER I-SEE FLOWCHART
6131	0000	CHK2,	0	/ COUNTER J
6132	0000	CHK3,	0	/ COUNTER L
6133	0000	CHK4,	0	/ COUNTER M
6134	0000	TEMPY,	0	
6135	0000	ADRS,	0	/ LOCATION OF BCD=
6136	0000	CUM,	0	/ HOLDS RESULTS OF MULTIPLY(X.12Y)
6137	0000	CUM1,	0	
6140	6143	TABLE,	STORE	/ MEANS TO GET STORE=STORE+1. + TO
6141	6143	RESET,	STORE	/ MEANS TO RESET START ADRES OF BITS

6142	0014	FRIN,	14
6143	0004	STORE,	4
6144	0002		2
6145	0002		2
6146	0001		1
6147	0000	HOLD,	0
6150	0000	HOLD1,	0
6151	0000	NOW,	0
6152	0000	NOW1,	0
6153	7767	NEG11,	7767
6154	0000	COUNT,	0
			*164
0164	7774	MN4,	-4
			*166
0166	7772	MN6,	-6
			*3
0003	0000	WORK1,	0
0004	0000	WORK2,	0
		*6155	

/OCTAL NO.
/OCTAL BIT VALUES OF THE 4-BIT GROUP
/MAKING UP AN INDIVIDUAL BCD DIGIT
/STARTING WITH THE LEFTMOST BIT---
/VALUE AND PROCEEDING RIGHT.

6155	0000	PRINT,	0
6156	6041	TSF	
6157	5356	JMP .-1	
6160	6046	ILS	
6161	7200	CLA	
6162	5755	JMP I PRINT	
		*6163	

/PRINT
/PAL 000001 A
/07/27/67
/CHARACTER TO BE PRINTED
/ IN AC ON JMS PRINT.
/ACC CLEARED PRIOR TO RETURN.
/ENTRY
/IS TELEPRINTER FLAG 1.
/NO, TRY AGAIN.
/YES, PRINT CHARACTER
/RETURN

6163	0000	LINFED,	0
6164	7200	CLA	
6165	1372	TAD CR	
6166	4355	JMS PRINT	
6167	1373	TAD LF	
6170	4355	JMS PRINT	
6171	5763	JMP I LINFED	
6172	0215	CR,	215
6173	0212	LF,	212

/LINFED-PRINT CARRIAGE RETURN AND
/ LINE FEED
/PAL 000004 A
/07/23/67
/CLEAR ACCUM AFTER JMS LINFED.
/ ADDS CODE FOR CARRIAGE RETURN,
/ JMS PRINT FOR PRINT.
/ ADD CODE LINE FEED AND PRINT.
/HARD WIRE CONFIGURATION OF ITT
/ DEMANDS CARRIAGE RETURN FIRST.

/YES, CARRIAGE RETURN
/PRINT IT.
/YES, LINEFEED.
/PRINT IT.
/ASCII CODE FOR CARRIAGE RETURN.
/ASCII CODE FOR LINE FEED.

ADRS	6135
AGN	6034
CHEW	6000
CHK1	6130
CHK2	6131
CHK3	6132
CHK4	6133
COUNT	6154
CR	6172
CUM	6136
CUM1	6137
DO	6024
FRIN	6142
HOLD	6147
HOLD1	6150
INCI	6070
INCJ	6056
LF	6173
LINFED	6163
MID	6023
MLTPY	6054
MN4	0164
MN6	0166
MULT	6103
NEG11	6153
NEG24	6127
NOW	6151
NOW1	6152
PRINT	6155
REPEAT	6113
RESET	6141
STORE	6143
TABLE	6140
TEMPY	6134
WORK1	0033
WORK2	0004

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/6200

*6200

/DMUL-SIGNED DOUBLE PRECISION MULTIE
/PAL 000011B

6200	0000	DMUL,	0	
6201	7300		CLL CLA	
6202	1162		TAD MN2	/-2 IN ACC
6203	3335		DCA SIGNSW	/SET SIGN SWITCH
6204	4311		JMS ISIGN	/FETCH AND SET SIGN
6205	1341		TAD MLTH	/RESULT IN MLTH, MLTL
6206	3336		DCA MULTH	/HIGH ORDER MULTIPLICAND
6207	1340		TAD MLTL	
6210	3337		DCA MULTL	/LOW ORDER MULTIPLICAND
6211	4311		JMS ISIGN	/FETCH AND SET SIGN
6212	1337		TAD MULTL	/LOW ORDER MULTIPLICAND
6213	3304		DCA MP2	
6214	1340		TAD MLTL	/LOW ORDER MULTIPLIER
6215	4342		JMS MP4	/MULTIPLY
6216	3006		DCA WORK4	/LOW ORDER ANS.STORED FOR EXIT
6217	1371		TAD MP5	
6220	3005		DCA WORK3	/COMPUTE NEXT MOST SIG.ANS.
6221	1336		TAD MULTH	/HIGH ORDER MULTIPLICAND
6222	3304		DCA MP2	
6223	1340		TAD MLTL	/LOW ORDER MULTIPLIER
6224	4342		JMS MP4	/MULTIPLY
6225	1005		TAD WORK3	
6226	3005		DCA WORK3	
6227	7004		RAL	/GET CARRY
6230	1371		TAD MP5	
6231	3004		DCA WORK2	
6232	7004		RAL	/GET CARRY
6233	3003		DCA WORK1	
6234	1337		TAD MULTL	/LOW ORDER MULTIPLICAND
6235	3304		DCA MP2	
6236	1341		TAD MLTH	/HIGH ORDER MULTIPLIER
6237	4342		JMS MP4	/MULTIPLY
6240	1005		TAD WORK3	
6241	3005		DCA WORK3	/STORE THIRD MOST SIG.FOR EXIT
6242	7004		RAL	/GET CARRY
6243	1371		TAD MP5	
6244	1004		TAD WORK2	
6245	3004		DCA WORK2	
6246	7004		RAL	/GET CARRY
6247	1003		TAD WORK1	
6250	3003		DCA WORK1	
6251	1336		TAD MULTH	/HIGH ORDER MULTIPLICAND
6252	3304		DCA MP2	
6253	1341		TAD MLTH	/HIGH ORDER MULTIPLIER
6254	4342		JMS MP4	
6255	1004		TAD WORK2	
6256	3004		DCA WORK2	/STORE SECOND MOST SIG FOR EXIT

6257	7004		RAL	
6260	1371		TAD MP5	
6261	1003		TAD WORK1	
6262	3003		DCA WORK1	/STORE MOST SIG.ANS.FOR EXIT
6263	7100		CLL	/CLEAR LINK FOR POSSIBLE EXIT. ACCB
6264	2335		ISZ SIGNSW	/ANSWER +0
6265	5600		JMP I DMUL	/NO EXIT
6266	1006		TAD WORK4	/MAKE CURRENT LEAST SIG.NEGATIVE
6267	7141		CMA CLL IAC	/NEGATE
6270	3006		DCA WORK4	/STORE LEAST SIG.ANS.FOR EXIT
6271	1005		TAD WORK3	/MAKE CURRENT ANS.NEGATIVE
6272	4304		JMS COM	
6273	3005		DCA WORK3	/STORE THIRD MOST SIG.ANS.FOR EXIT
6274	1004		TAD WORK2	/MAKE CURRENT ANS.NEGATIVE
6275	4304		JMS COM	/NEGATE
6276	3004		DCA WORK2	/STORE SECOND MOST SIG.ANS.FOR EXIT
6277	1003		TAD WORK1	/MAKE CURRENT ANS.NEGATIVE
6300	4304		JMS COM	
6301	3003		DCA WORK1	/STORE MOST SIG.ANS.FOR EXIT
6302	7100		CLL	/CLEAR LINK FOR EXIT
6303	5600		JMP I DMUL	/EXIT
6304	0000	MP2,	0	
6305	7040	COM,	CMA	
6306	7430		SZL	
6307	7101		CLL IAC	
6310	5704		JMP I COM	
6311	0000	MP1,	0	
6312	1600	TSIGN,	TAD I DMUL	/FETCH ADDRESS
6313	3373		DCA ADDRS	
6314	1773		TAD I ADDRS	/FETCH HIGH ORDER
6315	7100		CLL	
6316	7510		SPA	/IS IT +0
6317	7060		CMA CML	/YES COMPLEMENT, SET LINK
6320	3341		DCA MLTH	
6321	2373		ISZ ADDRS	
6322	1773		TAD I ADDRS	/FETCH LOW ORDER
6323	7430		SZL	/WAS IT +0
6324	2335		ISZ SIGNSW	/YES, ADD 1 TO SWITCH
6325	7000		NOP	
6326	7430		SZL	
6327	7141		CMA CLL IAC	/COMPLEMENT, CLEAR LINK
6330	3340		DCA MLTL	
6331	7430		SZL	/CARRY
6332	2341		ISZ MLTH	/YES
6333	2200		ISZ DMUL	
6334	5711		JMP I TSIGN	/EXIT ROUTINE
6335	0000	SIGNSW,	0	
6336	0000	MULTH,	0	
6337	0000	MLTL,	0	
6340	0000	MLTH,	0	
6341	0000	MLTH,	0	
6342	0000	MP4,	0	/UNSIGNED MULTIPLY
6343	3311		DCA MPI	
6344	3371		DCA MP5	
6345	1372		TAD MI2	/COUNT 12 BITS
6346	3370		DCA MP3	

6347	7100		CLL		
6350	1311	MP46,	TAD	MP1	/CARRY GOES INTO
6351	7010		RAR		/LEFT OF MP1
6352	3311		DCA	MP1	/TEST MULTIPLIER BIT
6353	1371		TAD	MP5	
6354	7420		SNL		/A 1
6355	5360		JMP	.+3	/NO DON T ADD
6356	7100		CLL		/YES ADD
6357	1304		TAD	MP2	
6360	7010		RAR		
6361	3371		DCA	MP5	
6362	2370		ISZ	MP3	/DONE 12 BITS
6363	5350		JMP	MP46	/NO, CARRY IS IN C(L)
6364	1311		TAD	MP1	/YES DONE
6365	7010		RAR		
6366	7100		CLL		
6367	5742		JMP	I MP4	/EXIT
6370	0000	MP3,	0		
6371	0000	MP5,	0		
6372	7764	MI2,	-14		
6373	0000	ADDRS,	0		
			*3		
0003	0000	WORK1,	0		
0004	0000	WORK2,	0		
0005	0000	WORK3,	0		
0006	0000	WORK4,	0		
			*162		
0162	7776	MN2,	-2		

07374

ADDRS	6373
COM	6304
DMUL	6200
MLTH	6341
MLTL	6340
MN2	0162
MP1	6311
MP2	6304
MP3	6370
MP4	6342
MP46	6350
MP5	6371
MULTH	6336
MULTL	6337
M12	6372
SIGNSW	6335
TSIGN	6311
WORK1	0003
WORK2	0004
WORK3	0005
WORK4	0006

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/6400

*6400

/DUBDIV-DOUBLE PRECISION DIVIDE
/PAL 0000123

6400	0000	DUBDIV,	0	
6401	7300	CLA CLL		
6402	1600	TAD I DUBDIV		/STORE DIVISOR IN THIS SUBROUTINE
6403	3344	DCA ADDRS		/----
6404	2200	ISZ DUBDIV		/TO KEEP IT FROM BEING DESTROYED
6405	1744	TAD I ADDRS		/IN THE EVENT THAT LOCATIONS
6406	3347	DCA HDIVSR		/3 AND 4 CONTAIN THE DIVISOR.
6407	2344	ISZ ADDRS		
6410	1744	TAD I ADDRS		
6411	3350	DCA LDIVSR		
6412	1600	TAD I DUBDIV		/GET ADDR. OF MOST SIG OF DIVIDEND.
6413	2200	ISZ DUBDIV		/INCREMENT FOR PROPER RETURN
6414	3344	DCA ADDRS		/STORE ADDR OF DIVIDEND.
6415	1162	TAD MN2		/-2 IN ACC
6416	3351	DCA SIGNSW		/SET SIGN SWITCH
6417	1744	TAD I ADDRS		/HIGH-ORDER DIVIDEND
6420	3345	DCA DIVND1		
6421	2344	ISZ ADDRS		
6422	1744	TAD I ADDRS		/DIVIDEND
6423	3346	DCA DIVND2		
6424	2344	ISZ ADDRS		
6425	1744	TAD I ADDRS		/DIVIDEND
6426	3003	DCA WORK1		
6427	2344	ISZ ADDRS		
6430	1744	TAD I ADDRS		/DIVIDEND
6431	3004	DCA WORK2		
6432	1345	TAD DIVND1		/NOW STORE THE REVERSED---
6433	3005	DCA WORK3		/DIVIDEND---
6434	1346	TAD DIVND2		/IN LOCATIONS WHERE ANSWER WILL---
6435	3006	DCA WORK4		/RESIDE ON PAGE ZERO
6436	1005	TAD WORK3		/IS DIVIDEND LESS THAN ZERO.
6437	7700	SMA CLA		
6440	5256	JMP DIVG01		/NO CONTINUE
6441	2351	ISZ SIGNSW		/YES ADD 1 TO SWITCH
6442	1004	TAD WORK2		
6443	7141	CMA IAC CLL		/NEGATE DIVIDEND
6444	3004	DCA WORK2		
6445	1003	TAD WORK1		
6446	4354	JMS COM		
6447	3003	DCA WORK1		
6450	1006	TAD WORK4		
6451	4354	JMS COM		
6452	3006	DCA WORK4		
6453	1205	TAD WORK3		
6454	4354	JMS COM		
6455	3033	DCA WORK3		

6456	1347	DIVG01,	TAD HDIVSR	/GET MOST SIG.DIVISOR
6457	7100		CLL	
6460	7500		SMA	/DIVISOR 0
6461	7060		CMA CML	/YES NEGATE AND SET C(L)
6462	3347		DCA HDIVSR	
6463	1350		TAD LDIVSR	/GET LEAST SIG DIVISOR
6464	7420		SNL	
6465	2351		ISZ SIGNSW	/ADD 1 TO SIGN SWITCH
6466	7000		NOP	
6467	7430		SZL	
6470	7141		CMA IAC CLL	/COMPLEMENT
6471	3350		DCA LDIVSR	/LOW ORDER DIVISOR
6472	7430		SZL	/CARRY
6473	2347		ISZ HDIVSR	/YES
6474	1353		TAD M25	
6475	3352		DCA DIVCNT	/SET DIVIDE COUNT=24
6476	7100		CLL	
6477	5322		JMP DIV2	
6500	1006	DIV3,	TAD WORK4	/SHIFT HIGH DIVIDEND
6501	7004		RAL	/LEFT
6502	3006		DCA WORK4	
6503	1005		TAD WORK3	
6504	7004		RAL	
6505	3005		DCA WORK3	
6506	1006		TAD WORK4	/COMPARE DIVISOR
6507	1350		TAD LDIVSR	/WITH DIVISOR
6510	5344		DCA ADDRS	
6511	7004		RAL	/GET CARRY
6512	1005		TAD WORK3	
6513	1347		TAD HDIVSR	
6514	7420		SNL	
6515	5321		JMP .+4	
6516	3005		DCA WORK3	
6517	1344		TAD ADDRS	
6520	3006		DCA WORK4	
6521	7200		CLA	
6522	1004	DIV2,	TAD WORK2	/ROTATE LOW ORDER
6523	7004		RAL	/WORDS LEFT
6524	3004		DCA WORK2	
6525	1003		TAD WORK1	/QUOTIENT BITS
6526	7004		RAL	
6527	3003		DCA WORK1	/ENTER FROM C(L)
6530	2352		ISZ DIVCNT	/DONE 24
6531	5300		JMP DIV3	/NO CONTINUE
6532	2351		ISZ SIGNSW	/ANSWER+0
6533	5342		JMP OUT	/NO EXIT
6534	1004		TAD WORK2	/YES
6535	7141		CMA CLL IAC	
6536	3004		DCA WORK2	
6537	1003		TAD WORK1	
6540	4354		JMS COM	
6541	3003		DCA WORK1	/STORE MOST SIG.ANS. FOR EXIT
6542	7100	OUT,	CLL	/CLEAR LINK FOR EXIT
6543	5600		JMP I DUBDIV	

6544	0000	ADDRS,	0	
6545	0000	DIVND1,	0	
6546	0000	DIVND2,	0	
6547	0000	HDIVSR,	0	
6550	0000	LDIVSR,	0	
6551	0000	SIGNSW,	0	
6552	0000	DIVCNT,	0	
6553	7747	M25,	-31	/-25(10)
6554	0000	COM,	0	
6555	7040		CMA	
6556	7430		SZL	
6557	7101		CLL IAC	
6560	5754		JMP I COM	
			*3	
0003	0000	WORK1,	0	
0004	0000	WORK2,	0	
0005	0000	WORK3,	0	
0006	0000	WORK4,	0	
			*162	
0162	7776	MN2,	-2	

ADDRS 6544
COM 6554
DIVCNT 6552
DIVG01 6456
DIVND1 6545
DIVND2 6546
DIV2 6522
DIV3 6500
DUBDIV 6400
HDIVSR 6547
LDIVSR 6550
MN2 0162
M25 6553
OUT 6542
SIGNSW 6551
WORK1 0003
WORK2 0004
WORK3 0005
WORK4 0006

/ PT-1471 DECK 19 OF 20

/6600

*6600

/DPAOS-DOUBLE PRECISION ADD OR SUB
/PAL 000003B

6600	0000	DPAOS,	0	
6601	7200		CLA	/CLEAR ACC.
6602	1600		TAD I DPAOS	/GET ADDR MOST SIG ADDENDUM OR SUB
6603	3247		DCA MOST	/STORE LOC MOST SIG ADDENDUM OR S
6604	2200		ISZ DPAOS	/GET TO NEXT ADDRESS
6605	1600		TAD I DPAOS	/LOC OF ADDEND OR MINUEND-MOST SIG
6606	3250		DCA BIG	/STORE IT
6607	2200		ISZ DPAOS	/INCREMENT FOR PROPER RETURN
6610	1647		TAD I MOST	/ADDENDUM OR SUBTRAHEND-MOST SIG.
6611	3245		DCA ITEM1	/RESTORED HERE
6612	1650		TAD I BIG	/ADDEND OR MINUEND-MOST SIG
6613	3246		DCA ITEM2	/RE-STORED HERE
6614	2247		ISZ MOST	/LOC OF ADDENDUM OR SUBTRAHEND-LEAS
6615	2250		ISZ BIG	/LOC OF ADDEND OR MINUEND LEASE SIG
6616	1647		TAD I MOST	/LEAST SIG OF ADDENDUM OR SUBTRAH
6617	3251		DCA LEAST	/RE-STORED HERE
6620	7400		SZL	/IF LINK EQUALS ZERO,CIA SUBTRAHED
6621	5235		JMP ADD	/LINK WAS 1-GO ADD NOS.
6622	1251		TAD LEAST	/GET LEAST SIG.OF SUBTRAHEND
6623	7041		CIA	
6624	3251		DCA LEAST	
6625	7004		RAL	/SEE IF A BIT IS IN THE LINK
6626	3252		DCA SAV	/SAVE ANY BIT IN LINK
6627	1245		TAD ITEM1	/GET MOST SIG.OF SUBTRAHEND
6630	7040		CMA	/COMPLIMENT IT
6631	1252		TAD SAV	/ADD ANY CARRYOVER OF CIA OF LEASTS
6632	3240		DCA ITEM1	/ITEM1 AND LEAST CONTAIN THE TWOS
6633	7100	ADD,	CLL	/COMPLIMENT OF THE SUBTRAHEND
6634	1251		TAD LEAST	/ADD LEAST SIGS
6635	1650		TAD I BIG	
6636	3004		DCA WORK2	/STORE LEAST SIG.OF ANS.
6637	7004		RAL	/GET LINK IN POSITION TO ADD TO
6640	1245		TAD ITEM1	/MOST SIGS--- ADD
6641	1246		TAD ITEM2	/MOST SIGS
6642	3003		DCA WORK1	/STORE MOST SIG.OF ANS.
6643	7100		CLL	/CLEAR LINK
6644	5600		JMP I DPAOS	/EXIT SUBROUTINE
6645	0000	ITEM1,	0	
6646	0000	ITEM2,	0	
6647	0000	MOST,	0	
6650	0000	BIG,	0	
6651	0000	LEAST,	0	
6652	0000	SAV,	0	

*3

0003	0000	WORK1,	0
0004	0000	WORK2,	0

*6653

/MESSAGE-TYPE OUT A STRING

			/ OF CHARACTERS
			/07/23/67
			/PAL 000005 A
			/DIGITAL 8-13-U MODIFIED FOR SANDIA
			/CALL WITH JMS MESSAGE
			/WITH DATA FOLLOWING
			/RETURN FOLLOWING END OF MESSAGE
			/CODE 00 (XX00 OR 0000) ENDS MESSAGE
			/CODE 77 WHICH REPRESENTS QUESTION
			/IS BYPASSED IN SANDIA USE.
			/USES AUTO-INDEX 10.
6653	0000	MESSAGE,	0
6654	7240		CLA CMA
6655	1253		TAD MESSAGE
6656	3010		DCA 10
6657	1410	MSG4,	TAD I 10
6660	3271		DCA MSRGHT
6661	1271		TAD MSRGHT
6662	7012		RTR
6663	7012		RTR
6664	7012		RTR
6665	4272		JMS TYPECH
6666	1271		TAD MSRGHT
6667	4272		JMS TYPECH
6670	5257		JMP MSG4
6671	0000	MSRGHT,	0
6672	0000	TYPECH,	0
6673	0337		AND MASK77
6674	7450		SNA
6675	5410		JMP I 10
			/ENTRY POINT
			/SET C(AC) = -1
			/ADD LOCATION
			/INITIALIZE AUTOINDEX REGISTER
			/FETCH FIRST WORD
			/SAVE IT
			/FETCH CODE BACK
			/ROTATE 6 BITS RIGHT
			/TYPE IT (LEFT HALF)
			/GET DATA AGAIN
			/TYPE RIGHT HALF
			/CONTINUE
			/TEMPORARY STORAGE
			/TYPE CHARACTER IN C(AC)6-11
			/IS IT END OF MESSAGE
			/YES EXIT
			/THIS SECTION TO SKIP CODE 77
			/ADDED 05/01/67
			/BYPASS CODE 77, QUESTION MARK
			/SUBTRACT 40
			/IS CODE +40.
			/NO
			/YES, ADD 300
			/TO CODES +40
			/SUBTRACT 3
			/IS IT ZERO
			/NO
			/YES, CODE 43 IS
			/LINE-FEED (212)
			/SUBTRACT 2
			/IS IT ZERO
			/NO
			/YES CODE 45 IS
			/CARRIAGE RETURN(215)
			/ADD 200 TO OTHERS P40
6676	4321		JMS BYPS77
6677	1335		TAD M40
6700	7500		SMA
6701	5304		JMP .+3
6702	1334		TAD C340
6703	5317		JMP MTP
6704	1163		TAD M3
6705	7440		SZA
6706	5311		JMP .+3
6707	1333		TAD LF
6710	5317		JMP MTP
6711	1162		TAD M2
6712	7440		SZA
6713	5316		JMP .+3
6714	1332		TAD CR
6715	5317		JMP MTP
6716	1336		TAD C245

6717	4522	MTP,	JMS I PRNT	/USE PRINT SUBROUTINE
6720	5672		JMP I TYPECH	/RETURN
6721	0000	BYPS77,	0	/ENTRY
6722	3340		DCA TEMPY	/SAVE CODE
6723	1340		TAD TEMPY	/ADD CODE
6724	7041		CIA	/NEGATE
6725	1337		TAD MASK77	/YES, ADD IT NOT AND IT.
6726	7650		SNA CLA	/SKIP ON NON-ZERO AC AND CLEAR AC
6727	5672		JMP I TYPECH	/YES BYPASS CODE 77
6730	1340		TAD TEMPY	
6731	5721		JMP I BYPS77	/RETURN
				/CONSTANTS
6732	0215	CR,	215	
6733	0212	LF,	212	
6734	0340	C340,	340	
6735	7740	M40,	-40	
6736	0245	C245,	245	
6737	0077	MASK77,	77	
6740	0000	TEMPY,	0	
		*122		
0122	6155	PRNT,	6155	
		*162		
0162	7776	M2,	-2	
0163	7775	M3,	-3	

ADD	6633
BIG	6650
BYPS77	6721
CR	6732
C245	6736
C340	6734
DPA05	6600
ITEM1	6645
ITEM2	6646
LEAST	6651
LF	6733
MASK77	6737
MESSAGE	6653
MOST	6647
MSG4	6657
MSRGHT	6671
MTP	6717
M2	0162
M3	0163
M40	6735
PRNT	0122
SAV	6652
TEMPY	6740
TYPECH	6672
WORK1	0003
WORK2	0004

/ PT-1471 DECK 20 OF 20

/7000

*7000

/PDP-8 UNSIGNED DECIMAL PRINT

/CALL WITH NUMBER TO BE TYPED IN AC

/RETURN TO LOCATION FOLLOWING CALLING JMS

7000	0000	DECPRT,	0	
7001	3243		DCA VALUE	/SAVE INPUT
7002	3244		DCA DIGIT	/CLEAR
7003	1235		TAD CNTRZA	
7004	3245		DCA CNTRZB	/SET COUNTER TO FOUR
7005	1234		TAD ADDRZA	
7006	3213		DCA ARROW	/SET TABLE POINTER
7007	7410		SKP	
7010	3243	ARROW1,	DCA VALUE	/SAVE
7011	7100		CLL	
7012	1243	ARROW2,	TAD VALUE	
7013	1236	ARROW,	TAD TENPWR	/SUBTRACT POWER OF TEN
7014	7430		SZL	
7015	2244		ISZ DIGIT	/DEVELOP BCD DIGIT
7016	7430		SZL	
7017	5210		JMP ARROW1	/LOOP
7020	7200		CLA	/HAVE BCD DIGIT
7021	1244		TAD DIGIT	/GET DIGIT
7022	1242		TAD K260	/MAKE IT ASCII
7023	6041		TSF	/OR=TAD DIGIT
7024	5223		JMP .-1	/JMP TDIG SEE 8-19-U-SYM
7025	6046		ILS	/TYPE DIGIT
7026	7200		CLA	
7027	3244		DCA DIGIT	/CLEAR
7030	2213		ISZ ARROW	/UPDATE POINTER
7031	2245		ISZ CNTRZB	/DONE ALL FOUR
7032	5212		JMP ARROW2	/NO, CONTINUE
7033	5600		JMP I DECPRT	/YES EXIT
7034	1236	ADDRZA,	TAD TENPWR	
7035	7774	CNTRZA,	-4	
7036	6030	TENPWR,	-1750	/ONE THOUSAND
7037	7634		-0144	/ONE HUNDRED
7040	7766		-0012	/TEN
7041	7777		-0001	/ONE
7042	0260	K260,	260	
7043	0000	VALUE,	0	
7044	0000	DIGIT,	0	
7045	0000	CNTRZB,	0	
			/SIGNED DECIMAL PRINT, DOUBLE PRECISION	
			/CALLING SEQUENCE	JMS SDRPRT /SUBROUTINE CALLED
			/	HIADDR /ADDRESS OF HIGH ORDER WORD
			/	RETURN /RETURN WITH AC AND L CLEAR
7046	0000	SDRPRT,	0	
7047	7300		CLA CLL	
7050	1646		TAD I SDRPRT	/PICK UP ADDRESS OF HIGH-ORDER WORD
7051	3355		DCA SDGET	

7052	1755		TAD I SDGET	/PICK UP HIGH-ORDER WORD
7053	7700		SMA CLA	/IS IT NEGATIVE
7054	1344		TAD SDPLUS	/NO, GENERATE CODE FOR SPACE
7055	1345		TAD SDMNS	/YES, GENERATE CODE FOR MINUS
7056	4332		JMS SDTYPE	/TYPE IT OUT
7057	1755		TAD I SDGET	/PICK UP HIGH-ORDER WORD AGAIN
7060	7510		SPA	/IS IT POSITIVE
7061	7060		CMA CML	/NO, COMPLEMENT IT. SET LINK
7062	3347		DCA SDHIGH	/STORE POSITIVE WORD FOR USE IN SUB
7063	2355		ISZ SDGET	
7064	1755		TAD I SDGET	/PICK UP LOW-ORDER WORD
7065	7430		SZL	/IS LINK SET
7066	7141		CMA CLL IAC	/YES, FORM TWO'S COMPLEMENT
7067	7430		SZL	/DID AC OVERFLOW FROM IAC +
7070	2347		ISZ SDHIGH	/YES, CORRECT HIGH-ORDER WORD
7071	3350		DCA SDLOW	/STORE POSITIVE LOW-ORDER WORD
7072	1341		TAD SDLOOP	/INITIALIZE DIGIT COUNTER TO 7
7073	3346		DCA SDCNT	
7074	1342		TAD SDADDR	/INITIALIZE POINTER TO TABLE OF POS
7075	3356		DCA SDPTR	
7076	2246		ISZ SDPRNT	/INDEX LINKAGE FOR CORRECT RETURN
7077	1756	SDARND,	TAD I SDPTR	/PICK UP POWER OF TEN FOR USE IN SUB
7100	2356		ISZ SDPTR	
7101	3351		DCA SDHSUB	
7102	1756		TAD I SDPTR	
7103	2356		ISZ SDPTR	
7104	3352		DCA SDLSUB	
7105	7100	SDDO,	CLL	/DOUBLE PRECISION SUBTRACTION
7106	1352		TAD SDLSUB	
7107	1350		TAD SDLOW	
7110	3354		DCA SDTEML	
7111	7004		RAL	
7112	1351		TAD SDHSUB	
7113	1347		TAD SDHIGH	
7114	7510		SPA	/DID IT UNDERFLOW+
7115	5323		JMP SDOUT	/NO, COUNT IS DONE
7116	2353		ISZ SDBOX	/YES, COUNT NOT DONE. INDEX DIGIT
7117	3347		DCA SDHIGH	/DEPOSIT REMAINING HIGH-ORDER PORT
7120	1354		TAD SDTEML	/RESTORE REMAINING LOW-ORDER PORT
7121	3350		DCA SDLOW	
7122	5305		JMP SDDO	/GO BACK AND SUBTRACT AGAIN
7123	7200	SDOUT,	CLA	
7124	1353		TAD SDBOX	/PICK UP RESULTING DIGIT
7125	4332		JMS SDTYPE	/TYPE IT OUT
7126	3353		DCA SDBOX	/INITIALIZE DIGIT TO 0
7127	2346		ISZ SDCNT	/HAVE WE TYPED 7 DIGITS
7130	5277		JMP SDARND	/NO, DETERMINE NEXT DIGIT
7131	5646		JMP I SDPRNT	/YES, SUBROUTINE DONE. RETURN
7132	0000	SDTYPE,	0	/TYPEOUT ROUTINE
7133	1343		TAD SDIWO	
7134	6041		ISF	
7135	5334		JMP .-1	

7136	6046	TLS	
7137	7300	CLA CLL	
7140	5732	NMP. I SDTYPE	
7141	7771	SDLOOP,	-7 /COUNT OF SEVEN DIGITS
7142	7157	SDADDR,	SDCONL /INITIAL ADDRESS OF POWERS OF TEN
7143	0260	SDTWO,	260 /BASIC CODE FOR DIGITS
7144	7763	SDPLUS,	-15 / SPACE . TO TYPE + ,REPLACE BY 2
7145	7775	SDMNS,	-3 / MINUS
7146	0000	SDCNT,	0 /STORAGE LOCATIONS
7147	0000	SDHIGH,	0
7150	0000	SDLOW,	0
7151	0000	SDHSUB,	0
7152	0000	SDLSUB,	0
7153	0000	SDBOX,	0
7154	0000	SDTEML,	0
7155	0000	SDGET,	0
7156	0000	SDPTR,	0
7157	7413	SDCONL,	7413 /TABLE OF POWERS OF TEN
7160	6700		6700 /-1,200,000
7161	7747		7747 /-100,000
7162	4540		4540
7163	7775		7775 /-10,000
7164	4360		4360
7165	7777		7777 /-1,000
7166	6030		6030
7167	7777		7777 /-100
7170	7634		7634
7171	7777		7777 /-10
7172	7766		7766
7173	7777		7777 /-1
7174	7777		7777

ADDRZA 7034
ARROW 7013
ARROW1 7010
ARROW2 7012
CNIRZA 7035
CNIRZB 7045
DECPRT 7000
DIGIT 7044
K260 7042
SDADDR 7142
SDARND 7077
SDBOX 7153
SDCNT 7146
SDCONL 7157
SDDO 7105
SDGET 7155
SDHIGH 7147
SDHSUB 7151
SDLOOP 7141
SDLOW 7150
SDLSUB 7152
SDMNS 7145
SDOUT 7123
SDPLUS 7144
SDPRNT 7046
SDPTR 7156
SDTEML 7154
SDTWO 7143
SDTYPE 7132
TENPWR 7036
VALUE 7043

(A-1)

f.

CODE IDENT NO. 14213

SC5900-AD(10-63)

DWG CLASSIFICATION LEVEL

NOTES: PROCUREMENT INFORMATION

1. PROCURE ITEMS LISTED BY COMMERCIAL PART NUMBER IN THE 'DESIGN AGENCY NO.' COLUMN, AS MANUFACTURED BY THE SOURCE LISTED OR AS DEFINED ON THE REFERENCED SANDIA DRAWING, WHEN LISTED, OR A COMMERCIAL EQUIVALENT WHEN A SANDIA DRAWING IS NOT LISTED.
2. PROCURE THIS ITEM MANUFACTURED BY THE LISTED SOURCE ONLY.

ASSEMBLY INFORMATION

5. FOR SPECIFIC PROCESSING, MANUFACTURING AND ASSEMBLY REQUIREMENTS NOT OTHERWISE COVERED ON THE DRAWING, SEE 173126.
6. ENGRAVE LINES AND/OR CHARACTERS, BLACK FILLER, ITEM 5, LOCATE APPROXIMATELY AS SHOWN, .120±.015-INCH CONDENSED CHARACTERS.

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE DWG NUMBER

A 204865

SHEET 2

ISSUE

A

DWG CLASSIFICATION LEVEL

EXISTING
ENGRAVING
(W051)

COMPONENT SIDE

REMOVE 7 DIODES
CONNECTED TO CONTACTS
D, F, J, L, N, R, T,
RESPECTIVELY.

SCALE 1/1

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE

A

DWG NUMBER

204865

SHEET

3

SCS300-AE(10-63)

ISSUE

A

W.O. 53399

DESIGN AGENCY PART XXXX NO.		DWG CLASSIFICATION LEVEL		REVISIONS					
ISSUE	DESCRIPTION	PREPARED BY	DATE	CHKR	ENGR				
SEE SHEET 2	E	ADDED: NEW COVER SHEET. CHG'D: SUFFIX OF ITEM 21. PER COER 205640-10FC R. HARDY (CD) 2211-3 E. VULGAN 2454	12/4/67	JH. 211-2	EN				
	F	ADDED: NOTE 12 TO 173126 SHT 4. CHANGED: AT NOTE 15 "F1 & F2 ----- MARKING TABLE" WAS "REFERENCE DESIGNATION". PER COER 205640-13FC. J. GUTIERREZ (CD) 2211-3 E. VULGAN 2454	3/18/68	JH.	EN				

SHEET INDEX	SHEET																							
	ISSUE																							
	SHEET	1	2	3	4																			
	ISSUE	F	C	F	F																			
CLASSIFICATION CATEGORY		<div style="position: relative; height: 150px;"> <div style="position: absolute; top: 0; right: 0; width: 100%; height: 100%; background: linear-gradient(to bottom right, transparent 49%, black 49%, black 51%, transparent 51%);"></div> </div>																						
PART CLASSIFICATION SEE SHEET 2		DWG CLASSIFICATION LEVEL UNCLASSIFIED		DESIGN AGENCY APPROVAL				TITLE U3902 (AC POWER)																
				<table border="1"> <thead> <tr> <th>ORG</th> <th>DATE</th> <th>INITIALS</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>								ORG	DATE	INITIALS										
ORG	DATE	INITIALS																						
				MFG AGENCY APPROVAL				MFG AGENCY NUMBER																
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SIZE	DWG NUMBER																							
A	205640																							
				SHEET 1 OF 4																				

		DWG CLASSIFICATION LEVEL		
DESIGN AGENCY PART NO.	NOMENCLATURE	PART CLASSIFICATION	EQUIP WITH 17	
			ITEM	REQD
205640-000	U3902-1	UNCLASSIFIED	2	2
205640-001	U3902-2	UNCLASSIFIED	3	2
205640-002	U3902-5	UNCLASSIFIED	4	2
205640-003	U3902-8	UNCLASSIFIED	5	2
205640-004	U3902-10	UNCLASSIFIED	6	2
205640-005	U3902-15	UNCLASSIFIED	7	2
205640-006	U3902-21	UNCLASSIFIED	8	2
205640-007	U3902-22	UNCLASSIFIED	9	2
205640-008	U3902-25	UNCLASSIFIED	10	2
205640-009	U3902-27	UNCLASSIFIED	11	2
205640-010	U3902-28	UNCLASSIFIED	12	2
205640-011	U3902-29	UNCLASSIFIED	13	2

DESIGN AMPERAGE RATING OF BASIC UNIT, 205871-
 IS 15 AMPERES MAXIMUM.
 DO NOT ADD TO TABULATION ANY PART NUMBER THAT EXCEEDS
 THIS RATING.

		DWG CLASSIFICATION LEVEL		MFG AGENCY NUMBER	
		UNCLASSIFIED		SIZE	DWG NUMBER
ISSUE				A	205640
				SHEET	2

DWG CLASSIFICATION LEVEL

NOTES: (PROCUREMENT INFORMATION)

1. PART NUMBERS LISTED PARENTHETICALLY AS REFERENCE IN THE DESCRIPTION COLUMN ARE FOR INTERNAL STOCK AND PROCUREMENT PURPOSES AT SANDIA.
2. FILLER, ITEM 30, AND SOLVENT, ITEM 31, MAY BE PROCURED FROM NEW HERMES ENGRAVING MACHINE CO.

NOTES: (ASSEMBLY INFORMATION)

12. FOR SPECIFIC PROCESSING, MANUFACTURING AND ASSEMBLY REQUIREMENTS NOT OTHERWISE COVERED ON THE DRAWING, SEE 173126.

13. NOMENCLATURE FOR THE UNIT IS U3902.

14.

15. MARK (WITH COVER COAT) F1 & F2 AMPERAGE MARKINGS PER MARKING TABLE, .120-INCH BLACK CHARACTERS. LOCATE APPROXIMATELY AS SHOWN.

16. MARK (WITH COVER COAT) PART NUMBER AND SCHEMATIC CONTROL NUMBER TO WHICH EACH UNIT WAS WIRED, .120-INCH BLACK CHARACTERS. LOCATE APPROXIMATELY AS SHOWN.

17. EQUIP XF1 AND XF2 WITH FUSES (ITEMS 2 THRU 13 PER TABULATION ON SHEET 2.

18. ALTERNATE FOR ITEMS 25 & 26 MAY BE BLACK BRASS OR BLACK STEEL.

19. MODIFY ITEM 19 AS SHOWN.

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE A
DWG NUMBER 205640
SHEET 3

ISSUE

A C D F

AR DENOTES AS REQ X DENOTES DOCUMENTS				DWG CLASSIFICATION LEVEL					
QUANTITY REQUIRED				DESIGN AGENCY NO.	DESCRIPTION	NOTE	SHEET ZONE	ITEM	
			X	AY205640-002	ASSEMBLY INSTRUCTION, U3902				
			X	173126	GENERAL SPECIFICATION FOR ACCEPTANCE EQUIPMENT	12			
			AR	AGC-1	FUSE, ELEC 1 AMP, BUSSMANN MFG CO (804768-00) F1&F2			1	
			AR	AGC-2	2 (830266-00)			2	
			AR	MTH-5	5 (802055-00)			3	
			AR	GLH-8	8 (872854-00)			4	
			AR	GLH-10	10 (872855-00)			5	
			AR	ABC-15	15 (872867-00)			6	
			AR	MDL-1	FUSE, SLOW BLOW 1 (872874-00)			7	
			AR	MDL-2	2 (872876-00)			8	
			AR	MDX-5	5 (830530-00)			9	
			AR	MDX-7	FUSE, SLOW BLOW 7 AMP, BUSSMANN MFG CO (872877-00) F1&F2			10	
			AR	MDL-8	FUSE, SLOW BLOW 8 AMP, BUSSMANN MFG CO (828475-00) F1&F2			11	
			AR	MDL-10	FUSE, SLOW BLOW 10 AMP, BUSSMANN MFG CO (828523-00) F1&F2			12	
								13	
								14	
								15	
								16	
								17	
			1	198550-001	PLATE, IDENTIFICATION			18	
			1	198571-003	LABEL, IDENTIFICATION			19	
								20	
			1	205871-002	AC POWER PANEL			21	
								22	
								23	
			2	6644B	SCREW, BLACK NYLON, RD HD, 4-40 X 3/8, BIRNBACH	18		24	
			2	6586	NUT, BLACK NYLON, 4-40, BIRNBACH	18		25	
								26	
								27	
								28	
								29	
			AR		FILLER, ENGRAVERS ENAMEL, HIGH GLOSS BLACK (873600-00REF)	2		30	
			AR		SOLVENT, ENGRAVERS ENAMEL CLEANER (873602-00REF)	2		31	
								32	

DWG CLASSIFICATION LEVEL					MFG AGENCY NUMBER	
UNCLASSIFIED						
SIZE A					DWG NUMBER 205640	
SHEET 4						

ISSUE	1	A	B	C	D	E	F												
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W. O. 74006

		DWG CLASSIFICATION LEVEL											
DESIGN AGENCY PART CLASSIFICATION NO.		REVISIONS											
		ISSUE	DESCRIPTION					PREPARED BY	DATE	CHGR	ENGR		
SEE SHEET 2		A	H. HARADA					12/16/66	2211-6	1/16/67	<i>[Signature]</i>	<i>[Signature]</i>	
(MULTIPLE USE) (PT)													
SHEET INDEX	SHEET												
	ISSUE												
	SHEET	1	2	3	4	5							
	ISSUE	A	A	A	A	A							
		CLASSIFICATION CATEGORY					DESIGN AGENCY APPROVAL			TITLE CONNECTOR STRIP, ELECTRICAL, AC (TABULATION)			
							ORG	DATE	INITIALS				
							MFG AGENCY APPROVAL			MFG AGENCY NUMBER			
PART CLASSIFICATION SEE SHEET 2		DWG CLASSIFICATION LEVEL UNCLASSIFIED					SIZE A			DWG NUMBER 264297			
							SHEET 1			OF 5			

DESIGN AGENCY PART NUMBER			PART CLASSIFICATION		"L" DIMENSION (INCHES)		CONNECTOR STRIP			CAB. PANEL OPENING	
							ITEM	LENGTH	RECP		
264297-000			UNCLASSIFIED		24.000 ± 1.000		1	36 INCHES	6	43.750	
264297-001			UNCLASSIFIED		48.000 ± 2.000						
264297-002			UNCLASSIFIED		72.000 ± 4.000						
264297-003			UNCLASSIFIED		96.000 ± 4.000						
264297-004			UNCLASSIFIED		120.000 ± 6.000						
264297-005			UNCLASSIFIED		24.000 ± 1.000		3	56 INCHES	9	61.250	
264297-006			UNCLASSIFIED		48.000 ± 2.000						
264297-007			UNCLASSIFIED		72.000 ± 4.000						
264297-008			UNCLASSIFIED		96.000 ± 4.000						
264297-009			UNCLASSIFIED		120.000 ± 6.000						
264297-010			UNCLASSIFIED		24.000 ± 1.000		3	66 INCHES	11	70.000	
264297-011			UNCLASSIFIED		48.000 ± 2.000						
264297-012			UNCLASSIFIED		72.000 ± 4.000						
264297-013			UNCLASSIFIED		96.000 ± 4.000						
264297-014			UNCLASSIFIED		120.000 ± 6.000						

DWG CLASSIFICATION LEVEL										MFG AGENCY NUMBER	
UNCLASSIFIED										SIZE A	
DWG NUMBER										264297	
SHEET										2	

DWG CLASSIFICATION LEVEL

NOTES: PROCUREMENT INFORMATION

1. PROCURE ITEMS LISTED BY COMMERCIAL PART NUMBER IN THE 'DESIGN AGENCY NO.' COLUMN, AS MANUFACTURED BY THE SOURCE LISTED OR AS DEFINED ON THE REFERENCED SANDIA DRAWING, WHEN LISTED, OR A COMMERCIAL EQUIVALENT WHEN A SANDIA DRAWING IS NOT LISTED.
2. PART NUMBERS LISTED PARENTHETICALLY AS REFERENCE IN THE DESCRIPTION COLUMN ARE FOR INTERNAL STOCK AND PROCUREMENT PURPOSES AT SANDIA.
3. PROCURE THIS ITEM ONLY FROM A SUPPLIER LISTED ON THE "QUALIFIED PRODUCTS LIST OF PRODUCTS QUALIFIED UNDER MILITARY SPECIFICATIONS".
4. PROCURE THIS ITEM MANUFACTURED BY ANY OF THE FOLLOWING: ALPHA WIRE CORP., TYPE FIT - 221; TAYCLAD TUBES INC., TYPE RNF - 100.

