AEROFLEX

Ramp Test Set
ATC-600A-2

Maintenance Manual

1002-0804-400

Issue-4

MAINTENANCE MANUAL

RAMP TEST SET

ATC-600A-2

PUBLISHED BY
Aeroflex

Original Printing	Sep 1998
Revision 1	Mar 1999
Issue-2	Dec 2003
Issue-3	Sep 2004
Issue-4	Nov 2005

10200 West York / Wichita, Kansas 67215 U.S.A. / (316) 522-4981 / FAX (316) 524-2623

FOR QUALIFIED SERVICE PERSONNEL ONLY

THIS PAGE INTENTIONALLY LEFT BLANK.

Cable Statement:

A double shielded and properly terminated external interface cable must be used with this equipment when interfacing with the ALTITUDE ENCODER INPUT Connector.

For continued EMC compliance, all external cables, except supplied Antenna coaxial cable, must be 3 meters or less in length.

Nomenclature Statement:

In this manual the Test Set or Unit refers to the ATC-600A-2 Transponder and DME Test Set.

ESD Statement:

An Electrostatic Discharge (ESD) to either Front Panel Edge Meter may cause a momentary deflection of the Meter.

THIS PAGE INTENTIONALLY LEFT BLANK.

WARNING:

HIGH VOLTAGE EQUIPMENT

THIS EQUIPMENT CONTAINS CERTAIN CIRCUITS AND/OR COMPONENTS OF EXTREMELY HIGH VOLTAGE POTENTIALS, CAPABLE OF CAUSING SERIOUS BODILY INJURY OR DEATH. WHEN PERFORMING ANY OF THE PROCEDURES CONTAINED IN THIS MANUAL, HEED ALL APPLICABLE SAFETY PRECAUTIONS.

SAFETY FIRST: TO ALL SERVICE PERSONNEL

REFER ALL SERVICING OF UNIT TO QUALIFIED TECHNICAL PERSONNEL.

WARNING: USING THIS EQUIPMENT IN A MANNER OTHER THAN SPECIFIED BY THE ACCOMPANYING DOCUMENTATION MAY IMPAIR THE SAFETY PROTECTION PROVIDED BY THE EQUIPMENT.

CASE, COVER OR PANEL REMOVAL

Removing the Chassis Assembly from the Case Assembly exposes the technician to electrical hazards that can result in electrical shock or equipment damage.

SAFETY IDENTIFICATION IN TECHNICAL MANUAL

This manual uses the following terms to draw attention to possible safety hazards, that may exist when operating or servicing this equipment.

CAUTION: THIS TERM IDENTIFIES CONDITIONS OR ACTIVITIES THAT, IF IGNORED, CAN RESULT IN EQUIPMENT OR PROPERTY DAMAGE (E.G., FIRE).

WARNING: THIS TERM IDENTIFIES CONDITIONS OR ACTIVITIES THAT, IF IGNORED, CAN RESULT IN PERSONAL INJURY OR DEATH.

SAFETY SYMBOLS IN MANUALS AND ON UNITS

CAUTION: THIS SYMBOL REFERS TO SPECIFIC CAUTIONS REPRESENTED ON THE UNIT AND CLARIFIED IN THE TEXT.

AC OR DC TERMINAL: TERMINAL THAT MAY SUPPLY OR BE SUPPLIED WITH AC OR DC VOLTAGE.

DC TERMINAL: TERMINAL THAT MAY SUPPLY OR BE SUPPLIED WITH DC VOLTAGE.

AC TERMINAL: TERMINAL THAT MAY SUPPLY OR BE SUPPLIED WITH AC OR ALTERNATING VOLTAGE.

SWITCH ON/OFF (PUSH-PUSH): POWER TO THE DEVICE IS CONNECTED ON OR DISCONNECTED OFF.

EQUIPMENT GROUNDING PRECAUTION

Improper grounding of equipment can result in electrical shock.

USE OF PROBES

Check specifications for the maximum voltage, current and power ratings of any connector on the Test Set before connecting it with a probe from a terminal device. Be sure the terminal device performs within these specifications before using it for measurement, to prevent electrical shock or damage to the equipment.

USE RECOMMENDED FUSES ONLY

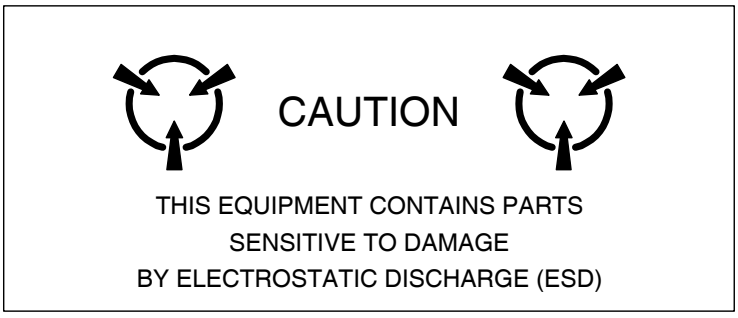
Use only fuses specifically recommended for the equipment at the specified current and voltage ratings.

WARNING: THE ATC-600A-2 USES A NICAD BATTERY. THE FOLLOWING WARNINGS CONCERNING NICAD BATTERIES MUST BE HEEDED:

- **DO NOT RECHARGE OUTSIDE THE ATC-600A-2.**
- **DO NOT CRUSH, INCINERATE OR DISPOSE OF IN NORMAL WASTE.**
- **DO NOT SHORT CIRCUIT OR FORCE DISCHARGE AS THIS MIGHT CAUSE THE BATTERY TO VENT, OVERHEAT OR EXPLODE.**

CAUTION: INTEGRATED CIRCUITS AND SOLID STATE DEVICES SUCH AS MOS FETS, ESPECIALLY CMOS TYPES, ARE SUSCEPTIBLE TO DAMAGE BY ELECTROSTATIC DISCHARGES RECEIVED FROM IMPROPER HANDLING, THE USE OF UNGROUNDED TOOLS AND IMPROPER STORAGE AND PACKAGING. ANY MAINTENANCE TO THIS UNIT MUST BE PERFORMED WITH THE FOLLOWING PRECAUTIONS:

- BEFORE USE IN A CIRCUIT, KEEP ALL LEADS SHORTED TOGETHER EITHER BY THE USE OF VENDOR-SUPPLIED SHORTING SPRINGS OR BY INSERTING LEADS INTO A CONDUCTIVE MATERIAL.
- WHEN REMOVING DEVICES FROM THEIR CONTAINERS, GROUND THE HAND BEING USED WITH A CONDUCTIVE WRISTBAND.
- TIPS OF SOLDERING IRONS AND/OR ANY TOOLS USED MUST BE GROUNDED.
- DEVICES MUST NEVER BE INSERTED INTO NOR REMOVED FROM CIRCUITS WITH POWER ON.
- PC BOARDS, WHEN TAKEN OUT OF THE SET, MUST BE LAID ON A GROUNDED CONDUCTIVE MAT OR STORED IN A CONDUCTIVE STORAGE BAG. REMOVE ANY BUILT-IN POWER SOURCE, SUCH AS A BATTERY, BEFORE LAYING PC BOARDS ON A CONDUCTIVE MAT OR STORING IN A CONDUCTIVE BAG.
- PC BOARDS, IF BEING SHIPPED TO THE FACTORY FOR REPAIR, MUST BE PACKAGED IN A CONDUCTIVE BAG AND PLACED IN A WELL-CUSHIONED SHIPPING CONTAINER.



CAUTION: SIGNAL GENERATORS CAN BE A SOURCE OF ELECTROMAGNETIC INTERFERENCE (EMI) TO COMMUNICATION RECEIVERS. SOME TRANSMITTED SIGNALS CAN CAUSE DISRUPTION AND INTERFERENCE TO COMMUNICATION SERVICES OUT TO A DISTANCE OF SEVERAL MILES. USERS OF THIS EQUIPMENT SHOULD SCRUTINIZE ANY OPERATION THAT RESULTS IN RADIATION OF A SIGNAL (DIRECTLY OR INDIRECTLY) AND ENSURE COMPLIANCE WITH INSTRUCTIONS IN FAA CIRCULAR AC 170-6C, DATED FEBRUARY 19, 1981.

CAUTION: KEEP ALL VENT OPENINGS CLEAR AND UNOBSTRUCTED FOR PROPER EQUIPMENT COOLING AND CONTINUED RELIABILITY. WHEN OPERATING THE EQUIPMENT IN THE NORMAL HORIZONTAL POSITION, MAINTAIN AT LEAST TWO INCHES (≈FIVE CENTIMETERS) OF CLEARANCE BETWEEN THE EQUIPMENT SIDE WITH EXHAUST FAN AND OBJECTS OR WALLS. IF OPERATING IN A RACK, MAXIMUM AMBIENT TEMPERATURE MUST BE AT OR BELOW 40° C.

TABLE OF CONTENTS

THIS PAGE INTENTIONALLY LEFT BLANK.

INTRODUCTION - ATC-600A-2 TEST SET

This manual contains the information necessary to test, troubleshoot and repair the ATC-600A-2.

It is strongly recommended that personnel be thoroughly familiar with the contents of this manual before attempting maintenance on the ATC-600A-2.

ORGANIZATION

This manual is divided into three sections as follows:

CHAPTER 2 - MAINTENANCE

Section 1 - SERVICING (preventive maintenance)

Section 2 - TROUBLESHOOTING (theory of operation, calibration/verification, assemblies and schematics)

Section 3 - PARTS LIST

THIS PAGE INTENTIONALLY LEFT BLANK.

CHAPTER TWO
ATC-600A-2 TEST SET
MAINTENANCE MANUAL
TABLE OF CONTENTS

LIST OF ILLUSTRATIONS

THIS PAGE INTENTIONALLY LEFT BLANK.

SECTION 1 - SERVICING

1. Preventive Maintenance Procedures

Contains routine maintenance instructions for cleaning and inspecting the Test Set.

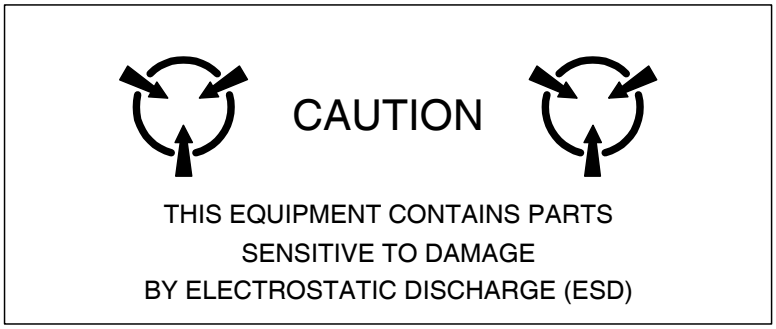
CAUTION: DISCONNECT POWER FROM TEST SET TO AVOID POSSIBLE DAMAGE TO ELECTRONIC CIRCUITS.

A. External Cleaning

STEP	PROCEDURE

1. Clean front panel, switches and display face with soft lint-free cloth. If dirt is difficult to remove, dampen cloth with water and mild liquid detergent.
2. Remove grease, fungus and ground-in dirt from surfaces with soft lint-free cloth dampened (not wet) with isopropyl alcohol.
3. Remove dust and dirt from connectors with soft-bristled brush.
4. Cover connectors, not in use, with suitable dust cover to prevent tarnishing of connector contacts.
5. Clean cables with soft lint-free cloth.
6. Paint exposed metal surface to avoid corrosion.

B. Internal Cleaning



CAUTION: AVOID MOVING COMPONENTS ON CIRCUIT BOARDS OR DISASSEMBLING CONNECTORS NEEDLESSLY TO PREVENT POSSIBLE DAMAGE.

CAUTION: AVOID OPENING COMPLEX INTERNAL MODULES FOR THE SOLE PURPOSE OF CLEANING AND INSPECTION.

STEP	PROCEDURE

1. Remove dust with hand-controlled dry air jet of 15 psi (1.054 kg/cm^2) and wipe internal chassis parts and frame with soft lint-free cloth moistened with alcohol.
2. Clean switches and controls with contact cleaner.

C. Visual Inspection

STEP	PROCEDURE

1. Inspect Chassis for:
   - Tightness of sub-assemblies and chassis mounted connectors.
   - Corrosion or damage to metal surfaces.
2. Inspect Capacitors for:
   - Loose mounting, deformities or obvious physical damage.
   - Leakage or corrosion around leads.
3. Inspect Connectors for loose or broken parts, cracked insulation and bad contacts.
4. Inspect Controls for correct rotation.
5. Inspect Circuit Boards for:
   - Corrosion or damage to connectors.
   - Damage to mounted components including crystals and ICs.
   - Freedom from foreign material.
6. Inspect Resistors for:
   - Cracked, broken, charred or blistered bodies.
   - Loose or corroded soldering connections.
7. Inspect Semiconductors for:
   - Cracked, broken, charred or discolored bodies.
   - Seals around leads being in place and in good condition.
8. Inspect Switches for:
   - Loose levers, terminals and switch body contact to frame.
   - Bent or loose line switch contacts.
9. Inspect Wiring for:
   - Broken or loose ends and connections.
   - Proper dress relative to other chassis parts.

   NOTE: Verify laced wiring is tight with ends securely tied.

SECTION 2 - TROUBLESHOOTING

1. Theory of Operation

A. General

The System Theory of Operation provides general theory of operation information of the ATC-600A-2 with functional analysis of Transponder and DME simulation. The Functional Theory of Operation is a description of the signal flow through the various systems and assemblies in the ATC-600A-2.

B. System Theory of Operation

(1) Transponder Operation (2-2-1, Figure 1)

The PRF for transponder interrogations is generated by the 260 Hz PRF Oscillator (Q101/Q110), an unijunction oscillator, at a fixed rate of 235 pps.

(a) SLS Circuits

The SLS and RF Leveler Assembly provides for attenuation of the P2 Pulse by 9 dB through the 0/OFF/-9 dB SLS Switch. From the XPDR Signal PC Board Assembly, Pin S, the transponder pulses are applied to the two one-shots, X17501A and X17501B.

NOTE: Normally, when the 0/OFF/-9 dB SLS Switch is in the center (OFF) position, only P1 and P3 are present. In the 0 dB (up) or the -9 dB (down) position, P2 is added to the pulse train. This function is performed by the XPDR Signal PC Board Assembly and the 0/OFF/-9 dB SLS Switch through Pin 17 of the XPDR Signal PC Board Assembly.

If the 0/OFF/-9 dB SLS Switch is in the 0dB position, Pin 3 of X17501A is held at a logic 0 level, and X17501A is inoperable. X17501B operates when the 0/OFF/-9 dB SLS Switch is in the 0dB or the -9dB position, but has no effect when the 0/OFF/-9 dB SLS Switch is in the 0dB position. When the 0/OFF/-9 dB SLS Switch is in the -9dB position, +6.5 V is applied to R17504, placing a high level on X17501A Pin 3 and enabling X17501A to also operate on incoming pulses. X17501A is further enabled to operate when X17501B applies a high level to X17501A Pin 2 until X17501B is fired. When the trailing edge of P1 is applied to the one-shots with the 0/OFF/-9 dB SLS Switch in the 0dB position, X17501A does not fire. Q17501 remains off or is nonconducting. If the 0/OFF/-9 dB SLS Switch is placed in the -9dB position, X17501A fires, along with X17501B, on the trailing (negative-going edge) of P1. The approximate time of X17501A is 4 μs. During that 4 μs, the inverted Q of X17501A goes low, causing Q17501 to turn on. The collector of Q17501 goes to +5 V and pulls on the attenuator portion of the leveler, consisting of 132 Ω resistor, 182 Ω resistor, two associated PSO-83B diodes and 76.8 Ω resistor. An adjustment for the amount of signal attenuation is provided by R17519. R17519 is set to provide 9 dB of signal attenuation from the normal (P1 and P3) level. X17501A resets in 4 μs, providing 9 dB of signal attenuation during the P2 pulse time; however, X17501B does not reset for 30 μs to keep X17051A from operating again during the time of the P3 pulse.

(b) Interrogation

In either A/C interlace mode, the time of the P3 Pulse One-Shot (X103/X114) is altered on a two-to-one basis by the divide-by-three circuit that follows the 260 Hz PRF Oscillator (Q101/Q110). Q103 is on for two PRF outputs and off for one PRF output. Therefore, the timing of the P3 pulse one-shot (X103/X114) is 8 μs for two output PRF cycles and 21 μs for one output PRF cycle, forming the two-to-one A/C interlace pattern. When the P3 pulse one-shot (X103/X114) timing is completed, the output one-shot (X104) is triggered, forming P3 of the interrogation. Positive sync is taken from the A or C portion of the divide-by-three circuit to observe the interrogation pulses referenced to the 8 μs or 21 μs P3 timing. In Mode B, sync is taken from the P2 pulse one-shot (X102/X109) only.

(c) Reply

The reply gating one-shot (X122/X102) is triggered when the P3 pulse one-shot (X103/X114) resets. As the reply gating one-shot (X122/X102) sets, a reset pulse is sent to the XPDR pulse storage register (X121/X101, X108/X105, X109/X110 and X110/X115), output control flip-flop (X106B/X118), altitude register clock control flip-flop (X114B/X107) and the entire altitude register on the Altitude Register PC Board Assembly. The system is cleared to accept new reply pulses. Detected Video Input is applied to Pin A of the XPDR Signal PC Board Assembly and is squared by Q109. If the reply gating one-shot (X122/X102) is set, the pulses are fed to the XPDR pulse storage register. F1 is first to enter and F2 is last to enter.

CLOCK PULSES

The first pulse into the XPDR pulse storage register sets the register clock control flip-flop (X114A/X106). The register clock control flip-flop (X114A/X106), in turn, enables a gate (X119B/X123). The register clock control flip-flop (X114A/X106) also allows pulses from the 20.68 MHz PRF oscillator (Q101/Q110) to be applied to the divide-by-three circuit and to trigger one-shot (X113/X112). The pulses from one-shot are the clock pulses to the XPDR pulse storage register. The clock rate is 1.45 μs, the spacing of the reply pulses.

F1 PULSE

As each reply pulse enters the Test Set, the pulse is clocked into the XPDR pulse storage register as a high (Logic 1) or a low (Logic 0) level. After a maximum of 17 pulses are stored, the first framing pulse (F1) is in the final position. When FI reaches the end of the XPDR pulse storage register, F1 causes the register clock control flip-flop (X114A/X106) to reset, and stop the clock to the XPDR pulse storage register. F1 also enables the NUMERICAL Readout to be unblanked and enables the XPDR % RPLY/DME PRF Meter to show percent reply. When the MODE Switch is set to A/C CODE, the XPDR pulse storage outputs (A1-D4) are applied directly to the NUMERICAL Readout. A set of transistor switches are enabled to decode and display numerically the pilot's code received. When the MODE Switch is set to A/C ALT, the XPDR pulse storage register outputs (A1-D4) are applied to a set of three comparators on the Altitude Register PC Board Assembly.

ALTITUDE CODE

Resetting the register clock control flip-flop (X114A/X106) when all pulses are loaded into the XPDR pulse storage register, sets the altitude register clock control flip-flop (X114B/X107), which gates an altitude clock frequency to the Digital Display Assembly. On the Digital Display Assembly, a series of four counters start at an altitude (preset) of -1000 feet and count up at the altitude clock frequency rate. Simultaneously, on the Altitude Register PC Board Assembly, the altitude clock is running a counter designed to count in the fashion of the altitude code, a form of Gray Daytex Code. In summary, the counter on the Digital Display Assembly and the counter on the Altitude Register PC Board Assembly clock together, starting at -1000 feet, counting up to 0, and then up to a maximum of +126700 feet. When the counter on the Altitude Register PC Board Assembly reaches the same count (numerically) as the inputs from the XPDR pulse storage register, the comparators enable X202, and the altitude coincidence output is formed. The altitude coincidence output is applied back to the XPDR Signal PC Board Assembly and resets the alt register clock control flip-flop (X114B/X107), stopping the altitude clock, and stopping the counters on the Digital Display Assembly. The counters on the Digital Display Assembly indicate the received altitude. The NUMERICAL Readout, which is blanked during the counting process, is unblanked to display the received altitude.

IDENT PULSE

An IDENT pulse applied to the transponder loads into the last position of the XPDR pulse storage register. The IDENT pulse activates X110/X115 of the XPDR pulse storage register which lights the IDENT PULSE Indicator (SPI). A pulse is applied to the framing pulse control flip-flop (X106A/X118) 5.8 μs before the XPDR pulse storage register is fully loaded. As the framing pulse control flip-flop (X106A/X118) sets, the framing pulse delay one-shot (X107/X119) is triggered. The time of the framing pulse delay one-shot (X107/X119) is varied with the FRAMING PULSE SPACING Control. When the framing pulse delay one-shot (X107/X119) resets, a short pulse, a product of the action of X107/X119 and X117C/X103B is applied to X117C/X103B. The other input to Gate (R124/R137) is the input to the XPDR pulse storage register. The framing pulse delay one-shot (C118/C121) timing is approximately 5.8 μs, which places the input to Gate (X117C/X103B) at the timing of the F2 pulse to the XPDR pulse storage register. If the two are in coincidence, Gate (X117C/X103B) is enabled, setting the output control flip-flop (X106B/X118). When the output control flip-flop (X106B/X118) is set, the F2 PULSE SPACING Indicator is off. If the framing pulse delay one shot (CR117/CR121) time is varied greater or less than the coincidence time of the F2 pulse, the output control flip-flop (CR106/CR121) is not set, and (Q104/Q108) is turned on to light the F2 PULSE SPACING Indicator.

NO ALT

X106B/X118 through X107/X119 are used to sense pulses present between F1 and F2 of the reply. If no pulses are present, Q113/Q106 is off, which enables X118A/X111C. X118A/ X111C lights the NO ALT Indicator. In Mode A operation (either Mode A only or A/C Interlace) Q113/Q106 is turned on continuously through R140/R150 and CR105/CR126. Any one pulse between F1 and F2 also turns Q113/Q106) on, which turns the NO ALT Indicator off.

INVALID ALT

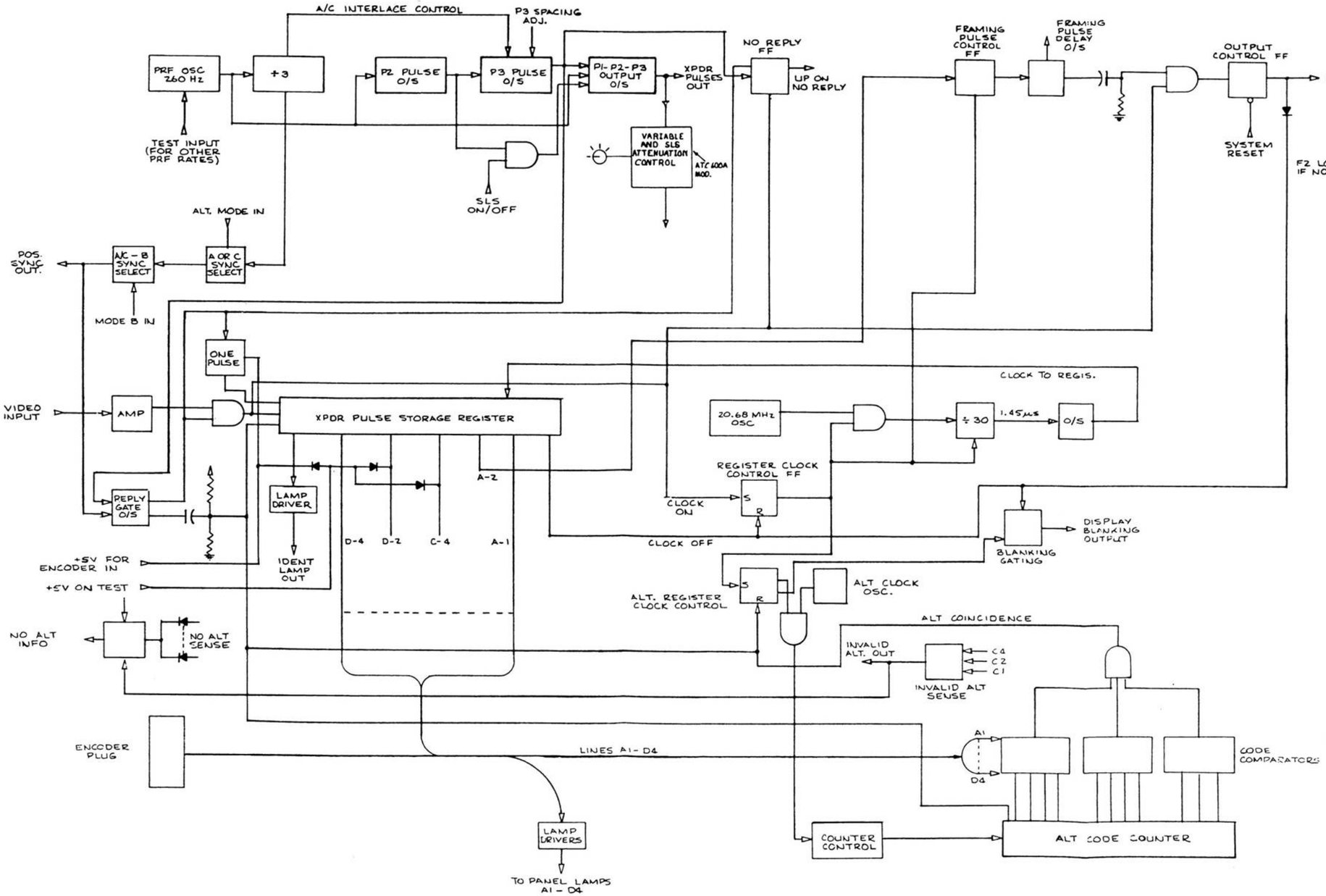
On the Altitude Register PC Board Assembly, a circuit senses the C1, C2 and C4 pulses. For a received altitude code to be valid, at least one C pulse must be present; however, C1 and C4 cannot be present at the same time in valid altitude code reception. Q213, Q214 and Q215 are inverters for the C1, C2 and C4 pulses. The invalid sensing circuit (Q213 through Q217 and X201) ascertains whether a valid or invalid reply is being received. The output of X201C is high if the received code is invalid.

INTERROGATION SPACING

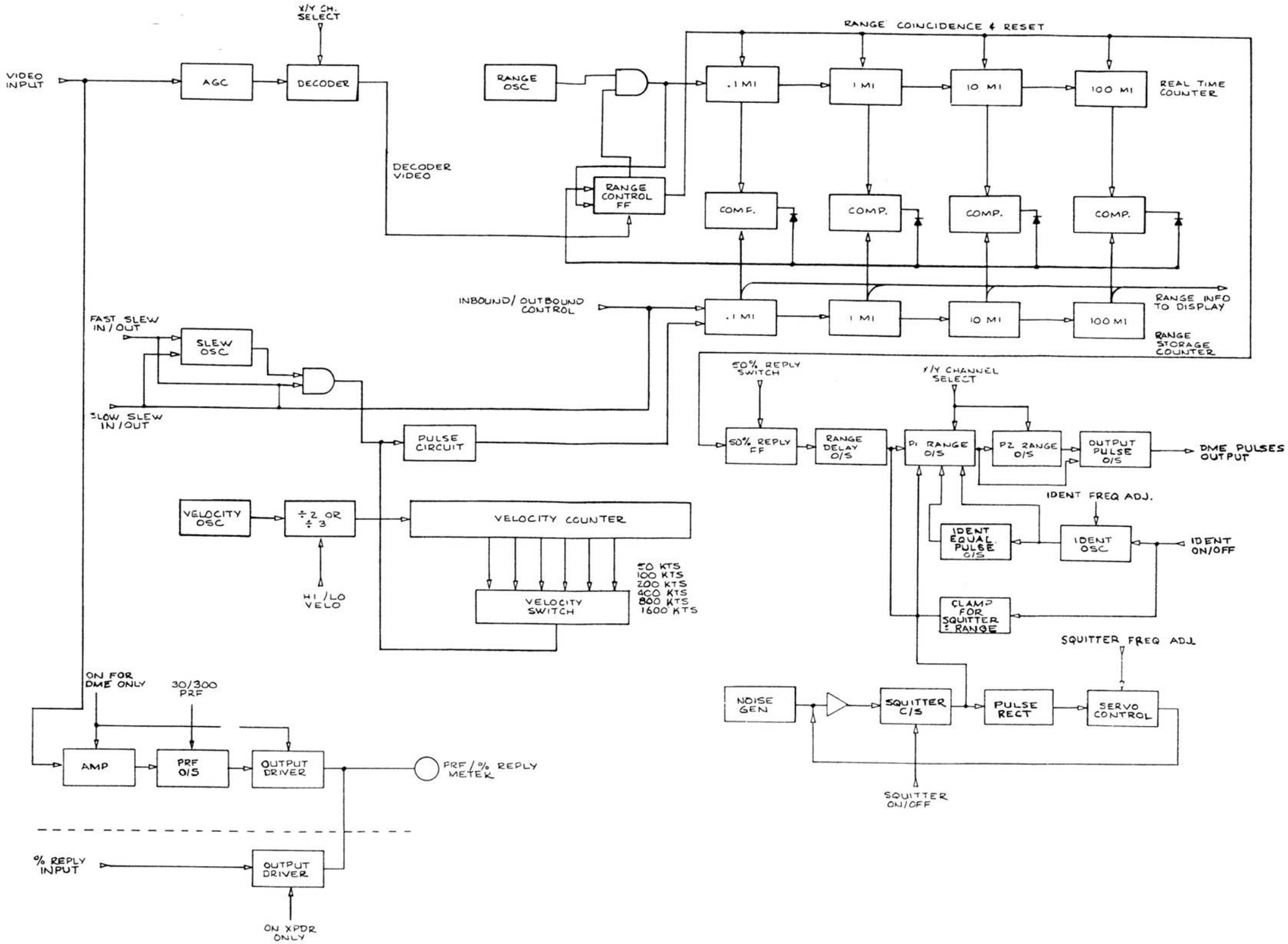
The timing of P2 and P3 (relative to P1 of the interrogation) can be slewed with the INTERROGATION SPACING Control, which changes the P2 pulse one-shot (X102/X109) timing. Changing the P2 pulse one-shot (X102/X109) timing shifts P2 and P3 together. In Mode A (B), the P3 spacing is set to 8 μs (17 μs) by a separate internal control and is varied, as are the spacings in the A/C interlace modes, with the INTERROGATION SPACING Control.

ALTITUDE ENCODER

When an encoding altimeter is tested through the ALTITUDE ENCODER INPUT Connector, pulse inputs A1-D4 are applied to the Digital Display Assembly where the pulse inputs are routed to the A1-D4 lines coming from the XPDR pulse storage register on the XPDR Signal PC Board Assembly. The pulse inputs simulate transponder operation for the Test Set. Therefore, a transponder cannot be operated while pulses A1-D4 are being processed. The PRF rate (235 pps) is used to initiate the reset, altitude clock and counter action. One pulse, simulating F1, is loaded into the XPDR pulse storage register. All circuitry operates as if a transponder is being tested. The altitude clock causes the counters to find the altitude being applied and to display the correct information. The P3 pulse one-shot (X103/X114) sets the no reply flip-flop (X105A/X106) on each transponder interrogation that contains no reply pulse output. When reply pulses are present, the first pulse (FI) resets the no reply flip-flop (X105A/X106).



XPDR Block Diagram
Figure 1



DME Block Diagram
Figure 2

1030 MHz SIGNAL LEVELING

The RF Frequency/Power Monitor Assembly provides 1030 MHz signal leveling to the diode switch and provide for varying the 1030 MHz signal level from -66 to -79 dBm (with a properly positioned remote test antenna or with a 34 dB pad) through the XPDR SIGNAL LEVEL Control. The signal from the 1030 MHz oscillator is applied to the leveler block, and the RF level is detected by the HP2800 diode. The dc level is applied to the inverting input of X17502. Three trimpots (R17507 [-66 dBm set], R17511 [-79 dBm set] and R17514 [linearity adjust]) and the XPDR SIGNAL LEVEL Control (R17575) set the reference level on the other input of X17502. If the 1030 MHz oscillator is too high, the amplifier output goes more negative and reduces the conduction of the input PSO-83B Diode. This decreases the signal level to the one desired. The XPDR SIGNAL LEVEL Control can vary the reference level to cause output RF levels from the Test Set (including coaxial cable and space loss) to vary from -66 to -79 dBm (with a properly positioned remote test antenna or a 34 dB pad). The output from the SLS and RF Leveler PC Board Assembly is applied to the diode switch.

(2) DME Operation (2-2-1, Figure 2)

The detected video input is applied to the AGC (Q301-Q304) on the DME Signal PC Board Assembly. FET (Q301) is used as a gain control for the incoming signal. The signal at the collector of Q303 is constant in peak to peak amplitude for a very wide range of input signal levels. This is necessary to assure proper range timing and delay for a variance of DME output powers, antenna installations, etc. The differential transistor pair (Q305 and Q306) sense the 50% point of the input signal from Q303 and form a spike for P1 from Q307 to begin range reply timing. The spike from Q307 is applied to one-shot (X301), which has a time of 9 μs in X Channel and 32.5 μs in Y Channel.

On initial setting, one-shot (X301) applies a negative pulse through C308 as the decoder video output signal. At this time, one-shot (X301) also resets flip-flop (X303A). When one-shot (X301) resets, X302 is set, which has a time of approximately 6 μs (±1.5 μs) from the input pulse spacing of 12 μs in X Channel and 36 μs in Y channel. During the time X302 is reset, the second input pulse (P2) is applied from the AGC . The pulse has no effect on one-shot (X301), except to set X303A. (If P2 is greater or less than approximately 3 μs, X303A is not set). If X303A is set, Q308 is maintained off. If X303A is left reset for an appreciable length of time, Q308 is brought into conduction and clamps out pulses from the decoder output. R322, C308 and R323 form an averaging delay, to prevent Q308 from turning swiftly on and off each time X303A toggles.

(a) Range

The range counter clock consists of a 6.473 MHz oscillator, which produces pulses in 1/80 NM steps. The oscillator includes a crystal (Y1) and Gates (X4C and X4D). The range clock output is gated and inverted by NOR Gate (X1A) into the clock input of X5 Pin 14.

The divide-by-eight output of X5 produces one clock output to X6 for every 0.1 NM. In the Velocity Mode, X5 is preset by X11 via X10, so that one pulse for every eight clock pulses into X5 Pin 14 is detected by X1B, which provides one clock pulse to X3B for every 0.1 NM.

X6 through X8 are serially connected divide-by-ten down counters with BCD inputs. X9 is a binary output four-bit ripple-down counter connected in series to X8. X6 through X9 are preset to the desired range output delay by the output lines of X13-X16.

When the range count of X6-X9 reaches zero, MIN pulses from X6-X9 Pin 12 are sent to the inputs of NAND Gate (X2). Pin 8 of X2 goes low and, after being inverted by X1C, pulls Pin 7 of X3B up, enabling X3B to be clocked.

As X5 reaches a count of zero, Pin 8 of X1B goes high. The next clock pulse on X5, Pin 14 clocks X5 away from zero, causing X1B, Pin 18 to go low. This high to low transition clocks X3B through Pin 5. X3B Pin 9 clocks X3A, which brings X3A Pin 12 to the high state. This is the end of range output. The same high output state on X3A Pin 12 is sent to X1A Pin 3, causing that NOR Gate to change state and halting the down counting of the range counters X5-X9. The inverted Q output of X3A is used to reset X3B. X3A is reset by the next range start input on the Range/Velocity PC Board Assembly, Pin 17. When the inverted Q of X3A goes low, the load lines of X5-X9 are pulled low, and X5-X9 are again loaded with the outputs of X11 and X13-X16.

(b) Velocity

A 6.990506 MHz oscillator (Y2 and X18) provides a conditioned clock pulse to X19 Pin 14. X19 acts as a divide-by-eight counter, with the output going to X20A and X20B.

Depending on the state of the HI/LO VELOCITY Line, X20 acts as a divide-by-three or a divide-by-two counter. When the LO Velocity Range is selected on the VELOCITY HI/LO RANGE Switch, X20B Pin 6 is pulled high by R12, allowing X20B to be cloaked on Pin 5. The Q output of X20B provides a gating pulse to X20A Pin 14. One output pulse results on X2CA Pin 13 for every three clock pulses that enter X20A Pin 1.

When the HI Velocity Range is selected on the VELOCITY HI/LO RANGE Switch, Pin 6 of X20B is pulled to ground, shutting off X20B. The Q output of X20B goes high, allowing X20A to toggle normally. (X20A acts as a divide-by-two counter.)

X21 is a CMOS 12-stage ripple-up counter that provides one output pulse on Pin 1 for every 4096 input pulses on Pin 10. The output at X21 is used as the 2400/1600 knots velocity rate clock output to clock X17.

The divide-by-2, divide-by-1, divide-by-8, divide-by-16 and divide-by-32 outputs of X17 are used as the 1200/800, 600/800, 300/200, 150/100 and 75/50 knots velocity rate clock outputs.

In the Velocity Mode, one of the velocity rate clock outputs is returned to the Range/Velocity PC Board Assembly, Pin 18 via the DME RANGE/VELOCITY Switch. The velocity rate clock goes to the base of drive transistor Q1. The output of Q1 is conditioned by Schmitt trigger X18E to provide negative clock pulses to the synchronous up/down counters X11 and X13-X16.

When the Range/Velocity PC Board Assembly is first turned on, a reset circuit (C4, R6 and R5) provides a brief low state on the load line of X11 and X13-X16, resetting X11 and X13-X16 to a count of zero.

X11 is a synchronous up/down four-bit binary counter. X11 Pin 13 provides one ripple clock output to X16 Pin 4 for every 16 clock pulses on the clock line. In the Velocity Mode, X11 Pins 6 and 7 provide a preset signal for X5. The preset in the VELOCITY Mode causes the range output pulses to step in increments of 0.025 NM.

X16, X13 and X14 are synchronous up/down counters with BCD (binary-coded decimal) outputs. X16 accepts the ripple clock gating input from X11, and the clock pulses from the clock line, to provide a BCD output to X12. In the Velocity Mode, this BCD is selected by X12 and updates the programming on the 0.1 NM range counter (X6). X16 Pin 13 also outputs one enable pulse to X13 for every ten clock pulses received by X16 Pin 4.

X13-X15 operate in a similar manner as X16, updating the programming on the 1.0, 10 and 100 NM range counters, with the exception that X15 has a binary output.

(c) 50% Reply

The range output pulse is applied to the 50% reply flip-flop (X367-B) and to Gate X304 on the DME Signal PC Board Assembly. In normal operation, the 50% reply flip-flop (X303B) is held reset, and all input signals are passed directly through Gate X304 to the range delay one-shot (X305). If the IDENT/50% RPLY Switch is in the 50% RPLY (down) position, the 50% reply flip-flop (X303B) toggles on the input signal and inhibits Gate X304 on every other input pulse. Only every other input signal fires the range delay one-shot (X305). The range delay one-shot (X305) sets the P1 range one-shot (Q310 and Q311) for the precise time of 50 μs in X Channel (56 μs in Y Channel), providing the proper range delays. When the P1 range one-shot (Q310 and Q311) resets and fires the output pulse one-shot (X307) for 3.5 μs, P1 pulse of the reply is produced. When the P1 range one-shot (Q310 and Q311) resets again and P2 range one-shot (X306) is set. After 12 μs in X Channel (30 μs in Y Channel), the P2 range one-shot (X306) resets, firing the Output Pulse One-Shot (X307) again for 3.5 μs (nominal) and forming the P2 pulse of the reply. Q309 assures that the collector of Q310 is pulled up on initial firing of the P1 range one-shot (Q310 and Q311). This assures accurate, repeatable timing of the critical 50 μs (or 56 μs) range delay.

(d) IDENT Tone

The IDENT Tone is activated when the IDENT/50% RPLY Switch is in the IDENT (up) position. When the IDENT/50% RPLY Switch is activated, +11 V is applied to the IDENT oscillator (X311). The IDENT oscillator (X311) output fires the P1 range one-shot (Q310 and Q311), initiating the P1 and P2 reply pulses (as though for a range reply). Each time the IDENT oscillator (X311) puts out a signal, X311 also fires the IDENT equalizing pulse one-shot (X308), which is set for 100 μs. When the IDENT equalizing pulse one-shot (X308) resets, X308 fires the P1 range one-shot (Q310 and Q311), causing the second pulse pair (P1 and P2) to appear in the output. The second pulse pair is spaced 100 μs from the first pair.

(e) Squitter

When +11 V is applied to the IDENT oscillator (X311), +11 V is also applied to the squitter/range clamp (Q312 and Q313), which clamps out all squitter input and range reply pulses. When the IDENT tone is on, no squitter or reply pulses should appear in the output. Squitter is generated by using a zener diode (ZD301) as a noise source. The zener noise is further amplified by a noise generator (Q314, Q315 and Q316). The noise signal in the emitter of Q316 operates the squitter one-shot (X309) on a controlled basis. The squitter one-shot (X309) output triggers the reply one-shots and operates driver Q318. The output is rectified by the pulse rectifier (CR316 and CR317). The average dc level of the pulse rectifier (CR316 and CR317) is filtered and applied to the servo control (X310). The reference level for the servo control (X310) is set by the squitter frequency adjust (R375). As the squitter frequency varies, the dc rectified level varies, changing the output level of the servo control (X310). The servo control (X310) controls the bias to Q317. C329 regulates an average dc level to the servo control (X310). Squitter frequency averages 2700 Hz at the squitter one-shot (X309) output over a long period of time. Squitter is turned on and off when the squitter one-shot (X309) is enabled or disabled.

(f) DME PRF

Output pulses from the XPDR Signal PC Board Assembly and the DME Signal PC Board Assembly are applied to the Regulator/Timer PC Board Assembly, to operate the Q521 and Q522 modulators. The output from Q522 is applied to the diode switch to turn the RF on and off to form output pulses. DME PRF is measured through Q520 and X503, detecting RF input video. (This circuit is used in DME Mode only.) The one-shot timing is changed to switch between the two PRF ranges (0-30 and 0-300 pps). Q519 is the meter driver.

(g) Slew Operation

When outbound slew is selected by the SLOW SLEW Switch or FAST SLEW Switch, Pins V and 3 on the Range/Velocity PC Board Assembly go low. All other slew inputs float up. With Pin 3 on the Range/Velocity PC Board Assembly low, X22B Pin 6 is high, turning off CRI, and allowing the base of Q2 to be pulled to +5 V by R8. One end of C14 is grounded through the SLOW SLEW Switch. Q2, C11 and C14 are the sources for the slow slew clock.

When SLOW SLEW Switch is set to IN (up) position and VELOCITY IN/OUT Switch is set to IN (up) position, Pin 2 on the Range/Velocity PC Board Assembly is grounded and Pin 3 on the Range/Velocity PC Board Assembly floats up. X22C Pin 8 is low, causing X22D Pin 11 to go high. With X22D Pin 11 high, X11 and X13-X16 count down.

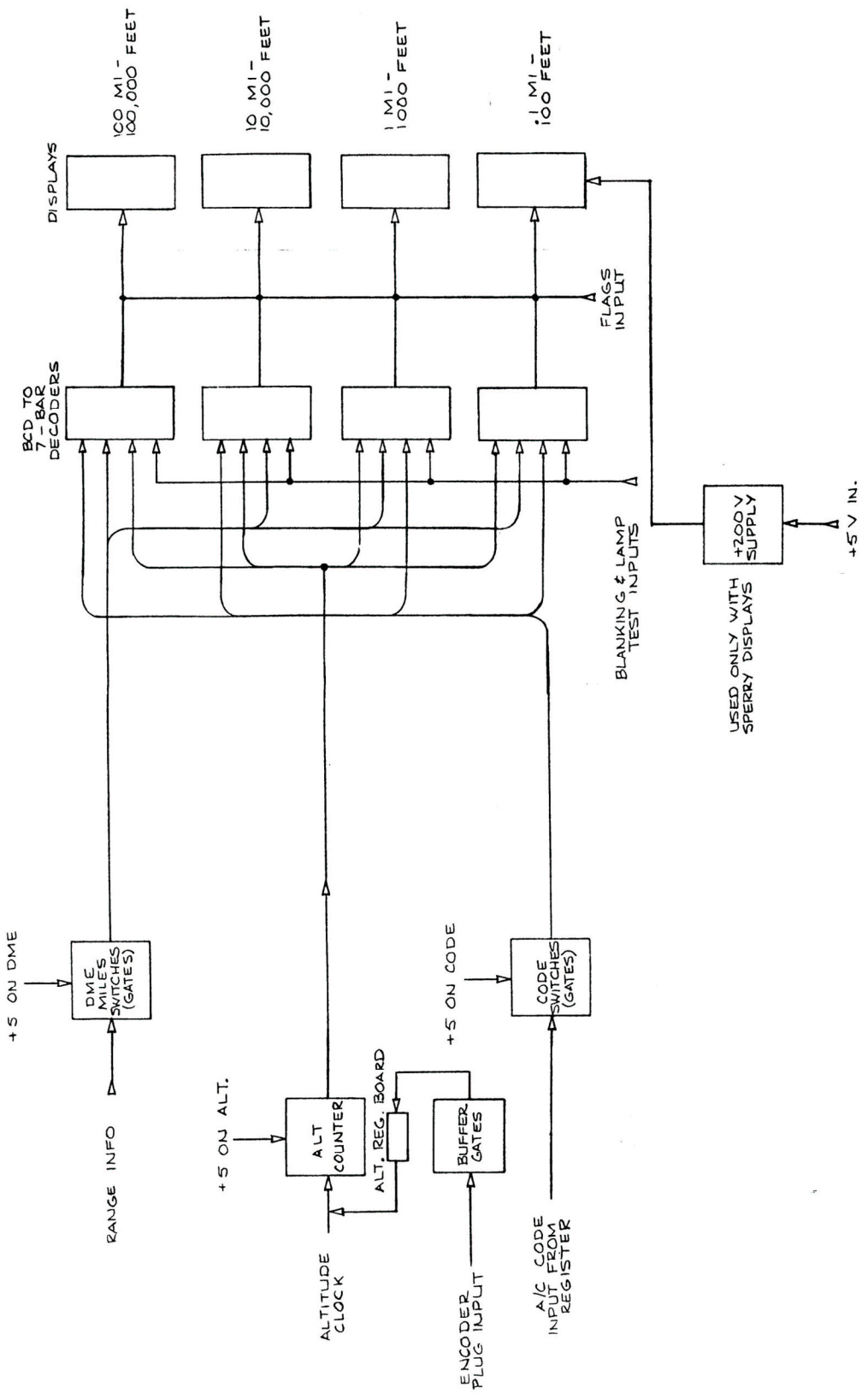
FAST SLEW IN or OUT is similiar to SLOW SLEW IN, with the exception that one side of C14 is no longer connected to ground. The frequency of the slew oscillator is determined by the value of C11 alone.

(h) Range Mode Operation

When Range Mode is selected, the velocity outputs are disabled at the DME RANGE/VELOCITY Switch. X11 and X13-X16 may be manually slewed to the desired range, using the SLOW SLEW Switch or FAST SLEW Switch.

In Range Mode, Pin 1 on the Range/Velocity PC Board Assembly is held to ground. With Pin 1 on the Range/Velocity PC Board Assembly at ground, the outputs of X10C and X10D remain low, programming X5 to start counting at zero.

X12 Pin 1is held to ground in the Range Mode, causing X12 to select data from Pins 2, 5, 14 and 15, which are tied to ground. With this data selected, the lines to the 0.1 NM digit are held down, and the digit displays only a 0. This presents a zero input to X6. With X5 and X6 both having 0 as the input, the Range Mode steps in units of 1.0 NM, instead of units of 0.025 NM.



Display Block Diagram
Figure 3

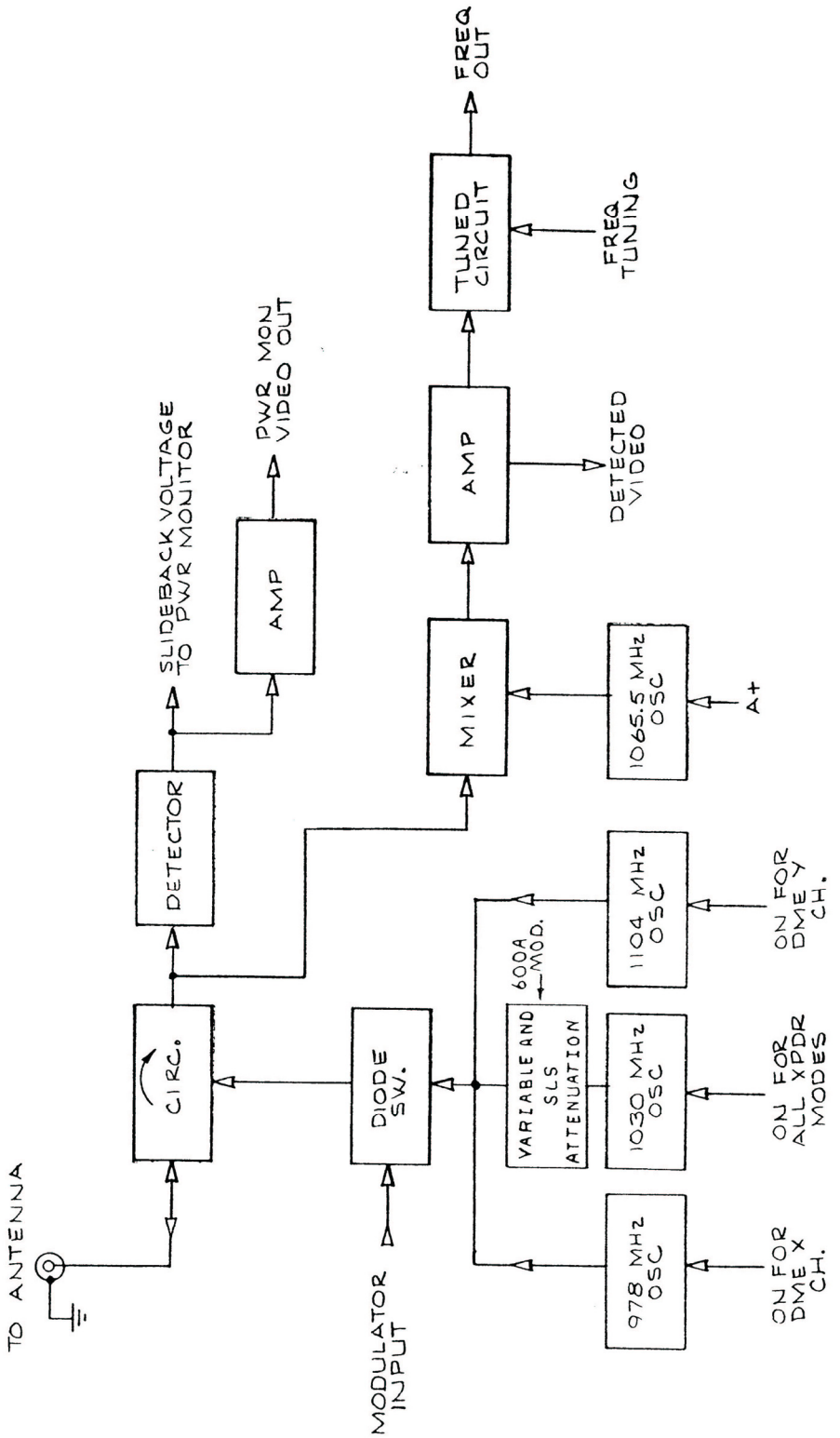
C. Functional Theory of Operation

(1) Display (2-2-1, Figure 3)

The Digital Display Assembly consists of four 7-segment LED displays and one CPLD for decoding/driving the displays. There are three sources of input to the decoder/driver. The code input in A/C CODE Mode and the altitude counters output in A/C ALT Mode give transponder input to the decoder/driver. In DME Mode, range information is applied to the decoder/driver to show range in 0.1 NM increments.

NOTE: Even though range is displayed in 0.1 NM increments, the range in Velocity Mode is actually counted-up in 0.25 NM steps.

When the ALTITUDE ENCODER INPUT Connector is used, the connector input line pulses are gated through the Digital Display Assmebly and back onto the code lines that come from the XPDR pulse storage register on the XPDR Signal PC Board Assembly.



RF Section Block Diagram
Figure 4

(2) RF Section (2-2-1, Figure 4)

Three oscillators - a 1030 MHz for transponder interrogations, a 978/979 MHz for DME 17X/18X Channel replies and a 1104 MHz for DME 17Y Channel replies are incorporated in the RF Oscillators Assembly to generate RF output. A separate 1065.5 MHz oscillator is used primarily in the RF section to beat against the input frequency of the UUT. All the oscillators are identical except for the 17X/18X oscillator, which has two crystals. When Channel 17X is selected, +11 V power is applied to E2 (J8 Pin 8) and E3 (J8-3). When 18X is selected, +11 V power is applied to E1 (J8-9) and E3 (J8-3) through the DME CHANNEL Switch (S8).

The oscillator (Q1501) frequency is determined by one of the crystals (Y1501 or Y1502). CR1501 enables the oscillator's feedback current through Y1501 in Channel 17X. CR1502 enables the oscillator's feedback current through Y1502 in Channel 18X. The oscillator output is buffered and amplified by Q1502 and Q1503. The output of the buffer drives a multiplier. The fundamental frequency (97.8 or 97.9 MHz) is multiplied by 10 to produce the final output frequency at CRI2001. Z12001 is a bandpass filter tuned to the 10th harmonic of the oscillator. L1505 and C1515 form a tank circuit tuned to the fundamental frequency. When Channel 17Y is selected, +11 V power is applied to J8-4 and sent to the 1104 oscillator. The 1030 oscillator has 11 V power applied when the MODE Switch (S20) is in any XPDR mode. Each single crystal-controlled oscillator, tuned for peak output and proper frequency by L702, drives amplifiers Q702 and Q703. The output of Q702 and Q703 is peaked by L704 and C711 and is applied to the snap diode (CR701, CR702, or CR703). A two-sectioned, tuned filter (filter cavities) on each oscillator picks off the 10th harmonic of the crystal frequency and applies the 10th harmonic to the output connector of the RF Oscillators Assembly.

The outputs of the three oscillators on the RF Oscillators Assembly are summed in the Diode Switch Block Assembly. Only one of the oscillators in the RF Oscillators Assembly operates at one time. The 1065.5 MHz oscillator operates continuously. The video input to the Diode Switch Block Assembly is used to modulate the RF output of the selected RF oscillator into a series of DME or XPDR RF pulses. The output of the Diode Switch Block Assembly is applied through the circulator to the RF INPUT/OUTPUT Connector. Incoming RF is processed by RF Frequency/Power Monitor Assembly through CR801 and CR802. CR801, in conjunction with associated circuitry, acts as an input power detector. The power measuring circuit on the Regulator/Timer PC Board Assembly provides a slide-back voltage for constant power readings. The detected power monitor video from CR801 is amplified by Q801 and is applied to the power circuit on the Regulator/Timer PC Board Assembly. On the Regulator/Timer PC Board Assembly, the detected power monitor video is applied to the power monitor one-shot (X501). The output of the power monitor one-shot (X501) operates the pulse integrator (Q517) and the power calibrate (X502B). The detected power monitor video fires the power monitor one-shot (X501) until the output of the power calibrate (X502B) becomes great enough to reverse the bias on CR801. A bias reverse on CR801 stops the power monitor one-shot (X501). The voltage at the output of the power calibrate (X502B) is applied to the FREQ/PWR Meter for power measurement.

(2) RF Section (cont)

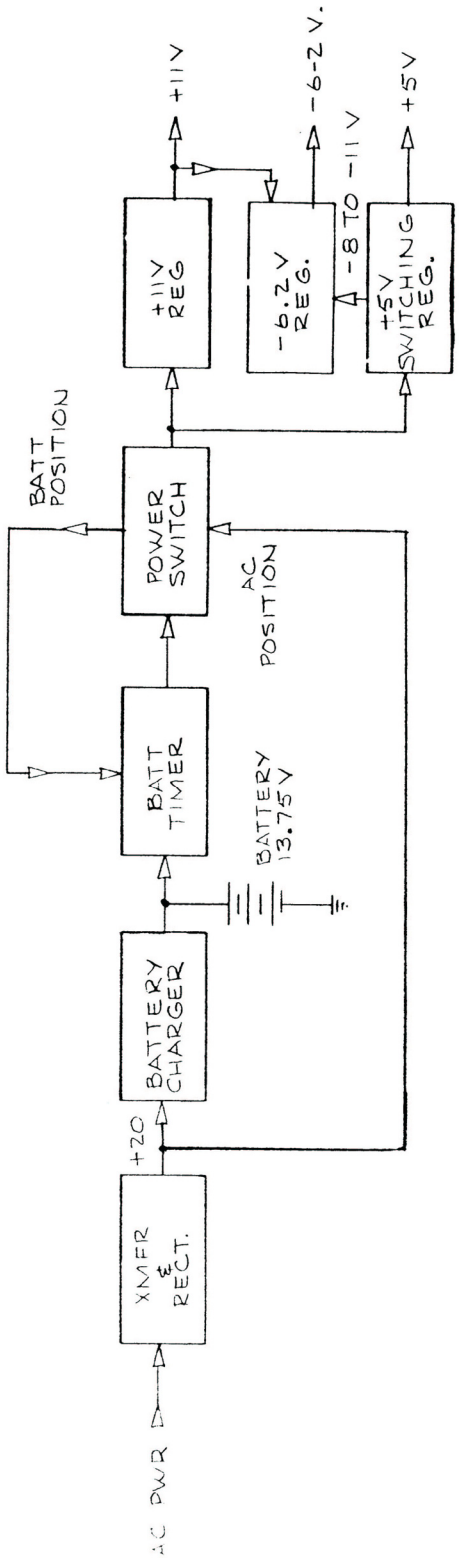
For frequency measurement, the incoming RF is applied through CR802 and is combined with the output of the 1065.5 MHz local oscillator. The resultant signal is amplified by Q802 and is applied to an Amplifier Q803. The signal is then routed through a tuned circuit (L803, C808, C809 and C810). The capacitance of C808 is adjusted by the XMTR FREQ Control and is varied until the tuned circuit is tuned to the incoming RF signal from Q803. The output peaks at that time and is applied to the Regulator/Timer PC Board Assembly, amplified by Q518 and X502A, and then applied to the FREQ/PWR Meter. The detected video from the incoming RF is processed through Q802 and separated for DME and XPDR inputs. DME detected video is routed through R809 and C813 to the video input (Pin 4) on the DME Signal PC Board Assembly for decoding and processing. The XPDR detected video is routed through L807 and C814 to an Amplifier (Q805). The signal at the collector of Q805 is then routed to the detector input (Pin A) on the XPDR Signal PC Board Assembly for processing.

(3) Power Supply (2-2-1, Figure 5)

Power for the Test Set comes from two sources: an external ac source (115 or 240 V) or a built-in battery of 13.2 V (2.0 A/Hr) capacity. Both power sources are mounted on the Power Supply Assembly.

AC power is converted by a transformer and a rectifier to +20 Vdc whenever the Test Set is connected to an external ac source. There is no ac line switching in the Test Set. The +20 Vdc is applied continuously to the Battery Charger circuit on the Regulator/Timer PC Board Assembly. Whenever the Test Set is plugged into external ac power, the battery is being charged. The charger is self-limiting to charge a discharged battery at a high rate and to trickle-charge a fully-charged battery. In ac operation, the +20 Vdc is applied by the PWR/BAT Switch to the Regulator/Timer PC Board Assembly and to the 5 Volt Regulator PC Board Assembly. On the Regulator/Timer PC Board Assembly, the +20 Vdc is regulated to +11 V and is applied to the +11 V. +11 V is also internally applied on the Regulator/Timer PC Board Assembly to the -6.2 V regulator. Negative voltage developed by the +5 V regulator is also applied to the Regulator/Timer PC Board Assembly and is dropped to -6.2 V. The +5 V within the Test Set is applied at all times the Test Set is energized.

When the Test Set is powered by the battery, a timer of approximately 8 minutes performs the actual power switching. When the PWR/BAT Switch is pressed down once, the timer is activated and the battery voltage is applied to the remainder of the power system. After approximately 8 minutes, the Test Set shuts off. Pressing the PWR/BAT Switch a second time turns the Test Set off before the timer runs out.



Power Supply Block Diagram
Figure 5

THIS PAGE INTENTIONALLY LEFT BLANK.

2. Calibration/Verification

A. General

(1) Calibration/Verification Schedule

Calibration/Verification Procedures should be performed if one or more of the following conditions exist:

- Failure to Meet Specifications

  If, during the course of normal operation, the ATC-600A-2 or any major function thereof fails to meet the performance specifications in Appendix C, Calibration/Verification Procedures should be performed.

- Module/Assembly Replacement

  If one or more of the ATC-600A-2 assemblies are replaced, the Calibration/ Verification Procedures should be performed.

- Annual Calibration/Verification

  Aeroflex recommends an annual Calibration/Verification on the ATC-600A-2 to maintain proper testing standards.

(2) Controls, Connectors and Indicators

Refer to Appendix D, Figures 1 and 2 for controls, connectors and indicators.

(3) Test Record

Data Sheets are provided for recording results obtained while performing the Calibration/Verification Procedures.

NOTE: It is recommended the technician reproduce copies of the Calibration/ Verification Data Sheets, rather than use the copies in this manual.

B. Precautions

(1) Safety

WARNING: REMOVE ALL JEWELRY OR OTHER COSMETIC APPAREL BEFORE PERFORMING ANY CALIBRATION/VERIFICATION PROCEDURE INVOLVING LIVE CIRCUITS.

WARNING: WHEN WORKING WITH LIVE CIRCUITS OF HIGH POTENTIAL, KEEP ONE HAND IN POCKET OR BEHIND BACK TO AVOID SERIOUS SHOCK HAZARD.

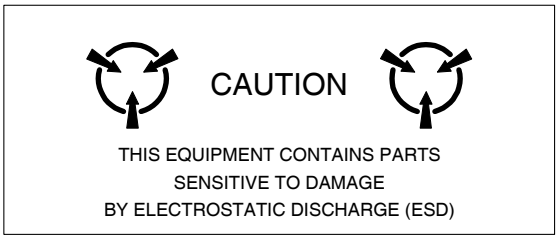
WARNING: USE ONLY INSULATED TROUBLESHOOTING TOOLS WHEN WORKING WITH LIVE CIRCUITS.

WARNING: FOR ADDED INSULATION, PLACE RUBBER BENCH MAT UNDERNEATH ALL POWERED BENCH EQUIPMENT, AS WELL AS A RUBBER MAT UNDERNEATH TECHNICIAN'S CHAIR.

WARNING: HEED ALL WARNINGS AND CAUTIONS CONCERNING MAXIMUM VOLTAGES AND POWER INPUTS.

(2) ESD

CAUTION: THE CALIBRATION PROCEDURES SHOULD ONLY BE PERFORMED IN AN ESD ENVIRONMENT. ALL PERSONNEL PERFORMING THE CALIBRATION PROCEDURES SHOULD HAVE KNOWLEDGE OF ACCEPTED ESD PRACTICES AND/OR BE ESD CERTIFIED.



(3) EMC and Safety Compliance

All assemblies, cables, connectors, plastic fasteners, gaskets, fingerstock and miscellaneous hardware within the Test Set are configured to satisfy the safety and EMC compliance standards.

CAUTION: UPON COMPLETION OF ANY MAINTENANCE ACTION; ALL ASSEMBLIES, CABLES, CONNECTORS, PLASTIC FASTENERS, GASKETS, FINGERSTOCK AND MISCELLANEOUS HARDWARE MUST BE CONFIGURED AS INSTALLED AT THE FACTORY.

C. Requirements

(1) Test Set Configuration

The ATC-600A-2 must be installed according to the Installation Calibration procedure in the ATC-600A-2 Operation Manual.

(2) Test Equipment

Appendix B contains a comprehensive list of test equipment suitable for performing any procedure contained in this manual. Other equipment meeting specifications listed in Appendix B may be substituted in place of recommended models.

NOTE: For certain procedures in this manual, the test equipment listed in Appendix B may exceed the minimum required specifications.

(3) Disassembly

Remove lid from ATC-600A-2 to perform the Verification Procedures.

Remove lid and case from ATC-600A-2 to perform the Calibration Procedures.

(4) Environment

For best results, the calibration environmental conditions should be identical to the environmental conditions at the normal operating location.

D. Procedure Instruction

It is strongly recommended that personnel thoroughly read and understand all steps of the procedures to be performed and be familiar with the circuit under test. Knowledge of power, frequency and waveform to be expected at each test point is recommended.

NOTE: When one circuit provides the same pulse characteristic for different pulses, it is necessary to test the specifications for that characteristic only once. Pulse spacings are measured from leading edge to leading edge at the 50% amplitude points. Pulse widths are measured from leading edge to trailing edge at the 50% amplitude points.

E. Verification Procedures

(1) Preparation for Testing

STEP	PROCEDURE

1. Remove lid from Test Set.
2. Apply external ac power to Test Set AC POWER Connector; 115 or 240 VAC, depending on how Test Set is wired.
3. Press PWR/BAT Switch to ***PWR***.

(2) XPDR Interrogation Pulse Spacing

PREREQUISITES: None

TEST EQUIPMENT: Oscilloscope

STEP PROCEDURE

1. Set MODE Switch to ***A/C ALT***.
2. Connect Oscilloscope (vertical input) to DIODE SWITCH INPUT Connector.
3. Set Oscilloscope sweep to view all pulses of the XPDR Interrogation Signal (approximately 5 µs/cm).
4. Set INTERROGATION SPACING Control to ***0***.
5. Set (and hold) the 0/OFF/-9 dB SLS Switch to ***0dB*** and verify P_2 pulse is 2 µs (±0.05 µs) from P_1.
6. Set MODE Switch to the following settings and verify P_1 to P_3 spacing:

MODE SWITCH SETTING	P_1 TO P_3 SPACING
A/C ALT	21 µs (±0.05 µs)
A/C CODE	8 µs (±0.05 µs)
A	8 µs (±0.05 µs)

7. Set (and hold) the 0/OFF/-9 dB SLS Switch to ***0dB*** and verify P_2 and P_3 pulses are relative to P_1.
8. Set MODE Switch to ***A/C ALT***.
9. Adjust INTERROGATION SPACING Control from -1 to +1 and verify P_2 and P_3 are adjusted accordingly.
10. Disconnect Oscilloscope from DIODE SWITCH INPUT Connector.

(3) XPDR Pulse Width

PREREQUISITES: None

TEST EQUIPMENT: Oscilloscope

NOTE: This procedure measures the XPDR pulse at the ATC-600A-2 rear panel. To measure the XPDR pulse at the ATC-600A-2 front panel, refer to the Calibration section.

STEP	PROCEDURE

1. Connect Oscilloscope (vertical input) to DIODE SWITCH INPUT Connector.
2. Set Oscilloscope sweep to view all pulses of the XPDR Interrogation Signal (approximately 5 μs/cm).
3. Verify all XPDR pulses are 0.8 μs (±0.1 μs) wide at the 50% point.
4. Disconnect Oscilloscope from DIODE SWITCH INPUT Connector.

(4) XPDR Interrogation PRF Frequency

PREREQUISITES: None

TEST EQUIPMENT: Frequency Counter

STEP	PROCEDURE

1. Connect Frequency Counter to DIODE SWITCH INPUT Connector.
2. Verify count to 470 Hz and divide by 2 for PRF of 235 (±15).
3. Disconnect Frequency Counter from DIODE SWITCH INPUT Connector.

(5) Framing Pulse Spacing (XPDR)

PREREQUISITES: None

TEST EQUIPMENT: 34 dB Pad
Transponder

STEP	PROCEDURE

1. Connect coaxial cable and 34 dB Pad between Transponder and RF INPUT/OUTPUT Connector.
2. Set MODE Switch to ***A/C CODE***.
3. Set Transponder Code to all zeros.
4. Verify F_2 of XPDR reply pulses.
5. Adjust FRAMING PULSE SPACING Control and verify F_2 PULSE SPACING Indicator is OFF between -0.2 and +0.2 μs spacing.
6. Disconnect Transponder from RF INPUT/OUTPUT Connector.

(6) A/C CODE Mode Readout

PREREQUISITES: None

TEST EQUIPMENT: Transponder

STEP	PROCEDURE

1. Connect coaxial cable and 34 dB Pad between Transponder and RF INPUT/OUTPUT Connector.
2. Set Transponder Pilot's Code from 0000 to 7777 and verify:
   - Pilot's Code on NUMERICAL Readout.
   - OCTAL READOUT Indicators (A1 through D4) follow the code display and the code applied to the Test Set from the XPDR.
3. Disconnect Transponder from RF INPUT/OUTPUT Connector.

(7) A/C ALT Mode Readout

PREREQUISITES: None

TEST EQUIPMENT: Test Switch Assembly
Transponder

STEP	PROCEDURE

1. Connect coaxial cable and 34 dB Pad between Transponder and RF INPUT/OUTPUT Connector.
2. Connect Test Switch Assembly to Transponder (to simulate altitude pulses).
3. Set MODE Switch to ***A/C ALT***.
4. Set all test switches on Test Switch Assembly to ON.
5. Set test switch C4 to OFF and verify 84.1 thousand feet on NUMERICAL Readout.
6. Set all test switches on Test Switch Assembly to OFF
7. Set test switch C4 to ON and verify 254.7 thousand feet on NUMERICAL Readout.
8. Set test switch C4 to OFF.
9. Set test switch C2 to ON and verify -1 thousand feet on NUMERICAL Readout.
10. Verify OCTAL READOUT Indicators A1 through D4 displays the altitude code into the Test Set.
11. Disconnect Test Switch Assembly from Transponder.
12. Disconnect Transponder from RF INPUT/OUTPUT Connector.

(8) XPDR System Self Test

PREREQUISITES: None

TEST EQUIPMENT: None

STEP	PROCEDURE

1. Set ATC-600A-2 controls as follows:

CONTROL	SETTING
MODE Switch	***A/C ALT***
SYS/LAMP TEST Switch	***SYS***

2. Verify 126.7 thousand feet on NUMERICAL Readout.
3. Set MODE Switch to ***A/C CODE***.
4. Verify 0042 on NUMERICAL Readout.
5. Set MODE Switch to ***A***.
6. Verify 0042 on NUMERICAL Readout.

(9) IDENT PULSE Indicator - XPDR

PREREQUISITES: None

TEST EQUIPMENT: Transponder

STEP	PROCEDURE

1. Connect coaxial cable and 34 dB Pad between Transponder and RF INPUT/OUTPUT Connector.
2. Set MODE Switch to ***A/C CODE***.
3. Press Ident Switch on Transponder Control Head and verify IDENT PULSE Indicator illuminates for approximately 20-30 seconds.
4. Disconnect Transponder from RF INPUT/OUTPUT Connector.

(10) INVALID ALT Indicator - XPDR

PREREQUISITES: None

TEST EQUIPMENT: Test Switch Assembly
Transponder

STEP	PROCEDURE

1. Connect coaxial cable and 34 dB Pad between Transponder and RF INPUT/OUTPUT Connector.
2. Connect Test Switch Assembly to Transponder (to simulate altitude pulses).
3. Set Test Switches C1 and C4 to ON and verify INVALID ALT Indicator lights and flags appear in NUMERICAL Readout.
4. Disconnect Test Switch Assembly from Transponder.
5. Disconnect Transponder from RF INPUT/OUTPUT Connector.

(11) NO ALT Indicator - XPDR

PREREQUISITES: None

TEST EQUIPMENT: Test Switch Assembly
Transponder

STEP	PROCEDURE

1. Connect coaxial cable and 34 dB Pad between Transponder and RF INPUT/OUTPUT Connector.
2. Connect Test Switch Assembly to Transponder (to simulate altitude pulses).
3. Set all test Switches to OFF and verify NO ALT Indicator lights.
4. Disconnect Test Switch Assembly from Transponder.
5. Disconnect Transponder from RF INPUT/OUTPUT Connector.

