AEROFLEX

Ramp Test Set TCAS-201-2

Maintenance Manual

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Issue-2

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MAINTENANCE MANUAL

RAMP TEST SET

TCAS-201-2

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FOR QUALIFIED SERVICE PERSONNEL ONLY

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Cable Statements:

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

For continued EMC compliance, all external cables must be 3 meters or less in length.

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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 NOT SPECIFIED BY THE ACCOMPANYING DOCUMENTATION MAY IMPAIR THE SAFETY PROTECTION PROVIDED BY THE EQUIPMENT.

CASE, COVER OR PANEL REMOVAL

Removing the Chassis Assy from the Case Assy 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: Refer to accompanying documents. (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): AC line 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.

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POWER CORDS

Power cords must not be frayed, broken nor expose bare wiring when operating this equipment.

USE RECOMMENDED FUSES ONLY

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

WARNING: THE TCAS-201-2 USES A SEALED-LEAD-BATTERY PACK. THE FOLLOWING WARNINGS CONCERNING LEAD-ACID BATTERIES MUST BE HEEDED:

- **DO NOT RECHARGE OUTSIDE THE TCAS-201-2.**
- **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.

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INTRODUCTION - TCAS-201-2 RAMP TEST SET

This manual contains the information necessary to test and repair the TCAS-201-2 Ramp Test Set.

It is strongly recommended that personnel be thoroughly familiar with the contents of this manual before attempting to perform maintenance on this equipment.

Only qualified personnel should perform maintenance on this equipment.

ORGANIZATION

This manual is divided into the following sections:

CHAPTER 2 - MAINTENANCE

Section 1 - SERVICING (preventive maintenance)

Section 2 - TROUBLESHOOTING (Theory of Operation; Calibration/Verification; Assemblies and Schematics)

Section 3 - DISASSEMBLY/REASSEMBLY

Section 4 - PARTS LIST

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CHAPTER TWO
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LIST OF TABLES

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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 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 soaked) 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: DO NOT MOVE COMPONENTS ON CIRCUIT BOARDS OR DISASSEMBLE CONNECTORS NEEDLESSLY TO AVOID POSSIBLE DAMAGE.

CAUTION: DO NOT OPEN COMPLEX INTERNAL MODULES FOR THE SOLE PURPOSE OF CLEANING AND INSPECTION.

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 isopropyl alcohol.

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 Circuit Boards for:
   - Corrosion or damage to connectors.
   - Damage to mounted components including crystals and ICs.
   - Freedom from foreign material.
5. Inspect Resistors for:
   - Cracked, broken, charred or blistered bodies.
   - Loose or corroded soldering connections.
6. Inspect Semiconductors for:
   - Cracked, broken, charred or discolored bodies.
   - Correct placement and condition of seals around leads.
7. Inspect Wiring for:
   - Broken or loose ends and connections.
   - Proper dress relative to other chassis parts.

   NOTE: Verify wrapped wiring is tight.

SECTION 2 - TROUBLESHOOTING

1. Theory of Operation

A. General

Theory of Operation is divided into three levels:

- System Theory of Operation

  Contains a simplified description of signal flow through the TCAS-201-2 with accompanying block diagram.

- Functional Theory of Operation

  Contains simplified descriptions of how the various functions of the TCAS-201-2 operate.

- Module Theory of Operation

  Contains a detailed description of each assembly in the TCAS-201-2.

Refer to Appendix G, Figures 1 and 2 for location of external controls, connectors and indicators. Refer to appropriate schematics and assembly drawings in para 2-2-3 for internal controls, connectors, indicators and components.

B. System Theory of Operation (2-2-1, Figure 1)

The TCAS-201-2 Ramp Test Set provides three simulations:

- Active Mode C or Mode S Transponder transmits continually changing replies to interrogations from a specific TCAS interrogator or unit under test (UUT).
- Mode C or Mode S Reply Generator transmits preset replies to interrogations from a specific TCAS interrogator or UUT.
- TCAS Interrogator Monitor decodes information from interrogations received from any interrogator transmitting in the operating mode of the TCAS-201-2.

UUT interrogations are received on an RF carrier signal at ≈1030 MHz, through the RF I/O Connector or ANTENNA Connector. The signal is mixed down to 30 MHz by the Mixer PCB Assy. The Analog IF Assy filters and amplifies the signal for the Digital IF PCB Assy and Detector Assy. The 30 MHz signal is converted to a digital signal and analyzed by the Digital IF PCB Assy. Mode S information data, stored on the Digital IF PCB Assy, is accessed by the Front Panel Pulse PCB Assy. The Detector Assy sends Differential Phase Shift Keying (DPSK) modulation to the Decoder Assy and interrogation Video with a Threshold comparison signal to the Front Panel Pulse PCB Assy. The Decoder Assy decodes and sends DPSK data to the Front Panel Pulse PCB Assy. The Front Panel Pulse PCB Assy verifies the data and/or video. If the interrogation is determined to be valid, the Front Panel Pulse PCB Assy initiates replies as instructed by the operating test function. The Front Panel Pulse PCB Assy also controls interrogation information shown on the DISPLAY.

Replies are controlled and produced from the Front Panel Pulse PCB Assy. When in Scenario Test or Reply Test functions, the Front Panel Pulse PCB Assy replies when correct interrogations are received. The Front Panel Pulse PCB Assy transmits specific pulse information according to operation screen settings, to the Driver PCB Assy. The Driver PCB Assy drives the pulse information to modulate a 30 MHz signal in the Analog IF Assy. After amplification and frequency mixing by the Mixer PCB Assy, a modulated 1090 MHz reply signal is transmitted through the RF I/O Connector or ANTENNA Connector to the UUT.

C. Functional Theory of Operation

(1) Scenario Test

The TCAS-201-2 simulates a moving Mode C or Mode S transponder when Scenario Test is initiated. Once a second, the Front Panel Pulse PCB Assy calculates a new position for the TCAS-201-2. Using range rate information from the Scenario Test screen, the Front Panel Pulse PCB Assy calculates and implements a new reply delay for simulating the updated position. Using the altitude rate from the Scenario Test screen, the Front Panel Pulse PCB Assy calculates new altitude data for the next Mode C or Mode S reply. Screen edits are incorporated at any time during operation.

(2) Reply Test

The TCAS-201-2 simulates a stationary Mode C or Mode S transponder (reply generator) when Reply Test is initiated. The Front Panel Pulse PCB Assy sets replies according to information loaded into the applicable Reply Test screen. Information is updated only when edits are made to the Reply Test screen.

(3) Monitor

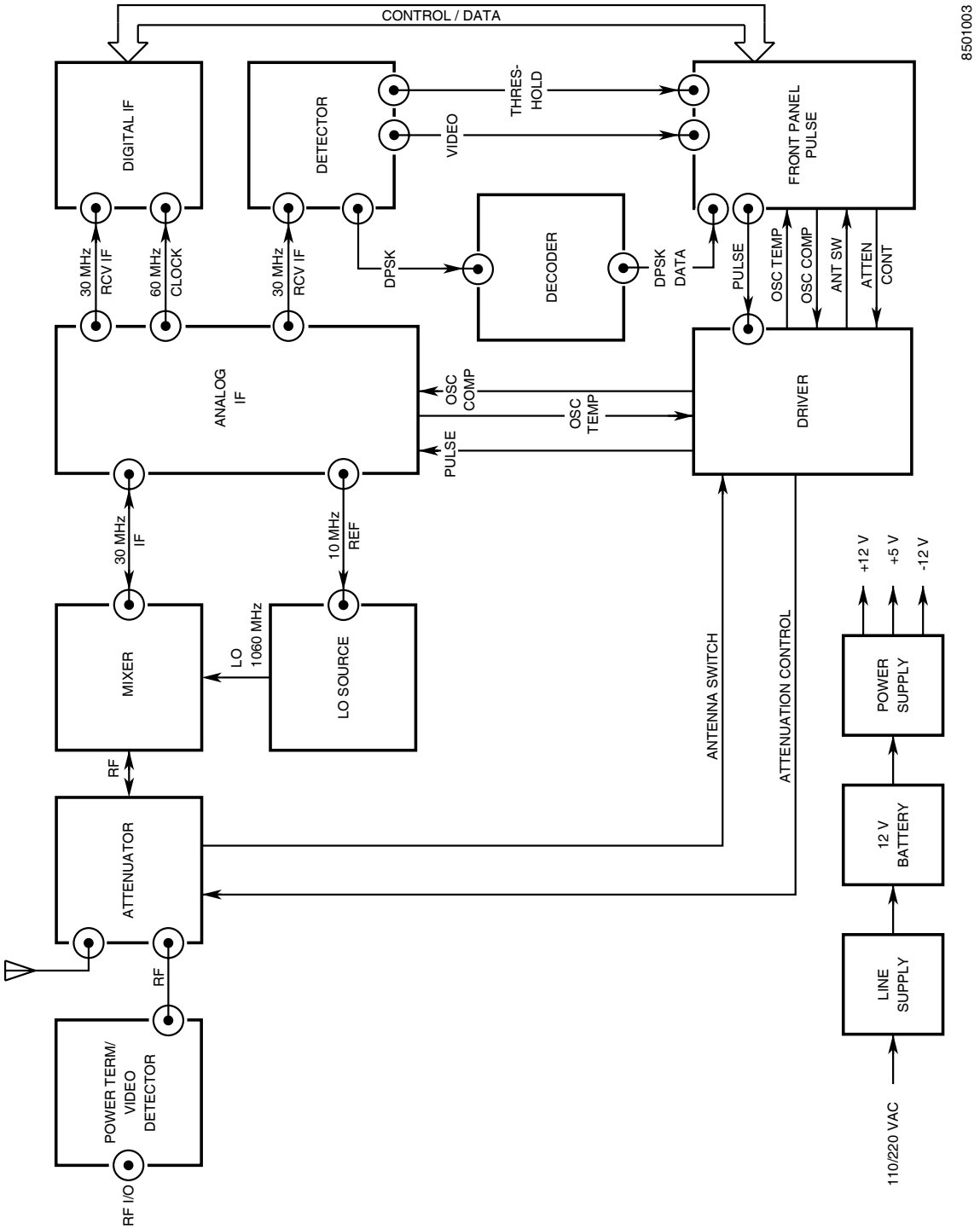
The TCAS-201-2 monitors the Whisper-Shout sequence in ATCRBS operation and UF0 and UF16 interrogations including the TCAS Broadcast in Mode S operation. In ATCRBS operation, the Front Panel Pulse PCB Assylooks for suppression pulses (S_1 and/or P_2). If suppression pulses are received and test was initiated from Scenario or Reply Test screen, the trigger to start the TCAS-201-2 reply is not sent. Suppression pulse information is sent to the DISPLAY. In Mode S operation, the Front Panel Pulse PCB Assy sends interrogation data information, stored on the Digital IF PCB Assy, to the DISPLAY.

(4) Power & Frequency

Power & Frequency is a cyclic program stored in ROM on the Front Panel Pulse PCB Assy. The test transmits Mode S squitters starting with the address loaded in the Mode S Reply Test screen ***AA:*** field and using up to 512 different addresses. Detected interrogations, received as a result of the squitters, are sent to the Digital IF PCB Assy for power and frequency calculations. The Digital IF PCB Assy splits incoming signals into two phases (In and Quadrature) to calculate amplitude of P_6 interrogation pulses and phase shifts between digitized P_6 interrogation pulse samples before SPR.

Two power calculations, current and average, use multiple samples of each P_6 interrogation pulse. Average power is calculated using the amplitude of all interrogations received during entire Power & Frequency test run. A small correction factor is subtracted from average power calculations, to offset multipath effects. Current power is average power over latest one second interrogation sequence. The latest interrogation sequence contains the number of interrogations indicated in the ***INTERRS:*** field. The Front Panel Pulse PCB Assy uses distance information from Setup #1 Menu to calculate path loss. Antenna gain and cable loss from Setup #1 Menu are added with the path loss and power calculations to provide displayed power readings.

Two frequency calculations, current and average, are calculated using multiple samples of In phase and Quadrature phase signals. Frequency is determined by change in phase during a sample period. Average frequency is calculated using an average of all samples received during entire Power & Frequency test run. Current frequency is average frequency over latest one second interrogation sequence.



System Block Diagram
Figure 1

(5) Self Test (2-2-1, Table 1)

Self Test runs as follows:

- Non-Volatile RAM Battery (only run on power-up)

  The Processor on Front Panel Pulse PCB Assy reads the non-volatile RAM battery bit status from the RAM on the Front Panel Pulse PCB Assy. Status is set only on power-up.

- Battery

  The Processor on the Front Panel Pulse PCB Assy reads the BATTEST line from the Power Supply Assy through the Status Buffer on the Front Panel Pulse PCB Assy.

- LO Control

  The Processor on the Front Panel Pulse PCB Assy enables the Local Oscillator (LO) through the LED Control Register on the Front Panel Pulse PCB Assy. The Processor reads the Status Buffer on the Front Panel Pulse PCB Assy to verify the LO is On. The LO is then disabled through the LED Control Register. The Processor reads the Status Buffer again to verify the LO is Off.

- Dual Port RAM (DPR)

  The Processor on the Front Panel Pulse PCB Assy writes a sequence using AA55h to fill the DPR on the Digital IF PCB Assy. The Processor reads the DPR and compares with the sequence written. The process repeats using 55AAh. The process repeats a third time using a number sequence starting at 0000h and increasing one for each address loaded.

  NOTE: If the DPR test fails, Self Test skips the other RAM tests and goes to the LED test.

- Video RAM

  The Processor on the Front Panel PCB Assy tests the Video RAM on the Front Panel Pulse PCB Assy in the same manner as the DPR on the Digital IF PCB Assy.

- Display RAM

  The Processor on the Front Panel PCB Assy copies the current screen and transfers visibility to the unused secondary page on the Liquid Crystal Display (LCD). The Processor tests the Display RAM on the Front Panel Pulse PCB Assy using the primary page and in the same manner as the DPR on the Digital IF PCB Assy. After the test, the screen and visibility are returned to the primary page.

- Non-Volatile RAM

  Contents of the non-volatile RAM on the Front Panel PCB Assy are transferred to the DPR on the Digital IF PCB Assy. The Processor on the Front Panel PCB Assy tests the non-volatile RAM in the same manner as the DPR. After the test, the original contents are restored to the non-volatile RAM.

TEST	GROUP	VERIFIES	FAILURE CODE (h)	RUNNING ORDER
Non-Volatile RAM Battery	Power Supply/ Battery	Battery has sufficient power for RAM to retain memory.	00000020	Only on power-up
Battery	Power Supply/ Battery	Voltage is within correct voltage range.	00000010	1
LO Control	RF	Valid ON/OFF status	00000001	2
RAM	Digital	Dual Port RAM (DPR)	01000000	3
		Video RAM	02000000	4
		Display RAM	08000000	5
		Non-Volatile RAM	04000000	6
LED	Digital	Interrogation and reply drivers	80000000	7
UART	Digital	RS-232 loop back	00400000	8
Attenuator #1	Digital	Level at end line diodes	10000000	9
Attenuator #2	Digital	Level at midline diodes	20000000	10
LO Compensation	Digital	DCXO control voltage	40000000	11
LO Detect	RF	LO is locked.	00000002	12
RF Detect	RF	TX level out/Attenuation	00000004	13
DSP Initialization	Digital	Handshake routine	00000040	14
NOTE: Multiple failures are indicated by the sum of the error codes.				
NOTE: If DPR Test fails, subsequent RAM tests are not run.				

Self Test
Table 1

- LED

  The Processor on the Front Panel PCB Assy turns On the Interrogation and Reply LEDs on the Front Panel LED PCB Assy through the LED Control Register on the Front Panel PCB Assy. The Processor verifies On status through the Status Control Register on the Front Panel PCB Assy. After ≈80 ms, Off status is verified through the Status Control Register.

- UART

  The Processor on the Front Panel PCB Assy configures the UART (RS-232 Interface on the Front Panel Pulse PCB Assy) to loop back. The Processor sends a message and verifies the reception.

- Attenuator #1/Attenuator #2

  The Processor on the Front Panel PCB Assy writes values to the attenuation Digital-to-Analog Converters (DACs) on the Front Panel PCB Assy. The Processor reads the corresponding status from the Analog-to-Digital Converter (ADC) on the Front Panel PCB Assy to verify the DACs are correctly converting attenuation voltage data.

- LO Compensation

  The Processor on Front Panel PCB Assy writes values to a DAC on the Front Panel PCB Assy. The Processor reads the corresponding status from the ADC on the Front Panel PCB Assy to verify the DAC is correctly converting LO compensation voltage data.

- LO Detect

  The Processor on the Front Panel PCB Assy turns On the Local Oscillator on the LO Source PCB Assy through an LED Control Register on the Front Panel PCB Assy. The Processor verifies the LO Detect voltage is 0.35 to 3.1 Vdc by reading 71 to 635 from the ADC on the Front Panel PCB Assy. The test fails if the LO is not locked (≈7.5 Hz trapezoidal waveform present at TP27033 on the Front Panel Pulse PCB Assy).

- RF Detect

  The Pulse Generator on the Front Panel PCB Assy sends a CW signal with no attenuation. After going through the transmit portion of the RF Assy, the signal returns on the RF DETECT line to the ADC on the Front Panel PCB Assy. The Processor on the Front Panel PCB Assy verifies the level after digital conversion. The test is repeated with 3 dB attenuation set by the Attenuator Control on the Front Panel PCB Assy through the Driver PCB Assy to the Attenuator PCB Assy. The Processor checks for the 3 dB difference by verifying the ratio of unattenuated level to attenuated level is 2 (±0.4).

- DSP Initialization

  The Processor on the Front Panel Pulse PCB Assy resets the Digital IF PCB Assy through the LED Control Register on the Front Panel PCB Assy. After reset, the Digital Signal Processor (DSP) on the Digital IF PCB Assy controls the RDY output to the Status Buffer on the Front Panel PCB Assy. The Processor verifies the DSP is ready status through Status Buffer.

D. Module Theory of Operation

(1) Power Supply

(a) Line Supply Assy

The Line Supply Assy is an ac to dc converter containing a power transformer, bridge rectifier and filter.

The AC PWR Connector (J10050) on the Front Panel Assy is connected to the Line Supply Assy through P33049A. Transformer T33001 has two primary windings connected in parallel when 115 VAC is selected by double pole, double throw Switch S15001. The two primary windings are connected in series if 230 VAC is selected. The secondary winding of T33001 is connected to Full Wave Rectifier BR33001, mounted on the side panel heat sink. Unregulated voltage from BR33001 is applied to the crowbar circuit (over-voltage protection), filtered by C33003 and sent through P33049B to the Power Supply Assy.

The crowbar circuit includes CR15001, CR15002, R15001, R15002 and Q15001. If voltage becomes excessive, Q15001 turns on, effectively shorting the bridge output and disabling Fuse F12001. F12001 opens when the line reaches approximately 160 VAC (115 VAC operation) or 320 VAC (230 VAC operation).

(b) Power Supply Assy (2-2-1, Figure 2)

1 Battery Charger

The Battery Charger operates on 15 to 22 V source from the Line Supply Assy through P23047. The CHARGE Indicator illuminates red when charging and green when battery is more than 80% charged.

The Battery Charger requires Test Set power Off and a partially charged battery to initialize. With no battery, the Battery Charger is inoperable. If TCAS-201-2 power is On (DISPLAY illuminates and shows screen), the Battery Charger is disabled.

When ac power is first applied with Test Set power Off, the Battery Charger provides constant current to the battery. When the battery achieves a 75% charge, voltage across the battery rises rapidly and the Battery Charger switches to voltage regulation mode (at ≈14.2 V).

The 15 V source voltage is applied to the Power Supply Assy at P23047-8 and P23047-15. Input to the switching section goes through a low-pass filter (C14032, L14006, C14023 and C14038) to Converter/Transformer T14001. Output of T14001 is rectified by CR14003 and filtered by C14001, providing the battery voltage at J11048-1. CR14015 and CR14014 provide back-up voltage separation between the battery, Battery Charger and Output Supply. The battery is grounded through Current Sense Resistor R14001. Regulator U14001 operates on three inputs. The peak current on FET Q23002 is fed back to the Current Sense input (U14001-7). The battery charge voltage is fed back and sensed across a voltage divider (R14003, R14080 and R14007). R14007 (ADJ BATT CHARGER VOLTAGE) adjusts the operating float voltage (14.2 Vdc with charged battery). The charging current sensed at R14001 sets up the reference voltage formed across diodes CR14001 and CR14002. Thermistor RT14001 controls bias current on CR14001 and CR14002. The reference input to U14001-1 is a function of temperature and establishes trickle charge control between 0° C and 70° C. R14073 (GAIN ADJ) controls excess voltage. The pulse output (U14001-13) controls Gate Drivers Q14001 and Q14002. Q14001 and Q14002 drive the Transformer T14001 through Q23002.

The ac voltage at T14001 (E14004) is rectified by CR14011 and C14026. Rectified voltage feeds constant current source Q14015. Q14015 provides ≈20 mA to the CHARGE Indicator through P12001-3. When the line from Q14015 is sourcing current, the CHARGE Indicator illuminates red. When Q14013 and Q14014 are turned on, Q14015 shuts off and sink current through CR14010 causes the CHARGE Indicator to illuminate green. Three conditions must be met to obtain a green indication on the CHARGE Indicator:

- Charging current (<≈400 mA) is sensed by U14006C.
- Regulator U14001 is in voltage regulation mode when the compensation output (TP14001) is <≈4 V. The compensation output is sensed by U14006D.
- Regulator U14001 produces enough power to trickle charge the battery when the compensation output (TP14003) is >≈2 V. This indicates a battery is connected and the battery has no open cells. The compensation output is sensed by U14006B.

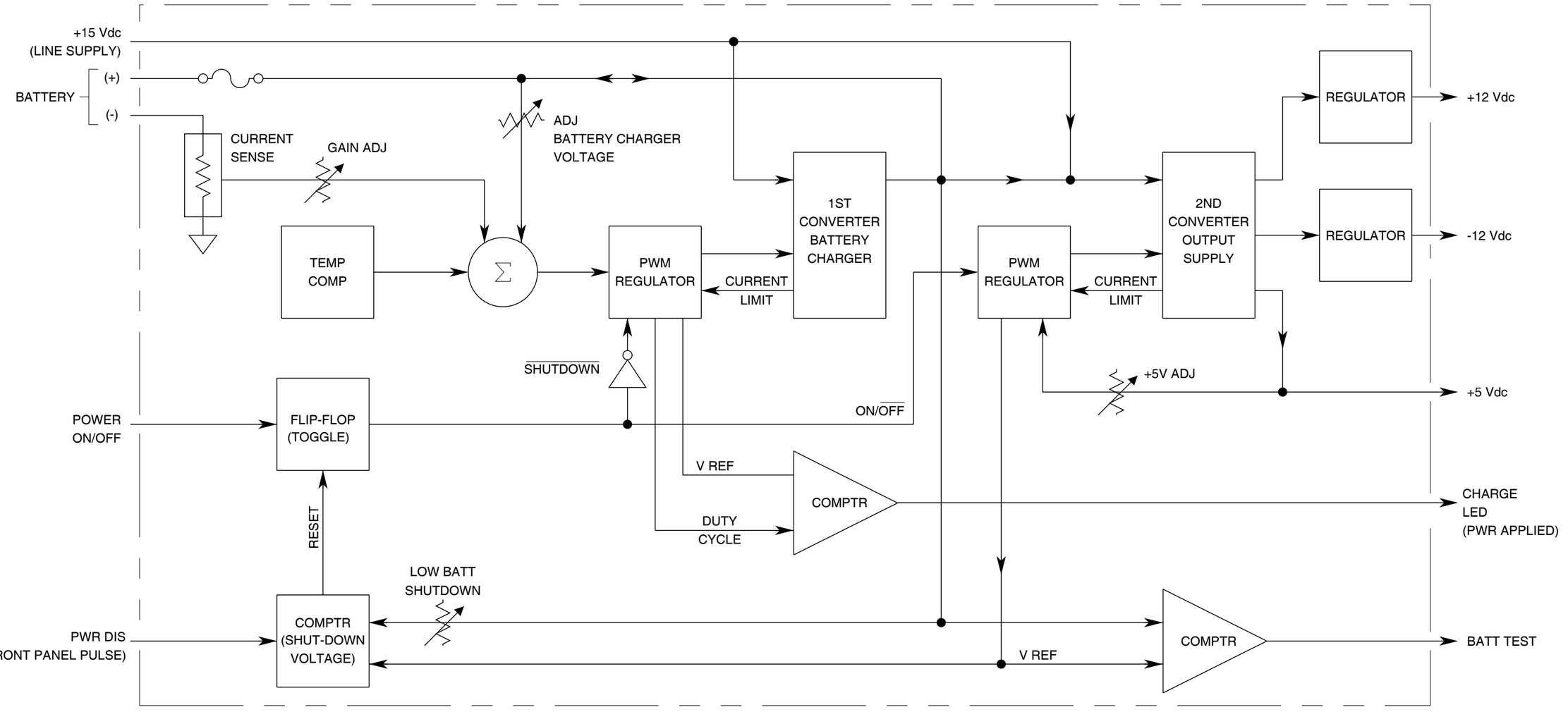
2 Output Supply

The Output Supply is dependent upon the battery line for the input power. Input voltage to the Output Supply varies with the charge level of the battery. The Output Supply provides operating voltages for the Test Set and is controlled by the POWER Key. The Battery Charger is switched Off when the Output Supply is operating.

The POWER Key is connected to P12001-1. A switch closure to ground at R14017 turns Q14017 On momentarily, clocking J-K Flip-Flop U14002B connected as a one-shot. At switch closure, U14002B-2 produces a single 100 ms pulse, set by R14019 and discharge time of C24010. The trailing edge of the pulse (going positive) clocks J-K Flip-Flop U14002A. When toggled On, U14002A-15 goes high turning On the Output Supply and U14002A-14 goes low activating SHUTDOWN line to turn Off the Battery Charger. The high at U14002A-15 activates Q14004, Q14005 and Q14006. Q14006 drives the Regulator U14003. Q14005 drives the low voltage sensing circuit.

U14003 regulates using three inputs. Current limit control through FET Q23001 is sensed at U14003-6. The +5 V feedback voltage is set by R14074 and sensed at U14003-1. Feedback current through R14025 sets the negative error sensing input at U14003-2. The pulse output (U14003-13) controls Gate Drivers Q14007 and Q14008. Q14007 and Q14008 drive Transformer T14002 through Q23001. Two outputs from T14002 are rectified, filtered and regulated to provide +12 and -12 Vdc. The other output is rectified and filtered to provide +5 Vdc, regulated by U14003.

The battery voltage is sensed through Q14005 across Voltage Divider R14062, R14060 and R14061. When the battery voltage drops below a threshold determined by temperature (≈+11.3 V at 25° C), U14008C drives a low level through R14068 to the Front Panel Pulse PCB Assy. ***** LOW BATTERY ***** appears in the right half of the fifth line on the DISPLAY and the Battery Test portion of the Self Test fails. As the battery voltage drops further (to ≈+10.4 V at 25° C), Comparator U14008B senses the low voltage and a high level output activates Q14012. U14002A resets and shuts off the Output Supply. If the Keypad is inactive for ≈15 minutes during operation, Power Disable (PWRDIS) line from the Front Panel Pulse PCB Assy goes high to Comparator U14008A-6. The high level output causes U14002A to reset and shut off the Output Supply.



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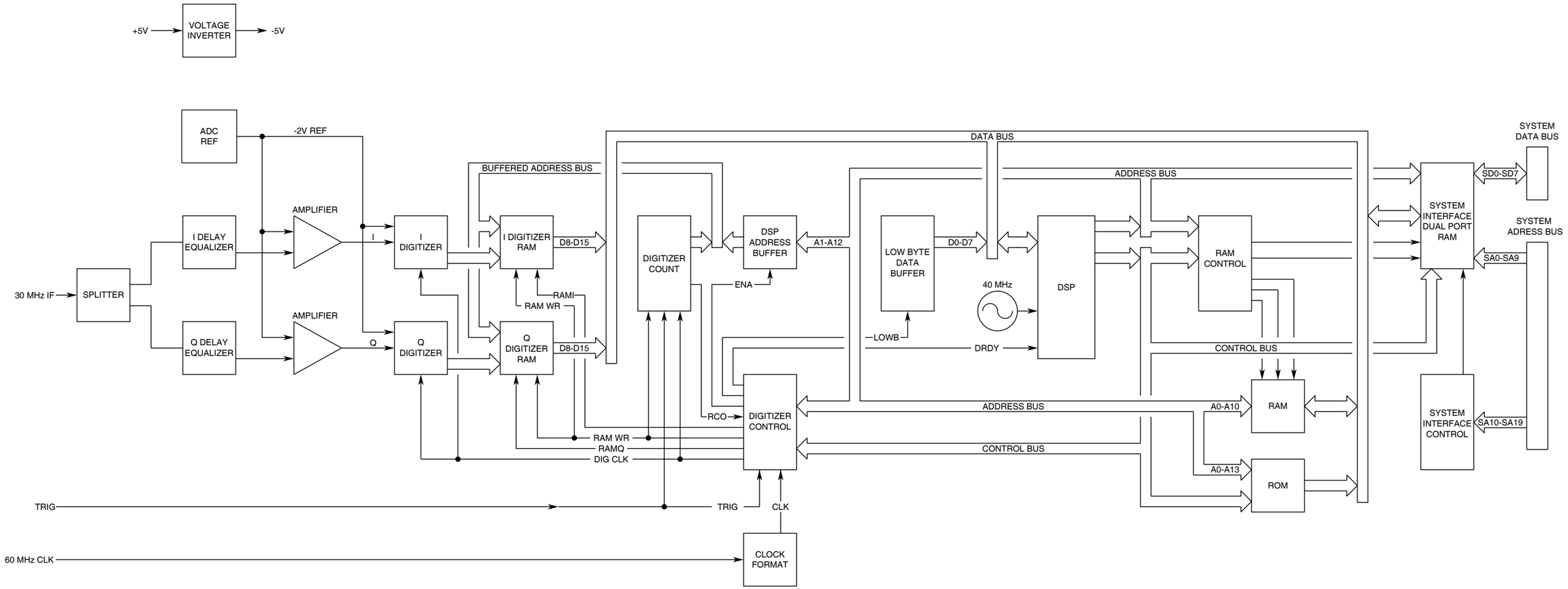
Power Supply Assy Block Diagram
Figure 2



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Digital IF PCB Assy Block Diagram
Figure 3

(2) Digital IF PCB Assy (2-2-1, Figure 3)

The Digital IF PCB Assy changes the incoming interrogation signals from analog to digital and accurately calculates power and frequency. The Receive IF splits the signal in two and provides a complex representation of the original interrogation signal. The analog signals are converted to digital by the Digitizer and stored into memory. The DSP conducts calculations with the digital information and provides the results to the Front Panel Pulse PCB Assy through the System Interface. The Voltage Inverter provides the necessary voltage to operate the Digital IF PCB Assy.

(a) Receive IF

The 30 MHz signal from the Analog IF Assy, verified at TP26017, goes through a 6 dB resistive splitter (R26032, R26033 and R26034) providing two signals while maintaining 12.8 MHz of bandwidth. Delay equalizers cause a 90° phase difference between the two signals to provide a sine and cosine representation of the received IF signal. Delay equalizers are first order constant-resistance time-domain circuits. One delay equalizer (L26001-L26004, C26057-C27060 and R26011) provides the in-phase (I) signal. The other delay equalizer (L26005-L26008, C26061-C27066 and R26012) provides the quadrature phase (Q) signal. C26061 and C26063 (φ ADJ) maintain the 90° phase difference between the two signals. R26011 (I LEVEL ADJ) and R26012 (Q LEVEL ADJ) keep amplitude of both signals equal.

Transformers T26001 and T26002 convert I and Q signals from bipolar to polar. High-speed integrating operational amplifiers (U26031 and U26032) provide approximately seven times amplification for an output of 2 Vp-p at 30 MHz. The midpoints or zero references (≈-1 V) used in the integration process are tapped from Resistor Networks R26018-R26017 and R26023-R26024 across the ADC reference voltage (≈-2 V). R26017 and R26023 (ADC ZERO) also compensate for temperature drift. Diodes CR26006 and CR26007 protect the ADCs by effectively shorting positive voltages (0.4 V) to ground. The I signal is verified at TP26019 and the Q signal is verified at TP26020.

(b) Digitizer

1 ADC Reference

The ADC reference provides the -2 V reference voltage for the flash ADCs. CR26002 drops 2.5 V. Low Offset Amplifier U26027 and current gain transistor Q26002 convert the 2.5 V to -2 V. The non-adjustable ADC reference voltage (1.96 to 2.08 V) is present at TP26023. The -2 V reference is used by flash ADCs (U26001 and U26002) and Receive IF operational amplifiers (U26031 and U26032). Each flash ADC draws 23 mA nominal, 40 mA maximum, and the operational amplifier circuits use 0.7 mA. The ADC reference circuit supplies a maximum of 300 mA.

2 Flash ADCs

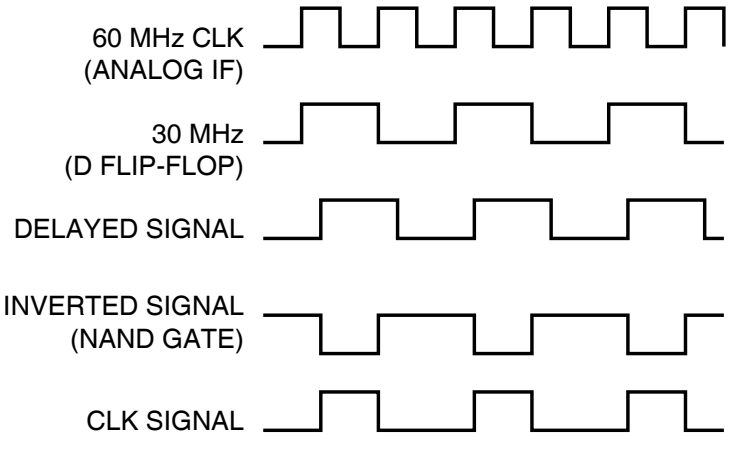
Flash ADCs U26001 and U26002 convert the input analog signals from the Receive IF to digital 8-bit signed values (two's complement). Input signals are set from -2 to 0 V. Voltages >0 V overflow the ADCs. Digital output values range from 80h (-128 decimal), corresponding to -2 V, to 7Fh (+127 decimal), corresponding to 0 V. The 30 MHz digital clock from U26015 controls ADC operation.

3 RAM

Digitized data is written into four high-speed RAM chips (U26010 through U26013) at a 30 MHz rate. Each RAM chip has a 4k by 4 byte capacity. The RAM chips have separate inputs and outputs. Flash ADCs only write into the RAM chips and the DSP (U26003) only reads from the RAM chips. Address lines are shared by the digitizer control circuit and DSP.

4 Clock Format

The clock format circuit converts the 60 MHz sine wave from the Analog IF Assy into a 30 MHz TTL clock with a 33% duty cycle. Refer to 2-2-1, Figure 4 for the clock format timing diagram. Transistor Q26001, inverting Schmitt triggers (U26023A and U26023B) and associated circuitry convert the 60 MHz input to TTL. D Flip-Flop U26024A divides the signal by two and the 30 MHz output provides both inputs to NAND Gate U26025A. Because DL26001 delays one input by 5 ns, U26025A has a 67% duty clock output. After being inverted by NAND Gate U26025B, the 30 MHz TTL clock has a high time of 10.67 to 12.67 ns. The clock format output is verified at TP26022.



Clock Format Timing Diagram
Figure 4

5 Digitizer Control

The digitizer control circuit consists of a Programmable Array Logic (PAL) circuit (U26015), three binary counters (U26017, U26018 and U26019), two flip-flops (U26020 and U26028) and two address register buffers (U26021 and U26022). U26015 directs digitizing of data into RAM and reading of data out of RAM. Refer to 2-2-1, Table 2 for description of U26015 inputs and outputs. Refer to Appendix C for PAL equations and Appendix D for timing diagrams.

FLOW	U26015 PINS	NAME	DESCRIPTION
Input	1 and 2	CLK	30 MHz TTL clock with 33% duty cycle from clock format circuit
Input	3	DS	Data Select signal from DSP is high unless made low for communicating with external data memory (DPR).
Input	4	STRB	Strobe signal from DSP is high unless made low (active) to indicate external bus cycle.
Input	5, 6 and 7	A0, A14 and A15	Address lines from DSP
Input	8	TRIG	Inverted trigger from Front Panel Pulse PCB Assy indicates start of process.
Input	9	RCO	Ripple Count Out from binary counters indicates end of digitizing the data.
Output	12	DIG CLK	Digitizer Clock
Output	13	LOWB	Low Byte selects Line Driver U26026 to keep data lines (D0-D7) low during RAM read.
Output	15	ENA	Enable Address activates two address register buffers (U26021 and U26022) connecting DSP to digitizing RAM.
Output	16	DRDY	Low Data Ready signal indicates digitizing RAM is ready for DSP to read.
Output	17	RAM WR	RAM Write controls RAM access (low for ADCs writing to RAM and high for DSP reading from RAM).
Output	18	RAMQ	Enables Q digitizer RAM.
Output	19	RAMI	Enables I digitizer RAM.

Digitizer PAL Inputs and Outputs
Table 2

Digitizing sequence:

- U26023C inverts high TRIG output from Front Panel Pulse PCB Assy to low, resetting Binary Counters U26017, U26018 and U26019.
- On the rising edge of the first clock pulse after TRIG goes low:

  RAM WR goes low to enable the ADCs to write to RAM.

  ENA goes high to disable DSP addressing.

  DRDY goes high indicating data is not ready for DSP to read.
- RAM WR going low enables Flip-Flops U26020 and U26028 to address RAM by latching address lines to the output of Binary Counters U26017, U26018 and U26019.
- DIG CLK, RAMI and RAMQ synchronize with CLK on the falling edge of the first clock pulse after RAM WR goes low.
- TRIG returns to high and the binary counters start counting on the first rising edge of DIG CLK. Binary Counters U26017, U26018 and U26019 are cascaded together to provide a count from 0 to 4095 (the capacity of the digitizer RAM chips).
- With each DIG CLK count, the ADCs convert incoming analog data into another byte.
- With each DIG CLK count, the byte of converted data from the prior clock cycle is stored in the next address in RAM, as stepped by the binary counters (U26017, U26018 and U26019) and latched by the flip-flops (U26020 and U26028).
- Process continues until the binary counters are full and RCO output U26019-15 goes high.
- DIG CLK, RAMI and RAMQ stop synchronous operation with CLK and stay high.
- After U26015 internal switching allows ADCs to write last byte of data into RAM, RAM WR goes high setting RAM for DSP to read.
- ENA goes low to enable DSP to address digitizing RAM.
- DRDY goes low to trigger DSP for reading digitizer RAM. DRDY stays low until a read is done at any digitizer RAM address.
- DSP reads RAMQ (quadrature phase data) using an odd address. A15 and A0 are high while A14, DS and STRB are low.
- DSP reads RAMI (quadrature phase data) using an even address. A15 is high while A0, A14, DS and STRB are low.

(c) Digital Signal Processor (DSP)

U26003 is a TMS320C25 DSP. Two external EPROM chips, U26004 and U26005, provide 8k by 16 bits of ROM containing the program code for U26003. U26003 selects the EPROM chips at addresses from 0 to 3FFFh while the PS (U26003-47) and STRB (U26003-49) lines are both low through OR Gate U26034A. Two external 2k by 8 RAM chips (U26008 and U26009) and internal DSP RAM provide ≈2.6k by 16 bits of RAM. Interface to external RAM is accomplished with the 16V8A PAL U26016. Addresses from 400 to BFFh with STRB low cause SRCS (U26016-19) to go low, selecting the RAM chips. SROE (read) or SRWE (write) goes low depending on R/$\overline{W}$ line (U26003-48). Data lines D0-D7 access U26008 and data lines D8-D15 access U26009. External RAM is contiguous to the internal RAM located through 3FFh. RAM is accessed with no wait states.

The DSP operates using a 40 MHz clock provided by U26035. Inverting Schmitt Trigger U26036A converts clock output to TTL.

In operation, the DSP performs calculations, controlled by ROM, on the data in digitizer RAM. Results are stored in RAM available to the DSP. After reading the digitizer RAM chips, the DSP performs mathematical operations to determine the power of P_6 pulse and the UUT frequency.

(d) System Interface

The System Interface consists of PAL U26016 and Dual Port RAM (DPR) U26007. The RDY line (P26006-A7), when high, indicates the Digital IF PCB Assy is ready to communicate. The RDY line resets at power-up or when system is reset by the Front Panel Pulse PCB Assy. IS, STRB and R/$\overline{W}$ goes low to U26016 causing RDYCS to go low. RDYCS clocks D Flip-Flop U26024B and a high on data line D0 sets the RDY line high. The DSP accesses the DPR at addresses C000 to C3FFh through the PAL. When DS is low with A14 and A15 high (valid DPR address), a high (U26016-15) is sent to J-K Flip-Flop U26029A to add a wait state. On the falling edge of CLK2, U26029A output goes high to U26016-5, setting READY high. When a valid address other than a DPR address is accessed, READY line is set high without a wait state. Refer to wait state timing diagrams in Appendix D. When the DPR is accessed by the Front Panel Pulse PCB Assy, the BUSY line from the DPR (U26007-3) goes low causing the READY line to remain low.

(e) Voltage Inverter

The Voltage Inverter converts the +5 V input to a -5 V output. The Voltage Inverter is a pulse width modulated circuit consisting of a relaxation oscillator, Transistor Q26004, Switcher Pass Device Q26005, Clamp Diode CR26005 and associated filtering components.

The relaxation oscillator consists of Comparator U26037, Voltage Divider R26036 and R26037, Resistor R26039 and Capacitor C26079. R26039 and C26079 provide the time constant, setting the oscillation frequency. The voltage divider sets the voltage limitations of the oscillator (centered around +5 V). Comparator U26037 sends a pulse output to control Q26005. The pulse (≈10 V) is based on the input from Transistor Q26004 and the voltage divider.

Transistor Q26004 works as differential amplifier and provides feedback current to modulate duty cycle offset by R26038. R26040 and R26041 provide feedback voltage (≈-0.7 V) on emitter of Q26004. R26041 (-5V ADJ) sets level of feedback necessary to maintain the -5 V output. Diodes CR26003 and CR26004 compensate for voltage drop across the base to emitter of Q26004. C26080 provides lead compensation to dampen feedback loop ringing caused by the delay from input to output.

The pulse output from Comparator U26037 causes current to flow through Q26005 ≈50% of the time. The other part of the time current flows through CR26005. The voltage drop across CR26005 goes from +0.5 to -10 V during the duty cycle averaging out to -5 V. C26081 provides a dc block between the modulating circuit and the output. L26009 and L26010 provide filtering and modulation allowance.

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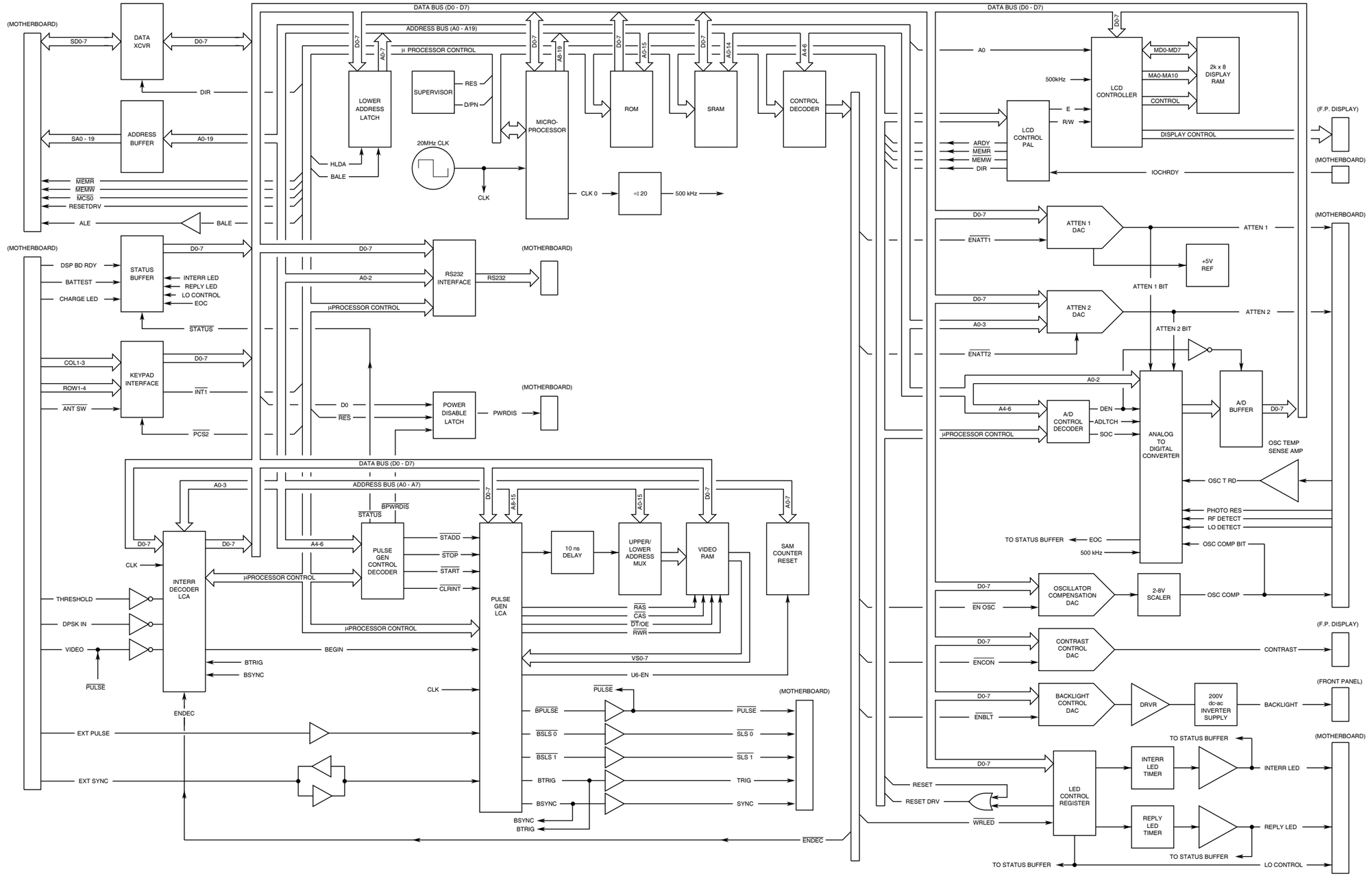

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Front Panel Pulse PCB Assy Block Diagram
Figure 5

(3) Front Panel Pulse PCB Assy (2-2-1, Figure 5)

The Front Panel Pulse PCB Assy controls the general operation of the TCAS-201-2 Test Set by providing an interface to the user, decoding interrogations, generating replies and controlling both the Digital IF PCB Assy and RF Assy.

(a) Processor

The Processor has four major components: Microprocessor U27001, two 64k ROMs (U27012 and U27013) and 32k non-volatile SRAM U27017. U27001, an 80188 microprocessor, receives instruction data from the two 64k ROMs and carries out assignments as instructed. U27001 uses 11 chip selects. Refer to 2-2-1, Table 3 for chip select definition. Chip select lines are active low. SRAM U27017 has internal battery back-up to prevent loss of memory.

CHIP SELECT	LINE	SELECTION	ADDRESSES
Upper	$\overline{UCS}$	64k ROM (U27012)	F0000-FFFFFh
Lower	$\overline{LCS}$	32k SRAM (U27017)	00000-08000h
Mid-Range	$\overline{MCS0}$	Digital IF PCB Assy (U26007)	C0000-CFFFFh
	$\overline{MCS1}$	Pulse Generator (U27022)	D0000-DFFFFh
	$\overline{MCS2}$	64k ROM (U27013)	E0000-EFFFFh
Peripheral	$\overline{PCS0}$	Control Decoder (U27008)	400-47Xh
	$\overline{PCS1}$	RS-232 Interface (U27030)	480-487h
	$\overline{PCS2}$	Keypad Interface (U27027)	500h
	$\overline{PCS3}$	Control Decoder (U27037)	580-5FXh
	$\overline{PCS4}$	Control Decoder (U27036)	600-67Xh
	$\overline{PCS5}$	LCD Controller (U27048)	680-681h

Microprocessor U27001 Chip Selects
Table 3

Instruction sequence:

- Address latch enable (BALE) line (U27001-61) to Transparent Latch U27010 goes high, allowing U27001 to set address where data is to be received through data lines to U27010.
- When address is valid, BALE goes low, causing lower 8 bits of address to be latched onto U27010 address lines. Lower Address Latch U27010 allows U27001 to receive data on data lines without changing address selected.
- $\overline{UCS}$ line (U27001-34) is low to enable U27012. Read ($\overline{RD}$) line (U27001-62) goes low to enable data byte at address selected (initial address is FFFF0) to be sent to U27001.
- Data is processed and instruction is carried out in same fashion. BALE goes high, chip is selected, valid address is latched and data is read from or written to address. Write ($\overline{WR}$) line (U27001-63), goes low and $\overline{RD}$ line stays high when sending data to an address.

U27001 also provides Direct Memory Access (DMA) capabilities for Interrogation Decoder U27044. DRQ0 (U27001-18) line sets up DMA, allowing a direct read or write to memory. DRQ0 from Interrogation Decoder (U27044-A9) goes high to initiate DMA request. U27001 finishes current instruction or bus cycle before allowing access. Data at address $\overline{PCS4}$+6Dh (Pulse Generator start address) is sent to Pulse Generator U27022. DMA is reset low at start of read cycle from address $\overline{PCS4}$+6Dh.

There are four interrupt lines used on U27001. INT0 (U27001-45) goes high from U27030, informing U27001, a transmit or receive action is required at the RS-232 Interface. INT1 (U27001-44) is high when activated by Keypad operation. Pressing any key generates an interrupt. INT2 (U27001-42) is activated by Pulse Generator U27022 and INT3 is controlled by Interrogation Decoder U27044.

U27001 operates using an external 20 MHz clock source. D Flip-Flop U27007B divides 40 MHz Oscillator G27001 output by two. The 20 MHz clock is fed into U27001-59. U27001 divides the 20 MHz by two to provide the 10 MHz Clock used internally and sent out on CLKO line U27001-56.

Two internal timer circuits are utilized by the Processor. Timer 0 measures the Whisper-Shout step interval in ATCRBS Monitor mode. Timer 0 also tracks the intervals when the DSP on the Digital IF PCB Assy is detecting a Mode S interrogation. Intervals are timed to prevent a new interrogation from overwriting the interrogation currently being detected. Timer 2 is the software system timer, providing 10 ms resolution for scheduling software processes and measuring ATCRBS Whisper-Shout sequence intervals and Mode S Surveillance intervals.

A reset circuit consisting of Supervisor U27018, Q27001 and associated components provide a delay after power-up or brown-out. The delay (≈15 ms) allows the +5 V from the Power Supply Assy and 40 MHz Oscillator G27001 to stabilize. Reset is activated manually through S27001 (low ground to U27018-2) or automatically if the +5 V sensed at U27018-7 drops below approximately 4.55 V. U27018 output initiates Logic Cell Array (LCA) programming. The low at U27018-5 is sent to the Interrogation Decoder and Pulse Generator. The high at U27018-6 activates Q27001 allowing the low ground at the emitter to be felt on the D/PN line (reset to U27001). The LCA components, Pulse Generator U27022 and Interrogation Decoder U27044, hold the D/PN line low until programming is complete. U27001 resets and sends out another reset (U27001-57) to other logic components on the Front Panel Pulse PCB Assy and Digital IF PCB Assy. Reset output is maintained until the +5 V line reaches ≈4.7 V. Refer to Appendix D for reset timing diagram.

A Power Disable circuit saves on battery power when the Keypad is inactive. U27001 monitors Keypad activity and if no key is pressed for approximately 15 minutes, D Flip-Flop U27007A is accessed with $\overline{PCS0}$+1Xh through U27008 and a low is sent on D0 causing PWRDIS to go high to the Power Supply Assy. Comparator U14008A on the Power Supply Assy resets Flip-Flop U14002A and disables the Output Supply, switching off the power. PWRDIS returns to low on power-up or after reset.

(b) Pulse Generator

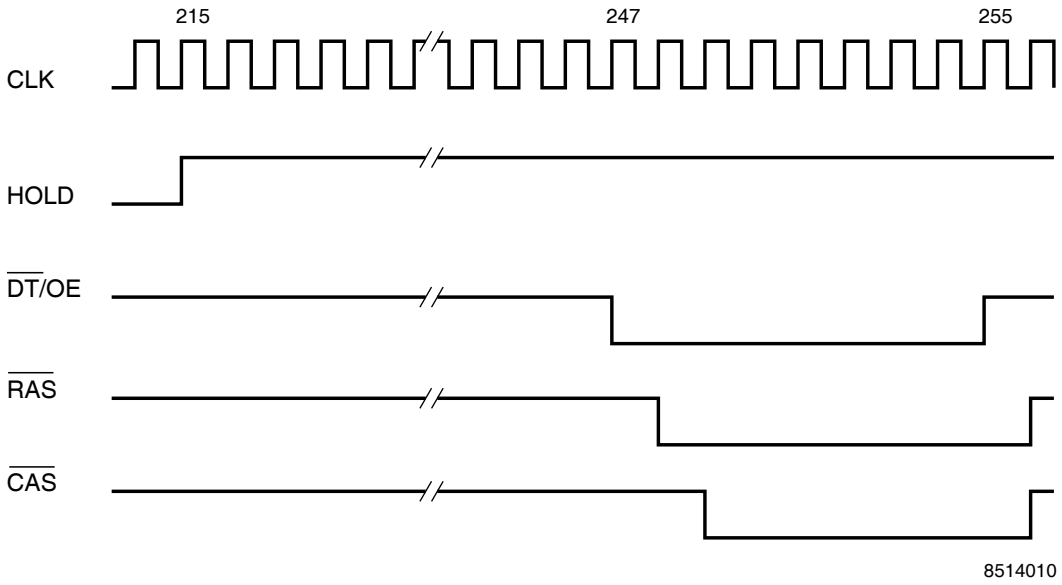
The Pulse Generator section of the Front Panel Pulse PCB Assy consists of programmable LCA U27022, Video RAM chips U27023 and U27024, Serial Access Memory (SAM) Counter Reset U27006, Buffer/Driver U27004, Multiplexers (MUX) U27015 and U27016, Delay DL27001, Schmitt Trigger Inverter U27025A, Control Decoder U27008 and PROM U27003.

The Video RAM chips are dual port with random access available to U27001 and serial access to U27022. U27001 reads and writes to the Video RAM chips with access controlled through U27022. Video RAM chips U27023 and U27024 are accessed when $\overline{\text{MCS1}}$, BALE and either $\overline{\text{WR}}$ or $\overline{\text{RD}}$ are activated. Addresses are selected using Multiplexers U27015 and U27016. When $\overline{\text{RAS}}$ goes low, the select line to U27015 and U27016 stays high because the output at U27022-43, changing to high (inverted low by U11025A) when $\overline{\text{RAS}}$ goes low, is delayed 10 ns through DL27001. This allows A8 through A15 to be latched to the Video RAM chips, selecting the row address. After the delay, the multiplexers with the select line low are set to latch A0 through A8 to the Video RAM chips, selecting the column address when $\overline{\text{CAS}}$ goes low. $\overline{\text{DT}}$/OE goes low for a read operation or $\overline{\text{WR}}$ goes low for a write operation.

Serial access by U27022 is a read only function. The Video RAM chips transfer rows (256 bytes/row) of data into internal serial access registers. Data is sent from the registers to U27022, one byte each clock count. Serialized data is sent out from U27022 with each bit line connected to a specific output according to 2-2-1, Table 4.

VIDEO RAM	PIN NO	U27022	PIN NO
VS0	24	$\overline{\text{BPULSE}}$	28
VS1	29	$\overline{\text{BSLS0}}$ Not Used (low)	30
VS2	31	BDPSK Not Used	32
VS3	33	BTRIG	34
VS4	36	BSYNC	37
VS6	38	$\overline{\text{BSLS1}}$ Not Used (low)	39

Pulse Generator Serialized Data Output
Table 4



Pulse Generator Data Transfer Timing Diagram
Figure 6

Pulse Generator serial sequence:

- U27001 programs pulses into Video RAM chips, as directed by ROM and initiated by Keypad entry (setting operating mode and pressing RUN/STOP Key). During Scenario Test, U27001 reprograms Video RAM chips once every second, updating for new range delay.
- U27001 programs stop bytes (10010000) into addresses XXFEh (255th byte) designating the desired rows to end with.
- U27001 programs 256 bytes of cleared memory (00h).
- U27001 programs starting addresses using STADD line ($\overline{PCS0}$+2Xh) through U27008 for access.
- For Mode S operation with Squitters selected, U27001 sets $\overline{START}$ line low through U27008 ($\overline{PCS0}$+4Xh) to U27022. Data transfers start with internal counter set to 191h in preparation to transmit Mode S (DF11) squitters.

  For Mode S operation after receiving valid interrogation, Interrogation Decoder U27044 determines reply to be transmitted. U27044 uses DMA to send starting address of correct reply in Video RAM, to Pulse Generator U27022. U27001 retrieves starting address from U27017 when needed by the Pulse Generator. The BEGIN line (U27044-G1) from Interrogation Decoder goes high to the Pulse Generator (U27022-19) initiating start of data transfers and setting internal counter to 191h.
- After the 215th byte of cleared memory, U27022 HOLD output (pin 53) goes high to request access to the address lines from U27001.
- HLDA input (pin 20) goes high informing U27022 that U27001 relinquishes address line control.

Pulse Generator serial sequence (cont):

- After 247 bytes, $\overline{DT}$/OE goes low to set up Video RAM chips for a data transfer to the serial access registers.
- $\overline{RAS}$ goes low on the next clock count. The row address, determined by programmed starting address, is selected.
- $\overline{CAS}$ goes low on the following clock count and the zero address from U27006 (enabled by U27022) causes a data transfer to start at address zero in the serial access registers.
- After 255 bytes of cleared memory is shifted out of the serial access registers, $\overline{DT}$/OE goes high, triggered by an internal counter in U27022. U27022 internal counter tracks 256 clock counts.
- The data transfer occurs. 256 new bytes from the selected row are loaded into the serial access registers.
- Each data transfer is followed by a $\overline{CAS}$ before $\overline{RAS}$ refresh.

  NOTE: When no data transfers are occurring, refresh still takes place every 12.8 µs.

- With each 50 ns (20 MHz) clock count, one byte (one bit for each output) is shifted out of the serial access registers to U27022.
- A data transfer occurs every 12.8 µs with each successive row as stepped by the internal counter in U27022. New rows are transferred and sent out until the programmed stop byte is encountered. After the stop byte, the last row is transferred and continually shifted out of the serial access registers until next transfer.

  NOTE: The last row transferred is usually the 256 bytes of cleared memory. For CW transmissions, the last row contains all ones.

- The stop byte also initiates an interrupt (INT2) to U27001.

  NOTE: If another interrupt is received during operation, Microprocessor U27001 manually stops Pulse Generator operation by activating the $\overline{STOP}$ line ($\overline{PCS0}$+3Xh).

Buffer/Driver U27004 is used to isolate and boost signals off the Front Panel Pulse PCB Assy. Configuration PROM U27003 stores information for reprogramming U27022 on power-up. External PULSE and External SYNC from the COMM Connector, when connected, are isolated and converted to TTL before entering the Pulse Generator.

(c) Interrogation Decoder

Interrogation Decoder U27044 is a programmable LCA component. U27044 decodes Mode C All Calls in ATCRBS and UF0 or UF16 interrogations in Mode S. Microprocessor U27001 selects U27044 through U27036 when $\overline{\text{PCS4}}$ is activated with addresses 60 to 6Fh. Refer to 2-2-1, Table 5 for address descriptions.

ADDRESS	DESCRIPTION	BITS	READ/WRITE
60h	Control Register	D0-D7	Write Only
61h	TCAS-201-2 Address, Bits 0-7	D0-D7	Write Only
62h	TCAS-201-2 Address, Bits 8-15	D0-D7	Write Only
63h	TCAS-201-2 Address, Bits 16-23	D0-D7	Write Only
64h	Not Used		
65h	Not Used		
66h	Not Used		
67h	Not Used		
68h	Manual Trigger for DSP Digitizer	XX-XX	Write Only
69h	Status Register	D0-D7	Read Only
6Ah	Rcvd Mode S Address, Bits 0-7	D0-D7	Read Only
6Bh	Rcvd Mode S Address, Bits 8-15	D0-D7	Read Only
6Ch	Rcvd Mode S Address, Bits 16-23	D0-D7	Read Only
6Dh	Pulse Generator Start Address	D0-D7	Read Only
6Eh	Not Used		
6Fh	Not Used		

Interrogation Decoder Address Descriptions
Table 5

U27001 controls the Interrogation Decoder by setting an internal control register. Refer to 2-2-1, Table 6 for control register bit definition.

BIT #	DEFINITION	SETTING	RESULT
D0	Reset	0	Released
		1	Interrogation Decoder is reset. All incoming interrogations and triggers are ignored. INT3 and DRQ0 lines are cleared.
D1	Mode of Operation	0	ATCRBS
		1	Mode S
D2	Invert Video	0	Incoming VIDEO is not inverted (testing).
		1	Incoming VIDEO is inverted (normal operation).
D3	Invert Threshold	0	Incoming THRESHOLD is not inverted (testing).
		1	Incoming THRESHOLD is inverted (normal operation).
D4	Disable DSP Trigger	0	DSP trigger is enabled.
		1	DSP trigger is disabled.
D5	Disable Pulse Generator Trigger	0	Pulse Generator trigger is enabled (Scenario Test and Reply Test functions).
		1	Pulse Generator trigger is disabled (Monitor function).
D6	Not Used		
D7	Not Used		

Interrogation Decoder Control Register Bit Definition
Table 6

Control register sequence:

- $\overline{\text{PCS4}}$+60h through U27036 causes $\overline{\text{ENDEC}}$ (U27044-P11) to go low.
- $\overline{\text{WR}}$ (U27044-P12) goes low.
- Data is written to U27044 (A13, B13, C13, D13, A12, B12, C12 and D12) setting the control register.

U27001 also sets the TCAS-201-2 address used to verify if interrogations are intended for the Test Set. U27044 has three internal, 8-bit TCAS-201-2 address registers. The TCAS-201-2 address registers are initialized on power-up to last address loaded into Mode S Reply Test screen ***AA:*** field.

Interrogation Decoder functions depend on mode of operation.

Mode S sequence:

- U27044 samples VIDEO input (U27044-P9), inverted by U27051A and THRESHOLD input (U27044-B1), inverted by U27051E. Acceptable interrogations must be received on both lines.
- U27044 internal DPSK decoder is enabled when P_1, P_2 and P_6 pulses are detected.
- After 100 to 150 ns following the rising edge of P_1, U27044 sends a 50 ns trigger on BTRIG through Buffer/Driver U27004 to DSP digitizer.
- U27044 DPSK decoder looks for SPR. When SPR is detected, the contents of P_6 are decoded.
- U27044 verifies:

  Interrogation received is UF0 or UF16.

  AP field contains TCAS-201-2 address.

  RL and AQ field settings for selecting the desired reply.
- U27044 uses DMA to send the address of the applicable reply in Video RAM to Pulse Generator U27022. If RL and AQ are both zero, DF0 tracking is the correct reply located at address 23h. If RL is one and AQ is zero, DF16 tracking is the correct reply located at address 6Fh. If RL is zero and AQ is one, DF0 acquisition is the correct reply located at address FFh. If RL and AQ are both one, DF16 acquisition is the correct reply at address 47h.
- U27044 sets internal status register.
- At 128 µs after SPR, U27044 sends 100 ns pulse on the BEGIN line to trigger Pulse Generator for reply.
- U27044 sets INT3 high for an interrupt to U27001.
- $\overline{RD}$ (U27044-P13) goes low. U27001 reads U27044 status register and Rcvd Mode S address. Refer to 2-2-1, Table 7 for status register bit definition.
- U27001 writes to U27044 control register twice to reset and release Interrogation Decoder ($\overline{PCS4}$+60h-D0), clearing the interrupt.

ATCRBS sequence:

- U27044 samples the VIDEO input (U27044-P9), inverted by U27051A and the THRESHOLD input (U27044-B1), inverted by U27051E. Acceptable interrogations must be received on both lines.
- When pulses are detected, U27044 verifies Mode C All-Call spacing. Refer to Appendix D, Figure 3.
- If the interrogation is a valid Mode C All-Call with no suppression, at 3 µs after the rising edge of P_3, U27044 sends a pulse on the BEGIN line to trigger the Pulse Generator for reply. Refer to Appendix D, Figure 4.

BIT #	DEFINITION	SETTING	RESULT
D0	Address Test	0	Interrogation Address differs from TCAS-201-2 Address.
		1	Interrogation Address matches TCAS-201-2 Address.
D1	UF0	0	Interrogation is not UF0.
		1	Interrogation is UF0.
D2	UF16	0	Interrogation is not UF16.
		1	Interrogation is UF16.
D3	RL	0	RL field (data bit 9) in interrogation is set to zero.
		1	RL field (data bit 9) in interrogation is set to one.
D4	AQ	0	AQ field (data bit 14) in interrogation is set to zero.
		1	AQ field (data bit 14) in interrogation is set to one.
D5	N_SPR	0	SPR is detected.
		1	SPR is not detected.
D6	Not Used		
D7	Not Used		

Interrogation Decoder Status Register Bit Definition For Mode S
Table 7

- U27044 sets the internal status register.
- U27044 sets INT3 high for an interrupt to U27001.
- $\overline{RD}$ (U27044-P13) goes low. U27001 reads U27044 status register. Refer to 2-2-1, Table 8 for status register return code.

ATCRBS sequence (cont):

- U27001 writes to U27044 control register twice to reset and release Interrogation Decoder ($\overline{PCS4}$+60h-D0), clearing the interrupt.

INTERROGATION PULSES PRESENT						RETURNED CODE
S_1	P_1	P_2	$P_{2'}$	P_3	P_4	
	X			X	X	46h
	X	X		X	X	66h
	X	X	X	X	X	6Eh
	X		X	X	X	4Eh
X	X			X	X	63h
X	X	X		X	X	73h
X	X		X	X	X	67h
X	X	X	X	X	X	77h
NOTE: Most significant bit (D7) is invalid and masked off.						
NOTE: $P_{2'}$ is an additional SLS condition.						

Interrogation Decoder Status Register Return Code For ATCRBS
Table 8

(d) Display Control

Three separate circuits make up the Display Control. The Liquid Crystal Display (LCD) Data Control circuit controls the information entered onto the DISPLAY. The Contrast Control and Backlight Control circuits use Digital-to-Analog Converters (DACs) to adjust visual characteristics of the LCD.

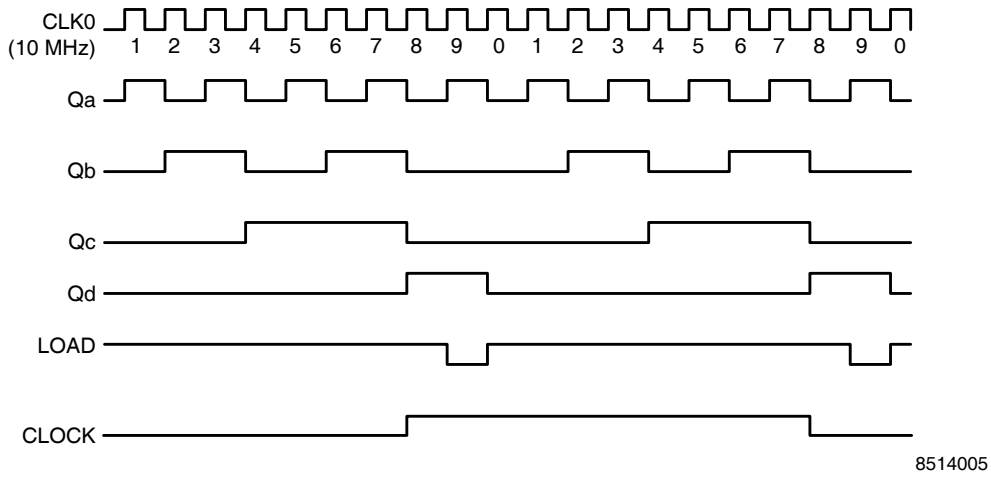
1 LCD Data Control

LCD Data Control is accomplished with a 500 kHz Clock, LCD Controller U27048, LCD Control PAL U27029 and Display RAM U27049.

Refer to 2-2-1, Figure 7 for 500 kHz Clock timing. Counter U27039 divides the 10 MHz clock input by 10 (NAND Gate U27011C resets U27039 on each nine count). The 1 MHz output clocks D Flip-Flop U27007B, configured to change state with each clock, providing a 500 kHz clock with a 50% duty cycle. The 500 kHz clock is verified at test point TP27004.

LCD Controller U27048, an HD61830 Graphic Display Controller operating in the character mode, acts as a memory mapped device to the Processor. U27001 reads from and writes to U27048 on a byte wide basis. U27001 selects U27048 by activating $\overline{\text{PCS5}}$, accessing the data register at address X0h (RS input U27048-18 low) and the instruction register at address X1h (RS input U27048-18 high).

U27048 has six outputs to the LCD. D1 is the serial data output for the upper half of the screen and D2 is the serial data output for the lower half of the screen. FLM is the frame signal for display synchronization. CL1 is the display data latch signal for LCD drivers and CL2 is the display data shift clock for LCD drivers. M converts the LCD driving signal to an ac waveform.



500 kHz Clock Timing Diagram
Figure 7

PAL U27029 inserts wait states in the processor bus cycle. Refer to Appendix C for PAL equations. U27029 also generates the Enable (U27048-16) and Read/Write (U27048-17) signals for U27048. Wait states, inserted before the ARDY line to U27001 goes low, are required because LCD Controller U27048 operates slower than the microprocessor. Refer to Appendix D for timing diagrams.

Display RAM U27049 stores pixel data (character codes) for U27048 and is accessed by U27001 through U27048.

2 Contrast Control

Contrast Control is based on the input voltage obtained from CR22001 on the Analog IF PCB Assy. Ambient temperature conditions are sensed by CR22001 and the resulting voltage (2.73 V at 0° C, changes 33.94 mV/°C) is sent through a differential amplifier U27034C to the ADC (U27045-1). Refer to para 2-2-1D(3)(i) for ADC operation. The information sent from U27045 causes U27001 to send adjustment data to DAC U27032, selected by $\overline{\text{ENCON}}$ ($\overline{\text{PCS4}}$+1Xh through U27036) going low. U27032 provides a bipolar output of -5 to +5 V, used to control the contrast on the LCD. The -5.1 V, used in powering the LCD, is provided by the voltage drop across Zener Diode CR27011.

3 Backlight Control

Backlight Control is based on the input voltage obtained from R13001 on the Front Panel LED PCB Assy. Ambient light conditions are sensed by R13001 and the resulting voltage drop is applied to the ADC (U27045-26). Refer to para 2-2-1D(3)(i) for ADC operation. Information sent from U27045 causes U27001 to send adjustment data to DAC U27033, selected by $\overline{\text{ENBLT}}$ ($\overline{\text{PCS4}}$+0Xh through U27036) going low. U27033 provides a corresponding voltage output through Driver U27034A with Q27005 to drive Inverter Supply U27035. U27035 provides the increased voltage levels necessary to run the backlight. Capacitors C27082 and C27083 provide noise suppression in the operational amplifier feedback circuit. Zener Diodes CR27016 and CR27017 are clamped to ground to protect circuit if backlight is not connected.

(e) Keypad Interface

Keypad Interface consists of Buffer/Latch U27027, NAND Gate U27011B, resistors, transistors and diodes. U27027 is selected by U27001 with $\overline{PCS2}$. Keypad data, activated when low, is defined in 2-2-1, Table 9.

When the Keypad is inactive, Resistive Network RN27001 holds the row and column lines to a high impedance. When a key is pressed, a row and column line are connected together.

	COLUMN BIT		
ROW BIT	**D1 ($\overline{COL1}$)**	**D2 ($\overline{COL2}$)**	**D3 ($\overline{COL3}$)**
D4 ($\overline{ROW1}$)	MON Key	RPLY TEST Key	SCEN Key
D5 ($\overline{ROW2}$)	PWR TEST Key	RUN/STOP Key	SLEW Key (↓)
D6 ($\overline{ROW3}$)	SELECT Key (↑)	SELECT Key (↓)	SLEW Key (↑)
D7 ($\overline{ROW4}$)	Not Used	SELF TEST Key	SET/CONT Key
NOTE: D0 is $\overline{ANTSW}$ from the ANTENNA PUSH BUTTON Switch.			

Keypad Data Definition
Table 9

Keypad sequence example:

- Pressing the MON Key connects row 1 with column 1. Circuit is closed and current flows.
- Current flowing at the base turns Q27002 on, allowing the low ground on the emitter through the collector and Diode CR27001 to NAND Gate U27011B. The high output sends an interrupt (INT1) to the Microprocessor (U27001-44).
- The low through Q27002 is also sent through U27027 when selected by U27001 with $\overline{PCS2}$. The low on collector of Q27002 is felt at U27027-4, causing D0 to be read low by U27001 indicating the pressed key is in column 1. The low on the base of Q27002 is felt at U27027-11, causing D4 to be read low indicating the pressed key is in row 1.

(f) RS-232 Interface

RS-232 communication is provided by an INTEL 82510 Universal Asynchronous Receiver-Transmitter (UART U27030). U27030 is selected by U27001 with $\overline{PCS1}$ (addresses from X0h to X7h). Driver/Receiver U27028 drives the serially transmitted signal off the Front Panel Pulse PCB Assy through P/J25014 to J10053 COMM Connector and buffers incoming handshake and data signals. U27030 generates an interrupt (INT0) when servicing is required. U27001 polls the internal status registers to determine the cause of the interrupt (TXD or RXD).

(g) Attenuator Control

Two DACs having 0 to 10 Vdc outputs control attenuation. U27041, an 8-bit DAC, provides a +5 V reference and ATTEN1 voltage used to set current on the Driver PCB Assy for attenuator end line pin diodes on the Attenuator PCB Assy. R27041 (+5V REF ADJ) adjusts the +5 V reference, verified at TP27002. U27041 is accessed by U27001 when $\overline{\text{ENATT1}}$ ($\overline{\text{PCS4}}$+5Xh through U27036) goes low. U27042, a 12-bit DAC, provides the ATTEN2 voltage used to set current on the Driver PCB Assy for attenuator midline pin diodes on the Attenuator PCB Assy. U27041 is accessed by U27001 when $\overline{\text{ENATT2}}$ ($\overline{\text{PCS4}}$+4Xh through U27036) goes low. Address lines A0-A3 are used to select the data transfer process. Refer to 2-2-1, Table 10. Both output levels are read from ADC U27045.

(h) Oscillator Compensation

Oscillator Compensation is based on the input voltage obtained from CR22001 on the Analog IF PCB Assy. R27037 (TEMP COMP ADJ) is adjusted at the factory and used in board level calibrations. Ambient temperature conditions are sensed by CR22001. The resulting voltage (2.73 V at 0° C, changes 33.94 mV/°C) is applied through Differential Amplifier U27034C to ADC U27045-1. Refer to para 2-2-1D(3)(i) for ADC operation. Information sent from U27045 causes U27001 to send adjustment data to DAC U27043, selected by $\overline{\text{ENOSC}}$ ($\overline{\text{PCS4}}$+2Xh through U27036) going low. U27043 provides a 0 to 10 V output. Operational Amplifier U27050 and associated components offset, scale and low-pass filter to achieve the desired 2 to 8 Vdc output. Output level is read from ADC U27045.

ADDRESS	OPERATION	BITS
4Eh	Load low nibble	D0-D3
4Dh	Load middle nibble	D4-D7
4Ch	Load low byte (optimum method)	D0-D7
4Bh	Load high nibble	D0-D3, D3 = MSB
47h	Transfer data	XX
43h	Load high nibble and transfer data (optimum method)	D0-D3, D3 = MSB

Attenuator #2 Operation Selection
Table 10

(i) Analog-to-Digital Converter

ADC U27045 is used for both normal operation and Self Test operation. Refer to 2-2-1, Table 11 for analog input to ADC description.

INPUT	ADDRESS	DESCRIPTION
PHOTO RES Channel 0	$\overline{PCS3}$+10h	Voltage across Photo Resistor R13001 (Front Panel LED PCB Assy), set by ambient light conditions, is used in making Backlight Control adjustments.
RF DETECT Channel 1	$\overline{PCS3}$+11h	Provides indication if RF carrier is present (Self Test). 2.5 V (±0.125 V) indicates passing status (only active in CW mode).
Channel 2	$\overline{PCS3}$+12h	Not Used
OSC T RD Channel 3	$\overline{PCS3}$+13h	Voltage across Diode CR19001 (Analog PCB Assy), controlled by ambient temperature conditions, is used in making Contrast Control and Oscillator Compensation adjustments.
LO DETECT RD Channel 4	$\overline{PCS3}$+14h	Local Oscillator Detect (Self Test): Pass - constant level between 0.35 and 3.1 Vdc, Fail - oscillation (at ≈7.5 Hz) or level outside Pass voltage window (0 to 0.35, 3.1 to 4.14 V).
ATTEN1 BIT Channel 5	$\overline{PCS3}$+15h	Provides level of Attenuator #1 DAC output (DAC output ÷ 2.5 [±10%])
ATTEN2 BIT Channel 6	$\overline{PCS3}$+16h	Provides level of Attenuator #2 DAC output (DAC output ÷ 2.5 [±10%])
OSC COMP BIT Channel 7	$\overline{PCS3}$+17h	Provides oscillator compensation level (DAC output ÷ 2.5 [±10%])

Analog Input to ADC Description
Table 11

ADC sequence:

- U27001 selects channel address with $\overline{PCS3}$+1X through Control Decoder U27037 and, with $\overline{WR}$ active, through NOR Gate U27038B (ADLTCH). The high output is sent to U27045-22 along with specific lower address (A0-A2), latching the desired channel to the ADC.
- The start A/D conversion command is sent using address $\overline{PCS3}$+0Xh through U27037, and with $\overline{WR}$ active, through NOR Gate U27038C (SOC). The high output is sent to U27045-6. Conversion begins and End of Conversion (EOC) line to Status Buffer U27026 goes low (within 18 µs from when start command was issued).
- U27001 polls the EOC signal from the Status Buffer and when the conversion is finished (≈48 µs), EOC goes high.

ADC sequence (cont):

- Data is read from output Buffer U27046 using address $\overline{PCS3}$+2Xh through U27037, and with $\overline{RD}$ active, through NOR Gate U27038D (DEN). The high output is sent to U27045-9 and through Inverter U27038A to activate U27046. Two data reads are required to receive all 10 bits. Data is sent out as follows:

Data Bit Locations:	D7	D6	D5	D4	D3	D2	D1	D0
First Read (Bit #):	10	9	8	7	6	5	4	3
Second Read (Bit #):	2	1	X	X	X	X	X	X

Bit 10 = MSB, Bit 1 = LSB

(j) Status Buffer

Status Buffer U27026 enables the current condition of several signals to be read and is accessed with address $\overline{PCS0}$+0Xh through U27008. Refer to 2-2-1, Table 12.

BIT #	DEFINITION	SETTING	RESULT
D0	Current state of REPLY LED output from LED Control Register	0	LED is Off.
		1	LED is On.
D1	Current state of INTERR LED output from LED Control Register	0	LED is Off.
		1	LED is On.
D2	Conversion status of ADC (EOC)	0	Conversion in progress
		1	Conversion complete
D3	Ready status of DSP on Digital IF PCB Assy	0	DSP not ready
		1	DSP ready and working
D4	Monitor Enable status (JTB27001)	0	Enter Monitor (jumper installed)
		1	Normal operation (jumper not installed)
D5	ac Power status (CHARGE LED)	0	ac Power connected (Q27008 activated)
		1	ac Power not connected (Q27008 turned off)
D6	Battery Charge Level status (BATTEST)	0	Battery ≈70% discharged (≈36 minutes left)
		1	Battery is charged.
D7	Current state of LO CONTROL output from LED Control Register	0	Local Oscillator is enabled.
		1	Local Oscillator is shut down.

Status Buffer Bit Definition
Table 12

(k) LED Control Register

LED Control Register U27040 controls REPLY Indicator, INTERR Indicator, Local Oscillator and Digital IF PCB Assy reset operation. Refer to 2-2-1, Table 13. U27040 is accessed with address $\overline{PCS4}$+3Xh through U27036.

BIT #	DEFINITION	SETTING	RESULT
D0	Reply LED (REPLY Indicator)	0	Sets LED ready for turn On
		1	Initially Off or turns LED On for timed period
D1	Interrogation LED (INTERR Indicator)	0	Sets LED ready for turn On
		1	Initially Off or turns LED On for timed period
D2	LO Control	0	Enables Oscillator
		1	Shuts down Oscillator
D3	DSP Reset	0	Enables Digital IF PCB Assy
		1	Resets Digital IF PCB Assy
D4 to D7	Not Used		

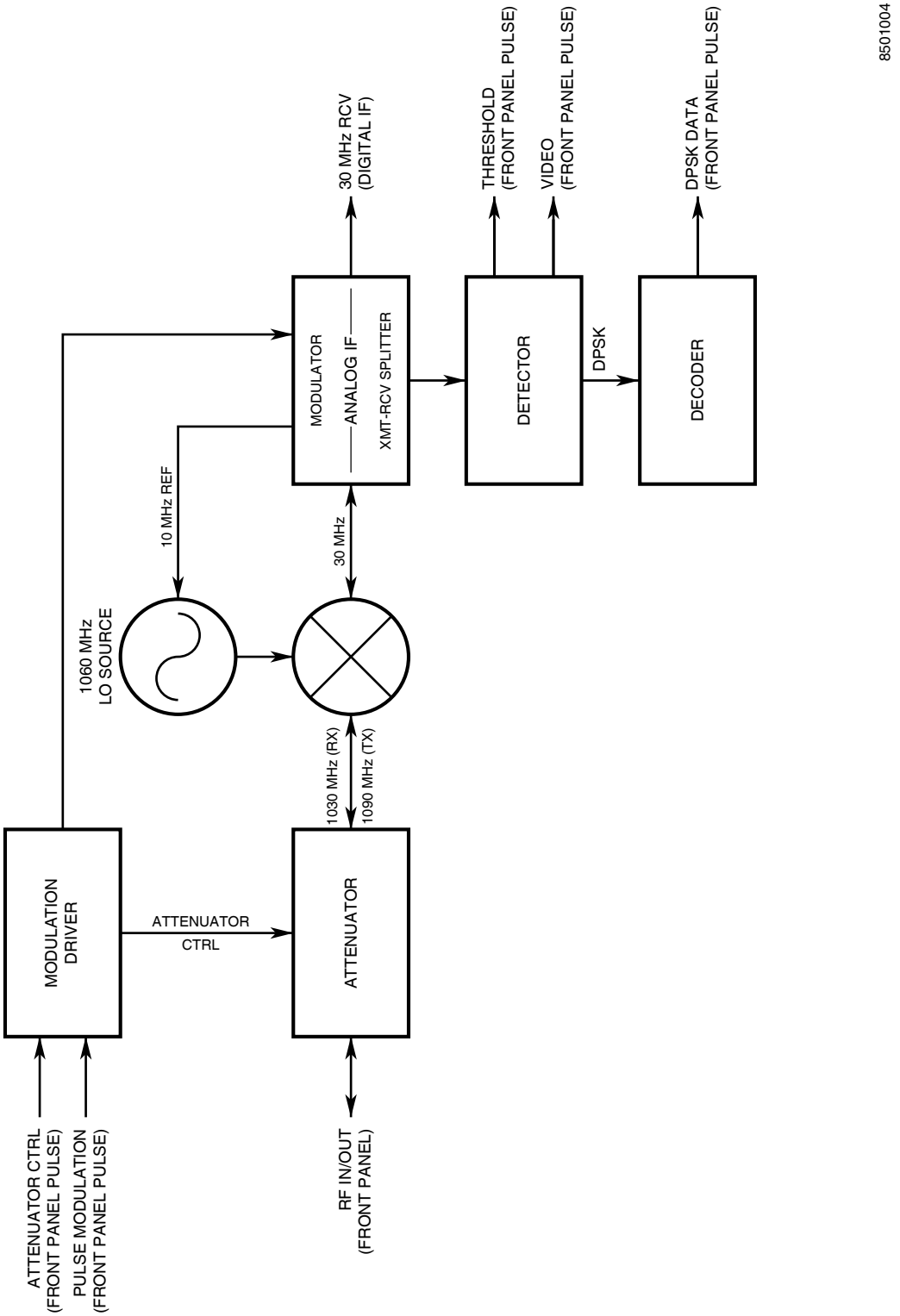
LED Control Register Bit Definition
Table 13

LED bit locations D0 and D1 are set high on power-up. An LED is turned on by writing zero and then one to the respective bit location in the control register. The zero to one transition triggers One-Shot Timer U27047. The high level output from U27047, timed for ≈62 ms, activates transistor Q27006 or Q27007 turning on the respective indicator.

(l) Digital IF PCB Assy Access

DPR U26007 on the Digital IF PCB Assy is accessed using $\overline{MCS0}$. Access is controlled by PAL U27029. DIR goes high to activate data lines through Transceiver U27009. $\overline{MEMR}$ goes low to read DPR or $\overline{MEMW}$ goes low to write to DPR.

(4) RF Assy (2-2-1, Figure 8)

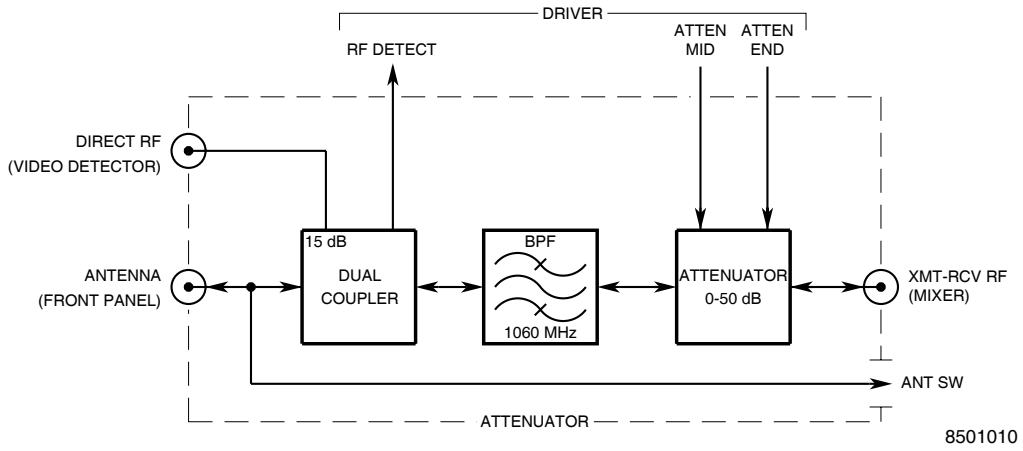


RF Assy Block Diagram
Figure 8

(a) SSB Assy

The Single-Sideband (SSB) Assy provides a two-way conversion between an IF of 30 MHz and an RF of 1090 MHz (transmit) or 1030 MHz (receive). The SSB Assy consists of the Attenuator PCB Assy, LO Source PCB Assy and Mixer PCB Assy.