ASSEMBLY INFORMATION

10. FOR SELECTION OF CONNECTOR STRIP SEE SHEET 2.
11. FOR SPECIFIC PROCESSING, MANUFACTURING AND ASSEMBLY REQUIREMENTS NOT OTHERWISE COVERED ON THE DRAWING, SEE 173126.
12. COMPONENTS NOT IDENTIFIED BY ITEM NUMBERS ON THE ASSEMBLY ARE LOCATED IN THE MATERIAL LIST BY REFERENCE DESIGNATIONS.
13. ORIENT COMPONENTS IN POSITIONS SHOWN.
14. MARK (WITH COVER COAT) PART NUMBER PER PART NUMBER TABLE, .120-INCH BLACK CHARACTERS. LOCATE APPROXIMATELY AS SHOWN.
15. SPLICE WIRES WITH TERMINALS SUPPLIED WITH ITEM 1 OR ITEM 3 AND HEAT SHRINK SLEEVING ITEM 21 OVER TERMINALS.
16. HOT STAMP DESIGNATIONS.

DWG CLASSIFICATION LEVEL

MFG AGENCY NUMBER

UNCLASSIFIED

SIZE A DWG NUMBER 264297

SHEET 3

ISSUE

A

DWG CLASSIFICATION LEVEL

SCALE: NONE

DWG CLASSIFICATION LEVEL

MFG AGENCY NUMBER

UNCLASSIFIED

SIZE DWG NUMBER

A 264297

SHEET 4

ISSUE

A

PRINTED IN USA—OZALID 888-836

SCS300 AE/10 631

QUANTITY REQUIRED				DESIGN AGENCY NO.	DESCRIPTION	NOTE	SHEET ZONE	ITEM
			NA	173126	GENERAL SPECIFICATION FOR ACCEPTANCE EQUIP	11		
		1		RCF2GW-603-6	CONNECTOR STRIP, ELEC, NATIONAL ELEC DIV H.K. PORTER CO INC (875531 REF)	10		1
		1		RCF2GW-606-6	CONNECTOR STRIP, ELEC, NATIONAL ELEC DIV H.K. PORTER CO INC (875532 REF)	10		3
		1		RCF2-617-L	END CAP, RACEWAY CONDUIT, NATIONAL ELEC DIV H.K. PORTER CO INC (875534 REF)			5
				RCF2-617-R	END CAP, RACEWAY CONDUIT, NATIONAL ELEC DIV H.K. PORTER CO INC (ALT FOR ITEM 5) (875533 REF)			7
		1		RCF2-680	END PLATE, RACEWAY CONDUIT NATIONAL ELEC DIV H.K. PORTER CO INC (875535 REF)			9
								11
								12
		1		BC-15233	BOX CONNECTOR, ELEC, APPELTON ELEC CO			13
			ARS	S1-53186	CABLE, POWER, ELEC TYPE SJ, GENERAL ELEC CO WIRE & CABLE DEPT			14
								15
								16
								18
								19
								20
		3	ARS	MS35226-61	INSULATION, SLEEVING, HEAT SHRINKABLE SCREW, MACHINE, PAN HEAD (10-32 X .375 LG)	4		21
		3		AN960-10L	WASHER, FLAT (NO. 10)	3		22
		3		22NM-02	NUT, SELF-LOCKING HEX, ELEASTIC STOP NUT CORP OF AMERICA (870124 REF)	3		23
								24
		1		5267	CONNECTOR, PLUG ELEC, H. HUBBELL INC (833860 REF)			P1

NA=DOCUMENTS AR=AS REQD
 AR=AS REQD PER ASSEMBLY
 EM=EXPENSE MATL PM=PROCESS MATL

ISSUE **A**

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE **A** DWG NUMBER **264297**

SHEET **5**

PRINTED IN USA—OZALID 000-030

W.O. 86687

DESIGN AGENCY PART NO. NO.		DWG CLASSIFICATION LEVEL		REVISIONS			
ISSUE	DESCRIPTION	PREPARED BY	DATE	CHKR	ENGR		
269396-000	A	A. ORAVECZ, 1/25/67 2211-3	2/27/67	L. J. 2/9/67			
	CHG: R1-R7 WAS 5.1K. A. ORAVECZ, 2/20/67, 2211-3			L. J. 2/21/67	JHS		
269396-001	B	CHG: SUFFIX OF AY269396 WAS -000; SUFFIX OF CM269396 WAS -000. ADDED: REF. DESIGNATIONS TO SH 5 SCHEM; NOTES 2 & 16; ITEMS 4 & 6. A. ORAVECZ, 6/13/67, 2211-3	4/1/67	L. J. 6/14/67	DM		
	C	CHG: AY f CM SUFFIX WAS -001; CR8-CR14 WAS IN 971B, FABRICATION SPEC. WAS SG-; ADDED: R9-R15. D. WARD 11-6-67 2211-3	11/13/67		DM		

(PT1471)

SHEET INDEX	SHEET														
	1	2	3	4	5										
ISSUE	C	B	C	C	C										

CLASSIFICATION CATEGORY	DESIGN AGENCY APPROVAL			TITLE HPVM BUFFER
	ORG	DATE	INITIALS	
MFG AGENCY APPROVAL			MFG AGENCY NUMBER	
PART CLASSIFICATION UNCLASSIFIED			SIZE A	
DWG CLASSIFICATION LEVEL UNCLASSIFIED				
			DWG NUMBER 269396	
			SHEET 1 OF 5	

DWG CLASSIFICATION LEVEL

NOTES: PROCUREMENT INFORMATION

1. PROCURE THIS ITEM ONLY FROM A SUPPLIER LISTED ON THE "QUALIFIED PRODUCTS LIST OF PRODUCTS QUALIFIED UNDER MILITARY SPECIFICATIONS".
2. PROCURE THIS ITEM MANUFACTURED BY THE LISTED SOURCE ONLY.
3. PART NUMBERS LISTED PARENTHETICALLY AS REFERENCE IN THE DESCRIPTION COLUMN ARE FOR INTERNAL STOCK AND PROCUREMENT PURPOSES AT SANDIA.
4. PROCURE THIS ITEM AS MANUFACTURED BY ANY OF THE FOLLOWING: CONTINENTAL DEVICE CORP.; GENERAL ELECTRIC SEMICONDUCTOR PRODUCTS; GENERAL INSTRUMENT CORP.; HUGHES CO.; RAYTHEON CO.; SYLVANIA SEMICONDUCTOR DIV.; TEXAS INSTRUMENTS, INC.; TRANSITRON ELECTRONIC CORP.
5. PROCURE THIS ITEM AS MANUFACTURED BY ANY OF THE FOLLOWING: CONTINENTAL DEVICE CORP.; GENERAL INSTRUMENT CORP.; HOFFMAN ELECTRONICS CORP.; HUGHES CO.; INTERNATIONAL RECTIFIER CORP.; MOTOROLA SEMICONDUCTOR PRODUCTS, INC.; TEXAS INSTRUMENTS, INC.
6. PROCURE THIS ITEM MANUFACTURED BY ANY OF THE FOLLOWING: CONTINENTAL DEVICE CORP.; MOTOROLA SEMICONDUCTOR PRODUCTS, INC.
7. PROCURE ITEMS LISTED BY COMMERCIAL PART NUMBER IN THE 'DESIGN AGENCY NO.' COLUMN, AS MANUFACTURED BY THE SOURCE LISTED OR AS DEFINED ON THE REFERENCED SANDIA DRAWING, WHEN LISTED OR A COMMERCIAL EQUIVALENT WHEN A SANDIA DRAWING IS NOT LISTED.

ASSEMBLY INFORMATION

10. SUPPLIER WILL BE FURNISHED REPRODUCTION OF CIRCUIT MASTER CM269396 FOR PLATE MAKING PURPOSES.

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE DWG NUMBER

A 269396

SHEET 2

ISSUE

A

B

DWG CLASSIFICATION LEVEL

ASSEMBLY INFORMATION, CONTINUED

11. FOR SPECIFIC PROCESSING, MANUFACTURING AND ASSEMBLY REQUIREMENTS NOT OTHERWISE COVERED ON THE DRAWING, SEE 9928006.
12. USE THE SUFFIX SPECIFIED OR ANY HIGHER OF 7-DIGIT STANDARD(S), OR 400000 SERIES SPECIFICATION(S).
13. COMPONENTS NOT IDENTIFIED BY ITEM NUMBERS ON THE ASSEMBLY ARE LOCATED IN THE MATERIALS LIST BY REFERENCE DESIGNATIONS.
14. MARK (WITH COVER COAT) .060 DIA DOT IN LOCATIONS INDICATED BY A DOT OUTSIDE OF LAND AREA TO DENOTE SOURCE ON TRANSISTOR OR CATHODE END ON DIODE, OR POSITIVE END ON ELECTROLYTIC CAPACITORS.
15. INSTALL TRANSISTORS, Q1 THRU Q7, AS FAR FROM BOARD AS POSSIBLE WITHIN .344 LIMIT DIMENSION SHOWN.
16. ENGRAVE LINES AND/OR CHARACTERS, BLACK FILLER, ITEM 4, LOCATE APPROXIMATELY AS SHOWN, .120 ± .015 -INCH CONDENSED CHARACTERS.

SCHEMATIC INFORMATION

20. APPLICABLE STANDARDS:

MIL-STD-12	ABBREVIATIONS FOR USE ON DRAWINGS.
MIL-STD-15-1	ELECTRICAL AND ELECTRONIC GRAPHIC SYMBOLS.
ASA Y32.16	REFERENCE DESIGNATIONS.

DWG CLASSIFICATION LEVEL

MFG AGENCY NUMBER

UNCLASSIFIED

SIZE DWG NUMBER

A 269396

SHEET 3

ISSUE

A

B

C

QUANTITY REQUIRED				DESIGN AGENCY NO.	DESCRIPTION	NOTE	SHEET ZONE	ITEM
			NA	CM269396-002	PRINTED CIRCUIT MASTER			
			NA	AY269396-002	GRAPHIC, HPVM BUFFER			
			NA	9928006-00	FABRICATION AND ASSEMBLY, PRINTED CIRCUIT BOARD	11,12		
			1	W992	MODULE, BLANK, DIGITAL EQUIP. CORP			1
			ARS		SOLDERING MATERIALS PER SG178144			2
			ARS		FILLED ENGRAVERS ENAMEL, HIGH GLOSS BLK (873600 REF)	2		3
					NEW HERMES ENGRAVING MACHINE CO			4
			ARS		SOLVENT ENGRAVERS ENAMEL CLEANER (873602 REF)	2		6
					NEW HERMES ENGRAVING MACHINE CO			
			1	33C41	CAP, FIXED, CERAMIC, 0.1UF, +80%, -20%, 50 V, SPRAGUE PROD.			C1
			7	IN914	SEMICONDUCTOR DEVICE, DIODE (839085 REF)	4		CR1
			7	IN965B	SEMICONDUCTOR DEVICE, DIODE (871548 REF)	5		THRU CR7
			1	IN748A	SEMICONDUCTOR DEVICE, DIODE (871552 REF)	6		CR8
			7	2N4303	TRANSISTOR, AMELCO SEMICONDUCTOR			THRU CR14
			7	RN65C3831F	RES, FIXED, FILM, 3.83K, ±1%, 1/4W (856205 REF)	1		CR15
			1	RC07GF103J	RES, FIXED, COMP, 10K, ±5%, 1/4W (854925 REF)	1		Q1
			7	RC20GF103J	RES, FIXED, COMP, 10K ±5% 1/2 W (850640 REF)			THRU Q7
								R1
								THRU R7
								R8
								R9
								THRU R15

NA—DOCUMENTS AR—AS REQD
ARS—AS REQD PER ASSEMBLY
EM—EXPENSE MATL PM—PROCESS MATL

ISSUE **A B C**

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE **A** DWG NUMBER **269396**

SHEET **4**

DWG CLASSIFICATION LEVEL

SCHEMATIC

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE A DWG NUMBER 269396

SHEET 5

ISSUE

A B C

(AC-1)

A-4 W.O.86687

DESIGN AGENCY CONTROL NO.		DWG CLASSIFICATION LEVEL		REVISIONS													
ISSUE	DESCRIPTION	PREPARED BY	DATE	CHKR	ENGR												
LD362371-000	A	A. ORAVECZ	3-9-67	2211-3	3/23/67	3/21/67	DM										
LD362371-001	B	CHG: COL 2 SUFFIXES D.WARD	5-3-67	2211-3	3/4/67		DM										
	C	CHG: COL 3 SUFFIXES D.WARD	2-1-68	2211-3	2/1/68		DM										
	D	CHG: COL 4 SUFFIXES. ADDED: C3807. A. ORAVECZ, 3/22/68,	2211-3	3/22/68		DM											
	E	CHG: COL 5 SUFFIXES. DELETED LINE 46 INFO. JLFULLER, 5/24/68,	2211-3	5/24/68		DM											
	F	CHG'D: COL 6 SUFFIXES L.K.GRUBE	6/3/68	2211-3	6/3/68		DM										

SHEET INDEX	SHEET															
	1	2	3	4												
ISSUE	F	F	F	F												

CLASSIFICATION CATEGORY	DESIGN AGENCY APPROVAL			TITLE
	ORG	DATE	INITIALS	
				LIST OF DATA, PT1471
	MFG AGENCY APPROVAL			MFG AGENCY NUMBER
PART CLASSIFICATION	DWG CLASSIFICATION LEVEL			SIZE
	UNCLASSIFIED			A
				DWG NUMBER
				LD362371
				SHEET
				OF 4

DWG CLASSIFICATION LEVEL																			
SIZE	DRAWING NUMBER	PART NUMBER OR CONTROL NUMBER SUFFIX COLUMNS										DESCRIPTION						LINE NO.	
		COL 1	COL 2	COL 3	COL 4	COL 5	COL 6	COL 7	COL 8	COL 9	COL 10	1	2	3	4	5	6		
																		1	
																		2	
A	362371	000										PT 1471						3	
	MODEL NO.	1																4	
A	AF362371	000				(REF)												5	
A	CP362371	000				(REF)												6	
D	WD362371	000	001	002	003													7	
																		8	
																		9	
																		10	
																		11	
																		12	
																		13	
A	363093	000																14	
D	AY363093	000		001														15	
E	CK363093	000	001	002														16	
																		17	
A	363270	000																18	
E	CK363270	000		001		003												19	
A	269396	000		001														20	
D	AY269396	000		002														21	
C	CM269396	000		002														22	
A	204865	000																23	
A	363277	000																25	
E	CK363277	000	001			002												26	
																		27	
A	363101	000																28	
E	AY363101	001	001	003	004													29	
F	CK363101	001	001	003	004													30	
																		31	
																		32	
A	363374	000																33	
D	AY363374	000			002													34	
E	CK363374	000	001		003													35	
																		36	
LD SUFFIX		000	001	001	001	001	001					DWG CLASSIFICATION LEVEL						MFG AGENCY NUMBER	
SUFFIXES SHOWN IN COLUMN 1 EXTEND THROUGH SUCCEEDING COLUMNS UNLESS A CHANGE OR DELETION (XXX) IS INDICATED											UNCLASSIFIED						SIZE DWG NUMBER		
ISSUE		A	B	C	D	E	F											A LD362371	
												SHEET 2							

DWG CLASSIFICATION LEVEL													
SIZE	DRAWING NUMBER	PART NUMBER OR CONTROL NUMBER SUFFIX COLUMNS										DESCRIPTION	LINE NO.
		COL 1	COL 2	COL 3	COL 4	COL 5	COL 6	COL 7	COL 8	COL 9	COL 10		
A	363373	000										U5057 (POWER SUPPLY)	37
E	AY363373	000		001	002							GRAPHIC, U5057	38
													39
A	363384	000										U5060 (JUNCTION PANEL)	40
D	AY363384	000		001								GRAPHIC, U5060	41
													42
A	205640	005										U3902-15 (AC POWER PANEL)	43
D	AY205640	000										ASSEMBLY INST, U3902-15	44
													45
C	269385	000				XXX						DIVIDER, STORAGE TRAY	46
													47
C	260433	000										BRACKET, CONNECTOR	48
													49
B	269347	000										BRACKET, ELEC CONN STRIP	50
													51
A	264297	---										CONN STRIP, ELEC, AC	52
													53
D	204878	000		001								ADAPTER PLATE	54
													55
A	363326	---				XXX						C6569	56
													57
A	363327	000										C6570	58
													59
A	363328	000										C6571	60
													61
A	363329	000										C6572	62
													63
A	363330	000										C6573	64
													65
A	363331	000										C6574	66
													67
A	363376	000										C6581	68
													69
A	363377	000										C6582	70
													71
													72

LD SUFFIX	000	001	001	001	001	001							
SUFFIXES SHOWN IN COLUMN 1 EXTEND THROUGH SUCCEEDING COLUMNS UNLESS A CHANGE OR DELETION (XXX) IS INDICATED													
ISSUE	A	B	C	D	E	F							

DWG CLASSIFICATION LEVEL		MFG AGENCY NUMBER
UNCLASSIFIED		SIZE DWG NUMBER
		A LD362371
		SHEET 3

DWG CLASSIFICATION LEVEL																		
S I Z E	DRAWING NUMBER	PART NUMBER OR CONTROL NUMBER SUFFIX COLUMNS										DESCRIPTION						LINE NO.
		COL 1	COL 2	COL 3	COL 4	COL 5	COL 6	COL 7	COL 8	COL 9	COL 10	1	2	3	4	5	6	
A	363378	000											C6583					73
																		74
A	363379	000											C6584					75
																		76
A	363380	000											C6585					77
																		78
A	363381	000											C6586					79
																		80
A	366374				000								C3807					81
																		82
																		83
																		84
																		85
																		86
																		87
																		88
																		89
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																		101
																		102
																		103
																		104
																		105
																		106
																		107
																		108

LD SUFFIX	000	001	001	001	001	001	001											
SUFFIXES SHOWN IN COLUMN 1 EXTEND THROUGH SUCCEEDING COLUMNS UNLESS A CHANGE OR DELETION (XXX) IS INDICATED											DWG CLASSIFICATION LEVEL				MFG AGENCY NUMBER			
ISSUE A B D E F											UNCLASSIFIED				SIZE A DWG NUMBER LD362371			
															SHEET 4			

		DWG CLASSIFICATION LEVEL																																													
DESIGN AGENCY CONTROL NO.		ISSUE		DESCRIPTION								REVISIONS PREPARED BY		ENGR.																																	
AF36237T-000		A												Sh																																	
SHEET INDEX		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">SHEET</td> <td style="width: 10%;">1</td> <td style="width: 10%;">2</td> <td style="width: 10%;">3</td> <td style="width: 10%;">4</td> <td style="width: 10%;">5</td> <td style="width: 10%;">6</td> <td style="width: 10%;">7</td> <td style="width: 10%;">8</td> <td style="width: 10%;">9</td> <td style="width: 10%;">10</td> <td style="width: 10%;">11</td> <td style="width: 10%;">12</td> <td style="width: 10%;">13</td> <td colspan="2"></td> </tr> <tr> <td>ISSUE</td> <td>A</td> <td>A</td> <td>A</td> <td>A</td> <td>A</td> <td>A</td> <td>A</td> <td>A</td> <td>A</td> <td>A</td> <td>A</td> <td>A</td> <td>A</td> <td colspan="2"></td> </tr> </table>														SHEET	1	2	3	4	5	6	7	8	9	10	11	12	13			ISSUE	A	A	A	A	A	A	A	A	A	A	A	A	A		
SHEET	1	2	3	4	5	6	7	8	9	10	11	12	13																																		
ISSUE	A	A	A	A	A	A	A	A	A	A	A	A	A																																		
AGENCY APPROVALS										TITLE																																					
ORG	DATE									INITIALS	OPERATING PROCEDURES, PT1471																																				
DWG CLASSIFICATION LEVEL			SIZE		CODE IDENT NO.		DWG NUMBER																																								
UNCLASSIFIED			A		14213		AF362371																																								
							SHEET 1 OF 13																																								

1. GENERAL.1.1 Part Tested. Any Connector1.2 Tester Identification. PT1471 (362371).1.3 Characteristics Tested on Part.

a. Contact Resistance

b. Insulation Resistance

c. High Voltage Breakdown

2. DOCUMENTS AND EQUIPMENT.2.1 Required Documents. None.2.2 Reference Documents. None.2.3 Equipment.

a. PT1471

b. ASR-33 Teletype-writer

2.4 Facilities Required. Power Source, 115 $\pm$ 10 VAC, 60 Hz (15 amp).2.5 Calibration Verification. Check that calibration interval, as shown on PT1471 calibration sticker, has not expired.3. PROCEDURE.3.1 Preliminary Preparation.

3.1.1 Procedures in this section assume that PT1471 has been received with units installed in cabinets, in accordance with dwg 362371.

ISSUE	A				DWG CLASSIFICATION LEVEL	SIZE	CODE IDENT NO.	DWG NUMBER
					UNCLASSIFIED	A	14213	AF362371
								SHEET 2 OF

3.1.2 Connect cables in accordance with dwg WD362371.

3.1.3 Connect J1 of U5060 to specified AC power source, using a standard 3-wire AC power cable.

3.3 Testing Operation.

3.3.1 Preliminary Procedure.

3.3.1.1 On U3902-15, operate AC PWR to OFF.

3.3.1.2 Verify that 2401C Digital Voltmeter, (DVM) power switch is to ON.

3.3.1.3 Verify that 6264A DC power supply LINE switch is to ON.

3.3.1.4 On ASR-33 Teletypewriter, verify that switch on front power is rotated to LINE. Paper tape punch ON or OFF as desired.

3.3.1.5 On U3902-15, operate AC PWR to ON. AC PWR lamp lights.

3.3.1.6 If lights on PDP-8/S computer are not lit, using key, rotate POWER switch clockwise. Lights appear on computer face. Disregard indication.

3.3.1.7 Verify that PANEL LOCK key switch is full counterclockwise.

3.3.1.8 Allow 30 minute warmup time before continuing.

3.3.1.9 On 2401C DVM, rotate SAMPLE PERIOD to 1 sec, FUNCTION to VOLT, RANGE to ZERO, and SAMPLE RATE to STOP.

3.3.1.10 Press RESET on DVM. DVM reads zero ± 1 count. If not, adjust ZERO control below RANGE switch and repeat 3.3.1.10.

3.3.1.11 Rotate RANGE to INT + IV.

3.3.1.12 Press RESET on DVM. DVM reads +1000.00 ± 1 count. If not, adjust CAL + control and repeat 3.3.1.12.

3.3.1.13 Rotate range to INT-IV.

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3.3.1.14 Press RESET on DVM. DVM reads -1000.00 $\pm$ 1 count. If not, adjust CAL- control and repeat 3.3.1.14.

3.3.1.15 On DVM, rotate SAMPLE PERIOD and FUNCTION to EXT SEL, and range to 1000 V.

3.3.2 Contact Resistance Tests (C-R). Perform Prelim Proc Section 3.3.1.

3.3.2.1 Open door on front of U4987 Chassis and remove any connectors connected to J1 through J4.

3.3.2.2 Wire the item to be tested as follows: (P₁, P₂, P₃, and P₄ are SA1444-1, LJT06-25-29S) TEST SETUP.

A total of 29 contacts may be connected at one time, with contacts being grouped according to test current applied. The groups should be connected with the highest current group first, descending to lowest current group. Always begin highest current group with Pin A of P₁, P₂, P₃, and P₄, and continue in sequence.

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Example:

- 3.3.2.3 Connect P1 through P4 of test setup to J1 through J4 in U4987. Close door.
- 3.3.2.4 On the PDP-8/S, with DATA FIELD and INSTR FIELD zero, operate STOP switch, set 0200 octal on the SWITCH REGISTER and press LOAD ADD key. 0200 appears in the PROGRAM COUNTER.
- 3.3.2.5 Verify that SING STEP and SING INST keys are down and press START key.
- 3.3.2.6 Teletype prints C-R and computer halts with 0000 in the ACCUMULATOR.
- 3.3.2.7 Enter number of mated pairs of connectors to be tested on the SWITCH REGISTER (in octal), and press CONT key. Teletype prints CON 0001 and computer halts with 0001 in the ACCUMULATOR.
- 3.3.2.8 Enter number of pins to be tested in octal, at 20 amps on the SWITCH REGISTER. Press CONT key. Computer halts with 0002 in the ACCUMULATOR.

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- 3.3.2.9 Repeat 3.3.2.8, except enter number of pins to be tested as noted in Table 1, for all currents.

TABLE 1

<u>IF ACCUMULATOR Reads</u>	<u>Set SWITCH REGISTER for number of pins (in octal) to be tested at *</u>
0002	12 amps
0003	7.5 amps
0004	5 amps
0005	3 amps
0006	100 milliamps
0007	25 milliamps
0010	5 milliamps

- 3.3.2.10 Teletype prints voltage developed across contact under test, in microvolts, under heading of current applied.
- 3.3.2.11 If all connectors have been tested, skip steps 3.3.2.12 and 3.3.2.13.
- 3.3.2.12 If additional connectors are to be tested, upon completion of the connector under test, the computer will halt with 0001 in the accumulator. Repeat steps 3.3.2.1 to 3.3.2.3 using new test setup.
- 3.3.2.13 If the new test setup is identical to the previous test setup, and all pins are to be tested at the same currents as corresponding pins of the previous test setup, set 4000 into the SWITCH REGISTER and press the CONT key. Repeat steps 3.3.2.10 and 3.3.2.11.

if new test setup is different from previous setup, or different currents are required, repeat steps 3.3.2.8 to 3.3.2.11.

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- 3.3.2.14 At the completion of testing the last connector, the minimum and maximum readings noted for each current is printed, as well as the average and the average plus and minus 3 sigma.
- 3.3.2.15 The first test performed under each current is to measure a 0.1 ohm resistor. This value is checked to a $\pm 1\%$ tolerance. If the current is good, the measured value is recorded and the test continues. If the current is out of tolerance, the teletype prints out BAD CURRENT and the test stops. To continue have the tester recalibrated, as necessary. To continue operate the CONT switch on the PDP 8/S.
- 3.3.2.16 If a resistance reading is greater than 300 millivolts, the teletype prints out BAD PIN. To continue operate the CONT switch on the PDP 8/S. The high reading will be left out for data reduction.
- 3.3.2.17 Remove test setup from U4987.
- 3.3.2.18 If additional tests are to be made, refer to appropriate section: 3.3.2 for contact resistance, 3.3.3 for insulation resistance and high voltage breakdown, or 3.3.6 for shutdown.
- 3.3.3 Insulation Resistance and High Voltage Breakdown Setup Procedure.
- 3.3.3.1 Open U4990 door, and remove test board, if one is in place.
- 3.3.3.2 Wire unit to be tested to a test board, test board serial number up, beginning with the upper-left-most pin, and moving left to right. Wire each row left to right, without skipping any pins. Note number of pins to be tested.
- 3.3.3.3 Place test board and unit to be tested in the U4990 and clamp in place with toggle clamps. Close door.
- 3.3.3.4 For insulation resistance testing refer to 3.3.4, and for high voltage breakdown refer to 3.3.5.
- 3.3.4 Insulation Resistance Testing. Perform Prelim Proc Section 3.3.1.

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- 3.3.4.1 With the DATA FIELD and INSTR FIELD zero, set 0176 octal into the SWITCH REGISTER on the PDP-8/S, and press LOAD ADD key. 0176 appears in the PROGRAM COUNTER.
- 3.3.4.2 Verify that SING STEP and SING INST keys are down and press START key. Teletype prints I-R and computer halts with 0001 in the ACCUMULATOR.
- 3.3.4.3 Set the SWITCH REGISTER for the number (octal) of pins to be tested. (71₁₀ pins max, 71₁₀ = 0107₈).
- 3.3.4.4 Press CONT key. Computer halts with 0002 in the accumulator.
- 3.3.4.5 Set the minimum acceptable resistance in megohms (octal) on the SWITCH REGISTER. For minimum resistance in kilo-megohms set 4000₈ on SWITCH REGISTER plus the min acceptable resistance in kilo-megohms.

Example:

1000 megohms min	set switch register to 1750
10 megohms min	set switch register to 0012
10 kilo-megohms min	set switch register to 4012
15 kilo-megohms min	set switch register to 4017

- 3.3.4.6 Press CONT key. Computer halts with 0003 in accumulator.
- 3.3.4.7 Set SWITCH REGISTER for electrification time in seconds (octal). Must be 10 seconds or greater 10₁₀ sec = 0012₈.
- 3.3.4.8 Press CONT key on computer.
- 3.3.4.9 The built-in standard resistor is checked first, followed by each pin in sequence. After all pins have been tested the standard resistor is once again checked.

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The teletype records the pin number and the resistance value. The resistance is printed in megohms, regardless of what was set in 3.3.4.5.

3.3.4.10 After all pins have been tested, the teletype records the minimum resistance noted and the maximum resistance, disregarding the standard and all SHORTS and BAD PINS and the computer will halt.

3.3.4.11 Diagnostic Messages.

- a. BD VLTGE. Tester reads the applied 500 V before each test and checks it to $\pm 1\%$. If at any time it is out of tolerance, but greater than 250 V, the teletype will print BD VLTGE and the computer will halt. Pressing the CONT key will cause the tester to reread the 500 V supply.
- b. SHORT. If the supply is less than 250 V, indicating a short rather than the supply being out of tolerance, the teletype will print SHORT. Pressing the CONT key initiates the following test, ignoring the short.
- c. BAD STD. The first and last tests made, check a built-in standard resistor of 210 megohms. If the resistance measured is greater than 215 meg, or less than 205 meg, the teletype will print BAD STD, and the computer will halt. Pressing the CONT key will cause the tester to reread the standard resistor.
- d. BAD PIN. If, during any test, the resistance detected is less than the lower limit set in 3.3.4.5 the teletype will print BAD PIN and the computer will halt. Pressing the CONT key initiates the following test.
- e. OVER FLOW. Check and see if 6264A and 2401C are on and make sure 12(8) or greater has been set in 3.3.4.8.

3.3.4.12 If additional tests are to be made, refer to appropriate section; 3.3.2 for contact resistance, 3.3.3 for insulation resistance or high voltage breakdown, or 3.3.6 for shutdown.

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3.3.5 High Voltage Breakdown Test. Perform Prelim Proc Section 3.3.1.

3.3.5.1 On the PDP-8/S set the DATA FIELD and INSTR FIELD to zero, set 0177 (octal) into the SWITCH REGISTER on the PDP-8/S and press the LOAD ADD key. 0177g appears in the PROGRAM COUNTER.

3.3.5.2 Verify that SING STEP and SING INST keys are down and press START key. Teletype prints HPT and computer halts with 0001 in the accumulator.

3.3.5.3 Set the switch register for the number (octal) of pins to be tested.

3.3.5.4 Press CONT key. Computer halts with 0002 in the accumulator.

3.3.5.5 Set the maximum acceptable leakage current that will be accepted, in microamps (octal), on the SWITCH REGISTER. (Bit "0" down for microamps.)

For maximum leakage in milliamps set 4000g on SWITCH REGISTER, plus the max acceptable leakage current in milliamps. (Bit "0" up for milliamps.)

Example:

5 microamps set SWITCH REGISTER to 0005

10 microamps set SWITCH REGISTER to 0012

5 milliamps set SWITCH REGISTER to 4005

(5 ma is maximum value that can be used.)

3.3.5.6 Press CONT key. Computer halts with 0003 in the ACCUMULATOR.

3.3.5.7 The maximum applied voltage must now be set into the SWITCH REGISTER. Max available is 4000 volts. To do this, divide the maximum voltage desired by 10, and form a three digit number. Convert each digit to a 4-2-2-1 BCD (Binary Coded Decimal) representation. The combination of the three BCD representations forms the twelve bit word set into the SWITCH REGISTER.

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Example:

3850₁₀ V - Max desired voltage

385₁₀ - Three digit number, $3850 \div 10$

3₁₀ = 0011₂ - in 4-2-2-1 BCD

8₁₀ = 1110₂ - in 4-2-2-1 BCD

5₁₀ = 0111₂ - in 4-2-2-1 BCD

385₁₀ = 0011 1110 0111₂ - 4-2-2-1 BCD

0011 1110 0111₂ = 385 BCD

001 111 100 111 = 1747₈

1747₈ would be set into the
SWITCH REGISTER

Decimal to 4-2-2-1 BCD

4 2 2 1

0 = 0 0 0 0

1 = 0 0 0 1

2 = 0 0 1 0

3 = 0 0 1 1

4 = 0 1 1 0

5 = 0 1 1 1

6 = 1 1 0 0

7 = 1 1 0 1

8 = 1 1 1 0

9 = 1 1 1 1

4000 V = 3000₈

3750 V = 1727₈

3000 V = 1400₈

2500 V = 1160₈

2150 V = 1027₈

2000 V = 1000₈

1500 V = 0560₈

1000 V = 0400₈

800 V = 0340₈

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3.3.5.8 Press CONT key on computer.

3.3.5.9 The first test is made on the built-in 210 megohm standard resistor. The teletype records the maximum voltage applied (same as 3.3.5.5) and the leakage noted at the maximum voltage.

The tester will test each pin in sequence and the teletype will record the pin number, the maximum voltage applied, and the leakage noted.

The tester will recheck the built-in standard after all pins have been tested.

3.3.5.10 Upon completion of testing, the teletype will record the maximum noted leakage and the minimum noted leakage, disregarding the built-in standard, all BR DWN and all LKGE BAD pin readings.

3.3.5.11 Diagnostic Messages.

- a. BAD STD. If the leakage noted through the built-in standard resistor does not correspond to 210 megohms ± 5 megohms then the teletype prints BAD STD, and the computer halts. Pressing the CONT key causes the tester to retest the built-in standard.
- b. BR DWN. If at any time during the test the applied voltage drops (indicating a breakdown) then the teletype records the highest voltage reached, followed by the message BR DWN. The computer halts. It is possible that breakdown can occur just prior to, or following the leakage current portion of the test. In this case, the leakage noted would be recorded but would be followed by BR DWN and the leakage current recorded should be disregarded. To continue testing, press the CONT key.
- c. LKGE BAD. This message is printed following a leakage current value that exceeds that set in 3.3.5.3. To continue testing, press the CONT key.

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3.3.5.12 If additional tests are to be made refer to appropriate section. 3.3.2 for contact resistance, 3.3.3 for insulation resistance or high voltage breakdown, or 3.3.6 for shutdown.

3.3.6 Shutdown.

3.3.6.1 Verify that RUN on PDP-8/S is NOT lit.

3.3.6.2 On U3902 operate AC PWR switch to OFF. All lamps go out.

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1. GENERAL.1.1 Tester Description.

1.1.1 Physical Description. The PT1471 is defined by dwg 362371 and is designed to perform contact resistance, insulation resistance, and high voltage breakdown tests on cable connectors.

1.1.2 Functional Description. A functional description of the various circuits is given in the maintenance procedures, MP362371.

1.2 Calibration Log. Refer to Test Equipment Log and Service Report for PT1471 (Form SC7544-E).

1.3 Preparation for Use.

1.3.1 Procedures for this section assume that the PT1471 has been received with units installed in cabinets in accordance with dwg 362371.

1.3.2 Connect internal cables in accordance with dwg WD362371.

2. DOCUMENTS AND EQUIPMENT.

2.1 Required Documents. None.

2.2 Reference Documents.

AF362371

MP362371

"Model DY-2401C Integrating Digital Voltmeter Operating and Service Manual".

"Operating and Service Manual Model 6264A DC Power Supply".

"DC Power Supply Lab Series, Model 6202B".

Logic Handbook, Digital Equipment Corp.

Small Computer Handbook, Digital Equipment Corp.

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2.3 Equipment. Equipment listed in Table 1 is required for calibration.

TABLE 1
CALIBRATION EQUIPMENT

SPECIFICATION	SUGGESTED EQUIPMENT*
Voltmeter, Capable of Measuring 10.0, 15.0 and 28 VDC $\pm 0.1\%$	CSC VA100A
Kelvin Bridge, Capable of Measuring 0.1 ohm $\pm 0.01\%$	Rubicon 1622 Kelvin Bridge
Wheatstone Bridge Capable of Measuring 1.0 K, and 10.111 K ohms $\pm 0.1\%$	CSC WB100A
Oscilloscope with High Voltage Probe, Capable of Measuring 0-4000 VDC at a Rate of 500 V/sec	Type 535 scope with Type K Plug-in. Type P6013 12 KV 1000:1 Probe or Equivalent.
*If equipment listed under SUGGESTED EQUIPMENT column is not available, alternate calibration equipment must be approved by responsible integrated contractor's Standards Laboratory.	

3. INSPECTION AND CALIBRATION.

3.1 General.

3.1.1 Scope. These instructions provide the calibration criteria and procedures for maintaining the required accuracy of measurement in PT1471.

3.1.2 Interval. PT1471 must have been calibrated during the 30-day period preceding use.

3.1.3 Invalidation. Calibration is invalidated by shipment, removal from use and subsequent storage, expiration of prescribed calibration interval, or by repair or replacement of a component in a calibrated circuit. The using activity is responsible for requesting recalibration any time abnormal handling, poor records, or any other condition causes doubt as to the accuracy of measurement of PT1471.

3.1.4 Sequence. Perform calibration procedures in paragraph sequence.

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3.1.5 General Procedures.

3.1.5.1 Procedures in this drawing are based on the following assumptions:

- a. PT1471 is assembled and interconnected in accordance with 362371 and WD362371.
- b. Calibration instruments are set to the proper range and are warmed up sufficiently to make the specified measurements.

3.1.5.2 In making adjustments, tester controls are to be set so that meter indications are as close as possible to nominal value (middle of specified range).

3.2 Inspection. None.

3.3 Calibration.

3.3.1 Initial Setup.

3.3.1.1 On U3902, operate AC PWR switch to OFF.

3.3.1.2 Verify that there is not a connector board or connector in the U4990 high voltage panel, and that door is closed.

3.3.1.3 Verify that all connectors are removed from the U4987 Contact Resistance Panel, and that door is closed.

3.3.1.4 On 2401C Digital Voltmeter operate Power switch to ON.

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3.3.2 Calibration of 0.1 Ohm Standard.

3.3.2.1 Pull forward U4987 to gain access to bottom of chassis. Note large standard resistor near front.

3.3.2.2 Connect 1622 Kelvin Bridge to standard resistor using the thumb screws on the resistor. The voltage leads to the small thumb screws, the current leads to the large thumb screws. Neglect the wires already connected as they are open at this time.

3.3.2.3 (CP-1) Standard resistor reads 0.0999 to 0.1001 ohm.

3.3.2.4 Disconnect Kelvin Bridge and push U4987 chassis back into the cabinet.

3.3.3 Calibration of 10, 15, and 28 V power supplies.

3.3.3.1 Open left door viewed from rear to gain access to rear of U5057 power supply chassis.

3.3.3.2 Defeat door interlock near top of cabinet. INTERLOCK CHEATED lamp on U3902 lights.

3.3.3.3 On U3902 operate AC PWR switch to ON. AC PWR lamp lights.

NOTE: Allow a 30 minute warmup time before continuing.

3.3.3.4 On rear of U5057 connect Standard Voltmeter to the + and -10 V Jacks.

3.3.3.5 (CP-2) Std Voltmeter reads 9.0 to 11.0 VDC. If necessary, adjust to 9.9 to 10.1. Disconnect Standard Voltmeter.

3.3.3.6 Connect Standard Voltmeter to the + and -15 V Jacks on rear of U5057.

3.3.3.7 (CP-3) Std Voltmeter reads 14.0 to 16.0 VDC. If necessary, adjust to within 14.9 to 15.1 VDC. Disconnect Standard Voltmeter.

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3.3.3.8 Connect Standard Voltmeter to the + and -28 V jacks on rear of U5057.

3.3.3.9 (CP-4) Standard Voltmeter reads 27.0 to 29.0 VDC. If necessary, adjust to within 27.8 to 28.2 VDC. Disconnect Standard Voltmeter.

3.3.3.10 Close rear door. All lamps go out.

3.3.3.11 On U3902 Operate AC PWR switch to ON. AC PWR lamp lights.

3.3.4 Calibration of 1 K and 10.11 K.

3.3.4.1 On PDP-8/S Computer, if computer is not already on, insert key in POWER lock and rotate clockwise. Lights appear on computer front panel. Disregard indications.