(12) XPDR % RPLY/DME PRF Meter - XPDR

PREREQUISITES: None

TEST EQUIPMENT: Test Switch Assembly
Transponder

STEP	PROCEDURE

1. Connect coaxial cable and 34 dB Pad between Transponder and RF INPUT/OUTPUT Connector.
2. Connect Test Switch Assembly to Transponder (to simulate altitude pulses).
3. Set Transponder to reply in A/C Mode.
4. Verify XPDR % RPLY/DME PRF Meter displays 100% of interrogating mode.
5. Disconnect Test Switch Assembly from Transponder.
6. Disconnect Transponder from RF INPUT/OUTPUT Connector.

(13) FREQ/PWR Meter (PWR) - XPDR

PREREQUISITES: None

TEST EQUIPMENT: 34 dB Pad
Transponder

STEP	PROCEDURE

1. Connect coaxial cable and 34 dB Pad between Transponder and RF INPUT/OUTPUT Connector.
2. Set FREQ/PWR Switch to ***PWR***.
3. Verify FREQ/PWR Meter displays XPDR power (±20%).
4. Disconnect Transponder from RF INPUT/OUTPUT Connector.

(14) FREQ/PWR Meter (FREQ) - XPDR

PREREQUISITES: None

TEST EQUIPMENT: Signal Generator

STEP PROCEDURE

1. Set Signal Generator controls as follows:

CONTROL	SETTING
Frequency	1093 MHz
Level	5 dBm (±2 dB)
Mode	CW

2. Set ATC-600A-2 controls as follows:

CONTROL	SETTING
XMTR FREQ Control	***+3***
FREQ/PWR Switch	***FREQ***
FREQ GAIN Control	(Midscale)

3. Connect Signal Generator to RF INPUT/OUTPUT Connector.
4. Adjust XMTR FREQ Control and verify FREQ/PWR Meter peaks at 3 MHz.
5. Set Signal Generator to 1086 MHz.
6. Adjust XMTR FREQ Control and verify FREQ/PWR Meter peaks at 4 MHz.
7. Set Signal Generator to 1090 MHz.
8. Adjust XMTR FREQ Control and verify FREQ/PWR Meter peaks at 0 MHz.
9. Disconnect Signal Generator from RF INPUT/OUTPUT Connector.

(15) Squitter Frequency - DME

PREREQUISITES: None

TEST EQUIPMENT: Frequency Counter

STEP	PROCEDURE

1. Connect Frequency Counter to DIODE SWITCH INPUT Connector.
2. Set ATC-600A-2 controls as follows:

CONTROL	SETTING
SQUITTER ON/OFF Switch	***SQTR***
MODE Switch	***DME***

3. Verify average squitter count of 5400 Hz (±400 Hz) on Frequency Counter.
4. Disconnect Frequency Counter from DIODE SWITCH INPUT Connector.

(16) IDENT Tone and Pulse Spacing - DME

PREREQUISITES: None

TEST EQUIPMENT: Frequency Counter

STEP	PROCEDURE

1. Connect Frequency Counter to DIODE SWITCH INPUT Connector.
2. Set SQUITTER ON/OFF Switch to ***OFF***.
3. Toggle and hold the IDENT/50% RPLY Switch to **IDENT**.
4. Verify 5400 Hz (±60 Hz) on Frequency Counter.
5. Verify Pulse Pair spacing is 100 μs from P_2 of first pair to P_2 of second pair at the 50% point.
6. Disconnect Frequency Counter from DIODE SWITCH INPUT Connector.

(17) X and Y Channel Pulse Spacing - DME

PREREQUISITES: None

TEST EQUIPMENT: DME 2-Pulse Generator
Oscilloscope

STEP	PROCEDURE

1. Connect DME 2-Pulse Generator (output) and Oscilloscope to DETECTED RF VIDEO OUTPUT Connector using a T-Connector.
2. Set DME CHANNEL Switch to ***17Y***.
3. Set DME 2-Pulse Generator Switch to Y Channel.
4. Connect Oscilloscope to DIODE SWITCH INPUT Connector.
5. Adjust Oscilloscope to display interrogation pulse (from DME) and reply (from DIODE SWITCH INPUT Connector).
6. Verify spacing is 55.8 μs (±0.3 μs) from P_1 of interrogation to P_1 of reply.
7. Adjust Oscilloscope to display only the two pulses from the DIODE SWITCH INPUT Connector.
8. Verify spacing is 30 μs (±0.3 μs) from P_1 of interrogation to P_1 of reply.
9. Set DME CHANNEL Switch to ***17X***.
10. Set DME 2-Pulse Generator Switch to X Channel.
11. Adjust Oscilloscope to display interrogation pulse (from DME) and reply (from DIODE SWITCH INPUT Connector).
12. Verify spacing is 49.8 μs (±0.3 μs) from P_1 of interrogation to P_1 of reply.
13. Adjust Oscilloscope to display only the two pulses from the DIODE SWITCH INPUT Connector.
14. Verify spacing is 12 μs (±0.3 μs) from P_1 of interrogation to P_1 of reply.
15. Set DME CHANNEL Switch to ***18X***.
16. Set DME 2-Pulse Generator Switch to X Channel.
17. Adjust Oscilloscope to display interrogation pulse (from DME) and reply (from DIODE SWITCH INPUT Connector).
18. Verify spacing is 49.8 μs (±0.3 μs) from P_1 of interrogation to P_1 of reply.
19. Adjust Oscilloscope to display only the two pulses from the DIODE SWITCH INPUT Connector.
20. Verify spacing is 12 μs (±0.3 μs) from P_1 of interrogation to P_1 of reply.
21. Disconnect Oscilloscope from DIODE SWITCH INPUT Connector.
22. Disconnect DME 2-Pulse Generator and Oscilloscope from DETECTED RF VIDEO OUTPUT Connector.

(18) Pulse Width - DME

PREREQUISITES: None

TEST EQUIPMENT: Oscilloscope

STEP	PROCEDURE

1. Connect Oscilloscope to DIODE SWITCH INPUT Connector.
2. Set SQUITTER ON/OFF Switch to **ON**.
3. Adjust Oscilloscope to display DME reply PULSE from DIODE SWITCH INPUT Connector.
4. Verify pulse width is 3.5 μs (±0.5 μs) wide.
5. Set SQUITTER ON/OFF Switch to **OFF**.
6. Disconnect Oscilloscope from DIODE SWITCH INPUT Connector.

(19) Range Slew - DME

PREREQUISITES: None

TEST EQUIPMENT: DME 2-Pulse Generator
Oscilloscope

STEP	PROCEDURE

1. Connect DME 2-Pulse Generator (output) and Oscilloscope to DETECTED RF VIDEO OUTPUT Connector using a T-Connector.
2. Connect Oscilloscope to DIODE SWITCH INPUT Connector.
3. Trigger Oscilloscope on DME 2 Pulse Generator output.
4. Adjust Oscilloscope to display DME reply pulses.
5. Slew range outbound in fast and slow modes and verify reply pulses move smoothly from 0 to 399 NM on Oscilloscope.
6. Set DME RANGE/VELOCITY Switch to several different Velocity settings and verify reply pulses move smoothly both inbound and outbound, and at HI and LO velocities.
7. Disconnect Oscilloscope from DIODE SWITCH INPUT Connector.

(20) 50% Reply - DME

PREREQUISITES: None

TEST EQUIPMENT: DME 2-Pulse Generator
Frequency Counter

STEP	PROCEDURE

1. Connect DME 2-Pulse Generator (output) to DETECTED RF VIDEO OUTPUT Connector.
2. Set DME 2-Pulse Generator to 600 Hz.
3. Set SQUITTER ON/OFF Switch to ***OFF***.
4. Connect Frequency Counter to DIODE SWITCH INPUT Connector.
5. Verify 1200 Hz on Frequency Counter.
6. Set IDENT/50% RPLY Switch to ***50% RPLY***.
7. Verify 600 Hz on Frequency Counter.
8. Disconnect Frequency Counter from DIODE SWITCH INPUT Connector.
9. Disconnect DME 2-Pulse Generator from DETECTED RF VIDEO OUTPUT Connector.

(21) DME PRF - DME

PREREQUISITES: None

TEST EQUIPMENT: DME 2-Pulse Generator

STEP	PROCEDURE

1. Connect DME 2-Pulse Generator (output) to DETECTED RF VIDEO OUTPUT Connector.
2. Set DME 2-Pulse Generator to 150 Hz.
3. Set DME PRF Switch to ***0-300***.
4. Verify XPDR % RPLY/DME PRF Meter displays 150 PRF.
5. Adjust DME 2-Pulse Generator from 0 to 150 PRF and verify XPDR % RPLY/DME PRF Meter follows DME 2-Pulse Generator frequency.
6. Set DME 2-Pulse Generator to 15 Hz.
7. Set DME PRF Switch to ***0-30***.
8. Verify XPDR % RPLY/DME PRF Meter displays 15 PRF.
9. Adjust DME 2-Pulse Generator from 0 to 15 PRF and verify XPDR % RPLY/DME PRF Meter follows DME 2-Pulse Generator frequency.
10. Disconnect DME 2-Pulse Generator from DETECTED RF VIDEO OUTPUT Connector.

F. Verification Data Sheet

TECHNICIAN: _____ DATE: _____

ATC-600A-2 S/N: _____

STEP	DATA	RESULT
(2) XPDR Interrogation Pulse Spacing		
5. P_2 pulse is 2 μs (±0.05 μs) from P_1		_____
6. A/C ALT	21 μs (±0.05 μs)	_____
A/C CODE	8 μs (±0.05 μs)	_____
A	8 μs (±0.05 μs)	_____
7. P_2 and P_3 pulses are relative to P_1.		_____(√)
9. P_2 and P_3 are adjusted accordingly		_____(√)
(3) XPDR Pulse Width		
3. XPDR pulses are 0.8 μs (±0.1 μs) wide at 50% point		_____
(4) XPDR Interrogation PRF Frequency		
2. PRF is 235 (±15)		_____
(5) Framing Pulse Spacing (XPDR)		
4. F_2 of XPDR reply pulses		_____(√)
5. F_2 PULSE SPACING Indicator is OFF between -0.2 and +0.2 μs spacing		_____(√)
(6) A/C CODE Mode Readout		
2. Pilot's Code		_____(√)
OCTAL READOUT Indicators (A1 through D4) follow code display		_____(√)
(7) A/C ALT Mode Readout		
5. 84.1 thousand feet on NUMERICAL Readout		_____
7. 254.7 thousand feet on NUMERICAL Readout		_____
9. -1 thousand feet on NUMERICAL Readout		_____
10. OCTAL READOUT Indicators A1 through D4 displays altitude code		_____(√)
(8) XPDR System Self Test		
2. A/C ALT	126.7 thousand feet	_____
4. A/C CODE	0042	_____
6. A	0042	_____

STEP	DATA	RESULT
(9)	**IDENT PULSE Indicator - XPDR**	
	3. IDENT PULSE Indicator illuminates for approximately 20 to 30 seconds	_____
(10)	**INVALID ALT Indicator - XPDR**	
	3. INVALID ALT Indicator lights	_____(√)
	Flags appear in NUMERICAL Readout	_____(√)
(11)	**NO ALT Indicator - XPDR**	
	3. NO ALT Indicator lights	_____(√)
(12)	**XPDR % RPLY/DME PRF Meter - XPDR**	
	4. XPDR % RPLY/DME PRF Meter displays 100% of interrogating mode	_____(√)
(13)	**FREQ/PWR Meter (PWR) - XPDR**	
	3. FREQ/PWR Meter displays XPDR power (±20%)	_____
(14)	**FREQ/PWR Meter (FREQ) - XPDR**	
	4. FREQ/PWR Meter peaks at 3 MHz	_____
	6. FREQ/PWR Meter peaks at 4 MHz	_____
	8. FREQ/PWR Meter peaks at 0 MHz	_____
(15)	**Squitter Frequency - DME**	
	3. Average squitter count is 5400 Hz (±400 Hz)	_____
(16)	**IDENT Tone and Pulse Spacing - DME**	
	4. 5400 Hz (±60 Hz) on Frequency Counter	_____
	5. Pulse Pair spacing is 100 µs from P_2 of first pair to P_2 of second pair at 50% point	_____(√)
(17)	**X and Y Channel Pulse Spacing - DME**	
	6. 17Y 55.8 µs (±0.3 µs) from P_1 of interrogation to P_1 of reply	_____
	8. 17Y 30 µs (±0.3 µs) from P_1 of interrogation to P_1 of reply	_____
	12. 17X 49.8 µs (±0.3 µs) from P_1 of interrogation to P_1 of reply	_____
	14. 17X 12 µs (±0.3 µs) from P_1 of interrogation to P_1 of reply	_____
	18. 18X 49.8 µs (±0.3 µs) from P_1 of interrogation to P_1 of reply	_____
	20. 18X 12 µs (±0.3 µs) from P_1 of interrogation to P_1 of reply	_____
(18)	**Pulse Width - DME**	
	4. 3.5 µs (±0.5 µs)	_____

STEP	DATA	RESULT
(19)	**Range Slew - DME**	
	5. Reply pulses move smoothly from 0 to 399 NM	_____(√)
	6. Reply pulses move smoothly both inbound and outbound, and at HI and LO velocities	_____(√)
(20)	**50% Reply - DME**	
	4. 1200 Hz	_____
	6. 600 Hz	_____
(21)	**DME PRF - DME**	
	4. XPDR % RPLY/DME PRF Meter displays 150 PRF	_____(√)
	5. XPDR % RPLY/DME PRF Meter follows frequency	_____(√)
	8. XPDR % RPLY/DME PRF Meter displays 15 PRF	_____(√)
	9. XPDR % RPLY/DME PRF Meter follows frequency	_____(√)

THIS PAGE INTENTIONALLY LEFT BLANK.

G. Calibration Procedures

(1) Preparation for Testing

STEP	PROCEDURE

1. Remove lid from Test Set.
2. Remove Test Set from case.
3. Apply external ac power to Test Set AC POWER Connector; 115 or 240 VAC, depending on how Test Set is wired.
4. Press PWR/BAT Switch to ***PWR***.

(2) Power Supply Voltages

PREREQUISITES: None

TEST EQUIPMENT: Digital Multimeter (DMM)

STEP PROCEDURE

1. Set MODE Switch to any XPDR Mode.
2. Using Digital Multimeter (DMM), verify the following voltages:

VOLTAGE	LOCATION	ADJUSTMENT
+11 Vdc (±0.4 Vdc)	Term 14 (2-2-3, Figure 24)	R506 (2-2-3, Figure 24)
-6.2 Vdc (±0.4 Vdc)	Term V (2-2-3, Figure 24)	None
+5 Vdc (±0.3 Vdc)	Term K (2-2-3, Figure 24)	R1158 (2-2-3, Figure 12)

(3) Battery Charger and Timer

PREREQUISITES: Power Supply Voltages (para 2-2-2G[2])

TEST EQUIPMENT: Digital Multimeter (DMM)
External Power Supply
Test Resistor (100 Ω, 20 W)

STEP	PROCEDURE

1. Using PWR/BAT Switch, turn Test Set OFF.
2. Remove Test Set from external power source.
3. Disconnect Battery Connector (J1) from Battery (BT1) (2-2-3, Figure 13).
4. Attach Test Resistor between Battery Connector (J1) Pin 1 (+) (red lead) and GND (2-2-3, Figure 13).
5. Connect Digital Multimeter (DMM) across Test Resistor.
6. Connect Test Set to external power source.
7. Verify 16.1 Vdc (±0.3 Vdc) on Digital Multimeter (DMM). Adjust R525 (2-2-3, Figure 24) as needed.
8. Remove Test Set from external power source.
9. Disconnect Digital Multimeter (DMM) from Test Resistor.
10. Disconnect Test Resistor from Battery Connector (J1).
11. Set External DC Power Supply for +15 Vdc at 3 A.
12. Connect External DC Power Supply to Battery Connector (J1).
13. Connect Digital Multimeter (DMM) across Battery Connector (J1).
14. Press BAT TEST Switch.
15. Adjust R580 (2-2-3, Figure 24) until reading on XPDR % RPLY/DME PRF Meter matches the reading on the Digital Multimeter (DMM).
16. Press PWR/BAT Switch to ***BAT***.
17. Verify Test Set turns OFF in 6 to 10 minutes. Trim across R561 (2-2-3, Figure 24) for proper timing.
18. Press PWR/BAT Switch to ***BAT***.
19. Decrease voltage on External DC Power Supply Voltage until Test Set turns OFF. Verify voltage is 10.5 to 11.5 Vdc.
20. Disconnect Digital Multimeter (DMM) from Battery Connector (J1).
21. Disconnect External DC Power Supply from Battery Connector (J1).
22. Reconnect Battery Connector (J1) to Battery (BT1) (2-2-3, Figure 13).
23. Connect Test Set to external power source.

(4) Oscillator Frequencies

PREREQUISITES: Power Supply Voltages (para 2-2-2G[2])

TEST EQUIPMENT: 270 Ω Resistor
Frequency Counter

STEP PROCEDURE

1. Using a 270 Ω Resistor in series with a Frequency Counter Probe, verify the following frequencies:

MODE SWITCH SETTING	FREQUENCY	LOCATION
Any XPDR Mode	20.6897 MHz (±4.14 kHz)	TP-101 (X23, Pin 8) (2-2-3, Figure 26)
DME	6.990506 MHz (±3.98 kHz)	TP-401 (X18, Pin 4) (2-2-3, Figure 25)
DME	6.473 MHz (±2.95 kHz)	TP-403 (X4, Pin 8) (2-2-3, Figure 25)

2. Using a small loop of insulated wire and a low impedance Frequency Counter Probe, verify the following frequencies:

DME CHANNEL SWITCH SETTING	FREQUENCY	LOCATION
17X	97.8 MHz (±5.68 kHz)	TP-1501 (2-2-3, Figure 15)
18X	97.9 MHz (±5.68 kHz)	TP-1501 (2-2-3, Figure 15)
17Y	110.4 MHz (±6.62 kHz)	TP-10001 (2-2-3, Figure 15)
MODE SWITCH SETTING	**FREQUENCY**	**LOCATION**
Any XPDR Mode	103 MHz (±6.18 kHz)	TP-11001 (2-2-3, Figure 15)
DME	106.55 MHz (±6.39 kHz)	L-704 (2-2-3, Figure 14)

(5) XPDR Interrogation Pulse Spacing

PREREQUISITES: Power Supply Voltages (para 2-2-2G[2])

TEST EQUIPMENT: Oscilloscope

STEP PROCEDURE

1. Set MODE Switch to ***A/C ALT***.
2. Connect Oscilloscope (vertical input) to DIODE SWITCH INPUT Connector.
3. Set Oscilloscope sweep to view all pulses of the XPDR Interrogation Signal (approximately 5 µs/cm).
4. Set INTERROGATION SPACING Control to ***0***.
5. Set (and hold) the 0/OFF/-9 dB SLS Switch to ***0dB*** and verify P_2 pulse is 2 µs (±0.05 µs) from P_1. Adjust R31 (2-2-3, Figure 26) as needed.
6. Set MODE Switch to the following settings and verify P_1 to P_3 spacing:

MODE SWITCH SETTING	P_1 TO P_3 SPACING	ADJUSTMENT
A/C ALT	21 µs (±0.05 µs)	R46 (2-2-3, Figure 26)
A/C CODE	8 µs (±0.05 µs)	R38 (2-2-3, Figure 26)
A	8 µs (±0.05 µs)	R4 (under Front Panel by SQUITTER ON/OFF Switch)

7. Set (and hold) the 0/OFF/-9 dB SLS Switch to ***0dB*** and verify P_2 and P_3 pulses are relative to P_1.
8. Set MODE Switch to ***A/C ALT***.
9. Adjust INTERROGATION SPACING Control from -1 to +1 and verify P_2 and P_3 are adjusted accordingly.
10. Disconnect Oscilloscope from DIODE SWITCH INPUT Connector.

(6) XPDR Interrogation PRF Frequency

PREREQUISITES: Power Supply Voltages (para 2-2-2G[2])

TEST EQUIPMENT: Frequency Counter

STEP	PROCEDURE

1. Connect Frequency Counter to DIODE SWITCH INPUT Connector.
2. Verify count to 470 Hz and divide by 2 for PRF of 235 (±15). Adjust R32 (2-2-3, Figure 26) as needed.
3. Disconnect Frequency Counter from DIODE SWITCH INPUT Connector.

(7) XPDR Pulse Width

PREREQUISITES: Power Supply Voltages (para 2-2-2G[2])

TEST EQUIPMENT: 20 dB Amplifier
Heterodyne Monitor
Oscilloscope
Signal Generator
External Power Supply

STEP PROCEDURE

1. Connect Oscilloscope (External Sync) to SYNC OUTPUT Connector.
2. Connect External Power Supply and 20 dB Amplifier to RF INPUT/OUTPUT Connector and Heterodyne Monitor.
3. Connect Heterodyne Monitor to Oscilloscope.
4. Set Signal Generator controls as follows:

CONTROL	SETTING
Frequency	1030 MHz
Level	0 dBm

5. Connect Signal Generator to Heterodyne Monitor.
6. Set External Power Supply to required voltage pf 20 dB Amplifier.
7. Apply power to the 20 dB Amplifier.
8. Set MODE Switch to ***AC ALT***.
9. Set Oscilloscope controls as follows:

CONTROL	SETTING
Scope Time	5 μs/Div
Level	0.005 V/Div

10. Verify pulse width is 0.8 μs (±0.1 μs) at the 50% point.
11. Disconnect Signal Generator from Heterodyne Monitor.
12. Disconnect Heterodyne Monitor from Oscilloscope.
13. Disconnect External Power Supply and 20 dB Amplifier from RF INPUT/OUTPUT Connector and Heterodyne Monitor.
14. Disconnect Oscilloscope (External Sync) from SYNC OUTPUT Connector.

(8) Framing Pulse Spacing (XPDR)

PREREQUISITES: Power Supply Voltages (para 2-2-2G[2])

TEST EQUIPMENT: Function Generator
Oscilloscope

STEP PROCEDURE

1. Connect Oscilloscope (External Trigger) and Function Generator (External Trigger) to SYNC OUTPUT Connector.
2. Connect Oscilloscope (Channel 2) and Function Generator (Function Out) to DETECTED RF VIDEO OUTPUT Connector.
3. Connect Oscilloscope (Channel 1) to DIODE SWITCH INPUT Connector.
4. Set MODE Switch to ***A***.
5. Set Function Generator controls as follows:

CONTROL	SETTING
Pulse Output	Positive TTL
Pulse Width	0.45 µs
Dual Pulse Output	0.45 µs
Pulse Spacing	20.3 µs

6. Set Function Generator to external trigger input and adjust frequency for pulse spacing of 3 µs between the second pulse on channel 1 and the first pulse on channel 2.
7. Set FRAMING PULSE SPACING Control to ***-0.25***.
8. Adjust R547 (2-2-3, Figure 26) until F_2 PULSE SPACING Indicator starts to flash.
9. Adjust FRAMING PULSE SPACING Control cw and verify F_2 PULSE SPACING Indicator starts to flash at approximately +0.25. If needed, adjust R547 (2-2-3, Figure 26) and the FRAMING PULSE SPACING Control until the F_2 PULSE SPACING Indicator starts to flash approximately equal distance on each side of ***0***.
10. Set FRAMING PULSE SPACING Control to ***0***.
11. Decrease Function Generator pulse spacing until F_2 PULSE SPACING Indicator starts to flash. Verify pulse spacing is between 20.00 and 20.15 µs.
12. Increase Function Generator pulse spacing until F_2 PULSE SPACING Indicator starts to flash. Verify pulse spacing is between 20.45 and 20.60 µs.
13. Disconnect Oscilloscope (Channel 1) from DIODE SWITCH INPUT Connector.
14. Disconnect Oscilloscope (Channel 2) and Function Generator (Function Out) from DETECTED RF VIDEO OUTPUT Connector.
15. Disconnect Oscilloscope (External Trigger) and Function Generator (External Trigger) from SYNC OUTPUT Connector.

(9) XPDR % RPLY/DME PRF Meter - XPDR

PREREQUISITES: Power Supply Voltages (para 2-2-2G[2])

TEST EQUIPMENT: Test Switch Assembly
Transponder

STEP	PROCEDURE

1. Connect coaxial cable and 34 dB Pad between Transponder and RF INPUT/OUTPUT Connector.
2. Connect Test Switch Assembly to Transponder (to simulate altitude pulses).
3. Set Transponder to reply in A/C Mode.
4. Verify XPDR % RPLY/DME PRF Meter displays 100% of interrogating mode. Adjust R570 (2-2-3, Figure 24) as needed.
5. Disconnect Test Switch Assembly from Transponder.
6. Disconnect Transponder from RF INPUT/OUTPUT Connector.

(10) FREQ/PWR Meter (PWR) - XPDR

PREREQUISITES: Power Supply Voltages (para 2-2-2G[2])

TEST EQUIPMENT: 34 dB Pad
Transponder

STEP	PROCEDURE

1. Connect coaxial cable and 34 dB Pad between Transponder and RF INPUT/OUTPUT Connector.
2. Set FREQ/PWR Switch to ***PWR***.
3. Verify FREQ/PWR Meter displays XPDR power (±20%). Adjust R543 (2-2-3, Figure 24) as needed.
4. Disconnect Transponder from RF INPUT/OUTPUT Connector.

(11) FREQ/PWR Meter (FREQ) - XPDR

PREREQUISITES: Power Supply Voltages (para 2-2-2G[2])

TEST EQUIPMENT: Signal Generator

STEP PROCEDURE

1. Set Signal Generator controls as follows:

CONTROL	SETTING
Frequency	1093 MHz
Level	5 dBm (±2 dB)
Mode	CW

2. Set ATC-600A-2 controls as follows:

CONTROL	SETTING
XMTR FREQ Control	***+3***
FREQ/PWR Switch	***FREQ***
FREQ GAIN Control	(Midscale)

3. Connect Signal Generator to RF INPUT/OUTPUT Connector.
4. Adjust C808 (2-2-3, Figure 23) for peak deflection on FREQ/PWR Meter.
5. Set Signal Generator to 1086 MHz.
6. Set XMTR FREQ Control to -4.
7. Adjust L803 (2-2-3, Figure 23) for peak deflection on FREQ/PWR Meter.
8. Set Signal Generator to 1090 MHz.
9. Verify FREQ/PWR Meter peaks when XMTR FREQ Control is set to 0.
10. Set Signal Generator to 1038 MHz.
11. Verify FREQ/PWR Meter peaks when XMTR FREQ Control is set to +3.
12. Set Signal Generator to 1045 MHz.
13. Verify FREQ/PWR Meter peaks when XMTR FREQ Control is set to -4.
14. Set Signal Generator to 1041 MHz.
15. Verify FREQ/PWR Meter peaks when XMTR FREQ Control is set to 0.
16. Repeat Steps 4-15 until adjustments are no longer required.
17. Disconnect Signal Generator from RF INPUT/OUTPUT Connector.

(12) Squitter Frequency - DME

PREREQUISITES: Power Supply Voltages (para 2-2-2G[2])

TEST EQUIPMENT: Frequency Counter

STEP	PROCEDURE

1. Connect Frequency Counter to DIODE SWITCH INPUT Connector.
2. Set ATC-600A-2 controls as follows:

CONTROL	SETTING
SQUITTER ON/OFF Switch	***SQTR***
MODE Switch	***DME***

3. Verify average squitter count of 5400 Hz (±400 Hz) on Frequency Counter. Adjust R375 (2-2-3, Figure 18) as needed.
4. Disconnect Frequency Counter from DIODE SWITCH INPUT Connector.

(13) IDENT Tone and Pulse Spacing - DME

PREREQUISITES: Power Supply Voltages (para 2-2-2G[2])

TEST EQUIPMENT: Frequency Counter

STEP	PROCEDURE

1. Connect Frequency Counter to DIODE SWITCH INPUT Connector.
2. Set SQUITTER ON/OFF Switch to ***OFF***.
3. Verify 5400 Hz (±60 Hz) on Frequency Counter. Adjust R355 (2-2-3, Figure 18) as needed.
4. Disconnect Frequency Counter from DIODE SWITCH INPUT Connector.

(14) Noise Amplifier Output - DME

PREREQUISITES: Power Supply Voltages (para 2-2-2G[2])

TEST EQUIPMENT: Oscilloscope

STEP	PROCEDURE

1. Connect Oscilloscope to the emitter of Q316 (2-2-3, Figure 18).
2. Verify an average 3 Vp-p noise level. Adjust R363 (2-2-3, Figure 18) as needed.

(15) AGC Operation - DME

PREREQUISITES: Power Supply Voltages (para 2-2-2G[2])

TEST EQUIPMENT: DME 2-Pulse Generator
Function Generator
Oscilloscope

STEP PROCEDURE

1. Connect Function Generator (TTL output) to DME 2-Pulse Generator (input).
2. Connect DME 2-Pulse Generator (output) to Oscilloscope (Channel 1 Input) and to DETECTED RF VIDEO OUTPUT Connector.
3. Set Function Generator for 300 Hz square wave.
4. Set Oscilloscope controls as follows:

CONTROL	SETTING
Trigger Sync	Internal
Scope Time	10 μs/Div
Trigger Source	Channel 1
Amplitude	(As Required)

5. Set DME 2-Pulse Generator to output a pulse of approximately 10 to 15 Vp-p referenced to ground of DME 2-Pulse Generator.
6. Set ATC-600A-2 controls as follows:

CONTROL	SETTING
SQUITTER ON/OFF Switch	***OFF***
MODE Switch	***DME***

7. Using Oscilloscope Probe on TP-302 (collector of Q303) (2-2-3, Figure 18), verify waveform of Gaussian-shaped pulses.
8. Adjust DME 2-Pulse Generator output from minimum to maximum.
9. Using Oscilloscope Probe on TP-302 (collector of Q303) (2-2-3, Figure 18), verify pulses remain constant in amplitude.
10. Disconnect DME 2-Pulse Generator from Oscilloscope and DETECTED RF VIDEO OUTPUT Connector.
11. Disconnect Function Generator from DME 2-Pulse Generator.

(16) Decoder Gate Width - DME

PREREQUISITES: Power Supply Voltages (para 2-2-2G[2])

TEST EQUIPMENT: DME 2-Pulse Generator
Function Generator
Oscilloscope

STEP PROCEDURE

1. Connect Function Generator (TTL output) to DME 2-Pulse Generator (input).
2. Connect DME 2-Pulse Generator (output) to Oscilloscope (Channel 1 Input) and to DETECTED RF VIDEO OUTPUT Connector.
3. Set Function Generator for 300 Hz square wave.
4. Set Oscilloscope controls as follows:

CONTROL	SETTING
Trigger Sync	Internal
Scope Time	10 μs/Div
Trigger Source	Channel 1
Amplitude	(As Required)

5. Using Oscilloscope Probe on TP304 (X302, Pin 6) (2-2-3, Figure 18), verify pulse width is 6 μs (±1.5 μs) at the following locations:

DME CHANNEL SWITCH	DME 2-PULSE GENERATOR SWITCH
17Y	Y Channel
17X	X Channel
18X	X Channel

6. Disconnect DME 2-Pulse Generator from Oscilloscope and DETECTED RF VIDEO OUTPUT Connector.
7. Disconnect Function Generator from DME 2-Pulse Generator.

(17) Decoder Gate Centering - DME

PREREQUISITES: Power Supply Voltages (para 2-2-2G[2])

TEST EQUIPMENT: DME 2-Pulse Generator
Function Generator
Oscilloscope

STEP PROCEDURE

1. Connect Function Generator (TTL output) to DME 2-Pulse Generator (input).
2. Connect DME 2-Pulse Generator (output) to Oscilloscope (Channel 1 Input) and to DETECTED RF VIDEO OUTPUT Connector.
3. Set Function Generator for 300 Hz square wave.
4. Set Oscilloscope controls as follows:

CONTROL	SETTING
Trigger Sync	Internal
Scope Time	10 µs/Div
Trigger Source	Channel 1
Amplitude	(As Required)

5. Set DME RANGE/VELOCITY Switch to ***RANGE***.
6. Slew range for a distance of 000.0 miles.
7. Divide the Decoder Gate pulse width (para 2-2-G[16], Step 5) by 2 and subtract the result from 36 µs and 12 µs.
8. Using Oscilloscope Probe on TP303 (X301, Pin 6) (2-2-3, Figure 18), set pulse width at TP303 to the number calculated from 36 µs in Step 7. Verify pulse widths at the following locations:

DME CHANNEL SWITCH	DME 2-PULSE GENERATOR SWITCH	PULSE WIDTH	ADJUSTMENT
17Y	Y Channel	33 µs (±0.75 µs)	R316 (2-2-3, Figure 18)
17X	X Channel	9 µs (±0.75 µs)	R316 (2-2-3, Figure 18)
18X	X Channel	9 µs (±0.75 µs)	R316 (2-2-3, Figure 18)

9. Repeat Step 8 until adjustments are no longer required.
10. Disconnect DME 2-Pulse Generator from Oscilloscope and DETECTED RF VIDEO OUTPUT Connector.
11. Disconnect Function Generator from DME 2-Pulse Generator.

(18) X and Y Channel Pulse Spacing

PREREQUISITES: Power Supply Voltages (para 2-2-2G[2])

TEST EQUIPMENT: DME 2-Pulse Generator
Function Generator
Oscilloscope

STEP PROCEDURE

1. Connect Function Generator (TTL output) to DME 2-Pulse Generator (input).
2. Connect DME 2-Pulse Generator (output) to Oscilloscope (Channel 1 Input) and to DETECTED RF VIDEO OUTPUT Connector.
3. Set Function Generator for 300 Hz square wave.
4. Set Oscilloscope controls as follows:

CONTROL	SETTING
Trigger Sync	Internal
Scope Time	10 μs/Div
Trigger Source	Channel 1
Amplitude	(As Required)

5. Connect Oscilloscope (Channel 2 Input) to DIODE SWITCH INPUT Connector.
6. Adjust Oscilloscope to display Channel 1 (P_1 and P_2 output from Pulse Generator) and Channel 2 (P_1 and P_2 reply output from Test Set).
7. Set 2-Pulse Generator to Y Channel.
8. Set DME CHANNEL Switch to ***17Y***.
9. Verify spacing is 55.8 μs at 0 nm range between P_1 (2-Pulse Generator) and P_1 (Test Set). Adjust R331 (2-2-3, Figure 18) as needed.
10. Set 2-Pulse Generator to X Channel.
11. Set DME CHANNEL Switch to ***17X***.
12. Verify spacing is 49.8 μs at 0 nm range between P_1 (2-Pulse Generator) and P_1 (Test Set). Adjust R333 (2-2-3, Figure 18) as needed.
13. Set 2-Pulse Generator to X Channel.
14. Set DME CHANNEL Switch to ***18X***.
15. Verify spacing is 49.8 μs at 0 nm range between P_1 (2-Pulse Generator) and P_1 (Test Set). Adjust R333 (2-2-3, Figure 18) as needed.
16. Adjust Oscilloscope to display Channel 2 (P_1 and P_2 reply output from Test Set) only.
17. Set 2-Pulse Generator to Y Channel.
18. Set DME CHANNEL Switch to ***17Y***.
19. Adjust R337 (2-2-3, Figure 18) for spacing of 30 μs between P_1 and P_2 reply pulses.

STEP	PROCEDURE

20. Set 2-Pulse Generator to X Channel.
21. Set DME CHANNEL Switch to ***17X***.
22. Adjust R339 (2-2-3, Figure 18) for spacing of 12 μs between P_1 and P_2 reply pulses.
23. Set 2-Pulse Generator to X Channel.
24. Set DME CHANNEL Switch to ***18X***.
25. Adjust R339 (2-2-3, Figure 18) for spacing of 12 μs between P_1 and P_2 reply pulses.
26. Repeat Steps 17-25 until adjustments are no longer required.
27. Disconnect DME 2-Pulse Generator from Oscilloscope and DETECTED RF VIDEO OUTPUT Connector.
28. Disconnect Function Generator from DME 2-Pulse Generator.

(19) DME PRF - DME

PREREQUISITES: Power Supply Voltages (para 2-2-2G[2])

TEST EQUIPMENT: DME 2-Pulse Generator
Function Generator
Oscilloscope

STEP PROCEDURE

1. Connect Function Generator (TTL output) to DME 2-Pulse Generator (input).
2. Connect DME 2-Pulse Generator (output) to Oscilloscope (Channel 1 Input) and to DETECTED RF VIDEO OUTPUT Connector.
3. Set Function Generator for 30 Hz square wave.
4. Set Oscilloscope controls as follows:

CONTROL	SETTING
Trigger Sync	Internal
Scope Time	10 μs/Div
Trigger Source	Channel 1
Amplitude	(As Required)

5. Verify “30” full scale meter indication. Adjust R555 (2-2-3, Figure 24) as needed.
6. Set Function Generator output to 300 Hz.
7. Verify “300” full scale meter indication. Adjust R556 (2-2-3, Figure 24) as needed.
8. Disconnect DME 2-Pulse Generator from Oscilloscope and DETECTED RF VIDEO OUTPUT Connector.
9. Disconnect Function Generator from DME 2-Pulse Generator.

H. Calibration Data Sheet

TECHNICIAN: _____ DATE: _____

ATC-600A-2 S/N: _____

STEP		DATA	RESULT
(2)	**Power Supply Voltages**		
	2. +11 Vdc (±0.4 Vdc)		_____
	-6.2 Vdc (±0.4 Vdc)		_____
	+5 Vdc (±0.3 Vdc)		_____
(3)	**Battery Charger**		
	7. R525 on PC-5 for 16.1 V		_____(√)
	15. Reading on XPDR % RPLY/DME PRF Meter MONITOR Meter matches reading on DMM		_____(√)
	17. Test Set shuts down in 6 to 10 minutes		_____
	19. Test Set turns OFF at 10.5 to 11.5 Vdc		_____
(4)	**Oscillator Frequencies**		
	1. Any XPDR Mode	20.6897 MHz (±4.14 kHz)	_____
	DME	6.990506 MHz (±3.98 kHz)	_____
	DME	6.473 MHz (±2.95 kHz)	_____
	2. 17X	97.8 MHz (±5.68 kHz)	_____
	18X	97.9 MHz (±5.68 kHz)	_____
	17Y	110.4 MHz (±6.62 kHz)	_____
	Any XPDR Mode	103 MHz (±6.18 kHz)	_____
	DME	106.55 MHz (±6.39 kHz)	_____
(5)	**XPDR Interrogation Pulse Spacing**		
	5. P_2 pulse is 2 µs (±0.05 µs) from P_1.		_____
	6. A/C ALT	21 µs (±0.05 µs)	_____
	A/C CODE	8 µs (±0.05 µs)	_____
	A	8 µs (±0.05 µs)	_____
	7. P_2 and P_3 pulses are relative to P_1.		_____
	9. P_2 and P_3 are adjusted accordingly		_____(√)

STEP	DATA	RESULT
(6)	**XPDR Interrogation PRF Frequency**	
	2. PRF is 235 (±15)	_____
(7)	**XPDR Pulse Width**	
	10. Verify pulse width is 0.8 µs (±0.1 µs) at the 50% point.	_____
(8)	**Framing Pulse Spacing (XPDR)**	
	8. F_2 PULSE SPACING Indicator starts to flash	_____(√)
	9. F_2 PULSE SPACING Indicator starts to flash at approximately +0.25	_____
	11. Pulse spacing is between 20.00 and 20.15 µs	_____
	12. Pulse spacing is between 20.45 and 20.60 µs	_____
(9)	**XPDR % RPLY/DME PRF Meter - XPDR**	
	4. 100% of interrogating mode	_____(√)
(10)	**FREQ/PWR Meter (PWR) - XPDR**	
	3. XPDR power (±20%)	_____
(11)	**FREQ/PWR Meter (FREQ) - XPDR**	
	4. C809 for peak deflection	_____
	7. L803 for peak deflection	_____
	9. FREQ/PWR Meter peaks when XMTR FREQ Control is set to 0	_____
	11. FREQ/PWR Meter peaks when XMTR FREQ Control is set to +3	_____
	13. FREQ/PWR Meter peaks when XMTR FREQ Control is set to -4	_____
	15. FREQ/PWR Meter peaks when XMTR FREQ Control is set to 0	_____
(12)	**Squitter Frequency - DME**	
	3. Average squitter count is 5400 Hz (±400 Hz)	_____
(13)	**IDENT Tone and Pulse Spacing - DME**	
	3. 5400 Hz (±60 Hz)	_____
(14)	**Noise Amplifier Output - DME**	
	2. 3 Vp-p average noise level	_____
(15)	**AGC Operation - DME**	
	7. Waveform of Gaussian-shaped pulses	_____(√)
	9. Pulses remain constant in amplitude	_____(√)

STEP	DATA	RESULT
(16)	**Decoder Gate Width - DME**	
5.	17Y Pulse width is 6 µs (±1.5 µs)	_____
	17X Pulse width is 6 µs (±1.5 µs)	_____
	18X Pulse width is 6 µs (±1.5 µs)	_____
(17)	**Decoder Gate Centering - DME**	
7.	17Y 32.5 µs (±0.5 µs)	_____
	17X 9 µs (±0.5 µs)	_____
	18X 9 µs (±0.5 µs)	_____
(18)	**X and Y Channel Pulse Spacing**	
9.	17Y 55.8 µs at 0 nm range	_____
12.	17X 49.8 µs at 0 nm range	_____
15.	18X 49.8 µs at 0 nm range	_____
19.	17Y R337 for spacing of 30 µs between P1 and P2 reply pulses	_____
22.	17X R339 for spacing of 12 µs between P1 and P2 reply pulses	_____
25.	18X R339 for spacing of 12 µs between P1 and P2 reply pulses	_____
(19)	**DME PRF - DME**	
5.	"30" full scale meter indication	_____
7.	"300" full scale meter indication	_____

3. Assemblies and Schematics

A. General

This section contains component layout drawings for all PC Board Assemblies, Interconnect Diagrams and Circuit Schematics within the ATC-600A-2.

NOTE: Bubble call-outs correspond to items in the Parts List in Section 4.

B. How To Use Schematics

To trace coaxial cable conductors from one schematic to another, follow the procedure outlined in para 2-2-3B(1) To trace conductors for multiple pin connectors, follow the procedure outlined in para 2-2-3B(2).

(1) Coaxial Cables

STEP	PROCEDURE

1. Locate desired assembly or module on Interconnect Diagram.
2. Locate desired coaxial cable on Interconnect Diagram.

   NOTE: Connectors are identified by reference designators.

3. Follow coaxial cable on Interconnect Diagram to locate opposite end of conductor. Note coaxial cable reference designator and destination.
4. Locate schematic of desired assembly or module.
5. Locate reference designator of coaxial cable and continue tracing circuit.

(2) Multiple Pin Connectors

STEP	PROCEDURE

1. Locate desired assembly or module on Interconnect Diagram.
2. Locate desired multiple pin connector on Interconnect Diagram.

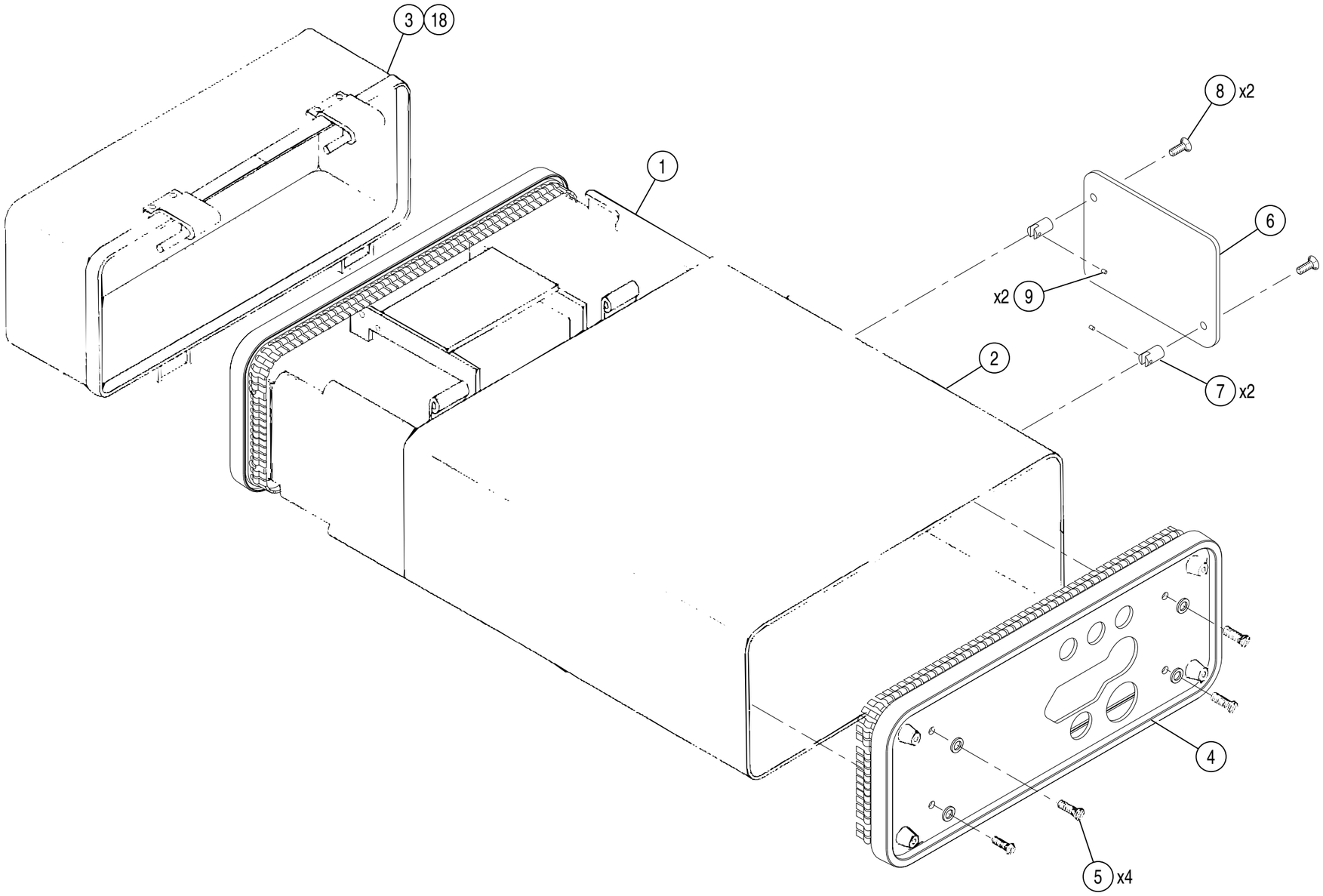
   NOTE: Connectors are identified by reference designators.

3. Note reference designator of the mating connector. Note assembly, module or wire harness, connector is mounted on or grouped with.
4. Locate schematic of desired assembly or module.
5. Locate reference designator of multiple pin connector and corresponding pin number. Continue tracing circuit.

TITLE PAGE

TITLE PAGE

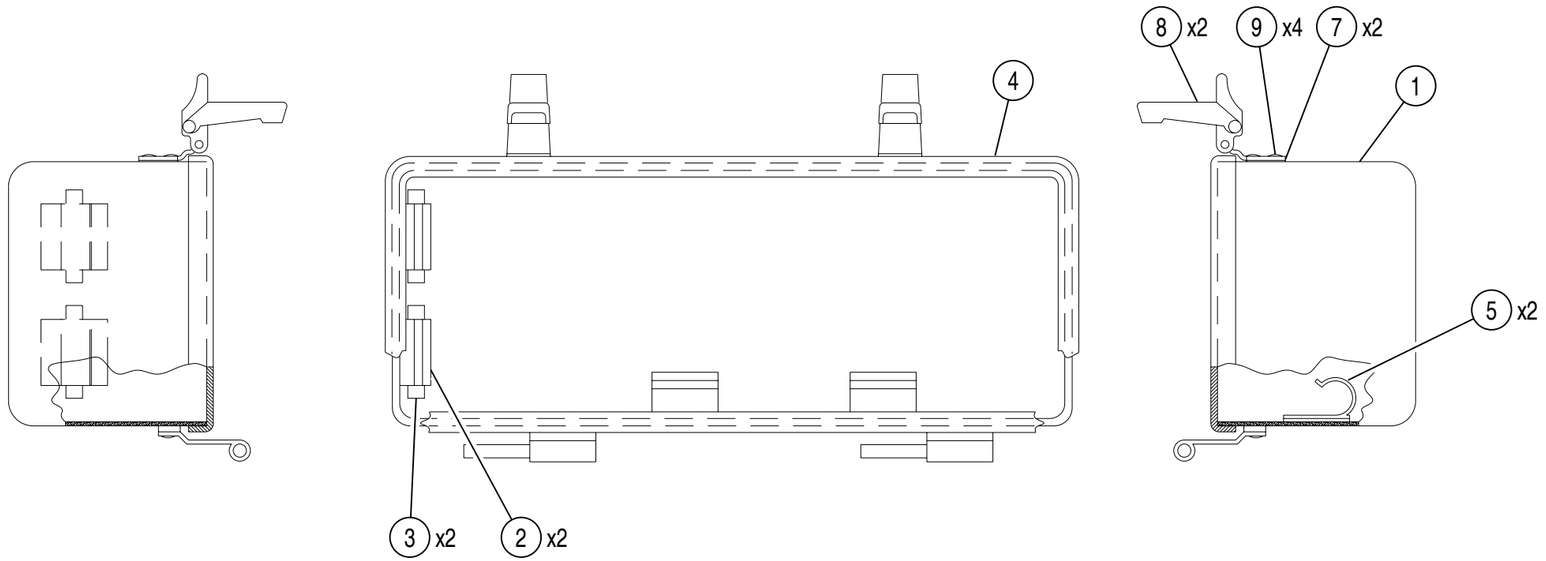
THIS PAGE INTENTIONALLY LEFT BLANK.



00820005

Final Assembly
(7002-0880-400-C)

Final Assembly
Figure 6



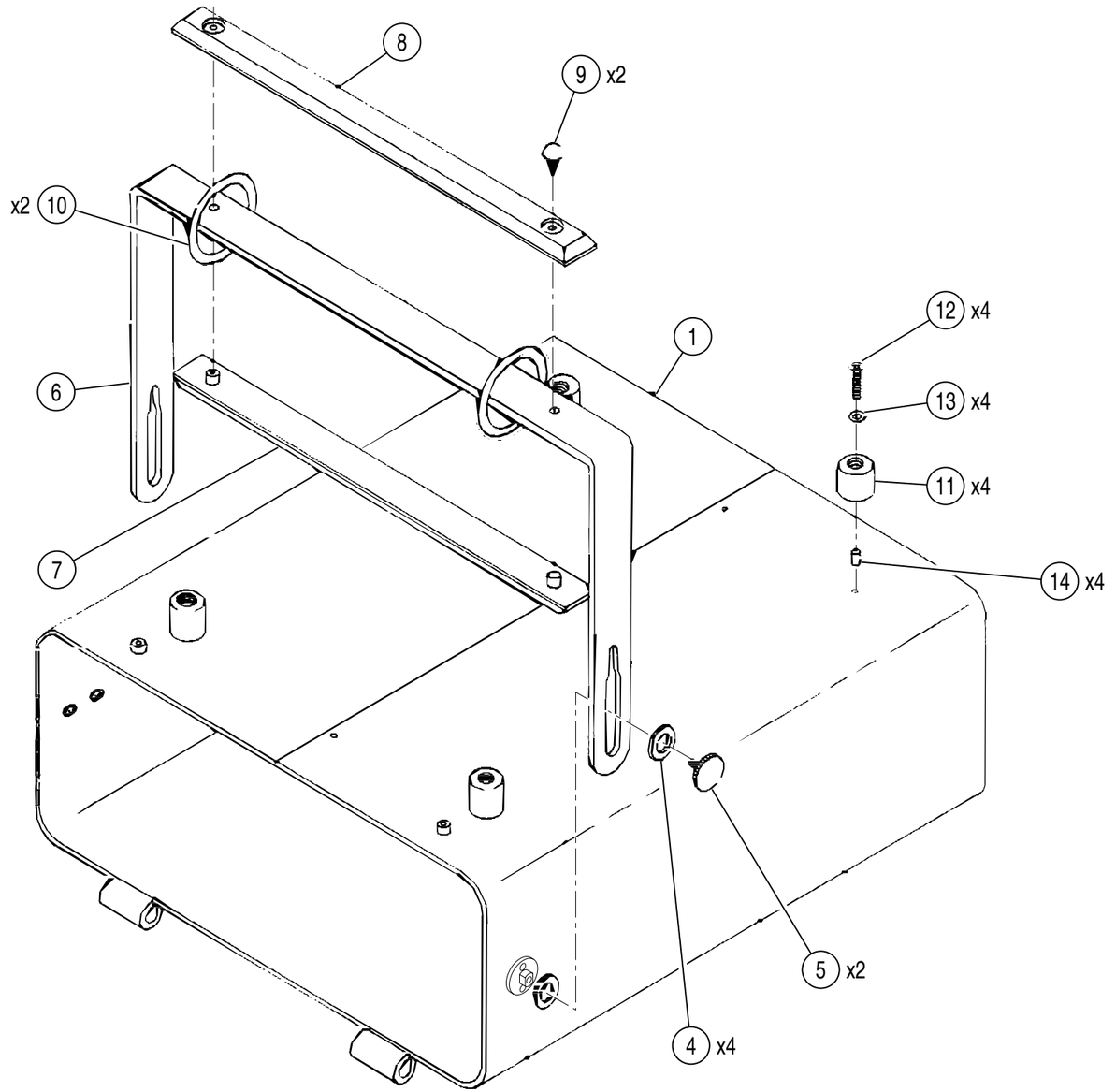
NOTES:

1. BASIC REFERENCE DESIGNATORS SHOWN, FOR COMPLETE DESIGNATOR PREFIXES REFER TO SYSTEM INTERCONNECT.

00820006

Lid Assembly
(7005-0846-100-A)

Lid Assembly
Figure 7

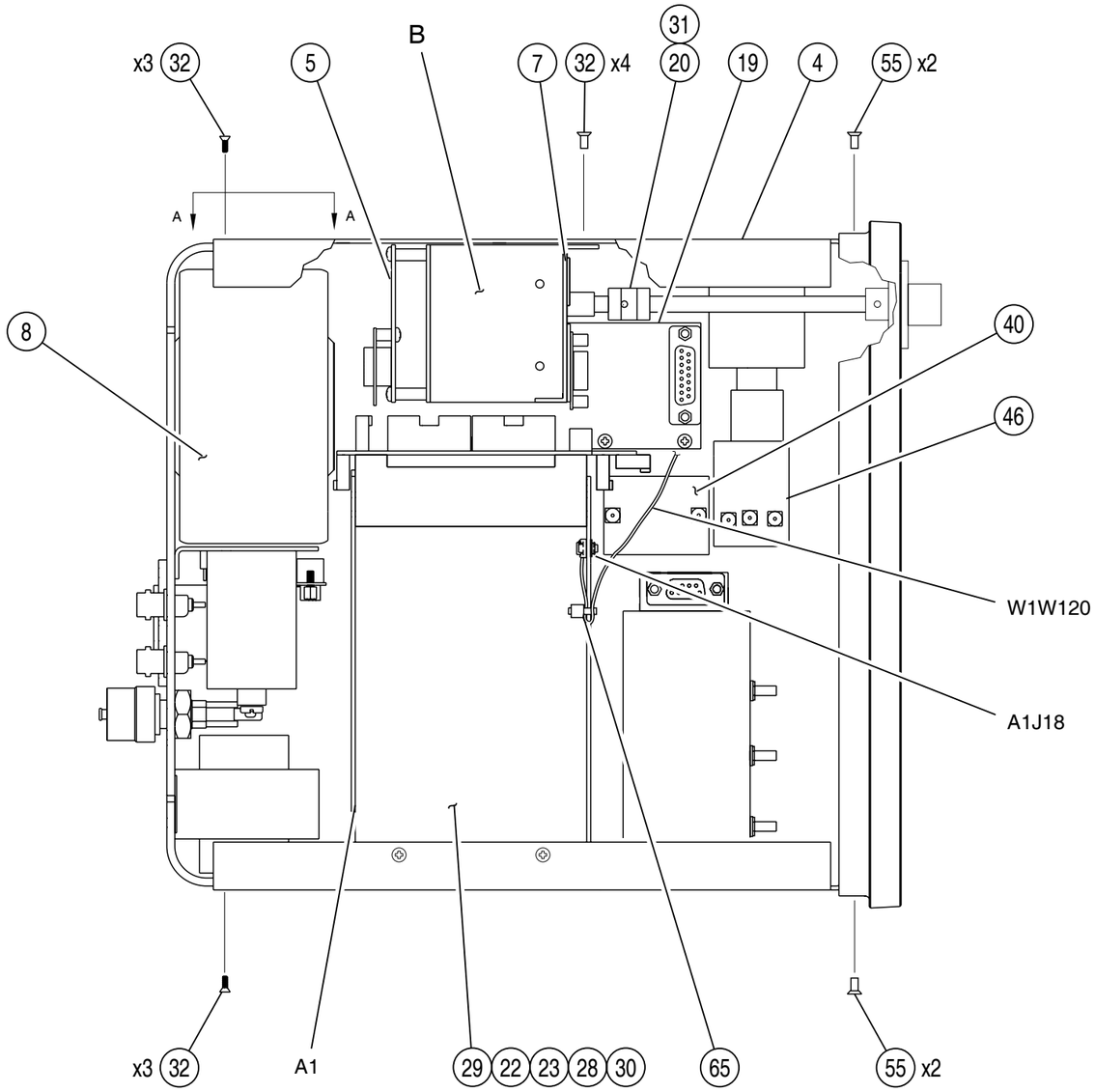


00820007

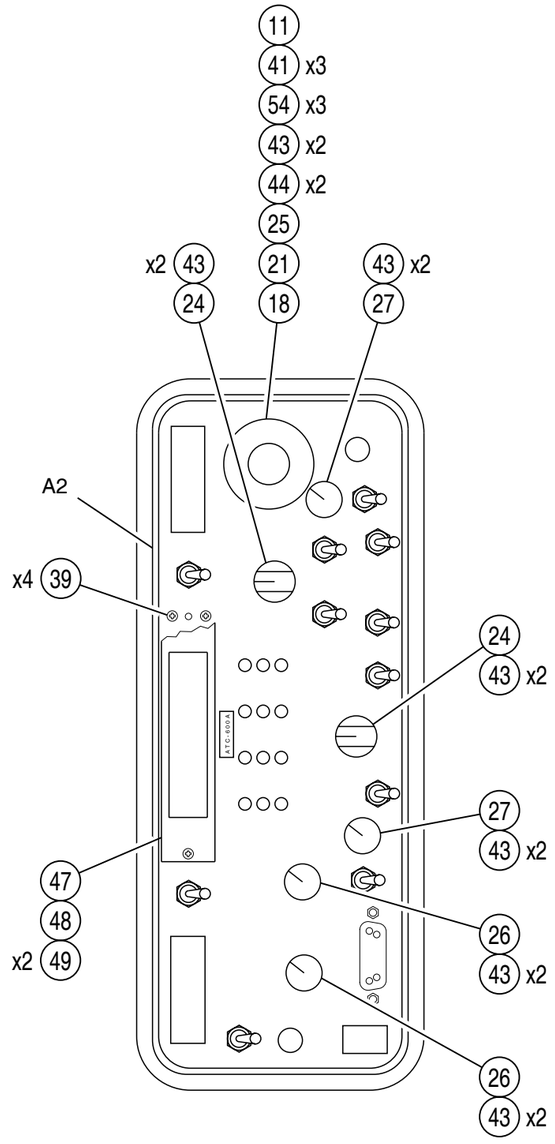
Case Assembly
(7005-0844-200-B)

Case Assembly
Figure 8

CAUTION:
CONTAINS PARTS AND ASSEMBLIES SUSCEPTIBLE TO DAMAGE BY ELECTROSTATIC DISCHARGE (ESD).



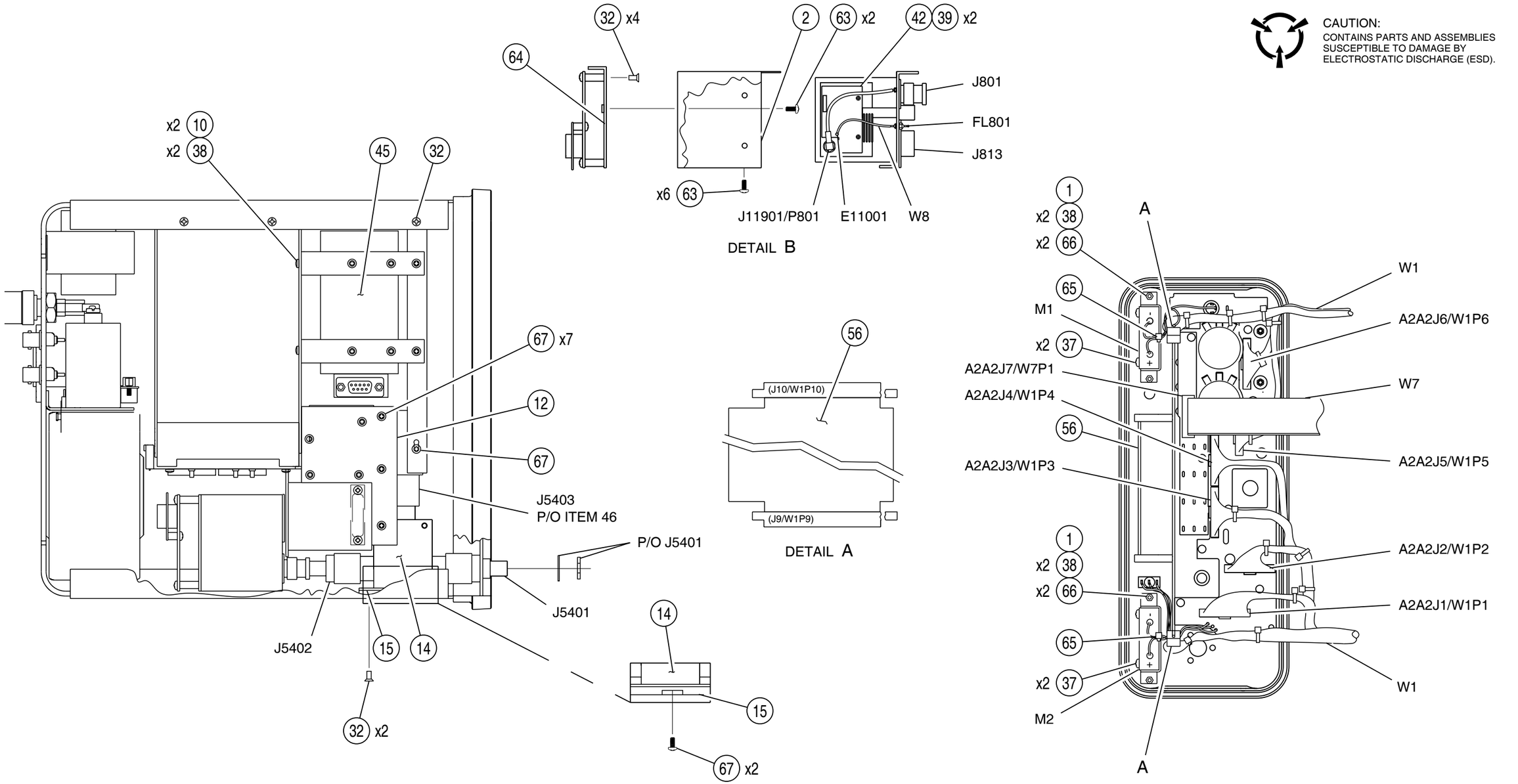
Composite Assembly
(7003-0845-200-E)



008M-016

Composite Assembly (Sheet 1 of 6)
Figure 9

CAUTION:
CONTAINS PARTS AND ASSEMBLIES SUSCEPTIBLE TO DAMAGE BY ELECTROSTATIC DISCHARGE (ESD).

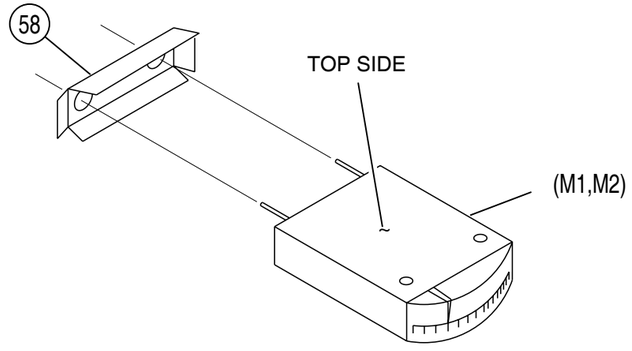


Composite Assembly (cont)
(7003-0845-200-E)

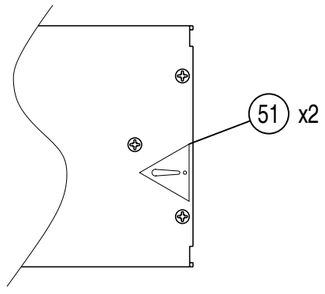
008M-017

Composite Assembly (Sheet 2 of 6)
Figure 9

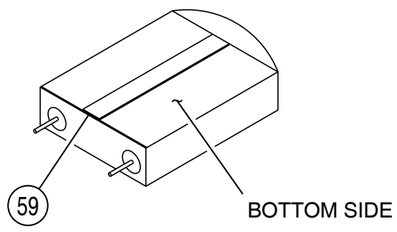
CAUTION:
CONTAINS PARTS AND ASSEMBLIES SUSCEPTIBLE TO DAMAGE BY ELECTROSTATIC DISCHARGE (ESD).

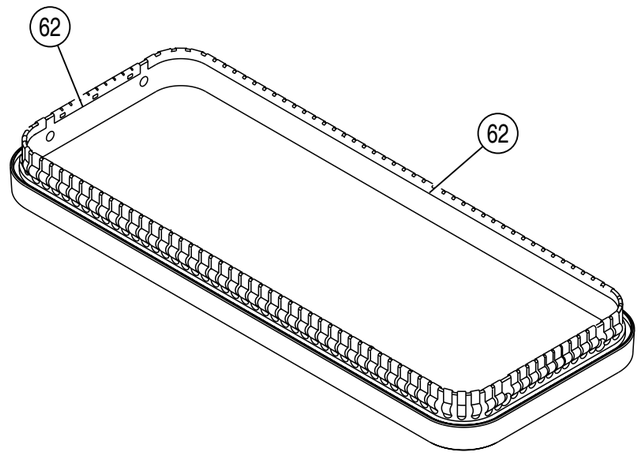


METER TAPING DETAIL



VIEW A-A





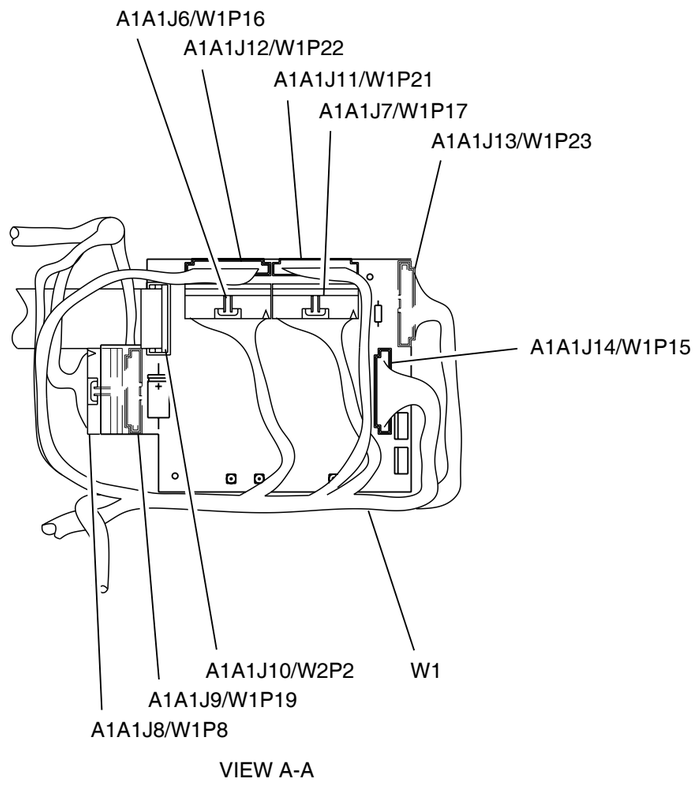
008M-018

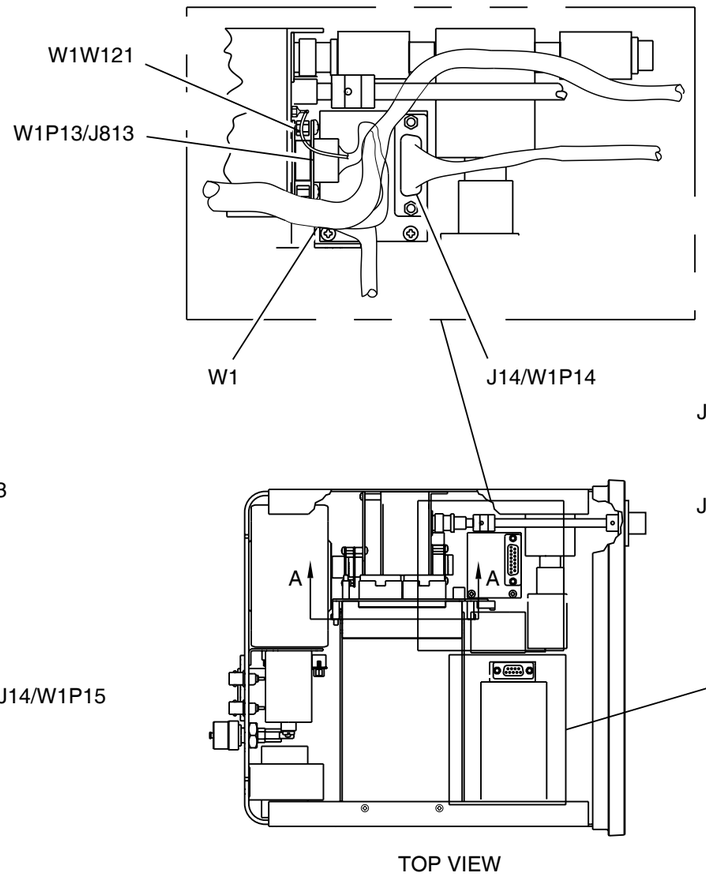
Composite Assembly (cont)
(7003-0845-200-E)

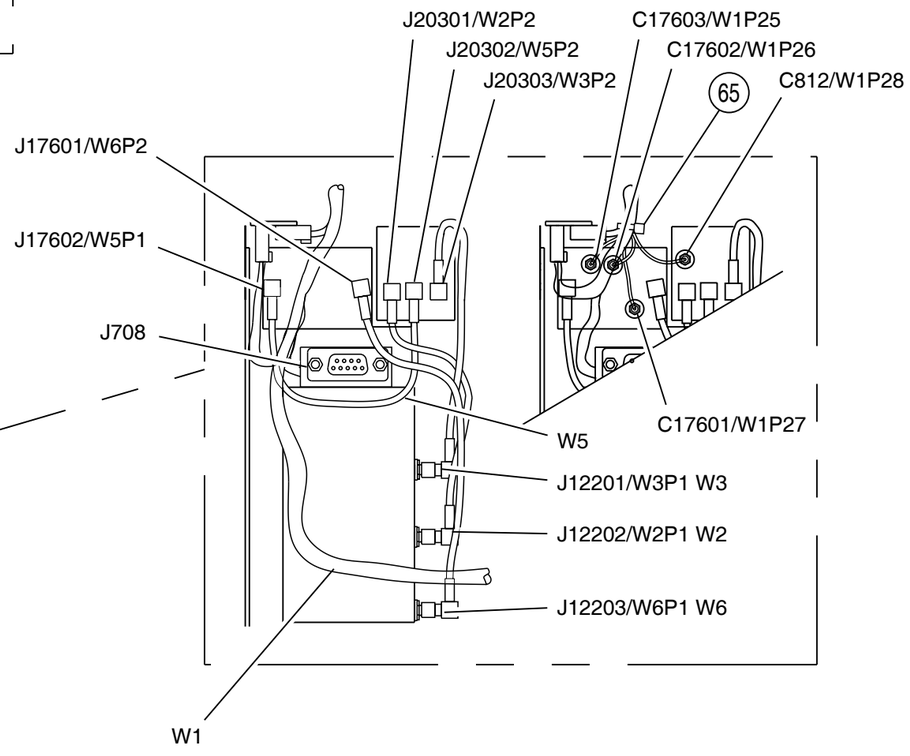
Composite Assembly (Sheet 3 of 6)
Figure 9

CAUTION:
CONTAINS PARTS AND ASSEMBLIES SUSCEPTIBLE TO DAMAGE BY ELECTROSTATIC DISCHARGE (ESD).