1 Attenuator PCB Assy (2-2-1, Figure 9)



Attenuator PCB Assy Block Diagram
Figure 9

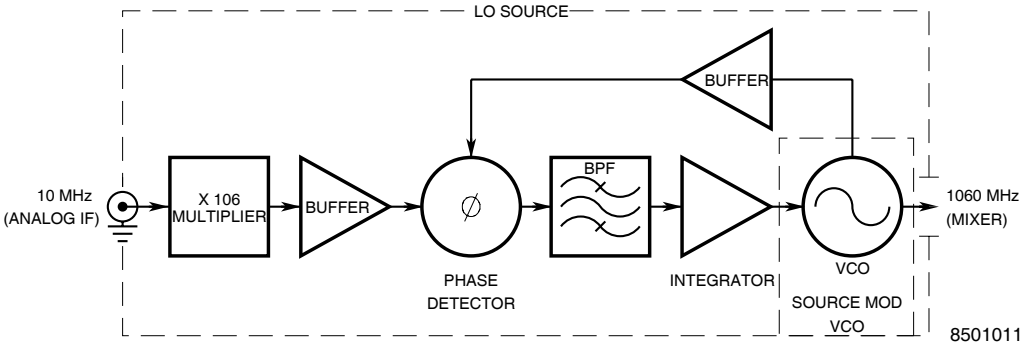
The Attenuator PCB Assy provides 0 to 50 dB of variable attenuation for measurement and testing purposes. The Attenuator PCB Assy consists of a dual coupler, bandpass filter and pin diode attenuator.

Dual Coupler HY31001 provides two RF signals, 15 dB down from the calibrated level at the ANTENNA Connector (J10057). On transmit, one signal drives biased Diode Detector CR31001. CR31001 provides a dc level proportional to RF level and is used for the RF Detect test (Self Test). On receive or transmit, the signal is coupled, 15 dB down, to the RF I/O Connector (J10058) through the Video Detector PCB Assy and Power Termination Assy.

Microstrip Bandpass Filter HY31002 rejects signals outside the 300 MHz bandwidth (passes 910 to 1210 MHz signals).

The pin diode attenuator consists of four pin diodes (CR31003-CR31006) and associated components. The pin diodes are spaced 1/4 wavelength apart and act as current controlled resistors. The Driver PCB Assy supplies the controlling current. Midline diodes (CR31004 and CR31005) provide most of the attenuation and end line diodes (CR31003 and CR31006) match the circuit. C31013 and C31015 (ATTEN 1060 MHz ADJ) cancel out series inductance.

2 LO Source Assy and Source Module VCO PCB Assy (2-2-1, Figure 10)



LO Source Assy and Source Module VCO PCB Assy Block Diagram
Figure 10

The LO Source Assy and Source Module VCO PCB Assy provide a 1060 MHz signal using a Voltage Controlled Oscillator (VCO). The frequency is kept tuned by a Multiplier, Phase Detector, Error Amplifier (Integrator) and Temperature Compensator.

The Digitally Controlled Crystal Oscillator (DCXO) from the Analog IF Assy provides the 10 MHz frequency reference to the Multiplier. The reference signal drives the base of High Current Amplifier Q24002. Current Controller Q24001 uses the regulated +11 V from the Driver PCB Assy to bias Q24002. The high level current output from Q24002 drives the multiplying varactor, Snap Diode CR24002. R24049 sets the voltage reference for CR24002. L24002 and C24004 provide impedance matching to increase the multiplying efficiency of CR24002. CR24002 generates 10 MHz spectral lines. C24005 and Z24001 form a tank circuit tuned to 1060 MHz, enhancing the 106th harmonic. The signal, monitored at TP16002, is fed into a three-stage linear buffer amplifier consisting of Saturable Transistors Q24003, Q24004 and Q24005. The buffer amplifier, tuned to 1060 MHz, increases the power of the desired harmonic and drives an input to Phase Detector HY24001.

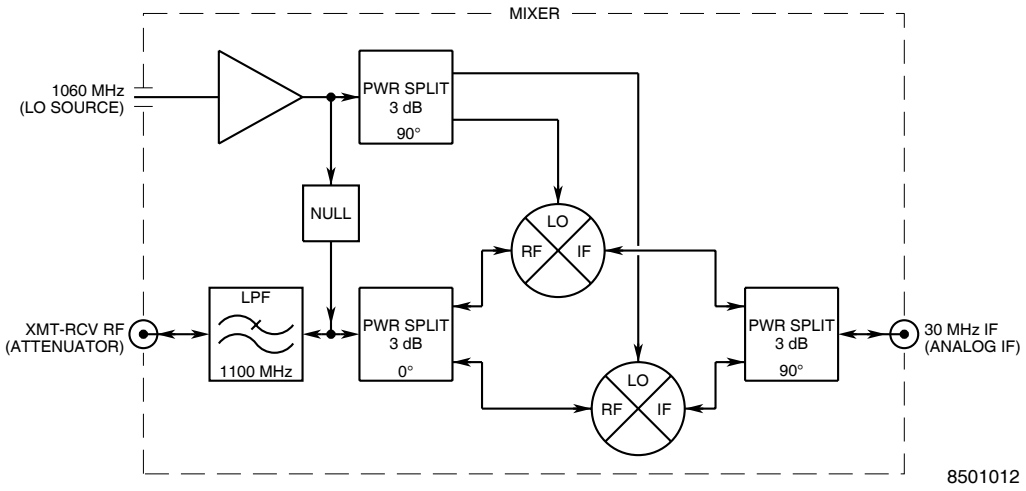
The other HY24001 input is from the Voltage Controlled Oscillator (VCO) on the Source Module VCO PCB Assy. Oscillating transistor Q24001, driven with a regulated +11 V from the Driver PCB Assy, is matched to the frequency determining element, Resonator HY34001. Temperature Compensator C34007 and Varactor CR34001 keep the oscillator tuned to 1060 MHz. Power is coupled off the oscillator through Z24014 and is fed back to the LO Source PCB Assy through a buffer amplifier, composed of Saturable Transistors Q24007, Q24008 and Q24009. The buffer, also tuned to 1060 MHz, drives the local oscillator input to HY24001.

HY24001 and CR24003 form a Phase Detector providing a dc error voltage proportional to the phase difference detected between the VCO and Multiplier inputs. This voltage is filtered by Bandpass Filter C24021, L24006 and C24022 and sent to Integrator U24001.

When the output frequency of the VCO is the same as the output frequency of the Multiplier (Reference), the Phase Detector voltage (checked at TP16003) output to U24001 is minimal, causing negative feedback. U24001 and associated circuitry act as a phase-locked loop filter. When frequencies of the VCO and Multiplier become different, U24001-3 becomes more positive. As the frequencies continue to be different, U24001 becomes a Wien Bridge Oscillator. The ac output is fed to the VCO tuning Varactor CR34001. CR34001 adjusts the resonating frequency fed to HY24001, until error voltage is reduced down and U24001 becomes a phase-locked loop filter again. R24022 (OFFSET) sets a voltage level compensating for imbalances in the Phase Detector and/or buffers. R24025 (DEVIATION) sets the ac deviation voltage limit to prevent the VCO from setting on the 105th or 107th harmonics.

Q24010 exponentially increases current with temperature to provide temperature compensated voltage to VCO Varactor CR34001. VCO Tune Voltage, nominally 4 Vdc, is checked at TP16001 and set by R24026 (TUNING).

3 Mixer PCB Assy (2-2-1, Figure 11)



Mixer PCB Assy Block Diagram
Figure 11

The Mixer PCB Assy uses the 1060 MHz source signal to convert the 30 MHz transmit signal to 1090 MHz and the 1030 MHz receive signal to 30 MHz. The Mixer PCB Assy consists of a low-pass filter, LO amplifier, mixer null and single-sideband mixer.

The low-pass filter (C18022, L18016, C18023, L18017 and C18024) removes odd harmonics passed by the Attenuator PCB Assy. The low-pass filter consist of a lumped element five pole filter with an elliptical response and provides 1.5 GHz of bandwidth.

The LO amplifier (Q18001, Q18002, Q18003, Q18004 and associated components) provides the necessary gain (≈20 dBm output) to drive the single-sideband mixer after driving the mixer null. Input from the LO Source PCB Assy (≈0 dBm) is fed to base of transistor Q18002. Q18002 is constant-current biased through Q18004 collector for a gain of ≈10 dB at base of Q18003. Q18003 is constant-current biased through Q18001 collector for another gain of ≈10 dB.

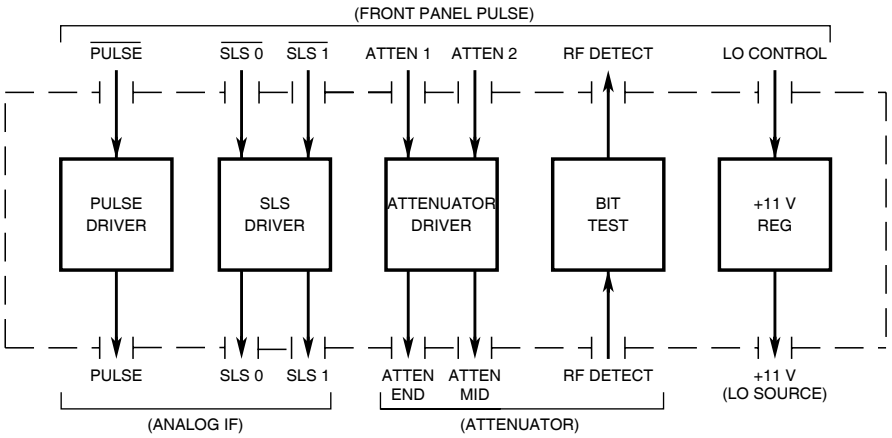
The mixer null adds four vectors, set 90° apart with phase shifts along Transmission Line HY18001. The amplified LO source signal is fed into the discrete splitter (L18020, C18031, R18022, L18021 and C18032). One signal is sent to the single-sideband mixer. The other is used as a reference by the mixer null. HY18001 and the summing network cancel out 1060 MHz at any phase from the transmit and receive signals going through the single-sideband mixer at Power Splitter HY18002. R18007 and R18008 (1060 MHz NULL ADJ) control the level. L18018 and L18019 cancel stray capacitance on adjusting resistors.

The single-sideband mixer splits the transmit (30 MHz IF), receive (1030 MHz) and LO source (1060 MHz) signals into two each. The resulting signals are phase shifted and summed together, canceling the image sideband (lower sideband on transmit, upper sideband on receive). The LO source signal is split by quadrature microstrip HY18003. One signal at 0° is fed into High-Level Mixer MXR18002 and the other signal at 90° is fed into High-Level Mixer MXR18001. C18034 (1030 MHz NULL PHASE ADJ) sets phase of LO source signal input to MXR18001 for complete sideband cancellation.

On receive, the 1030 MHz signal from the Attenuator PCB Assy is split through Power Splitter HY18002. One signal is fed into MXR18002. MXR18002 mixes the 1030 MHz with the 1060 MHz (both in phase) for an output of 30 MHz. (2090 MHz is out of bandwidth.) The second signal is fed into MXR18001. MXR18001 mixes the 1030 MHz at 0° with the 1060 MHz at 90° for an output of 30 MHz at 90°. T18002 changes phase 180° for an output of 30 MHz at -90°. Signals are sent through the respective all-pass filters and are added together through T18001. Adding the 90° separation factor sets the 30 MHz signal from MXR18001 back to 0°.

On transmit, the 30 MHz signal from the Analog IF PCB Assy is split by T18001, C18017 and R18014. The two signals, 90° apart, go through all-pass filters tuned to maintain equal levels (R18013 and R21015, 1030 MHz NULL AMPLITUDE ADJ) and 90° separation (C18013 and C18015, 1030 MHz NULL PHASE ADJ). One signal (in phase) is fed into MXR18002. MXR18002 mixes the 30 MHz with the 1060 MHz for a mixed output of 1030 MHz and 1090 MHz. The second signal (90° out of phase) is shifted another 180° by T18002 and is fed into MXR18001. MXR18001 mixes the 30 MHz at -90° with the 1060 MHz at 90° for an output of 1030 MHz at 180° and 1090 MHz at 0°. The signals are added together through Power Splitter HY18002. The 1030 MHz signals cancel each other leaving the 1090 MHz transmit signal.

(b) Driver PCB Assy (2-2-1, Figure 12)



Driver PCB Assy Block Diagram
Figure 12

The Driver PCB Assy drives the pulse and level control signals from the Front Panel Pulse PCB Assy to the Analog IF PCB Assy and Attenuator PCB Assy. The Driver PCB Assy also provides the +11 V for the LO Source PCB Assy, the voltage to bias pin attenuator diodes on the Video Detector PCB Assy and voltages from the Power Supply Assy to the rest of the RF Assy. The Driver PCB Assy consists of attenuator drivers, +11 V regulator, SLS level drivers, pulse modulation driver, RF BIT level driver and Direct Connect Power Adjust.

ATTEN2 line voltage from Front Panel Pulse PCB Assy (0 to 10 Vdc) across R20005 sets a voltage controlled current source supplying collector current for half of Q20001. The other half of Q20001 remains constant as determined by R20052 and R20009. Q20001 and associated components form a logarithmic converter. Q20002 and associated components form an exponential amplifier. Both amplifier circuits cascaded together form a power function converter with independent adjustments for gain (R20010, 50 dB ADJ OFFSET) and exponent (R20016, 10 dB ADJ SLOPE). R20009 (ZERO VOLT ADJ) allows independent adjustment of R20010 and R20016. Operational amplifier U20002B, set by power function converter (Q20002-1) and Q20003 feedback, biases Q20003, controlling current flow through midline attenuator diodes on the Attenuator PCB Assy. The output voltage of RT20002 and associated components provide temperature compensation for pin diode slope changes over temperature. ATTEN1 line voltage (0 to 10 Vdc from Front Panel Pulse PCB Assy) across linear converter amplifier controls the current through end line pin attenuator diodes on the Attenuator PCB Assy. Operational amplifier U20001A, set by ATTEN1 line voltage and Q20005 feedback inputs, biases Q20005, controlling current flow. R20019 (VSWR 50 dB ADJ) sets the reference current through Q20005.

Voltage regulator U20008 provides the +11 V to operate the Multiplier and VCO on the LO Source PCB Assy. U20008 is switched On or Off by the LED Control Register on the Front Panel PCB Assy.

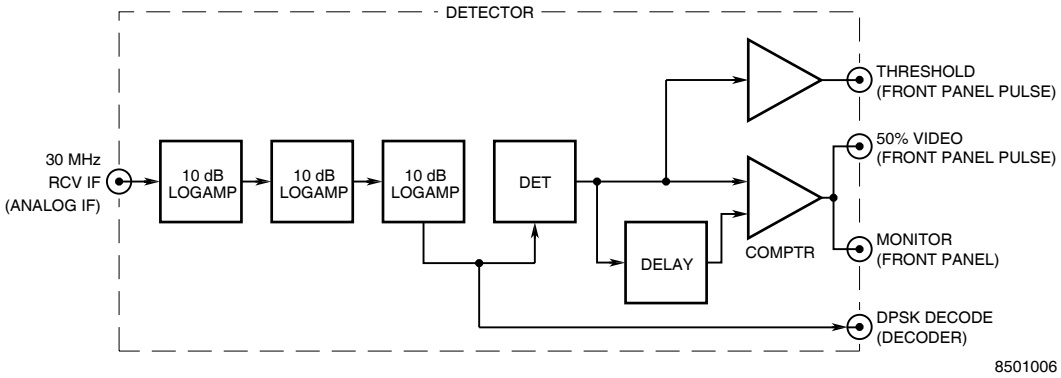
SLS level drivers U20005B and U20005C invert the active low $\overline{\text{SLS0}}$ and $\overline{\text{SLS1}}$ signals from the Front Panel Pulse PCB Assy. The high output signals, SLS0 and SLS1, bias the SLS gain amplifier output level diodes. $\overline{\text{SLS0}}$ and $\overline{\text{SLS1}}$ are both activated during normal operation.

The pulse modulation driver converts the reply pulse signal from the Front Panel Pulse PCB Assy to the level necessary to modulate the 30 MHz IF on the Analog IF PCB Assy. Active low $\overline{\text{PULSE}}$ is inverted by U20006C and driven to Analog IF PCB Assy as active high PULSE.

The RF BIT level driver biases Diode Detector CR31001 on the Attenuator PCB Assy. Transmit level detected across CR31001 is used in setting the RF DETECT line during the RF Detect portion of Self Test. U20007 output is 0 Vdc when nothing is detected to 2.8 Vdc when transmit level is highest (no attenuation). CR20001 matches U20007-3 input and R20029 (ZERO ADJ) adjusts bias to set U20007 output to 0 Vdc when nothing is transmitted (U20007-3 input ≈-0.3 Vdc). R20032 (RF DET ADJ) sets output voltage to correct level when Test Set is transmitting.

R20020 (DIRECT CONNECT POWER ADJ) adjusts the voltage from 0 to +12 Vdc to bias the pin attenuator diode on the Video Detector PCB Assy. R20020 calibrates the signal level at the RF I/O Connector (J10058) to -48.25 dB relative to the signal level at the ANTENNA Connector (J10057).

(c) Detector Assy (2-2-1, Figure 13)



Detector Assy Block Diagram
Figure 13

The Detector Assy converts the 30 MHz, pulse modulated input from the Analog IF PCB Assy to TTL level, preserving original pulse width. The TTL level signal is sent with a threshold comparison signal to the Interrogation Decoder on the Front Panel Pulse PCB Assy for decoding. The output signal is monitored through the MONITOR Connector (J10056) on the Front Panel Assy. The Detector Assy also provides the DPSK modulated signal to the Decoder Assy. The Detector Assy has a detection range of ≈30 dB (-27 to +3 dBm). Detector Assy circuits (Logarithmic Amplifiers, Detector and Comparators) are located on the Detector PCB Assy.

1 Logarithmic Amplifiers

The Detector PCB Assy has three stages of cascade coupled Logarithmic Amplifiers (Q21001, Q21002, Q21003 and associated components) providing a total gain of ≈30 dB. Each amplifier has ≈10 dB gain, calculated by the collector impedance (set by resistors R21004, R21011 and R21018) divided by the emitter impedance. The current through emitter logging diodes (CR21001, CR2002 and CR21003) shunts the emitter resistance, effectively causing the small emitter impedance to change with the input level. With low input levels, emitter impedance is low and gain is high. As input level increases, emitter impedance increases logarithmically and gain decreases, approaching unity gain until compression is reached.

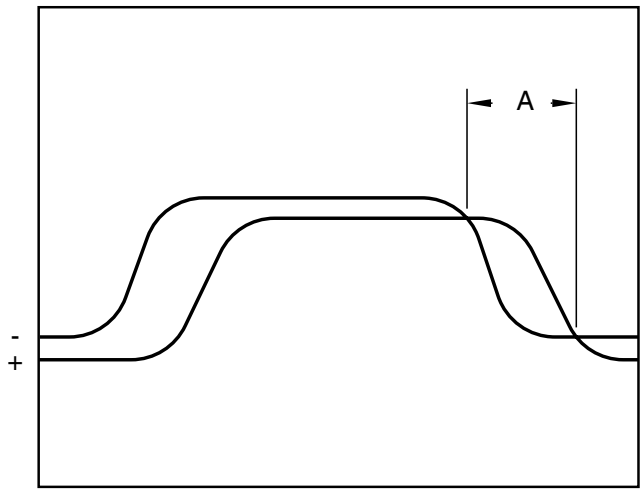
After amplification, the signal is split. Q21007 buffers one signal through J32067 to the Decoder Assy for DPSK decoding. The other signal is sent to the Detector.

2 Detector

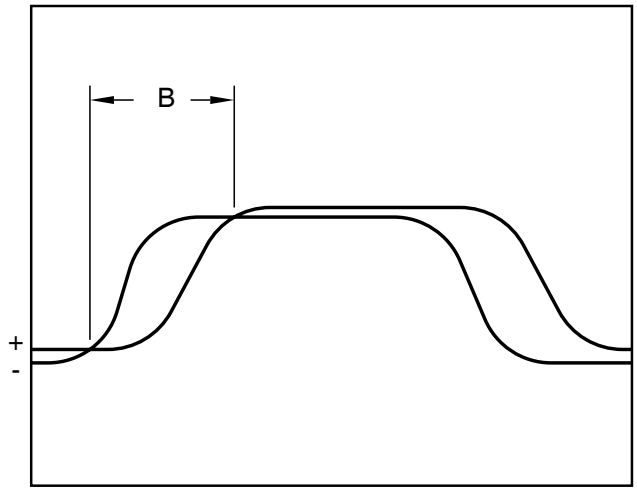
The balanced Detector preserves envelope detection efficiency and consists of an unbalanced to balanced Transformer T21001, Diode CR21004, dual transistor buffer (Q21005 and Q21008) and detector filter (C21018, L21006, C21019, C21020, L21007, C21021, C21022 and R21039). CR21004 balances the output of T21001 and provides a 60 MHz positive half-wave, the width of the modulating pulse, to the dual transistor buffer. The detector filter has a 6.5 MHz bandwidth and a flat time delay response to preserve pulse shape. The detector filter removes the 60 MHz from the detected pulse.

3 Comparator

After detection, the signal is split into two paths: primary and delayed. Buffers Q21008 and Q21009, provide the load for the detector filter. The delayed signal at Q21009 emitter is set through the delay filter (C21024, L21008, C21025, C21026, L21009, C21027, L21010 and C21028). The delay filter has a bandwidth of ≈10 MHz and a flat time delay of 120 ns. The delayed signal is referenced using a resistor network (R21060 and R21046) and applied to the positive inputs to Comparators U21001A, U21001B and U21004A. The primary signal is split. One primary signal is dc adjusted by R21061 to provide a higher level than the delayed signal and is applied to the negative input to trailing edge Comparator U21001A. Refer to 2-2-1, Figure 14 for trailing edge comparator input signals. The other primary signal, applied to the negative input to leading edge Comparator U21001B, is set lower than the delayed signal. Refer to 2-2-1, Figure 15 for leading edge comparator input signals. When preserving correct pulse width, slicing occurs at the 50% amplitude points for a linear pulse. Offsetting input signals cause the comparators to slice the pulse 6 dB down (≈-0.15 V), compensating for the level set by the Logarithmic Amplifiers. Comparator outputs provide the clocks for D Flip-Flops U21002A and U21002B. The pulses, shown in 2-2-1, Figure 16; have widths (A and B) approximately equal to the filter delay and are spaced (C) (rising edge to rising edge) about equal to the input pulse width minus the filter delay.



Trailing Edge Comparator Input Signals
Figure 14



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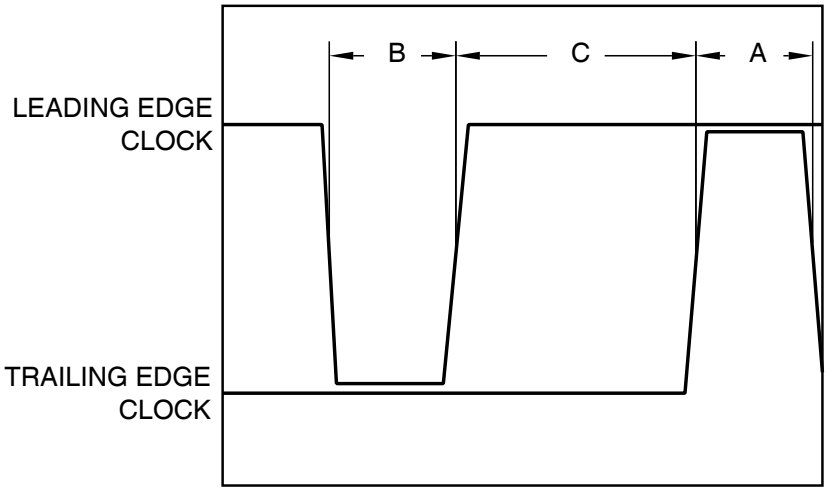
Leading Edge Comparator Input Signals
Figure 15



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Detector Comparator Pulses
Figure 16

U21002A, triggered by the leading edge clock, has a negative pulse output to NAND Gate U21003A. U21002B, triggered by the trailing edge clock, resets U21002A, through U21003B and U21003C. U21002A $\overline{Q}$ output is the other input to NAND Gate U21003A. R21058 (PULSE WIDTH) and C21035 provide a timed delay in triggering One-shot U21003D, to reset U21002B. The timed delay provides compensation for the filter delay, offset between flip-flops and comparator delays. The original pulse shape is restored at the output of U21003A. Reset Comparator U21004A and associated circuitry reset U21002A at low signal levels when there is a high output (U21003A-3) with a low input (U21004A-4). The Detector Assy output is sent to the Interrogation Decoder on the Front Panel Pulse PCB Assy and MONITOR Connector (J10056) on the Front Panel Assy, balanced by R21056 and R21057 for 50 Ω impedance matching.

NOTE: The leading edge comparator is set to be more sensitive than the trailing edge comparator to eliminate flip-flop reset during DPSK transitions.

The threshold comparator, U21004B, compares the incoming pulse level with the threshold level. The threshold level set by R21048 (THRESHOLD) simulates minimum triggering level (MTL). When the simulated range attenuates the incoming signal to a level less than the threshold level, U21004B output stays low. The TCAS-201-2 does not reply because the interrogation level is below MTL. R21049, R21063 and RT21001 compensate for changes in output from the Logarithmic Amplifiers due to temperature. CR21006, C21041 and R21064 stretch pulses to prevent chopping off valid, received pulse signal.

(d) Analog IF Assy (2-2-1, Figure 17)

The Analog IF Assy provides the 10 MHz reference used by the LO Source PCB Assy, 60 MHz clock for the Digital IF PCB Assy, pulse modulation for transmit signal and temperature compensation. The Analog IF Assy circuits, contained on the Analog IF PCB Assy are: 10 MHz DCXO, Transmit and Receive.

1 10 MHz DCXO

The Digitally Controlled Crystal Oscillator (DCXO) provides a temperature compensated 10 MHz signal. The oscillator temperature is transmitted as a voltage to the ADC (Front Panel Pulse PCB Assy) by temperature sensor (CR22001). R22001 calibrates CR22001 output voltage. The Front Panel Pulse PCB Assy uses the temperature sensor voltage to set contrast on the DISPLAY and provide the correct voltage to drive the DCXO for an output of 10 MHz (±30 Hz) across the temperature range (-20° to +50°). The corrected voltage (+2 to +8 Vdc) across CR22002 drives the oscillator (Y22001, Q22001 and associated circuitry). C22004 adjusts frequency. At 27°C, R22001 is adjusted to provide +3 Vdc (FL19007) and C22004 is adjusted for 10 MHz (±3 Hz). After amplification by Q22002, the 10 MHz signal is split. One signal is buffered by Q22003 for 1 Vp-p output to the LO Source PCB Assy. The other signal is buffered by Q22004 in the Transmit section.

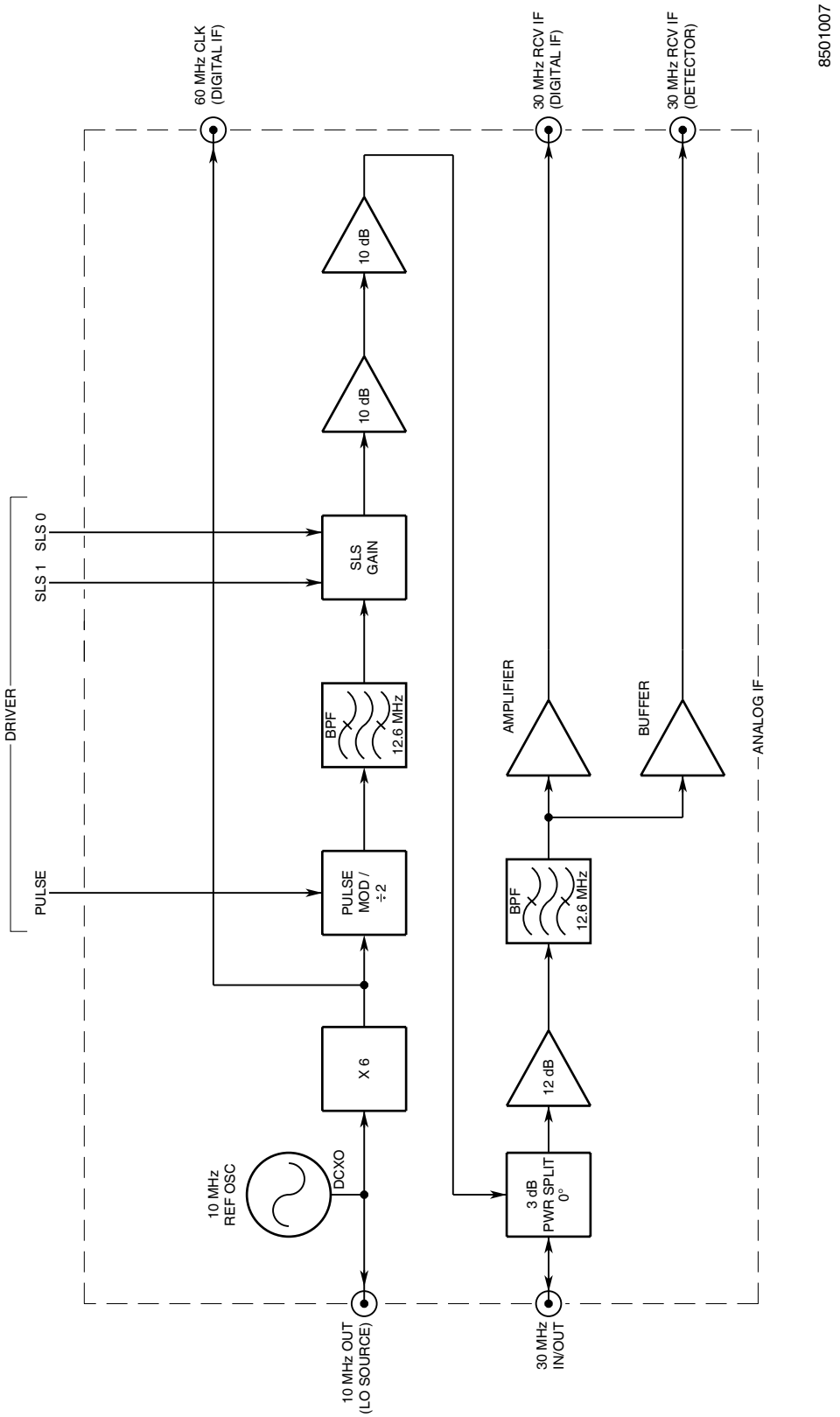
2 Transmit

The 10 MHz signal from the DCXO passes through low-pass filter (C2201-28, L22002 and C22019) to X6 Multiplier Transistor Q22005. The 60 MHz bandpass filter (L22003, L22005, L22007 and associated components tuned to the sixth harmonic) provides 60 MHz with a 3 MHz bandwidth. After amplification by Q22006, the 60 MHz signal is split. One signal is buffered by Q22007 for 1 Vp-p clock output to the Digital IF PCB Assy. The other signal clocks D Flip-Flop U22001B. U22001B, pins 8 and 12 are connected together to divide the signal by two for a 30 MHz output. The active low pulse signal from the Front Panel Pulse PCB Assy pulse modulates the signal through U22001B-10.

Resistors R22040 and R220041 reduce amplitude by 10 dB (checked at TP22003). The transmit bandpass filter is a four pole Bessel wideband filter consisting of four series resonators (C22036-L22010, C22038-L22011, C22040-L22012 and C22042-L22012). The transmit filter is centered at 30 MHz with a 3 dB bandwidth across 12.6 MHz. Signal delay, from U22001B through the transmit filter, shapes the transmit pulse by providing ≈70 ns of rise time.

The transmit signal flows through Mixer MXR22001 with no change. (DPSK modulation is not applied.) SLS Gain Amplifier Q22008 provides full amplification, controlled by diodes CR22007, CR22013, CR22006 and CR22012. SLS0 and SLS1 lines are both high during normal operation.

R22049 (TX GAIN) adjusts output level of Amplifier Q22009. Q22009 provides ≈10 dB signal gain. Inductive coupler L22020 decreases current and increases voltage. Q22010 is the final output amplifier, increasing the 30 MHz signal approximately another 10 dB. Q22010 emitter circuitry (RT22001, R22055 and R22056) provides temperature compensation for all of the transmit circuits. L22027 provides 40 dB isolation between transmit and receive. C22055 and R22062 (ISOLATION) are adjusted for maximum isolation.

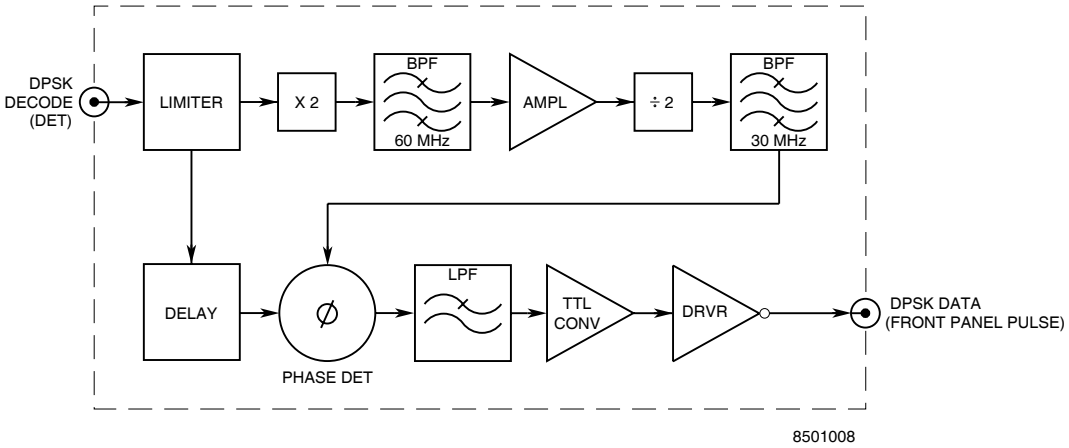


Analog IF Assy Block Diagram
Figure 17

3 Receive

The receive signal, 30 MHz IF from the Mixer PCB Assy, is reduced 3 dB by L22027 and applied to Amplifier Q22011. Q22011 amplifies signal 12 dB and provides a 50 Ω output to drive the receive filter. The receive bandpass filter is a four pole Bessel wideband filter comprising series resonators L22029-C22060, L22030-C22062, L22031-C22064 and L22032-C22066. The receive filter has a flat time domain response between the 3 dB points and is centered at 30 MHz with a 12.6 MHz bandwidth. Output is split into two signals. Q22013 buffers and sends one signal to the Detector PCB Assy through J19033. Emitter-follower Q22012 amplifies the other signal. R22073 (RX GAIN) adjusts received level. Q22014, with a 50 Ω output, drives the 30 MHz receive signal to the Digital IF PCB Assy through J17034 (≈+3 dBm). Q22014 emitter circuitry (RT22002, R22082 and R22084) provides temperature compensation for all of the receive circuits.

(e) Decoder Assy (2-2-1, Figure 18)



Decoder Assy Block Diagram
Figure 18

The Decoder Assy converts the DPSK modulated incoming interrogation signal to a digital output used by the Interrogation Decoder on the Front Panel Pulse PCB Assy.

The limiter (Q36001 and associated components) squares the amplified 30 MHz receive signal from the Detector Assy. Limiting occurs at the level set by feedback through R36006. Feedback also increases bandwidth. The signal is buffered by Q36002 and split in two.

One signal, the control signal, is sent to both inputs of Doubler (X2) MXR36001. When phase shifts occur, MXR36001 provides a 60 MHz output shifted 360°, keeping the phase constant. The bandpass filter (L36002, C36010, L36004, C36009, C36008, L36003, C36007, R36016 and C36011) removes energy from phase shift transitions (≈20 MHz), 30 MHz carrier bleed through and other unwanted harmonics from the control signal. L36003 and L36004 are adjusted for 60 MHz at TP36001.

Two stage amplifier-limiter composed of Q36005, Q36006 and associated components boost the control signal to drive Flip-Flop U36001A. CR36001 limits the signal to the +5 V source from the Power Supply Assy. U36001A divides the signal by two to get 30 MHz again. L36010, C36024 and R36023 filter out unwanted harmonics. R36034 sets level for Phase Detector MXR36002 input.

The other signal, the DPSK signal off of Q36002 emitter, is buffered by Q36003. L36001, C36004, R36011 and associated components form a variable phase shift delay, adjusted to keep DPSK signal phase synchronized to 0° or 180° from control signal. C36004 is adjusted for maximum output through Buffer Q36004 to Phase Detector MXR36002.

Phase Detector MXR36002 provides a positive output when both signals are in phase and a negative output when the DPSK signal is 180° from the control signal.

A low-pass filter (C36015, L36005, C36016, L36006 and C36017) removes 30 MHz, 60 MHz and all harmonics. The remaining dc signal is applied to TTL Converter U36002A. U36002A is a comparator with hysteresis providing a stable digital representation (TTL level) of the DPSK modulation status. NAND Gate U36003A inverts and drives digital DPSK data to Front Panel Pulse PCB Assy.

(5) Front Panel Assy

(a) Video Detector PCB Assy

The Video Detector PCB Assy provides a linear display of UUT interrogations on the oscilloscope when Test Set is directly connected to UUT. The Video Detector PCB Assy also provides a calibrated attenuation of the direct connection signal.

The direct connection receive signal from the Power Termination Assy or transmit signal from the Attenuator PCB Assy is split by a resistive power splitter (R30010, R30002 and R30003). One signal is linearly detected by Schottky Barrier Diode CR30001. C30003 is a printed element to provide for fast detection. The detected signal is sent to the INTERR VIDEO Connector (J10054). On receive, the other signal has attenuation level set across a resistive divider (R30011 and R30012). Current through CR30002, controlled by the biasing voltage set on the Driver PCB Assy, provides ≈1 dB of attenuation adjustment. Attenuation level is calibrated for accurate power and MTL measurements. On transmit, the other signal is attenuated before splitting and going to the Power Termination Assy.

(b) Power Termination Assy

The Power Termination Assy provides a 50 W termination for the UUT and protects the TCAS-201-2 Test Set against excessive incoming power through the RF I/O Connector (J10058). The Power Termination Assy is in the transmit and receive circuit only when a direct connection with UUT is used. The Power Termination Assy connects the RF I/O Connector (J10058) through P/J28028 with the Video Detector PCB Assy through P/J28029.

Transmit and Receive signals are reduced 20 dB across Directional Coupler HY28001. Excessive incoming power and stray spikes are dissipated off through R28002. C22001 and L22001 keep the circuit frequency balanced for 50 Ω impedance.

(c) Front Panel LED PCB Assy

The Front Panel LED PCB Assy consists of three indicator circuits and a light sensor used in the LCD Backlight Control circuit.

The INTERR Indicator illuminates red when a valid interrogation is received. When activated, a ground on the emitter of Q27007 (Front Panel Pulse PCB Assy) completes the circuit across LED CR13001.

The REPLY Indicator illuminates red when a reply is transmitted. When activated, a ground on the emitter of Q27006 (Front Panel Pulse PCB Assy) completes the circuit across LED CR13002.

The CHARGE Indicator illuminates only when the Battery Charger on the Power Supply Assy is operating. The CHARGE Indicator illuminates green (battery is >80% charged) when current flows from the 15 V source through LED CR13003 to the Power Supply Assy (BATT CHARGER LED line). The circuit is completed through CR27010 and the activated transistors, Q27013 and Q14014. The CHARGE Indicator illuminates red (battery requires charging) when current flows from the Battery Charger on the Power Supply Assy through CR27011 and the activated Q27015 to LED CR13003.

Voltage across light sensitive Photo Resistor R13001 is sent to the ADC on the Front Panel Pulse PCB Assy. The Front Panel Backlighting voltage to the LCD is adjusted accordingly.

(d) LCD (LCD Display PCB Assy [Modified])

The LCD is a 64 line by 240 column dot display. The LCD requires 4.75 to 5.25 V to run logic. The TCAS-201-2 uses a nominal +5 V. The LCD drive voltage required is -5.25 to -4.75 V. -5.1 V is nominal for TCAS-201-2.

(e) Keypad

The Keypad, consisting of 12 keys, is contained in the TCAS-201-2 Overlay. When activated, each key momentarily closes contacts between a row ($\overline{\text{ROW}}$) line and column ($\overline{\text{COL}}$) line. Row and column lines go to the Front Panel Pulse PCB Assy. Keys operate with <20 ms switch bounce.

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2. Calibration/Verification

A. General

(1) Calibration/Verification Schedule

The Calibration/Verification Procedures should be performed as a result of one or more of the following conditions:

- Failure to Meet Specifications

  If, during the course of normal operation, the TCAS-201-2 or any major function thereof fails to meet the performance specifications according to Appendix F, Calibration/Verification Procedures should be performed.

  If any failure occurs during performance of Verification Procedures, pertinent Calibration Procedures should be performed according to 2-2-2, Table 15.

- Module/Assembly Replacement

  If one or more TCAS-201-2 assemblies are replaced, Calibration Procedures should be performed according to 2-2-2, Table 14.

- Annual Calibration/Verification

  Aeroflex recommends an annual Calibration/Verification on the TCAS-201-2 to maintain proper testing standards.

(2) Controls, Connectors and Indicators

Refer to Appendix G for location of external Controls, Connectors and Indicators.

(3) Test Record

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

NOTE: It is recommended the technician reproduce copies of the Calibration and Verification Data Sheets, rather than use 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.

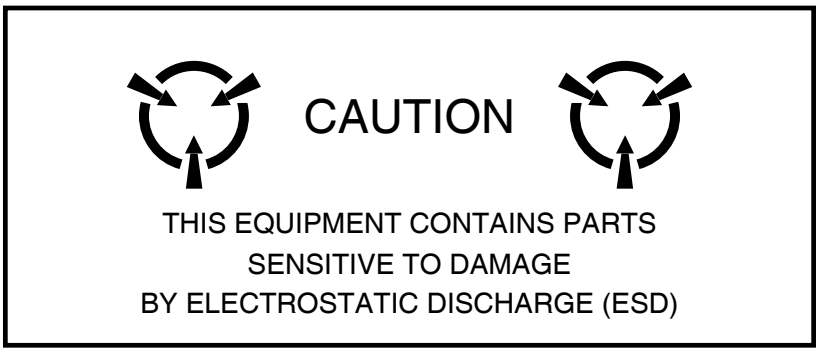
WARNING: WHEN WORKING WITH LIVE CIRCUITS OF HIGH POTENTIAL, KEEP ONE HAND IN POCKET OR BEHIND BACK TO AVOID SERIOUS SHOCK HAZARD.

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 POWER SUPPLY ASSY, DIGITAL IF PCB ASSY, FRONT PANEL PULSE PCB ASSY, RF ASSY, AND FRONT PANEL ASSY CONTAIN PARTS SENSITIVE TO DAMAGE BY ELECTROSTATIC DISCHARGE (ESD). ALL PERSONNEL PERFORMING 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) Performance

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.

(2) Test Equipment

Appendix B contains a 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 equipment listed in Appendix B may exceed minimum required specifications.

(3) Disassembly

No disassembly is required to perform Verification Procedures. The Chassis Assy must be removed from Case Assy to perform Calibration Procedures. For better access, the RF Assy is removed from Chassis Assy in Calibration Procedures.

(4) Environment

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

If this Assembly is repaired or replaced, / the following Calibration Procedures must be performed.		Analog IF Assy	Attenuator PCB Assy	Battery	Decoder Assy	Detector Assy	Digital IF PCB Assy	Driver PCB Assy	Front Panel Pulse PCB Assy	LO Source PCB Assy	Mixer PCB Assy	Power Supply Assy
Power Supply				●				●				●
RF Assy	LO Source							●	●	●		●
	Attenuator		●					●	●			●
	Isolation Null	●	●							●	●	●
	Generator Output Power	●	●							●	●	●
	Generator Image	●	●							●	●	●
	LO Null	●	●							●	●	●
	Receive Image	●	●							●	●	●
	Receive Power	●	●							●	●	●
	Isolation Reset	●	●							●	●	●
	Detector Pulse Width	●				●						●
	Direct Connect Set	●						●				●
	RF Bit Detector Set	●	●					●	●	●	●	●
	Oscillator Compensation	●							●			●
System	Self Test	●	●	●	●	●	●	●	●	●	●	●
	Receive Power System Recheck	●	●				●			●	●	●
	Isolation System Recheck	●	●				●			●	●	●
	Generator Power System Recheck	●	●							●	●	●
	Mixer Nulls	●	●							●	●	●
	Threshold Set	●	●			●				●	●	●

Assembly Replacement Calibration Requirements
Table 14

If this Verification Procedure fails, / the following Calibration Procedures must be performed.		Output Frequency	Output Level	Attenuation	Direct Connection	UUT Transmitter Frequency	UUT Transmitter Power
Power Supply							
RF Assy	LO Source	●					
	Attenuator		●	●			●
	Isolation Null		●	●			●
	Generator Output Power		●	●			●
	Generator Image		●	●			●
	LO Null		●	●			●
	Receive Image		●	●			●
	Receive Power		●	●			●
	Isolation Reset						
	Detector Pulse Width						
	Direct Connect Set				●		
	RF Bit Detector Set		●	●			●
	Oscillator Compensation	●				●	
System	Self Test		●	●		●	
	Receive Power System Recheck		●	●		●	●
	Isolation System Recheck		●	●		●	●
	Generator Power System Recheck		●	●		●	●
	Mixer Nulls		●	●		●	●
	Threshold Set		●	●		●	●

Verification Failure Calibration Requirements
Table 15

D. Verification Procedures

NOTE: Pulse spacings are measured from rising edge to rising edge at the 50% amplitude points. Pulse widths are measured from rising edge to falling edge at the 50% amplitude points.

(1) Signal Generator

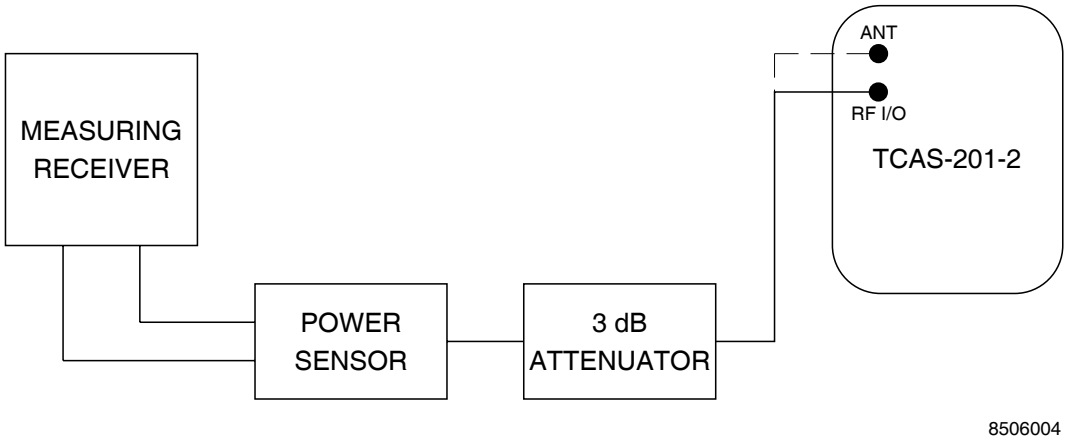
TEST EQUIPMENT: 3 dB Fixed Attenuator
Universal Timer/Counter
Measuring Receiver
Power Sensor

STEP	PROCEDURE

OUTPUT FREQUENCY

1. Connect Universal Timer/Counter through 3 dB Attenuator to TCAS-201-2 ANTENNA Connector.
2. Set Universal Timer/Counter to measure 1090 MHz with 100 Hz resolution.
3. Press SELF TEST Key and either SELECT Key to enter Diagnostics screen.
4. Set TCAS-201-2 Signal Type to ***CW*** and Attenuation to ***0.0 dB***.
5. Press RUN/STOP Key to initiate test.
6. Verify frequency is 1090 MHz (±10.0 kHz). If incorrect, perform Calibration Procedures according to 2-2-2, Table 15.
7. Press RUN/STOP Key to terminate test.
8. Disconnect Universal Timer/Counter from 3 dB Attenuator.

OUTPUT LEVEL



Level and Attenuation Test Setup Diagram
Figure 19

9. Connect Measuring Receiver through Power Sensor and 3 dB Attenuator to TCAS-201-2 RF I/O Connector (BNC to TNC Adapter is required). Refer to 2-2-2, Figure 19.
10. Set TCAS-201-2 Signal Type to CW and Attenuation to 19.5 dB.

STEP	PROCEDURE

11. Press RUN/STOP Key to initiate test.
12. Verify output is -67.35 dBm (±2.0 dB), considering 3 dB Attenuator. If incorrect, perform Calibration Procedures according to 2-2-2, Table 15.

ATTENUATION

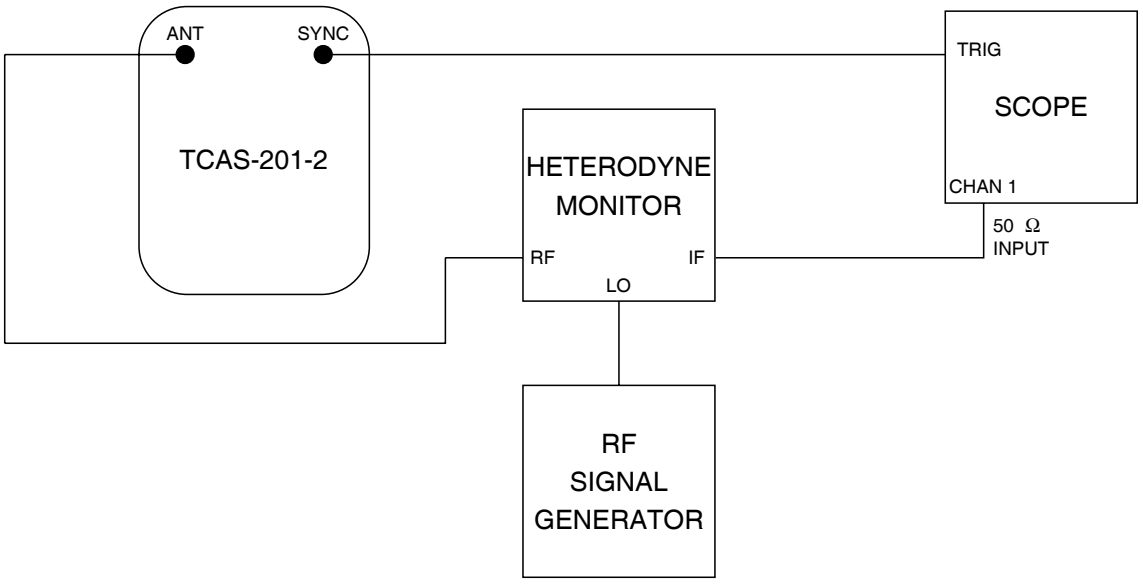
13. Disconnect 3 dB Attenuator from RF I/O Connector and reconnect to ANTENNA Connector.
14. Set TCAS-201-2 Attenuation to ***0.0dB***.
15. Verify output is 0.4 dBm (±2.0 dB), considering 3 dB Attenuator. Record as reference.
16. Set TCAS-201-2 Attenuation to ***10.0 dB***.
17. Verify output is reference from Step 15 minus 10 dB (±0.5 dB).
18. Set TCAS-201-2 Attenuation to ***20.0 dB***.
19. Verify output is reference from Step 15 minus 20 dB (±0.5 dB).
20. Set TCAS-201-2 Attenuation to ***30.0 dB***.
21. Verify output is reference from Step 15 minus 30 dB (±0.5 dB).
22. Set TCAS-201-2 Attenuation to ***40.0 dB***.
23. Verify output is reference from Step 15 minus 40 dB (±0.5 dB).
24. Set TCAS-201-2 Attenuation to ***50.0 dB***.
25. Verify output is reference from Step 15 minus 50 dB (±2.0 dB).
26. If output fails any step, perform Calibration Procedures according to 2-2-2, Table 15.
27. Press RUN/STOP Key to terminate test.

DIRECT CONNECTION

28. Disconnect 3 dB Attenuator from ANTENNA Connector and reconnect to RF I/O Connector.
29. Set TCAS-201-2 Attenuation to ***0.0 dB***.
30. Press RUN/STOP Key to initiate test.
31. Verify output is reference from Step 15 minus 48.25 dB (±0.5 dB). If incorrect, perform Calibration Procedures according to 2-2-2, Table 15.
32. Press RUN/STOP Key to terminate test.
33. Disconnect test equipment.

(2) Pulse Characteristics

TEST EQUIPMENT: 3 dB Fixed Attenuator
Heterodyne Monitor
Oscilloscope
RF Signal Generator
Spectrum Analyzer



Pulse Characteristics Test Setup Diagram
Figure 20

STEP	PROCEDURE

1. Connect test equipment according to 2-2-2, Figure 20.
2. Set Oscilloscope to view Channel 1 with a 20 MHz bandwidth limit.
3. Set RF Signal Generator for 1090 MHz at +7 dBm.

   SPACING

4. Set TCAS-201-2 as follows:

SCREEN	FIELD	SETTING
Setup Menu #1	INTRUDER TYPE:	ATCRBS
Reply Test	ALTITUDE:	84,100 ft
Diagnostics	SIGNAL TYPE:	MODE C REPLY
	ATTENUATION:	6.0 dB

5. Press RUN/STOP Key to initiate test.
6. Verify F_1 to F_2 pulse spacing is 20.30 µs (±50 ns).
7. Verify F_1 to C_1 pulse spacing is 1.45 µs (±50 ns).
8. Verify F_1 to A_1 pulse spacing is 2.90 µs (±50 ns).

STEP PROCEDURE

9. Verify F_1 to C_2 pulse spacing is 4.35 µs (±50 ns).
10. Verify F_1 to A_2 pulse spacing is 5.80 µs (±50 ns).
11. Verify F_1 to A_4 pulse spacing is 8.70 µs (±50 ns).
12. Verify F_1 to B_1 pulse spacing is 11.60 µs (±50 ns).
13. Verify F_1 to B_2 pulse spacing is 14.50 µs (±50 ns).
14. Verify F_1 to D_2 pulse spacing is 15.95 µs (±50 ns).
15. Verify F_1 to B_4 pulse spacing is 17.40 µs (±50 ns).
16. Verify F_1 to D_4 pulse spacing is 18.85 µs (±50 ns).
17. Set Reply Test screen Altitude to ***83,900 ft***.
18. Verify F_1 to C_4 pulse spacing is 7.25 µs (±50 ns).
19. Press RUN/STOP Key to terminate test.
20. Set TCAS-201-2 Signal Type to ***DF16 ACQUISITION***.
21. Press RUN/STOP Key to initiate test.
22. Verify P_1 to P_2 pulse spacing is 1.00 µs (±50 ns).
23. Verify P_1 to P_3 pulse spacing is 3.50 µs (±50 ns).
24. Verify P_1 to P_4 pulse spacing is 4.50 µs (±50 ns).
25. Verify P_1 to D_1 pulse spacing is 8.00 µs (±50 ns).
26. Press RUN/STOP Key to terminate test.

WIDTHS

27. Set TCAS-201-2 Signal Type to ***MODE C REPLY***.
28. Press RUN/STOP Key to initiate test.
29. Verify pulse widths are 0.45 µs (±50 ns).
30. Press RUN/STOP Key to terminate test.
31. Set TCAS-201-2 Signal Type to ***DF16 ACQUISITION***.
32. Press RUN/STOP Key to initiate test.
33. Verify pulse widths are 0.50 µs (±50 ns).

NOTE: When two adjacent data pulses from D_1 through D_{12} form a one-zero bit combination, one 1.0 µs wide pulse is transmitted.

RISE AND FALL TIMES

34. Using Δt function, verify P_1 pulse rise time, from 10% amplitude point to 90% amplitude point on rising edge, is 50 to 100 ns.
35. Using Δt function, verify P_1 pulse fall time, from 90% amplitude point to 10% amplitude point on falling edge, is 50 to 200 ns.
36. Press RUN/STOP Key to terminate test.
37. Disconnect test equipment.

STEP PROCEDURE

AMPLITUDE LEVELS

38. Connect Spectrum Analyzer Input to TCAS-201-2 ANTENNA Connector.

39. Set Spectrum Analyzer as follows:

CONTROL	SETTING
Center Frequency	1090 MHz
Input Attenuation	10 dB

40. Press RUN/STOP Key to initiate test.

41. Record amplitude level of P_1.

42. Verify P_2, P_3, P_4 and D_1 amplitude levels are equal to P_1 level (±1 dB).

43. Press RUN/STOP Key to terminate test.

44. Set TCAS-201-2 Signal Type to ***MODE C REPLY***.

45. Press RUN/STOP Key to initiate test.

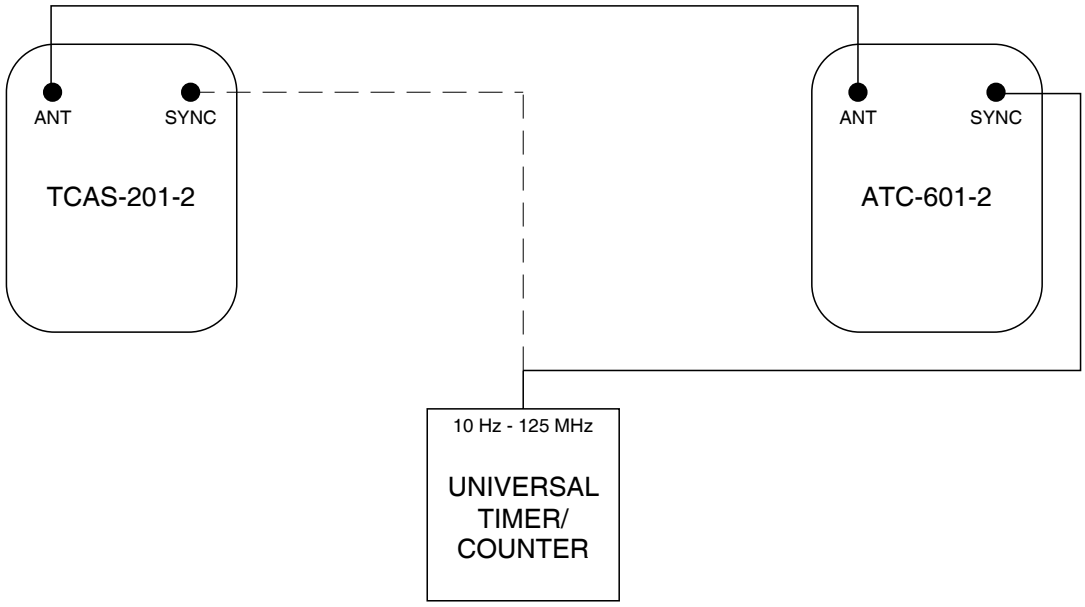
46. Record amplitude level of F_1.

47. Verify all pulse amplitude levels are equal to F_1 level (±1 dB).

48. Press RUN/STOP Key to terminate test.

(3) Parameters

TEST EQUIPMENT: 3 dB Fixed Attenuator
10 dB Coupler
ATC-601-2 Ramp Test Set
Heterodyne Monitor
Oscilloscope
RF Signal Generator
Universal Timer/Counter



Percent Reply Test Setup Diagram
Figure 21

STEP	PROCEDURE

PERCENT REPLY

1. Connect test equipment as shown in 2-2-2, Figure 21 with ATC-601-2 SYNC Connector initially connected to Universal Timer/Counter.
2. Set Universal Timer/Counter to 0.1 MHz filter and 0.1 Hz resolution.
3. Run ATC-601-2 Diagnostics as follows:

FIELD	SETTING
SIGNAL TYPE:	ITM_ATC_C
ATTENUATION:	00
PRF:	235

4. Record interrogation frequency as measured by Universal Timer/Counter.
5. Disconnect ATC-601-2 SYNC Connector from Universal Timer/Counter.
6. Connect TCAS-201-2 SYNC Connector to Universal Timer/Counter.

STEP PROCEDURE

7. Set TCAS-201-2 as follows:

SCREEN	FIELD	SETTING
Setup #1 Menu	INTRUDER TYPE:	ATCRBS
	UUT DIST: HORIZ:	250 ft
	UUT DIST: VERT:	100 ft
ATCRBS Reply Test	RANGE:	0.0 nm
	%REPLY:	100

8. Press RUN/STOP Key from Reply Test screen to initiate test.
9. Record reply frequency as measured by Universal Timer/Counter.
10. Verify Step 9 value/Step 4 value ratio is 100% (-1%).
11. Set TCAS-201-2 %Reply to ***10***.
12. Record reply frequency as measured by Universal Timer/Counter.
13. Verify Step 12 value/Step 4 value ratio is 10% (±1%).
14. Set TCAS-201-2 %Reply to ***20***.
15. Record reply frequency as measured by Universal Timer/Counter.
16. Verify Step 15 value/Step 4 value ratio is 20% (±1%).
17. Set TCAS-201-2 %Reply to ***30***.
18. Record reply frequency as measured by Universal Timer/Counter.
19. Verify Step 18 value/Step 4 value ratio is 30% (±1%).
20. Set TCAS-201-2 %Reply to ***40***.
21. Record reply frequency as measured by Universal Timer/Counter.
22. Verify Step 21 value/Step 4 value ratio is 40% (±1%).
23. Set TCAS-201-2 %Reply to ***50***.
24. Record reply frequency as measured by Universal Timer/Counter.
25. Verify Step 24 value/Step 4 value ratio is 50% (±1%).
26. Set TCAS-201-2 %Reply to ***60***.
27. Record reply frequency as measured by Universal Timer/Counter.
28. Verify Step 27 value/Step 4 value ratio is 60% (±1%).
29. Set TCAS-201-2 %Reply to ***70***.
30. Record reply frequency as measured by Universal Timer/Counter.
31. Verify step 30 value/Step 4 value ratio is 70% (±1%).
32. Set TCAS-201-2 %Reply to ***80***.
33. Record reply frequency as measured by Universal Timer/Counter.
34. Verify Step 33 value/Step 4 value ratio is 80% (±1%).
35. Set TCAS-201-2 %Reply to ***90***.
36. Record reply frequency as measured by Universal Timer/Counter.

STEP PROCEDURE

37. Verify Step 36 value/Step 4 value ratio is 90% (±1%).

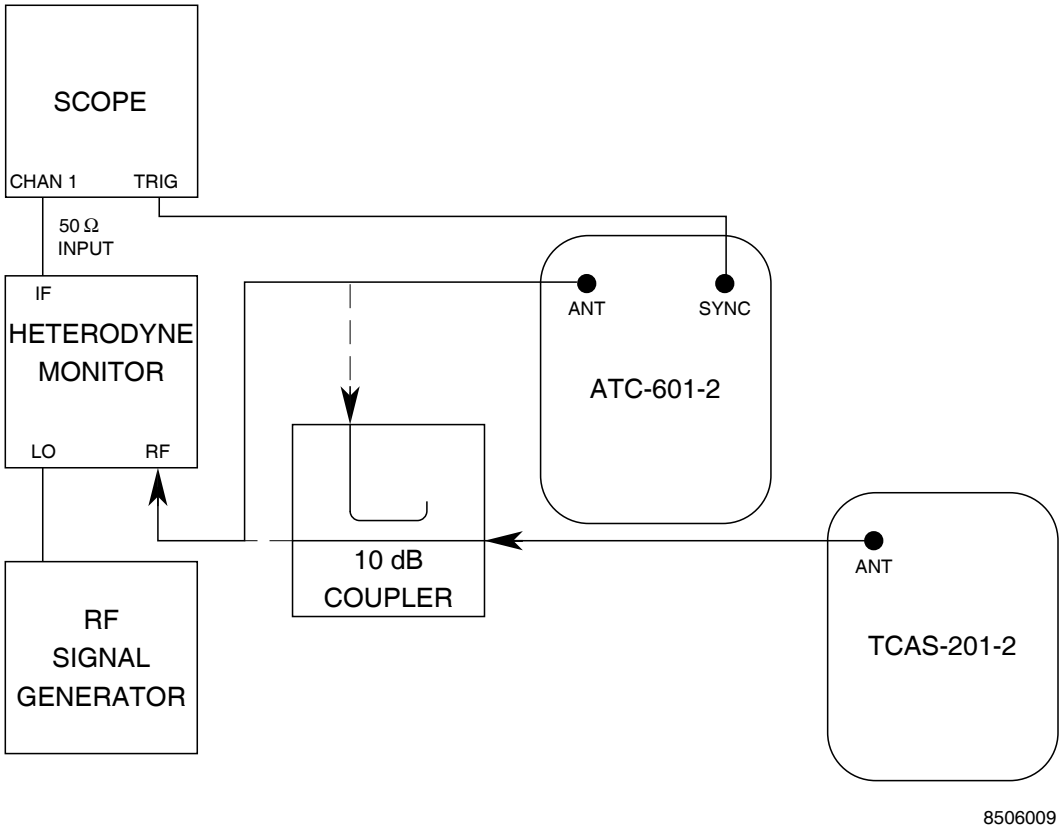
38. Press RUN/STOP Key to terminate test.

39. Disconnect test equipment.

RANGE DELAY

40. Connect test equipment according to 2-2-2, Figure 22 with ATC-601-2 ANTENNA Connector initially connected to Heterodyne Monitor RF input.

41. Set RF Signal Generator for 1030 MHz.



Range Delay Test Setup Diagram
Figure 22

42. Run ATC-601-2 Diagnostics as follows:

FIELD	SETTING
SIGNAL TYPE:	ITM_ATC_C
ATTENUATION:	00
PRF:	235

43. Position Oscilloscope leading delay cursor on rising edge of P_3 in interrogation.

44. Use delay time and position P_3 rising edge across 0,0 point on Oscilloscope for reference.

STEP PROCEDURE

45. Disconnect ATC-601-2 ANTENNA Connector from Heterodyne Monitor. Connect ATC-601-2 ANTENNA Connector and Heterodyne Monitor to 10 dB Coupler as shown in 2-2-2, Figure 22.

46. Set RF Signal Generator for 1090 MHz.

47. Set TCAS-201-2 as follows:

SCREEN	FIELD	SETTING
Setup #1Menu	INTRUDER TYPE:	ATCRBS
	UUT DIST: HORIZ:	250 ft
	UUT DIST: VERT:	100 ft
Scenario Test	RANGE:	0.50 nm
	RANGE: RATE:	+0 kt
	ALT: RATE:	+0 fpm

48. Press RUN/STOP Key from Scenario Test screen to initiate test.

49. Use Oscilloscope main time and position trailing delay cursor on rising edge of F_1 in reply.

50. Use delay time and position F_1 rising edge across 0,0 point on Oscilloscope.

51. Verify delay is 9.1795 µs (±247 ns). Delay = 3.0 µs reply delay + (12.359 µs/nmi • 0.5 nmi) range delay.

52. Set TCAS-201-2 Scenario Test screen Range to ***30.0 nm***.

53. Using Oscilloscope main time, position trailing delay cursor on rising edge of F_1 in reply.

54. Using delay time, position F_1 rising edge across 0,0 point on Oscilloscope.

55. Verify delay is 373.77 µs (±247 ns). Delay = 3.0 µs reply delay + (12.359 µs/nmi • 30.0 nmi) range delay.

56. Press RUN/STOP Key to terminate ATCRBS range delay test.

57. Disconnect ATC-601-2 ANTENNA Connector and Heterodyne Monitor from 10 dB Coupler. Connect ATC-601-2 ANTENNA Connector directly to Heterodyne Monitor as shown in 2-2-2, Figure 22.

58. Run ATC-601-2 Diagnostics as follows:

FIELD	SETTING
SIGNAL TYPE:	FMT0
PRF:	78
ATTENUATION:	00
ADDRESS:	01FF37

59. Set RF Signal Generator for 1030 MHz.

60. Position Oscilloscope leading delay cursor on SPR in interrogation.

61. Use delay time and position SPR across 0,0 point on Oscilloscope.

62. Disconnect ATC-601-2 ANTENNA Connector from Heterodyne Monitor. Connect ATC-601-2 ANTENNA Connector and Heterodyne Monitor to 10 dB Coupler as shown in 2-2-2, Figure 22.

63. Set RF Signal Generator for 1090 MHz.

STEP PROCEDURE

64. Set TCAS-201-2 as follows:

SCREEN	FIELD	SETTING
Setup #1 Menu	INTRUDER TYPE:	MODE-S
	UUT DIST: HORIZ:	250 ft
	UUT DIST: VERT:	100 ft
Scenario Test	RANGE:	0.50 nm
	RANGE: RATE:	+0 kt
	ALT: RATE:	+0 fpm
Reply Test	AA:	01FF37

65. Press RUN/STOP Key from Scenario Test screen to initiate test.

66. Use Oscilloscope main time and position trailing delay cursor on rising edge of P_1 in reply.

67. Use delay time and position P_1 rising edge of reply across 0,0 point on Oscilloscope.

68. Verify delay is 134.1795 µs (±247 ns). Delay = 128.0 µs reply delay + (12.359 µs/nmi • 0.5 nmi) range delay.

69. Set TCAS-201-2 Scenario Test screen Range to ***30.0 nm***.

70. Use Oscilloscope main time and position trailing delay cursor on rising edge of P_1 in reply.

71. Use delay time and position P_1 rising edge of reply across 0,0 point on Oscilloscope.

72. Verify delay is 498.77 µs (±247 ns). Delay = 128.0 µs reply delay + (12.359 µs/nmi • 30.0 nmi) range delay.

73. Press RUN/STOP to terminate Mode S range delay test.

ALTITUDE

74. Connect test equipment according to 2-2-2, Figure 20.

75. Set RF Signal Generator for 1090 MHz.

76. Set TCAS-201-2 as follows:

SCREEN	FIELD	SETTING
Setup #1 Menu	INTRUDER TYPE:	ATCRBS
	UUT DIST: HORIZ:	250 ft
	UUT DIST: VERT:	100 ft
Reply Test	ALTITUDE:	-1000 ft
Diagnostics	SIGNAL TYPE:	MODE C REPLY

77. Press RUN/STOP Key from Diagnostics Test screen to initiate test.

78. Verify only C_2 pulse is displayed on Oscilloscope between F_1 and F_2 pulses. Verify F_1 to C_2 pulse spacing is 4.35 µs (±50 ns).

79. Set TCAS-201-2 Reply Test screen Altitude to ***126,700 ft***.

80. Verify only C_4 and D_2 pulses are displayed on Oscilloscope between F_1 and F_2 pulses. Verify F_1 to C_4 pulse spacing is 7.25 µs (±50 ns). Verify F_1 to D_2 pulse spacing is 15.95 µs (±50 ns).

STEP	PROCEDURE

81. Press RUN/STOP Key to terminate test.
82. Disconnect test equipment.

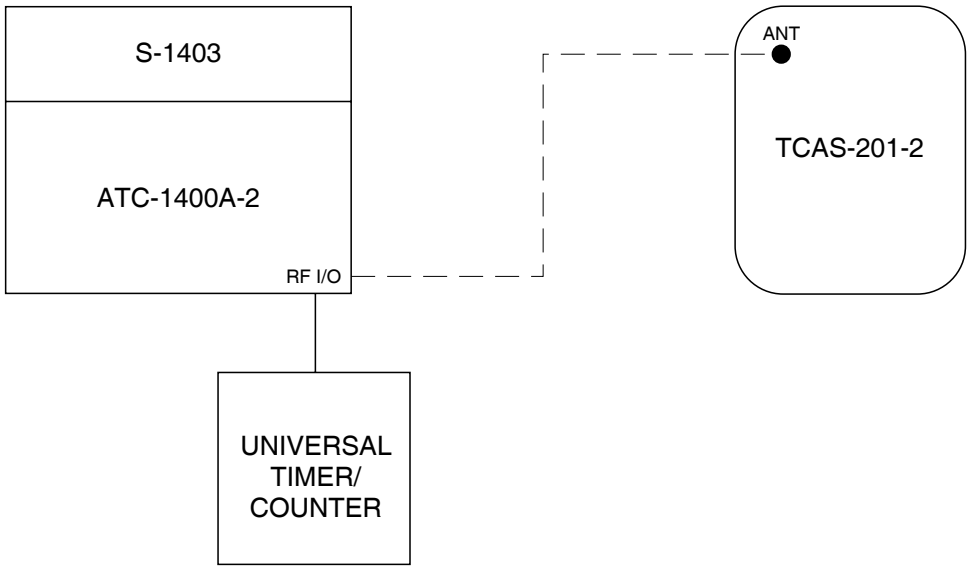
SQUITTER CONTROL

83. Connect Universal Timer/Counter Input A BNC Connector to TCAS-201-2 SYNC Connector.
84. Set Universal Timer/Counter to measure Single Period.
85. Set TCAS-201-2 Setup #1 Menu screen Intruder Type to ***MODE-S*** with Squitters ***ON***.
86. Press RUN/STOP Key from Scenario Test screen to initiate test.
87. Verify squitter period is 0.8 to 1.2 sec.
88. Press RUN/STOP Key to terminate test.
89. Disconnect test equipment.

(4) UUT Measurements

TEST EQUIPMENT:

3 dB Fixed Attenuator
Heterodyne Monitor
Measuring Receiver
Mode S Test System (S-1403 Test Auxiliary properly interfaced with ATC-1400A-2 Transponder/DME Test Set)
Oscilloscope
Power Sensor
RF Signal Generator
Spectrum Analyzer
Universal Timer/Counter



Frequency Measurement Test Setup Diagram
Figure 23

STEP	PROCEDURE

UUT TRANSMITTER FREQUENCY

1. Connect test equipment as shown in 2-2-2, Figure 23 with ATC-1400A-2 initially connected to Universal Timer/Counter.
2. Set ATC-1400A-2 as follows:

CONTROL	SETTING
RF LEVEL Control	-10 dBm
CW/NORM/OFF Switch	CW
PRF/SQTR/ ON/OFF Switch	ON
XPDR MODE Control	C
PRF/SQTR Thumbwheels	0010
FREQ/FUNCTION SELECT Thumbwheels	1029 XPDR
ΔF Thumbwheels	0.90 +ΔF

STEP PROCEDURE

3. Verify output frequency is 1029.9 MHz as measured by Universal Timer/Counter. If incorrect, adjust ATC-1400A-2 FREQ/FUNCTION SELECT Thumbwheels and ΔF Thumbwheels as needed.
4. Disconnect ATC-1400A-2 from Universal Timer/Counter and reconnect to TCAS-201-2 as shown in 2-2-2, Figure 23.
5. Set ATC-1400A-2 CW/NORM/OFF Switch to NORM.
6. Set all S-1403 Sequence Menus except one to OFF.
7. Set S-1403 active Sequence Menu for UF00 Mode S output with AQ field set to 1 and octal Address of 00377467. Run S-1403 in Sequence function and set RF vernier level to 0 dB.
8. Set TCAS-201-2 as follows:

SCREEN	FIELD	SETTING
Setup #1 Menu	INTRUDER TYPE:	MODE-S
	SQUITTERS:	OFF
	UUT DIST: HORIZ:	500 ft
	UUT DIST: VERT:	100 ft
	GAIN_1030=	9.3 dB
	LOSS:	1.0 dB
Mode S Reply Test	AA:	01FF37

9. Press RUN/STOP Key from Power & Frequency screen to initiate test.
10. After >30 sec, verify TCAS-201-2 displayed frequency is 1029.9 MHz (±10 kHz).
11. Press RUN/STOP Key to terminate test.
12. Set ATC-1400A-2 CW/NORM/OFF Switch to CW.
13. Disconnect ATC-1400A-2 from TCAS-201-2 and reconnect to Universal Timer/Counter as shown in 2-2-2, Figure 23.
14. Set ATC-1400A-2 FREQ/FUNCTION SELECT Thumbwheels and ΔF Thumbwheels to provide 1030.1 MHz as measured by Universal Timer/Counter.
15. Disconnect ATC-1400A-2 from Universal Timer/Counter and reconnect to TCAS-201-2 as shown in 2-2-2, Figure 23.
16. Set ATC-1400A-2 CW/NORM/OFF Switch to NORM.
17. Press RUN/STOP Key from Power & Frequency screen to initiate test.
18. After >30 sec, verify TCAS-201-2 displayed frequency is 1030.1 MHz (±10 kHz).
19. Press RUN/STOP Key to terminate test.

UUT TRANSMITTER POWER

20. Disconnect ATC-1400A-2 from TCAS-201-2 ANTENNA Connector.
21. Connect Measuring Receiver through Power Sensor to ATC-1400A-2 RF I/O Connector.

STEP PROCEDURE

22. Set ATC-1400A-2 as follows:

CONTROL	SETTING
CW/NORM/OFF Switch	CW
PRF/SQTR Thumbwheels	0050
FREQ/FUNCTION SELECT Thumbwheels	1030 XPDR
ΔF Thumbwheels	0.00 +ΔF

23. Set ATC-1400A-2 RF LEVEL Control and S-1403 RfLvl: field for output of -10.05 dBm on Measuring Receiver.

24. Disconnect ATC-1400A-2 from Power Sensor and reconnect to TCAS-201-2 ANTENNA Connector.

25. Set ATC-1400A-2 CW/NORM/OFF Switch to NORM.

26. Press RUN/STOP Key from Power & Frequency screen to initiate test.

27. After >30 sec, verify TCAS-201-2 ***ERP AVERAGE:*** field is ***58.0 dBm*** (±1 dB). ERP is verified with following equations:

    Measured Power = Input Power + RF I/O Connector Attenuation.
    RF I/O Connector Attenuation = 48.25 dB + 19.8 dB = 67.75 dB.
    48.25 dB is verified by para 2-2-2F(1) Steps 28 through 33.
    19.8 dB is programmed default factor for direct connection.

28. Press RUN/STOP Key to terminate test.

29. Disconnect ATC-1400A-2 from TCAS-201-2 ANTENNA Connector.

30. Connect Measuring Receiver through Power Sensor to ATC-1400A-2 RF I/O Connector.

31. Set ATC-1400A-2 CW/NORM/OFF Switch to CW.

32. Set ATC-1400A-2 RF LEVEL Control and S-1403 RfLvl: field for output of -22.05 dBm on Measuring Receiver.

33. Disconnect ATC-1400A-2 from Power Sensor and reconnect to TCAS-201-2 ANTENNA Connector.

34. Set ATC-1400A-2 CW/NORM/OFF Switch to NORM.

35. Press RUN/STOP Key from Power & Frequency screen to initiate test.

36. After >30 sec, verify TCAS-201-2 ***ERP AVERAGE:*** field is ***46.0 dBm*** (±1 dB).

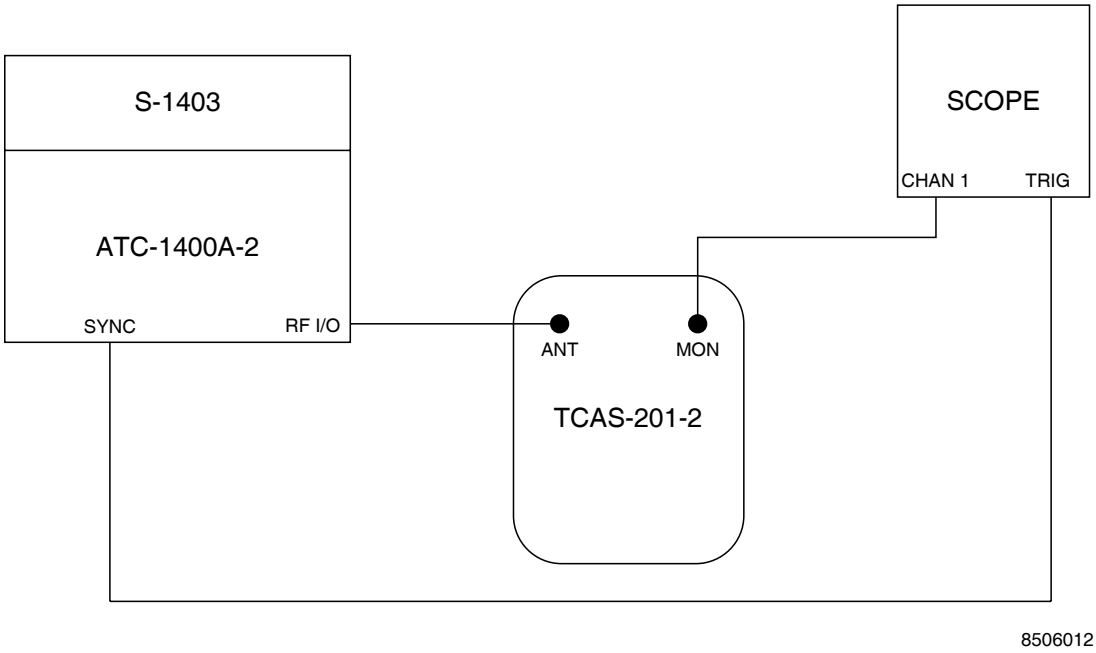
37. Press RUN/STOP Key to terminate test.

38. If any step fails, perform Calibration Procedures according to 2-2-2, Table 15.

STEP PROCEDURE

PULSE SPACING

39. Connect test equipment as shown in 2-2-2, Figure 24.



UUT Pulse Spacing Test Setup Diagram
Figure 24

40. Set ATC-1400A-2 as follows:

CONTROL	SETTING
RF LEVEL Control	-10 dBm
CW/NORM/OFF Switch	NORM
TO/TAC/TD Switch	TO
PRF/SQTR Thumbwheels	0235
DBL INTERR/INTRF PULSE Thumbwheels	002.2 INTERF-

41. Adjust ATC-1400A-2 INTRF PULSE WIDTH Control for approximately 800 ns of pulse width on Oscilloscope.
42. Run S-1403 in ACS function.
43. Press RUN/STOP Key from ATCRBS Monitor screen to initiate test.
44. Verify TCAS-201-2 counts interrogations in ***S1:*** field (interrogations contain S_1 pulse).
45. Set ATC-1400A-2 DBL INTERR/INTRF PULSE Thumbwheels to 001.8 INTERF-.
46. Verify TCAS-201-2 counts interrogations in ***S1:*** field (interrogations contain S_1 pulse).
47. Set ATC-1400A-2 DBL INTERR/INTRF PULSE Thumbwheels to 003.0 INTERF-.

STEP PROCEDURE

48. Verify TCAS-201-2 stops counting interrogations in ***S1:*** field (interrogations contain no recognizable S_1 pulse).

49. Set ATC-1400A-2 DBL INTERR/INTRF PULSE Thumbwheels to 001.0 INTERF-.

50. Verify TCAS-201-2 stops counting interrogations in ***S1:*** field (interrogations contain no recognizable S_1 pulse).

51. Set ATC-1400A-2 as follows:

CONTROL	SETTING
XPDR DEV P_3/CAL Switch	-Δ
DBL INTERR/INTRF PULSE Thumbwheels	000.0 OFF
XPDR P_2/P_3 DEV Thumbwheels	0.20

52. Verify TCAS-201-2 accepts interrogations.

53. Set ATC-1400A-2 XPDR DEV P_3/CAL Switch to +Δ.

54. Verify TCAS-201-2 accepts interrogations.

55. Set ATC-1400A-2 XPDR P_2/P_3 DEV Thumbwheels to 1.00.

56. Verify TCAS-201-2 rejects interrogations.

57. Set ATC-1400A-2 XPDR DEV P_3/CAL Switch to -Δ.

58. Verify TCAS-201-2 rejects interrogations.

59. Set ATC-1400A-2 XPDR DEV P_3/CAL Switch to CAL.

60. Slew S-1403 P4:Dv= field to -0.25 µs.

61. Verify TCAS-201-2 accepts interrogations.

62. Slew S-1403 P4:Dv= field to +0.25 µs.

63. Verify TCAS-201-2 accepts interrogations.

64. Slew S-1403 P4:Dv= field to -1.00 µs.

65. Verify TCAS-201-2 rejects interrogations.

66. Slew S-1403 P4:Dv= field to +1.00 µs.

67. Verify TCAS-201-2 rejects interrogations.

68. Press RUN/STOP Key to terminate test.

69. Set ATC-1400A-2 PRF/SQTR Thumbwheels to 0030.

70. Run S-1403 in Sequence function.

71. Press RUN/STOP Key from Mode S Reply Test screen to initiate test.

72. Set ATC-1400A-2 XPDR DEV P_2/CAL Switch to +Δ and XPDR P_2/P_3 DEV Thumbwheels to 0.10.

73. Verify TCAS-201-2 replies to interrogations.

74. Set ATC-1400A-2 XPDR DEV P_2/CAL Switch to -Δ.

75. Verify TCAS-201-2 replies to interrogations.

76. Set ATC-1400A-2 XPDR P_2/P_3 DEV Thumbwheels to 1.00.

STEP	PROCEDURE

77. Verify TCAS-201-2 rejects interrogations.
78. Set ATC-1400A-2 XPDR DEV P_2/CAL Switch to +Δ.
79. Verify TCAS-201-2 rejects interrogations.
80. Set ATC-1400A-2 XPDR DEV P_2/CAL Switch to CAL.
81. Slew S-1403 SPR:Dv= field to -0.10 µs.
82. Verify TCAS-201-2 replies to interrogations.
83. Slew S-1403 SPR:Dv= field to +0.10 µs.
84. Verify TCAS-201-2 replies to interrogations.
85. Slew S-1403 SPR:Dv= field to -1.00 µs.
86. Verify TCAS-201-2 rejects interrogations.
87. Slew S-1403 SPR:Dv= field to +1.00 µs.
88. Verify TCAS-201-2 rejects interrogations.
89. Press RUN/STOP Key to terminate test.