3.3.4.2 Insert key in PANEL LOCK on PDP-8/S and rotate key counter-clockwise. This allows use of Computer Control Panel. (Panel may already be unlocked.)

3.3.4.3 On computer front panel, set DATA FIELD to zero and INST FIELD to zero. (Zero is down on switches.)

3.3.4.4 Set computer SWITCH REGISTER to 4000 octal.

3.3.4.5 Verify that SING STEP and SING INST are down. Press LOAD ADDRESS switch. 4000 octal appears in the PROGRAM COUNTER register on the front of the computer.

3.3.4.6 Press START switch. Computer halts with 0005g in the accumulator.

3.3.4.7 Open cal panel on front of U5058 chassis to gain access to 10.111 K and 10 K ohm binding posts.

3.3.4.8 Connect Wheatstone Bridge between left 10.111 K terminal and right 1 K terminal. Center terminal is left open.

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- 3.3.4.9 (CP-5) Wheatstone Bridge reads 995 to 1005 ohms.
- 3.3.4.10 On computer, press CONT. Computer halts with 00068 in the accumulator.
- 3.3.4.11 (CP-6) Wheatstone Bridge reads 11.100 to 11.122 K ohm.
- 3.3.4.12 Disconnect Wheatstone Bridge.

3.3.5 Calibration of Digital Voltmeter.

- 3.3.5.1 Set sample period of 2401C Digital Voltmeter to 1 sec, function to volt and sampling rate to STOP.
- 3.3.5.2 Rotate range to ZERO and press RESET. Digital Voltmeter reads zero ± 1 count. If not, adjust ZERO control and repeat 3.3.5.2.
- 3.3.5.3 Rotate range to INT +1 V and press RESET. Digital Voltmeter reads +1000.00 ± 1 count. If not, adjust CAL+ control and repeat 3.3.5.3.
- 3.3.5.4 Rotate range to INT -1 V and press RESET. Digital Voltmeter reads -1000.00 ± 1 count. If not, adjust CAL- control and repeat 3.3.5.4.
- 3.3.5.5 Rotate FUNCTION to EXT SEL, SAMPLE PERIOD to EXT SEL, and RANGE to 1000 V.
- 3.3.5.6 Connect standard voltmeter across the HI and LOW terminals of the 2401C Digital Voltmeter.
- 3.3.5.7 Set 4011_g in the Switch Register and press LOAD ADD key.
- 3.3.5.8 Press START on PDP-8/S computer. 2401C Digital Voltmeter reads. Computer halts with 0007_g in accumulator.
- 3.3.5.9 (CP-7) Standard Voltmeter reads same as 2401C ± 0.300 MV (Reading 300.0 MV nominal.) Remove Standard Voltmeter.

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3.3.5.10 If Standard Voltmeter does not agree, shut down tester, remove 2401C Digital Voltmeter and recalibrate per service manual.

3.3.6 Calibration of Constant Currents.

3.3.6.1 On PDP-8/S Computer, set 4025g (Starting Address) into the Switch Register and press LOAD ADD key.

3.3.6.2 Press START key on computer. Computer halts with 0010g (check) in the accumulator.

3.3.6.3 (CP-8) Digital Voltmeter reads 0.494 to 0.506 MV, (as found).

3.3.6.4 If necessary, adjust 5 ma on U5058 cal panel, press CONT key on computer.

3.3.6.5 Digital Voltmeter reads 0.499 to 0.501 MV (as left), if not, repeat 3.3.6.4.

3.3.6.6 Repeat 3.3.6.1 to 3.3.6.5 for other currents, by substituting values from Table 2.

TABLE 2

Current	Starting Address (Octal)	Check (Octal)	CP	As Found (MV)	As Left (MV)
25 ma	4035	0011	CP9	2.474 to 2.526	2.487 to 2.513
100 ma	4045	0012	CP10	9.900 to 10.100	9.950 to 10.050
3 A	4055	0013	CP11	297.000 to 303.000	298.50 to 301.50
5 A	4065	0014	CP12	495.00 to 505.00	497.50 to 502.50
7.5 A	4075	0015	CP13	742.50 to 757.50	746.75 to 753.25
12 A	4105	0016	CP14	1188.00 to 1212.00	1194.00 to 1206.00
20 A	4115	0017	CP15	1980.00 to 2020.00	1990.00 to 2010.00

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3.3.7 500 V Calibration.

- 3.3.7.1 On PDP-8/S computer, set 4200₈ into the SWITCH REGISTER and press LOAD ADD key.
- 3.3.7.2 Press START key. Computer halts with 0020₈ in accumulator.
- 3.3.7.3 (CP-16) Digital Voltmeter reads 495.000 to 505.000 V.
- 3.3.7.4 If necessary, adjust 500 V on U5058 Cal panel and press CONT key on computer.
- 3.3.7.5 Digital Voltmeter reads 497.50 to 502.50 V. If not, repeat 3.3.7.4. Note final setting.

3.3.8 High Voltage Divider Calibration.

- 3.3.8.1 On PDP-8/S computer, set 4217₈ into the SWITCH REGISTER and press LOAD ADD key.
- 3.3.8.2 Press START key. Computer halts with 0021₈ in accumulator.
- 3.3.8.3 Note Digital Voltmeter reading. Multiply this reading by ten (10).
- 3.3.8.4 (CP-17) Difference between reading noted in 3.3.7.5 and corrected reading noted in 3.3.8.3 shall be less than 5.00 V.

3.3.9 High Voltage Lamp Calibration.

- 3.3.9.1 Open front door of U4990 to gain access to high voltage output terminals.
- 3.3.9.2 Connect high voltage oscilloscope probe to red (+) Banana Jack in U4990, and probe ground to black (-) Banana Jack. Short jumpers will be required. Place Probe in U4990 Chassis. A notch is provided in the lower right corner of the door for the probe lead. Close door.

ISSUE	A	B			DWG CLASSIFICATION LEVEL	SIZE	CODE IDENT NO.	DWG NUMBER
					UNCLASSIFIED	A	14213	CP362371
								SHEET 9 OF

CAUTION: Verify that oscilloscope has a good ground through the AC Power cord. 4000 V will be applied to the probe input.

- 3.3.9.3 Oscilloscope settings as follows: Trigger slope to INT+, triggering mode to DC, stability to preset, triggering level as required, time/cm to 1 sec, volts/cm to 1.

Adjust the triggering level such that triggering will take place within the first centimeter of vertical deflection.

- 3.3.9.4 On the PDP-8/S computer, set 42368 into the SWITCH REGISTER and press the LOAD ADD key.

- 3.3.9.5 While observing the oscilloscope trace press the START key on the computer.

- 3.3.9.6 If computer halts with 00228 in the AC, the computer halts with 406 to 414 volts on the Digital Voltmeter, then skip step 3.3.9.7.

- 3.3.9.7 If computer did not halt then ramp did not reach 4100 V. Press STOP key on computer. Rotate VOLTAGE ADJUST on HV RAMP GENERATOR clockwise a small amount and repeat 3.3.9.4, 3.3.9.5, and 3.3.9.6.

- 3.3.9.8 (CP-18) By dividing the vertical divisions traversed by the horizontal divisions during the linear portion of the trace, a rate of 450 to 550 volts per sec is obtained. (Total ramp time should be approximately 8 seconds.)

- 3.3.9.9 If necessary, adjust RATE ADJUST on HV Ramp Generator and repeat 3.3.9.5 to 3.3.9.8 except press CONT key rather than START key.

ISSUE	A	B			DWG CLASSIFICATION LEVEL	SIZE	CODE IDENT NO.	DWG NUMBER
					UNCLASSIFIED	A	14213	CP362371
								SHEET 10 OF

DWG CLASSIFICATION LEVEL

(PT1471)

[illegible]

	CLASSIFICATION CATEGORY		DESIGN AGENCY APPROVAL			TITLE	
			ORG	DATE	INITIALS	U4987 (CONTACT RESISTANCE CHASSIS)	
			MFG AGENCY APPROVAL			MFG AGENCY NUMBER	
	PART CLASSIFICATION	DWG CLASSIFICATION LEVEL	SIZE	DWG NUMBER			
UNCLASSIFIED	UNCLASSIFIED	A	363093				
		SHEET	1	OF	6		

DWG CLASSIFICATION LEVEL

NOTES: PROCUREMENT INFORMATION

1. ITEMS NORMALLY REQUIRING A MINIMUM SETUP CHARGE AND/OR LONG TERM PROCUREMENT.
2. PROCURE THIS ITEM MANUFACTURED BY ANY OF THE FOLLOWING: WESTERN DEVICES OR CHASSIS TRAK.
3. PROCURE THIS ITEM MANUFACTURED BY THE LISTED SOURCE ONLY.
4. PROCURE THIS ITEM ONLY FROM A SUPPLIER LISTED ON THE "QUALIFIED PRODUCTS LIST OF PRODUCTS QUALIFIED UNDER MILITARY SPECIFICATIONS".
5. PROCURE ITEMS LISTED BY COMMERCIAL PART NUMBER IN THE 'DESIGN AGENCY NO.' COLUMN, AS MANUFACTURED BY THE SOURCE LISTED OR AS DEFINED ON THE REFERENCED SANDIA DRAWING, WHEN LISTED, OR A COMMERCIAL EQUIVALENT WHEN A SANDIA DRAWING IS NOT LISTED.
6. PART NUMBERS LISTED PARENTHETICALLY AS REFERENCE IN THE DESCRIPTION COLUMN ARE FOR INTERNAL STOCK AND PROCUREMENT PURPOSES AT SANDIA.
7. IF FLUX CORED SOLDER (Sn60, TYPE R OR RMA, QQ-S-571) IS USED, FLUX, ITEM 36, IS NOT REQUIRED.
8. VINYL ADHESIVE IS PREPARED BY DISSOLVING PIECES OF VINYL IN TETRAHYDROFURAN AND/OR CYCLOHEXANONE AS REQUIRED.
9. PROCURE FROM NEW HERMES ENGRAVING MACHINE COMPANY.

DWG CLASSIFICATION LEVEL

MFG AGENCY NUMBER

UNCLASSIFIED

SIZE A DWG NUMBER 363093

SHEET 2

ISSUE

A

DWG CLASSIFICATION LEVEL

ASSEMBLY INFORMATION

15. FOR SPECIFIC PROCESSING, MANUFACTURING AND ASSEMBLY REQUIREMENTS NOT OTHERWISE COVERED ON THE DRAWING, SEE 173126.
16. USE THE SUFFIX SPECIFIED OR ANY HIGHER OF 7-DIGIT STANDARD(S) SG OR 400000 SERIES SPECIFICATION(S).
17. FOR EXPLANATION OF DIMENSIONS, TOLERANCES AND SYMBOLIZATION, SEE 9900011.
18. APPLY ELECTRICAL CONDUCTIVE CHEMICAL FILM TO ALL SURFACES OF ITEM 1.
19. ANODIZE PER 173126.
20. COMPONENTS NOT IDENTIFIED BY ITEM NUMBERS ON THE ASSEMBLY ARE LOCATED IN THE MATERIAL LIST BY REFERENCE DESIGNATIONS.
21. THIS DIMENSION IS FOR PRINT INSPECTION MEASUREMENT ONLY. DO NOT USE PRINTS MORE THAN .100 INCH OUT-OF-SCALE FOR DRILLING TEMPLATES.
22. ASSEMBLY HARDWARE IS SUPPLIED WITH THE PART(S).
23. NOMENCLATURE FOR THE UNIT IS U4987.
24. REFERENCE DESIGNATIONS APPEARING WITHIN A DOTTED RECTANGLE ARE TO BE MARKED ON OPPOSITE SIDE.
25. DO NOT MARK DESIGNATIONS APPEARING IN BRACKETS AND DIMENSIONS APPEARING WITHIN OUTLINE OF VIEWS ON THE UNIT.
26. MARK (WITH COVER COAT) REFERENCE DESIGNATION, .120-INCH BLACK CHARACTERS. LOCATE APPROXIMATELY AS SHOWN.
27. MARK (WITH COVER COAT) POLARITY DESIGNATION, .120 INCH BLACK CHARACTERS. LOCATE APPROXIMATELY AS SHOWN, 6 PLACES. POLARITY FOR 24 DIODES IS AS SHOWN BUT SHALL NOT BE MARKED.

DWG CLASSIFICATION LEVEL

MFG AGENCY NUMBER

UNCLASSIFIED

SIZE A DWG NUMBER 363093

SHEET 3

ISSUE

A

C

ASSEMBLY INFORMATION, CONTINUED

28.

FINISH REQUIREMENTS:

- A. APPLY ELECTRICALLY CONDUCTIVE CHEMICAL FILM TO ALL SURFACES OF CHASSIS PLATE AND FRONT PANEL.
- B. APPLY BRUSH-ON TYPE CHEMICAL FILM TO ALL AREAS FROM WHICH THE ORIGINAL ALODINE HAS BEEN REMOVED SUCH AS MACHINED SURFACES, EDGES OF HOLES AND CUTOUTS, SURFACE SCRATCHES, ETC.
- C. ON FRONT & EDGES OF FRONT PANEL ONLY, APPLY PRIMER, ITEM 42, FOLLOWED BY ENAMEL, ITEM 43. COATING IS PROHIBITED ON REAR OF PANEL.

29.

MATCH DRILL (ITEM 1 TO SIDE PLATES OF ITEM 9) .180/.186 HOLES, USING ITEM 1 AS DRILLING TEMPLATE.

30.

REMOVE WOOD SCREWS HOLDING RUBBER FEET TO RI. DRILL THRU BASE .221/.228, AT THESE 4 POINTS. DISCARD RUBBER FEET. MOUNT RI USING 10-32 HARDWARE.

31.

CR1 THRU CR30 ARE LOCATED ADJACENT TO K1 THRU K30, RESPECTIVELY. DIODE REF DESIG ARE OMITTED DUE TO CONGESTION.

DWG CLASSIFICATION LEVEL

MFG AGENCY NUMBER

UNCLASSIFIED

SIZE A DWG NUMBER 363093

SHEET 4

ISSUE

A C

QUANTITY REQUIRED				DESIGN AGENCY NO	DESCRIPTION	QTY	SHEET ZONE	ITEM
			NA	AY363093-001	GRAPHIC, U4987 (CONTACT RESISTANCE CHASSIS)			
			NA	CK363093-002	SCHEMATIC, U4987			
			NA	173126	GNFRAL SPECIFICATION FOR ACCEPTANCE EQUIPMENT	15		
			NA	9900011-00	DIMENSIONS AND TOLERANCES	18		
						17		
			1		SHEET, ALUMINUM, 6061-T6, .046 ± .005 THK.			1
			1		SHEET, ALUMINUM, 6061-T6, .046 ± .005 THK			2
			1		SHEET, ALUMINUM, 6061-T6, .046 ± .005 THK			3
			1	170926-00	PLATF IDENTIFICATION	1		4
			1	198571-003	LABEL, IDENTIFICATION	1		5
								6
								7
			1	D867G-12-P-3-0-A	DRAWER, ELEC, EQUIP. WESTERN DEVICES (159315-00 REF)	1		8
			1	HP-10	HANDLE SET, DOOR. WESTERN DEVICES (875566 REF)			9
			1	HP-8	HANDLE SET, DOOR. WESTERN DEVICES (875564 REF)			10
			1	C-114-18	SLIDE, CHASSIS SECT. STATIONARY (159351-00 REF)	2		11
								12
								13
			1	MS-20257-P2-600	HINGE, BUTT	4		14
			2	MS-35489-20	GROMMET, RUBBER (854322 REF)	4		15
								16
			ARS	MS20470AD3	RIVET, UNIVERSAL HEAD, 3/32 DIA	4		17
			ARS	1229				18
			ARS	31879	BRAID, FLAT, COPPER ALPHA WIRE CO			19
					TERMINAL LUG AIRCRAFT MARINE PROD (818462 REF)	3		20
								21
								22
								23
								24
								25
								26
								27
								28
								29
								30

NA=DOCUMENTS ARE AS REQD
ARS=AS REQD PER ASSEMBLY
EM=EXPENSE MATL PM=PROCESS MATL

ISSUE **A B C**

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE **A** DWG NUMBER **363093**

SHEET **5**

QUANTITY REQUIRED				DESIGN AGENCY NO		DESCRIPTION	NOTE	SHEET ZONE	ITEM
			ARS	MIL-W-16878		WIRE, INSULATED, SIZE 16(.057) WHITE, TYPE C	4		31
			ARS	MIL-W-16878		WIRE, INSULATED, SIZE 20(.038) WHITE, TYPE C	4		32
									33
									34
			ARS	QQ-S-571		SOLDER, Sn60, TYPE S, R, OR RMA	4,7		35
			ARS	MIL-F-14256		FLUX, SOLDERING, LIQUID, ROSIN BASE	4,7		36
									37
			ARS	MIL-T-713		LACING TAPE, NYLON, WAXED, TYPE P, CLASS 2	4		38
			ARS	MIL-I-7444		INSULATION SLEEVING, VINLY	4		39
			ARS			ADHESIVE, VINYL	8		40
									41
			ARS	MIL-P-8585		PRIMER, ZINC CHROMATE	4		42
			ARS	6010-0047		ENAMEL, BAKING, LT. GRAY, HEWLETT-PACKARD	3		43
									44
			ARS	751		FILLER, ENGRAVERS ENAMEL, HIGH GLOSS BLACK (873600 REF)	3,9		45
			ARS	752		SOLVENT, ENGRAVERS ENAMEL CLEANER (873602 REF)	3,9		46
									47
			ARS			HARDWARE, MOUNTING PER 173126			48
			30	IN4245		SEMICONDUCTOR DEVICE, DIODE SEMTECH(875387 REF)	3		CR1-
									CR30
			1	7201		TERMINAL, STUD LYN-TRON INC(874277 REF)	3		E1
			60	770		TERMINAL, STUD WINCHESTER (838055 REF)			E6-
									E65
			4	LJT00-25-29P		CONNECTOR, RECP., ELECTRICAL			J1-
									J4
			1	PT00A-18-32S		CONNECTOR, RECP, ELECTRICAL (355495-00 REF)			J5
			1	91-855		CONNECTOR, RECP, ELECTRICAL, AMPHENOL(834623 REF)			J6
			1	PT00A-12-4P		CONNECTOR, RECP, ELECTRICAL, (355625-00 REF)			J7
			30	BR14X-150-A-2-26V		RELAY, ARMATURE, BABCOCK (871889 REF)	3		K1-
									K30
			1	NO. 4360		RESISTOR, SHUNT, 0.1 OHM, 1SA LEEDS & NORTHRUP CO.			R1
			30	VB/161EE20-45		SOCKET, RELAY VIKING IND, (871887 REF)	3		XK1-
									XK30

NA=DOCUMENTS AR=AS REQD
 AR=AS REQD PER ASSEMBLY
 EM=EXPENSE MATL PM=PROCESS MATL

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE A DWG NUMBER 363093

SHEET 6

ISSUE

A

DWG CLASSIFICATION LEVEL

NOTES: PROCUREMENT INFORMATION

1. ITEMS NORMALLY REQUIRING A MINIMUM SETUP CHARGE AND/OR LONG TERM PROCUREMENT.
2. PROCURE THIS ITEM ONLY FROM A SUPPLIER LISTED ON THE "QUALIFIED PRODUCTS LIST OF PRODUCTS QUALIFIED UNDER MILITARY SPECIFICATIONS".
3. PROCURE ITEMS LISTED BY COMMERCIAL PART NUMBER IN THE 'DESIGN AGENCY NO.' COLUMN, AS MANUFACTURED BY THE SOURCE LISTED OR AS DEFINED ON THE REFERENCED SANDIA DRAWING, WHEN LISTED, OR A COMMERCIAL EQUIVALENT WHEN A SANDIA DRAWING IS NOT LISTED.
4. PROCURE THIS ITEM MANUFACTURED BY THE LISTED SOURCE ONLY.
5. PROCURE THIS ITEM MANUFACTURED BY ANY OF THE FOLLOWING: WESTERN DEVICE, INC.; CHASSIS TRAK, INC.
6. PART NUMBERS LISTED PARENTHETICALLY AS REFERENCE IN THE DESCRIPTION COLUMN ARE FOR INTERNAL STOCK AND PROCUREMENT PURPOSES AT SANDIA.
7. PAINT, ENAMEL, BAKING, LIGHT GRAY, NO. 6010-0026, HEWLETT-PACKARD CO.
8. IF FLUX CORED SOLDER (Sn 60, TYPE R OR RMA, QQ-S-571) IS USED, FLUX, ITEM 61, IS NOT REQUIRED.
9. PROCURE FROM NEW HERMES ENGRAVING MACHINE COMPANY.
10. VINYL ADHESIVE IS PREPARED BY DISSOLVING PIECES OF VINYL IN TETRAHYDROFURAN AND/OR CYCLOHEXANONE AS REQUIRED.
- 11.
- 12.

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE DWG NUMBER

A 363101

SHEET 2

ISSUE

A D

PRINTED IN USA - OZAUD 000-000

8CS300-AE(10-83)

DWG CLASSIFICATION LEVEL

PROCUREMENT INFORMATION, CONTINUED

13. PROCURE FROM WESTLAKE PLASTICS , LENNI MILLS , PA.
14. PROCURE FROM THE POLYMER CORP OF PENNSYLVANIA , READING, PA.

15.

ASSEMBLY INFORMATION

16.

17. USE THE SUFFIX SPECIFIED OR ANY HIGHER OF 7-DIGIT STANDARDS, SG OR 400000 SERIES SPECIFICATIONS.

18. FOR SPECIFIC PROCESSING, MANUFACTURING AND ASSEMBLY REQUIREMENTS NOT OTHERWISE COVERED ON THE DRAWING, SEE 173126.

19. COMPONENTS NOT IDENTIFIED BY ITEM NUMBERS ON THE ASSEMBLY ARE LOCATED IN THE MATERIAL LIST BY REFERENCE DESIGNATIONS.

20. THIS DIMENSION IS FOR PRINT INSPECTION MEASUREMENT ONLY. DO NOT USE PRINTS MORE THAN .100 INCH OUT-OF-SCALE FOR DRILLING TEMPLATES.

21. TIN LEAD PLATE PER 9902200.

22. ASSEMBLY HARDWARE IS SUPPLIED WITH THE PART(S).

23. ORIENT COMPONENTS IN POSITIONS SHOWN.

24. INSTALL SHIMS SUPPLIED WITH HANDLES, AS REQUIRED, UNDER EACH LATCH.

25.

26. NOMENCLATURE FOR THE UNIT IS U4990.

DWG CLASSIFICATION LEVEL

MFG AGENCY NUMBER

UNCLASSIFIED

SIZE	DWG NUMBER
A	363101
SHEET	3

ISSUE

A E

ASSEMBLY INFORMATION, CONTINUED

27.

REFERENCE DESIGNATIONS APPEARING WITHIN A DOTTED RECTANGLE ARE TO TO BE MARKED ON OPPOSITE SIDE.

28.

DO NOT MARK DESIGNATIONS APPEARING IN BRACKETS AND DIMENSIONS APPEARING WITHIN OUTLINE OF VIEWS ON THE UNIT.

29.

MARK (WITH COVER COAT) REFERENCE DESIGNATION, .120-INCH BLACK CHARACTERS. LOCATE APPROXIMATELY AS SHOWN.

30.

MARK (WITH COVER COAT) POLARITY DESIGNATION, .120-INCH BLACK CHARACTERS. LOCATE APPROXIMATELY AS SHOWN.

31.

FINISH REQUIREMENTS:

A. APPLY ELECTRICALLY CONDUCTIVE CHEMICAL FILM TO ALL SURFACES OF CHASSIS PLATE AND FRONT PANEL.

B. APPLY BRUSH-ON TYPE CHEMICAL FILM TO ALL AREAS FROM WHICH THE ORIGINAL ALODINE HAS BEEN REMOVED SUCH AS MACHINED SURFACES, EDGES OF HOLES AND CUTOUTS, SURFACE SCRATCHES, ETC.

C. ON FRONT & EDGES OF FRONT PANEL ONLY, APPLY PRIMER, ITEM 48 FOLLOWED BY ENAMEL ITEM 49. COATING IS PROHIBITED ON REAR OF PANEL.

32.

ANODIZE, CLEAR, PER 173126.

33.

34.

IMPRESSION-STAMP INFORMATION AS SHOWN, .120 INCH CHARACTERS.

35.

LOCATE LABELS, ITEM 18, ANYWHERE ON REAR, TOP AND BOTTOM COVERS.

36.

37.

38.

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE DWG NUMBER

A 363101

SHEET 4

ISSUE

A D

DWG CLASSIFICATION LEVEL

ASSEMBLY INFORMATION, CONTINUED

39.

PASSIVATE PER 9904301.

40.

EQUALIZE GAP ON ALL 4 SIDES BETWEEN DOOR AND IT'S OPENING.

WIRING INFORMATION

45.

INSTALL VINYL SLEEVING, ITEM 57, USING ADHESIVE, ITEM 58, OVER CONNECTOR TERMINALS.

46.

LACE ALL WIRES INTO A HARNESS USING TAPE, ITEM 56, UNLESS OTHERWISE SPECIFIED.

47.

COMPONENTS AND WIRES SHOWN ON TERMINALS SHALL NOT BE SOLDERED IN PLACE UNTIL ALL EXTERNAL CONNECTIONS HAVE BEEN MADE AT FINAL ASSEMBLY.

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE DWG NUMBER

A 363101

SHEET 5

ISSUE

A

QUANTITY REQUIRED				DWG CLASSIFICATION LEVEL				
				DESIGN AGENCY NO.	DESCRIPTION	NOTE	SHEET NO.	ITEM
			NA	AY363101-004	GRAPHIC, U4990			
			NA	CK363101-004	SCHEMATIC, U4990			
			NA	173126	GENERAL SPECIFICATION FOR ACCEPTANCE EQUIPMENT	18		
			NA	9902111-00	SILVER PLATING	17		
			NA	9904301-02	PASSIVATION OF CORROSION RESISTANT STEEL	17		
			NA	9902200-02	PLATING, TIN-LEAD, ELECTRODEPOSITED	17		
		1		L-P-391	PLASTIC SHEET, ACRYLIC, GR 3, POLISHED, .250±.020, -.040 THK	2	4	1
		1						2
		1			PLASTIC SHEET, POLYPHENYLENE OXIDE (PPO), .375±.030 THK	13	4	3
		1			PLASTIC SHEET, NYLATRON GS, .375 +.025, -.000 THK	14	3	4
		1			AL ANGLE, 6061-T6, 1X1X1/8		3	5
		2			AL PLATE, 6061-T6, .500 ±.025 THK		3	6
		4		MIL-P-15035B	PLASTIC ROD, PHENOLIC, TYPE FBE, .500±.020 DIA	2		7
		1			AL SHEET, 5052-H34, .090±.005 THK			8
		2			AL SHEET, 5052-H34, .090 ± .005 THK		4	9
		1			STEEL SHEET, 1010-1020, .104 THK			10
		3			CRES BAR, TYPE 303, CD COND A, .250±.002 DIA		3	11
		1			AL BAR, 2024-T4, .750±.008 SQ		3	12
		1			AL ANGLE, 6061-T6, 3/4X3/4X1/8		4	13
		1			PLATE ASSEMBLY		4	14
		1		170926-000	PLATE, IDENTIFICATION	1		15
		1		157517-000	PLATE, INSTRUCTION	1		16
		1		198571-003	LABEL, IDENTIFICATION	1		17
		3		196.10-2	LABEL, PRESS, SENSITIVE, AMER, DECALCOMANIA CO (874454 REF)	1		18
		1		D867G-17-P-3-04	DRAWER, ELEC EQUIP, CAB, WESTERN DEVICES, INC (180638-00 REF)	1, 4		19
		1		C-114-18	TRACK SECT., STATIONARY (159351-00 REF)	5		21
		1		HP-10	HANDLE SET, DRAWER, WESTERN DEVICES, INC (875566 REF)	4		22
		1		HP-8	HANDLE, DRAWER, WESTERN DEVICES, INC (875564 REF)	4		23
		1		MS35489-6	GROMMET, RUBBER (853122 REF)	2		24
		2		135-42	INSULATOR, STEATITE, E.F. JOHNSON			25
		1			RELAY ASSEMBLY		4	26
		1		MS20257-P2-900	HINGE, BUTT	2	1	27
		2		102	CLAMP, YOGGLE, DETROIT STAMPING CO.			28
		1			AL PLATE, 6061-T6, .250±.013 THK	1	1	29
								30

NA=DOCUMENTS AR=AS REQD
 AR=AS REQD PER ASSEMBLY
 EM=EXPENSE MATL PM=PROCESS MATL

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE A DWG NUMBER 363101

SHEET 6

ISSUE

A B C D E

QUANTITY REQUIRED				DWG CLASSIFICATION LEVEL				
				DESIGN AGENCY NO.	DESCRIPTION	NOTE	SHEET ZONE	ITEM
								31
								32
			8	MS35225-48	SCREW, MACH, PAN HD, 8-32 X 7/8	2		33
								34
			3	MS35690-425	NUT, PLAIN, HEX, 1/4-28	2		35
			2	MS35690-402	NUT, PLAIN, HEX, 1/4-20	2		36
								37
								38
			3	AN960-416L	WASHER, FLAT, 1/4	2		39
			1	AN960-516L	WASHER, FLAT, 5/16	2		40
			8	MS35339-23	WASHER, LOCK, SPLIT, NO. 8	2		41
			2	MS35339-25	WASHER, LOCK, SPLIT, 1/4	2		42
								43
								44
			ARS		HARDWARE, MOUNTING, PER 173126	2		45
			ARS	MS21919DG TYPE	CLAMP, LOOP	2		46
			ARS	MIL-P-8585	PRIMER, ZINC CHROMATE	2		47
			ARS		PAINT, ENAMEL	7		48
			ARS		FILLER, ENGRAVERS ENAMEL, HIGH GLOSS BLK (873600 REF)	9		49
			ARS		SOLVENT, ENGRAVERS ENAMEL CLEANER (873602 REF)	9		50
			ARS	MIL-W-16878	WIRE, INSULATED, SIZE 20 (.038) WHITE, TYPE C	2		51
			ARS	QQ-W-343	WIRE, COPPER, 20AWG (.032) TYPE S	2		52
			ARS	50-412	CABLE, R.F., RAYCHEM CORP (167663-00 REF)	2		53
			ARS	MIL-I-22129C	INSULATION, SLEEVING, TEFLON	2		54
			ARS	MIL-T-713	LACING TAPE, NYLON, WAXED, TYPE P, CLASS 2	2		55
			ARS	MIL-I-7444	INSULATION, SLEEVING, VINYL	2		56
			ARS		ADHESIVE, VINYL	10		57
			ARS	21-412	CABLE, R.F. (TYPE C DET. CABLE) AMPHENOL-BORG ELEC CORP	4		58
			ARS	QQ-S-571	SOLDER, Sn 60, TYPE R, S, OR RMA	2,8		59
			ARS	MIL-F-14256	FLUX, SOLDERING, LIQUID (ROSIN BASE)	2,8		60
								61
			ARS		TERMINAL, LUG, DIAMOND GRIP, PRE-INSULATED, AMP, INC	4		62
								63
								64
								65
								66
								67

NA=DOCUMENTS AR=AS REQD
 ARS=AS REQD PER ASSEMBLY
 EM=EXPENSE MATL PM=PROCESS MATL

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE DWG NUMBER

A 363101

SHEET 7

ISSUE

A D E

QUANTITY REQUIRED				DESIGN AGENCY NO.	DESCRIPTION	NOTE	SHEET ZONE	ITEM
			161	IN4245	SEMICONDUCTOR DEVICE, DIODE, SEMTECH CORP, (875387 REF)	4		CR1 CR17, CR101 CR172 CR201 CR272
			1 50	7201 770	TERMINAL, STUD, LYN-TRON, INC (874277 REF) TERMINAL, STUD, WINCHESTER ELECTRONICS, INC. (838055 REF)	4		E1 E2 THRU E51, E101 THRU E171
			71	MODEL X833	CONTACT, ELEC, OSTBY & BARTON CO. (873617 REF)			
			1	PT00A-18-28S	CONN, RECP, ELEC, BENDIX CORP. SCINTILLA DIV (356933-00 REF)	4		J1
			1	PT00A-8-3P	CONN, RECP, ELEC, BENDIX CORP. SCINT. DIV (355591-00 REF)	4		J5
			1	PT00A-14-18S	CONN, RECP, ELEC, BENDIX CORP. (356986-00 REF)	4		J6
			1	108-902	JACK, BANANA, E. F. JOHNSON			J7
			1	108-903	JACK, BANANA, BLACK, E. F. JOHNSON			J8
			1	PT00P-14-91S	CONN, RECP, ELEC. BENDIX CORP (875827 REF)	4		J9
			17	BR19X-300-E8-26V	RELAY, ARM., SUBMINIATURE, BABCOCK RELAY, INC (871275 REF)	4		K1 THRU K17
			72	HC-1	RELAY, VACUUM, HIGH VACUUM ELEC. INC.			K101- K172

(A-3)

W.O. 86687

DESIGN AGENCY PART NO.		DWG CLASSIFICATION LEVEL		REVISIONS					
		ISSUE	DESCRIPTION	PREPARED BY	DATE	CHKR	ENGR		
363270-000		A	A. ORAVECZ, 2/20/67	2211-3	3/23/67	3/21/67	DM		
		B	CHG: CK SUFFIX WAS -000. D.WARD 5-1-67	2211-3	5/2/67		DM		
		C	CHG: CK SUFFIX WAS -001. ADDED 1B6. J.L.FULLER 12-6-67	2211-3	12/11/67	1/1/68	DM		
		D	CHG: CK SUFFIX WAS -002. ADDED 1A3. A.ORAVECZ, 3/14/68, 2211-3		3-25-68		JKS		

SHEET INDEX	SHEET																																																									
	ISSUE																																																									
	SHEET	1	2	3	4	5	6	7	8																																																	
	ISSUE	D	A	A	A	D	D	D	C																																																	
		CLASSIFICATION CATEGORY																																																								
		<table border="1"> <thead> <tr> <th colspan="3">DESIGN AGENCY APPROVAL</th> <th rowspan="4">TITLE U5029 (VOLTMETER INTERFACE)</th> </tr> <tr> <th>ORG</th> <th>DATE</th> <th>INITIALS</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr> <th colspan="3">MFG AGENCY APPROVAL</th> <th rowspan="4">MFG AGENCY NUMBER</th> </tr> <tr> <td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>																DESIGN AGENCY APPROVAL			TITLE U5029 (VOLTMETER INTERFACE)	ORG	DATE	INITIALS																						MFG AGENCY APPROVAL			MFG AGENCY NUMBER									
DESIGN AGENCY APPROVAL			TITLE U5029 (VOLTMETER INTERFACE)																																																							
ORG	DATE	INITIALS																																																								
MFG AGENCY APPROVAL			MFG AGENCY NUMBER																																																							
		<table border="1"> <thead> <tr> <th>PART CLASSIFICATION</th> <th>DWG CLASSIFICATION LEVEL</th> <th>SIZE</th> <th>DWG NUMBER</th> </tr> </thead> <tbody> <tr> <td>UNCLASSIFIED</td> <td>UNCLASSIFIED</td> <td>A</td> <td>363270</td> </tr> <tr> <td colspan="2"></td> <td>SHEET</td> <td>1 OF 8</td> </tr> </tbody> </table>																PART CLASSIFICATION	DWG CLASSIFICATION LEVEL	SIZE	DWG NUMBER	UNCLASSIFIED	UNCLASSIFIED	A	363270			SHEET	1 OF 8																													
PART CLASSIFICATION	DWG CLASSIFICATION LEVEL	SIZE	DWG NUMBER																																																							
UNCLASSIFIED	UNCLASSIFIED	A	363270																																																							
		SHEET	1 OF 8																																																							

(PT1471)

DWG CLASSIFICATION LEVEL

NOTES: PROCUREMENT INFORMATION

1. ITEMS NORMALLY REQUIRING A MINIMUM SETUP CHARGE AND/OR LONG TERM PROCUREMENT.
2. PROCURE ITEMS LISTED BY COMMERCIAL PART NUMBER IN THE 'DESIGN AGENCY NO.' COLUMN, AS MANUFACTURED BY THE SOURCE LISTED OR AS DEFINED ON THE REFERENCED SANDIA DRAWING, WHEN LISTED, OR A COMMERCIAL EQUIVALENT WHEN A SANDIA DRAWING IS NOT LISTED.
3. PROCURE THIS ITEM ONLY FROM A SUPPLIER LISTED ON THE "QUALIFIED PRODUCTS LIST OF PRODUCTS QUALIFIED UNDER MILITARY SPECIFICATIONS".
4. PROCURE FROM DIGITAL EQUIPMENT CORP.
5. PROCURE THIS ITEM MANUFACTURED BY THE LISTED SOURCE ONLY.

ASSEMBLY INFORMATION

9. FOR SPECIFIC PROCESSING, MANUFACTURING AND ASSEMBLY REQUIREMENTS NOT OTHERWISE COVERED ON THE DRAWING, SEE 173126.
10. COMPONENTS NOT IDENTIFIED BY ITEM NUMBERS ON THE ASSEMBLY ARE LOCATED IN THE LIST OF MATERIAL BY REFERENCE DESIGNATIONS.
- 11.

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE DWG NUMBER

A 363270

SHEET 2

ISSUE

A

DWG CLASSIFICATION LEVEL

ASSEMBLY INFORMATION, CONTINUED

12.

NOMENCLATURE FOR THE UNIT IS U5029.

WIRING INFORMATION

15.

USE FOLLOWING DIGITAL EQUIPMENT CORP HAND TOOLS TO WIRE UNIT:

A. WRAPPING TOOL NO. H811;

B. UNWRAPPING TOOL NO. H812.

16.

INSTALL P1 PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.

DWG CLASSIFICATION LEVEL

MFG AGENCY NUMBER

UNCLASSIFIED

SIZE A DWG NUMBER 363270

SHEET 3

ISSUE

A

DWG CLASSIFICATION LEVEL

DWG CLASSIFICATION LEVEL

MPQ AGENCY NUMBER

UNCLASSIFIED

SIZE DWG NUMBER
A 363270

SHEET 4

ISSUE A

PRINTED IN USA - OZALID 888-838

SC5300-AE(10-63)

DWG CLASSIFICATION LEVEL

SLOT

ROW

1A

1B

1	(CABLE)	
2	(CABLE)	
3	R603	
4	W103	W103
5	W103	W103
6	R121	
7		
8		
9		
10		
11		
12		
13		
14	R121	
15	269396	
16		
17		
18		
19	269396	
20	(CABLE)	
21	(CABLE)	
22	(CABLE)	
23	(CABLE)	
24	R203	
25	R203	
26	R203	
27	R302	
28	204865	
29	204865	
30	(CABLE)	
31		
32		

CARD LOCATION
REAR VIEW MTG PANEL

DWG CLASSIFICATION LEVEL

MFG. AGENCY NUMBER

UNCLASSIFIED

SIZE DWG NUMBER

A 363270

SHEET 5

ISSUE

A C D

QUANTITY REQUIRED				DESIGN AGENCY NO.	DESCRIPTION	NOTE	SHEET ZONE	ITEM
		NA	CK363270-003		SCHEMATIC, U5029			
		NA	173126		GENERAL SPECIFICATION FOR ACCEPTANCE EQUIPMENT	9		
		I	170926-00		PLATE, IDENTIFICATION	I		I
		I	198571-003		LABEL, IDENTIFICATION	I		2
								3
								4
								5
								6
		I	MS21919DG3		CLAMP, LOOP (890374 REF)	3		7
		I	1943-W-B-P		PANEL, MOUNTING, DIGITAL EQUIP, CORP			8
		I	H002		BRACKET SET, PANEL SETBACK, DIGITAL EQUIP, CORP			9
								10
		I	1945-19		HOLD-DOWN BAR, DIGITAL EQUIP. CORP.			11
								12
								13
								14
		ARS	MIL-C-17		CABLE, RF, RG-58A/U	3		15
		ARS			WIRE, INSULATED, SOLID CONDUCTOR, 24 AWG (.020)			16
		ARS	QQ-S-571		SOLDER, Sn 60, FORM W, TYPE R OR RMA, CORE P2	3		17
								18
								19
								20
		ARS			FILLER, ENGRAVERS ENAMEL, HIGH GLOSS BLK, (873600 REF)	5		21
					NEW HERMES ENGRAVING MACHINE CO.			
		ARS			SOLVENT, ENGRAVERS ENAMEL CLEANER, (873602 REF)	5		23
					NEW HERMES ENGRAVING MACHINE CO.			

NA=DOCUMENTS AR=AS REQD ARS=AS REQD PER ASSEMBLY EM=EXPENSE MATL PM=PROCESS MATL				DWG CLASSIFICATION LEVEL UNCLASSIFIED		MFG AGENCY NUMBER SIZE A DWG NUMBER 363270	
ISSUE A B C D				SHEET 6			

QUANTITY REQUIRED				DESIGN AGENCY NO.	DESCRIPTION	NOTE	SHEET ZONE	ITEM
			1	DM19D202G	CAPACITOR, FIXED, MICA, 2000 UUF, $\pm 2\%$, 500V (872040 REF)	5		C1
			1	101-B1800	CONN, PLUG, ELEC, AUTO, METAL PROD. CORP (874710 REF)			P1
			1	RC07GF333J	RESISTOR, FIXED, COMP, 33K, $\pm 5\%$, 1/4W (855777 REF)	3		R1
			1	RC07GF512J	RESISTOR, FIXED, COMP, 5.1K, $\pm 5\%$, 1/4W (855763 REF)	3		R2
			1	RC07GF392J	RESISTOR, FIXED, COMP, 3.9K, $\pm 5\%$, 1/4W, (854985 REF)	3		R3
			2	W103	MODULE, FLIP CHIP (PDP-8 DEVICE SELECTOR)	4		1A B4
			1	R603	MODULE, FLIP CHIP (PULSE AMPLIFIER)	4		1A B5
			9	R121	MODULE, FLIP CHIP (NAND GATE)	4		1A 6
			5	269396-000	HPVM BUFFER	4		THRU 1A 14
			3	R203	MODULE, FLIP CHIP (TRIPLE FLIP-FLOP)	4		1A 15
			1	R302	MODULE, FLIP CHIP (DELAY, ONE SHOT)	4		THRU 1A 19
			2	204865-000	MODULE, MODIFIED, (100MA INDICATOR AND RELAY DRIVER)			1A 24
								1A 25
								1A 26
								1A 27
								1A 28
								1A 29

NA=DOCUMENTS AR=AS REQD

ARG=AS REQD PER ASSEMBLY

EM=EXPENSE MATL PM=PROCESS MATL

ISSUE

A D

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE DWG NUMBER

A 363270

SHEET 7

[illegible]

(A-3)

W.O. 86687

(PT1471)

DWG CLASSIFICATION LEVEL

NOTES: PROCUREMENT INFORMATION

1. ITEMS NORMALLY REQUIRING A MINIMUM SETUP CHARGE AND/OR LONG TERM PROCUREMENT.
2. PROCURE ITEMS LISTED BY COMMERCIAL PART NUMBER IN THE 'DESIGN AGENCY NO.' COLUMN, AS MANUFACTURED BY THE SOURCE LISTED OR AS DEFINED ON THE REFERENCED SANDIA DRAWING, WHEN LISTED, OR A COMMERCIAL EQUIVALENT WHEN A SANDIA DRAWING IS NOT LISTED.
- 3.
4. PROCURE FROM DIGITAL EQUIPMENT CORP.
5. PROCURE THIS ITEM MANUFACTURED BY THE LISTED SOURCE ONLY.