WIRE RUNNING LIST				
DESG	FROM	TO	COLOR	AWG
	FPNL (A2)	M1+	VIO	
	FPNL (A2)	M1-	BLK	
	FPNL (A2)	M2+	WHT/VIO	
	FPNL (A2)	M2-	BLACK	
W2	J12202	J20301	COAX	
W3	J12201	J20303	COAX	
W6	J12203	J17601	COAX	
W5	J20302	J17602	COAX	
	W1P20	A1J15	COAX	
	W1P7	A1J16	COAX	
	W1P24	A1J17	COAX	
	W1P25	C17603	YEL	
	W1P26	C17602	BLUE	
	W1P27	C17601	WHT	
	W1P28	C812	VIO	
W8	E11001	FL801	RED	
	A1J18	W1W120	BLACK	
	FL801	W1W121	RED	





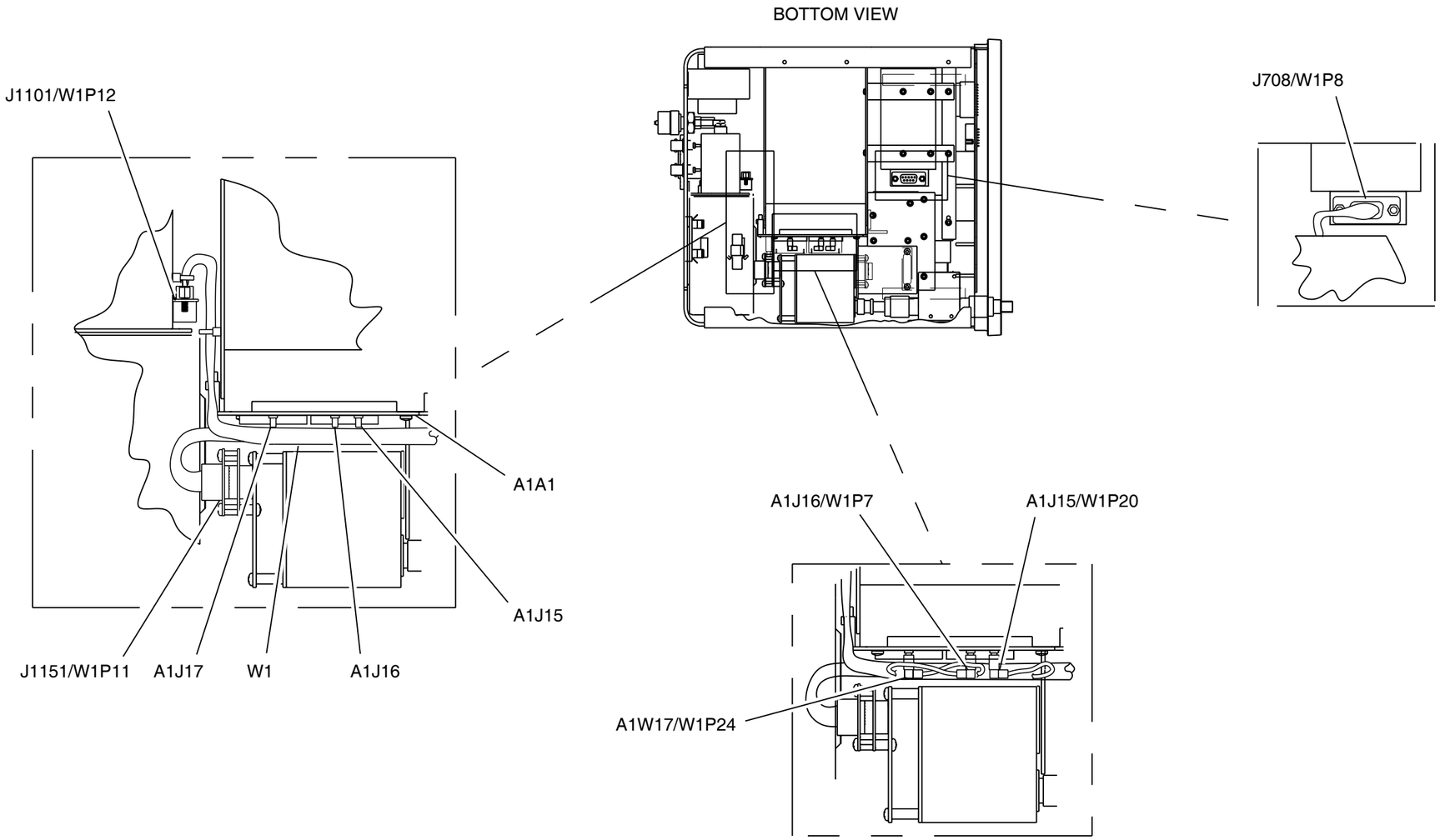


008M-019

Composite Assembly (cont)
(7003-0845-200-E)

Composite Assembly (Sheet 4 of 6)
Figure 9

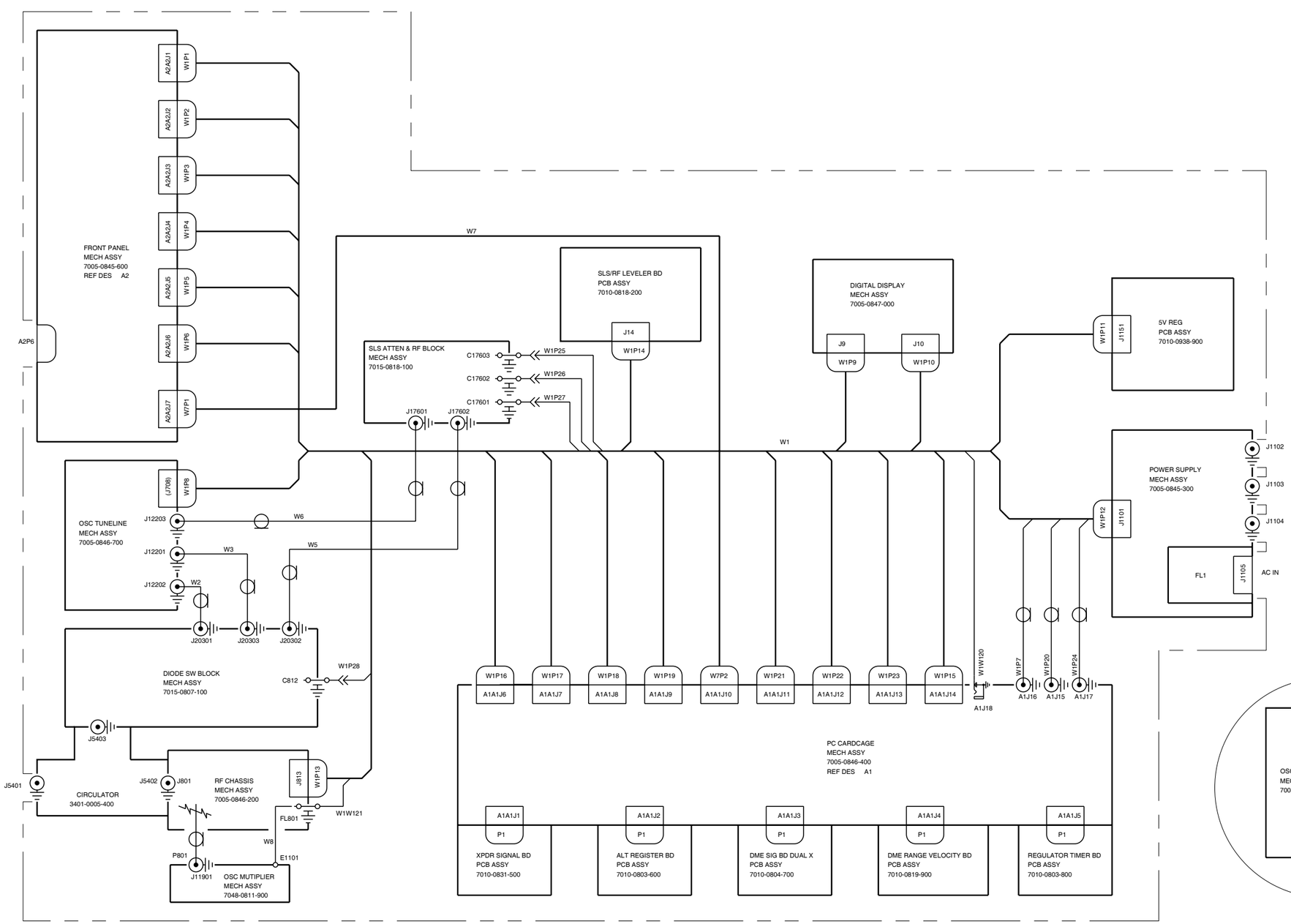
CAUTION:
CONTAINS PARTS AND ASSEMBLIES SUSCEPTIBLE TO DAMAGE BY ELECTROSTATIC DISCHARGE (ESD).

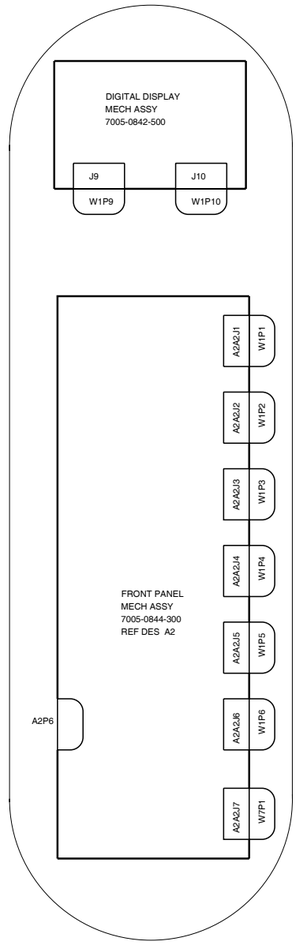


008M-020

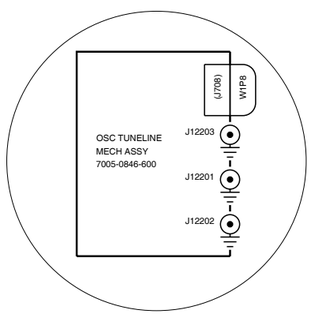
Composite Assembly (cont)
(7003-0845-200-E)

Composite Assembly (Sheet 5 of 6)
Figure 9





(REV A, B)

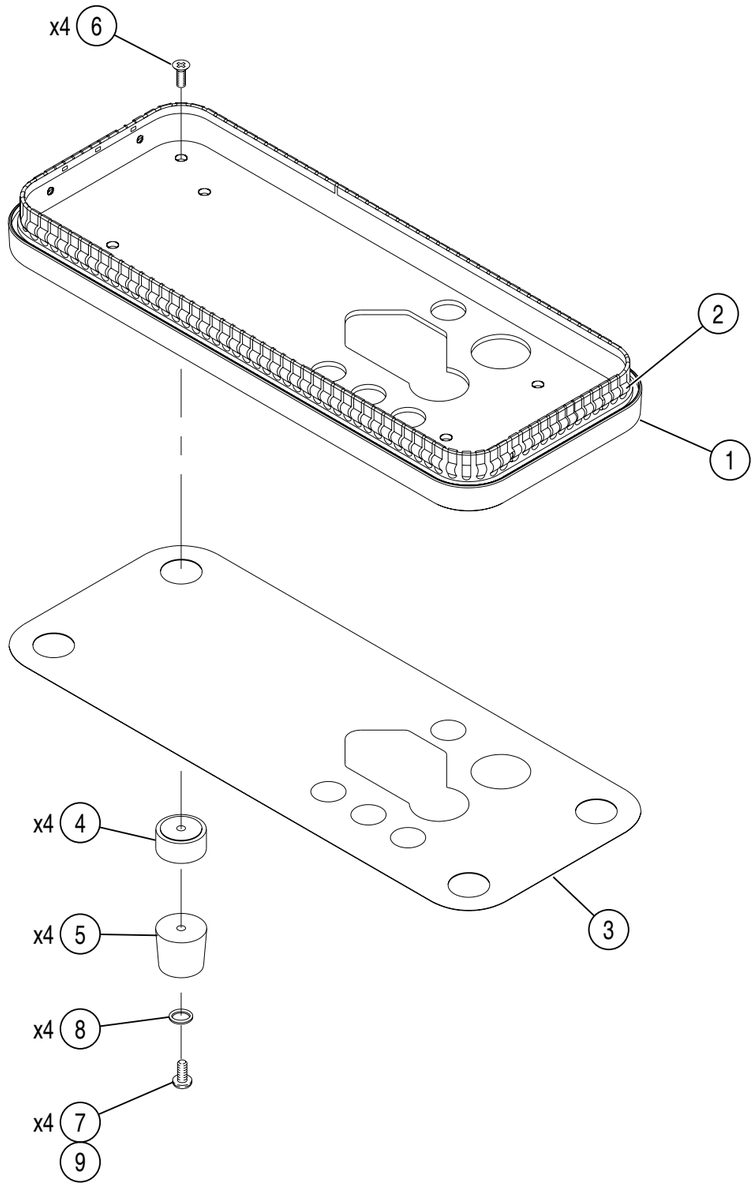


(REV A)

Interconnect Diagram
(0000-0845-200-C)

008M-015

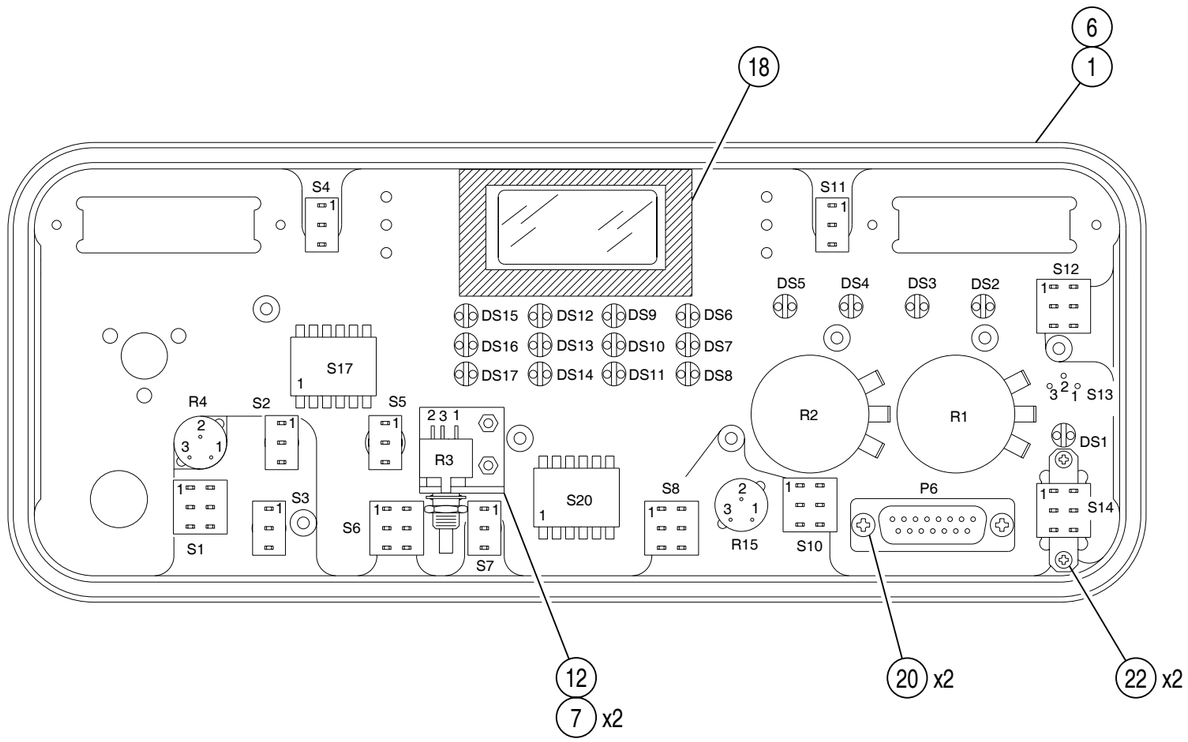
Composite Assembly (Sheet 6 of 6)
Figure 9

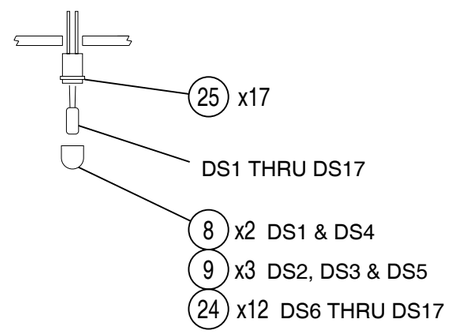


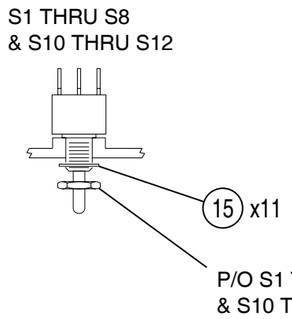
00820013

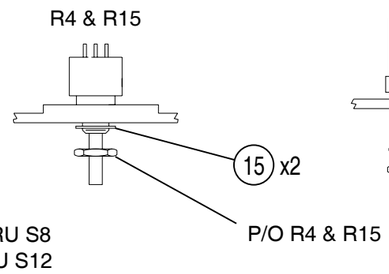
Rear Panel Assembly
(7005-0845-500-B)

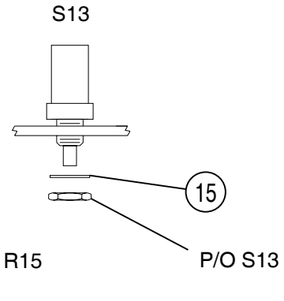
Rear Panel Assembly
Figure 10

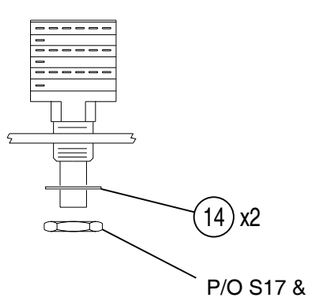


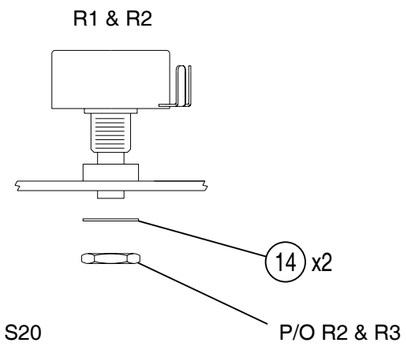












CAUTION:
CONTAINS PARTS AND ASSEMBLIES SUSCEPTIBLE TO DAMAGE BY ELECTROSTATIC DISCHARGE (ESD).

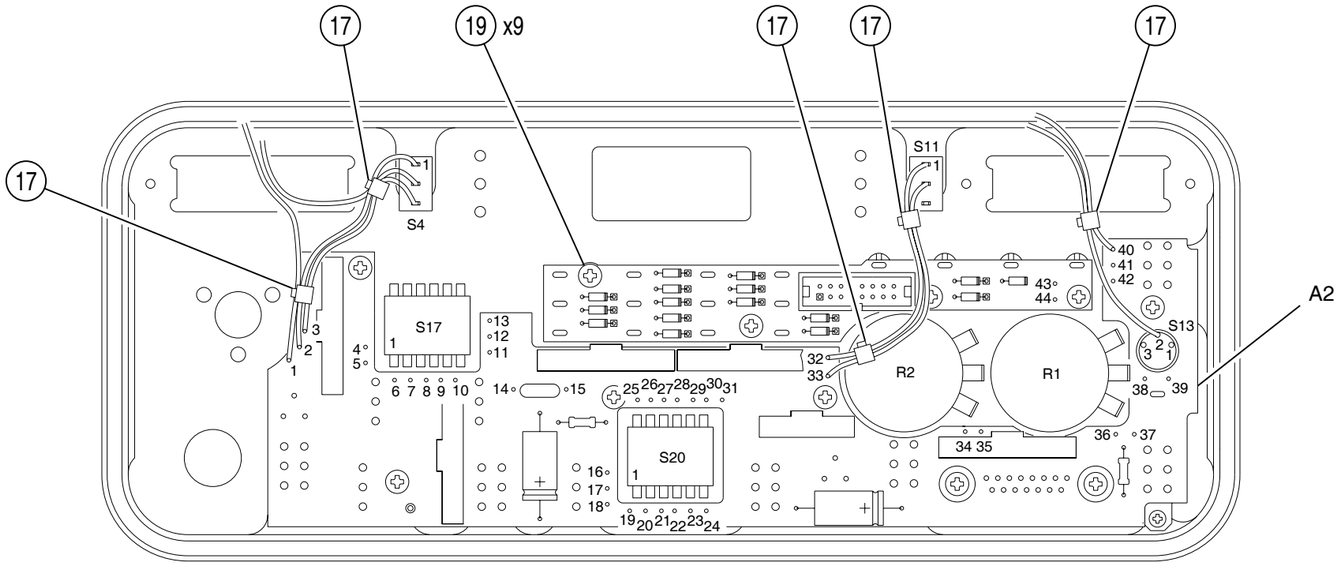
NOTES:

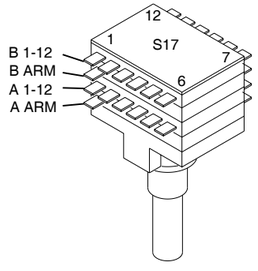
1. BASIC REFERENCE DESIGNATORS SHOWN, FOR COMPLETE DESIGNATOR PREFIXES REFER TO SYSTEM INTERCONNECT.

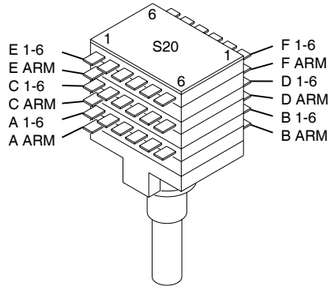
00820014

Front Panel Assembly
(7005-0844-300-B)

Front Panel Assembly (Sheet 1 of 8)
Figure 11







WIRE RUNNING LIST				
DESG	FROM	TO	COLOR	AWG
W1	E1	M1 -	BLK	26
W2	E2	S4-1	VIO	26
W3	E3	S4-3	WHT	26
W4	S4-2	M1 +	VIO	26
W5 *	E4	S17-1B	BUSS	26
W6 *	E5	S17-ARMB	BUSS	26
W7 *	E6	S17-ARMA	BUSS	26
W8 *	E7	S17-2A	BUSS	26
W9 *	E8	S17-3A	BUSS	26
W10 *	E9	S17-4A	BUSS	26
W11 *	E10	S17-5A	BUSS	26
W12 *	E11	S17-6A	BUSS	26
W13 *	E12	S17-7B	BUSS	26
W14 *	E13	S17-7A	BUSS	26
W15 *	E14	R3-2	BUSS	26
W16 *	E15	R3-1	BUSS	26
W17 *	E16	S20-ARME	BUSS	26
W18 *	E17	S20-1E	BUSS	26

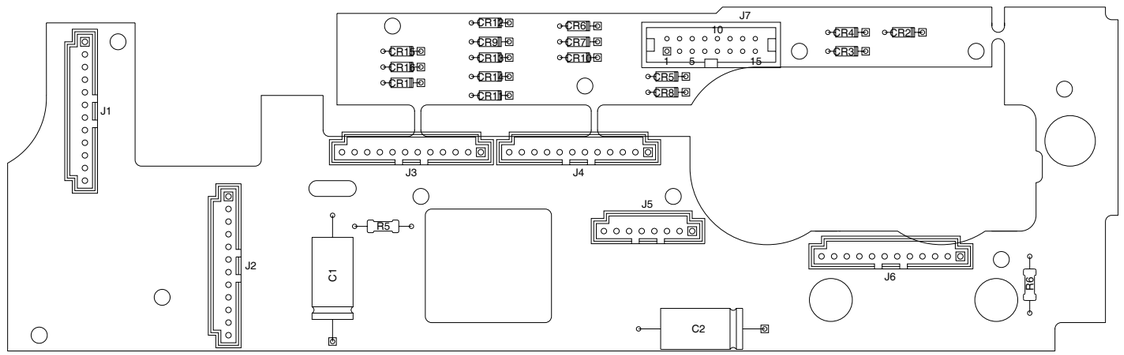
WIRE RUNNING LIST				
DESG	FROM	TO	COLOR	AWG
W19 *	E18	S20-ARMA	BUSS	26
W20 *	E19	S20-1A	BUSS	26
W21 *	E20	S20-1C	BUSS	26
W22 *	E21	S20-ARMC	BUSS	26
W23 *	E22	S20-3E	BUSS	26
W24 *	E23	S20-3A	BUSS	26
W25 *	E24	S20-4C	BUSS	26
W26 *	E25	S20-4B	BUSS	26
W27 *	E26	S20-4D	BUSS	26
W28 *	E27	S20-3B	BUSS	26
W29 *	E28	S20-2D	BUSS	26
W30 *	E29	S20-1B	BUSS	26
W31 *	E30	S20-ARMB	BUSS	26
W32 *	E31	S20-ARMD	BUSS	26
W33	E32	S11-1	ORN	26
W34	E33	S11-2	BLK/WHT	26
W35 *	E34	R2-1	ORN	26
W36 *	E35	R2-3	GRN	26

WIRE RUNNING LIST				
DESG	FROM	TO	COLOR	AWG
W37 *	E36	R1-1	ORN	26
W38 *	E37	R1-3	WHT/VIO	26
W39	E38	S13-1	BLK/WHT	26
W40	E39	S13-3	BLK/WHT	26
W41	S13-2	M2 +	VIO/WHT	26
W42	E40	M2 -	BLK	26
W43 *	E41	E43	BLK	26
W44 *	E42	E44	ORN	26
W45	R3-2	R3-3	BUSS	26
W46	S20-1A	S20-2A	BUSS	26
W47	S20-2B	S20-3B	BUSS	26
W48	S20-1C	S20-2,3C	BUSS	26
W49	S20-1D	S20-2,3D	BUSS	26
W50 *	S20-1E	S20-4E	BUSS	26
W51	S17-2B	3,4,5,6,7B	BUSS	26
W52	R2-2	R2-3	BUSS	26
W53	R1-2	R1-3	BUSS	26

00820015

Front Panel Assembly (cont)
(7005-0844-300-B)

Front Panel Assembly (Sheet 2 of 8)
Figure 11



Front Panel Interface PC Board Assembly
(7010-0834-300-A)

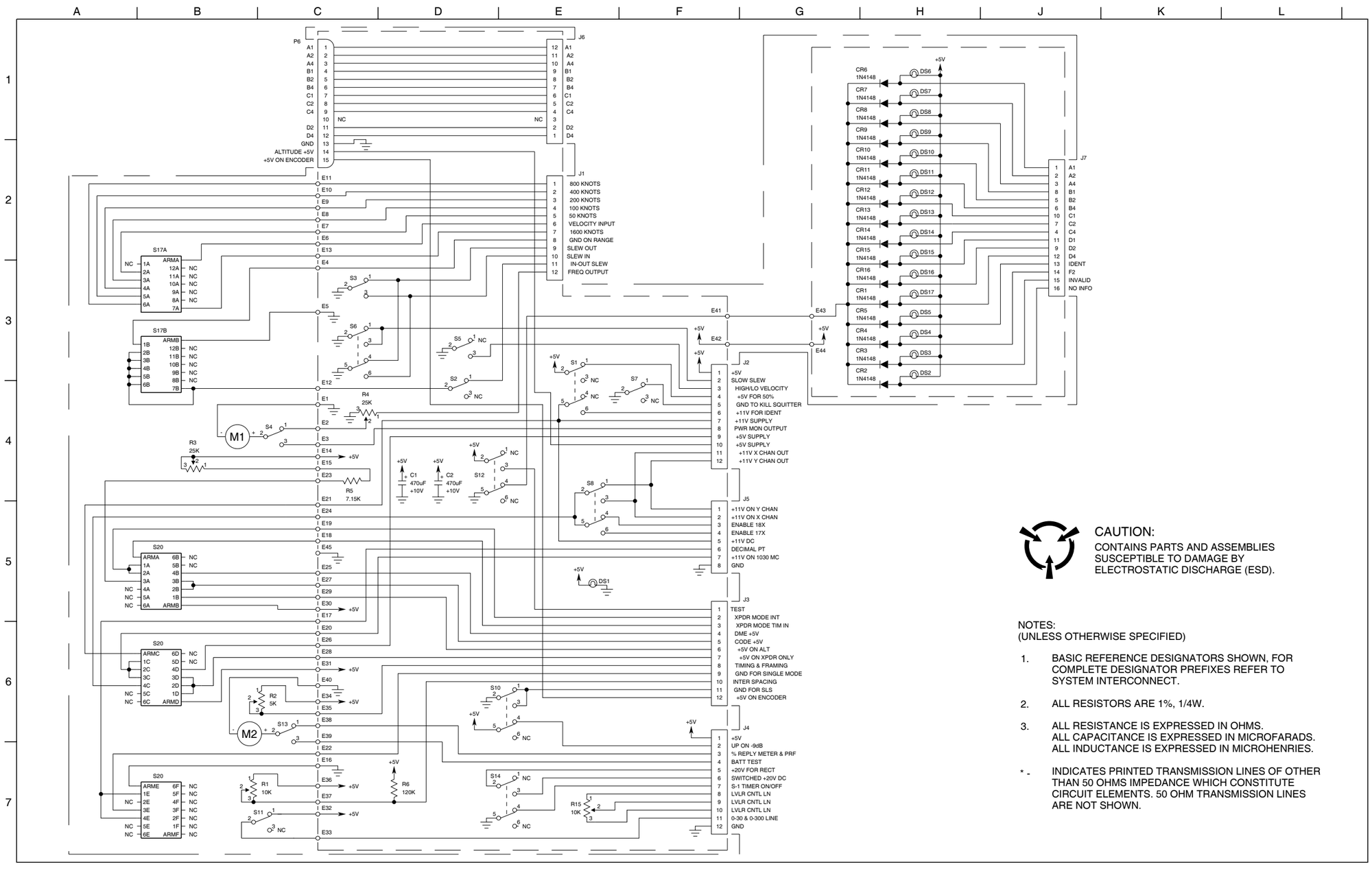
CAUTION:
CONTAINS PARTS AND ASSEMBLIES SUSCEPTIBLE TO DAMAGE BY ELECTROSTATIC DISCHARGE (ESD).

NOTES:

1. BASIC REFERENCE DESIGNATORS SHOWN, FOR COMPLETE DESIGNATOR PREFIXES REFER TO SYSTEM INTERCONNECT.

00818006

Front Panel Assembly (Sheet 3 of 8)
Figure 11



CAUTION:
CONTAINS PARTS AND ASSEMBLIES SUSCEPTIBLE TO DAMAGE BY ELECTROSTATIC DISCHARGE (ESD).

NOTES:
(UNLESS OTHERWISE SPECIFIED)

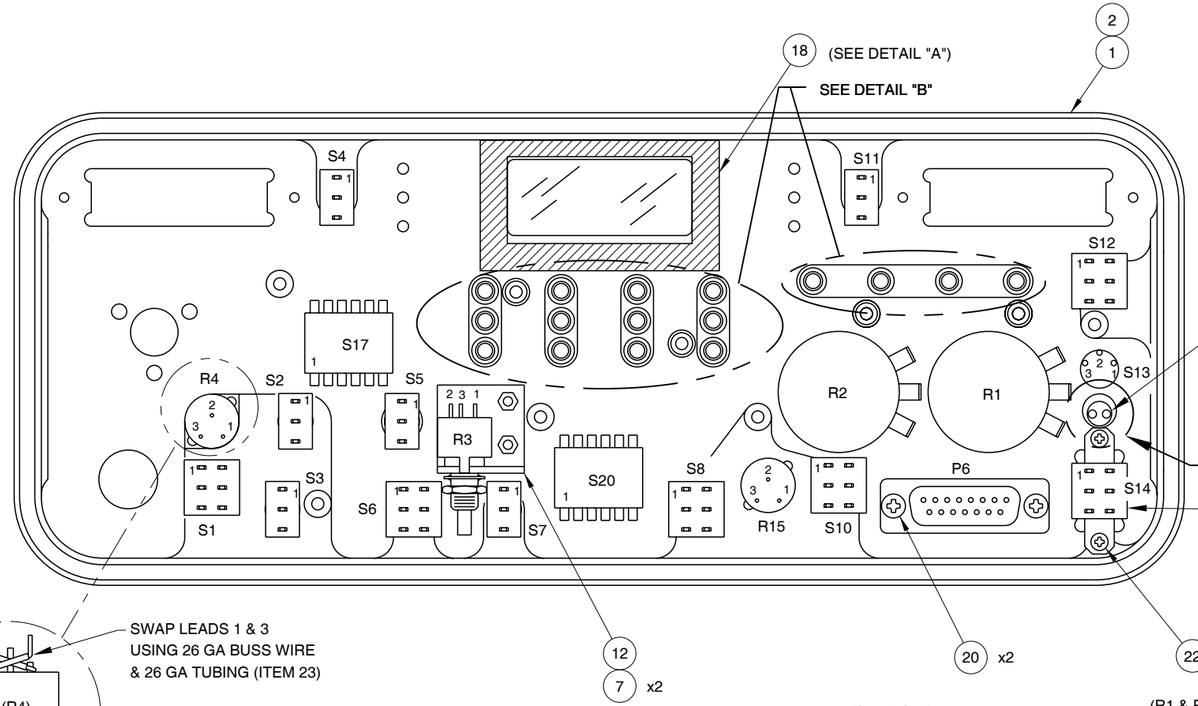
1. BASIC REFERENCE DESIGNATORS SHOWN, FOR COMPLETE DESIGNATOR PREFIXES REFER TO SYSTEM INTERCONNECT.
2. ALL RESISTORS ARE 1%, 1/4W.
3. ALL RESISTANCE IS EXPRESSED IN OHMS. ALL CAPACITANCE IS EXPRESSED IN MICROFARADS. ALL INDUCTANCE IS EXPRESSED IN MICROHENRIES.

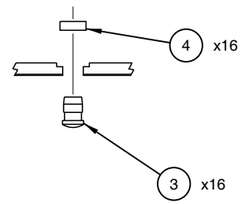
* - INDICATES PRINTED TRANSMISSION LINES OF OTHER THAN 50 OHMS IMPEDANCE WHICH CONSTITUTE CIRCUIT ELEMENTS. 50 OHM TRANSMISSION LINES ARE NOT SHOWN.

00818031

Front Panel Interface PC Board Assembly Circuit Schematic
(0000-0834-300-A)

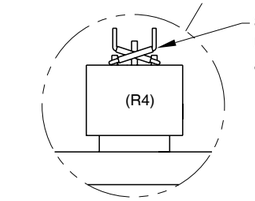
Front Panel Assembly (Sheet 4 of 8)
Figure 11

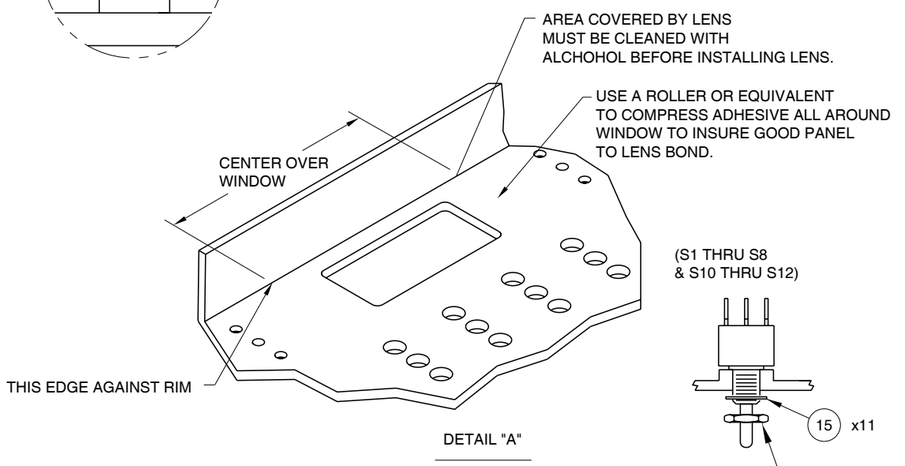




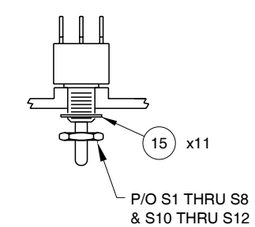
DETAIL "B"
SCALE: NONE

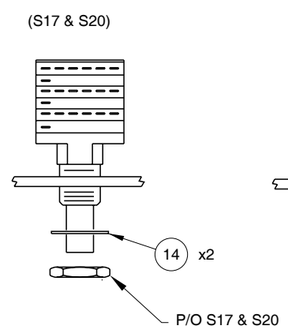
CAUTION:
CONTAINS PARTS AND ASSEMBLIES SUSCEPTIBLE TO DAMAGE BY ELECTROSTATIC DISCHARGE (ESD).

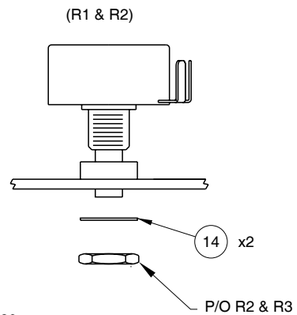


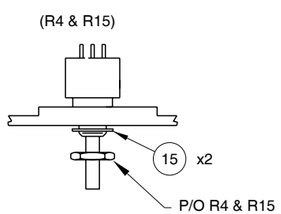


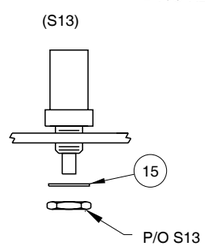
DETAIL "A"

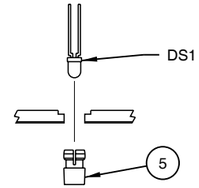










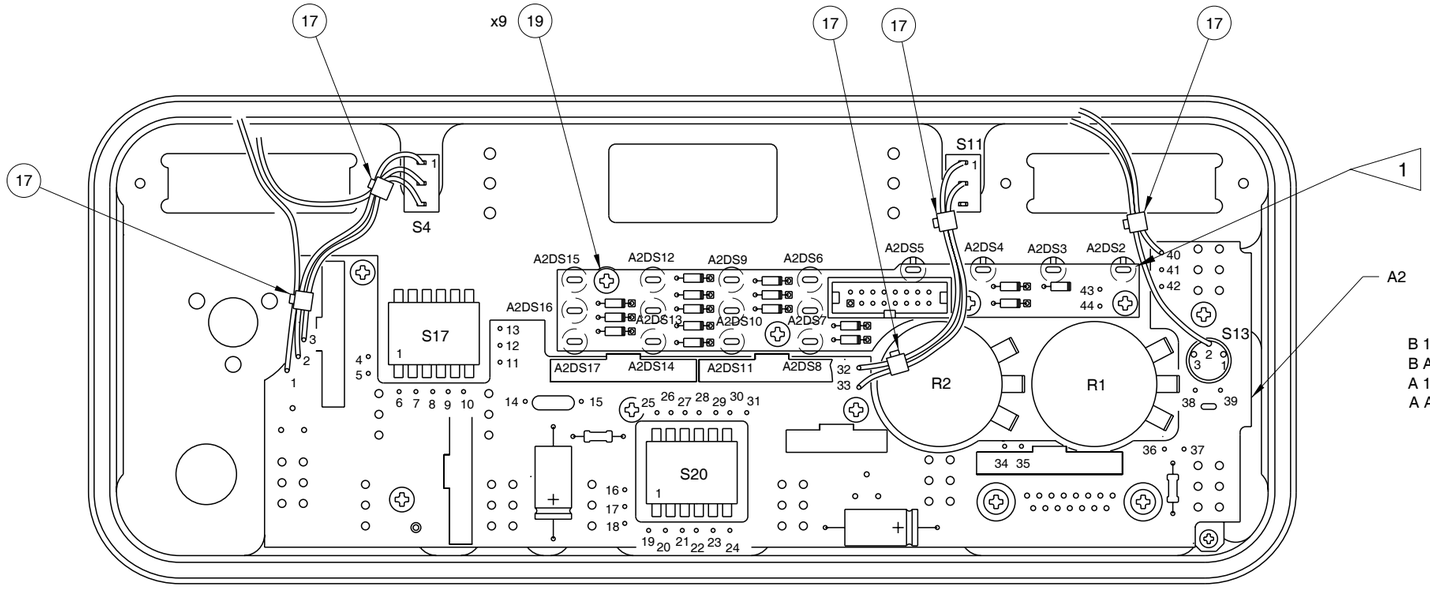


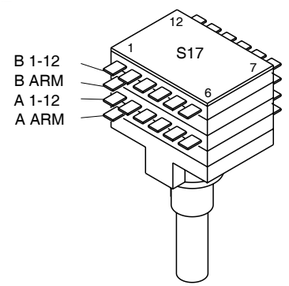
DETAIL "C"
SCALE: NONE

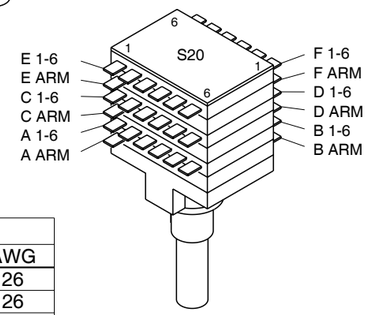
008M-003

Front Panel Assembly
(7005-0845-600-B)

Front Panel Assembly (Sheet 5 of 8)
Figure 11







WIRE RUNNING LIST				
DESG	FROM	TO	COLOR	AWG
W1	E1	M1 -	BLK	26
W2	E2	S4-1	VIO	26
W3	E3	S4-3	WHT	26
W4	S4-2	M1 +	VIO	26
W5 *	E4	S17-1B	BLK	26
W6 *	E5	S17-ARMB	BRN	26
W7 *	E6	S17-ARMA	RED	26
W8 *	E7	S17-2A	ORN	26
W9 *	E8	S17-3A	YEL	26
W10 *	E9	S17-4A	GRN	26
W11 *	E10	S17-5A	BLU	26
W12 *	E11	S17-6A	VIO	26
W13 *	E12	S17-7B	GRY	26
W14 *	E13	S17-7A	WHT	26
W15 *	E14	R3-2	RED	26
W16 *	E15	R3-1	BLK	26
W17 *	E16	S20-ARME	YEL	26
W18 *	E17	S20-1E	GRN	26

WIRE RUNNING LIST				
DESG	FROM	TO	COLOR	AWG
W19 *	E18	S20-ARMA	BLK	26
W20 *	E19	S20-1A	BRN	26
W21 *	E20	S20-1C	RED	26
W22 *	E21	S20-ARMC	ORN	26
W23 *	E22	S20-3E	YEL	26
W24 *	E23	S20-3A	GRN	26
W25 *	E24	S20-4C	BLU	26
W26 *	E25	S20-4B	VIO	26
W27 *	E26	S20-4D	GRY	26
W28 *	E27	S20-3B	WHT	26
W29 *	E28	S20-2D	BLK	26
W30 *	E29	S20-1B	BRN	26
W31 *	E30	S20-ARMB	RED	26
W32 *	E31	S20-ARMD	ORN	26
W33	E32	S11-1	ORN	26
W34	E33	S11-2	BLK/WHT	26
W35 *	E34	R2-1	ORN	26
W36 *	E35	R2-3	GRN	26

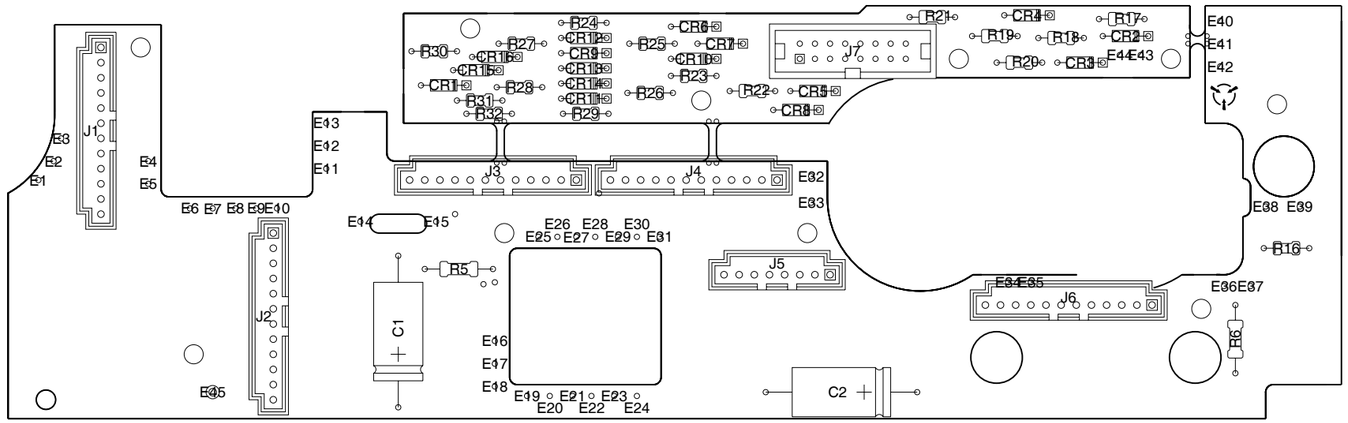
WIRE RUNNING LIST				
DESG	FROM	TO	COLOR	AWG
W37 *	E36	R1-1	ORN	26
W38 *	E37	R1-3	WHT/VIO	26
W39	E38	S13-1	BLK/WHT	26
W40	E39	S13-3	BLK/WHT	26
W41	S13-2	M2 +	VIO/WHT	26
W42	E40	M2 -	BLK	26
W43 *	E41	E43	BLK	26
W44 *	E42	E44	ORN	26
W45	R3-2	R3-3	BUSS	26
W46	S20-1A	S20-2A	BUSS	26
W47	S20-2B	S20-3B	BUSS	26
W48	S20-1C	S20-2,3C	BUSS	26
W49	S20-1D	S20-2,3D	BUSS	26
W50 *	S20-1E	S20-4E	BUSS	26
W51	S17-2B	3,4,5,6,7B	BUSS	26
W52	R2-2	R2-3	BUSS	26
W53	R1-2	R1-3	BUSS	26

008M-004

Front Panel Assembly (cont)
(7005-0845-600-B)

Front Panel Assembly (Sheet 6 of 8)
Figure 11

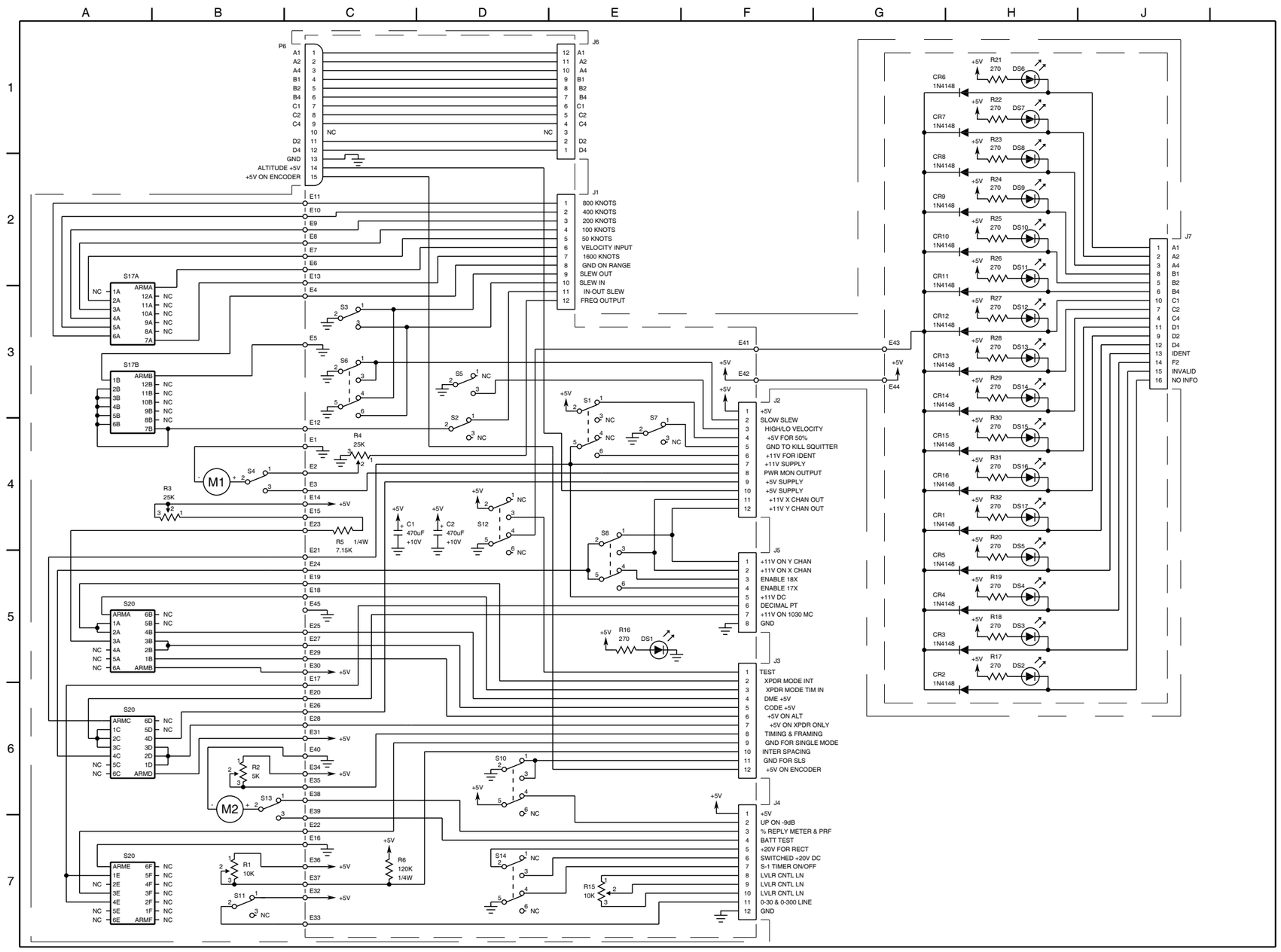
CAUTION:
CONTAINS PARTS AND ASSEMBLIES
SUSCEPTIBLE TO DAMAGE BY
ELECTROSTATIC DISCHARGE (ESD).



Front Panel Interface PC Board Assembly
(7010-0835-600-C)

008M-001

Front Panel Assembly (Sheet 7 of 8)
Figure 11



CAUTION:
CONTAINS PARTS AND ASSEMBLIES SUSCEPTIBLE TO DAMAGE BY ELECTROSTATIC DISCHARGE (ESD).

NOTES:
(UNLESS OTHERWISE SPECIFIED)

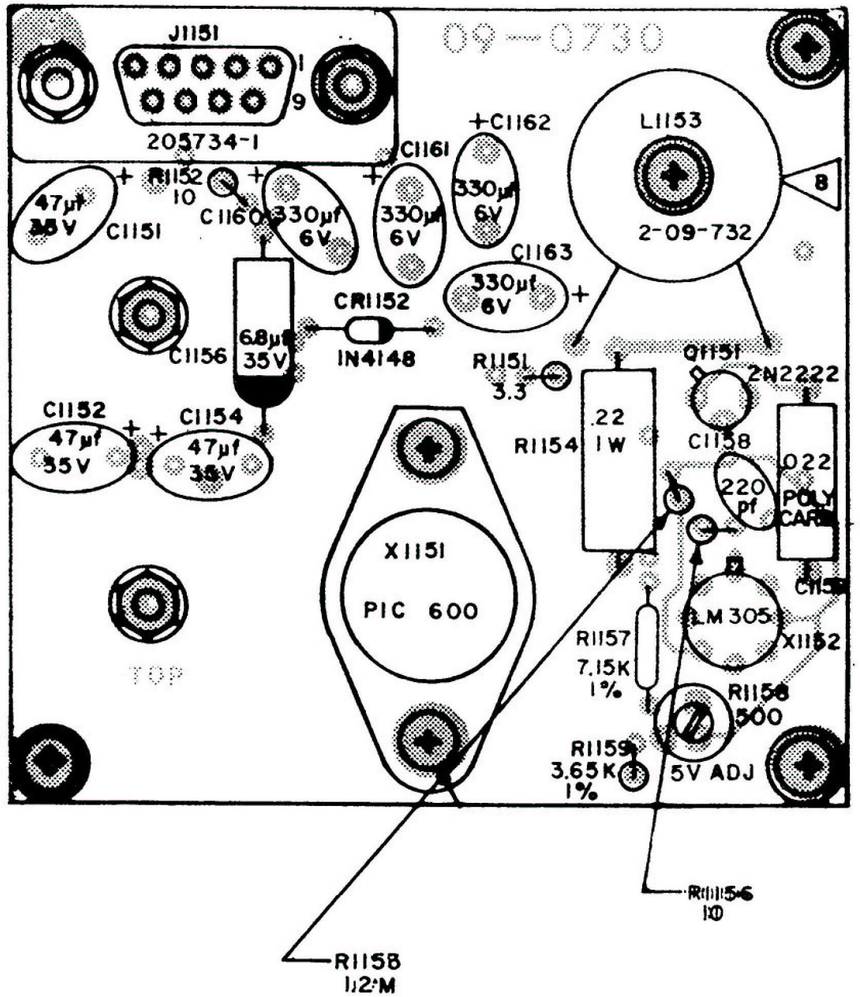
1. BASIC REFERENCE DESIGNATORS SHOWN, FOR COMPLETE DESIGNATOR PREFIXES REFER TO SYSTEM INTERCONNECT.
2. ALL RESISTORS ARE 5%, 1/8 W.
3. ALL RESISTANCE IS EXPRESSED IN OHMS.
   ALL CAPACITANCE IS EXPRESSED IN MICROFARADS.
   ALL INDUCTANCE IS EXPRESSED IN MICROHENRIES.

* - INDICATES PRINTED TRANSMISSION LINES OF OTHER THAN 50 OHMS IMPEDANCE WHICH CONSTITUTE CIRCUIT ELEMENTS. 50 OHM TRANSMISSION LINES ARE NOT SHOWN.

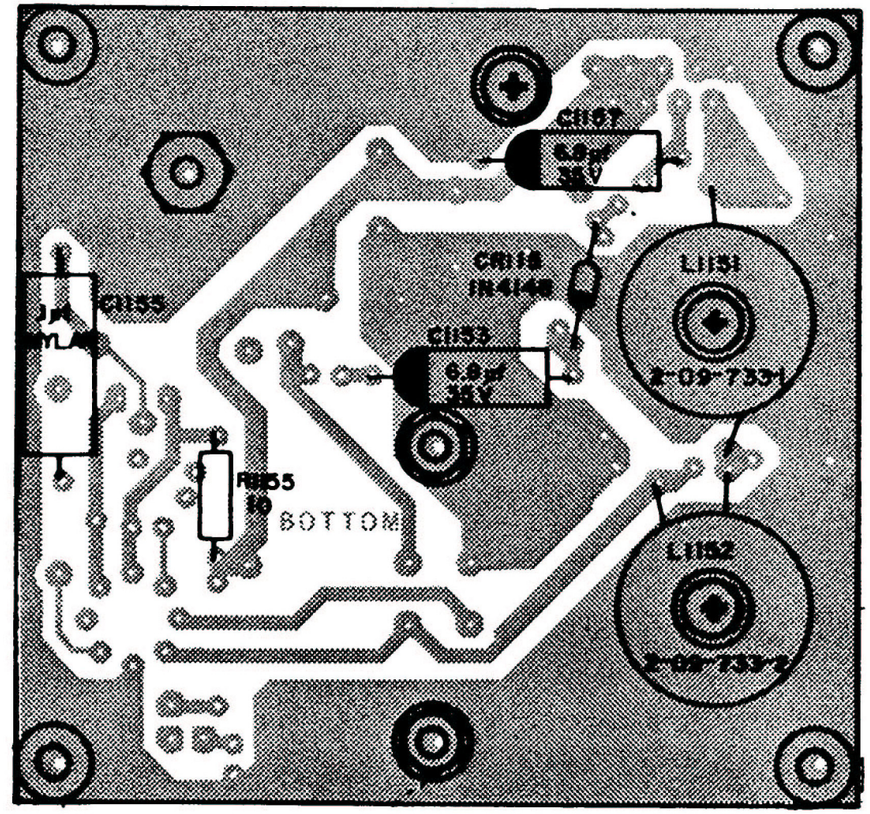
008M-002

Front Panel Interface PC Board Assembly Circuit Schematic
(0000-0835-600-A)

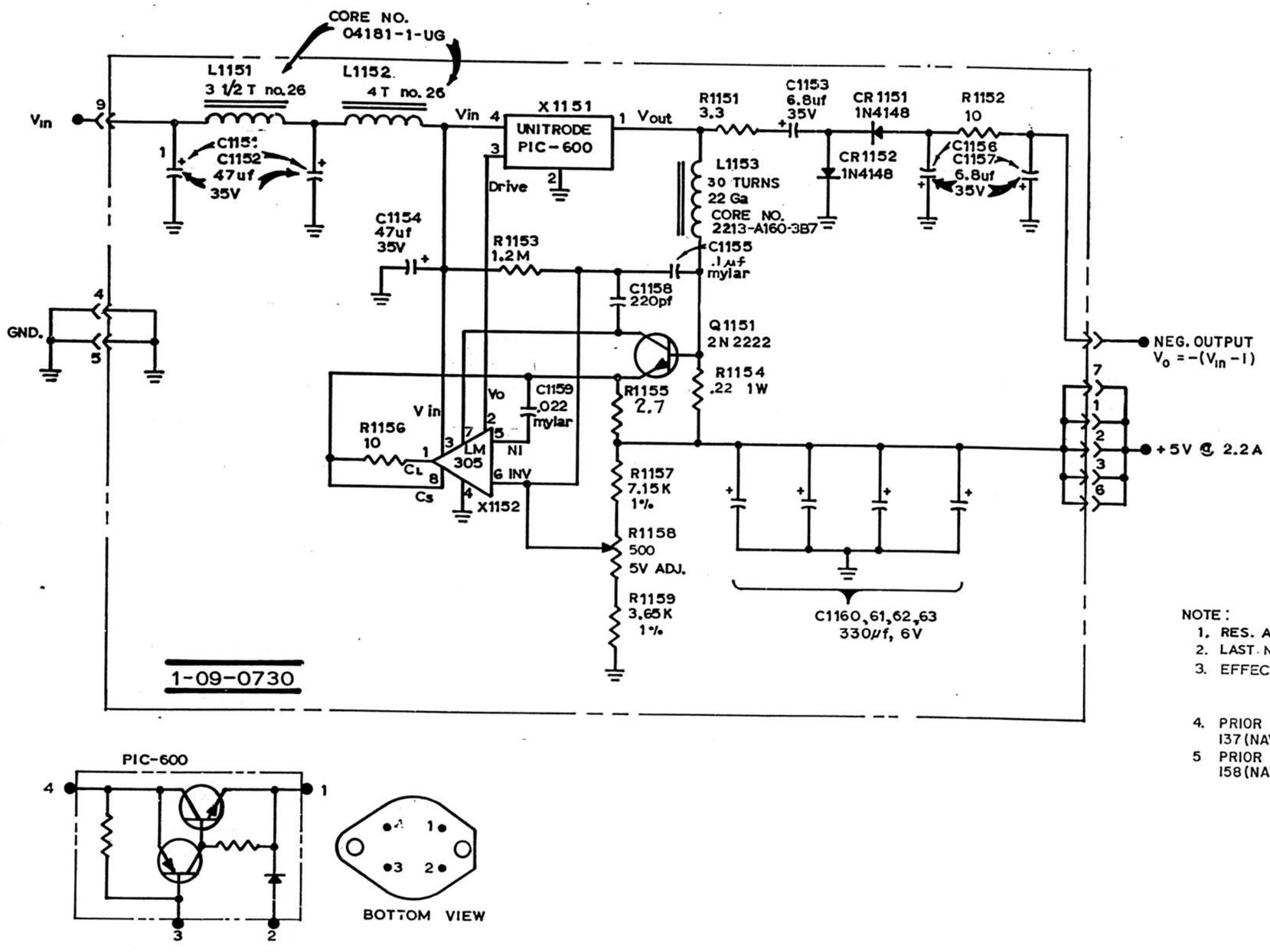
Front Panel Assembly (Sheet 8 of 8)
Figure 11



5 Volt Regulator PC Board Assembly
(7010-0938-900-B)



5 Volt Regulator PC Board Assembly
(Sheet 1 of 2)
Figure 12

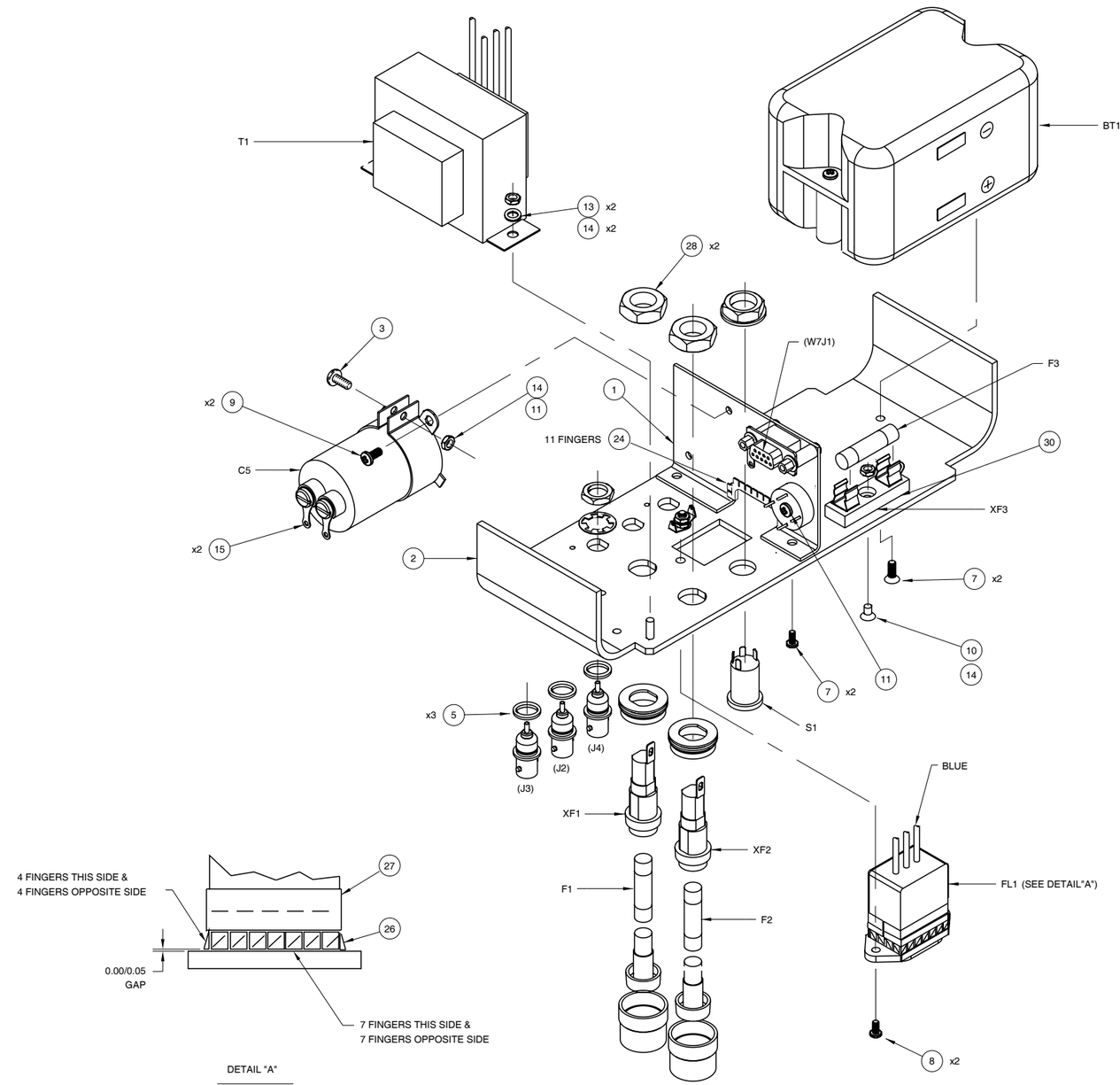


NOTE:
1. RES. ARE IN Ω.
2. LAST No.S USED: L1153, X1152, Q1151, C1163, & R1159.
3. EFFECTIVE S/N: 621 (ATC 600)
   1636 (NAV 401L)
   132 (NAV 402AP)
4. PRIOR TO S/N; 781 (ATC 600), 1819 (NAV 401L), 137 (NAV 402AP); L1153 WAS 40 TURN.
5. PRIOR TO S/N; 865 (ATC 600), 1930 (NAV 401L), 158 (NAV 402AP), R1155 WAS 15Ω.

5 Volt Regulator PC Board Assembly Circuit Schematic
(00-0972-900-F1)

5 Volt Regulator PC Board Assembly
(Sheet 2 of 2)
Figure 12

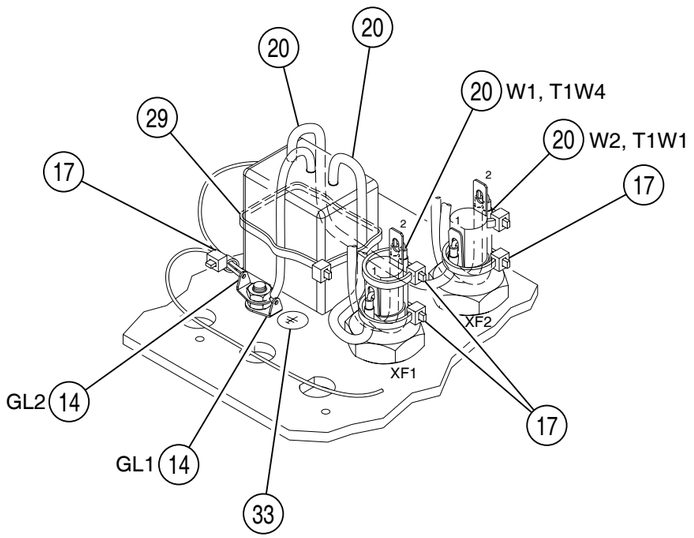
CAUTION:
CONTAINS PARTS AND ASSEMBLIES SUSCEPTIBLE TO DAMAGE BY ELECTROSTATIC DISCHARGE (ESD).

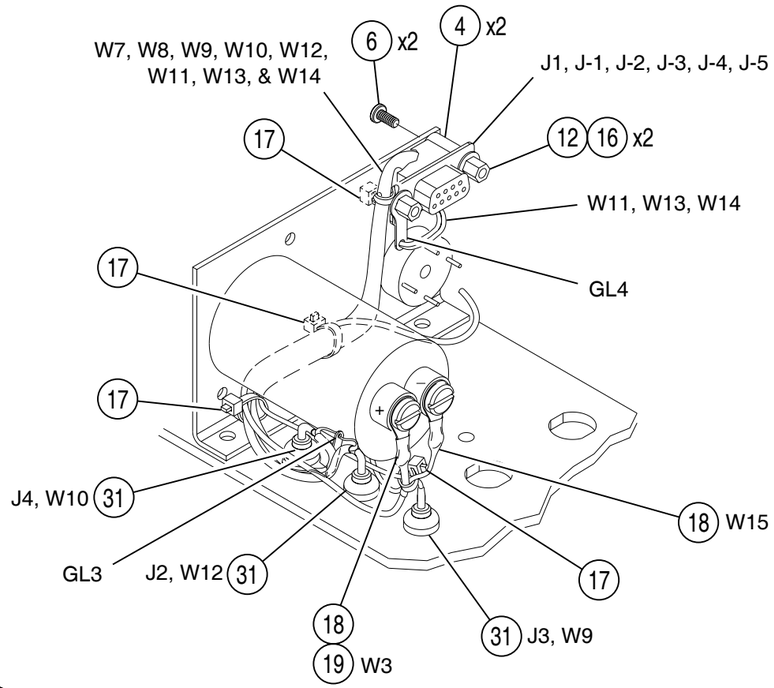


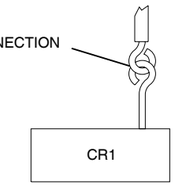
Power Supply Assembly
(7005-0845-300-F1)

008M-011

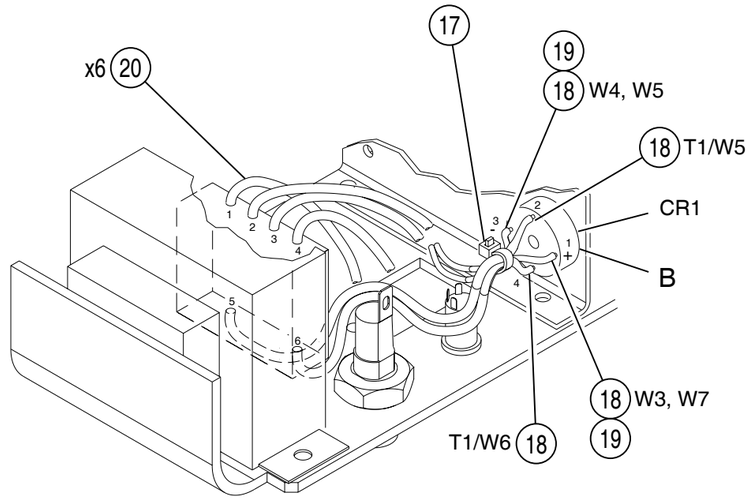
Power Supply Assembly (Sheet 1 of 3)
Figure 13

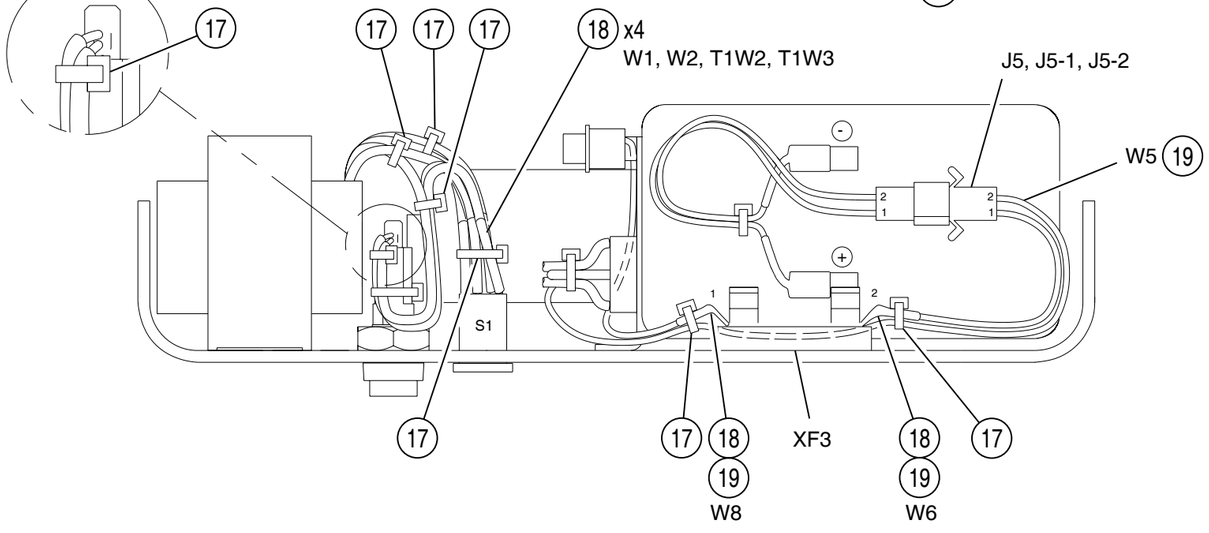






DETAIL B



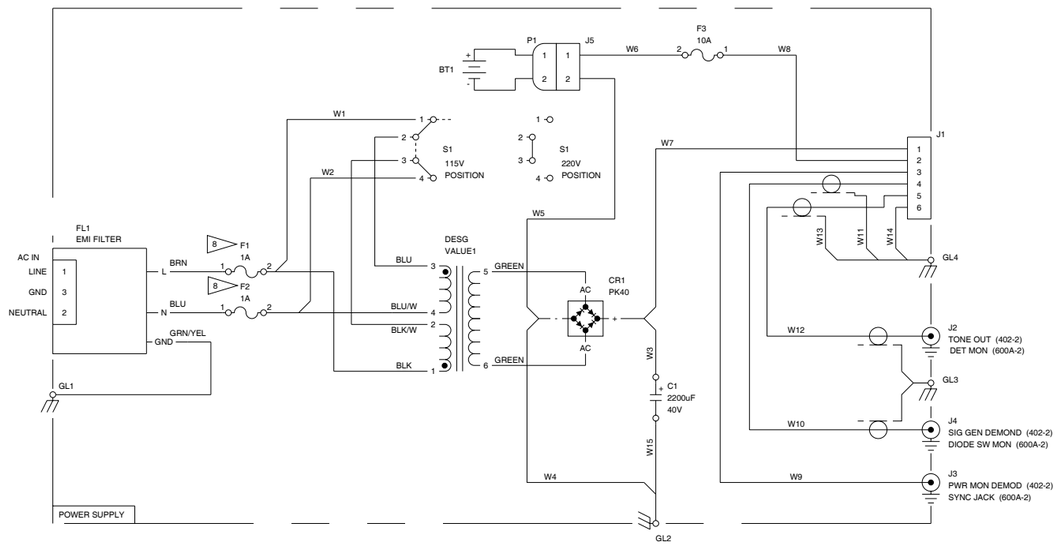


WIRE RUNNING LIST					LENGTH
DESG	FROM	TO	COLOR	AWG	+/-0.25
	T1-4	XF2-2	BLU/WHT	18	3.90
	T1-3	S1-2	BLUE	18	3.40
	T1-2	S1-3	BLK/WHT	18	3.50
	T1-1	XF1-2	BLACK	18	4.10
	T1-5	CR1-2	GREEN	18	5.25
	T1-6	CR1-4	GREEN	18	4.50
	FL1	XF2-1	BLUE	18	4.40
	FL1	XF1-1	BROWN	18	3.40
	FL1	GL1	GRN/YEL	18	2.20
W1	XF1-2	S1-1	BROWN	18	4.60
W2	XF2-2	S1-4	BLUE	18	5.50
W3	CR1-1 (+)	C5 (+)	RED	22	7.00
W4	CR1-3 (-)	GL2	BLACK	22	3.70
W5	CR1-3 (-)	J5-2	BLACK	22	8.20
W6	XF3-2	J5-1	RED	22	3.00
W7	J1-1	CR1-1 (+)	RED	22	4.00
W8	J1-2	XF3-1	RED	22	3.50
W9	J1-3	J3	WHT/GRN	22	6.00
W10	J1-4	J4	COAX		6.50
W11	W10 GND	GL4	BLACK	22	2.00
W12	J1-5	J2	COAX		6.50
W13	W12 GND	GL4	BLACK	22	2.00
W14	J1-6	GL4	BLACK	22	1.50
W15	C5 (-)	GL2	BLACK	22	3.50

00820017

Power Supply Assembly (cont)
(7005-0845-300-F1)

Power Supply Assembly (Sheet 2 of 3)
Figure 13



CAUTION:
CONTAINS PARTS AND ASSEMBLIES SUSCEPTIBLE TO DAMAGE BY ELECTROSTATIC DISCHARGE (ESD).