(5) Self Test

STEP PROCEDURE

1. Disconnect test equipment.
2. Press SELF TEST Key to enter Self Test screen. (The TCAS-201-2 displays results of the last Self Test.)
3. Terminate ANTENNA Connector (J10057) with 50 Ω load connector cover.
4. Press RUN/STOP Key to initiate Self Test. (The top line displays test names while testing and indicates ***PASSED*** or ***FAILURE*** at completion. The TCAS-201-2 displays an eight-digit hexadecimal error code with any failure indications. Also, the TCAS-201-2 displays a ***PASSED*** or ***FAILED*** indication for each module/assembly.)
5. Verify all modules/assemblies passed test. If Self Test indicates a failure, refer to following table for error code definitions:

TEST	GROUP	VERIFIES	FAILURE CODE (H)	RUNNING ORDER
LO Control	RF	Valid ON/OFF status	00000001	2
LO Detect	RF	LO is locked.	00000002	12
RF Detect	RF	TX level out/attenuation	00000004	13
Battery	Power Supply/ Battery	Voltage is within correct voltage range.	00000010	1
Non-Volatile RAM Battery	Power Supply/ Battery	Battery has sufficient power for RAM to retain memory.	00000020	Only on power-up
DSP Initialization	Digital	Handshake routine	00000040	14
UART	Digital	RS-232 loop back	00400000	8
RAM	Digital	Dual Port RAM (DPR)	01000000	3
		Video RAM	02000000	4
		Non-Volatile RAM	04000000	6
		Display RAM	08000000	5
Attenuator #1	Digital	Level at endline diodes	10000000	9
Attenuator #2	Digital	Level at midline diodes	20000000	9
LO Compensation	Digital	DCXO control voltage	40000000	11
LED	Digital	Interrogation and reply drivers	80000000	7

NOTE: Multiple failures are indicated by the sum of the error codes.

NOTE: If the DPR Test fails, the Self Test does not run the subsequent RAM tests.

E. Verification Data Sheet

TECHNICIAN: _____ DATE: _____

TCAS-201-2 S/N: _____

STEP	DATA	RESULT
(1)	Signal Generator	
	OUTPUT FREQUENCY	
6.	1090 MHz (±10.0 kHz)	_____
	OUTPUT LEVEL	
12.	-67.35 dBm (±2.0 dB)	_____
	ATTENUATION	
15.	0 dB Attenuation output 0.4 dBm (±2.0 dB)	_____
17.	10 dB Attenuation output Step 15 minus 10 dB (±0.5 dB)	_____
19.	20 dB Attenuation output Step 15 minus 20 dB (±0.5 dB)	_____
21.	30 dB Attenuation output Step 15 minus 30 dB (±0.5 dB)	_____
23.	40 dB Attenuation output Step 15 minus 40 dB (±0.5 dB)	_____
25.	50 dB Attenuation output Step 15 minus 50 dB (±2.0 dB)	_____
	DIRECT CONNECTION	
31.	Direct Connection Attenuation Step 15 minus 48.25 dB (±0.5 dB)	_____
(2)	Pulse Characteristics	
	SPACING	
6.	ATCRBS F_1 to F_2 Pulse Spacing 20.30 µs (±50 ns)	_____
7.	ATCRBS F_1 to C_1 Pulse Spacing 1.45 µs (±50 ns)	_____
8.	ATCRBS F_1 to A_1 Pulse Spacing 2.90 µs (±50 ns)	_____
9.	ATCRBS F_1 to C_2 Pulse Spacing 4.35 µs (±50 ns)	_____
10.	ATCRBS F_1 to A_2 Pulse Spacing 5.80 µs (±50 ns)	_____

STEP	DATA	RESULT
11.	ATCRBS F_1 to A_4 Pulse Spacing 8.70 µs (±50 ns)	_____
12.	ATCRBS F_1 to B_1 Pulse Spacing 11.60 µs (±50 ns)	_____
13.	ATCRBS F_1 to B_2 Pulse Spacing 14.50 µs (±50 ns)	_____
14.	ATCRBS F_1 to D_2 Pulse Spacing 15.95 µs (±50 ns)	_____
15.	ATCRBS F_1 to B_4 Pulse Spacing 17.40 µs (±50 ns)	_____
16.	ATCRBS F_1 to D_4 Pulse Spacing 18.85 µs (±50 ns)	_____
18.	ATCRBS F_1 to C_4 Pulse Spacing 7.25 µs (±50 ns)	_____
22.	Mode S P_1 to P_2 Pulse Spacing 1.00 µs (±50 ns)	_____
23.	Mode S P_1 to P_3 Pulse Spacing 3.50 µs (±50 ns)	_____
24.	Mode S P_1 to P_4 Pulse Spacing 4.50 µs (±50 ns)	_____
25.	Mode S P_1 to D_1 Pulse Spacing 8.00 µs (±50 ns)	_____
WIDTHS		
29.	ATCRBS Pulse Widths 0.45 µs (±50 ns)	_____
33.	Mode S Pulse Widths 0.50 µs (±50 ns)	_____
RISE AND FALL TIMES		
34.	Rise Time 50 to 100 ns	_____
35.	Fall Time 50 to 200 ns	_____
AMPLITUDE LEVELS		
41.	Mode S P_1 Level	_____
42.	Mode S Amplitude equal to P_1 (±1 dB)	_____(√)
46.	ATCRBS F_1 Level	_____
47.	ATCRBS Pulse Amplitude equal to F_1 (±1 dB)	_____

STEP	DATA	RESULT
(3)	Parameters	
	PERCENT REPLY	
4.	Interrogation Frequency	_____
9.	100% Reply Frequency	_____
10.	Percent Reply 100% (±1%)	_____
12.	10% Reply Frequency	_____
13.	Percent Reply 10% (±1%)	_____
15.	20% Reply Frequency	_____
16.	Percent Reply 20% (±1%)	_____
18.	30% Reply Frequency	_____
19.	Percent Reply 30% (±1%)	_____
21.	40% Reply Frequency	_____
22.	Percent Reply 40% (±1%)	_____
24	50% Reply Frequency	_____
25.	Percent Reply 50% (±1%)	_____
27.	60% Reply Frequency	_____
28.	Percent Reply 60% (±1%)	_____
30.	70% Reply Frequency	_____
31.	Percent Reply 70% (±1%)	_____
33.	80% Reply Frequency	_____
34.	Percent Reply 80% (±1%)	_____
36.	90% Reply Frequency	_____
37.	Percent Reply 90% (±1%)	_____
	RANGE DELAY	
51.	ATCRBS 0.5 nmi Range Delay 9.1795 µs (±247 ns)	_____
55.	ATCRBS 30.0 nmi Range Delay 373.77 µs (±247 ns)	_____
68.	Mode S 0.5 nmi Range Delay 134.1795 µs (±247 ns)	_____
72.	Mode S 30.0 nmi Range Delay 498.77 µs (±247 ns)	_____
	ALTITUDE	
78.	-1000 ft Altitude Simulation (C_2 present)	_____(√)
80.	126,700 ft Altitude Simulation (C_4 and D_2 present)	_____(√)

STEP	DATA	RESULT
	SQUITTER CONTROL	
87.	Squitter Period 0.8 to 1.2 sec	_____
(4)	UUT Measurements	
	UUT TRANSMITTER FREQUENCY	
10.	1029.9 MHz (±10 kHz)	_____
18.	1030.1 MHz (±10 kHz)	_____
	UUT TRANSMITTER POWER	
27.	58.0 dBm (±1 dB)	_____
36.	46.0 dBm (±1 dB)	_____
	PULSE SPACING	
44.	UUT Pulse Spacing ATCRBS TCAS-201-2 accepts 2.2 µs S_1 to P_1	_____(√)
46.	UUT Pulse Spacing ATCRBS TCAS-201-2 accepts 1.8 µs S_1 to P_1	_____(√)
48.	UUT Pulse Spacing ATCRBS TCAS-201-2 rejects 3.0 µs S_1 to P_1	_____(√)
50.	UUT Pulse Spacing ATCRBS TCAS-201-2 rejects 1.0 µs S_1 to P_1	_____(√)
52.	UUT Pulse Spacing ATCRBS TCAS-201-2 accepts 20.8 µs P_1 to P_3	_____(√)
54.	UUT Pulse Spacing ATCRBS TCAS-201-2 accepts 21.2 µs P_1 to P_3	_____(√)
56.	UUT Pulse Spacing ATCRBS TCAS-201-2 rejects 20.0 µs P_1 to P_3	_____(√)
58.	UUT Pulse Spacing ATCRBS TCAS-201-2 rejects 22.0 µs P_1 to P_3	_____(√)
61.	UUT Pulse Spacing ATCRBS TCAS-201-2 accepts 22.75 µs P_1 to P_4	_____(√)
63.	UUT Pulse Spacing ATCRBS TCAS-201-2 accepts 23.25 µs P_1 to P_4	_____(√)
65.	UUT Pulse Spacing ATCRBS TCAS-201-2 rejects 22.0 µs P_1 to P_4	_____(√)
67.	UUT Pulse Spacing ATCRBS TCAS-201-2 rejects 24.0 µs P_1 to P_4	_____(√)
73.	UUT Pulse Spacing Mode S TCAS-201-2 accepts 2.1 µs P_1 to P_2	_____(√)
75.	UUT Pulse Spacing Mode S TCAS-201-2 accepts 1.9 µs P_1 to P_2	_____(√)
77.	UUT Pulse Spacing Mode S TCAS-201-2 rejects 1.0 µs P_1 to P_2	_____(√)

STEP	DATA	RESULT
79.	UUT Pulse Spacing Mode S TCAS-201-2 rejects 3.0 µs P_1 to P_2	_____(√)
82.	UUT Pulse Spacing Mode S TCAS-201-2 accepts 4.65 µs P_1 to SPR	_____(√)
84.	UUT Pulse Spacing Mode S TCAS-201-2 accepts 4.85 µs P_1 to SPR	_____(√)
86.	UUT Pulse Spacing Mode S TCAS-201-2 rejects 3.75 µs P_1 to SPR	_____(√)
88.	UUT Pulse Spacing Mode S TCAS-201-2 rejects 5.75 µs P_1 to SPR	_____(√)
(5) Self Test		
5.	All Modules/Assemblies Pass	_____(√)

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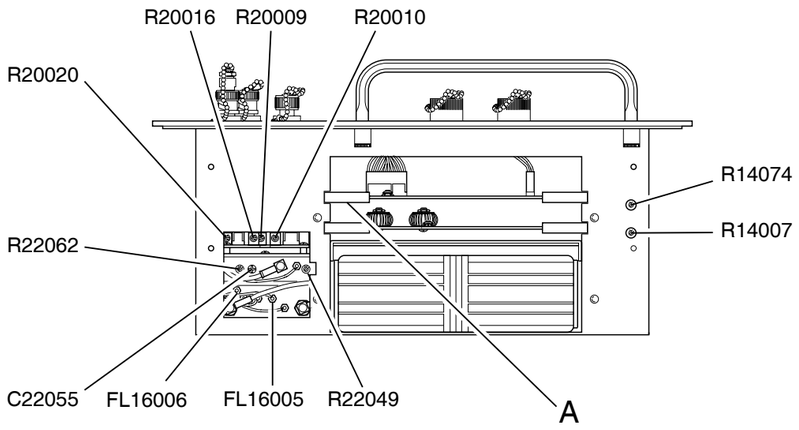
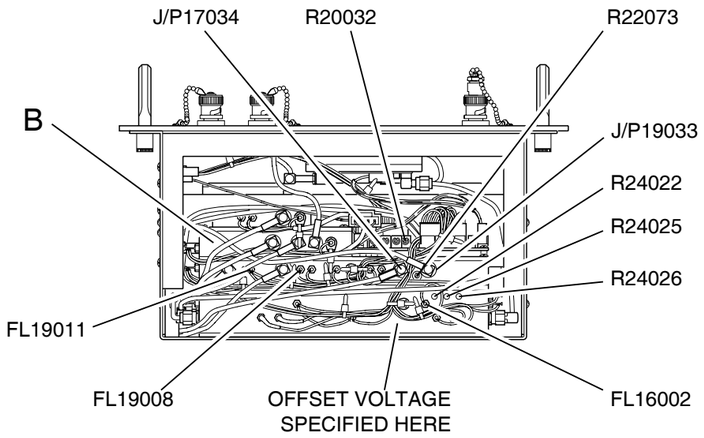
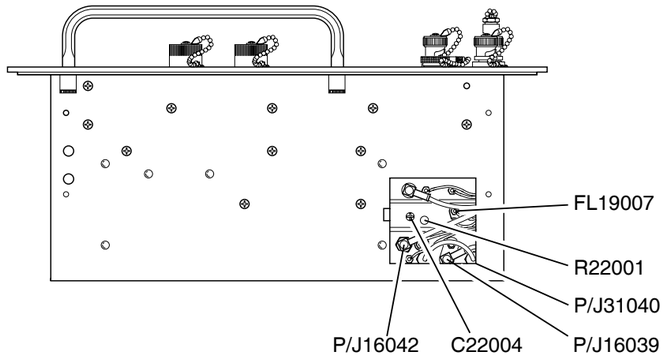


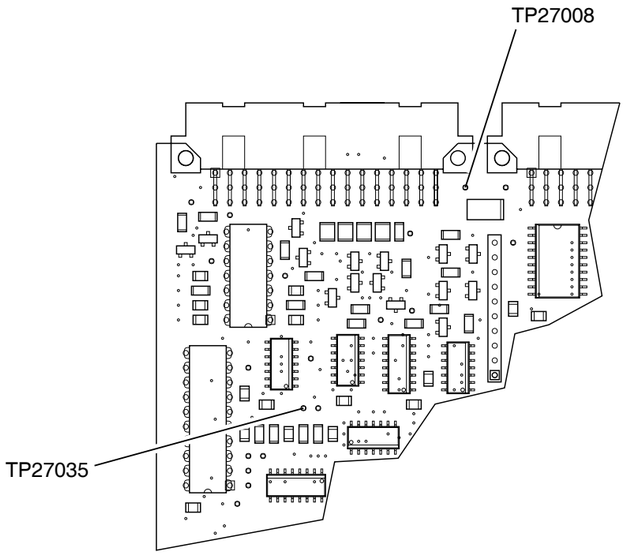
LEFT SIDE VIEW



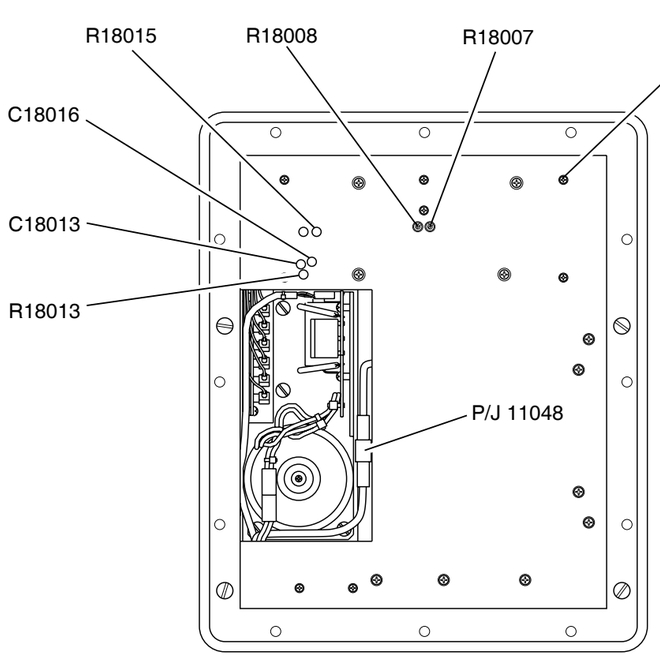
TOP VIEW



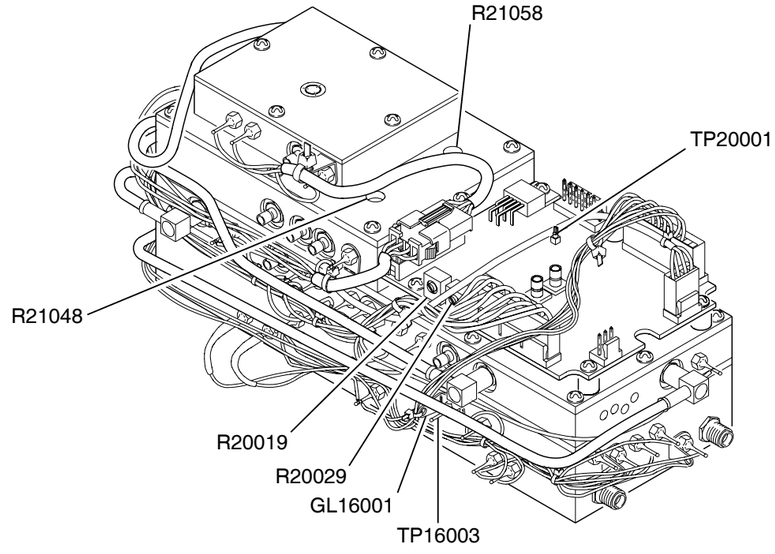
RIGHT SIDE VIEW



DETAIL A



REAR VIEW



DETAIL B

8507026

Test Points and Adjustments
Figure 25

F. Calibration Procedures

Refer to 2-2-2, Figure 25 for test points and adjustments.

(1) Power Supply

TEST EQUIPMENT: Digital Multimeter

STEP	PROCEDURE

1. Verify TCAS-201-2 is OFF and not connected to external power source.
2. Remove 12 screws and lift Chassis Assy from Case Assy.
3. Connect ac power cable to AC PWR Connector and verify CHARGE Indicator is green.

   NOTE: The CHARGE Indicator illuminates green when battery contains full charge.
4. Connect Digital Multimeter to P/J11048 and verify 14.2 Vdc (±0.1 V). Adjust R14007 as needed.
5. Press POWER Key On.
6. Use Digital Multimeter to verify +5.1 Vdc (±0.05 V) between FL19008 and ground (GL16001). Adjust R14074 as needed.
7. Use Digital Multimeter to verify +12 Vdc (±0.3 V) between FL19011 and ground (GL16001).
8. Use Digital Multimeter to verify -12 Vdc (±0.3 V) between FL16002 and ground (GL16001).
9. Use Digital Multimeter to verify +11 Vdc (±0.25 V) between FL16005 and ground (GL16001). If incorrect, remove RF Assy (Steps 20 to 22 of para 2-2-2H[2]). Refer to Driver PCB Assy (2-2-3, Figure 42) and adjust R16054 as needed.

(2) RF Assy

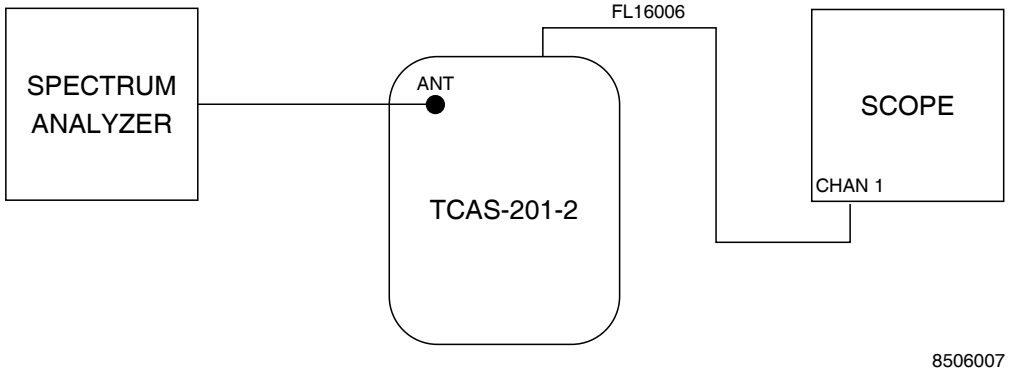
TEST EQUIPMENT:

3 dB Fixed Attenuator
ATC-1400A-2 Transponder/DME Test Set
Digital Multimeter
Universal Timer Counter
Measuring Receiver
Oscilloscope
Power Meter
Power Sensors (2)
RF Signal Generator
Spectrum Analyzer
Temperature Probe

STEP	PROCEDURE

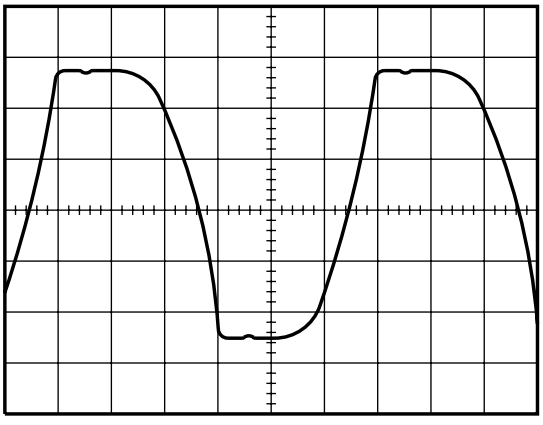
LO SOURCE

1. Disconnect 10 MHz DCXO output (P16042) from J16042.
2. Short TP16003 to ground.
3. Connect test equipment according to 2-2-2, Figure 26.



LO Source Test Setup Diagram
Figure 26

4. Adjust R24022 (OFFSET) for 50% duty cycle trapezoid on Oscilloscope as shown in 2-2-2, Figure 27.



LO Detect Waveform
Figure 27

STEP PROCEDURE

5. Set Spectrum Analyzer as follows:

CONTROL	SETTING
Center Frequency	1090 MHz
Frequency Span Mode	1 MHz/Div
Bandwidth	300 kHz
Sweep Time	Slow

6. Press SELF TEST Key and either SELECT Key to enter Diagnostics screen.
7. Set TCAS-201-2 Signal Type to ***CW*** and Attenuation to ***0.0 dB***.
8. Press RUN/STOP Key to initiate test.
9. Verify signal sweep is centered around 1090 MHz.
10. Adjust R24026 (TUNING) and R24025 (DEVIATION) for 1085.5 MHz to 1094.5 MHz sweep width.
11. Disconnect short at TP16003.
12. Reconnect P16042 to J16042.
13. Adjust R24022 (OFFSET) to center signal on 1085.5 MHz.
14. Verify offset voltage at TP16003 is <10 mV different from offset voltage written on RF Assy. Refer to 2-2-2, Figure 25.
15. Adjust R24022 (OFFSET) to center signal on 1094.5 MHz.
16. Verify offset voltage at TP16003 is <10 mV different from offset voltage written on RF Assy.
17. Adjust R24022 (OFFSET) for 1090 MHz on Spectrum Analyzer and TP16003 offset voltage to equal offset voltage written on RF Assy.
18. Press RUN/STOP Key to terminate test.
19. Disconnect test equipment.

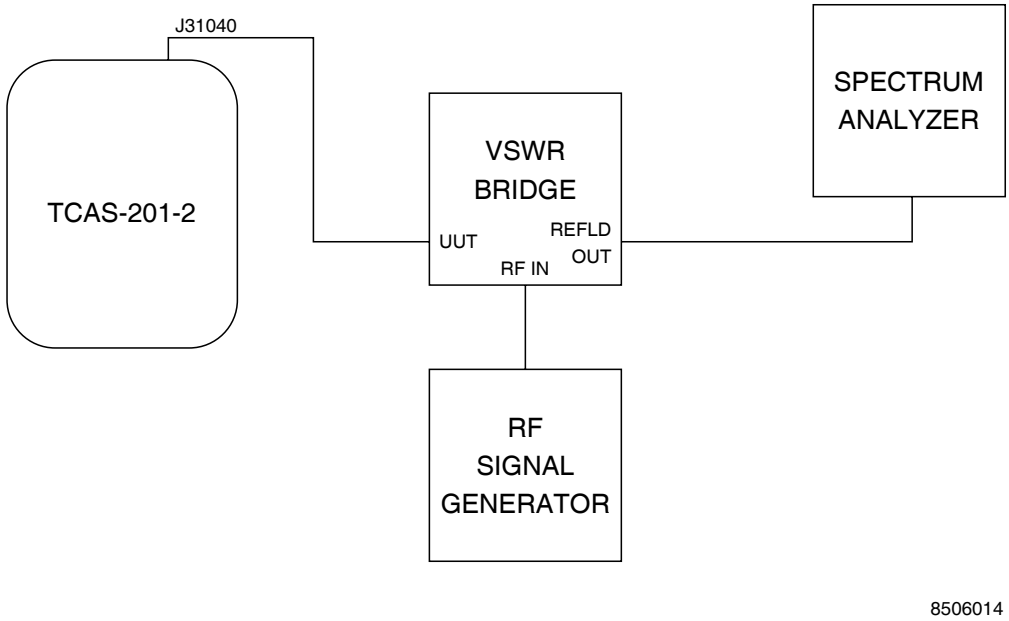
ATTENUATOR

20. Press POWER Key. (TCAS-201-2 power is OFF.)
21. Refer to 2-2-2, Figure 25 and remove six screws from Chassis Assy (Rear View).
22. Carefully lift out RF Assy, applying only minimal stress on connecting cables.
23. Press POWER Key.
24. Set TCAS-201-2 Signal Type to ***DSP MEASURE =*** and Attenuation to ***40.0 dB***.
25. Press RUN/STOP Key to initiate test.
26. Adjust R20009 (ZERO VOLT ADJ) for 0 V at TP20001, using Digital Multimeter.
27. Remove P31040 from J31040 and connect test equipment as shown in 2-2-2, Figure 28.
28. Terminate TCAS-201-2 ANTENNA Connector with Connector Cover providing 50 Ω load.
29. Set RF Signal Generator to 1060 MHz at 0 dBm.

STEP PROCEDURE

30. Set Spectrum Analyzer to 1060 MHz center frequency and 10 MHz/Div scan width.

31. Adjust R20019 (VSWR 50 dB ADJ) for lowest signal level on Spectrum Analyzer.

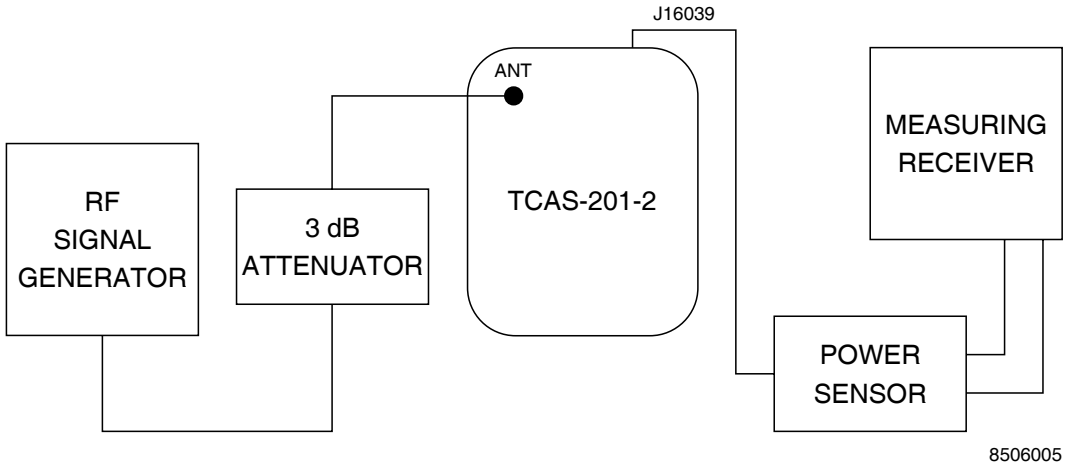


Attenuator VSWR Test Setup Diagram
Figure 28

32. Disconnect test equipment and reconnect P31040 to J31040.

33. Set TCAS-201-2 Attenuation to ***Ø.Ø dB***.

34. Remove P16039 from J16039 and connect test equipment as shown in 2-2-2, Figure 29.



Attenuator Test Setup Diagram
Figure 29

STEP PROCEDURE

35. Set RF Signal Generator for TCAS-201-2 input of 1030 MHz at -9.05 dBm, considering 3 dB Attenuator.
36. Set Measuring Receiver to Tuned RF Level Mode and calibrate. Record and set displayed level as zero reference on Measuring Receiver.
37. Set TCAS-201-2 Attenuation to ***40.0 dB***.
38. Adjust R20010 (50 dB ADJ OFFSET) for -40 dBm on Measuring Receiver.
39. Set TCAS-201-2 Attenuation to ***10.0 dB***.
40. Adjust R20016 (10 dB ADJ SLOPE) for -10 dBm on Measuring Receiver.
41. Set TCAS-201-2 Attenuation to ***0.0 dB***.
42. Verify Measuring Receiver is at level recorded in Step 36.
43. Press RUN/STOP Key to terminate test.
44. Disconnect test equipment and reconnect P16039 to J16039.

ISOLATION NULL

45. Disconnect the 30 MHz Receive IF input (P17034) from J17034.
46. Connect 50 Ω termination cover to TCAS-201-2 ANTENNA Connector.
47. Connect Spectrum Analyzer, with center frequency set to 30 MHz, to J17034.
48. Set TCAS-201-2 Signal Type to ***CW*** and Attenuation to ***0.0 dB***.
49. Press RUN/STOP Key to initiate test.
50. Adjust R22062 (ISOLATION) and C22055 for maximum signal nullification at 30 MHz.
51. Adjust R22062 (ISOLATION) for 5 dBm signal level.
52. Press RUN/STOP Key to terminate test.
53. Disconnect Spectrum Analyzer from J17034.
54. Reconnect P17034 to J17034.

GENERATOR OUTPUT POWER

55. Connect Measuring Receiver (set for 1090 MHz) through Power Sensor and 3 dB Attenuator to TCAS-201-2 ANTENNA Connector.
56. Press RUN/STOP Key to initiate test.
57. Adjust R22049 (TX GAIN) for TCAS-201-2 output of +0.4 dBm. Measuring Receiver displays +0.4 less attenuation provided by 3 dB Attenuator.
58. Press RUN/STOP Key to terminate test.

GENERATOR IMAGE

59. Disconnect Power Sensor from 3 dB Attenuator.
60. Connect Spectrum Analyzer through 3 dB Attenuator to TCAS-201-2 ANTENNA Connector.

STEP PROCEDURE

61. Set the Spectrum Analyzer as follows:

CONTROL	SETTING
Center Frequency	1060 MHz
Amp Scale	2 dB/Div
Scan Width	Narrow

62. Press RUN/STOP Key to initiate test.

63. Position peak amplitude point of 1090 MHz at top major graticule.

64. Verify 1030 MHz signal level is >30 dB below 1090 MHz signal level in Step 63. If incorrect, adjust C18013 and C18016 (1030 MHz NULL PHASE ADJ) and either R18013 or R18015 (1030 MHz NULL AMPLITUDE ADJ).

NOTE: One resistor (R18013 or R18015) must remain fully cw for correct TCAS-201-2 operation.

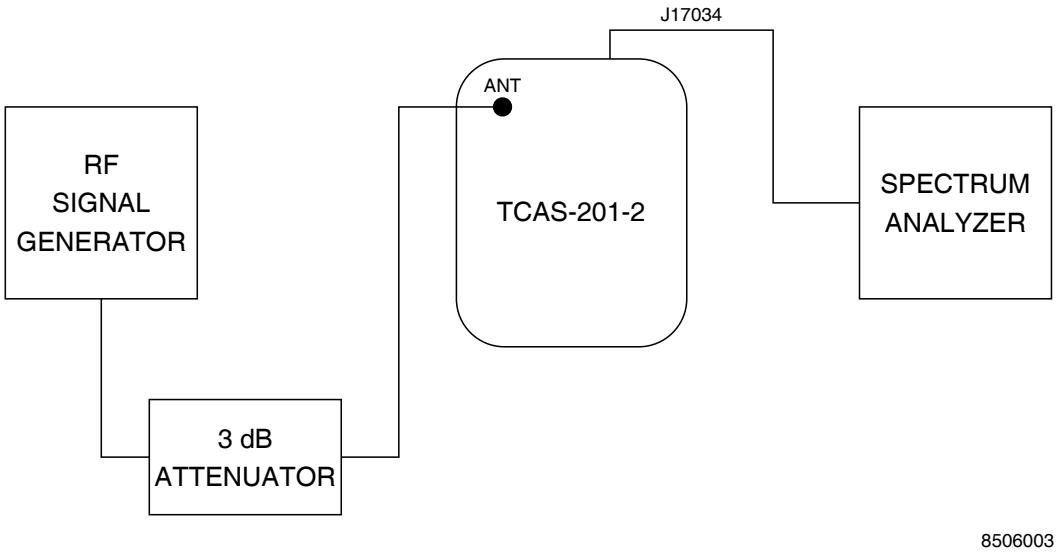
LO NULL

65. Adjust R18007 and R18008 (1060 MHz NULL ADJ) until 1060 MHz signal level is >40 dB below 1090 MHz signal level in Step 63.

66. Press RUN/STOP Key to terminate test.

RECEIVE IMAGE

67. Disconnect 30 MHz (P17034) from J17034 and connect test equipment according to 2-2-2, Figure 30.



Receive Image Test Setup Diagram
Figure 30

68. Set TCAS-201-2 Signal Type to ***DSP MEASURE=*** and Attenuation to ***0.0 dB***.

69. Press RUN/STOP Key to initiate test.

STEP	PROCEDURE

70. Set RF Signal Generator for TCAS-201-2 input of 1030 MHz at 0.0 dBm, considering 3 dB Attenuator.
71. Set peak amplitude level of 30 MHz signal as top reference on Spectrum Analyzer.
72. Set RF Signal Generator for a TCAS-201-2 input of 1090 MHz at 0.0 dBm, considering 3 dB Attenuator.
73. Verify 30 MHz signal level on Spectrum Analyzer is >15 dB below reference level in Step 71. If incorrect, return to Step 65 and repeat the LO Null adjustment; otherwise, continue to next step.
74. Press RUN/STOP Key to terminate test.

RECEIVE POWER

75. Set RF Signal Generator for TCAS-201-2 input of 1030.06 MHz at -9.05 dBm, considering 3 dB Attenuator.
76. Press RUN/STOP Key to initiate test.
77. Adjust R22073 (RX GAIN) for 0.0 dBm output at J17034.
78. Press RUN/STOP Key to terminate test.

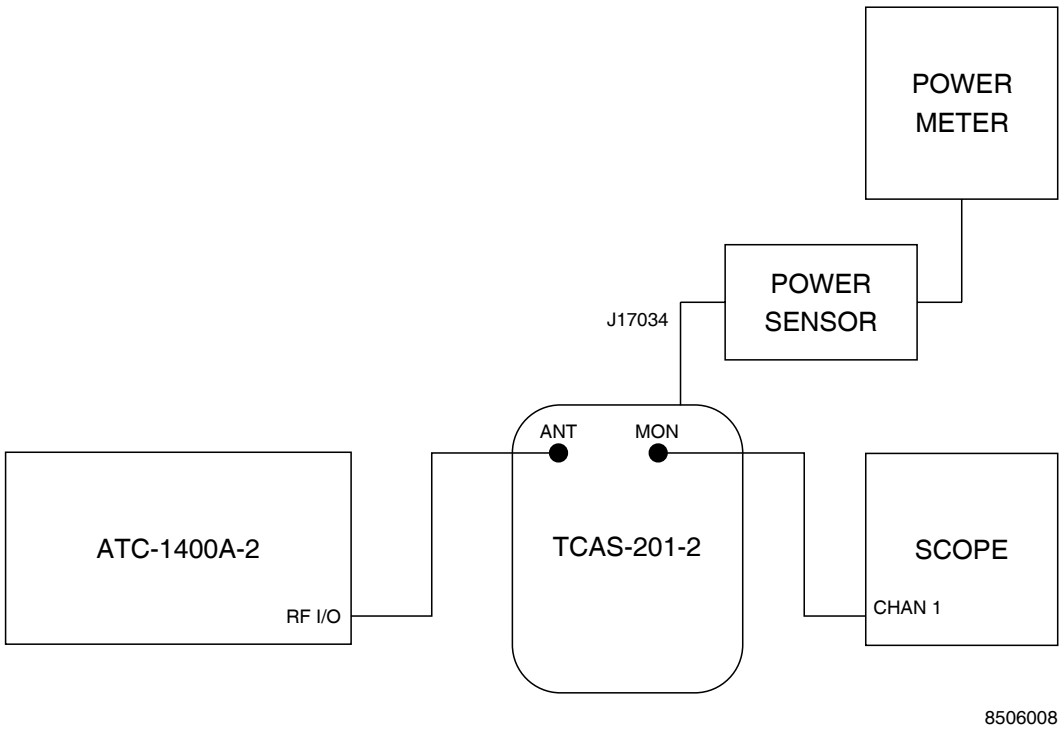
ISOLATION RESET

79. Disconnect Spectrum Analyzer from J17034.
80. Connect Measuring Receiver through Power Sensor to J17034.
81. Disconnect RF Signal Generator from TCAS-201-2 ANTENNA Connector.
82. Terminate TCAS-201-2 ANTENNA Connector with Connector Cover providing 50 Ω load.
83. Set TCAS-201-2 Signal Type to ***CW*** and Attenuation to ***0.0 dB***.
84. Press RUN/STOP Key to initiate test.
85. Adjust R22062 (ISOLATION) for 5 dBm signal level on Measuring Receiver.
86. Press RUN/STOP Key to terminate test.
87. Disconnect test equipment.

STEP PROCEDURE

DETECTOR PULSE WIDTH

88. Connect test equipment according to 2-2-2, Figure 31.



Detector Pulse Width Test Setup Diagram
Figure 31

89. Set ATC-1400A-2 as follows:

CONTROL	SETTING
CW/NORM/OFF Switch	CW
T_O/TAC/T_D Switch	T_O
PRF/SQTR Thumbwheels	3000
FREQ/FUNCTION SELECT Thumbwheels	1030 MHz XPDR
XPDR PULSE WIDTH Thumbwheels	0.45 µs

90. Set TCAS-201-2 Signal Type to ***DSP MEASURE=*** and Attenuation to ***0.0 dB***.

91. Adjust ATC-1400A-2 RF LEVEL Control to obtain Power Meter levels of +3, -12 and -27 dBm. Record ATC-1400A-2 RF LEVEL -dBm Display reading for each level.

92. Disconnect Power Sensor from J17034.

93. Disconnect P19033 from J19033.

94. Connect P19033 to J17034.

95. Set ATC-1400A-2 RF LEVEL Control to -12 dBm reference established in Step 91 and CW/NORM/OFF Switch to NORM setting.

STEP PROCEDURE

96. Adjust R21058 (PULSE WIDTH) for 0.45 µs detector pulse width on Oscilloscope.

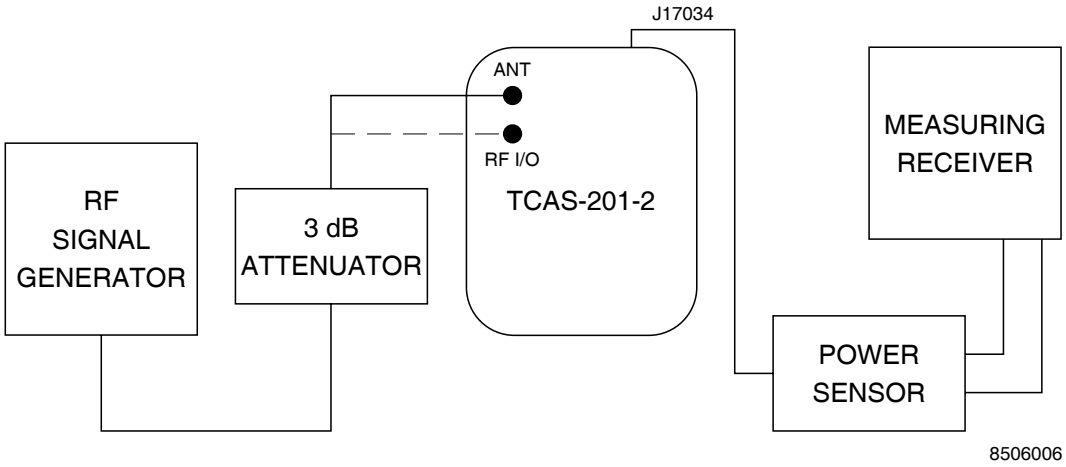
97. Vary ATC-1400A-2 RF LEVEL Control to +3 and -27 dBm reference levels established in Step 91. Verify pulse width changes <40 ns from 0.45 µs.

98. Disconnect P19033 from J17034 and reconnect P19033 to J19033.

99. Disconnect test equipment.

DIRECT CONNECT SET

100. Connect test equipment according to 2-2-2, Figure 32 with 3 dB Attenuator initially connected to TCAS-201-2 ANTENNA Connector.



Direct Connect Set Test Setup Diagram
Figure 32

101. Set TCAS-201-2 Signal Type to ***DSP MEASURE=*** and Attenuation to ***0.0 dB***.

102. Press RUN/STOP Key to initiate test.

103. Set RF Signal Generator for TCAS-201-2 input of 1030.06 MHz at -10 dBm, considering 3 dB Attenuator.

104. Record and set displayed level as zero reference on Measuring Receiver.

105. Disconnect 3 dB Attenuator from TCAS-201-2 ANTENNA Connector and connect 3 dB Attenuator to TCAS-201-2 RF I/O Connector.

106. Terminate TCAS-201-2 ANTENNA Connector with Connector Cover providing 50 Ω load.

107. Adjust R20020 (DIRECT CONNECT POWER ADJ) until Measuring Receiver indicates 48.25 dB below reference level set in Step 104.

108. Press RUN/STOP Key to terminate test.

109. Disconnect test equipment. Reconnect P17034 to J17034.

RF BIT DETECTOR SET

110. Press POWER Key. (TCAS-201-2 power is OFF.)

STEP	PROCEDURE

111. Remove Front Panel Pulse PCB Assy as needed to connect Digital Voltmeter (+) lead to TP27035 and (-) lead to TP27008 (ground).

112. Reinstall Front Panel Pulse PCB Assy.

113. Press POWER Key.

114. Set TCAS-201-2 Signal Type to ***CW*** and Attenuation to ***0.0 dB***.

115. Verify Digital Multimeter reads 10 to 50 mV (45 to 50 mV is nominal) with no RF (no signal activated). Adjust R20029 (ZERO ADJUST) as needed.

116. Press RUN/STOP Key to initiate test.

117. Verify Digital Multimeter indicates 2.80 V. Adjust R20032 (RF DET ADJ) as needed.

118. Repeat Steps 115 through 117 until no adjustment is needed.

119. Press RUN/STOP Key to terminate test.

120. Disconnect Digital Multimeter from test points.

OSCILLATOR COMPENSATION

121. Connect TCAS-201-2 ANTENNA Connector to Universal Timer/Counter.

122. Set Universal Timer/Counter for 10 Hz resolution.

123. Press RUN/STOP Key to initiate test.

CAUTION: DO NOT SHORT TEMPERATURE PROBE TO ASSEMBLY WHILE MAKING CONTACT WITH COMPONENTS OR TRACES ON ANALOG IF PCB ASSY.

124. Insert Temperature Probe (connected to Digital Multimeter) through R22001 adjustment hole and obtain CR22001 temperature reading.

125. Record FL19007 voltage required for temperature obtained in Step 124 as specified in 2-2-2, Table 16.

126. Connect Digital Voltmeter (+) lead to FL19007 and (-) lead to ground.

127. Verify FL19007 voltage equals voltage recorded in Step 125. Adjust R22001 as needed.

128. Verify frequency output is 1090 MHz (±200 Hz). Adjust C22004 as needed.

129. Press RUN/STOP Key to terminate test.

130. Disconnect test equipment.

CR22001 (°C)	FL19007 (Vdc)	CR22001 (°C)	FL19007 (Vdc)
20	2.93	35	3.08
21	2.94	36	3.09
22	2.95	37	3.10
23	2.96	38	3.11
24	2.97	39	3.12
25	2.98	40	3.13
26	2.99	41	3.14
27	3.00	42	3.15
28	3.01	43	3.16
29	3.02	44	3.17
30	3.03	45	3.18
31	3.04	46	3.19
32	3.05	47	3.20
33	3.06	48	3.21
34	3.07	49	3.22

Oscillator Compensation
Table 16

(3) System

TEST EQUIPMENT: 3 dB Fixed Attenuator
ATC-601-2 Ramp Test Set
Measuring Receiver
Oscilloscope
Power Sensor
RF Signal Generator
Spectrum Analyzer

STEP	PROCEDURE

SELF TEST

1. Perform Self Test (para 2-2-2[D][5]) and verify all modules/assemblies pass.
2. Reinstall RF Assy into Chassis Assy. Refer to 2-2-2, Figure 25 and secure by tightening six screws on Chassis Assy (Rear View).

RECEIVE POWER SYSTEM RECHECK

3. Disconnect P17034 from J17034 and connect test equipment as shown in 2-2-2, Figure 32 with 3 dB Attenuator connected to TCAS-201-2 ANTENNA Connector.
4. Set TCAS-201-2 Signal Type to ***DSP MEASURE =*** and Attenuation to ***0.0 dB***.
5. Set RF Signal Generator for TCAS-201-2 input of 1030.06 MHz at -19.05 dBm, considering 3 dB Attenuator.
6. Press RUN/STOP Key to initiate test.
7. Record and set displayed level as zero reference on Measuring Receiver.
8. Set RF Signal Generator for TCAS-201-2 input of 1030.06 MHz at -9.05 dBm, considering 3 dB Attenuator.
9. Subtract 10 dB from Measuring Receiver reading to obtain compression error.
10. Calculate correct count number using compression error from Step 9 and following equation:

    Counts = 128 • 10(compression error/20)

11. Disconnect Power Sensor from J17034.
12. Reconnect P17034 to J17034.
13. Verify TCAS-201-2 ***DSP MEASURES =*** field displays count number calculated in Step 10. Adjust R22073 (RX GAIN) as needed.
14. Press RUN/STOP Key to terminate test.

ISOLATION SYSTEM RECHECK

15. Adjust RF Signal Generator output level (at 1030 MHz) until TCAS-201-2 ***DSP MEASURES =*** field displays ***64***.
16. Disconnect P17034 from J17034.
17. Connect Oscilloscope Channel 1 to J17034.
18. Adjust Oscilloscope for full screen view of signal. Record signal level as reference.
19. Disconnect RF Signal Generator.

STEP PROCEDURE

20. Terminate TCAS-201-2 ANTENNA Connector with Connector Cover providing 50 Ω load.

21. Set TCAS-201-2 Signal Type to ***CW***.

22. Press RUN/STOP Key to initiate test.

23. Verify signal level equals reference level in Step 18. Adjust R22062 (ISOLATION) as needed.

24. Press RUN/STOP Key to terminate test.

25. Disconnect Oscilloscope from J17034.

26. Reconnect P17034 to J17034.

GENERATOR POWER SYSTEM RECHECK

27. Connect Measuring Receiver through Power Sensor and 3 dB Attenuator to TCAS-201-2 ANTENNA Connector as shown in 2-2-2, Figure 19.

28. Press RUN/STOP Key to initiate test.

29. Verify TCAS-201-2 output is +0.4 dBm, considering 3 dB Attenuator. Adjust R22049 (TX GAIN) as needed.

    NOTE: If output is >0.5 dB from +0.4 dBm, resetting RF Bit Detector according to para 2-2-2H(2), Steps 110 to 120, is required.

30. Press RUN/STOP Key to terminate test.

MIXER NULLS

31. Disconnect Measuring Receiver and Power Sensor from the 3 dB Attenuator.

32. Connect Spectrum Analyzer through 3 dB Attenuator to TCAS-201-2 ANTENNA Connector.

33. Press RUN/STOP Key to initiate test.

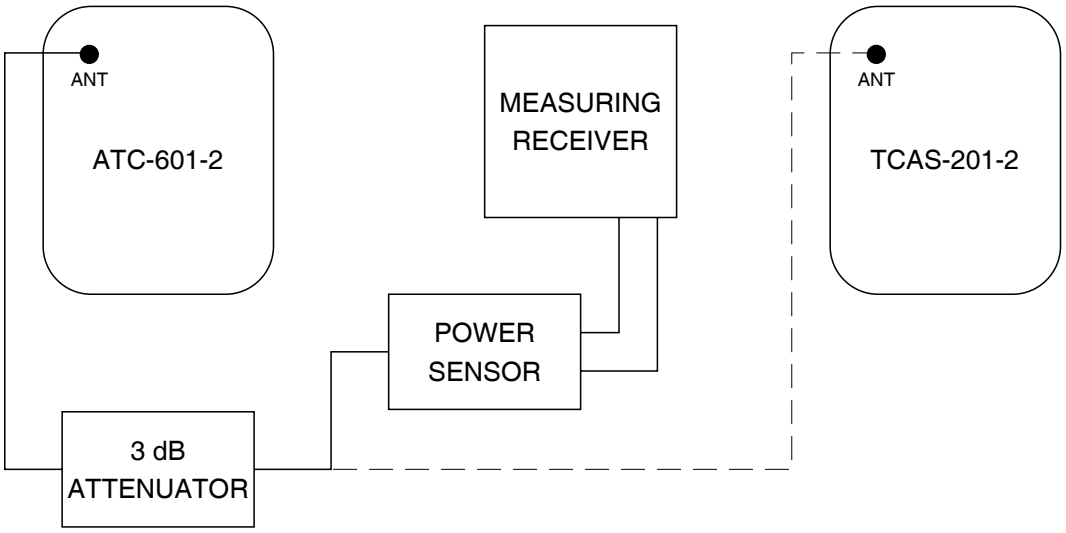
34. Center 1090 MHz signal on Spectrum Analyzer with peak amplitude referenced at top major graticule.

35. Center 1060 MHz signal on Spectrum Analyzer. Verify 1060 MHz signal amplitude is >40 dB less than 1090 MHz signal level. If incorrect, adjust R18007 and R18008 (1060 MHz NULL ADJ) for lowest amplitude.

36. Press RUN/STOP Key to terminate test.

THRESHOLD SET

37. Connect test equipment as shown in 2-2-2, Figure 33 with Measuring Receiver initially connected through Power Sensor and 3 dB Attenuator to ATC-601-2 ANTENNA Connector.



Threshold Test Setup Diagram
Figure 33

38. Set ATC-601-2 Signal Type to CW_P4 and PRF to 235.
39. Set ATC-601-2 Attenuation for -23.5 dBm on Measuring Receiver. Record Attenuation setting.
40. Disconnect 3 dB Attenuator from Power Sensor and connect to TCAS-201-2 ANTENNA Connector.
41. Set ATC-601-2 Signal Type to ITM_ATC_C at Attenuation referenced in Step 39.
42. Set TCAS-201-2 as follows:

SCREEN	FIELD	SETTING
Setup #1 Menu	INTRUDER TYPE:	ATCRBS
	UUT DIST: HORIZ:	250 ft
	UUT DIST: VERT:	100 ft
	GAIN_1030=	0.0 dB
	LOSS:	1.0 dB
ATCRBS Reply Test	RANGE:	0.0 nm
	%REPLY:	100

43. Press RUN/STOP Key from ATCRBS Reply Test screen to initiate test.
44. Verify ≥90% replies (≤10% failures as indicated by count displays in ATC-601-2 Diagnostics Test screen [FAILURE: field/INTERROGATIONS: field ratio]). Adjust R21048 (THRESHOLD) as needed.
45. Increase ATC-601-2 Attenuation 1.0 dB (2 steps from Step 39 reference).
46. Verify TCAS-201-2 shows no replies.
47. Press RUN/STOP Key to terminate test.

STEP PROCEDURE

48. Disconnect test equipment.

49. Reinstall Chassis Assy into Case Assy and tighten 12 screws with 23 inch•pounds (2.56 newton•meters) of torque.

CAUTION: NYLON WASHERS MUST BE REPLACED PRIOR TO RE-INSTALLATION OF SCREWS TO MAINTAIN WATER RESISTANCE CAPABILITY.

G. Calibration Data Sheet

TECHNICIAN: _____ DATE: _____

TCAS-201-2 S/N: _____

STEP		DATA	RESULT
(1)	Power Supply		
	4.	14.2 Vdc (±0.1 V)	_____
	6.	+5.1 Vdc (±0.05 V)	_____
	7.	+12 Vdc (±0.3 V)	_____
	8.	-12 Vdc (±0.3 V)	_____
	9.	+11 Vdc (±0.25 V)	_____
(2)	RF Assy		
	LO SOURCE		
	9.	Signal Sweep Centered on 1090 MHz	_____(√)
	10.	1085.5 MHz to 1094.5 MHz Minimum Sweep Width	_____(√)
	14.	Specified Offset Voltage (on RF Assy) Offset Voltage at 1085.5 MHz Specified Offset Voltage (±<10 mV)	_____ _____
	16.	Offset Voltage at 1094.5 MHz Specified Offset Voltage (±<10 mV)	 _____
	17.	Offset Voltage adjustment	_____(√)
	ATTENUATOR		
	26.	Attenuation Zero Volt adjustment	_____(√)
	31.	Attenuation VSWR adjustment	_____(√)
	36.	Receive Level at 0 dB Attenuation	_____
	38.	40 dB Attenuation adjustment	_____(√)
	40.	10 dB Attenuation adjustment	_____(√)
	42.	Receive Level at 0 dB Attenuation (Step 36 level)	_____
	ISOLATION NULL		
	50.	30 MHz Signal Nullification	_____(√)
	51.	30 MHz Signal Level +5 dBm	_____
	GENERATOR OUTPUT POWER		
	57.	Generator Output Power +0.4 dBm	_____
	GENERATOR IMAGE		
	64.	1030 MHz Signal Level >30 dB below 1090 MHz Signal Level	 _____(√)

STEP	DATA	RESULT
	LO NULL	
65	1060 MHz Signal Level >40 dB below 1090 MHz Signal Level	_____(√)
	RECEIVE IMAGE	
73.	1090 MHz Receive Signal Level >15 dB below 1030 MHz Signal Level	_____(√)
	RECEIVE POWER	
77.	Receive Power 0.0 dBm	_____
	ISOLATION RESET	
85.	30 MHz Signal Level 5 dBm	_____(√)
	DETECTOR PULSE WIDTH	
91.	RF Level Indication +3 dBm -12 dBm -27 dBm	_____ _____ _____
96.	Detector Pulse Width 0.45 µs	_____(√)
97.	Detector Pulse Width varies <40 ns	_____(√)
	DIRECT CONNECT SET	
104.	RF Level (ANTENNA Connector [18]) -10 dBm	_____
107.	RF Level (RF I/O Connector) Step 104 - 48.25 dB	_____(√)
	RF BIT DETECTOR SET	
115.	Bit Detector Zero Voltage 10 to 50 mV	_____
117.	Bit Detector Active Voltage 2.80 V	_____
	OSCILLATOR COMPENSATION	
124.	Oscillator Compensation Diode Temperature	_____
125.	Oscillator Voltage required for Diode Temperature	_____
127.	Oscillator Voltage (Step 125 voltage)	_____
128.	Frequency Output 1090 MHz (±200 Hz)	_____
(3)	System	
	SELF TEST	
1.	All Modules/Assemblies Pass	_____(√)
	RECEIVE POWER SYSTEM RECHECK	
7.	RF Signal Level -19.05 dBm	_____
9.	Receive Power Compression Error	_____
10.	Calculated Counts $128 \bullet 10^{(\text{compression error}/20)}$	_____
13.	Receive Power Counts (Step 10 counts)	_____

STEP	DATA	RESULT
	ISOLATION SYSTEM RECHECK	
18.	30 MHz Signal Level (Receive)	_____
23.	30 MHz Signal Level (Transmit) Step 18 Level	_____
	GENERATOR SYSTEM RECHECK	
29.	Generator Power +0.4 dBm	_____
	MIXER NULLS	
35.	1060 MHz Signal Level >40 dB below 1090 MHz Signal Level	_____(√)
	THRESHOLD SET	
39.	ATC-601-2 Attenuation for -23.5 dBm (Threshold)	_____
44.	TCAS-201-2 ≥90% Replies	_____(√)
46.	TCAS-201-2 No Replies at 1.0 dB below Threshold	_____(√)

3. Assemblies and Schematics

A. General

This section contains drawings for all Modules/Assemblies, PC Board Assemblies, Interconnect Diagrams and Circuit Schematics within the TCAS-201-2.

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 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.
5. Locate reference designator of coaxial cable and continue tracing circuit.

(2) Multiple Pin Connectors

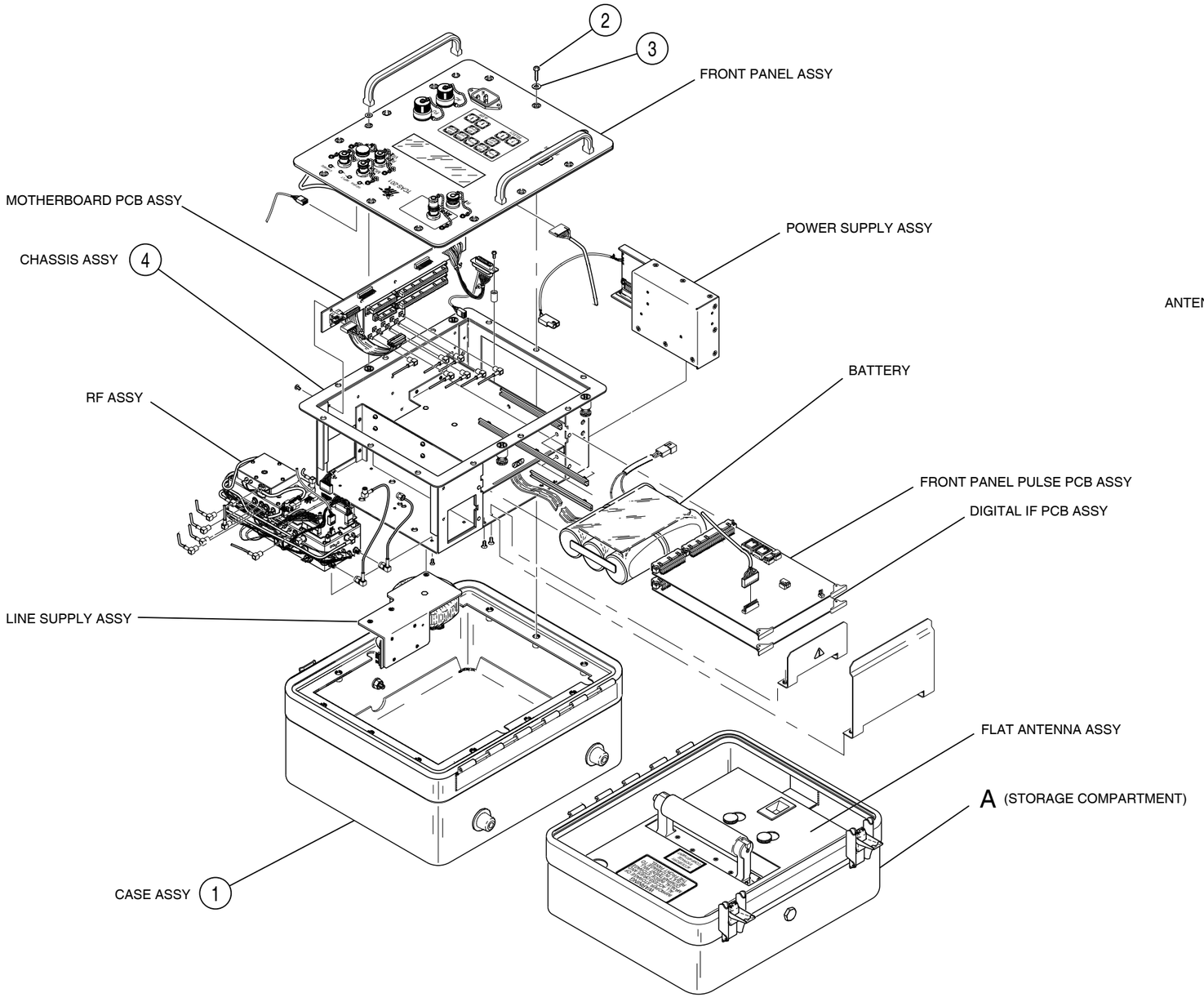
STEP	PROCEDURE

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

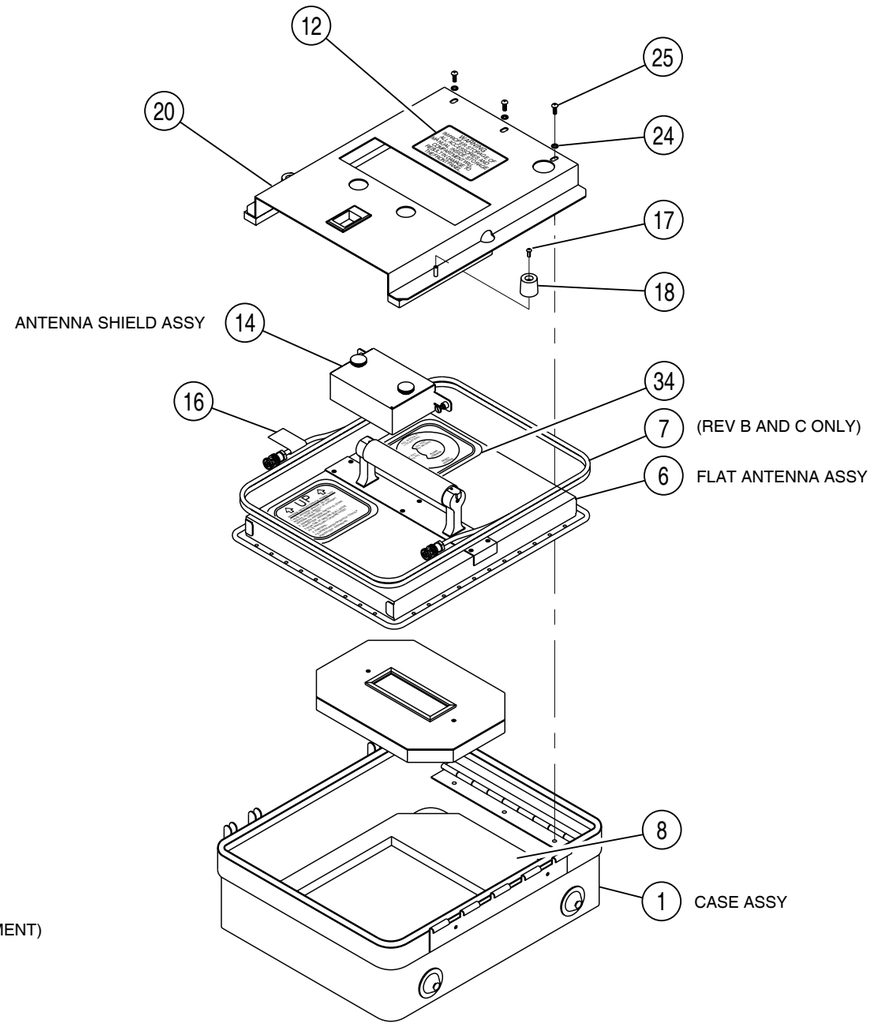
   NOTE: Connectors are identified by reference designators.

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

TITLE PAGE



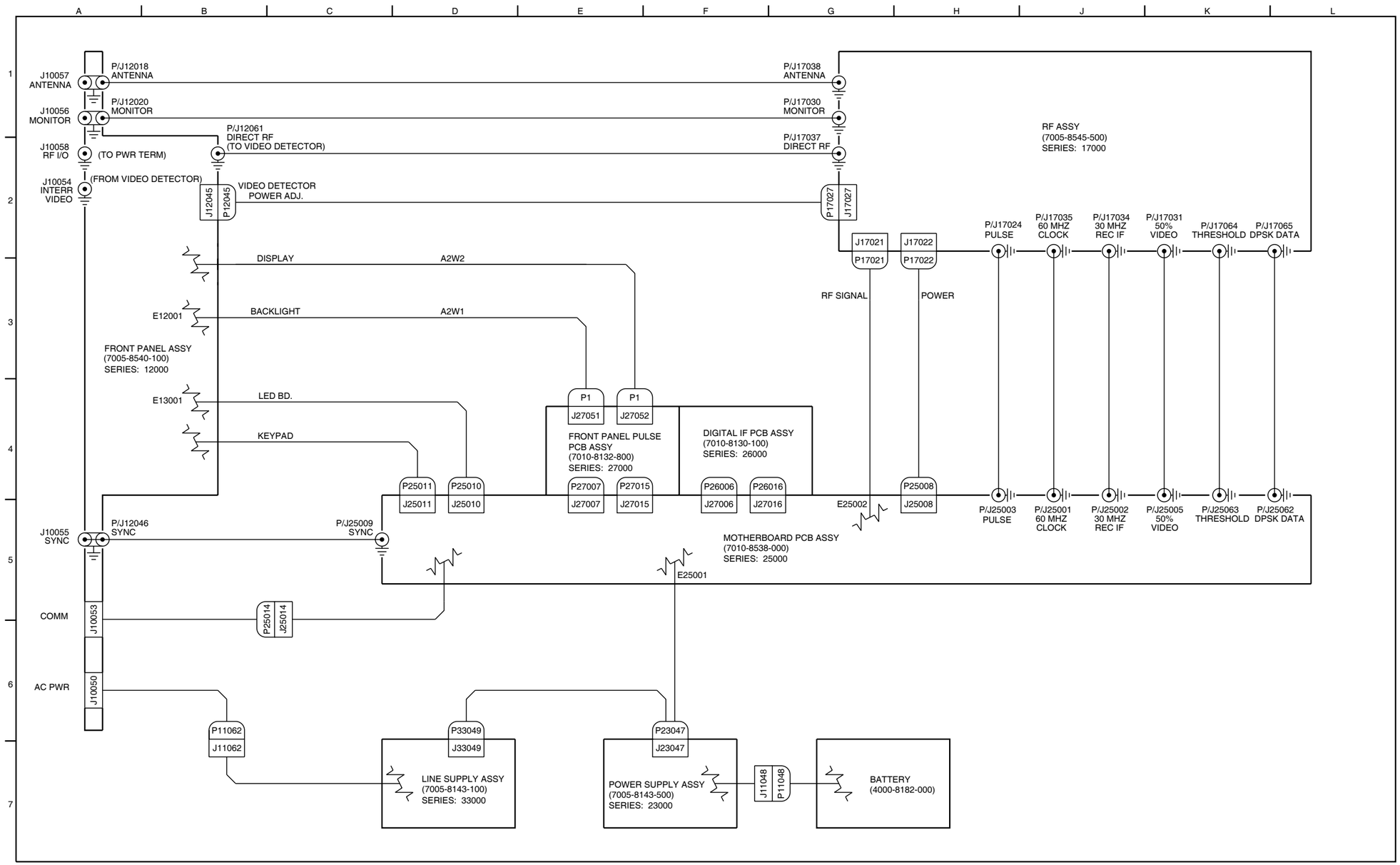
(7003-8545-600-D1)



DETAIL A

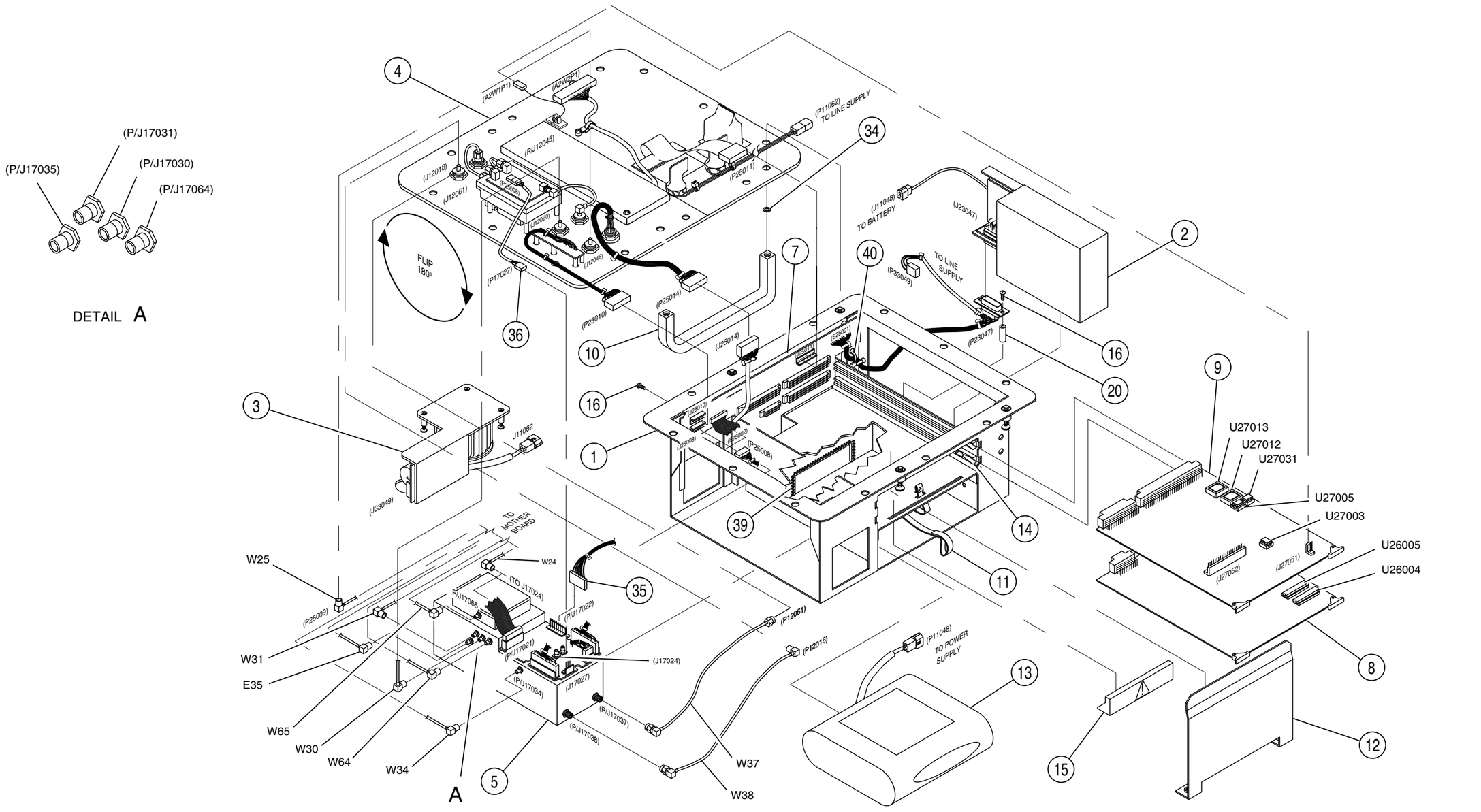
8545200M

Figure 34 Composite Assy (Sheet 1 of 2)



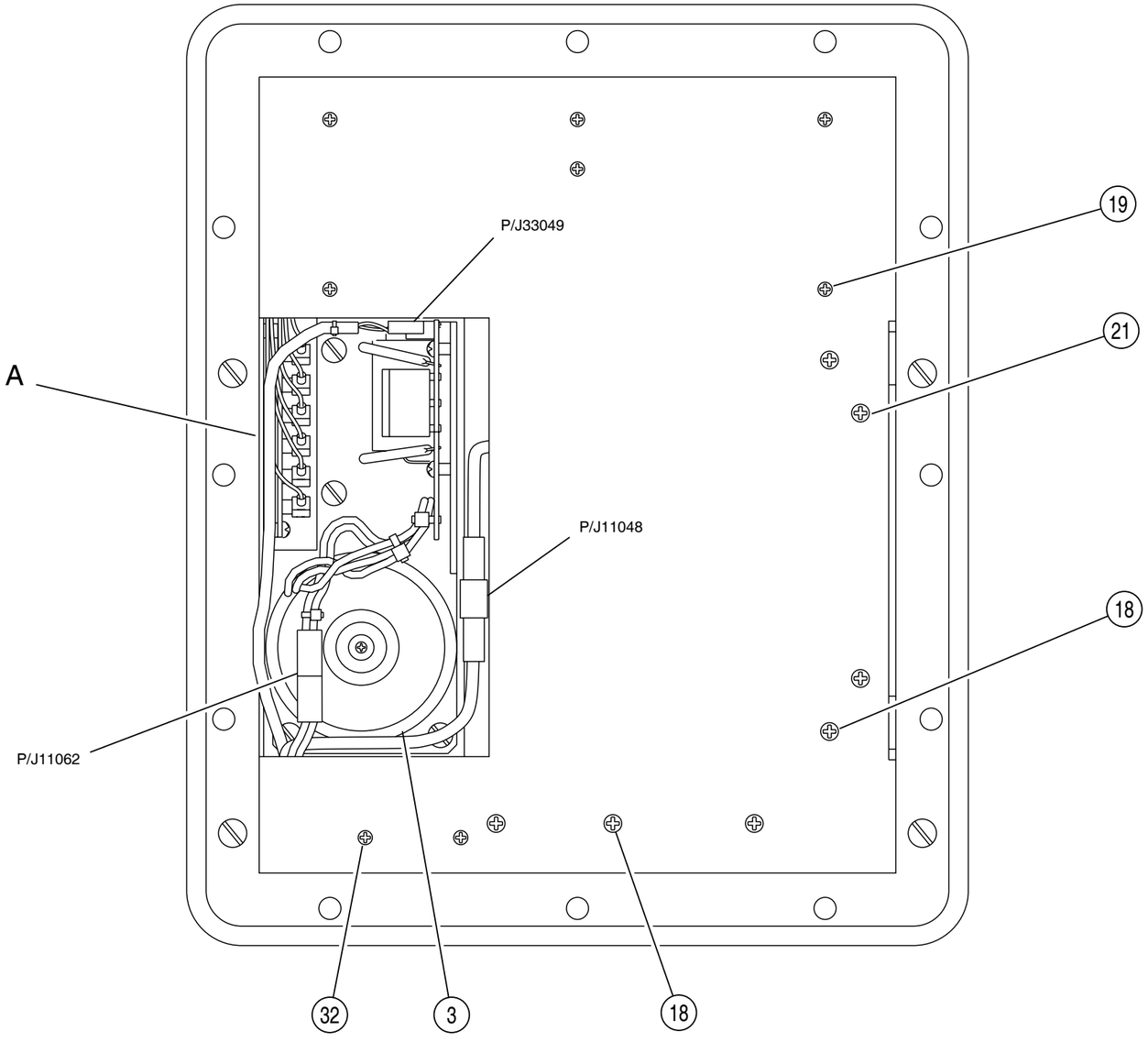
(0000-8545-600-B)

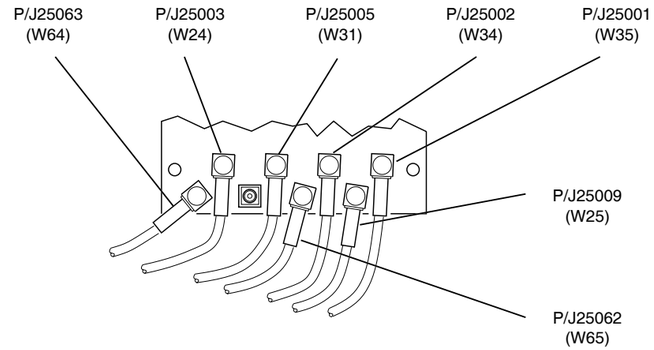
Figure 34 Composite Assy (Sheet 2 of 2)
(Interconnect Diagram)



(7005-8544-300-E)

Figure 35 Chassis Assy (Sheet 1 of 4)



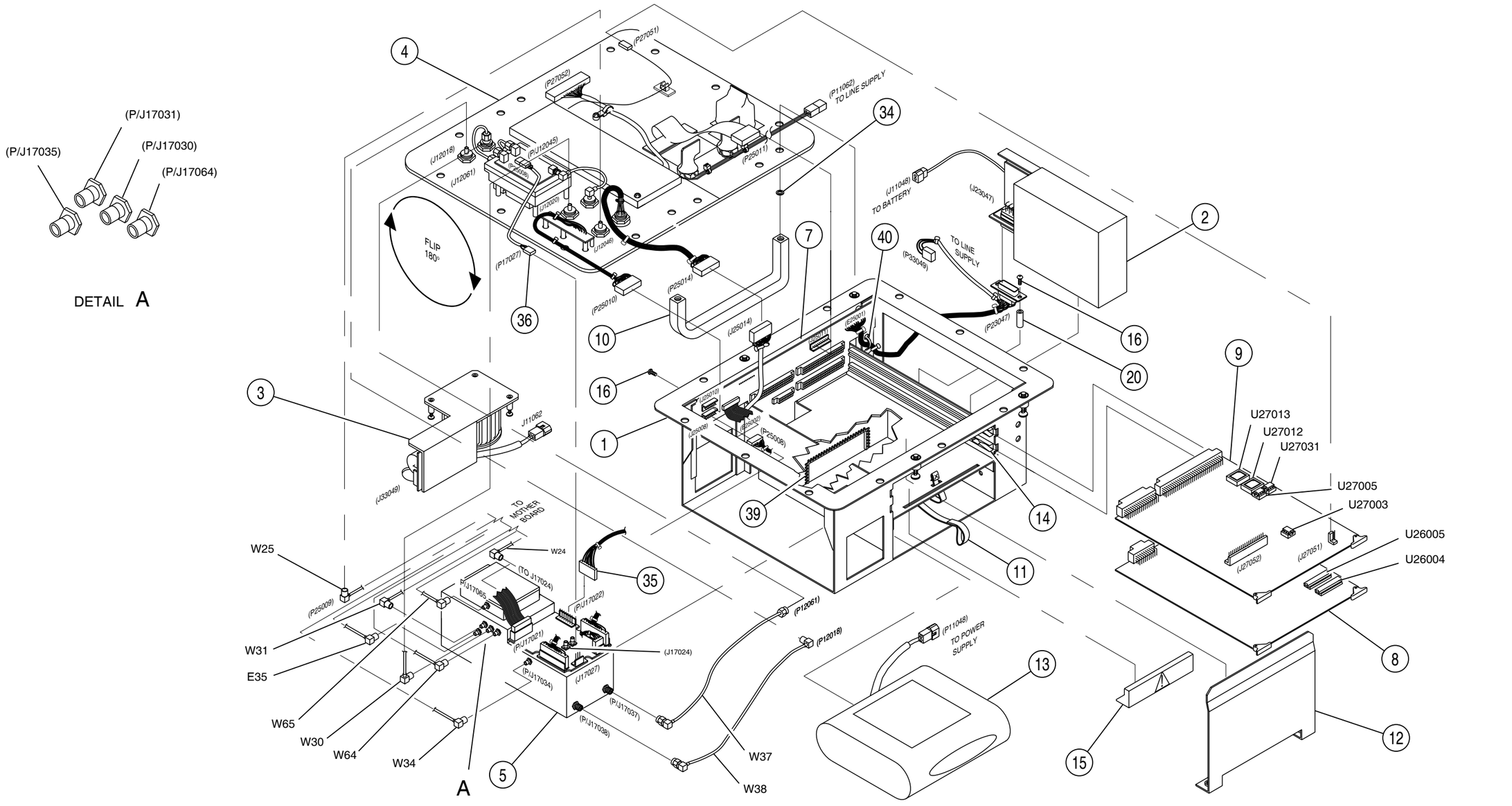


DETAIL A

085M-21

(7005-8544-300-E)

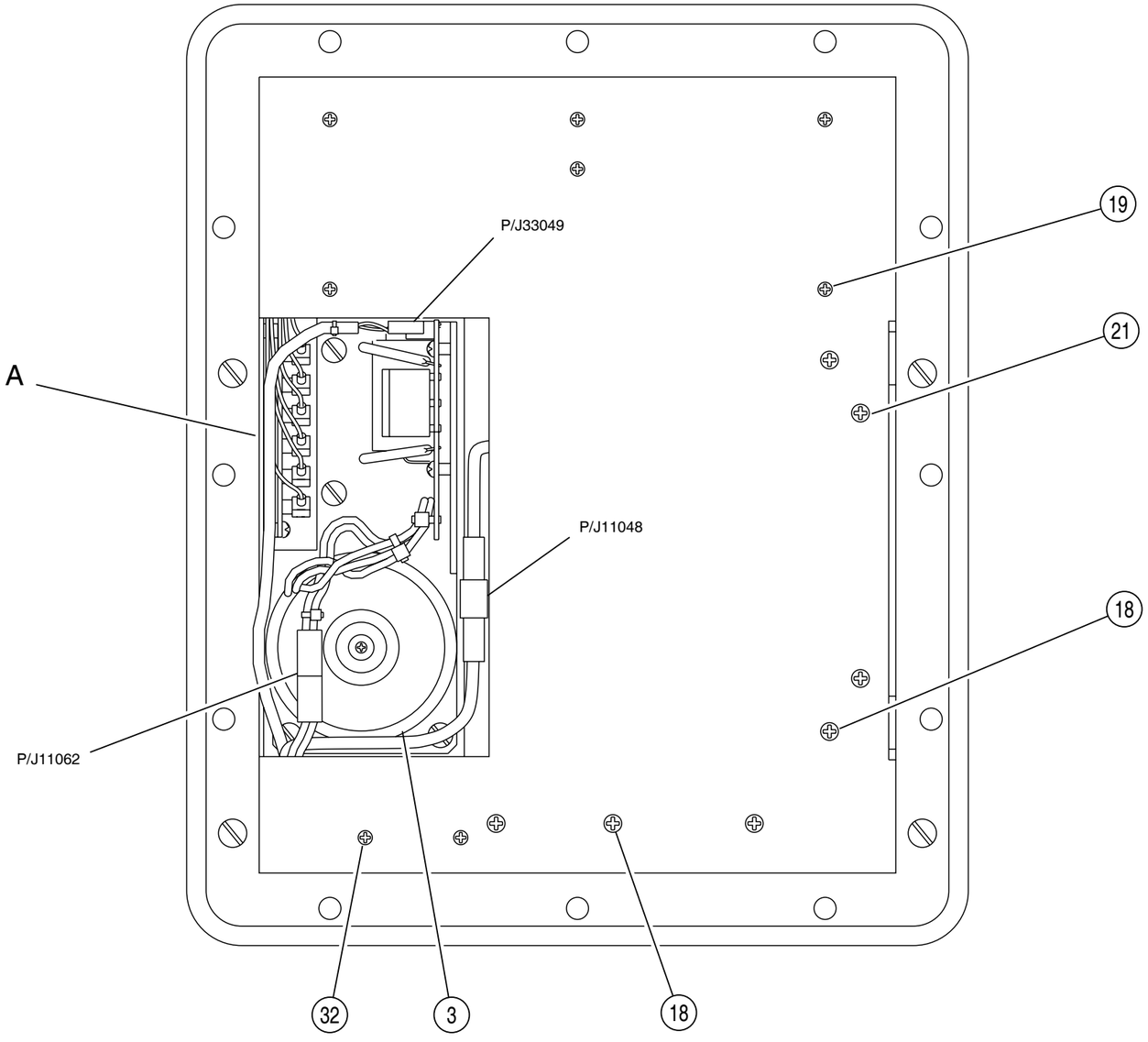
Figure 35 Chassis Assy (Sheet 2 of 4)

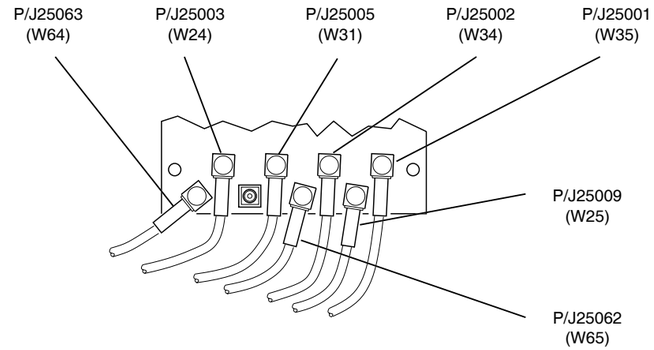


085M-22

(7005-8540-600-C)

Figure 35 Chassis Assy (Sheet 3 of 4)



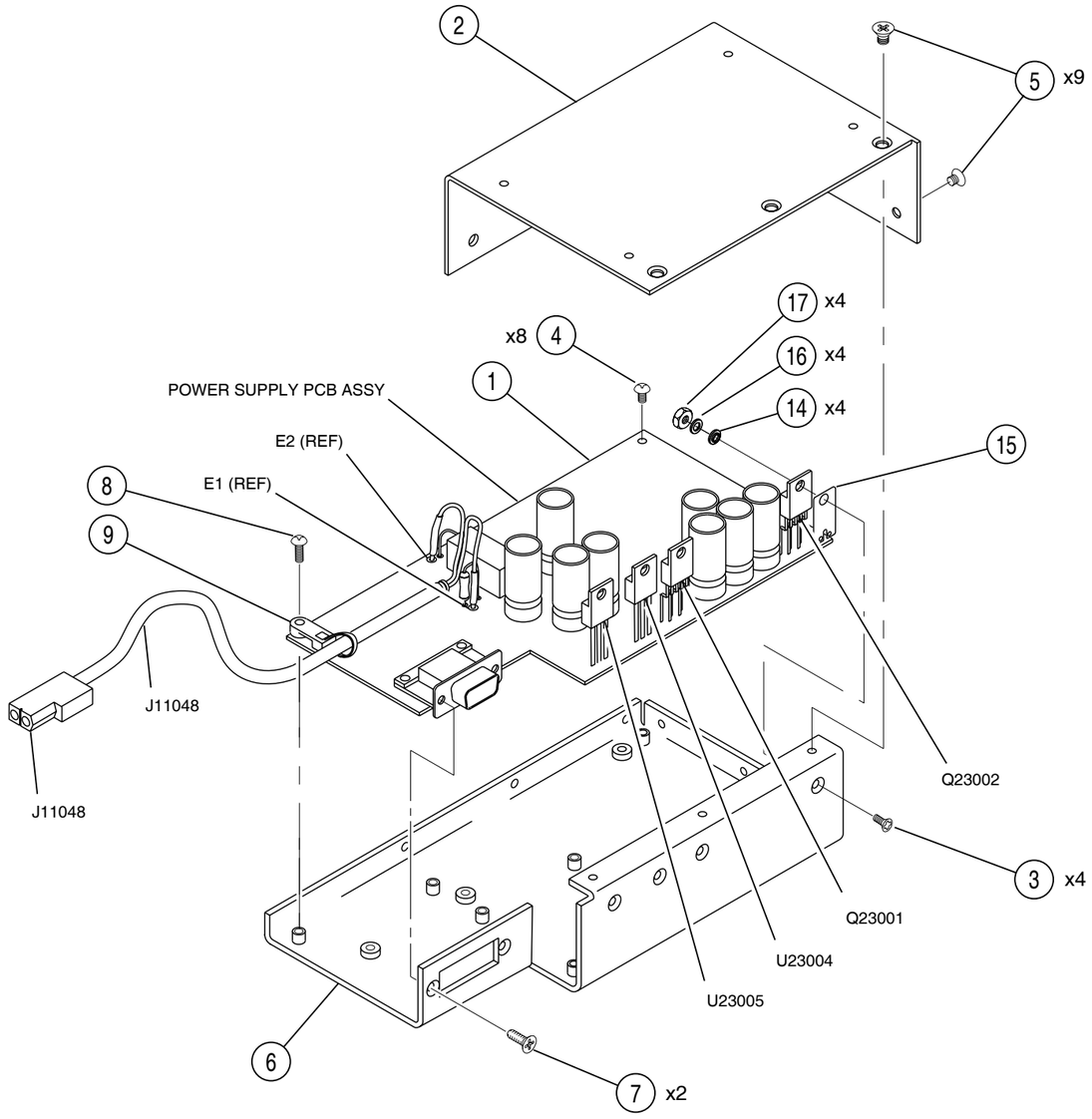


DETAIL A

085M-21

(7005-8540-600-C)