ASSEMBLY INFORMATION

7. FOR SPECIFIC PROCESSING, MANUFACTURING AND ASSEMBLY REQUIREMENTS NOT OTHERWISE COVERED ON THE DRAWING, SEE 173126.
8. COMPONENTS NOT IDENTIFIED BY ITEM NUMBERS ON THE ASSEMBLY ARE LOCATED IN THE LIST OF MATERIAL BY REFERENCE DESIGNATIONS.
9. REMOVE EXISTING TERMINAL BOARD AND REPLACE WITH ITEM 5.
10. NOMENCLATURE FOR THE UNIT IS U5036.

DWG CLASSIFICATION LEVEL

MFG AGENCY NUMBER

UNCLASSIFIED

SIZE

DWG NUMBER

A

363277

SHEET

2

ISSUE

A

B

DWG CLASSIFICATION LEVEL

WIRING INFORMATION

15. USE FOLLOWING DIGITAL EQUIPMENT CORP. HAND TOOLS TO WIRE UNIT:

- A. WRAPPING TOOL NO. H811;
- B. UNWRAPPING TOOL NO. H812.

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE A DWG NUMBER 363277

SHEET 3

ISSUE

A

SCS300-AE(10-63)

DWG CLASSIFICATION LEVEL

DWG CLASSIFICATION LEVEL

MFG AGENCY NUMBER

UNCLASSIFIED

SIZE DWG NUMBER
A 363277

SHEET 4

ISSUE

A B

PRINTED IN USA—OZALID 848-818

SC5300-AE(10-63)

PRINTED IN USA - 07AL10 00-101

ISSUE	A
UNCLASSIFIED	
DWG CLASSIFICATION LEVEL	
MTG AGENCY NUMBER	
SIZE	DWG NUMBER
A	363277
SHEET	5

CARD LOCATION
REAR VIEW MTG PANEL

DWG CLASSIFICATION LEVEL

SCS300-AE(10-63)

QUANTITY REQUIRED				DESIGN AGENCY NO.	DESCRIPTION	NOTE	SHEET ZONE	ITEM
			NA	CK363277-002	SCHEMATIC, U5036			
			NA	173126	GENERAL SPECIFICATIONS FOR ACCEPTANCE EQUIPMENT	7		
			I	170926-00	PLATE, IDENTIFICATION	I		1
			I	198571-003	LABEL, IDENTIFICATION	I		2
								3
								4
			I	4-142-W	TERMINAL BOARD CINCH-JONES MFG. CORP			5
								6
			I	1943-W-B-P	PANEL, MOUNTING, DIGITAL EQUIP. CORP			7
			I	H002	BRACKET SET, PANEL SETBACK, DIGITAL EQUIP, CORP			8
								9
								10
			I	1945-19	HOLD-DOWN BAR, DIGITAL EQUIP. CORP.			11
								12
								13
								14
								15
								16
			ARS		WIRE, INSULATED, SOLID CONDUCTOR, 24 AWG(.020)			17
								18
								19
								20
			ARS		FILLER, ENGRAVER ENAMEL, HIGH GLOSS BLACK, NEW HERMES ENGRAVING MACHINE CO. (873600 REF)	5		21
			ARS		SOLVENT, ENGRAVERS ENAMEL CLEANER, (873602 REF) NEW HERMES ENGRAVING MACHINE CO.	5		23

NA=DOCUMENTS AR=AS REQD
 ARS=AS REQD PER ASSEMBLY
 EM=EXPENSE MATL PM=PROCESS MATL

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE **A** DWG NUMBER **363277**

SHEET **6**

ISSUE **A B C**

6

QUANTITY REQUIRED				DESIGN AGENCY NO.	DESCRIPTION	NOTE	SHEET ZONE	ITEM
22				R203	MODULE, FLIP CHIP (TRIPLE FLIP-FLOP)	4		IA2 THRU IA5 IA7 THRU IA18 IA24 THRU IA29
3				R107	MODULE, FLIP CHIP (7 INVERTERS)			IA20 IA21 IA22
17				W061	MODULE, FLIP CHIP (RELAY DRIVER)	4		IB3 IB4 IB5 IB8 THRU IB13 IB16 IB17 IB18 IB24 THRU IB28

NA=DOCUMENTS AR=AS REQD

ARS=AS REQD PER ASSEMBLY

EM=EXPENSE MATL PM=PROCESS MATL

ISSUE

A

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

363277

SIZE

A

DWG NUMBER

363277

SHEET

7

(AC-3/4)

A-6 W.O.86687

DESIGN AGENCY PART XXXXXX NO.		DWG CLASSIFICATION LEVEL		REVISIONS												
		ISSUE	DESCRIPTION		PREPARED BY		DATE	CHKR	ENGR							
SEE SH 2		A	A. ORAVECZ		2-21-67	2211-3	3/23/67	2.3.	3/21/67	Em						
		B	CHG: ITEM 1 WAS NO. 50-412, RAYCHEM CORP. J.L. FULLER		12-5-67	2211-3	12/11/67		Sm							
(PT1471)																
SHEET INDEX	SHEET															
	ISSUE															
	SHEET	1	2	3	4	5										
	ISSUE	B	A	A	A	B										
		CLASSIFICATION CATEGORY										DESIGN AGENCY APPROVAL			TITLE C6569 (TABULATION)	
												ORG	DATE	INITIALS		
												MFG AGENCY APPROVAL			MFG AGENCY NUMBER	
PART CLASSIFICATION SEE SH 2		DWG CLASSIFICATION LEVEL UNCLASSIFIED										SIZE A	DWG NUMBER 363326			
												SHEET 1	OF 5			

DESIGN AGENCY PART NUMBER		PART CLASSIFICATION	NOMENCLATURE	LENGTH	
363326-000	UNCLASSIFIED	C6569-1	24.000±1.000		
363326-001	UNCLASSIFIED	C6569-2	36.000±2.000		
363326-002	UNCLASSIFIED	C6569-3	48.000±2.000		
363326-003	UNCLASSIFIED	C6569-4	60.000±4.000		
363326-004	UNCLASSIFIED	C6569-5	72.000±4.000		
363326-005	UNCLASSIFIED	C6569-6	96.000±4.000		
363326-006	UNCLASSIFIED	C6569-7	120.000±6.000		
363326-007	UNCLASSIFIED	C6569-8	144.000±6.000		

ISSUE A		DWG CLASSIFICATION LEVEL UNCLASSIFIED		MFG AGENCY NUMBER	
SIZE A		DWG NUMBER 363326		SHEET 2	

DWG CLASSIFICATION LEVEL

NOTES: PROCUREMENT INFORMATION

1. PROCURE THIS ITEM MANUFACTURED BY THE LISTED SOURCE ONLY.
2. PROCURE THIS ITEM ONLY FROM A SUPPLIER LISTED ON THE "QUALIFIED PRODUCTS LIST OF PRODUCTS QUALIFIED UNDER MILITARY SPECIFICATIONS".
3. PROCURE ITEMS LISTED BY COMMERCIAL PART NUMBER IN THE 'DESIGN AGENCY NO.' COLUMN, AS MANUFACTURED BY THE SOURCE LISTED OR AS DEFINED ON THE REFERENCED SANDIA DRAWING, WHEN LISTED, OR A COMMERCIAL EQUIVALENT WHEN A SANDIA DRAWING IS NOT LISTED.
4. DRAWING OR PART NUMBERS LISTED PARENTHETICALLY AS REFERENCE IN THE DESCRIPTION COLUMN ARE FOR INTERNAL STOCK AND PROCUREMENT PURPOSES AT SANDIA.
5. PROCURE THIS ITEM MANUFACTURED BY ANY OF THE FOLLOWING: ALPHA WIRE CORP, TYPE FIT-221; RAYCLAD TUBES, INC, TYPE RNF-100.

ASSEMBLY INFORMATION

7. FOR SPECIFIC PROCESSING, MANUFACTURING AND ASSEMBLY REQUIREMENTS NOT OTHERWISE COVERED ON THE DRAWING, SEE 173126.
8. COMPONENTS NOT IDENTIFIED BY ITEM NUMBERS ON THE ASSEMBLY ARE LOCATED IN THE LIST OF MATERIAL BY REFERENCE DESIGNATIONS.
9. HOT STAMP DESIGNATIONS.
10. INSTALL CONNECTOR(S) PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE **A** DWG NUMBER **363326**

SHEET **3**

ISSUE

A

DWG CLASSIFICATION LEVEL

DESIGN AGENCY PART NO.

MANUFACTURING DESIGNATIONS

P1

10

LENGTH OF CABLE
PER TABLE, SH 2

P2

10

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE A DWG NUMBER 363326

SHEET 4

ISSUE

A

PRINTED IN USA—RIDGWAY'S NO. 413T

60.333

SCS300-AE(10-63)

12.64

QUANTITY REQUIRED				DESIGN AGENCY NO.	DESCRIPTION	NOTE	SHEET ZONE	ITEM
			NA	173126	GENERAL SPECIFICATION FOR ACCEPTANCE EQUIPMENT	7		
			ARS		CABLE (815888 REF)	2		1 2 3 4
			ARS	QQ-S-571	SOLDER, Sn60, FORM W, TYPE R OR RMA, CORE P2	2		5 6
			ARS		INSULATION, SLEEVING, HEAT SHRINKABLE	5		7 8 9 10
			2	GRMI-7447	CONN, PLUG, ELEC, GREMAR MFG CO (352082-00 REF)	1		P1 P2

NA=DOCUMENTS AR=AS REQD
 ARS=AS REQD PER ASSEMBLY
 EM=EXPENSE MATL PM=PROCESS MATL

ISSUE **A B**

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE **A** DWG NUMBER **363326**
 SHEET **5**

A-6 W.O.86687

[illegible]

DWG CLASSIFICATION LEVEL

NOTES: PROCUREMENT INFORMATION

1. PROCURE THIS ITEM ONLY FROM A SUPPLIER LISTED ON THE "QUALIFIED PRODUCTS LIST OF PRODUCTS QUALIFIED UNDER MILITARY SPECIFICATIONS".
2. PROCURE ITEMS LISTED BY COMMERCIAL PART NUMBER IN THE 'DESIGN AGENCY NO.' COLUMN, AS MANUFACTURED BY THE SOURCE LISTED OR AS DEFINED ON THE REFERENCED SANDIA DRAWING, WHEN LISTED, OR A COMMERCIAL EQUIVALENT WHEN A SANDIA DRAWING IS NOT LISTED.
- 3.
4. PREPARE VINYL ADHESIVE BY DISSOLVING PIECES OF VINYL IN TETRAHYDROFURAN AND/OR CYCLOHEXANONE AS REQUIRED.

ASSEMBLY INFORMATION

7. FOR SPECIFIC PROCESSING, MANUFACTURING AND ASSEMBLY REQUIREMENTS NOT OTHERWISE COVERED ON THE DRAWING, SEE 173126.
8. COMPONENTS NOT IDENTIFIED BY ITEM NUMBERS ON THE ASSEMBLY ARE LOCATED IN THE LIST OF MATERIAL BY REFERENCE DESIGNATIONS.
9. HOT STAMP DESIGNATIONS.

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE DWG NUMBER

A 363327

SHEET 2

ISSUE

A

SCS300-A1(10-63)

DWG CLASSIFICATION LEVEL

DESIGN AGENCY PART NO.

MANUFACTURING DESIGNATIONS

DWG CLASSIFICATION LEVEL

MFG AGENCY NUMBER

UNCLASSIFIED

SIZE DWG NUMBER

A 363327

SHEET 3

ISSUE

A B

PRINTED IN USA—RIDGWAY'S NO. 413T

SC5300 AE(10-63)

DWG CLASSIFICATION LEVEL

P1

39	38	14	13	37	36	12	11	23	50	35	34	10	9	33	32	8	7	31	30	6	5	29	28	4	3	41	40	16	15	27	26	2	1
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D	E	H	K	M	P	S	T	V	C
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P2

D	E	H	K	M	P	S	T
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P3

D	E	H	K	M	P	S	T
---	---	---	---	---	---	---	---

P4

D	E	H	K	M	P	S	T
---	---	---	---	---	---	---	---

P5

NOTE: ALL WIRE, SIZE 24 (.020).

WIRING DIAGRAM

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE DWG NUMBER

A 363327

SHEET 4

ISSUE

A

(AC-1/2)

A-6 W.O.86687

DESIGN AGENCY PART NO.		DWG CLASSIFICATION LEVEL						
363328-000		REVISIONS						
		ISSUE	DESCRIPTION	PREPARED BY	DATE	CHKR	ENGR	
A	A. GRAVECZ ,		2-23-67 ,	2211-3	3/23/67	3/21/67	DM	F
B	CHG : P2-S WAS P2-S ; P2-V WAS P2-B. CONN ADDED : P1-F TO P2-Z. J.L.FULLER ,		12/5/67	2211-3	3/11/67	1/11/67	DM	F
C	CHG : CABLE LENGTH WAS 40.000. A.GRAVECZ ,		3/18/67 ,	2211-3	3-25-68		DHS	F

(PT1471)

SHEET INDEX	SHEET										
	ISSUE										
	SHEET	1	2	3	4	5					
	ISSUE	C	A	C	B	A					
		CLASSIFICATION CATEGORY									
		DESIGN AGENCY APPROVAL			TITLE						
		ORG	DATE	INITIALS	C6571						
		MFG AGENCY APPROVAL			MFG AGENCY NUMBER						
		PART CLASSIFICATION		DWG CLASSIFICATION LEVEL							
		UNCLASSIFIED		UNCLASSIFIED							
		SIZE		DWG NUMB. R							
		A		363328							
		SHEET		OF							
		1		5							

DWG CLASSIFICATION LEVEL

NOTES: PROCUREMENT INFORMATION

- 1.
- 2.
3. PROCURE THIS ITEM ONLY FROM A SUPPLIER LISTED ON THE "QUALIFIED PRODUCTS LIST OF PRODUCTS QUALIFIED UNDER MILITARY SPECIFICATIONS".
4. PROCURE ITEMS LISTED BY COMMERCIAL PART NUMBER IN THE 'DESIGN AGENCY NO.' COLUMN, AS MANUFACTURED BY THE SOURCE LISTED OR AS DEFINED ON THE REFERENCED SANDIA DRAWING, WHEN LISTED, OR A COMMERCIAL EQUIVALENT WHEN A SANDIA DRAWING IS NOT LISTED.

ASSEMBLY INFORMATION

7. FOR SPECIFIC PROCESSING, MANUFACTURING AND ASSEMBLY REQUIREMENTS NOT OTHERWISE COVERED ON THE DRAWING, SEE 173126.
8. COMPONENTS NOT IDENTIFIED BY ITEM NUMBERS ON THE ASSEMBLY ARE LOCATED IN THE LIST OF MATERIAL BY REFERENCE DESIGNATIONS.
9. DISCARD CONNECTOR BACKSHELL.
10. HOT STAMP DESIGNATIONS.
11. ENCAPSULATE USING ITEMS 15, 16 AND 17.
12. SEAL REAR FACE OF INSERT, USING ITEM 14, PRIOR TO ENCAPSULATION OF P2.

DWG CLASSIFICATION LEVEL

MFG AGENCY NUMBER

UNCLASSIFIED

SIZE A DWG NUMBER 363328

SHEET 2

ISSUE

A

DWG CLASSIFICATION LEVEL

DESIGN AGENCY PART NO.

MANUFACTURING DESIGNATIONS

PI

84.000 ± 4.000

P2

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE DWG NUMBER

A 363328

SHEET 3

ISSUE

A C

PRINTED IN USA—RIDGWAY'S NO. 4137

60.333

SC5300-AE(10-63)

12 64

SHEET 4		UNCLASSIFIED		A B																ISSUE			
SIZE A		DWG NUMBER 363328		DWG CLASSIFICATION LEVEL																			
MFG AGENCY NUMBER																							

WIRING DIAGRAM

DWG CLASSIFICATION LEVEL									
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(AC-1/2)

A-6 W.O. 86687

		DWG CLASSIFICATION LEVEL					
DESIGN AGENCY PART NO.		REVISIONS					
		ISSUE	DESCRIPTION	PREPARED BY	DATE	CHKR	ENGR
363329-000		A	A. ORAVECZ, 2/23/67	2211-3	3/21/67	L. F. 3/21/67	DM
		B	CHG: P2, P3 WAS W021-70R D.WARD 5-3-67	2211-3	5/1/67		DM

(PT1471)

SHEET INDEX	SHEET																			
	ISSUE																			
	SHEET	1	2	3	4	5														
	ISSUE	B	A	A	A	B														
		CLASSIFICATION CATEGORY										DESIGN AGENCY APPROVAL			TITLE C6572					
												ORG	DATE	INITIALS						
												MFG AGENCY APPROVAL			MFG AGENCY NUMBER					
PART CLASSIFICATION UNCLASSIFIED		DWG CLASSIFICATION LEVEL UNCLASSIFIED										SIZE A			DWG NUMBER 363329					
												SHEET 1			OF 5					

DWG CLASSIFICATION LEVEL

NOTES: PROCUREMENT INFORMATION

- 1.
2. PROCURE THIS ITEM ONLY FROM A SUPPLIER LISTED ON THE "QUALIFIED PRODUCTS LIST OF PRODUCTS QUALIFIED UNDER MILITARY SPECIFICATIONS".
3. PROCURE ITEMS LISTED BY COMMERCIAL PART NUMBER IN THE 'DESIGN AGENCY NO.' COLUMN, AS MANUFACTURED BY THE SOURCE LISTED OR AS DEFINED ON THE REFERENCED SANDIA DRAWING, WHEN LISTED OR A COMMERCIAL EQUIVLANET WHEN A SANDIA DRAWING IS NOT LISTED.
- 4.
5. PREPARE VINYL ADHESIVE BY DISSOLVING PIECES OF VINYL IN TETRAHYDROFURAN AND/OR CYCLOHEXANONE AS REQUIRED.

ASSEMBLY INFORMATION

7. FOR SPECIFIC PROCESSING, MANUFACTURING AND ASSEMBLY REQUIREMENTS NOT OTHERWISE COVERED ON THE DRAWING, SEE 173126.
8. COMPONENTS NOT IDENTIFIED BY ITEM NUMBERS ON THE ASSEMBLY ARE LOCATED IN THE LIST OF MATERIAL BY REFERENCE DESIGNATIONS.
9. HOT STAMP DESIGNATIONS.
10. ENCAPSULATE USING ITEMS 8, 9 AND 10.

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE DWG NUMBER

A 363329

SHEET

2

ISSUE

A

DWG CLASSIFICATION LEVEL

DESIGN AGENCY PART NO.

MANUFACTURING DESIGNATIONS

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE DWG NUMBER

A 363329

SHEET 3

ISSUE

A

PRINTED IN USA—RIDGWAY'S NO. 413T

SCS300-AE(10-63)

DWG CLASSIFICATION LEVEL

P1
INSERT-18-32 P

B	C	D	E	F	G	H	J	K	L	M	N	P	R	S			T	U	V	W	X	Y	Z	a	b	c	d	e	f	g	A
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D	E	F	H	J	K	L	M	N	P	R	S	T	U	V
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

P2

D	E	F	H	J	K	L	M	N	P	R	S	T	U	V
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P3

NOTE: ALL WIRE, SIZE 24 (.020).

WIRING DIAGRAM

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE DWG NUMBER

A 363329

SHEET 4

ISSUE

A

QUANTITY REQUIRED				DESIGN AGENCY NO.	DESCRIPTION	NOTE	SHEET ZONE	ITEM
			NA	173126	GENERAL SPECIFICATION FOR ACCEPTANCE EQUIPMENT	7		
			ARS	MIL-I-7444	WIRE, INSULATED, SIZE 24 (.020), PART OF P2 AND P3	2		1
			ARS	MIL-I-7444	INSULATION SLEEVING, VINYL	2		2
			ARS	MIL-T-713	TAPE, VINYL	2		3
			ARS		LACING TWINE, NYLON, UNWAXED, TYPE P, CLASS 2	2		4
			ARS		ADHESIVE, VINYL	5		5
			ARS	QQ-S-571	SOLDER, Sn 60, FORM W, TYPE R OR RMA, CORE P2	2		6
			ARS	4169	ENCAPSULATION COMPOUND, GREEN, HYSOL CORP			7
			ARS	3471	CURING AGENT, HYSOL CORP			8
			ARS	1	RESIN DEFOAMER, PAR INDUSTRIES			9
								10
			1	PT06P-18-32P	CONN, PLUG, ELEC, BENDIX CORP, SCINTILLA DIV			P1
			2	W023-70R	CONN, CABLE, ELEC, DIGITAL EQUIP. CORP			P2
								P3

NA-DOCUMENTS AR-AS REQD

ARS-AS REQD PER ASSEMBLY

EM-EXPENSE MATL PM-PROCESS MATL

ISSUE

A B

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE

A

DWG NUMBER

363329

SHEET

5

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A-6 W.O. 86687

(PT1471)

DWG CLASSIFICATION LEVEL

NOTES: PROCUREMENT INFORMATION:

- 1.
2. PROCURE THIS ITEM ONLY FROM A SUPPLIER LISTED ON THE "QUALIFIED PRODUCTS LIST OF PRODUCTS QUALIFIED UNDER MILITARY SPECIFICATIONS".
3. PROCURE ITEMS LISTED BY COMMERCIAL PART NUMBER IN THE 'DESIGN AGENCY NO.' COLUMN, AS MANUFACTURED BY THE SOURCE LISTED OR AS DEFINED ON THE REFERENCED SANDIA DRAWING, WHEN LISTED OR A COMMERCIAL EQUIVLANET WHEN A SANDIA DRAWING IS NOT LISTED.
- 4.
5. PREPARE VINYL ADHESIVE BY DISSOLVING PIECES OF VINYL IN TETRAHYDROFURAN AND/OR CYCLOHEXANONE AS REQUIRED.

ASSEMBLY INFORMATION:

7. FOR SPECIFIC PROCESSING, MANUFACTURING AND ASSEMBLY REQUIREMENTS NOT OTHERWISE COVERED ON THE DRAWING, SEE 173126.
8. COMPONENTS NOT IDENTIFIED BY ITEM NUMBERS ON THE ASSEMBLY ARE LOCATED IN THE LIST OF MATERIAL BY REFERENCE DESIGNATIONS.
9. HOT STAMP DESIGNATIONS.
10. ENCAPSULATE USING ITEMS 8, 9 AND 10..

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE A DWG NUMBER 363330

SHEET 2

ISSUE

A

DWG CLASSIFICATION LEVEL

DESIGN AGENCY PART NO.

MANUFACTURING DESIGNATIONS

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE DWG NUMBER

A 363330

SHEET 3

ISSUE

A

PRINTED IN USA—RIDGWAY'S NO. 413T

60.334

SC5300-AE(10-63)

9-65

DWG CLASSIFICATION LEVEL

P1
INSERT -18-28P

B	C	D	E	F	G	H	J	K		L	M	N	P	R	S	T	U	V
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D	E	H	K	M	P	S	T	V
---	---	---	---	---	---	---	---	---

P2

D	E	H	K	M	P	S	T	V
---	---	---	---	---	---	---	---	---

P3

NOTE: ALL WIRE, SIZE 24 (.020).

WIRING DIAGRAM

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE A DWG NUMBER 363330

SHEET 4.

ISSUE

A

QUANTITY REQUIRED				DESIGN AGENCY NO.	DESCRIPTION	NOTE	SHEET ZONE	ITEM
			NA	173126	GENERAL SPECIFICATION FOR ACCEPTANCE EQUIPMENT	7		
			ARS	MIL-I-7444	WIRE, INSULATED, SIZE 24 (.020), PART OF P2 AND P3			1
			ARS	MIL-I-7444	INSULATION, SLEEVING, VINYL	2		2
			ARS	MIL-I-7444	TAPE, VINYL	2		3
			ARS	MIL-T-713	LACING TWINE, NYLON, UNWAXED, TYPE P, CLASS 2	2		4
			ARS		ADHESIVE, VINYL	5		5
			ARS	QQ-S-571	SOLDER, Sn 60, FORM W, TYPE R OR RMA, CORE P2	2		6
			ARS	4169	ENCAPSULATION COMPOUND, GREEN, HYSOL CORP			7
			ARS	3471	CURING AGENT, HYSOL CORP			8
			ARS	1	RESIN DEFOAMER, PAR INDUSTRIES			9
								10
			1	PT06P-18-28P	CONN, PLUG, ELEC, BENDIX CORP, SCINTILLA DIV			P1
			2	W021-88R	CONN, CABLE, ELEC, DIGITAL EQUIP. CORP			P2
								P3

NA=DOCUMENTS AR=AS REQD
ARS=AS REQD PER ASSEMBLY
EM=EXPENSE MATL PM=PROCESS MATL

ISSUE **A**

DWG. CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE **A** DWG NUMBER **363330**

SHEET **5**

A-6 W.O. 86687

— 100 —

DWG CLASSIFICATION LEVEL

NOTES: PROCUREMENT INFORMATION:

- 1.
2. PROCURE THIS ITEM ONLY FROM A SUPPLIER LISTED ON THE "QUALIFIED PRODUCTS LIST OF PRODUCTS QUALIFIED UNDER MILITARY SPECIFICATIONS".
3. PROCURE ITEMS LISTED BY COMMERCIAL PART NUMBER IN THE 'DESIGN AGENCY NO.' COLUMN, AS MANUFACTURED BY THE SOURCE LISTED OR AS DEFINED ON THE REFERENCED SANDIA DRAWING, WHEN LISTED OR A COMMERCIAL EQUIVLANET WHEN A SANDIA DRAWING IS NOT LISTED.
- 4.
5. PREPARE VINYL ADHESIVE BY DISSOLVING PIECES OF VINYL IN TETRAHYDROFURAN AND/OR CYCLOHEXANONE AS REQUIRED.

ASSEMBLY INFORMATION:

7. FOR SPECIFIC PROCESSING, MANUFACTURING AND ASSEMBLY REQUIREMENTS NOT OTHERWISE COVERED ON THE DRAWING, SEE 173126.
8. COMPONENTS NOT IDENTIFIED BY ITEM NUMBERS ON THE ASSEMBLY ARE LOCATED IN THE LIST OF MATERIAL BY REFERENCE DESIGNATIONS.
9. HOT STAMP DESIGNATIONS.
10. ENCAPSULATE USING ITEMS 8, 9 AND 10.

DWG CLASSIFICATION LEVEL

MFG AGENCY NUMBER

UNCLASSIFIED

SIZE

DWG NUMBER

A

363331

SHEET

2

ISSUE

A

DWG CLASSIFICATION LEVEL

DESIGN AGENCY PART NO.

MANUFACTURING DESIGNATIONS

P2

9

2

P1

10

60.000 ± 4.000

12.000 ± 1.000

C6574

P2

C6574

P3

12.000 ± 1.000

P3

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE DWG NUMBER

A 363331

SHEET 3

ISSUE

A

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SC5300-AE(10-63)

60334

DWG CLASSIFICATION LEVEL

P1
INSERT-16-26 P

P2

P3

NOTE: ALL WIRE, SIZE 24 (.020).

WIRING DIAGRAM

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE A DWG NUMBER 363331

SHEET 4

SC5300-AE(10-63)

QUANTITY REQUIRED				DESIGN AGENCY NO.	DESCRIPTION	NOTE	SHEET ZONE	ITEM
		NA	173126		GENERAL SPECIFICATION FOR ACCEPTANCE EQUIPMENT	7		
		ARS	MIL-I-7444		WIRE, INSULATED, SIZE 24 (.020), PART OF P2 & P3	2		1
		ARS	MIL-I-7444		INSULATION, SLEEVING, VINYL	2		2
		ARS	MIL-T-713		TAPE, VINYL	2		3
		ARS			LACING TWINE, NYLON, UNWAXED, TYPE P, CLASS 2	2		4
		ARS			ADHESIVE, VINYL	5		5
		ARS	QQ-S-571		SOLDER, Sn 60, FORM W, TYPE R OR RMA, CORE P2	2		6
		ARS	4169		ENCAPSULATION COMPOUND, GREEN, HYSOL CORP.			7
		ARS	3471		CURING AGENT, HYSOL CORP.			8
		ARS	I		RESIN DEFOAMER, PAR INDUSTRIES			9
								10
		1	PT06P-16-26P		CONN, PLUG, ELEC, BENDIX CORP, SCINTILLA DIV			P1
		2	W021-60R		CONN, CABLE, ELEC, DIGITAL EQUIP, CORP			P2
								P3

NA—DOCUMENTS ARE AS REQD
ARE—AS REQD PER ASSEMBLY
EM—EXPENSE MATL PM—PROCESS MATL

DWG CLASSIFICATION LEVEL
UNCLASSIFIED

MFG AGENCY NUMBER
SIZE **A** DWG NUMBER **363331**
SHEET **5**

(A-C-1) (A-6) W.O. 86687

DESIGN AGENCY PART CLASSIFICATION NO.		DWG CLASSIFICATION LEVEL		REVISIONS					
		ISSUE	DESCRIPTION	PREPARED BY	DATE	CHKR	ENGR		
363373-000		A	A. ORAVECZ, 3/3/67	2211-3	3/11/67	GLS 3-14-67	DM		
		B	CHG: SUFFIX TO AY WAS -000. JLFULLER 12-6-67	2211-3	12/1/67		DM		
		C	ADDED: J3-J8. CHG: SUFFIX OF AY WAS -001. A. ORAVECZ, 3/21/68,	2211-3	3-25-68		QKS		

(PT 1471)

SHEET INDEX	SHEET																
	ISSUE																
	SHEET	1	2	3	4	5	6										
	ISSUE	C	A	A	A	C	C										

CLASSIFICATION CATEGORY	DESIGN AGENCY APPROVAL			TITLE U5057		
	ORG	DATE	INITIALS			
			MFG AGENCY APPROVAL			MFG AGENCY NUMBER
PART CLASSIFICATION UNCLASSIFIED		DWG CLASSIFICATION LEVEL UNCLASSIFIED		SIZE A	DWG NUMBER 363373	
				SHEET 1	OF 6	

DWG CLASSIFICATION LEVEL

NOTES: PROCUREMENT INFORMATION

1. ITEMS NORMALLY REQUIRING A MINIMUM SETUP CHARGE AND/OR LONG TERM PROCUREMENT.
- 2.
3. PROCURE THIS ITEM MANUFACTURED BY THE LISTED SOURCE ONLY.
4. PROCURE THIS ITEM ONLY FROM A SUPPLIER LISTED ON THE "QUALIFIED PRODUCTS LIST OF PRODUCTS QUALIFIED UNDER MILITARY SPECIFICATIONS".
5. PROCURE ITEMS LISTED BY COMMERCIAL PART NUMBER IN THE 'DESIGN AGENCY NO.' COLUMN, AS MANUFACTURED BY THE SOURCE LISTED OR AS DEFINED ON THE REFERENCED SANDIA DRAWING, WHEN LISTED, OR A COMMERCIAL EQUIVALENT WHEN A SANDIA DRAWING IS NOT LISTED.
6. DRAWING OR PART NUMBERS LISTED PARENTHETICALLY AS REFERENCE IN THE DESCRIPTION COLUMN ARE FOR INTERNAL STOCK AND PROCUREMENT PURPOSES AT SANDIA.
7. PREPARE VINYL ADHESIVE BY DISSOLVING PIECES OF VINYL IN TETRAHYDROFURAN AND/OR CYCLOHEXANONE AS REQUIRED.

DWG CLASSIFICATION LEVEL

MFG AGENCY NUMBER

UNCLASSIFIED

SIZE

DWG NUMBER

A

363373

SHEET

2

ISSUE

A

DWG CLASSIFICATION LEVEL

NOTES: ASSEMBLY INFORMATION

10. FOR SPECIFIC PROCESSING, MANUFACTURING AND ASSEMBLY REQUIREMENTS NOT OTHERWISE COVERED ON THE DRAWING, SEE 173126.

11. COMPONENTS NOT IDENTIFIED BY ITEM NUMBERS ON THE ASSEMBLY ARE LOCATED IN THE LIST OF MATERIAL BY REFERENCE DESIGNATIONS.

12. USE THIS DIMENSION FOR PRINT INSPECTION MEASUREMENT ONLY. DO NOT USE PRINTS MORE THAN .100 INCH OUT-OF-SCALE FOR DRILLING TEMPLATES.

13. ASSEMBLY HARDWARE IS SUPPLIED WITH PART(S).

14. ORIENT COMPONENTS IN POSITIONS SHOWN.

15. NOMENCLATURE FOR THE UNIT IS U5057

16. REFERENCE DESIGNATIONS APPEARING WITHIN A DOTTED RECTANGLE ARE TO BE MARKED ON OPPOSITE SIDE.

17. DO NOT MARK DESIGNATIONS APPEARING IN BRACKETS AND DIMENSIONS APPEARING WITHIN OUTLINE OF VIEWS ON THE UNIT.

18. MARK (WITH COVER COAT) REFERENCE DESIGNATION, .120-INCH BLACK CHARACTERS. LOCATE APPROXIMATELY AS SHOWN.

19. APPLY CHEMICAL FILM TO ITEM 1.

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE A DWG NUMBER 363373

SHEET 3

ISSUE

A

SCS300-AE(10-63)

DWG CLASSIFICATION LEVEL

NOTES: WIRING INFORMATION

20. DASH-DOT LINE SHOWN ON AY363373 INDICATES PATH OF WIRES TO BE FOLLOWED WHEN UNIT IS WIRED.
21. LACE ALL WIRES INTO A HARNESS USING TAPE, ITEM 33, UNLESS OTHERWISE SPECIFIED.
22. ALL WIRES TERMINATING AT COMPONENTS HAVING SCREW TYPE TERMINALS SHALL BE EQUIPPED WITH PREINSULATED LUG TERMINALS. TERMINAL SIZE TO BE DETERMINED BY THE SCREW TERMINAL AND THE WIRE SIZE.
23. CLAMP CABLES, USING ITEM 22.

DWG CLASSIFICATION LEVEL

MFG AGENCY NUMBER

UNCLASSIFIED

SIZE DWG NUMBER

A 363373

SHEET

4

ISSUE

A

QUANTITY REQUIRED				DESIGN AGENCY NO	DESCRIPTION	NOTE	SHEET ZONE	ITEM
		NA	AY363373-002	GRAPHIC, U5057				
		NA	173126	GENERAL SPECIFICATION FOR ACCEPTANCE EQUIPMENT	10			
		1	QQ-A-250/11	ALUMINUM SHEET, .125±.005 THK, 6061-T6				1
		1	170926-00	PLATE IDENTIFICATION	1			2
		1	198571-003	LABEL, IDENTIFICATION	1			3
		1	LRA-6	RACK ADAPTER, LAMBDA ELECTRONICS CORP.	3			4
		1	LBP-40	BLANK PANEL, LAMBDA ELECTRONICS CORP.	3			5
								6
								7
								8
								9
								10
								11
								12
								13
								14
								15
								16
								17
								18
		2	MS35225-30	SCREW, MACH, PAN HD, 6-32 X 1/2	4			19
		ARS		HARDWARE, MOUNTING, PER 173126	4			20
		ARS	MS21919DG TYPE	CLAMP, LOOP	4			21
		ARS		TERMINAL LUG, DIAMOND GRIP, PREINSULATED, AMP. INC.	3			22
								23
								24
								25
		ARS		FILLER, ENGRAVERS ENAMEL, HIGH GLOSS, BLK(873600 REF)	3			26
				NEW HERMES ENGRAVING MACHINE CO.				
		ARS		SOLVENT, ENGRAVERS ENAMEL CLEANER (873602 REF)	3			28
				NEW HERMES ENGRAVING MACHINE CO.				
								30

NA=DOCUMENTS AR=AS REQD ARS=AS REQD PER ASSEMBLY EM=EXPENSE MATL PM=PROCESS MATL				DWG CLASSIFICATION LEVEL UNCLASSIFIED		MFG AGENCY NUMBER SIZE DWG NUMBER A 363373	
ISSUE A B C				SHEET 5			

AR REQUIRE AS REQD X REQUIRE AS REQD				DWG CLASSIFICATION LEVEL					
QUANTITY REQUIRED				DESIGN AGENCY NO		DESCRIPTION	NOTE	SHEET ZONE	ITEM
			ARS	MIL-W-16878	WIRE, INSULATED, SIZE 16 (.057)WHT, TYPE C	4		31	
			ARS	MIL-I-7444	INSULATION SLEEVING, VINYL	4		32	
			ARS	MIL-T-713	LACING TAPE, NYLON, WAXED, TYPE P, CLASS 2	4		33	
			ARS		ADHESIVE, VINYL	7		34	
			ARS	QO-S-571	SOLDER, Sn60, FORM W, TYPE R OR RMA, P2	4		35	
								36	
			1	PT00A-20-16S	CONN, RECP, ELEC, BENDIX CORP, ELEC COMPONENTS DIV.	3		J1	
			1	5278	CONN, RECP, ELEC, H.H. HUBBELL, INC (833391 REF)			J2	
			3	105-602	JACK, TIP, RED, E.F. JOHNSON CO (836854 REF)			J3, J5, J7	
			3	105-603	JACK, TIP, BLACK, E.F. JOHNSON CO (837040 REF)			J4, J6, J8	
			1	LMB10	POWER SUPPLY, 10VDC, LAMBDA ELECTRONICS CORP.	3		PS1	
			1	LMC15	POWER SUPPLY, 15VDC, LAMBDA ELECTRONICS CORP.	3		PS2	
			1	LMD 28	POWER SUPPLY, 28VDC, LAMBDA ELECTRONICS CORP.	3		PS3	

NA=DOCUMENTS AR=AS REQD ARE=AS REQD PER ASSEMBLY EM=EXPENSE MATL PM=PROCESS MATL						DWG CLASSIFICATION LEVEL		MFG AGENCY NUMBER	
ISSUE A C						UNCLASSIFIED		SIZE A DWG NUMBER 363373	
PRINTED IN USA						SHEET 6		SC5360 A5110 6-1	

W.O. 86687

DESIGN AGENCY PART NO. NO.		DWG CLASSIFICATION LEVEL		REVISIONS																	
ISSUE	DESCRIPTION	PREPARED BY	DATE	CHKR	ENGR																
363374-000	A	W. POLLARD (BR)	3-17-67	2211-3	11/17/67	EM															
	B	CHG: CK SUFFIX WAS -000 D.WARD	5-2-67	2211-3	11/17/67	EM															
	C	CHG: SUFFIX TO AY WAS -000; SUFFIX TO CK WAS -001; VALUES OF R2,R3,R4,R6,R7,R8,R9. ADDED SH 12, R21 THRU 30. REMOVED R5. J.L. FULLER	12-8-67	2211-3	12/11/67	EM															
	D	CHG: SUFFIX OF AY WAS -001; CK WAS -002; AMT OF ITEMS 22, 25, 30. REMOVED: ITEM 23. ADDED: ITEMS 33, 34, 50; A3, R31-R41. CHANGED VALUES OF R2, R3, R4, R21, R22, R23. A. ORAVECZ	3-21-68	2211-3	3-25-68	OKS															
(PT1471)																					
SHEET INDEX	SHEET																				
	ISSUE																				
	SHEET	1	2	3	4	5	6	7	8	9	10	11	12								
	ISSUE	D	A	C	A	A	D	D	A	D	A	D	D								
		CLASSIFICATION CATEGORY										DESIGN AGENCY APPROVAL			TITLE U5057						
												ORG	DATE	INITIALS							
												MFG AGENCY APPROVAL			MFG AGENCY NUMBER						
		PART CLASSIFICATION UNCLASSIFIED										DWG CLASSIFICATION LEVEL UNCLASSIFIED									
												SIZE A		DWG NUMBER 363374							
												SHEET 1		OF 12							

DWG CLASSIFICATION LEVEL

NOTES: PROCUREMENT INFORMATION

1. ITEMS NORMALLY REQUIRING A MINIMUM SETUP CHARGE AND/OR LONG TERM PROCUREMENT.
2. PROCURE THIS ITEM MANUFACTURED BY ANY OF THE FOLLOWING: CHASSIS TRAK, INC., OR ZERO MFG CO.
3. PROCURE THIS ITEM MANUFACTURED BY ANY OF THE FOLLOWING: DICKSON CO., MOTOROLA, INC.; TEXAS INSTR.; HOFFMAN, INC.; INTERNATIONAL RECT.; TRANSITRON CORP.
4. PROCURE THIS ITEM MANUFACTURED BY THE LISTED SOURCE ONLY.
5. PROCURE THIS ITEM ONLY FROM A SUPPLIER LISTED ON THE "QUALIFIED PRODUCTS LIST OF PRODUCTS QUALIFIED UNDER MILITARY SPECIFICATIONS".
6. PROCURE ITEMS LISTED BY COMMERCIAL PART NUMBER IN THE 'DESIGN AGENCY NO.' COLUMN, AS MANUFACTURED BY THE SOURCE LISTED OR AS DEFINED ON THE REFERENCED SANDIA DRAWING, WHEN LISTED, OR A COMMERCIAL EQUIVALENT WHEN A SANDIA DRAWING IS NOT LISTED.
7. DRAWING OR PART NUMBERS LISTED PARENTHETICALLY AS REFERENCE IN THE DESCRIPTION COLUMN ARE FOR INTERNAL STOCK AND PROCUREMENT PURPOSES AT SANDIA.
8. PREPARE VINYL ADHESIVE BY DISSOLVING PIECES OF VINYL IN TETRAHYDROFURAN AND/OR CYCLOHEXANONE AS REQUIRED.