NOTES:
(UNLESS OTHERWISE SPECIFIED)

1. BASIC REFERENCE DESIGNATORS SHOWN, FOR COMPLETE DESIGNATOR PREFIXES REFER TO SYSTEM INTERCONNECT.
2. ALL RESISTORS ARE 5%, 1/4W.
3. ALL RESISTANCE IS EXPRESSED IN OHMS. ALL CAPACITANCE IS EXPRESSED IN MICROFARADS. ALL INDUCTANCE IS EXPRESSED IN MICROHENRIES.
4. NOT USED.
5. NOT USED.
6. NOT USED.
7. NOT USED.

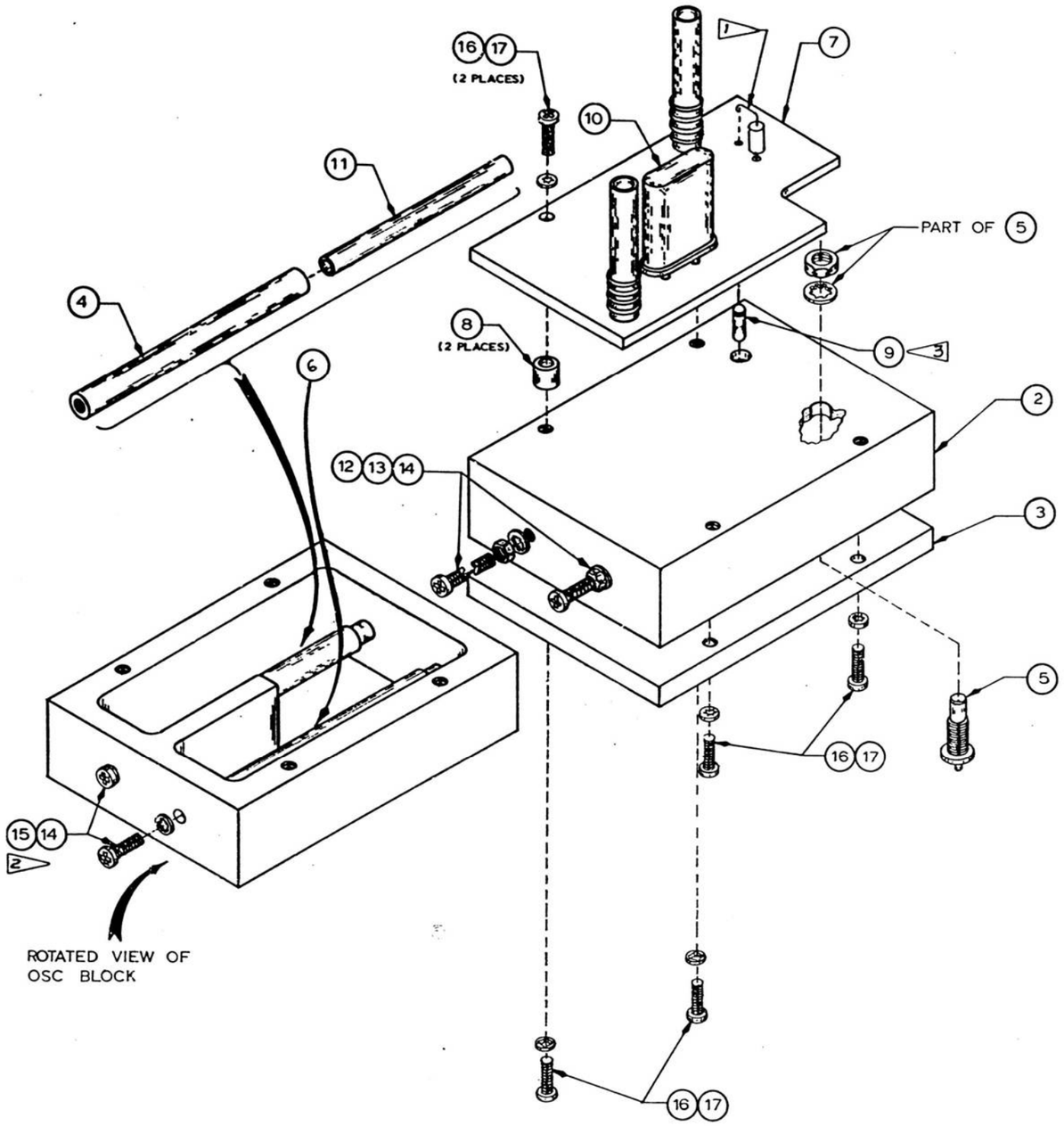
8 HIGHEST REFERENCE DESIGNATORS.

* - INDICATES PRINTED TRANSMISSION LINES OF OTHER THAN 50 OHMS IMPEDANCE WHICH CONSTITUTE CIRCUIT ELEMENTS. 50 OHM TRANSMISSION LINES ARE NOT SHOWN.

00818030

Power Supply Assembly Circuit Schematic
(0000-0845-300-B)

Power Supply Assembly (Sheet 3 of 3)
Figure 13

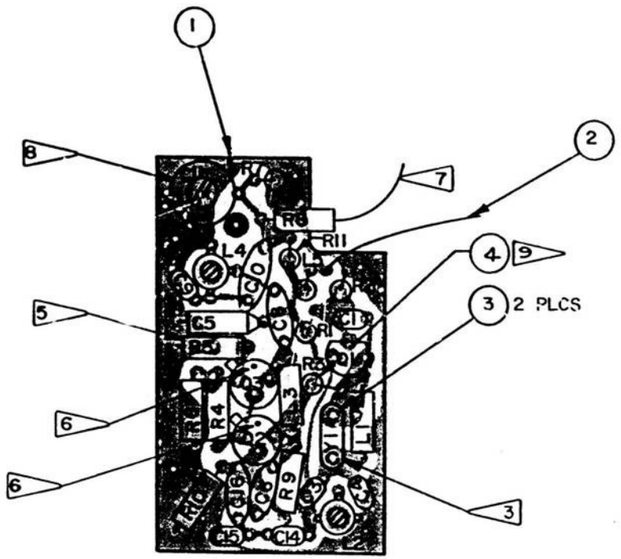


NOTES:

1. WHEN SOLDERING ITEM 9 TO R8, STAND R8 VERT TO PC BD AND CUT LEADS OF ITEM 9 & R8 AS SHORT AS POSSIBLE.
2. TORQUE ITEM NO. 15 TO 6 IN. LB.
3. LEAD LENGTH BETWEEN ITEM NO. 9 (CR1) AND ITEM NO. 4 TO BE .050.

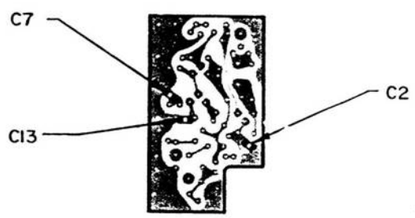
Oscillator Multiplier Assembly
(7048-0811-900-G2)

Oscillator Multiplier Assembly (Sheet 1 of 6)
Figure 14



NOTES:

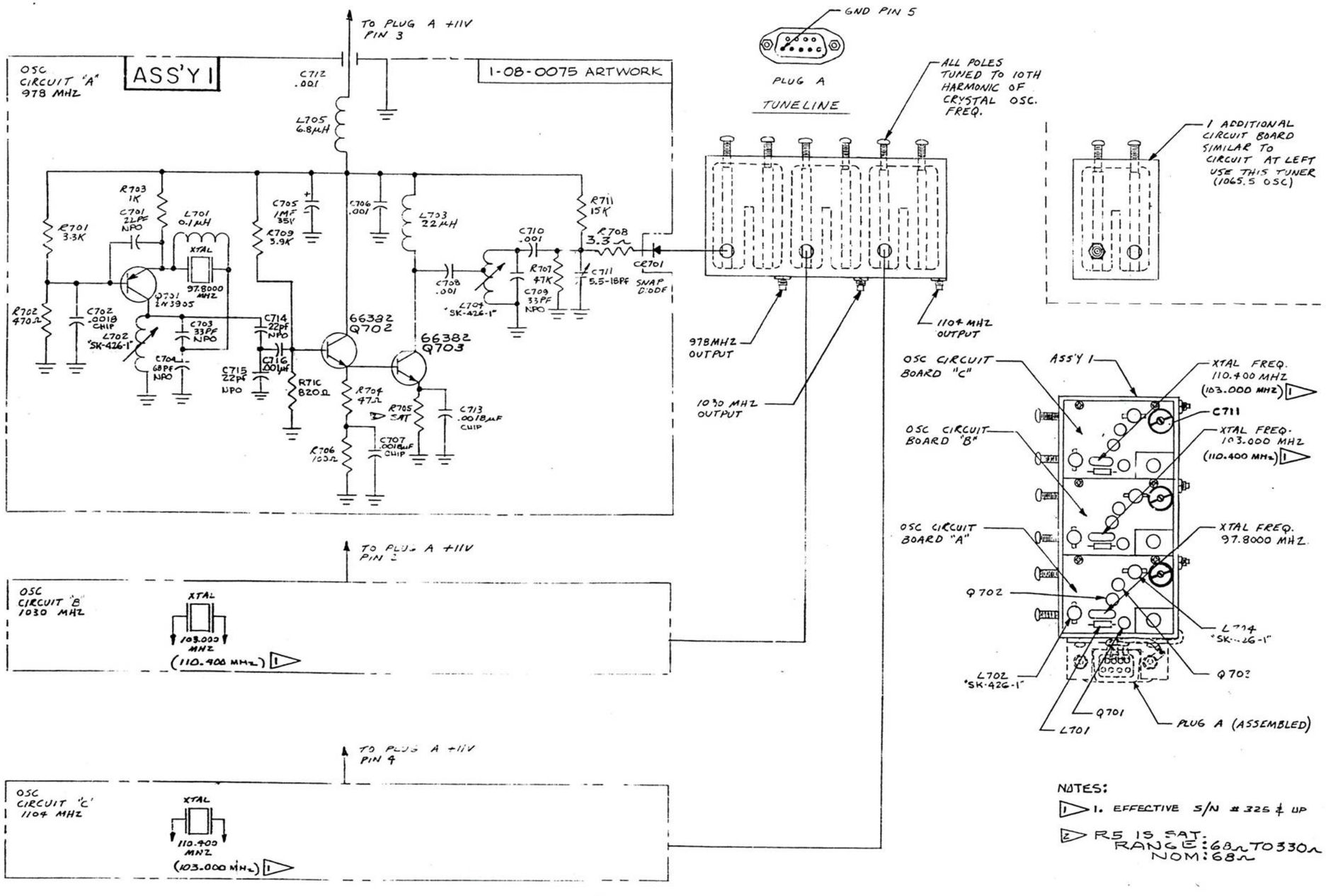
1. COMPONENT LEADS MAY EXTEND .04 TO .06 BEYOND BOTTOM OF BOARD AFTER SOLDERING.
2. MAXIMUM HEIGHT OF COMPONENTS TO BE .85.
3. FREQ DEPENDS UPON APPLICATION 97.8 MHz, 103.0 MHz, 106.55 MHz, 110.4 MHz.
4. SCHEMATIC C)00-0812-200 AND 0000-0822-600
5. R5 IS SAT
   RANGE: 68Ω THRU 330Ω
   NOM. VALUE: 68Ω
6. CUT LEG SHOWN, POSITION OF TAB IS CRITICAL.
7. R8 MUST LAY FLAT TO PC BD.
8. INSTALL C11 WITH MARKED LEG TO GROUND.
9. TO PREVENT POSSIBLE SHORT, R3 TO BE INSTALLED WITH 22GA SLEEVING



BOTTOM VIEW
SCALE 1:1

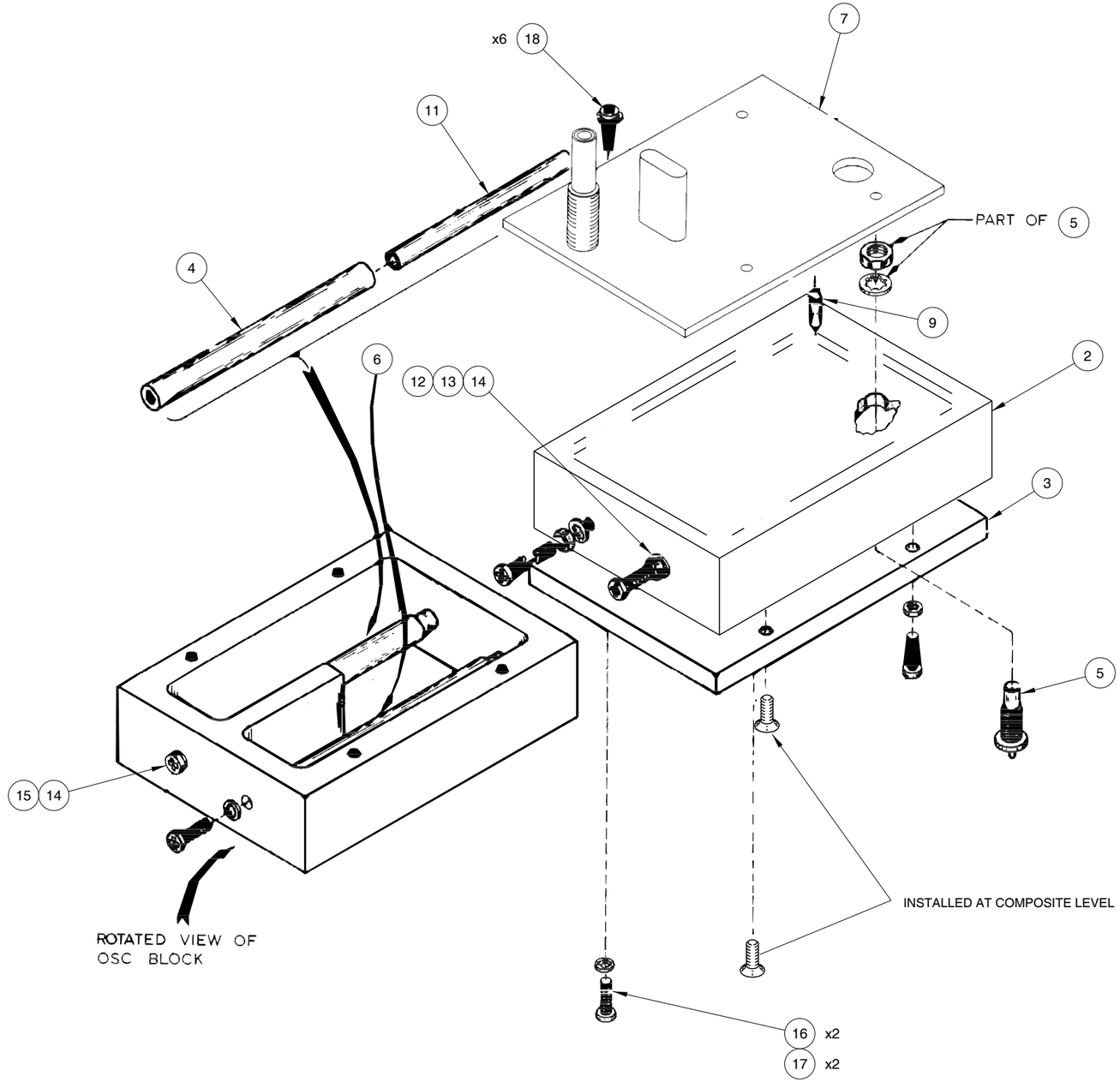
Oscillator Multiplier PC Board Assembly
(7010-0808-400-K8)

Oscillator Multiplier Assembly (Sheet 2 of 6)
Figure 14



Oscillator Multiplier Assembly Circuit Schematic
(0000-0812-100-G3)

Oscillator Multiplier Assembly (Sheet 3 of 6)
Figure 14

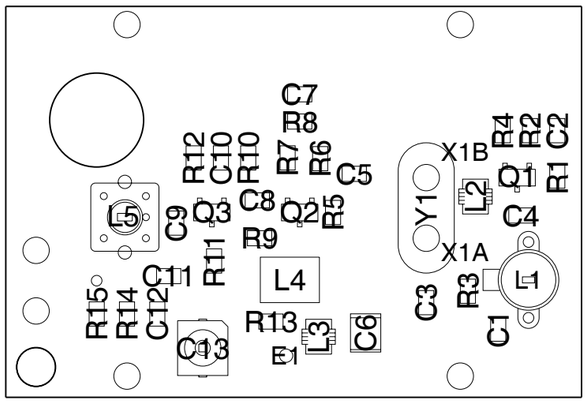


008M-013

Oscillator Multiplier Assembly
(7048-0811-900-H)

Oscillator Multiplier Assembly (Sheet 4 of 6)
Figure 14

CAUTION:
CONTAINS PARTS AND ASSEMBLIES SUSCEPTIBLE TO DAMAGE BY ELECTROSTATIC DISCHARGE (ESD).



Oscillator Multiplier PC Board Assembly
(7010-0834-700-C)

Oscillator Multiplier Assembly (Sheet 5 of 6)
Figure 14

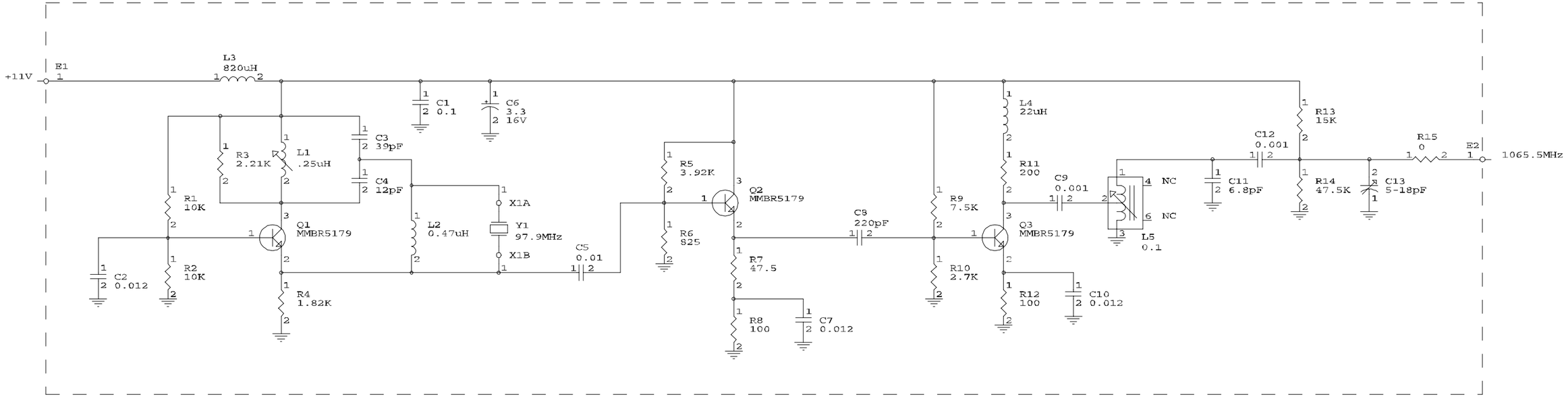
CAUTION:

CONTAINS PARTS AND ASSEMBLIES
SUSCEPTIBLE TO DAMAGE BY
ELECTROSTATIC DISCHARGE (ESD).

NOTES:
(UNLESS OTHERWISE SPECIFIED)

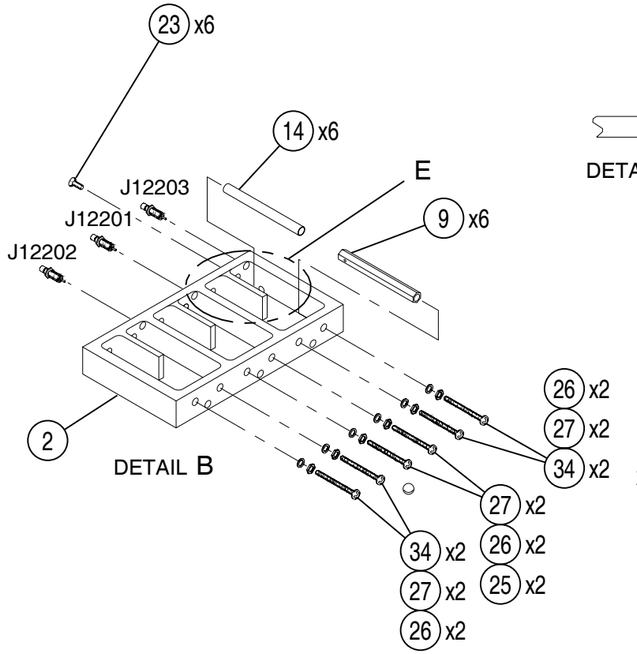
1. BASIC REFERENCE DESIGNATORS SHOWN, FOR COMPLETE DESIGNATOR PREFIXES REFER TO PRODUCT STRUCTURE AND SYSTEM INTERCONNECT FOR APPLICATIONS WHERE USED.
2. ALL RESISTORS ARE 1%, 1/8W.
3. ALL RESISTANCE IS EXPRESSED IN OHMS.
   ALL CAPACITANCE IS EXPRESSED IN MICROFARADS.
   ALL INDUCTANCE IS EXPRESSED IN MICROHENRIES.

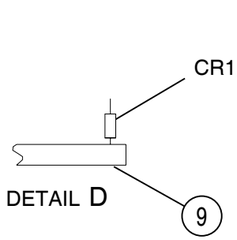
*- INDICATES PRINTED TRANSMISSION LINES OF OTHER THAN 50 OHMS IMPEDANCE WHICH CONSTITUTE CIRCUIT ELEMENTS. 50 OHM TRANSMISSION LINES ARE NOT SHOWN.

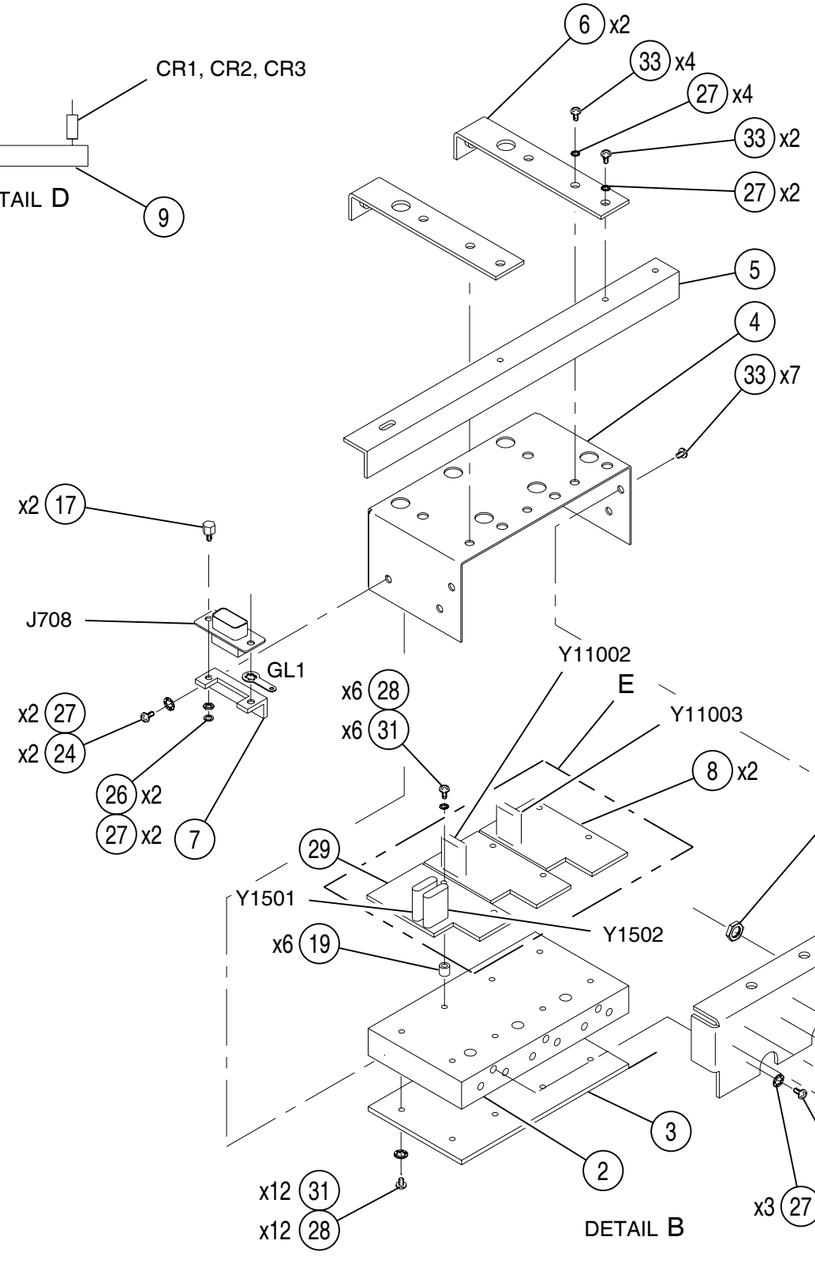


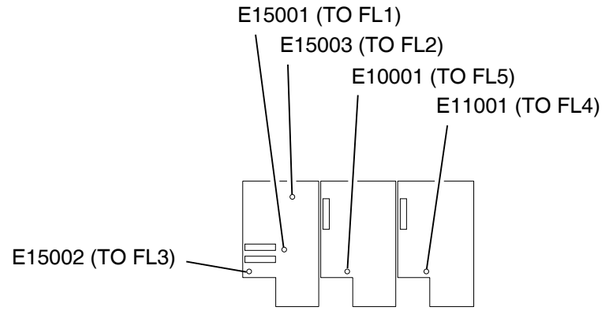
Oscillator Multiplier PC Board Assembly Circuit Schematic
(0000-0834-700-B)

Oscillator Multiplier Assembly (Sheet 6 of 6)
Figure 14

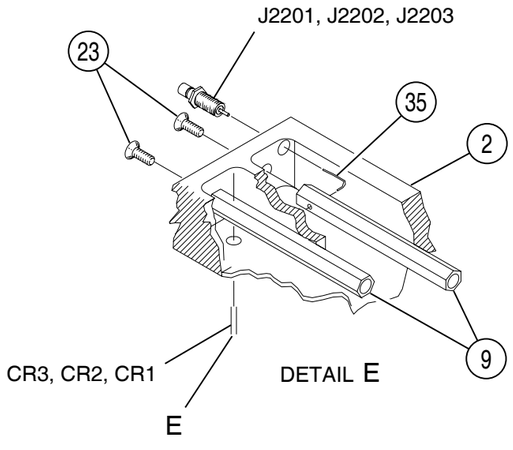








WIRE RUNNING LIST				
DESG	FROM	TO	COLOR	AWG
W1	J8-2	FL4	VIO	26
W2	J8-4	FL5	BLUE	26
W3	J8-3	FL2	BRN	26
W4	J8-5	GL1	BLK	26
W5	J8-9	FL1	BLU/WHT	26
W6	J8-8	FL3	VIO/WHT	26
W7	FL2	E15003	RED	26
W8	FL1	E15001	RED	26
W9	FL3	E15002	RED	26
W10	FL4	E11001	RED	26
W11	FL5	E10001	RED	26



CAUTION:
CONTAINS PARTS AND ASSEMBLIES SUSCEPTIBLE TO DAMAGE BY ELECTROSTATIC DISCHARGE (ESD).

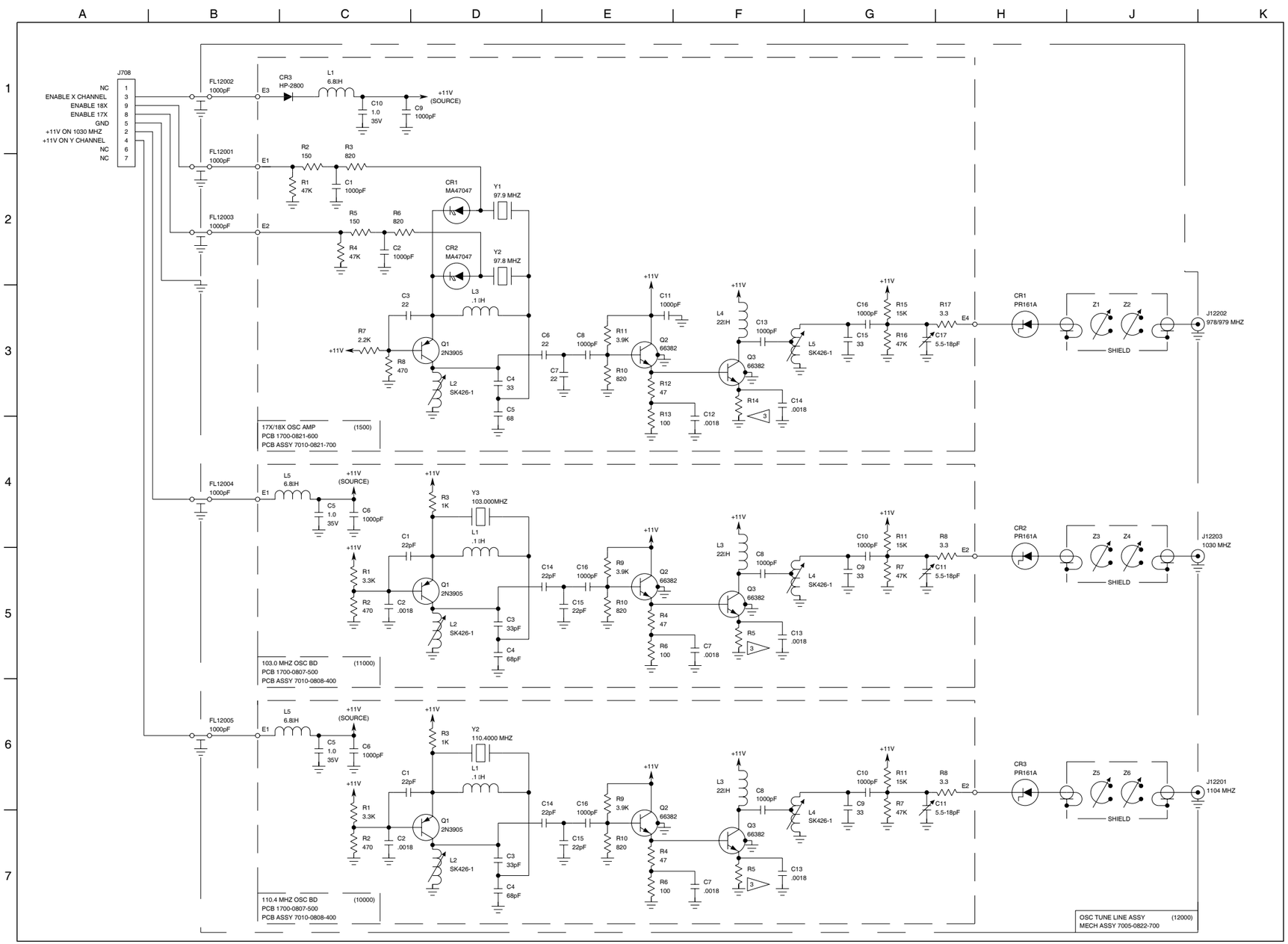
NOTES:

1. BASIC REFERENCE DESIGNATORS SHOWN, FOR COMPLETE DESIGNATOR PREFIXES REFER TO SYSTEM INTERCONNECT.

00820019

Oscillator Tuneline Assembly
(7005-0846-600-D)

Oscillator Tuneline Assembly (Sheet 1 of 8)
Figure 15



Oscillator Tuneline Assembly Circuit Schematic
(0000-0822-600-B4)

CAUTION:
CONTAINS PARTS AND ASSEMBLIES SUSCEPTIBLE TO DAMAGE BY ELECTROSTATIC DISCHARGE (ESD).

NOTES:
(UNLESS OTHERWISE NOTED)

1. ALL REFERENCE NUMBERS CARRY AN ASSIGNED DESIGNATOR SERIES.
   7005-0822-700 SERIES 12000 (OSC TUNE LINE ASSY)
   7010-0808-400 SERIES 10000 (110.4 MHZ OSC)
   7010-0808-400 SERIES 11000 (103.0 MHZ OSC)
   7010-0821-700 SERIES 1500 (97.8/97.9 MHZ OSC)

2. ALL RESISTORS ARE 1/4 W, 5% TOLERANCE.

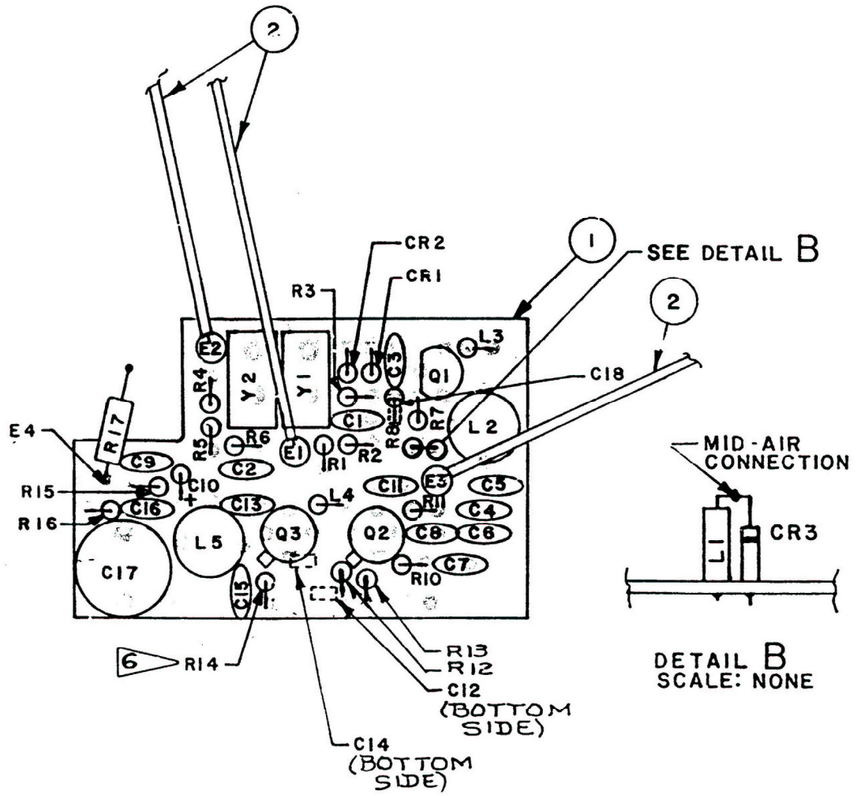
3 R5 AND R14 ARE SELECT AT TEST.
NOMINAL VALUE IS 68 OHMS.
RANGE IS 68-330 OHMS.

4. ALL RESISTANCE IS EXPRESSED IN OHMS.

5. ALL CAPACITANCE IS EXPRESSED IN MICROFARADS.

00818010

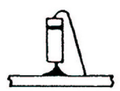
Oscillator Tuneline Assembly (Sheet 2 of 8)
Figure 15



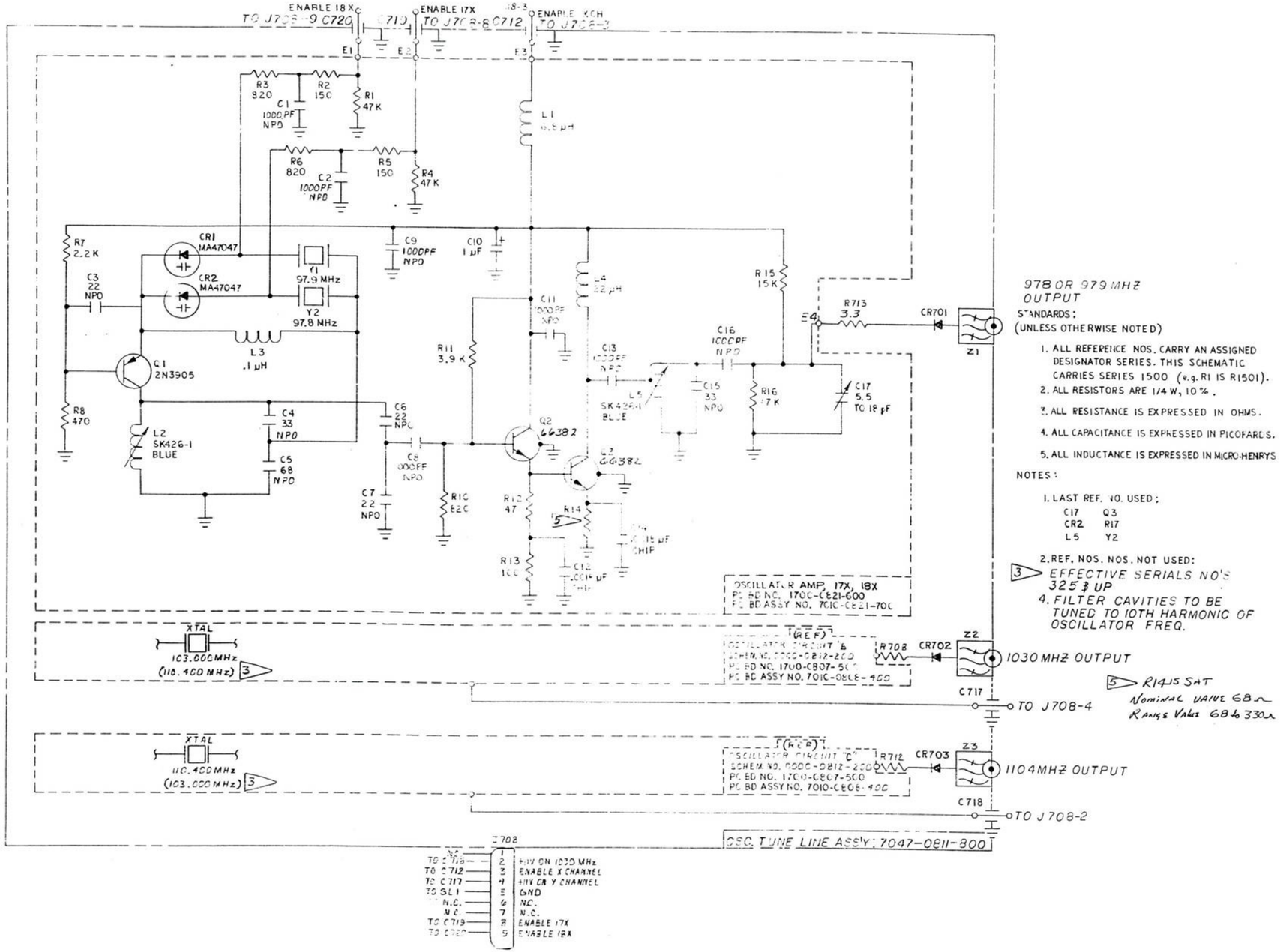
NOTES:

1. REF CIRCUIT SCHEMATIC 0000-0821-500 & 0000-0822-600
2. ALL REF NO'S ARE 1500 SERIES. (I.E. R1 IS R1501)
3. MOUNT CR1 AND CR2 AS SHOWN IN DETAIL A
4. MOUNT C12, C14 & C18 ON BOTTOM SIDE OF BOARD.
5. PATHWORK AND GROUND PLANE ARE OMITTED FOR CLARITY.
   WHERE NO OTHER TERMINATION IS PROVIDED, COMPONENTS TERMINATE ON GROUND PLANE.
6. R14 IS SAT:
   RANGE: 68Ω THRU 330 OHM
   NOMINAL: 68Ω

5 7010-0821-700 (08-217-00) SHOWN.

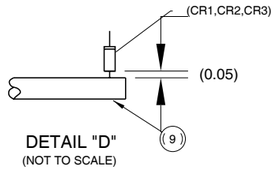


DETAIL A
CR1 AND CR2
MOUNT AS SHOWN.

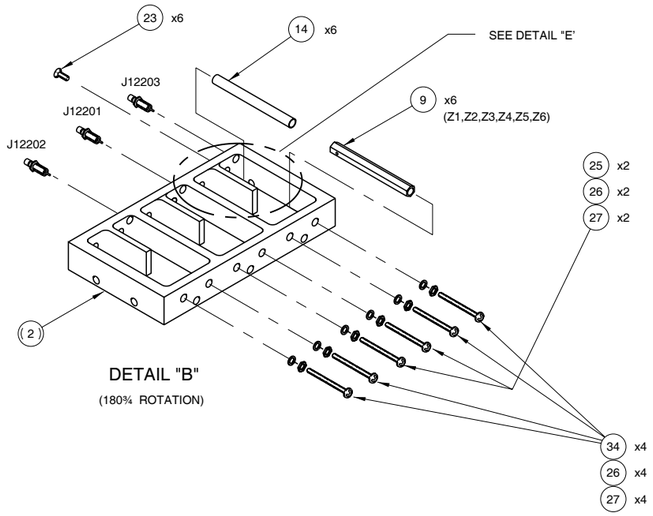


17X/18X Oscillator Amplifier PC Board Assembly Circuit Schematic
(0000-0821-500-A3)

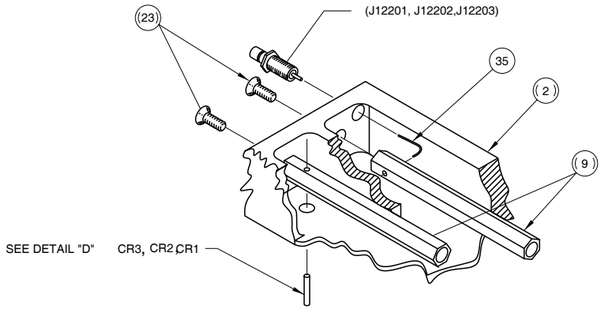
Oscillator Tuneline Assembly (Sheet 4 of 8)
Figure 15



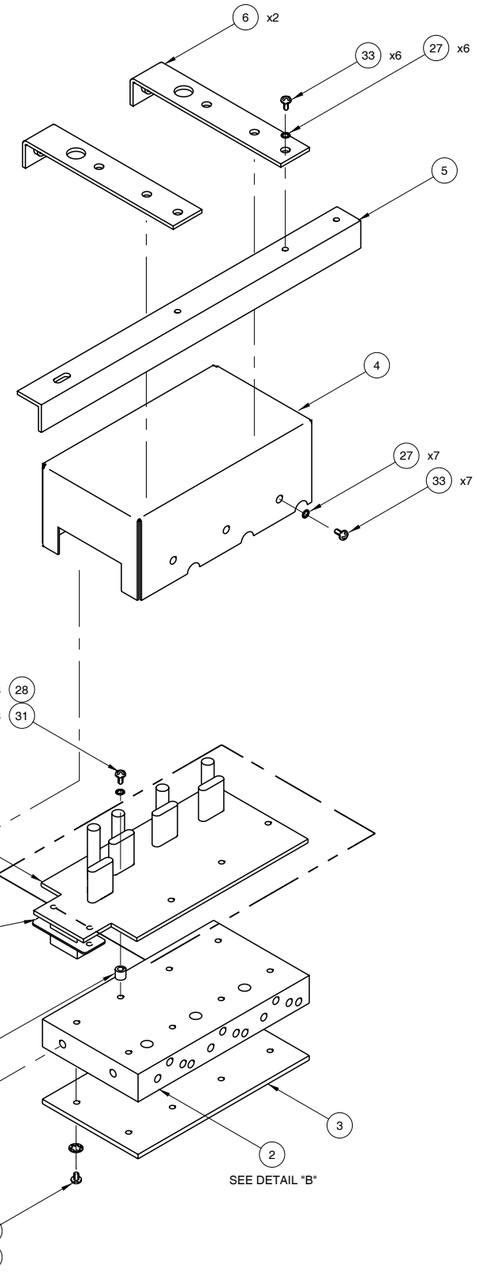
DETAIL "D"
(NOT TO SCALE)



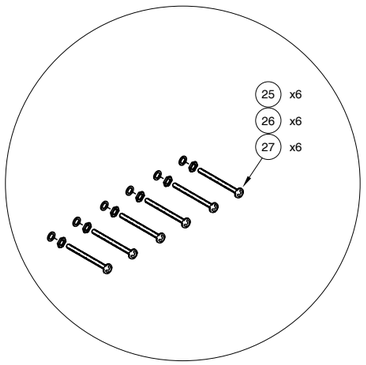
DETAIL "B"
(180¾ ROTATION)

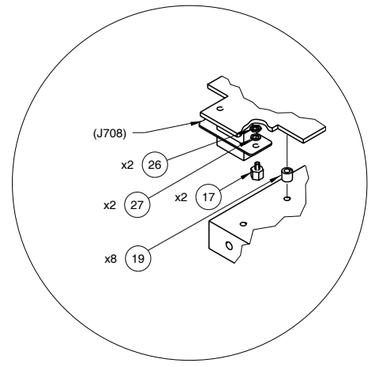


DETAIL "E"



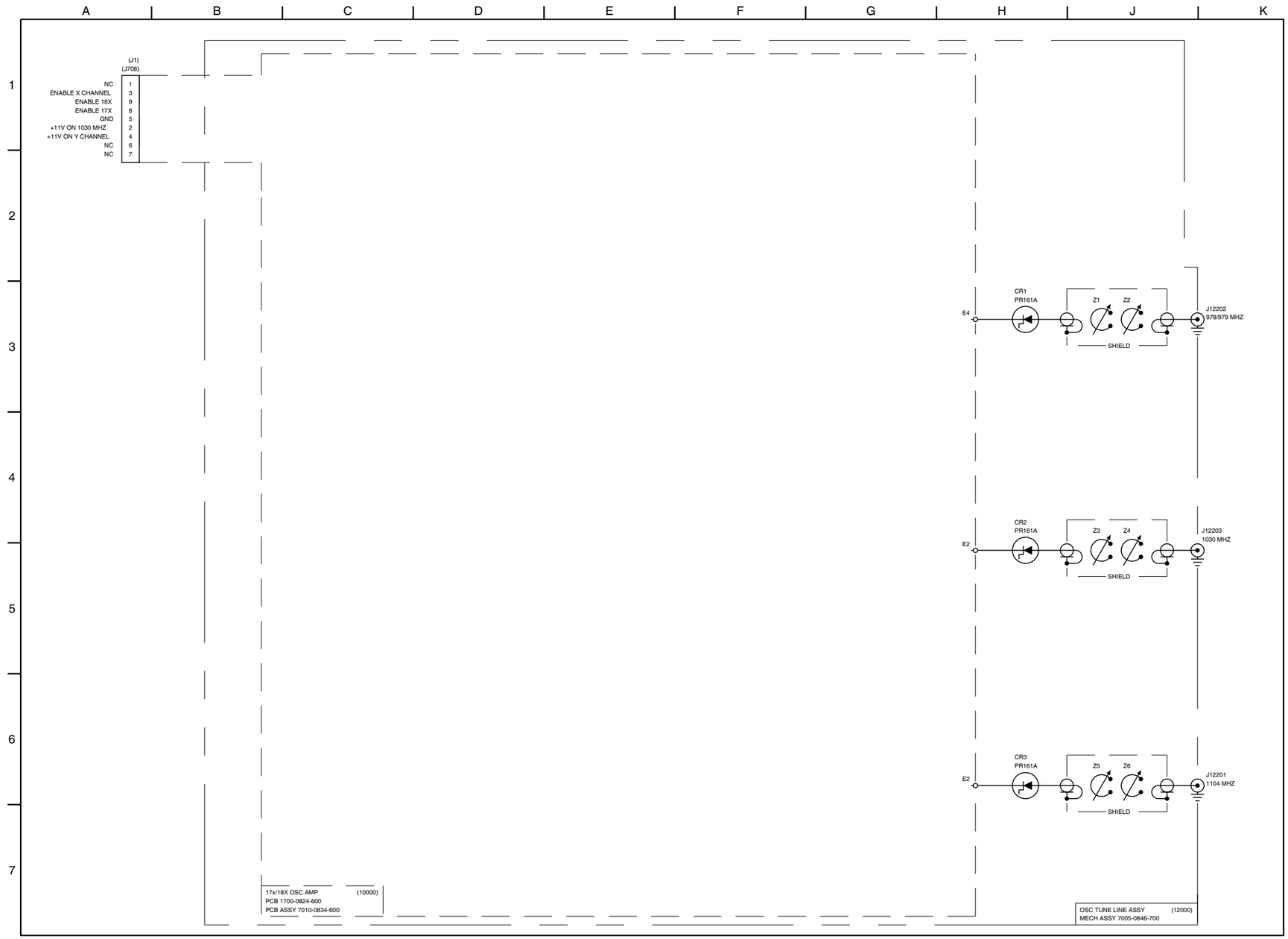
Oscillator Tuneline Assembly
(7005-0846-700-B)





(REV A)

Oscillator Tuneline Assembly (Sheet 5 of 8)
Figure 15



CAUTION:
CONTAINS PARTS AND ASSEMBLIES SUSCEPTIBLE TO DAMAGE BY ELECTROSTATIC DISCHARGE (ESD).

NOTES:
(UNLESS OTHERWISE NOTED)

1. ALL REFERENCE DESIGNATORS CARRY AN ASSIGNED DESIGNATOR SERIES.

   7005-0846-700 SERIES 12000 (OSC TUNELINE ASSY)

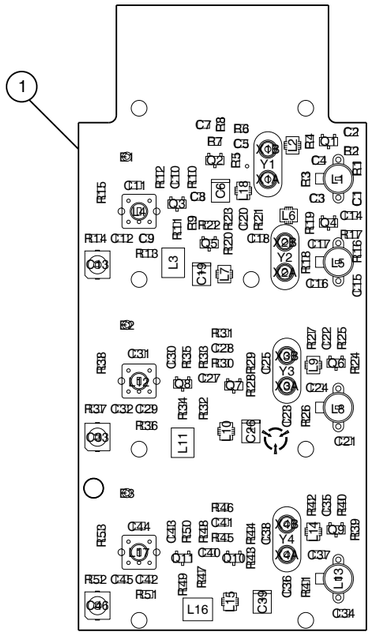
2. ALL RESISTORS ARE 1/4 W, 5% TOLERANCE.
3. ALL RESISTANCE IS EXPRESSED IN OHMS.
4. ALL CAPACITANCE IS EXPRESSED IN MICROFARADS.

008M-006

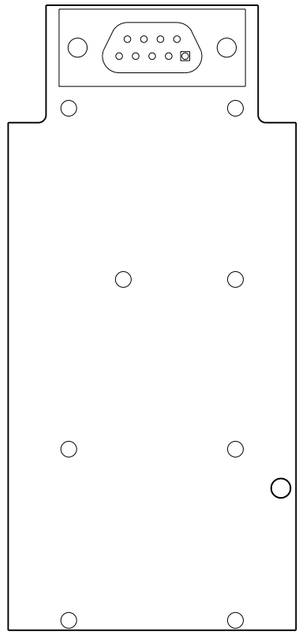
Oscillator Tuneline Assembly Circuit Schematic
(0000-0846-700-A)

Oscillator Tuneline Assembly (Sheet 6 of 8)
Figure 15

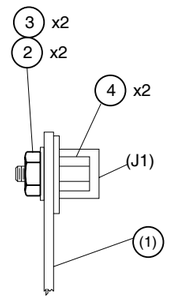
CAUTION:
CONTAINS PARTS AND ASSEMBLIES SUSCEPTIBLE TO DAMAGE BY ELECTROSTATIC DISCHARGE (ESD).



(TOP)

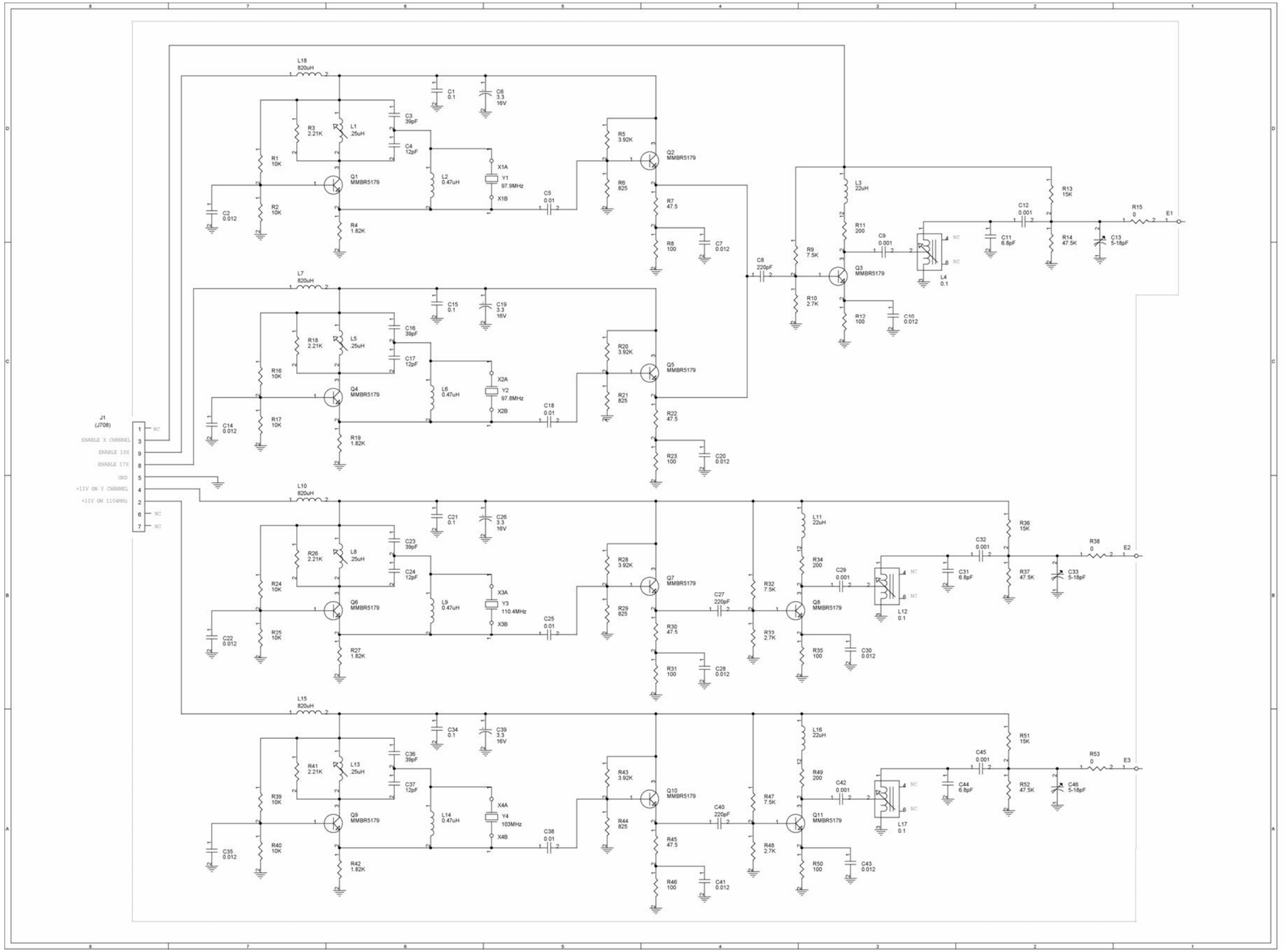


(BOTTOM)



17X/18X Oscillator Amplifier PC Board Assembly
(7010-0834-600-B1)

Oscillator Tuneline Assembly (Sheet 7 of 8)
Figure 15



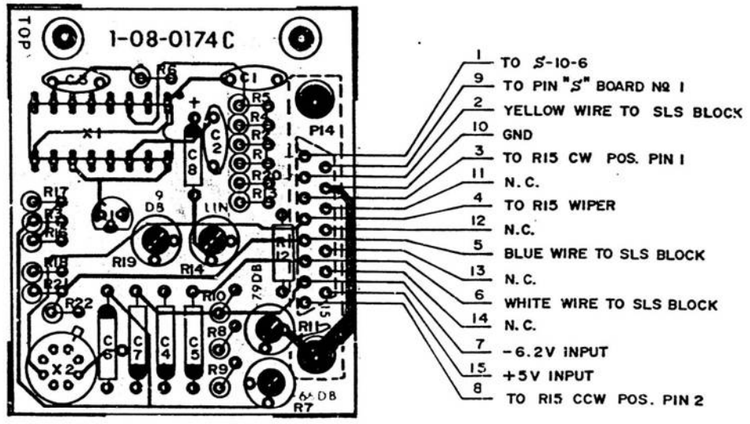
CAUTION:

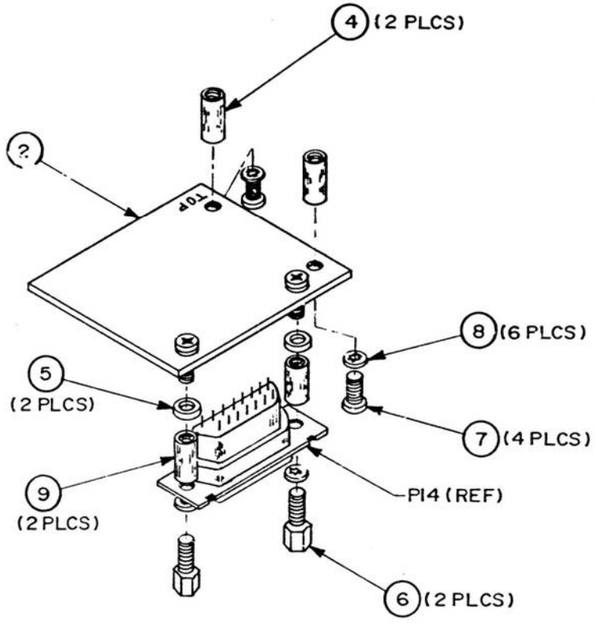
CONTAINS PARTS AND ASSEMBLIES SUSCEPTIBLE TO DAMAGE BY ELECTROSTATIC DISCHARGE (ESD).

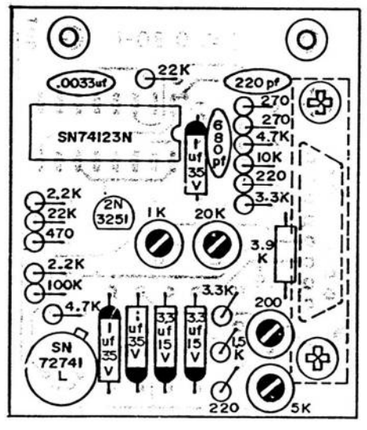
NOTES
(UNLESS OTHERWISE SPECIFIED)

1. BASIC REFERENCE DESIGNATORS SHOWN. FOR COMPLETE DESIGNATOR PREFIXES REFER TO PRODUCT STRUCTURE AND SYSTEM INTERCONNECT FOR APPLICATIONS WHERE USED.
2. ALL RESISTORS ARE 1%, 1/8W.
3. ALL RESISTANCE IS EXPRESSED IN OHMS.
   ALL CAPACITANCE IS EXPRESSED IN MICROFARADS.
   ALL INDUCTANCE IS EXPRESSED IN MICROHENRIES.

*- INDICATES PRINTED TRANSMISSION LINES OF OTHER THAN 50 OHMS IMPEDANCE WHICH CONSTIUTUTE CIRCUIT ELEMENTS. 50 OHM TRANSMISSION LINES ARE NOT SHOWN.





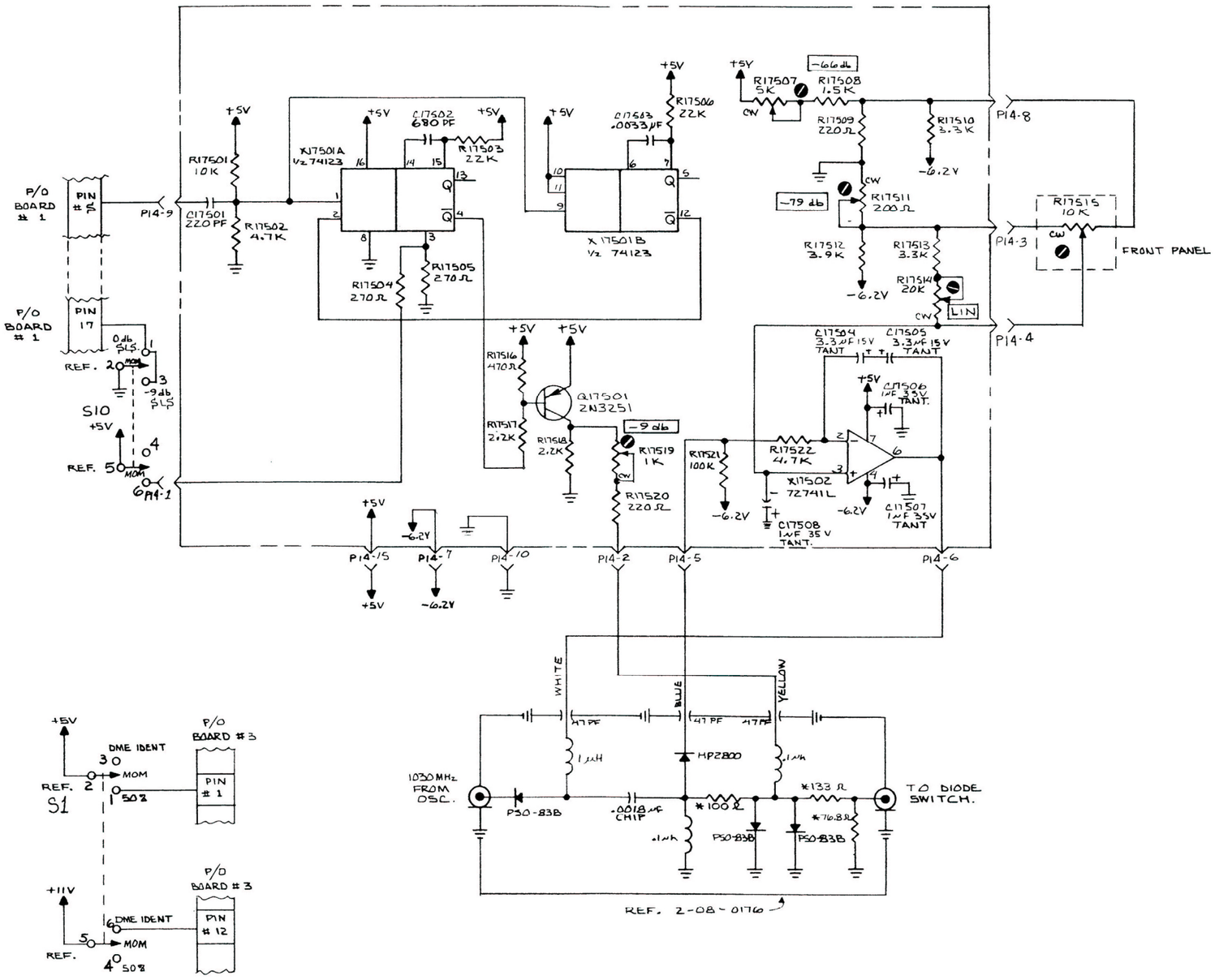


NOTES:

1. REF. SCHEMATIC: 0000-0817-500
2. CONN. TO EXTEND .75 MAX. BELOW BOARD.
3. COMPONENT LEADS MAY EXTEND .04 TO .06 BEYOND BOTTOM OF BD. AFTER SOLDERING.
4. MAX. HEIGHT OF COMPONENTS TO BE .35 FROM COMPONENT SIDE OF BD.