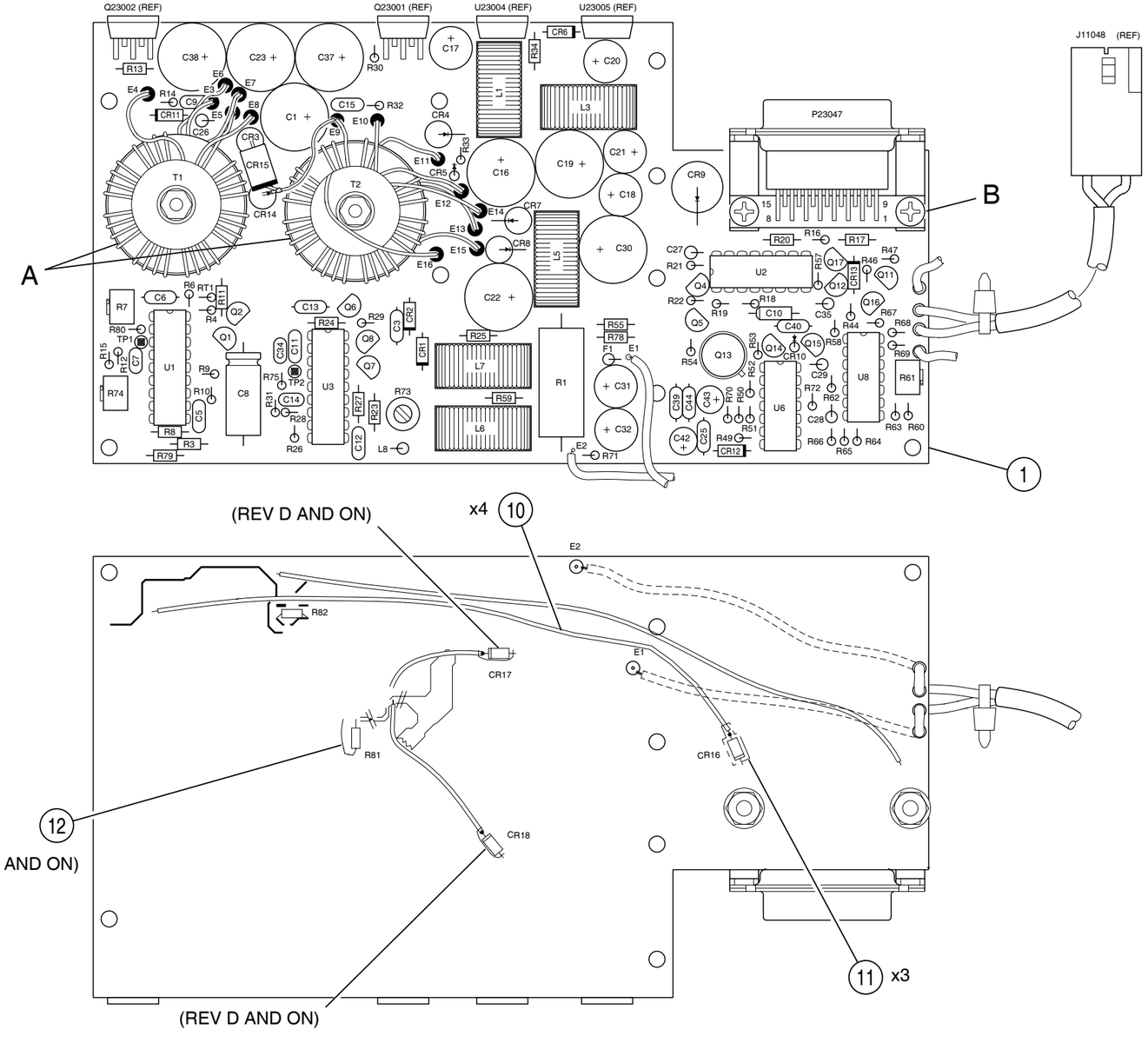
Figure 35 Chassis Assy (Sheet 4 of 4)



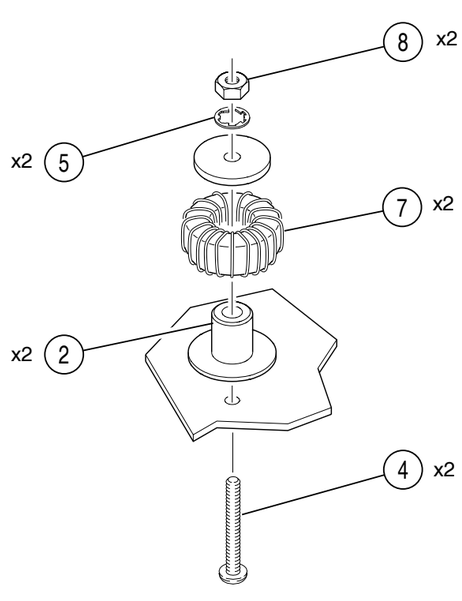
8143500M

(7005-8143-500-E)

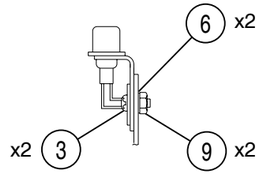
Figure 36 Power Supply Assy (Sheet 1 of 6)



(7010-8130-500-E)



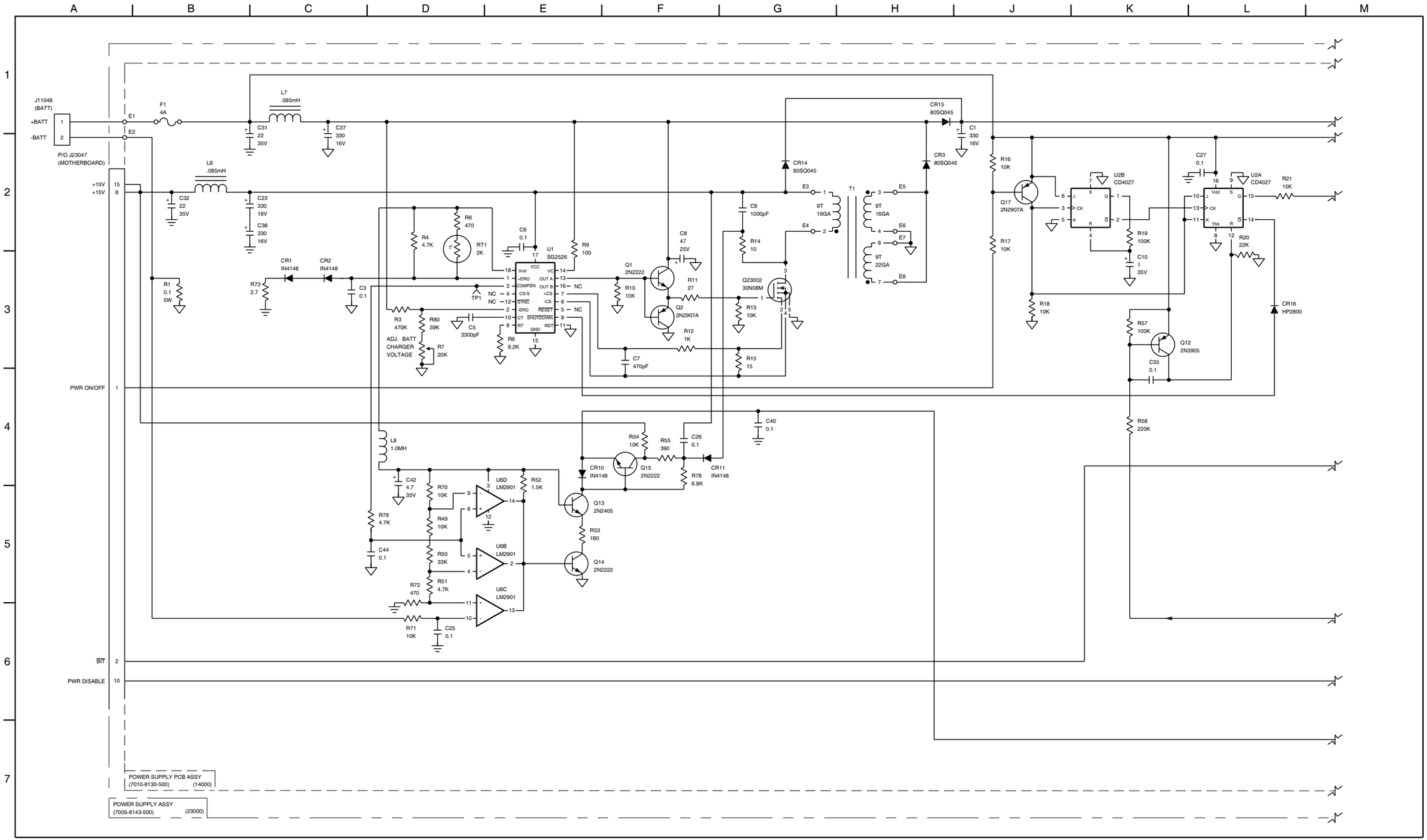
DETAIL A



DETAIL B

8130500P

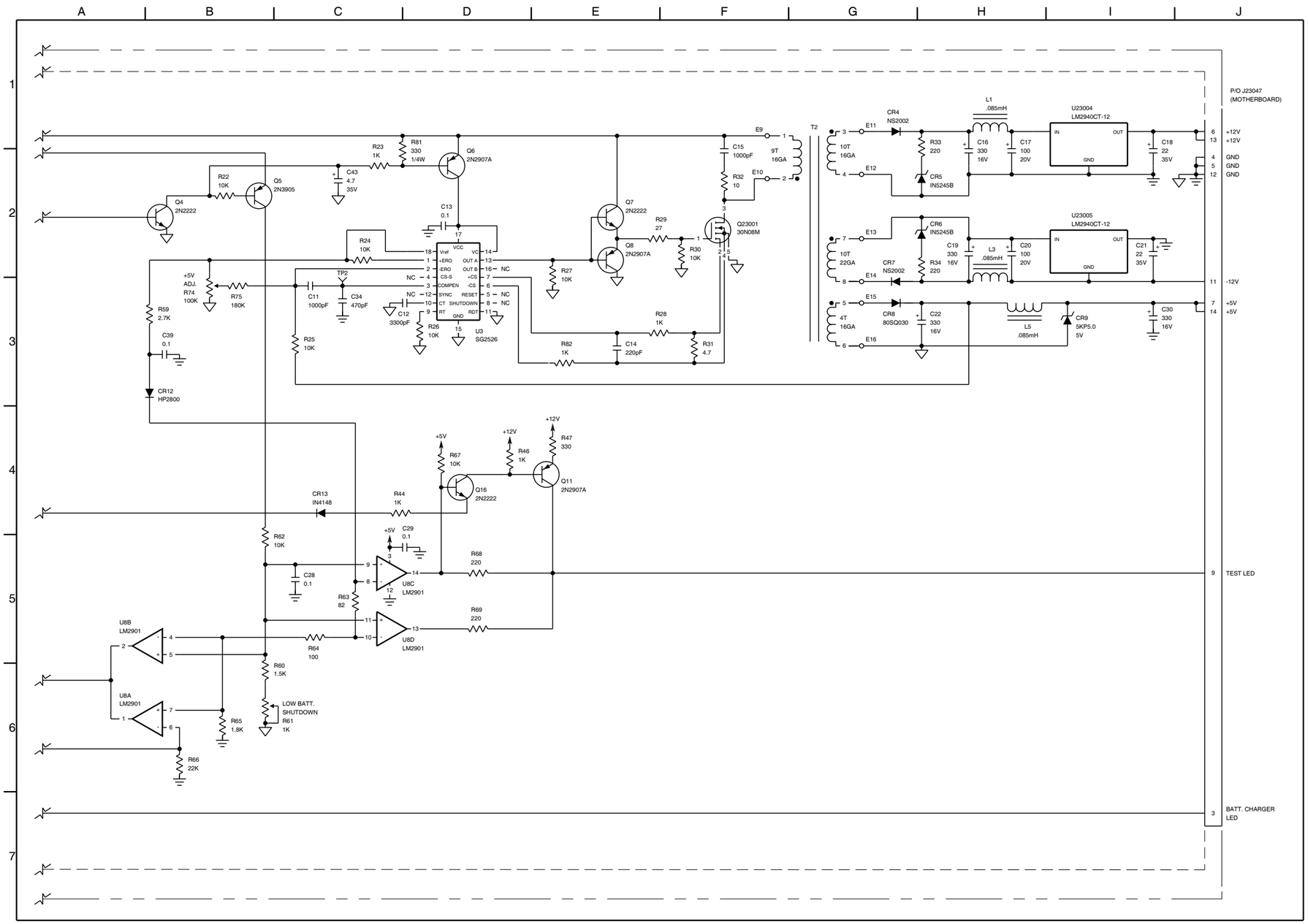
Figure 36 Power Supply Assy (Sheet 2 of 6)
(Power Supply PCB Assy)



085M-01

Figure 36 Power Supply Assy (Sheet 3 of 6)
(Circuit Schematic - Sheet 1 of 4)

(0000-8140-500-C)



085M-02

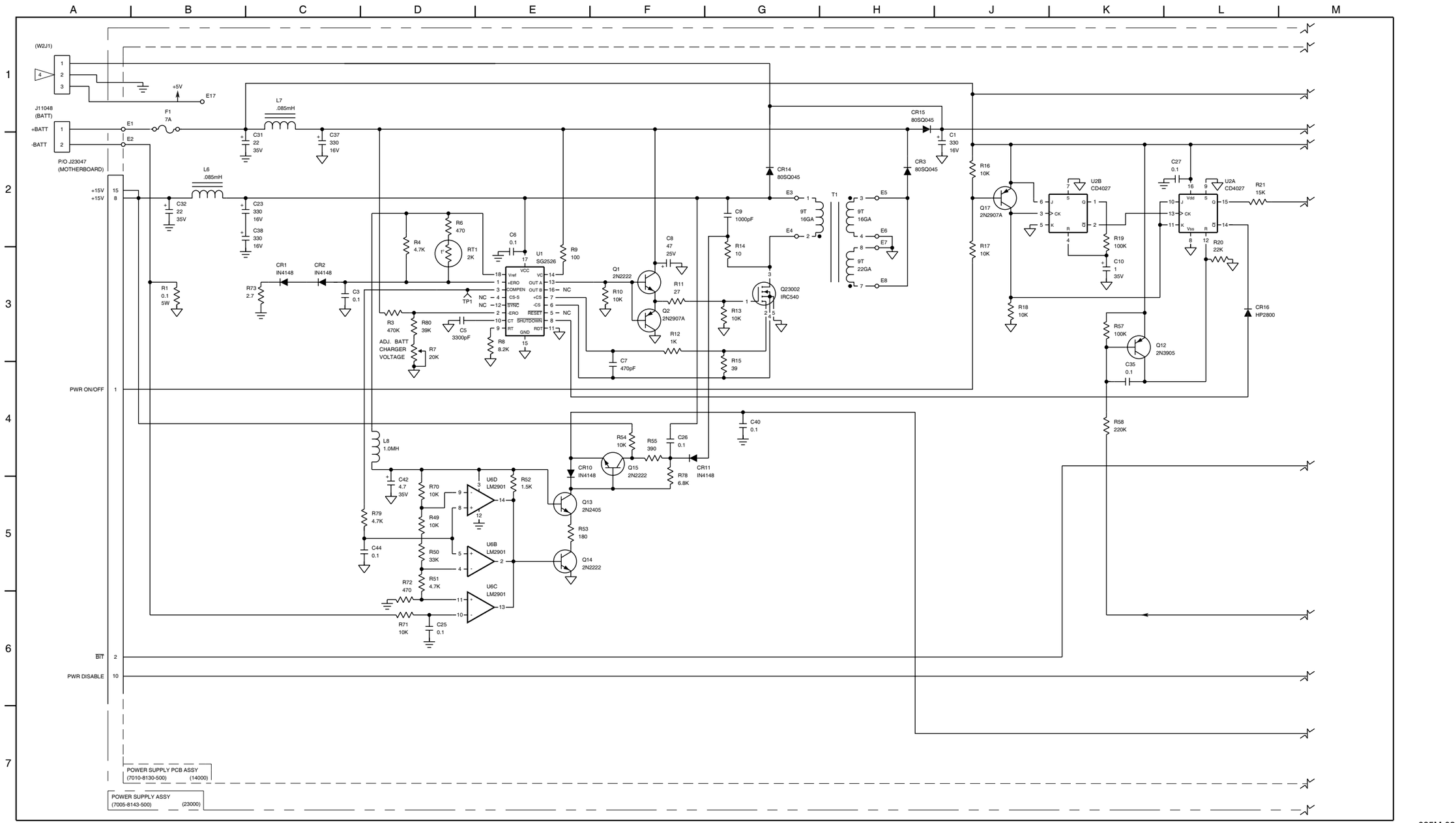
(0000-8140-500-C)

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

NOTES:
(UNLESS OTHERWISE SPECIFIED)

1. ALL REFERENCE NUMBERS CARRY AN ASSIGNED DESIGNATOR SERIES. THIS ASSEMBLY CARRIES SERIES:
   7005-8140-500 23000 (e.g., J1 IS J23001)
   7010-8130-500 14000 (e.g., R1 IS R14001)
2. ALL RESISTORS ARE 1/8W, 5% TOLERANCE.
3. ALL RESISTANCE IS EXPRESSED IN OHMS.
4. ALL CAPACITANCE IS EXPRESSED IN MICROFARADS.

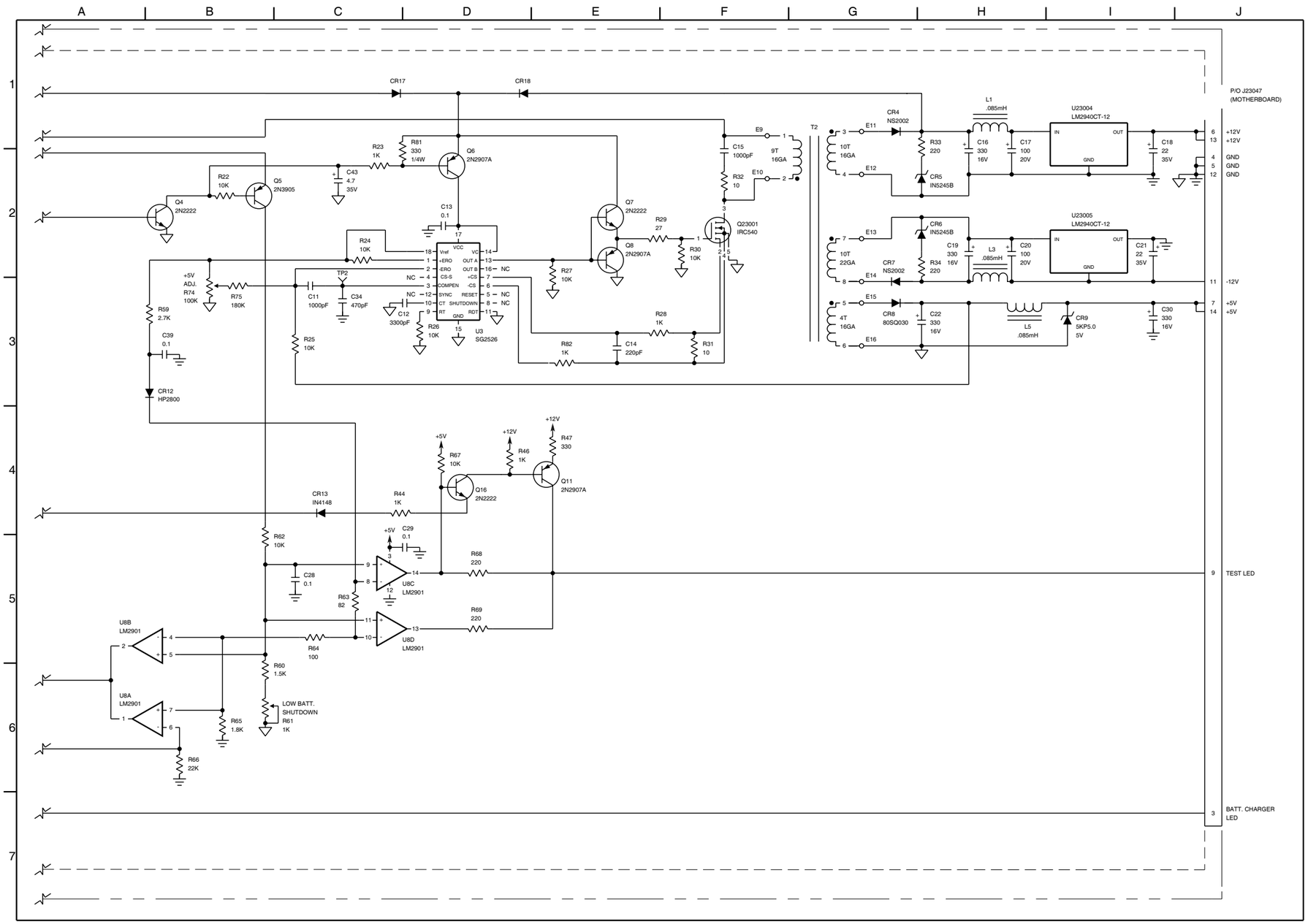
Figure 36 Power Supply Assy (Sheet 4 of 6)
(Circuit Schematic - Sheet 2 of 4)



085M-03

Figure 36 Power Supply Assy (Sheet 5 of 6)
(Circuit Schematic - Sheet 3 of 4)

(0000-8140-500-C)



085M-04

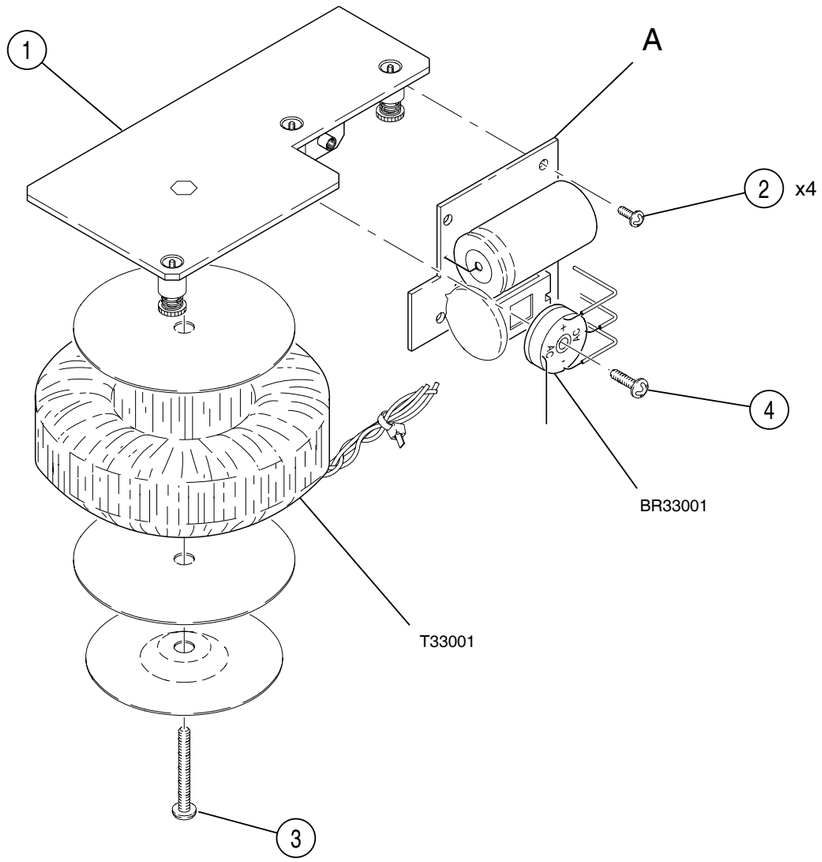
(0000-8140-500-C)

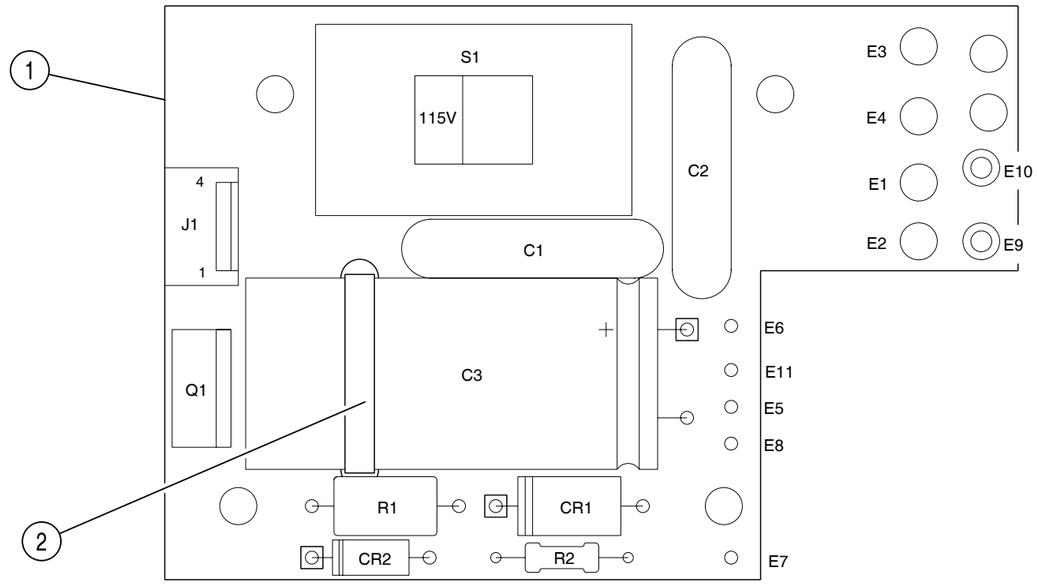
CAUTION:
CONTAINS PARTS AND ASSEMBLIES SUSCEPTIBLE TO DAMAGE BY ELECTROSTATIC DISCHARGE (ESD).

NOTES:
(UNLESS OTHERWISE SPECIFIED)

1. ALL REFERENCE NUMBERS CARRY AN ASSIGNED DESIGNATOR SERIES. THIS ASSEMBLY CARRIES SERIES:
   7005-8140-500 23000 (e.g., J1 IS J23001)
   7010-8130-500 14000 (e.g., R1 IS R14001)
2. ALL RESISTORS ARE 1/8W, 5% TOLERANCE.
3. ALL RESISTANCE IS EXPRESSED IN OHMS.
4. ALL CAPACITANCE IS EXPRESSED IN MICROFARADS.

Figure 36 Power Supply Assy (Sheet 6 of 6)
(Circuit Schematic - Sheet 4 of 4)





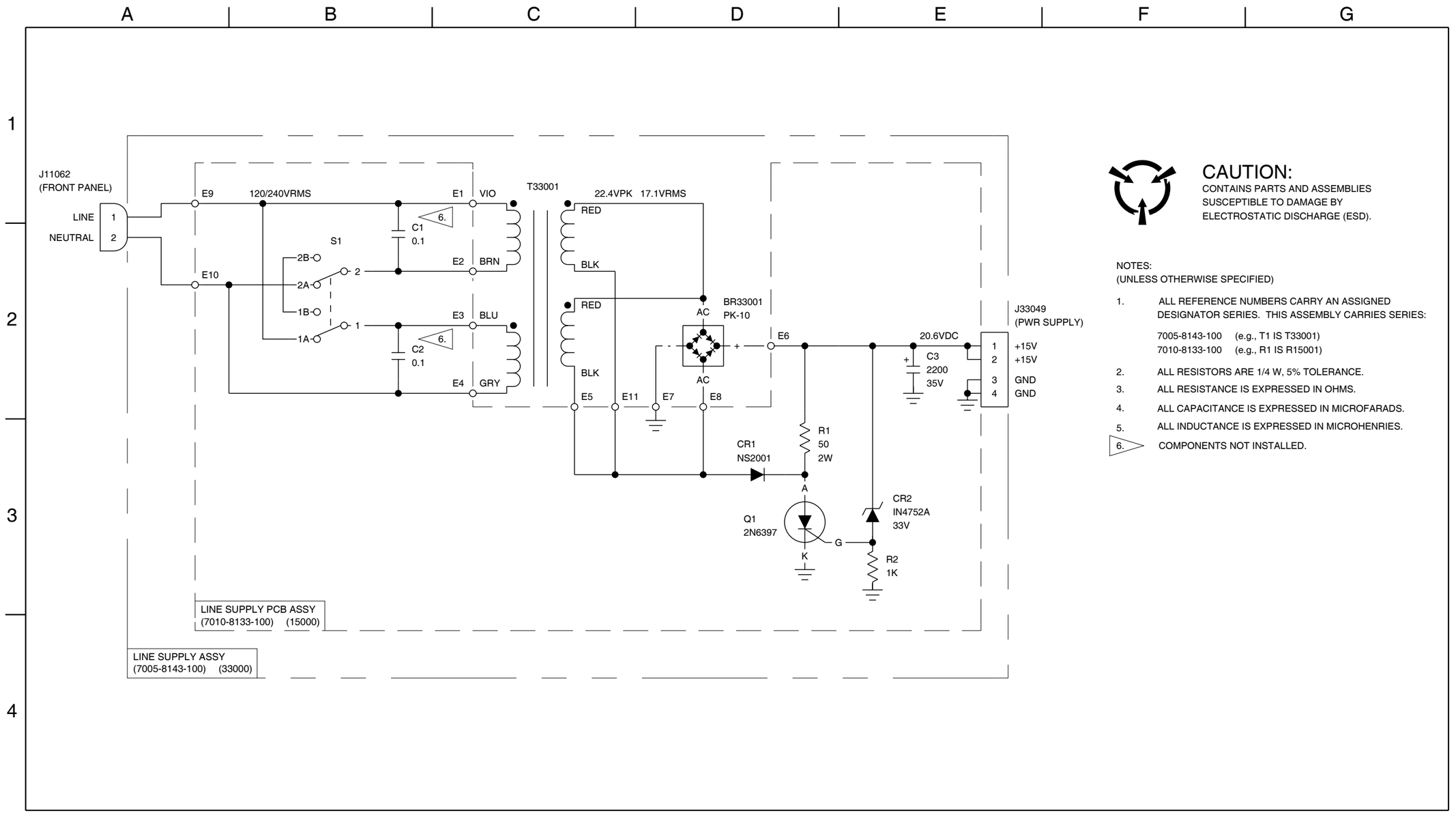
DETAIL A

LINE SUPPLY PCB ASSY (A1)

8143100M

Figure 37 Line Supply Assy (Sheet 1 of 2)
(Line Supply PCB Assy)

(7005-8143-100-F) (7010-8133-100-A)



CAUTION:

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

NOTES:
(UNLESS OTHERWISE SPECIFIED)

1. ALL REFERENCE NUMBERS CARRY AN ASSIGNED DESIGNATOR SERIES. THIS ASSEMBLY CARRIES SERIES:

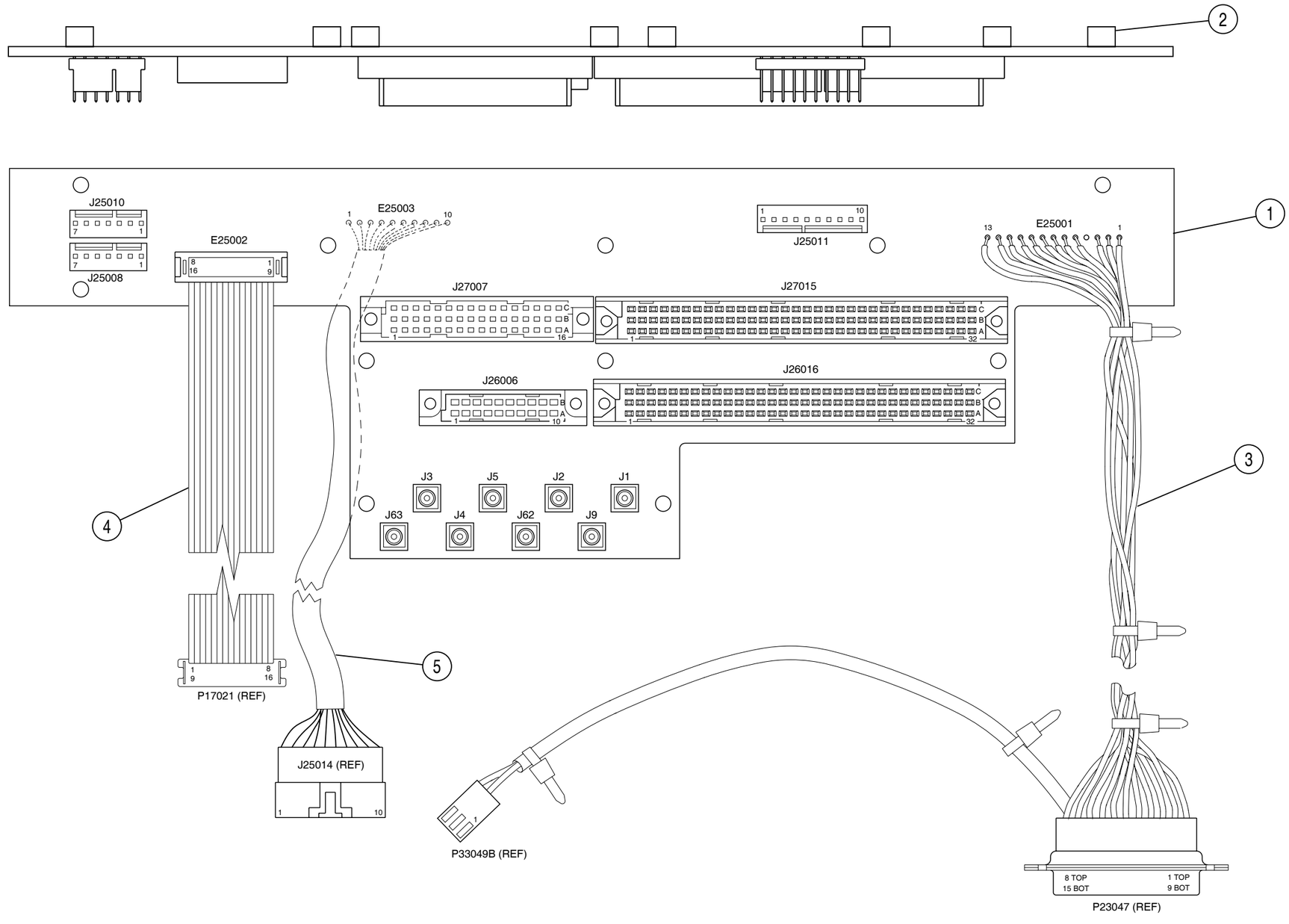
   7005-8143-100 (e.g., T1 IS T33001)
   7010-8133-100 (e.g., R1 IS R15001)

2. ALL RESISTORS ARE 1/4 W, 5% TOLERANCE.
3. ALL RESISTANCE IS EXPRESSED IN OHMS.
4. ALL CAPACITANCE IS EXPRESSED IN MICROFARADS.
5. ALL INDUCTANCE IS EXPRESSED IN MICROHENRIES.
6. COMPONENTS NOT INSTALLED.

8143100S

(0000-8140-500-C)

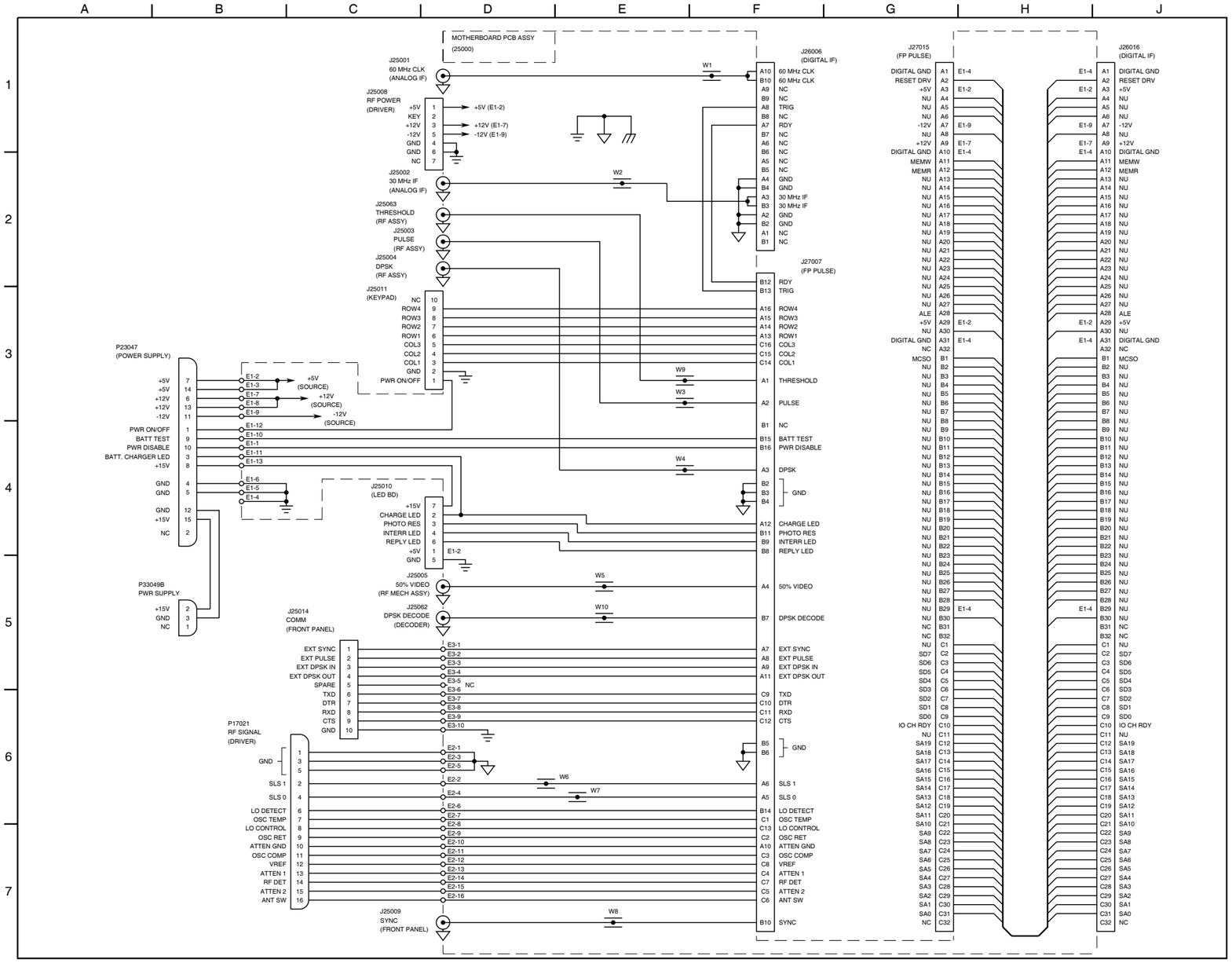
Figure 37 Line Supply Assy (Sheet 2 of 2)
(Circuit Schematic)



8532100P

(7010-8538-000-B)

Figure 38 Motherboard PCB Assy (Sheet 1 of 2)



8530000S

(0000-8538-000-C)

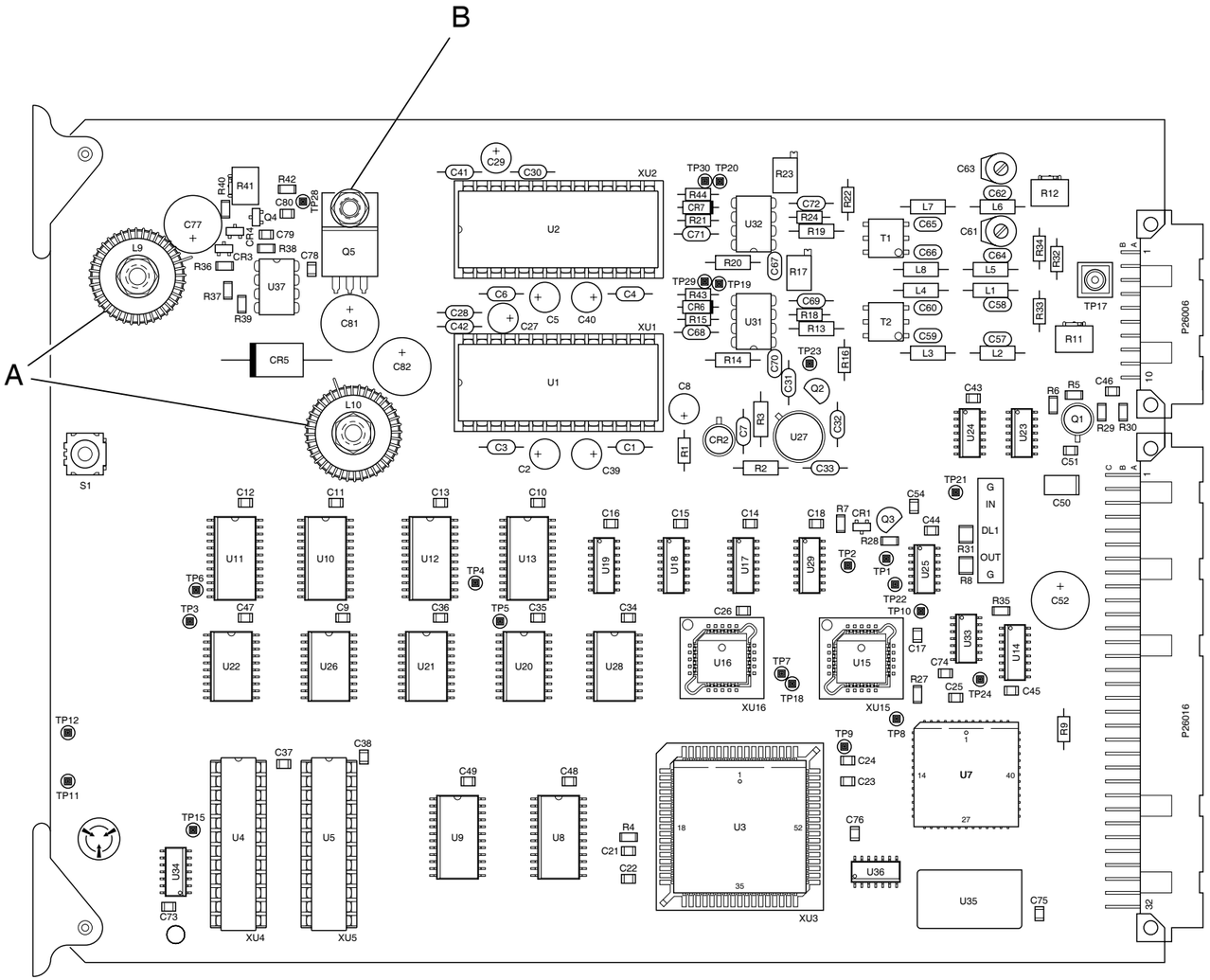
Figure 38 Motherboard PCB Assy (Sheet 2 of 2)
(Circuit Schematic)

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

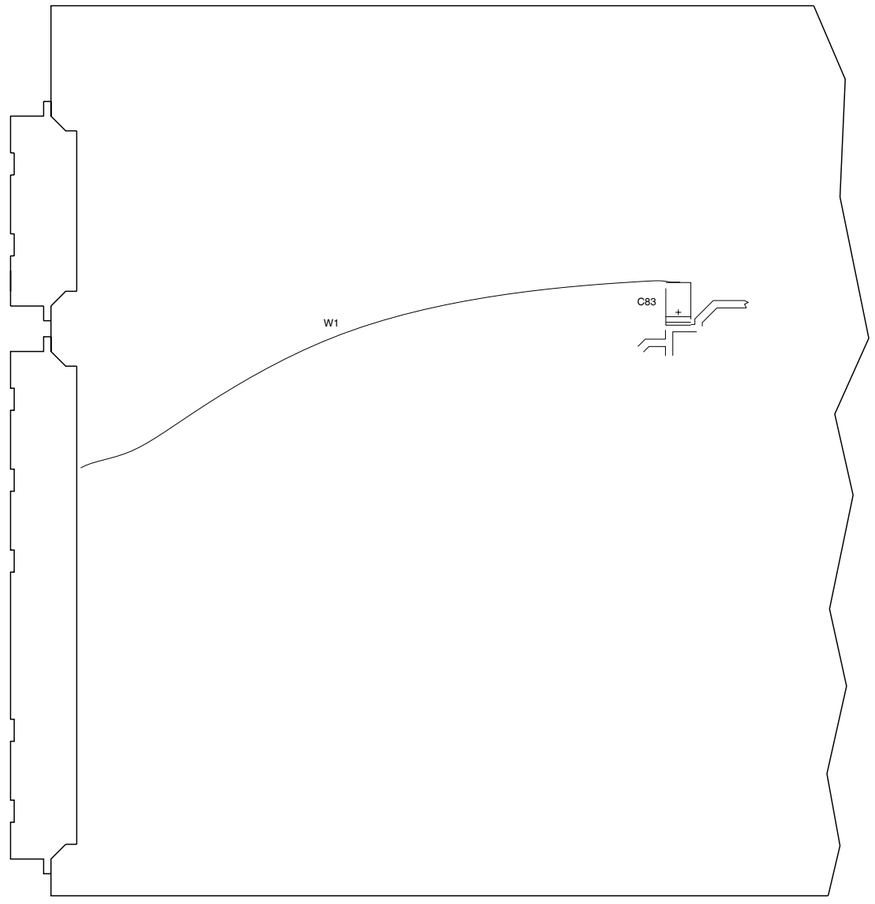
NOTES:
(UNLESS OTHERWISE SPECIFIED)

1. ALL REFERENCE NUMBERS CARRY AN ASSIGNED DESIGNATOR SERIES. THIS ASSEMBLY CARRIES SERIES:

   7010-8538-000 25000 (e.g., J1 IS J25001)



TOP VIEW

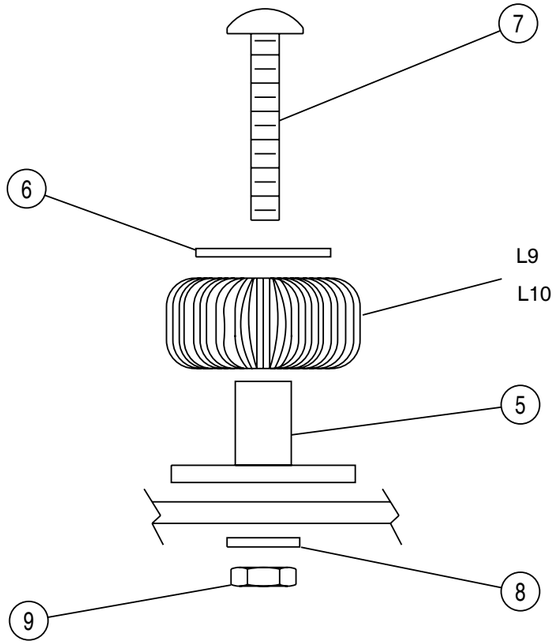


BOTTOM VIEW
(REV F AND ON)

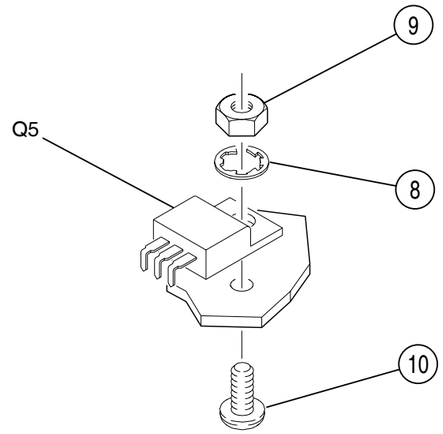
085M-05

(7010-8130-100-F)

Figure 39 Digital IF PCB Assy (Sheet 1 of 4)



DETAIL A

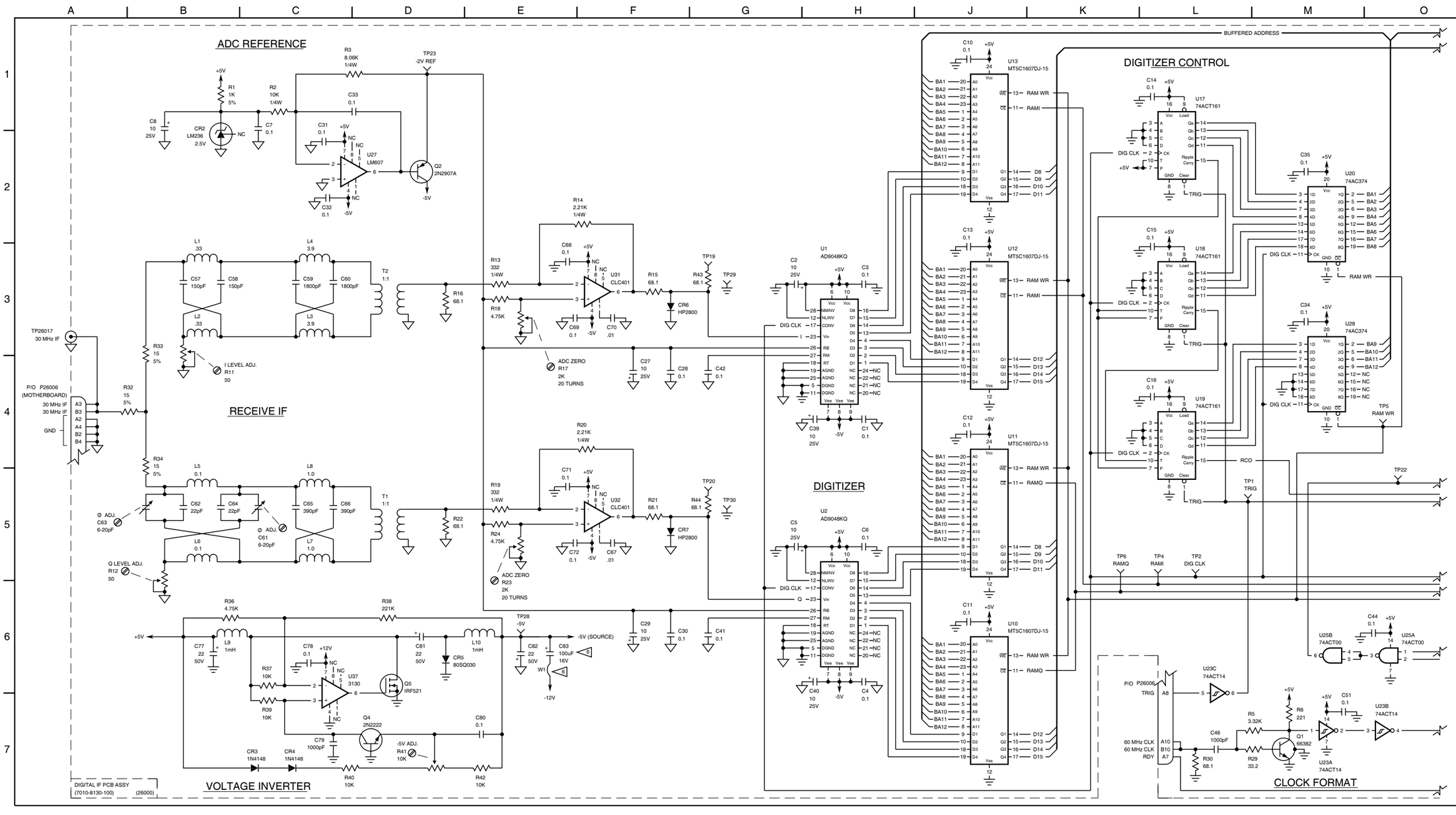


DETAIL B

085M-06

(7010-8130-100-F)

Figure 39 Digital IF PCB Assy (Sheet 2 of 4)

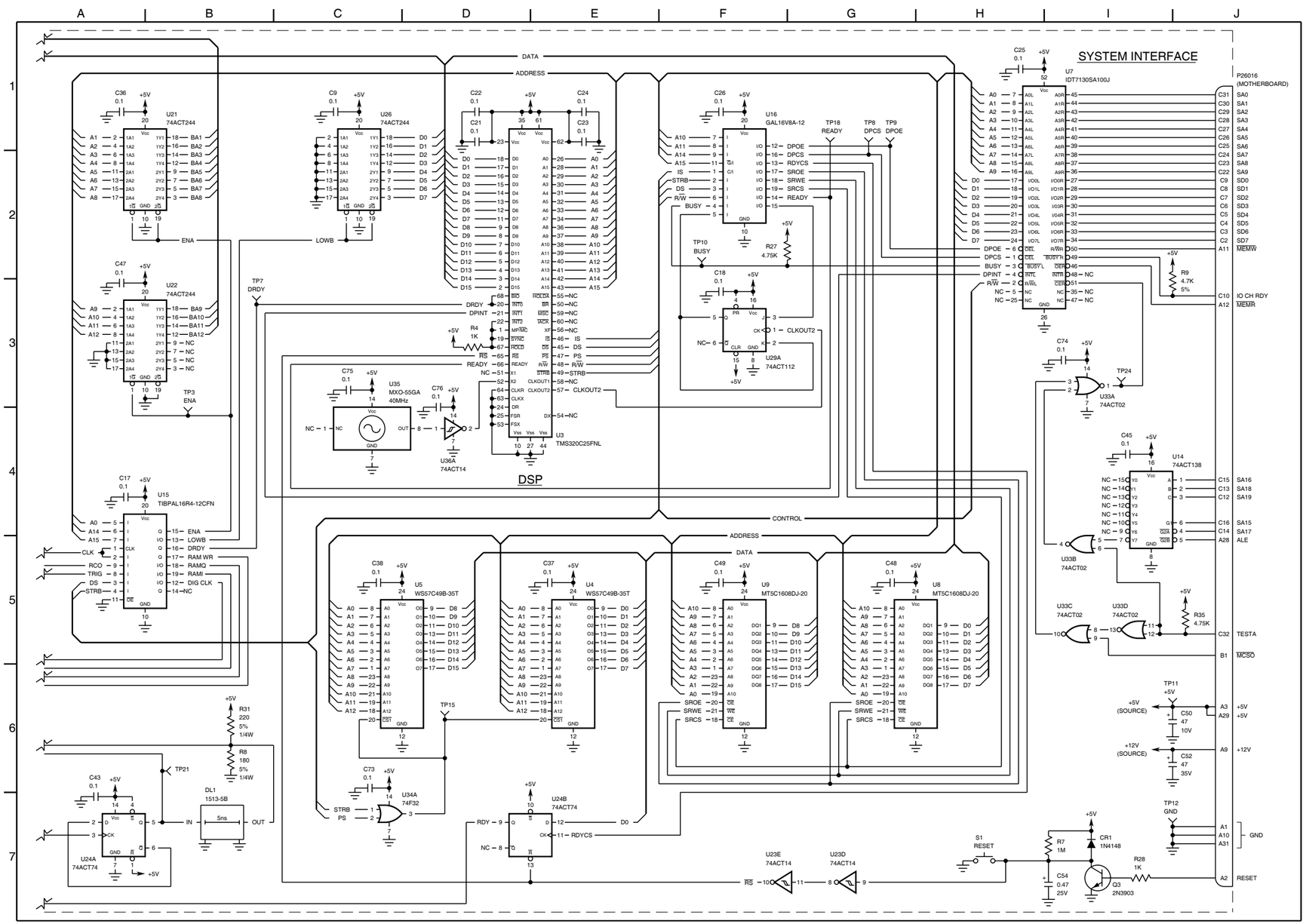


8530101S

(0000-8130-100-E)

Figure 39 Digital IF PCB Assy (Sheet 3 of 4)
(Circuit Schematic - Sheet 1 of 2)

Back To Manuals



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

NOTES:
(UNLESS OTHERWISE SPECIFIED)

1. ALL REFERENCE NUMBERS CARRY AN ASSIGNED DESIGNATOR SERIES. THIS ASSEMBLY CARRIES SERIES:

   7010-8130-100 26000 (e.g., R1 IS R26001)

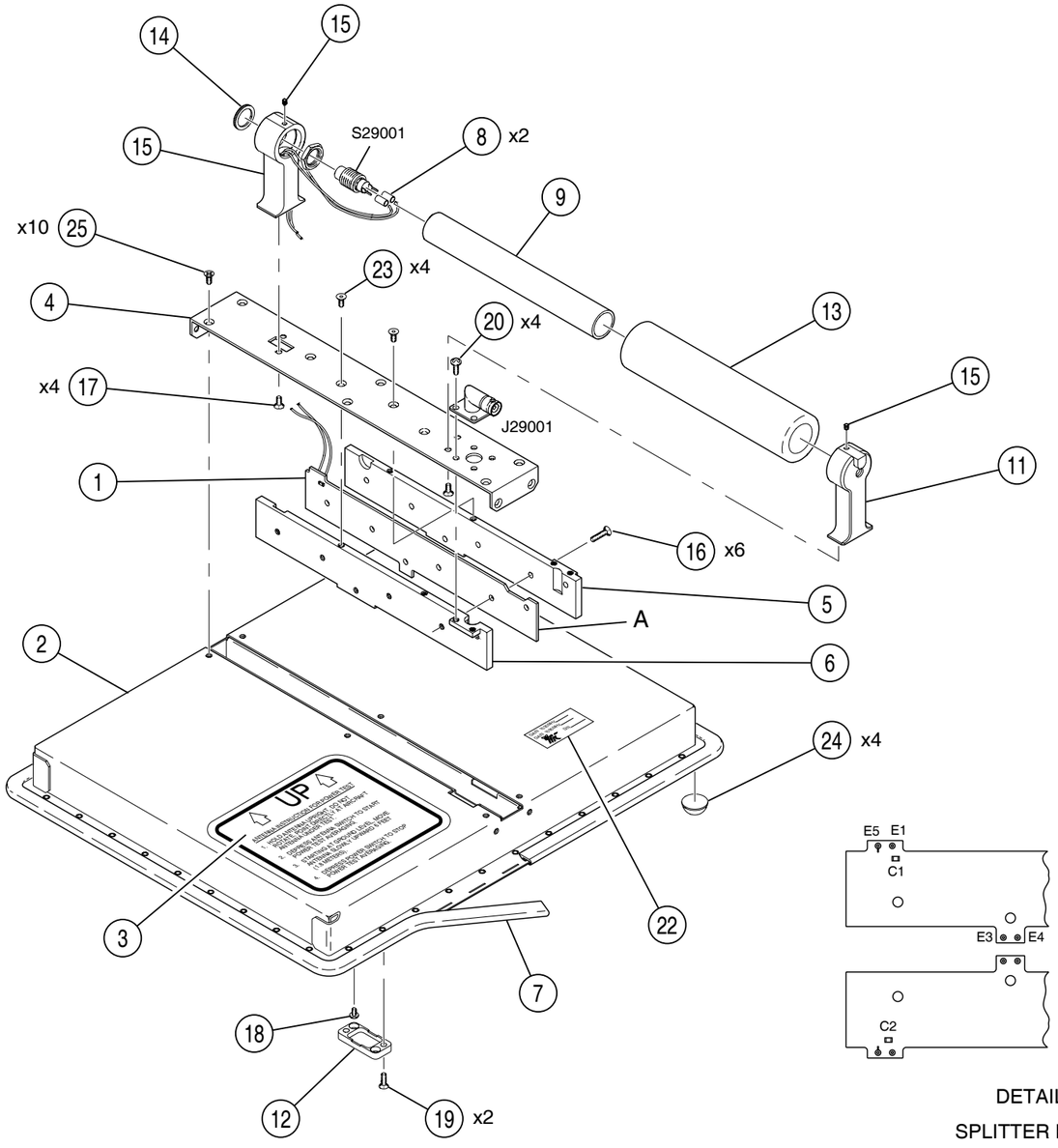
2. ALL RESISTORS ARE 1/8W, 1% TOLERANCE.
3. ALL RESISTANCE IS EXPRESSED IN OHMS.
4. ALL CAPACITANCE IS EXPRESSED IN MICROFARADS.
5. ALL INDUCTANCE IS EXPRESSED IN MICROHENRIES.

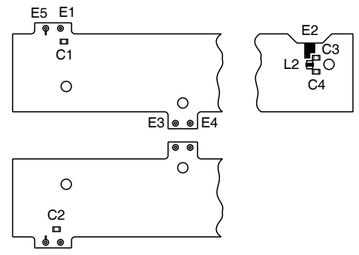
6 REV E AND ON ONLY.

8530102S

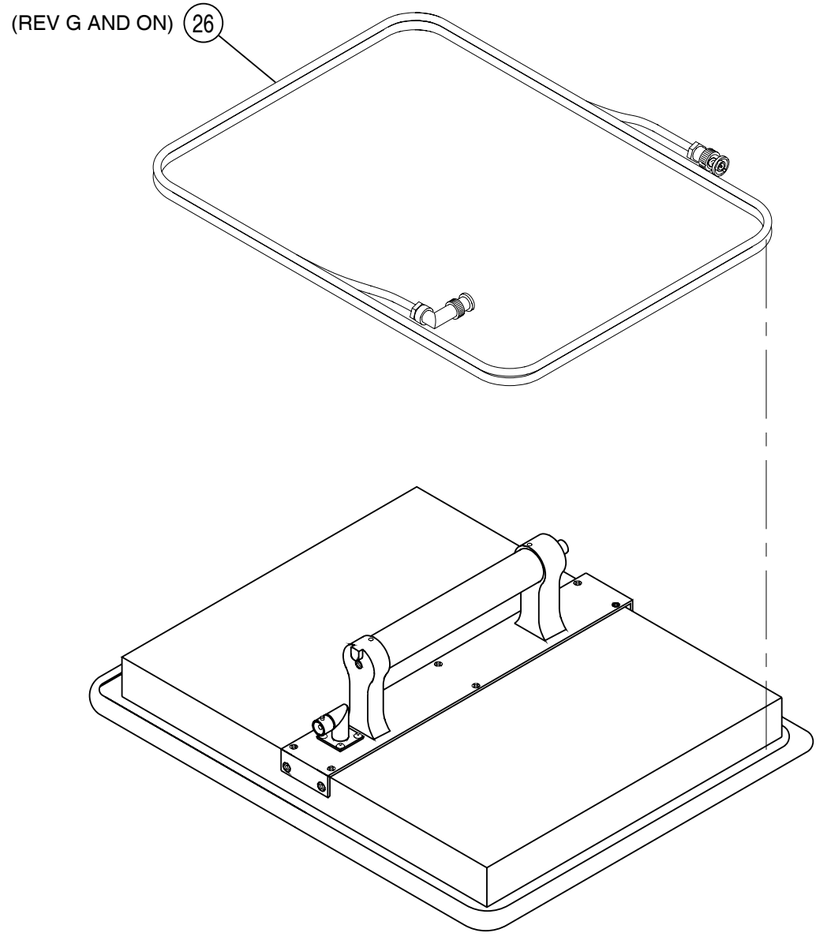
Figure 39 Digital IF PCB Assy (Sheet 4 of 4)
(Circuit Schematic - Sheet 2 of 2)

(0000-8130-100-E)





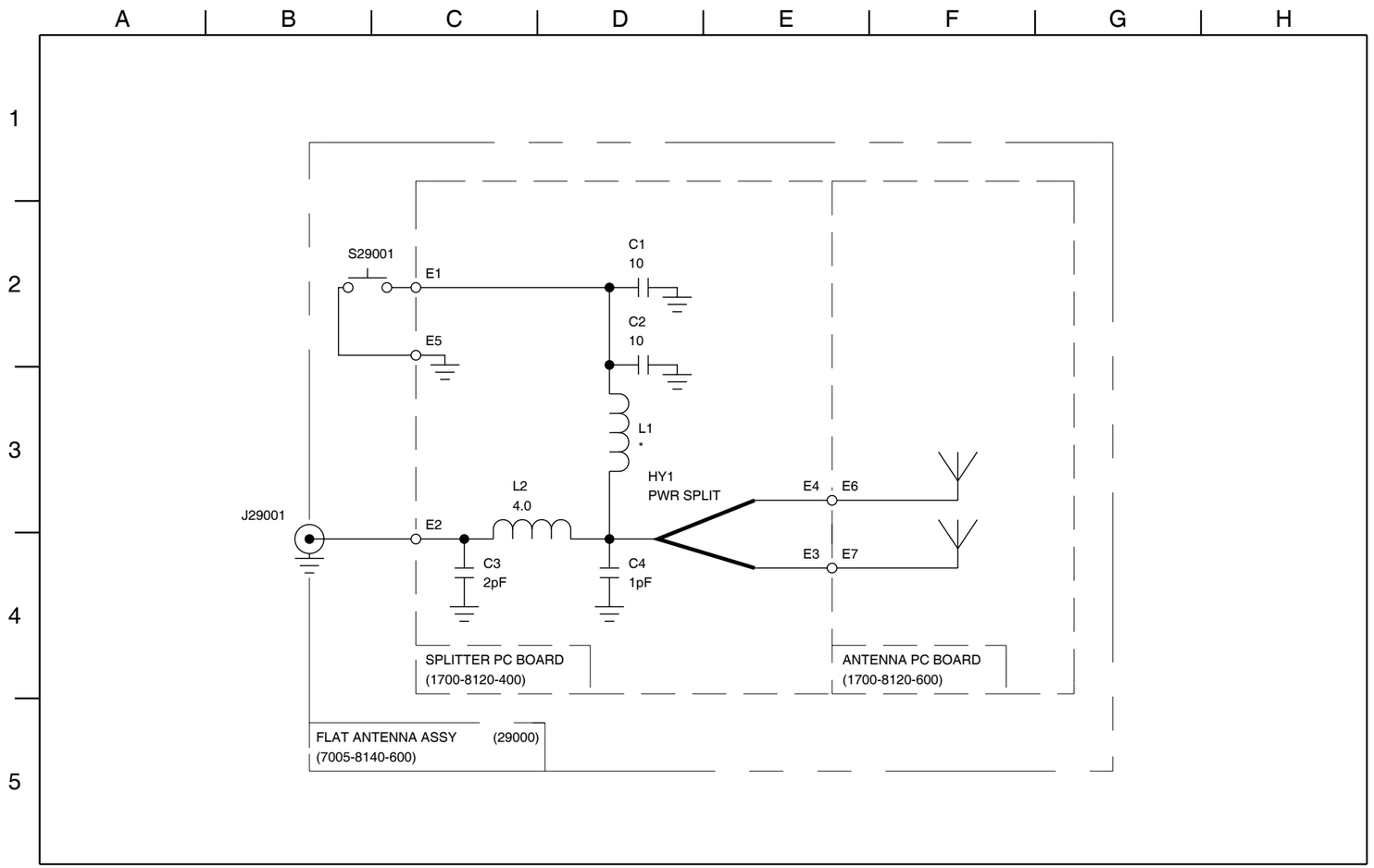
DETAIL A
SPLITTER PCB ASSY



8140600M

(7005-8140-600-H)

Figure 40 Flat Antenna Assy (Sheet 1 of 2)



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

NOTES:
(UNLESS OTHERWISE SPECIFIED)

1. ALL REFERENCE NUMBERS CARRY AN ASSIGNED DESIGNATOR SERIES. THIS ASSEMBLY CARRIES SERIES:

   7005-8140-600 29000 (e.g., C1 is C29001)

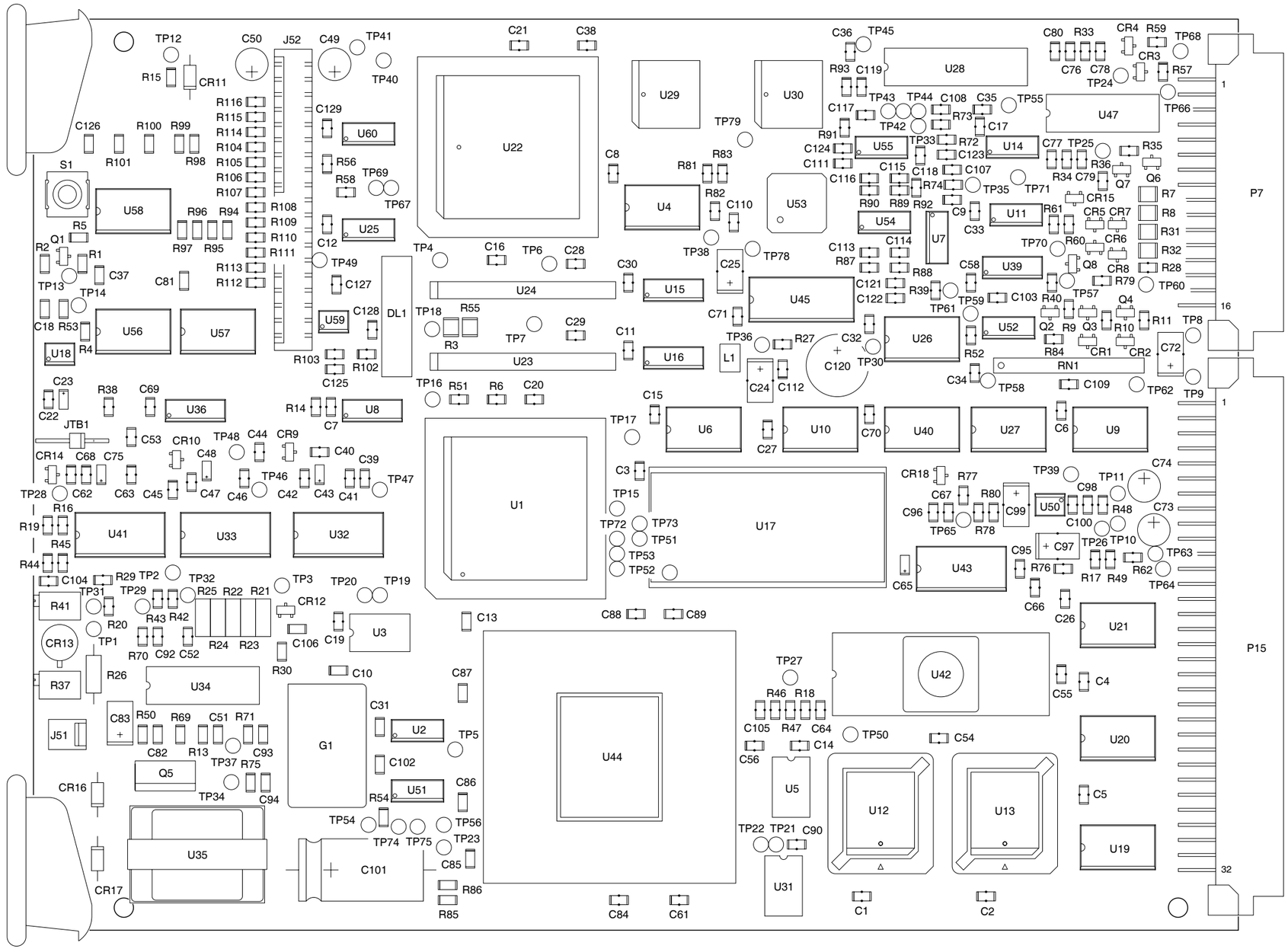
2. ALL CAPACITANCE IS EXPRESSED IN PICOFARADS.
3. ALL INDUCTANCE IS EXPRESSED IN NANOHENRIES.

* – INDICATES TRANSMISSION LINES OF OTHER THAN 50 OHMS IMPEDANCE WHICH CONSTITUTE CIRCUIT ELEMENTS.

8140600S

(0000-8140-600-D1)

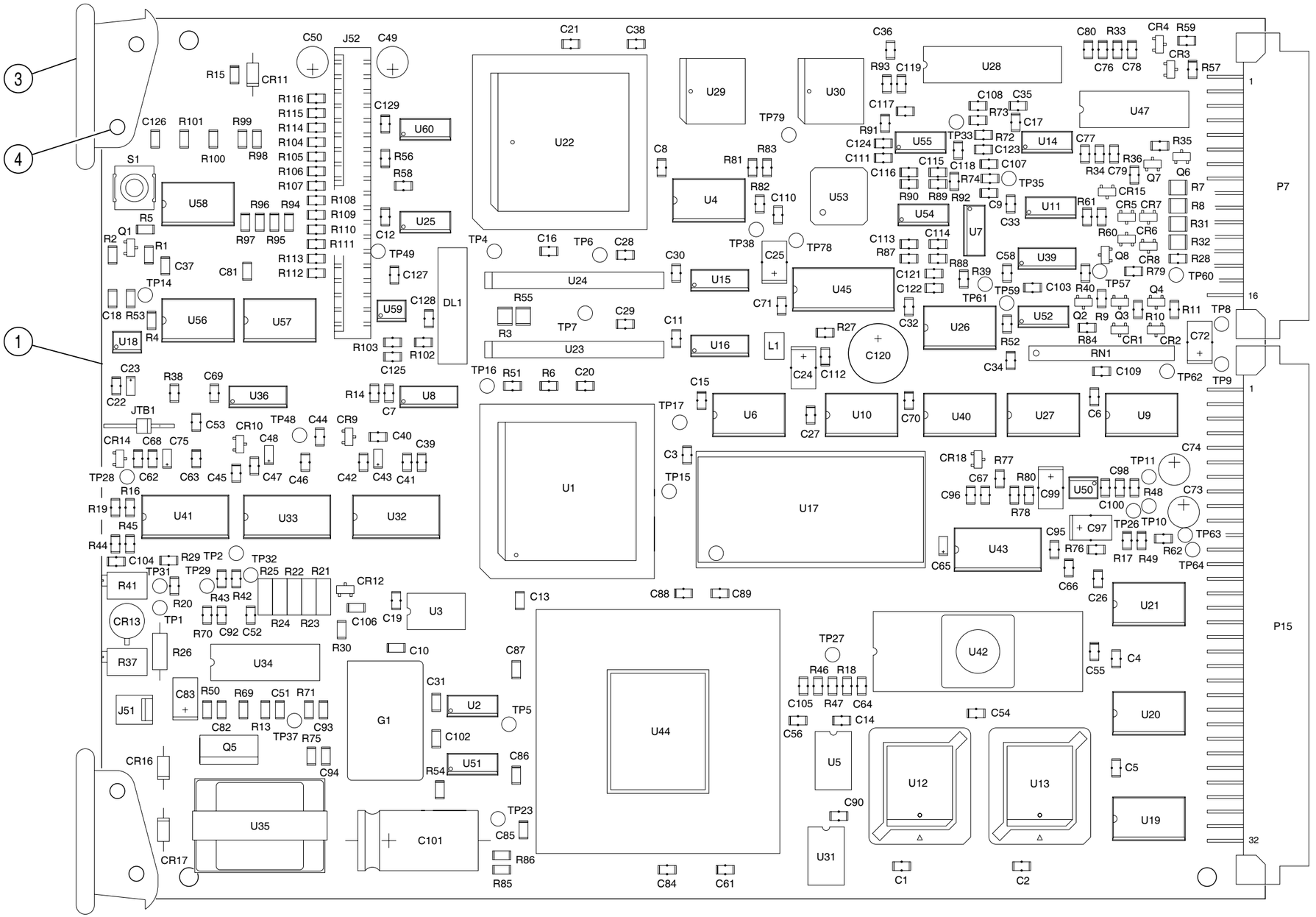
Figure 40 Flat Antenna Assy (Sheet 2 of 2)
(Circuit Schematic)



8130200P

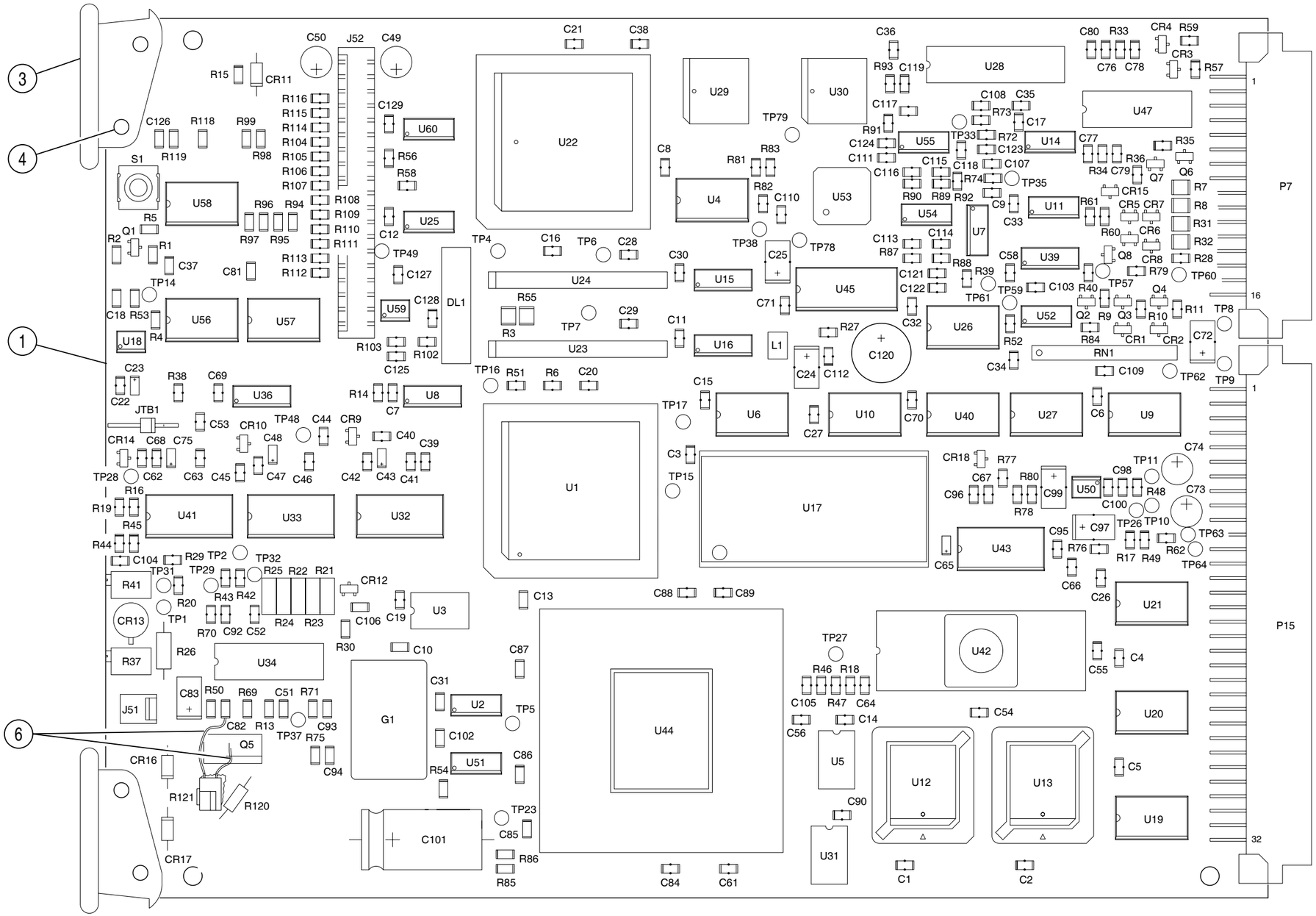
(7010-8134-100-B)

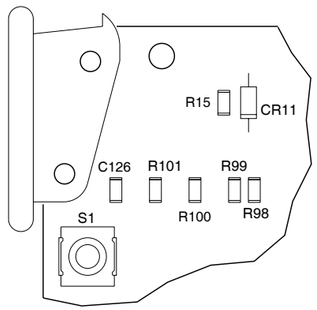
Figure 41 Front Panel Pulse PCB Assy (Sheet 1 of 11)



(7010-8134-100-C)

Figure 41 Front Panel Pulse PCB Assy (Sheet 2 of 11)



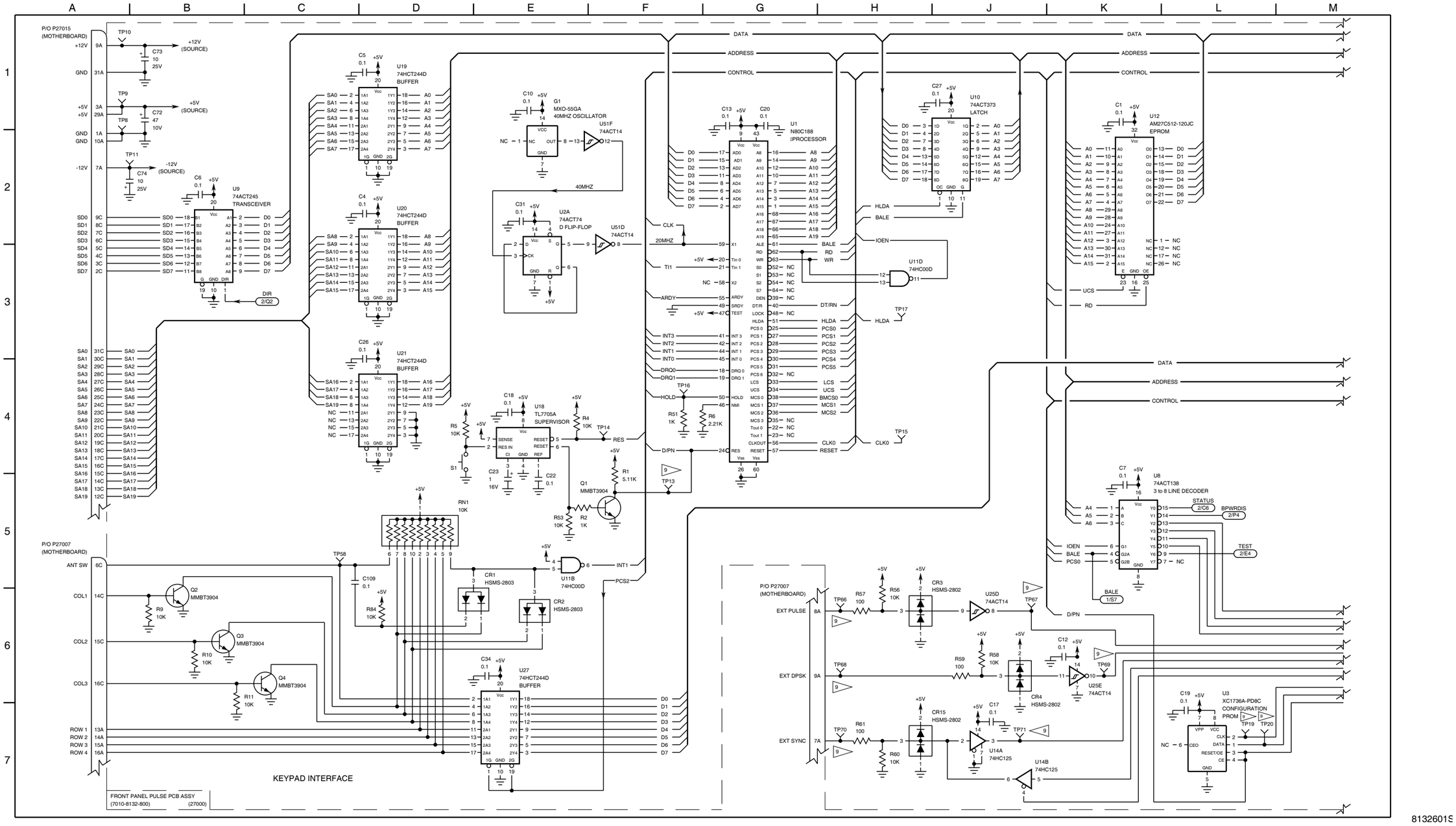


(REV A)

085M-11

(7010-8132-800-B)

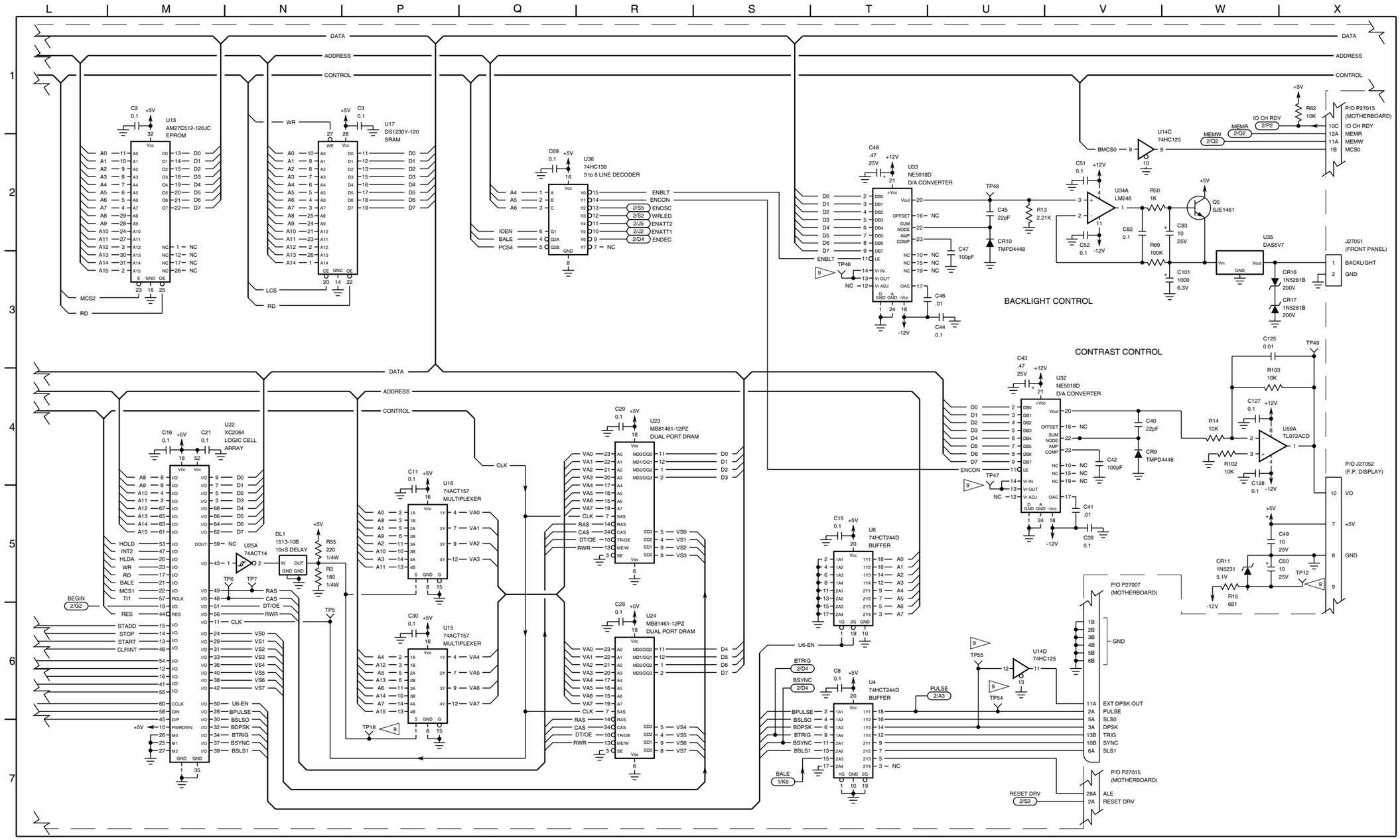
Figure 41 Front Panel Pulse PCB Assy (Sheet 3 of 11)



8132601S

Figure 41 Front Panel Pulse PCB Assy (Sheet 4 of 11)
(Circuit Schematic - Sheet 1 of 8

(0000-8134-100-C)

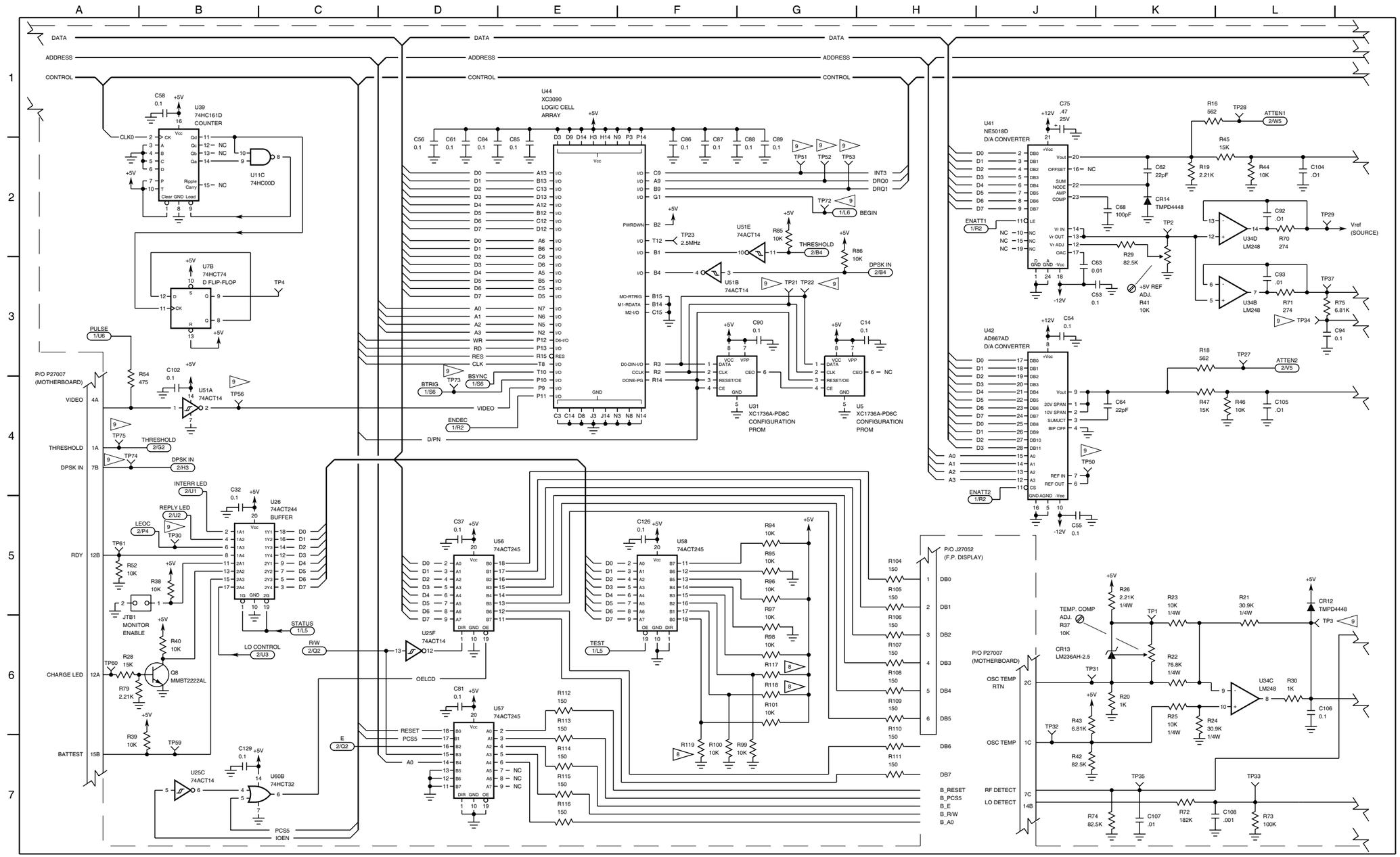


8132602S

Figure 41 Front Panel Pulse PCB Assy (Sheet 5 of 11)
(Circuit Schematic - Sheet 2 of 8

(0000-8134-100-C)

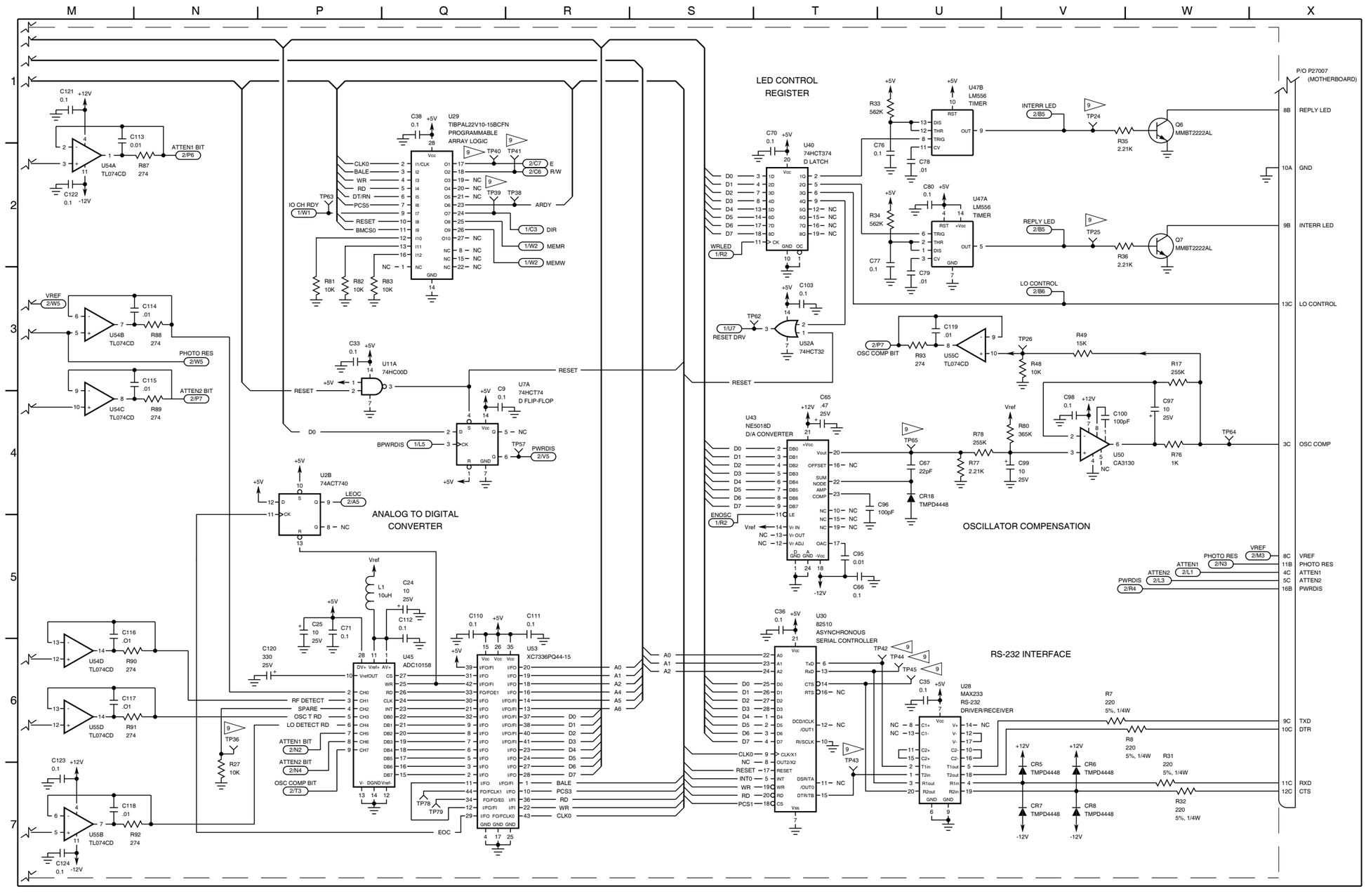
Back To Manuals



8132603S

Figure 41 Front Panel Pulse PCB Assy (Sheet 6 of 11)
(Circuit Schematic - Sheet 3 of 8

(0000-8134-100-C)



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

NOTES:
(UNLESS OTHERWISE SPECIFIED)

1. ALL REFERENCE NUMBERS CARRY AN ASSIGNED DESIGNATOR SERIES. THIS SCHEMATIC CARRIES SERIES:
   7010-8134-100 27000 (e.g., R1 IS R27001)
2. ALL RESISTORS ARE 1/8 W, 1% TOLERANCE.
3. ALL RESISTANCE IS EXPRESSED IN OHMS.
4. ALL CAPACITANCE IS EXPRESSED IN MICROFARADS.
5. ALL INDUCTANCE IS EXPRESSED IN MICROHENRIES.
6. NOT USED
7. NOT USED

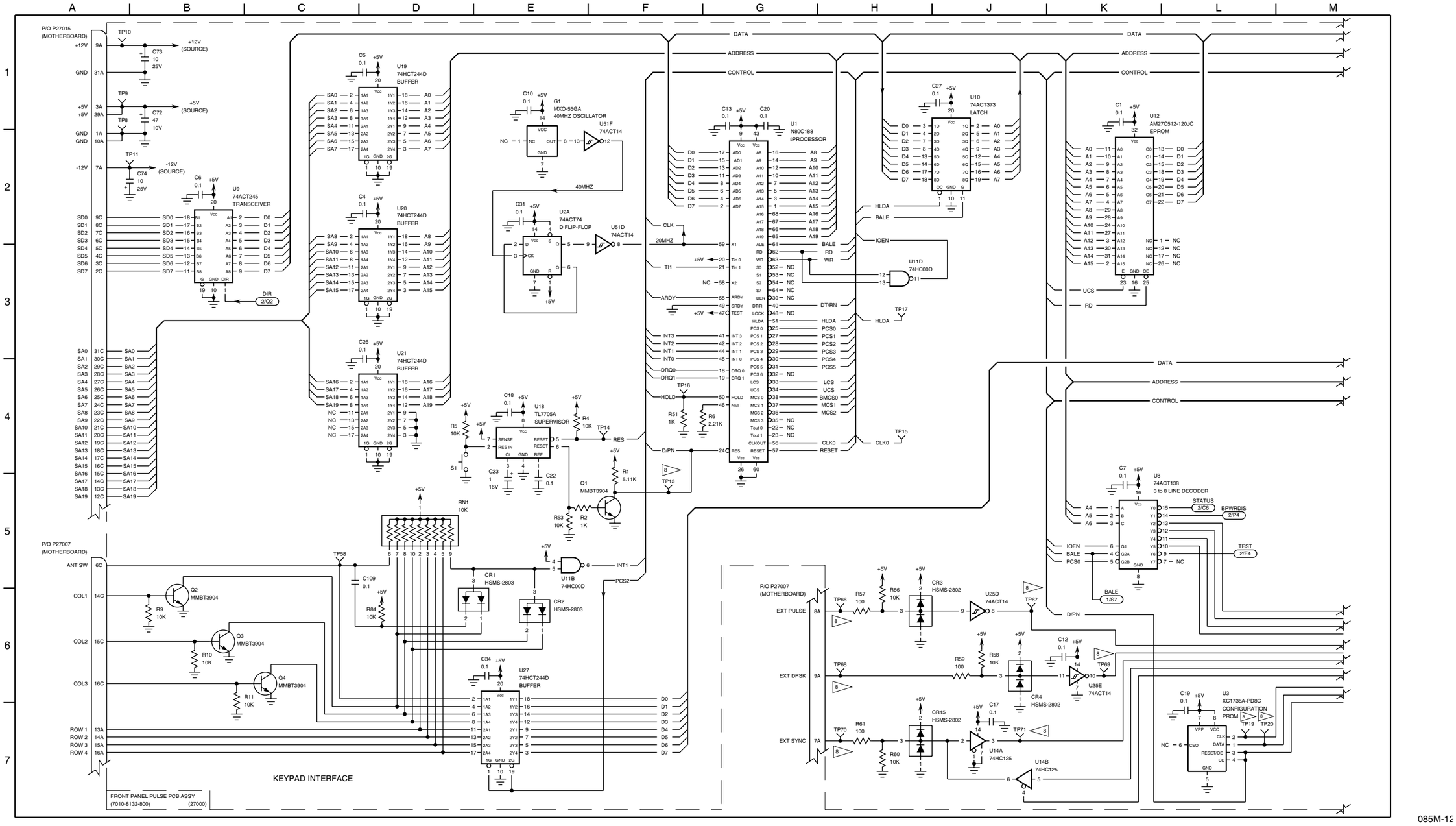
8 COMPONENTS NOT INSTALLED.