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE A DWG NUMBER 363374

SHEET 2

ISSUE

A

DWG CLASSIFICATION LEVEL

ASSEMBLY INFORMATION

10. FOR SPECIFIC PROCESSING, MANUFACTURING AND ASSEMBLY REQUIREMENTS NOT OTHERWISE COVERED ON THE DRAWING, SEE 173126.
11. COMPONENTS NOT IDENTIFIED BY ITEM NUMBERS ON THE ASSEMBLY ARE LOCATED IN THE LIST OF MATERIAL BY REFERENCE DESIGNATIONS.
12. USE THIS DIMENSION FOR PRINT INSPECTION MEASUREMENT ONLY. DO NOT USE PRINTS MORE THAN .100 INCH OUT-OF-SCALE FOR DRILLING TEMPLATES.
13. ASSEMBLY HARDWARE IS SUPPLIED WITH PART(S).
14. INSTALL SHIMS SUPPLIED WITH HANDLES, AS REQUIRED, UNDER EACH LATCH.
15. ORIENT COMPONENTS IN POSITIONS SHOWN.
16. NOMENCLATURE FOR THE UNIT IS U5058.
17. ENGRAVE VOLTAGE AS SHOWN. USE BLACK FILLER ITEM 45.
18. REFERENCE DESIGNATIONS APPEARING WITHIN A DOTTED RECTANGLE ARE TO BE MARKED ON OPPOSITE SIDE.
19. DO NOT MARK DESIGNATIONS APPEARING IN BRACKETS AND DIMENSIONS APPEARING WITHIN OUTLINE OF VIEWS ON THE UNIT.
20. MARK (WITH COVER COAT) REFERENCE DESIGNATION, .120-INCH BLACK CHARACTERS. LOCATE APPROXIMATELY AS SHOWN.
21. MARK (WITH COVER COAT) .125 DIA DOT IN LOCATIONS INDICATED BY A DOT ADJACENT TO THE COMPONENT TO DENOTE COLLECTOR ON TRANSISTOR OR CATHODE END ON DIODE, OR POSITIVE END ON ELECTROLYTIC CAPACITORS.
22. INSTALL LABEL ITEM 4 APPROXIMATELY CENTERED ON BOTTOM AND REAR COVERS OF ITEM 10.

DWG CLASSIFICATION LEVEL

MFG AGENCY NUMBER

UNCLASSIFIED

SIZE A DWG NUMBER 363374

SHEET 3

ISSUE

A C

DWG CLASSIFICATION LEVEL

ASSEMBLY INFORMATION (CONT)

23. APPLY FINISH TO CHASSIS AND PANEL PARTS.
24. USE THE SUFFIX SPECIFIED OR ANY HIGHER OF 7-DIGIT STANDARD(S), SG OR 400000 SERIES SPECIFICATION.
25. FOR EXPLANATION OF DIMENSIONS, TOLERANCES AND SYMBOLIZATION, SEE 9900011.
26. CUT COMPONENT SHAFT TO AN APPROPRIATE LENGTH AND SLOT FOR SCREWDRIVER ADJUSTMENT.

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE A DWG NUMBER 363374

SHEET 4

ISSUE

A

DWG CLASSIFICATION LEVEL

WIRING INFORMATION

30. INSTALL INSULATION SLEEVING, ITEM 63, ON METALLIC CASE DIODES WHEN IT IS POSSIBLE FOR THE DIODE CASE TO CONTACT ADJACENT COMPONENTS OR A CONDUCTIVE CHASSIS. SLEEVING SHALL BE OF SUCH A LENGTH THAT MAXIMUM MOVEMENT OF THE SLEEVING WILL NOT EXPOSE ANY METALLIC PART OF THE INSTALLED DIODE.
31. LACE ALL WIRES INTO A HARNESS USING TAPE, ITEM 64, UNLESS OTHERWISE SPECIFIED.
32. ALL WIRES TERMINATING AT COMPONENTS HAVING SCREW TYPE TERMINALS SHALL BE EQUIPPED WITH PREINSULATED LUG TERMINALS. TERMINAL SIZE TO BE DETERMINED BY THE SCREW TERMINAL AND THE WIRE SIZE.
33. COMPONENTS AND WIRES SHOWN ON TERMINALS SHALL NOT BE SOLDERED IN PLACE UNTIL ALL EXTERNAL CONNECTIONS HAVE BEEN MADE AT FINAL ASSEMBLY.
34. CLAMP CABLES, USING ITEM 38.

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE

A

DWG NUMBER

363374

SHEET

5

ISSUE

A

AR-DOCUMENTS AS REQD X-DOCUMENTS DOCUMENTS				DWG CLASSIFICATION LEVEL						
QUANTITY REQUIRED				DESIGN AGENCY NO.		DESCRIPTION		NOTE	SHEET ZONE	ITEM
			NA	AY363374-002	GRAPHIC, U5058					
			NA	CK363374-003	SCHEMATIC, U5058					
			NA	173126	GENERAL SPECIFICATION FOR ACCEPTANCE EQUIPMENT					
			NA	9900011- 01	DIMENSIONS, TOLERANCES AND SYMBOLS		25			
			1	170926-00	PLATE, IDENTIFICATION		1			1
			1	157517-000	PLATE, INSTRUCTION		1			2
			1	198571-003	LABEL, IDENTIFICATION		1			3
			3	196.10-2	LABEL, PRESSURE-SENSITIVE ADHESIVE (874454 REF)		1			4
					AMERICAN DECALCOMANIA CO.					6
										7
										8
			1	D30958-10-P-17-A	DRAWER, ELEC, EQUIP CABINET, (180646-00 REF)		1,4			9
					ZERO MFG. CO.					10
			1	HP-10	HANDLE SET, DOOR (875566 REF)					12
					ZERO MFG. CO.					
			1	C-114-18	SLIDE, CHASSIS, CHASSIS SECTION, STATIONARY (159351-00 REF)		2			14
										15
										16
			1	MS35489-6	GROMMET, RUBBER (853122 REF)		5			17
										18
			2	MS35489-11	GROMMET, RUBBER (853123 REF)		5			19
										20
			12	1700	INSULATOR, STANDOFF, AMERICAN LAVA CORP. (808278 REF)					21
										22
			4	2129	NUT, SLEEVE H.H. SMITH (870089 REF)					23
			24	MS35225-28	SCREW, MACH, PAN HD, 6-32 X 3/8					24
										25

NA-DOCUMENTS AR-AS REQD AR-AS REQD PER ASSEMBLY EM-EXPENSE MATL PM-PROCESS MATL				DWG CLASSIFICATION LEVEL UNCLASSIFIED		NFG AGENCY NUMBER	
ISSUE A B C D				SIZE A		DWG NUMBER 363374	
				SHEET 6			

QUANTITY REQUIRED				DESIGN AGENCY NO.	DESCRIPTION	NOTE	SHEET ZONE	ITEM
		2	MS35690-402		NUT, PLAIN, HEX., 1/4-20	5		26
		2	MS35339-25		WASHER, LOCK, 1/4	5		27
		1	AN960-516L		WASHER, FLAT, 5/16	5		28
		1	AN960-616L		WASHER, FLAT, 3/8	5		29
		12	2163		WASHER, NONMETALLIC, NO.8, H.H. SMITH, INC. (839961 REF)			30
		2	1404-63		TERMINAL BOARD, CAMBRIDGE THERMIONIC (838450 REF)			31
								32
		1	1402-62		TERMINAL BOARD, CAMBRIDGE THERMIONIC CORP (838439 REF)			33
		4	1300D		TERMINAL, STUD, U. S. ENGINEERING CO. (802687 REF)			34
								35
								36
		ARS			HARDWARE, MOUNTING PER 173126	5		37
		ARS	MS21919DG TYPE		CLAMP, LOOP	5		38
								39
								40
								41
		ARS	6010-0026		PAINT, ENAMEL, BAKING, SEMIGLOSS (199335-000 REF)	4		42
		ARS	MIL-P-8585		PRIMER, ZINC CHROMATE	5		44
		ARS			FILLER, ENGRAVERS ENAMEL, HIGH GLOSS BK (873600 REF)	4		45
					NEW HERMES ENGRAVING MACHINE CO.			
		ARS			SOLVENT, ENGRAVERS ENAMEL CLEANER (873602 REF)			47
					NEW HERMES ENGRAVING MACHINE CO.			
								49
		ARS	21-412		CABLE, R.F., (TYPE C DET CABLE) AMPHENOL-BORG ELEC	4		50
		ARS	1641		WIRE, INSULATED, SIZE 20 (.038) WHT, ALPHA WIRE CORP			51
		ARS	MIL-W-16878		WIRE, INSULATED, SIZE 20 (.038) WHT TYPE C	5		52
		ARS	MIL-W-16878		WIRE, INSULATED, SIZE 20 (.038) RED TYPE C	5		53
		ARS	MIL-W-16878		WIRE, INSULATED, SIZE 16 (.057) WHT TYPE C	5		54
		ARS	QQ-W-343		WIRE, COPPER, 18 AWG (.040) TYPE S	5		55
								56
								57
								58
		ARS			TERMINAL, LUG, DIAMOND GRIP, PREINSULATED, AMP, INC.			59
								60
								61
								62

NA=DOCUMENTS AR=AS REQD ARS=AS REQD PER ASSEMBLY EM=EXPENSE MATL PM=PROCESS MATL				DWG CLASSIFICATION LEVEL UNCLASSIFIED		MFG AGENCY NUMBER SIZE A DWG NUMBER 363374	
ISSUE A D				SHEET 7			

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AS REQUIRED EXPENSE DOCUMENTS				DWG CLASSIFICATION LEVEL						
QUANTITY REQUIRED				DESIGN AGENCY NO.		DESCRIPTION		NOTE	SHEET ZONE	ITEM
			1			COMPONENT ASSEMBLY				A1
			1			COMPONENT ASSEMBLY				A2
			1			COMPONENT ASSEMBLY				A3
			16	IN4245		DIODE, SEMICONDUCTOR DEVICE, SEMTECH (875387 REF)		4		CR1 THRU CR16
			1	IN3020 B		DIODE, (ZENER) (871557 REF)		3		CR17
			1	7201		TERMINAL STUD, LYN-TRON, INC (874277 REF)				E1
			24	770		TERMINAL STUD, WINCHESTER ELECTRONIC, INC (838055 REF)				E2 THRU E25
			1	PT00A-16-26S		CONN, RECP, ELEC, BENDIX CORP. SCINTILLA DIVISION (356985-00 REF)		4		J1
			4	GRM1-7446		CONN, RECP, COAXIAL, GREMAR MANUFACTURING CO. (351880-00 REF)		4		J2 THRU J5
			1	PT00A-12-4S		CONN, RECP, ELEC, BENDIX CORP; SCINTILLA DIVISION (357341-00 REF)		4		J6
			1	PT00A-20-16P		CONN, RECP, ELEC, BENDIX CORP; SCINTILLA DIVISION (357363-00 REF)		4		J7
			1	PT00A-16-99S		CONN, RECP, ELEC, BENDIX CORP; (874516 REF)		4		J8

NA—DOCUMENTS AR—AS REQD ARS—AS REQD PER ASSEMBLY EM—EXPENSE MATL PM—PROCESS MATL						DWG CLASSIFICATION LEVEL UNCLASSIFIED		MFG AGENCY NUMBER	
ISSUE A D						SIZE A		DWG NUMBER 363374	
						SHEET 9			

SECRET QUANTITY REQUIRED				DESIGN AGENCY NO.	DESCRIPTION	NOTE	SHEET ZONE	ITEM
		2	91-855	CONN, RECP, ELEC, AMPHENOL ELECTRONICS, INC	(834623 REF)			J9 J13
		3	DF30BC	POST , BINDING, BLK, SUPERIOR ELECTRIC CO.	(832897 REF)			J10 J11 J12 J14
		1	5278	CONN,RECP,ELEC. H.HUBBELL INC.	(833391 REF)			J15
		1	105-602	JACK, TIP, RED, E.F. JOHNSON CO.	(836854 REF)			J16
		1	105-603	JACK, TIP, BLK, E.F. JOHNSON CO.	(837040 REF)			
		2	RB1D	RELAY, ARMATURE 26.5 VDC JENNINGS RADIO MFG	(837191 REF)	4		K1 K2
		1	RB2A	RELAY, ARMATURE 26.5 VDC JENNINGS RADIO MFG	(871278 REF)	4		K3
		12	BR19X-300-E8-26V	RELAY, ARMATURE BABCOCK RELAY, INC	(871275 REF)	4		K4 K5 K6 K8 THRU K16
		1	G55335-1	RELAY, ARMATURE GUARDIAN ELECTRIC CO	(839320 REF)	4		K7
		1	HP 6186A	POWER SUPPLY, HEWLETT-PACKARD, HARRISON DIVISION				PS1
		1	CEA6A500Z500R	POWER SUPPLY, 500VDC, CEA, BERKLEONICS INC.				PS2

NA=DOCUMENTS AR=AS REQD
ARS=AS REQD PER ASSEMBLY
EM=EXPENSE MATL PM=PROCES MATL

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

ISSUE **A**

SIZE **A**

SHEET **10**

AN DENOTES AS REQD X DENOTES DOCUMENTS				DWG CLASSIFICATION LEVEL			
QUANTITY REQUIRED				DESIGN AGENCY NO	DESCRIPTION	NOTE	SHEET ZONE
			1	ASI	RESISTOR, FIXED, COMP, 1K, $\pm 0.1\%$, 1W INTERNATIONAL RESISTANCE CO		R1
			1	RB52CE2R00OF	RESISTOR, FIXED, WW, 2, $\pm 1\%$, 1W (857831 REF)		R2
			1	RB52CE10R00F	RESISTOR, FIXED, WW, 10, $\pm 1\%$, 1W (857836 REF)		R3
			1	RB52CE50R00F	RESISTOR, FIXED, WW, 50, $\pm 1\%$, 1W (857839 REF)		R4
			1	RB52CE100R0F	RESISTOR, FIXED, WW, 100 OHMS, $\pm 1\%$, 1W (857840 REF)		R6
			2	RB52CE50R00F	RESISTOR, FIXED, WW, 50 OHMS, $\pm 1\%$, 1W (857839 REF)		R7
			1	RB52CE25R00F	RESISTOR, FIXED, WW, 25 OHMS, $\pm 1\%$, 1W (857838 REF)		R8
			1	ASI	RESISTOR FIXED, 10.111K $\pm 0.1\%$ INTERNATIONAL RESISTANCE CO.		R9
			9	MEH	RESISTOR FIXED, 10 MEGO, $\pm 0.5\%$, 2W INTERNATIONAL RESISTANCE CO.		R10
			1	TYPE J	RESISTOR, VAR., 50K, $\pm 10\%$, ALLEN-BRADLEY (874627 REF)		R11
			1	224S-1-100M	RESISTOR, VARIABLE, 10 $\pm 5\%$, 1W (875353 REF)		R12
			2	224S-1-101M	BOURNS LAB., INC. RESISTOR, VARIABLE, 100, $\pm 5\%$, 1W, (875354 REF)		R13
			1	TYPE 224S	RESISTOR, VARIABLE, 50 OHM, $\pm 5\%$, 1W BOURNS LAB., INC.		R14
			1	TYPE 224S	RESISTOR, VARIABLE, 50 OHM, $\pm 5\%$, 1W BOURNS LAB., INC.		R15
			1	TYPE 224S	RESISTOR, VARIABLE, 20 OHM, $\pm 5\%$, 1W BOURNS LAB., INC.		R16
			1	224S-1-100M	RESISTOR, VARIABLE, 10 OHM, $\pm 5\%$, 1W (875353 REF)		R17
			1	224S-1-101M	BOURNS LAB., INC. RESISTOR, VARIABLE, 100 OHM, $\pm 5\%$, 1W (875354 REF)		R18
			1	RB52CE150R0F	RESISTOR, FIXED, WW, 150 OHMS, $\pm 1\%$, 1W (857841 REF)		R19
			1	RB52CE250R0F	RESISTOR, FIXED, WW, 250 OHMS, $\pm 1\%$, 1W (857842 REF)		R20
			1	RC42GF243J	RESISTOR, FIXED, COMP, 24K, $\pm 5\%$, 2W (850991 REF)		R21- R28

NA=DOCUMENTS AR=AS REQD AR=AS REQD PER ASSEMBLY EM=EXPENSE MATL PM=PROCESS MATL				DWG CLASSIFICATION LEVEL UNCLASSIFIED		MFG AGENCY NUMBER	
ISSUE				SIZE		DWG NUMBER	
C D				A		363374	
				SHEET		11	

A-6

W.O. 86687

F

(PT1471)

CODE IDENT NO. 14213

SC5800-AD(10-69)

DWG CLASSIFICATION LEVEL

NOTES: PROCUREMENT INFORMATION

1. PROCURE THIS ITEM ONLY FROM A SUPPLIER LISTED ON THE "QUALIFIED PRODUCTS LIST OF PRODUCTS QUALIFIED UNDER MILITARY SPECIFICATIONS".
2. PROCURE ITEMS LISTED BY COMMERCIAL PART NUMBER IN THE 'DESIGN AGENCY NO.' COLUMN, AS MANUFACTURED BY THE SOURCE LISTED OR AS DEFINED ON THE REFERENCED SANDIA DRAWING, WHEN LISTED, OR A COMMERCIAL EQUIVALENT WHEN A SANDIA DRAWING IS NOT LISTED.
- 3.
4. PREPARE VINYL ADHESIVE BY DISSOLVING PIECES OF VINYL IN TETRAHYDROFURAN AND/OR CYCLOHEXANONE AS REQUIRED.

ASSEMBLY INFORMATION

7. FOR SPECIFIC PROCESSING, MANUFACTURING AND ASSEMBLY REQUIREMENTS NOT OTHERWISE COVERED ON THE DRAWING, SEE 173126.
8. COMPONENTS NOT IDENTIFIED BY ITEM NUMBERS ON THE ASSEMBLY ARE LOCATED IN THE LIST OF MATERIAL BY REFERENCE DESIGNATIONS.
9. HOT STAMP DESIGNATIONS.

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE A
DWG NUMBER 363376
SHEET 2

ISSUE

A

DWG CLASSIFICATION LEVEL

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE A DWG NUMBER 363376

SHEET 3

ISSUE

A

PRINTED IN USA—RIDGWAY'S NO. 4137

60.333

SC5300-AE(10-63)

12 64

DWG CLASSIFICATION LEVEL

NOTE : ALL WIRE, SIZE 18 (.048).

WIRING DIAGRAM

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE DWG NUMBER

A 363376

SHEET 4

ISSUE

A

(AC-1)

A-6

W.O.86687

DESIGN AGENCY PART NO. NO.		DWG CLASSIFICATION LEVEL		REVISIONS							
ISSUE	DESCRIPTION	PREPARED BY	DATE	CHKR	ENGR						
363377-000	A	A. ORAVECZ	3-7-67	2211-3	3/23/67	J.F. 3/21/67	DM				
	B	CHG: CABLE LENGTH WAS 108.000 ± 6.000 D. WARD	5-2-67	2211-3	5/4/67		DM				
	C	CHG: SH 3, WIRING DIAGRAM-REVERSED PINS 1 & 3 ON P1 & P2. A. ORAVECZ, 3/18/68, 2211-3			3/25/68		JS				

(PT1471)

SHEET INDEX	SHEET																																			
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DWG CLASSIFICATION LEVEL

NOTES: PROCUREMENT INFORMATION

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ASSEMBLY INFORMATION

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8. COMPONENTS NOT IDENTIFIED BY ITEM NUMBERS ON THE ASSEMBLY ARE LOCATED IN THE LIST OF MATERIAL BY REFERENCE DESIGNATIONS.
9. HOT STAMP DESIGNATIONS.

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE DWG NUMBER

A 363377

SHEET 2

ISSUE

A

DWG CLASSIFICATION LEVEL

DESIGN AGENCY PART NO.

MANUFACTURING
DESIGNATIONS

P1

P1 C6582

P2 C6582

P2

84.000 ± 4.000

WIRING DIAGRAM

DWG CLASSIFICATION LEVEL

MFG AGENCY NUMBER

UNCLASSIFIED

SIZE A DWG NUMBER 363377

SHEET 3

ISSUE

A B C

PRINTED IN USA—OZALID 888-888

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		DWG CLASSIFICATION LEVEL					
DESIGN AGENCY PART NO. NO.		REVISIONS					
		ISSUE	DESCRIPTION	PREPARED BY	DATE	CHKR	ENGR
363378-000		A	A. ORAVECZ	3-7-67	2211-3	3/13/67	3/21/67 <i>cm</i>
		B	CHG: CABLE LENGTH WAS 90.000 ± 4.000 D.WARD	5-2-67	2211-3	5/4/67	<i>cm</i>
		C	CHG: SH 3, WIRING DIAGRAM - REVERSED PINS 1 & 3 ON PI. A. ORAVECZ,	3/18/68	2211-3	3-25-68	<i>cm</i>

(PT1471)

SHEET INDEX	SHEET																																				
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												SHEET 1 OF 4																									

DWG CLASSIFICATION LEVEL

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ASSEMBLY INFORMATION

7. FOR SPECIFIC PROCESSING, MANUFACTURING AND ASSEMBLY REQUIREMENTS NOT OTHERWISE COVERED ON THE DRAWING, SEE 173126.
8. COMPONENTS NOT IDENTIFIED BY ITEM NUMBERS ON THE ASSEMBLY ARE LOCATED IN THE LIST OF MATERIAL BY REFERENCE DESIGNATIONS.
9. HOT STAMP DESIGNATIONS.

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE DWG NUMBER

A 363378

SHEET 2

ISSUE

A

DWG CLASSIFICATION LEVEL

DESIGN AGENCY PART NO.

MANUFACTURING DESIGNATIONS

P1

P2

72.000 ± 3.000

P1

P2

WIRING DIAGRAM

DWG CLASSIFICATION LEVEL

MFG AGENCY NUMBER

UNCLASSIFIED

SIZE A DWG NUMBER 363378

SHEET 3

ISSUE

A B C

◆

A-6

W.O. 86687

7

SHEET
ISSUE
SHEET
ISSUE

CLASSIFICATION CATEGORY

DESIGN AGENCY APPROVAL.

TITLE	
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ORG	DATE	INITIALS
-----	------	----------

C6584

MFG AGENCY APPROVAL

MFG AGENCY NUMBER

PART CLASSIFICATION

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

UNCLASSIFIED

SIZE	DWG NUMBER
------	------------

A 363379

SHEET 1 OF 1

CODE IDENT NO. 14213

SC5300-AD(10-63)

DWG CLASSIFICATION LEVEL

NOTES: PROCUREMENT INFORMATION

1. PROCURE THIS ITEM ONLY FROM A SUPPLIER LISTED ON THE "QUALIFIED PRODUCTS LIST OF PRODUCTS QUALIFIED UNDER MILITARY SPECIFICATIONS".
2. PROCURE ITEMS LISTED BY COMMERCIAL PART NUMBER IN THE 'DESIGN AGENCY NO.' COLUMN, AS MANUFACTURED BY THE SOURCE LISTED OR AS DEFINED ON THE REFERENCED SANDIA DRAWING, WHEN LISTED, OR A COMMERCIAL EQUIVALENT WHEN A SANDIA DRAWING IS NOT LISTED.
3. DRAWING OR PART NUMBERS LISTED PARENTHETICALLY AS REFERENCE IN THE DESCRIPTION COLUMN ARE FOR INTERNAL STOCK AND PROCUREMENT PURPOSES AT SANDIA.

ASSEMBLY INFORMATION

6. FOR SPECIFIC PROCESSING, MANUFACTURING AND ASSEMBLY REQUIREMENTS NOT OTHERWISE COVERED ON THE DRAWING, SEE 173126.
7. COMPONENTS NOT IDENTIFIED BY ITEM NUMBERS ON THE ASSEMBLY ARE LOCATED IN THE LIST OF MATERIAL BY REFERENCE DESIGNATIONS.
8. HOT STAMP DESIGNATIONS.
9. CONNECT ALL PINS IN P1 AND P2 CONTACT TO CONTACT, I.E., P1-A TO P2-A, P1-B TO P2-B, ETC., USING WIRE, ITEM 1.
10. ENCAPSULATE USING ITEMS 7, 8 AND 9.

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE DWG NUMBER

A 363379

SHEET 2

ISSUE

A

DWG CLASSIFICATION LEVEL

DESIGN AGENCY PART NO.

MANUFACTURING
DESIGNATIONS

8

2

PI

PI C6584

P2 C6584

P2

10
9

10
9

54.000 ± 4.000

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE DWG NUMBER

A 363379

SHEET 3

ISSUE

A

PRINTED IN USA—OZALID 880-824

60.333

SCS300-AE(10-83)

[illegible]

◆

W.O. 86687

15

DWG CLASSIFICATION LEVEL

NOTES: PROCUREMENT INFORMATION

1. PROCURE THIS ITEM ONLY FROM A SUPPLIER LISTED ON THE "QUALIFIED PRODUCTS LIST OF PRODUCTS QUALIFIED UNDER MILITARY SPECIFICATIONS".
2. PROCURE ITEMS LISTED BY COMMERCIAL PART NUMBER IN THE 'DESIGN AGENCY NO.' COLUMN, AS MANUFACTURED BY THE SOURCE LISTED OR AS DEFINED ON THE REFERENCED SANDIA DRAWING, WHEN LISTED, OR A COMMERCIAL EQUIVALENT WHEN A SANDIA DRAWING IS NOT LISTED.
3. DRAWING OR PART NUMBERS LISTED PARENTHETICALLY AS REFERENCE IN THE DESCRIPTION COLUMN ARE FOR INTERNAL STOCK AND PROCUREMENT PURPOSES AT SANDIA.
4. PREPARE VINYL ADHESIVE BY DISSOLVING PIECES OF VINYL IN TETRAHYDROFURAN AND/OR CYCLOHEXANONE AS REQUIRED.
5. PROCURE ONLY FROM LISTED SOURCE.

ASSEMBLY INFORMATION

7. FOR SPECIFIC PROCESSING, MANUFACTURING AND ASSEMBLY REQUIREMENTS NOT OTHERWISE COVERED ON THE DRAWING, SEE 173126.
8. COMPONENTS NOT IDENTIFIED BY ITEM NUMBERS ON THE ASSEMBLY ARE LOCATED IN THE LIST OF MATERIAL BY REFERENCE DESIGNATIONS.
9. HOT STAMP DESIGNATIONS.
10. ENCAPSULATE USING ITEMS 7,8 AND 9.

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE A
DWG NUMBER 363380
SHEET 2

ISSUE

A

DWG CLASSIFICATION LEVEL

DESIGN AGENCY PART NO.

MANUFACTURING DESIGNATIONS

DWG CLASSIFICATION LEVEL

MFG AGENCY NUMBER

UNCLASSIFIED

SIZE

DWG NUMBER

SHEET

A 363380

3

ISSUE

A

PRINTED IN USA—RIDGWAY'S NO. 4137

60.333

SC5300-AE(10-63)

12 64

DWG CLASSIFICATION LEVEL

PI
INSERT-12-4P

A B C D

E1 E2 E3 E4

NOTE : ALL WIRE , SIZE 16 (.057).

WIRING DIAGRAM

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE A DWG NUMBER 363380

SHEET 4

ISSUE

A

[illegible]

1

SC5300-AD(10-63)

DWG CLASSIFICATION LEVEL

NOTES: PROCUREMENT INFORMATION

1. ITEMS NORMALLY REQUIRING A MINIMUM SETUP CHARGE AND/OR LONG TERM PROCUREMENT.
2. PROCURE THIS ITEM MANUFACTURED BY THE LISTED SOURCE ONLY.
3. PROCURE THIS ITEM ONLY FROM A SUPPLIER LISTED ON THE "QUALIFIED PRODUCTS LIST OF PRODUCTS QUALIFIED UNDER MILITARY SPECIFICATIONS".
4. PROCURE ITEMS LISTED BY COMMERCIAL PART NUMBER IN THE 'DESIGN AGENCY NO.' COLUMN, AS MANUFACTURED BY THE SOURCE LISTED OR AS DEFINED ON THE REFERENCED SANDIA DRAWING, WHEN LISTED, OR A COMMERCIAL EQUIVALENT WHEN A SANDIA DRAWING IS NOT LISTED.
5. DRAWING OR PART NUMBERS LISTED PARENTHETICALLY AS REFERENCE IN THE DESCRIPTION COLUMN ARE FOR INTERNAL STOCK AND PROCUREMENT PURPOSES AT SANDIA.

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE A DWG NUMBER 363384

SHEET 2

ISSUE

A

DWG CLASSIFICATION LEVEL

NOTES: ASSEMBLY INFORMATION

11. FOR SPECIFIC PROCESSING, MANUFACTURING AND ASSEMBLY REQUIREMENTS NOT OTHERWISE COVERED ON THE DRAWING, SEE 173126.
12. COMPONENTS NOT IDENTIFIED BY ITEM NUMBERS ON THE ASSEMBLY ARE LOCATED IN THE LIST OF MATERIAL BY REFERENCE DESIGNATIONS.
13. USE THIS DIMENSION FOR PRINT INSPECTION MEASUREMENT ONLY. DO NOT USE PRINTS MORE THAN .100 INCH OUT-OF-SCALE FOR DRILLING TEMPLATES.
14. ORIENT COMPONENTS IN POSITIONS SHOWN.
15. NOMENCLATURE FOR THE UNIT IS U5060.
16. REFERENCE DESIGNATIONS APPEARING WITHIN A DOTTED RECTANGLE ARE TO BE MARKED ON OPPOSITE SIDE.
17. DO NOT MARK DESIGNATIONS APPEARING IN BRACKETS AND DIMENSIONS APPEARING WITHIN OUTLINE OF VIEWS ON THE UNIT.
18. ENGRAVE LINES AND/OR CHARACTERS, BLACK FILLER, ITEM 26 . LOCATE APPROXIMATELY AS SHOWN.
19. MARK (WITH COVER COAT) REFERENCE DESIGNATION, .120-INCH BLACK CHARACTERS. LOCATE APPROXIMATELY AS SHOWN.
20. APPLY FINISH TO CHASSIS AND PANEL PARTS.

DWG CLASSIFICATION LEVEL

MFG AGENCY NUMBER

UNCLASSIFIED

SIZE DWG NUMBER

A 363384

SHEET 3

ISSUE

A

QUANTITY REQUIRED				DESIGN AGENCY NO	DESCRIPTION	NOTE	SHEET ZONE	ITEM
			NA	AY363384-001	GRAPHIC, U5060			
			NA	173126	GENERAL SPECIFICATION FOR ACCEPTANCE EQUIPMENT	11		
			1	170926-00	PLATE, IDENTIFICATION	1		1
			1	198571-003	LABEL, IDENTIFICATION	1		2
								3
								4
			1	MAP819	PANEL, BLANK, PREMIER METAL PROD. CO (837756 REF)	2		5
			1	7743	BOOT, DUST AND MOISTURE, H. HUBBELL, INC (874533 REF)			6
			1	G51HC	GROMMET, PLASTIC, NYLON MOLDING CORP (873861 REF)			7
								8
								9
								10
								11
								12
			2	MS35690-402	NUT, PLAIN, HEX., 1/4-20	3		13
			2	MS35339-25	WASHER, LOCK, 1/4	3		14
			1	AN960-516L	WASHER, FLAT, 5/16	3		15
								16
								17
			APC		HARDWARE, MOUNTING PER 173126	3		18
								19
								20
								21
								22
								23
								24
								25

NA=DOCUMENTS AR=AS REQD ARS=AS REQD PER ASSEMBLY EM=EXPENSE MATL PM=PROCESS MATL				DWG CLASSIFICATION LEVEL UNCLASSIFIED		MFG AGENCY NUMBER SIZE A DWG NUMBER 363384	
ISSUE A B				SHEET 4			

QUANTITY REQUIRED				DESIGN AGENCY NO.	DESCRIPTION	NOTE	SHEET ZONE	ITEM
			ARS		FILLER, ENGRAVERS ENAMEL, HIGH GLOSS, BLK(873600 REF)	2		26
			ARS		NEW HERMES ENGRAVING MACHINE CO			
			ARS		SOLVENT, ENGRAVERS ENAMEL CLEANER, (873602 REF)	2		28
			ARS	MIL-P-8585	PRIMER, ZINC CHROMATE	3		30
			ARS	6010-0026	PAINT, ENAMEL, BAKING, SEMIGLOSS (199335-000 REF)	2		31
			ARS	1956/3	LIGHT GRAY, HEWLETT-PACKARD CO.			
					CABLE, POWER, ELEC, ALPHA WIRE CORP			33
								34
								35
			ARS		TERMINAL, LUG, DIAMOND DRIP, PREINSULATED, AMP, INC	2		36
								37
			1	7201	TERMINAL, STUD, LYN-TRON, INC (874277 REF)	2		E1
			1	5278	CONN, RECP, ELEC, H. HUBBELL, INC (833391 REF)			J1
			1	5269	CONN, PLUG, ELEC, H. HUBBELL, INC (837179 REF)			P1

NA—DOCUMENTS

AR—AS REQD

ARG—AS REQD PER ASSEMBLY

EM—EXPENSE MATL

PM—PROCESS MATL

ISSUE

A

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE

A

DWG NUMBER

363384

SHEET

5

DWG CLASSIFICATION LEVEL

NOTES: PROCUREMENT INFORMATION

1. PROCURE THIS ITEM ONLY FROM A SUPPLIER LISTED ON THE "QUALIFIED PRODUCTS LIST OF PRODUCTS QUALIFIED UNDER MILITARY SPECIFICATIONS".
2. PROCURE ITEMS LISTED BY COMMERCIAL PART NUMBER IN THE 'DESIGN AGENCY NO.' COLUMN, AS MANUFACTURED BY THE SOURCE LISTED OR AS DEFINED ON THE REFERENCED SANDIA DRAWING, WHEN LISTED, OR A COMMERCIAL EQUIVALENT WHEN A SANDIA DRAWING IS NOT LISTED.
3. DRAWING OR PART NUMBERS LISTED PARENTHETICALLY AS REFERENCE IN THE DESCRIPTION COLUMN ARE FOR INTERNAL STOCK AND PROCUREMENT PURPOSES AT SANDIA.
4. PROCURE THIS ITEM MANUFACTURED BY THE LISTED SOURCE ONLY.
5. PROCURE THIS ITEM MANUFACTURED BY ANY OF THE FOLLOWING: ALPHA WIRE CORP, TYPE FIT-221; RAYCLAD TUBES, INC, TYPE RNF-100.

ASSEMBLY INFORMATION

8. FOR SPECIFIC PROCESSING, MANUFACTURING AND ASSEMBLY REQUIREMENTS NOT OTHERWISE COVERED ON THE DRAWING.
9. COMPONENTS NOT IDENTIFIED BY ITEM NUMBERS ON THE ASSEMBLY ARE LOCATED IN THE LIST OF MATERIAL BY REFERENCE DESIGNATION.
10. HOT STAMP DESIGNATIONS.
11. ENCAPSULATE USING ITEMS 11, 12 AND 13.

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE	DWG NUMBER
A	366374
SHEET	2

ISSUE

A

DWG CLASSIFICATION LEVEL

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE A DWG NUMBER 366374

SHEET 3

SC5300-AE(10-63)

DWG CLASSIFICATION LEVEL

NOTE: ALL WIRE TO BE ITEM 1.

WIRING DIAGRAM

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE A DWG NUMBER 366374

SHEET 4

ISSUE

A

QUANTITY REQUIRED				DESIGN AGENCY NO.	DESCRIPTION	NOTE	SHEET ZONE	ITEM
			NA	173126	GENERAL SPECIFICATION FOR ACCEPTANCE EQUIPMENT	8		
			ARS	21-412	CABLE, R.F. (TYPE C DET CABLE) AMPHENOL-BORG ELEC CORP	4		1
			ARS		INSULATION, SLEEVING, HEAT SHRINKABLE	5		2
								3
								4
								5
								6
								7
			ARS	QQ-S-571	SOLDER, Sn60, FORM W, TYPE R OR RMA, CORE P2	1		8
			ARS	4169	ENCAPSULATION COMPOUND, GREEN, HYSOL CORP.			9
			ARS	3471	CURING AGENT, HYSOL CORP			10
			ARS	1	RESIN DEFOAMER, PAR INDUSTRIES			11
								12
								13
								14
								15
								16
			2	PT06P-14-91P	CONN, PLUG, ELEC, BENDIX CORP (875829 REF)	4		P1
			1	PT06P-18-91P	CONN, PLUG, ELEC, BENDIX CORP (875830 REF)	4		P2
					ELECTRONIC COMPONENTS DIVISION			P3

NA=DOCUMENTS AR=AS REQD

ARS=AS REQD PER ASSEMBLY

EM=EXPENSE MATL PM=PROCESS MATL

ISSUE

A

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SIZE A DWG NUMBER 366374

SHEET 5

RECEIVED BY THE JMA 22 1960

(771031)

STANDARD MODEL INFORMATION			UNIT
SN	TYPE	REMARKS	

MODIFIED MODEL
100 MM INDICATOR
AND RELAY DRIVER

DECLASSIFIED UNCLASSIFIED

CODE IDENT NO 14012

DRG CLASSIFICATION LEVEL

NOTES: PROCUREMENT INFORMATION

1. PROCURE ITEMS LISTED BY COMMERCIAL PART NUMBER IN THE "DESIGN AGENCY NO." COLUMN, AS MANUFACTURED BY THE SOURCE LISTED OR AS DEFINED ON THE REFERENCED SANDIA DRAWING, WHEN LISTED, OR A COMMERCIAL EQUIVALENT WHEN A SANDIA DRAWING IS NOT LISTED.
2. PROCURE THIS ITEM MANUFACTURED BY THE LISTED SOURCE ONLY.

ASSEMBLY INFORMATION

5. FOR SPECIFIC PROCESSING, MANUFACTURING AND ASSEMBLY REQUIREMENTS NOT OTHERWISE COVERED ON THE DRAWING, SEE 173126.

6. ENGRAVE LINES AND/OR CHARACTERS, BLACK FILLER, ITEM 5, LOCATE APPROXIMATELY AS SHOWN, .120 ± .015-INCH CONDENSED CHARACTERS.

DRG CLASSIFICATION LEVEL

DESIGN AGENCY NUMBER

UNCLASSIFIED

DRG NUMBER

A 204865

DRG REV

UCS004-0010-001

204865

馬定祥藏印 藏印一、二、三、四

NAME: ARS-15 WEED-REM ASSEMBLY
 ARS-15 WEED-REM ASSEMBLY
 QTY: 1000000
 QTY: 1000000

ONE CLASSIFICATION LEVEL

QTY	DESIGNATION	DESCRIPTION	QTY	QTY	QTY
NA	173126	GENERAL SPECIFICATION FOR ACCEPTANCE EQUIPMENT			
1	W051	CIRCUIT CARD, DIGITAL EQUIPMENT CORP.			1
ARS		FILLED ENGRAVERS LABEL, HIGH GLOSS BLACK (973600 REF)	2		2
		NEW BEAR'S ENGRAVING MACHINE CO.			3
ARS		SOLVENT ENGRAVERS LABEL CLEANER, (973602 REF)	2		4
		NEW BEAR'S ENGRAVING MACHINE CO.			5
					6
					7
					8
					9
					10

ONE CLASSIFICATION LEVEL

ONE CLASSIFICATION LEVEL

UNCLASSIFIED

QTY: 1000000
 A 204865
 REF: 10

10000
 A
 PRINTED IN USA...

FORM 10-10-10

SEE SHEET 2

WHERE NEW DIRT SHILL
LOCATED SOUTH OF IIR 23 PER TAC 205640-107
R. 2. 01 00 2311- E. VOLCANO 2453

ADDED NOTE IN TO POLICE SHT A
CHAINED AT NOTE IS E. 1. 12 MARKING
TABLE WAS REFERENCE DESIGNATION
PER COAR 205640-107
MOUNTAIN 23 00 2. 0-3 E. VOLCANO 2453

SHEET
2052

1-12 1-2

03502
(AC POWER)

SEE SHEET 2

UNCLASSIFIED

205640

CODE IDENT NO 14213

DESIGN AGENCY PART NO.	NOMENCLATURE	PART CLASSIFICATION	DATE	FILE
205640-000	U3101-1	UNCLASSIFIED		
205640-001	U3101-2	UNCLASSIFIED		
205640-002	U3101-3	UNCLASSIFIED		
205640-003	U3101-4	UNCLASSIFIED		
205640-004	U3101-5	UNCLASSIFIED		
205640-005	U3101-6	UNCLASSIFIED		
205640-006	U3101-7	UNCLASSIFIED		
205640-007	U3101-8	UNCLASSIFIED		
205640-008	U3101-9	UNCLASSIFIED		
205640-009	U3101-10	UNCLASSIFIED		
205640-010	U3101-11	UNCLASSIFIED		
205640-011	U3101-12	UNCLASSIFIED		

DESIGN AVERAGE RATIO 3450 UNITS PER INCH
 15 TO 100 PERCENT
 DO NOT ADD TO TABULATION ANY PART NUMBER THAT EXCEEDS
 THIS RATIO.

DESIGNATION

DESIGNATION

UNCLASSIFIED

DESIGNATION

DESIGNATION

DESIGNATION

ISSUE 11 A 6

PRINTED IN USA - 10-11-60

50100-001-01

NOTES: (PROCUREMENT INFORMATION)

1. PART NUMBERS LISTED PARENTHESTICALLY AS REFERENCE IN THE DESCRIPTION COLUMN ARE FOR INTERNAL STOCK AND PROCUREMENT PURPOSES AT SANDIA.
2. FILLER, ITEM 30, AND SOLVENT, ITEM 31, MAY BE PROCURED FROM NEW HERMES ENGINEERING MACHINE CO.

NOTES: (ASSEMBLY INFORMATION)

12. FOR SPECIFIC PROCESSING, MANUFACTURING AND ASSEMBLY REQUIREMENTS NOT OTHERWISE COVERED ON THE DRAWING, SEE 173126.

13. NOMENCLATURE FOR THE UNIT IS UNICE.

14.

15. MARK (WITH COVER COAT) 11 & 12 APPEARANCE SPECIMENS FOR MARKING TABLE. 120-INCH BLACK CHARACTERS. LOCATE APPROXIMATELY AS SHOWN.

16. MARK (WITH COVER COAT) PART NUMBER AND IDENTIFIC CONTROL NUMBER TO WHICH EACH UNIT WAS WHEED. 120-INCH BLACK CHARACTERS. LOCATE APPROXIMATELY AS SHOWN.