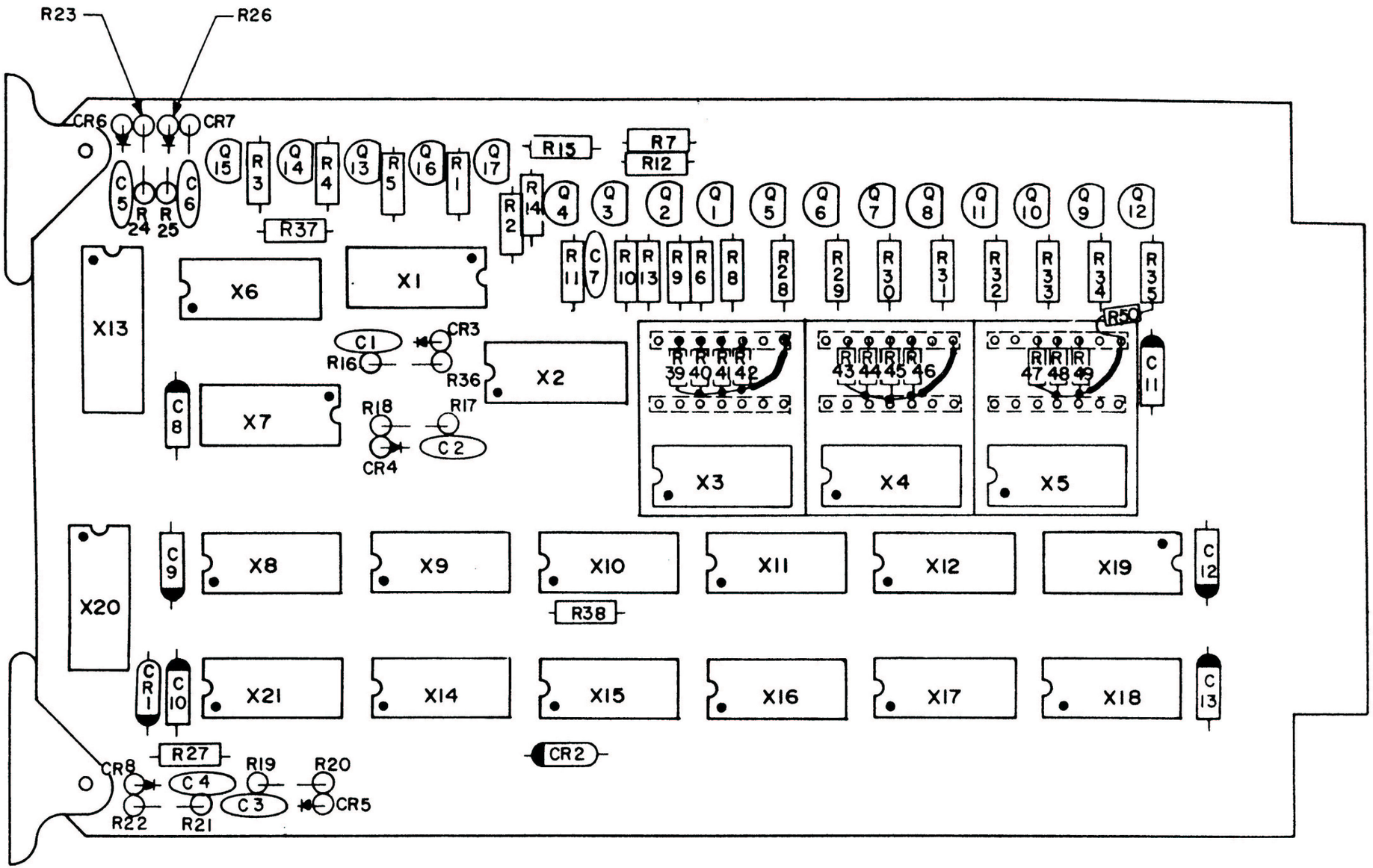
SLS and RF Leveler PC Board Assembly
(7010-0818-200-K5)

SLS and RF Leveler PC Board Assembly
(Sheet 1 of 2)
Figure 16



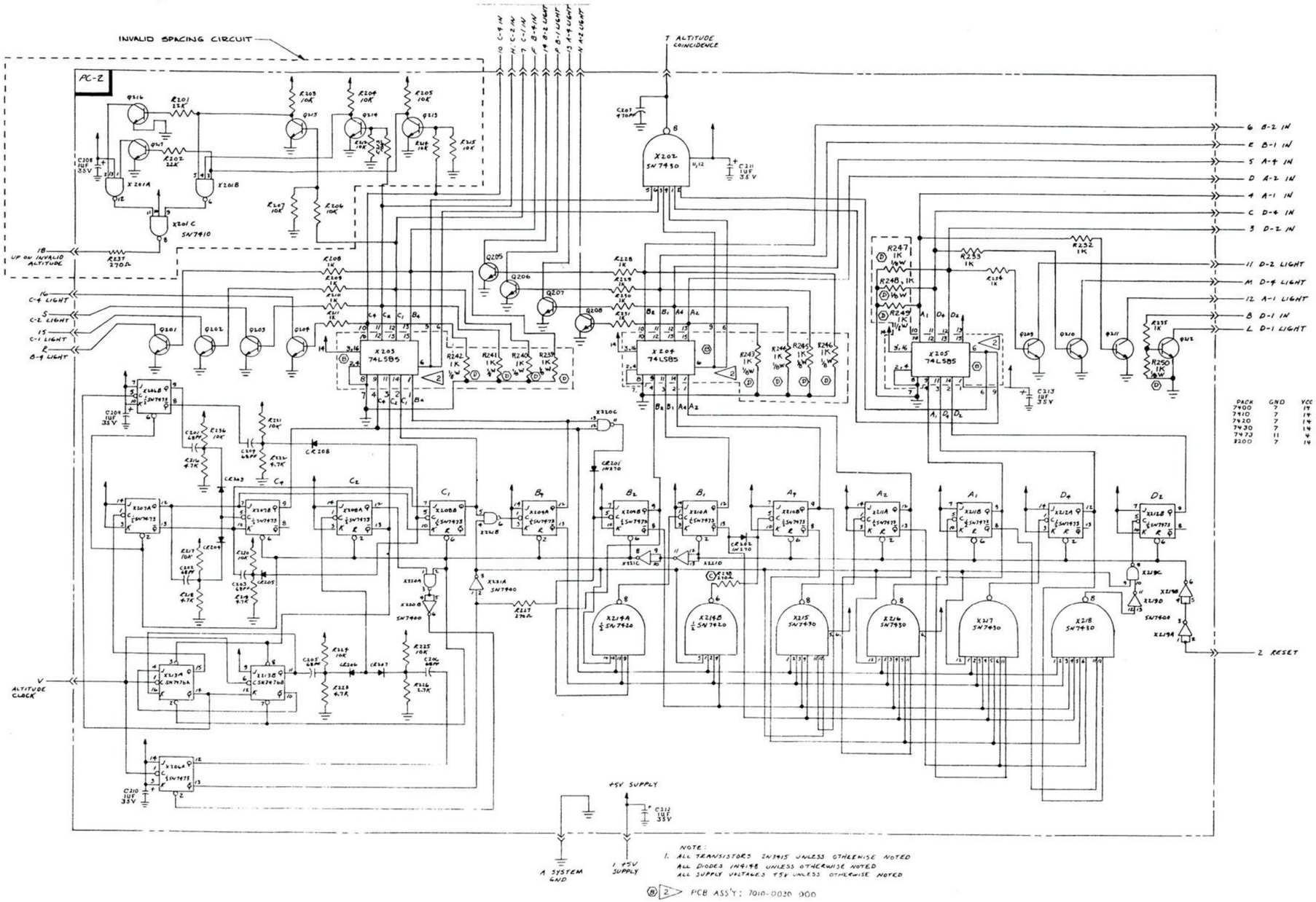
SLS and RF Leveler PC Board Assembly Circuit Schematic
(0000-0817-500-E)

SLS and RF Leveler PC Board Assembly
(Sheet 2 of 2)
Figure 16



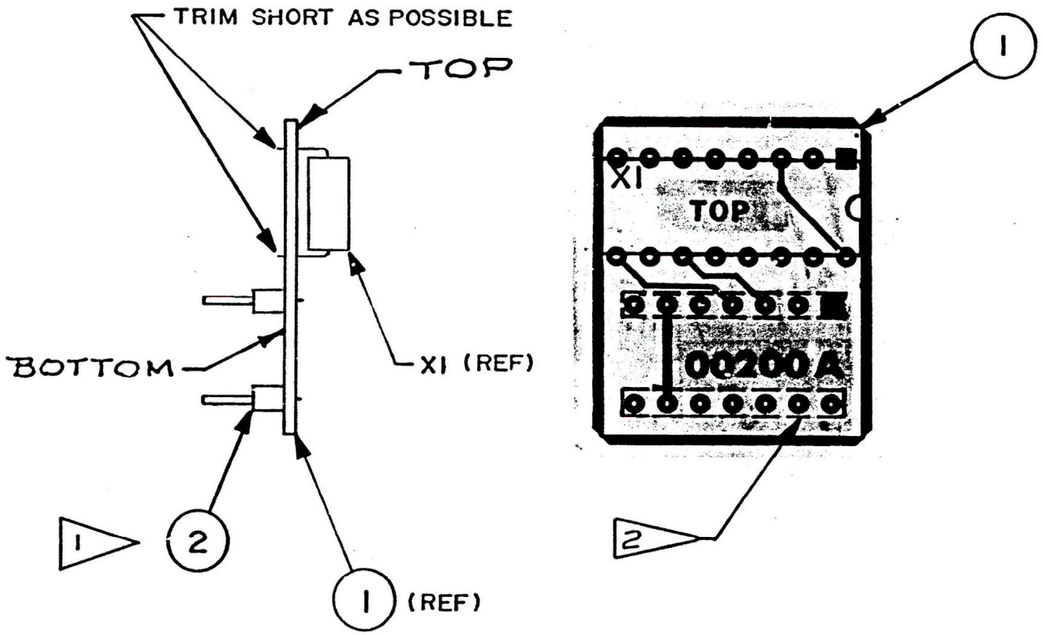
Altitude Register and Comparator PC Board Assembly
(7010-0803-600-L)

Altitude Register and Comparator PC Board Assembly (Sheet 1 of 4)
Figure 17



Altitude Register and Comparator PC Board Assembly Circuit Schematic
(0000-0816-300-D)

Altitude Register and Comparator PC Board Assembly (Sheet 2 of 4)
Figure 17

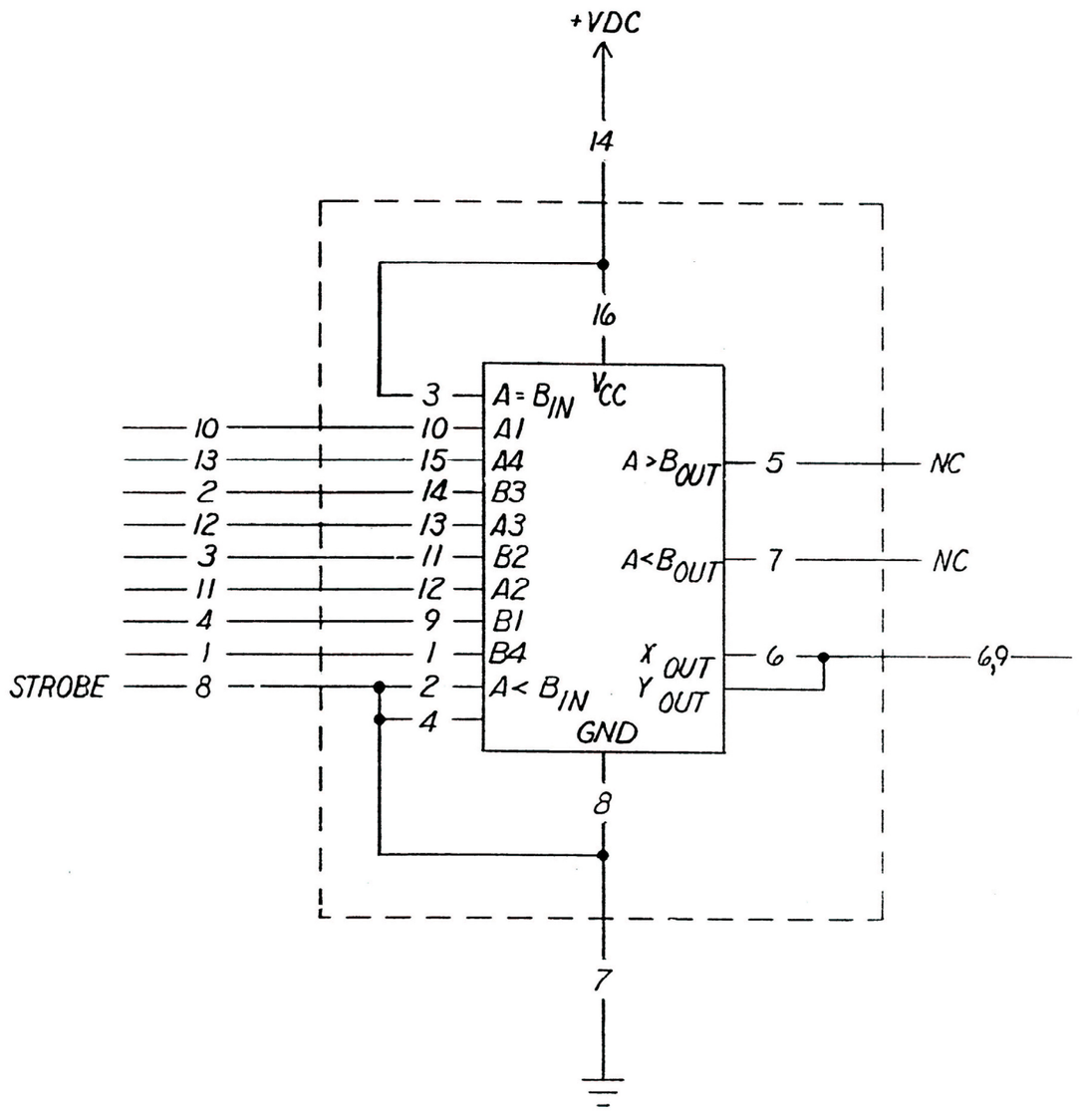


NOTE:

1. DIVIDE ITEM 2 INTO TWO PARTS OF 7 PINS EACH & INSTALL AS SHOWN.
2. DO NOT TRIM LEADS OF CONNECTOR

DM8200 to 74LS85 PC Board Assembly
(7010-0030-000-A2)

Altitude Register and Comparator PC Board Assembly (Sheet 3 of 4)
Figure 17



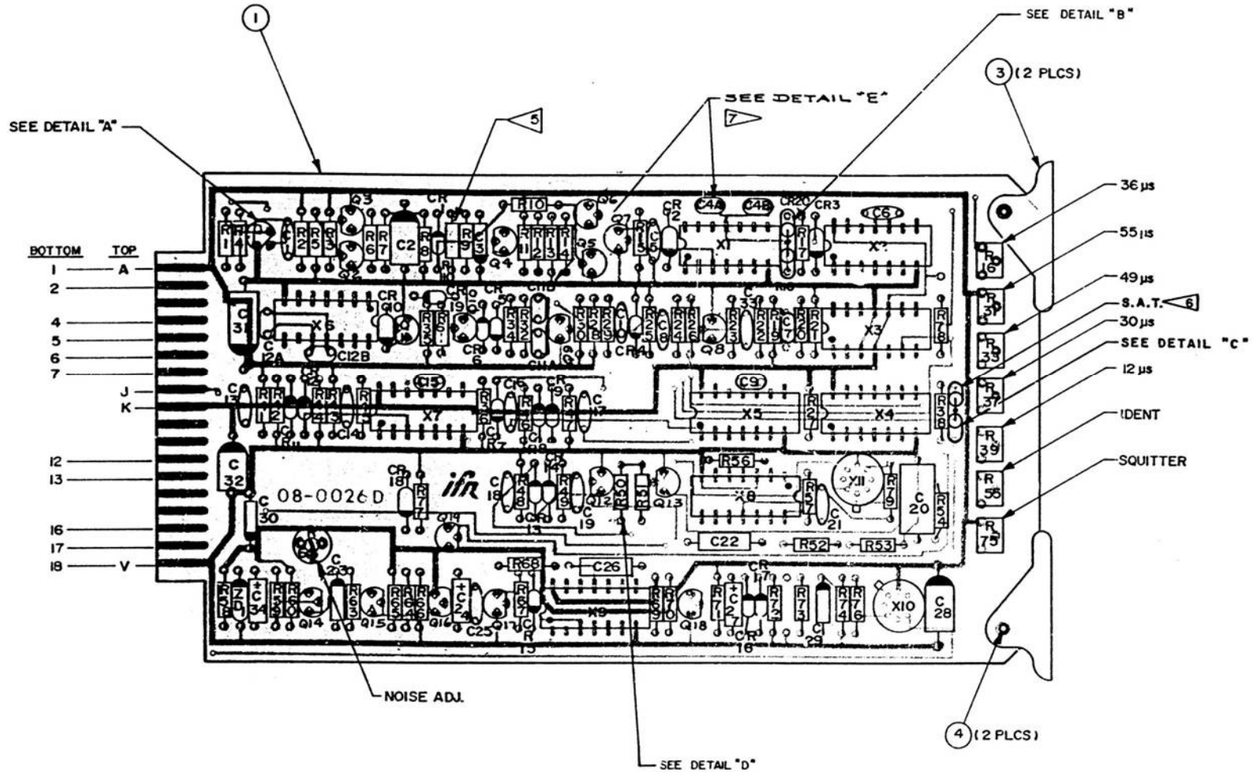
NOTE:

FOR PIN Nº's SHOWN INSIDE DASHED LINE, REFER TO IC PIN Nº's.

FOR PIN Nº's SHOWN OUTSIDE DASHED LINE, REFER TO ADAPTER BD PIN Nº's.

DM8200 to 74LS85 PC Board Assembly Circuit Schematic
(0000-0010-000-A)

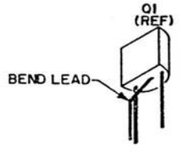
Altitude Register and Comparator PC Board
Assembly (Sheet 4 of 4)
Figure 17



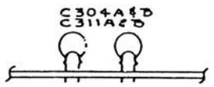
NOTES:

1. ALL REFERENCE DESIGNATORS CARRY AN ASSIGNED DESIGNATOR SERIES. THIS DWG CARRIES SERIES 300, EXCEPT AS NOTED (e.i. RI IS R301).
2. REF SCHEMATIC: 0000-0804-700
   REF PC BD: 1700-0802-600
3. COMPONENT LEADS MAY EXTEND .04 TO .06 BEYOND BOTTOM OF BD AFTER SOLDERING.
4. MAXIMUM HEIGHT OF COMPONENTS TO BE .35 FROM COMPONENT SIDE OF BD.
5. R110 CARRIES REF DES SERIES 100.
6. R340 IS SELECTED AT TEST (S.A.T.)
   NOMINAL VALUE: 25.5 K
   RANGE: 23.2K – 28.0K
7. CRIMP LEADS ON C304 A&B, C311A&B, SO CAPACITOR BODY DOES NOT CONTACT PC BOARD.

EDGE CONNECTOR CHART			
PIN Nº	FUNCTION	PIN Nº	FUNCTION
1	+5v FOR 50%	A	+11v SUPPLY
2	FROM RANGE BD	B	*NOT USED*
3	*NOT USED*	C	
4	VIDEO INPUT	D	
5	+11V FOR X CHANNEL DECODER	E	
6	-6.2v SUPPLY	F	
7	DECODER VIDEO OUT	H	*NOT USED*
8	*NOT USED*	J	PULSES OUT
9		K	+5v SUPPLY
10		L	*NOT USED*
11	*NOT USED*	M	
12	+11v FOR IDENT	N	
13	+11v FOR Y CHANNEL OUTPUT	P	
14	*NOT USED*	R	
15	NOT USED	S	
16	+11V FOR X CHANNEL OUTPUT	T	
17	GND TO KILL SQUITTER	U	*NOT USED*
18	-6.2v SUPPLY	V	GND

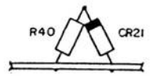


DETAIL "A"

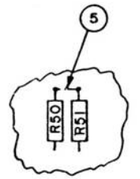


DETAIL "E"
SCALE - NONE

DETAIL "B"



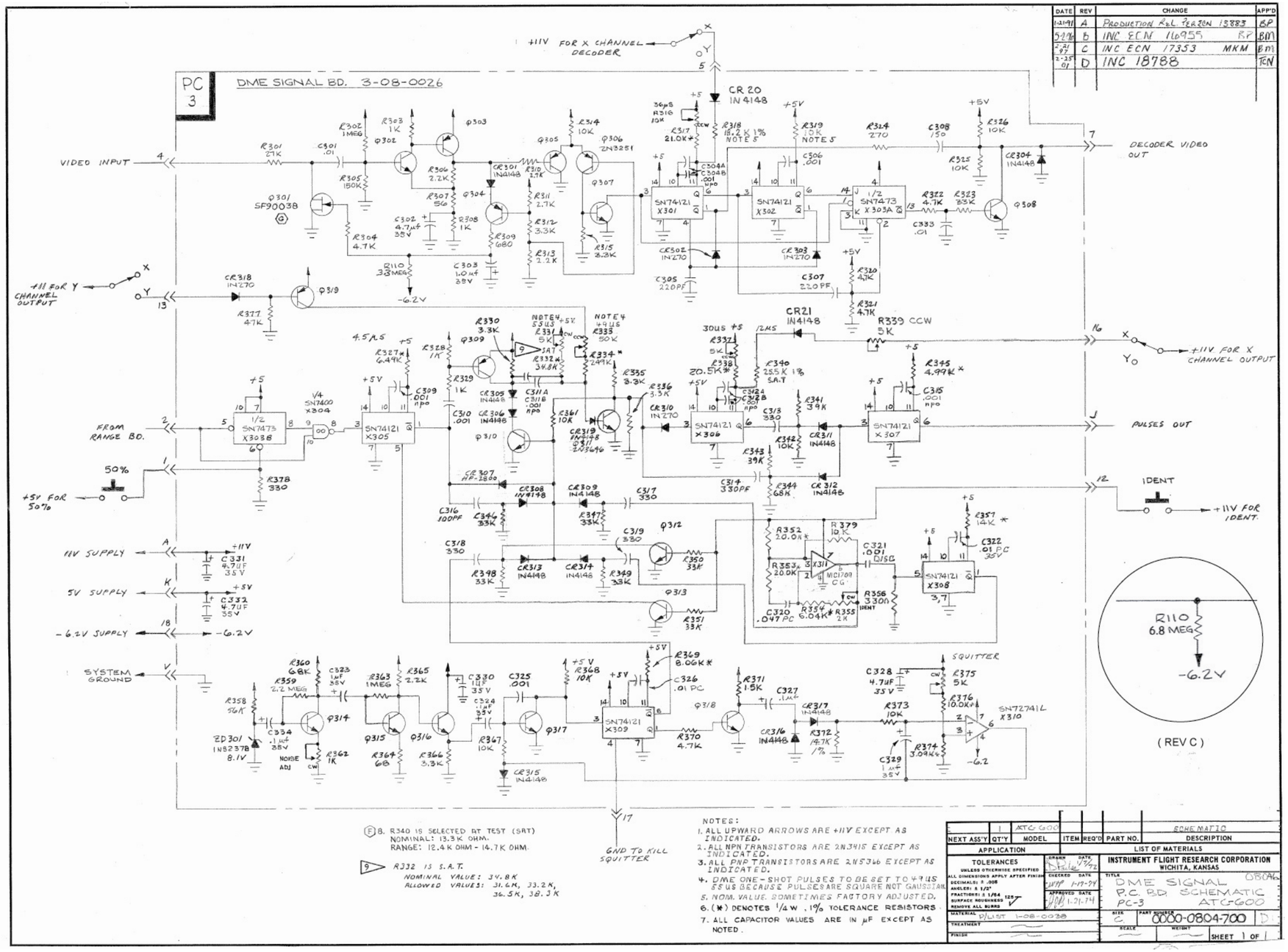
DETAIL "C"



DETAIL "D"

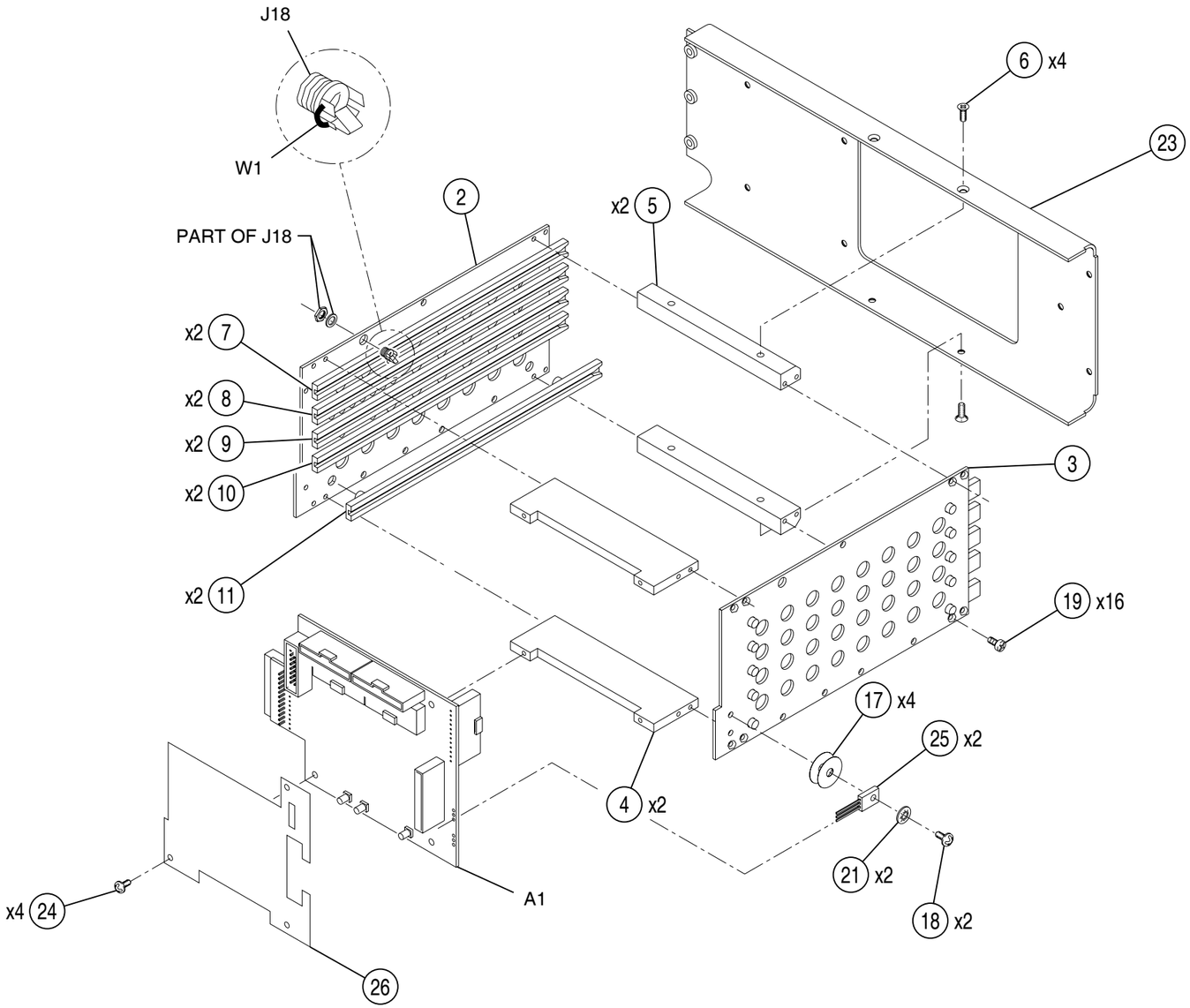
DME Signal PC Board Assembly
(7010-0804-700-D)

DME Signal PC Board Assembly (Sheet 1 of 2)
Figure 18



DME Signal PC Board Assembly Circuit Schematic
(0000-0804-700-D)

DME Signal PC Board Assembly (Sheet 2 of 2)
Figure 18



CAUTION:
CONTAINS PARTS AND ASSEMBLIES SUSCEPTIBLE TO DAMAGE BY ELECTROSTATIC DISCHARGE (ESD).

NOTES:

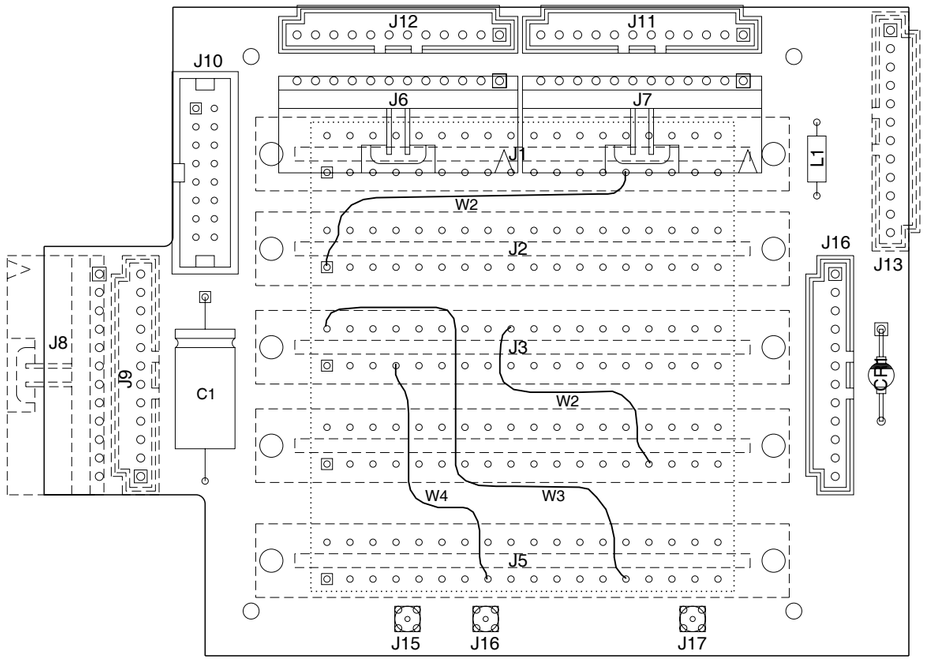
1. BASIC REFERENCE DESIGNATORS SHOWN, FOR COMPLETE DESIGNATOR PREFIXES REFER TO SYSTEM INTERCONNECT.

00820020

PC Cardcage Assembly
(7005-0846-400-B)

PC Cardcage Assembly (Sheet 1 of 3)
Figure 19

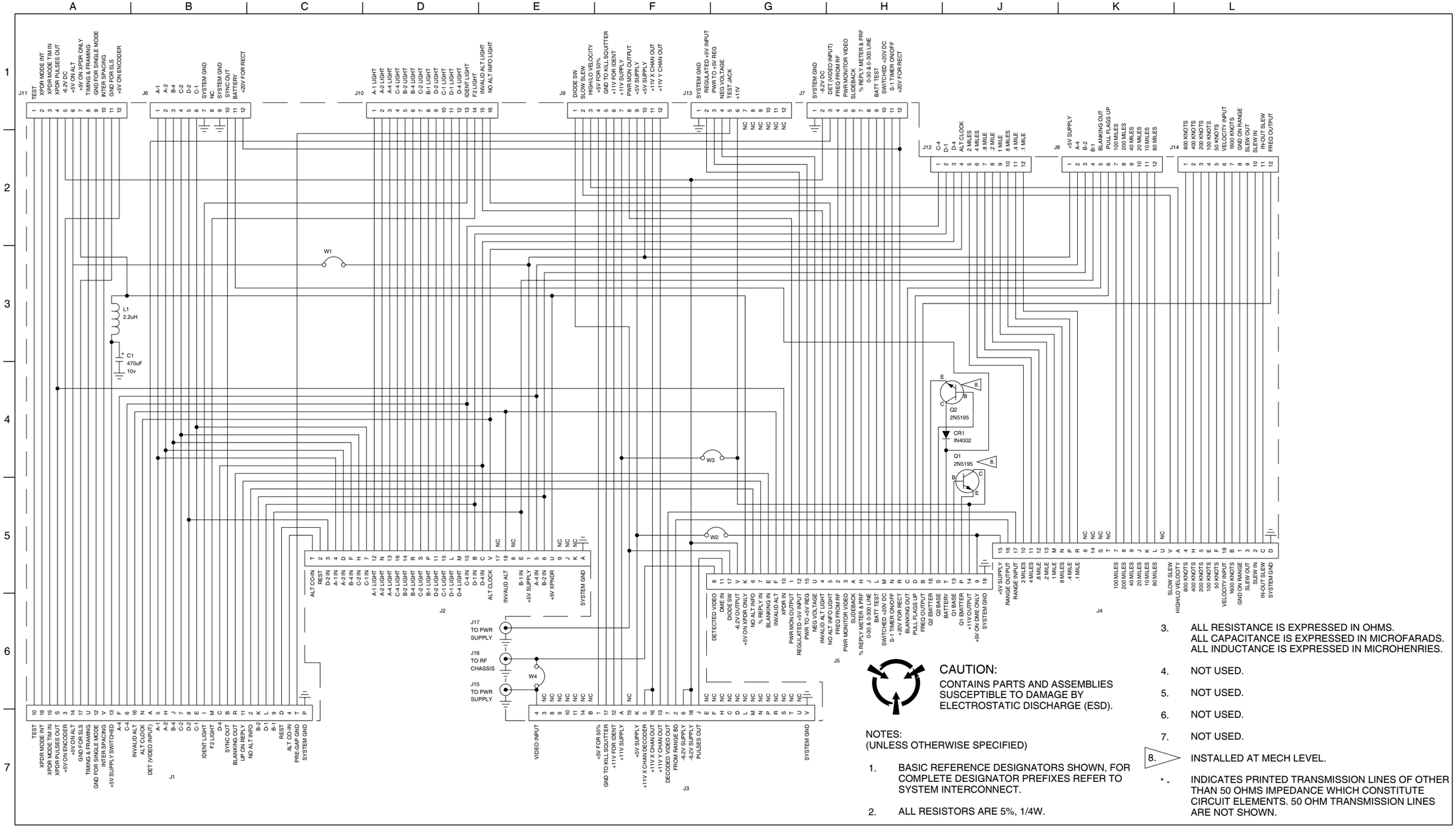
CAUTION:
CONTAINS PARTS AND ASSEMBLIES SUSCEPTIBLE TO DAMAGE BY ELECTROSTATIC DISCHARGE (ESD).



008M-010

Motherboard PC Board Assembly
(7010-0834-400-C1)

PC Cardcage Assembly (Sheet 2 of 3)
Figure 19

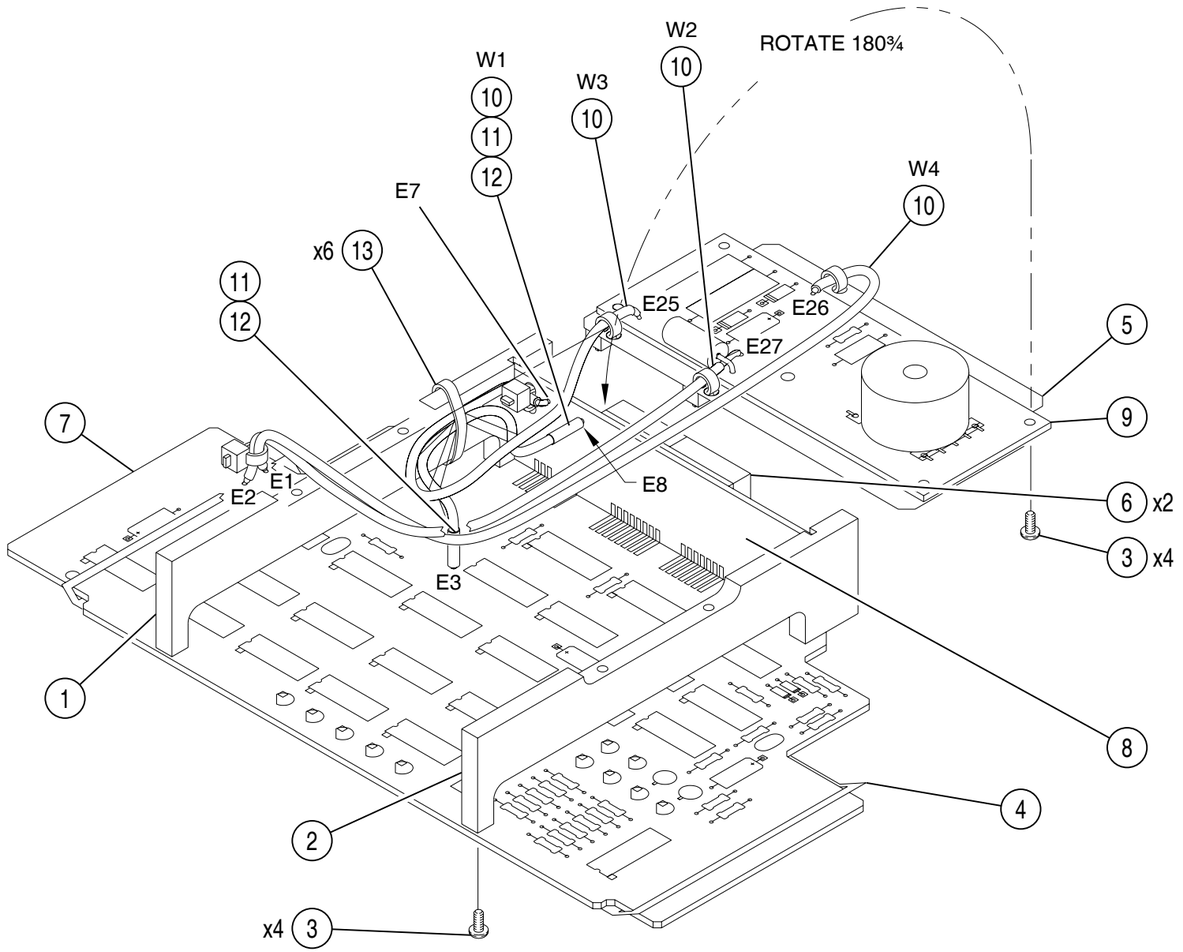


00818032

Motherboard PC Board Assembly Circuit Schematic
(0000-0834-400-A1)

PC Cardcage Assembly (Sheet 3 of 3)
Figure 19

WIRE RUNNING LIST				
DESG	FROM	TO	COLOR	AWG
W1	E3	E8	WHT/BLK	22
W2	E2	E27	WHT/BLK	22
W3	E7	E25	WHT/YEL	22
W4	E1	E26	WHT/YEL	22



Digital Display Assembly
(7005-0842-500-A)

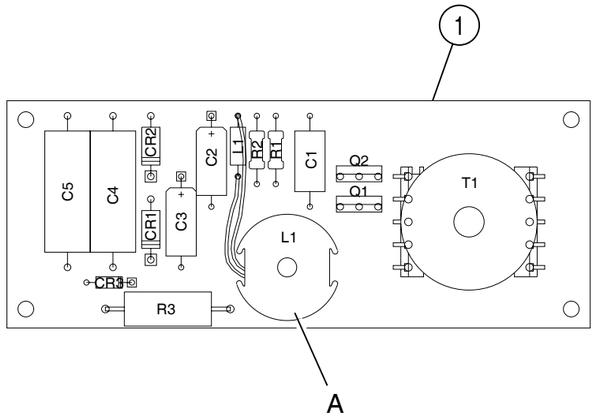
CAUTION:
CONTAINS PARTS AND ASSEMBLIES SUSCEPTIBLE TO DAMAGE BY ELECTROSTATIC DISCHARGE (ESD).

NOTES:

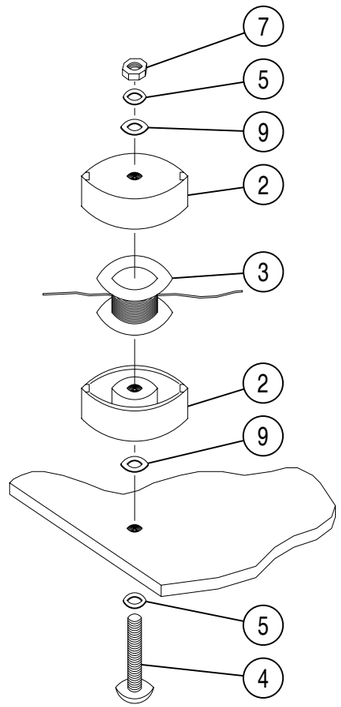
1. BASIC REFERENCE DESIGNATORS SHOWN, FOR COMPLETE DESIGNATOR PREFIXES REFER TO SYSTEM INTERCONNECT.

00820021

Digital Display Assembly (Sheet 1 of 11)
Figure 20



Power Supply PC Board Assembly
(7010-0933-000-A1)



DETAIL A

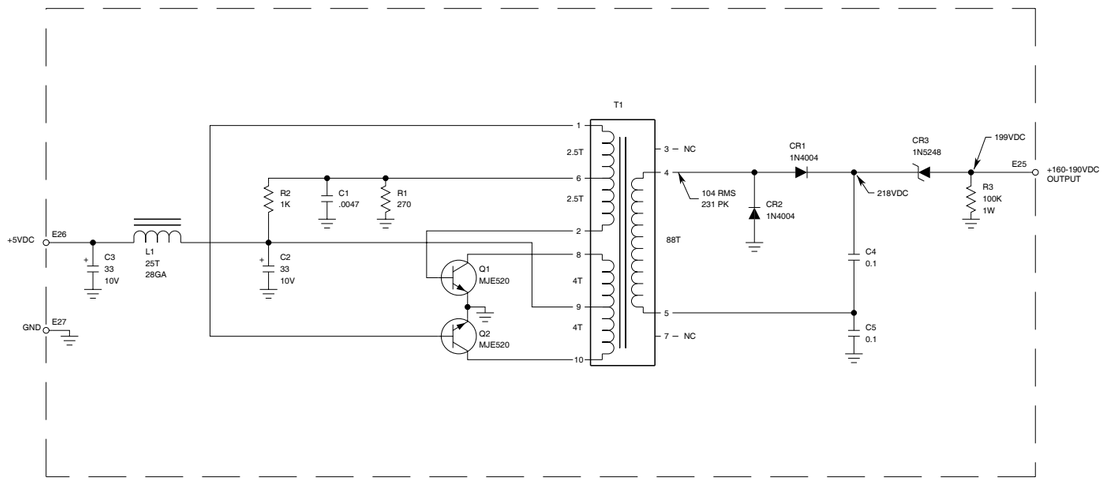
CAUTION:
CONTAINS PARTS AND ASSEMBLIES SUSCEPTIBLE TO DAMAGE BY ELECTROSTATIC DISCHARGE (ESD).

NOTES:

1. BASIC REFERENCE DESIGNATORS SHOWN, FOR COMPLETE DESIGNATOR PREFIXES REFER TO SYSTEM INTERCONNECT.

00818021

Digital Display Assembly (Sheet 2 of 11)
Figure 20



CAUTION:
CONTAINS PARTS AND ASSEMBLIES SUSCEPTIBLE TO DAMAGE BY ELECTROSTATIC DISCHARGE (ESD).

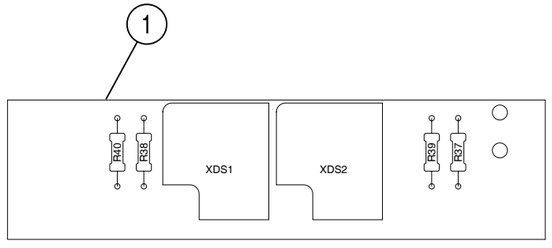
NOTES:
(UNLESS OTHERWIISE SPECIFIED)

1. BASIC REFERENCE DESIGNATORS SHOWN, FOR COMPLETE DESIGNATOR PREFIXES REFER TO SYSTEM INTERCONNECT.
2. ALL RESISTORS ARE 5%, 1/4W.
3. ALL RESISTANCE IS EXPRESSED IN OHMS.
   ALL CAPACITANCE IS EXPRESSED IN MICROFARADS.
   ALL INDUCTANCE IS EXPRESSED IN MICROHENRIES.

00818033

Power Supply PC Board Assembly Circuit Schematic
(0000-0933-000-A)

Digital Display Assembly (Sheet 3 of 11)
Figure 20



CAUTION:
CONTAINS PARTS AND ASSEMBLIES SUSCEPTIBLE TO DAMAGE BY ELECTROSTATIC DISCHARGE (ESD).

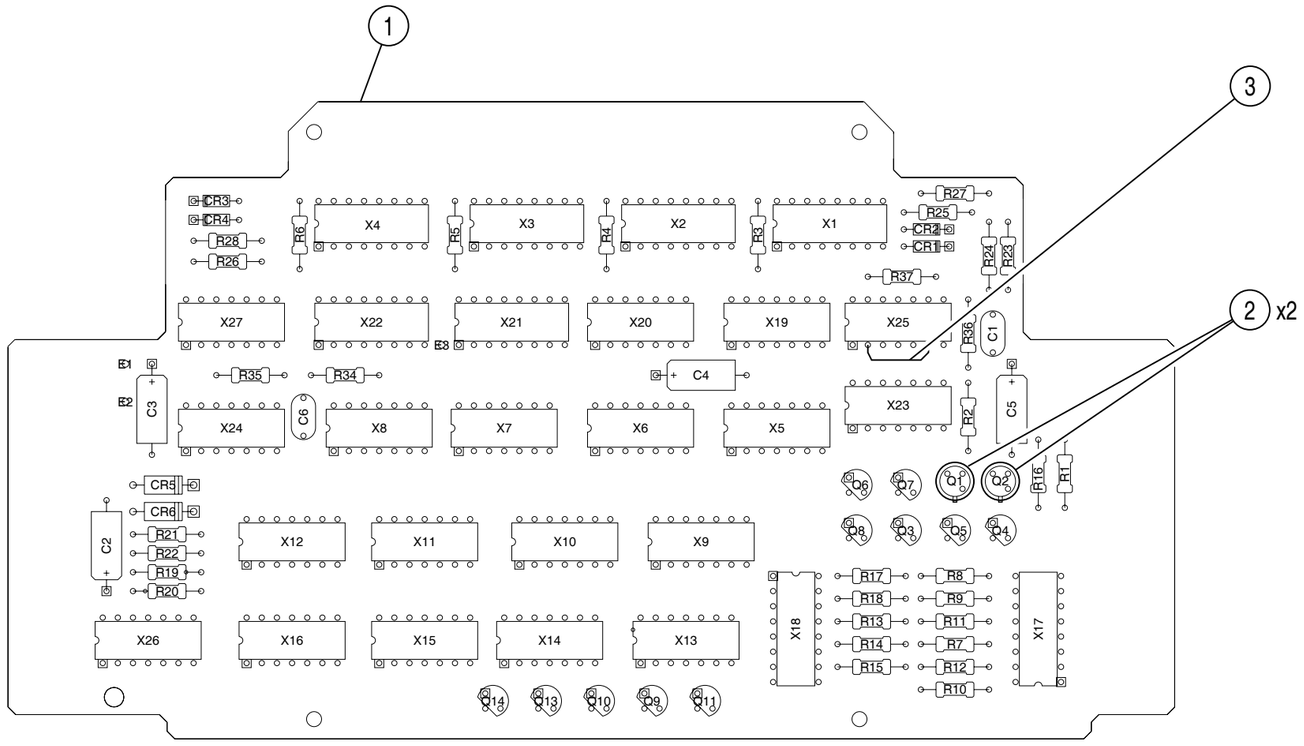
NOTES:

1. BASIC REFERENCE DESIGNATORS SHOWN, FOR COMPLETE DESIGNATOR PREFIXES REFER TO SYSTEM INTERCONNECT.

00818022

Digital Display PC Board Assembly
(7010-0832-500-A)

Digital Display Assembly (Sheet 4 of 11)
Figure 20



Digital Readout PC Board Assembly
(7010-0832-600-A1)

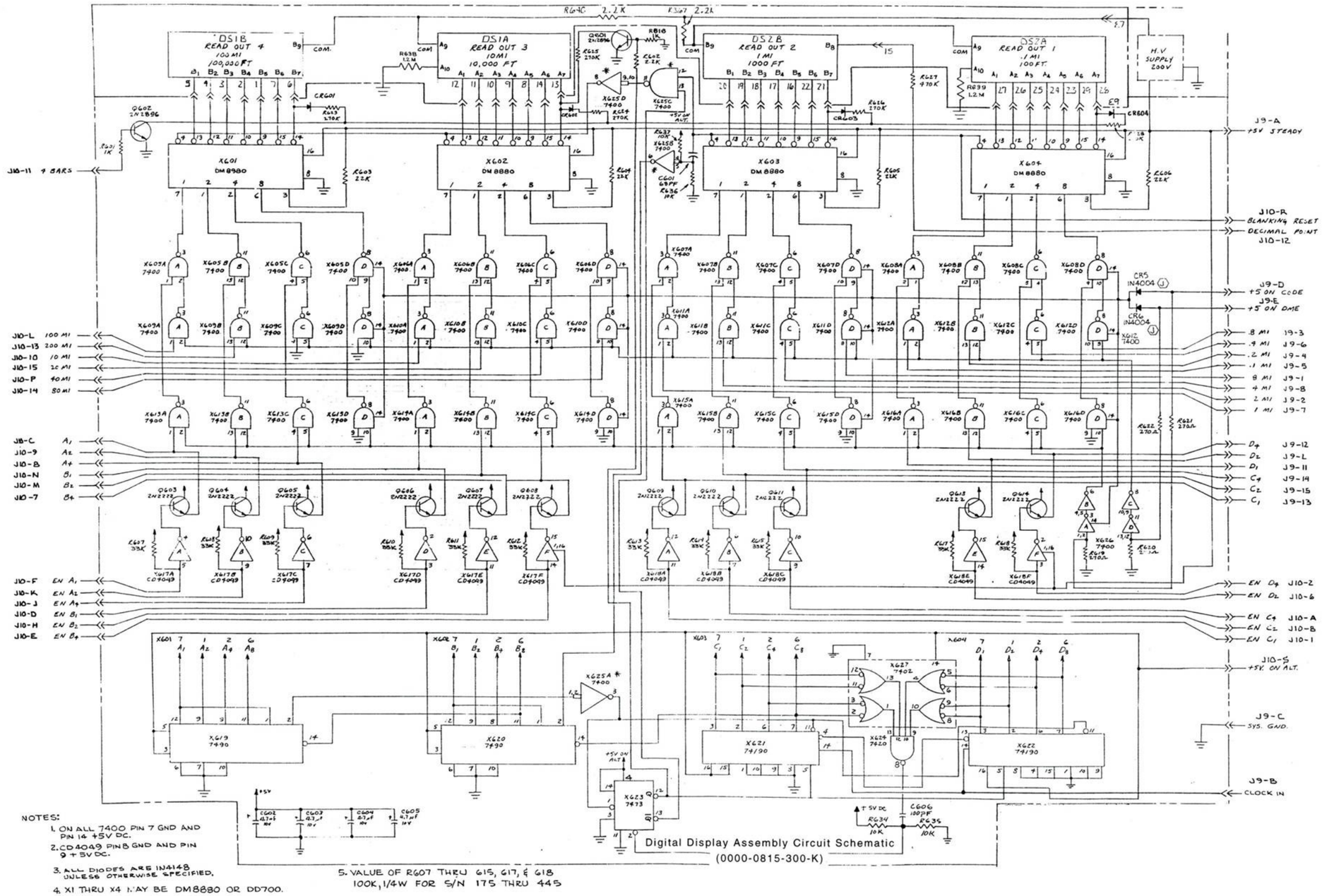
CAUTION:
CONTAINS PARTS AND ASSEMBLIES SUSCEPTIBLE TO DAMAGE BY ELECTROSTATIC DISCHARGE (ESD).

NOTES:

1. BASIC REFERENCE DESIGNATORS SHOWN, FOR COMPLETE DESIGNATOR PREFIXES REFER TO SYSTEM INTERCONNECT.

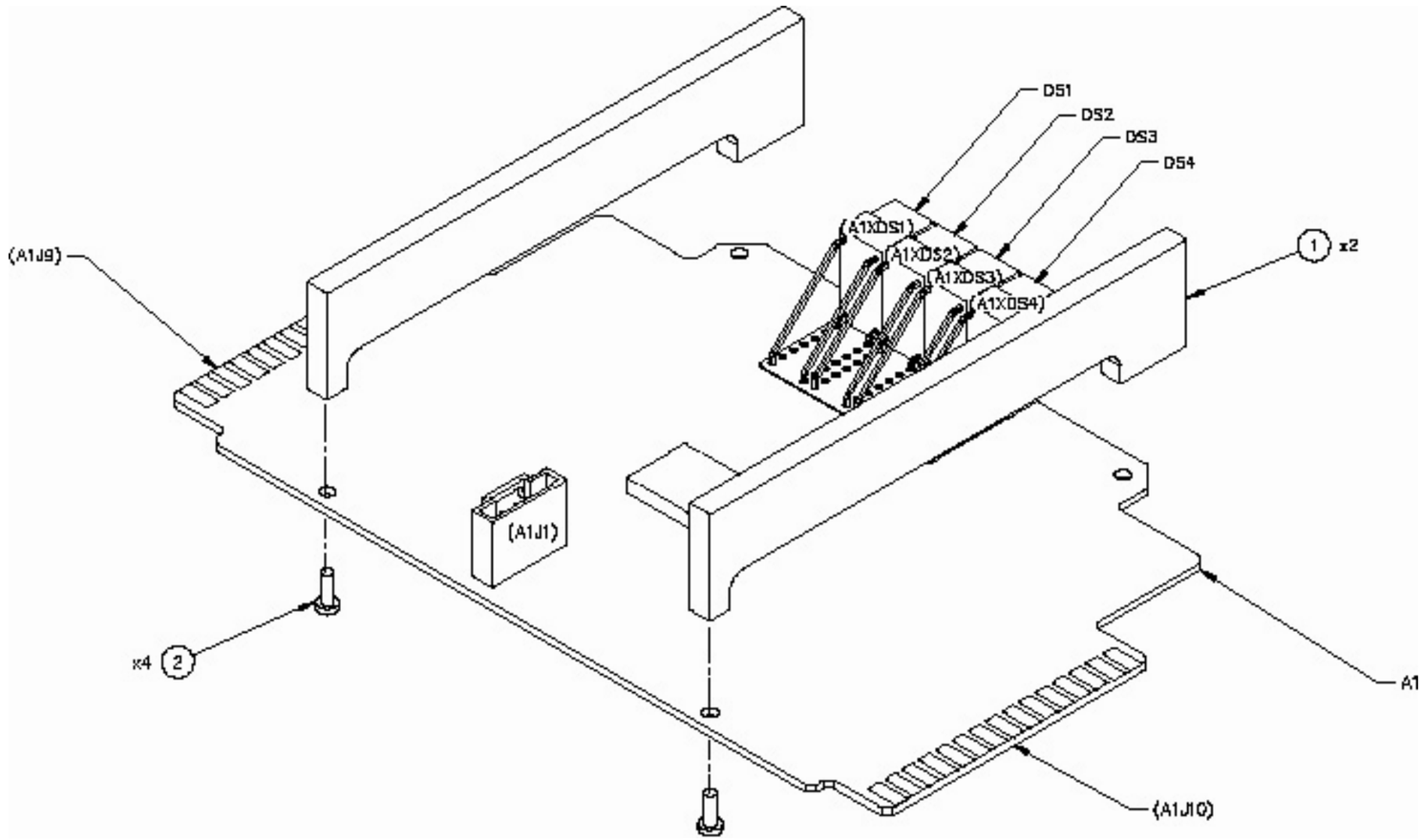
00818023

Digital Display Assembly (Sheet 5 of 11)
Figure 20



Digital Display Assembly Circuit Schematic
(0000-0815-300-K)

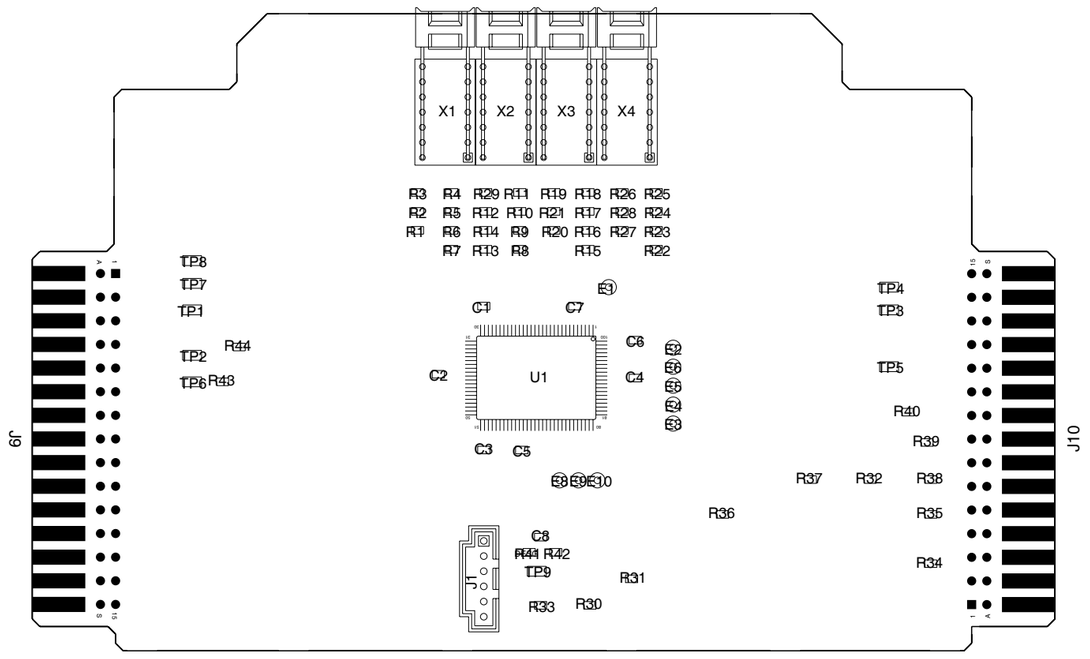
Digital Display Assembly (Sheet 6 of 11)
Figure 20



Digital Display Assembly
(7005-0847-000-A)

Digital Display Assembly (Sheet 7 of 11)
Figure 20

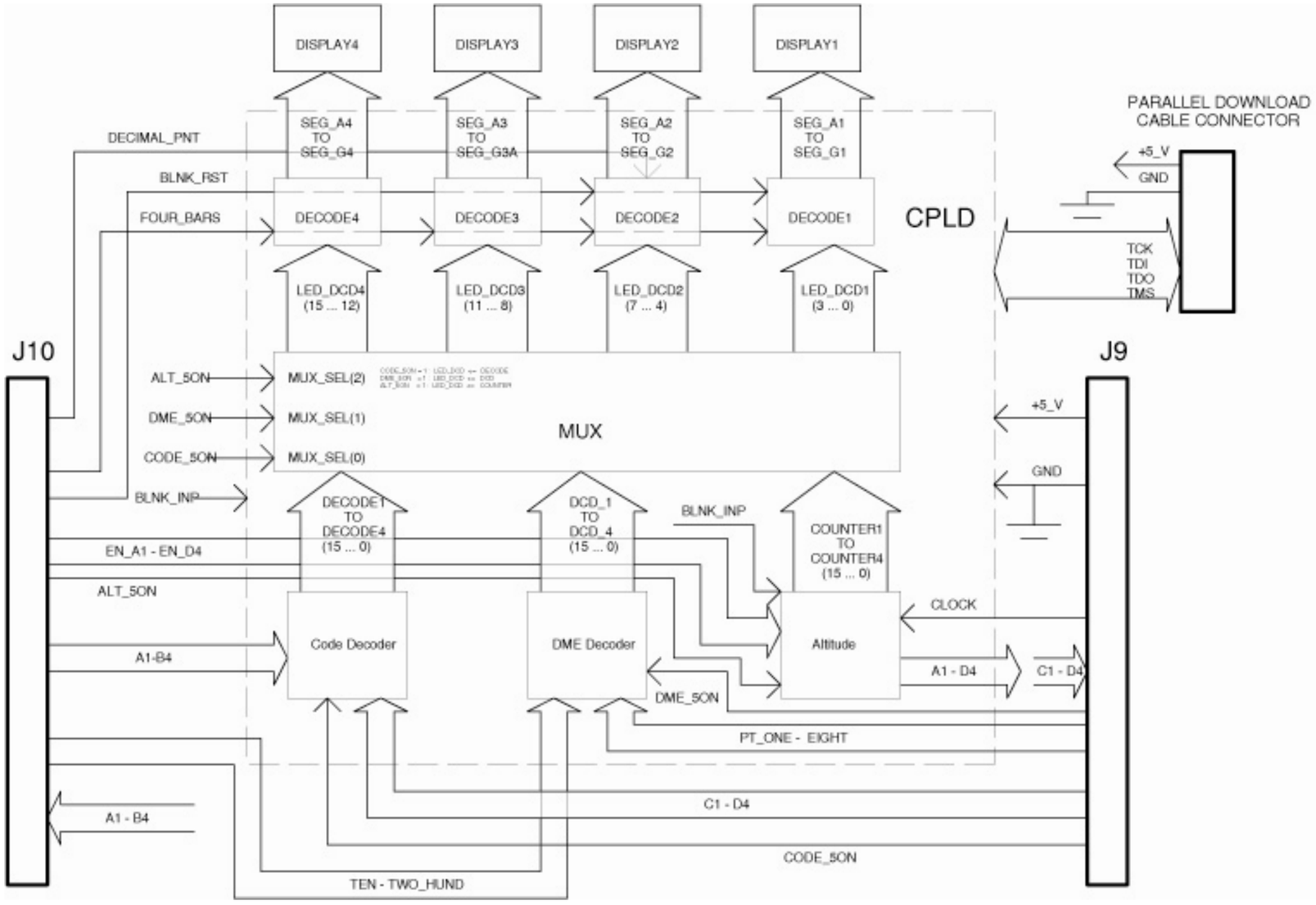
CAUTION:
CONTAINS PARTS AND ASSEMBLIES
SUSCEPTIBLE TO DAMAGE BY
ELECTROSTATIC DISCHARGE (ESD).



Digital Readout PC Board Assembly
(7010-0835-000-A)

Digital Display Assembly (Sheet 8 of 11)
Figure 20

008M-008



NOTES:
(UNLESS OTHERWISE SPECIFIED)

1. BASIC REFERENCE DESIGNATORS SHOWN, FOR COMPLETE DESIGNATOR PREFIXES REFER TO PRODUCT STRUCTURE AND SYSTEM INTERCONNECT.
2. ALL RESISTORS ARE 1%, 1/10W.
3. ALL RESISTANCE IS EXPRESSED IN OHMS
   ALL CAPACITANCE IS EXPRESSED IN MICROFARADS.
   ALL INDUCTANCE IS EXPRESSED IN MICROHENRIES.
4. NOT USED
5. NOT USED

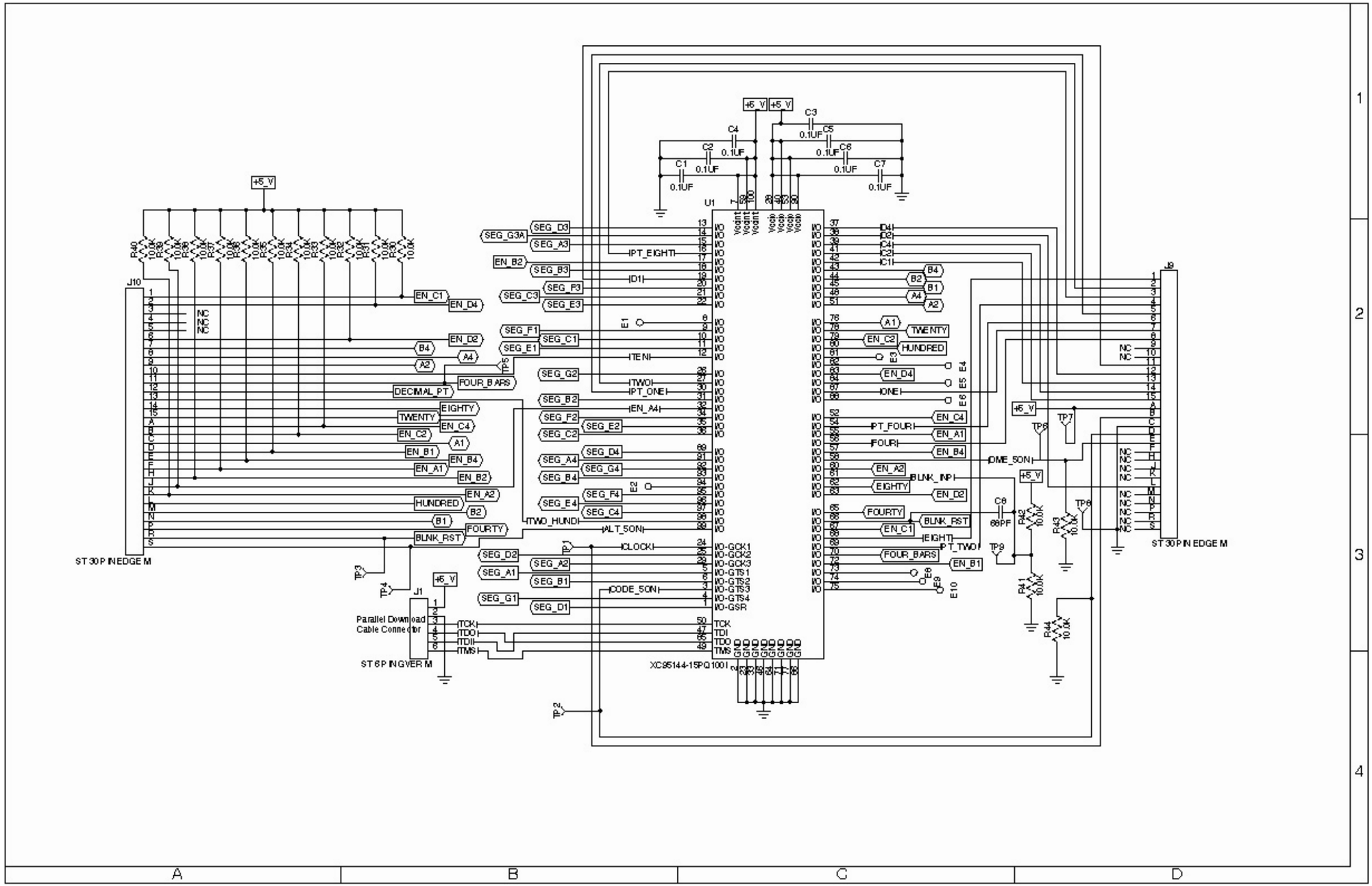
6. COMPONENT(S) NOT INSTALLED.

CAUTION:

CONTAINS PARTS AND ASSEMBLIES SUSCEPTIBLE TO DAMAGE BY ELECTROSTATIC DISCHARGE (ESD).

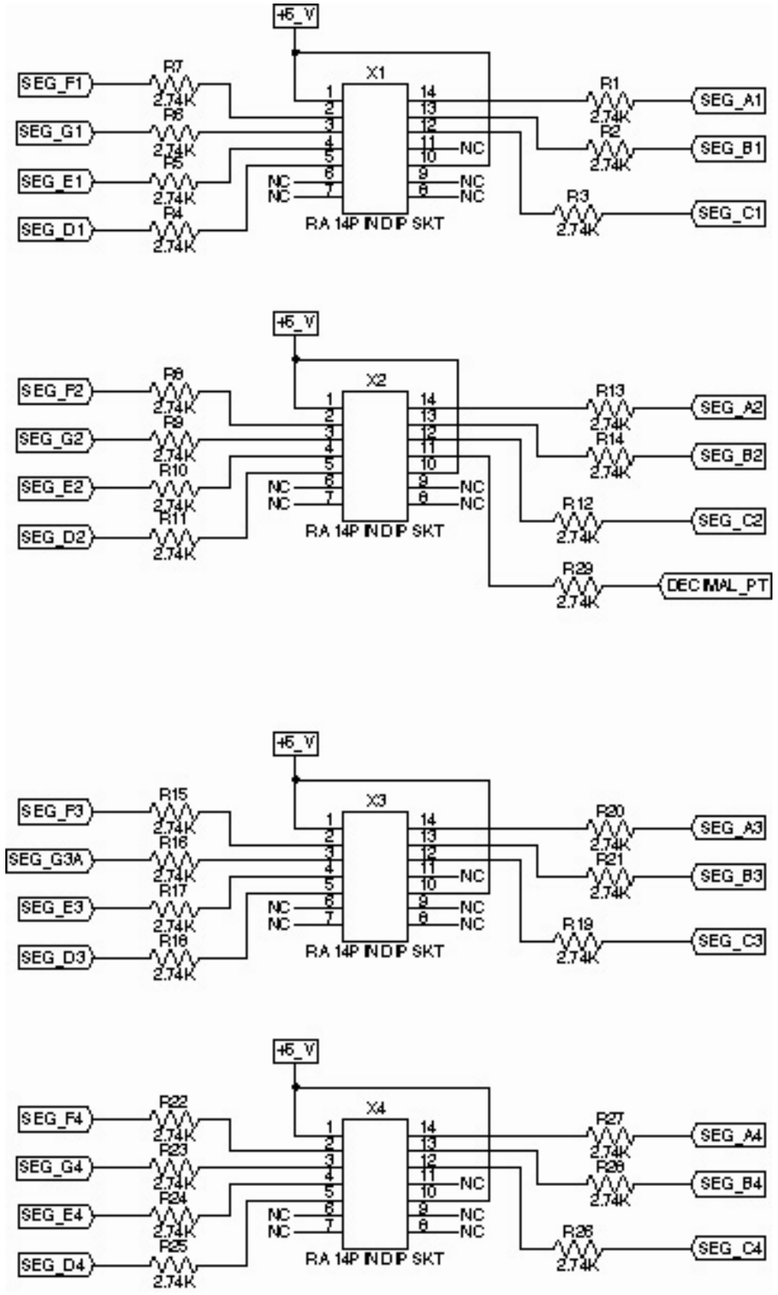
Digital Display Assembly Circuit Schematic
(0000-0835-000-B)

Digital Display Assembly (Sheet 9 of 11)
Figure 20



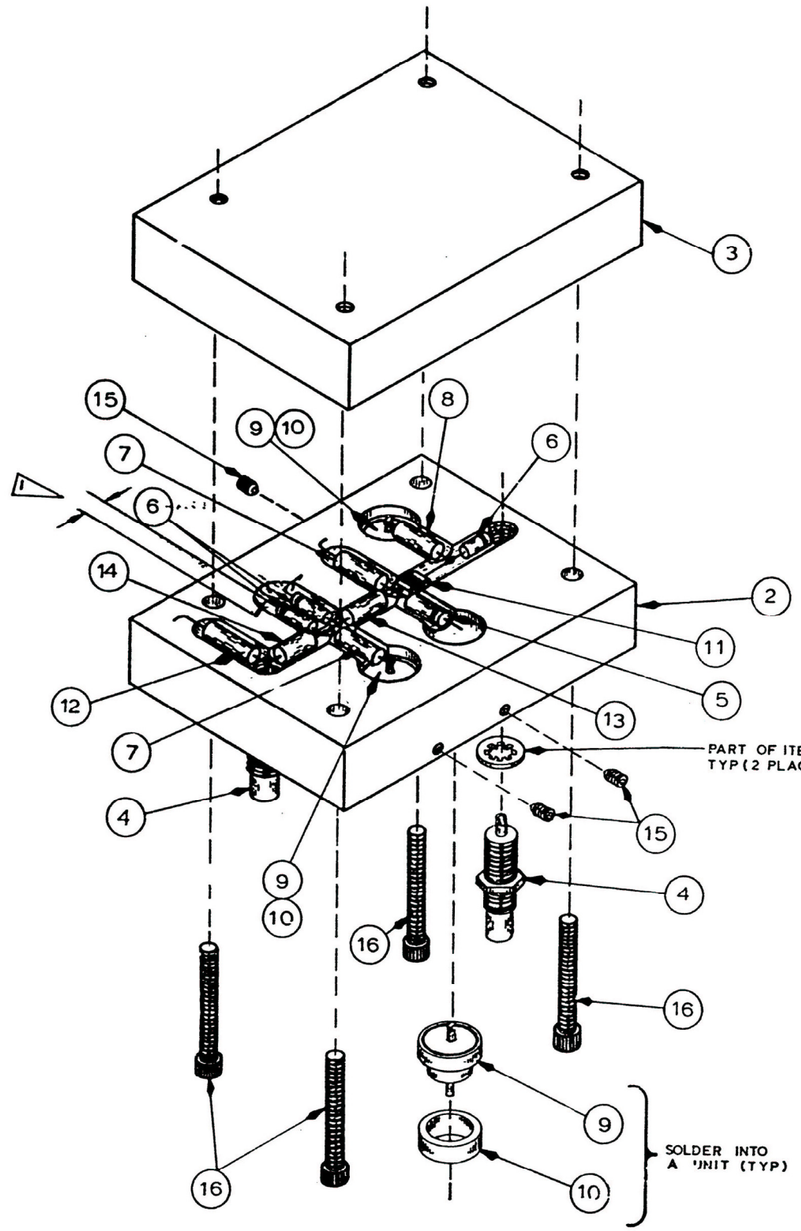
Digital Display Assembly Circuit Schematic (cont)
(0000-0835-000-B)

Digital Display Assembly (Sheet 10 of 11)
Figure 20



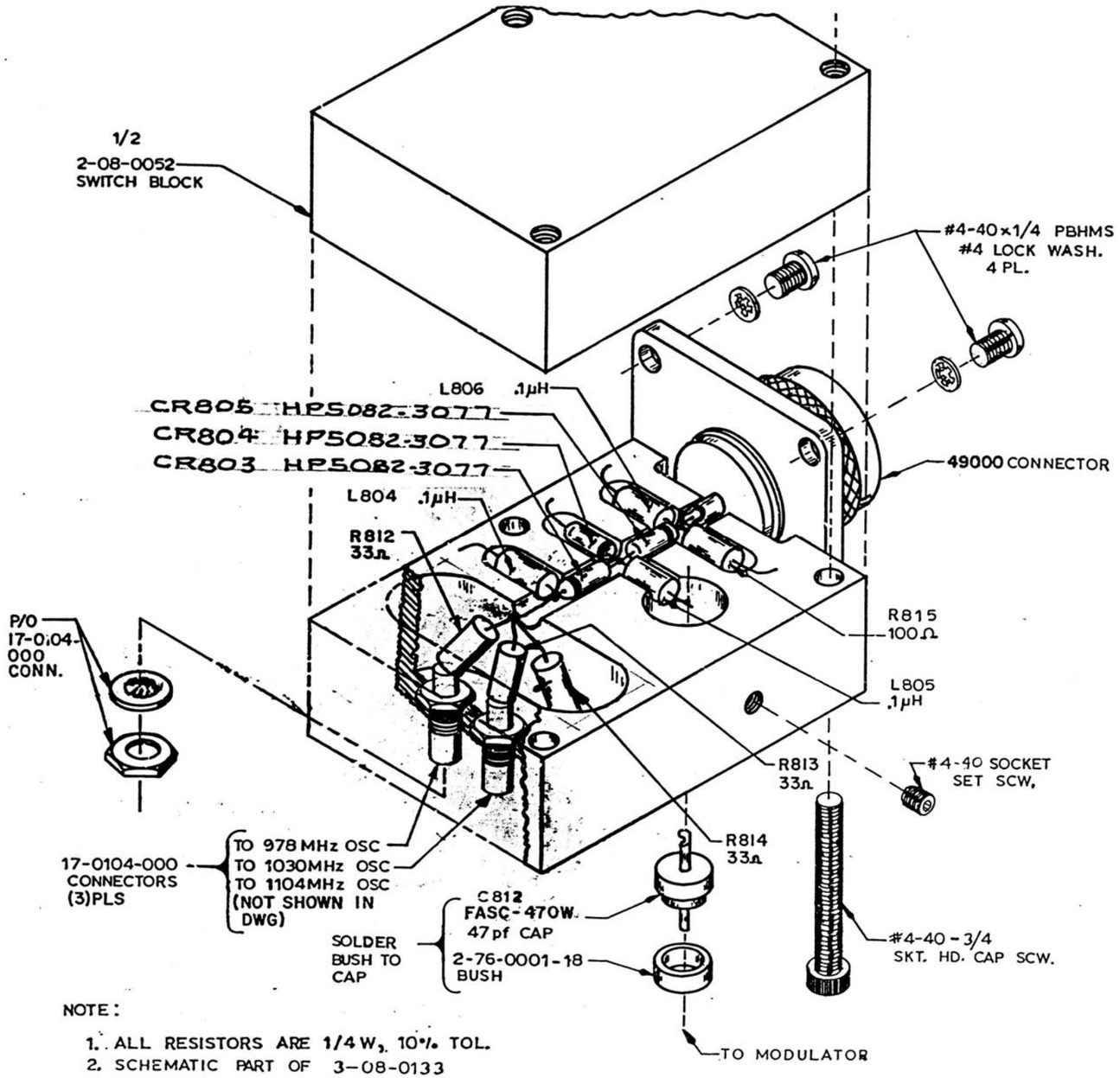
Digital Display Assembly Circuit Schematic (cont)
(0000-0835-000-B)

Digital Display Assembly (Sheet 11 of 11)
Figure 20



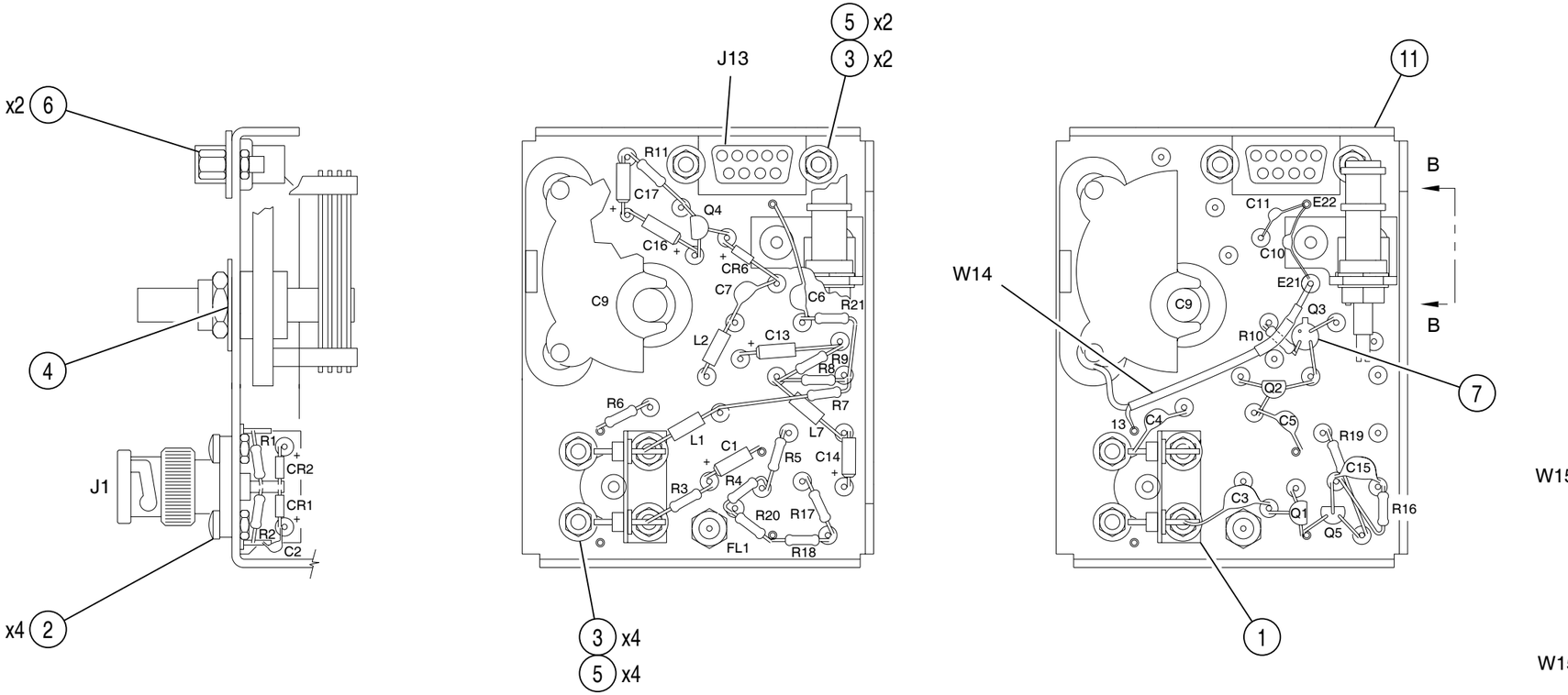
SLS Attenuator and RF Block Assembly
(7015-0818-100-J)

SLS Attenuator and RF Block Assembly
Figure 21

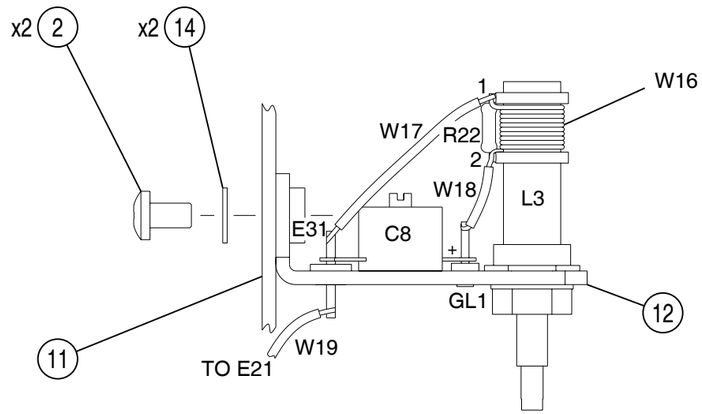


Diode Switch Block Assembly
(7015-0807-100-E3)

Diode Switch Block Assembly
Figure 22



WIRE RUNNING LIST				
DESG	FROM	TO	COLOR	AWG
W1	J13-1	E24	RED	26
W2	J13-2	E27	YEL	26
W3	J13-3	E8	VIO	26
W4	J13-4	E6	BRN	26
W5	J13-5	E25	BLU	26
W6	J13-6	E16	GRN	26
W7	J13-7	E26	BLK	26
W8	J13-9	E1	WHT	26
W9	E24	E17	BUSS	26
W10	E17	E10	BUSS	26
W11	E27	E14	BUSS	26
W14	C9	E21	COND	COAX
(W14)	E13	N/C	SHLD	COAX
W15	(W15P1)	E30	COND	COAX
(W15)	(W15P1)	E13	SHLD	COAX
W19	E31	E21	BUSS	26
W17	L3-1	E31	BUSS	26
W18	L3-2	GL1	BUSS	26



VIEW B-B

CAUTION:
CONTAINS PARTS AND ASSEMBLIES SUSCEPTIBLE TO DAMAGE BY ELECTROSTATIC DISCHARGE (ESD).