9 COMPONENTS NOT INSTALLED. (REV C AND ON)

8132604S

Figure 41 Front Panel Pulse PCB Assy (Sheet 7 of 11)
(Circuit Schematic - Sheet 4 of 8

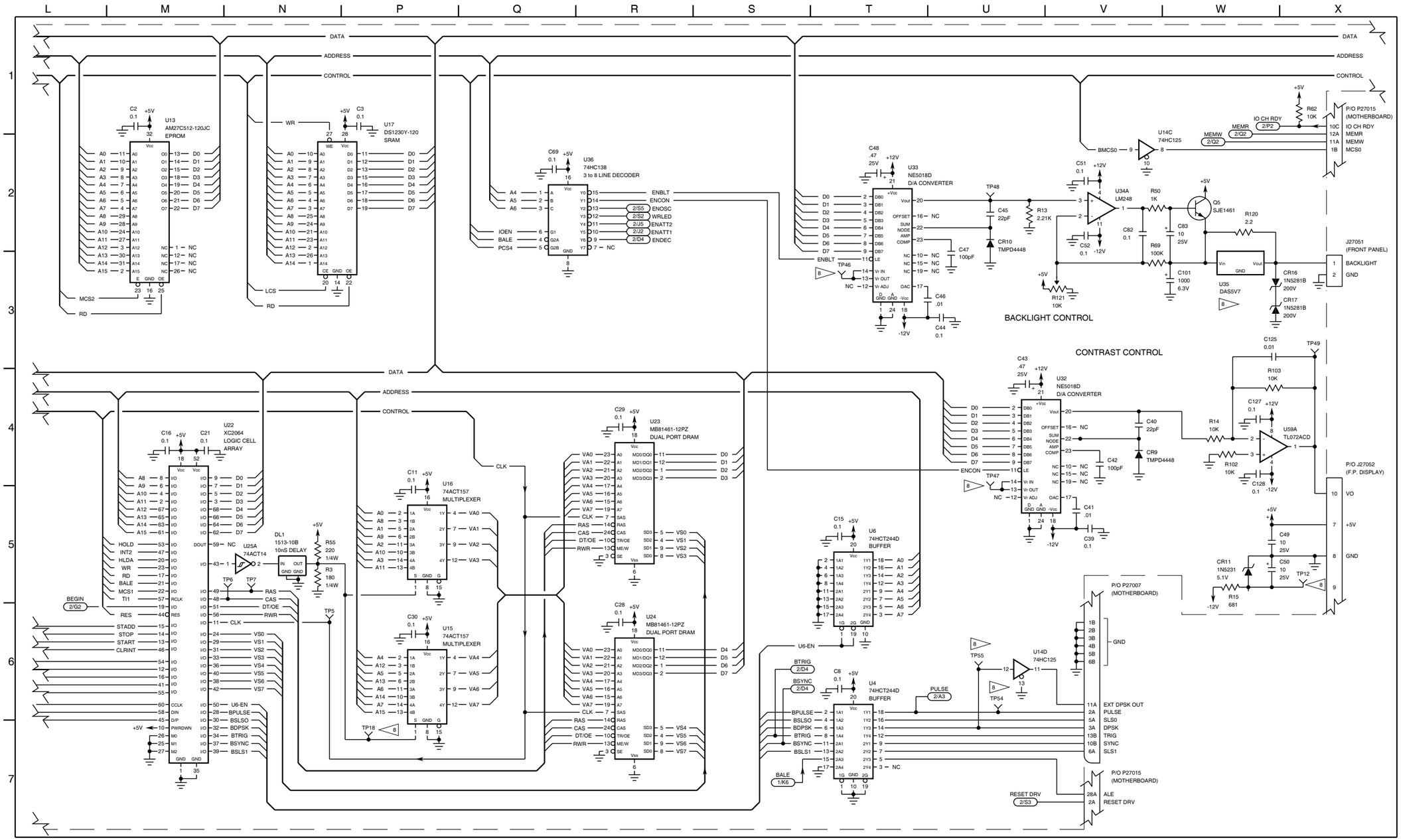
(0000-8134-100-C)



085M-12

Figure 41 Front Panel Pulse PCB Assy (Sheet 8 of 11)
(Circuit Schematic - Sheet 5 of 8

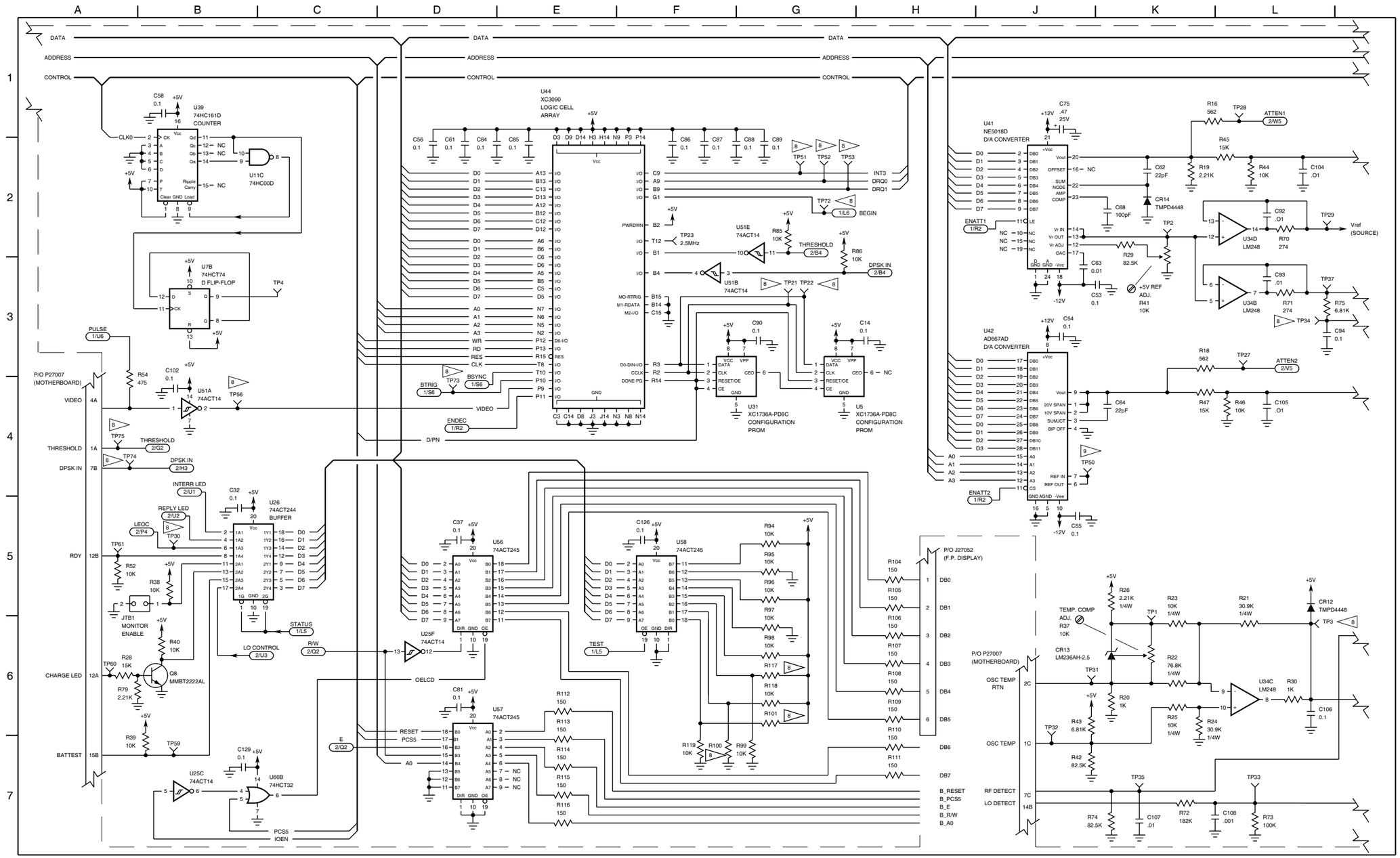
(0000-8134-100-C)



085M-13

Figure 41 Front Panel Pulse PCB Assy (Sheet 9 of 11)
(Circuit Schematic - Sheet 6 of 8

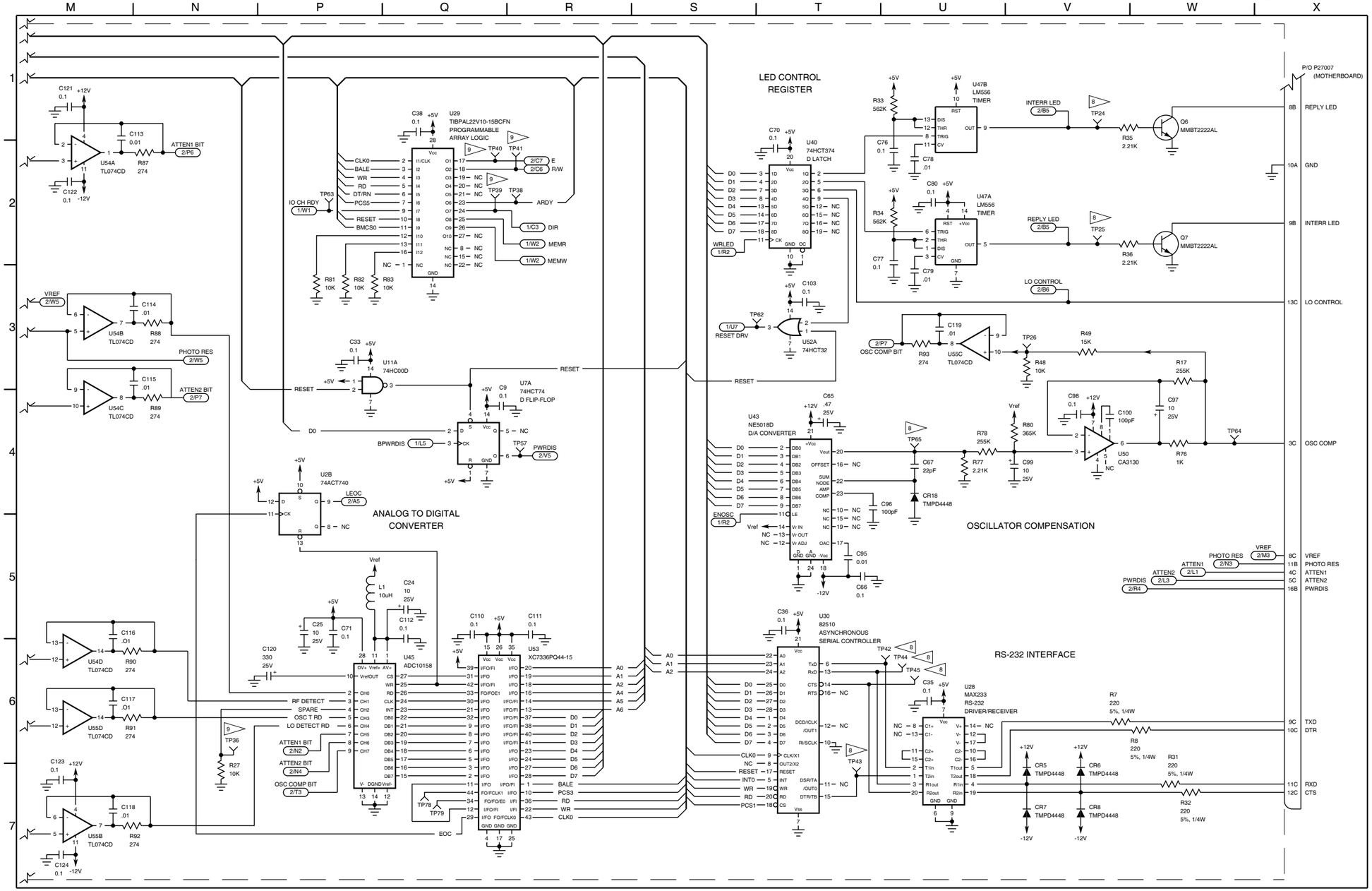
(0000-8134-100-C)



085M-14

(0000-8134-100-C)

Figure 41 Front Panel Pulse PCB Assy (Sheet 10 of 11)
(Circuit Schematic - Sheet 7 of 8

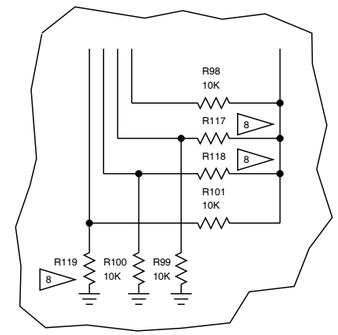


CAUTION:
CONTAINS PARTS AND ASSEMBLIES SUSCEPTIBLE TO DAMAGE BY ELECTROSTATIC DISCHARGE (ESD).

NOTES:
(UNLESS OTHERWISE SPECIFIED)

1. ALL REFERENCE NUMBERS CARRY AN ASSIGNED DESIGNATOR SERIES. THIS SCHEMATIC CARRIES SERIES:
   7010-8132-800 27000 (e.g., R1 IS R27001)
2. ALL RESISTORS ARE 1/8 W, 1% TOLERANCE.
3. ALL RESISTANCE IS EXPRESSED IN OHMS.
4. ALL CAPACITANCE IS EXPRESSED IN MICROFARADS.
5. ALL INDUCTANCE IS EXPRESSED IN MICROHENRIES.
6. NOT USED
7. NOT USED

8 COMPONENTS NOT INSTALLED.

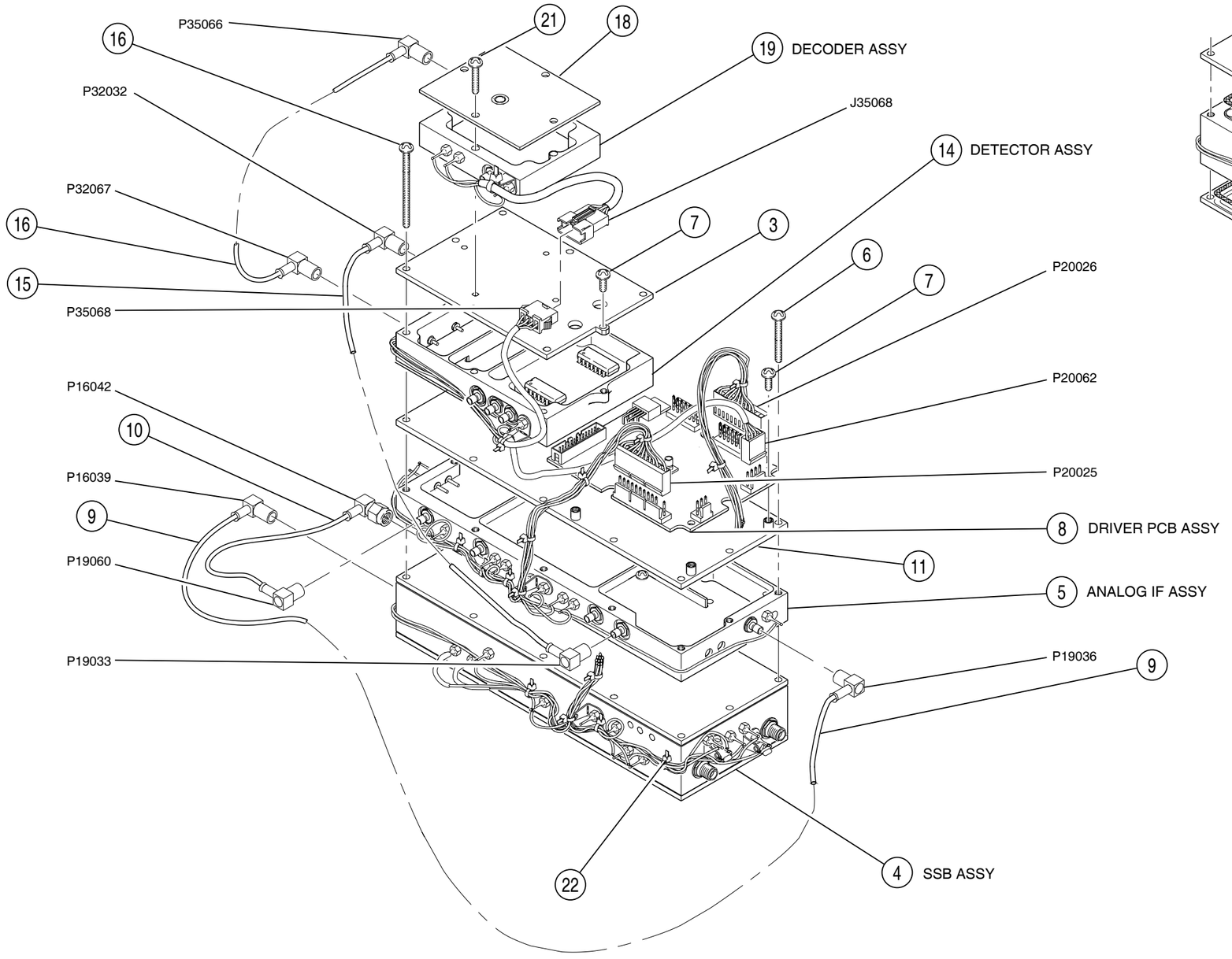


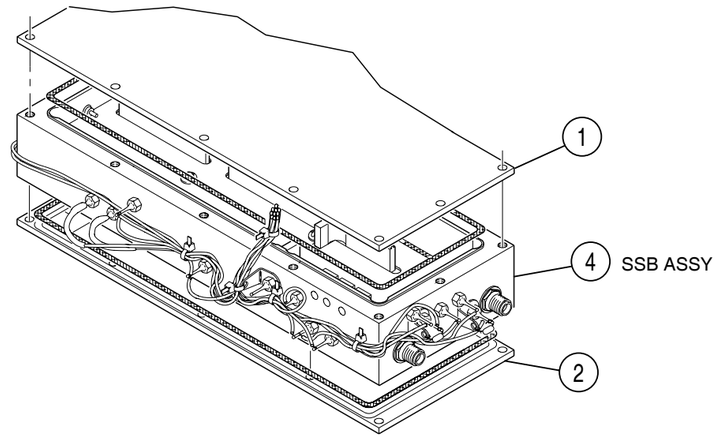
(REV A)

085M-15

(0000-8134-100-C)

Figure 41 Front Panel Pulse PCB Assy (Sheet 11 of 11)
(Circuit Schematic - Sheet 8 of 8



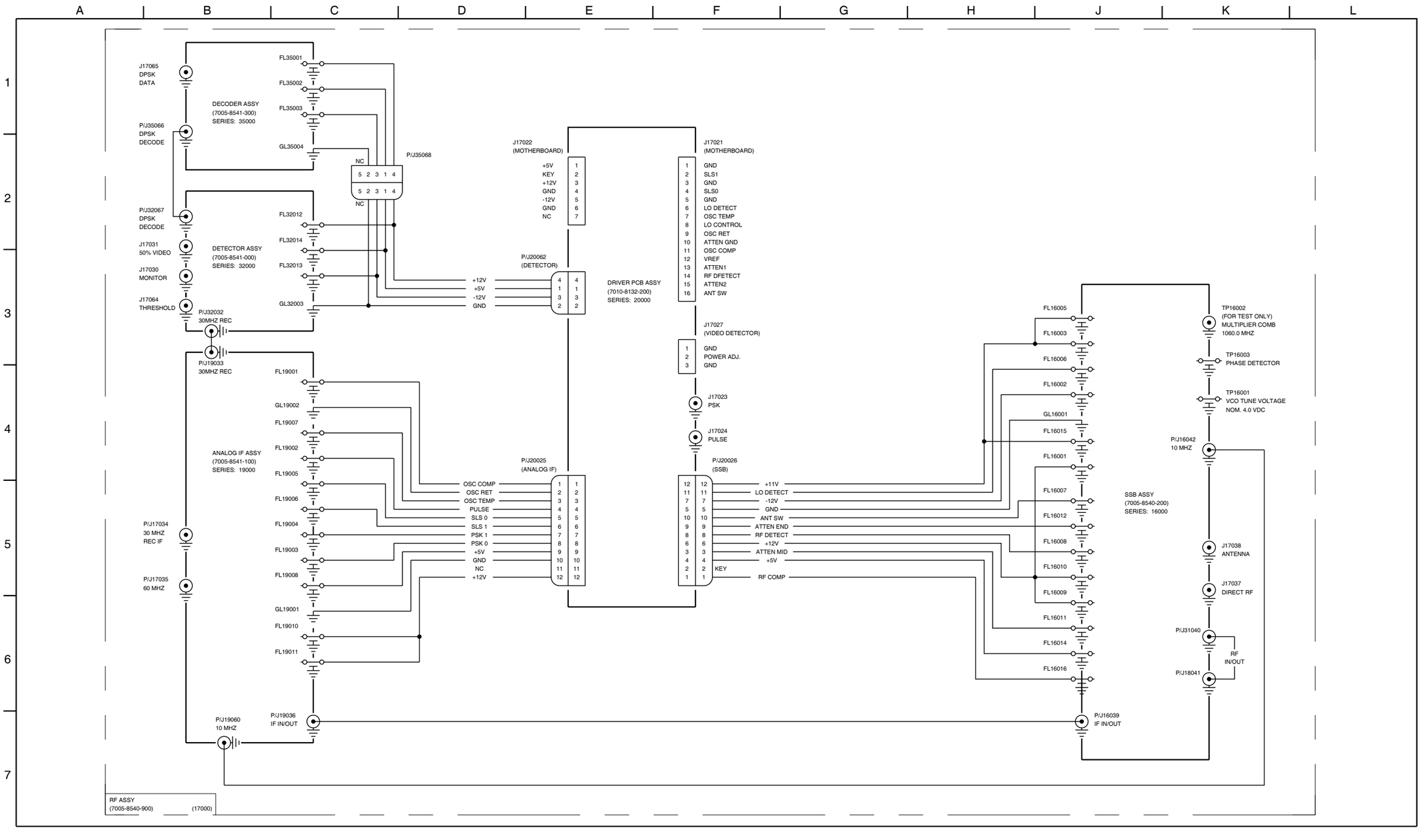


(REV A)

8545500M

(7005-8545-500-B)

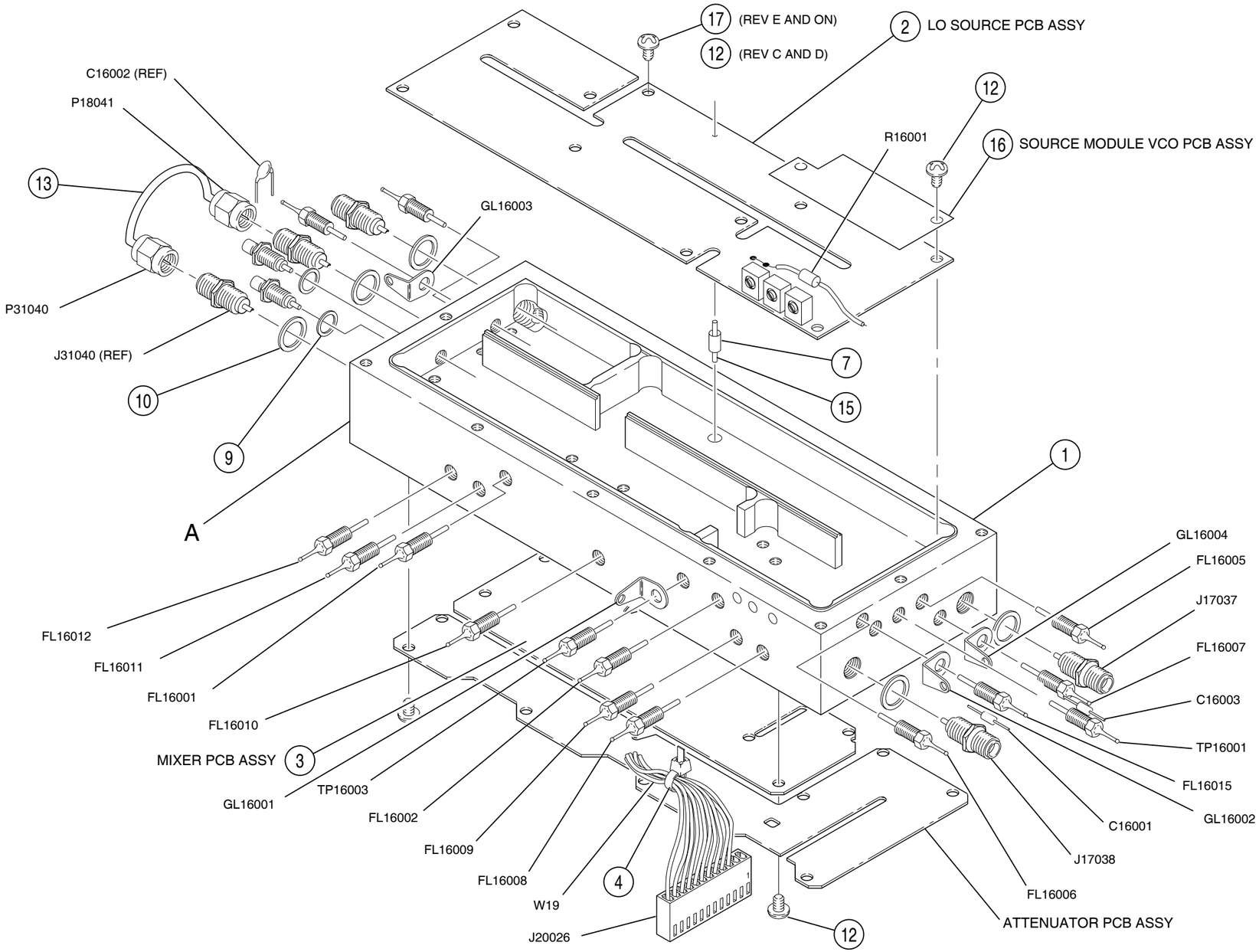
Figure 42 RF Assy (Sheet 1 of 23)

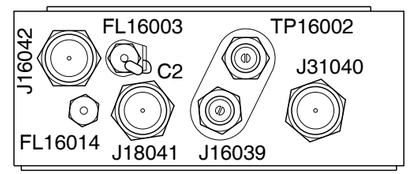


8540900I

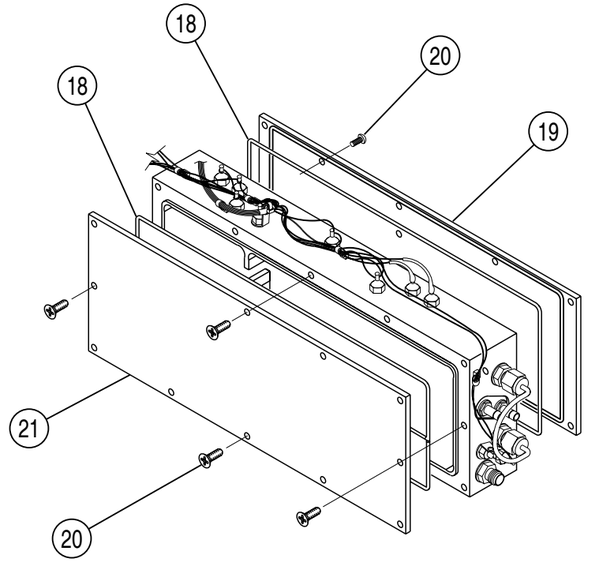
Figure 42 RF Assy (Sheet 2 of 23)
(Interconnect Diagram)

(0000-8540-900-A)





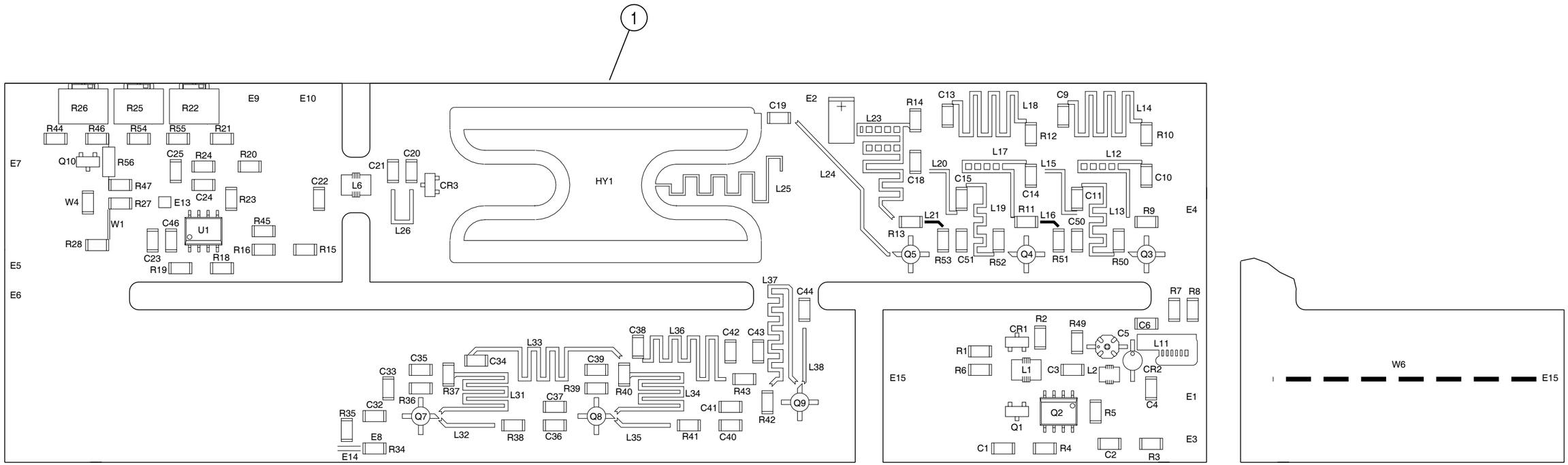
DETAIL A



8540200M

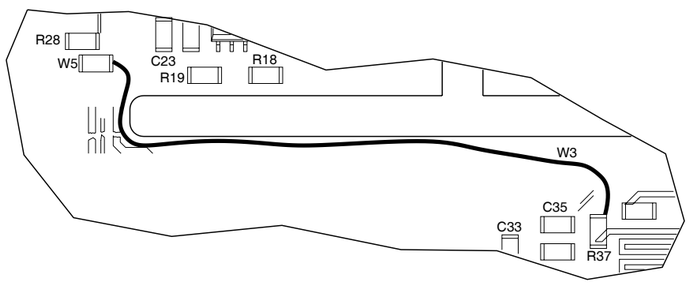
(7005-8540-200-F2)

Figure 42 RF Assy (Sheet 3 of 23)
(SSB Assy - Sheet 1 of 9)

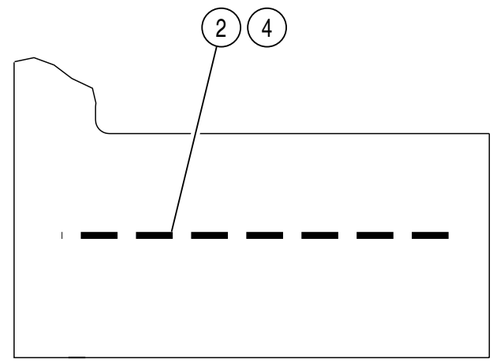


TOP VIEW

BOTTOM VIEW



(REV C1 AND C2 ONLY)

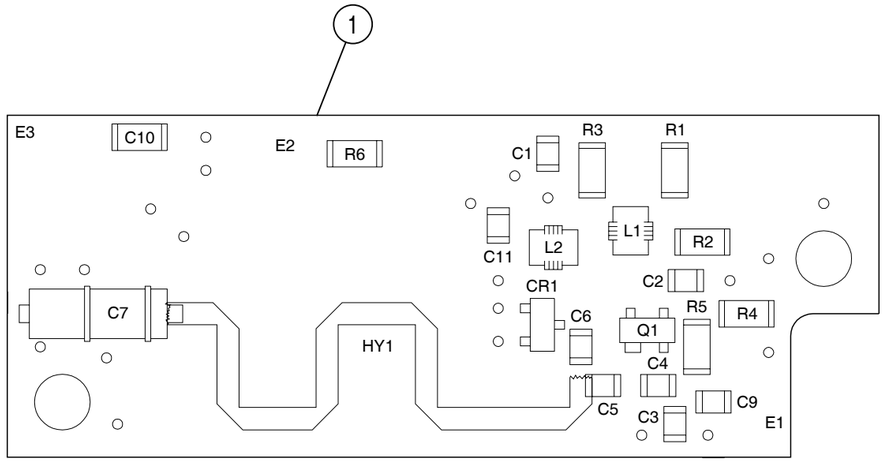


(REV C1 ONLY)

8132300P

Figure 42 RF Assy (Sheet 4 of 23)
(SSB Assy - Sheet 2 of 9)
(LO Source PCB Assy)

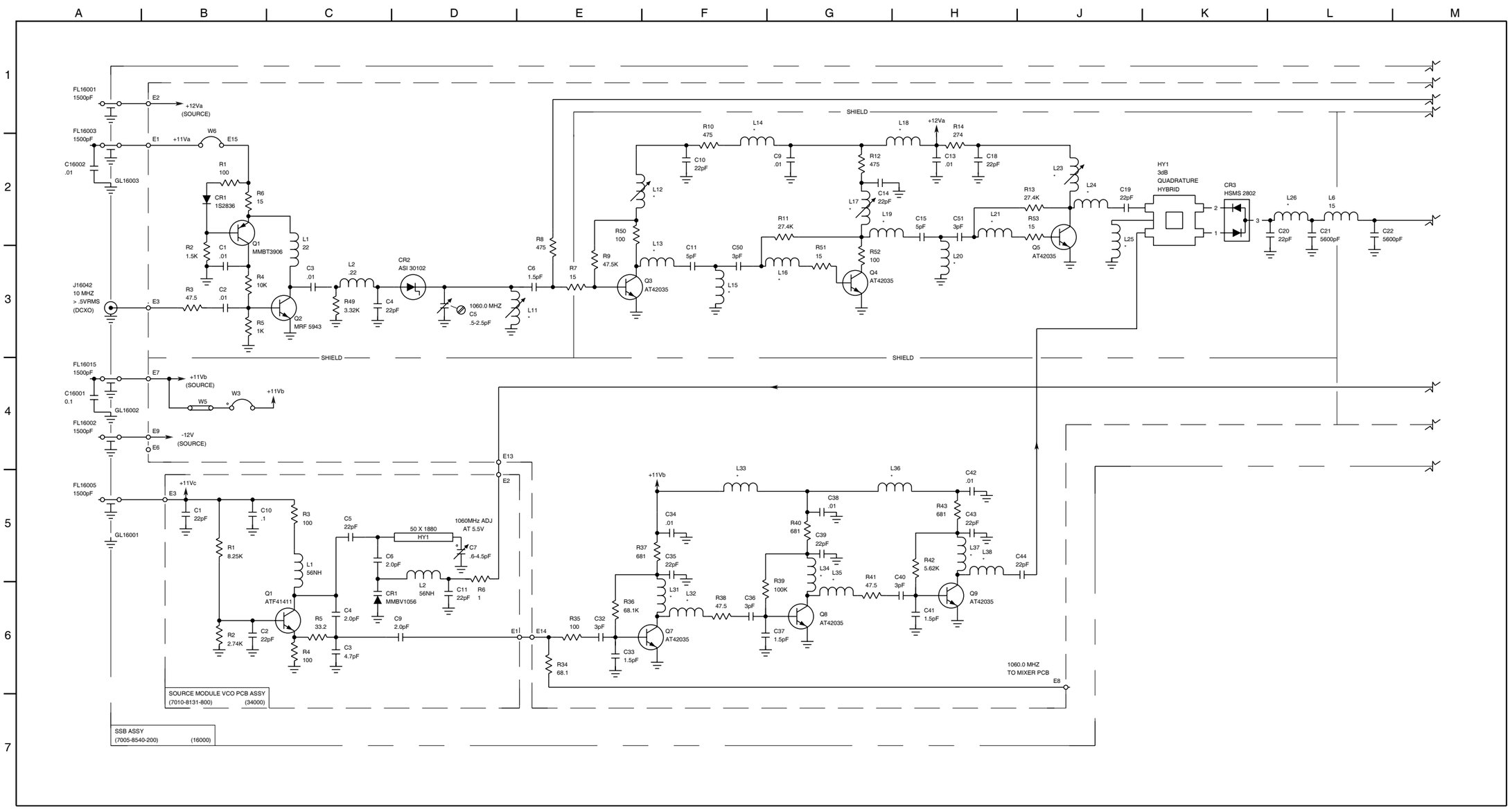
(7010-8132-300-E)



(7010-8131-800-E)

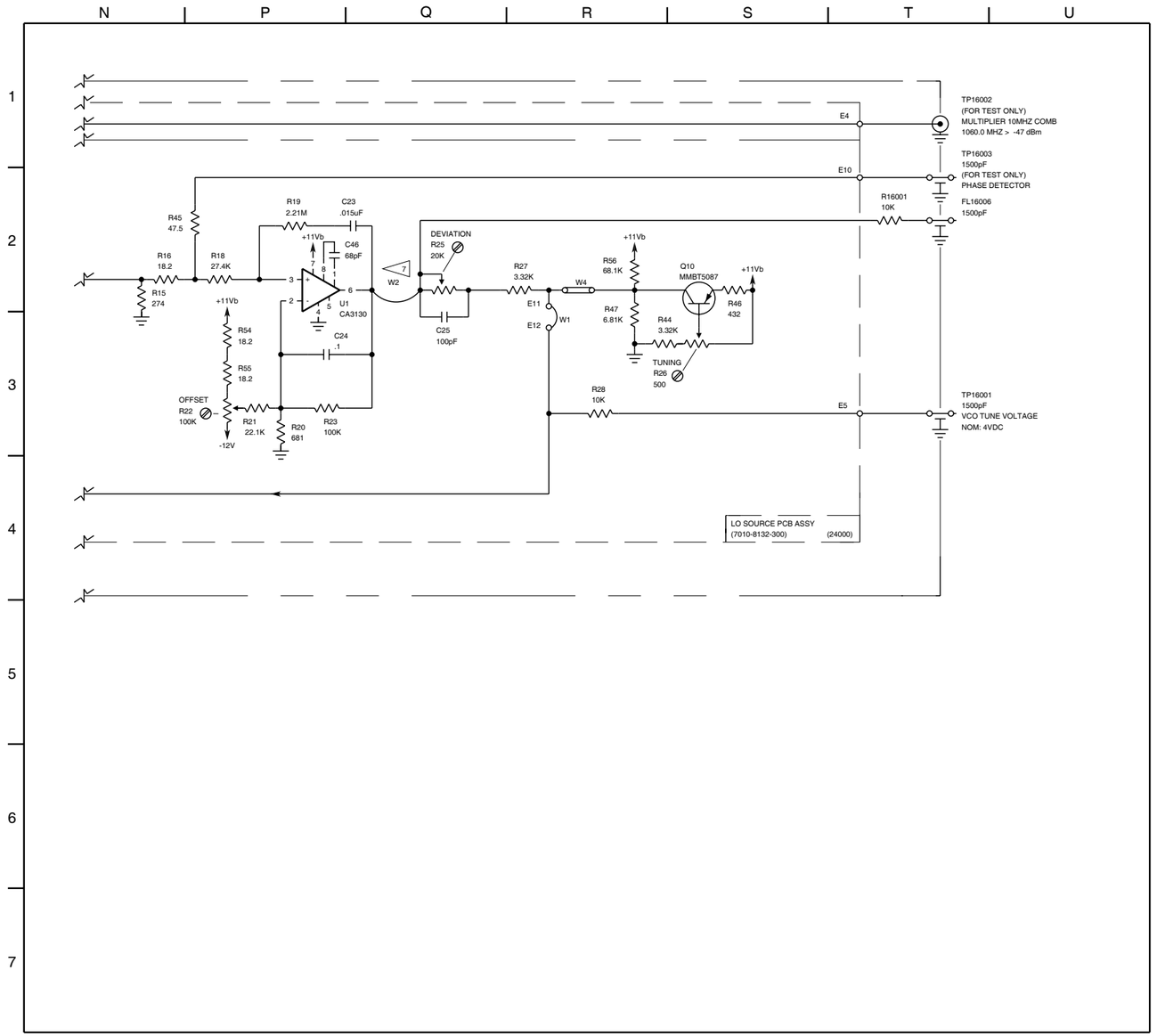
8533000P

Figure 42 RF Assy (Sheet 5 of 23)
(SSB Assy - Sheet 3 of 9)
(Source Module VCO PCB Assy)



8132301S

Figure 42 RF Assy (Sheet 6 of 23)
(SSB Assy - Sheet 4 of 9)
(Circuit Schematic - Sheet 1 of 2)



(0000-8132-300-C)

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

NOTES:
(UNLESS OTHERWISE SPECIFIED)

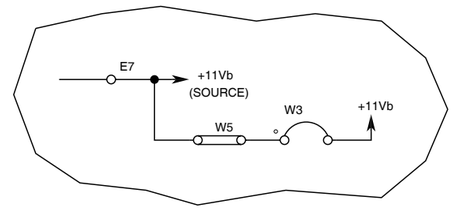
1. ALL REFERENCE NUMBERS CARRY AN ASSIGNED DESIGNATOR SERIES. THIS SCHEMATIC CARRIES SERIES:

7005-8540-200	16000 (e.g., R1 IS R16001)
7010-8132-300	24000 (e.g., R1 IS R24001)
7010-8131-800	34000 (e.g., R1 IS R34001)

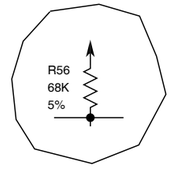
2. ALL RESISTORS ARE 1/8 W, 1% TOLERANCE.
3. ALL RESISTANCE IS EXPRESSED IN OHMS.
4. ALL CAPACITANCE IS EXPRESSED IN MICROFARADS.
5. ALL INDUCTANCE IS EXPRESSED IN MICROHENRIES.
6. NOT USED

7 W2 IS THE LEAD OF R16001.

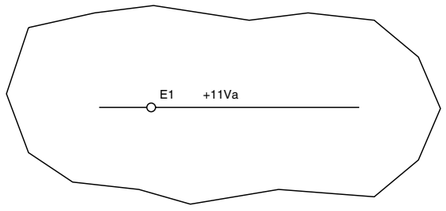
* - INDICATES PRINTED TRANSMISSION LINES OF OTHER THAN 50 OHMS IMPEDANCE WHICH CONSTITUTE CIRCUIT ELEMENTS. 50 OHM TRANSMISSION LINES ARE NOT SHOWN.



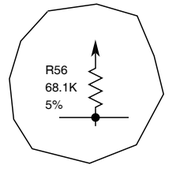
(REV A)



(REV A)



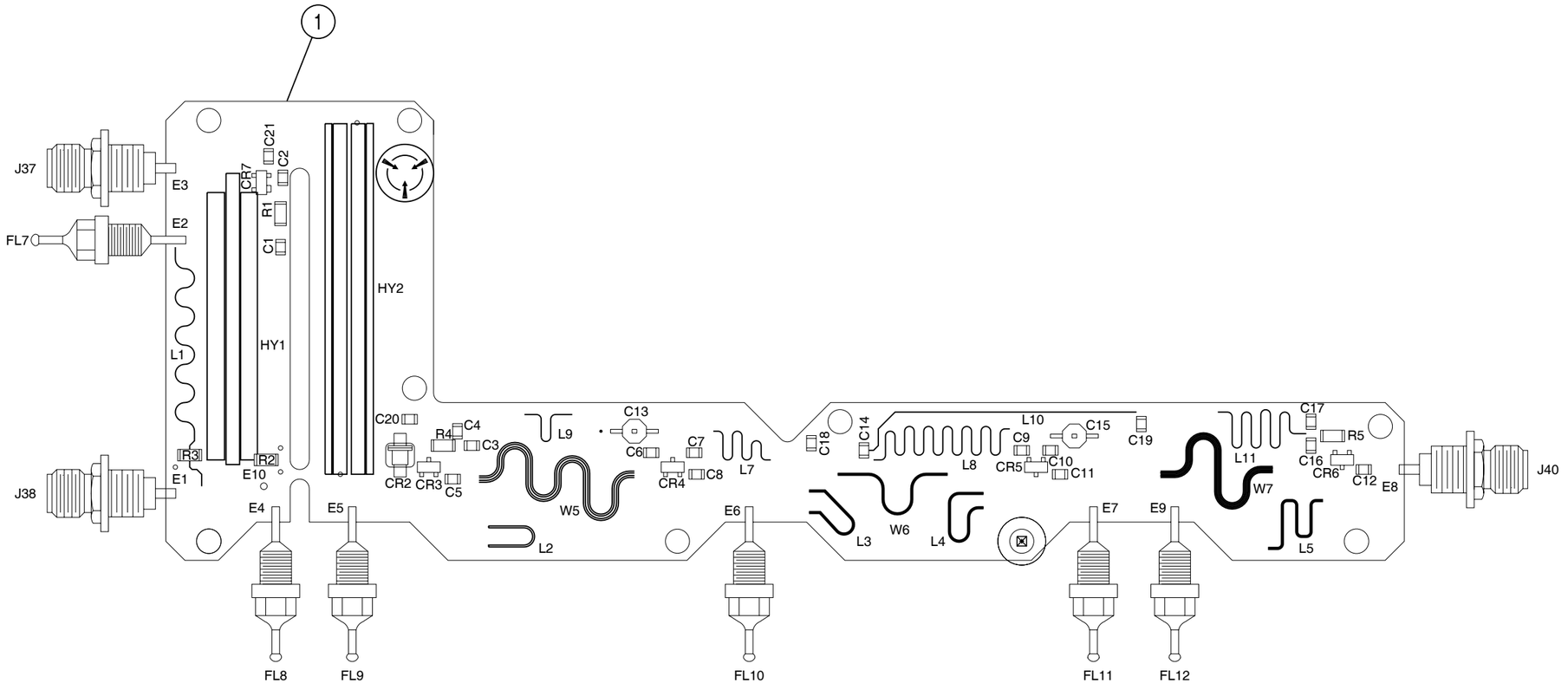
(REV A)



(REV B)

8132302S

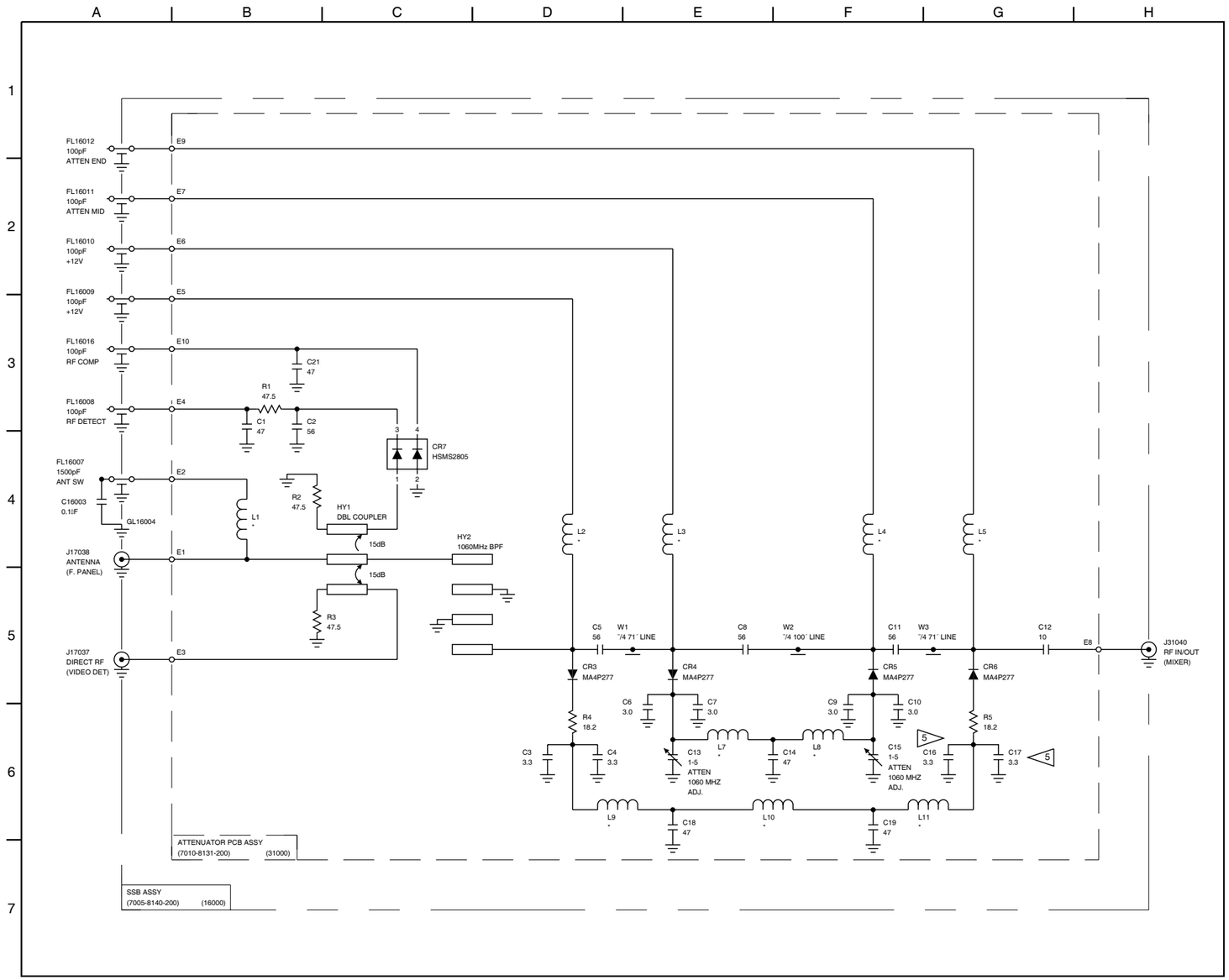
Figure 42 RF Assy (Sheet 7 of 23)
(SSB Assy - Sheet 5 of 9)
(Circuit Schematic - Sheet 2 of 2)



8131200P

Figure 42 RF Assy (Sheet 8 of 23)
(SSB Assy - Sheet 6 of 9)
(Attenuator PCB Assy - Sheet 1 of 2)

(7010-8131-200-A)



(0000-8131-200-C)

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

NOTES:
(UNLESS OTHERWISE SPECIFIED)

1. ALL REFERENCE NUMBERS CARRY AN ASSIGNED DESIGNATOR SERIES. THIS SCHEMATIC CARRIES SERIES:

   7005-8540-200 16000 (e.g., C1 IS C16001)
   7010-8131-200 31000 (e.g., R1 IS R31001)

2. ALL RESISTORS ARE 1/8 W, 1% TOLERANCE.
3. ALL RESISTANCE IS EXPRESSED IN OHMS.
4. ALL CAPACITANCE IS EXPRESSED IN PICOFARADS.
5. C16 AND C17 ARE SELECT AT TEST (SAT). VALUES ARE: 3pF, 3.3pF, 3.9pF

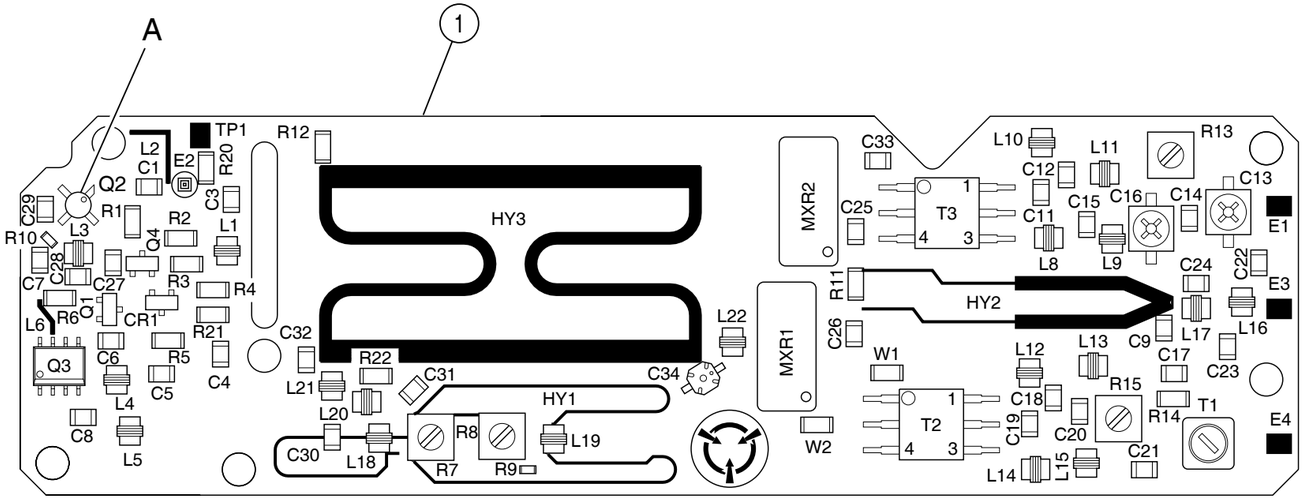
* - INDICATES PRINTED TRANSMISSION LINES OF OTHER THAN 50 OHMS IMPEDANCE WHICH CONSTITUTE CIRCUIT ELEMENTS. 50 OHM TRANSMISSION LINES ARE NOT SHOWN.

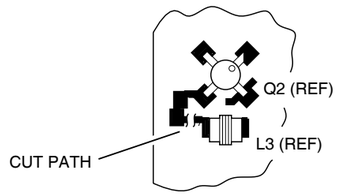
5 C16 AND C17 ARE SELECT AT TEST (SAT). VALUES ARE: 3pF, 3.3pF

(REV A AND B ONLY)

8131200S

Figure 42 RF Assy (Sheet 9 of 23)
(SSB Assy - Sheet 7 of 9)
(Attenuator PCB Assy - Sheet 2 of 2)
(Circuit Schematic)



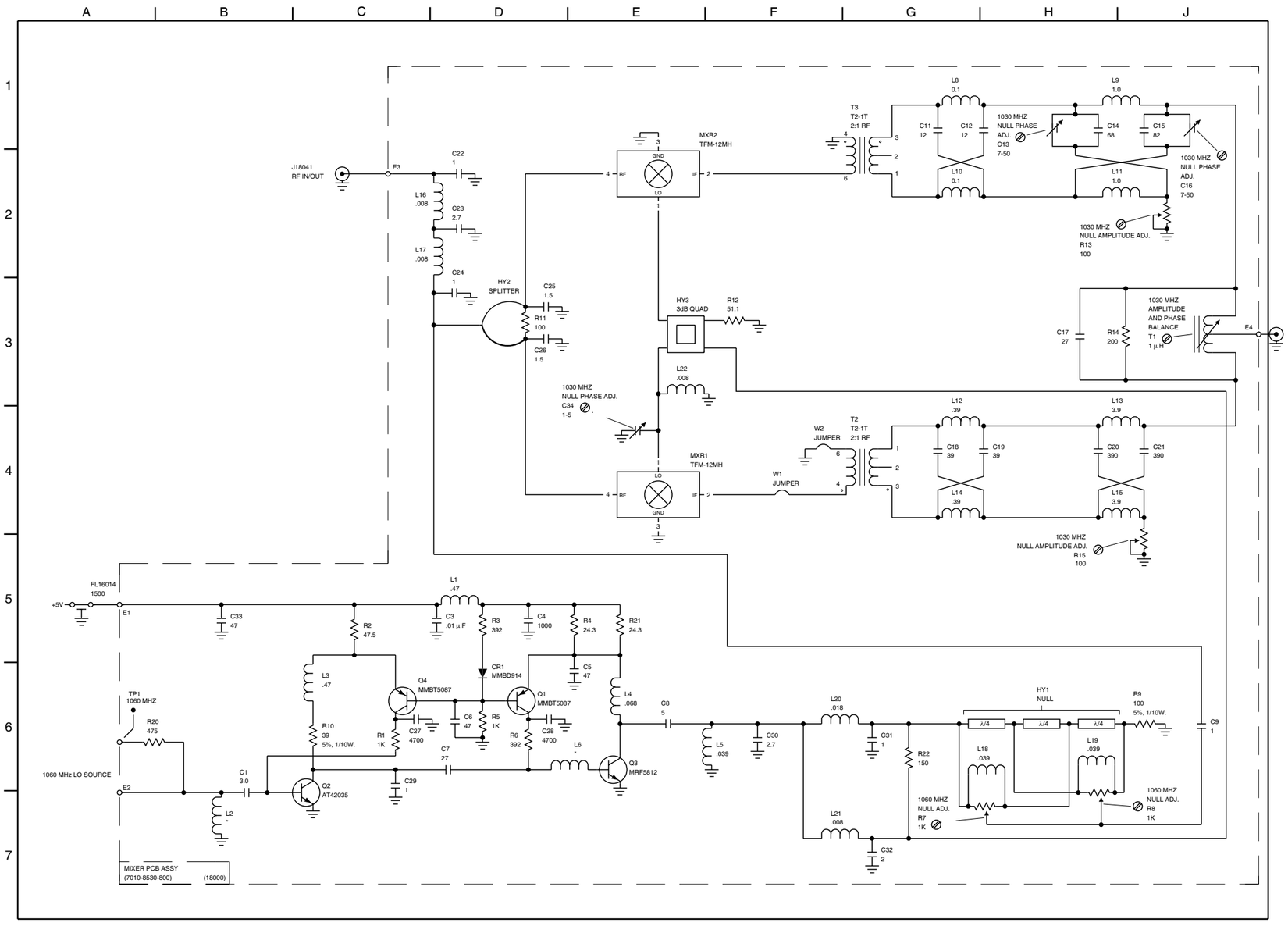


DETAIL A

8530800P

Figure 42 RF Assy (Sheet 10 of 23)
(SSB Assy - Sheet 8 of 9)
(Mixer PCB Assy - Sheet 1 of 2)

(7010-8530-800-D1)



(0000-8530-800-D)

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

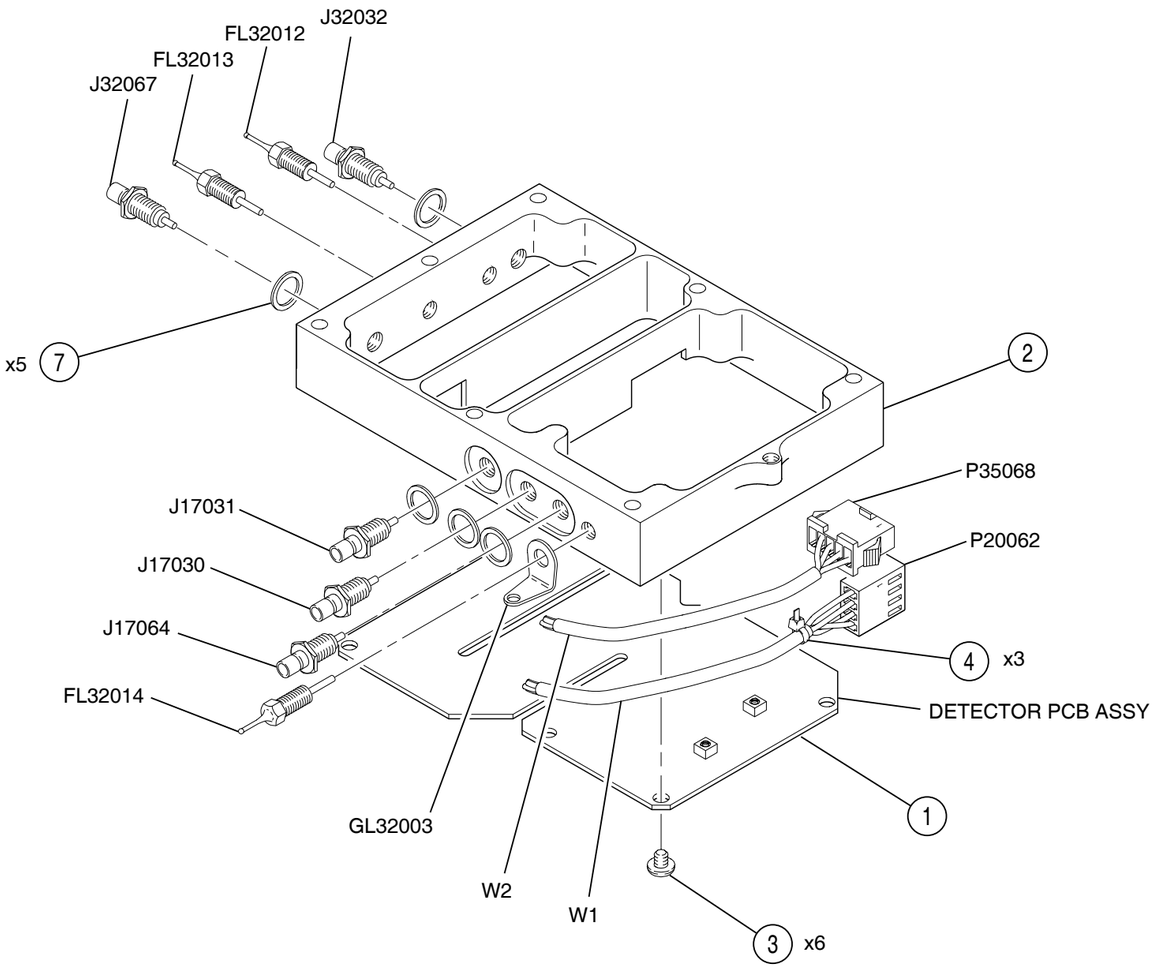
NOTES:
(UNLESS OTHERWISE SPECIFIED)

1. ALL REFERENCE NUMBERS CARRY AN ASSIGNED DESIGNATOR SERIES. THIS SCHEMATIC CARRIES SERIES:
   7005-8540-200 16000 (e.g., C1 IS C16001)
   7010-8530-800 18000 (e.g., R1 IS R18001)
2. ALL RESISTORS ARE 1/8 W, 1% TOLERANCE.
3. ALL RESISTANCE IS EXPRESSED IN OHMS.
4. ALL CAPACITANCE IS EXPRESSED IN PICOFARADS.
5. ALL INDUCTANCE IS EXPRESSED IN MICROHENRIES.

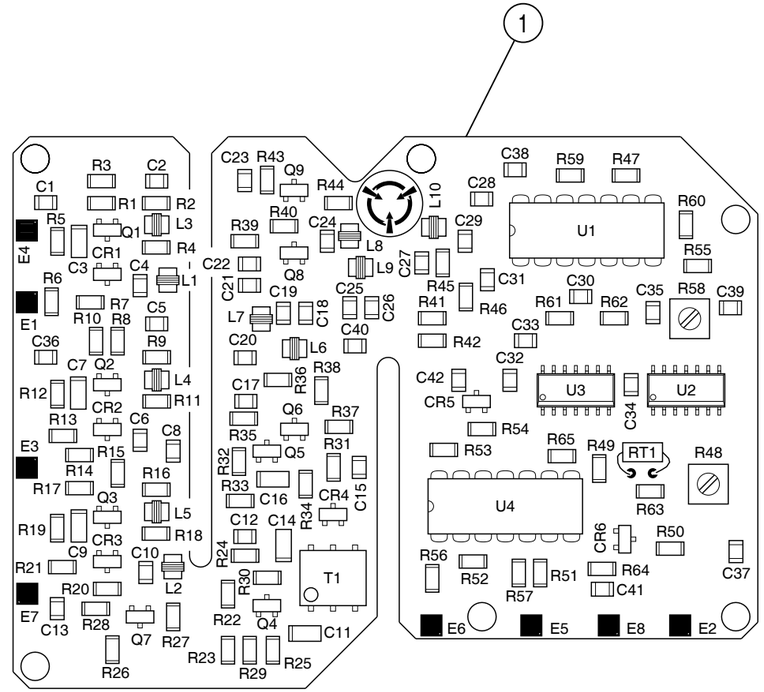
* - INDICATES PRINTED TRANSMISSION LINES OF OTHER THAN 50 OHMS IMPEDANCE WHICH CONSTITUTE CIRCUIT ELEMENTS.

8530800S

Figure 42 RF Assy (Sheet 11 of 23)
(SSB Assy - Sheet 9 of 9)
(Mixer PCB Assy - Sheet 2 of 2)
(Circuit Schematic)



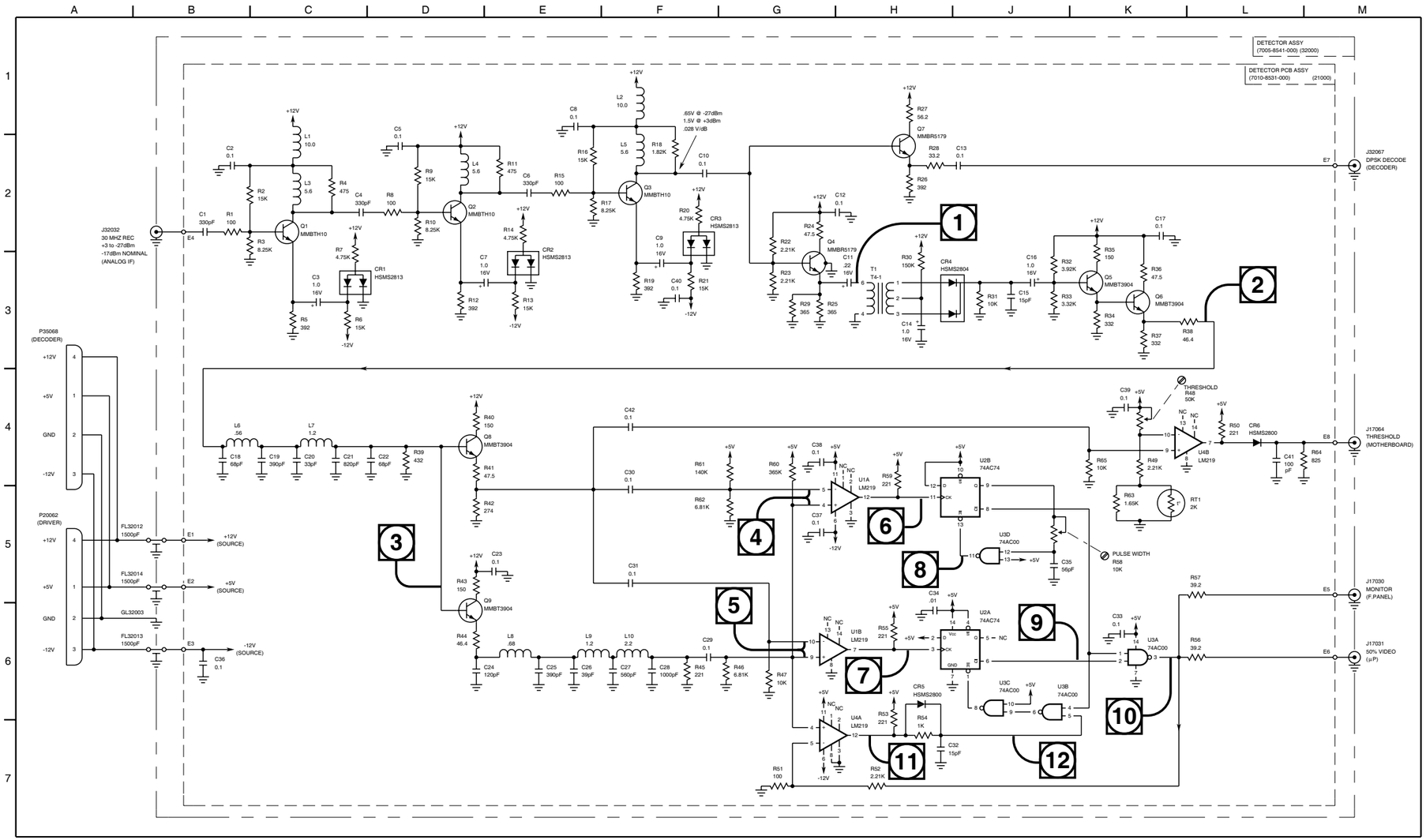
(7005-8541-000-B) (7010-8531-000-C3)



DETECTOR PCB ASSY

085M-07

Figure 42 RF Assy (Sheet 12 of 23)
(Detector Assy - Sheet 1 of 3)
(Detector PCB Assy)



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

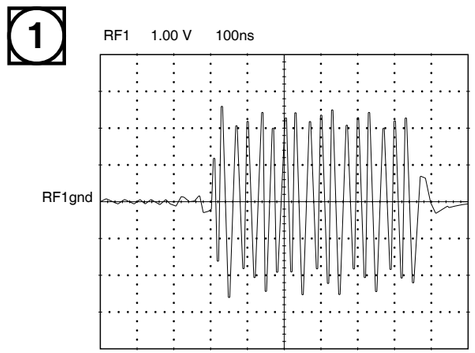
NOTES:
(UNLESS OTHERWISE SPECIFIED)

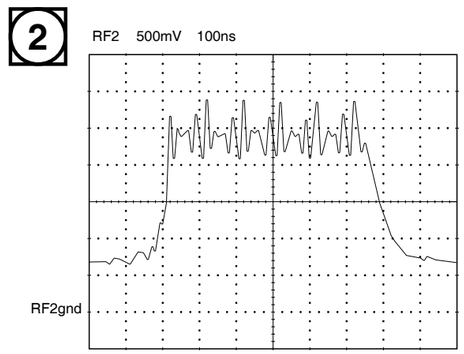
1. ALL REFERENCE NUMBERS CARRY AN ASSIGNED DESIGNATOR SERIES. THIS ASSEMBLY CARRIES SERIES:
   7005-8541-000 32000 (e.g. FL1 IS FL32001)
   7010-8531-000 21000 (e.g., R1 IS R21001)
2. ALL RESISTORS ARE 1/8W, 1% TOLERANCE.
3. ALL RESISTANCE IS EXPRESSED IN OHMS.
4. ALL CAPACITANCE IS EXPRESSED IN MICROFARADS.
5. ALL INDUCTANCE IS EXPRESSED IN MICROHENRIES.