17. EQUIP XFI AND XFX WITH FUSES (ITEMS 2 AND 13 PER TABULATION ON SHEET 2.

18. ALTERNATE FOR ITEMS 25 & 26 MAY BE BLACK BANDS OR BLACK SPECK.

19. MODIFY ITEM 12 AS SHOWN.

ONE CLASSIFICATION LEVEL

ONE AGENCY NUMBER

UNCLASSIFIED

ONE OR MORE
A 705640

ONE

1000

A C D I F

SYMBOL	DESCRIPTION
AR MCL-1	FUSE, SLOW BLOW 1 AMP, 250V/1000W RMS (0.175-001F1872)
AR MCL-2	FUSE, SLOW BLOW 2 AMP, 250V/1000W RMS (0.175-001F1872)
AR MCL-3	FUSE, SLOW BLOW 3 AMP, 250V/1000W RMS (0.175-001F1872)
AR MCL-4	FUSE, SLOW BLOW 4 AMP, 250V/1000W RMS (0.175-001F1872)
AR MCL-5	FUSE, SLOW BLOW 5 AMP, 250V/1000W RMS (0.175-001F1872)
AR MCL-6	FUSE, SLOW BLOW 6 AMP, 250V/1000W RMS (0.175-001F1872)
AR MCL-7	FUSE, SLOW BLOW 7 AMP, 250V/1000W RMS (0.175-001F1872)
AR MCL-8	FUSE, SLOW BLOW 8 AMP, 250V/1000W RMS (0.175-001F1872)
AR MCL-9	FUSE, SLOW BLOW 9 AMP, 250V/1000W RMS (0.175-001F1872)
AR MCL-10	FUSE, SLOW BLOW 10 AMP, 250V/1000W RMS (0.175-001F1872)

1	18850-001	PLATE, IDENTIFICATION
1	18851-001	LABEL, IDENTIFICATION
1	205871-002	AC POWER CORD

2	44B	SCREW, BLACK NYLON, 1/4-20, 1/2" LONG
2	44B	WASHER, BLACK NYLON, 1/4" DIA.

AR	FILLER, ENGRAVERS ENAMEL, HIGH GLOSS BLACK (100-001F1872)
AR	SOLVENT, ENGRAVERS ENAMEL CLEANER (100-001F1872)

UNCLASSIFIED

DATE 2016-04-04
BY 4

GROUP 1 A B C D E F

PRINTED IN USA - STANDARD 100-110

100-110-100

WVA

THE UNITED STATES OF AMERICA
DO hereby certify that
[Name] is a citizen of the United States of America
and is entitled to the rights and privileges of citizenship.

WITNESSED my hand and the seal of the Department of State
this [Date] day of [Month], 19[Year].
[Signature]
[Title]

UNCLASSIFIED

DATE: 10/10/2000
BY: [Signature]

123
123
APR

1 2304

2 1000

3 10255

4 10434

5 20432

6 20515

7 20515

8 20515

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LIBRARY, 1000 WEST 1000, 1000

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SCHEMATIC

CV — A
 CV — B
 CV — C
 Vc

UNCLASSIFIED

REF ID: A67396

11001

A B C

01100 48715 51

SIZE	DRAWING NUMBER	PART NUMBER OR CONTROL NUMBER (SUFFIX CHANGES)										DESCRIPTION										LINE NO.
		COL 1	COL 2	COL 3	COL 4	COL 5	COL 6	COL 7	COL 8	COL 9	COL 10	1	2	3	4	5	6	7	8	9	10	
																						1
																						2
A	363271	000																				3
	MODIFIED NO.																					4
A	AF363271	000																				5
A	CP363271	000																				6
D	MD363271	000	001	001	001	001																7
																						8
																						9
																						10
																						11
																						12
																						13
A	363298	000																				14
D	AY363298	000																				15
E	CK363298	000																				16
																						17
A	363279	000																				18
E	CK363279	000																				19
A	269398	000																				20
D	AY269398	000																				21
E	CK269398	000																				22
A	204368	000																				23
																						24
A	363277	000																				25
E	CK363277	000	001																			26
																						27
A	363101	000																				28
E	AY363101	001	001	001	001	001																29
E	CK363101	001	001	001	001	001																30
																						31
																						32
A	363378	000																				33
D	AY363378	000																				34
E	CK363378	000	001																			35
																						36
ED SUFFIX		000	001	001	001	001	001															
SUFFIXES SHOWN IN COLUMN 1 EXTEND THROUGH SUCCEEDING COLUMNS UNLESS A CHANGE OR DELETION (X) IS INDICATED												ONE CLASSIFICATION										ONE DRAFT NUMBER
												UNCLASSIFIED										ONE DRAFT NUMBER
																						ONE DRAFT NUMBER
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S 2 E	DRAWING NUMBER	PART NUMBER OR CONTROL NUMBER SHOWN BY STANDARD										DESCRIPTION						LINE NO
		COL 1	COL 2	COL 3	COL 4	COL 5	COL 6	COL 7	COL 8	COL 9	COL 10	1	2	3	4	5	6	
A	363373	000										WIRE (POWER SUPPLY)						37
F	AY363373	000										WIRE (POWER SUPPLY)						38
A	363384	000										WIRE (POWER SUPPLY)						39
D	AY363384	000										WIRE (POWER SUPPLY)						40
A	205410	000										WIRE (POWER SUPPLY)						41
D	AY205410	000										WIRE (POWER SUPPLY)						42
C	269435	000										WIRE (POWER SUPPLY)						43
C	269433	000										WIRE (POWER SUPPLY)						44
B	269447	000										WIRE (POWER SUPPLY)						45
A	269497	000										WIRE (POWER SUPPLY)						46
D	204875	000										WIRE (POWER SUPPLY)						47
A	363326	000										WIRE (POWER SUPPLY)						48
A	363327	000										WIRE (POWER SUPPLY)						49
A	363328	000										WIRE (POWER SUPPLY)						50
A	363329	000										WIRE (POWER SUPPLY)						51
A	363330	000										WIRE (POWER SUPPLY)						52
A	363331	000										WIRE (POWER SUPPLY)						53
A	363332	000										WIRE (POWER SUPPLY)						54
A	363333	000										WIRE (POWER SUPPLY)						55
A	363334	000										WIRE (POWER SUPPLY)						56
A	363335	000										WIRE (POWER SUPPLY)						57
A	363336	000										WIRE (POWER SUPPLY)						58
A	363337	000										WIRE (POWER SUPPLY)						59
												WIRE (POWER SUPPLY)						60
												WIRE (POWER SUPPLY)						61
												WIRE (POWER SUPPLY)						62
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												WIRE (POWER SUPPLY)						70
												WIRE (POWER SUPPLY)						71
												WIRE (POWER SUPPLY)						72
LD SUFFIX		000	001	002	003	004	005	006	007	008	009							
SUFFIX SHOWN IN COLUMN 1 EXTEND THROUGH SUBSEQUENT COLUMNS UNLESS A CHANGE OR DELETION THEREOF IS INDICATED												UNCLASSIFIED						
ISSUE												A						LD362371
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z												A						LD362371

100

ASSEMBLY INFORMATION

12. FOR SPECIFIC PROCESSING, MANUFACTURING AND ASSEMBLY REQUIREMENTS, SEE THE MUST COVERED ON THE DRAWING, SEE 104126.
13. NOMENCLATURE FOR THE UNIT IS PLACED.
14. APPLY PRIMER, ITEM 20, FOLLOWED BY ENAMEL, ITEM 21.
15. DRAWER SLIDES AND ASSEMBLY HARDWARE FURNISHED WITH RESPECTIVE DRAWINGS AND PANEL CHAISTS UNITS.
16. COMPONENTS NOT IDENTIFIED BY ITEM NUMBERS ON THE ASSEMBLY ARE LOCATED IN THE LIST OF MATERIAL BY REFERENCE DESIGNATIONS.
17. USE SCREWS, ITEM 18, TO FASTEN BLANK PANELS OR UNITS WITH PANEL MOUNTED PANELS TO CABINET'S FRONT VERTICAL MOUNTING ANGLE.
18. MARK (WITH COVER CAP) REFERENCE DESIGNATION, ITEM 18, ON EACH SIDE OF PANEL, LOCATE APPROXIMATELY 45 DEGREE OR AS NOT SHOWN, ADJACENT TO ITEM ON BOTH SIDES OF ITS MOUNTING SURFACE.

WIRING AND CABLEING INFORMATION

20. LACE WIRES INTO A HARNESS USING TAPE, ITEM 20.
21. CLAMP CABLES, USING ITEM 21.
22. INSTALL JB IN BRACKET, ITEM 22.

SWD CLASSIFICATION LEVEL

SWD ACQUISITION NUMBER

UNCLASSIFIED

SWD ACQUISITION NUMBER

362371

SWD

2

SCHEMATIC INFORMATION

10. APPLICABLE STANDARDS:

MIL-S10-12 ASSURANCE FOR USE ON DRAWINGS
MIL-STD-15-1 ELECTRIC AND ELECTRONIC GRAPHIC SYMBOLS
ASA Y12.16 REFERENCE DESIGNATIONS

DOC CLASSIFICATION LEVEL

UNCLASSIFIED

DOC ACQUISITION NUMBER

DOC ACQUISITION

A 362371

DATE

FORM

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NS200-46110-00

CLASSIFICATION LEVEL		FORM NUMBER	
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15506		UNCLASSIFIED		362371	
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ENLARGE EXISTING
TAPPED HOLE TO

.306
.321 DIA

.180 DIA .05W $82^{\circ} \pm 2^{\circ}$ TO
.186
.385 DIA NEAR SIDE
.295
2 HOLES

SWITCH A (REF)

7.250 (REF) FROM BOTTOM
OF FRONT PANEL

SWITCH B (REF)

CHASSIS PANEL INTERLOCK SWITCH MTG

UNCLASSIFIED

REV 7 362371

DATE 7

60.3114 60.3114 60.3114

QUANTITY		DESCRIPTION		REMARKS	
1	155189-000	PLATE, IDENTIFICATION			70
1	155189-000	PLATE, IDENTIFICATION			71
10	204676-000	PLATE, ADAPTER			72
1	17751400	WELDER, DRAWING			73
1	260423-000	BRACKET, CONDUCTOR			74
6	207322-000	SPACER			75
6	207322-000	BRACKET, BASE CONN. STRIP			76
					77
					78
					79
					80
					81
1	454-34	CABINET, ELECTRICAL EQUIP. (CONV. DAY 1454-34-020 REF)			82
		BOPE-WARNER CORP., INCEPSON, D.C.			
		CABINET, ELECTRICAL EQUIP. (CONV. DAY 1454-34-020 REF)			84
		BOPE-WARNER CORP., INCEPSON, D.C.			
1	SDR1-491-2210-5	DRUM, STORAGE (CONV. DAY 1454-34-020 REF)			86
		BOPE-WARNER CORP., INCEPSON, D.C.			
1	SDR1-491-2210-5	DRUM, STORAGE, RIMMED, WAITING TOP (CONV. DAY 1454-34-020 REF)			88
		BOPE-WARNER CORP., INCEPSON, D.C.			
3	CT-120	TRACK SECTION, STATIONARY AND INTERMEDIATE (CONV. DAY 1454-34-020 REF)			90
1 PK	SCGS-451-4200M	RAIL, HORIZONTAL, BOPE-WARNER CORP., (CONV. DAY 1454-34-020 REF)			92
		INTERMEDIATE TRACK SECTION			
	HO-22-56T-160	RAIL, HORIZONTAL, (CONV. DAY 1454-34-020 REF)			94
		STEEL AND SHIRT, INC.			
3	HAP-579	PANEL, CLAMP, PREMIER METAL PRODUCTS CO. (183777A REF)			96
1	HAP-319	PANEL, CLAMP, PREMIER METAL PRODUCTS CO. (183777B REF)			97
1	HAP-719	PANEL, CLAMP, PREMIER METAL PRODUCTS CO. (183777C REF)			98
					99
1	PDPS/S	COMPUTER, DIGITAL EQUIP. CORP.			100
1	DY-1401C	VOLTMETER, MULTI-SCALE			101
1	PT08 (D.E.S.)	CARD PUNCH, DIGITAL EQUIP. CORP.			102
1	MODEL A-1033	TELETYPE UNIT, DIGITAL EQUIP. CORP.			103
					104

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ITEM NO.		ITEM NAME		ITEM DESCRIPTION		ITEM QUANTITY		ITEM UNIT		ITEM PRICE		ITEM TOTAL	
ITEM NO.		ITEM NAME		ITEM DESCRIPTION		ITEM QUANTITY		ITEM UNIT		ITEM PRICE		ITEM TOTAL	
1	W021-128-W021	CABLE ASSEMBLY, DIGITAL EQUIP. CORP.										65	
1	W021-128-W021	CABLE ASSEMBLY, DIGITAL EQUIP. CORP.										66	
6	W021-108-W021	CABLE ASSEMBLY, DIGITAL EQUIP. CORP.										67	
4	645	CABLE, AC POWER, ALPHA WIRE CORP. (573434 REF)										68	
												69	
												70	
8	2132	SPACER, MOUNTING, 1/2 INCH DIA. H. H. SHIPBY, INC. (574500 REF)										71	
8	2184	SPACER, MOUNTING, 1/2 INCH DIA. H. H. SHIPBY, INC. (574500 REF)										72	
												73	
												74	
												75	
												76	
												77	
												78	
2	W013-14-40	SPACER, MOUNTING, FOR W013-14-40										79	
ARS	573910-10-1024	SPACER, MOUNTING, FOR W013-14-40										80	
4	W013-14-40	SPACER, MOUNTING, FOR W013-14-40										81	
												82	
ARS		MOUNTING, MOUNTING FOR W013-14-40										83	
ARS	W021-108-W021	CABLE ASSEMBLY, DIGITAL EQUIP. CORP.										84	
ARS	W021-108-W021	CABLE ASSEMBLY, DIGITAL EQUIP. CORP.										85	
ARS	W013-14-40	SPACER, MOUNTING, FOR W013-14-40										86	
ARS	W013-14-40	SPACER, MOUNTING, FOR W013-14-40										87	
												88	
												89	
ARS	W013-14-40	SPACER, MOUNTING, FOR W013-14-40										90	
ARS	W013-14-40	SPACER, MOUNTING, FOR W013-14-40										91	
ARS	W013-14-40	SPACER, MOUNTING, FOR W013-14-40										92	
ARS	W013-14-40	SPACER, MOUNTING, FOR W013-14-40										93	
ARS	W013-14-40	SPACER, MOUNTING, FOR W013-14-40										94	
ARS	W013-14-40	SPACER, MOUNTING, FOR W013-14-40										95	
ARS	W013-14-40	SPACER, MOUNTING, FOR W013-14-40										96	
ARS	W013-14-40	SPACER, MOUNTING, FOR W013-14-40										97	
ARS	W013-14-40	SPACER, MOUNTING, FOR W013-14-40										98	
6	34080	TERMINAL, LUG, DIAMOND BRAND, PREPARED AND INC.										99	
												100	
												101	

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QUANTITY REQUIRED		NSIC SYMBOL	DESCRIPTION	UNIT	QUANTITY	REMARKS
2		2E8300AAE	COOLER, AIR, POLAR ENGINEERING LABORATORY			B1 B2
1		2E4237-007	CONN. STRIP, ELEC. AC			J1
1		2E4237-008	CONN. STRIP, ELEC. AC			J2
1		M53100A-116-1P	CONN. RESP. ELEC.		3	J3
1		M53100A	DC PWR SUPPLY, GEMETT-PACIFIC CO.			P51
1		M53100A-116-1P	HIGH VOLTAGE POWER SUPPLY, GEMETT, INC.			P52
2		M516106-2	SWITCH, SENSITIVE, INTER (555312 SET)		3	S1 S2

UNCLASSIFIED

DATE 12/12/00
BY 362371
PAGE 12

NSIC

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PRINTED IN U.S.A. - 10/10/00

NSIC-10/10/00

1. GENERAL

1.1 Title Description

Physical Description - The PFI-71 is a 100-watt, dry, 210V, and is designed to provide constant resistance, insulation resistance, and high voltage breakdown resistance for power supply.

Functional Description - A detailed description of the various circuits is given in the functional description, PFI-71.

References - See PFI-71, Part 1, and Service Report for PFI-71, PFI-71.

1.2 Physical Description

The PFI-71 is a 100-watt, dry, 210V, and is designed to provide constant resistance, insulation resistance, and high voltage breakdown resistance for power supply.

The PFI-71 is a 100-watt, dry, 210V, and is designed to provide constant resistance, insulation resistance, and high voltage breakdown resistance for power supply.

The PFI-71 is a 100-watt, dry, 210V, and is designed to provide constant resistance, insulation resistance, and high voltage breakdown resistance for power supply.

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ISSUE	OWG CLASSIFICATION LEVEL	SIZE	CODE IDENT NO.	OWG NUMBER
	UNCLASSIFIED	A	14513	GP362371
				SHEET 2 OF

2.3 Equipment. Equipment listed in Table 1 is required for calibration.

TABLE 1
CALIBRATION EQUIPMENT

SPECIFICATION	SUGGESTED EQUIPMENT
Voltmeter, Capable of measuring 15.0, 15.0 and 25 VDC $\pm 0.1\%$	CSC WA100A
Keivlin Bridge, Capable of measuring 1.0 ohm $\pm 0.01\%$	Labison 1077 Keivlin Bridge
Wheatstone Bridge Capable of measuring 1.0 ohm $\pm 0.01\%$ and 10.0 ohm $\pm 0.1\%$	CSC W3100A
Oscilloscope with High Voltage Probe, Capable of measuring 0-5000 VDC at a Rate of 500 V/sec	Type 505 scope with Type 7 Plug-in, Type 66013 12 kv 1000:1 Probe or equivalent.
*If equipment listed under SUGGESTED EQUIPMENT column is not available, alternative to that or equipment must be approved by responsible integrated contractor's Standards Laboratory.	

3. INSPECTION AND CALIBRATION

3.1 General

3.1.1 Scope. These instructions provide the criteria and procedures for equipment calibration and maintenance (in 3.1.1.7).

3.1.2 Interval. Equipment must have been calibrated during the 30-day period prior to use.

3.1.3 Invalidation. Calibration is invalidated by shipment, removal from use and subsequent storage, expiration of prescribed calibration interval, or by repair or replacement of a component in a calibrated circuit. The using activity is responsible for requesting recalibration due to general handling, poor records, or any other condition deemed likely to affect the accuracy of measurement of PTH-71.

3.1.4 Sequence. Perform calibration procedures in paragraph sequence.

ISSUE	3				DWG CLASSIFICATION LEVEL	SIZE	CODE IDENT NO.	DWG NUMBER
					UNCLASSIFIED	A	4213	CP362331
								SHEET 3 OF

3.1.3 General Procedures

3.1.3.1 Procedures in this drawing are based on the following assumptions:

- a. BT3471 is assembled and interconnected in accordance with 262371 and WU362371.
- b. Calibration instruments are set to the proper range and are verified as sufficient to make the specified measurements.

3.1.3.2 In making adjustments, tester controls are to be set so that meter indications are as close as possible to nominal value (middle of specified range).

3.2 ~~Inspection~~ None

3.3 Calibration

3.3.1 Initial Setup

3.3.1.1 On U3902, operate AC-ON switch to OFF.

3.3.1.2 Verify that there is not a connector board or connector in the 0-1000 volt voltage panel, and that door is closed.

3.3.1.3 Verify that all connectors are removed from the 0-1000 Contact Resistance Panel, and that door is closed.

3.3.1.4 On 2401C Display Voltmeter operate Power switch to ON.

ISSUE	B				DWG CLASSIFICATION LEVEL	SIZE	CODE IDENT NO.	DWG NUMBER
					UNCLASSIFIED	A	14213	CP362371
								SHEET 4 OF

Calibration of 2.4 Ohm Standard

1. Pull forward UN897 to gain access to bottom of chassis. Move large standard resistor near front.

2. Connect 1.5 ohm resistor bridge to standard resistor. Along the back of the resistor, the voltage leads to the small third screw, the current leads to the large third screw. Remove the wires already connected as they are used at this time.

3. (1.5) Standard resistor read 0.000 to 0.001 ohm.

4. Disconnect 1.5 ohm bridge and push UN897 back into the cabinet.

5. Calibration of 1.5 ohm and 1.5 ohm supplies.

6. Open left door, viewed from rear to gain access to rear of UN897 power supply chassis.

7. Insert 1.5 ohm resistor near top of chassis. INTERLOCK CHECKED lamp on UN897 lights.

8. On UN897 operate 20 PWR switch to ON. All PWR lamp lights.

9. Allow 5 minute warm up time before continuing.

10. Connect 0.00037 ohm 1.5 ohm voltmeter to the + and -15 V Jacks.

11. 0.00037 ohm voltmeter reads 0.0 to 10.0 VDC. If necessary, adjust to 0.0 to 10.0. Disconnect Standard Voltmeter.

12. Connect Standard Voltmeter to the + and -15 V Jacks on rear of UN897.

13. 0.00037 ohm voltmeter reads 0.0 to 10.0 VDC. If necessary, adjust to within 0.0 to 10.0 VDC. Disconnect Standard Voltmeter.

ISSUE	A	B	DWG CLASSIFICATION LEVEL	SIZE	CODE IDENT NO	DWG NUMBER
			UNCLASSIFIED	A	14213	CP352371
						SHEET 5 OF

DWG CLASSIFICATION LEVEL

Overall dimensions of the structure are as follows: Length 100 ft, Width 10 ft, Height 10 ft.

The structure is designed to withstand a maximum wind speed of 100 mph. The design is based on the ASCE 7-02 standard.

The structure is designed to withstand a maximum seismic force of 0.1g.

The structure is designed to withstand a maximum snow load of 10 psf.

The structure is designed to withstand a maximum live load of 10 psf. The design is based on the ASCE 7-02 standard.

The structure is designed to withstand a maximum dead load of 10 psf. The design is based on the ASCE 7-02 standard.

The structure is designed to withstand a maximum wind speed of 100 mph. The design is based on the ASCE 7-02 standard.

The structure is designed to withstand a maximum seismic force of 0.1g.

The structure is designed to withstand a maximum live load of 10 psf. The design is based on the ASCE 7-02 standard.

The structure is designed to withstand a maximum dead load of 10 psf. The design is based on the ASCE 7-02 standard.

The structure is designed to withstand a maximum wind speed of 100 mph. The design is based on the ASCE 7-02 standard.

The structure is designed to withstand a maximum seismic force of 0.1g.

ISSUE	DATE	BY	CHKD	DWG CLASSIFICATION LEVEL	SIZE	CODE IDENT NO.	DWG NUMBER
				UNCLASSIFIED	A	15212	CP362371
							SHEET 6 OF

DRG CLASSIFICATION LEVEL

3.3.5.10 If Standard voltmeter does not agree, shut down tester, remove 24012 Digital Voltmeter and recalibrate per service manual.

3.3.6 Calibration of 24012s Percent

3.3.6.1 On PCE-2/1 Computer, set 4016 (Starting address) into the Switch Register and press LOAD key.

3.3.6.2 Press START key on computer. Computer halted with 010g (black) in the Accumulator.

3.3.6.3 (PCE) Digital Voltmeter reads 0.434 to 0.501 mv (as found).

3.3.6.4 If necessary, adjust 4016 on 24012 cal panel. Press LOAD key on computer.

3.3.6.5 Digital Voltmeter reads 0.433 to 0.501 mv (as left). If not, repeat 3.3.6.4.

3.3.6.6 Repeat 3.3.6.1 to 3.3.6.5 for other channels, by substituting values from Table 2.

TABLE 2

Current	Address	Check	CP	As Found	As Left
(mA)	(0000)	(0000)		(mv)	(mv)
25 ma	4031	0011	CP3	2.434 to 2.510	2.437 to 2.513
100 ma	4032	0012	CP4	9.950 to 10.125	9.950 to 10.050
3 A	4033	0013	CP11	747.00 to 752.00	756.50 to 757.50
4 A	4034	0014	CP12	995.00 to 1001.00	997.50 to 1002.50
7.5 A	4035	0015	CP13	1492.50 to 1507.50	1496.75 to 1503.25
12 A	4036	0016	CP14	2102.00 to 2112.00	2199.00 to 2206.00
20 A	4037	0017	CP15	2800.00 to 2820.00	2890.00 to 2910.00

ISSUE	A	B		DRG CLASSIFICATION LEVEL	SIZE	CODE IDENT NO.	DRG NUMBER
				UNCLASSIFIED	A	14213	CP362371
						SHEET 8 OF	

3.3.7. 500 V Calibration

3.3.7.1 On PDP-8/s computer, set 4000h into the SWITCH REGISTER and press LOAD AND key.

3.3.7.2 Press START key. Computer will read 0000h in accumulator.

3.3.7.3 (CP-16) Digital voltmeter reads 4.99500 to 5.00500 V.

3.3.7.4 If necessary, adjust 500 V on 0000h and press CONT key on computer.

3.3.7.5 Digital voltmeter reads 4.99500 to 5.00500 V. If not, repeat 3.3.7.4. Note final reading.

3.3.8. Unit Voltage Divider Calibration

3.3.8.1 On PDP-8/s computer, set 4000h into the SWITCH REGISTER and press LOAD AND key.

3.3.8.2 Press START key. Computer will read 0000h in accumulator.

3.3.8.3 Digital voltmeter reads 4.99500 to 5.00500 V. If not, repeat 3.3.8.1. Note final reading.

3.3.8.4 (CP-16) Difference between readings noted in 3.3.7.5 and 3.3.8.3 shall be less than 5.00 V.

3.3.9. High Voltage Ramp Calibration

3.3.9.1 Open front door of 0000h to gain access to high voltage output terminals.

3.3.9.2 Connect high voltage probe to red (+) Banana Jack in 0000h and probe ground to black (-) Banana Jack. Short jumper will be required. Place probe in 0000h chassis. A switch is provided in the lower right corner of the door for the probe lead. Close door.

ISSUE	A	B	OWG CLASSIFICATION LEVEL	SIZE	CODE IDENT NO.	OWG NUMBER
			UNCLASSIFIED	A	14213	CP362371
						SHEET 9 OF

ACTION Verify that oscilloscope has a good ground through the AC Power cord. GND 2 will be applied to the probe input.

3.3.2.3 Oscilloscope settings as follows. Trigger slope to INT, triggering mode to DC, sensitivity to probes, triggering level as required, sweep to 1 sec, volts/cm to 1.

Adjust the triggering level knob that triggering will take place when the trigger is in vertical deflection.

3.3.2.4 Switch the W/S computer, set A.D.C. into the SWITCH position and press the 1000 Hz key.

3.3.2.5 While observing the waveforms trace press the START key on the computer.

3.3.2.6 If computer fails with 50% on the AC the computer fails with 50% on 400 volts on the digital voltmeter, then skip step 3.3.2.7.

3.3.2.7 If computer did not halt then ramp the rate reach 0.10 V. Press STOP key on computer. Rotate VOLTAGE ADJUST on HV RAMP GENERATOR clockwise a small amount and repeat 3.3.2.4, 3.3.2.5, and 3.3.2.6.

3.3.2.8 Calculate by dividing the vertical divisions traversed by the horizontal divisions during the linear portion of the trace. A rate of 450 to 550 volts per sec is required. (Total ramp time should be approximately 2 seconds.)

3.3.2.9 If necessary, adjust RATE ADJUST on HV RAMP GENERATOR and repeat 3.3.2.4 to 3.3.2.6 repeat press CONF key rather than START key.

ISSUE	A	5	DWG CLASSIFICATION LEVEL	U	CODE IDENT NO.	DWG NUMBER
			UNCLASSIFIED	A	14213	CP362371
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UNCLASSIFIED		A		AF 460371	

1. INTRODUCTION

1.1 Part Tested Any Component

1.2 Test Configuration PT147 (See Fig. 1)

1.3 Environmental Test as per

- a. Ambient Temperature
- b. Humidity
- c. High Voltage

2. TEST RESULTS AND CONCLUSIONS

2.1 Initial Results None

2.2 Final Results None

2.3 Comments

- a. None
- b. None
- c. None

3. Test Data Summary Power Source: 115 250 VA, 60 Hz (10 amp)

4. Test Data Summary Shock Test: Acceleration Interval, as shown on Fig. 1, 1000 g/sec, or not applied.

5. TEST CONCLUSIONS

5.1 Performance as per

5.2 Remarks In this system ensure that PT147 has been received and units installed in cabinets, in accordance with doc. 36-111

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3.1.1 Connect cables in accordance with Fig. AF362371.

3.1.2 Connect 11 of U5040 to specified AC power source, using a standard 3-wire AC power cable.

3.2 Initial Operation

3.2.1 Preliminary Procedure

3.2.1.1 On U5040-12, operate AC PWR to ON.

3.2.1.2 Verify that 2-wire digital voltmeter (DVM) power switch is ON.

3.2.1.3 Verify that 2-wire AC power supply (PS) switch is ON.

3.2.1.4 On U5040-12, rotate RANGE switch to 100V AC. Rotate switch to 100V AC. Rotate switch to 100V AC. Rotate switch to 100V AC.

3.2.1.5 On U5040-12, operate AC PWR to OFF. AC PWR lamp lights.

3.2.1.6 If lights on PWR-ON indicator are not ON, using key, rotate RANGE switch clockwise. Lights appear as proper range. Observe indications.

3.2.1.7 Verify that PANEL LOCK key button is fully counterclockwise.

3.2.1.8 Allow 30 minutes warmup time before continuing.

3.2.1.9 On PWR-ON DVM, rotate SAMPLE PERIOD to 1 sec, FUNCTION to VOLT, RANGE to 750V, and SAMPLE RATE to STOP.

3.2.1.10 Press RESET on DVM. DVM reads zero at count. If not, adjust ZERO control. Below RANGE switch and repeat 3.2.1.10.

3.2.1.11 Rotate RANGE to INT-IV.

3.2.1.12 Press RESET on DVM. DVM reads 1100.00 at count. If not, adjust CAL + control and repeat 3.2.1.12.

3.2.1.13 Rotate range to INT-IV.

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Example:

- 3.3.1.1 Connect P1 through P4 of test set-up, P5 through P8 in P100. Close door.
- 3.3.1.2 On the PDP-8/1, with DATA FIELD and INSTR FIELD zero, operate STOP switch, set 0000 total on the switch register and press LOAD ADD key. 0000 appears in the PROGRAM COUNTER.
- 3.3.1.3 Verify that FIND STEP and STOP keys are down and press START key.
- 3.3.1.4 Teletype prints 0-9 and computer halts with 0000 in the ACCUMULATOR.
- 3.3.1.5 Enter number of tested pins or connectors to be tested on the SWITCH REGISTER (in octal), and press CONT key. Teletype prints CON 0001 and computer halts with 0001 in the ACCUMULATOR.
- 3.3.1.6 Enter number of pins to be tested in octal, at 20 amps on the SWITCH REGISTER. Press CONT key. Computer halts with 0002 in the ACCUMULATOR.

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3.3.2.9. When the test is completed, the test results are to be recorded as follows in Table 3.3.2.10.

Table 3.3.2.10

Test Results for the Test of the Switch Register

Q1	1.0 A
Q2	1.0 A
Q3	1.0 A
Q4	1.0 A
Q5	1.0 A
Q6	1.0 A
Q7	1.0 A
Q8	1.0 A
Q9	1.0 A
Q10	1.0 A
Q11	1.0 A
Q12	1.0 A
Q13	1.0 A
Q14	1.0 A
Q15	1.0 A
Q16	1.0 A
Q17	1.0 A
Q18	1.0 A
Q19	1.0 A
Q20	1.0 A
Q21	1.0 A
Q22	1.0 A
Q23	1.0 A
Q24	1.0 A
Q25	1.0 A
Q26	1.0 A
Q27	1.0 A
Q28	1.0 A
Q29	1.0 A
Q30	1.0 A
Q31	1.0 A
Q32	1.0 A
Q33	1.0 A
Q34	1.0 A
Q35	1.0 A
Q36	1.0 A
Q37	1.0 A
Q38	1.0 A
Q39	1.0 A
Q40	1.0 A
Q41	1.0 A
Q42	1.0 A
Q43	1.0 A
Q44	1.0 A
Q45	1.0 A
Q46	1.0 A
Q47	1.0 A
Q48	1.0 A
Q49	1.0 A
Q50	1.0 A
Q51	1.0 A
Q52	1.0 A
Q53	1.0 A
Q54	1.0 A
Q55	1.0 A
Q56	1.0 A
Q57	1.0 A
Q58	1.0 A
Q59	1.0 A
Q60	1.0 A
Q61	1.0 A
Q62	1.0 A
Q63	1.0 A
Q64	1.0 A
Q65	1.0 A
Q66	1.0 A
Q67	1.0 A
Q68	1.0 A
Q69	1.0 A
Q70	1.0 A
Q71	1.0 A
Q72	1.0 A
Q73	1.0 A
Q74	1.0 A
Q75	1.0 A
Q76	1.0 A
Q77	1.0 A
Q78	1.0 A
Q79	1.0 A
Q80	1.0 A
Q81	1.0 A
Q82	1.0 A
Q83	1.0 A
Q84	1.0 A
Q85	1.0 A
Q86	1.0 A
Q87	1.0 A
Q88	1.0 A
Q89	1.0 A
Q90	1.0 A
Q91	1.0 A
Q92	1.0 A
Q93	1.0 A
Q94	1.0 A
Q95	1.0 A
Q96	1.0 A
Q97	1.0 A
Q98	1.0 A
Q99	1.0 A
Q100	1.0 A

3.3.2.10. The test results are to be recorded as follows in Table 3.3.2.10.

3.3.2.11. If all components have been tested, skip steps 3.3.2.12 and 3.3.2.13.

3.3.2.12. If additional components are to be tested, upon completion of the connector under test, the computer will halt with 00H in the register. Repeat steps 3.3.2.1 to 3.3.2.3 using new test setup.

3.3.2.13. If the new test setup is identical to the previous test setup, and all pins are to be tested at the same currents as corresponding pins of the previous test setup, set 400H into the SWITCH REGISTER and press the CONT key. Repeat steps 3.3.2.10 and 3.3.2.11.

If new test setup is different from previous setup, or different currents are required, repeat steps 3.3.2.8 to 3.3.2.11.

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1.3.2.14 At the completion of testing the test components, the minimum and maximum readings noted for each current is printed, as well as the average and the average plus and minus 2 sigma.

1.3.2.15 The first test performed under each current is to measure a 0.1 ohm resistor. This value is checked to a 5% tolerance. If the current is good, the measured value is accepted and the test continued. If the current is outside tolerance, the test is aborted and the test stand is checked. To continue operation the test stand must be checked, as necessary. To continue operation the test stand must be checked, as necessary.

1.3.2.16 If a resistance reading is greater than 999 ohms, the test is aborted and the test stand is checked. To continue operation the test stand must be checked, as necessary. To continue operation the test stand must be checked, as necessary.

1.3.2.17 Remove test setup from 142.3.

1.3.2.18 If additional tests are to be made, refer to appropriate section 3.3.2 for resistance resistance, 3.3.3 for insulation resistance and high voltage breakdown, or 3.3.4 for breakdown.

3.3.3 Insulation Resistance and High Voltage Breakdown Test Procedure

3.3.3.1 Open 14230 door, and remove test board. If one is in place.

3.3.3.2 Wire unit to be tested to a test board, test board serial number on, beginning with the upper-left-most pin, and moving left to right, wire each row left to right, without skipping any pins. Note number of pins to be tested.

3.3.3.3 Place test board and unit to be tested in the 14230 and clamp in place with toggle clamps. Close door.

3.3.3.4 For insulation resistance testing refer to 3.3.4, and for high voltage breakdown refer to 3.3.5.

3.3.4 Insulation Resistance Testing. Perform Prelim Proc Section 3.3.1.

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- 3.2.4.1 With the DATA FIELD and DATA FIELD ADDR. set 0176 enter into the SW. PIN REGISTER on the PDP-11, and press 0176 ADD key. 0176 appears in the PROGRAM COUNTER.
- 3.2.4.2 Verify that SW. PIN and SW. PIN ADDR. are 0000 and press START key. Following display is SW. PIN REGISTER HALT with 0000 in the ACCUMULATOR.
- 3.2.4.3 Set the SW. PIN REGISTER for the number (total) of pins to be tested. (20 pins for PDP-11).
- 3.2.4.4 Press 0007 key. Computer halts with 0007 in the ACCUMULATOR.
- 3.2.4.5 Set the SW. PIN REGISTER resistance in ohms (1000) on the SWITCH REGISTER. Set the SW. PIN REGISTER resistance in ohms (1000) on the SW. PIN REGISTER plus the SW. PIN REGISTER resistance in ohms (1000).

Example:

1000 ohms	set switch register to 1000
10 ohms	set switch register to 0000
10 ohms	set switch register to 1000
10 ohms	set switch register to 1000
10 ohms	set switch register to 1000

- 3.2.4.6 Press 0007 key. Computer halts with 0007 in accumulator.
- 3.2.4.7 Set SWITCH REGISTER for classification time in seconds (total) must be 70 seconds or greater. (0120).
- 3.2.4.8 Press 0007 key on computer.
- 3.2.4.9 The built-in standard resistor is checked first, followed by each pin in sequence. After all pins have been tested the standard resistor is once again checked.

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3.2.5 High Voltage Breakdown Test. Perform as follows from section 3.2.1.

3.2.5.1 On the PDP-8/S set the SWITCH REGISTER to zero, set CH17 (load) to the SWITCH REGISTER of the PDP-8/S and press the LOAD ADDRESS. This places the PROGRAM COUNTER

3.2.5.2 Verify that the CH17 and the CH18 have been set and press START SW. Verify that the CH17 and CH18 have been set with 0001 in the accumulator.

3.2.5.3 Set the SWITCH REGISTER to the number (0001) of bits to be tested.

3.2.5.4 Press CH17 SW. Counts will start and 0001 in the accumulator.

3.2.5.5 Set the maximum voltage to be applied. This will be 4000 volts. In the PDP-8/S, set the CH17 SW to 0001.

Set the maximum voltage to be applied. This will be 4000 volts. In the PDP-8/S, set the CH17 SW to 0001.

3.2.5.6 Set the SWITCH REGISTER to 0005

3.2.5.7 Set the SWITCH REGISTER to 0010

3.2.5.8 Set the SWITCH REGISTER to 0001

3.2.5.9 Set the SWITCH REGISTER to 0001

Press CH17 SW. Counter will start with 0001 in the accumulator.

3.2.5.10 The maximum applied voltage must now be set into the SWITCH REGISTER. The available is 4000 volts. To do this, divide the maximum voltage desired by 10, and form a three digit number. Convert each digit to a 2-2-1 BCD (Binary Coded Decimal) representation. The combination of the three BCD representations forms the twelve bit word set into the SWITCH REGISTER.

ISSUE	2025 CLASSIFICATION LEVEL	REF	CODE IDENT NO.	2025 NUMBER
	UNCLASSIFIED	A	14213	AF362371
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1. NAME (Last, First, Middle Initial)		2. GRADE		3. SCHOOL		4. CITY		5. STATE		6. ZIP	
7. DATE OF BIRTH		8. SEX		9. RACE		10. RELIGION		11. OCCUPATION		12. INTERESTS	
13. EDUCATION		14. TRAINING		15. EXPERIENCE		16. ACHIEVEMENTS		17. REFERENCES		18. COMMENTS	
19. SIGNATURE		20. DATE		21. INITIALS		22. GRADE		23. SCHOOL		24. CITY	
25. DATE OF BIRTH		26. SEX		27. RACE		28. RELIGION		29. OCCUPATION		30. INTERESTS	
31. SIGNATURE		32. DATE		33. INITIALS		34. GRADE		35. SCHOOL		36. CITY	
37. DATE OF BIRTH		38. SEX		39. RACE		40. RELIGION		41. OCCUPATION		42. INTERESTS	
43. SIGNATURE		44. DATE		45. INITIALS		46. GRADE		47. SCHOOL		48. CITY	
49. DATE OF BIRTH		50. SEX		51. RACE		52. RELIGION		53. OCCUPATION		54. INTERESTS	
55. SIGNATURE		56. DATE		57. INITIALS		58. GRADE		59. SCHOOL		60. CITY	
61. DATE OF BIRTH		62. SEX		63. RACE		64. RELIGION		65. OCCUPATION		66. INTERESTS	
67. SIGNATURE		68. DATE		69. INITIALS		70. GRADE		71. SCHOOL		72. CITY	
73. DATE OF BIRTH		74. SEX		75. RACE		76. RELIGION		77. OCCUPATION		78. INTERESTS	
79. SIGNATURE		80. DATE		81. INITIALS		82. GRADE		83. SCHOOL		84. CITY	
85. DATE OF BIRTH		86. SEX		87. RACE		88. RELIGION		89. OCCUPATION		90. INTERESTS	
91. SIGNATURE		92. DATE		93. INITIALS		94. GRADE		95. SCHOOL		96. CITY	
97. DATE OF BIRTH		98. SEX		99. RACE		100. RELIGION		101. OCCUPATION		102. INTERESTS	
103. SIGNATURE		104. DATE		105. INITIALS		106. GRADE		107. SCHOOL		108. CITY	
109. DATE OF BIRTH		110. SEX		111. RACE		112. RELIGION		113. OCCUPATION		114. INTERESTS	
115. SIGNATURE		116. DATE		117. INITIALS		118. GRADE		119. SCHOOL		120. CITY	
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127. SIGNATURE		128. DATE		129. INITIALS		130. GRADE		131. SCHOOL		132. CITY	
133. DATE OF BIRTH		134. SEX		135. RACE		136. RELIGION		137. OCCUPATION		138. INTERESTS	
139. SIGNATURE		140. DATE		141. INITIALS		142. GRADE		143. SCHOOL		144. CITY	
145. DATE OF BIRTH		146. SEX		147. RACE		148. RELIGION		149. OCCUPATION		150. INTERESTS	
151. SIGNATURE		152. DATE		153. INITIALS		154. GRADE		155. SCHOOL		156. CITY	
157. DATE OF BIRTH		158. SEX		159. RACE		160. RELIGION		161. OCCUPATION		162. INTERESTS	
163. SIGNATURE		164. DATE		165. INITIALS		166. GRADE		167. SCHOOL		168. CITY	
169. DATE OF BIRTH		170. SEX		171. RACE		172. RELIGION		173. OCCUPATION		174. INTERESTS	
175. SIGNATURE		176. DATE		177. INITIALS		178. GRADE		179. SCHOOL		180. CITY	
181. DATE OF BIRTH		182. SEX		183. RACE		184. RELIGION		185. OCCUPATION		186. INTERESTS	
187. SIGNATURE		188. DATE		189. INITIALS		190. GRADE		191. SCHOOL		192. CITY	
193. DATE OF BIRTH		194. SEX		195. RACE		196. RELIGION		197. OCCUPATION		198. INTERESTS	
199. SIGNATURE		200. DATE		201. INITIALS		202. GRADE		203. SCHOOL		204. CITY	
205. DATE OF BIRTH		206. SEX		207. RACE		208. RELIGION		209. OCCUPATION		210. INTERESTS	
211. SIGNATURE		212. DATE		213. INITIALS		214. GRADE		215. SCHOOL		216. CITY	
217. DATE OF BIRTH		218. SEX		219. RACE		220. RELIGION		221. OCCUPATION		222. INTERESTS	
223. SIGNATURE		224. DATE		225. INITIALS		226. GRADE		227. SCHOOL		228. CITY	
229. DATE OF BIRTH		230. SEX		231. RACE		232. RELIGION		233. OCCUPATION		234. INTERESTS	
235. SIGNATURE		236. DATE		237. INITIALS		238. GRADE		239. SCHOOL		240. CITY	
241. DATE OF BIRTH		242. SEX		243. RACE		244. RELIGION		245. OCCUPATION		246. INTERESTS	
247. SIGNATURE		248. DATE		249. INITIALS		250. GRADE		251. SCHOOL		252. CITY	
253. DATE OF BIRTH		254. SEX		255. RACE		256. RELIGION		257. OCCUPATION		258. INTERESTS	
259. SIGNATURE		260. DATE		261. INITIALS		262. GRADE		263. SCHOOL		264. CITY	
265. DATE OF BIRTH		266. SEX		267. RACE		268. RELIGION		269. OCCUPATION		270. INTERESTS	
271. SIGNATURE		272. DATE		273. INITIALS		274. GRADE		275. SCHOOL		276. CITY	
277. DATE OF BIRTH		278. SEX		279. RACE		280. RELIGION		281. OCCUPATION		282. INTERESTS	
283. SIGNATURE		284. DATE		285. INITIALS		286. GRADE		287. SCHOOL		288. CITY	
289. DATE OF BIRTH		290. SEX		291. RACE		292. RELIGION		293. OCCUPATION		294. INTERESTS	
295. SIGNATURE		296. DATE		297. INITIALS		298. GRADE		299. SCHOOL		300. CITY	

UNCLASSIFIED

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362093

CODE IDENT NO 14213

NOTES: PROCUREMENT INFORMATION

1. ITEMS NORMALLY REQUIRING A NINTHUN SETUP CHARGE AND/OR LONG TERM PRODUCTION.
2. PROCURE THIS ITEM MANUFACTURED BY ANY OF THE FOLLOWING: WESTERN DEVICES, OR CHASSIS TANK.
3. PROCURE THIS ITEM MANUFACTURED BY THE LISTED SOURCE ONLY.
4. PROCURE THIS ITEM ONLY FROM A SUPPLIER LISTED ON THE QUALIFIED PRODUCTS LIST OF PRODUCTS QUALIFIED UNDER MILITARY SPECIFICATIONS.
5. PROCURE ITEMS LISTED BY COMMERCIAL PART NUMBER IN THE DESIGN AGENCY NO. COLUMN, AS MANUFACTURED BY THE SOURCE LISTED OR AS DEFINED ON THE REFERENCED SANDIA DRAWING, WHEN LISTED, OR A COMMERCIAL EQUIVALENT WHEN A SANDIA DRAWING IS NOT LISTED.
6. PART NUMBERS LISTED PARANETICALLY AS REFERENCE IN THE DESCRIPTION COLUMN ARE FOR INTERNAL STOCK AND PROCUREMENT PURPOSES AT SANDIA.
7. IF PLUG CORED SOLDER IS-660, TYPE A OR KML 00-3-5733 AS USED, IS-660, TYPE A, IS NOT REQUIRED.
8. VINYL ADHESIVE IS PREPARED BY DISSOLVING PEECEY OF VINYL IN TETRAHYDROFURAN AND/OR CYCLOHEXANONE AS REQUIRED.
9. PROCURE FROM NEW HERMES ENGRAVING MACHINE COMPANY.