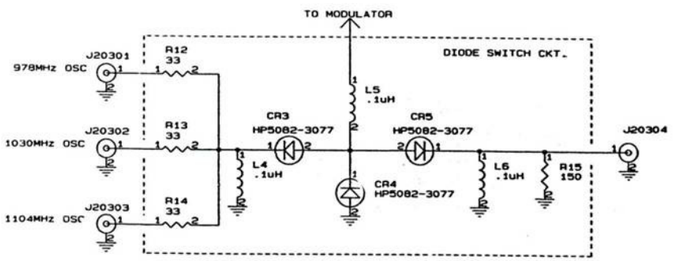
NOTES:

1. BASIC REFERENCE DESIGNATORS SHOWN, FOR COMPLETE DESIGNATOR PREFIXES REFER TO SYSTEM INTERCONNECT.

00820024

RF Chassis Assembly
(7005-0846-200-E)

RF Chassis Assembly (Sheet 1 of 2)
Figure 23



NOTES:
(UNLESS OTHERWISE SPECIFIED)

1. BASIC REFERENCE DESIGNATORS SHOWN, FOR COMPLETE DESIGNATOR PREFIXES REFER TO PRODUCT STRUCTURE AND SYSTEM INTERCONNECT FOR APPLICATIONS WHERE USED.
2. ALL RESISTORS ARE 1%, 1/8W.
3. ALL RESISTANCE IS EXPRESSED IN OHMS.
   ALL CAPACITANCE IS EXPRESSED IN MICROFARADS.
   ALL INDUCTANCE IS EXPRESSED IN MICROHENRIES.
4. HIGHEST REFERENCE DESIGNATIONS:

C17	CR6	E30	J13	L7	Q5	R22	W15	P1

5. REFERENCE DESIGNATIONS NOT USED:

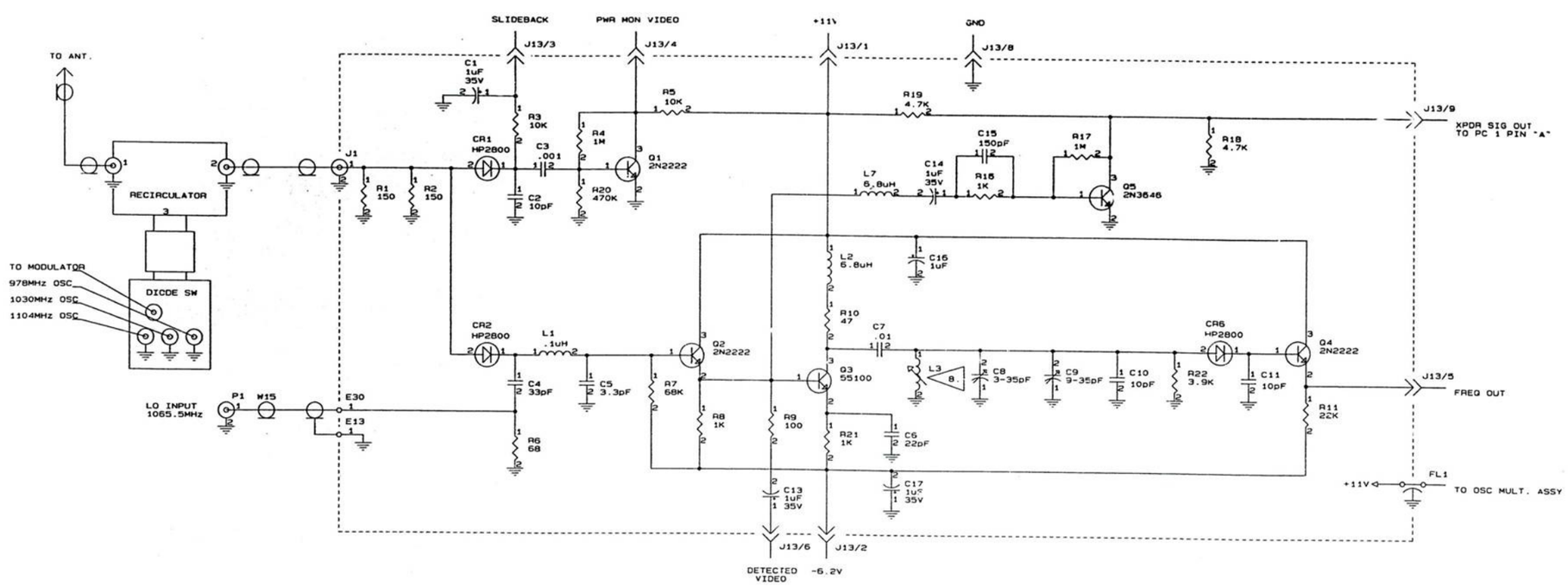
C12			

6. FOR INTERCONNECT/BLOCK DIAGRAM SEE APPLICATIONS WHERE USED.
7. IC FUNCTIONS NOT USED: NONE
8. L3 - 11 TURNS #28 ENAMELED WIRE

#- INDICATES PRINTED TRANSMISSION LINES OF OTHER THAN 50 OHMS IMPEDANCE WHICH CONSTITUTE CIRCUIT ELEMENTS. 50 OHM TRANSMISSION LINES ARE NOT SHOWN.

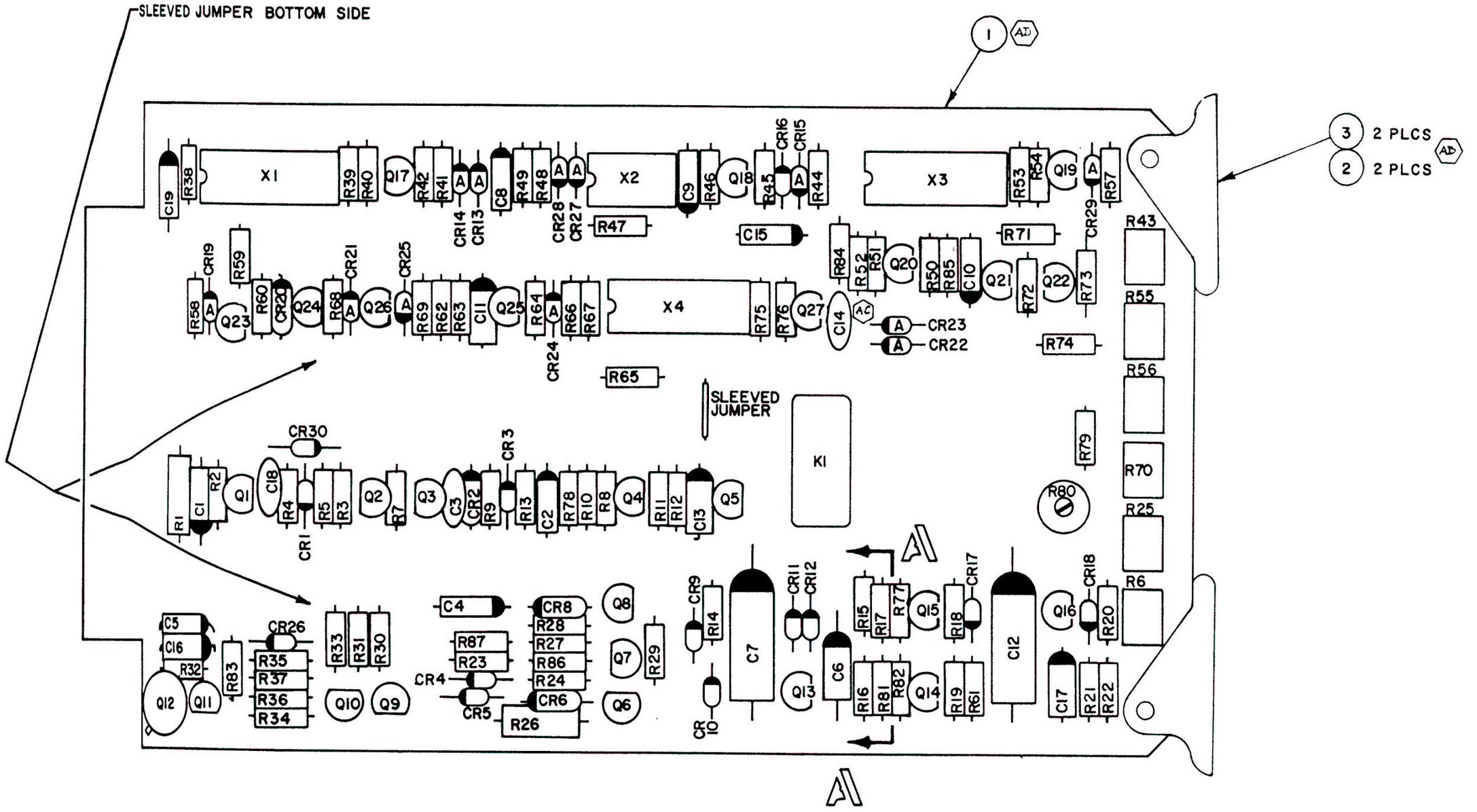
CAUTION:

CONTAINS PARTS AND ASSEMBLIES SUSCEPTIBLE TO DAMAGE BY ELECTROSTATIC DISCHARGE (ESD).



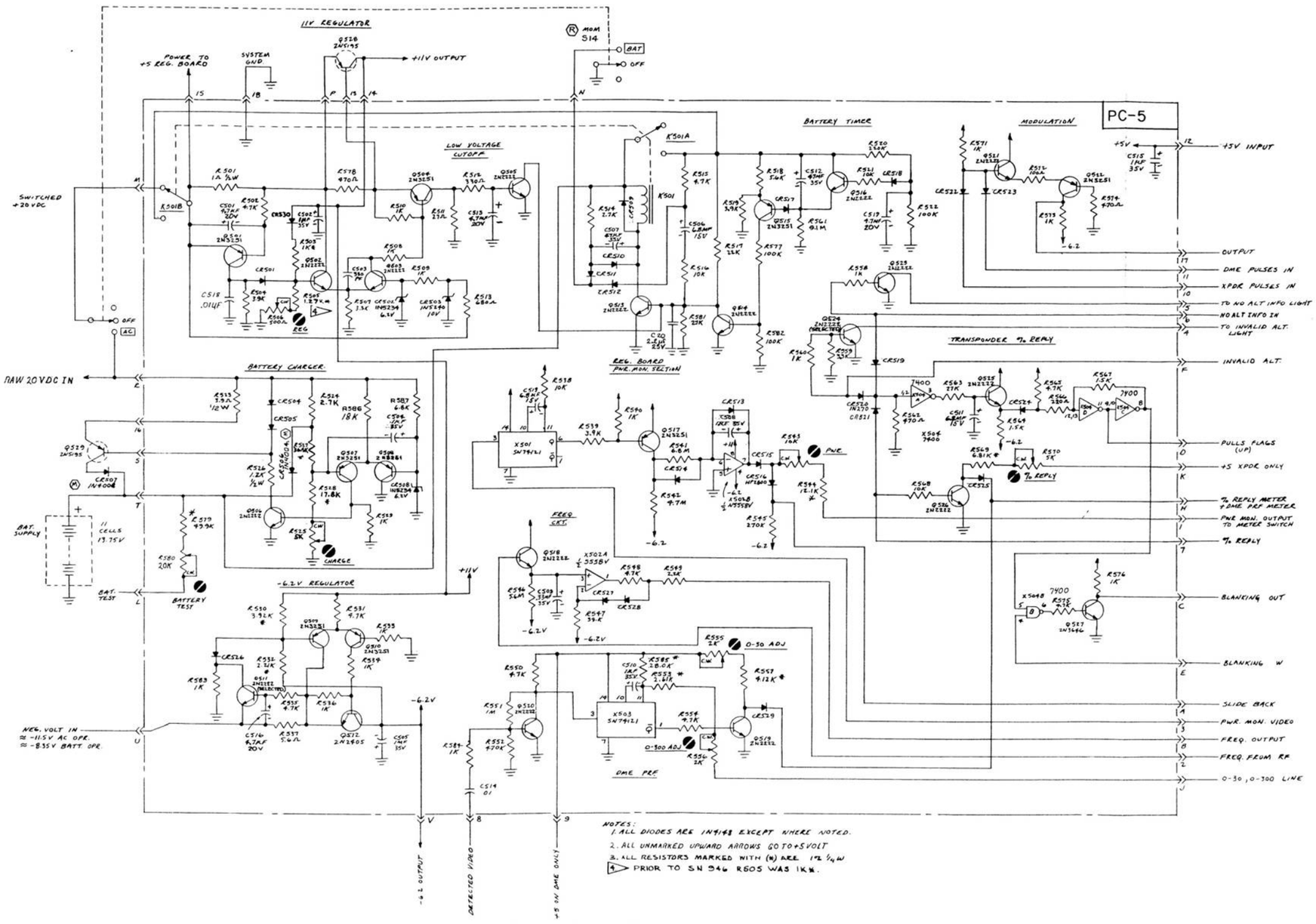
RF Chassis Assembly Circuit Schematic
(0000-0846-200-A)

RF Chassis Assembly (Sheet 2 of 2)
Figure 23



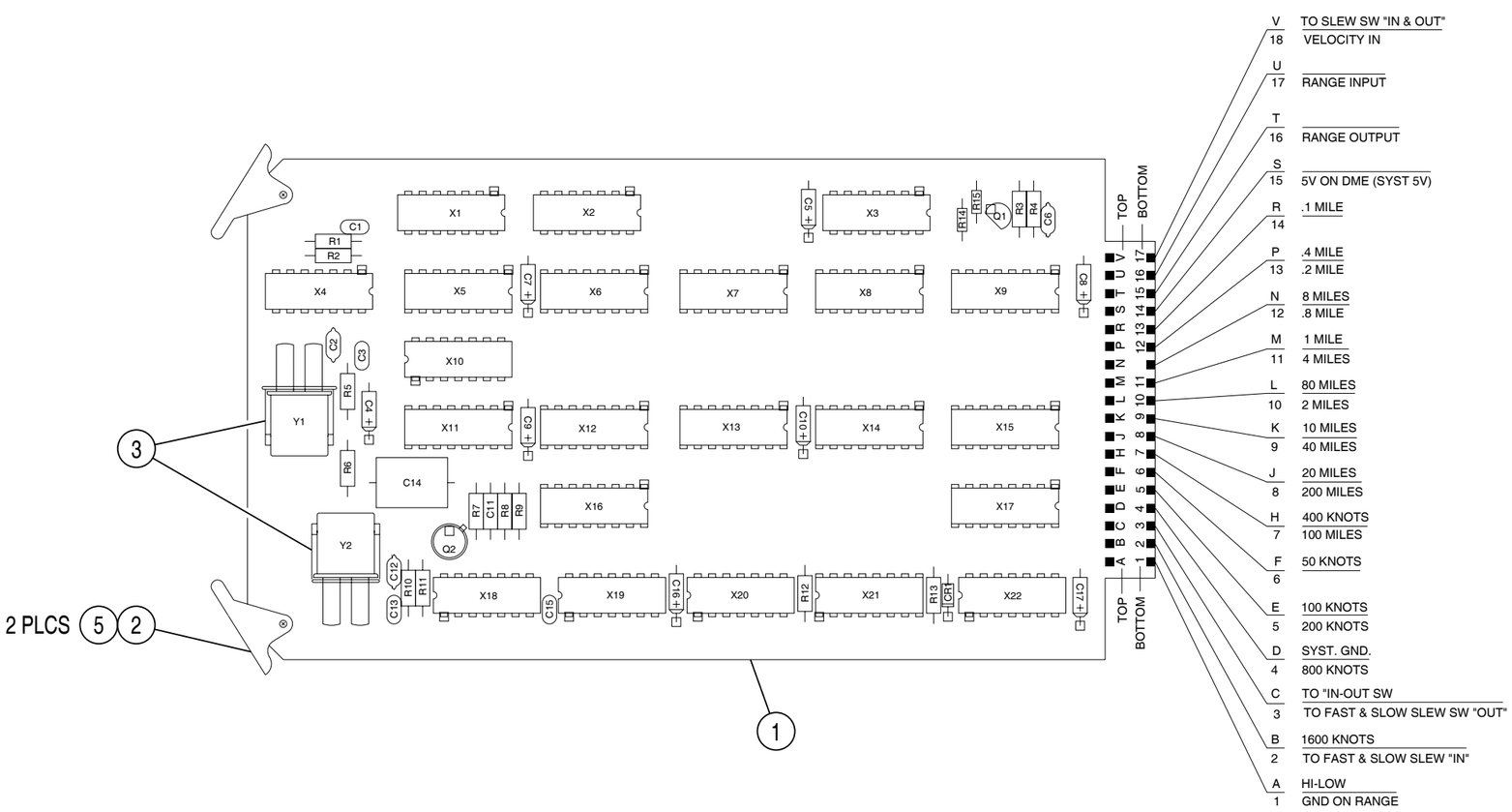
Regulator/Timer PC Board Assembly
(7010-0803-800-AE)

Regulator/Timer PC Board Assembly
(Sheet 1 of 2)
Figure 24

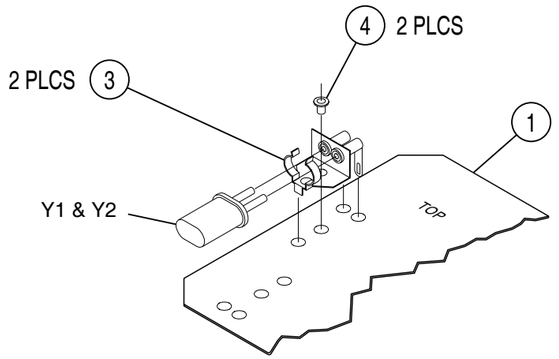


Regulator/Timer PC Board Assembly Circuit Schematic
(0000-0816-400-R)

Regulator/Timer PC Board Assembly
(Sheet 2 of 2)
Figure 24



Range Velocity PC Board Assembly
(7010-0819-900-J)



TYP XTAL & HOLDER INSTALLATION

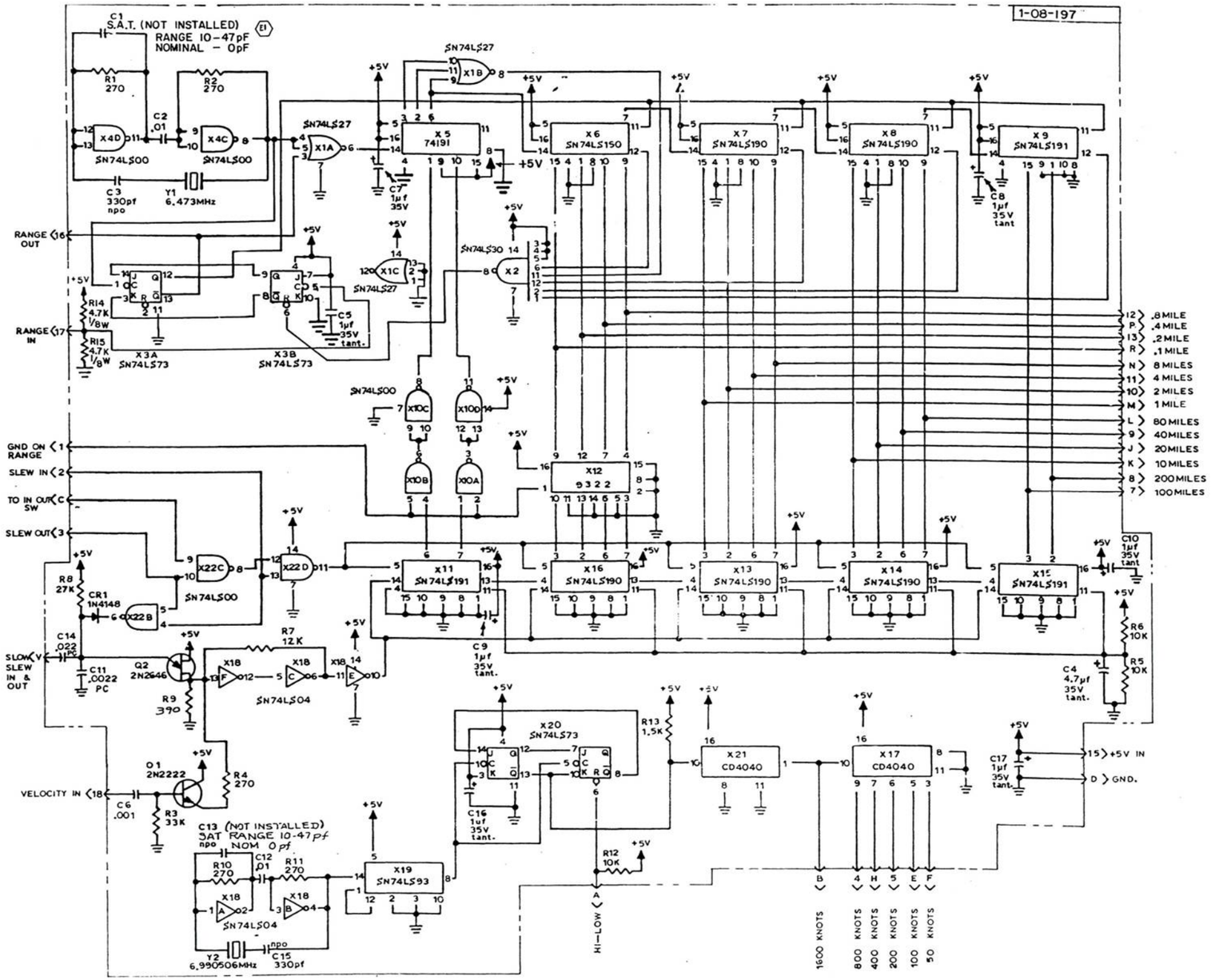
CAUTION:
CONTAINS PARTS AND ASSEMBLIES SUSCEPTIBLE TO DAMAGE BY ELECTROSTATIC DISCHARGE (ESD).

NOTES:

1. BASIC REFERENCE DESIGNATORS SHOWN, FOR COMPLETE DESIGNATOR PREFIXES REFER TO SYSTEM INTERCONNECT.

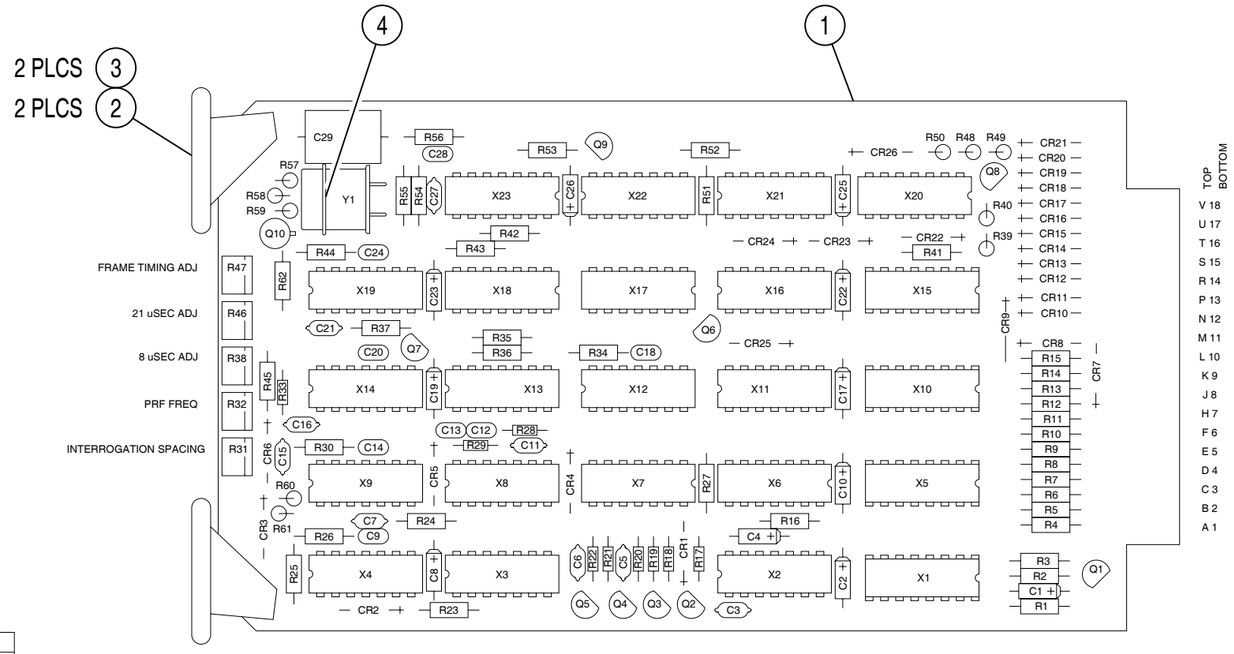
00818025

Range Velocity PC Board Assembly
(Sheet 1 of 2)
Figure 25



Range Velocity PC Board Assembly Circuit Schematic
(0000-0819-800-J)

Range Velocity PC Board Assembly
(Sheet 2 of 2)
Figure 25



PIN	SIGNAL	PIN	SIGNAL
1	IDENT LIGHT	A	DETECTED VIDEO
2	NO ALTITUDE INFO	B	SYNC OUT
3	+5V ON ENCODED	C	D4 PULSE POSITION
4	ALT COIN	D	RESET ALT REG
5	A1 PULSE POSITION	E	C1 PULSE POSITION
6	C4	F	A4
7	C2	H	A2
8	D2	J	B4
9	B1	K	B2
10	TEST	L	D1
11	UP ON NO REPLY	M	F2 FRAME LIGHT
12	SINGLE MODE GND	N	ALTITUDE CLOCK
13	+5v (SWITCHED)	P	SYS GND
14	+5V ON ALTITUDE	R	BLANKING OUT
15	XPNDR MODE TIME INTERN	S	XPNDR PULSE OUT
16	INVALID ALTITUDE	T	PRF GAP GND
17	SLS GND	U	FRAME TIMING POT
18	XPNDR MODE INTERNAL	V	INTER SPACING

CAUTION:
CONTAINS PARTS AND ASSEMBLIES SUSCEPTIBLE TO DAMAGE BY ELECTROSTATIC DISCHARGE (ESD).

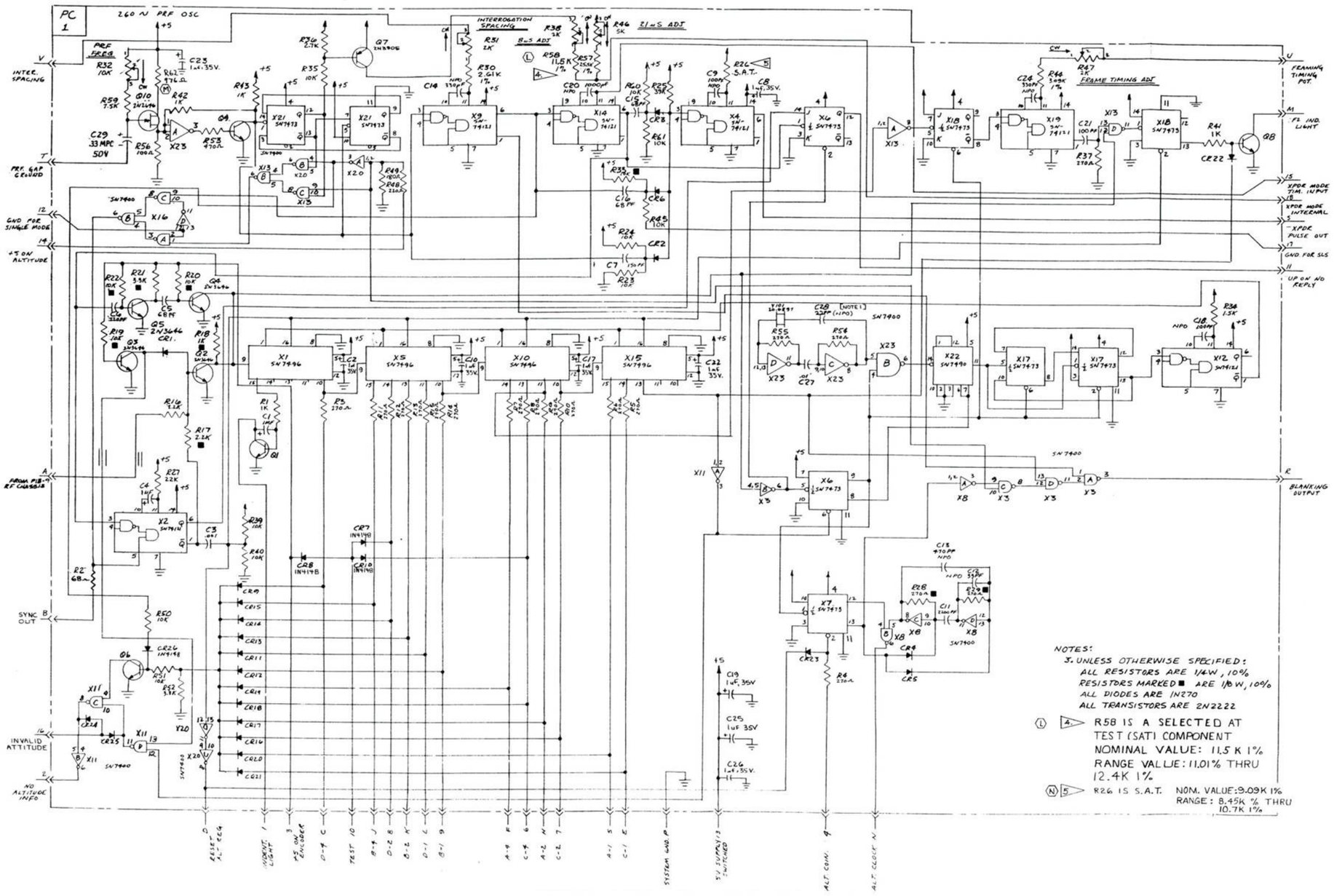
NOTES:

1. BASIC REFERENCE DESIGNATORS SHOWN, FOR COMPLETE DESIGNATOR PREFIXES REFER TO SYSTEM INTERCONNECT.

00818027

XPDR Signal PC Board Assembly
(7010-0831-500-A)

XPDR Signal PC Board Assembly (Sheet 1 of 2)
Figure 26



XPDR Signal PC Board Assembly Circuit Schematic
(0000-0831-500-N1)

XPDR Signal PC Board Assembly (Sheet 2 of 2)
Figure 26

THIS PAGE INTENTIONALLY LEFT BLANK.

SECTION 3 - PARTS LIST

MISCELLANEOUS

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
	1002-0804-200	ATC-600A-2 OPERATION MANUAL (PAPER)
	1002-0804-2C0	ATC-600A-2 OPERATION MANUAL (CD)
	1002-0804-400	ATC-600A-2 MAINTENANCE MANUAL (PAPER)
	1002-0804-4C0	ATC-600A-2 MAINTENANCE MANUAL (CD)
	6041-0001-200	CORD,AC,NEMA5-15,IEC230-C13,RA
	7002-0880-400	FINAL ASSY,ATC-600A-2
	7009-0820-200	ANTENNA ACC COAX ASSY 600
	7066-0819-200	ANTENNA ASSY 600

7002-0880-400 **ASSY, FINAL** **C**

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	7003-0845-200	COMPOSITE ASSY,ATC-600A-2
2	7005-0844-200	MECH ASSY,CASE
3	7005-0846-100	MECH ASSY,LID
4	7005-0845-500	MECH ASSY,REAR PANEL 600A-2
5	2804-0250-006	SCREW,6-32 X 1/4 PPHM
6	2506-0815-100	PLATE CARD RETAINER
7	2506-0815-200	PLATE FASTNER
8	2801-0250-003	SCREW,2-56 X 1/4 PFHM
9	2801-0125-001	SCREW 2-56 X 1/8 SHSS
12	2400-9926-600	LABEL,S/N,V/W,COM,ATC-600A-2
13	2400-0013-100	WARNING LABEL
14	2400-9900-900	LABEL,CE
18	2901-7634-100	ATTEN BNC 2W AV 1.5KW PK 34DB
19	2400-9930-000	LABEL,MET

7005-0846-100 **ASSY, LID** **A**

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	2503-0979-600	LID MIN ASSY,CASE,401,402,600
2	2111-0000-002	CLIP,COMPONENT,ADHESIVE,0.25DIA
3	5106-0000-016	FUSE,1.25,GL,FAST,250V,0.5
4	2400-0000-002	TRIM,GASKET,5/16 X 3/32 BLK FS
5	2111-0002-500	CLIP"C"HOOK RET,PVC,0.500 DIA
7	2506-0980-100	PLATE,LATCH STOP
8	2832-0000-001	PLATE(LATCH),A/S FINISH
9	2872-0807-002	RIVET,ST,8/64D 7/32L,OH,ST,N

7005-0844-200 ASSY, CASE B

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	1412-0853-100	CASE,600/402
4	2840-7600-204	WASHER NYLON
5	2807-0908-600	THUMB SCREW
6	1407-5256-600	HANDLE,CARRYING,FM/AM-500
7	1407-0909-300	HANDLE GRIP,INNER
8	1407-0909-200	HANDLE GRIP,OUTER
9	1421-0002-438	FOOT,RBR HEMI,W/6-32 X 1/4 STD
10	2405-0000-005	O-RING,BUNA N70 DUROMETER RATE
11	1421-0018-000	FOOT,RUBBER,0.750D,0.188ID,0.56LG
12	2803-0438-006	SCREW,4-40 X 7/16 PPHM A
13	2840-0000-003	WASHER,LOCK,INT TOOTH
14	2800-7600-132	SPACER,AL,0.187OD,0.125ID,0.250LG
15	2802-0908-900	STUD,HANDLE MTG
16	2840-0000-009	WASHER,FLAT,4,MS15795-803
17	2872-0807-002	RIVET,ST,8/64D 7/32L,OH,ST,N
18	2832-0000-002	TOP(BUTTON) FOR 2832-0000-001
19	2872-0810-002	RIVET,1/8X5/16,18-8SS

7003-0845-200 ASSY, COMPOSITE C2

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	1400-0926-600	BRACKET ASSY
2	1414-0857-000	COVER, RF CHASSIS
4	1415-0855-200	RIGHT FRAME
5	7010-0938-900	PCB ASSY, 5V REG
7	7005-0846-200	MECH ASSY, RF CHASSIS
8	7005-0845-300	MECH ASSY, POWER SUPPLY
10	2801-0313-006	SCREW,2-56 X 5/16 PPHM
11	2500-0807-700	MOD. PLANETARY DRIVE
12	2506-0817-800	PLATE MOUNTING
14	3401-0005-400	CIRCULATOR
15	1400-0804-800	BRACKET
18	2405-0807-900	RING INDEX
19	7010-0818-200	SLS/RF LEVELER PC BD ASSY 600
20	2513-0858-000	CAPACITOR/VERNIER SHAFT 600A-2
21	2401-0806-000	DIAL ASSY
22	7010-0803-600	ALT REGISTER BD ASSY 600
23	7010-0803-800	REG/TIMER BD ASSY 600
24	2402-0005-602	KNOB
25	2402-0005-703	KNOB
26	2402-0005-702	KNOB
27	2402-0921-900	KNOB,RND, .438OD,.128ID,.520LG
28	7010-0804-700	DME SIGNAL BD,DUAL X, 600A
29	7010-0831-500	XPDR SIGNAL BD ASSY 600
30	7010-0819-900	DME RNG/VEL BD ASSY 600
31	4100-0000-001	COUPLING,SHAFT,FLEX,T-301-55A
32	2803-0250-003	SCREW,4-40 X 1/4 PFHM
37	2803-0625-006	SCREW,4-40 X 5/8 PPHM
38	2840-0000-004	WASHER,LOCK,INT TOOTH,2
39	2801-0250-003	SCREW,2-56 X 1/4 PFHM
40	7015-0818-100	SLS ATTN/RF BLOCK ASSY 600
41	2840-0000-003	WASHER,LOCK,INT TOOTH,4
42	7048-0811-900	OSC MULTIPLIER ASSY 600
43	2803-0125-001	SCREW,4-40 X 1/8 SHS
44	2803-0094-001	SCREW 4-40 X 3/32 SS
45	7005-0846-600	MECH ASSY,OSC TUNELINE
46	7015-0807-100	DIODE SWITCH BLOCK ASSY 600
47	3900-0926-500	LENS
48	2406-0955-900	BEZEL ASSY
49	2801-0375-012	SCREW,2-56 X 3/8 PBHMS,BLACK
51	2400-9908-300	LABEL,SYMBOL 14,HAZARD WARN
54	2803-0313-006	SCREW,4-40 X 5/16 PPHM
55	2803-0313-003	SCREW 4-40 X 5/16 PFHMS
56	7005-0842-500	MECH ASSY,DIGITAL DISPLAY
58	2525-0857-600	GASKET,END CAP METER
59	2525-0857-700	GASKET, METER WRAP
62	2845-0000-028	FINGERSTOCK, CLIP-ON
63	2803-0188-006	SCREW,4-40 X 3/16 PPHM
64	1400-0856-800	BRACKET, MTG, 5V REG
65	6004-6005-400	TY-RAP,4.0 LG
66	2850-0000-012	NUT,HEX,SMALL PAT,2-56
67	2803-0250-004	SCREW, 4-40 X 1/4 PPHM SEMS
A1	7005-0846-400	MECH ASSY, PC CARD CAGE

7003-0845-200 ASSY, COMPOSITE (cont) C2

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
A2	7005-0844-300	MECH ASSY,FRONT PANEL
J5401	2123-0000-040	CONN,ADAPT,BNC/N,PNL MT
J5402	2113-0000-004	CONN,BNC JACK/N PLUG
M1	2900-7602-500	MOD MTR,EDGE HOR,500UA, EXT 0
M2	2900-7602-600	MOD MTR,EDGE HOR,500UA, EXT 0
W1	7007-0880-500	WIRE HARN ASSY, ATC-600A-2
W2	6050-1980-700	RG 316/U FLEX COAX ASSY
W3	6050-1980-500	RG 316/U FLEX COAX ASSY
W5	6050-1980-600	RG 316/U FLEX COAX ASSY
W6	6050-1980-700	RG 316/U FLEX COAX ASSY
W7	6045-0881-900	RBN CA ASSY,FT PNL/MO BD
W8	6008-1000-003	WIRE,UL1213,26GA,7X34,RED

7003-0845-200 ASSY, COMPOSITE D

Includes all items in Revision C2 with the following exception:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
45	7005-0846-700	MECH ASSY,OSC TUNELINE

7003-0845-200 ASSY, COMPOSITE D1

Includes all items in Revision D.

7003-0845-200 ASSY, COMPOSITE E

Includes all items in Revision D1 with the following exceptions:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
56	7005-0847-000	MECH ASSY,DIGITAL DISPLAY
68	3900-0850-900	LENS, SHIELD
A2	7005-0845-600	MECH ASSY,FRONT PANEL

7005-0845-500 **ASSY, REAR PANEL** **B**

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	1405-0954-600	PANEL,REAR
2	2845-0000-028	FINGERSTOCK,CLIP-ON
3	2403-0853-900	OVERLAY,REAR PANEL
4	2800-0955-700	SPACER,FOOT
5	1421-0003-781	FOOT,RBR,0.75 OD*.17 ID*.78 LG
6	2805-0250-003	SCREW 8-32X1/4 PFHMS
7	2805-0750-006	SCREW,8-32 X 3/4 PPHM
8	2840-7600-229	WASHER,ALUM,0.305D,0.196ID,0.038T

7005-0844-300 ASSY, FRONT PANEL B

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	1405-0856-500	PANEL,FRONT
6	2403-0854-300	OVERLAY,FRONT PANEL
7	2850-0000-012	NUT,HEX,SMALL PAT,2-56
8	3900-0000-001	LENS SHELLY RBP RED
9	3900-0000-002	LENS AMBER SHELLY ABP
12	1400-0856-600	BRKT,POT MTG
14	2840-7600-205	WASHER,ALUM,0.50OD,0.375ID,0.020T
15	2840-7600-208	WASHER,ALUM,0.38OD,0.250ID,0.020T
17	6004-6005-550	TY-RAP,5.5 LG
18	3900-0850-900	LENS,SHIELD
19	2803-0250-006	SCREW,4-40 X 1/4 PPHM
20	2803-0125-006	SCREW,4-40 X 1/8 PPHM
22	2801-0188-006	SCREW 2-56 X 3/16 PPHMS
23	6011-0018-001	TUBING,TF,26 AWG,NATURAL,TW
24	3900-0000-003	LENS GREEN SHELLY GBP
25	3901-0000-003	LAMP BASE BEP-B SHELLY
26	6010-0063-200	TUBING,HS,1/16 ID,BLACK
A2	7010-0834-300	PCB ASSY,FT PNL INTERFACE
DS1	3901-0000-001	LAMP SUB-MINATURE IEE 680
DS2	3901-0000-001	LAMP SUB-MINATURE IEE 680
DS3	3901-0000-001	LAMP SUB-MINATURE IEE 680
DS4	3901-0000-001	LAMP SUB-MINATURE IEE 680
DS5	3901-0000-001	LAMP SUB-MINATURE IEE 680
DS6	3901-0000-001	LAMP SUB-MINATURE IEE 680
DS7	3901-0000-001	LAMP SUB-MINATURE IEE 680
DS8	3901-0000-001	LAMP SUB-MINATURE IEE 680
DS9	3901-0000-001	LAMP SUB-MINATURE IEE 680
DS10	3901-0000-001	LAMP SUB-MINATURE IEE 680
DS11	3901-0000-001	LAMP SUB-MINATURE IEE 680
DS12	3901-0000-001	LAMP SUB-MINATURE IEE 680
DS13	3901-0000-001	LAMP SUB-MINATURE IEE 680
DS14	3901-0000-001	LAMP SUB-MINATURE IEE 680
DS15	3901-0000-001	LAMP SUB-MINATURE IEE 680
DS16	3901-0000-001	LAMP SUB-MINATURE IEE 680
DS17	3901-0000-001	LAMP SUB-MINATURE IEE 680
P6	2126-0000-010	CONN,D-SUB FILT 15P SKT
R1	4750-7604-600	POT,10K OHM,43C1-10K-S 0.80
R2	4750-7604-500	POT,5K OHM,43C1-5K-S 0.80
R3	4751-0502-001	POT,5K OHM, RV6LAYSA502A
R4	4750-0810-700	POT,25K OHM,RV6NAYSD253A 0.59
R15	4750-7615-100	POT,10K OHM,RV6NAYSD103A 0.59
S1	5114-0000-032	SWITCH,TOG,DPDT,PC MT
S2	5114-0000-029	SWITCH,TOG,SPDT,PC MT
S3	5114-0000-031	SWITCH,TOG,SPDT,PC MT
S4	5114-0000-029	SWITCH,TOG,SPDT,PC MT
S5	5114-0000-029	SWITCH,TOG,SPDT,PC MT
S6	5114-0000-032	SWITCH,TOG,DPDT,PC MT
S7	5114-0000-029	SWITCH,TOG,SPDT,PC MT
S8	5114-0000-030	SWITCH,TO,DPDT,PC MT
S10	5114-0000-032	SWITCH,TOG,DPDT,PC MT
S11	5114-0000-029	SWITCH,TOG,SPDT,PC MT
S12	5114-0000-032	SWITCH,TOG,DPDT,PC MT

7005-0844-300 ASSY, FRONT PANEL (cont) B

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
S13	5115-0000-004	SWITCH PUSHBUTTON GRAY 46-101R
S14	5114-0000-027	SWITCH,RCKR,DPDT,PNL MT,PC LUG
S17	5119-7604-800	MOD SWITCH
S20	5119-7604-200	SWITCH MOD
W1	6003-0000-001	WIRE,HOOK,TFE,26GA,7S,BLACK
W2	6003-0000-008	WIRE,HOOK,TFE,26GA,7S,VIOLET
W3	6003-0000-010	WIRE,HOOK,TFE,26GA,7S,WHITE
W4	6003-0000-008	WIRE,HOOK,TFE,26GA,7S,VIOLET
W5	6003-0000-001	WIRE,HOOK,TFE,26GA,7S,BLACK
W6	6003-0000-002	WIRE,HOOK,TFE,26GA,7S,BROWN
W7	6003-0000-003	WIRE,HOOK,TFE,26GA,7S,RED
W8	6003-0000-004	WIRE,HOOK,TFE,26GA,7S,ORANGE
W9	6003-0000-005	WIRE,HOOK,TFE,26GA,7S,YELLOW
W10	6003-0000-006	WIRE,HOOK,TFE,26GA,7S,GREEN
W11	6003-0000-007	WIRE,HOOK,TFE,26GA,7S,BLUE
W12	6003-0000-008	WIRE,HOOK,TFE,26GA,7S,VIOLET
W13	6003-0000-009	WIRE,HOOK,TFE,26GA,7S,GRAY
W14	6003-0000-010	WIRE,HOOK,TFE,26GA,7S,WHITE
W15	6003-0000-003	WIRE,HOOK,TFE,26GA,7S,RED
W16	6003-0000-001	WIRE,HOOK,TFE,26GA,7S,BLACK
W17	6003-0000-005	WIRE,HOOK,TFE,26GA,7S,YELLOW
W18	6003-0000-006	WIRE,HOOK,TFE,26GA,7S,GREEN
W19	6003-0000-001	WIRE,HOOK,TFE,26GA,7S,BLACK
W20	6003-0000-002	WIRE,HOOK,TFE,26GA,7S,BROWN
W21	6003-0000-003	WIRE,HOOK,TFE,26GA,7S,RED
W22	6003-0000-004	WIRE,HOOK,TFE,26GA,7S,ORANGE
W23	6003-0000-005	WIRE,HOOK,TFE,26GA,7S,YELLOW
W24	6003-0000-006	WIRE,HOOK,TFE,26GA,7S,GREEN
W25	6003-0000-007	WIRE,HOOK,TFE,26GA,7S,BLUE
W26	6003-0000-008	WIRE,HOOK,TFE,26GA,7S,VIOLET
W27	6003-0000-009	WIRE,HOOK,TFE,26GA,7S,GRAY
W28	6003-0000-010	WIRE,HOOK,TFE,26GA,7S,WHITE
W29	6003-0000-001	WIRE,HOOK,TFE,26GA,7S,BLACK
W30	6003-0000-002	WIRE,HOOK,TFE,26GA,7S,BROWN
W31	6003-0000-003	WIRE,HOOK,TFE,26GA,7S,RED
W32	6003-0000-004	WIRE,HOOK,TFE,26GA,7S,ORANGE
W33	6003-0000-004	WIRE,HOOK,TFE,26GA,7S,ORANGE
W34	6003-0000-011	WIRE,HOOK,TFE,26GA,7S,WHT/BLK
W35	6003-0000-004	WIRE,HOOK,TFE,26GA,7S,ORANGE
W36	6003-0000-006	WIRE,HOOK,TFE,26GA,7S,GREEN
W37	6003-0000-004	WIRE,HOOK,TFE,26GA,7S,ORANGE
W38	6003-0000-018	WIRE,HOOK,TFE,26GA,7S,WHT/VIO
W39	6003-0000-011	WIRE,HOOK,TFE,26GA,7S,WHT/BLK
W40	6003-0000-011	WIRE,HOOK,TFE,26GA,7S,WHT/BLK
W41	6003-0000-018	WIRE,HOOK,TFE,26GA,7S,WHT/VIO
W42	6003-0000-001	WIRE,HOOK,TFE,26GA,7S,BLACK
W43	6003-0000-001	WIRE,HOOK,TFE,26GA,7S,BLACK
W44	6003-0000-004	WIRE,HOOK,TFE,26GA,7S,ORANGE
W45	1050-0000-075	WIRE,BUS,TINNED COPPER,26GA
W46	1050-0000-075	WIRE,BUS,TINNED COPPER,26GA
W47	1050-0000-075	WIRE,BUS,TINNED COPPER,26GA
W48	1050-0000-075	WIRE,BUS,TINNED COPPER,26GA

7005-0844-300 **ASSY, FRONT PANEL (cont)** **B**

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
W49	1050-0000-075	WIRE,BUS,TINNED COPPER,26GA
W50	1050-0000-075	WIRE,BUS,TINNED COPPER,26GA
W51	1050-0000-075	WIRE,BUS,TINNED COPPER,26GA
W52	1050-0000-075	WIRE,BUS,TINNED COPPER,26GA
W53	1050-0000-075	WIRE,BUS,TINNED COPPER,26GA

7010-0834-300 PCB ASSY, FRONT PANEL INTERFACE A

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	1700-0824-300	PC BD,FT PNL INTERFACE
C1	1515-0471-006	CAP,470UF,10V,ELE,10
C2	1515-0471-006	CAP,470UF,10V,ELE,10
CR1	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR2	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR3	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR4	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR5	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR6	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR7	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR8	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR9	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR10	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR11	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR12	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR13	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR14	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR15	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR16	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
J1	2115-0201-012	CONN,STRAIGHT,12 PIN
J2	2115-0201-012	CONN,STRAIGHT,12 PIN
J3	2115-0201-012	CONN,STRAIGHT,12 PIN
J4	2115-0201-012	CONN,STRAIGHT,12 PIN
J5	2115-0201-008	CONN,S ROW,0.120" STR HDR 8P
J6	2115-0201-012	CONN,STRAIGHT,12 PIN
J7	2129-1001-016	CONN,RBN CA 16-P 0.1X.1GRD HDR
R5	4706-7151-001	RES,7.15K,1/4W,1%
R6	4702-0124-003	RES,120K,1/4W,5%

7010-0845-600 ASSY, FRONT PANEL A

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	1405-0858-700	PANEL,FRONT ATC-600A-2
2	2403-0854-300	OVERLAY, FRONT PANEL
3	4950-2100-500	LENS,LED,CLEAR,3MM,PCBD MT
4	4950-2100-100	LED,RETAINING RING,3MM,LENS
5	4950-2100-000	LED,LENS,RED,3MM,PANEL MT
7	2850-0000-012	NUT,HEX,SMALL PAT,2-56
12	1400-0856-600	BRKT, POT MTG
14	2840-7600-205	WASHER,ALUM,.50OD,.375ID,.020T
15	2840-7600-208	WASHER,ALUM,.38OD,.250ID,.020T
17	6004-6005-550	TY-RAP,5.5 LG
19	2803-0250-006	SCREW,4-40 X 1/4 PPHM
20	2803-0125-006	SCREW,4-40 X 1/8 PPHM
22	2801-0188-006	SCREW 2-56 X 3/16 PPHMS
23	6011-0018-001	TUBING,TF,26 AWG,NATURAL,TW
26	6010-0063-200	TUBING,HS, 1/16 ID,BLACK
A2	7010-0835-600	PCB ASSY,FRT PNL INTERFACE
A2DS2	4950-0300-500	LED,HLMP-1420,HI INT,YELLOW,5V
A2DS3	4950-0300-500	LED,HLMP-1420,HI INT,YELLOW,5V
A2DS4	4950-0300-400	LED,HLMP-1320-HI INT,RED,5V
A2DS5	4950-0300-500	LED,HLMP-1420,HI INT,YELLOW,5V
A2DS6	4950-0300-600	LED,HLMP-1520,HI INT,GREEN,5V
A2DS7	4950-0300-600	LED,HLMP-1520,HI INT,GREEN,5V
A2DS8	4950-0300-600	LED,HLMP-1520,HI INT,GREEN,5V
A2DS9	4950-0300-600	LED,HLMP-1520,HI INT,GREEN,5V
A2DS10	4950-0300-600	LED,HLMP-1520,HI INT,GREEN,5V
A2DS11	4950-0300-600	LED,HLMP-1520,HI INT,GREEN,5V
A2DS12	4950-0300-600	LED,HLMP-1520,HI INT,GREEN,5V
A2DS13	4950-0300-600	LED,HLMP-1520,HI INT,GREEN,5V
A2DS14	4950-0300-600	LED,HLMP-1520,HI INT,GREEN,5V
A2DS15	4950-0300-600	LED,HLMP-1520,HI INT,GREEN,5V
A2DS16	4950-0300-600	LED,HLMP-1520,HI INT,GREEN,5V
A2DS17	4950-0300-600	LED,HLMP-1520,HI INT,GREEN,5V
DS1	4950-0300-400	LED,HLMP-1320-HI INT,RED,5V
P6	2126-0000-010	CONN, D-SUB FILT 15P SKT
R1	4750-7604-600	POT, 10K OHM, 43C1-10K-S .80
R2	4750-7604-500	POT, 5K OHM, 43C1-5K-S .80
R3	4751-0502-001	POT, 5K OHM, RV6LAYSA502A
R4	4750-0810-700	POT, 25K OHM, 1/2 WATT,.59 LG
R15	4750-7615-100	POT, 10K OHM, RV6NAYSD103A .59
S1	5114-0000-032	SWITCH,TOG,DPDT,PC MT
S2	5114-0000-029	SWITCH,TOG,SPDT,PC MT
S3	5114-0000-031	SWITCH,TOG,SPDT,PC MT
S4	5114-0000-029	SWITCH,TOG,SPDT,PC MT
S5	5114-0000-029	SWITCH,TOG,SPDT,PC MT
S6	5114-0000-032	SWITCH,TOG,DPDT,PC MT
S7	5114-0000-029	SWITCH,TOG,SPDT,PC MT
S8	5114-0000-030	SWITCH,TO,DPDT,PC MT
S10	5114-0000-032	SWITCH,TOG,DPDT,PC MT
S11	5114-0000-029	SWITCH,TOG,SPDT,PC MT
S12	5114-0000-032	SWITCH,TOG,DPDT,PC MT
S13	5115-0000-004	SWITCH PUSHBUTTON GRAY 46-101R
S14	5114-0000-027	SWITCH,RCKR,DPDT,PNL MT,PC LUG

7010-0845-600 ASSY, FRONT PANEL (cont) A

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
S17	5119-7604-800	MOD SWITCH
S20	5119-7604-200	SWITCH MOD
W1	6008-1000-001	WIRE,UL1213,26GA,7X34,BLK
W2	6008-1000-008	WIRE,UL1213,26GA,7X34,VIO
W3	6008-1000-010	WIRE,UL1213,26GA,7X34,WHT
W4	6008-1000-008	WIRE,UL1213,26GA,7X34,VIO
W5	6008-1000-001	WIRE,UL1213,26GA,7X34,BLK
W6	6008-1000-002	WIRE,UL1213,26GA,7X34,BRN
W7	6008-1000-003	WIRE,UL1213,26GA,7X34,RED
W8	6008-1000-004	WIRE,UL1213,26GA,7X34,ORN
W9	6008-1000-005	WIRE,UL1213,26GA,7X34,YEL
W10	6008-1000-006	WIRE,UL1213,26GA,7X34,GRN
W11	6008-1000-007	WIRE,UL1213,26GA,7X34,BLU
W12	6008-1000-008	WIRE,UL1213,26GA,7X34,VIO
W13	6008-1000-009	WIRE,UL1213,26GA,7X34,GRY
W14	6008-1000-010	WIRE,UL1213,26GA,7X34,WHT
W15	6008-1000-003	WIRE,UL1213,26GA,7X34,RED
W16	6008-1000-001	WIRE,UL1213,26GA,7X34,BLK
W17	6008-1000-005	WIRE,UL1213,26GA,7X34,YEL
W18	6008-1000-006	WIRE,UL1213,26GA,7X34,GRN
W19	6008-1000-001	WIRE,UL1213,26GA,7X34,BLK
W20	6008-1000-002	WIRE,UL1213,26GA,7X34,BRN
W21	6008-1000-003	WIRE,UL1213,26GA,7X34,RED
W22	6008-1000-004	WIRE,UL1213,26GA,7X34,ORN
W23	6008-1000-005	WIRE,UL1213,26GA,7X34,YEL
W24	6008-1000-006	WIRE,UL1213,26GA,7X34,GRN
W25	6008-1000-007	WIRE,UL1213,26GA,7X34,BLU
W26	6008-1000-008	WIRE,UL1213,26GA,7X34,VIO
W27	6008-1000-009	WIRE,UL1213,26GA,7X34,GRY
W28	6008-1000-010	WIRE,UL1213,26GA,7X34,WHT
W29	6008-1000-001	WIRE,UL1213,26GA,7X34,BLK
W30	6008-1000-002	WIRE,UL1213,26GA,7X34,BRN
W31	6008-1000-003	WIRE,UL1213,26GA,7X34,RED
W32	6008-1000-004	WIRE,UL1213,26GA,7X34,ORN
W33	6008-1000-004	WIRE,UL1213,26GA,7X34,ORN
W34	6008-1000-011	WIRE,UL1213,26GA,7X34,WHT/'BLK
W35	6008-1000-004	WIRE,UL1213,26GA,7X34,ORN
W36	6008-1000-006	WIRE,UL1213,26GA,7X34,GRN
W37	6008-1000-004	WIRE,UL1213,26GA,7X34,ORN
W38	6008-1000-018	WIRE,UL1213,26GA,7X34,WHT/VIO
W39	6008-1000-011	WIRE,UL1213,26GA,7X34,WHT/'BLK
W40	6008-1000-011	WIRE,UL1213,26GA,7X34,WHT/'BLK
W41	6008-1000-018	WIRE,UL1213,26GA,7X34,WHT/VIO
W42	6008-1000-001	WIRE,UL1213,26GA,7X34,BLK
W43	6008-1000-001	WIRE,UL1213,26GA,7X34,BLK
W44	6008-1000-004	WIRE,UL1213,26GA,7X34,ORN
W45	1050-0000-075	WIRE,BUS,TINNED COPPER,26GA
W46	1050-0000-075	WIRE,BUS,TINNED COPPER,26GA
W47	1050-0000-075	WIRE,BUS,TINNED COPPER,26GA
W48	1050-0000-075	WIRE,BUS,TINNED COPPER,26GA
W49	1050-0000-075	WIRE,BUS,TINNED COPPER,26GA
W50	1050-0000-075	WIRE,BUS,TINNED COPPER,26GA

7010-0845-600 ASSY, FRONT PANEL (cont) A

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
W51	1050-0000-075	WIRE,BUS,TINNED COPPER,26GA
W52	1050-0000-075	WIRE,BUS,TINNED COPPER,26GA
W53	1050-0000-075	WIRE,BUS,TINNED COPPER,26GA

7010-0845-600 ASSY, FRONT PANEL B

Includes all items in Revision A.

7010-0835-600 PCB ASSY, FRONT PANEL INTERFACE A

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	1700-0825-600	PC BD,FRONT PANEL INTERFACE
C1	1515-0471-006	CAP,470UF,10V,ELE,10
C2	1515-0471-006	CAP,470UF,10V,ELE,10
CR1	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR2	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR3	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR4	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR5	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR6	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR7	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR8	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR9	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR10	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR11	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR12	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR13	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR14	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR15	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR16	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
J1	2115-0201-012	CONN, STRAIGHT, 12 PIN
J2	2115-0201-012	CONN, STRAIGHT, 12 PIN
J3	2115-0201-012	CONN, STRAIGHT, 12 PIN
J4	2115-0201-012	CONN, STRAIGHT, 12 PIN
J5	2115-0201-008	CONN,S ROW,.120" STR HDR 8P
J6	2115-0201-012	CONN, STRAIGHT, 12 PIN
J7	2129-1001-016	CONN,RBN CA 16-P .1X.1G RD HDR
R5	4706-7151-001	RES,7.15K,1/4W,1%
R6	4702-0124-003	RES,120K,1/4W,5%
R16	4701-0271-003	RES,270,1/8W,5%
R17	4701-0271-003	RES,270,1/8W,5%
R18	4701-0271-003	RES,270,1/8W,5%
R19	4701-0271-003	RES,270,1/8W,5%
R20	4701-0271-003	RES,270,1/8W,5%
R21	4701-0271-003	RES,270,1/8W,5%
R22	4701-0271-003	RES,270,1/8W,5%
R23	4701-0271-003	RES,270,1/8W,5%
R24	4701-0271-003	RES,270,1/8W,5%
R25	4701-0271-003	RES,270,1/8W,5%
R26	4701-0271-003	RES,270,1/8W,5%
R27	4701-0271-003	RES,270,1/8W,5%
R28	4701-0271-003	RES,270,1/8W,5%
R29	4701-0271-003	RES,270,1/8W,5%
R30	4701-0271-003	RES,270,1/8W,5%
R31	4701-0271-003	RES,270,1/8W,5%
R32	4701-0271-003	RES,270,1/8W,5%

7010-0835-600 PCB ASSY, FRONT PANEL INTERFACE A1

Includes all items in Revision A.

7010-0835-600 PCB ASSY, FRONT PANEL INTERFACE B

Includes all items in Revision A1.