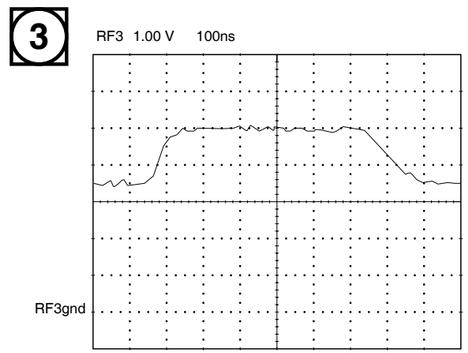
8541002S

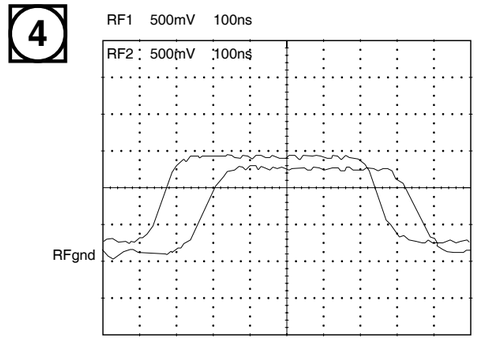
Figure 42 RF Assy (Sheet 13 of 23)
(Detector Assy - Sheet 2 of 3)
(Circuit Schematic - Sheet 1 of 2)

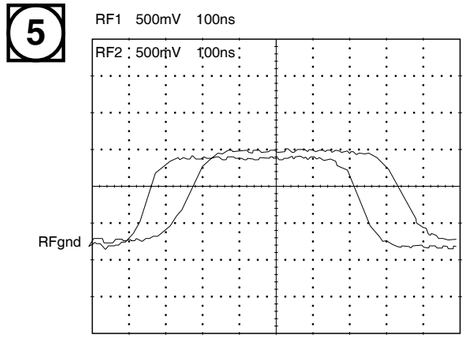
(0000-8541-000-C)

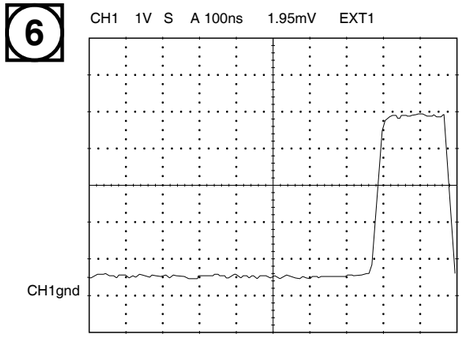


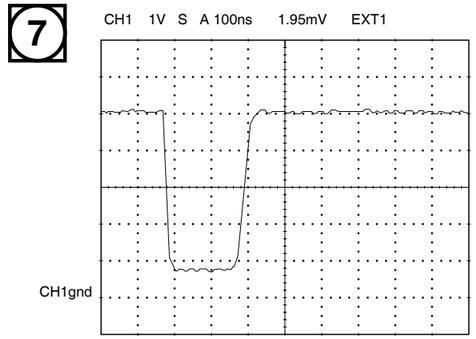


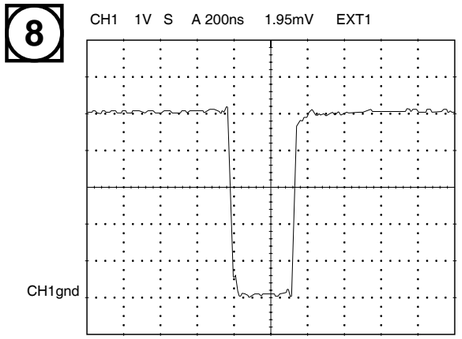


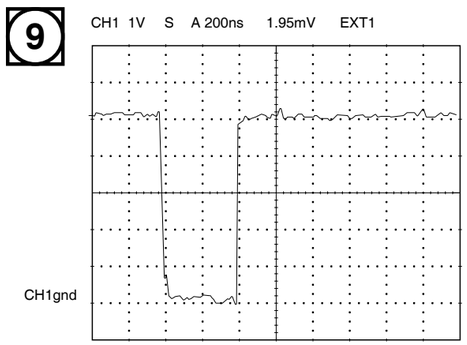


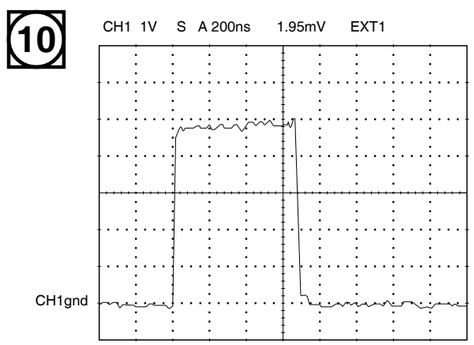


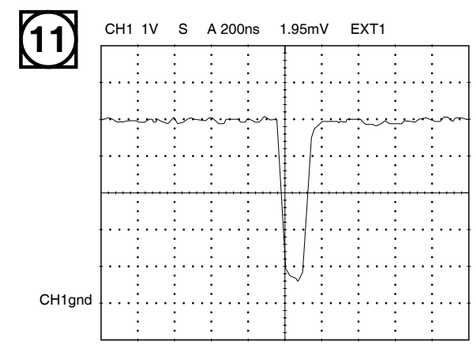


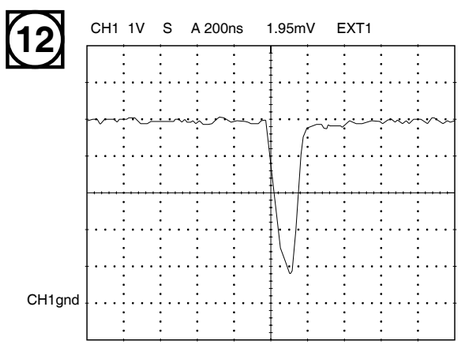








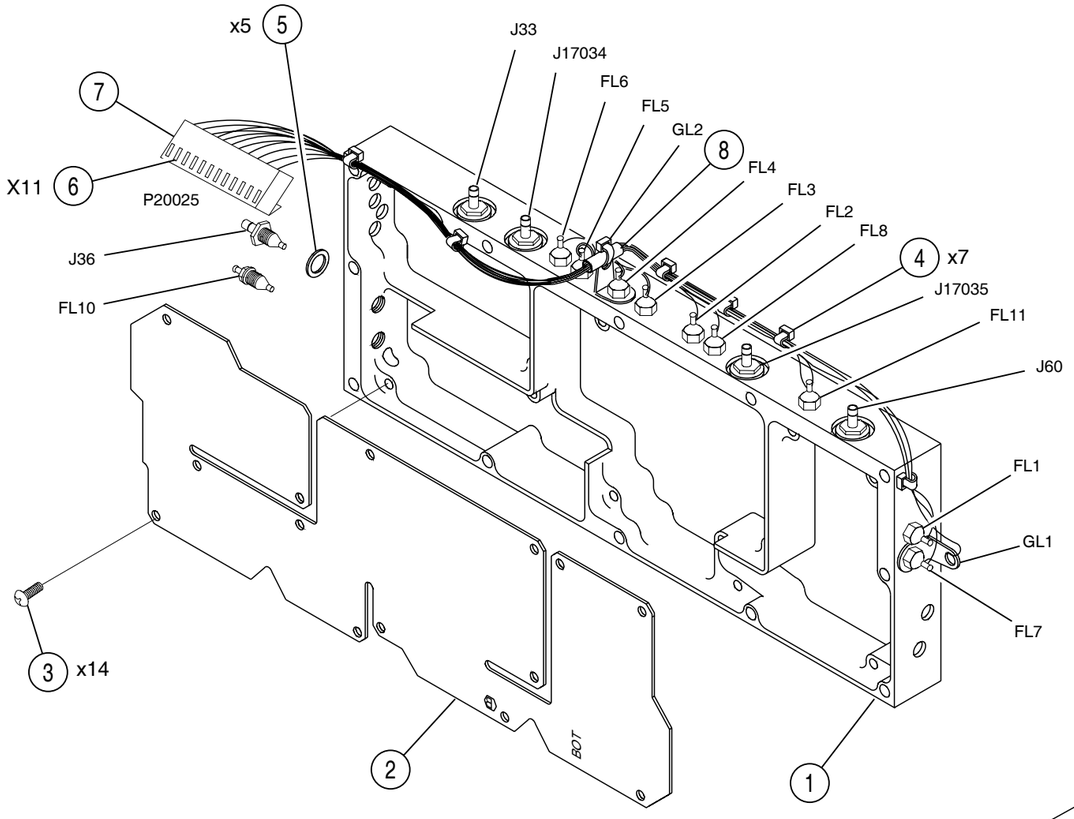




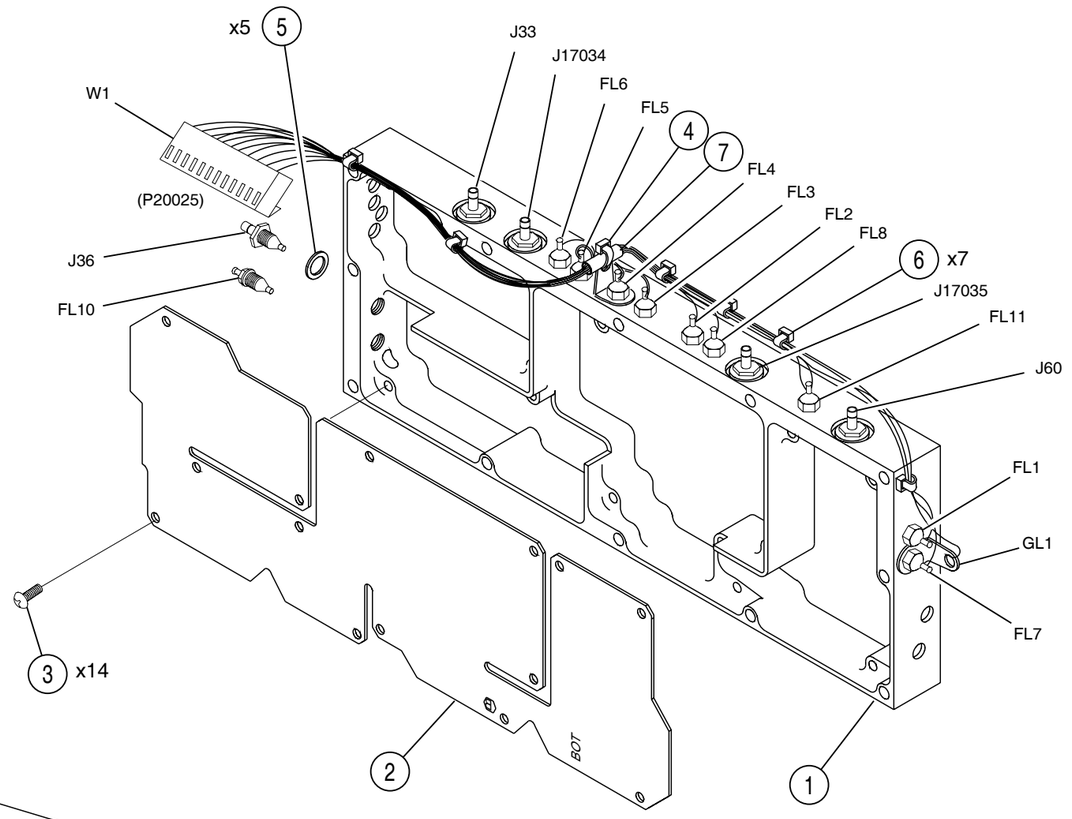
8541001S

Figure 42 RF Assy (Sheet 14 of 23)
(Detector Assy - Sheet 3 of 3)
(Circuit Schematic - Sheet 2 of 2)

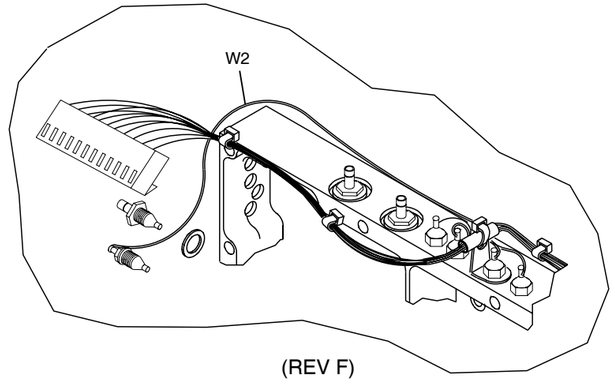
(0000-8541-000-C)



(REV D1)



(REV E AND ON)

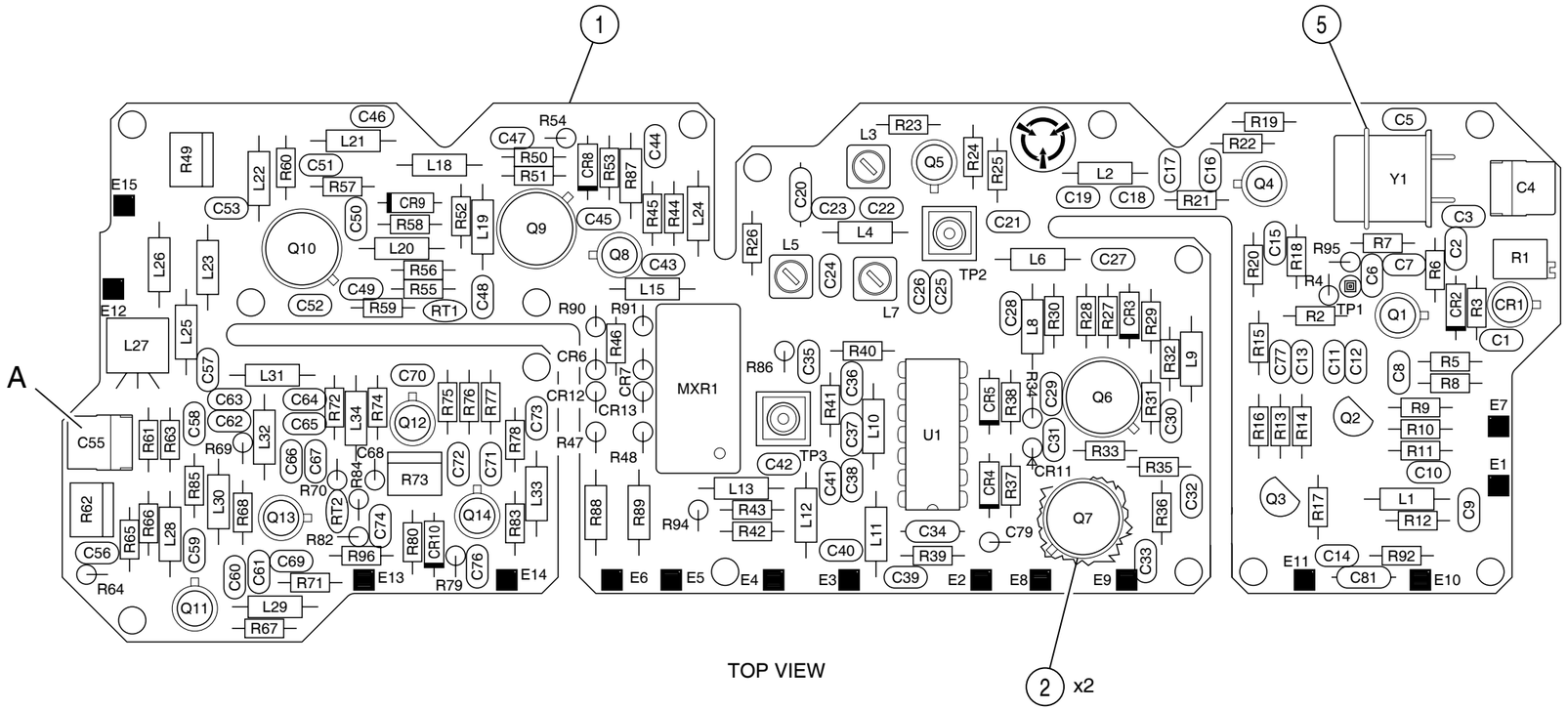


(REV F)

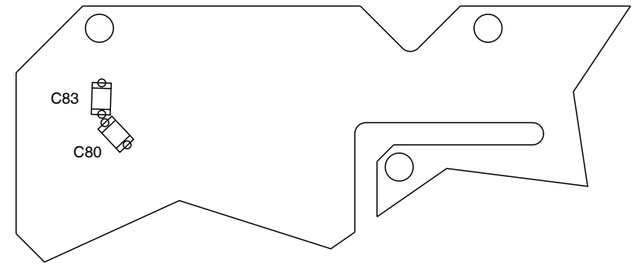
085M-09

(7005-8541-100-F)

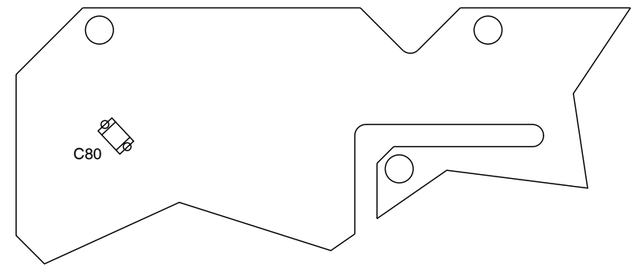
Figure 42 RF Assy (Sheet 15 of 23)
(Analog IF Assy - Sheet 1 of 4)



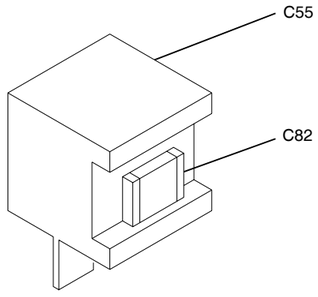
TOP VIEW



BOTTOM VIEW



BOTTOM VIEW
(REV E)



DETAIL A

8531100P

Figure 42 RF Assy (Sheet 16 of 23)
(Analog IF Assy - Sheet 2 of 4)
(Analog IF PCB Assy)

(7010-8531-100-F1)

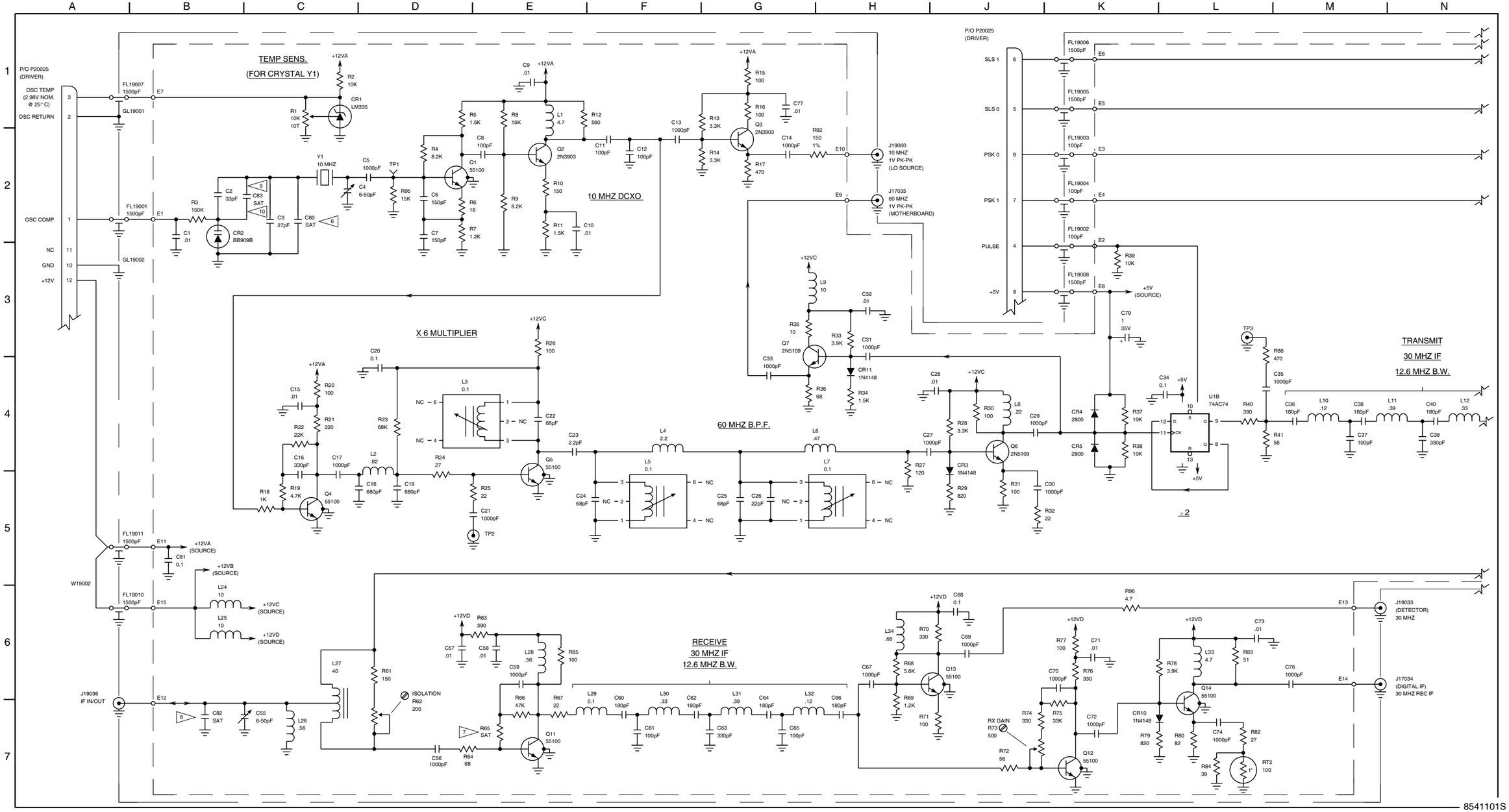
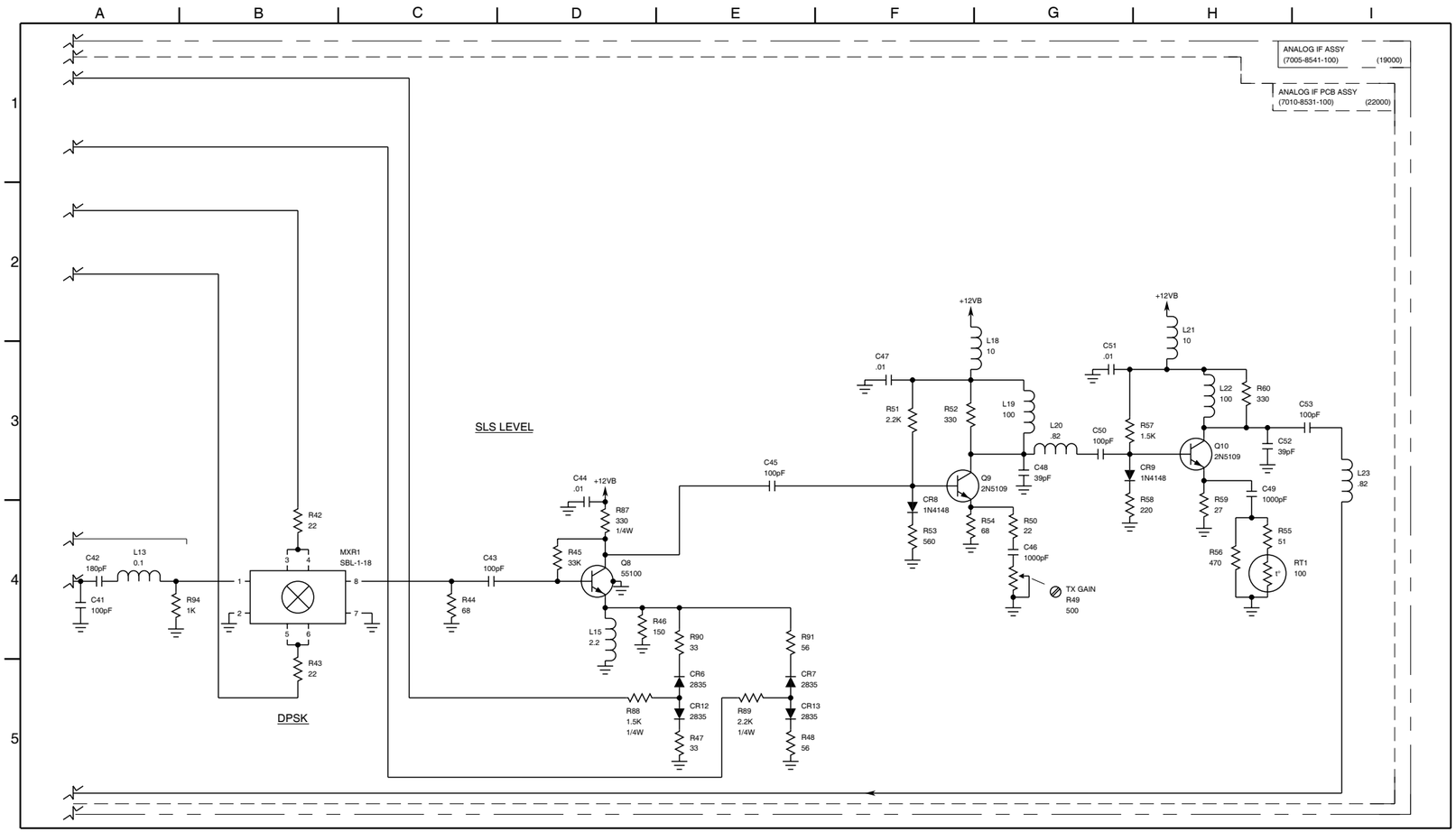


Figure 42 RF Assy (Sheet 17 of 23)
(Analog IF Assy - Sheet 3 of 4)
(Circuit Schematic - Sheet 1 of 2)

(0000-8541-100-F2)



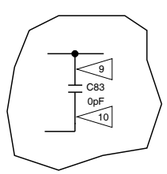
CAUTION:
CONTAINS PARTS AND ASSEMBLIES SUSCEPTIBLE TO DAMAGE BY ELECTROSTATIC DISCHARGE (ESD).

NOTES:
(UNLESS OTHERWISE SPECIFIED)

1. ALL REFERENCE NUMBERS CARRY AN ASSIGNED DESIGNATOR SERIES. THIS ASSEMBLY CARRIES SERIES:

   7005-8541-100 19000 (e.g., FL1 IS FL19001)
   7010-8531-100 22000 (e.g., R1 IS R22001)

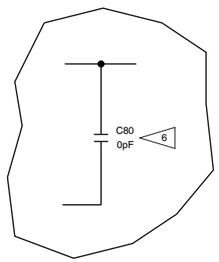
2. ALL RESISTORS ARE 1/8W, 5% TOLERANCE.
3. ALL RESISTANCE IS EXPRESSED IN OHMS.
4. ALL CAPACITANCE IS EXPRESSED IN MICROFARADS.
5. ALL INDUCTANCE IS EXPRESSED IN MICROHENRIES.
6. C80 IS SELECT AT TEST (SAT).
   RANGE: 0pF, 1pF, 2pF, 3pF, 3.9pF, 5pF
7. R65 IS SELECT AT TEST (SAT).
   RANGE: 220, 270, 330, 390, 470, 560, 680 (OHMS)
8. C82 IS SELECT AT TEST (SAT).
   RANGE: 0pF, 12pF, 18pF, 22pF, 27pF, 33pF
9. C83 IS SELECT AT TEST (SAT).
   RANGE: 0pF, 1pF, 2pF, 3pF, 3.9pF, 5pF
10. REV F AND ON ONLY.



6 C80 IS SELECT AT TEST (SAT).
NOMINAL: 0pF
RANGE: 0pF TO 4pF

9 C83 IS SELECT AT TEST (SAT).
NOMINAL: 0pF
RANGE: 0pF, 1pF, 2pF, 3pF, 3.9pF, 5pF

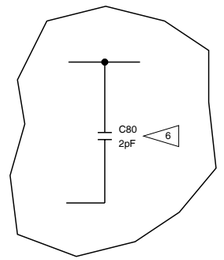
(REV F AND F1)



7 R65 IS SELECT AT TEST (SAT).
NOMINAL: 330
RANGE: 220 TO 680

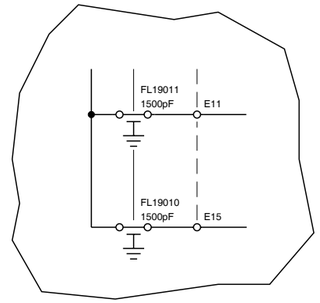
8 C82 IS SELECT AT TEST (SAT).
NOMINAL: 22pF
RANGE: 0pF TO 33pF

(REV D2, E, F, AND F1)



6 C80 IS SELECT AT TEST (SAT).
NOMINAL: 2pF
RANGE: 0pF TO 4pF

(REV D2 AND E)



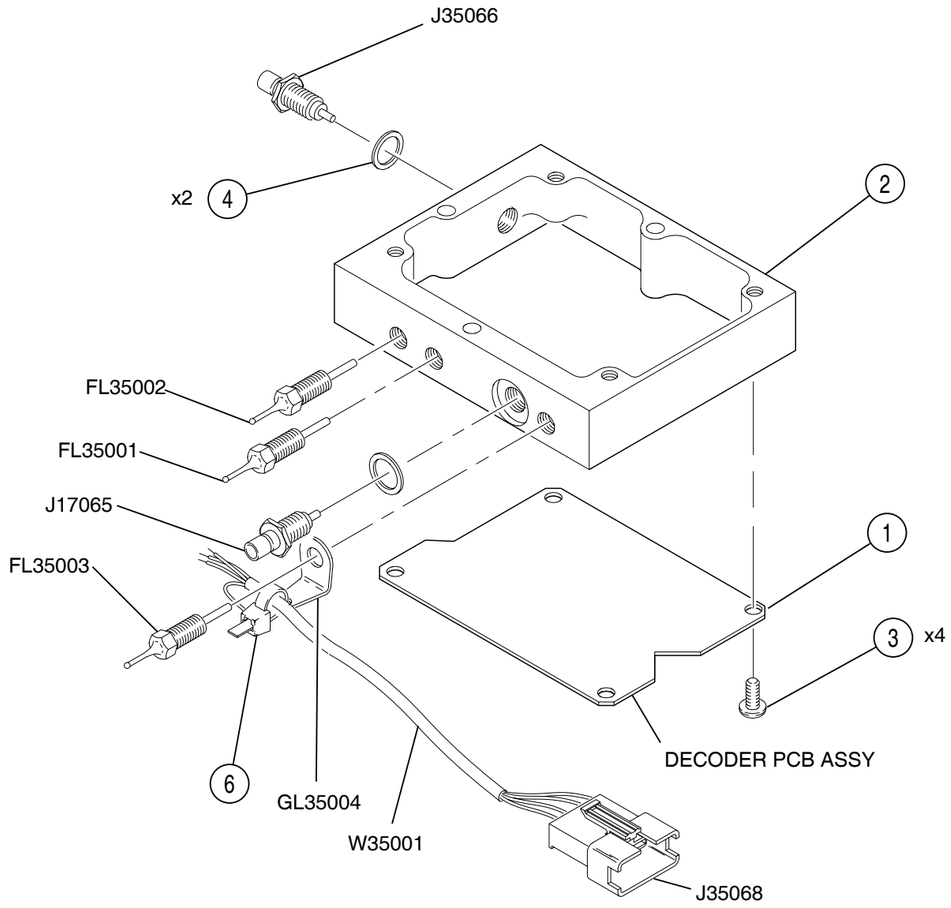
(REV F1 AND ON)

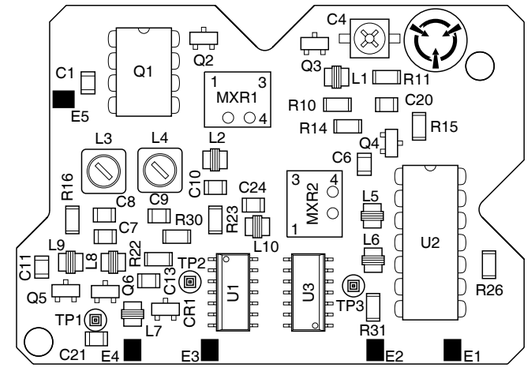
(REV F1 AND ON)

8541102S

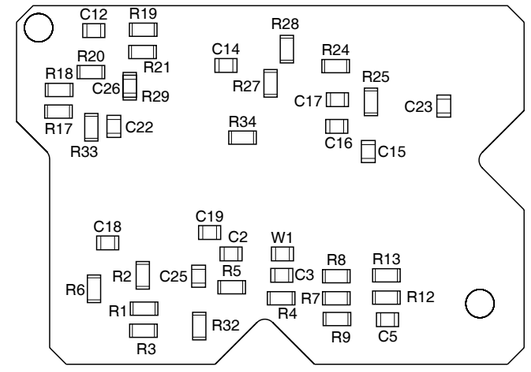
Figure 42 RF Assy (Sheet 18 of 23)
(Analog IF Assy - Sheet 4 of 4)
(Circuit Schematic - Sheet 2 of 2)

(0000-8541-100-F2)





TOP VIEW



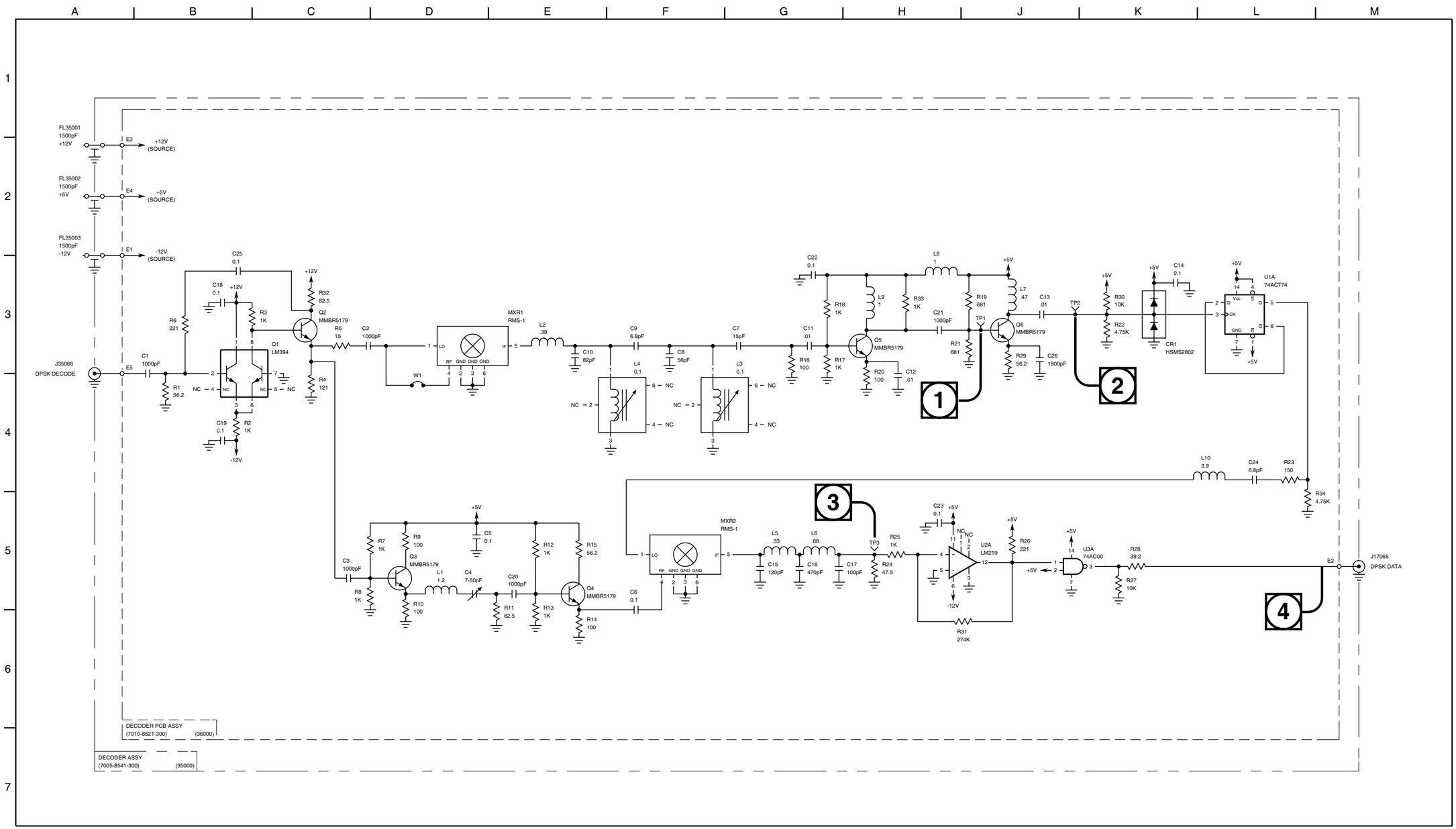
BOTTOM VIEW

DECODER PCB ASSY

085M-08

Figure 42 RF Assy (Sheet 19 of 23)
(Decoder Assy - Sheet 1 of 3)
(Decoder PCB Assy)

(7005-8541-300-B) (7010-8531-300-C4)

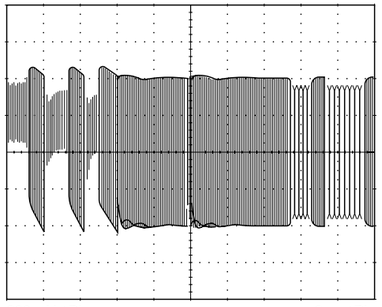


8541301S

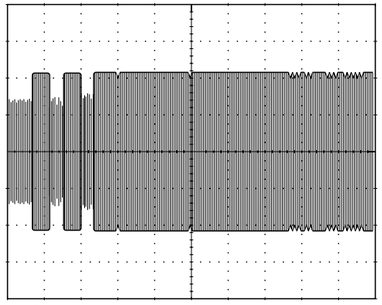
Figure 42 RF Assy (Sheet 20 of 23)
(Decoder Assy - Sheet 2 of 3)
(Circuit Schematic - Sheet 1 of 2)

(0000-8541-300-C2)

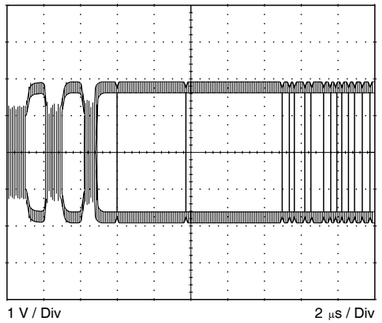
1



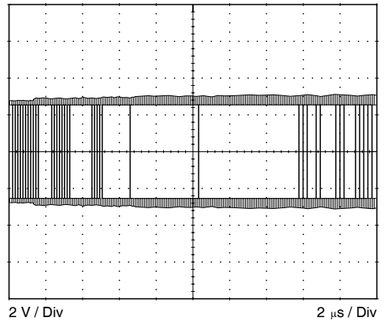
2



3



4



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

NOTES:
(UNLESS OTHERWISE SPECIFIED)

1. ALL REFERENCE NUMBERS CARRY AN ASSIGNED DESIGNATOR SERIES. THIS ASSEMBLY CARRIES SERIES:

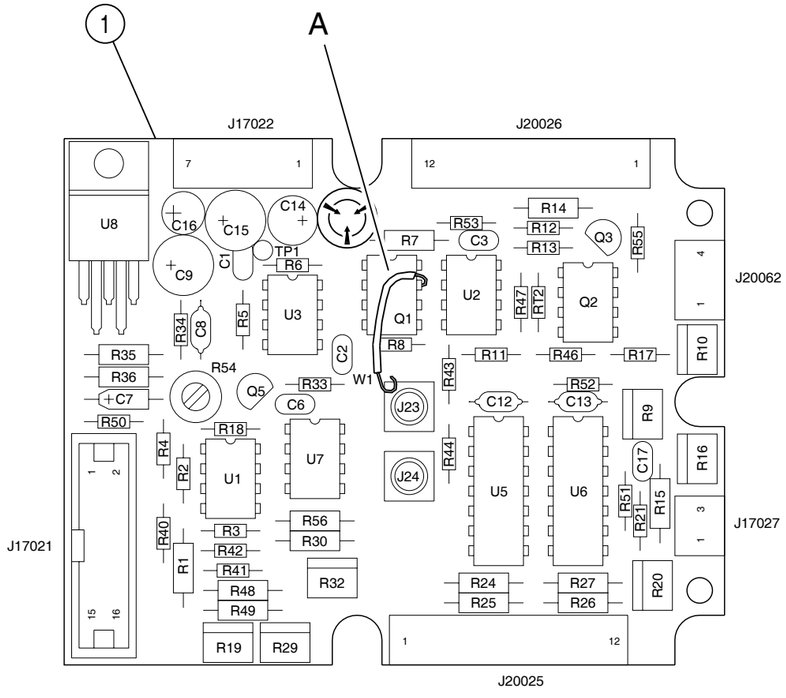
   7005-8541-300 35000 (e.g., FL1 IS FL35001)
   7010-8531-300 36000 (e.g., R1 IS R36001)

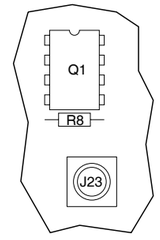
2. ALL RESISTORS ARE 1/8W, 1% TOLERANCE.
3. ALL RESISTANCE IS EXPRESSED IN OHMS.
4. ALL CAPACITANCE IS EXPRESSED IN MICROFARADS.
5. ALL INDUCTANCE IS EXPRESSED IN MICROHENRIES.

8541302S

Figure 42 RF Assy (Sheet 21 of 23)
(Decoder Assy - Sheet 2 of 3)
(Circuit Schematic - Sheet 2 of 2)

(0000-8541-300-C2)



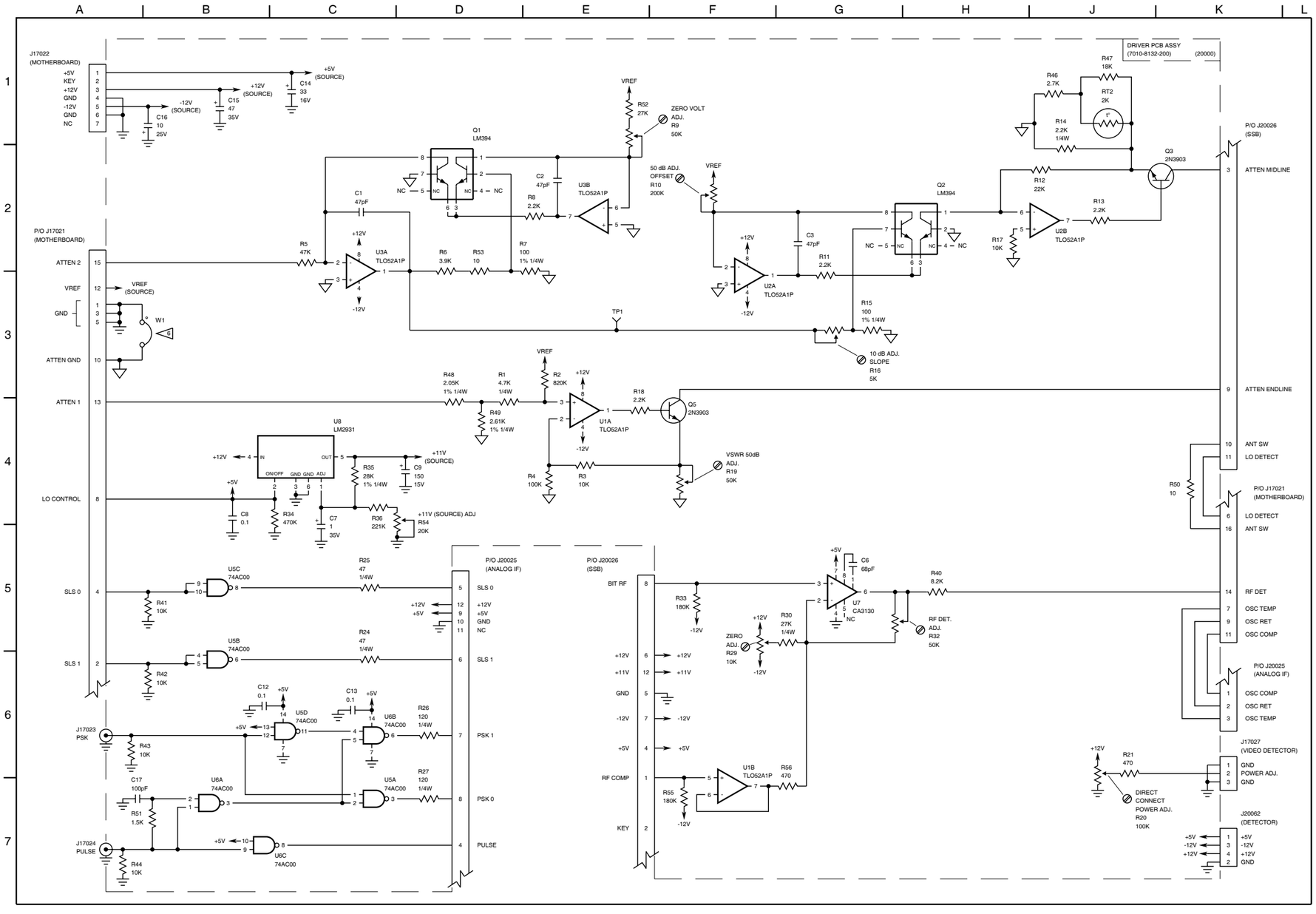


DETAIL A
(REV B)

8132200P

(7010-8132-200-C)

Figure 42 RF Assy (Sheet 22 of 23)
(Driver PCB Assy - Sheet 1 of 2)



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

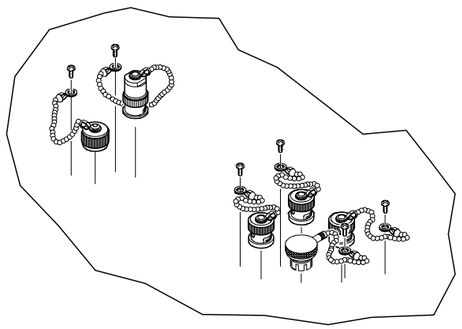
NOTES:
(UNLESS OTHERWISE NOTED)

1. ALL REFERENCE NUMBERS CARRY AN ASSIGNED DESIGNATOR SERIES. THIS ASSEMBLY CARRIES SERIES:
   7010-8132-200 20000 (e.g., R1 IS R20001)
2. ALL RESISTORS ARE 1/8W, 5% TOLERANCE.
3. ALL RESISTANCE IS EXPRESSED IN OHMS.
4. ALL CAPACITANCE IS EXPRESSED IN MICROFARADS.
5. ALL INDUCTANCE IS EXPRESSED IN MICROHENRIES.
6. REV C AND ON.

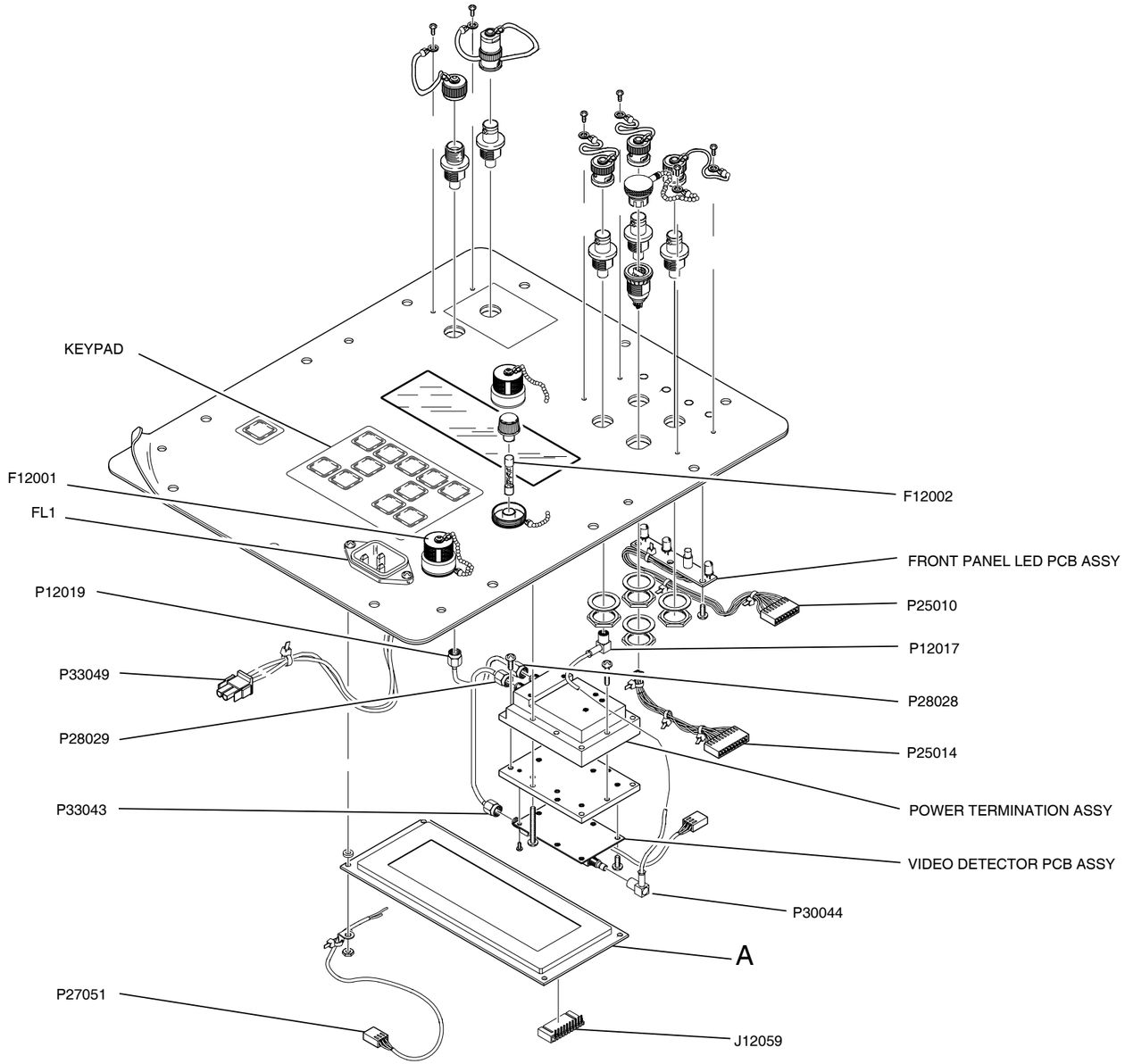
8132200S

Figure 42 RF Assy (Sheet 23 of 23)
(Driver PCB Assy - Sheet 2 of 2)
(Circuit Schematic)

(0000-8132-200-C)

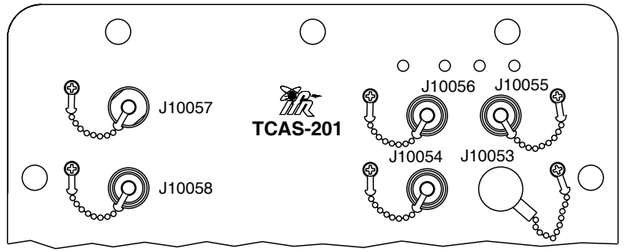


(REV C, D AND D1)

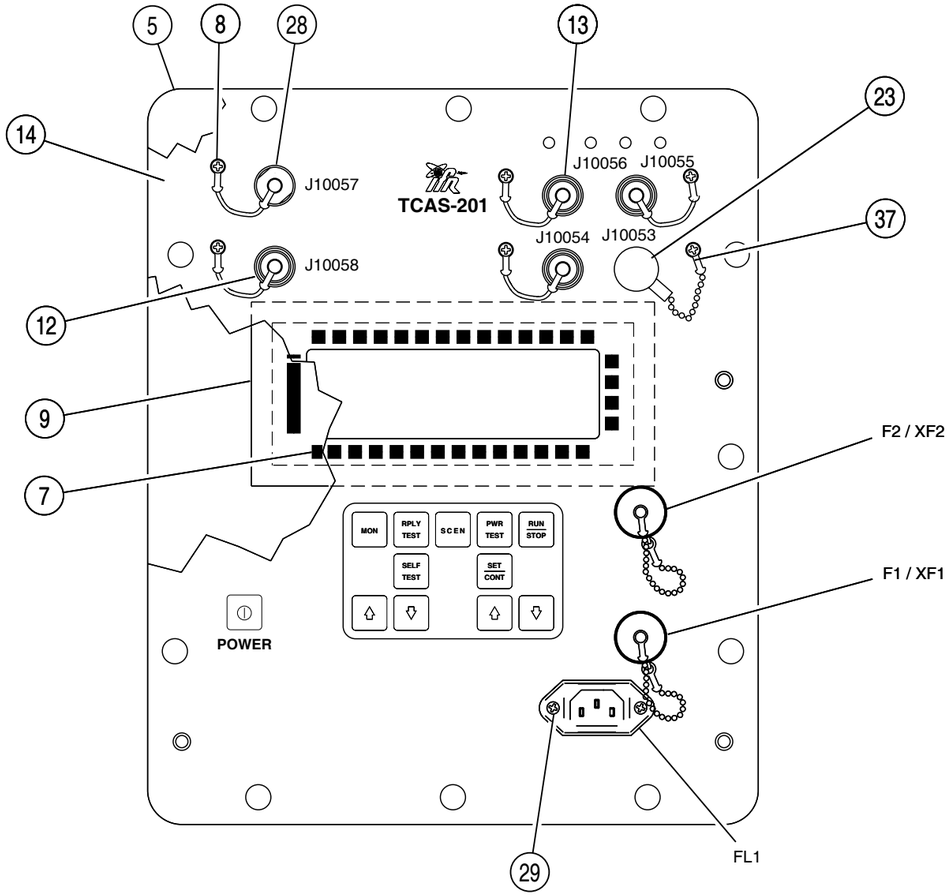


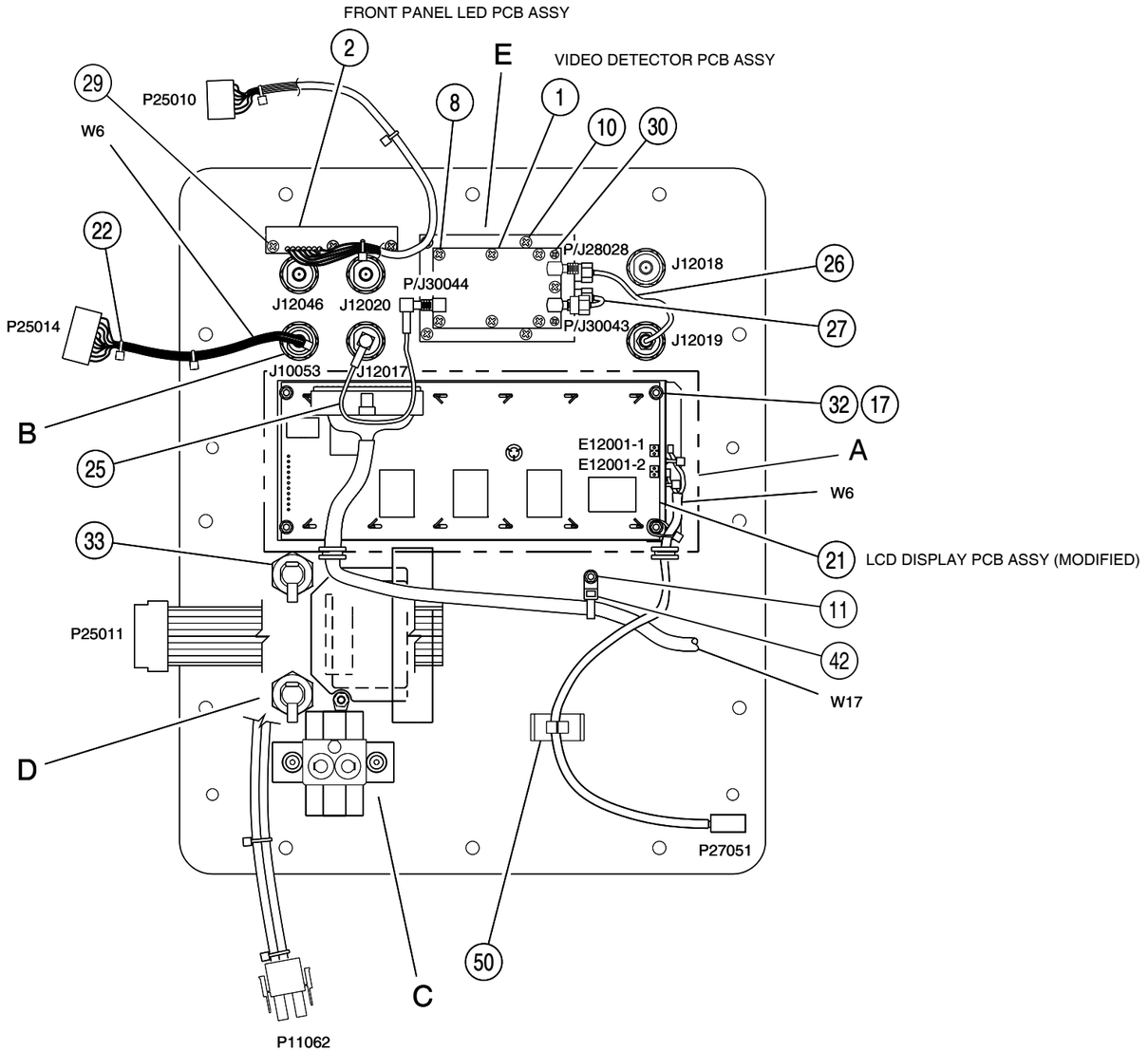
(7005-8544-200-E)

Figure 43 Front Panel Assy (Sheet 1 of 11)



(REV C, D AND D1)

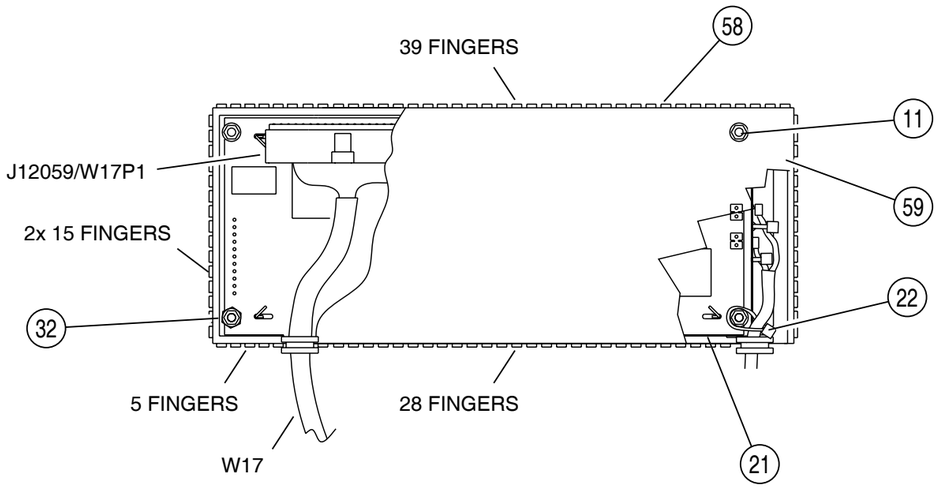




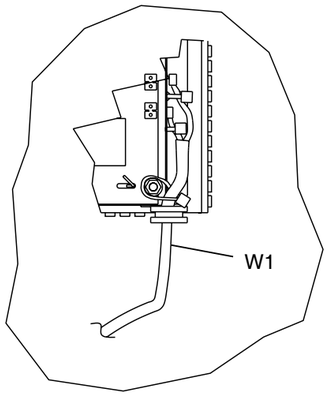
8545402M

(7005-8544-200-E)

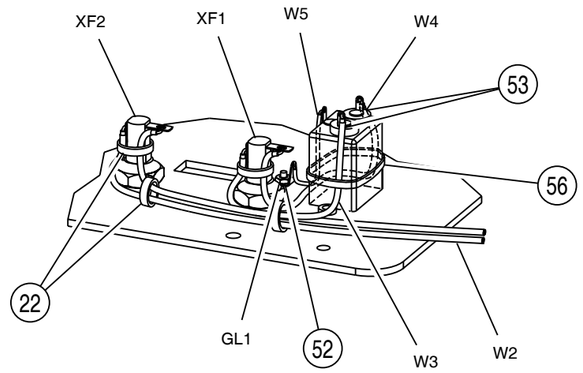
Figure 43 Front Panel Assy (Sheet 2 of 11)



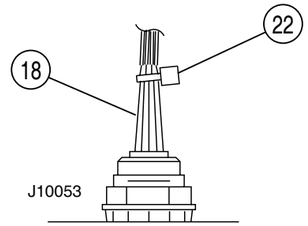
LCD DISPLAY PCB ASSY (MODIFIED)



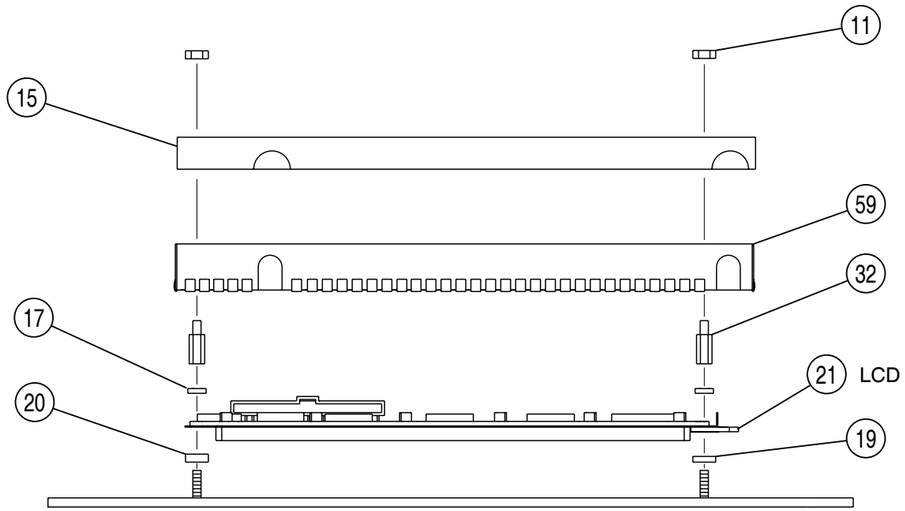
(REV C)



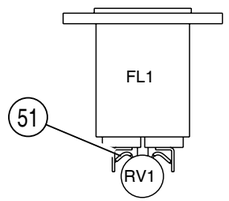
DETAIL D



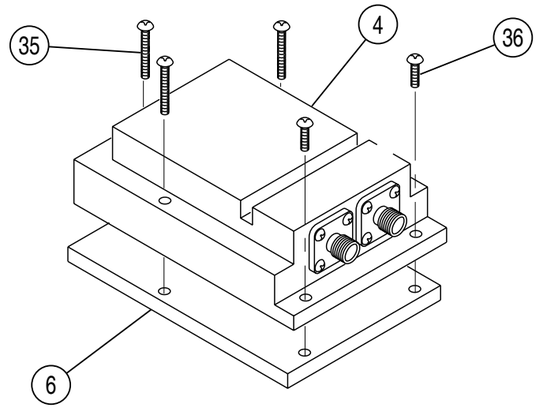
DETAIL B



DETAIL A



DETAIL C

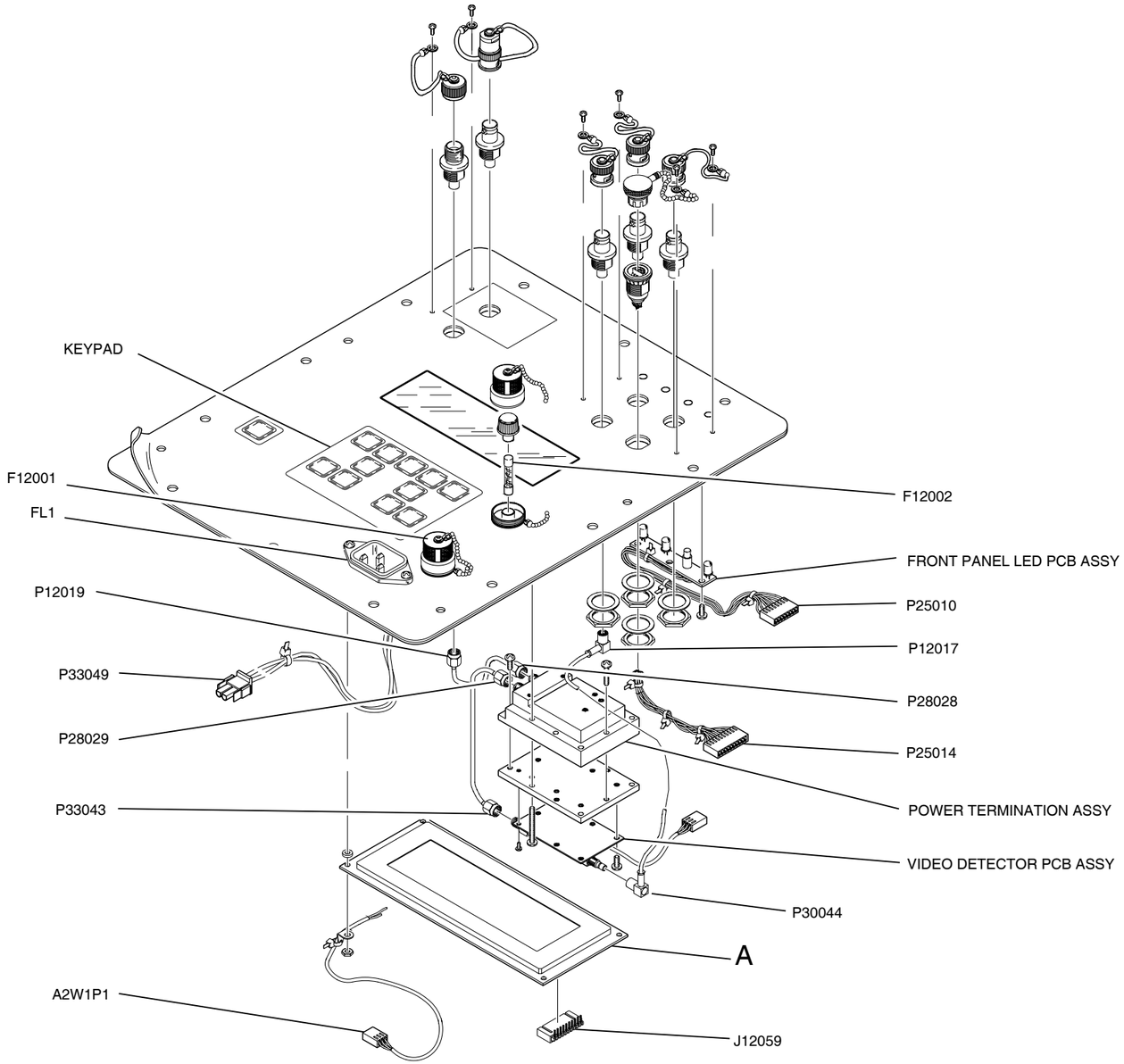


DETAIL E

8545401M

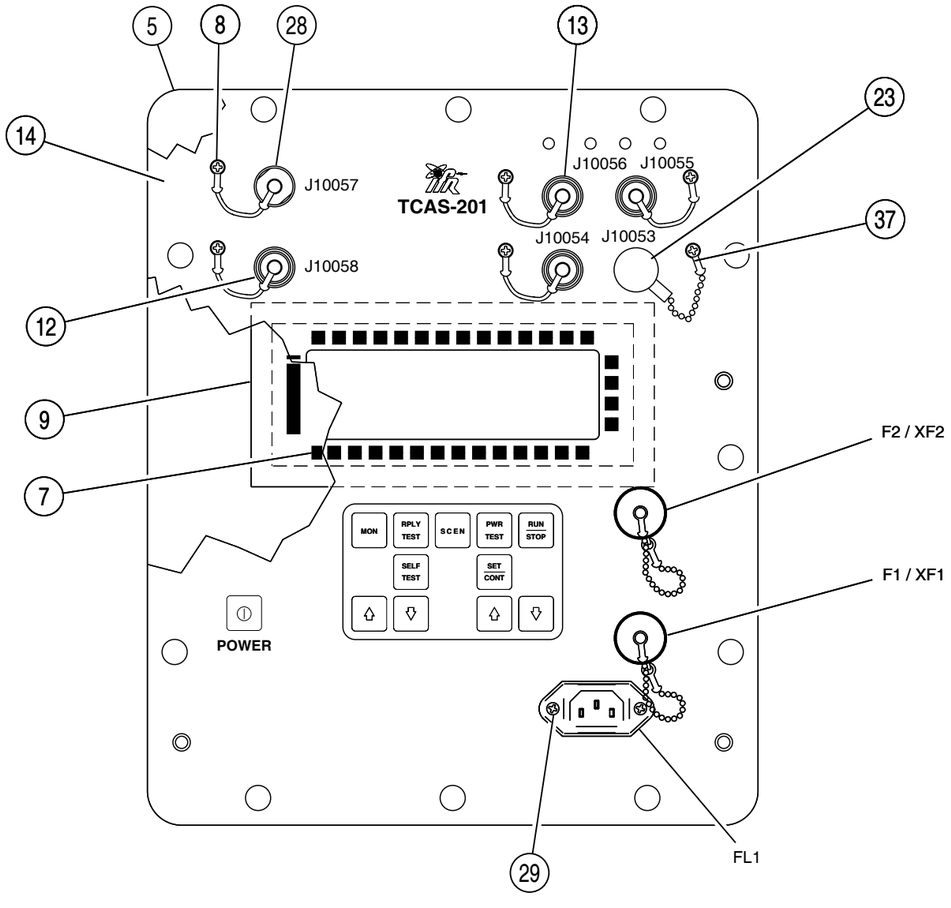
(7005-8544-200-E)

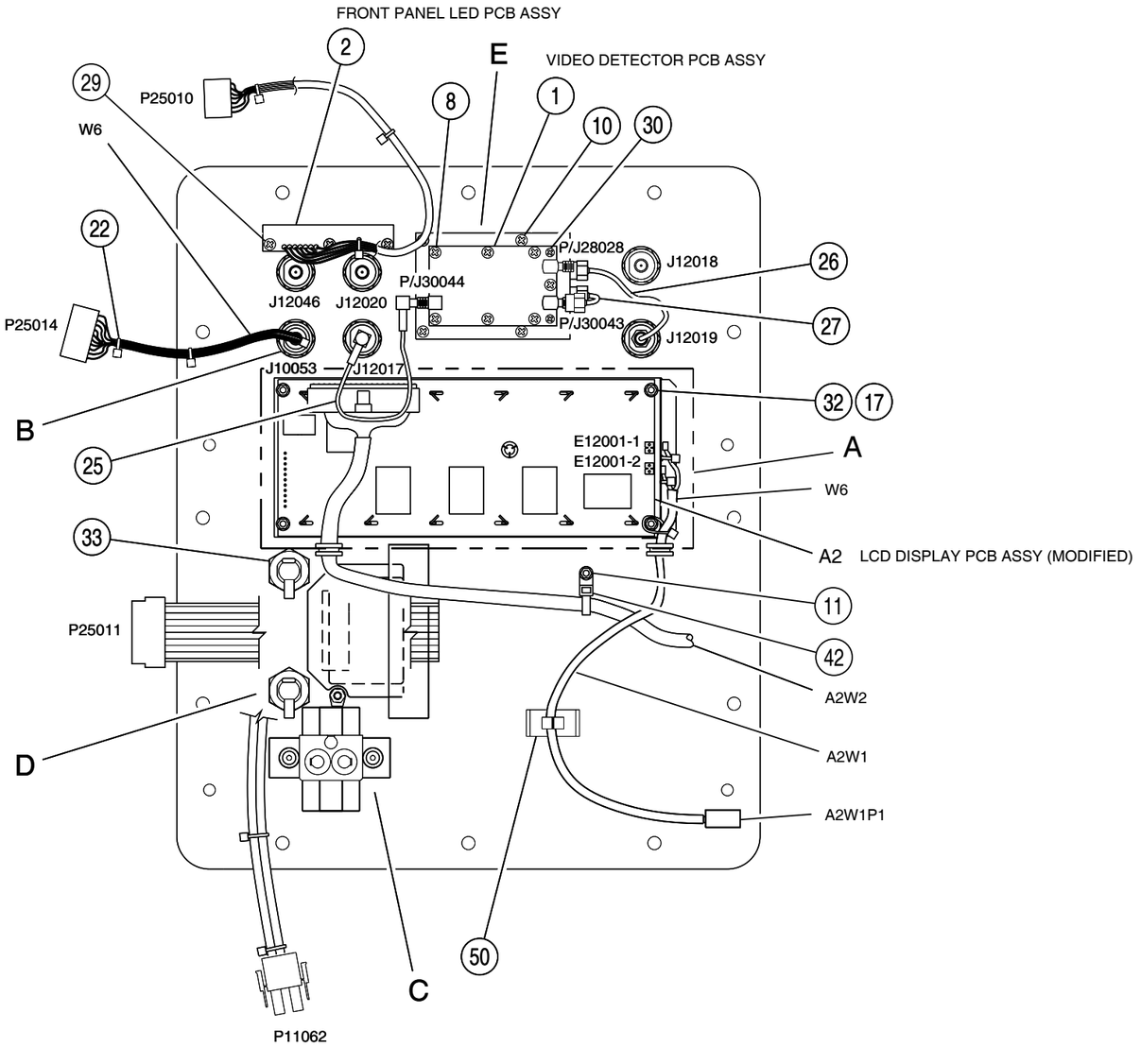
Figure 43 Front Panel Assy (Sheet 3 of 11)



(7005-8540-100-E)

Figure 43 Front Panel Assy (Sheet 4 of 11)

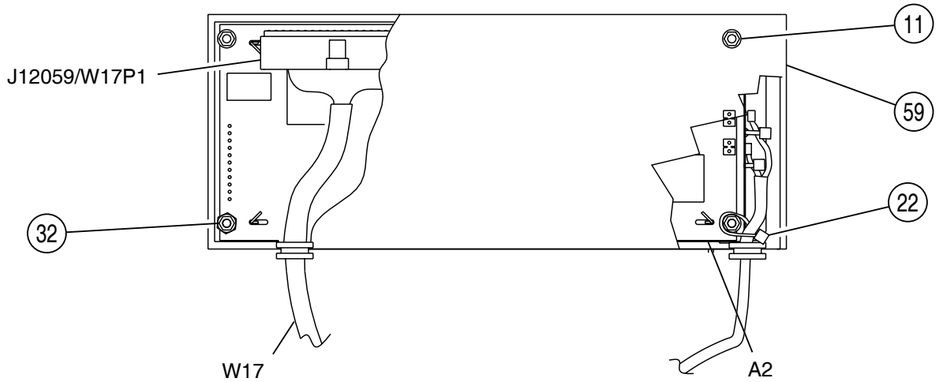




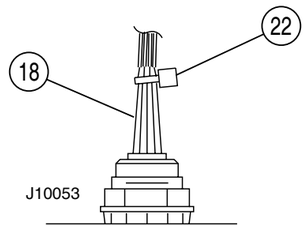
085M-17

(7005-8540-100-E)

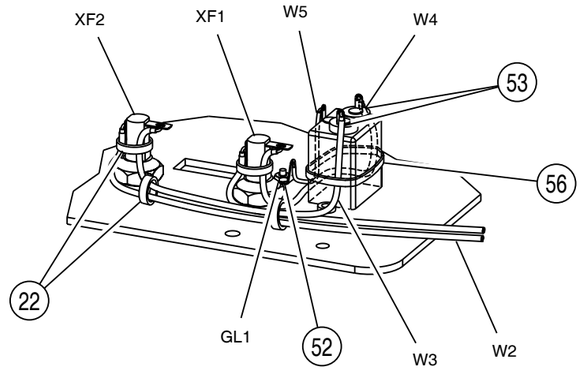
Figure 43 Front Panel Assy (Sheet 5 of 11)



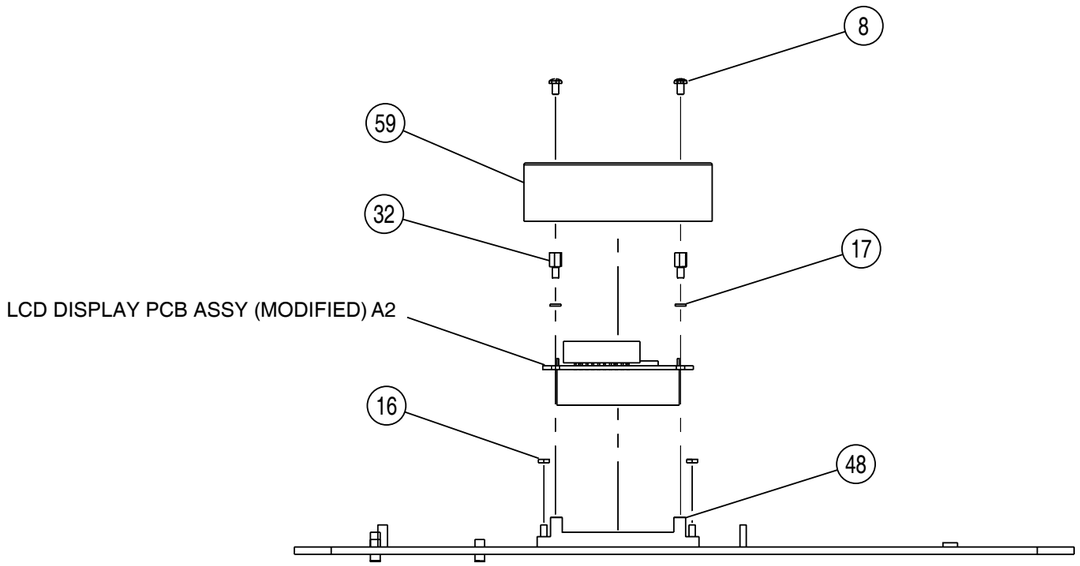
LCD DISPLAY PCB ASSY (MODIFIED)



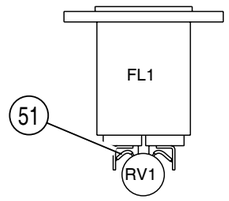
DETAIL B



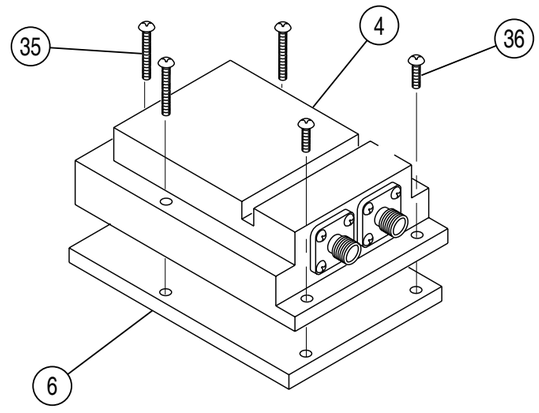
DETAIL D



DETAIL A



DETAIL C

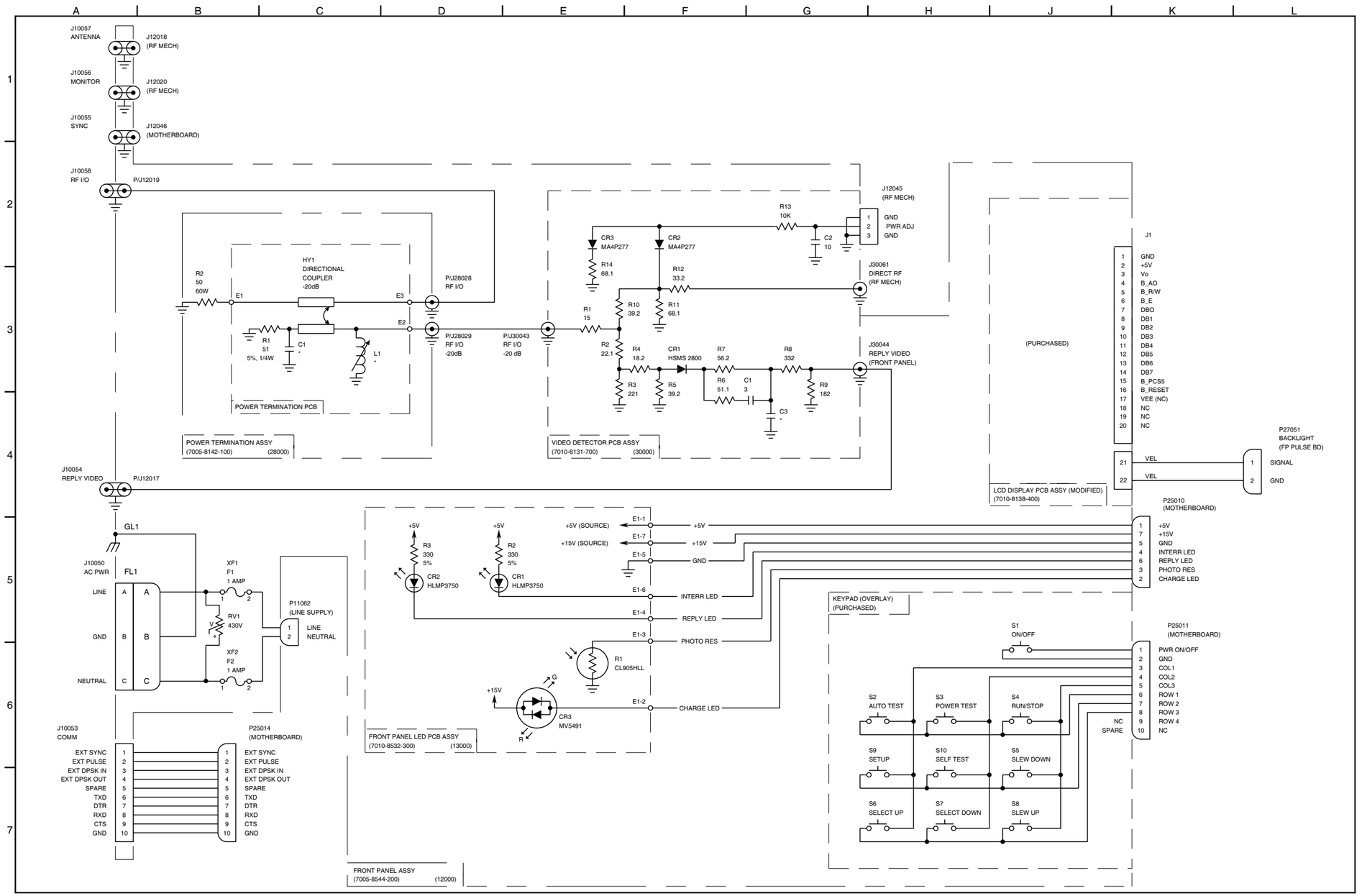


DETAIL E

085M-18

(7005-8540-100-E)

Figure 43 Front Panel Assy (Sheet 6 of 11)



CAUTION:

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

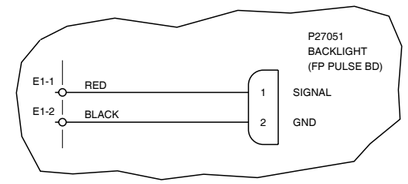
NOTES:
(UNLESS OTHERWISE NOTED)

1. ALL REFERENCE NUMBERS CARRY AN ASSIGNED DESIGNATOR SERIES. THIS ASSEMBLY CARRIES SERIES:

7005-8544-200	12000 (e.g., GL1 IS GL12001)
7010-8532-300	13000 (e.g., R1 IS R13001)
7005-8142-100	28000 (e.g., R1 IS R28001)
7010-8131-700	30000 (e.g., R1 IS R30001)

2. ALL RESISTORS ARE 1/8W, 1% TOLERANCE.
3. ALL RESISTANCE IS EXPRESSED IN OHMS.
4. ALL CAPACITANCE IS EXPRESSED IN PICOFARADS.
5. 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.

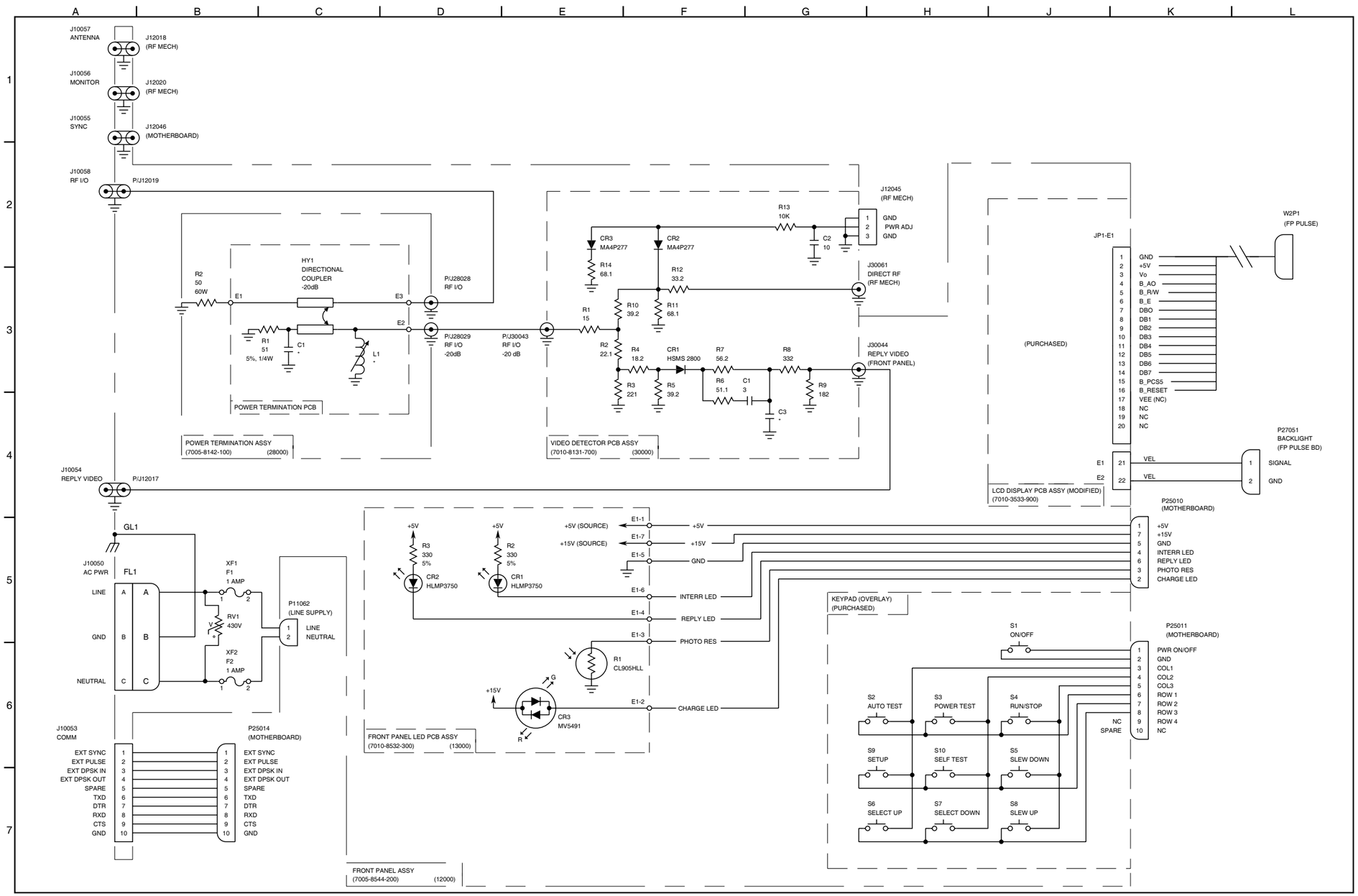


(REV A)

8545400S

(0000-8544-200-B)

Figure 43 Front Panel Assy (Sheet 7 of 11)
(Circuit Schematic - Sheet 1 of 2)



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. THIS ASSEMBLY CARRIES SERIES:

7005-8544-200	12000 (e.g., GL1 IS GL12001)
7010-8532-300	13000 (e.g., R1 IS R13001)
7005-8142-100	28000 (e.g., R1 IS R28001)
7010-8131-700	30000 (e.g., R1 IS R30001)

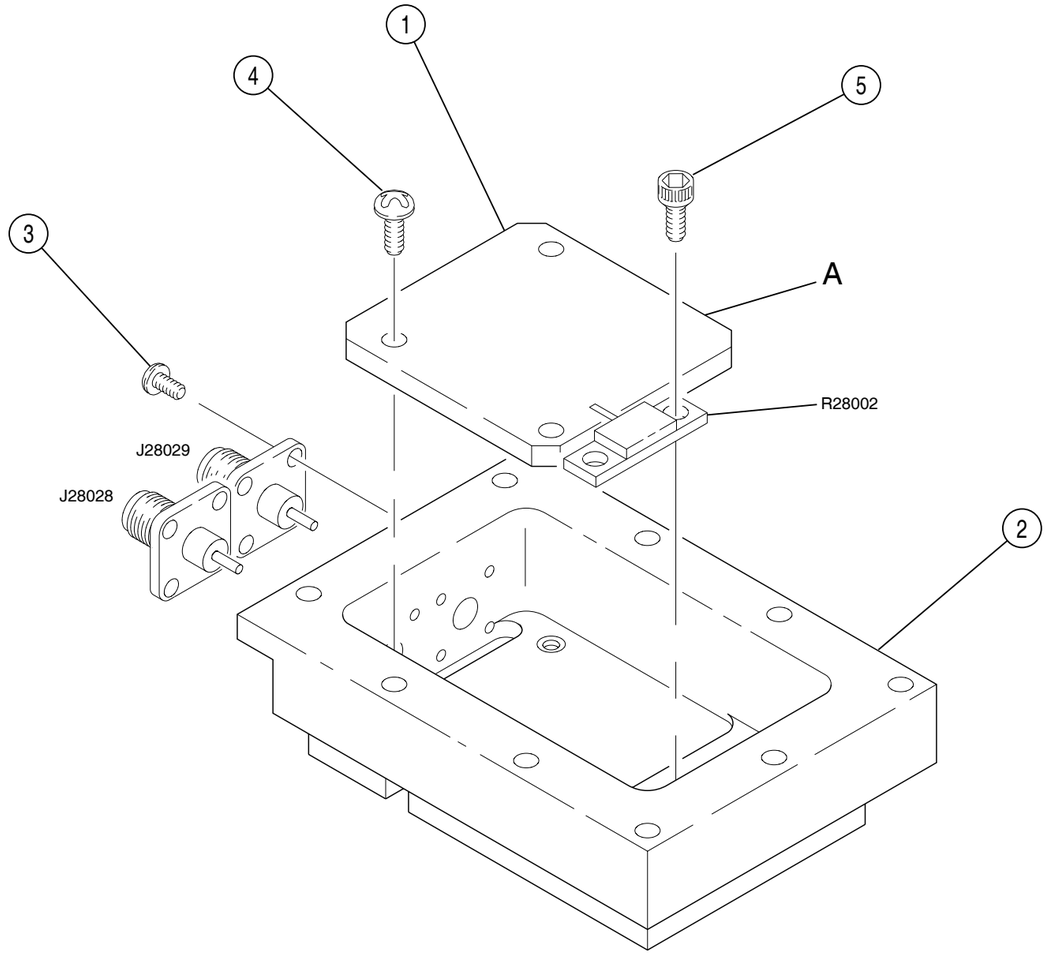
2. ALL RESISTORS ARE 1/8W, 1% TOLERANCE.
3. ALL RESISTANCE IS EXPRESSED IN OHMS.
4. ALL CAPACITANCE IS EXPRESSED IN PICOFARADS.
5. ALL INDUCTANCE IS EXPRESSED IN MICROHENRIES.