UNCLASSIFIED

DOC. QUALIFICATION (174)

DOC. QUALIFICATION (174)

A 363003

2

REQUIREMENTS FOR MARKING

FOR SPECIFIC PROCESSING, PRODUCTION AND ASSEMBLY, AND FOR THE IDENTIFICATION OF THE MARKING OF THE ITEM.

THE MARKING SHALL BE IN A FORM WHICH IS EASY TO READ AND WHICH IS NOT SUBJECT TO MISINTERPRETATION.

FOR IDENTIFICATION OF THE MARKING, THE MARKING SHALL BE IN A FORM WHICH IS EASY TO READ AND WHICH IS NOT SUBJECT TO MISINTERPRETATION.

APPLY ELECTRICAL CONDUCTIVE MATERIAL TO ALL SURFACES OF ITEM 1.

EXCEPT FOR THE 177/21.

COMPONENTS NOT IDENTIFIED BY ITEM NUMBER OR BY REFERENCE TO THE MARKING SHALL BE IDENTIFIED BY REFERENCE TO THE MARKING.

THIS DIMENSION IS THE MAXIMUM DIMENSION OF THE MARKING. THE MARKING SHALL BE IN A FORM WHICH IS EASY TO READ AND WHICH IS NOT SUBJECT TO MISINTERPRETATION.

EXCEPT WHERE SHOWN OTHERWISE, THE MARKING SHALL BE IN A FORM WHICH IS EASY TO READ AND WHICH IS NOT SUBJECT TO MISINTERPRETATION.

IDENTIFICATION FOR THE UNIT AS SHOWN.

REPLACEMENT IDENTIFICATION APPEARING WITHIN A SET OF IDENTIFICATION SHALL BE MARKED ON THE REVERSE SIDE.

DO NOT MARK IDENTIFICATION APPEARING IN THE MARKING OR IDENTIFICATION APPEARING WITHIN THE LINE OF VIEW OF THE UNIT.

MARK WITH COVER COAT IDENTIFICATION. IDENTIFICATION SHALL BE IN A FORM WHICH IS EASY TO READ AND WHICH IS NOT SUBJECT TO MISINTERPRETATION. APPROXIMATELY AS SHOWN.

MARK WITH COVER COAT IDENTIFICATION. IDENTIFICATION SHALL BE IN A FORM WHICH IS EASY TO READ AND WHICH IS NOT SUBJECT TO MISINTERPRETATION. APPROXIMATELY AS SHOWN. 2 PLACES. IDENTIFICATION SHALL BE IN A FORM WHICH IS EASY TO READ AND WHICH IS NOT SUBJECT TO MISINTERPRETATION. BUT SHALL NOT BE MARKED.

NO IDENTIFICATION SHALL

NO IDENTIFICATION SHALL

UNCLASSIFIED

NO IDENTIFICATION SHALL

NO IDENTIFICATION SHALL

ASSEMBLY INSTRUCTIONS, CONTINUED

FINISH REQUIREMENTS

- A. APPLY ELECTRICALLY CONDUCTIVE LUBRICANT TO ALL SURFACES OF HOLES IN PLATE AND FRONT PANEL.
- B. APPLY BRUSH ON THE CHROMIUM PLATE TO ALL AREAS FROM WHICH THE ORIGINAL ALUMINE HAS BEEN REMOVED SUCH AS MACHINED SURFACES, EDGES OF HOLES AND SURFACE SCRATCHES, ETC.
- C. ON FRONT SURFACES OF FRONT PANEL ONLY, APPLY PRIMER, THEN PAINT, FOLLOWED BY FRAME, THEN PAINT. PAINTING IS TERMINATED ON REAR OF PANEL.

WATCH DRILL LATCH & IN CASE PLATES OF ITEM 11. ALIGNMENT HOLES, DRILL WITH 1/8" DRILL END PLATES.

REMOVE WOOD SCREWS HOLDING RUBBER FEET TO PLATE. DRILL THROUGH PLATE, 2 1/2" DIA. AT BASE OF SCREWS. DISCARD RUBBER FEET. MOUNT AS SHOWN ON 11 BACKSIDE.

ONLY THREE PANELS ARE REQUIRED FOR ATTACHMENT TO THE WALL. THE OTHER TWO PANELS OF ONE SET ARE USED FOR THE OTHER SET TO BE ATTACHED TO THE WALL.

UNCLASSIFIED

REF ID: A63093

QUANTITY REQUIRED		DESIGNATION	DESCRIPTION	UNIT	PRICE
		ARS MIL-W-15875	WIRE, INSULATED, SIZE 16, (DST) WHITE, TYPE		31
		ARS MIL-W-16178	WIRE, INSULATED, SIZE 20, (DST) WHITE, TYPE		32
					33
		ARS Q8-571	SOLDER, SA20, TYPE 5, 8, IN PMA	4.7	34
		ARS MFL-7-1255	FLUX, SOLDERING, LEAD-FREE, RESIN-BASE	4.7	35
		ARS MIL-T-713	LACING TAPE, NYLON, WAXED, TYPE C, CLASS 2	4	36
		ARS MIL-I-7443	INSULATION SLEEVING, VINYL	2	38
		ARS	ADHESIVE, VINYL	2	39
		ARS MIL-P-8505	PRIMER, ZINC OXIDATE	4	40
		ARS 6010-0047	FRAME, BRASS, LT. GRAY, NEW ATT. PACKING	3	41
		ARS 751	FILTER ENCLOSURE BRASS, HIGH DENSITY BLACK (87560 REF)	1.9	42
		ARS 752	SOCKET ENCLOSURE BRASS, HIGH DENSITY BLACK (87560 REF)	1.9	43
		ARS	HARDWARE, MOUNTING PER 175125		44
		30 184245	SEMICONDUCTOR DEVICE, 31005 SEMICON (7556 REF)	3	45
		1 7201	TERMINAL, STUD LYN-TROM 181574201 REF)	1	46
					47
		80 750	TERMINAL, 5000 WINCHESTER (835055 REF)		48
		4 LJT04-25-23P	CONNECTOR, RECP, ELECTRICAL		49
		1 PT00A-18-325	CONNECTOR, RECP, ELECTRICAL (355425-00 REF)		50
		1 VI-885	CONNECTOR, RECP, ELECTRICAL, APPENDIX 183425-00 REF)		51
		1 PT00A-12-4P	CONNECTOR, RECP, ELECTRICAL (355625-00 REF)		52
		30 8814X-150-A-2-20V	RELAY, ARMATURE, BADCLOCK (871883 REF)	3	53
		1 NO. A300	RELAY, SHUNT, 0.1 OHM, 15A LEADS 8 NORTHROP CO.		54
		30 VB/1611220-45	SOCKET, RELAY VIKING IND. (871997 REF)	3	55
					56

1. ALL DOCUMENTS AS SHOWN
 2. ARCHIVE AS PER ARCHIVE
 3. EN-EXPENSE MATC PM-PROCESS DATE

UNCLASSIFIED		DATE 389093
		DATE 6

NOTES: PROCUREMENT INFORMATION

1. ITEMS NORMALLY REQUIRING A MINIMUM SETUP CHARGE AND/OR LONG TERM PROCUREMENT.
2. PROCURE THIS ITEM ONLY FROM A SUPPLIER LISTED ON THE QUALIFIED PRODUCTS LIST OF PRODUCTS QUALIFIED UNDER MILITARY SPECIFICATIONS.
3. PROCURE ITEMS LISTED BY COMMERCIAL PART NUMBER IN THE DESIGN AGENCY NO. COLUMN, AS MANUFACTURED BY THE SOURCE LISTED OR AS DEFINED ON THE REFERENCED SANDIA DRAWING, WHEN LISTED, OR A COMMERCIAL EQUIVALENT WHEN A SANDIA DRAWING IS NOT LISTED.
4. PROCURE THIS ITEM MANUFACTURED BY THE LISTED SOURCE ONLY.
5. PROCURE THIS ITEM MANUFACTURED BY ANY OF THE FOLLOWING: WESTERN DEVICE, INC.; CHASSIS TRAK, INC.
6. PART NUMBERS LISTED PARENTHETICALLY AS REFERENCE IN THE DESCRIPTION COLUMN ARE FOR INTERNAL STOCK AND PROCUREMENT PURPOSES AT SANDIA.
7. PAINT, ENAMEL, BAKING, LIGHT GRAY, GW. 6010-0024, HENKELY-PACKARD CO.
8. IF FLUX CORED SOLDER ISN 60, TYPE 2 OR RMA, QQ-3-671) IS USED, FLUX, ITEM 61, IS NOT REQUIRED.
9. PROCURE FROM BEN HERMES ENGRAVING MACHINE COMPANY.
10. VINYL ADHESIVE IS PREPARED BY DISSOLVING PIECES OF VINYL IN TETRAHYDROFURAN AND/OR CYCLOHEXANONE AS REQUIRED.
- 11.
- 12.

DOC CLASSIFICATION INFO

UNCLASSIFIED

DESIGN AGENCY NUMBER

DOC SHEET NUMBER

A 363101

SHEET 2

ISSUE A D

PRINTED IN USA - GPO: 1965 O-581-581

DD FORM 100-10-10-10

PROCUREMENT INFORMATION CONTINUED

13. PROCURE FROM WESTLAKE PLASTICS, LEMNI HILLS, PA.
14. PROCURE FROM THE POLYMER CORP OF PENNSYLVANIA, HADDON, PA.

15.

ASSEMBLY INFORMATION

16.

17. USE THE SUFFIX SPECIFIED OR ANY HIGHER OF 2-DIGIT STANDARDS, SC OR ADDENDUM SERIES SPECIFICATIONS.

18. FOR SPECIFIED PROCESSING, MANUFACTURING AND ASSEMBLY REQUIREMENTS NOT OTHERWISE COVERED ON THE DRAWING, SEE 173126.

19. COMPONENTS NOT IDENTIFIED BY ITEM NUMBERS ON THE ASSEMBLY ARE LOCATED IN THE MATERIAL LIST BY REFERENCE DESIGNATIONS.

20. THIS DIMENSION IS FOR PRINT INSPECTION MEASUREMENT ONLY. DO NOT USE PRINTS MORE THAN .100 INCH OUT-OF-SCALE FOR DRAFTING TEMPLATES.

21. TIM LEAD PLATE PER 230220.

22. ASSEMBLY HARDWARE IS SUPPLIED WITH THE PART(S).

23. ORIENT COMPONENTS IN POSITIONS SHOWN.

24. INSTALL SHIMS SUPPLIED WITH HANDLES, AS REQUIRED, UNDER EACH LATCH.

25.

26. NOMENCLATURE FOR THE UNIT IS U4990.

ORGANIZATION TYPE

WFO ALLOC NUMBER

UNCLASSIFIED

WFO NUMBER

363101

WFO

3

ISSUE

A E

PRINTED IN USA - THE NAME 507-22

FORM 4610 9-61

ASSEMBLY INFORMATION, CONTINUED

27. REFERENCE DESIGNATIONS APPEARING WITHIN A DOTTED RECTANGLE ARE TO BE MARKED ON OPPOSITE SIDE.
28. DO NOT MARK DESIGNATIONS APPEARING IN BRACKETS AND DIMENSIONS APPEARING WITHIN OUTLINE OF VIEWS ON THE UNIT.
29. MARK (WITH COVER COAT) REFERENCE DESIGNATION, .120-INCH BLACK CHARACTERS, LOCATE APPROXIMATELY AS SHOWN.
30. MARK (WITH COVER COAT) POLARITY DESIGNATION, .120-INCH BLACK CHARACTERS, LOCATE APPROXIMATELY AS SHOWN.
31. FINISH REQUIREMENTS:
 - A. APPLY ELECTRICALLY CONDUCTIVE CHEMICAL FILM TO ALL SURFACES OF CHASSIS PLATE AND FRONT PANEL.
 - B. APPLY BRUSH-ON TYPE CHEMICAL FILM TO ALL AREAS FROM WHICH THE ORIGINAL ALDOLINE HAS BEEN REMOVED SUCH AS MACHINED SURFACES, EDGES OF HOLES AND CUTOUTS, SURFACE SCRATCHES, ETC.
 - C. ON FRONT & EDGES OF FRONT PANEL ONLY, APPLY PRIMER, ITEM A3, FOLLOWED BY ENAMEL ITEM 49. COATING IS SHOWN ON REAR OF PANEL.
32. ANODIZE, CLEAR, PER 173425.
- 33.
34. IMPRESSION-STAMP INFORMATION AS SHOWN, .120 INCH CHARACTERS.
35. LOCATE LABELS, ITEM 18, ANYWHERE ON REAR, TOP AND BOTTOM COVERS.
- 36.
- 37.
- 38.

ANSI CLASSIFICATION LEVEL

UNCLASSIFIED

WHS REENTRY NUMBER

WHS ORG NUMBER

A 163101

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ISSUE A D

PRINTED IN USA—OR 6112-100-100

STANDARD 1010-10

ASSEMBLY INFORMATION, CONTINUED

39.

PASSIVATE PER 99043011.

40.

EQUALIZE GAP ON ALL 3 SIDES BETWEEN DOOR AND ITS OPENING.

WIRING INFORMATION

45.

INSTALL VINYL SLEEVING, ITEM 53, USING ADHESIVE, ITEM 58, OVER CONNECTION TERMINALS.

46.

LACE ALL WIRES INTO A HARNESS USING TAPE, ITEM 56, UNLESS OTHERWISE SPECIFIED.

47.

COMPONENTS AND WIRES SHOWN ON TERMINALS SHALL NOT BE SOLDERED IN PLACE UNTIL ALL EXTERNAL CONNECTIONS HAVE BEEN MADE AT FINAL ASSEMBLY.

FORM 10-1 (10-10-60)

FORM 10-1 (10-10-60)

UNCLASSIFIED

363101

5

QUANTITY REQUIRED		PART NUMBER		DESCRIPTION		REMARKS			
161	164245	SEMICONDUCTOR TRIPPLE, DIODE, SEMTECH CORP.		(1275282 REF)	4	CR1	CR17		
						CR10	CR172		
						CR201	CR272		
1	7201	TERMINAL, STD, LYN-TADW, INC.		(1874277 REF)	4	E1	E2		
50	7301	TERMINAL, STD, KIRCHGESSER ELECTRONICS, INC. (1930554 REF)				THRU	ES1		
71	MODEL 4833	CONTACT, ALIC, GSTRS & PARTON CO.		(1873812 REF)		E101	THRU		
						E171			
1	PT004-18-855	CONN. RECF. ELEC. BENDIX CORP. SCINTILLA DIV. (156973-COMF)			4	J1			
1	PT004-8-37	CONN. RECF. ELEC. BENDIX CORP. SCINT. DIV. (155541-COMF)			4	J5			
1	PT004-14-185	CONN. RECF. ELEC. BENDIX CORP.		(155576-COMF)	4	J6			
1	100-902	JACK, BANANA, J. E. JOHNSON				J7			
1	100-973	JACK, BANANA, SLICK, J. E. JOHNSON				J8			
1	PT002-14-515	CONN. RECF. ELEC. BENDIX CORP.		(1524227 REF)	4	J9			
17	BR19X-100-10-254	RELAY, ARM., SUBMINIATURE, BARCOB RELAY, INC. (1571275 REF)			4	K1	THRU		
						K17			
72	HC-1	RELAY, VACUUM, LICH VACUUM ELEC. INC.				K101	K172		
NAME DOCUMENTS AS-FAS RECD AS-FAS RECD PER ASSEMBLY EMERGENCY MATL. IN-PROCESS MATL.						THIS DOCUMENT IS UNCLASSIFIED		THIS PROJECT NUMBER	
ISSN						A		363101	
						B			

1 PTDCP-14-12P CONN, PLUG, FLEX, BENDY CONN (155455 - CORN)

2 TYPE MEHT-C RESISTOR, FIXED, METAL FILM, 50 WATT, $\pm 1\%$, 2W
INTERNATIONAL RESISTANCE CO

2 AC22GF102J RESISTOR, FIXED, CONN, 10K, $\pm 5\%$, (2550474 REF)

1 VS-1 SWITCH, SENSITIVE, MICROSWITCH DIV. OF HONEYWELL

17 VS10/INCH-42 SOCKET, RELAY, VIKING INDUSTRIES, INC 1575257 REF

NAME DOCUMENTS ARE TO BE FROM
ARCHIVE REGO PER ASSEMBLY
EXPENSE MATL PR-PROCESS MATL

AND DOCUMENTATION UNIT

AND AGENCY NUMBER

UNCLASSIFIED

DATE AND NUMBER

A 363101

DATE 9

ISSUE

1E

PRINTED IN USA - 10-6114-10-01

SCHEMATIC 10-611

NOTES: PROCUREMENT INFORMATION

1. ITEMS NORMALLY REQUIRING A MINIMUM SETUP CHARGE AND/OR LONG TERM PROCUREMENT.
2. PROCURE ITEMS LISTED BY COMMERCIAL PART NUMBER IN THE "DESIGN AGENCY NO." COLUMN, AS MANUFACTURED BY THE SOURCE LISTED OR AS DEFINED ON THE REFERENCED SANDIA DRAWING, WHEN LISTED, OR A COMMERCIAL EQUIVALENT WHEN A SANDIA DRAWING IS NOT LISTED.
3. PROCURE THIS ITEM ONLY FROM A SUPPLIER LISTED ON THE "QUALIFIED PRODUCTS LIST OF PRODUCTS QUALIFIED UNDER MILITARY SPECIFICATIONS".
4. PROCURE FROM DIGITAL EQUIPMENT CORP.
5. PROCURE THIS ITEM MANUFACTURED BY THE LISTED SOURCE ONLY.

ASSEMBLY INFORMATION

9. FOR SPECIFIC PROCESSING, MANUFACTURING AND ASSEMBLY REQUIREMENTS NOT OTHERWISE COVERED ON THE DRAWING, SEE 173125.
10. COMPONENTS NOT IDENTIFIED BY ITEM NUMBERS ON THE ASSEMBLY ARE LOCATED IN THE LIST OF MATERIAL BY REFERENCE DESIGNATIONS.
- 11.

FORM 100-100-1-100

FORM 100-100-1-100

UNCLASSIFIED

FORM 100-100-1-100

363270

FORM 100-100-1-100

ASSEMBLY INFORMATION, CONTINUED

12.

NO. 10. CLATURE FOR THE UNIT IS 15039.

WIRING INFORMATION

15.

USE FOLLOWING DIGITAL EQUIPMENT CORP. HAND TOOLS TO WIRE UNIT:

A. WRAPPING TOOL NO. 1011.

B. UNWRAPPING TOOL NO. 1012.

16.

INSTALL PT. PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.

FORM 10-1 (Rev. 1-60)

FORM 10-1 (Rev. 1-60)

UNCLASSIFIED

FILE NO. 363270
PAGE 3

QUANTITY REQUIRED		PART NAME		PART NUMBER		UNIT		PRICE		TOTAL	
1	DM19D2028	CAPACITOR, FIXED, NICA, 1000 MFD, ± 2%, 50V (87306 REF)	5								U1
1	101-51808	CONN, PLUG, ELCO, BRIDL METAL PAUSE, CONN (37471 REF)									P1
1	RC07LF333J	RESISTOR, FIXED, COMP, 33K, ± 5%, 1/4W	3								R1
1	RC07LF512J	RESISTOR, FIXED, COMP, 51K, ± 5%, 1/4W	3								R2
1	RC07LF332J	RESISTOR, FIXED, COMP, 3.3K, ± 5%, 1/4W	3								R3
2	M103	MODULE, FLIP CHIP (POP-B DEVICE SELECTOR)	4								IA84
1	R6-03	MODULE, FLIP CHIP (PULSE AMPLIFIER)	3								IA85
9	R121	MODULE, FLIP CHIP (NAND GATE)	8								IA86
5	269458-000	PPM BUFFER	4								IA87
3	R203	MODULE, FLIP CHIP (TRI-STATE FLIP-FLOP)	4								IA88
1	R302	MODULE, FLIP CHIP (DELAY, ONE SHOT)	8								IA89
2	304863-000	MODULE, MODIFIED, CLOCK, INDICATOR AND RELAY DRIVER									IA90

NA=DOCUMENTS PRICE REGO
 AR=VAT REGO PER ASSEMBLY
 EM=EXPENSE MATL PM=PROCESSING MATL

END CLASSIFICATION LABEL

REF AGENCY NUMBER

UNCLASSIFIED

REF AGENCY NUMBER
 363270

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ISSUE 7

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MOBILE, FLIP (INVENTION)
MOBILE, FLIP (INVENTION)

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PRINTED IN U.S.A. - 1000000000

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NOTES: PROCUREMENT INFORMATION

1. ITEMS NORMALLY REQUIRING A MINIMUM SETUP CHARGE AND/OR LONG TERM PROCUREMENT.
2. PROCURE ITEMS LISTED BY COMMERCIAL PART NUMBER IN THE 'DESIGN AGENCY NO.' COLUMN, AS MANUFACTURED BY THE SOURCE LISTED OR AS DEFINED ON THE REFERENCE SANDIA DRAWING, WHEN LISTED, OR A COMMERCIAL EQUIVALENT WHEN A SANDIA DRAWING IS NOT LISTED.
- 3.
4. PROCURE FROM DIGITAL EQUIPMENT CORP.
5. PROCURE THIS ITEM MANUFACTURED BY THE LISTED SOURCE ONLY.

ASSEMBLY INFORMATION

7. FOR SPECIFIC PROCESSING, MANUFACTURING AND ASSEMBLY REQUIREMENTS NOT OTHERWISE COVERED ON THE DRAWING, SEE 1791261.
8. COMPONENTS NOT IDENTIFIED BY ITEM NUMBERS ON THE ASSEMBLY ARE LOCATED IN THE LIST OF MATERIAL BY REFERENCE DESIGNATIONS.
9. REMOVE EXISTING TERMINAL BOARD AND REPLACE WITH ITEM 5.
10. NOMENCLATURE FOR THE UNIT IS U9036.

		DESIGN CLASSIFICATION LEVEL		DESIGN AGENCY NUMBER	
		UNCLASSIFIED			
		PART NUMBER		363277	
		REVISION		2	

WIRING INFORMATION

15. USE FOLLOWING DIGITAL EQUIPMENT CORP. HAND TOOLS TO WIRE UNIT:
 - A. WRAPPING TOOL NO. 6514
 - B. UNWRAPPING TOOL NO. 1012

FORM CLASSIFICATION LEVEL

UNCLASSIFIED

WHO ACCELY NUMBER

363277

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CABLE LOCATION

REAR 1124 RIB PANEL

DATE OF REVISION

DATE OF REVISION

UNCLASSIFIED

REV. NO. 1
A 363277

PAGE 5

ISSUE 1A

PRINTED IN USA - 11-11-61-11-11-61

STANDARD J1111-11

QUANTITY REQUIRED		ITEM NAME	DESCRIPTION	UNIT	QTY	QTY
NA	CK363277-002	SCHEMATIC, U5050				
NA	173126	GENERAL SPECIFICATIONS FOR ACCEPTANCE EQUIPMENT				
1	170936-00	PLATE, IDENTIFICATION				1
1	198571-003	LABEL, IDENTIFICATION				2
1	2-12-1	TERMINAL BOARD				3
1	1947-1-1-1	PANEL MOUNTING DIGITAL EQUIP, CORP				4
1	H002	BRACKET SET, PANEL SETBACK, DIGITAL EQUIP, CORP				5
1	1945-1-1	WELD-BRIDGE CABLE, DIGITAL EQUIP, CORP				6
ARS		WIRE, INSULATED, SOLID CONDUCTOR, 24 AWG (0.020)				7
ARS		FILLER, ENGRAVED ENAMEL, HIGH GLOSS BLACK, NEW HENRIS ENGRAVING MACHINE CO, (873602 REF)		5		8
ARS		SOLVENT, ENGRAVING ENAMEL CLEANER, (873602 REF) NEW HENRIS ENGRAVING MACHINE CO		5		9
						10
						11
						12
						13
						14
						15
						16
						17
						18
						19
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						21
						22
						23

QUANTITY REQUIRED		BY THE ASSEMBLY NO.	DESCRIPTION	UNIT	QTY	ITEM
22	R203	MIDDLE FLIP CHIP (TRIPLE FLIP-TRIP)	4		IA2	
					THW	
					IA5	
					IA7	
					THRU	
					IA13	
					IA24	
					THRU	
					IA29	
3	R187	MIDDLE FLIP CHIP (3 INVERTERS)			IA20	
					IA21	
					IA22	
17	R861	MIDDLE FLIP CHIP (RELAY DRIVER)	4		IB1	
					IB5	
					IB5	
					IB8	
					THRU	
					IB11	
					IB15	
					IB17	
					IB18	
					IB24	
					THRU	
					IB25	

NO DOCUMENTS ABOVE 8000
 ABOVE 8000 ARE ASSEMBLY
 EXPENSE MATL. NO-PROCESS MATL.

ONE DISTRIBUTION UNIT

NO OTHER MATL.

UNCLASSIFIED

NO OTHER MATL.

362277

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DESIGN AGENCY PART NUMBER	PART CLASSIFICATION	NOMENCLATURE	LENGTH
363326-000	UNCLASSIFIED	06569-1	29.000-1.000
363326-001	UNCLASSIFIED	06569-2	34.000-1.000
363326-002	UNCLASSIFIED	06569-3	45.000-1.000
363326-003	UNCLASSIFIED	06569-4	50.000-1.000
363326-004	UNCLASSIFIED	06569-5	72.000-1.000
363326-005	UNCLASSIFIED	06569-6	96.000-1.000
363326-006	UNCLASSIFIED	06569-7	120.000-1.000
363326-007	UNCLASSIFIED	06569-8	140.000-1.000

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1 A

DESIGNATION LEVEL

UNCLASSIFIED

DESIGN NUMBER

363326

NOTES: PROCUREMENT INFORMATION

1. PROCURE THIS ITEM MANUFACTURED BY THE LISTED SOURCE ONLY.
2. PROCURE THIS ITEM ONLY FROM A SUPPLIER LISTED ON THE "QUALIFIED PRODUCTS LIST OF PRODUCTS QUALIFIED UNDER MILITARY SPECIFICATIONS".
3. PROCURE ITEMS LISTED BY COMMERCIAL PART NUMBER IN THE "DESIGN AGENCY NO." COLUMN, AS MANUFACTURED BY THE SOURCE LISTED OR AS DEFINED ON THE REFERENCED SANDIA DRAWING, WHEN LISTED, OR A COMMERCIAL EQUIVALENT WHEN A SANDIA DRAWING IS NOT LISTED.
4. DRAWING OR PART NUMBERS LISTED PARENTHETICALLY AS REFERENCE IN THE DESCRIPTION COLUMN ARE FOR INTERNAL STOCK AND PROCUREMENT PURPOSES AT SANDIA.
5. PROCURE THIS ITEM MANUFACTURED BY ANY OF THE FOLLOWING: ALPINE WIRE CORP., TYPE FIT-22; WATGLAD TUBES, INC., TYPE WGT-12.

ASSEMBLY INFORMATION

7. FOR SPECIFIC PROCESSING, MANUFACTURING AND ASSEMBLY REQUIREMENTS NOT OTHERWISE COVERED ON THE DRAWING, SEE 723126.
8. COMPONENTS NOT IDENTIFIED BY ITEM NUMBER ON THE ASSEMBLY ARE LOCATED IN THE LIST OF MATERIAL BY REFERENCE DESIGNATIONS.

9. HOT STAMP DESIGNATIONS.
10. INSTALL CONNECTOR(S) PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.

FORM 10-1 (REV. 1-65)										DESIGN AGENCY NUMBER									
UNCLASSIFIED										PART NUMBER A 363326									
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DESIGN AGENCY PART NO.

MANUFACTURING
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HA 173126

GENERAL SPECIFICATION FOR ACCEPTABLE EQUIPMENT

2

APP

CABLE

CONDUCTOR (CT)

1

APP 00-9-571

SOLDER, 60/40, FOLM W, TYPE N OR NHA, CABLE P2

1

APP

INSULATION IS ERMINE, SAT SHREINABLE

1

2 GRM-7447

CONN, PLUG, ELEC, CENAS, NCS 60 (11002-00 ALF)

1

P1
P2

MANUFACTURE ARMED, REAR
ARMED REAR NON-ARMED
EXPENSE NATL, MANUFACTURE NATL

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PRINTED IN U.S.A. 173126-0000

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NOTES: PROCUREMENT INFORMATION

1. PROCURE THIS ITEM ONLY FROM A SUPPLIER LISTED ON THE "QUALIFIED PRODUCTS LIST OF PRODUCTS QUALIFIED UNDER MILITARY SPECIFICATIONS".
2. PROCURE ITEMS LISTED BY COMMERCIAL PART NUMBER IN THE "DESIGN AGENCY NO." COLUMN, AS MANUFACTURED BY THE SOURCE LISTED OR AS DEFINED ON THE REFERENCED SANDIA DRAWING, WHEN LISTED, OR A COMMERCIAL EQUIVALENT WHEN A SANDIA DRAWING IS NOT LISTED.
- 3.
4. PREPARE VINYL ASSEMBLY BY DISSOLVING PIECES OF VINYL IN TETRAHYDROFURAN AND/OR CYCLOHEXANONE AS REQUIRED.

ASSEMBLY INFORMATION

7. FOR SPECIFIC PROCESSING, MANUFACTURING AND ASSEMBLY REQUIREMENTS NOT OTHERWISE COVERED ON THE DRAWING, SEE 128176.
8. COMPONENTS NOT IDENTIFIED BY ITEM NUMBERS ON THE ASSEMBLY ARE LOCATED IN THE LIST OF MATERIAL BY REFERENCE DESIGNATIONS.

9. HOT STAMP DESIGNATIONS

															ONE CLASSIFICATION LEVEL		DESIGN AGENCY NUMBER	
															UNCLASSIFIED		DESIGN AGENCY NUMBER	
															A		363327	
															SHEET 2			

DESIGN AGENCY PART NO.

MANUFACTURING DESIGNATIONS

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9-65

P1

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P2

P3

P4

P5

NOTE: ALL WIRE, SIZE 24 (0.020).

WIRING DIAGRAM

FORM 10-1 (REVISION 1-67)

FORM 10-1 (REVISION 1-67)

UNCLASSIFIED

REV

FORM 10-1 (REVISION 1-67)

363327

DATE

BY

QUANTITY REQUIRED			DESIGN SYMBOL NO.	DESCRIPTION	UNIT	EST. TIME	TEAM
	NA	173126		GENERAL SPECIFICATION FOR ACCEPTANCE EQUIPMENT	1		
ANS				WIRE, INSULATED, TYPE 24 T. 600 PART 2, P2 THRU P4			1
ANS	MIL-E-7004			INSULATION, GLASS, WIRE	1		2
ANS	MIL-E-7004			TAP, WIRE	1		3
ANS	MIL-E-7004			LACING, WIRE, NYLON, CHAINED, TYPE 2 CLASS 4	1		4
ANS				ARMATURE, WIRE	1		5
ANS	QC-9-571			GOLDER, 200, FORM W, TYPE 1 OR 10A, CONC 72	1		6
							7
							8
							9
							10
1	57-3050			CONE, FIBER, ELY. IMPROVED CONNECTION BY			P1
4	W011-10F			CONE, CABLE, DIGITAL EQUIPMENT CON			P2
							P3
							P4
							P5

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 NATIONAL ARCHIVES AND RECORDS SERVICE

THIS CLASSIFICATION IS

THIS SECURITY NUMBER

UNCLASSIFIED

THIS CLASS NUMBER

A 363327

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NOTES: PROCUREMENT INFORMATION

- 1.
- 2.
3. PROCURE THIS ITEM ONLY FROM A SUPPLIER LISTED ON THE "QUALIFIED PRODUCTS LIST OF PRODUCTS QUALIFIED UNDER MILITARY SPECIFICATIONS".
4. PROCURE ITEMS LISTED BY COMMERCIAL PART NUMBER IN THE "DESIGN AGENCY NO." COLUMN, AS MANUFACTURED BY THE SOURCE LISTED OR AS DEFINED ON THE REFERENCED SANDIA DRAWING, WHEN LISTED, OR A COMMERCIAL EQUIVALENT WHEN A SANDIA DRAWING IS NOT LISTED.

ASSEMBLY INFORMATION

7. FOR SPECIFIC PROCESSING, MANUFACTURING AND ASSEMBLY REQUIREMENTS NOT OTHERWISE COVERED ON THE DRAWING, SEE 173135.
8. COMPONENTS NOT IDENTIFIED BY ITEM NUMBERS ON THE ASSEMBLY ARE LOCATED IN THE LIST OF MATERIAL BY REFERENCE DESIGNATIONS.

9. DISCARD CONNECTOR BACKSHELL.
10. HOT STAMP DESIGNATIONS.
11. ENCAPSULATE USING ITEMS 15, 16 AND 17.
12. SEAL REAR FACE OF INSERT, USING ITEM 14, PRIOR TO ENCAPSULATION OF #2.

FORM CLASSIFICATION LEVEL

UNCLASSIFIED

AND AGENCY NUMBER

REF AND NUMBER
A 363328
SERIAL 2

DATE CLASSIFICATION LEVEL

DESIGN AGENCY PART NO

MANUFACTURING DESIGNATIONS

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P2

DATE CLASSIFICATION LEVEL

UNCLASSIFIED

DATE AGENCY NUMBER

DATE NUMBER
A 363328

DATE

P1

CONFIDENTIAL

CONFIDENTIAL

P2

INSERT 4-23-21P

NOTE: ALL WIRE SIZE 24 (0.020)

WIRING DIAGRAM

										FORM 10-1 (10-10-67)		FORM 10-1 (10-10-67)	
										UNCLASSIFIED		369328	
										A		369328	
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P1

INSERT - 13-32P

B	C	D	E	F	G	H	I	J	K	L	M	N	P	R	S	T	U	V	W	X	Y	Z	1	2	3	4	5	6	7	8	9	A
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P2

D	E	F	G	H	I	J	K	L	M	N	P	R	S	T	U	V
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P3

NOTE: ALL WIRE, SIZE 24 (0.020).

WIRING DIAGRAM

OWG CLASSIFICATION LEVEL

OWG AGENT NUMBER

UNCLASSIFIED

OWG AND NUMBER

A 363329

DATE 14

1000

A

UNCLASSIFIED		DATE OF CLASSIFICATION		CLASSIFICATION LEVEL		DATE OF REVIEW		REVIEWER	
ISSUE	REVISION	DESCRIPTION	DATE	BY	REASON	DATE	BY	REASON	REMARKS
NA	178126	GENERAL SPECIFICATION FOR ACCEPTANCE EQUIPMENT							
ARS	MIL-1-7444	WIRE, INSULATED, SIZE M (1041), PART OF P2 AND P3							1
ARS	MIL-1-7444	INSULATION, DIELECTRIC, 4-MPH							2
ARS	MIL-1-7444	TAPE, VINYL							3
ARS	MIL-1-713	LAMINATE, POLYESTER, UNARMED, TYPE P, CLASS 2							4
ARS		ADHESIVE, VINYL							5
ARS	DD-S-571	SOLENOID, 50-50, FORM W, TYPE A, 50 HZ, CORE P2							6
ARS	4169	ENCAPSULATION, CONTINUOUS, GREEN, NYLON CORE							7
ARS	3471	CORING, AROUND, NYLON CORE							8
ARS	1	RESIN, DIELECTRIC, FOR INSULATION							10
1	PT06P-18-32P	CONN, PLUG, ELEC, BUNDLE CORP, SCHMIDT & CO							P1
2	W023-70R	CONN, CABLE, ELEC, ORBITAL EQUIP CORP							P2
									P3

NA-DOCUMENTS AND-AS RECD
 AND-AS RECD PER AGREEMENT
 SM-EXPERIMENTAL AND-AS RECD

DATE OF CLASSIFICATION

DATE OF REVIEW

UNCLASSIFIED

DATE

REASON

368329

SHEET

5

NOTES: PROCUREMENT INFORMATION:

- 1.
2. PROCURE THIS ITEM ONLY FROM A SUPPLIER LISTED ON THE HOUSING PRODUCTS LIST OF PRODUCTS QUALIFIED UNDER MILITARY SPECIFICATION 97.
3. PROCURE ITEMS LISTED BY COMMERCIAL PART NUMBER IN THE DESIGN AGENCY NO. 1 COLUMN AS MANUFACTURED BY THE SOURCE LISTED OR AS DEFINED ON THE REFERENCED SANDIA DRAWING, WHEN LISTED OR A COMMERCIAL EQUIVALENT WHEN A SANDIA DRAWING IS NOT LISTED.
- 4.
5. PREPARE VINYL ADHESIVE BY DISSOLVING PIECES OF VINYL IN TETRAHYDROFURAN AND/OR CYCLOHEXANE AS REQUIRED.

ASSEMBLY INFORMATION:

7. FOR SPECIFIC PROCESSING, MANUFACTURING AND ASSEMBLY REQUIREMENTS NOT OTHERWISE COVERED ON THE DRAWING, SEE 173126.
8. COMPONENTS NOT IDENTIFIED BY ITEM NUMBERS ON THE ASSEMBLY ARE LOCATED IN THE LIST OF MATERIAL BY REFERENCE DESIGNATIONS.
9. HOT STAMP DESIGNATIONS.
10. ENCAPSULATE USING ITEMS 8, 9 AND 10.

FORM CLASSIFICATION LEVEL

UNCLASSIFIED

NSA AGENCY NUMBER

NSA NUMBER
A 369330

TABLET 2

DDC DISPOSITION LEVEL

1000

DDC DISPOSITION LEVEL		DDC AGENCY NUMBER	
UNCLASSIFIED		A 363330	
PAGE 3		PAGE 3	

PRINTED IN USA - GPO: 1964 O - 718-718

SWD CLASSIFICATION LEVEL

P1

INSERT - (B-25P)

3 C D E F G H I J K L M N P R S T U V

D E H K M P S T U V

P2

D E H K M P S T U V

P3

NOTE : ALL WIRE, SIZE 24 (GEO).

WIRING DIAGRAM

SWD CLASSIFICATION LEVEL

REF AGENCY NUMBER

UNCLASSIFIED

REF AGENCY NUMBER
363330

DATE 4

QUANTITY REQUIRED		DESIGN AGENCY NO.		DESCRIPTION	NOTE	SHEET NO.	ITEM
NA 173126				GENERAL SPECIFICATION FOR ACCEPTANCE EQUIPMENT	7		
ARS	MIL-7-7444			WIRE, INSULATED, SIZE 24 7, 0201, PART OF P2 AND P3	1		1
ARS	MIL-7-7444			INSULATION, FLEXYING, 1MM	2		2
ARS	MIL-7-713			TAPE, CONVE	3		3
ARS				LACING, 15 IN, NYLON, UNWAXED, TYPE F, CLASS 2	4		4
ARS				ADHESIVE, VINYL	5		5
ARS	CG-8-571			SOLDER, 60 40, FORM 8, TYPE 2 OF SMA, CORE PT	6		6
ARS	5169			ENCAPSULATION CONTAINER, GREEN, JESOL CRSP	7		7
ARS	3471			CONTING AGENT, NYLON, CONP	8		8
ARS	1			RESIN, DETACHED, HAS INDICATORS	9		9
					10		10
1	PTOSP-10-789			CONN, PLUG, ELEC, DENSITY CONP, 32 W/100A, DRY			P1
2	W021-83 R			CONN, CABLE, ELEC, SIGNAL, 100A, CONP			P2
							P3

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 IS PROHIBITED FOR ANY PURPOSE
 EXCEPT AS MAY BE OTHERWISE NOTED

CLASSIFICATION CODE

UNCLASSIFIED

DESIGN AGENCY NUMBER

DATE

163330

SHEET

5

PRINTED IN U.S.A. FORM 100-100-100

FORM 100-100-100

NOTES: PROCUREMENT INFORMATION:

- 1.
2. PROCURE THIS ITEM ONLY FROM A SUPPLIER LISTED ON THE "QUALIFIED PRODUCTS LIST OF PRODUCTS QUALIFIED UNDER MILITARY SPECIFICATIONS".
3. PROCURE ITEMS LISTED BY COMMERCIAL PART NUMBER IN THE DESIGN AGENCY NO. - COLUMN, AS MANUFACTURED BY THE SOURCE LISTED OR AS DEFINED ON THE REFERENCED SANDIA DRAWING, WHEN LISTED OR A COMMERCIAL EQUIVALENT WHEN A SANDIA DRAWING IS NOT LISTED.
- 4.
5. PREPARE VINYL ADHESIVE BY DISSOLVING PIECES OF VINYL IN TETRAHYDROFURAN AND/OR CYCLOHEXANONE AS REQUIRED.