7010-0835-600 PCB ASSY, FRONT PANEL INTERFACE C

Includes all items in Revision B with the following exceptions:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
R6	4702-0394-003	RES,390K,1/4W,5%
R6SAT	4702-0124-003	RES,120K,1/4W,5%
R6SAT	4702-0274-003	RES,270K,1/4W,5%
R6SAT	4702-0474-003	RES,470K,1/4W,5%

7010-0938-900 PCB ASSY, 5 VOLT REGULATOR B

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	1700-0973-000	PC BOARD
2	2850-7866-300	STANDOFF,HEX,MALE-FEMALE
3	2803-0250-006	SCREW,4-40 X 1/4 PPHM
4	2803-0188-006	SCREW,4-40 X 3/16 PPHM A
5	2850-0000-020	NUT,HEX,SMALL PAT,4-40
6	2850-0000-008	NUT,HEX,REG PAT,4-40
7	2840-0000-003	WASHER,LOCK,INT TOOTH,4
9	2803-0313-006	SCREW,4-40 X 5/16 PPHM A
10	2800-7600-141	SPACER,AL,0.25 OD,4-40ID,0.440LG
11	2850-0957-200	SPACER,0.18HEX,4-40,0.56L
12	5400-0959-200	HEATSINK, 5V REGULATOR
13	3107-0000-084	INSULATOR,SIL-PAD,TO-66
C1151	1508-0476-018	CAP,47UF,35V,TANT,RDL
C1152	1508-0476-018	CAP,47UF,35V,TANT,RDL
C1153	1507-0685-018	CAP,6.8UF,35V,20%,TANT
C1154	1508-0476-018	CAP,47UF,35V,TANT,RDL
C1155	1503-0104-008	CAP,0.1UF,80V,5%,PE
C1156	1507-0685-018	CAP,6.8UF,35V,20%,TANT
C1157	1507-0685-018	CAP,6.8UF,35V,20%,TANT
C1158	1501-0221-001	CAP,220PF,1000V,10%,DISC
C1159	1502-0223-006	CAP,0.022UF,100V,5%,MPC
C1160	1508-0337-024	CAP,330UF,6V,TANT,RDL
C1161	1508-0337-024	CAP,330UF,6V,TANT,RDL
C1162	1508-0337-024	CAP,330UF,6V,TANT,RDL
C1163	1508-0337-024	CAP,330UF,6V,TANT,RDL
CR1151	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR1152	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
J1151	2116-0000-014	CONN,D-SUB,F,9-P,PCM,STR,0.125
L1151	1800-0973-301	COIL ASSY 401/402/600
L1152	1800-0973-302	4 TURN COIL ASSY 401/402/600
L1153	1800-0973-200	30 TURN COIL ASSY
Q1151	4801-0000-001	TRANSISTOR NPN HS SW
R1151	4702-0339-003	RES,3.3,1/4W,5%
R1152	4702-0100-003	RES,10,1/4W,5%
R1153	4702-0125-003	RES,1.2MEG,1/4W,5%
R1154	4705-0228-003	RES,0.22,2W,10%,WW
R1155	4702-0279-003	RES,2.7,1/4W,5%
R1156	4702-0100-003	RES,10,1/4W,5%
R1157	4706-7151-001	RES,7.15K,1/4W,1%
R1158	4753-0501-002	POT 500 OHM
R1159	4706-3651-001	RES,3.65K,1/4W,1%
X1151	3135-0000-007	IC,600,5A 60V SW REGULATOR
X1152	3135-0000-006	IC,305,12MA 4.5-30V REGULATOR

7005-0845-300 ASSY, POWER SUPPLY F1

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	1400-0954-400	BRACKET, REAR PANEL
2	1403-0954-300	CHASSIS, REAR PANEL
3	1525-0000-001	CLAMP,MTG,
5	2800-7600-114	SPACER,AL,.500OD,.375ID,.080LG
6	2803-0250-006	SCREW,4-40 X 1/4 PPHM
7	2804-0313-003	SCREW 6-32 X 5/16 PFHMS
8	2803-0375-003	SCREW,4-40 X 3/8 PFHM
9	2804-0188-006	SCREW 6-32X3/16 PHIL BIND HD
10	2804-0375-003	SCREW,6-32 X 3/8 PFHM
11	2804-0500-006	SCREW,6-32 X 1/2 PPHM
13	2840-7600-213	WASHER FLAT 2
14	2850-0000-002	NUT,HEX,SMALL PAT,6-32
15	2850-0000-010	LUG,GND,10
17	6004-6005-400	TY-RAP,4.0 LG
18	6020-0188-200	TUBING, HS 3/16ID BLACK UL
19	6012-0076-100	TUBING,PVC-105,13 AWG,CLEAR
20	6012-0800-000	TUBING, PVC-105, 8AWG, CLEAR
22	1050-0000-019	THERMAL COMPOUND
23	1050-0000-288	PRIMER,ADHESIVE,LOCTITE N *
24	2831-0002-002	GROMMENT EDGING, SLOTTED .062*
25	1050-0000-289	ADHESIVE,THREADLOC,LOCTITE271*
26	2845-0000-012	FINGER STK, TWISTED 1-SIDE SN*
27	1051-5000-500	TAPE, ALUMINUM 1/2"
28	2850-7894-800	NUT, FUSE HOLDER
29	6004-6005-800	TY-RAP,8.0 LG
30	1050-0000-285	TAPE, SCOTCH VHB 1/2" WIDE
31	6020-0125-200	TUBING, HS 1/8ID BLACK UL
33	2400-9907-200	LABEL, SAFETY GROUND
BT1	7020-0012-400	BATTERY PACK ASSY, 402/600
C5	1514-0222-040	CAP,2200UF,40V,ELE,2S
CR1	4823-0000-001	RECT,PK10 ,BRIDGE, 100V,10A
F1	5106-4501-000	FUSE,1.0AMP,250V,FAST,1.25GL
F2	5106-4501-000	FUSE,1.0AMP,250V,FAST,1.25GL
F3	5106-0000-037	FUSE,10AMP,32V,FAST,1.25GL
FL1	5801-0000-027	FILTER,RFI,IEC,POWER LINE
GL1	2850-0000-026	LUG,GND,6
GL2	2850-0000-026	LUG,GND,6
GL3	2850-0000-025	GROUND LUG 31-759
J2	2113-0000-020	CONN UG1094/U
J3	2113-0000-020	CONN UG1094/U
J4	2113-0000-020	CONN UG1094/U
J5	2115-0000-046	CONN 03-06-1022
J5-1	2114-0000-018	CONTACT,F .062D,CRIMP,24-30 TN
J5-2	2114-0000-018	CONTACT,F .062D,CRIMP,24-30 TN
S1	5135-0000-002	SWITCH,VOLT SEL,2POS,115V/230V
T1	5604-0007-800	LINE XFRMR,CE 17.5V,1.8A
W1	6008-5000-002	WIRE, CSA, 600V,18GA,BROWN
W2	6008-5009-007	WIRE, UL 600V 18GA, 75,BLUE *
W3	6008-3000-003	WIRE,UL1213,22GA,7X30,RED
W4	6008-3000-001	WIRE,UL1213,22GA,7X30,BLK
W5	6008-3000-001	WIRE,UL1213,22GA,7X30,BLK

7005-0845-300 **ASSY, POWER SUPPLY (cont)** **F1**

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
W6	6008-3000-003	WIRE,UL1213,22GA,7X30,RED
W7	7007-0885-300	WIRE HARN ASSY, PWR SUPPLY
W15	6008-3000-001	WIRE,UL1213,22GA,7X30,BLK
XF1	5105-0000-100	FUSE HOLDER RF SHIELD 3AG *
XF2	5105-0000-100	FUSE HOLDER RF SHIELD 3AG *
XF3	5106-0000-012	HOLDER,FUSE,LITTELFUSE 357001

7048-0811-900 ASSY, OSCILLATOR MULTIPLIER G2

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
2	2100-0810-000	BLOCK OSC MULT
3	1414-0810-100	COVER
4	2511-0808-100	POLE,TUNING,BR,0.188OD,1.60LG
5	2123-0000-002	CONN AEP 17-0104-000
6	2511-0808-200	POLE,TUNING,BR,0.188OD,1.60LG
7	7010-0808-400	OSC PC BD ASSY 600
8	2800-7600-104	SPACER,AL,0.157OD,0.089ID,0.147LG
9	4826-0000-004	DIODE,MULT.,600 FMLY ONLY
10	2363-0007-000	XTAL,106.550000MHZ,5 S,HC-25/U
11	6011-0106-001	TUBING,TF,10 AWG,NATURAL,SW
12	2803-0750-006	SCREW,4-40 X 3/4 PPHM
13	2850-0000-020	NUT,HEX,SMALL PAT,4-40
14	2840-0000-003	WASHER,LOCK,INT TOOTH,4
15	2803-0313-006	SCREW,4-40 X 5/16 PPHM A
16	2801-0375-006	SCREW,2-56 X 3/8 PPHM
17	2840-0000-004	WASHER,LOCK,INT TOOTH,2

7048-0811-900 ASSY, OSCILLATOR MULTIPLIER H

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
2	2100-0858-300	COVER, OSC/MULTI
3	1414-0810-100	COVER
4	2511-0808-100	POLE,TUNING,BR,.188OD,1.60LG
5	2123-0000-002	CONN AEP 17-0104-000
6	2511-0808-200	POLE,TUNING,BR,.188OD,1.60LG
7	7010-0834-700	PCB ASSY, OSCILLATOR/MULTI
9	4826-0000-004	DIODE,MULT.,600 FMLY ONLY
11	6011-0100-001	TUBING,TFE,10AWG,NATURAL,TW
12	2803-0750-006	SCREW,4-40 X 3/4 PPHM
13	2850-0000-020	NUT,HEX,SMALL PAT,4-40
14	2840-0000-003	WASHER,LOCK,INT TOOTH,4
15	2803-0313-006	SCREW,4-40 X 5/16 PPHM
16	2801-0375-006	SCREW,2-56 X 3/8 PPHM
17	2840-0000-004	WASHER,LOCK,INT TOOTH,2
18	2801-0250-006	SCREW,2-56 X 1/4 PPHM

7010-0808-400 **PCB ASSY, OSCILLATOR MULTIPLIER** **K8**

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
	1700-0807-500	PC BD OSCILLATOR
	6003-0000-003	WIRE,HOOK,TFE,26GA,7S,RED
	2114-0000-016	SOCKET,SPRING,SO,0.018-0.040D LA
	6011-0027-001	TUBING,TF,22 AWG,NATURAL,TW
C01	1506-0220-017	CAP,22PF,100V,5%,NPO
C02	1523-0000-002	CAP,1800PF,50V,X7R,CHIP
C03	1506-0330-017	CAP,33PF,100V,5%,NPO
C04	1506-0680-017	CAP,68PF,100V,5%,NPO
C05	1507-0105-018	CAP,1UF,35V,20%,TANT
C06	1501-0102-001	CAP,1000PF,500V,CERAMIC,DISC
C07	1523-0000-002	CAP,1800PF,50V,X7R,CHIP
C08	1501-0102-001	CAP,1000PF,500V,CERAMIC,DISC
C09	1506-0330-017	CAP,33PF,100V,5%,NPO
C10	1501-0102-001	CAP,1000PF,500V,CERAMIC,DISC
C11	1521-0000-002	CAP VAR,5.5-18PF,350V,VPCM
C13	1523-0000-002	CAP,1800PF,50V,X7R,CHIP
C14	1506-0220-017	CAP,22PF,100V,5%,NPO
C15	1506-0220-017	CAP,22PF,100V,5%,NPO
C16	1501-0102-001	CAP,1000PF,500V,CERAMIC,DISC
L01	1801-0108-001	IND, .10UH,0.08OHM,1025-94
L02	1804-0000-003	IND,VAR,0.036-0.062UH,RED 426
L03	1801-0022-001	IND,22UH 3.3 OHM 1025-52
L04	1804-0000-003	IND,VAR,0.036-0.062UH,RED 426
L05	1801-0689-001	IND, 6.8 UH,2 OHM,1025-40
Q01	4807-0000-002	TRANS,2N3905,PNP HS SW
Q02	4809-0000-005	TRANS,66382,NPN HF AMP
Q03	4809-0000-005	TRANS,66382,NPN HF AMP
R01	4702-0332-003	RES,3.3K,1/4W,5%
R02	4702-0471-003	RES,470,1/4W,5%
R03	4702-0102-003	RES,1.0K,1/4W,5%
R04	4702-0470-003	RES,47,1/4W,5%
R05SAT	4702-0680-003	RES,68,1/4W,5%
R06	4702-0101-003	RES,100,1/4W,5%
R07	4702-0473-003	RES,47K,1/4W,5%
R08	4702-0339-003	RES,3.3,1/4W,5%
R09	4702-0392-003	RES,3.9K,1/4W,5%
R10	4702-0821-003	RES,820,1/4W,5%
R11	4702-0153-003	RES,15K,1/4W,5%

7010-0834-700 PCB ASSY, OSCILLATOR MULTIPLIER C

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	1700-0824-700	PC BD, OSCILLATOR/MULTIPLIER
2	6008-1000-003	WIRE,UL1213,26GA,7X34,RED
C1	1523-0000-007T	CAP,0.1UF,25V,Z5U,CHIP
C2	1620-0123-001T	CAP,0.012UF,100V,X7R,CHIP
C3	1620-0390-001T	CAP,39PF,63V
C4	1620-1200-511T	CAP,12PF,100V,CHIP,NPO
C5	1523-0000-011T	CAP,0.01UF,50V,X7R,CHIP
C6	1626-0335-016T	CAP,3.3UF,16V,TANT
C7	1620-0123-001T	CAP,0.012UF,100V,X7R,CHIP
C8	1620-2210-600T	CAP,220PF,100V,CHIP,NPO
C9	1620-1030-511T	CAP,1000PF,50V,CHIP,NPO
C10	1620-0123-001T	CAP,0.012UF,100V,X7R,CHIP
C11	1620-0689-001T	CAP,6.8PF,100V
C12	1620-1030-511T	CAP,1000PF,50V,CHIP,NPO
C13	1551-2320-300T	CAP,VAR 5-18PF, 250V SMD
L1	1804-0000-007	IND,VAR, .138-.331UH,VIO 426
L2	1811-6471-001T	IND,SM .47UH 10% C 1008
L3	1811-6821-001T	IND,SM .82UH 10% C 1008
L4	1811-6223-003T	IND,SM 22UH 10% C 1812
L5	1800-7820-002	COIL,TOKO
Q1	4809-0000-023T	TRANS NPN RF AMPLR SOT-23
Q2	4809-0000-023T	TRANS NPN RF AMPLR SOT-23
Q3	4809-0000-023T	TRANS NPN RF AMPLR SOT-23
R1	4732-1002-001T	RES,10.0K,1/10W,1%
R2	4732-1002-001T	RES,10.0K,1/10W,1%
R3	4732-2211-001T	RES,2.21K,1/10W,1%
R4	4732-1821-001T	RES,1.82K,1/10W,1%
R5	4732-3921-001T	RES,3.92K,1/10W,1%,0805
R6	4732-8250-001T	RES,825,1/1OW,1%
R7	4732-4759-001T	RES,47.5,1/10W,1%
R8	4732-1000-001T	RES,100,1/10W,1%
R9	4732-7501-001T	RES,7.50K,1/10W,1%,0805
R10	4732-2741-001T	RES,2.74K,1/10W,1%
R11	4732-2000-001T	RES,200,1/10W,1%,0805
R12	4732-1000-001T	RES,100,1/10W,1%
R13	4723-0153-002T	RES,15K,1/10W,5%,CHIP
R14	4732-4752-001T	RES,47.5K,1/10W,1%
R15	4732-0000-001T	RES,0,1/10W,1%
X1A	2114-0000-016	SOCKET,SPRING,SO,.018-.040D LA
X1B	2114-0000-016	SOCKET,SPRING,SO,.018-.040D LA
Y1	2363-0007-000	XTAL,106.550000MHZ,5 S,HC-25/U

7005-0846-600 **ASSY, OSCILLATOR TUNELINE** **D**

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
2	2100-0808-000	BLOCK OSC TUNE LINE
3	1414-0808-200	COVER
4	1414-0857-400	COVER,OSC TUNE LINE
5	1400-0805-300	BRACKET
6	1400-0808-600	BRACKET MOUNTING
7	1400-0808-500	BRACKET
8	7010-0808-400	OSC PC BD ASSY 600
9	2511-0808-100	POLE,TUNING,BR,0.188OD,1.60LG
14	6011-0100-001	TUBING,TFE,10AWG,NATURAL,TW
17	2850-7866-300	STANDOFF,HEX,MALE-FEMALE
19	2800-7600-104	SPACER,AL,0.157OD,0.089ID,0.147LG
23	2803-0250-003	SCREW,4-40 X 1/4 PFHM
24	2803-0250-006	SCREW,4-40 X 1/4 PPHM
25	2803-0750-006	SCREW,4-40 X 3/4 PPHM
26	2850-0000-020	NUT,HEX,SMALL PAT,4-40
27	2840-0000-003	WASHER,LOCK,INT TOOTH,4
28	2801-0313-006	SCREW,2-56 X 5/16 PPHM A
29	7010-0821-700	PCB ASSY,17X/18X OSC AMP
30	2506-0857-500	PLATE,FACE,OSC TUNE LINE
31	2840-0000-004	WASHER,LOCK,INT TOOTH,2
33	2803-0188-006	SCREW,4-40 X 3/16 PPHM A
34	2803-0875-006	SCREW 4-40X7/8 PHIL BIND HD
35	1050-0000-074	WIRE,BUS,TINNED COPPER,24GA
CR12001	4826-0000-004	DIODE,MULT.,600 FMLY ONLY
CR12002	4826-0000-004	DIODE,MULT.,600 FMLY ONLY
CR12003	4826-0000-004	DIODE,MULT.,600 FMLY ONLY
FL12001	5801-0000-006	PI FILTER,EMI/RFI 1500PF 8-32
FL12002	5801-0000-006	PI FILTER,EMI/RFI 1500PF 8-32
FL12003	5801-0000-006	PI FILTER,EMI/RFI 1500PF 8-32
FL12004	5801-0000-006	PI FILTER,EMI/RFI 1500PF 8-32
FL12005	5801-0000-006	PI FILTER,EMI/RFI 1500PF 8-32
GL1	2850-0000-014	LUG,GND
J708	2116-0000-002	CONN,D-SUB,M,9-P,CCA(CNI)
J12201	2113-0000-022	CONN,FRONT MT,BULKHEAD RECPT
J12202	2113-0000-022	CONN,FRONT MT,BULKHEAD RECPT
J12203	2113-0000-022	CONN,FRONT MT,BULKHEAD RECPT
W1	6003-0000-008	WIRE,HOOK,TFE,26GA,7S,VIOLET
W2	6003-0000-007	WIRE,HOOK,TFE,26GA,7S,BLUE
W3	6003-0000-002	WIRE,HOOK,TFE,26GA,7S,BROWN
W4	6003-0000-001	WIRE,HOOK,TFE,26GA,7S,BLACK
W5	6003-0000-017	WIRE,HOOK,TFE,26GA,7S,WHT/BLU
W6	6003-0000-018	WIRE,HOOK,TFE,26GA,7S,WHT/VIO
W7	6003-0000-003	WIRE,HOOK,TFE,26GA,7S,RED
W8	6003-0000-003	WIRE,HOOK,TFE,26GA,7S,RED
W9	6003-0000-003	WIRE,HOOK,TFE,26GA,7S,RED
W10	6003-0000-003	WIRE,HOOK,TFE,26GA,7S,RED
W11	6003-0000-003	WIRE,HOOK,TFE,26GA,7S,RED
Y1501	2363-0096-000	XTAL,97.900000MHZ,5 S,HC-25/U
Y1502	2363-0004-000	XTAL,97.800000MHZ,5 S,HC-25/U
Y10002	2363-0006-000	XTAL,110.400000MHZ,5 S,HC-25/U
Y11003	2363-0005-000	XTAL,103.000000MHZ,5 S,HC-25/U

7010-0821-700 PCB ASSY, 17X/18X OSCILLATOR AMPLIFIER C3

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	1700-0821-600	PC BD,17X/18X OSCILLATOR AMP
2	6003-0000-003	WIRE,HOOK,TFE,26GA,7S,RED
C1501	1506-0102-017	CAP,1000PF,100V,5%,NPO
C1502	1506-0102-017	CAP,1000PF,100V,5%,NPO
C1503	1506-0220-017	CAP,22PF,100V,5%,NPO
C1504	1506-0330-017	CAP,33PF,100V,5%,NPO
C1505	1506-0680-017	CAP,68PF,100V,5%,NPO
C1506	1506-0220-017	CAP,22PF,100V,5%,NPO
C1507	1506-0220-017	CAP,22PF,100V,5%,NPO
C1508	1506-0102-017	CAP,1000PF,100V,5%,NPO
C1509	1506-0102-017	CAP,1000PF,100V,5%,NPO
C1510	1507-0105-018	CAP,1UF,35V,20%,TANT
C1511	1506-0102-017	CAP,1000PF,100V,5%,NPO
C1512	1523-0000-002	CAP,1800PF,50V,X7R,CHIP
C1513	1506-0102-017	CAP,1000PF,100V,5%,NPO
C1514	1523-0000-002	CAP,1800PF,50V,X7R,CHIP
C1515	1506-0330-017	CAP,33PF,100V,5%,NPO
C1516	1506-0102-017	CAP,1000PF,100V,5%,NPO
C1517	1521-0000-002	CAP VAR,5.5-18PF,350V,VPCM
C1518	1523-0000-002	CAP,1800PF,50V,X7R,CHIP
CR1501	4828-0000-002	DIODE,PIN,0.3 PF,100 NS
CR1502	4828-0000-002	DIODE,PIN,0.3 PF,100 NS
CR1503	4816-0000-001	DIODE,5082-2800,S BAR,70VBR
L1501	1801-0689-001	IND, 6.8 UH,2 OHM,1025-40
L1502	1804-0000-003	IND,VAR,0.036-0.062UH,RED 426
L1503	1801-0108-001	IND, .10UH,0.08OHM,1025-94
L1504	1801-0022-001	IND,22UH 3.3 OHM 1025-52
L1505	1804-0000-003	IND,VAR,0.036-0.062UH,RED 426
Q1501	4807-0000-002	TRANS,2N3905,PNP HS SW
Q1502	4809-0000-005	TRANS,66382,NPN HF AMP
Q1503	4809-0000-005	TRANS,66382,NPN HF AMP
R1501	4702-0473-003	RES,47K,1/4W,5%
R1502	4702-0151-003	RES,150,1/4W,5%
R1503	4702-0821-003	RES,820,1/4W,5%
R1504	4702-0473-003	RES,47K,1/4W,5%
R1505	4702-0151-003	RES,150,1/4W,5%
R1506	4702-0821-003	RES,820,1/4W,5%
R1507	4702-0222-003	RES,2.2K,1/4W,5%
R1508	4702-0471-003	RES,470,1/4W,5%
R1510	4702-0821-003	RES,820,1/4W,5%
R1511	4702-0392-003	RES,3.9K,1/4W,5%
R1512	4702-0470-003	RES,47,1/4W,5%
R1513	4702-0101-003	RES,100,1/4W,5%
R1514SAT	4702-0680-003	RES,68,1/4W,5%
R1515	4702-0153-003	RES,15K,1/4W,5%
R1516	4702-0473-003	RES,47K,1/4W,5%
R1517	4702-0339-003	RES,3.3,1/4W,5%

7005-0846-700 ASSY, OSCILLATOR TUNELINE A

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
2	2100-0808-000	BLOCK OSC TUNE LINE
3	1414-0808-200	COVER
4	1414-0856-400	COVER, OSC TUNELINE
5	1400-0805-300	BRACKET
6	1400-0857-900	BRACKET, MTG OSC TUNELINE
9	2511-0808-100	POLE,TUNING,BR,.188OD,1.60LG
14	6011-0100-001	TUBING,TFE,10AWG,NATURAL,TW
17	2850-7866-300	STANDOFF,HEX,MALE-FEMALE
19	2800-7600-104	SPACER,AL,.157OD,.089ID,.147
23	2803-0250-003	SCREW,4-40 X 1/4 PFHM
25	2803-0750-106	SM,4-40X3/4,PPH,SS,PA
26	2850-0000-020	NUT,HEX,SMALL PAT,4-40
27	2840-0000-003	WASHER,LOCK,INT TOOTH,4
28	2801-0313-006	SCREW,2-56 X 5/16 PPHM
29	7010-0834-600	PCB ASSY, 17X/18X OSC AMP
31	2840-0000-004	WASHER,LOCK,INT TOOTH,2
33	2803-0188-006	SCREW,4-40 X 3/16 PPHM
CR12001	4826-0000-004	DIODE,MULT.,600 FMLY ONLY
CR12002	4826-0000-004	DIODE,MULT.,600 FMLY ONLY
CR12003	4826-0000-004	DIODE,MULT.,600 FMLY ONLY
J12201	2113-0000-022	CONN,FRONT MT,BULKHEAD RECPT
J12202	2113-0000-022	CONN,FRONT MT,BULKHEAD RECPT
J12203	2113-0000-022	CONN,FRONT MT,BULKHEAD RECPT

7005-0846-700 ASSY, OSCILLATOR TUNELINE B

Includes all items in Revision A, except for Item 17, and the following:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
34	2803-0875-106	SM,4-40 X 7/8,PPH,SS,PA
35	1050-0000-074	WIRE,BUS,TINNED COPPER,24GA

7010-0834-600 PCB ASSY, 17X/18X OSCILLATOR AMPLIFIER B1

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	1700-0824-600	PC BD, 17X/18X OSC AMP
2	2840-0000-003	WASHER,LOCK,INT TOOTH,4
3	2850-0000-020	NUT,HEX,SMALL PAT,4-40
4	2850-7866-300	STANDOFF,HEX,MALE-FEMALE
C1	1523-0000-007T	CAP,0.1UF,25V,Z5U,CHIP
C2	1620-0123-001T	CAP,0.012UF,100V,X7R,CHIP
C3	1620-0390-001T	CAP,39PF,63V
C4	1620-1200-511T	CAP,12PF,100V,CHIP,NPO
C5	1523-0000-011T	CAP,0.01UF,50V,X7R,CHIP
C6	1626-0335-016T	CAP,3.3UF,16V,TANT
C7	1620-0123-001T	CAP,0.012UF,100V,X7R,CHIP
C8	1620-2210-600T	CAP,220PF,100V,CHIP,NPO
C9	1620-1030-511T	CAP,1000PF,50V,CHIP,NPO
C10	1620-0123-001T	CAP,0.012UF,100V,X7R,CHIP
C11	1620-0689-001T	CAP,6.8PF,100V
C12	1620-1030-511T	CAP,1000PF,50V,CHIP,NPO
C13	1551-2320-300T	CAP,VAR 5-18PF, 250V SMD
C14	1620-0123-001T	CAP,0.012UF,100V,X7R,CHIP
C15	1523-0000-007T	CAP,0.1UF,25V,Z5U,CHIP
C16	1620-0390-001T	CAP,39PF,63V
C17	1620-1200-511T	CAP,12PF,100V,CHIP,NPO
C18	1523-0000-011T	CAP,0.01UF,50V,X7R,CHIP
C19	1626-0335-016T	CAP,3.3UF,16V,TANT
C20	1620-0123-001T	CAP,0.012UF,100V,X7R,CHIP
C21	1523-0000-007T	CAP,0.1UF,25V,Z5U,CHIP
C22	1620-0123-001T	CAP,0.012UF,100V,X7R,CHIP
C23	1620-0390-001T	CAP,39PF,63V
C24	1620-1200-511T	CAP,12PF,100V,CHIP,NPO
C25	1523-0000-011T	CAP,0.01UF,50V,X7R,CHIP
C26	1626-0335-016T	CAP,3.3UF,16V,TANT
C27	1620-2210-600T	CAP,220PF,100V,CHIP,NPO
C28	1620-0123-001T	CAP,0.012UF,100V,X7R,CHIP
C29	1620-1030-511T	CAP,1000PF,50V,CHIP,NPO
C30	1620-0123-001T	CAP,0.012UF,100V,X7R,CHIP
C31	1620-0689-001T	CAP,6.8PF,100V
C32	1620-1030-511T	CAP,1000PF,50V,CHIP,NPO
C33	1551-2320-300T	CAP,VAR 5-18PF, 250V SMD
C34	1523-0000-007T	CAP,0.1UF,25V,Z5U,CHIP
C35	1620-0123-001T	CAP,0.012UF,100V,X7R,CHIP
C36	1620-0390-001T	CAP,39PF,63V
C37	1620-1200-511T	CAP,12PF,100V,CHIP,NPO
C38	1523-0000-011T	CAP,0.01UF,50V,X7R,CHIP
C39	1626-0335-016T	CAP,3.3UF,16V,TANT
C40	1620-2210-600T	CAP,220PF,100V,CHIP,NPO
C41	1620-0123-001T	CAP,0.012UF,100V,X7R,CHIP
C42	1620-1030-511T	CAP,1000PF,50V,CHIP,NPO
C43	1620-0123-001T	CAP,0.012UF,100V,X7R,CHIP
C44	1620-0689-001T	CAP,6.8PF,100V
C45	1620-1030-511T	CAP,1000PF,50V,CHIP,NPO
C46	1551-2320-300T	CAP,VAR 5-18PF, 250V SMD

7010-0834-600 PCB ASSY, 17X/18X OSCILLATOR AMPLIFIER (cont) B1

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
J1	2116-0000-036	CONN,D-SUB PCMTG MALE 9-P
L1	1804-0000-007	IND,VAR, .138-.331UH,VIO 42
L2	1811-6471-001T	IND,SM .47UH 10% C 1008
L3	1811-6223-003T	IND,SM 22UH 10% C 1812
L4	1800-7820-002	COIL,TOKO
L5	1804-0000-007	IND,VAR, .138-.331UH,VIO 42
L6	1811-6471-001T	IND,SM .47UH 10% C 1008
L7	1811-6821-001T	IND,SM .82UH 10% C 1008
L8	1804-0000-007	IND,VAR, .138-.331UH,VIO 42
L9	1811-6471-001T	IND,SM .47UH 10% C 1008
L10	1811-6821-001T	IND,SM .82UH 10% C 1008
L11	1811-6223-003T	IND,SM 22UH 10% C 1812
L12	1800-7820-002	COIL,TOKO
L13	1804-0000-007	IND,VAR, .138-.331UH,VIO 42
L14	1811-6471-001T	IND,SM .47UH 10% C 1008
L15	1811-6821-001T	IND,SM .82UH 10% C 1008
L16	1811-6223-003T	IND,SM 22UH 10% C 1812
L17	1800-7820-002	COIL,TOKO
L18	1811-6821-001T	IND,SM .82UH 10% C 1008
Q1	4809-0000-023T	TRANS NPN RF AMPLR SOT-23
Q2	4809-0000-023T	TRANS NPN RF AMPLR SOT-23
Q3	4809-0000-023T	TRANS NPN RF AMPLR SOT-23
Q4	4809-0000-023T	TRANS NPN RF AMPLR SOT-23
Q5	4809-0000-023T	TRANS NPN RF AMPLR SOT-23
Q6	4809-0000-023T	TRANS NPN RF AMPLR SOT-23
Q7	4809-0000-023T	TRANS NPN RF AMPLR SOT-23
Q8	4809-0000-023T	TRANS NPN RF AMPLR SOT-23
Q9	4809-0000-023T	TRANS NPN RF AMPLR SOT-23
Q10	4809-0000-023T	TRANS NPN RF AMPLR SOT-23
Q11	4809-0000-023T	TRANS NPN RF AMPLR SOT-23
R1	4732-1002-001T	RES,10.0K,1/10W,1%
R2	4732-1002-001T	RES,10.0K,1/10W,1%
R3	4732-2211-001T	RES,2.21K,1/10W,1%
R4	4732-1821-001T	RES,1.82K,1/10W,1%
R5	4732-3921-001T	RES,3.92K,1/10W,1%,0805
R6	4732-8250-001T	RES,825,1/1OW,1%
R7	4732-4759-001T	RES,47.5,1/10W,1%
R8	4732-1000-001T	RES,100,1/10W,1%
R9	4732-7501-001T	RES,7.50K,1/10W,1%,0805
R10	4732-2741-001T	RES,2.74K,1/10W,1%
R11	4732-2000-001T	RES,200,1/10W,1%,0805
R12	4732-1000-001T	RES,100,1/10W,1%
R13	4723-0153-002T	RES,15K,1/10W,5%,CHIP
R14	4732-4752-001T	RES,47.5K,1/10W,1%
R15	4732-0000-001T	RES,0,1/10W,1%
R16	4732-1002-001T	RES,10.0K,1/10W,1%
R17	4732-1002-001T	RES,10.0K,1/10W,1%
R18	4732-2211-001T	RES,2.21K,1/10W,1%
R19	4732-1821-001T	RES,1.82K,1/10W,1%
R20	4732-3921-001T	RES,3.92K,1/10W,1%,0805
R21	4732-8250-001T	RES,825,1/1OW,1%
R22	4732-4759-001T	RES,47.5,1/10W,1%

7010-0834-600 PCB ASSY, 17X/18X OSCILLATOR AMPLIFIER (cont) B1

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
R23	4732-1000-001T	RES,100,1/10W,1%
R24	4732-1002-001T	RES,10.0K,1/10W,1%
R25	4732-1002-001T	RES,10.0K,1/10W,1%
R26	4732-2211-001T	RES,2.21K,1/10W,1%
R27	4732-1821-001T	RES,1.82K,1/10W,1%
R28	4732-3921-001T	RES,3.92K,1/10W,1%,0805
R29	4732-8250-001T	RES,825,1/1OW,1%
R30	4732-4759-001T	RES,47.5,1/10W,1%
R31	4732-1000-001T	RES,100,1/10W,1%
R32	4732-7501-001T	RES,7.50K,1/10W,1%,0805
R33	4732-2741-001T	RES,2.74K,1/10W,1%
R34	4732-2000-001T	RES,200,1/10W,1%,0805
R35	4732-1000-001T	RES,100,1/10W,1%
R36	4723-0153-002T	RES,15K,1/10W,5%,CHIP
R37	4732-4752-001T	RES,47.5K,1/10W,1%
R38	4732-0000-001T	RES,0,1/10W,1%
R39	4732-1002-001T	RES,10.0K,1/10W,1%
R40	4732-1002-001T	RES,10.0K,1/10W,1%
R41	4732-2211-001T	RES,2.21K,1/10W,1%
R42	4732-1821-001T	RES,1.82K,1/10W,1%
R43	4732-3921-001T	RES,3.92K,1/10W,1%,0805
R44	4732-8250-001T	RES,825,1/1OW,1%
R45	4732-4759-001T	RES,47.5,1/10W,1%
R46	4732-1000-001T	RES,100,1/10W,1%
R47	4732-7501-001T	RES,7.50K,1/10W,1%,0805
R48	4732-2741-001T	RES,2.74K,1/10W,1%
R49	4732-2000-001T	RES,200,1/10W,1%,0805
R50	4732-1000-001T	RES,100,1/10W,1%
R51	4723-0153-002T	RES,15K,1/10W,5%,CHIP
R52	4732-4752-001T	RES,47.5K,1/10W,1%
R53	4732-0000-001T	RES,0,1/10W,1%
X1A	2114-0000-016	SOCKET,SPRING,SO,.018-.040D LA
X1B	2114-0000-016	SOCKET,SPRING,SO,.018-.040D LA
X2A	2114-0000-016	SOCKET,SPRING,SO,.018-.040D LA
X2B	2114-0000-016	SOCKET,SPRING,SO,.018-.040D LA
X3A	2114-0000-016	SOCKET,SPRING,SO,.018-.040D LA
X3B	2114-0000-016	SOCKET,SPRING,SO,.018-.040D LA
X4A	2114-0000-016	SOCKET,SPRING,SO,.018-.040D LA
X4B	2114-0000-016	SOCKET,SPRING,SO,.018-.040D LA
Y1	2363-0096-000	XTAL, 97.900000MHZ,5 S,HC-25/U
Y2	2363-0004-000	XTAL, 97.800000MHZ,5 S,HC-25/U
Y3	2363-0006-000	XTAL,110.400000MHZ,5 S,HC-25/U
Y4	2363-0005-000	XTAL,103.000000MHZ,5 S,HC-25/U

7010-0818-200 PCB ASSY, SLS AND RF LEVELER K5

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
2	1700-0817-400	SLS RF LEVELER
4	2800-7600-140	SPACER,AL,0.25 OD,4-40ID,0.400LG
5	2840-0000-029	WASHER,MICA,0.25OD,0.094ID,0.005T
6	2850-7866-300	STANDOFF,HEX,MALE-FEMALE
7	2803-0250-006	SCREW,4-40 X 1/4 PPHM
8	2840-0000-003	WASHER,LOCK,INT TOOTH,4
9	2800-7600-141	SPACER,AL,0.25 OD,4-40ID,0.440LG
C1	1501-0221-001	CAP,220PF,1000V,10%,DISC
C2	1506-0681-017	CAP,680PF,100V,5%,NPO
C3	1501-0332-001	CAP,3300PF,1000V,20%,DISC
C4	1507-0335-020	CAP,3.3UF,15V,20%,TANT
C5	1507-0335-020	CAP,3.3UF,15V,20%,TANT
C6	1507-0105-018	CAP,1UF,35V,20%,TANT
C7	1507-0105-018	CAP,1UF,35V,20%,TANT
C8	1507-0105-018	CAP,1UF,35V,20%,TANT
P14	2116-0000-015	CONN,D-SUB,M,15-P,PCM,STR,0.125
Q1	4805-0000-001	TRANS,2N2907A,PNP HS SW (3251)
R1	4702-0103-003	RES,10K,1/4W,5%
R2	4702-0472-003	RES,4.7K,1/4W,5%
R3	4702-0223-003	RES,22K,1/4W,5%
R4	4702-0271-003	RES,270,1/4W,5%
R5	4702-0271-003	RES,270,1/4W,5%
R6	4702-0223-003	RES,22K,1/4W,5%
R7	4752-0502-002	POT 5K OHM
R8	4702-0152-003	RES,1.5K,1/4W,5%
R9	4702-0221-003	RES,220,1/4W,5%
R10	4702-0332-003	RES,3.3K,1/4W,5%
R11	4752-0201-002	POT,200 OHM
R12	4702-0392-003	RES,3.9K,1/4W,5%
R13	4702-0332-003	RES,3.3K,1/4W,5%
R14	4752-0203-002	POT 20K OHM
R16	4702-0471-003	RES,470,1/4W,5%
R17	4702-0222-003	RES,2.2K,1/4W,5%
R18	4702-0222-003	RES,2.2K,1/4W,5%
R19	4752-0102-002	POT 1K OHM
R20	4702-0221-003	RES,220,1/4W,5%
R21	4702-0104-003	RES,100K,1/4W,5%
R22	4702-0472-003	RES,4.7K,1/4W,5%
X1	3130-0000-026	IC,74123,DUAL MULTIVIBRATOR
X2	3130-0000-025	IC 741C METAL CAN OP AMP

7010-0803-600 PCB ASSY, ALTITUDE REGISTER AND COMPARATOR L

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	1700-0802-500	BD PC ALT REGISTER COMPARATOR3
2	6011-0022-001	TUBING,TF,24 AWG,NATURAL,TW
3	4104-7603-500	EJECTOR RED MOD SCANBE 5-203 1
4	2108-0000-008	PIN FOR S-203 EJECTOR N/C
C1	1501-0680-001	CAP,68PF,1000V,10%,CER,DISC
C2	1501-0680-001	CAP,68PF,1000V,10%,CER,DISC
C3	1501-0680-001	CAP,68PF,1000V,10%,CER,DISC
C4	1501-0680-001	CAP,68PF,1000V,10%,CER,DISC
C5	1501-0680-001	CAP,68PF,1000V,10%,CER,DISC
C6	1501-0680-001	CAP,68PF,1000V,10%,CER,DISC
C7	1501-0471-001	CAP,470PF,1000V,10%,CER,DISC
C8	1507-0105-018	CAP,1UF,35V,20%,TANT
C9	1507-0105-018	CAP,1UF,35V,20%,TANT
C10	1507-0105-018	CAP,1UF,35V,20%,TANT
C11	1507-0105-018	CAP,1UF,35V,20%,TANT
C12	1507-0105-018	CAP,1UF,35V,20%,TANT
C13	1507-0105-018	CAP,1UF,35V,20%,TANT
CR1	4814-0000-002	DIODE,1N270,SIGNAL,80PRV
CR2	4814-0000-002	DIODE,1N270,SIGNAL,80PRV
CR3	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR4	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR5	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR6	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR7	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR8	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
Q1	4801-0000-001	TRANSISTOR NPN HS SW
Q2	4801-0000-001	TRANSISTOR NPN HS SW
Q3	4801-0000-001	TRANSISTOR NPN HS SW
Q4	4801-0000-001	TRANSISTOR NPN HS SW
Q5	4801-0000-001	TRANSISTOR NPN HS SW
Q6	4801-0000-001	TRANSISTOR NPN HS SW
Q7	4801-0000-001	TRANSISTOR NPN HS SW
Q8	4801-0000-001	TRANSISTOR NPN HS SW
Q9	4801-0000-001	TRANSISTOR NPN HS SW
Q10	4801-0000-001	TRANSISTOR NPN HS SW
Q11	4801-0000-001	TRANSISTOR NPN HS SW
Q12	4801-0000-001	TRANSISTOR NPN HS SW
Q13	4801-0000-001	TRANSISTOR NPN HS SW
Q14	4801-0000-001	TRANSISTOR NPN HS SW
Q15	4801-0000-001	TRANSISTOR NPN HS SW
Q16	4801-0000-001	TRANSISTOR NPN HS SW
Q17	4801-0000-001	TRANSISTOR NPN HS SW
R1	4702-0223-003	RES,22K,1/4W,5%
R2	4702-0223-003	RES,22K,1/4W,5%
R3	4702-0103-003	RES,10K,1/4W,5%
R4	4702-0103-003	RES,10K,1/4W,5%
R5	4702-0103-003	RES,10K,1/4W,5%
R6	4702-0103-003	RES,10K,1/4W,5%
R7	4702-0103-003	RES,10K,1/4W,5%
R8	4702-0102-003	RES,1.0K,1/4W,5%
R9	4702-0102-003	RES,1.0K,1/4W,5%
R10	4702-0102-003	RES,1.0K,1/4W,5%

7010-0803-600 PCB ASSY, ALTITUDE REGISTER AND COMPARATOR (cont) L

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
R11	4702-0102-003	RES,1.0K,1/4W,5%
R12	4702-0103-003	RES,10K,1/4W,5%
R13	4702-0103-003	RES,10K,1/4W,5%
R14	4702-0103-003	RES,10K,1/4W,5%
R15	4702-0103-003	RES,10K,1/4W,5%
R16	4702-0472-003	RES,4.7K,1/4W,5%
R17	4702-0103-003	RES,10K,1/4W,5%
R18	4702-0472-003	RES,4.7K,1/4W,5%
R19	4702-0472-003	RES,4.7K,1/4W,5%
R20	4702-0103-003	RES,10K,1/4W,5%
R21	4702-0103-003	RES,10K,1/4W,5%
R22	4702-0472-003	RES,4.7K,1/4W,5%
R23	4702-0472-003	RES,4.7K,1/4W,5%
R24	4702-0103-003	RES,10K,1/4W,5%
R25	4702-0103-003	RES,10K,1/4W,5%
R26	4702-0272-003	RES,2.7K,1/4W,5%
R27	4702-0271-003	RES,270,1/4W,5%
R28	4702-0102-003	RES,1.0K,1/4W,5%
R29	4702-0102-003	RES,1.0K,1/4W,5%
R30	4702-0102-003	RES,1.0K,1/4W,5%
R31	4702-0102-003	RES,1.0K,1/4W,5%
R32	4702-0102-003	RES,1.0K,1/4W,5%
R33	4702-0102-003	RES,1.0K,1/4W,5%
R34	4702-0102-003	RES,1.0K,1/4W,5%
R35	4702-0102-003	RES,1.0K,1/4W,5%
R36	4702-0103-003	RES,10K,1/4W,5%
R37	4702-0271-003	RES,270,1/4W,5%
R38	4702-0271-003	RES,270,1/4W,5%
R39	4701-0102-003	RES,1.0K,1/8W,5%
R40	4701-0102-003	RES,1.0K,1/8W,5%
R41	4701-0102-003	RES,1.0K,1/8W,5%
R42	4701-0102-003	RES,1.0K,1/8W,5%
R43	4701-0102-003	RES,1.0K,1/8W,5%
R44	4701-0102-003	RES,1.0K,1/8W,5%
R45	4701-0102-003	RES,1.0K,1/8W,5%
R46	4701-0102-003	RES,1.0K,1/8W,5%
R47	4701-0102-003	RES,1.0K,1/8W,5%
R48	4701-0102-003	RES,1.0K,1/8W,5%
R49	4701-0102-003	RES,1.0K,1/8W,5%
R50	4701-0102-003	RES,1.0K,1/8W,5%
X1	3130-0000-005	IC,7410,TRIPLE 3-INPUT NAND
X2	3130-0000-007	IC,7430,8-INPUT NAND
X6	3130-0000-010	IC,7473,DUAL JK FLIP-FLOP
X7	3130-0000-010	IC,7473,DUAL JK FLIP-FLOP
X8	3130-0000-010	IC,7473,DUAL JK FLIP-FLOP
X9	3130-0000-010	IC,7473,DUAL JK FLIP-FLOP
X10	3130-0000-010	IC,7473,DUAL JK FLIP-FLOP
X11	3130-0000-010	IC,7473,DUAL JK FLIP-FLOP
X12	3130-0000-010	IC,7473,DUAL JK FLIP-FLOP
X13	3130-0000-012	IC,7476,DUAL JK FLIP-FLOP
X14	3130-0000-006	IC,7420,DUAL 4-INPUT NAND
X15	3130-0000-007	IC,7430,8-INPUT NAND

7010-0803-600 PCB ASSY, ALTITUDE REGISTER AND COMPARATOR (cont) L

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
X16	3130-0000-007	IC,7430,8-INPUT NAND
X17	3130-0000-007	IC,7430,8-INPUT NAND
X18	3130-0000-007	IC,7430,8-INPUT NAND
X19	3130-0000-001	IC,7400,QUAD 2-INPUT NAND
X20	3130-0000-001	IC,7400,QUAD 2-INPUT NAND
X21	3130-0000-001	IC,7400,QUAD 2-INPUT NAND
X203	7010-0030-000	PCB ASSY,DM8200 TO 74LS85
X204	7010-0030-000	PCB ASSY,DM8200 TO 74LS85
X205	7010-0030-000	PCB ASSY,DM8200 TO 74LS85

7010-0030-000 **PCB ASSY, DM8200 TO 74LS85** **A2**

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	1700-0020-000	PC BD,DM8200 TO 74LS85 ADAPTER
2	2129-1090-328	CONN,HDR,STR UNSHRD,28-P BREAK
X1	3131-0000-039	IC,74LS85,4-BIT MAGTD COMPTR

7010-0804-700 PCB ASSY, DME SIGNAL C

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	1700-0802-600	BD PC OME SIGNAL BOARD
2	1050-0000-075	WIRE,BUS,TINNED COPPER,26GA
3	4104-7603-600	EJECTOR GRN MOD SCANBE 5-203 1
4	2108-0000-008	PIN FOR S-203 EJECTOR N/C
5	1050-0000-074	WIRE,BUS,TINNED COPPER,24GA
2D301	4901-5237-200	DIODE,1N5237B,ZENER,8.2V,0.5W
C301	1501-0103-005	CAP,0.01UF,50V,20%,DISC
C302	1507-0475-018	CAP,4.7UF,35V,20%,TANT
C303	1507-0105-018	CAP,1UF,35V,20%,TANT
C304A	1506-0102-017	CAP,1000PF,100V,5%,NPO
C304B	1506-0102-017	CAP,1000PF,100V,5%,NPO
C305	1501-0221-001	CAP,220PF,1000V,10%,DISC
C306	1501-0102-001	CAP,1000PF,500V,CERAMIC,DISC
C307	1506-0221-017	CAP,220PF,100V,5%,NPO
C308	1501-0151-001	CAP,150PF,1000V,10%,DISC
C309	1506-0102-017	CAP,1000PF,100V,5%,NPO
C310	1501-0102-001	CAP,1000PF,500V,CERAMIC,DISC
C311A	1506-0102-017	CAP,1000PF,100V,5%,NPO
C311B	1506-0102-017	CAP,1000PF,100V,5%,NPO
C312A	1506-0102-017	CAP,1000PF,100V,5%,NPO
C312B	1506-0102-017	CAP,1000PF,100V,5%,NPO
C313	1501-0331-001	CAP,330PF,1000V,10%,CER,DISC
C314	1501-0331-001	CAP,330PF,1000V,10%,CER,DISC
C315	1506-0102-017	CAP,1000PF,100V,5%,NPO
C316	1501-0101-001	CAP,100PF,1000V,10%,DISC
C317	1501-0331-001	CAP,330PF,1000V,10%,CER,DISC
C318	1501-0331-001	CAP,330PF,1000V,10%,CER,DISC
C319	1501-0331-001	CAP,330PF,1000V,10%,CER,DISC
C320	1502-0473-010	CAP,0.047UF,50V,5%,PC
C321	1501-0102-001	CAP,1000PF,500V,CERAMIC,DISC
C322	1502-0103-010	CAP,0.01UF,50V,2%,PC
C323	1507-0105-018	CAP,1UF,35V,20%,TANT
C324	1507-0104-018	CAP,0.1UF,35V,20%,TANT
C325	1501-0102-001	CAP,1000PF,500V,CERAMIC,DISC
C326	1502-0103-010	CAP,0.01UF,50V,2%,PC
C327	1507-0104-018	CAP,0.1UF,35V,20%,TANT
C328	1507-0475-018	CAP,4.7UF,35V,20%,TANT
C329	1507-0105-018	CAP,1UF,35V,20%,TANT
C330	1507-0105-018	CAP,1UF,35V,20%,TANT
C331	1507-0475-018	CAP,4.7UF,35V,20%,TANT
C332	1507-0475-018	CAP,4.7UF,35V,20%,TANT
C333	1501-0103-005	CAP,0.01UF,50V,20%,DISC
C334	1507-0104-018	CAP,0.1UF,35V,20%,TANT
CR301	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR302	4814-0000-002	DIODE,1N270,SIGNAL,80PRV
CR303	4814-0000-002	DIODE,1N270,SIGNAL,80PRV
CR304	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR305	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR306	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR307	4816-0000-001	DIODE,5082-2800,S BAR,70VBR
CR308	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR309	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV

7010-0804-700 PCB ASSY, DME SIGNAL (cont) C

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
CR310	4814-0000-002	DIODE,1N270,SIGNAL,80PRV
CR311	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR312	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR313	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR314	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR315	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR316	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR317	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR318	4814-0000-002	DIODE,1N270,SIGNAL,80PRV
CR319	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR320	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR321	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
Q301	5050-2601-000	TRANS,SF-90038,FET
Q302	4801-0000-001	TRANSISTOR NPN HS SW
Q303	4805-0000-001	TRANS,2N2907A,PNP HS SW (3251)
Q304	4805-0000-001	TRANS,2N2907A,PNP HS SW (3251)
Q305	4805-0000-001	TRANS,2N2907A,PNP HS SW (3251)
Q306	4805-0000-001	TRANS,2N2907A,PNP HS SW (3251)
Q307	4801-0000-001	TRANSISTOR NPN HS SW
Q308	4801-0000-001	TRANSISTOR NPN HS SW
Q309	4805-0000-001	TRANS,2N2907A,PNP HS SW (3251)
Q310	4801-0000-001	TRANSISTOR NPN HS SW
Q311	4805-0000-003	TRANS,2N3646,NPN HS SW
Q312	4801-0000-001	TRANSISTOR NPN HS SW
Q313	4801-0000-001	TRANSISTOR NPN HS SW
Q314	4801-0000-001	TRANSISTOR NPN HS SW
Q315	4801-0000-001	TRANSISTOR NPN HS SW
Q316	4801-0000-001	TRANSISTOR NPN HS SW
Q317	4801-0000-001	TRANSISTOR NPN HS SW
Q318	4801-0000-001	TRANSISTOR NPN HS SW
Q319	4805-0000-001	TRANS,2N2907A,PNP HS SW (3251)
R110	4702-0685-003	RES,6.8MEG,1/4W,5%
R301	4702-0273-003	RES,27K,1/4W,5%
R302	4702-0105-003	RES,1.0MEG,1/4W,5%
R303	4702-0102-003	RES,1.0K,1/4W,5%
R304	4702-0472-003	RES,4.7K,1/4W,5%
R305	4702-0154-003	RES,150K,1/4W,5%
R306	4702-0222-003	RES,2.2K,1/4W,5%
R307	4702-0560-003	RES,56,1/4W,5%
R308	4702-0102-003	RES,1.0K,1/4W,5%
R309	4702-0681-003	RES,680,1/4W,5%
R310	4702-0272-003	RES,2.7K,1/4W,5%
R311	4702-0272-003	RES,2.7K,1/4W,5%
R312	4702-0332-003	RES,3.3K,1/4W,5%
R313	4702-0222-003	RES,2.2K,1/4W,5%
R314	4702-0103-003	RES,10K,1/4W,5%
R315	4702-0332-003	RES,3.3K,1/4W,5%
R316	4753-0103-002	POT,10K OHM
R317	4706-2102-001	RES,21.0K,1/4W,1%
R318	4706-1822-001	RES,18.2K,1/4W,1%
R319	4702-0103-003	RES,10K,1/4W,5%
R320	4702-0472-003	RES,4.7K,1/4W,5%

7010-0804-700 PCB ASSY, DME SIGNAL (cont) C

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
R321	4702-0472-003	RES,4.7K,1/4W,5%
R322	4702-0472-003	RES,4.7K,1/4W,5%
R323	4702-0333-003	RES,33K,1/4W,5%
R324	4702-0271-003	RES,270,1/4W,5%
R325	4702-0103-003	RES,10K,1/4W,5%
R326	4702-0103-003	RES,10K,1/4W,5%
R327	4706-6491-001	RES,6.49K,1/4W,1%
R328	4702-0102-003	RES,1.0K,1/4W,5%
R329	4702-0102-003	RES,1.0K,1/4W,5%
R330	4702-0332-003	RES,3.3K,1/4W,5%
R331	4753-0502-002	POT 5K OHM
R332	4706-3482-001	RES,34.8K,1/4W,1%
R332SAT	4706-3162-001	RES,31.6K,1/4W,1%
R332SAT	4706-3322-001	RES,33.2K,1/4W,1%
R332SAT	4706-3652-001	RES,36.5K,1/4W,1%
R332SAT	4706-3832-001	RES,38.3K,1/4W,1%
R333	4753-0503-002	POT 50K OHM
R334	4706-2493-001	RES,249K,1/4W,1%
R335	4702-0332-003	RES,3.3K,1/4W,5%
R336	4702-0332-003	RES,3.3K,1/4W,5%
R337	4753-0502-002	POT 5K OHM
R338	4706-2052-001	RES,20.5K,1/4W,1%
R339	4753-0502-002	POT 5K OHM
R340SAT	4706-2552-001	RES,25.5K,1/4W,1%
R341	4702-0393-003	RES,39K,1/4W,5%
R342	4702-0103-003	RES,10K,1/4W,5%
R343	4702-0393-003	RES,39K,1/4W,5%
R344	4702-0682-003	RES,6.8K,1/4W,5%
R345	4706-4991-001	RES,4.99K,1/4W,1%
R346	4702-0333-003	RES,33K,1/4W,5%
R347	4702-0333-003	RES,33K,1/4W,5%
R348	4702-0333-003	RES,33K,1/4W,5%
R349	4702-0333-003	RES,33K,1/4W,5%
R350	4702-0333-003	RES,33K,1/4W,5%
R351	4702-0333-003	RES,33K,1/4W,5%
R352	4706-2002-001	RES,20.0K,1/4W,1%
R353	4706-2002-001	RES,20.0K,1/4W,1%
R354	4706-6041-001	RES,6.04K,1/4W,1%
R355	4753-0202-002	POT,2K OHM
R356	4702-0331-003	RES,330,1/4W,5%
R357	4706-1402-001	RES,14.0K,1/4W,1%
R358	4702-0563-003	RES,56K,1/4W,5%
R359	4702-0225-003	RES,2.2MEG,1/4W,5%
R360	4702-0682-003	RES,6.8K,1/4W,5%
R361	4702-0103-003	RES,10K,1/4W,5%
R362	4752-0102-002	POT 1K OHM
R363	4702-0105-003	RES,1.0MEG,1/4W,5%
R364	4702-0680-003	RES,68,1/4W,5%
R365	4702-0222-003	RES,2.2K,1/4W,5%
R366	4702-0332-003	RES,3.3K,1/4W,5%
R367	4702-0103-003	RES,10K,1/4W,5%
R368	4702-0103-003	RES,10K,1/4W,5%

7010-0804-700 PCB ASSY, DME SIGNAL (cont) C

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
R369	4706-8061-001	RES,8.06K,1/4W,1%
R370	4702-0472-003	RES,4.7K,1/4W,5%
R371	4702-0152-003	RES,1.5K,1/4W,5%
R372	4706-1472-001	RES,14.7K,1/4W,1%
R373	4702-0103-003	RES,10K,1/4W,5%
R374	4706-3091-001	RES,3.09K,1/4W,1%
R375	4753-0502-002	POT 5K OHM
R376	4706-1002-001	RES,10.0K,1/4W,1%
R377	4702-0473-003	RES,47K,1/4W,5%
R378	4702-0331-003	RES,330,1/4W,5%
R379	4702-0103-003	RES,10K,1/4W,5%
X301	3130-0000-017	IC,74121,MONOSTA MULTIVIBRATOR
X302	3130-0000-017	IC,74121,MONOSTA MULTIVIBRATOR
X303	3130-0000-010	IC,7473,DUAL JK FLIP-FLOP
X304	3130-0000-001	IC,7400,QUAD 2-INPUT NAND
X305	3130-0000-017	IC,74121,MONOSTA MULTIVIBRATOR
X306	3130-0000-017	IC,74121,MONOSTA MULTIVIBRATOR
X307	3130-0000-017	IC,74121,MONOSTA MULTIVIBRATOR
X308	3130-0000-017	IC,74121,MONOSTA MULTIVIBRATOR
X309	3130-0000-017	IC,74121,MONOSTA MULTIVIBRATOR
X310	3130-0000-025	IC 741C METAL CAN OP AMP
X311	3130-0000-024	IC,709C,GENERAL PURPOSE OP AMP

7010-0804-700 PCB ASSY, DME SIGNAL (cont) D

Includes all items in Revision C with the following exception:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
R110	4702-0335-003	RES,3.3MEG,1/4W,5%

7005-0846-400 ASSY, PC CARDCAGE C

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
2	1405-0956-300	PANEL,CARDCAGE,RIGHT
3	1405-0855-500	PANEL,LEFT CARD CAGE
4	2800-0813-900	SPACER
5	2800-0803-100	SPACER
6	2803-0250-003	SCREW,4-40 X 1/4 PFHM
7	4104-0000-001	CARD GUIDE NATURAL 23071-5
8	4104-7603-100	CD GD RED MOD SCANBE 23071-5 1
9	4104-7603-200	CD GD GRN MOD SCANBE 23071-5 1
10	4104-7603-300	CD GD BLU MOD SCANBE 23071-5 1
11	4104-7603-400	CD GD BLK MOD SCANBE 23071-5 1
17	2840-0000-018	WASHER,MICA,0.50OD,0.130ID,0.002T
18	2803-0313-006	SCREW,4-40 X 5/16 PPHM A
19	2801-0250-003	SCREW,2-56 X 1/4 PFHM
21	2840-0000-011	WASHER,COMP,0.27OD,0.115ID,0.042T
23	1415-0857-100	LEFT FRAME
24	2801-0250-006	SCREW,2-56 X 1/4 PPHM
25	4811-0000-002	TRANS,SJE1462,PNP PWR AMP
26	3107-0858-100	INSULATOR,MOTHERBD,600A-2
A1	7010-0834-400	PCB ASSY,MOTHERBOARD
J18	4760-0000-002	JACK MICROPHONE SWITCHCRAFTR2A
W1	1050-0000-073	WIRE,BUS,TINNED COPPER,22GA

7010-0834-400 **PCB ASSY, MOTHERBOARD** **C1**

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	1700-0824-400	PC BD,MOTHERBOARD
C1	1515-0471-006	CAP,470UF,10V,ELE,10
CR1	4901-4937-000	DIODE,IN4937,RECT,600V,1A
J1	2122-0000-007	PC CARD EDGE AMP 583679-2
J2	2122-0000-007	PC CARD EDGE AMP 583679-2
J3	2122-0000-007	PC CARD EDGE AMP 583679-2
J4	2122-0000-007	PC CARD EDGE AMP 583679-2
J5	2122-0000-007	PC CARD EDGE AMP 583679-2
J6	2115-0200-012	CONN,S ROW,0.120 RA HEADER,12P
J7	2115-0200-012	CONN,S ROW,0.120 RA HEADER,12P
J8	2115-0200-012	CONN,S ROW,0.120 RA HEADER,12P
J9	2115-0201-012	CONN,STRAIGHT,12 PIN
J10	2129-1001-016	CONN,RBN CA 16-P 0.1X.1GRD HDR
J11	2115-0201-012	CONN,STRAIGHT,12 PIN
J12	2115-0201-012	CONN,STRAIGHT,12 PIN
J13	2115-0201-012	CONN,STRAIGHT,12 PIN
J14	2115-0201-012	CONN,STRAIGHT,12 PIN
J15	2123-0000-061	CONN,SSMB,STR,PC MT JACK
J16	2123-0000-061	CONN,SSMB,STR,PC MT JACK
J17	2123-0000-061	CONN,SSMB,STR,PC MT JACK
L1	1801-0229-001	IND, 2.2 UH,0.4 OHM,1025-28
W1	6003-0001-009	WIRE,HOOK,TFE,30GA,SOLID,WHT
W2	6003-0001-009	WIRE,HOOK,TFE,30GA,SOLID,WHT
W3	6003-0001-009	WIRE,HOOK,TFE,30GA,SOLID,WHT
W4	6003-0001-009	WIRE,HOOK,TFE,30GA,SOLID,WHT

7005-0842-500 ASSY, DIGITAL DISPLAY A

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	1400-0853-801	BRACKET
2	1400-0853-802	BRACKET
3	2801-0250-006	SCREW,2-56 X 1/4 PPHM
4	3107-0850-200	INSUL,MYLAR ATC 600 COUNTER
5	3107-0955-000	INSULATOR,402 #1
6	4600-0000-003	OPTO DISPLAY,SP-332
7	7010-0832-500	PCB ASSY,DIGITAL DISPLAY
8	7010-0832-600	PCB ASSY,DIGITAL READOUT
9	7010-0933-000	PCB ASSY,POWER SUPPLY
10	6012-0076-100	TUBING,PVC-105,13 AWG,CLEAR
11	2114-0000-005	CONTACT,M D-SUB 20-24G LOOSE
12	6020-0125-200	TUBING,HS 1/8ID BLACK UL
13	6004-6005-400	TY-RAP,4.0 LG
W1	6008-3001-011	WIRE,UL 1430 22GA,WHT/BLK
W2	6008-3001-011	WIRE,UL 1430 22GA,WHT/BLK
W3	6008-3001-015	WIRE,UL 1430 22GA,WHT/YEL
W4	6008-3001-015	WIRE,UL 1430 22GA,WHT/YEL

7010-0933-000 **PCB ASSY, POWER SUPPLY** **A1**

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	1700-0923-000	PC BD, POWER SUPPYL
2	2750-0000-002	CORE,CUP,.709OD,.118ID,.210THK
3	1800-0962-601	WOUND BOBBIN ASSY
4	2803-0750-006	SCREW,4-40 X 3/4 PPHM
5	2840-0000-003	WASHER,LOCK,INT TOOTH,4
7	2850-0000-008	NUT,HEX,REG PAT,4-40
9	2840-0000-009	WASHER,FLAT,4,MS15795-803
C1	1503-0472-008	CAP,4700PF,50V,20%,PE
C2	1507-0336-023	CAP,30UF,10V,20%,TANT
C3	1507-0336-023	CAP,30UF,10V,20%,TANT
C4	1503-0104-009	CAP,0.1UF,200V,5%,PE *
C5	1503-0104-009	CAP,0.1UF,200V,5%,PE *
CR1	4815-0000-002	DIODE, 1N4004 ,RECT, 400V, 1A
CR2	4815-0000-002	DIODE, 1N4004 ,RECT, 400V, 1A
CR3	4818-0000-002	DIODE, 1N5248B ,ZENER, 18V,.5W
Q1	4811-0000-004	TRANS,MJE520 ,
Q2	4811-0000-004	TRANS,MJE520 ,
R1	4702-0271-003	RES,270,1/4W,5%
R2	4702-0102-003	RES,1.0K,1/4W,5%
R3	4704-0104-003	RES,100K,1W,5%
T1	5604-0000-001	TRANSFORMER 326-0142 ALLADIN

7010-0832-500 PCB ASSY, DIGITAL DISPLAY A

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	1700-0822-500	PC BD,DIGITAL DISPLAY
R37	4702-0222-003	RES,2.2K,1/4W,5%
R38	4702-0125-003	RES,1.2MEG,1/4W,5%
R39	4702-0125-003	RES,1.2MEG,1/4W,5%
R40	4702-0222-003	RES,2.2K,1/4W,5%
XDS1	3101-0000-003	SOCKET DISPLAY SPERRY CS-332
XDS2	3101-0000-003	SOCKET DISPLAY SPERRY CS-332

7010-0832-600 **PCB ASSY, DIGITAL READOUT** **A1**

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	1700-0822-600	PC BD,DIGITAL READOUT
2	4835-0000-004	PAD,MTG,TO-18 TRANS,7717-46NW
3	6011-0018-001	TUBING,TF,26 AWG,NATURAL,TW
C1	1501-0680-001	CAP,68PF,1000V,10%,CER,DISC
C2	1507-0475-018	CAP,4.7UF,35V,20%,TANT
C3	1507-0475-018	CAP,4.7UF,35V,20%,TANT
C4	1507-0475-018	CAP,4.7UF,35V,20%,TANT
C5	1507-0475-018	CAP,4.7UF,35V,20%,TANT
C6	1501-0101-001	CAP,100PF,1000V,10%,DISC
CR1	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR2	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR3	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR4	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR5	4815-0000-002	DIODE,1N4004,RECT,400V,1A
CR6	4815-0000-002	DIODE,1N4004,RECT,400V,1A
Q1	4801-0000-003	TRANS,2N2896,NPN SW AMP
Q2	4801-0000-003	TRANS,2N2896,NPN SW AMP
Q3	4801-0000-001	TRANSISTOR NPN HS SW
Q4	4801-0000-001	TRANSISTOR NPN HS SW
Q5	4801-0000-001	TRANSISTOR NPN HS SW
Q6	4801-0000-001	TRANSISTOR NPN HS SW
Q7	4801-0000-001	TRANSISTOR NPN HS SW
Q8	4801-0000-001	TRANSISTOR NPN HS SW
Q9	4801-0000-001	TRANSISTOR NPN HS SW
Q10	4801-0000-001	TRANSISTOR NPN HS SW
Q11	4801-0000-001	TRANSISTOR NPN HS SW
Q13	4801-0000-001	TRANSISTOR NPN HS SW
Q14	4801-0000-001	TRANSISTOR NPN HS SW
R1	4702-0102-003	RES,1.0K,1/4W,5%
R2	4702-0222-003	RES,2.2K,1/4W,5%
R3	4702-0223-003	RES,22K,1/4W,5%
R4	4702-0223-003	RES,22K,1/4W,5%
R5	4702-0223-003	RES,22K,1/4W,5%
R6	4702-0223-003	RES,22K,1/4W,5%
R7	4702-0333-003	RES,33K,1/4W,5%
R8	4702-0333-003	RES,33K,1/4W,5%
R9	4702-0333-003	RES,33K,1/4W,5%
R10	4702-0333-003	RES,33K,1/4W,5%
R11	4702-0333-003	RES,33K,1/4W,5%
R12	4702-0333-003	RES,33K,1/4W,5%
R13	4702-0333-003	RES,33K,1/4W,5%
R14	4702-0333-003	RES,33K,1/4W,5%
R15	4702-0333-003	RES,33K,1/4W,5%
R16	4702-0102-003	RES,1.0K,1/4W,5%
R17	4702-0333-003	RES,33K,1/4W,5%
R18	4702-0333-003	RES,33K,1/4W,5%
R19	4702-0271-003	RES,270,1/4W,5%
R20	4702-0271-003	RES,270,1/4W,5%
R21	4702-0271-003	RES,270,1/4W,5%
R22	4702-0271-003	RES,270,1/4W,5%
R23	4702-0274-003	RES,270K,1/4W,5%
R24	4702-0274-003	RES,270K,1/4W,5%

7010-0832-600 **PCB ASSY, DIGITAL READOUT (cont)** **A1**

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
R25	4702-0274-003	RES,270K,1/4W,5%
R26	4702-0274-003	RES,270K,1/4W,5%
R27	4702-0474-003	RES,470K,1/4W,5%
R28	4702-0274-003	RES,270K,1/4W,5%
R34	4702-0103-003	RES,10K,1/4W,5%
R35	4702-0103-003	RES,10K,1/4W,5%
R36	4702-0103-003	RES,10K,1/4W,5%
R37	4702-0103-003	RES,10K,1/4W,5%
W1	1050-0000-075	WIRE,BUS,TINNED COPPER,26GA
X1	3135-0000-009	IC,700,DISPLAY DECODER/DRIVER
X2	3135-0000-009	IC,700,DISPLAY DECODER/DRIVER
X3	3135-0000-009	IC,700,DISPLAY DECODER/DRIVER
X4	3135-0000-009	IC,700,DISPLAY DECODER/DRIVER
X5	3130-0000-001	IC,7400,QUAD 2-INPUT NAND
X6	3130-0000-001	IC,7400,QUAD 2-INPUT NAND
X7	3130-0000-001	IC,7400,QUAD 2-INPUT NAND
X8	3130-0000-001	IC,7400,QUAD 2-INPUT NAND
X9	3130-0000-001	IC,7400,QUAD 2-INPUT NAND
X10	3130-0000-001	IC,7400,QUAD 2-INPUT NAND
X11	3130-0000-001	IC,7400,QUAD 2-INPUT NAND
X12	3130-0000-001	IC,7400,QUAD 2-INPUT NAND
X13	3130-0000-001	IC,7400,QUAD 2-INPUT NAND
X14	3130-0000-001	IC,7400,QUAD 2-INPUT NAND
X15	3130-0000-001	IC,7400,QUAD 2-INPUT NAND
X16	3130-0000-001	IC,7400,QUAD 2-INPUT NAND
X17	3133-0000-006	IC,4049UB,HEX BUFFER/CONVERTER
X18	3133-0000-006	IC,4049UB,HEX BUFFER/CONVERTER
X19	3130-0000-013	IC,7490A,DECADE COUNTER
X20	3130-0000-013	IC,7490A,DECADE COUNTER
X21	3130-0000-019	IC,74190,BCD SYN U/D COUNTER
X22	3130-0000-019	IC,74190,BCD SYN U/D COUNTER
X23	3130-0000-010	IC,7473,DUAL JK FLIP-FLOP
X24	3130-0000-006	IC,7420,DUAL 4-INPUT NAND
X25	3130-0000-001	IC,7400,QUAD 2-INPUT NAND
X26	3130-0000-001	IC,7400,QUAD 2-INPUT NAND
X27	3130-0000-002	IC,7402,QUAD 2-INPUT NOR

7005-0847-000 **ASSY, DIGITAL DISPLAY** **A**

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	1400-0858-600	BRACKET,DISPLAY PCB MTG
2	2801-0250-006	SCREW,2-56 X 1/4 PPHM
A1	7010-0835-000	PCB ASSY,DIGITAL DISPLAY
DS1	4950-1000-100	LED,7SEGRED,10MM,HDSP-F111
DS2	4950-1000-100	LED,7SEGRED,10MM,HDSP-F111
DS3	4950-1000-100	LED,7SEGRED,10MM,HDSP-F111
DS4	4950-1000-100	LED,7SEGRED,10MM,HDSP-F111

7010-0835-000 PCB ASSY, DIGITAL READOUT A

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	1700-0825-000	PC BD,DIGITAL DISPLAY
C1	1620-0104-001T	CAP,.1UF,50V,5%,0805,X7R
C2	1620-0104-001T	CAP,.1UF,50V,5%,0805,X7R
C3	1620-0104-001T	CAP,.1UF,50V,5%,0805,X7R
C4	1620-0104-001T	CAP,.1UF,50V,5%,0805,X7R
C5	1620-0104-001T	CAP,.1UF,50V,5%,0805,X7R
C6	1620-0104-001T	CAP,.1UF,50V,5%,0805,X7R
C7	1620-0104-001T	CAP,.1UF,50V,5%,0805,X7R
C8	1620-6800-511T	CAP,68PF,100V,CHIP,NPO
J1	2115-0201-006	CONN, STRAIGHT, 6 PIN
R1	4732-2741-001T	RES,2.74K,1/10W,1%
R2	4732-2741-001T	RES,2.74K,1/10W,1%
R3	4732-2741-001T	RES,2.74K,1/10W,1%
R4	4732-2741-001T	RES,2.74K,1/10W,1%
R5	4732-2741-001T	RES,2.74K,1/10W,1%
R6	4732-2741-001T	RES,2.74K,1/10W,1%
R7	4732-2741-001T	RES,2.74K,1/10W,1%
R8	4732-2741-001T	RES,2.74K,1/10W,1%
R9	4732-2741-001T	RES,2.74K,1/10W,1%
R10	4732-2741-001T	RES,2.74K,1/10W,1%
R11	4732-2741-001T	RES,2.74K,1/10W,1%
R12	4732-2741-001T	RES,2.74K,1/10W,1%
R13	4732-2741-001T	RES,2.74K,1/10W,1%
R14	4732-2741-001T	RES,2.74K,1/10W,1%
R15	4732-2741-001T	RES,2.74K,1/10W,1%
R16	4732-2741-001T	RES,2.74K,1/10W,1%
R17	4732-2741-001T	RES,2.74K,1/10W,1%
R18	4732-2741-001T	RES,2.74K,1/10W,1%
R19	4732-2741-001T	RES,2.74K,1/10W,1%
R20	4732-2741-001T	RES,2.74K,1/10W,1%
R21	4732-2741-001T	RES,2.74K,1/10W,1%
R22	4732-2741-001T	RES,2.74K,1/10W,1%
R23	4732-2741-001T	RES,2.74K,1/10W,1%
R24	4732-2741-001T	RES,2.74K,1/10W,1%
R25	4732-2741-001T	RES,2.74K,1/10W,1%
R26	4732-2741-001T	RES,2.74K,1/10W,1%
R27	4732-2741-001T	RES,2.74K,1/10W,1%
R28	4732-2741-001T	RES,2.74K,1/10W,1%
R29	4732-2741-001T	RES,2.74K,1/10W,1%
R30	4732-1002-001T	RES,10.0K,1/10W,1%
R31	4732-1002-001T	RES,10.0K,1/10W,1%
R32	4732-1002-001T	RES,10.0K,1/10W,1%
R33	4732-1002-001T	RES,10.0K,1/10W,1%
R34	4732-1002-001T	RES,10.0K,1/10W,1%
R35	4732-1002-001T	RES,10.0K,1/10W,1%
R36	4732-1002-001T	RES,10.0K,1/10W,1%
R37	4732-1002-001T	RES,10.0K,1/10W,1%
R38	4732-1002-001T	RES,10.0K,1/10W,1%
R39	4732-1002-001T	RES,10.0K,1/10W,1%
R40	4732-1002-001T	RES,10.0K,1/10W,1%
R41	4732-1002-001T	RES,10.0K,1/10W,1%
R42	4732-1002-001T	RES,10.0K,1/10W,1%