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

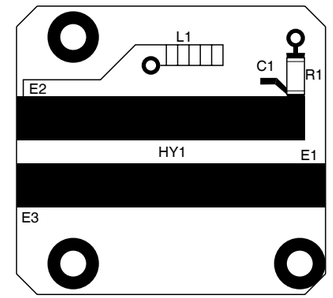
085M-19

Figure 43 Front Panel Assy (Sheet 8 of 11)
(Circuit Schematic - Sheet 2 of 2)

(0000-8544-200-B)



(7005-8142-100-B3)

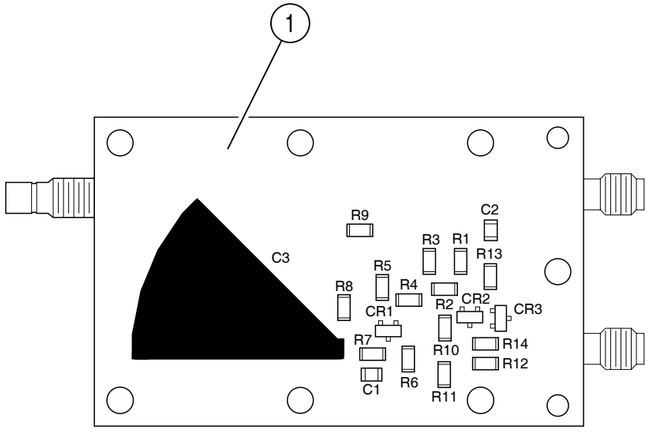


POWER TERMINATION PCB ASSY

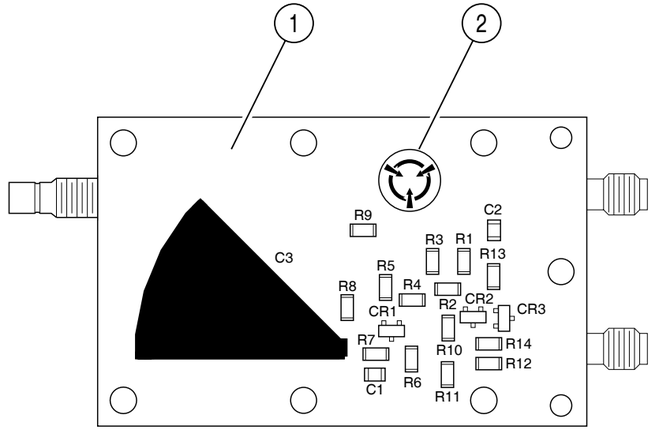
DETAIL A

8142100M

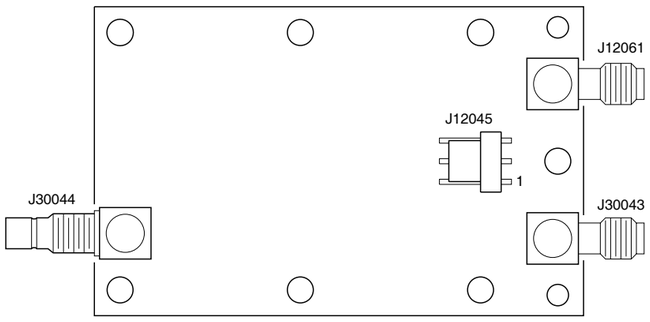
Figure 43 Front Panel Assy (Sheet 9 of 11)
(Power Termination Assy)



TOP VIEW



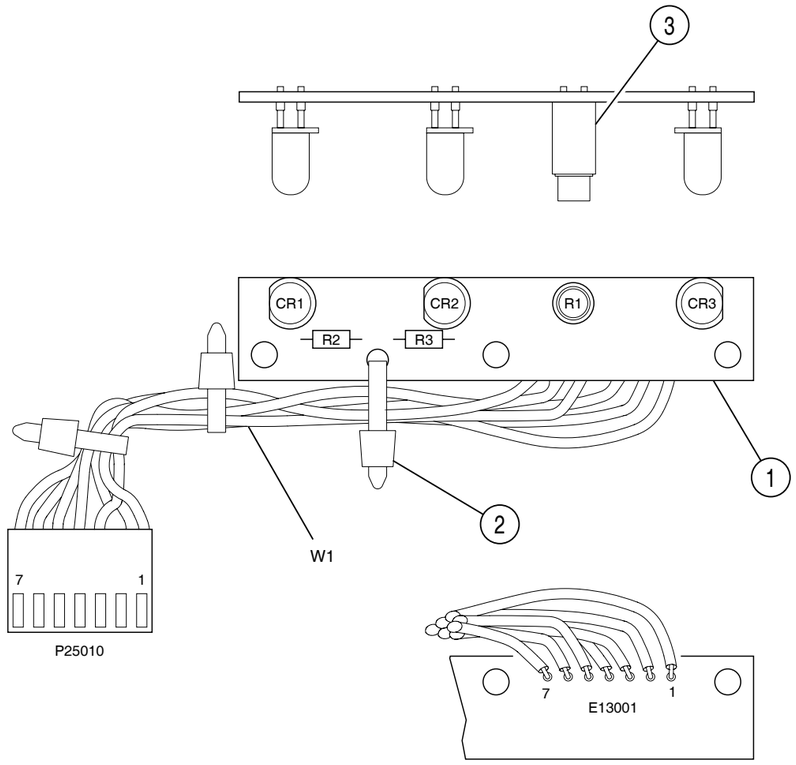
TOP VIEW
(REV D)

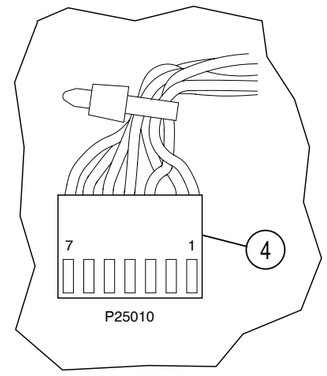


BOTTOM VIEW

8131700P

Figure 43 Front Panel Assy (Sheet 10 of 11)
(Video Detector PCB Assy)





(REV A)

8130300P

(7010-8532-800-B)

Figure 43 Front Panel Assy (Sheet 11 of 11)
(Front Panel LED PCB Assy)

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SECTION 3 - DISASSEMBLY/REASSEMBLY

1. Disassembly

A. General

Contains instructions necessary to remove and disassemble assemblies within the TCAS-201-2.

B. Preliminary Considerations

(1) Tools Required

TOOL	SIZE	DESCRIPTION
SCREWDRIVER	#2 #4 #6	PHILLIPS
SCREWDRIVER	#2	SLOTTED
WRENCH (in)	1/4 3/16	SOCKET
WRENCH (in)	3/32 0.05	HEX-HEAD
WRENCH (in)	3/8 1/4 3/16 5/8	OPEN
SOLDERING IRON	N/A	PIN-TYPE

Disassembly Tools
Table 1

(2) Disassembly Precautions

CAUTION: TAG EACH WIRE AND CABLE PRIOR TO REMOVAL.

CAUTION: AVOID BENDING OR TWISTING SEMI-RIGID COAXIAL CABLES.

CAUTION: AVOID PLACING UNDUE STRAIN ON ANY WIRE OR CABLE.

CAUTION: AVOID DISCARDING LOOSE ITEMS (NUTS, SCREWS, WASHERS, ETC.).

CAUTION: AVOID EXPOSING COMPONENTS TO EXCESSIVE HEAT WHEN REMOVING SOLDER.

(3) ESD

CAUTION: THE POWER SUPPLY PCB ASSY, DIGITAL IF PCB ASSY, FRONT PANEL PULSE PCB ASSY, RF ASSY AND FRONT PANEL ASSY CONTAIN PARTS SENSITIVE TO DAMAGE BY ELECTROSTATIC DISCHARGE (ESD). ALL PERSONNEL PERFORMING DISASSEMBLY SHOULD HAVE KNOWLEDGE OF ACCEPTED ESD PRACTICES AND/OR BE ESD CERTIFIED.

(4) 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.

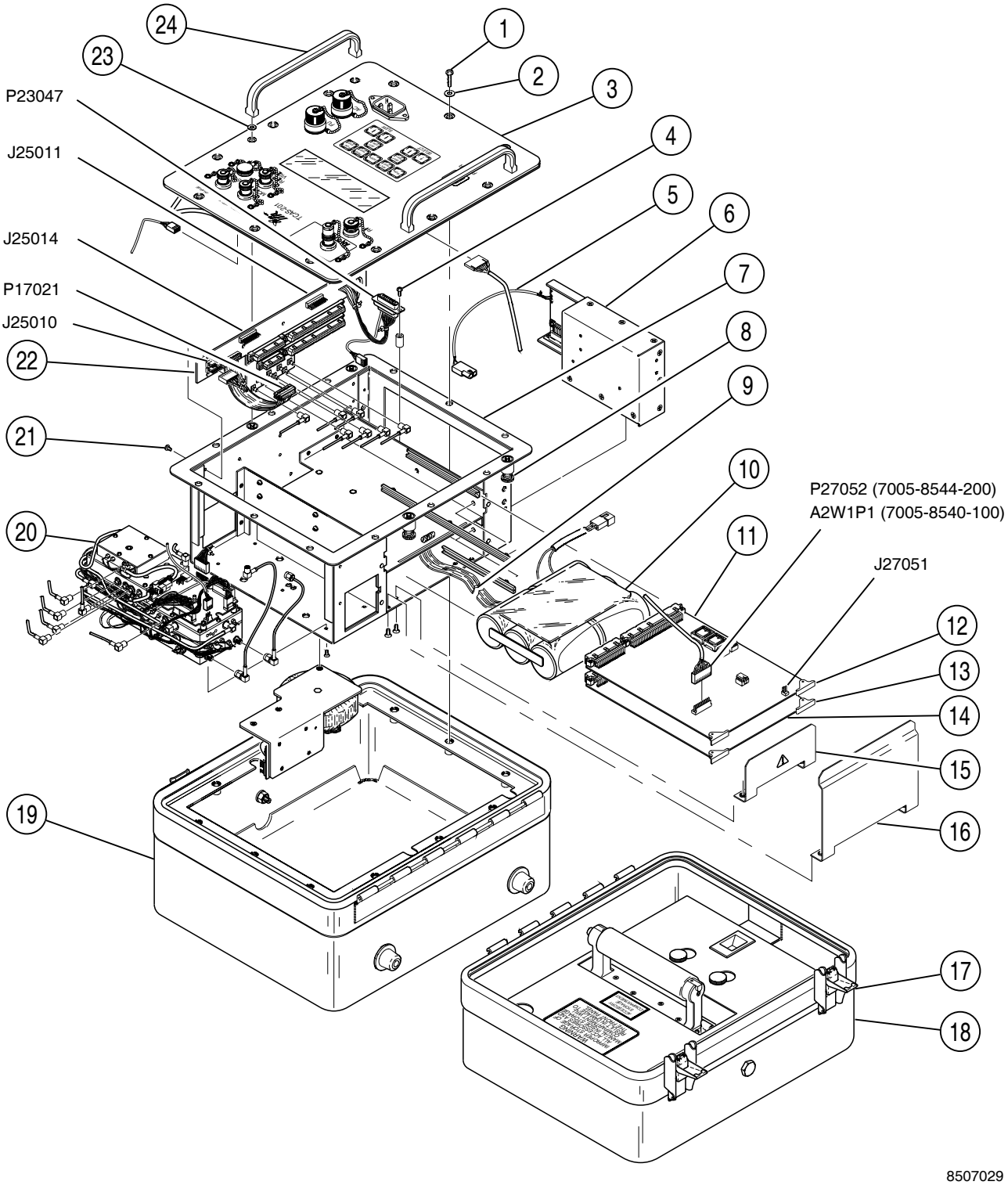
CAUTION: UPON COMPLETION OF ANY MAINTENANCE ACTION; ALL ASSEMBLIES, CABLES, CONNECTORS, PLASTIC FASTENERS, GASKETS, FINGERSTOCK AND MISCELLANEOUS HARDWARE MUST BE CONFIGURED AS INSTALLED AT THE FACTORY.

C. Procedures

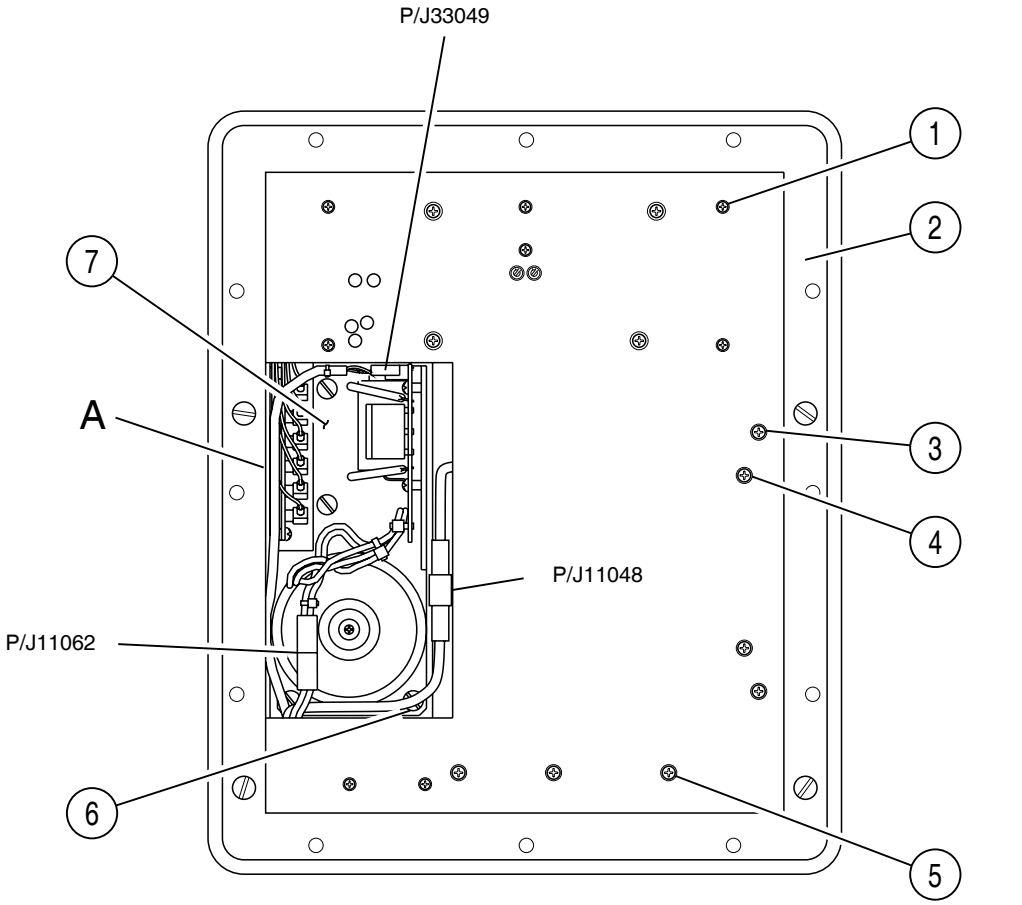
(1) Storage Compartment and Chassis Assy

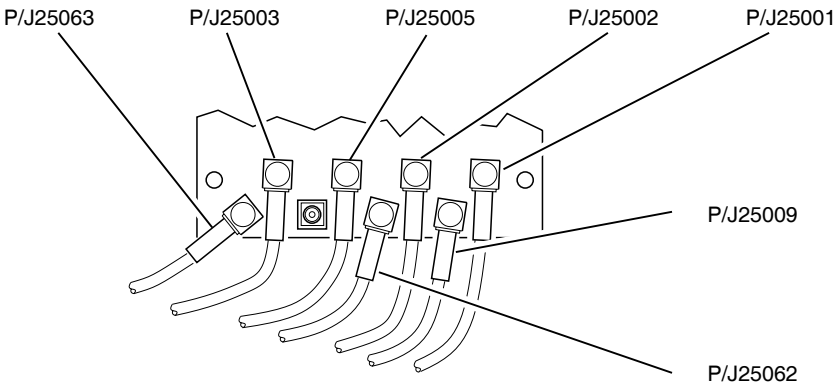
NOTE: Item numbers refer to 2-3-1, Figure 1.

STEP	PROCEDURE
1.	Unlock fasteners (18) securing Storage Compartment (17) to Case Assy (19).
2.	Remove Storage Compartment (17) from Case Assy (19).
3.	Remove 12 screws (1) and nylon washers (2) from Front Panel Assy (3).
4.	Lift Chassis Assy (7) from Case Assy (19).



Storage Compartment and Chassis Assy
Figure 1





DETAIL A

8507028

TCAS-201-2 Rear View
Figure 2

(2) Battery

NOTE: Item numbers refer to 2-3-1, Figure 2 unless otherwise noted.

STEP	PROCEDURE

1. Remove Storage Compartment and Chassis Assy (para 2-3-1C[1].
2. Disconnect battery connector (P/J11048).
3. Remove two screws (3) from bottom of Chassis Assy (2) and remove PCB retainer (16) (2-3-1, Figure 1).
4. Remove two screws (4) from bottom of Chassis Assy (2) and remove battery cover (15) (2-3-1, Figure 1).
5. Refer to 2-3-1, Figure 1 and pull ejector strap (9) to remove battery (10) from Chassis Assy (7).

(3) Line Supply Assy

STEP	PROCEDURE

1. Remove Storage Compartment and Chassis Assy (para 2-3-1C[1].

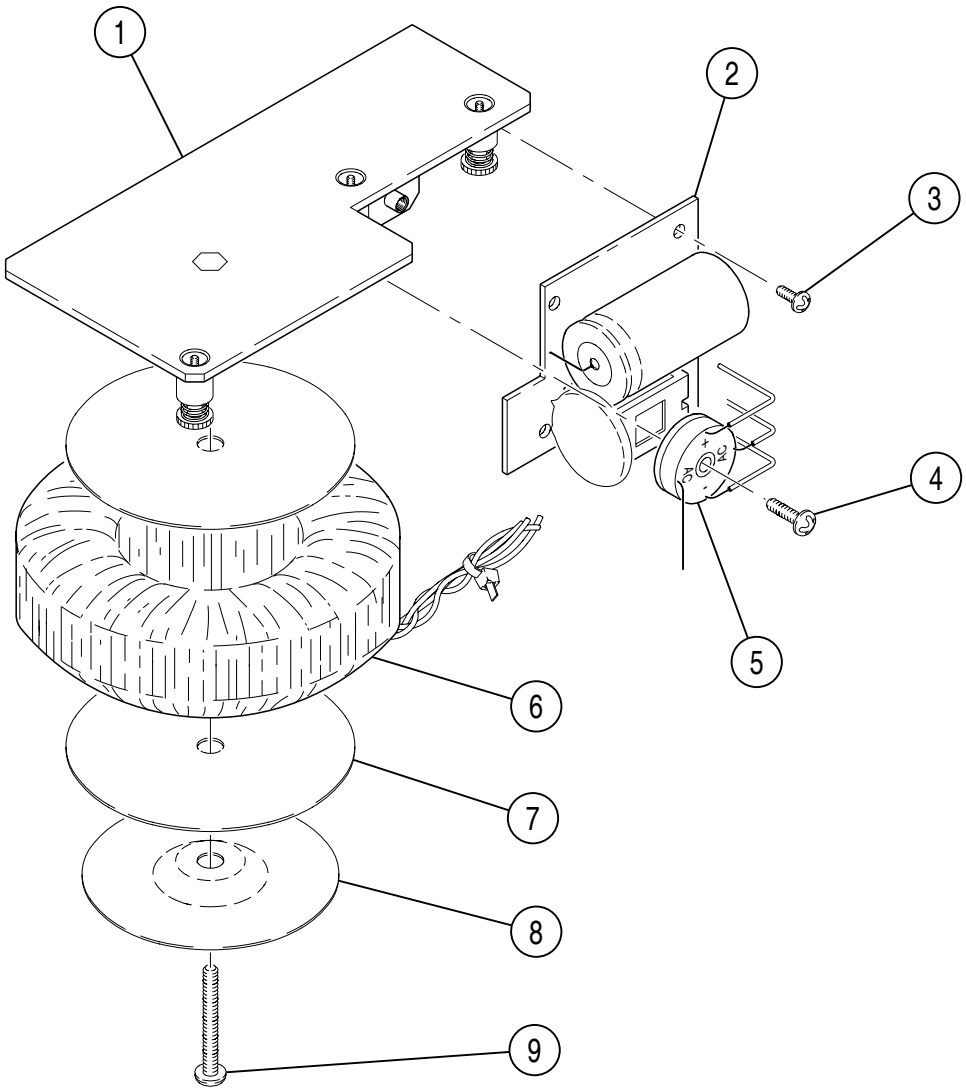
   NOTE: For Steps 2 through 4, item numbers refer to 2-3-1, Figure 2.

2. Disconnect P/J33049.
3. Disconnect P/J11062.
4. Loosen three captive screws (6) securing Line Supply Assy (7) to Chassis Assy (2).
5. Remove Line Supply Assy (7) from Chassis Assy (2).

   LINE SUPPLY PCB ASSY

   NOTE: For Steps 5 through 8, item numbers refer to 2-3-1, Figure 3.

5. Remove four screws (3) securing Line Supply PCB Assy (2) to bracket (1).
6. Remove one screw (4) securing bridge rectifier (5) to bracket (1).
7. Remove one screw (9) securing transformer (6) to bracket (1).
8. Remove transformer (6), conical washer (8), two insulators (7), bridge rectifier (5) and Line Supply PCB Assy (2) from bracket (1).



8507027

Line Supply Assy
Figure 3

(4) Power Supply Assy

STEP PROCEDURE

1. Remove Storage Compartment and Chassis Assy (para 2-3-1C[1].

   NOTE: For Steps 2 and 3, item numbers refer to 2-3-1, Figure 2.

2. Disconnect battery connector (P/J11048).
3. Remove three screws (5) securing Power Supply Assy to Chassis Assy.

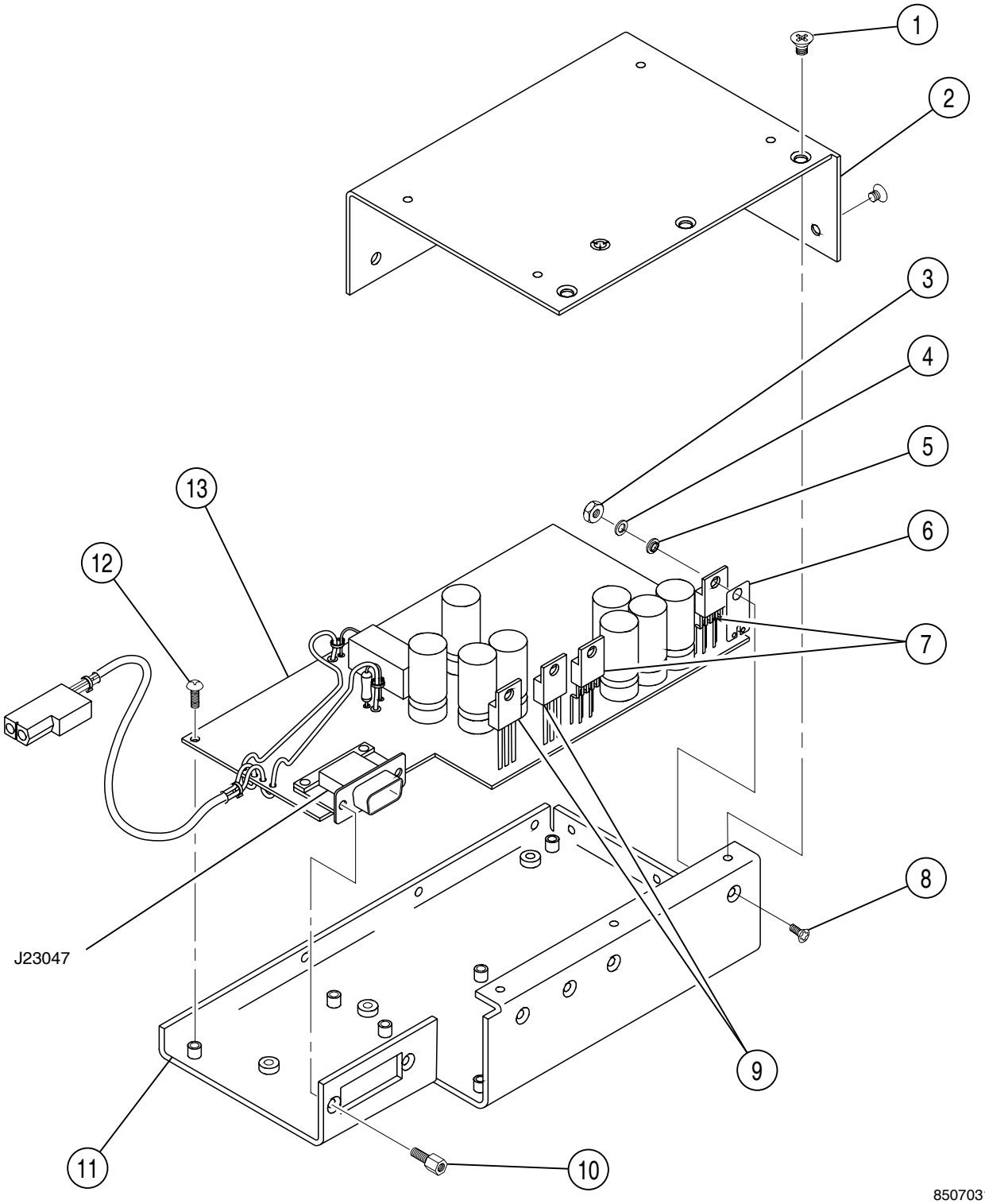
   NOTE: For Steps 4 and 5, item numbers refer to 2-3-1, Figure 1.

4. Lift Power Supply Assy (6) and disconnect J23047 from P23047.
5. Remove Power Supply Assy (6) from Chassis Assy (7). Carefully guide battery cable (5) out from middle of Chassis Assy cavity and through Power Supply Assy cavity.

   POWER SUPPLY PCB ASSY

   NOTE: For Steps 6 through 11, item numbers refer to 2-3-1, Figure 4.

6. Remove nine screws (1) from Power Supply Assy.
7. Remove cover (2) from Power Supply Assy.
8. Remove four screws (8), four nuts (3), four flat washers (4) and four shoulder washers (5) securing regulators (9), FETs (7) and insulators (6) to enclosure (11).
9. Remove two hex nut screws (10) securing J23047 to enclosure (11).
10. Remove nine screws (12) securing Power Supply PCB Assy (13) to enclosure (11).
11. Remove Power Supply PCB Assy (13) from enclosure (11).



Power Supply Assy
Figure 4

(5) Digital IF PCB Assy

NOTE: Item numbers refer to 2-3-1, Figure 1 unless otherwise noted.

STEP	PROCEDURE

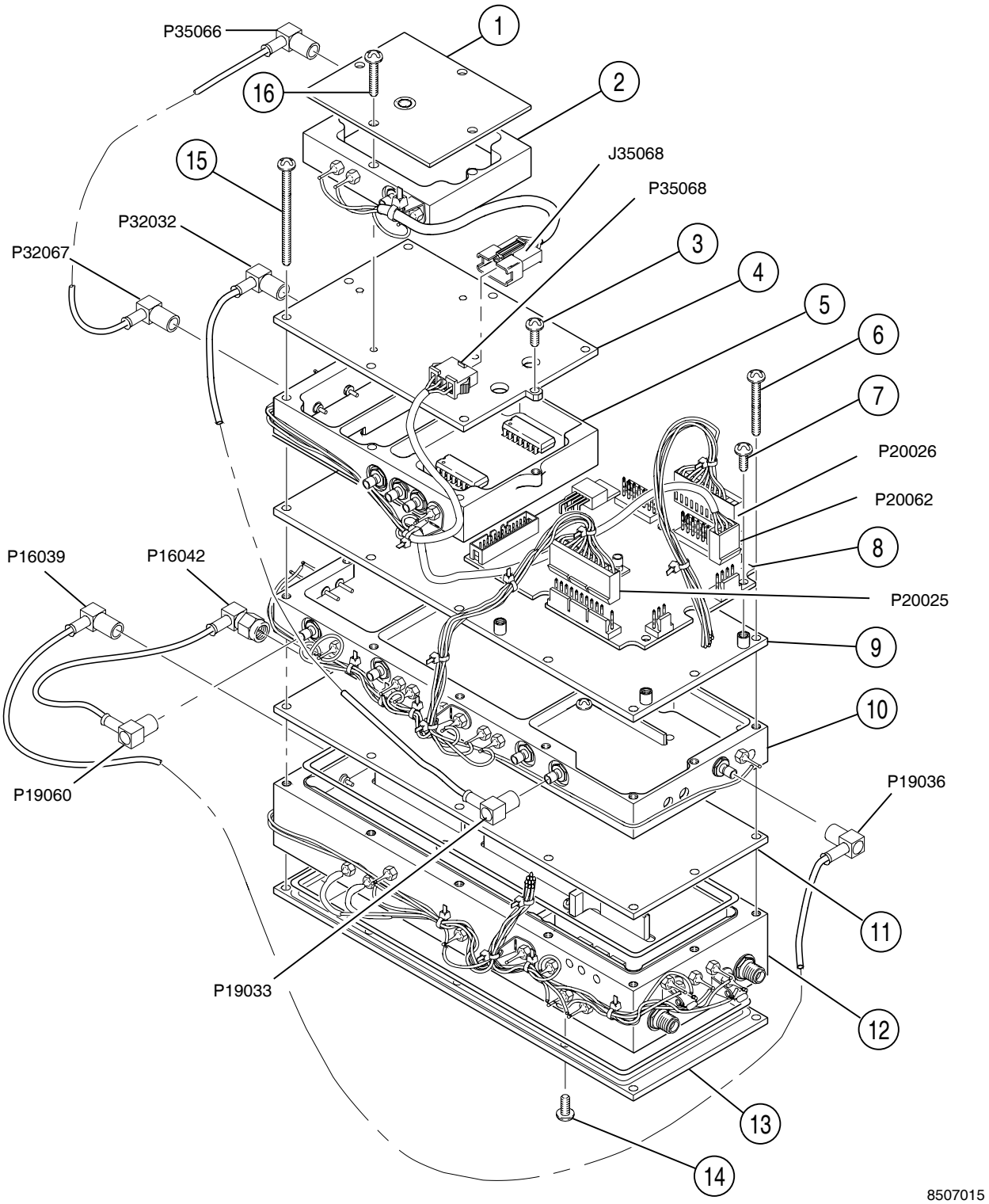
1. Remove Storage Compartment and Chassis Assy (para 2-3-1C[1].
2. Remove two screws (4) (2-3-1, Figure 2) securing PC board retainer (15) to Chassis Assy (7).
3. Pull card ejector (13) and remove Digital IF PCB Assy (14) from Chassis Assy (7).

(6) Front Panel Pulse PCB Assy

NOTE: Item numbers refer to 2-3-1, Figure 1 unless otherwise noted.

STEP	PROCEDURE

1. Remove Storage Compartment and Chassis Assy (para 2-3-1C[1].
2. Remove two screws (4) (2-3-1, Figure 2) securing PC board retainer (16) to Chassis Assy (7).
3. Disconnect P27051 and P27052 from Front Panel Pulse PCB Assy (11).
4. Pull card ejector (12) and remove Front Panel Pulse PCB Assy (11) from Chassis Assy (7).



RF Assy
Figure 5

(7) RF Assy

NOTE: Item numbers refer to 2-3-1, Figure 5 unless otherwise noted.

STEP	PROCEDURE

1. Remove Storage Compartment and Chassis Assy (para 2-3-1C[1].
2. Refer to 2-3-1, Figure 2 and remove six screws (1) securing RF Assy to Chassis Assy (2).
3. Carefully lift RF Assy (20) up and out of Chassis Assy (7), applying minimal stress on connecting cables.
4. Disconnect cables:

P17037 (Front Panel Assy)	**FROM**	J17037 (RF Assy)
P17038 (Front Panel Assy)	**FROM**	J17038 (RF Assy)
P17027 (Front Panel Assy)	**FROM**	J17027 (RF Assy)
P17022 (Motherboard PCB Assy)	**FROM**	J17022 (RF Assy)
P17024 (Motherboard PCB Assy)	**FROM**	J17024 (RF Assy)
P17021 (Motherboard PCB Assy)	**FROM**	J17021 (RF Assy)
P17034 (Motherboard PCB Assy)	**FROM**	J17034 (RF Assy)
P17064 (Motherboard PCB Assy)	**FROM**	J17023 (RF Assy)
P17030 (Front Panel Assy)	**FROM**	J17030 (RF Assy)
P17031 (Motherboard PCB Assy)	**FROM**	J17031 (RF Assy)
P17065 (Motherboard PCB Assy)	**FROM**	J17035 (RF Assy)
P17035 (Motherboard PCB Assy)	**FROM**	J17031 (RF Assy)

5. Remove RF Assy (20) from Chassis Assy (7).

(a) Driver PCB Assy

NOTE: Item numbers refer to 2-3-1, Figure 5 unless otherwise noted.

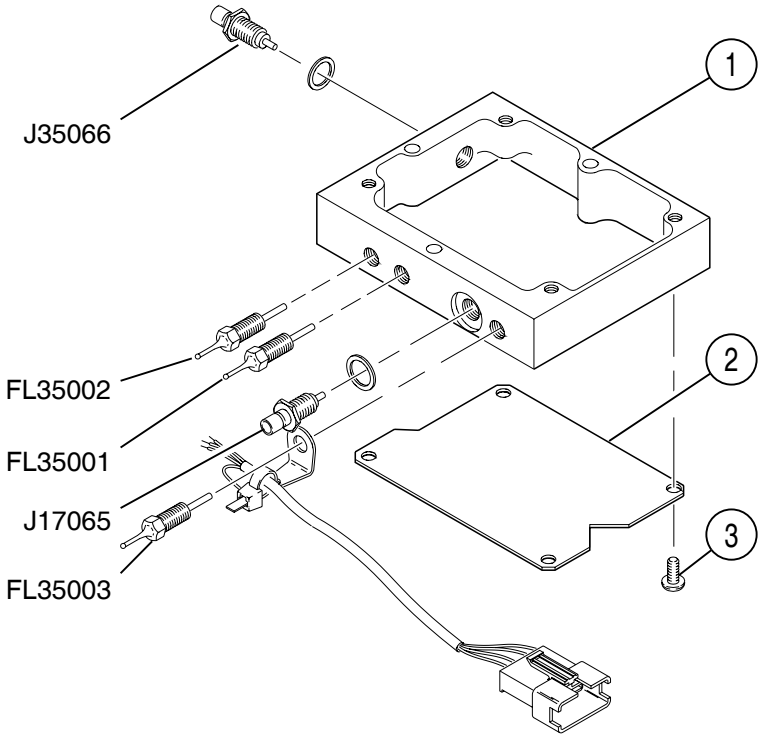
STEP	PROCEDURE

1. Remove RF Assy (para 2-3-1C[7]).
2. Disconnect cables:

P20062 (Detector Assy)	**FROM**	J20062 (Driver PCB Assy)
P20025 (Analog IF Assy)	**FROM**	J20025 (Driver PCB Assy)
P20026 (SSB Assy)	**FROM**	J20026 (Driver PCB Assy)

3. Remove four screws (7) securing Driver PCB Assy (8) to Analog IF cover (9).
4. Remove Driver PCB Assy (8) from RF Assy.

(b) Decoder Assy



Decoder Assy
Figure 6

STEP	PROCEDURE

NOTE: For Steps 1 through 4, item numbers refer to 2-3-1, Figure 5.

1. Remove RF Assy (para 2-3-1C[7]).
2. Disconnect cables:

P35068 (Detector Assy)	**FROM**	J35068 (Decoder Assy)
P35066 (Detector Assy)	**FROM**	J35066 (Decoder Assy

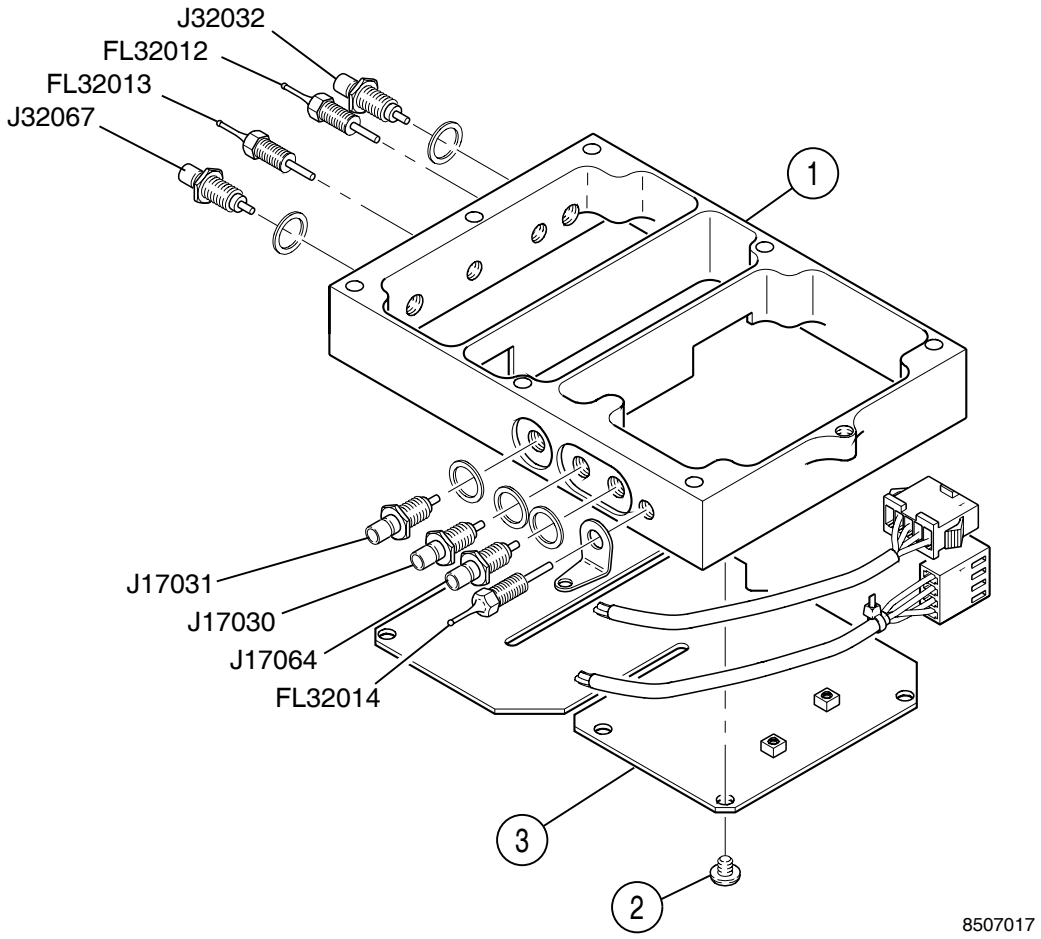
3. Remove four screws (16) securing Decoder cover (1) and Decoder Assy (2) to Detector cover (4).
4. Remove Decoder Assy (2) from RF Assy.

DECODER PCB ASSY

NOTE: For Steps 5 through 7, item numbers refer to 2-3-1, Figure 6.

5. Remove solder from Decoder PCB Assy (2) at filter and connector junctions: FL35003, FL35002, J17065, J35066 and FL35001.
6. Remove four screws (3) securing Decoder PCB Assy (2) to Decoder Assy (1).
7. Remove Decoder PCB Assy (2) from Decoder Assy (1).

(c) Detector Assy



Detector Assy
Figure 7

STEP	PROCEDURE

NOTE: For Steps 1 through 5, item numbers refer to 2-3-1, Figure 5.

1. Remove Decoder Assy (para 2-3-1C[7][b]).
2. Disconnect cables:

P20062 (Detector Assy)	**FROM**	J20062 (Driver PCB Assy)
P32032 (Analog IF Assy)	**FROM**	J32032 (Detector Assy)
P32067 (Decoder Assy)	**FROM**	J32067 (Detector Assy)

3. Remove seven screws (15) securing Detector Assy (5) to SSB Assy (12).
4. Remove Detector Assy (5) from RF Assy.

STEP PROCEDURE

DETECTOR PCB ASSY

5. Loosen screw (3) and rotate Detector cover (4).

   NOTE: For Steps 6 through 8, item numbers refer to 2-3-1, Figure 7.

6. Remove solder from Detector PCB Assy (3) at filter and connector junctions:

FL32014	J17030	J32067	FL32012
J17064	J17031	FL32013	J32032

7. Remove seven screws (2) securing Detector PCB Assy (3) to Detector Assy (1).
8. Remove Detector PCB Assy (3) from Detector Assy (1).

(d) Analog IF Assy

STEP PROCEDURE

NOTE: For Steps 1 through 4, item numbers refer to 2-3-1, Figure 5.

1. Remove Detector Assy (para 2-3-1C[7][c]).
2. Disconnect cables:

P19036 (SSB Assy)	**FROM**	J19036 (Analog IF Assy)
P20025 (Analog IF Assy)	**FROM**	J20025 (Driver PC Board Assy)
P19033 (Detector Assy)	**FROM**	J19033 (Analog IF Assy)
P19060 (SSB Assy)	**FROM**	J19060 (Analog IF Assy)

3. Remove five screws (6) securing Analog IF Assy (10) to SSB Assy (12).
4. Remove Analog IF cover (9) and Analog IF Assy (10) from RF Assy.

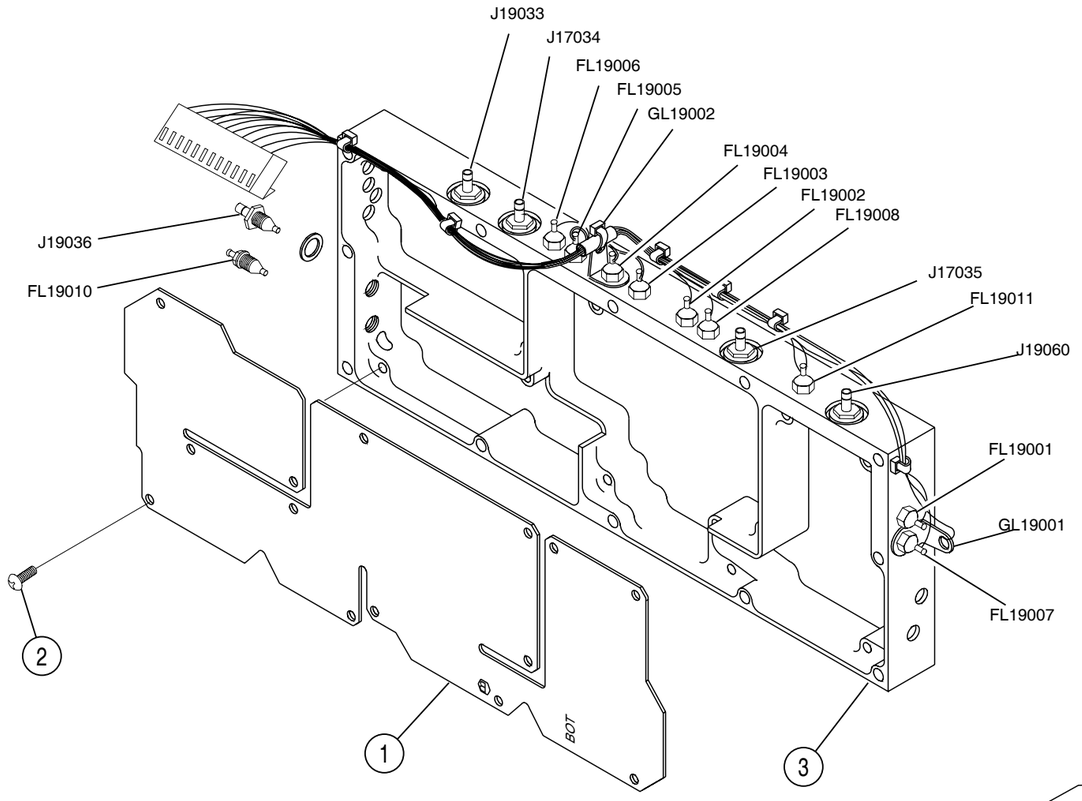
ANALOG IF PCB ASSY

NOTE: For Steps 5 through 7, item numbers refer to 2-3-1, Figure 8.

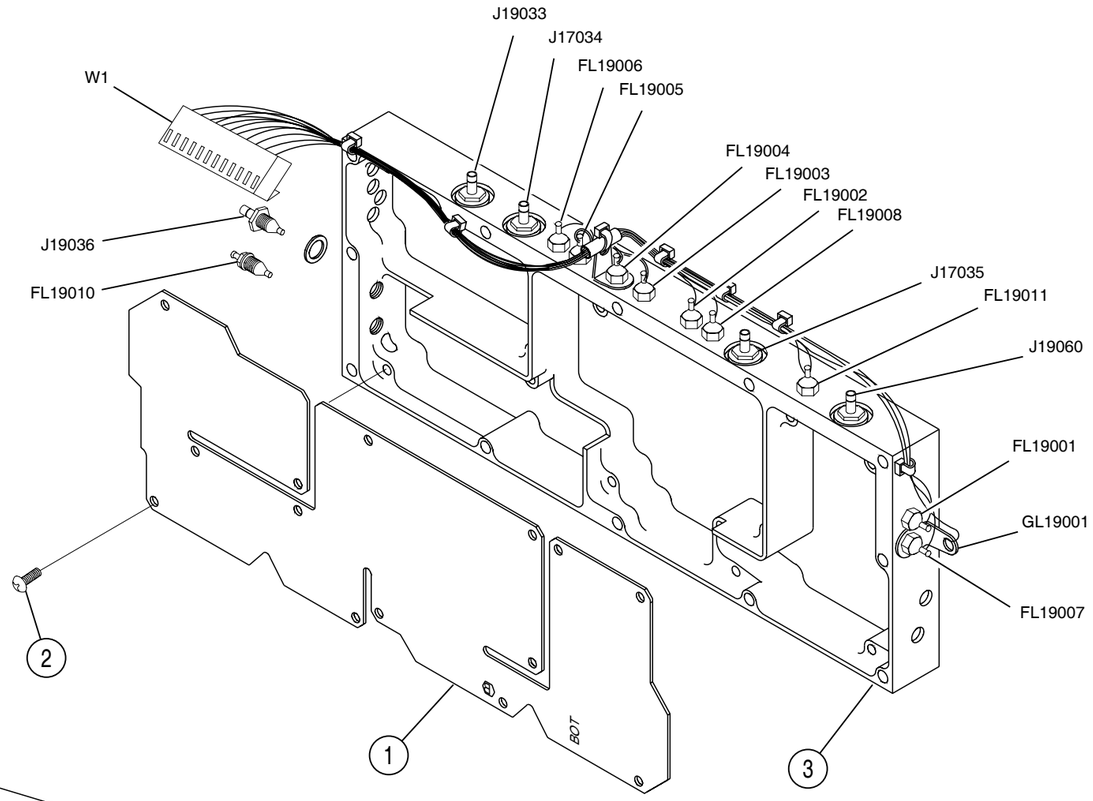
5. Remove solder from Analog IF PCB Assy (1) at filter and connector junctions:

FL19010	FL19006	FL19002	J19060
J19036	FL19005	FL19008	FL19001
J19033	FL19004	J17035	FL19007
J17034	FL19003	FL19011	

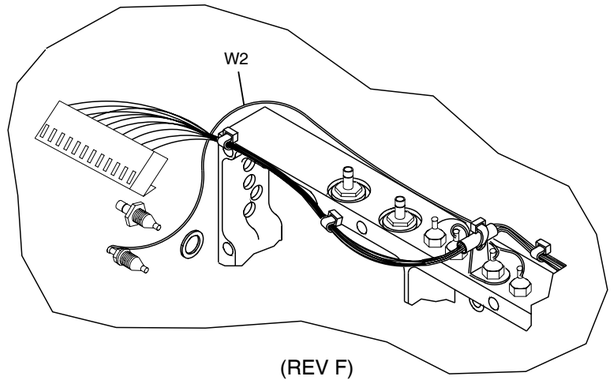
6. Remove 14 screws (2) securing Analog IF PCB Assy (1) to Analog IF Assy (3).
7. Remove Analog IF PCB Assy (1) from Analog IF Assy (3).



(REV D1)



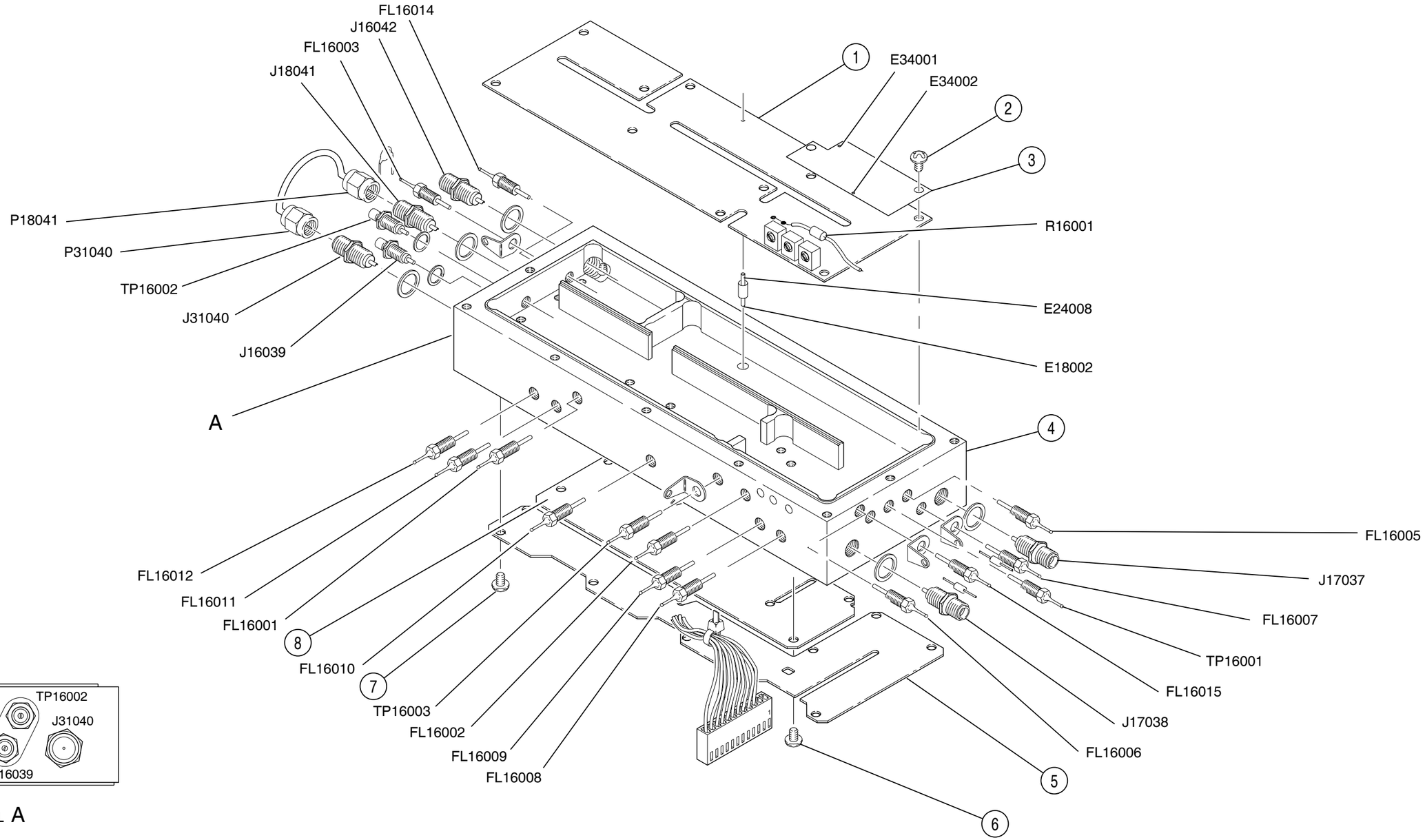
(REV E AND ON)



(REV F)

085M-23

Analog IF Assy
Figure 8



DETAIL A

8507032

SSB Assy
Figure 9

Back To Manuals

(e) SSB Assy

NOTE: Item numbers refer to 2-3-1, Figure 9 unless otherwise noted.

STEP	PROCEDURE

1. Remove RF Assy (para 2-3-1C[7]).

MIXER PCB ASSY

2. Disconnect cables:

P18041 (Attenuator PCB Assy)	**FROM**	J18041 (Mixer PCB Assy)
P31040 (Attenuator PCB Assy)	**FROM**	J31040 (Mixer PCB Assy)
P16039 (Analog IF Assy)	**FROM**	J16039 (SSB Assy) (2-3-1, Figure 5)

3. Refer to 2-3-1, Figure 5 and remove four screws (14) securing Mixer cover (13) to SSB Assy (12).
4. Remove solder from Mixer PCB Assy (8) at filter and connector junctions:

J16039	FL16014	J18041	E18002

5. Remove J16039, FL16014 and J18041 from SSB Assy (4).
6. Remove five screws (6) securing Mixer PCB Assy (8) to SSB Assy (4).
7. Remove Mixer PCB Assy (8) from SSB Assy (4).

ATTENUATOR PCB ASSY

8. Remove solder from Attenuator PCB Assy (5) at filter and connector junctions:

J31040	FL16010	FL16008	FL16007
FL16012	FL16009	J17038	J17037
FL16011			

9. Remove J31040, FL16012, FL16011, FL16010, FL16009, FL16008, J17038, FL16007 and J17037 from SSB Assy (4).
10. Remove nine screws (7) securing Attenuator PCB Assy (5) to SSB Assy (4).
11. Remove Attenuator PCB Assy (5) from SSB Assy (4).

LO SOURCE PCB ASSY

12. Remove Analog IF Assy (para 2-3-1C[7][d]).
13. Refer to 2-3-1, Figure 5 and remove LO Source cover (11) from SSB Assy (12).
14. Disconnect cables:

P16042 (Analog IF Assy)	**FROM**	J16042 (SSB Assy)

15. Remove solder from LO Source PCB Assy (1) and Source Module VCO PCB Assy (3) at filter, test point and connector junctions:

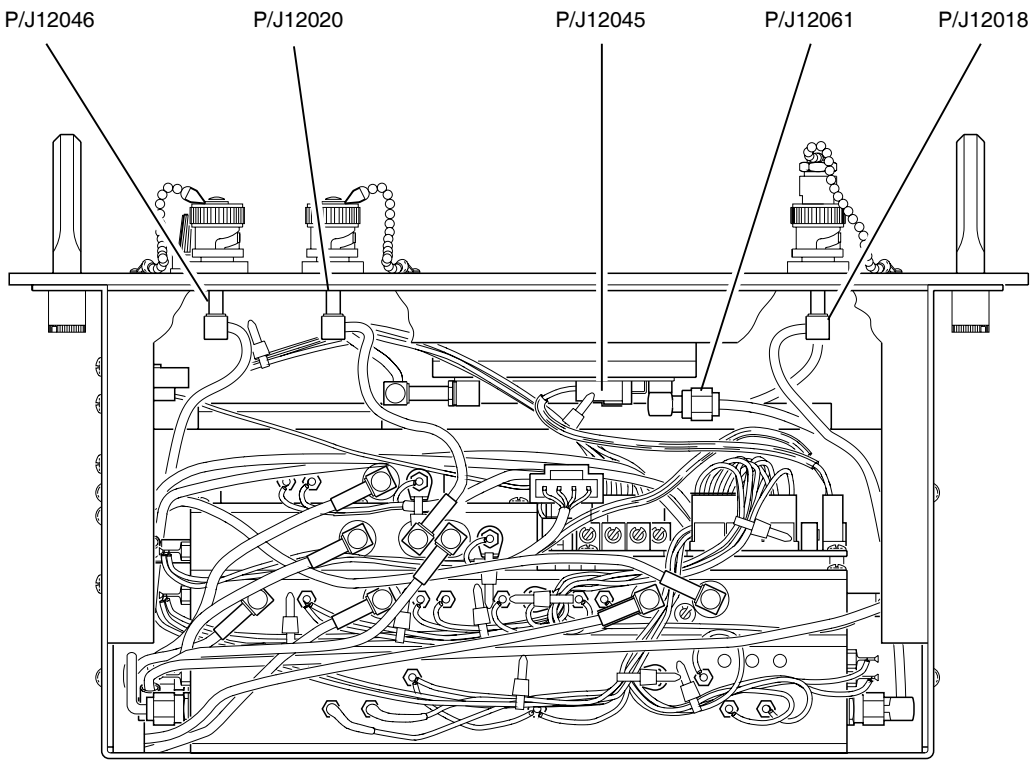
FL16005	FL16006	FL16001	J16042
TP16001	FL16002	TP16001	E24008
FL16015	TP16003	FL16003	

16. Remove FL16005, TP16001, FL16015, FL16006, FL16002, TP16003, FL16001, TP16002, FL16003 and J16042 from SSB Assy (4).
17. Remove 10 screws (2) securing LO Source PCB Assy (1) to SSB Assy (4).
18. Remove LO Source PCB Assy (1) from SSB Assy (4).

SOURCE MODULE VCO PCB ASSY

19. Remove solder and wire from E34001 and E34002.
20. Remove Source Module VCO PCB Assy (3) from LO Source PCB Assy (1).

(8) Front Panel Assy



TCAS-201-2 Top View
Figure 10

STEP	PROCEDURE

1. Remove Storage Compartment and Chassis Assy (para 2-3-1C[1]).
2. Refer to 2-3-1, Figure 2 and disconnect cables:

P30049A (Front Panel Assy)	**FROM**	J30049A/B (Line Supply Assy)

3. Refer to 2-3-1, Figure 10 and disconnect cables:

P12018 (RF Assy)	**FROM**	J12018 (Front Panel Assy)
P12061 (RF Assy)	**FROM**	J12061 (Front Panel Assy)
P12045 (RF Assy)	**FROM**	J12045 (Front Panel Assy)
P12020 (RF Assy)	**FROM**	J12020 (Front Panel Assy)
P12046 (Motherboard PCB Assy)	**FROM**	J12020 (Front Panel Assy)

STEP PROCEDURE

NOTE: For Steps 4 through 10, item numbers refer to 2-3-1, Figure 1.

4. Loosen four captive screws (8).
5. Remove two handles (24) and four washers (23) from Front Panel Assy (3).
6. Tilt left side of Front Panel Assy (3) up approximately 30° and disconnect cables:

P27052 (Front Panel Assy) (7005-8544-200)	**FROM**	J27052 (Front Panel Pulse PCB Assy)
OR		
A2W2P1 (Front Panel Assy) (7005-8540-100)		
P27051 (Front Panel Assy) (7005-8544-200)	**FROM**	J27051 (Front Panel Pulse PCB Assy)
OR		
A2W1P1 (Front Panel Assy) (7005-8540-100)		

NOTE: Left side of Chassis Assy (7) has access to PC boards and battery.

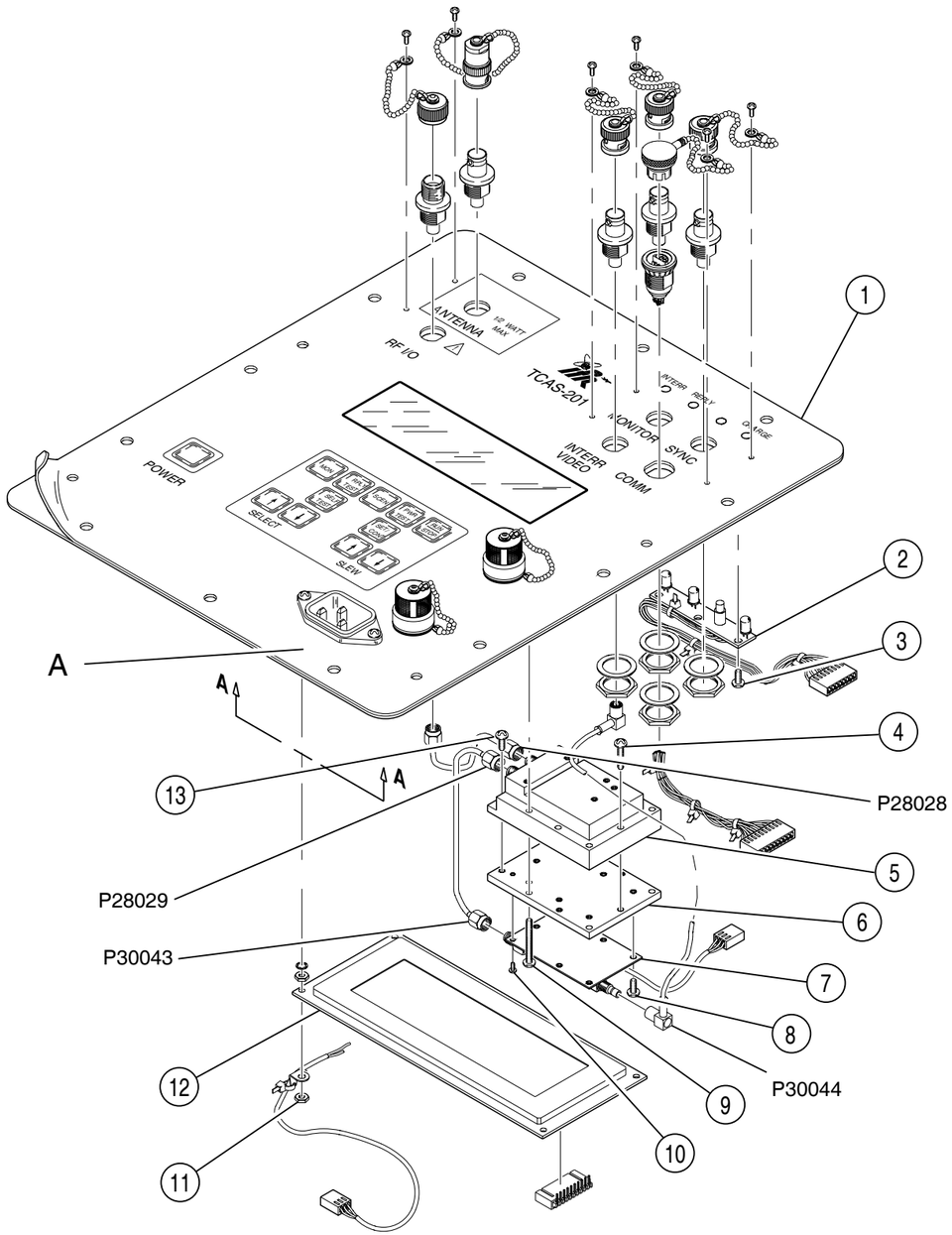
7. Set left side of Front Panel Assy (3) on Chassis Assy (7) and tilt right side of Front Panel Assy (3) up approximately 30°.

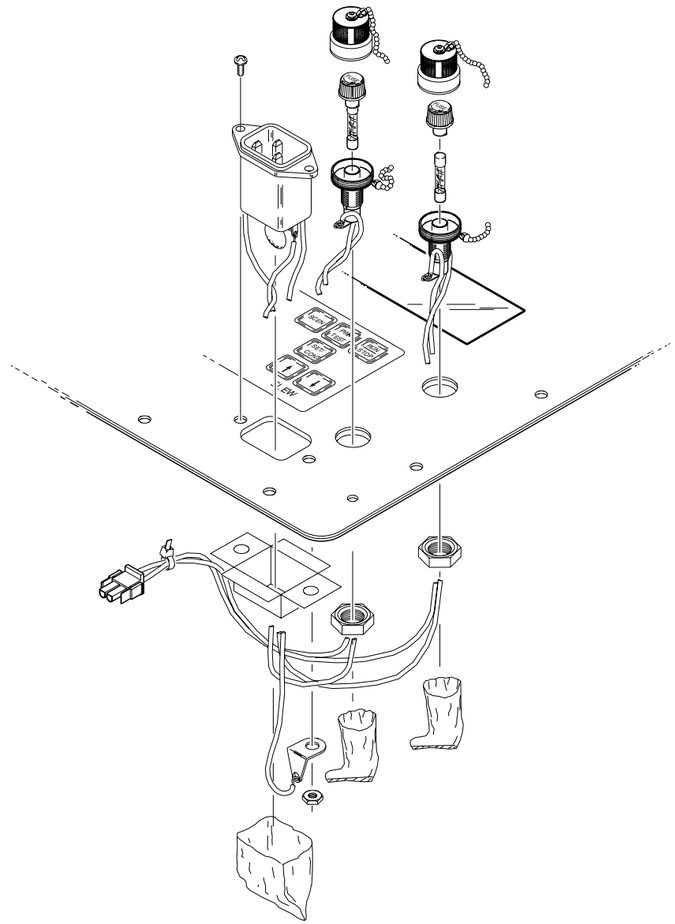
NOTE: The Keypad ribbon cable is taped to the Front Panel Assy (3) and should be carefully untaped to achieve better access to connecting cables.

8. Disconnect cables:

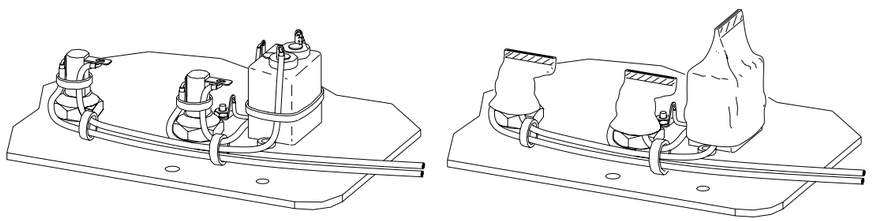
P25011 (Front Panel Assy)	**FROM**	J25011 (Motherboard PCB Assy)
P25010 (Front Panel Assy)	**FROM**	J25010 (Motherboard PCB Assy)
P25014 (Front Panel Assy)	**FROM**	J25014 (Motherboard PCB Assy)

9. Carefully guide connecting cables and remove Front Panel Assy (3) from Chassis Assy (7).





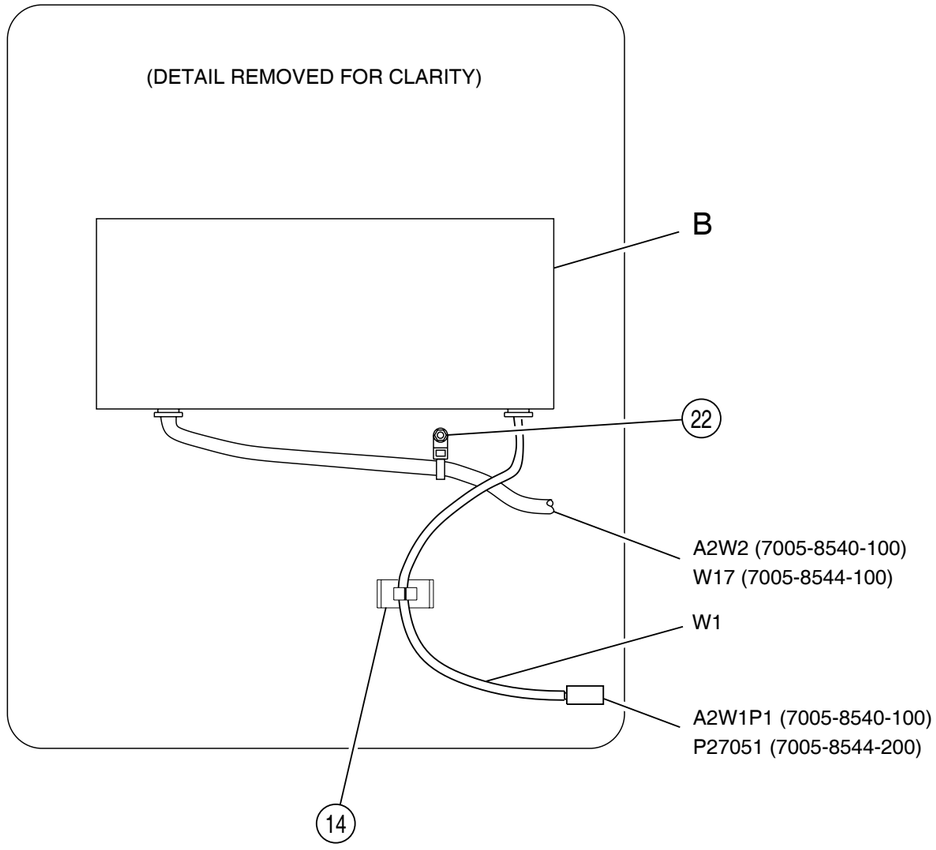
DETAIL A



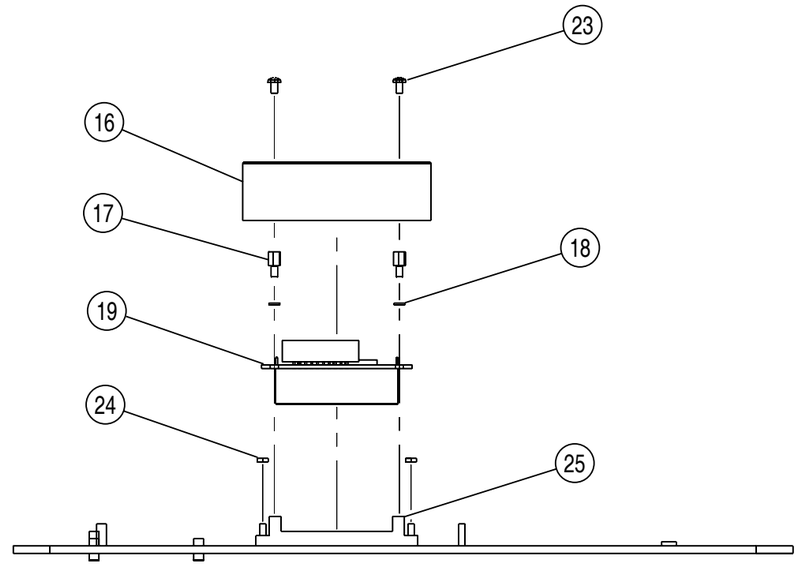
VIEW A - A

8507042

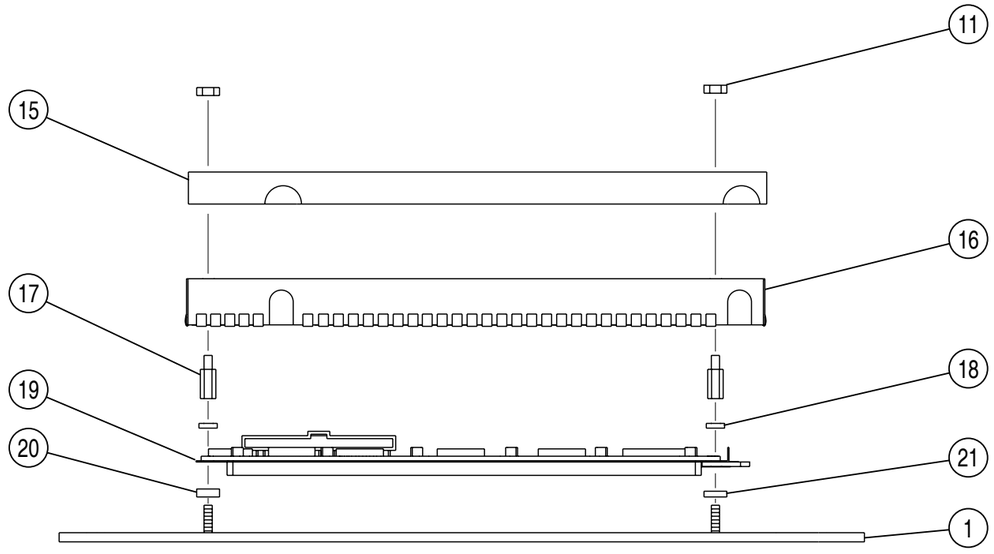
Front Panel Assy (Sheet 1 of 2)
Figure 11



VIEW B-B



(7005-8540-100)



(7005-8544-200)

DETAIL B

8507034

Front Panel Assy (Sheet 2 of 2)
Figure 11

(a) Video Detector PCB Assy

NOTE: Item numbers refer to 2-3-1, Figure 11 unless otherwise noted.

STEP	PROCEDURE

1. Remove Front Panel Assy (para 2-3-1C[7]).
2. Disconnect cables:

P30043 (Power Termination Assy)	**FROM**	J30043 (Video Detector PCB Assy
P30044 (REPLY VIDEO Connector)	**FROM**	J30043 (Video Detector PCB Assy

3. Remove seven screws (8) and two screws (10) securing Video Detector PCB Assy (7) to Power Termination cover (6).
4. Remove Video Detector PCB Assy (7) from Front Panel Assy (1).

(b) Power Termination Assy

STEP	PROCEDURE

1. Remove Front Panel Assy (para 2-3-1C[7]).

   NOTE: For Steps 2 through 5, item numbers refer to 2-3-1, Figure 11.

2. Disconnect cables:

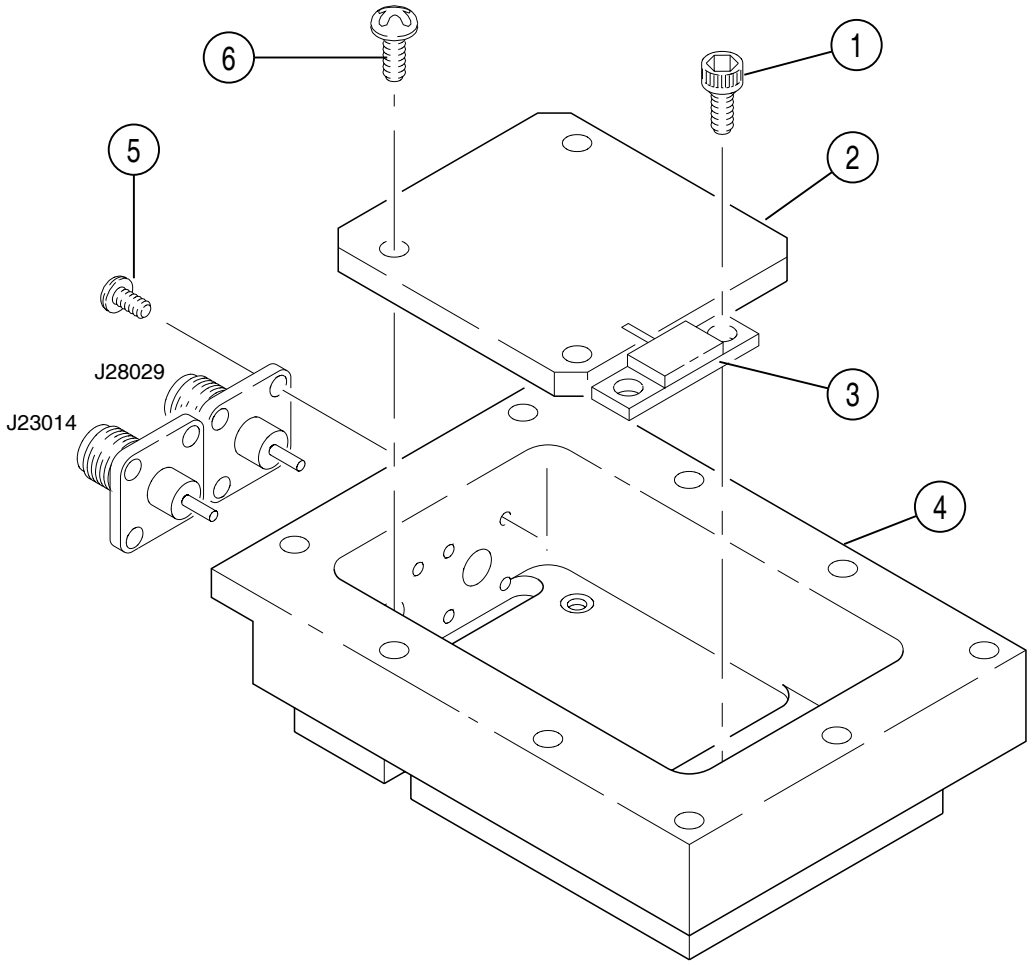
P28028 (RF I/O Connector)	**FROM**	J28028 (Power Termination Assy
P28029 (Video Detector PCB Assy)	**FROM**	J28029 (Power Termination Assy
P30044 (REPLY VIDEO Connector)	**FROM**	J30044 (Video Detector PCB Assy)

3. Remove four screws (9) securing Power Termination Assy (5) to Front Panel Assy (1).
4. Remove three screws (4) and two screws (13) securing Power Termination cover (6).
5. Remove Power Termination cover (6) from Power Termination Assy (5).

   NOTE: For Steps 6 through 13, item numbers refer to 2-3-1, Figure 12.

   RESISTOR R28002

6. Remove two socket head screws (1) securing R28002 (3) to Power Termination Assy (4).
7. Remove solder from connection between R28002 (3) and Power Termination PC Board (2).
8. Remove R28002 (3) from Power Termination Assy (4).



Power Termination Assy
Figure 12

STEP PROCEDURE

CONNECTORS J28028 AND J28029

9. Remove four screws (5) securing J28028 or J28029 to Power Termination Assy (4).
10. Remove solder between connector and Power Termination PC Board (2).
11. Remove connector from Power Termination Assy (4).

POWER TERMINATION PC BOARD

12. Remove three screws (6) securing Power Termination PC Board (2) to Power Termination Assy (4).
13. Remove Power Termination PC Board (2) and Power Termination Assy (4).

(c) Front Panel LED PCB Assy

NOTE: Item numbers refer to 2-3-1, Figure 11.

STEP PROCEDURE

1. Remove Front Panel Assy (para 2-3-1C[7]).
2. Remove three screws (3) securing Front Panel LED PCB Assy (2) to Front Panel Assy (1).
3. Remove Front Panel LED PCB Assy (2) from Front Panel Assy (1).

(d) LCD Display PCB Assy (Modified)

NOTE: Item numbers refer to 2-3-1, Figure 11.

STEP PROCEDURE

1. Remove Front Panel Assy (para 2-3-1C[7]).
2. (7005-8544-200) Remove four nuts (11) (7005-8544-200) securing LCD (12) to Front Panel Assy (1).

   (7005-8540-100) Remove four screws (23) (7005-8540-100) securing LCD (12) to Front Panel Assy (1).
3. Remove wire harness restraining nut (22) and remove wire harness (W1) from adhesive clip (14).
4. Remove shield support bracket (15) and slide back grommets from display shield (16). (7005-8544-200 only)
5. Carefully remove display shield (16).
6. Remove four standoffs (17) and four spacers (18).
7. Remove LCD Display PCB Assy (Modified) (19) from Front Panel Assy (1).
8. (7005-8544-200) Note locations of different size washers (20) and (21). Remove four washers (20) and (21).

   (7005-8540-100) Remove four nuts (24) and display support bracket (25) from Front Panel Assy (1).
9. (7005-8544-200) Disconnect W17P1 from J12059 on LCD Display PCB Assy (Modified) (19).

   (7005-8540-100) Disconnect A2W2P1 from J27052 on Front Panel Pulse PCB Assy (11) (2-3-1, Figure 1).

(9) Flat Antenna Assy

NOTE: Item numbers refer to 2-3-1, Figure 13 unless otherwise noted.

STEP	PROCEDURE

1. Remove two screws (13) and cover plate (12) from Flat Antenna Assy (14).
2. Refer to Detail A in 2-3-1, Figure 13. Remove solder from connections between Antenna PC Board (21) and Splitter PC Board (16).
3. Refer to Detail A in 2-3-1, Figure 13 and remove two screws (20).
4. Remove 10 screws (19) securing handle to Flat Antenna Assy (14).
5. Remove handle from Flat Antenna Assy (14).

FLAT ANTENNA CONNECTOR (J29001)

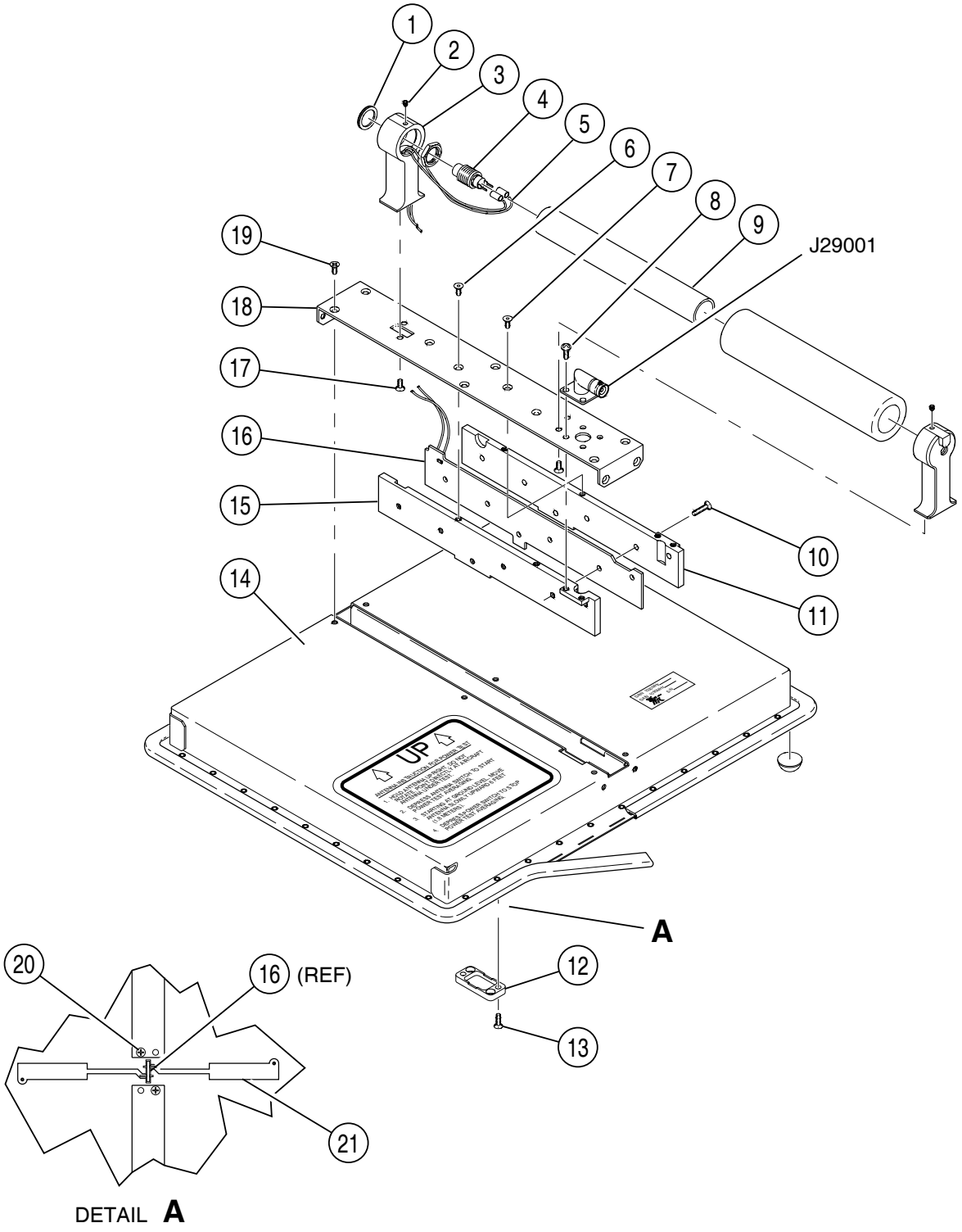
6. Remove six screws (10) securing right plate (11) to left plate (15).
7. Remove two screws (8) securing J29001 to left plate (15).
8. Remove two screws (6) and left plate (15) from back plate (18).
9. Remove solder from connection between J29001 and Splitter PC Board (16).
10. Remove two screws (8) securing J29001 to right plate (11).
11. Remove J29001 from back plate (18).

SPLITTER PC BOARD

12. Remove two screws (7) and right plate (11) from back plate (18).
13. Remove solder from switch wire (5) connections on Splitter PC Board (16).
14. Remove Splitter PC Board (16) from handle.

ANTENNA PUSH BUTTON SWITCH (S29001)

15. Remove ring nut (1) from push button switch (4).
16. Remove two screws (18) securing top handle bracket (3).
17. Loosen socket head screw (2) in top handle bracket (3).
18. Remove top handle bracket (3) from handle (9) and back plate (18).
19. Remove push button switch (4) from top handle bracket (3).



Flat Antenna Assy
Figure 13

(10) Motherboard PCB Assy

NOTE: Item numbers refer to 2-3-1, Figure 1 unless otherwise noted.

STEP	PROCEDURE

1. Remove Power Supply Assy (para 2-3-1C[4]).
2. Remove Digital IF PCB Assy (para 2-3-1C[5]).
3. Remove Front Panel Pulse PCB Assy (para 2-3-1C[6]).
3. Remove Front Panel Assy (para 2-3-1C[8]).
4. Remove two screws (4) securing P23047 to the Chassis Assy (7).
5. Refer to 2-3-1, Figure 2 and disconnect cables:

P33049B (Power Supply Assy)	**FROM**	J33049A/B (Line Supply Assy
P25001 (RF Assy)	**FROM**	J25001 (Motherboard PCB Assy)
P25009 (Front Panel Assy)	**FROM**	J25009 (Motherboard PCB Assy)
P25002 (RF Assy)	**FROM**	J25002 (Motherboard PCB Assy)
P25062 (RF Assy)	**FROM**	J25062 (Motherboard PCB Assy)
P25005 (RF Assy)	**FROM**	J25005 (Motherboard PCB Assy)
P25003 (RF Assy)	**FROM**	J25003 (Motherboard PCB Assy)
P25065 (RF Assy)	**FROM**	J25065 (Motherboard PCB Assy)

6. Remove 12 screws (21) securing Motherboard PC Board Assy (22) to Chassis Assy (7).
7. Remove Motherboard PCB Assy (22) from Chassis Assy (7).

2. Reassembly

A. General

Reassembly depends upon extent of disassembly and should be performed with normal repair and/or cleaning. Perform reassembly in reverse sequence of disassembly procedures. Incorporate Special Reassembly Procedures in para 2-3-2C as required.

B. Preliminary Considerations

(1) Tools Required

Reassembly requires the same tools required for disassembly. Refer to 2-3-1, Table 1.

(2) Reassembly Precautions

CAUTION: INSURE ALL COAXIAL CONNECTIONS ARE PROPERLY MATED.

CAUTION: AVOID BENDING OR TWISTING SEMI-RIGID COAXIAL CABLES.

CAUTION: PLACE ALL RIBBON CABLES TO LAY FLAT AND NEATLY FOLDED.

CAUTION: AVOID PLACING UNDUE STRAIN ON ANY WIRE OR CABLE.

CAUTION: AVOID OVERTIGHTENING SCREWS AND NUTS INCLUDING COAXIAL CONNECTORS.