ASSEMBLY INFORMATION:

7. FOR SPECIFIC PROCESSING, MANUFACTURING AND ASSEMBLY REQUIREMENTS NOT OTHERWISE COVERED ON THE DRAWING, SEE 173-26.
8. COMPONENTS NOT IDENTIFIED BY ITEM NUMBERS ON THE ASSEMBLY ARE LOCATED IN THE LIST OF MATERIAL BY REFERENCE DESIGNATIONS.
9. NOT STAMP DESIGNATIONS.
10. ENCAPSULATE USING ITEMS 8, 9 AND 10.

DOC CLASSIFICATION LEVEL

DOC SECRET NUMBER

UNCLASSIFIED

DOC NUMBER
A 363331

SHEET 2

ITEM

A

P1
INSERT-16-26 P

A B C D E F G H I J K L M N P Q R S T U

D S H A M P I S T V

D S H A M P I S T V

P2

P3

NOTE: ALL WIRE, SIZE 24 (.020).

WIRING DIAGRAM

FORM CLASSIFICATION LEVEL		FORM DESIGN NUMBER	
UNCLASSIFIED		363331	
DATE		PAGE	

NOTES PROCUREMENT INFORMATION

1. ITEMS NORMALLY REQUIRING A MINIMUM \$100 CHARGE AND/OR LONG TERM PROCUREMENT.
- 2.
3. PROCURE THIS ITEM MANUFACTURED BY THE LISTED SOURCE ONLY.
4. PROCURE THIS ITEM ONLY FROM A SUPPLIER LISTED ON THE "QUALIFIED PRODUCTS LIST OF PRODUCTS QUALIFIED UNDER MILITARY SPECIFICATIONS".
5. PROCURE ITEMS LISTED BY COMMERCIAL PART NUMBER IN THE "DESIGN AGENCY NO. COLUMN" AS MANUFACTURED BY THE SOURCE LISTED OR AS DEFINED ON THE REFERENCED SANDIA DRAWING, WHEN LISTED, OR A COMMERCIAL EQUIVALENT WHEN A SANDIA DRAWING IS NOT LISTED.
6. DRAWINGS OR PART NUMBERS LISTED PARALLEL TO THE DESCRIPTION COLUMN ARE FOR INTERNAL STOCK AND PROCUREMENT PURPOSES AT SANDIA.
7. PREPARE VLMU ADHESIVE BY DISSOLVING PAGES OF VLMU IN TETRAHYDROFURAN AND/OR CYCLOHEXANONE AS REQUIRED.

INFO CLASSIFICATION LEVEL

UNCLASSIFIED

INFO AGENCY NUMBER

FILE NO. NUMBER
A 363373

PAGE 2

NOTES: ASSEMBLY INFORMATION

10. FOR SPECIFIC PROCESSING, MANUFACTURING AND ASSEMBLY REQUIREMENTS NOT SPECIFICALLY COVERED ON THE DRAWING, SEE 133126.

11. COMPONENTS NOT IDENTIFIED BY ITEM NUMBERS ON THE ASSEMBLY ARE LOCATED IN THE LIST OF MATERIAL BY REFERENCE DESIGNATIONS.

12. USE THIS DIMENSION FOR PRINT INSPECTION MEASUREMENT ONLY. DO NOT USE PRINTS MORE THAN 100 INCH OUT-OF-SCALE FOR DRILLING TEMPLATES.

13. ASSEMBLY HARDWARE IS SUPPLIED WITH PART 15.

14. ORIENT COMPONENTS IN POSITIONS SHOWN.

15. NOMENCLATURE FOR THE UNIT IS 85057.

16. REFERENCE DESIGNATIONS APPEARING WITHIN A DOTTED RECTANGLE ARE TO BE MARKED ON OPPOSITE SIDE.

17. DO NOT MARK DESIGNATIONS APPEARING IN BRACKETS AND DIMENSIONS APPEARING WITHIN OUTLINE OF VIEWS OR THE UNIT.

18. MARK (WITH COVER COAT) REFERENCE DESIGNATION, .125 INCH BLACK CHARACTERS, LOCATE APPROXIMATELY AS SHOWN.

19. APPLY CHEMICAL FILM TO ITEM 1.

DISC CLASSIFICATION LEVEL

DISC NUMBER

UNCLASSIFIED

DISC NUMBER

A 37 3373

DISC

DISC (A) (14-42)

NOTES: WIRING INFORMATION

20. DASH-DOT LINE SHOWN ON FIG. 573 INDICATES PATH OF WIRE TO BE FOLLOWED WHEN UNIT IS WIRED.
21. LACE ALL WIRES INTO A BARRICADE USING TAPE. ITEM 35, OR 36 OTHERWISE SPECIFIED.
22. ALL WIRES TERMINATING AT COMPONENTS HAVING SCREW TYPE TERMINALS SHALL BE EQUIPPED WITH PREINSULATED END TERMINALS. TERMINAL SIZE TO BE DETERMINED BY THE SCREW TERMINAL AND THE WIRE SIZE.
23. CLAMP CABLES, USING ITEM 25.

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MS 173-100

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1. Remove the top cover of the unit by unscrewing the four screws located on the top panel.

2. Disconnect the power cord from the rear of the unit.

3. Remove the top cover of the unit by unscrewing the four screws located on the top panel.

4. Remove the top cover of the unit by unscrewing the four screws located on the top panel.

5. Remove the top cover of the unit by unscrewing the four screws located on the top panel.

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20. Remove the top cover of the unit by unscrewing the four screws located on the top panel.

21. Remove the top cover of the unit by unscrewing the four screws located on the top panel.

22. Remove the top cover of the unit by unscrewing the four screws located on the top panel.

															DATE CLASSIFICATION LEVEL UNCLASSIFIED		NO. DOCUMENT NUMBER 263374	
NAME ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐															SIZE ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐		SHEET ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	

ASSEMBLY INFORMATION (CONT.)

23. APPLY FINISH TO CHASSIS AND PAIR PARTS.
24. USE THE SURFACE SPECIFICATION OR THE NUMBER OF SURFACES SPECIFIED, GO TO APPROPRIATE SPECIFICATION.
25. FOR EXPLANATION OF DIMENSIONS, TOLERANCES, AND SYMBOLIZATION, SEE DRAWING.
26. CD3 COMPONENT SHAFT TO AN APPROPRIATE LENGTH AND SLOT FOR SCREWDRIVER ADJUSTMENT.

UNCLASSIFIED

ADD AGENCY NUMBER

UNCLASSIFIED

SIZE: DWD NUMBER

A 363374

SHEET 4

WIRING INFORMATION

30. INSTALL INSULATION SLEEVING, ITEM 6.2, IN METALLIC CASE DIODES WHEN IT IS POSSIBLE FOR THE DIODE CASE TO CONTACT ADJACENT COMPONENTS OR A CONDUCTIVE CHASSIS. SLEEVING SHALL BE OF SUCH A LENGTH THAT MAXIMUM MOVEMENT OF THE SLEEVING WILL NOT EXPOSE ANY METALLIC PART OF THE INSTALLED DIODE.
31. LACE ALL WIRES INTO A HARNESS USING TAPE, ITEM 4.4, UNLESS OTHERWISE SPECIFIED.
32. ALL WIRES TERMINATING AT COMPONENTS HAVING SCREW TYPE TERMINALS SHALL BE EQUIPPED WITH PREINSULATED LUG TERMINALS; TERMINAL SIZE TO BE DETERMINED BY THE SCREW TERMINAL AND THE WIRE SIZE.
33. COMPONENTS AND WIRES SHOWN ON TERMINALS SHALL NOT BE SOLDERED IN PLACE UNTIL ALL EXTERNAL CONNECTIONS HAVE BEEN MADE AT FINAL ASSEMBLY.
34. CLAMP LABELS, USING ITEM 30.

DOC CLASSIFICATION LEVEL

REQ AGENCY NUMBER

UNCLASSIFIED

SIZE A
DOC NUMBER 363374
SHEET 5

10000

A

QUANTITY REQUIRED		NAME OF PART		PART NUMBER		REF.	FILE	IN
2	BT-855	CONN. RECP. ELEC	(814622 REF)					J9
		AMPHENOL ELECTRONICS, INC						J18
3	BF378C	POST. BINDING, BLK	(832897 REF)					J10
		SUPERIOR ELECTRIC CO.						J11
1	5875	CONN. RECP. ELEC. #, HUBBELL INC	(832341 REF)					J12
1	105-602	JACK, TIP, RED, E.F. JOHNSON CO.	(836054 REF)					J13
1	105-603	JACK, TIP, BLK, E.F. JOHNSON CO.	(837040 REF)					J16
2	8340	RELAY, ARMATURE 20.5 VDC	(832101 REF)					K1
		JENNINGS RADIO MFG						K2
1	8328	RELAY, ARMATURE 20.5 VDC	(832101 REF)					K3
		JENNINGS RADIO MFG						
2	88109-300-PS-26V	RELAY, ARMATURE	(832101 REF)					K4
		SPRUELL RELAY, INC						K5
								K6
								K8
								THRU
								K16
1	65533547	RELAY, ARMATURE	(832101 REF)					K7
		GUARDIAN ELECTRIC CO.						
1	HP 6186A	POWER SUPPLY, PERLETT-PACKARD, HARRISON DIVISION						PS1
1	CEAG-500Z500R	POWER SUPPLY, 500VDC, CPA, BERKLEONICS INC						PS2

HAND DOCUMENTS 42-46 REGD
 42-46 REGD PER ASSEMBLY
 42-46 REGD PER ASSEMBLY

NEW DOCUMENTS 42-46

REF. SOURCE NUMBER

UNCLASSIFIED

FILE NO. NUMBER
 A 363374

FILE NO.

PART NAME			QTY	UOM
1	ASL	RESISTOR, FIXED, 20K, 1/4, 5%, 1W		R1
		INTERNATIONAL RESISTANCE CO.		
1	RS52CE250RDF	RESISTOR, FIXED, 250 OHMS, 1/4, 5%, 1W	(857831 REF)	R2
1	RS52CE10RDF	RESISTOR, FIXED, 10 OHMS, 1/4, 5%, 1W	(857836 REF)	R3
1	RS52CE10RDF	RESISTOR, FIXED, 10 OHMS, 1/4, 5%, 1W	(857836 REF)	R4
1	RS52CE10RDF	RESISTOR, FIXED, 10 OHMS, 1/4, 5%, 1W	(857836 REF)	R6
2	RS52CE10RDF	RESISTOR, FIXED, 10 OHMS, 1/4, 5%, 1W	(857836 REF)	R7
				R8
1	RS52CE10RDF	RESISTOR, FIXED, 10 OHMS, 1/4, 5%, 1W	(857836 REF)	R9
1	ASL	RESISTOR, FIXED, 10 OHMS, 1/4, 5%, 1W		R10
		INTERNATIONAL RESISTANCE CO.		
9	RFH	RESISTOR, FIXED, 10 OHMS, 1/4, 5%, 1W		R11
		INTERNATIONAL RESISTANCE CO.		THRU
				R19
1	TYPE 2245	RESISTOR, VAR, 50K, 1/4, ALLEN-BRADLEY 1874527 REF		R20
1	2245-1-100M	RESISTOR, VARIABLE, 10 OHMS, 1/4, 5%, 1W	(815353 REF)	R21
		BOURNS LAB., INC.		
2	2245-1-101M	RESISTOR, VARIABLE, 100 OHMS, 1/4, 5%, 1W	(815354 REF)	R22
		BOURNS LAB., INC.		R23
1	TYPE 2245	RESISTOR, VARIABLE, 50 OHMS, 1/4, 5%, 1W		R24
		BOURNS LAB., INC.		
1	TYPE 2245	RESISTOR, VARIABLE, 50 OHMS, 1/4, 5%, 1W		R25
		BOURNS LAB., INC.		
1	TYPE 2245	RESISTOR, VARIABLE, 50 OHMS, 1/4, 5%, 1W		R26
		BOURNS LAB., INC.		
1	2245-1-100M	RESISTOR, VARIABLE, 10 OHMS, 1/4, 5%, 1W	(815353 REF)	R27
		BOURNS LAB., INC.		
1	2245-1-101M	RESISTOR, VARIABLE, 100 OHMS, 1/4, 5%, 1W	(815354 REF)	R28
		BOURNS LAB., INC.		
1	RS52CE150RDF	RESISTOR, FIXED, 150 OHMS, 1/4, 5%, 1W	(857841 REF)	R29
1	RS52CE250RDF	RESISTOR, FIXED, 250 OHMS, 1/4, 5%, 1W	(857842 REF)	R30
1	RC42CE245J	RESISTOR, FIXED, COM, 74K, 1/4, 5%, 2W	(850991 REF)	R31-
				R38

HANDCLIMENTS ARENAB 8800
 ARENAB 8800 FOR ASSEMBLY
 ENH-EXPENSE WATL PNM-PROCESS WATL

NO UNCLASSIFIED DATA

UNCLASSIFIED

AFS AGENCY NUMBER

P/N 363374
 SHEET 11

1	224S-1-101M	RESISTOR, VAR, 100, 1/2, 1W, 200HNS, CAS	1075-50, REF	4	X39
2	224S-1-102M	RESISTOR, VAR, 1K, 1/2, 1W, 200HNS, CAS	1075-50, REF	4	X40
					X41
12	W01G/10011-12	SOC, 1, 100, 1W, 200HNS, CAS	1075-50, REF	4	X44
		VICKING INDUSTRIES, INC			X45
					X46
					X49
					T4RD
					X418

1. ALL DOCUMENTS ARE TO BE RECD
 2. RECD-AS RECD PER ASSEMBLY
 3. EMERGENCY MATL FROM PROCESS MATL

1. ALL DOCUMENTS ARE TO BE RECD

2. RECD-AS RECD PER ASSEMBLY

UNCLASSIFIED

3. EMERGENCY MATL FROM PROCESS MATL
 4. 363374
 5. 12

NOTES: PROCUREMENT INFORMATION

1. PROCURE THIS ITEM ONLY FROM A SUPPLIER LISTED ON THE QUALIFIED PRODUCTS LIST OF PRODUCTS QUALIFIED UNDER MILITARY SPECIFICATIONS.
2. PROCURE ITEMS LISTED BY COMMERCIAL PART NUMBER IN THE DESIGN SYMBOL NO. COLUMN AS MANUFACTURED BY THE SOURCE LISTED OR AS DEFINED ON THE REFERENCED SANDIA DRAWING, WHEN LISTED, OR A COMMERCIAL EQUIVALENT WHEN A SANDIA DRAWING IS NOT LISTED.
4. PREPARE VINYL MONESIVE BY DISSOLVING PIECES OF VINYL IN TETRAHYDROFURAN AND/OR CYCLOHEXANONE AS REQUIRED.

ASSEMBLY INFORMATION

7. FOR SPECIFIC PROCESSING, MANUFACTURING AND ASSEMBLY REQUIREMENTS NOT OTHERWISE COVERED ON THE DRAWING, SEE 173726.
8. COMPONENTS NOT IDENTIFIED BY ITEM NUMBERS ON THE ASSEMBLY ARE LOCATED IN THE LIST OF MATERIAL BY REFERENCE DESIGNATIONS.
9. HOT STAMP DESIGNATIONS.

ITEM CLASSIFICATION LEVEL

UNCLASSIFIED

DESIGN SYMBOL NUMBER

ITEM INFO NUMBER

A 363376

SHEET

2

ONE CLASSIFICATION LABEL

ONE ASSET NUMBER

UNCLASSIFIED

ONE NUMBER
A 363376

SHEET 5

P1
INSERT-145-6P

NOTE : ALL WIRE, SIZE 18 (.045).

WIRING DIAGRAM

OWS CLASSIFICATION LEVEL		OWS AGENCY NUMBER	
UNCLASSIFIED		OWS NUMBER	363376
OWS DATE		OWS DATE	11

QUANTITY REQUIRED		ITEM		QTY	UNIT	ITEM
NA	173726	GENERAL SPECIFICATION FOR ACCEPTABLE EQUIPMENT		7		
A	MS3057-68	ADAPTER, CABLE TO CONNECTOR (MS3057-68 SET)		1		1
ARS	AN3420-A TYPE	BUSHING, RUBBER		1		1
ARS	MIL-W-16278	WIRE, INSULATED, SIZE 18 (14-16 MIL), TYPE C				1
ARS	MIL-T-7044	INSULATION, SLEEVING, VINYL				1
ARS		ADHESIVE, VINYL				1
ARS	MIL-T-713	LACING TWINE, NYLON, 5/16 INCH, TYPE P, CLASS 1				1
ARS	MIL-T-7044	TAPE, VINYL				12
ARS	QQ-S-571	SOLDER, SNOB, 60/40 W, TYPE R OR RMS, CORE W2				11
						12
1	MS3106A-145-68	CORN, PLUG, ELEC		1		1
2	MS3106A-145-68	CORN, PLUG, ELEC		1		2

MANUFACTURE BY ARPAE R509
 ARPAE R509 FOR ASSEMBLY
 EXHIBIT NO. 145-145-68

DATE DISCONTINUED (MM)

DATE ASSEMBLY NUMBER

UNCLASSIFIED

DATE ASSEMBLY NUMBER

DATE ASSEMBLY NUMBER

DATE ASSEMBLY NUMBER

NOTES: PROCUREMENT INFORMATION

1. PROCURE THIS ITEM ONLY FROM A SUPPLIER LISTED ON THE "QUALIFIED PRODUCTS LIST OF PRODUCTS QUALIFIED UNDER MILITARY SPECIFICATIONS".
2. PROCURE ITEMS LISTED BY COMMERCIAL PART NUMBER IN THE "DESIGN AGENCY NO." COLUMN, AS MANUFACTURED BY THE SOURCE LISTED OR AS DEFINED ON THE REFERENCED SANDIA DRAWING, WHEN LISTED, OR A COMMERCIAL EQUIVALENT WHEN A SANDIA DRAWING IS NOT LISTED.
3. DRAWING OR PART NUMBERS LISTED PARENTHETICALLY AS REFERENCE IN THE DESCRIPTION COLUMN ARE FOR INTERNAL STOCK AND PROCUREMENT PURPOSES AT SANDIA.
4. PREPARE VINYL ADHESIVE BY DISSOLVING PIECES OF VINYL IN TETRAHYDROFURAN AND/OR CYCLOHEXANONE AS REQUIRED.

ASSEMBLY INFORMATION

7. FOR SPECIFIC PROCESSING, MANUFACTURING AND TEST/MOUNT REQUIREMENTS NOT OTHERWISE COVERED ON THE DRAWING, SEE 173126.
8. COMPONENTS NOT IDENTIFIED BY ITEM NUMBERS ON THE ASSEMBLY ARE LOCATED IN THE LIST OF MATERIAL BY REFERENCE DESIGNATIONS.

9. NOY STAMP DESIGNATIONS.

DRG CLASSIFICATION LEVEL

UNCLASSIFIED

DRG AGENCY NUMBER

SERIAL DRG NUMBER

A 363377

SHEET 2

168950-42(10-43)

DESIGN AGENCY PART NO.

MANUFACTURING
DESIGNATIONS

P1

PL 04583

28330-34

P2

WIRING DIAGRAM

OWN CLASSIFICATION LEVEL

UNCLASSIFIED

WPS NUMBER NUMBER

A 363377

SHEET 3

ISSUE 1 A B C

PRINTED IN USA

60.333

AC3300 45110-04

ITEM REQUIRED		ITEM NUMBER	DESCRIPTION	QTY	UNIT
NA	175126		GENERAL SPECIFICATION FOR ACCEPTANCE EQUIPMENT		
ARS	1756		CABLE, POWER, TREC, ALPHA WIRE CO.		
ARS	20-S-971		SOLDER, SNOB, POMA, TYPE A OR BWA, CORE P2	1	
ARS	MIL-1-7444		INSULATION, SLEEVING, VINYL	1	
ARS			ADHESIVE, VINYL	4	
ARS	MIL-1-713		LACING TWINE, NYLON, UNWAXED, TYPE 2, CLASS 2	1	
2	XLR-3-110		CORR, FLOR, TREC, LAMSON ELECTRIC CO. (837645 REF)		

1
2
3
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9
10
11
12

UNCLASSIFIED
EXCLUDED FROM AUTOMATIC DOWNGRADING AND DECLASSIFICATION
EXCLUDED FROM AUTOMATIC DOWNGRADING AND DECLASSIFICATION

NO CLASSIFICATION LEVEL

NO AGENCY NUMBER

UNCLASSIFIED

NO AGENCY NUMBER

A 361377

NO AGENCY NUMBER

DESIGN NUMBER
PART IDENTIFICATION NO.

REV

DESCRIPTION

DATE

BY

CHKD

APPD

B

REVISION NO. 22-13

C

CHS75H 5 WIRING DIAGRAM - REVERSED PINS 1 & 2
ON RI. A.DRAVECZ, 3/19/68, 2211-3

SHEET
INDEX

1 2 3 4
C A C A

CLASSIFICATION CATEGORY

DESIGN AGENCY APPROVAL

TITLE

DATE

DETAILS

CHS75H

DESIGN AGENCY APPROVAL

DESIGN AGENCY NUMBER

PART CLASSIFICATION

DATE CLASSIFICATION

UNCLASSIFIED

UNCLASSIFIED

REV

DESIGN NUMBER

A

362378

SHEET

OF

4

NOTES: PROCUREMENT INFORMATION

1. PROCURE THIS ITEM ONLY FROM A SUPPLIER LISTED ON THE QUALIFIED PRODUCTS LIST OF PRODUCTS QUALIFIED UNDER MILITARY SPECIFICATIONS.
2. PROCURE ITEMS LISTED BY COMMERCIAL PART NUMBER IN THE DESIGN AGENCY NO. COLUMN AS MANUFACTURED BY THE SOURCE LISTED OR AS DEFINED ON THE REFERENCE SANDIA DRAWING, WHEN LISTED, OR A COMMERCIAL EQUIVALENT WHEN A SANDIA DRAWING IS NOT LISTED.
- 3.
4. PROCURE ONLY FROM LISTED SOURCE.
5. PREPARE VINYL ADHESIVE BY DISSOLVING PIECES OF VINYL IN TETRAHYDROFURAN AND/OR CYCLOHEXANONE AS REQUIRED.

ASSEMBLY INFORMATION

7. FOR SPECIFIC PROCESSING, MANUFACTURING AND ASSEMBLY REQUIREMENTS NOT OTHERWISE COVERED ON THE DRAWING, SEE 17-135.
8. COMPONENTS NOT IDENTIFIED BY ITEM NUMBERS ON THE ASSEMBLY ARE LOCATED IN THE LIST OF MATERIAL BY REFERENCE DESIGNATIONS.
9. HOT STAMP DESIGNATIONS.

										FORM CLASSIFICATION LEVEL		DESIGN AGENCY NUMBER	
										UNCLASSIFIED		FORM NUMBER	
												A 163378	
												THRU 2	

QUANTITY REQUIRED		ITEM DESCRIPTION		NOTE	SHEET TOTAL	TOTAL
NA	173126	GENERAL SPECIFICATION FOR ACCEPTANCE EQUIPMENT		7		
ARS	1744	CABLE, POWER, ELEC.	ALPMA WIRE CORP.			1
ARS	90-6-571	SOLDER, 50/50, 100% N. TYPE R OR RMA, CORE P2		1		2
ARS	MIL-I-7442	INSULATION, SLEEVING, VINYL		1		3
ARS		ADHESIVE, VINYL		5		4
ARS	MIL-T-713	LACING, WIRE, NYLON, UNCOATED TYPE P, CLASS 2		1		5
1	XLR-34110	CORR. PLUG, ELEC.	CANNON ELECTRIC CO. (57846 REP)			6
1	1251-0350	CONN. PLUG, ELEC. HERMETIC PACKED CO.				7
		FURNISHED WITH VOLTMETER MODEL DY-240C				8
						9
						10
						P1
						P2

NO ATTACHMENTS ALLOWED
 APPROVE NEED FOR ASSEMBLY
 INS-EXPENSE DATE, PH-PROPOSED DATE

ONE CLASSIFICATION LEVEL

APR 22/67 NUMBER

UNCLASSIFIED

DATE NUMBER
 A 263378
 1967 4

1800

1 A

PRINTED IN USA - GPO: 1967 O-340-000

FORM 300-A (10-65)

NOTES: PROCUREMENT INFORMATION

1. PROCURE THIS ITEM ONLY FROM A SUPPLIER LISTED ON THE "QUALIFIED PRODUCTS LIST OF PRODUCTS QUALIFIED UNDER MILITARY SPECIFICATIONS".
2. PROCURE ITEMS LISTED BY COMMERCIAL PART NUMBER IN THE "DESIGN AGENCY NO." COLUMN, AS MANUFACTURED BY THE SOURCE LISTED OR AS DEFINED ON THE REFERENCED SANDIA DRAWING, WHEN LISTED, OR A COMMERCIAL EQUIVALENT WHEN A SANDIA DRAWING IS NOT LISTED.
3. DRAWING OR PART NUMBERS LISTED PARENTHETICALLY AS REFERENCE IN THE DESCRIPTION COLUMN ARE FOR INTERNAL STOCK AND PROCUREMENT PURPOSES AT SANDIA.

ASSEMBLY INFORMATION

6. FOR SPECIFIC PRECLEANING, MANUFACTURING AND ASSEMBLY REQUIREMENTS NOT OTHERWISE COVERED ON THE DRAWING, SEE 72A175.
7. COMPONENTS NOT IDENTIFIED BY ITEM NUMBERS ON THE ASSEMBLY ARE LOCATED IN THE LIST OF MATERIAL BY REFERENCE DESIGNATIONS.

NOT STAMP DESIGNATIONS.

CONNECT ALL PINS IN P1 AND P2 CONTACT TO CONTACT, I.E., P1-A TO P2-A, P1-B TO P2-B, ETC., USING WIRE, ITEM 1.

ENCAPSULATE USING ITEMS 7, 8 AND 9.

										UNCLASIFIED		363379	

DESIGN AGENCY PART NO.

MANUFACTURING
DESIGNATION

2

P1

10
9

P1 3633

3633 23

P2

10
9

54,000 ± 4,000

FOR DISTRIBUTION USE

UNCLASSIFIED

FOR AGENCY USE

100 363379
200 3

100 1A

PRINTED IN U.S.A. - 100-100-100

60.335

FOR AGENCY USE

DESIGN AGENCY		PART NUMBER		DATE CLASSIFICATION LEVEL		REVISIONS		REVISIONS		REVISIONS		REVISIONS		REVISIONS	
DESIGN AGENCY	PART NUMBER	DATE CLASSIFICATION LEVEL	REVISIONS	REVISIONS	REVISIONS	REVISIONS	REVISIONS	REVISIONS	REVISIONS	REVISIONS	REVISIONS	REVISIONS	REVISIONS	REVISIONS	REVISIONS
363380-000	A	UNCLASSIFIED	1	2	3	4	5	6	7	8	9	10	11	12	13
(PT1421)															
SHEET	INDEX	1	2	3	4	5	6	7	8	9	10	11	12	13	14
INDEX	INDEX	A	A	A	A	A	A	A	A	A	A	A	A	A	A
DESIGNATION CATEGORY		<div style="border: 1px solid black; width: 100%; height: 100%; position: relative;"> <div style="position: absolute; top: 0; right: 0; width: 100%; height: 100%; background: linear-gradient(to bottom right, transparent 49%, black 49%, black 51%, transparent 51%);"></div> </div>										DESIGN AGENCY APPROVAL BY: DATE: INITIALS:			
DESIGNATION CATEGORY												C6585			
DESIGNATION CATEGORY												RFC AGENT NUMBER			
DESIGNATION CATEGORY												SIZE: 1000 NUMBER			
DESIGNATION CATEGORY												A 363380			
DESIGNATION CATEGORY												SHEET 1 OF 5			

NOTES: PROCUREMENT INFORMATION

1. PROCURE THIS ITEM ONLY FROM A SUPPLIER LISTED ON THE "QUALIFIED PRODUCTS LIST OF PRODUCTS QUALIFIED UNDER MILITARY SPECIFICATIONS".
2. PROCURE ITEMS LISTED BY COMMERCIAL PART NUMBER IN THE "DESIGN AGENCY NO." COLUMN, AS MANUFACTURED BY THE SOURCE LISTED OR AS DEFINED ON THE REFERENCED SANDIA DRAWING, WHEN LISTED, OR A COMMERCIAL EQUIVALENT WHEN A SANDIA DRAWING IS NOT LISTED.
3. DRAWING OR PART NUMBERS LISTED PARENTHESTICALLY AS REFERENCE IN THE DESCRIPTION COLUMN ARE FOR INTERNAL STOCK AND PROCUREMENT PURPOSES AT SANDIA.
4. PREPARE VINYL ADHESIVE BY DISSOLVING PIECES OF VINYL IN TETRAHYDROFURAN AND/OR CYCLOHEXANONE AS REQUIRED.
5. PROCURE ONLY FROM LISTED SOURCE.

ASSEMBLY INFORMATION

7. FOR SPECIFIC PROCESSING, MANUFACTURING AND ASSEMBLY REQUIREMENTS NOT OTHERWISE COVERED ON THE DRAWING, SEE 173-36.
8. COMPONENTS NOT IDENTIFIED BY ITEM NUMBERS ON THE ASSEMBLY ARE LOCATED IN THE LIST OF MATERIAL BY REFERENCE DESIGNATIONS.

9. NOT STAMP DESIGNATIONS.

10. ENCAPSULATE USING ITEMS 7, 8 AND 9.

UNCLASSIFIED

DESIGN AGENCY NUMBER

UNCLASSIFIED

ITEM NUMBER

A 363380

SHEET 2

WIRING DIAGRAM TYPE

PI
INSERT - 12-4P

A B C D

NOTE: ALL WIRE, SIZE 16 (.057).

WIRING DIAGRAM

WIRING CLASSIFICATION LEVEL

UNCLASSIFIED

WIRING NUMBER

WIRING NUMBER

A 349380

WIRING

46

WIRING-82110-001

QUANTITY REQUIRED		ITEM DESCRIPTION	NOTE	SHEET NO.	ITEM
	NA	175125	GENERAL SPECIFICATION FOR ACCEPTANCE EQUIPMENT	7	
	ARS	MIL-H-15675	WIRE, INSULATED, SIZE 16, 373-1015, TYPE C	1	1
	ARS	MIL-H-15675	INSULATION, STEELING, VINYL	2	2
	ARS	MIL-H-15675	TYPE, VINYL	3	3
	ARS	MIL-H-15675	LEADING WIRE, WELON, UNWATED, TYPE F, CLASS 1	4	4
	ARS	MIL-H-15675	WELON, VINYL	5	5
	ARS	QO-8-571	SOLDER, SAG, FORM 4, TYPE 72 OR RMA, CORE R2	6	6
	ARS	5125	CONNECTION CORDING, SPEAR, RTOL CORP	7	7
	ARS	3422	CLAMP, WIRE, RTOL CORP	8	8
	ARS	1	WIRE, WELON, WELON, UNWATED, TYPE F, CLASS 1	9	9
					10
	4	15050	TERMINAL, 100, DIAMOND GRIP, INSULATED AMP, INC (B752-3 REF)	5	E1 THRU E4
	1	PT050-12-4-S	CORN, PLUG, ELE, BELLIX DOW, SCHILLER DIV		PT

NAME DOCUMENTS ADDRESS ROOM ADDRESS ROOM FOR ADDRESS EMPLOYER'S NAME AND ADDRESS		DATE CLASSIFICATION CODE UNCLASSIFIED	DATE AGENCY NUMBER DATE 163380
NAME	A		

DESIGN NUMBER
PART NUMBERING INFO

861384-108

NO.	DATE	BY	CHKD	APPD
1	10/10/84	W. J. B.		
2	10/10/84	W. J. B.		
3	10/10/84	W. J. B.		
4	10/10/84	W. J. B.		
5	10/10/84	W. J. B.		
6	10/10/84	W. J. B.		
7	10/10/84	W. J. B.		
8	10/10/84	W. J. B.		
9	10/10/84	W. J. B.		
10	10/10/84	W. J. B.		

SHEET	NO.	DATE	BY	CHKD	APPD
1	10/10/84	W. J. B.			
2	10/10/84	W. J. B.			
3	10/10/84	W. J. B.			
4	10/10/84	W. J. B.			
5	10/10/84	W. J. B.			
6	10/10/84	W. J. B.			
7	10/10/84	W. J. B.			
8	10/10/84	W. J. B.			
9	10/10/84	W. J. B.			
10	10/10/84	W. J. B.			

CLASSIFICATION LEVEL

DESIGN APPROVAL

10/10/84

05060

DESIGN APPROVAL

DESIGN NUMBER

DESIGN APPROVAL

DESIGN APPROVAL

UNCLASSIFIED

UNCLASSIFIED

DESIGN APPROVAL

A 861384

10/10/84

OF 5

NSM CLASSIFICATION LEVEL

NOTES: PROCUREMENT INFORMATION

1. ITEMS NORMALLY REQUIRING A MINIMUM SETUP CHARGE AND/OR LONG TERM PROCUREMENT.
2. PROCURE THIS ITEM MANUFACTURED BY THE LISTED SOURCE ONLY.
3. PROCURE THIS ITEM ONLY FROM A SUPPLIER LISTED ON THE "QUALIFIED PRODUCTS LIST OF PRODUCTS QUALIFIED UNDER MILITARY SPECIFICATIONS".
4. PROCURE ITEMS LISTED BY COMMERCIAL PART NUMBER IN THE "DESIGN AGENCY NO." COLUMN, AS MANUFACTURED BY THE SOURCE LISTED OR AS DEFINED ON THE REFERENCED SANDIA DRAWING, WHEN LISTED, OR A COMMERCIAL EQUIVALENT WHEN A SANDIA DRAWING IS NOT LISTED.
5. DRAWING OR PART NUMBERS LISTED PARENTHETICALLY AS REFERENCE IN THE DESCRIPTION COLUMN ARE FOR INTERNAL STOCK AND PROCUREMENT PURPOSES AT SANDIA.

NSM CLASSIFICATION LEVEL

NSM SOURCE NUMBER

UNCLASSIFIED

NSM NUMBER
A 365384
NSM

10000-00(10-90)

NOTES: ASSEMBLY INFORMATION

11. FOR SPECIFIC PROCESSING, MANUFACTURING AND ASSEMBLY REQUIREMENTS NOT OTHERWISE COVERED IN THE DRAWING, SEE 175126.
12. COMPONENTS NOT IDENTIFIED BY ITEM NUMBERS ON THE ASSEMBLY ARE LOCATED IN THE LIST OF MATERIAL BY REFERENCE DESIGNATIONS.
13. USE THIS DIMENSION FOR PRINT INSPECTION MEASUREMENT ONLY. DO NOT USE PRINTS MORE THAN .100 INCH OUT-OF-SCALE FOR DRILLING TEMPLATES.
14. ORIENT COMPONENTS IN POSITIONS SHOWN.
15. NOMENCLATURE FOR THE UNIT IS USED.
16. REFERENCE DESIGNATIONS APPEARING WITHIN A DOTTED RECTANGLE ARE TO BE MARKED ON OPPOSITE SIDE.
17. DO NOT MARK DESIGNATIONS APPEARING IN BRACKETS AND DIMENSIONS APPEARING WITHIN OUTLINE OF VIEWS ON THE UNIT.
18. ENGRAVE LINES AND/OR CHARACTERS, BLACK FILLER, ITEM 18. LOCATE APPROXIMATELY AS SHOWN.
19. MARK (WITH COVER COAT) REFERENCE DESIGNATION, .020 INCH BLACK CHARACTERS, LOCATE APPROXIMATELY AS SHOWN.
20. APPLY FINISH TO CHASSIS AND PANEL PARTS.

FORM 10-1 (10-1-63)

FORM 10-1 (10-1-63)

UNCLASSIFIED

FORM 10-1 (10-1-63)

FORM 10-1 (10-1-63)

FORM 10-1 (10-1-63)

THIS DOCUMENT CONTAINS NEITHER
RECOMMENDATIONS NOR CONCLUSIONS
OF THE NATIONAL BUREAU OF STANDARDS
UNLESS SPECIFICALLY STATED OTHERWISE

UNCLASSIFIED

DATE 10-15-04 BY 1044

QUANTITY REQUIRED		ITEM NAME		DESCRIPTION		UNIT	PRICE
	ARS			FILLER ENGRAVERS ENAMEL BROWN GLOSS BLK1073510 REF			86
	ARS			NEW HERNES ENGRAVING MACHINE C3			28
	ARS			SOLVENT ENGRAVERS ENAMEL CLEAR	PR73602 REF		
	ARS	MIL-P-8585		NEW HERNES ENGRAVING MACHINE C3			30
	ARS	6070-0026		PAINTER, FINE ENAMEL			31
	ARS	195873		PAINT ENAMEL, BAKING, SEMI GLOSS	(199345-4000 REF)		
	ARS			LIGHT GRAY, HENRIETT, RICHARD C			33
	ARS			CABLE, POWER, 2400 ALPHA WIRE, 100'			34
	ARS			TERMINAL, LUG, TERMINAL, 1/2" P, PRE-INSULATED, 1MM, 100'			35
	ARS			TERMINAL, LUG, TERMINAL, 1/2" P, PRE-INSULATED, 1MM, 100'			36
	ARS			TERMINAL, LUG, TERMINAL, 1/2" P, PRE-INSULATED, 1MM, 100'			37
	ARS	7201		TERMINAL, STD, LYN, 1/2" P, 100'	PR7277 REF		81
	ARS	5278		CONN, RECP, ELEC, M. HUBBELL, 100'	(85396 REF)		81
	ARS	5269		CONN, PLUG, ELEC, M. HUBBELL, 100'	(837175 REF)		81

NO DOCUMENTS SHOWN
 ARMSAS REQD FOR ASSEMBLY
 SH-EXPENSE MATL PWA-PROCESS MATL

NO CLASSIFICATION CODE

NO AGENCY NUMBER

UNCLASSIFIED

NO. 363384
 5

366374-000

A. DRAVEZ

9-13-60

2211-2

(PT1421)

CLASS	CODE	1	2	3	4	5
NOTE	NOTE	A	A	A	A	A
NOTE	NOTE	A	A	A	A	A

CLASSIFICATION LEVEL

DATE	TIME	CLASS

G3867,
CABLE

NEW AGENCY APPROVAL

NEW AGENCY APPROVAL

CLASSIFICATION

UNCLASSIFIED

CLASSIFICATION LEVEL

UNCLASSIFIED

DATE

366374

CLASS

5

NOTES: PROCUREMENT INFORMATION

1. PROCURE THIS ITEM ONLY FROM A SUPPLIER LISTED ON THE QUALIFIED PRODUCTS LIST OF PRODUCTS QUALIFIED UNDER MILITARY SPECIFICATIONS.
2. PROCURE ITEMS LISTED BY COMMERCIAL PART NUMBER IN THE DESIGN AGENCY NO. COLUMN, AS MANUFACTURED BY THE SOURCE LISTED OR AS DEFINED ON THE REFERENCED SANDIA DRAWING, WHEN LISTED, OR A COMMERCIAL EQUIVALENT WHEN A SANDIA DRAWING IS NOT LISTED.
3. DRAWING OR PART NUMBERS LISTED PARENTHETICALLY AS REFERENCE IN THE DESCRIPTION COLUMN ARE FOR INTERNAL STOCK AND PROCUREMENT PURPOSES AT SANDIA.
4. PROCURE THIS ITEM MANUFACTURED BY THE LISTED SOURCE ONLY.
5. PROCURE THIS ITEM MANUFACTURED BY ANY OF THE FOLLOWING: ALPHA WIRE CORP., TYPE F17-221; RAYCLAD TUBES, INC., TYPE ONE-100.

ASSEMBLY INFORMATION

8. FOR SPECIFIC PROCESSING, MANUFACTURING AND ASSEMBLY REQUIREMENTS NOT OTHERWISE COVERED ON THE DRAWING.
9. COMPONENTS NOT IDENTIFIED BY ITEM NUMBERS ON THE ASSEMBLY ARE LOCATED IN THE LIST OF MATERIAL BY REFERENCE DESIGNATION.
10. HOT STAMP DESIGNATIONS.
11. ENCAPSULATE USING ITEMS 11, 12 AND 13.

DDP CLASSIFICATION LEVEL

UNCLASSIFIED

DDP AGENCY NUMBER

2121 DDP NUMBER
A 366374

INSTR 2

ISSUE

A

DWG CLASSIFICATION LEVEL

DESIGN AGENCY PART NO.

MANUFACTURING DESIGNATIONS

60.000
± 4.000

P1
II

10

P1

C3807

3 10

140RFD 5J

P3

II

10

P2

II

P2 C3807

36.000
± 2.000

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

REQ AGENCY NUMBER

SHEET A DWG NUMBER 366374

SHEET 3

365100-28(10-63)

NOTE: ALL WIRE TO BE ITEM 1.

WIRING DIAGRAM

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

NEW AGENCY NUMBER

SHEET A 366374

SHEET 4

NA 173126

GENERAL SPECIFICATION FOR ACCEPTANCE EQUIPMENT

ARS 21-412

CABLE, R.F. (TYPE C DET CABLE) AMPHENOL-BORG ELEC CORP

ARS

INSULATION, SLEEVING, HEAT SHRINKABLE

ARS QQ-S-571

SOLDER, Sn60, FORM W, TYPE R OR RMA, CORE P2

ARS 4169

ENCAPSULATION COMPOUND, GREEN, HYSOL CORP.

ARS 3471

CURING AGENT, HYSOL CORP

ARS 1

RESIN DEFOAMER, PAR INDUSTRIES

2 PT06P-14-91P

CONN, PLUG, ELEC, BENDIX CORP
ELECTRONIC COMPONENTS DIVISION

(875829 REF)

4

P1

1 PT06P-18-91P

CONN, PLUG, ELEC, BENDIX CORP
ELECTRONIC COMPONENTS DIVISION

(875830 REF)

4

P2
P3

NA=DOCUMENTS AR=AS REQD
ARS=AS REQD PER ASSEMBLY
EM=EXPENSE MATL PM=PROCESS MATL

DWG CLASSIFICATION LEVEL

UNCLASSIFIED

MFG AGENCY NUMBER

SITE DWG NUMBER

A 366374

SHEET 5