7010-0835-000 **PCB ASSY, DIGITAL READOUT (cont)** **A**

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
R43	4732-1002-001T	RES,10.0K,1/10W,1%
R44	4732-1002-001T	RES,10.0K,1/10W,1%
TP1	2114-0000-074T	TEST POINT,1206,SMT
TP2	2114-0000-074T	TEST POINT,1206,SMT
TP3	2114-0000-074T	TEST POINT,1206,SMT
TP4	2114-0000-074T	TEST POINT,1206,SMT
TP5	2114-0000-074T	TEST POINT,1206,SMT
TP6	2114-0000-074T	TEST POINT,1206,SMT
TP7	2114-0000-074T	TEST POINT,1206,SMT
TP8	2114-0000-074T	TEST POINT,1206,SMT
TP9	2114-0000-074T	TEST POINT,1206,SMT
U1	3255-0000-007	IC,XC95144,PQ100,CPLD
U1	F350-0820-100	IC,PROG,DIG DISPLY 600-2 V1.00
X1	3101-0000-014	SOCKET,DIP,.3CTR,VERT PC B MT
X2	3101-0000-014	SOCKET,DIP,.3CTR,VERT PC B MT
X3	3101-0000-014	SOCKET,DIP,.3CTR,VERT PC B MT
X4	3101-0000-014	SOCKET,DIP,.3CTR,VERT PC B MT

7015-0818-100 ASSY, SLS ATTENUATOR AND RF BLOCK H1

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
2	2100-0817-701	BLOCK,SLS ATTEN/RF BOTTOM
3	2100-0817-702	BLOCK,SLS ATTEN/RF TOP
4	2113-0000-022	CONN,FRONT MT,BULKHEAD RECPT
5	4816-0000-001	DIODE,5082-2800,S BAR,70VBR
6	4825-0000-002	DIODE,PS083B,PIN,0.10PF,3NS
7	1801-0108-001	IND, .10UH,0.08OHM,1025-94
8	1801-0109-001	IND, 1.0 UH,1 OHM,1025-20
9	1526-0000-002	CAP,47PF,500V,FEEDTHRU
10	2501-7600-118	SPACER,BR,0.312OD,0.203ID,0.125LG
11	1523-0000-002	CAP,1800PF,50V,X7R,CHIP
12	4706-7689-001	RES,76.8,1/4W,1%
13	4706-1000-001	RES,100,1/4W,1%
14	4706-1330-001	RES,133,1/4W,1%
15	2803-0094-001	SCREW 4-40 X 3/32 SS
16	2804-0500-002	SCREW 6-32X1/2 SHCS

7015-0818-100 ASSY, SLS ATTENUATOR AND RF BLOCK J

Includes all items in Revision H1 with the following exception:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
6	4828-0000-002	DIODE,PIN,3 PF,100 NS

7015-0807-100 **ASSY, DIODE SWITCH BLOCK** **E3**

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	2100-0805-200	BLOCK DIODE SWITCH 2
2	2803-0250-006	SCREW,4-40 X 1/4 PPHM
3	2840-0000-003	WASHER,LOCK,INT TOOTH,4
4	2501-7600-118	SPACER,BR,.312OD,.203ID,.125LG
5	2803-0750-002	SCREW 4-40X3/4 SHCH
6	2803-0094-001	SCREW 4-40 X 3/32 SS
C812	1526-0000-002	CAP,47PF,500V,FEEDTHRU
CR803	4828-0000-002	DIODE,PIN,.3 PF,100 NS
CR804	4828-0000-002	DIODE,PIN,.3 PF,100 NS
CR805	4828-0000-002	DIODE,PIN,.3 PF,100 NS
J20301	2123-0000-002	CONN AEP 17-0104-000
J20302	2123-0000-002	CONN AEP 17-0104-000
J20303	2123-0000-002	CONN AEP 17-0104-000
J20304	2124-0000-001	CONN RF AMP 49000
L804	1801-0108-001	IND, .10UH,.08OHM,1025-94
L805	1801-0108-001	IND, .10UH,.08OHM,1025-94
L806	1801-0108-001	IND, .10UH,.08OHM,1025-94
R812	4702-0330-003	RES,33,1/4W,5% *
R813	4702-0330-003	RES,33,1/4W,5% *
R814	4702-0330-003	RES,33,1/4W,5% *
R815	4702-0101-003	RES,100,1/4W,5%

7005-0846-200 ASSY, RF CHASSIS D

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	1400-0811-400	BRACKET
2	2803-0313-003	SCREW 4-40 X 5/16 PFHMS
3	2840-0000-003	WASHER,LOCK,INT TOOTH,4
4	2840-0000-016	3/8 INT TOOTH LOCKWASHER
5	2850-0000-020	NUT,HEX,SMALL PAT,4-40
6	2850-7866-300	STANDOFF,HEX,MALE-FEMALE
7	4835-0000-004	PAD,MTG,TO-18 TRANS,7717-46NW
8	6011-0027-001	TUBING,TF,22 AWG,NATURAL,TW
9	6011-0018-001	TUBING,TF,26 AWG,NATURAL,TW
11	2506-0856-900	PLATE,RF CHASSIS
12	1400-0858-200	BRACKET,TUNING
14	2840-0000-008	WASHER,FLAT,4,AN960-C4
C1	1507-0105-018	CAP,1UF,35V,20%,TANT
C2	1506-0100-017	CAP,10PF,100V,5%,NPO
C3	1501-0102-001	CAP,1000PF,500V,CERAMIC,DISC
C4	1501-0339-001	CAP,3.3PF,600V,NPO,DISC
C5	1501-0339-001	CAP,3.3PF,600V,NPO,DISC
C6	1501-0220-001	CAP,20PF,1000V,10%,DISC
C7	1501-0103-005	CAP,0.01UF,50V,20%,DISC
C8	1521-0000-005	CAP VAR,9.0-35PF,200V,VPE
C9	1500-7611-300	CAP,6.3-50PF,1400V,VAR,MCA50
C10	1506-0100-017	CAP,10PF,100V,5%,NPO
C11	1506-0100-017	CAP,10PF,100V,5%,NPO
C13	1507-0105-018	CAP,1UF,35V,20%,TANT
C14	1507-0105-018	CAP,1UF,35V,20%,TANT
C15	1501-0151-001	CAP,150PF,1000V,10%,DISC
C16	1507-0105-018	CAP,1UF,35V,20%,TANT
C17	1507-0105-018	CAP,1UF,35V,20%,TANT
CR1	4816-0000-001	DIODE,5082-2800,S BAR,70VBR
CR2	4816-0000-001	DIODE,5082-2800,S BAR,70VBR
CR6	4816-0000-001	DIODE,5082-2800,S BAR,70VBR
FL1	5801-0000-006	PI FILTER,EMI/RFI 1500PF 8-32
J1	2113-0000-019	CONN UG1104A/U 1 EA PA C117A
J13	2116-0000-002	CONN,D-SUB,M,9-P,CCA(CNI)
J13-1	2114-0000-029	CONTACT,M D-SUB 24-28G CHAIN
J13-2	2114-0000-029	CONTACT,M D-SUB 24-28G CHAIN
J13-3	2114-0000-029	CONTACT,M D-SUB 24-28G CHAIN
J13-4	2114-0000-029	CONTACT,M D-SUB 24-28G CHAIN
J13-5	2114-0000-029	CONTACT,M D-SUB 24-28G CHAIN
J13-6	2114-0000-029	CONTACT,M D-SUB 24-28G CHAIN
J13-7	2114-0000-029	CONTACT,M D-SUB 24-28G CHAIN
J13-9	2114-0000-029	CONTACT,M D-SUB 24-28G CHAIN
L1	1801-0108-001	IND, .10UH,0.08OHM,1025-94
L2	1801-0689-001	IND, 6.8 UH,2 OHM,1025-40
L3	1805-0000-001	COIL FORM JW MILLER 4500-2
L7	1801-0689-001	IND, 6.8 UH,2 OHM,1025-40
Q1	4801-0000-001	TRANSISTOR NPN HS SW
Q2	4801-0000-001	TRANSISTOR NPN HS SW
Q3	4809-0100-100	TRANS,55100 NPN HF AMP
Q4	4801-0000-001	TRANSISTOR NPN HS SW
Q5	4805-0000-003	TRANS,2N3646,NPN HS SW
R1	4702-0151-003	RES,150,1/4W,5%

7005-0846-200 ASSY, RF CHASSIS (cont) D

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
R2	4702-0151-003	RES,150,1/4W,5%
R3	4702-0103-003	RES,10K,1/4W,5%
R4	4702-0105-003	RES,1.0MEG,1/4W,5%
R5	4702-0103-003	RES,10K,1/4W,5%
R6	4702-0680-003	RES,68,1/4W,5%
R7	4702-0682-003	RES,6.8K,1/4W,5%
R8	4702-0102-003	RES,1.0K,1/4W,5%
R9	4702-0101-003	RES,100,1/4W,5%
R10	4702-0470-003	RES,47,1/4W,5%
R11	4702-0223-003	RES,22K,1/4W,5%
R16	4702-0102-003	RES,1.0K,1/4W,5%
R17	4702-0105-003	RES,1.0MEG,1/4W,5%
R18	4702-0472-003	RES,4.7K,1/4W,5%
R19	4702-0472-003	RES,4.7K,1/4W,5%
R20	4702-0474-003	RES,470K,1/4W,5%
R21	4702-0102-003	RES,1.0K,1/4W,5%
R22	4702-0392-003	RES,3.9K,1/4W,5%
W1	6003-0000-003	WIRE,HOOK,TFE,26GA,7S,RED
W2	6003-0000-005	WIRE,HOOK,TFE,26GA,7S,YELLOW
W3	6003-0000-008	WIRE,HOOK,TFE,26GA,7S,VIOLET
W4	6003-0000-002	WIRE,HOOK,TFE,26GA,7S,BROWN
W5	6003-0000-007	WIRE,HOOK,TFE,26GA,7S,BLUE
W6	6003-0000-006	WIRE,HOOK,TFE,26GA,7S,GREEN
W7	6003-0000-001	WIRE,HOOK,TFE,26GA,7S,BLACK
W8	6003-0000-010	WIRE,HOOK,TFE,26GA,7S,WHITE
W9	1050-0000-075	WIRE,BUS,TINNED COPPER,26GA
W10	1050-0000-075	WIRE,BUS,TINNED COPPER,26GA
W11	1050-0000-075	WIRE,BUS,TINNED COPPER,26GA
W14	6051-2030-250	COAX,RG178,ES30-ES31
W15	6050-2040-450	COAX ASSY,RG316,RA SMC-ES06
W16	6000-6010-280	WIRE,MAG,SINGLE BELDSOL,28GA
W17	1050-0000-075	WIRE,BUS,TINNED COPPER,26GA
W18	1050-0000-075	WIRE,BUS,TINNED COPPER,26GA
W19	1050-0000-075	WIRE,BUS,TINNED COPPER,26GA

7005-0846-200 ASSY, RF CHASSIS E

Includes all items in Revision D with the following exception:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
2	2803-0313-006	SCREW 4-40 X 5/16 PPHM

7010-0803-800 PCB ASSY, REGULATOR/TIMER AE

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	1700-0802-700	PC BD REGULATOR/TIMER
2	2108-0000-008	PIN FOR S-203 EJECTOR N/C
3	4104-7603-800	EJECTOR BLK MOD SCANBE 5-203 1
C501	1507-0475-021	CAP,4.7UF,20V,20%,TANT
C502	1507-0105-018	CAP,1UF,35V,20%,TANT
C503	1501-0331-001	CAP,330PF,1000V,10%,CER,DISC
C504	1507-0104-018	CAP,0.1UF,35V,20%,TANT
C505	1507-0105-018	CAP,1UF,35V,20%,TANT
C506	1507-0685-020	CAP,6.8UF,15V,20%,TANT
C507	1507-0476-018	CAP,47UF,35V,20%,TANT
C508	1507-0105-018	CAP,1UF,35V,20%,TANT
C509	1507-0334-018	CAP,0.33UF,35V,20%,TANT
C510	1507-0105-018	CAP,1UF,35V,20%,TANT
C511	1507-0685-020	CAP,6.8UF,15V,20%,TANT
C512	1507-0476-018	CAP,47UF,35V,20%,TANT
C513	1507-0475-021	CAP,4.7UF,20V,20%,TANT
C514	1501-0103-005	CAP,0.01UF,50V,20%,DISC
C515	1507-0105-018	CAP,1UF,35V,20%,TANT
C516	1507-0475-021	CAP,4.7UF,20V,20%,TANT
C517	1507-0475-021	CAP,4.7UF,20V,20%,TANT
C518	1501-0103-005	CAP,0.01UF,50V,20%,DISC
C519	1507-0685-020	CAP,6.8UF,15V,20%,TANT
C520	1507-0225-019	CAP,2.2UF,25V,20%,TANT
CR501	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR502	4818-0000-004	DIODE,1N5234B,ZENER,6.2V,0.5W
CR503	4818-0000-001	DIODE,1N5240B,ZENER,10V,0.5W
CR504	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR505	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR506	4815-0000-002	DIODE,1N4004,RECT,400V,1A
CR508	4818-0000-004	DIODE,1N5234B,ZENER,6.2V,0.5W
CR509	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR510	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR511	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR512	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR513	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR514	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR515	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR516	4816-0000-001	DIODE,5082-2800,S BAR,70VBR
CR517	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR518	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR519	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR520	4814-0000-002	DIODE,1N270,SIGNAL,80PRV
CR521	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR522	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR523	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR524	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR525	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR526	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR527	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR528	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR529	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR530	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV

7010-0803-800 PCB ASSY, REGULATOR/TIMER (cont) AE

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
K501	4501-0000-005	RELAY 50-GBON-1-A-150
Q501	4805-0000-001	TRANS,2N2907A,PNP HS SW (3251)
Q502	4801-0000-001	TRANSISTOR NPN HS SW
Q503	4801-0000-001	TRANSISTOR NPN HS SW
Q504	4805-0000-001	TRANS,2N2907A,PNP HS SW (3251)
Q505	4801-0000-001	TRANSISTOR NPN HS SW
Q506	4801-0000-001	TRANSISTOR NPN HS SW
Q507	4805-0000-001	TRANS,2N2907A,PNP HS SW (3251)
Q508	4805-0000-001	TRANS,2N2907A,PNP HS SW (3251)
Q509	4805-0000-001	TRANS,2N2907A,PNP HS SW (3251)
Q510	4805-0000-001	TRANS,2N2907A,PNP HS SW (3251)
Q511	4801-0000-001	TRANSISTOR NPN HS SW
Q512	4801-0000-002	TRANS,2N2405,NPN AMP
Q513	4801-0000-001	TRANSISTOR NPN HS SW
Q514	4801-0000-001	TRANSISTOR NPN HS SW
Q515	4805-0000-001	TRANS,2N2907A,PNP HS SW (3251)
Q516	4801-0000-001	TRANSISTOR NPN HS SW
Q517	4805-0000-001	TRANS,2N2907A,PNP HS SW (3251)
Q518	4801-0000-001	TRANSISTOR NPN HS SW
Q519	4801-0000-001	TRANSISTOR NPN HS SW
Q520	4801-0000-001	TRANSISTOR NPN HS SW
Q521	4801-0000-001	TRANSISTOR NPN HS SW
Q522	4805-0000-001	TRANS,2N2907A,PNP HS SW (3251)
Q523	4801-0000-001	TRANSISTOR NPN HS SW
Q524	4801-0000-001	TRANSISTOR NPN HS SW
Q525	4801-0000-001	TRANSISTOR NPN HS SW
Q526	4801-0000-001	TRANSISTOR NPN HS SW
Q527	4805-0000-003	TRANS,2N3646,NPN HS SW
R501	4703-0109-003	RES,1,1/2W,5%
R502	4702-0472-003	RES,4.7K,1/4W,5%
R503	4706-1001-001	RES,1.00K,1/4W,1%
R504	4702-0392-003	RES,3.9K,1/4W,5%
R505	4706-1271-001	RES,1.27K,1/4W,1%
R506	4753-0501-002	POT 500 OHM
R507	4702-0332-003	RES,3.3K,1/4W,5%
R508	4702-0102-003	RES,1.0K,1/4W,5%
R509	4702-0102-003	RES,1.0K,1/4W,5%
R510	4702-0102-003	RES,1.0K,1/4W,5%
R511	4702-0270-003	RES,27,1/4W,5%
R512	4702-0331-003	RES,330,1/4W,5%
R513	4702-0681-003	RES,680,1/4W,5%
R514	4702-0272-003	RES,2.7K,1/4W,5%
R515	4702-0472-003	RES,4.7K,1/4W,5%
R516	4702-0103-003	RES,10K,1/4W,5%
R517	4702-0223-003	RES,22K,1/4W,5%
R518	4702-0562-003	RES,5.6K,1/4W,5%
R519	4702-0392-003	RES,3.9K,1/4W,5%
R520	4702-0224-003	RES,220K,1/4W,5%
R521	4702-0103-003	RES,10K,1/4W,5%
R522	4702-0104-003	RES,100K,1/4W,5%
R523	4703-0399-003	RES,3.9,1/2W,5%
R524	4702-0272-003	RES,2.7K,1/4W,5%

7010-0803-800 PCB ASSY, REGULATOR/TIMER (cont) AE

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
R525	4753-0502-002	POT 5K OHM
R526	4703-0122-003	RES,1.2K,1/2W,5%
R527	4706-3652-001	RES,36.5K,1/4W,1%
R528	4706-1782-001	RES,17.8K,1/4W,1%
R529	4702-0102-003	RES,1.0K,1/4W,5%
R530	4706-3921-001	RES,3.92K,1/4W,1%
R531	4702-0472-003	RES,4.7K,1/4W,5%
R532	4706-2211-001	RES,2.21K,1/4W,1%
R533	4702-0102-003	RES,1.0K,1/4W,5%
R534	4702-0102-003	RES,1.0K,1/4W,5%
R535	4702-0472-003	RES,4.7K,1/4W,5%
R536	4702-0102-003	RES,1.0K,1/4W,5%
R537	4702-0569-003	RES,5.6,1/4W,5%
R538	4702-0103-003	RES,10K,1/4W,5%
R539	4702-0392-003	RES,3.9K,1/4W,5%
R540	4702-0102-003	RES,1.0K,1/4W,5%
R541	4702-0685-003	RES,6.8MEG,1/4W,5%
R542	4702-0475-003	RES,4.7MEG,1/4W,5%
R543	4753-0103-002	POT,10K OHM
R544	4706-1212-001	RES,12.1K,1/4W,1%
R545	4702-0274-003	RES,270K,1/4W,5%
R546	4702-0565-003	RES,5.6MEG,1/4W,5%
R547	4702-0393-003	RES,39K,1/4W,5%
R548	4702-0472-003	RES,4.7K,1/4W,5%
R549	4702-0222-003	RES,2.2K,1/4W,5%
R550	4702-0472-003	RES,4.7K,1/4W,5%
R551	4702-0105-003	RES,1.0MEG,1/4W,5%
R552	4702-0474-003	RES,470K,1/4W,5%
R553	4706-2611-001	RES,2.61K,1/4W,1%
R554	4702-0472-003	RES,4.7K,1/4W,5%
R555	4753-0202-002	POT,2K OHM
R556	4753-0202-002	POT,2K OHM
R557	4706-4121-001	RES,4.12K,1/4W,1%
R558	4702-0102-003	RES,1.0K,1/4W,5%
R559	4702-0332-003	RES,3.3K,1/4W,5%
R560	4702-0102-003	RES,1.0K,1/4W,5%
R561	4702-0915-002	RES,9.1MEG,1/4W,5%
R562	4702-0471-003	RES,470,1/4W,5%
R563	4702-0273-003	RES,27K,1/4W,5%
R564	4702-0152-003	RES,1.5K,1/4W,5%
R565	4702-0472-003	RES,4.7K,1/4W,5%
R566	4702-0221-003	RES,220,1/4W,5%
R567	4702-0152-003	RES,1.5K,1/4W,5%
R568	4702-0103-003	RES,10K,1/4W,5%
R569	4706-6811-001	RES,6.81K,1/4W,1%
R570	4753-0502-002	POT 5K OHM
R571	4702-0102-003	RES,1.0K,1/4W,5%
R572	4702-0101-003	RES,100,1/4W,5%
R573	4702-0102-003	RES,1.0K,1/4W,5%
R574	4702-0471-003	RES,470,1/4W,5%
R575	4702-0472-003	RES,4.7K,1/4W,5%
R576	4702-0102-003	RES,1.0K,1/4W,5%

7010-0803-800 PCB ASSY, REGULATOR/TIMER (cont) AE

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
R577	4702-0104-003	RES,100K,1/4W,5%
R578	4702-0471-003	RES,470,1/4W,5%
R579	4706-4992-001	RES,49.9K,1/4W,1%
R580	4752-0203-002	POT 20K OHM
R581	4702-0273-003	RES,27K,1/4W,5%
R582	4702-0104-003	RES,100K,1/4W,5%
R583	4702-0102-003	RES,1.0K,1/4W,5%
R584	4702-0102-003	RES,1.0K,1/4W,5%
R585	4706-2802-001	RES,28.0K,1/4W,1%
R586	4702-0183-003	RES,18K,1/4W,5%
R587	4702-0682-003	RES,6.8K,1/4W,5%
X501	3130-0000-017	IC,74121,MONOSTA MULTIVIBRATOR
X502	3134-0000-003	IC,1458,DUAL HI PERF OP AMP
X503	3130-0000-017	IC,74121,MONOSTA MULTIVIBRATOR
X504	3130-0000-001	IC,7400,QUAD 2-INPUT NAND

7010-0819-900 PCB ASSY, RANGE VELOCITY J

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	1700-0819-700	PC BD,DME RNG/VEL BD
2	2108-0000-008	PIN FOR S-203 EJECTOR N/C
3	2301-0000-001	CRYSTAL HOLDER 8004-1G3 AUGAT
4	2820-0000-006	EYELET GS-3-4 STIMPSON
5	4104-7603-700	EJECTOR BLU MOD SCANBE 5-203 1
C2	1501-0103-005	CAP,0.01UF,50V,20%,DISC
C3	1506-0331-017	CAP,330PF,100V,5%,NPO
C4	1507-0475-018	CAP,4.7UF,35V,20%,TANT
C5	1507-0105-018	CAP,1UF,35V,20%,TANT
C6	1501-0102-001	CAP,1000PF,500V,CERAMIC,DISC
C7	1507-0105-018	CAP,1UF,35V,20%,TANT
C8	1507-0105-018	CAP,1UF,35V,20%,TANT
C9	1507-0105-018	CAP,1UF,35V,20%,TANT
C10	1507-0105-018	CAP,1UF,35V,20%,TANT
C11	1503-0222-010	CAP,2200PF,50V,20%,PE
C12	1501-0103-005	CAP,0.01UF,50V,20%,DISC
C14	1502-0223-006	CAP,0.022UF,100V,5%,MPC
C15	1506-0331-017	CAP,330PF,100V,5%,NPO
C16	1507-0105-018	CAP,1UF,35V,20%,TANT
C17	1507-0105-018	CAP,1UF,35V,20%,TANT
CR1	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
Q1	4801-0000-001	TRANSISTOR NPN HS SW
Q2	4802-0000-001	TRANS,2N2646,PN UNIJUNCT
R1	4702-0271-003	RES,270,1/4W,5%
R2	4702-0271-003	RES,270,1/4W,5%
R3	4702-0333-003	RES,33K,1/4W,5%
R4	4702-0271-003	RES,270,1/4W,5%
R5	4702-0103-003	RES,10K,1/4W,5%
R6	4702-0103-003	RES,10K,1/4W,5%
R7	4702-0123-003	RES,12K,1/4W,5%
R8	4702-0273-003	RES,27K,1/4W,5%
R9	4702-0391-003	RES,390,1/4W,5%
R10	4702-0271-003	RES,270,1/4W,5%
R11	4702-0271-003	RES,270,1/4W,5%
R12	4702-0103-003	RES,10K,1/4W,5%
R13	4702-0152-003	RES,1.5K,1/4W,5%
R14	4701-0472-003	RES,4.7K,1/8W,5%
R15	4701-0472-003	RES,4.7K,1/8W,5%
X1	3131-0000-025	IC,74LS27,TRIPLE 3-INPUT NOR
X2	3131-0000-027	IC,74LS30,8-INPUT NAND
X3	3131-0000-034	IC,74LS73,DUAL JK FLIP-FLOP
X4	3131-0000-044	IC,74LS00,QUAD 2-INPUT NAND
X5	3130-0000-020	IC,74191,BIN SYN U/D COUNTER
X6	3131-0000-029	IC,74LS190,BCD SYN U/D COUNTER
X7	3131-0000-029	IC,74LS190,BCD SYN U/D COUNTER
X8	3131-0000-029	IC,74LS190,BCD SYN U/D COUNTER
X9	3131-0000-030	IC,74LS191,BIN SYN U/D COUNTER
X10	3131-0000-044	IC,74LS00,QUAD 2-INPUT NAND
X11	3131-0000-030	IC,74LS191,BIN SYN U/D COUNTER
X12	3130-0000-009	IC,9322,QUAD 2-INPUT MPLXR

7010-0819-900 **PCB ASSY, RANGE VELOCITY (cont)** **J**

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
X13	3131-0000-029	IC,74LS190,BCD SYN U/D COUNTER
X14	3131-0000-029	IC,74LS190,BCD SYN U/D COUNTER
X15	3131-0000-030	IC,74LS191,BIN SYN U/D COUNTER
X16	3131-0000-029	IC,74LS190,BCD SYN U/D COUNTER
X17	3134-0000-001	IC,4040B,12-STAGE COUNTER
X18	3131-0000-033	IC,74LS04,HEX INVERTER
X19	3131-0000-035	IC,74LS93,4-BIT BINARY COUNTER
X20	3131-0000-034	IC,74LS73,DUAL JK FLIP-FLOP
X21	3134-0000-001	IC,4040B,12-STAGE COUNTER
X22	3131-0000-044	IC,74LS00,QUAD 2-INPUT NAND
Y1	2363-0003-000	XTAL,6.473015MHZ,F S,HC-25/U
Y2	2363-0061-000	XTAL,6.990506MHZ,F S,HC-25/U

7010-0831-500 PCB ASSY, XPDR SIGNAL A

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	1700-0819-600	BD PC TRANS SIGNAL
2	4104-0000-002	CARD GUIDE & EJECTOR S-203
3	2108-0000-008	PIN FOR S-203 EJECTOR N/C
4	1050-0000-073	WIRE,BUS,TINNED COPPER,22GA
C1	1507-0105-018	CAP,1UF,35V,20%,TANT
C2	1507-0105-018	CAP,1UF,35V,20%,TANT
C3	1501-0102-001	CAP,1000PF,500V,CERAMIC,DISC
C4	1507-0104-018	CAP,0.1UF,35V,20%,TANT
C5	1501-0680-001	CAP,68PF,1000V,10%,CER,DISC
C6	1501-0221-001	CAP,220PF,1000V,10%,DISC
C7	1501-0151-001	CAP,150PF,1000V,10%,DISC
C8	1507-0105-018	CAP,1UF,35V,20%,TANT
C9	1506-0101-017	CAP,100PF,100V,5%,NPO
C10	1507-0105-018	CAP,1UF,35V,20%,TANT
C11	1501-0222-004	CAP,2200PF,1000V,10%,CER,DISC
C12	1506-0330-017	CAP,33PF,100V,5%,NPO
C13	1506-0471-017	CAP,470PF,100V,5%,NPO
C14	1506-0331-017	CAP,330PF,100V,5%,NPO
C15	1501-0680-001	CAP,68PF,1000V,10%,CER,DISC
C16	1501-0680-001	CAP,68PF,1000V,10%,CER,DISC
C17	1507-0105-018	CAP,1UF,35V,20%,TANT
C18	1506-0101-017	CAP,100PF,100V,5%,NPO
C19	1507-0105-018	CAP,1UF,35V,20%,TANT
C20	1506-0102-017	CAP,1000PF,100V,5%,NPO
C21	1501-0101-001	CAP,100PF,1000V,10%,DISC
C22	1507-0105-018	CAP,1UF,35V,20%,TANT
C23	1507-0105-018	CAP,1UF,35V,20%,TANT
C24	1506-0331-017	CAP,330PF,100V,5%,NPO
C25	1507-0105-018	CAP,1UF,35V,20%,TANT
C26	1507-0105-018	CAP,1UF,35V,20%,TANT
C27	1501-0103-005	CAP,0.01UF,50V,20%,DISC
C28	1506-0220-017	CAP,22PF,100V,5%,NPO
C29	1502-0334-012	CAP,0.33UF,50V,5%,MPC
CR1	4814-0000-002	DIODE,1N270,SIGNAL,80PRV
CR2	4814-0000-002	DIODE,1N270,SIGNAL,80PRV
CR3	4814-0000-002	DIODE,1N270,SIGNAL,80PRV
CR4	4814-0000-002	DIODE,1N270,SIGNAL,80PRV
CR5	4814-0000-002	DIODE,1N270,SIGNAL,80PRV
CR6	4814-0000-002	DIODE,1N270,SIGNAL,80PRV
CR7	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR8	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR9	4814-0000-002	DIODE,1N270,SIGNAL,80PRV
CR10	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
CR11	4814-0000-002	DIODE,1N270,SIGNAL,80PRV
CR12	4814-0000-002	DIODE,1N270,SIGNAL,80PRV
CR13	4814-0000-002	DIODE,1N270,SIGNAL,80PRV
CR14	4814-0000-002	DIODE,1N270,SIGNAL,80PRV
CR15	4814-0000-002	DIODE,1N270,SIGNAL,80PRV
CR16	4814-0000-002	DIODE,1N270,SIGNAL,80PRV
CR17	4814-0000-002	DIODE,1N270,SIGNAL,80PRV
CR18	4814-0000-002	DIODE,1N270,SIGNAL,80PRV
CR19	4814-0000-002	DIODE,1N270,SIGNAL,80PRV

7010-0831-500 PCB ASSY, XPDR SIGNAL (cont) A

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
CR20	4814-0000-002	DIODE,1N270,SIGNAL,80PRV
CR21	4814-0000-002	DIODE,1N270,SIGNAL,80PRV
CR22	4814-0000-002	DIODE,1N270,SIGNAL,80PRV
CR23	4814-0000-002	DIODE,1N270,SIGNAL,80PRV
CR24	4814-0000-002	DIODE,1N270,SIGNAL,80PRV
CR25	4814-0000-002	DIODE,1N270,SIGNAL,80PRV
CR26	4815-0000-003	DIODE,1N4148,SIGNAL,75PRV
Q1	4801-0000-001	TRANSISTOR NPN HS SW
Q2	4805-0000-003	TRANS,2N3646,NPN HS SW
Q3	4805-0000-003	TRANS,2N3646,NPN HS SW
Q4	4805-0000-003	TRANS,2N3646,NPN HS SW
Q5	4805-0000-003	TRANS,2N3646,NPN HS SW
Q6	4801-0000-001	TRANSISTOR NPN HS SW
Q7	4807-0000-002	TRANS,2N3905,PNP HS SW
Q8	4801-0000-001	TRANSISTOR NPN HS SW
Q9	4801-0000-001	TRANSISTOR NPN HS SW
Q10	4802-0000-001	TRANS,2N2646,PN UNIJUNCT
R1	4702-0102-003	RES,1.0K,1/4W,5%
R2	4702-0680-003	RES,68,1/4W,5%
R3	4702-0271-003	RES,270,1/4W,5%
R4	4702-0271-003	RES,270,1/4W,5%
R5	4702-0271-003	RES,270,1/4W,5%
R6	4702-0271-003	RES,270,1/4W,5%
R7	4702-0271-003	RES,270,1/4W,5%
R8	4702-0271-003	RES,270,1/4W,5%
R9	4702-0271-003	RES,270,1/4W,5%
R10	4702-0271-003	RES,270,1/4W,5%
R11	4702-0271-003	RES,270,1/4W,5%
R12	4702-0271-003	RES,270,1/4W,5%
R13	4702-0271-003	RES,270,1/4W,5%
R14	4702-0271-003	RES,270,1/4W,5%
R15	4702-0271-003	RES,270,1/4W,5%
R16	4702-0222-003	RES,2.2K,1/4W,5%
R17	4701-0222-003	RES,2.2K,1/8W,5%
R18	4701-0102-003	RES,1.0K,1/8W,5%
R19	4701-0103-003	RES,10K,1/8W,5%
R20	4701-0103-003	RES,10K,1/8W,5%
R21	4701-0332-003	RES,3.3K,1/8W,5%
R22	4701-0103-003	RES,10K,1/8W,5%
R23	4702-0103-003	RES,10K,1/4W,5%
R24	4702-0103-003	RES,10K,1/4W,5%
R25	4702-0393-003	RES,39K,1/4W,5%
R26	4706-9091-001	RES,9.09K,1/4W,1%
R26SAT	4706-1072-001	RES,10.7K,1/4W,1%
R26SAT	4706-6811-001	RES,6.81K,1/4W,1%
R26SAT	4706-7501-001	RES,7.50K,1/4W,1%
R26SAT	4706-8251-001	RES,8.25K,1/4W,1%
R27	4702-0223-003	RES,22K,1/4W,5%
R28	4701-0271-003	RES,270,1/8W,5%
R29	4701-0271-003	RES,270,1/8W,5%
R30	4706-3481-001	RES,3.48K,1/4W,1%
R30SAT	4706-2611-001	RES,2.61K,1/4W,1%

7010-0831-500 PCB ASSY, XPDR SIGNAL (cont) A

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
R30SAT	4706-4321-001	RES,4.32K,1/4W,1%
R31	4753-0202-002	POT,2K OHM
R32	4753-0103-002	POT,10K OHM
R33	4701-0103-003	RES,10K,1/8W,5%
R34	4702-0152-003	RES,1.5K,1/4W,5%
R35	4702-0103-003	RES,10K,1/4W,5%
R36	4702-0272-003	RES,2.7K,1/4W,5%
R37	4702-0271-003	RES,270,1/4W,5%
R38	4753-0202-002	POT,2K OHM
R39	4702-0103-003	RES,10K,1/4W,5%
R40	4702-0103-003	RES,10K,1/4W,5%
R41	4702-0102-003	RES,1.0K,1/4W,5%
R42	4702-0102-003	RES,1.0K,1/4W,5%
R43	4702-0102-003	RES,1.0K,1/4W,5%
R44	4706-3091-001	RES,3.09K,1/4W,1%
R45	4702-0103-003	RES,10K,1/4W,5%
R46	4753-0502-002	POT 5K OHM A11 EA PA C409E
R47	4753-0202-002	POT,2K OHM
R48	4702-0221-003	RES,220,1/4W,5%
R49	4702-0181-003	RES,180,1/4W,5%
R50	4702-0103-003	RES,10K,1/4W,5%
R51	4702-0103-003	RES,10K,1/4W,5%
R52	4702-0332-003	RES,3.3K,1/4W,5%
R53	4702-0471-003	RES,470,1/4W,5%
R54	4702-0271-003	RES,270,1/4W,5%
R55	4702-0271-003	RES,270,1/4W,5%
R56	4702-0101-003	RES,100,1/4W,5%
R57	4706-2552-001	RES,25.5K,1/4W,1%
R58	4706-1152-001	RES,11.5K,1/4W,1%
R58SAT	4706-1102-001	RES,11.0K,1/4W,1%
R58SAT	4706-1132-001	RES,11.3K,1/4W,1%
R58SAT	4706-1212-001	RES,12.1K,1/4W,1%
R58SAT	4706-1242-001	RES,12.4K,1/4W,1%
R59	4702-0752-002	RES,7.5K,1/4W,5%
R60	4702-0103-003	RES,10K,1/4W,5%
R61	4702-0103-003	RES,10K,1/4W,5%
R62	4706-9760-001	RES,976,1/4W,1%
X1	3130-0000-016	IC,7496,5-BIT SHIFT REGISTER
X2	3130-0000-017	IC,74121,MONOSTA MULTIVIBRATOR
X3	3130-0000-001	IC,7400,QUAD 2-INPUT NAND
X4	3130-0000-017	IC,74121,MONOSTA MULTIVIBRATOR
X5	3130-0000-016	IC,7496,5-BIT SHIFT REGISTER
X6	3130-0000-010	IC,7473,DUAL JK FLIP-FLOP
X7	3130-0000-010	IC,7473,DUAL JK FLIP-FLOP
X8	3130-0000-001	IC,7400,QUAD 2-INPUT NAND
X9	3130-0000-017	IC,74121,MONOSTA MULTIVIBRATOR
X10	3130-0000-016	IC,7496,5-BIT SHIFT REGISTER
X11	3130-0000-001	IC,7400,QUAD 2-INPUT NAND
X12	3130-0000-017	IC,74121,MONOSTA MULTIVIBRATOR
X13	3130-0000-001	IC,7400,QUAD 2-INPUT NAND
X14	3130-0000-017	IC,74121,MONOSTA MULTIVIBRATOR
X15	3130-0000-016	IC,7496,5-BIT SHIFT REGISTER

7010-0831-500 **PCB ASSY, XPDR SIGNAL (cont)** **A**

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
X16	3130-0000-001	IC,7400,QUAD 2-INPUT NAND
X17	3130-0000-010	IC,7473,DUAL JK FLIP-FLOP
X18	3130-0000-010	IC,7473,DUAL JK FLIP-FLOP
X19	3130-0000-017	IC,74121,MONOSTA MULTIVIBRATOR
X20	3130-0000-001	IC,7400,QUAD 2-INPUT NAND
X21	3130-0000-010	IC,7473,DUAL JK FLIP-FLOP
X22	3130-0000-013	IC,7490A,DECADE COUNTER
X23	3130-0000-001	IC,7400,QUAD 2-INPUT NAND
Y1	2363-0001-000	XTAL,20.689700MHZ,F S,HC-18/U

THIS PAGE INTENTIONALLY LEFT BLANK.

APPENDIX A - CONNECTOR PIN-OUT TABLES

1. Table of I/O Connectors

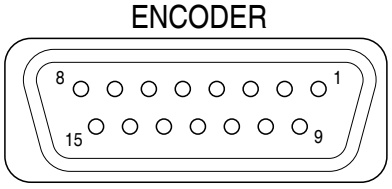
CONNECTOR	TYPE	SIGNAL TYPE	INPUT/OUTPUT
AC POWER	IEC320	ac Line Power	INPUT
RF	BNC	RF	INPUT/OUTPUT
DETECTED RF VIDEO	BNC	Video	INPUT/OUTPUT
DIODE SWITCH INPUT SIGNAL	BNC	Video	INPUT/OUTPUT
SYNC	BNC	TTL	OUTPUT

I/O Connectors
Table 1

2. Altitude Encoder Input Connector Pin-Out Table

PIN NO.	SIGNAL TYPE	PIN NO.	SIGNAL TYPE
1	A1	9	C4
2	A2	10	N/C
3	A4	11	D2
4	B1	12	D4
5	B2	13	GND
6	B4	14	+5 V SUPPLY
7	C1	15	+5 V ENCODER
8	C2		

Pin-Out for Altitude Encoder Input Connector
Table 1



00820007

THIS PAGE INTENTIONALLY LEFT BLANK.

APPENDIX B - TEST EQUIPMENT REQUIREMENTS

This Appendix contains a list of test equipment suitable for performing all test procedures contained in this manual. Other equipment meeting specifications listed in this Appendix may be substituted in place of recommended models. Equipment listed in this Appendix may exceed minimum required specifications for some procedures contained in this manual.

TYPE	MODEL
Test Resistor	100 Ω, 20 W
34 dB Pad	Aeroflex 2901-7634-100 or Equivalent
Digital Multimeter	FLUKE 8010A or Equivalent
DME 2-Pulse Generator	Aeroflex 7012-1403-900 or Equivalent
Frequency Counter	HP 53181A Universal Counter or Equivalent
Function Generator	WAVETEK 183 or Equivalent
Test Switch Assembly	N/A
Oscilloscope	TEK 2465B with Counter/Timer/Trigger Option or Equivalent
Signal Generator	Aeroflex NAV-750C or Equivalent
External Power Supply	HP 6267B or Equivalent
Heterodyne Monitor	Aeroflex 7018-0013-600 or Equivalent
20 dB Amplifier	MINI CIRCUITS or Equivalent

THIS PAGE INTENTIONALLY LEFT BLANK.

APPENDIX C - SPECIFICATIONS

Transponder

Interrogations Output:

Mode:	A/C, Altitude or Pilot code, 2:1 interlace, or mode A (B mode available upon request)
Pulse Spacing:	P_2 and P_3 variable with respect to P_1 (±1 μs) from nominal for input decoder tests
PRF:	235 Hz Nominal
SLS Test:	±1.0 dB P_2 inserted at 0 dB or -9 dB relative to P_1
Power:	-66 to -79 dBm direct with 34 dB pad (±1.5 dB)

Reply Measurements:

Power (UUT):	10 W to 1.5 kW peak (±20%), direct with 34 dB pad
Accuracy:	±3 dB radiated with properly spaced antenna
Frequency Check:	1086 to 1093 MHz (±0.3 MHz)
Altitude Code:	Binary and Numerical Readout, -1.0 to +126.7 thousand feet
Pilot Code:	Binary and Numerical Readout, 0000 to 7777
Percent Reply:	0 to 100%, either A/C or A(B) modes
F_2 Pulse Position:	Measurement of rising and falling edge (±0.5 μs) from nominal
Status Lamps:	Ident Pulses, Invalid Altitude Code and No Altitude Code
Encoder Test:	Direct connection accepts altitude encoder

DME

Interrogations Measurements:

PRF: 0 to 30 and 0 to 300 Hz	
Power (UUT):	10 W to 1.5 kW (±20%), direct with 34 dB pad
Accuracy:	±3 dB radiated with properly spaced antenna
Frequency Check:	1038 to 1045 MHz (±0.3 MHz)

Reply Output:

Frequency:	Paired with VOR: 108.00 MHz (17X channel) or 108.05 MHz (17y channel) standard; 108.10 MHz (18X channel) standard
Output Power:	≈-45 dBm direct with 34 dB pad or radiated with properly spaced antenna

Reply Output (cont):

Range:	0 to 399 NM in 1 NM steps
Accuracy:	±0.07 NM (±0.02%)
Range Steps:	0.025 NM (system), 0.1 NM displayed
Velocity:	Crystal controlled digital velocity with rates of 50, 75, 100, 150, 200, 300, 400, 600, 800, 1200, 1600 and 2400 knots (±0.02% of setting); Inbound or outbound starting from any selected range
Percent Reply:	100% or 50%
Ident Tone:	1350 Hz (±8 Hz) with equalizing pulses

Battery Operation

Type:	2.0 AH NiCad
Duration:	≈2 hours continuous operation

AC Power Requirements

Source Voltage and Frequency:	100 to 120 VAC at 60 Hz 220 to 240 VAC at 50 Hz	
Power Consumption:	Maximum:	24 W for 100 to 120VAC at 60 Hz 16 W for 220 to 240 VAC at 50 Hz
	Nominal:	19 W for 115 VAC at 60 Hz 13 W for 230 VAC at 50 Hz
Nominal Input Current:	0.26 A at 115 VAC 0.14 A at 230 VAC	

Fuse Requirements

F1 and F2:	1.0 A, Type F, 100 to 120 VAC 0.5 A, Type F, 220 to 240 VAC
Internal	10.0 A, Type F, 32V (Not Servicable by Operator)

Safety

This instrument is designed to comply with the requirements of EN61010-1/IEC1010-1, for Class 1 portable equipment and is for use in a pollution degree 2 environment. The equipment is designed to operate from an installation category II supply, to environmental conditions specified in paragraph 1.4 of EN61010-1.

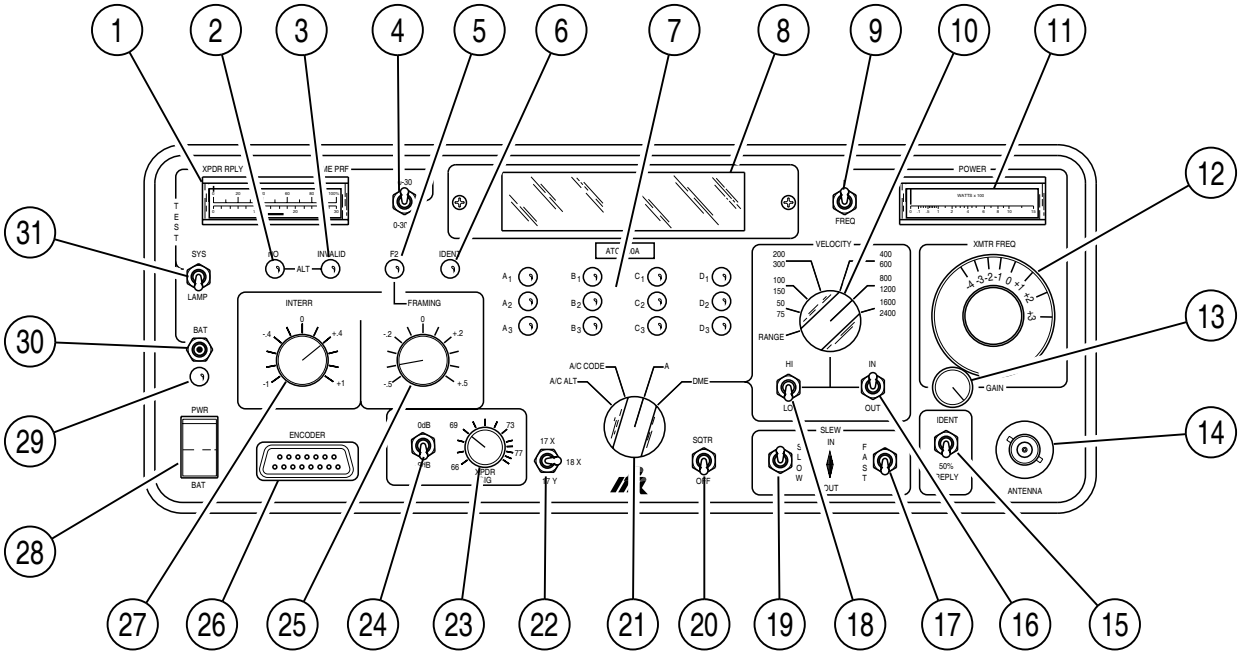
Operational Environmental Conditions

This instrument operates over temperature extremes of -20° to +50° C.

Physical Characteristics

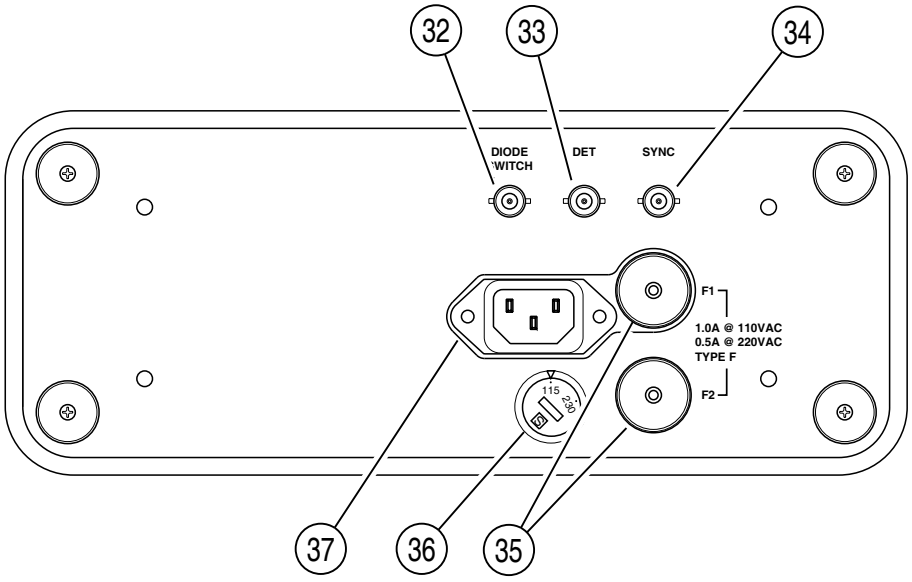
Weight:	≈18 lbs. (8.18 kg)
Width:	≈11.5 in (29.21 cm)
Height:	≈5.0 in (12.7 cm)
Depth:	≈16.25 in (41.275 cm)

APPENDIX D - CONTROLS, CONNECTORS AND INDICATORS



00807011

Front Panel
Figure 1



00807010

Rear Panel
Figure 2

CONTROLS, CONNECTORS AND INDICATORS IN NUMERIC ORDER		CONTROLS, CONNECTORS AND INDICATORS IN ALPHABETICAL ORDER	
XPDR % RPLY/DME PRF Meter	1	0/OFF/-9 dB SLS Switch	24
NO ALT Indicator	2	AC POWER Connector	37
INVALID ALT Indicator	3	ALTITUDE ENCODER INPUT Connector	26
DME PRF Switch	4	BAT TEST Switch	30
F_2 PULSE SPACING Indicator	5	OCTAL READOUT Indicators	7
IDENT PULSE Indicator (SPI)	6	DETECTED RF VIDEO OUTPUT Connector	33
OCTAL READOUT Indicators	7	DIODE SWITCH INPUT Connector	32
NUMERICAL Readout	8	DME CHANNEL Switch	22
FREQ/PWR Switch	9	DME PRF Switch	4
DME RANGE/VELOCITY Switch	10	DME RANGE/VELOCITY Switch	10
FREQ/PWR Meter	11	F_2 PULSE SPACING Indicator	5
XMTR FREQ Control	12	FAST SLEW Switch	17
FREQ GAIN Control	13	FRAMING PULSE SPACING Control	25
RF INPUT/OUTPUT Connector	14	FREQ GAIN Control	13
IDENT/50% RPLY Switch	15	FREQ/PWR Meter	11
VELOCITY IN/OUT Switch	16	FREQ/PWR Switch	9
FAST SLEW Switch	17	FUSES	35
VELOCITY HI/LO RANGE Switch	18	IDENT/50% RPLY Switch	15
SLOW SLEW Switch	19	IDENT PULSE Indicator (SPI)	6
SQUITTER ON/OFF Switch	20	INTERROGATION SPACING Control	27
MODE Switch	21	INVALID ALT Indicator	3
DME CHANNEL Switch	22	MODE Switch	21
XPDR SIGNAL LEVEL Control	23	NO ALT Indicator	2
0/OFF/-9 dB SLS Switch	24	NUMERICAL Readout	8
FRAMING PULSE SPACING Control	25	PWR/BAT Switch	28
ALTITUDE ENCODER INPUT Connector	26	PWR Indicator	29
INTERROGATION SPACING Control	27	RF INPUT/OUTPUT Connector	14
PWR/BAT Switch	28	SLOW SLEW Switch	19
PWR Indicator	29	SQUITTER ON/OFF Switch	20
BAT TEST Switch	30	SYNC OUTPUT Connector	34
SYS/LAMP TEST Switch	31	SYS/LAMP TEST Switch	31
DIODE SWITCH INPUT Connector	32	VELOCITY HI/LO RANGE Switch	18
DETECTED RF VIDEO OUTPUT Connector	33	VELOCITY IN/OUT Switch	16
SYNC OUTPUT Connector	34	VOLTAGE SELECT Switch	36
FUSES	35	XMTR FREQ Control	12
VOLTAGE SELECT Switch	36	XPDR % RPLY/DME PRF Meter	1
AC POWER Connector	37	XPDR SIGNAL LEVEL Control	23

1. Front Panel

Refer to Appendix D, Figure 1.

ITEM	DESCRIPTION

1. XPDR % RPLY/DME PRF Meter

   In Transponder Modes (**A/C ALT**, **A/C CODE** and **A** settings of MODE Switch), indicates the percent reply of the Transponder (in the operation mode selected).

   In DME Mode (**DME** setting of MODE Switch), indicates the Pulse Repetition Frequency (PRF) of the DME under test.

2. NO ALT Indicator

   When lit, indicates No Altitude pulses are present between F1 and F2 of the Transponder's altitude reply.

3. INVALID ALT Indicator

   When lit, indicates a received altitude code has an unassigned combination of codes.

   The conditions to VALID Altitude information are the presence of at least one of the C Pulses (C1, C2 or C4) and never C1 and C4 ON at the same time.

4. DME PRF Switch

   Selects the full scale range (in PRF) of the XPDR % RPLY/DME PRF Meter:

   - **0-30** is used for track rates.
   - **0-300** is used for search rates.

   NOTE: The interrogation Pulse Repetition Frequency (PRF) is fixed at 235 pps. (Only in Transponder Mode.)

5. F2 PULSE SPACING Indicator

   When lit, the FRAMING PULSE SPACING Control is positioned to a time when no part of the F2 pulse is present. If the FRAMING PULSE SPACING Control is at or near zero, and the F2 PULSE SPACING Indicator is lit, the 2nd framing pulse in the Transponder reply is improperly spaced, is too narrow for normal operation or is absent altogether.

   NOTE: If F2 is out of position, all other reply pulses between F1 and F2 may be skewed out of position.

6. IDENT PULSE Indicator

   When lit, indicates the Ident Pulse (SPI) is present in the reply.
   When the Test Set is in A/C ALT Mode, the Ident Pulse is paired with the D4 pulse.

   NOTE: Active in Transponder Modes only.

7. NUMERICAL Readout

   Displays pilot's code (as set into the Control Head) when the MODE Switch is set to **A/C CODE**.

   Displays altitude from -1.0 thousand to +126.7 thousand feet when the MODE Switch is set to **A/C ALT**.

   Displays altitude of Encoding Altimeter when an Encoding Altimeter is connected to the ALTITUDE ENCODER INPUT Connector.

   Displays range in nautical miles when the MODE Switch is set to DME.

ITEM DESCRIPTION

8. OCTAL READOUT Indicators

   Indicates which pulses are activating the NUMERICAL Readout when the MODE Switch is set to **A/C ALT**.

   NOTE: The altitude code is a Gray Daytex code.

   Indicates pilot's code (set in the Transponder Control Head) in binary form when MODE Switch is set to **A/C CODE** or **A**.

   NOTE: Active in Transponder Modes only.

9. DME RANGE/VELOCITY Switch

   RANGE yields fixed range replies. (Starting range is set with the FAST SLEW Switch and/or SLOW SLEW Switch.)

   VELOCITY is divided into two crystal-controlled steps (**50/75**, **100/150**, etc.). (The VELOCITY HI/LO RANGE Switch determines which of the two values to be selected in VELOCITY mode.) (Starting range is set with the FAST SLEW Switch and/or SLOW SLEW Switch.)

   NOTE: The FAST SLEW Switch and SLOW SLEW Switch operate in VELOCITY Mode in acutal system range increments of approximately 0.025 NM. However, the velocity range is displayed on the NUMERICAL Readout in 0.1 NM steps only.

10. FREQ/PWR Switch

    - **FREQ** switches FREQ/PWR Meter to display frequency deviation.
    - **PWR** switches FREQ/PWR Meter to display peak power.

11. FREQ/PWR Meter

    When the FREQ/PWR Switch is set to **PWR**, FREQ/PWR Meter displays peak power from 0 to 1.5 kW (if test antenna spacing from the aircraft is correct or a 34 dB pad and coaxial cable are used).

    NOTE: The 34 dB pad and coaxial cable are not supplied with the unit.

    When the FREQ/PWR Switch is set to **FREQ**, FREQ/PWR Meter displays frequency deviation of the UUT from desired frequency.

12. XMTR FREQ Control

    Used to tune the FREQ/PWR Meter needle for maximum deflection.

    In Transponder operation, frequency deviation (from 1090 MHz) of the UUT is read directly from the XMTR FREQ Control in MHz.

    In DME operation, frequency deviation (from 1041 MHz) of the UUT is read directly from the XMTR FREQ Control in MHz.

    NOTE: The Plus (+) and minus (-) signs on the XMTR FREQ Control are reversed in DME operation (positive values are left of zero and negative values are right of zero).

13. FREQ GAIN Control

    Regulates amount of current to the FREQ/PWR Meter to enable all signals (weak and powerful) to display equally.

ITEM DESCRIPTION

14. RF INPUT/OUTPUT Connector

    Used to connect up a remote test antenna (ramp operation) or a 34 dB pad and coaxial cable (bench operation).

    NOTE: The 34 dB pad and coaxial cable are not supplied with the unit.

15. IDENT/50% RPLY Switch

    - **IDENT** sends a 1350 Hz tone to the DME.
    - **50% RPLY** deletes 50% of the replies to a DME on a 50-50 basis.

16. VELOCITY IN/OUT Switch

    Selects the direction of the replied range in VELOCITY Mode:

    - **IN** - towards the ground station.
    - **OUT** - away from the ground station.

    NOTE: When the inbound range reaches 0.0 NM, the range instantly changes to 399.0 NM and continues inbound. When the outbound range reaches 399.0 NM, the range instantly changes to 0.0 NM and continues outbound.

17. FAST SLEW Switch

    Sets DME replied distance or range approximately 10 times faster than the SLOW SLEW Switch. Range is slewed from 0.0 to 399.0 NM in approximately 10.0 NM steps (inbound or outbound).

18. VELOCITY HI/LO RANGE Switch

    Determines which of the two crystal-controlled increments (**50/75**, **100/150**, etc.) selected by the DME RANGE/VELOCITY Switch to implement:

    - **HI** selects the greater of the two values.
    - **LO** selects the lesser of the two values.

19. SLOW SLEW Switch

    Sets DME replied distance or range approximately 10 times slower than the SLOW SLEW Switch. Range is slewed from 0.0 to 399.0 NM in 1.0 NM steps (inbound or outbound).

20. SQUITTER ON/OFF Switch

    - **SQTR** turns squitter ON in DME Operation.
    - **OFF** turns squitter OFF in DME Operation.

    NOTE: Squitter is fixed to an average of 2700 PRF at a random rate.

21. MODE Switch

    Determines which Transponder Mode (**AC ALT**, **A/C CODE** or **A**) or **DME** Mode is active.

ITEM DESCRIPTION

22. DME CHANNEL Switch

Selects one of three DME channels (**17X**, **17Y** or **18X**).

Refer to Appendix D, Table 1 for appropriate reply frequency and pulse spacing.

CHANNEL	VOR-PAIRED FREQUENCY
17X	108.00 MHz
18X	108.10 MHz
17Y	108.05 MHz

	GROUND TO AIR	
CHANNEL	FREQUENCY	SPACING
17X	978 MHz	12 µs
18X	979 MHz	12 µs
17Y	1104 MHz	30 µs

	AIR TO GROUND	
CHANNEL	FREQUENCY	SPACING
17X	1041 MHz	12 µs
18X	1042 MHz	12 µs
17Y	1041 MHz	36 µs

DME Frequency/Spacing Assignments
Table 1

23. XPDR SIGNAL LEVEL Control

Varies the Transponder output signal level at the receiver antenna from -66 to -79 dBm (±1.5 dBm). (Valid with the remote test antenna or 34 dB pad and coaxial cable.)

NOTE: The 34 dB pad and coaxial cable are not supplied with the unit.

24. 0/OFF/-9 dB SLS Switch

- **OFF** - P1 and P3 of the Transponder interrogation are transmitted.
- **0dB** - P2 is added at the same level as P1.
- **-9dB** - P2 is added at -9 dB amplitude, relative to P1.

25. FRAMING PULSE SPACING Control

Used to calculate the position and width of the the F2 pulse by rotating cw or ccw until the F2 PULSE SPACING Indicator is lit (indicating the exact leading and trailing edges of the F2 pulse).

NOTE: The approximate width of the F2 pulse equals the difference between the lowest and highest FRAMING PULSE SPACING Control settings at which the F2 PULSE SPACING Indicator is lit.

ITEM DESCRIPTION

26. ALTITUDE ENCODER INPUT Connector

    Used for direct connection of altimeter output for encoding altimeter testing. (MODE Switch must be set to **A/C ALT** for altimeter testing and input pulse must be per ARINC 532D [Appendix D, Figure 3].)

    NOTE: ALTITUDE ENCODER INPUT Connector Pin-Out is shown in Appendix A.

27. INTERROGATION SPACING Control

    Used to adjust the interrogation spacing from P1 to P2 and P3 in Transponder operation.

    P1 and P3 interrogation spacing is set at 8 and 21 μs. P2 interrogation spacing is 2 μs.

    The INTERROGATION SPACING Control moves P2 and P3 ±1.0 μs relative to P1. P2 and P3 spacing remains constant. (Refer to Appendix D, Figure 3)

28. PWR/BAT Switch

    Two position switch controls power to the Test Set:

    - ***PWR*** connects Test Set to ac line power connected to AC IN Connector.
    - ***BAT*** connects or disconnects Test Set from internal Battery. Connecting the Test Set to the Battery activates an internal battery timer. Test Set operation disconnects from the internal Battery after reaching the internal battery timer limit (approximately 6 to 10 minutes) or by pressing the PWR/BAT Switch to ***BAT*** to disconnect.

29. PWR Indicator

    Is lit when applying ac or battery power to the Test Set.

30. BAT TEST Switch

    When pressed, indicates battery voltage on XPDR % RPLY/DME PRF Meter. (Left edge of white band indicates 12.1 V.)

31. SYS/LAMP TEST Switch

    - **LAMP** - all OCTAL READOUT Indicators are lit.
    - **SYS** - F2 PULSE SPACING Indicator and the BINARY READOUT Indicators (C4 and D2) are lit; internal circuits are checked in Transponder Modes:
        - **AC ALT** - NUMERICAL Readout displays 126.7 thousand feet.
        - **A/C CODE** - NUMERICAL Readout displays 0042.

    NOTE: Center position is OFF.

2. Rear Panel

Refer to Appendix D, Figure 2.

ITEM	DESCRIPTION

32. DIODE SWITCH INPUT Connector

    Used with an high impedance probe to monitor all modulator pulses sent to the internal diode switch.

33. DETECTED RF VIDEO OUTPUT Connector

    Used with an high impedance probe to monitor detected RF Video from the UUT.

34. SYNC OUTPUT Connector

    Used with an high impedance probe to monitor the positive going TTL level pulse (present during Transponder operation).

    NOTE: Pulse should be coincident with the leading edge of P1 of the Transponder interrogation.

    Used, with a coaxial cable connected to an external Oscilloscope Sync/Trigger Connector, for viewing XPDR Interrogation and/or Reply Pulses.

    NOTE: The coaxial cable is not supplied with the unit.

35. FUSES

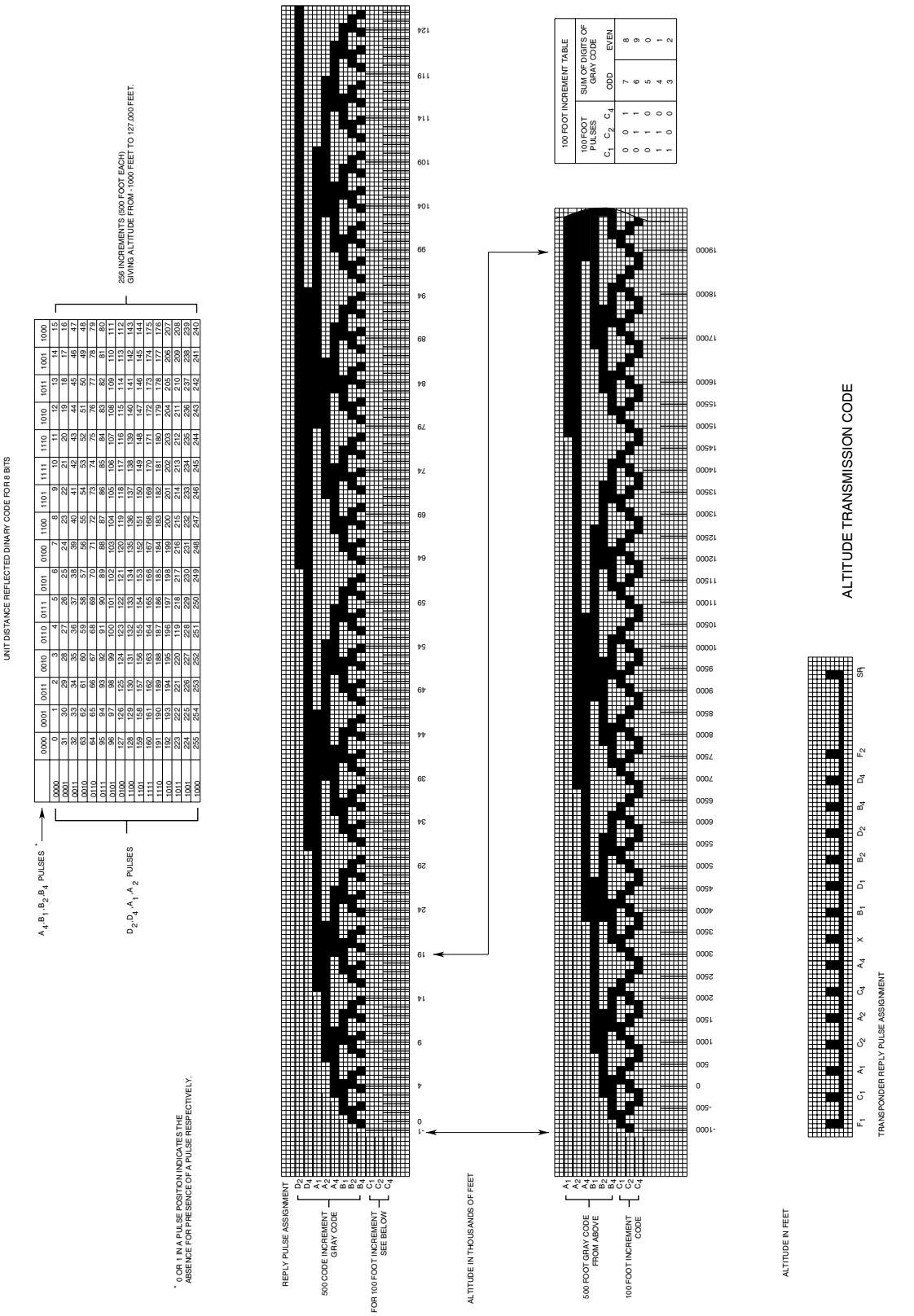
    Fuses input power to the Test Set. Refer to 1-2-1, Table 1 in ATC-600A-2 Operation Manual for correct fuse size and type.

36. VOLTAGE SELECT Switch

    Selects 115 or 230 VAC to match input ac power.

37. AC POWER Connector

    Provides input for external ac power. Refer to Appendix C for Power Requirements.



Altitude Pulse Position Assignment Chart (ARINC 532D)
Figure 3

THIS PAGE INTENTIONALLY LEFT BLANK.

APPENDIX E - ABBREVIATIONS

A	
A	Ampere
AC, ac	Alternating Current
AH	Ampere Hour
ALT	Altimeter
B	
BAT	Battery
C	
cm	Centimeter
cw	Clockwise
ccw	Counterclockwise
D	
DC, dc	Direct Current
dB	Decibel
dBm	Decibel above one Milliwatt
DME	Distance Measuring Equipment
F	
FREQ	Frequency
ft	Feet
G	
GND	Ground
H	
HI	High
hr	Hour
Hz	Hertz
I	
IDENT	Identification
ILS	Instrument Landing System
IN, in	Input
in	Inch
I/O	Input/Output
K	
kg	Kilogram
kΩ	Kilohm
kW	Kilowatt
L	
lbs	Pounds
LO	Local Oscillator
M	
m	Meter
MHz	Megahertz
MTL	Minimum Trigger Level
MTR	Meter
N	
NiCad	Nickel Cadmium
NM, nmi	Nautical Miles
O	
OUT, out	Output
P	
para	Paragraph
pps	Pulses per Second
PRF	Pulse Repetition Frequency
psi	Pounds per Square Inch
PWR	Power
R	
RF	Radio Frequency
rms	Root Mean Square
RPLY	Reply
S	
STDBY	Standby
sec	Second
U	
UUT	Unit Under Test
V	
V	Volt
VAC	Volts Alternating Current
Vdc	Volts Direct Current
W	
W	Watt
X	
XPDR	Transponder
μs	Microsecond
μA	Microampere

THIS PAGE INTENTIONALLY LEFT BLANK.

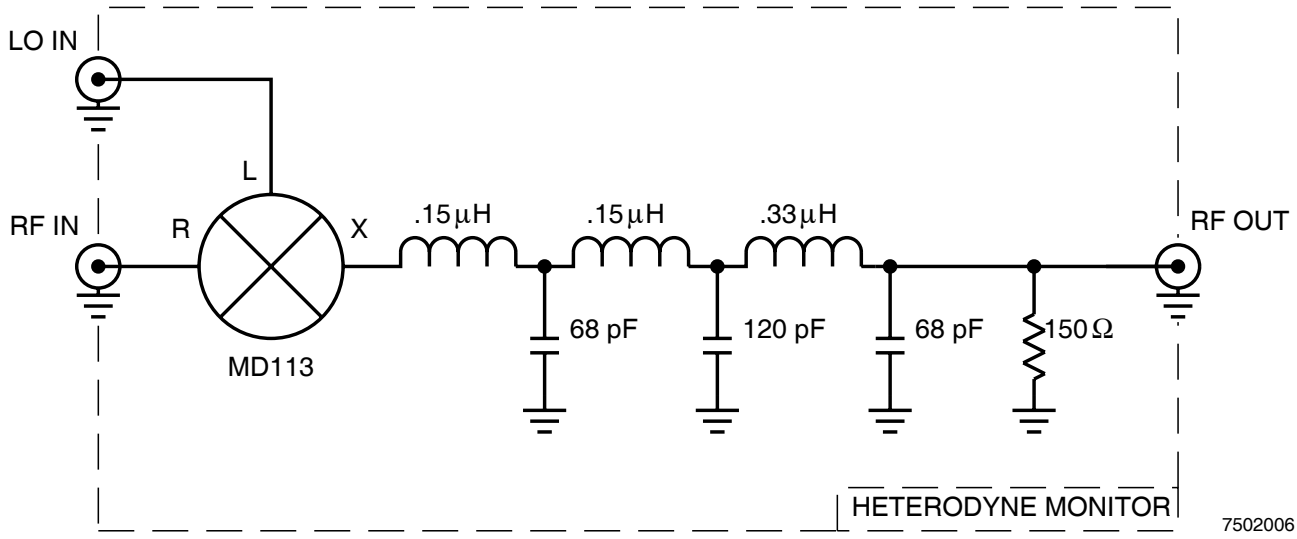
APPENDIX F - HETERODYNE MONITOR

The materials required to construct the Heterodyne Monitor used in the maintenance procedures contained in this manual are listed in Appendix F, Table 1. Appendix F, Figure 1 shows the circuit schematic for constructing the Heterodyne Monitor.

CAUTION: KEEP ALL LEADS TO COMPONENTS AS SHORT AS POSSIBLE TO REDUCE STRAY INDUCTANCE.

QUANTITY	DESCRIPTION
1	Shielded Enclosure
2	BNC Connector (Female)
1	BNC Connector (Male)
1	Mixer (ANZAC MD-113)
2	Inductor (0.15 μH)
1	Inductor (0.33 μH)
2	Capacitor (68 pF)
1	Capacitor (120 pF)
1	Resistor (5%, 1/4 W, 150 Ω)

Heterodyne Monitor Components
Table 1



Heterodyne Monitor Circuit Schematic
Figure 1

THIS PAGE INTENTIONALLY LEFT BLANK.

INDEX

As we are always seeking to improve our products, the information in this document gives only a general indication of the product capacity, performance and suitability, none of which shall form part of any contract. We reserve the right to make design changes without notice.

CHINA	Tel: [+86] (10) 6467 2716	Fax: [+86] (10) 6467 2821
FRANCE	Tel: [+33] 1 60 79 96 00	Fax: [+33] 1 60 0177 69 22
HONG KONG	Tel: [+852] 2832 7988	Fax: [+852] 2834 5364
SCANDINAVIA	Tel: [+45] 9614 0045	Fax: [+45] 9614 0047
SPAIN	Tel: [+34] (91) 640 11 34	Fax: [+34] (91) 640 06 40
UNITED KINGDOM	Tel: [+44] (0) 1438 742200	Fax: [+44] (0) 1438 7276
	Toll Free: 0800 282388 (UK only)	
USA	Tel: [+1] (316) 522 4981	Fax: [+1] (316) 522 1360
	Toll Free: 800 835 2352 (US only)	

AEROFLEX

Our passion for performance is defined by three attributes represented by these three icons: solution-minded, performance-driven, customer-focused.