CAUTION: REPLACE EACH REMOVED PLASTIC FASTENER IN SAME LOCATION AS MARKED AND CONFIGURED AS WAS PRIOR TO REMOVAL.

CAUTION: AVOID EXPOSING COMPONENTS TO EXCESSIVE HEAT WHEN SOLDERING.

CAUTION: REPLACE WORN SHOULDER WASHERS AND INSULATORS. CAREFULLY REINSTALL SHOULDER WASHERS AND INSULATORS IN CORRECT POSITIONS. FAILURE TO INSTALL SHOULDER WASHERS AND INSULATORS CORRECTLY COULD RESULT IN A SHORT CIRCUIT.

(3) ESD

CAUTION: THE POWER SUPPLY PCB ASSY, DIGITAL IF PCB ASSY, FRONT PANEL PULSE PCB ASSY, RF ASSY AND FRONT PANEL ASSY CONTAIN PARTS SENSITIVE TO DAMAGE BY ELECTROSTATIC DISCHARGE (ESD). ALL PERSONNEL PERFORMING REASSEMBLY SHOULD HAVE KNOWLEDGE OF ACCEPTED ESD PRACTICES AND/OR BE ESD CERTIFIED.

(4) 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. Special Reassembly Procedures

(1) Storage Compartment and Chassis Assy

NOTE: Instrument Case Top (2503-8153-600) and Bottom (1412-8153-500) are a matched set and should not be separated.

- Replace the twelve nylon washers (2840-8110-000) to maintain water resistance capability.
- Tighten twelve screws securing Chassis Assy to Case Assy with 23 inch•pounds (2.56 newton•meters) of torque.

(2) Battery

- Ensure Battery Ejector Strap (1410-7452-300) is installed with doubled-over side facing out.

(3) Line Supply Assy

NOTE: Mounting hardware (one metal washer [on top] and two rubber washers [one washer on bottom, one washer on top] is supplied with transformer, when installed new.

- Hand clean with solvent only. Do not submerse in solvent.
- Apply Loctite 222 (1050-0000-047) to first 1/4 in of threads of screw (2809-1000-006) securing T33001 to Line Supply PCB Assy. Torque screw to 24 inch•pounds (2.71 newton•meters).
- Wires W1 and W2 (E1 through E4) are to be soldered from top side only.

LINE SUPPLY PCB ASSY

- Add S15001 last. Do not submerse switch in solvent, brush clean only.
- Trim leads to 0.070 in maximum.

(4) Power Supply Assy

- Use thermal compound (1050-0000-019) on both sides of mica insulators (4835-0000-103) (four places).

POWER SUPPLY PCB ASSY

- Add T14001 and T14002 last. Do not submerse transformers in solvent, brush clean only.
- Remove thick gold wire with identification labels 5 and 6 from T14001 and T14002 when installed new.

(5) Digital IF PCB Assy

- Apply Loctite 222 (1050-0000-047) to nuts on L26009, L26010 and Q26005.

(6) Front Panel Pulse PCB Assy

NOTE: Metallic top of U27044 is connected to +5 Vdc.

- Add S27001 and U27044 last. Do not submerse switch and IC in solvent.

(7) RF Assy

- No special reassembly procedures required.

(a) Driver PCB Assy

- No special reassembly procedures required.

(b) Decoder Assy

- No special reassembly procedures required.

DECODER PCB ASSY

- No special reassembly procedures required.

(c) Detector Assy

- No special reassembly procedures required.

DETECTOR PCB ASSY

- No special reassembly procedures required.

(d) Analog IF Assy

- No special reassembly procedures required.

ANALOG IF PCB ASSY

- Add Y22001 last. Do not submerse crystal in solvent.
- TAK PAK end of L22027 to PCB Assy.
- Refer to Analog IF PCB Assy Circuit Schematic (2-4-1, Figure 42) for Select At Test (SAT) values for C22080, C22082 and R22065.

(e) SSB Assy

- No special reassembly procedures required.

MIXER PCB ASSY

- Refer to 2-3-2, Figure 14 for special reassembly procedures.

ATTENUATOR PCB ASSY

- No special reassembly procedures required.

LO SOURCE PCB ASSY

- No special reassembly procedures required.

SOURCE MODULE VCO PCB ASSY

- No special reassembly procedures required.

(8) Front Panel Assy

- Discard nut and washer supplied with XF0001 and XF0002, when installing new.
- Apply adhesive (1050-0000-288) to threads and seating face of both fuse holders nuts (2850-7894-800). Apply adhesive (1050-0000-289) to fuse holders and nut sealing areas of enclosure. Torque fuse holder nuts (2850-7894-800) to 7 inch•pounds (0.79 newton•meters).
- Apply adhesive (1050-0000-140) to backside of six screws (2803-0188-006) securing the chains / cables attached to the connector caps to the Front Panel after screws are installed.
- Before applying Overlay (2403-8553-500) to Front Panel (1405-8158-200), center Lens (3900-8157-100) with conductive side down over opening of Front Panel (1405-8158-200).
- After installing W1 (Backlight Wire Harness), spot coat E1-1 and E1-2 on top side of the LCD Display PCB Assy (Modified) with conformal coating. Refer to 2-3-2, Figure 15 for location of E1-1 and E1-2.

(a) Video Detector PCB Assy

- No special reassembly procedures required.

(b) Power Termination Assy

- Trim R28002 lead to 0.17 in (±0.01 in) before reinstalling.
- Position PC Board and R28002 to maintain equal gap at both ends of PC Board (approximately 0.05 in).
- Spot coat E1 and E2 after reassembly. Avoid over-spray of conformal coating on block flange.

(c) Front Panel LED PCB Assy

- No special reassembly procedures required.

(d) LCD Display PCB Assy (Modified)

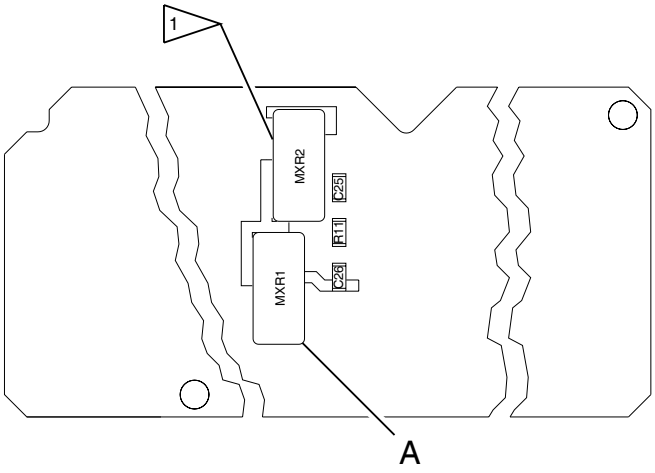
- No special reassembly procedures required.

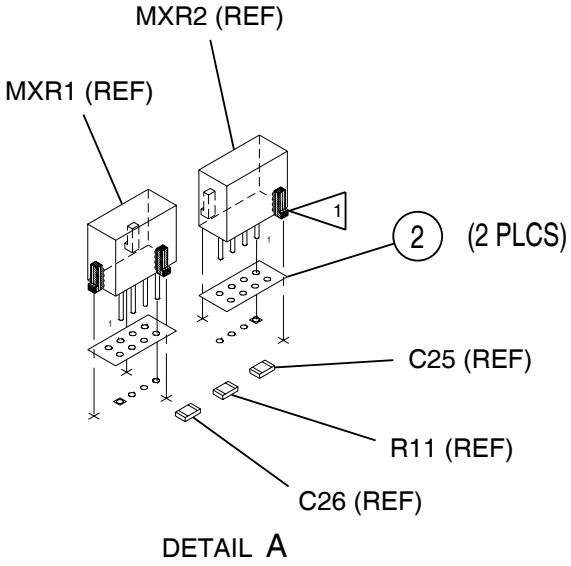
(9) Flat Antenna Assy

- Refer to 2-3-2, Figure 16 for special reassembly procedures.

(10) Motherboard PCB Assy

- No special reassembly procedures required.





DETAIL A

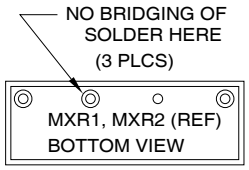
SPECIAL REASSEMBLY PROCEDURES

1 MXR1 & MXR2 MUST BE INSTALLED IN STEPS. WHEN PLACING SOLDER WICK (DPN 1050-0000-207) USE ONLY ESD CERTIFIED, QUICK-RECOVERY SOLDERING STATION WITH 3/32" 30 DEG. CHISEL TIP (TEMPERATURE: ≤ 775°F [405°C]).

CAUTION: EXCESSIVE HEAT DESTROYS MIXERS.

STEP 1: SOLDER SOLDER WICK TO SIDES OF MXR1 & MXR2, IN LOCATIONS SHOWN (5 PLCS). SEE DETAIL A.

STEP 2: AFTER SOLDERING SOLDER WICK TO BOTH MIXERS, VERIFY THAT SOLDER HAS NOT BRIDGED TO ANY LEADS.

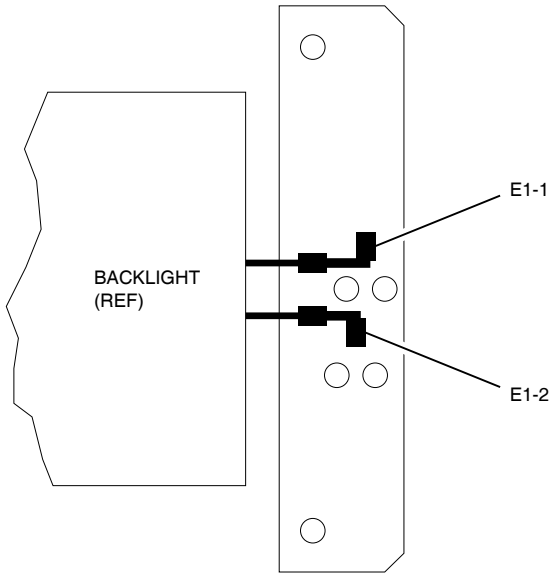


STEP 3: SOLDER MXR1 & MXR2 IN PLACE, THEN TACK SOLDER SOLDER WICK TO GROUND.

CAUTION: DO NOT USE EXCESSIVE HEAT OR SOLDER WHEN SOLDERING TO GROUND.

8530801P

Mixer PCB Assy
Figure 14



8534000P

Solder Points for W1 (Backlight Wire Harness)
Figure 15

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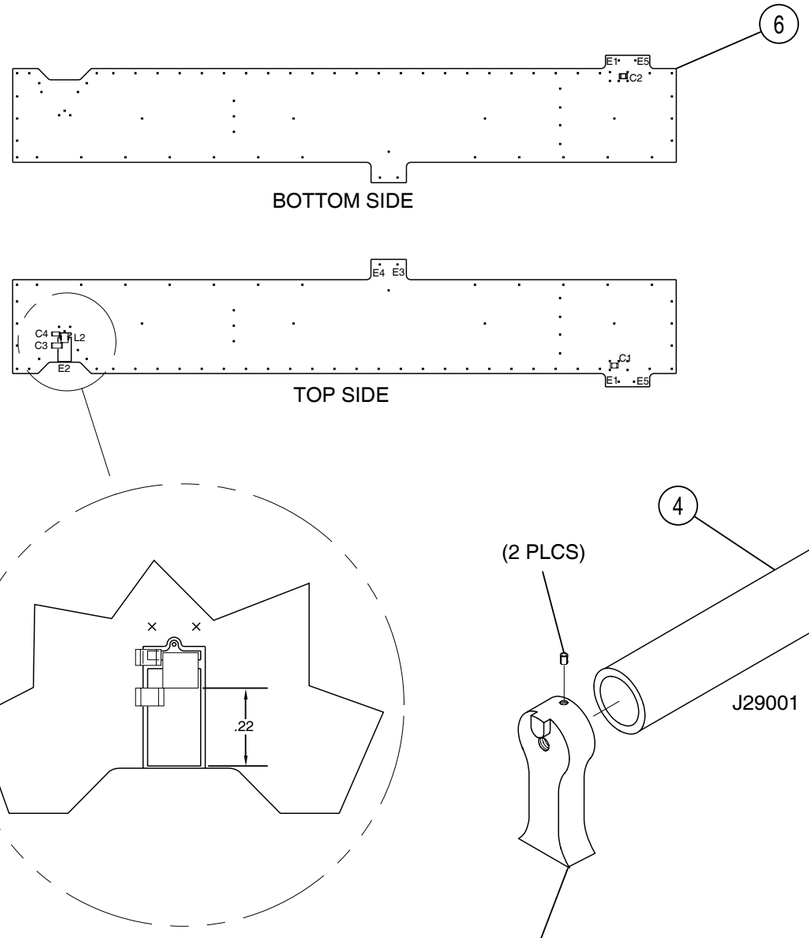
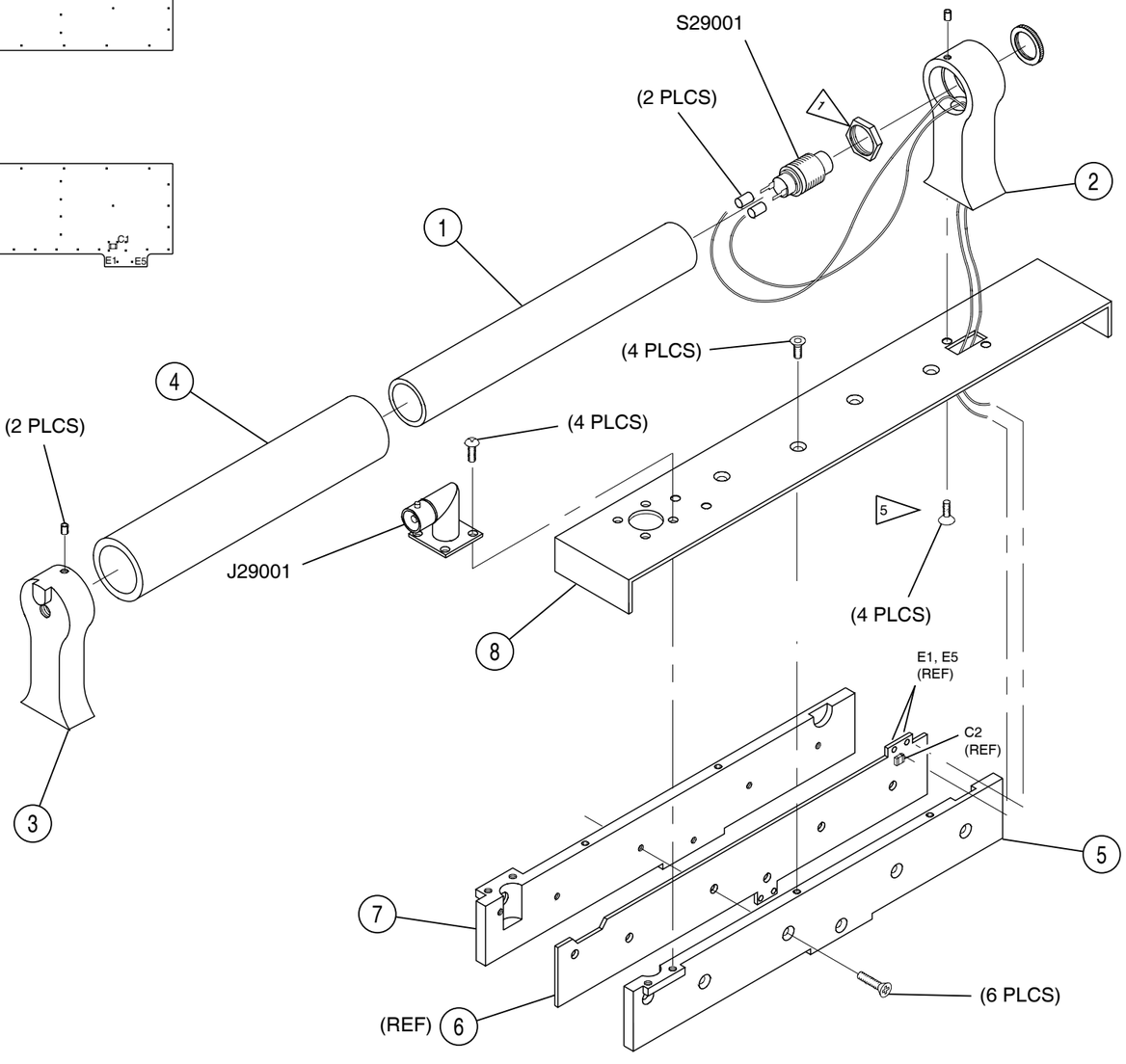




WIRE RUNNING LIST				
FROM	TO	WIRE		
TERMINAL	TERMINAL	COLOR	AWG	LG
E1	S29001	BLK	26	3.0
E5	S29001	BLK	26	3.0
E4	E6	BUS	26	.25
E3	E7	BUS	26	.25

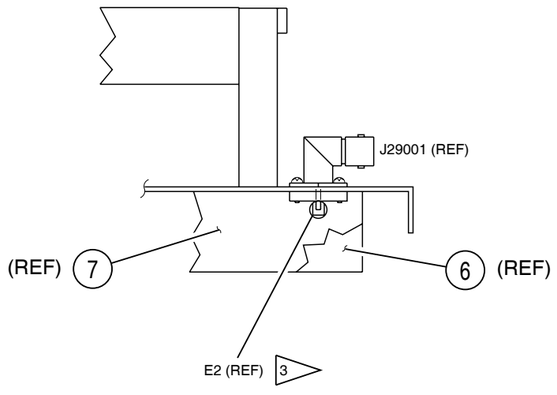
TOLERANCE: ±0.1

SPECIAL REASSEMBLY PROCEDURES:

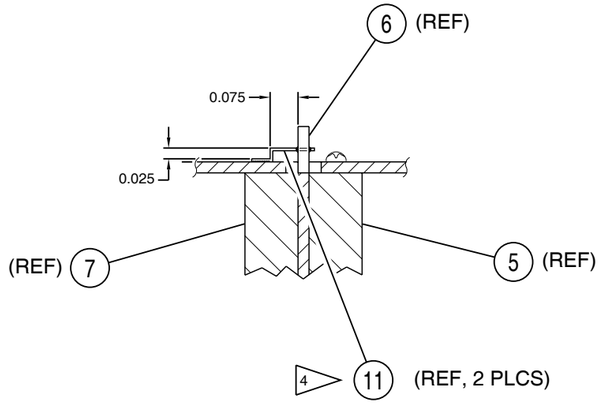
1. SCREW NUT ONTO S29001 (FINGER TIGHT).
2. ALL PARTS ON SHEET 1 MUST BE ASSEMBLED IN SEQUENCE:
   - A. MOUNT ITEMS 1, 2, 3 AND 4 PRIOR TO INSTALLING SPLITTER PCB ASSY.
   - B. ASSEMBLE ITEMS 5, 6 AND 7. DO NOT TIGHTEN SCREWS AT THIS TIME.
   - C. SOLDER WIRES TO ITEM 6 AS SHOWN.
   - D. MOUNT ITEMS 5, 6 AND 7 TO ITEM 8. MAKE SURE THAT ITEM 6 IS CENTERED BETWEEN ITEMS 5 AND 7, THEN TIGHTEN ALL SCREWS.
   - E. INSTALL J29001 TIGHT AGAINST ITEM 6. TIGHTEN SCREWS.
3. USE ACCESS HOLE TO SOLDER J29001 TO E2.
4. INSTALL ITEM 9 PRIOR TO INSTALLING ITEMS 10 AND 11.
5. TORQUE SCREWS TO 8 IN/LBS. APPLY LOCTITE 290-21 TO THREADS PRIOR TO ASSEMBLY.

8545601M

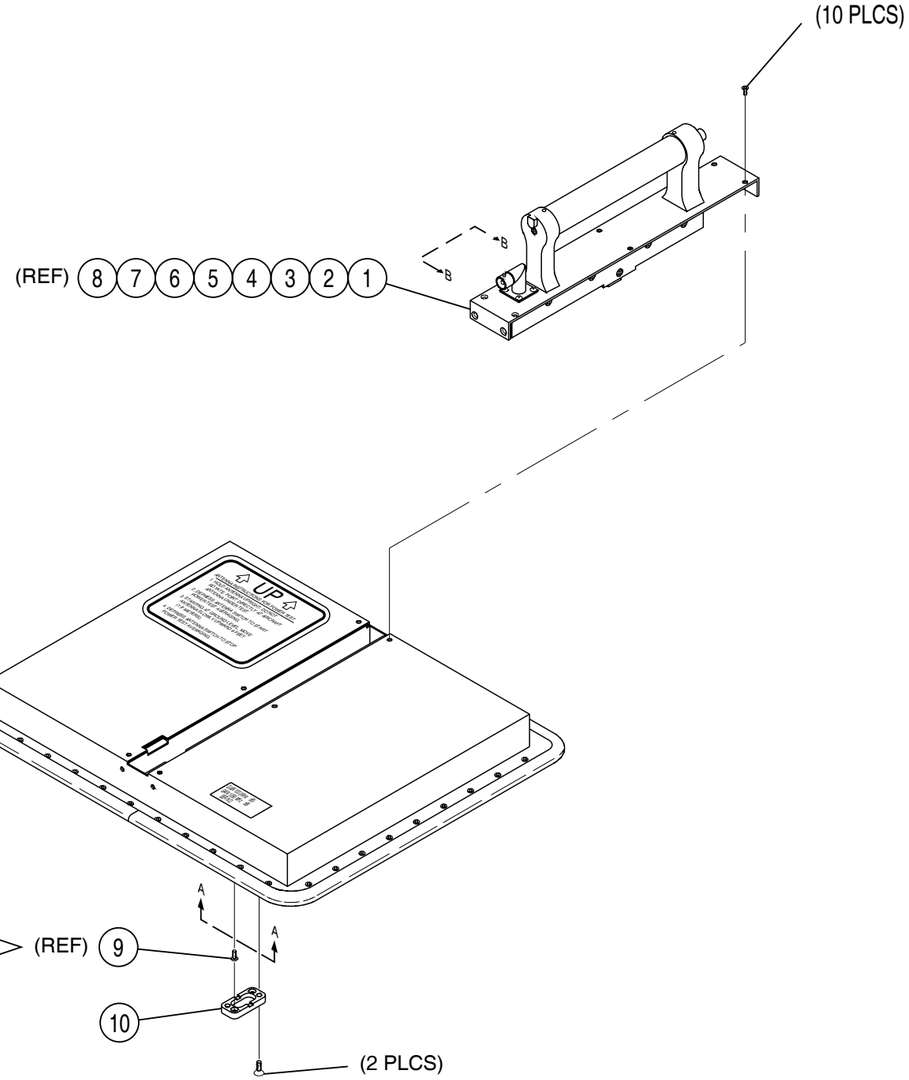
Flat Antenna Assy (Sheet 1 of 2)
Figure 16

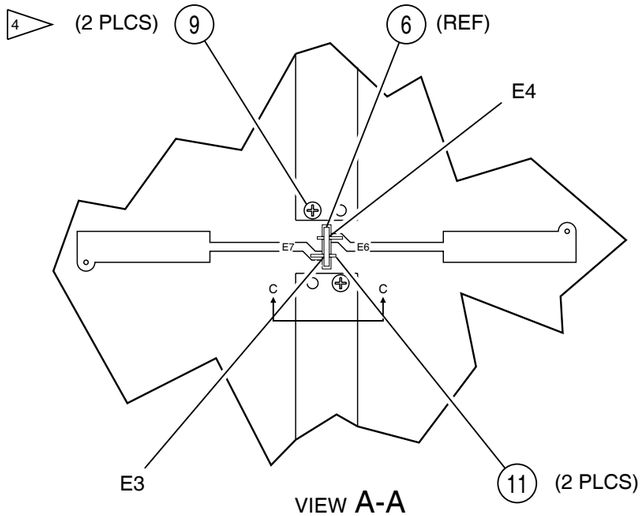


VIEW B-B



VIEW C-C





VIEW A-A

8545602M

Flat Antenna Assy (Sheet 2 of 2)
Figure 16

SECTION 4 - PARTS LIST

To order parts contact:

Aeroflex
Customer Service Department
10200 West York Street
Wichita, KS 67215-8935

Telephone: (800) 835-2350
FAX: (316) 524-2623

Email: *service@aeroflex.com*

ASSEMBLY	PART NUMBER	REV	PAGE
Analog IF Assy	7005-8541-100	D1	67
Analog IF Assy	7005-8541-100	E	68
Analog IF Assy	7005-8541-100	F	68
Analog IF PCB Assy	7010-8531-100	E	69
Analog IF PCB Assy	7010-8531-100	F	74
Analog IF PCB Assy	7010-8531-100	F1	74
Antenna Clamp Assy	7005-8142-400	C	11
Antenna Clamp Assy	7005-8142-400	D	11
Antenna Shield Assy	7005-8142-200	C	10
Antenna Shield Plate Assy	7005-8142-300	C	12
Antenna Shield Plate Assy	7005-8142-300	D	12
Attenuator PCB Assy	7010-8131-200	A	80
Attenuator PCB Assy	7010-8131-200	B	80
Attenuator PCB Assy	7010-8131-200	C	81
Case Assy	7005-8141-500	J	7
Chassis Assy	7005-8544-300	C	13
Chassis Assy	7005-8544-300	D	13
Chassis Assy	7005-8544-300	E	14
Chassis Assy	7005-8540-600	A	15
Chassis Assy	7005-8540-600	B	15
Chassis Assy	7005-8540-600	C	16
Composite Assy	7003-8545-600	B	5
Composite Assy	7003-8545-600	C	5
Composite Assy	7003-8545-600	D	6
Composite Assy	7003-8545-600	D1	6
Composite Coaxial Cable Kit	7009-8540-000	A2	17
Composite Coaxial Cable Kit	7009-8540-000	B	17
Decoder Assy	7005-8541-300	A	75
Decoder Assy	7005-8541-300	B	75

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ASSEMBLY	PART NUMBER	REV	PAGE
Decoder PCB Assy	7010-8531-300	C4	76
Detector Assy	7005-8541-000	B	63
Detector PCB Assy	7010-8531-000	C3	64
Digital IF PCB Assy	7010-8130-100	D4	19
Digital IF PCB Assy	7010-8130-100	E	23
Digital IF PCB Assy	7010-8130-100	F	23
Driver PCB Assy	7010-8132-200	B	61
Driver PCB Assy	7010-8132-200	C	62
Driver PCB Assy	7010-8132-200	B	61
Driver PCB Assy	7010-8132-200	C	62
Flat Antenna Assy	7005-8140-600	F	8
Flat Antenna Assy	7005-8140-600	F1	8
Flat Antenna Assy	7005-8140-600	G	8
Flat Antenna Assy	7005-8140-600	H	9
Front Panel Assy	7005-8544-200	C	49
Front Panel Assy	7005-8544-200	D	50
Front Panel Assy	7005-8544-200	D1	50
Front Panel Assy	7005-8544-200	E	51
Front Panel Assy	7005-8540-100	A	52
Front Panel Assy	7005-8540-100	B	53
Front Panel Assy	7005-8540-100	C	53
Front Panel Assy	7005-8540-100	D	53
Front Panel LED PCB Assy	7010-8532-300	A	56
Front Panel LED PCB Assy	7010-8532-300	B	56
Front Panel Pulse PCB Assy	7010-8134-100	B	24
Front Panel Pulse PCB Assy	7010-8134-100	C	32
Front Panel Pulse PCB Assy	7010-8132-800	A	33
Front Panel Pulse PCB Assy	7010-8132-800	B	40
LCD Display PCB Assy (Modified)	7010-8138-400	A3	58
LCD Display PCB Assy (Modified)	7010-8138-400	B	58
LCD Display PCB Assy (Modified)	7010-8138-400	C	58
LCD Display PCB Assy (Modified)	7010-3533-900	A	59
Line Supply Assy	7005-8143-100	B	41
Line Supply Assy	7005-8143-100	C	41
Line Supply Assy	7005-8143-100	D	41
Line Supply Assy	7005-8143-100	E	41
Line Supply Assy	7005-8143-100	E1	41
Line Supply Assy	7005-8143-100	F	42

ASSEMBLY	PART NUMBER	REV	PAGE
Line Supply PCB Assy	7010-8133-100	A	43
LO Source PCB Assy	7010-8132-300	C1	82
LO Source PCB Assy	7010-8132-300	C2	84
LO Source PCB Assy	7010-8132-300	D	84
LO Source PCB Assy	7010-8132-300	E	85
Miscellaneous	N/A	N/A	4
Mixer PCB Assy	7010-8530-800	D1	87
Motherboard PCB Assy	7010-8538-000	B	18
Power Supply Assy	7005-8143-500	C	44
Power Supply Assy	7005-8143-500	D	44
Power Supply Assy	7005-8143-500	E	44
Power Supply PCB Assy	7010-8130-500	C1	45
Power Supply PCB Assy	7010-8130-500	D	48
Power Supply PCB Assy	7010-8130-500	E	48
Power Termination Assy	7005-8142-100	B2	57
Power Termination Assy	7005-8142-100	B3	57
RF Assy	7005-8545-500	A	60
RF Assy	7005-8545-500	B	60
Source Module VCO PCB Assy	7010-8131-800	C	86
Source Module VCO PCB Assy	7010-8131-800	C1	86
Source Module VCO PCB Assy	7010-8131-800	D	86
Source Module VCO PCB Assy	7010-8131-800	E	86
SSB Assy	7005-8540-200	C	78
SSB Assy	7005-8540-200	D	79
SSB Assy	7005-8540-200	E	79
SSB Assy	7005-8540-200	F	79
SSB Assy	7005-8540-200	F1	79
SSB Assy	7005-8540-200	F2	79
Video Detector PC Board Assy	7010-8131-700	D	54
Video Detector PC Board Assy	7010-8131-700	E	55
Video Detector PC Board Assy	7010-8131-700	E1	55

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MISCELLANEOUS

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
	1002-8505-2C0	MANUAL,CD,OP,TCAS-201-2
	1002-8505-4C0	MANUAL,CD,MN,TCAS-201-2
	1005-0000-001	TRIPOD WITH PANHEAD
	1400-8156-800	BRACKET,ATTEN. MTG.
	2850-0000-127	NUT,1/4-20 LOW CROWN ACORN
	5106-0000-016	FUSE,1.25,GL,FAST,250V,.5 A
	5106-4501-000	FUSE,1.0A,250V,FAST,1.25 GL
	6500-8181-300	MINOR ASSY,1/4-20 THUMB SCREW
	7001-9903-000	ACCESS,EUROPEAN PWR CORDSET,ST

7003-8545-600 ASSY, COMPOSITE B

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	7005-8141-500	CASE ASSY,INSTRUMENT
2	2809-0625-006	SCREW,10-32 X 5/8 PPHM
3	2840-8110-000	WASHER,FLT,NYLN,7/160D,.031TK
4	7005-8544-300	MECH ASSY,CHASSIS
5	2400-2386-300	LABEL,ACC STORAGE COMPARTMENT
6	7005-8140-600	MECH ASSY,FLAT ANTENNA
7	6057-1309-600	COAX ASSY,223,M BNC/M BNC
8	2517-8155-200	PAD,FOAM,ATC-601 CASE
9	2517-8155-100	PAD,FOAM,ATC-601 LID
11	2400-9915-200	SERIAL LABEL,TCAS-201-2
12	2400-8156-300	LABEL,WARNING,ACC. STORAGE
14	7005-8142-200	MECH ASSY,ANTENNA SHIELD
15	1201-8180-900	ANTENNA MODIFIED,MINOR ASSY
16	2400-8156-000	LABEL,COAX LOSS ANTENNA
17	2803-0375-006	SCREW,4-40 X 3/8 PPHM
18	1421-0003-781	FOOT,RBR,.75 OD*.17 ID*.78 LG
19	2400-9909-900	LABEL,CE,MFG DATE
20	1414-8152-900	COVER,ACCESSORY
21	2850-0000-109	LATCH,SLIDE-LATCH
22	2111-0000-002	CLIP,COMPONENT,ADHESIVE,.25DIA
23	2111-0002-500	CLIP,"C" HOOK RET,PVC,.500 DIA
24	2840-0000-024	WASHER,FLAT,ID.160OD.375TK.032
25	2804-0250-006	SCREW,6-32 X 1/4 PPHM
26	1050-5003-100	TAPE,VINYL FOAM 3/4" 1-SIDED
27	6004-6006-550	TY-RAP,RELEASABLE CABLE TIES
28	6004-8100-100	MOUNT,TY-RAP 4-WAY
29	2525-0000-000	GASKET,TWIN SEAL EMI & ENVIRO
30	1404-8156-500	SUPPORT,CHASSIS
31	1404-8156-600	SUPPORT,BOTTOM,CHASSIS
32	1050-0000-170	TAPE,VINYL FOAM 3/4" 2-SIDED
33	2850-7882-600	SPCR,FOAM,.25"X.75"X 1.25"
34	2400-8156-400	LABEL,ANTENNA COVERAGE

7003-8545-600 ASSY, COMPOSITE C

Contains all parts shown in Revision B plus the following:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
35	2400-9930-000	LABEL, MET

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7003-8545-600 ASSY, COMPOSITE D

Contains all parts shown in Revision C with the following exceptions:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
4	7005-8540-600	MECH ASSY,CHASSIS

Contains all parts shown in Revision C minus the following:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
7	6057-1309-600	COAX ASSY,223,M BNC/M BNC

7003-8545-600 ASSY, COMPOSITE D1

Contains all parts shown in Revision D.

7005-8141-500 ASSY, CASE J

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
	1407-7450-300	HANDLE,CARRYING W/BRKT MTG
	2850-0000-117	NUT,FLOATING SELF-LOCKING
	2820-0000-013	RIVET,3/32 X 1/4 FLATHEAD
	1421-8100-000	FOOT,DRAWN
	6200-0000-001	VALVE,MANUAL RELIEF
	2832-0001-001	LATCH,GUARDED SPR LOADED DRAW
	2832-0001-003	LATCH PIN
	2832-0001-004	LATCH GUARD
	2850-0003-062	NUT,PRESS 6-32.054 SHANK
	1421-8750-625	FOOT RBR.875OD.1875ID.625LG
	2818-0000-001	STANDOFF,PRESS 6-32X.375
	2804-0438-006	SCREW,6-32 X 7/16 PPHM
	2525-0003-000	GSKT,BLK. NEOPRENE
	2850-0000-109	LATCH,SLIDE-LATCH
	2832-0001-002	LATCH STRIKE PLATE,G SPR LD DR
	1404-8153-700	SUPPORT ANGLE,FRONT PANEL
	1412-8153-500	CASE,SIDE
	2503-8153-600	LID,SIDE
	2504-8153-300	COLLAR,SEAL STRIKER RIM
	2506-8153-400	PLATE,TOP & BOTTOM
	2832-8152-800	HINGE,ACCESSORY COVER
	2840-8153-800	WASHER,1.2500 .213ID .0875T
	4503-8153-200	RETAINER,GASKET

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7005-8140-600 ASSY, FLAT ANTENNA F

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	1700-8120-400	PC BD, ANTENNA SPLITTER
2	6500-8180-700	MINOR ASSY, FLAT ANTENNA
3	2400-8154-300	LABEL, ANTENNA
4	2506-8151-900	PLATE,BACK SPLITTER
5	2506-8151-800	PLATE,RIGHT SPLITTER
6	2506-8151-700	PLATE, LEFT SPLITTER
7	2400-0000-002	TRIM,GASKET,5/16 X 3/32 BLK FS
8	6010-0063-200	TUBING,HS, 1/16 ID,BLACK
9	1407-8152-200	HANDLE, ANTENNA
10	1400-8152-100	BRACKET,HANDLE TOP
11	1400-8152-000	BRACKET,HANDLE BOTTOM
12	1400-8152-400	BRACKET, FRONT TRIM
13	1407-0200-100	HANDLE GRIP,3/4*5"*1/4 FOAM
14	2850-0700-100	NUT,RING,15/32-32,ALCO N12
15	2803-0125-001	SCREW,4-40 X 1/8 SHS
16	2803-0438-003	SCREW 4-40 X 7/16 PFHMS
17	2803-0188-003	SCREW,4-40 X 3/16 PFHM
18	2803-0188-006	SCREW,4-40 X 3/16 PPHM
19	2803-0313-003	SCREW 4-40 X 5/16 PFHMS
20	2803-0250-006	SCREW,4-40 X 1/4 PPHM
21	1050-0000-075	WIRE,BUS,TINNED COPPER,26GA
22	2400-8155-900	LABEL,ANTENNA GAIN
23	2803-0188-004	SCREW,4-40 X 3/16 HFHCS,SS,PA
24	1421-0001-022	FOOT,HEMISPHERE,.63DIA,GRAY
25	2803-0250-003	SCREW,4-40 X 1/4 PFHM
C29001	1620-1000-511	CAP,10PF,100V,CHIP,NPO
C29002	1620-1000-511	CAP,10PF,100V,CHIP,NPO
C29003	1622-0020-001	CAP,2PF,50V,CHIP
C29004	1620-1090-511	CAP,1PF,50V,CHIP
J29001	2113-0000-015	CONN,BNC,ANG PANEL,SOLDER CUP
L29002	1811-8040-001	IND,SM .004UH 20% C 1008
S29001	5115-0501-572	SWITCH,C&K 8531TCQ W/BLK PB
	6008-1000-001	WIRE,UL1213,26GA,7X34,BLK

7005-8140-600 ASSY, FLAT ANTENNA F1

Contains all parts shown in Revision F.

7005-8140-600 ASSY, FLAT ANTENNA G

Contains all parts shown in Revision F1 plus the following:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
26	6057-1309-600	COAX ASSY,223,M BNC/M BNC

Contains all parts shown in Revision D.

7005-8140-600 ASSY, FLAT ANTENNA H

Contains all parts shown in Revision G with the following exceptions:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
10	1400-8158-900	BRACKET,HANDLE TOP
11	1400-8158-800	BRACKET,HANDLE BOTTOM

7005-8142-200 ASSY, ANTENNA SHIELD C

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	7005-8142-300	MECH ASSY,ANTENNA SHLD PLATE
2	7005-8142-400	MECH ASSY,ANT. CLAMP

7005-8142-400 ASSY, ANTENNA CLAMP C

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	2751-1000-051	ABSORBER FERRITE,2.3X2.3X.2
2	1415-8154-600	ENCL,ANTENNA SHIELD
3	2517-0001-000	PAD,RUBBER ADHV BK.5 SQ X.12 H
4	2506-8154-800	PLATE,TILE RIGHT
5	2807-8155-700	SCREW,THUMB 10-32 X 1.9
6	2501-8155-600	BUSHING,RETAINER
7	2501-8155-500	BUSHING,THUMBWHEEL
8	2517-8155-300	FOAM,TILE PLATE 2.5 X 2.5
9	2106-8100-100	SPRING,CMPRSN .36OD 1.0LG.
10	2506-8155-400	PLATE,TILE LEFT
11	2840-8156-100	WASHER,.375OD X .094ID .025THK
12	2801-0188-012	SCREW,2-56 X 3/16 PBHMS,BLACK
13	2840-0000-056	WASHER,WAVE SPRING,.165 ID
14	2400-8156-700	LABEL,ANTENNA SHIELD

7005-8142-400 ASSY, ANTENNA CLAMP D

Contains all parts shown in Revision C with the following exceptions:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
3	2517-0001-001	PAD,RUBBER ADHV BK.5 X.23 H

7005-8142-300 ASSY, ANTENNA SHIELD PLATE C

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	2525-8154-900	GASKET,PLATE OUTER
2	2525-8155-000	GASKET,PLATE INNER
3	2526-0008-000	GASKET STRIP
4	2506-8154-700	PLATE,ANTENNA SHIELD
5	2400-8156-700	LABEL,ANTENNA SHIELD

7005-8142-300 ASSY, ANTENNA SHIELD PLATE D

Contains all parts shown in Revision C with the following exceptions:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
3	2528-8158-600	GASKET, ANT. SHIELD

7005-8544-300 ASSY, CHASSIS C

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	6500-8181-400	MINOR ASSY,CHASSIS
2	7005-8143-500	MECH ASSY,PWR SUPPLY,601-2
3	7005-8143-100	MECH ASSY,LINE SUPPLY
4	7005-8544-200	MECH ASSY,FRONT PANEL
5	7005-8545-500	MECH ASSY,RF
7	7010-8538-000	PCB ASSY,MOTHERBOARD
8	7010-8130-100	PCB ASSY,DIGITAL IF
9	7010-8134-100	PCB ASSY,FP PULSE
10	1407-7450-200	HANDLE,MLS-801
11	1410-7452-300	EJECTOR STRAP,BATTERY
12	4503-8152-600	RETAINER,DIGITAL PC BD
13	4000-8182-000	ASSY,BATTERY PACK
14	4104-0005-000	GUIDE,CARD,NYLON,8.OLG,NATURAL
15	1414-8150-900	COVER,BATTERY
16	2803-0250-006	SCREW,4-40 X 1/4 PPHM
18	2804-0188-003	SCREW 6-32X3/16 PHIL FLAT HD
19	2803-0375-003	SCREW,4-40 X 3/8 PFHM
20	2800-7600-144	SPACER,AL,.25 OD,4-40ID,.700LG
21	2804-0313-006	SCREW 6-32X5/16 PHIL BIND HD
32	2803-0250-003	SCREW,4-40 X 1/4 PFHM
34	2840-7600-229	WASHER,ALUM,.305D,.196ID,.038T
35	6046-8181-100	CABLE ASSY,DRIVER-MTHRBD
36	6046-8181-000	CABLE ASSY,VIDEO DETECTOR-DRVR
37	2400-9908-300	LABEL,SYMBOL 14,HAZARD WARN
38	2850-7882-600	SPCR,FOAM,.25"X.75"X 1.25"
39	2831-0002-005	EDGING,GROMMET,.085 SIZE
40	6004-6005-400	TY-RAP,4.0 LG
U26004	3271-8504-100	IC,8KX8 TCAS201 DIG.IF V1.00
U26005	3271-8505-100	IC,8KX8 TCAS201 DIG.IF V1.00
U27003	3274-8500-200	IC,1736 TCAS201 FP PULSE V2.00
U27005	3274-8501-200	IC,1736 TCAS201 FP PULSE V2.00
U27012	F431-8502-301	IC,27C512 TCAS201 FPULSE V3.01
U27013	F431-8506-301	IC,27C512 TCAS201 FPULSE V3.01
U27031	3274-8503-200	IC,1736 TCAS201 FP PULSE V2.00
	7009-8540-000	COAX KIT,TCAS-201 COMPOSITE

7005-8544-300 ASSY, CHASSIS D

Contains all parts shown in Revision C with the following exceptions:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
U27005	F340-8501-400	IC,1736 TCAS201 FP PULSE V4.00
U27012	F431-8502-400	IC,27C512 TCAS201 FPULSE V4.00
U27013	F431-8506-400	IC,27C512 TCAS201 FPULSE V4.00
U27031	F340-8503-400	IC,1736 TCAS201 FP PULSE V4.00

7005-8544-300 **ASSY, CHASSIS** **E**

Contains all parts shown in Revision D with the following exceptions:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
18	2804-0188-006	SCREW 6-32X3/16 PHIL BIND HD

7005-8540-600 ASSY, CHASSIS A

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	6500-8181-400	MINOR ASSY, CHASSIS
2	7005-8143-500	MECH ASSY, PWR SUPPLY,601-2
3	7005-8143-100	MECH ASSY, LINE SUPPLY
4	7005-8540-100	MECH ASSY,FRONT PANEL
5	7005-8545-500	MECH ASSY, RF
7	7010-8538-000	PCB ASSY, MOTHERBOARD
8	7010-8130-100	PCB ASSY, DIGITAL IF
9	7010-8132-800	PCB ASSY,PULSE (LED BACKLIGHT)
10	1407-7450-200	HANDLE,MLS-801
11	1410-7452-300	EJECTOR STRAP, BATTERY
12	4503-8152-600	RETAINER, DIGITAL PC BD
13	4000-8182-000	ASSY, BATTERY PACK
14	4104-0005-000	GUIDE,CARD,NYLON,8.OLG,NATURAL
15	1400-8150-900	COVER,BATTERY
16	2803-0250-006	SCREW,4-40 X 1/4 PPHM
18	2804-0188-006	SCREW 6-32X3/16 PHIL BIND HD
19	2803-0375-003	SCREW,4-40 X 3/8 PFHM
20	2800-7600-144	SPACER,AL,.25 OD,4-40ID,.700LG
21	2804-0313-006	SCREW 6-32X5/16 PHIL BIND HD
32	2803-0250-003	SCREW,4-40 X 1/4 PFHM
34	2840-7600-229	WASHER,ALUM,.305D,.196ID,.038T
35	6046-8181-100	CABLE ASSY, DRIVER-MTHRBD
36	6046-8181-000	CABLE ASSY,VIDEO DETECTOR-DRVR
37	2400-9908-300	LABEL,SYMBOL 14,HAZARD WARN
38	2850-7882-600	SPCR,FOAM,.25"X.75"X 1.25"
39	2831-0002-005	EDGING, GROMMET, .085 SIZE
40	6004-6005-400	TY-RAP,4.0 LG
U26004	3271-8504-100	IC,8KX8 TCAS201 DIG.IF V1.00
U26005	3271-8505-100	IC,8KX8 TCAS201 DIG.IF V1.00
U27003	3274-8500-200	IC,1736 TCAS201 FP PULSE V2.00
U27005	F340-8501-400	IC,1736 TCAS201 FP PULSE V4.00
U27012	F431-8502-400	IC,27C512 TCAS201 FPULSE V4.00
U27013	F431-8506-400	IC,27C512 TCAS201 FPULSE V4.00
U27031	F340-8503-400	IC,1736 TCAS201 FP PULSE V4.00
	7009-8540-000	COAX KIT, TCAS-201 COMPOSITE

7005-8540-600 ASSY, CHASSIS B

Contains all parts shown in Revision A with the following exceptions:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
U27012	F431-8502-401	IC,27C512 TCAS201 FPULSE V4.01
U27013	F431-8506-401	IC,27C512 TCAS201 FPULSE V4.01

7005-8540-600 **ASSY, CHASSIS** **C**

Contains all parts shown in Revision B with the following exceptions:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION

Contains all parts shown in Revision D with the following exceptions:

15	1400-8159-000	BRACKET,BATTERY

7009-8540-000 KIT, COMPOSITE COAXIAL CABLE A2

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
TAG#24	6050-0041-050	COAX ASSY,316,R F SMB/R F SMB
TAG#25	6050-0040-800	COAX ASSY,FLEXIBLE,RG 316/U
TAG#30	6050-0040-720	COAX ASSY,316,R F SMB/R F SMB
TAG#31	6050-0041-220	COAX ASSY,316,R F SMB/R F SMB
TAG#34	6050-0041-420	RG 316/U FLEX COAX ASSY
TAG#35	6050-0041-150	COAX ASSY,316,R F SMB/R F SMB
TAG#37	6044-1910-600	COAX,CONF SL S M SMA/R M SMA
TAG#38	6044-1920-660	COAX,CONF SL R M SMA/R F SMB
TAG#64	6050-0041-130	COAX ASSY,316,R F SMB/R F SMB
TAG#65	6050-0041-150	COAX ASSY,316,R F SMB/R F SMB

7009-8540-000 KIT, COMPOSITE COAXIAL CABLE B

Contains all parts shown in Revision A2 with the following exceptions:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
TAG#30	6050-0040-650	COAX ASSY,316,R F SMB/R F SMB
TAG#37	6044-1200-600	COAX,CONF SL S M SMA/R M SMA
TAG#38	6044-1260-660	COAX,CONF SL R M SMA/R F SMB

7010-8538-000 **PCB ASSY, MOTHERBOARD** **B**

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	1700-8520-000	PC BD, MOTHER BD
2	2800-7801-100	STANDOFF 4-40 .165 THK 3/16
3	7007-8182-100	WIRE HARN ASSY, PS - MOTHERBD
4	6045-8180-800	RBN CA ASSY,MOTHERBD, ATC-601
5	7007-8181-800	WIRE HARN ASSY, MTHRBD COMM
J25001	2200-2010-400	CONN,M SMB,PC MTG,STR,.453LG
J25002	2200-2010-400	CONN,M SMB,PC MTG,STR,.453LG
J25003	2200-2010-400	CONN,M SMB,PC MTG,STR,.453LG
J25004	2200-2010-400	CONN,M SMB,PC MTG,STR,.453LG
J25005	2200-2010-400	CONN,M SMB,PC MTG,STR,.453LG
J25008	2115-0002-003	CONN,HEADER,LCK GOLD 7-P
J25009	2200-2010-400	CONN,M SMB,PC MTG,STR,.453LG
J25010	2115-0002-003	CONN,HEADER,LCK GOLD 7-P
J25011	2115-0005-010	CONN,LKING HEADER 10P GOLD
J25062	2200-2010-400	CONN,M SMB,PC MTG,STR,.453LG
J25063	2200-2010-400	CONN,M SMB,PC MTG,STR,.453LG
J26006	2129-1003-120	CONN STR DBL ROW DIN FE 20-P
J26016	2129-1003-196	CONN,EURCON-C SKT.1X.1 96P ST
J27007	2129-1003-148	CONN,STR TPL ROW DIN FE 48-P
J27015	2129-1003-196	CONN,EURCON-C SKT.1X.1 96P ST

7010-8130-100 **PCB ASSY, DIGITAL IF** **D4**

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	1700-8120-100	PC BD, DIGITAL IF
2	4104-0000-002	CARD GUIDE & EJECTOR S-203
3	2108-0000-008	PIN FOR S-203 EJECTOR N/C
4	2400-7856-800	LABEL,ESD
5	2510-5090-700	HEB,IND MTG,.22DIA,.39LG
6	2840-7600-216	WASHER,PHEN,.63OD,.140ID,.060T
7	2803-0750-006	SCREW,4-40 X 3/4 PPHM
8	2840-0000-003	WASHER,LOCK,INT TOOTH,4
9	2850-0000-008	NUT,HEX,REG PAT,4-40
10	2803-0250-006	SCREW,4-40 X 1/4 PPHM
C26001	1521-0000-008	CAP,0.1UF,50V,DIP,Z5U
C26002	1580-1000-200	CAP,10UF,25V,ELE,RDL
C26003	1521-0000-008	CAP,0.1UF,50V,DIP,Z5U
C26004	1521-0000-008	CAP,0.1UF,50V,DIP,Z5U
C26005	1580-1000-200	CAP,10UF,25V,ELE,RDL
C26006	1521-0000-008	CAP,0.1UF,50V,DIP,Z5U
C26007	1521-0000-008	CAP,0.1UF,50V,DIP,Z5U
C26008	1580-1000-200	CAP,10UF,25V,ELE,RDL
C26009	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C26010	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C26011	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C26012	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C26013	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C26014	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C26015	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C26016	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C26017	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C26018	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C26021	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C26022	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C26023	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C26024	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C26025	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C26026	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C26027	1580-1000-200	CAP,10UF,25V,ELE,RDL
C26028	1521-0000-008	CAP,0.1UF,50V,DIP,Z5U
C26029	1580-1000-200	CAP,10UF,25V,ELE,RDL
C26030	1521-0000-008	CAP,0.1UF,50V,DIP,Z5U
C26031	1521-0000-008	CAP,0.1UF,50V,DIP,Z5U
C26032	1521-0000-008	CAP,0.1UF,50V,DIP,Z5U
C26033	1521-0000-008	CAP,0.1UF,50V,DIP,Z5U
C26034	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C26035	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C26036	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C26037	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C26038	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C26039	1580-1000-200	CAP,10UF,25V,ELE,RDL
C26040	1580-1000-200	CAP,10UF,25V,ELE,RDL
C26041	1521-0000-008	CAP,0.1UF,50V,DIP,Z5U
C26042	1521-0000-008	CAP,0.1UF,50V,DIP,Z5U
C26043	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R

7010-8130-100 **PCB ASSY, DIGITAL IF (cont)** **D4**

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
C26044	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C26045	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C26046	1622-0102-001	CAP,1000PF,50V,CHIP,NPO
C26047	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C26048	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C26049	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C26050	1619-0476-010	CAP,47UF,10V,TANT,SMD
C26051	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C26052	1508-0476-018	CAP,47UF,35V,TANT,RDL
C26054	1618-0474-025	CAP,0.47UF,25V,TANT,SMD
C26057	1506-0151-017	CAP,150PF,100V,5%,NPO
C26058	1506-0151-017	CAP,150PF,100V,5%,NPO
C26059	1506-0182-017	CAP,1800PF,100V,5%,NPO
C26060	1506-0182-017	CAP,1800PF,100V,5%,NPO
C26061	1517-3295-303	CAP,VAR,6-20PF
C26062	1506-0220-017	CAP,22PF,100V,5%,NPO
C26063	1517-3295-303	CAP,VAR,6-20PF
C26064	1506-0220-017	CAP,22PF,100V,5%,NPO
C26065	1506-0391-017	CAP,390PF,100V,5%,NPO
C26066	1506-0391-017	CAP,390PF,100V,5%,NPO
C26067	1506-0103-017	CAP,0.01UF,100V,NPO
C26068	1521-0000-008	CAP,0.1UF,50V,DIP,Z5U
C26069	1521-0000-008	CAP,0.1UF,50V,DIP,Z5U
C26070	1506-0103-017	CAP,0.01UF,100V,NPO
C26071	1521-0000-008	CAP,0.1UF,50V,DIP,Z5U
C26072	1521-0000-008	CAP,0.1UF,50V,DIP,Z5U
C26073	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C26074	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C26075	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C26076	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C26077	1508-0225-050	CAP,22UF,50V,20%,TANT,RDL
C26078	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C26079	1622-0102-001	CAP,1000PF,50V,CHIP,NPO
C26080	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C26081	1508-0225-050	CAP,22UF,50V,20%,TANT,RDL
C26082	1508-0225-050	CAP,22UF,50V,20%,TANT,RDL
CR26001	4815-0000-005	DIODE,4148,SIGNAL 75PRV SMD
CR26002	4818-0000-029	DIODE,LM236AH-2.5 REF TO-46
CR26003	4815-0000-005	DIODE,4148,SIGNAL 75PRV SMD
CR26004	4815-0000-005	DIODE,4148,SIGNAL 75PRV SMD
CR26005	4920-5158-300	DIODE,80SQ035,RECT,PS,30V,8A
CR26006	4816-0000-001	DIODE,5082-2800,S BAR,70VBR
CR26007	4816-0000-001	DIODE,5082-2800,S BAR,70VBR
DL26001	4730-0000-002	DELAY LINE,INDL.PASSIVE 5NS
L26001	1801-0338-001	IND,.33UH,.2 OHM,1025-08
L26002	1801-0338-001	IND,.33UH,.2 OHM,1025-08
L26003	1801-0399-001	IND,3.9UH,1 OHM
L26004	1801-0399-001	IND,3.9UH,1 OHM
L26005	1801-0108-001	IND,.10UH,.08OHM,1025-94
L26006	1801-0108-001	IND,.10UH,.08OHM,1025-94
L26007	1801-0109-001	IND,1.0 UH,1 OHM,1025-20

7010-8130-100 **PCB ASSY, DIGITAL IF (cont)** **D4**

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
L26008	1801-0109-001	IND,1.0 UH,1 OHM,1025-20
L26009	1800-5355-200	IND,TOROID,100T #24AWG
L26010	1800-5355-200	IND,TOROID,100T #24AWG
P26006	2129-1002-120	CONN,RA DBL ROW DIN MALE 20-P
P26016	2129-1002-196	CONN,RA DIN MALE .104LD 96P
Q26001	4809-0000-005	TRANS,66382,NPN HF AMP
Q26002	4805-0000-001	TRANS,2N2907A,PNP HS SW (3251)
Q26003	4807-0000-001	TRANS,2N3903,NPN HS SW
Q26004	4801-0000-006	TRANS,2N2222,NPN HS SW,SOT
Q26005	5050-2452-100	TRANS,N-CH MOSFET
R26001	4701-0102-003	RES,1.0K,1/8W,5%
R26002	4706-1002-001	RES,10.0K,1/4W,1%
R26003	4706-8061-001	RES,8.06K,1/4W,1%
R26004	4722-1001-001	RES,1.0K,1/8W,1%
R26005	4722-3321-001	RES,3.32K,1/8W,1%
R26006	4722-2210-001	RES,221,1/8W,1%
R26007	4722-1004-001	RES,1.0M,1/8W,1%
R26008	4721-0181-002	RES,180,1/4W,5%,CHIP
R26009	4701-0472-003	RES,4.7K,1/8W,5%
R26011	4753-0500-002	POT 50 OHM
R26012	4753-0500-002	POT 50 OHM
R26013	4706-3320-001	RES,332,1/4W,1%
R26014	4706-2211-001	RES,2.21K,1/4W,1%
R26015	4718-6819-001	RES,68.1,1/8W,1%
R26016	4718-6819-001	RES,68.1,1/8W,1%
R26017	4756-0202-500	POT,2K OHM SIDE ADJ,INDL
R26018	4718-4751-001	RES,4.75K,1/8W,1%
R26019	4706-3320-001	RES,332,1/4W,1%
R26020	4706-2211-001	RES,2.21K,1/4W,1%
R26021	4718-6819-001	RES,68.1,1/8W,1%
R26022	4718-6819-001	RES,68.1,1/8W,1%
R26023	4756-0202-500	POT,2K OHM SIDE ADJ,INDL
R26024	4718-4751-001	RES,4.75K,1/8W,1%
R26027	4722-4751-001	RES,4.75K,1/8W,1%
R26028	4722-1001-001	RES,1.0K,1/8W,1%
R26029	4722-3329-001	RES,33.2,1/8W,1%
R26030	4722-6819-001	RES,68.1,1/8W,1%
R26031	4721-0221-003	RES,220,1/4W,5%,CHIP
R26032	4701-0150-003	RES,15,1/8W,5%
R26033	4701-0150-003	RES,15,1/8W,5%
R26034	4701-0150-003	RES,15,1/8W,5%
R26035	4722-4751-001	RES,4.75K,1/8W,1%
R26036	4722-4751-001	RES,4.75K,1/8W,1%
R26037	4722-1002-001	RES,10.0K,1/8W,1%
R26038	4722-2213-001	RES,221K,1/8W,1%
R26039	4722-1002-001	RES,10.0K,1/8W,1%
R26040	4722-1002-001	RES,10.0K,1/8W,1%
R26041	4753-0103-002	POT,10K OHM
R26042	4722-1002-001	RES,10.0K,1/8W,1%
R26043	4718-6819-001	RES,68.1,1/8W,1%
R26044	4718-6819-001	RES,68.1,1/8W,1%

7010-8130-100 **PCB ASSY, DIGITAL IF (cont)** **D4**

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
S26001	5136-0002-000	SWITCH,BLUE
T26001	5604-0000-003	XFMR,MINI RF,PCM,1.0IR,50 OHM
T26002	5604-0000-003	XFMR,MINI RF,PCM,1.0IR,50 OHM
TP26001	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP26002	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP26003	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP26004	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP26005	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP26006	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP26007	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP26008	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP26009	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP26010	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP26011	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP26012	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP26015	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP26017	2200-2010-400	CONN,M SMB,PC MTG,STR,.453LG
TP26018	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP26019	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP26020	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP26021	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP26022	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP26023	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP26024	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP26028	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP26029	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP26030	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
U26001	3229-9048-000	IC,9048,8-BIT VIDEO A/D CONV.
U26002	3229-9048-000	IC,9048,8-BIT VIDEO A/D CONV.
U26003	3260-0000-006	IC,320 DGTL.SIG. 100NS CMOS
U26007	3271-0713-000	IC,7130 8K DUAL RAM PLCC CMOS
U26008	3252-1608-000	IC,2K X 8 SRAM SOJ 20NS CMOS
U26009	3252-1608-000	IC,2K X 8 SRAM SOJ 20NS CMOS
U26010	3252-1607-000	IC,4K X 4 SRAM SOJ 15NS CMOS
U26011	3252-1607-000	IC,4K X 4 SRAM SOJ 15NS CMOS
U26012	3252-1607-000	IC,4K X 4 SRAM SOJ 15NS CMOS
U26013	3252-1607-000	IC,4K X 4 SRAM SOJ 15NS CMOS
U26014	3210-3000-005	IC,3-TO-8 LINE DCDR/DEMUX SOL
U26015	3271-8100-101	IC,PLD16R4 ATC601 DIG.IF V1.01
U26016	3271-8101-100	IC,GAL16V8A ATC601 DIG.IFV1.00
U26017	3210-3000-002	IC,DIN.CNTR.ASYN RESET,INDL
U26018	3210-3000-002	IC,DIN.CNTR.ASYN RESET,INDL
U26019	3210-3000-002	IC,DIN.CNTR.ASYN RESET,INDL
U26020	3214-9407-000	IC,INDL.OCT.D-TYPE FLIPFLOPSO
U26021	3210-3000-007	IC,OCT.BFR/LINE DRVR.SOL INDL
U26022	3210-3000-007	IC,OCT.BFR/LINE DRVR.SOL INDL
U26023	3210-3000-004	IC,HEX INPUT,ST SO-14 INDL
U26024	3210-3074-000	IC,DUAL D,FF/SET/RESET INDL
U26025	3210-3000-000	IC,QUAD NAND GATE 2-LINE INDL
U26026	3210-3000-007	IC,OCT.BFR/LINE DRVR.SOL INDL
U26027	3221-8100-427	IC,OP AMP INSTM.,INDL

7010-8130-100 PCB ASSY, DIGITAL IF (cont) D4

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
U26028	3214-9407-000	IC,INDL.OCT.D-TYPE FLIPFLOPSO
U26029	3210-3000-008	IC,INDL.DUAL J-K FLIPFLOP SOL
U26031	3223-0401-000	IC,401,WIDEBAND OP-AMP INDL
U26032	3223-0401-000	IC,401,WIDEBAND OP-AMP INDL
U26033	3210-3000-006	IC,QUAD 2-IN NOR GATE SOLINDL
U26034	3214-9404-006	IC,QUAD 2-INP/OR GATE SO-14
U26035	5850-0000-031	OSC,40.0000MHZ 14-P,INDL
U26036	3210-3000-004	IC,HEX INPUT,ST SO-14 INDL
U26037	3133-0000-024	IC,3130,BIMOS OP AMP,PLAST DIP
XU26001	3101-0000-029	SOCKET,28-P DIP,GOLD,LO PROFIL
XU26002	3101-0000-029	SOCKET,28-P DIP,GOLD,LO PROFIL
XU26003	3101-0000-031	SOCKET,68-P LCC JEDEC H/P TIN
XU26004	3101-0000-032	SOCKET,24-P DIP,GOLD,DUAL-WIPE
XU26005	3101-0000-032	SOCKET,24-P DIP,GOLD,DUAL-WIPE
XU26015	3101-0000-056	SOCKET,20P PLCC W\O PINS SMD
XU26016	3101-0000-056	SOCKET,20P PLCC W\O PINS SMD

7010-8130-100 PCB ASSY, DIGITAL IF (cont) E

Contains all parts shown in Revision D4 with the following exceptions:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
6	2840-0000-058	WASHER,PHEN,.630D,.140ID,.031T

7010-8130-100 PCB ASSY, DIGITAL IF (cont) F

Contains all parts shown in Revision E plus the following:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
C26083	1626-0101-016	CAP,100UF,16V,TANT,LOW ESR
W26001	6008-0000-009	WIRE,HOOK,TFE,30GA,SOLID,WHT

7010-8134-100 PCB ASSY, FRONT PANEL PULSE B

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	1700-8124-100	PC BD,FP PULSE
3	4104-0000-002	CARD GUIDE & EJECTOR S-203
4	2108-0000-008	PIN FOR S-203 EJECTOR N/C
C27001	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27002	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27003	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27004	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27005	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27006	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27007	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27008	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27009	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27010	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27011	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27012	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27013	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27014	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27015	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27016	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27017	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27018	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27019	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27020	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27021	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27022	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27023	1618-0105-016	CAP,1UF,16V,TANT,SMD
C27024	1619-0106-025	CAP,10UF,25V,TANT,SMD
C27025	1619-0106-025	CAP,10UF,25V,TANT,SMD
C27026	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27027	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27028	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27029	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27030	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27031	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27032	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27033	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27034	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27035	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27036	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27037	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27038	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27039	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27040	1622-0220-001	CAP,20PF,100V,NPO,CHIP
C27041	1622-0103-001	CAP,0.01UF,50V,CHIP,X7R
C27042	1622-0101-001	CAP,100PF,50V,CHIP
C27043	1618-0474-025	CAP,0.47UF,25V,TANT,SMD
C27044	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27045	1622-0220-001	CAP,20PF,100V,NPO,CHIP
C27046	1622-0103-001	CAP,0.01UF,50V,CHIP,X7R
C27047	1622-0101-001	CAP,100PF,50V,CHIP
C27048	1618-0474-025	CAP,0.47UF,25V,TANT,SMD

7010-8134-100 **PCB ASSY, FRONT PANEL PULSE (cont)** **B**

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
C27049	1580-1000-200	CAP,10UF,25V,ELE,RDL
C27050	1580-1000-200	CAP,10UF,25V,ELE,RDL
C27051	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27052	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27053	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27054	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27055	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27056	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27058	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27061	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27062	1622-0220-001	CAP,20PF,100V,NPO,CHIP
C27063	1622-0103-001	CAP,0.01UF,50V,CHIP,X7R
C27064	1622-0220-001	CAP,20PF,100V,NPO,CHIP
C27065	1618-0474-025	CAP,0.47UF,25V,TANT,SMD
C27066	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27067	1622-0220-001	CAP,20PF,100V,NPO,CHIP
C27068	1622-0101-001	CAP,100PF,50V,CHIP
C27069	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27070	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27071	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27072	1619-0476-010	CAP,47UF,10V,TANT,SMD
C27073	1580-1000-200	CAP,10UF,25V,ELE,RDL
C27074	1580-1000-200	CAP,10UF,25V,ELE,RDL
C27075	1618-0474-025	CAP,0.47UF,25V,TANT,SMD
C27076	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27077	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27078	1622-0103-001	CAP,0.01UF,50V,CHIP,X7R
C27079	1622-0103-001	CAP,0.01UF,50V,CHIP,X7R
C27080	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27081	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27082	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27083	1619-0106-025	CAP,10UF,25V,TANT,SMD
C27084	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27085	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27086	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27087	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27088	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27089	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27090	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27092	1622-0103-001	CAP,0.01UF,50V,CHIP,X7R
C27093	1622-0103-001	CAP,0.01UF,50V,CHIP,X7R
C27094	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27095	1622-0103-001	CAP,0.01UF,50V,CHIP,X7R
C27096	1622-0101-001	CAP,100PF,50V,CHIP
C27097	1619-0106-025	CAP,10UF,25V,TANT,SMD
C27098	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27099	1619-0106-025	CAP,10UF,25V,TANT,SMD
C27100	1622-0101-001	CAP,100PF,50V,CHIP
C27101	1580-1020-049	CAP,1000UF,6.3V,ELE,30
C27102	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27103	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R

7010-8134-100 PCB ASSY, FRONT PANEL PULSE (cont) B

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
C27104	1622-0103-001	CAP,0.01UF,50V,CHIP,X7R
C27105	1622-0103-001	CAP,0.01UF,50V,CHIP,X7R
C27106	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27107	1622-0103-001	CAP,0.01UF,50V,CHIP,X7R
C27108	1622-0102-001	CAP,1000PF,50V,CHIP,NPO
C27109	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27110	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27111	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27112	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27113	1622-0103-001	CAP,0.01UF,50V,CHIP,X7R
C27114	1622-0103-001	CAP,0.01UF,50V,CHIP,X7R
C27115	1622-0103-001	CAP,0.01UF,50V,CHIP,X7R
C27116	1622-0103-001	CAP,0.01UF,50V,CHIP,X7R
C27117	1622-0103-001	CAP,0.01UF,50V,CHIP,X7R
C27118	1622-0103-001	CAP,0.01UF,50V,CHIP,X7R
C27119	1622-0103-001	CAP,0.01UF,50V,CHIP,X7R
C27120	1580-3310-025	CAP,330UF,25V,ELE,RDL
C27121	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27122	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27123	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27124	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27125	1622-0103-001	CAP,0.01UF,50V,CHIP,X7R
C27126	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27127	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27128	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C27129	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
CR27001	4816-0000-004	DIODE,HSMS-2803,S-BAR,SOT-23
CR27002	4816-0000-004	DIODE,HSMS-2803,S-BAR,SOT-23
CR27003	4816-0000-006	DIODE,HSMS 2802,SOT-23
CR27004	4816-0000-006	DIODE,HSMS 2802,SOT-23
CR27005	4815-0000-005	DIODE,4148,SIGNAL 75PRV SMD
CR27006	4815-0000-005	DIODE,4148,SIGNAL 75PRV SMD
CR27007	4815-0000-005	DIODE,4148,SIGNAL 75PRV SMD
CR27008	4815-0000-005	DIODE,4148,SIGNAL 75PRV SMD
CR27009	4815-0000-005	DIODE,4148,SIGNAL 75PRV SMD
CR27010	4815-0000-005	DIODE,4148,SIGNAL 75PRV SMD
CR27011	4818-0000-003	DIODE ZENER,5.1V .5W
CR27012	4815-0000-005	DIODE,4148,SIGNAL 75PRV SMD
CR27013	4818-0000-029	DIODE,LM236AH-2.5 REF TO-46
CR27014	4815-0000-005	DIODE,4148,SIGNAL 75PRV SMD
CR27015	4816-0000-006	DIODE,HSMS 2802,SOT-23
CR27016	4818-0000-033	DIODE,IN5281B ZENER 200V INDL
CR27017	4818-0000-033	DIODE,IN5281B ZENER 200V INDL
CR27018	4815-0000-005	DIODE,4148,SIGNAL 75PRV SMD
DL27001	4730-0000-001	DELAY LINE,INDL.PASSIVE 10NS
G27001	5850-0000-031	OSC,40.0000MHZ 14-P,INDL
J27051	2115-0005-002	CONN,LKING HEADER 2-P GOLD
J27052	2115-0005-020	CONN,LKING HEADER 20P GOLD
JTB27001	2129-1087-002	CONN,HDR. D.R. RTANG,2-P
L27001	1811-6103-003	IND,SM,10UH 10%,C 1812
P27007	2129-1002-148	CONN,RA TPL ROW DIN MALE 48P

7010-8134-100 PCB ASSY, FRONT PANEL PULSE (cont) B

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
P27015	2129-1002-196	CONN,RA DIN MALE .104LD 96P
Q27001	4809-0000-021	TRANS,3904,NPN,SMD
Q27002	4809-0000-021	TRANS,3904,NPN,SMD
Q27003	4809-0000-021	TRANS,3904,NPN,SMD
Q27004	4809-0000-021	TRANS,3904,NPN,SMD
Q27005	4811-0000-001	TRANS,SJE1461,NPN PWR AMP
Q27006	4801-0000-006	TRANS,2N2222,NPN HS SW,SOT
Q27007	4801-0000-006	TRANS,2N2222,NPN HS SW,SOT
Q27008	4801-0000-006	TRANS,2N2222,NPN HS SW,SOT
R27001	4722-5111-001	RES,5.11K,1/8W,1%
R27002	4722-1001-001	RES,1.0K,1/8W,1%
R27003	4721-0181-002	RES,180,1/4W,5%,CHIP
R27004	4722-1002-001	RES,10.0K,1/8W,1%
R27005	4722-1002-001	RES,10.0K,1/8W,1%
R27006	4722-2211-001	RES,2.21K,1/8W,1%
R27007	4721-0221-003	RES,220,1/4W,5%,CHIP
R27008	4721-0221-003	RES,220,1/4W,5%,CHIP
R27009	4722-1002-001	RES,10.0K,1/8W,1%
R27010	4722-1002-001	RES,10.0K,1/8W,1%
R27011	4722-1002-001	RES,10.0K,1/8W,1%
R27013	4722-2211-001	RES,2.21K,1/8W,1%
R27014	4722-1002-001	RES,10.0K,1/8W,1%
R27015	4722-6810-001	RES,681,1/8W,1%
R27016	4722-5620-001	RES,562,1/8W,1%
R27017	4722-2553-001	RES,255K,1/8W,1%
R27018	4722-5620-001	RES,562,1/8W,1%
R27019	4722-2211-001	RES,2.21K,1/8W,1%
R27020	4722-1001-001	RES,1.0K,1/8W,1%
R27021	4706-3092-001	RES,30.9K,1/4W,1%
R27022	4706-7682-001	RES,76.8K,1/4W,1%
R27023	4706-1002-001	RES,10.0K,1/4W,1%
R27024	4706-3092-001	RES,30.9K,1/4W,1%
R27025	4706-1002-001	RES,10.0K,1/4W,1%
R27026	4706-2211-001	RES,2.21K,1/4W,1%
R27027	4722-1002-001	RES,10.0K,1/8W,1%
R27028	4722-1502-001	RES,15.0K,1/8W,1%
R27029	4722-8252-001	RES,82.5K,1/8W,1%
R27030	4722-1001-001	RES,1.0K,1/8W,1%
R27031	4721-0221-003	RES,220,1/4W,5%,CHIP
R27032	4721-0221-003	RES,220,1/4W,5%,CHIP
R27033	4722-5623-001	RES,562K,1/8W,1%
R27034	4722-5623-001	RES,562K,1/8W,1%
R27035	4722-2211-001	RES,2.21K,1/8W,1%
R27036	4722-2211-001	RES,2.21K,1/8W,1%
R27037	4752-2103-002	POT,10K OHM S.ADJ MULTI-TURN
R27038	4722-1002-001	RES,10.0K,1/8W,1%
R27039	4722-1002-001	RES,10.0K,1/8W,1%
R27040	4722-1002-001	RES,10.0K,1/8W,1%
R27041	4752-2103-002	POT,10K OHM S.ADJ MULTI-TURN
R27042	4722-8252-001	RES,82.5K,1/8W,1%
R27043	4722-6811-001	RES,6.81K,1/8W,1%

7010-8134-100 PCB ASSY, FRONT PANEL PULSE (cont) B

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
R27044	4722-1002-001	RES,10.0K,1/8W,1%
R27045	4722-1502-001	RES,15.0K,1/8W,1%
R27046	4722-1002-001	RES,10.0K,1/8W,1%
R27047	4722-1502-001	RES,15.0K,1/8W,1%
R27048	4722-1002-001	RES,10.0K,1/8W,1%
R27049	4722-1502-001	RES,15.0K,1/8W,1%
R27050	4722-1001-001	RES,1.0K,1/8W,1%
R27051	4722-1001-001	RES,1.0K,1/8W,1%
R27052	4722-1002-001	RES,10.0K,1/8W,1%
R27053	4722-1002-001	RES,10.0K,1/8W,1%
R27054	4722-4750-001	RES,475,1/8W,1%
R27055	4721-0221-003	RES,220,1/4W,5%,CHIP
R27056	4722-1002-001	RES,10.0K,1/8W,1%
R27057	4722-1000-001	RES,100,1/8W,1%
R27058	4722-1002-001	RES,10.0K,1/8W,1%
R27059	4722-1000-001	RES,100,1/8W,1%
R27060	4722-1002-001	RES,10.0K,1/8W,1%
R27061	4722-1000-001	RES,100,1/8W,1%
R27062	4722-1002-001	RES,10.0K,1/8W,1%
R27069	4722-1003-001	RES,100K,1/8W,1%
R27070	4722-2740-001	RES,274,1/8W,1%
R27071	4722-2740-001	RES,274,1/8W,1%
R27072	4722-1823-001	RES,182K,1/8W,1%
R27073	4722-1003-001	RES,100K,1/8W,1%
R27074	4722-8252-001	RES,82.5K,1/8W,1%
R27075	4722-6811-001	RES,6.81K,1/8W,1%
R27076	4722-1001-001	RES,1.0K,1/8W,1%
R27077	4722-2211-001	RES,2.21K,1/8W,1%
R27078	4722-2553-001	RES,255K,1/8W,1%
R27079	4722-2211-001	RES,2.21K,1/8W,1%
R27080	4722-3653-001	RES,365K,1/8W,1%
R27081	4722-1002-001	RES,10.0K,1/8W,1%
R27082	4722-1002-001	RES,10.0K,1/8W,1%
R27083	4722-1002-001	RES,10.0K,1/8W,1%
R27084	4722-1002-001	RES,10.0K,1/8W,1%
R27085	4722-1002-001	RES,10.0K,1/8W,1%
R27086	4722-1002-001	RES,10.0K,1/8W,1%
R27087	4722-2740-001	RES,274,1/8W,1%
R27088	4722-2740-001	RES,274,1/8W,1%
R27089	4722-2740-001	RES,274,1/8W,1%
R27090	4722-2740-001	RES,274,1/8W,1%
R27091	4722-2740-001	RES,274,1/8W,1%
R27092	4722-2740-001	RES,274,1/8W,1%
R27093	4722-2740-001	RES,274,1/8W,1%
R27094	4722-1002-001	RES,10.0K,1/8W,1%
R27095	4722-1002-001	RES,10.0K,1/8W,1%
R27096	4722-1002-001	RES,10.0K,1/8W,1%
R27097	4722-1002-001	RES,10.0K,1/8W,1%
R27098	4722-1002-001	RES,10.0K,1/8W,1%
R27099	4722-1002-001	RES,10.0K,1/8W,1%
R27100	4722-1002-001	RES,10.0K,1/8W,1%

7010-8134-100 PCB ASSY, FRONT PANEL PULSE (cont) B

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
R27101	4722-1002-001	RES,10.0K,1/8W,1%
R27102	4722-1002-001	RES,10.0K,1/8W,1%
R27103	4722-1002-001	RES,10.0K,1/8W,1%
R27104	4722-1500-001	RES,150,1/8W,1%
R27105	4722-1500-001	RES,150,1/8W,1%
R27106	4722-1500-001	RES,150,1/8W,1%
R27107	4722-1500-001	RES,150,1/8W,1%
R27108	4722-1500-001	RES,150,1/8W,1%
R27109	4722-1500-001	RES,150,1/8W,1%
R27110	4722-1500-001	RES,150,1/8W,1%
R27111	4722-1500-001	RES,150,1/8W,1%
R27112	4722-1500-001	RES,150,1/8W,1%
R27113	4722-1500-001	RES,150,1/8W,1%
R27114	4722-1500-001	RES,150,1/8W,1%
R27115	4722-1500-001	RES,150,1/8W,1%
R27116	4722-1500-001	RES,150,1/8W,1%
RN27001	4690-0910-300	RES NETWORK,10K,BUSS,10-P,SIP
S27001	5136-0002-000	SWITCH,BLUE
TP27001	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27002	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27003	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27004	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27005	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27006	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27007	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27008	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27009	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27010	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27011	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27012	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27013	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27014	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27015	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27016	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27017	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27018	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27019	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27020	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27021	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27022	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27023	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27024	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27025	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27026	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27027	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27028	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27029	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27030	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27031	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27032	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27033	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE

7010-8134-100 PCB ASSY, FRONT PANEL PULSE (cont) B

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
TP27034	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27035	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27036	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27037	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27038	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27039	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27040	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27041	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27042	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27043	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27044	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27045	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27046	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27047	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27048	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27049	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27050	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27051	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27052	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27053	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27054	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27055	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27056	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27057	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27058	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27059	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27060	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27061	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27062	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27063	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27064	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27065	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27066	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27067	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27068	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27069	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27070	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27071	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27072	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27073	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27074	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27075	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27078	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27079	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
U27001	3135-0000-066	IC,80C188,8/16-B CPU,PLCC
U27002	3210-3074-000	IC,DUAL D,FF/SET/RESET,INDL
U27004	3214-9403-003	IC,OCTAL,3,STATE,DRIVER,SOL
U27006	3214-9403-003	IC,OCTAL,3,STATE,DRIVER,SOL
U27007	3214-9403-006	IC,DUAL,D,FLIP,FLOP,SMD,SOL
U27008	3210-3000-005	IC,3-TO-8 LINE DCDR/DEMUX,SOL
U27009	3210-3000-009	IC,OCT-BUS XCVR,3-STATE,INDL

7010-8134-100 **PCB ASSY, FRONT PANEL PULSE (cont)** **B**

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
U27010	3210-3000-001	IC,OCT.TRANS.LCH,3-STATE,INDL
U27011	3214-9100-016	IC,QUAD 2IN NAND,CMOS,INDL
U27014	3214-9100-014	IC,QUAD BFR/LINEDRVR,SO14,INDL
U27015	3210-3000-003	IC,QUAD 2-IN MUX.SOL-16,INDL
U27016	3210-3000-003	IC,QUAD 2-IN MUX.SOL-16,INDL
U27017	3260-0100-802	IC,SRAM 1230,28-PIN
U27018	3135-0001-059	IC,INDL,TEMP.VOLT.SUPV.SO-8
U27019	3214-9403-003	IC,OCTAL,3,STATE,DRIVER,SOL
U27020	3214-9403-003	IC,OCTAL,3,STATE,DRIVER,SOL
U27021	3214-9403-003	IC,OCTAL,3,STATE,DRIVER,SOL
U27022	3271-2064-701	IC,XC2064-70PC68I LGC.CMSINDL
U27023	3228-0017-000	IC,262,144 BIT DUAL DRAM INDL
U27024	3228-0017-000	IC,262,144 BIT DUAL DRAM INDL
U27025	3210-3000-004	IC,HEX INPUT,ST SO-14 INDL
U27026	3210-3000-007	IC,OCT.BFR/LINE DRVR.SOL INDL
U27027	3214-9403-003	IC,OCTAL,3,STATE,DRIVER,SOL
U27028	3223-0005-006	IC,INDL.RS-232 DRVR. CMOS
U27029	3272-8106-100	IC,22V10 ATC601 FP PULSE V1.00
U27030	3135-0000-078	IC,CMOS,82510 UART PLCC,INDL
U27032	3228-0006-001	IC,5018 D/A CONVERTER,SOL
U27033	3228-0006-001	IC,5018 D/A CONVERTER,SOL
U27034	3224-0016-000	IC,QUAD OP-AMP 248,INDL
U27035	4600-6800-401	INVERTER SUPPLY PURCHASED
U27036	3214-9100-018	IC,3-8 DEMUX CMOS SO-16,INDL
U27039	3214-9100-015	IC,4-BIT BIN CNTR CMOS,INDL
U27040	3214-9403-011	IC,F/F NONINVRT 3-STAT,SOIC
U27041	3228-0006-001	IC,5018 D/A CONVERTER,SOL
U27042	3228-0016-000	IC,12-BIT D/A CONVERTER,INDL
U27043	3228-0006-001	IC,5018 D/A CONVERTER,SOL
U27044	3271-3090-070	IC,LOGIC CELL ARRAY 175P,INDL
U27045	3229-1015-800	IC,10-BIT CMOSD A/D 10158
U27047	3224-0015-000	IC,556 DUAL TIMER,INDL
U27050	3133-0000-124	IC BIMOS CA3130 OP AMP SO
U27051	3210-3000-004	IC,HEX INPUT,ST SO-14 INDL
U27052	3214-9403-002	IC,QUAD 2 INPUT OR GATE SOL
U27053	F260-8120-100	A-D INTERFACE XC7336-15 V1.00
U27054	3135-0001-022	IC,QUAD LOW NOISE OP AMP,SO14
U27055	3135-0001-022	IC,QUAD LOW NOISE OP AMP,SO14
U27056	3210-3000-009	IC,OCT-BUS XCVR,3-STATE,INDL
U27057	3210-3000-009	IC,OCT-BUS XCVR,3-STATE,INDL
U27058	3210-3000-009	IC,OCT-BUS XCVR,3-STATE,INDL
U27059	3135-0001-021	IC,TL072 OP AMP,SO-8
U27060	3214-9403-002	IC,QUAD 2 INPUT OR GATE SOL
XU27001	3101-0000-031	SOCKET,68-P LCC JEDEC H/P TIN
XU27003	3101-0000-013	SOCKET,8P DIP,DUAL WIPE
XU27005	3101-0000-013	SOCKET,8P DIP,DUAL WIPE
XU27012	3101-0000-055	SOCKET,32-P PLCC W/O PINS SMD
XU27013	3101-0000-055	SOCKET,32-P PLCC W/O PINS SMD
XU27017	3101-0000-029	SOCKET,28-P DIP,GOLD,LO PROFIL
XU27022	3101-0000-031	SOCKET,68-P LCC JEDEC H/P TIN
XU27031	3101-0000-013	SOCKET,8P DIP,DUAL WIPE

7010-8134-100 PCB ASSY, FRONT PANEL PULSE (cont) B

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
XU27044	3101-0000-048	SOCKET,175 P

7010-8134-100 PCB ASSY, FRONT PANEL PULSE C

Contains all parts shown in Revision B minus the following:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
TP27003	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27012	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27013	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27018	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27019	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27020	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27021	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27022	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27024	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27025	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27030	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27034	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27036	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27039	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27040	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27041	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27042	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27043	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27044	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27045	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27046	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27047	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27050	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27051	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27052	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27053	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27054	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27055	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27058	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27065	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27066	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27067	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27068	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27069	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27070	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27071	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27072	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27073	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27074	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27075	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE

7010-8132-800 **PCB ASSY, FRONT PANEL PULSE** **A**

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	1700-8124-100	PC BD, FP PULSE
2	1051-0100-100	ADEHESIVE,TAK PAK 444
3	4104-0000-002	CARD GUIDE & EJECTOR S-203
4	2108-0000-008	PIN FOR S-203 EJECTOR N/C
5	1050-0000-013	ADHESIVE, SILICONE RTV, WHITE
6	6003-0001-009	WIRE,HOOK,TFE,30GA,SOLID,WHT
C27001	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27002	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27003	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27004	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27005	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27006	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27007	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27008	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27009	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27010	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27011	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27012	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27013	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27014	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27015	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27016	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27017	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27018	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27019	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27020	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27021	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27022	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27023	1618-0105-016T	CAP,1UF,16V,TANT,SMD
C27024	1619-0106-025T	CAP,10UF,25V,TANT,SMD
C27025	1619-0106-025T	CAP,10UF,25V,TANT,SMD
C27026	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27027	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27028	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27029	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27030	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27031	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27032	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27033	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27034	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27035	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27036	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27037	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27038	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27039	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27040	1622-0220-001T	CAP,22PF,100V,5%,1206,NPO
C27041	1622-0103-001T	CAP,0.01UF,50V,CHIP,X7R
C27042	1622-0101-001T	CAP,100PF,50V,CHIP
C27043	1618-0474-025T	CAP,0.47UF,25V,TANT,SMD
C27044	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27045	1622-0220-001T	CAP,22PF,100V,5%,1206,NPO

7010-8132-800 PCB ASSY, FRONT PANEL PULSE (cont) A

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
C27046	1622-0103-001T	CAP,0.01UF,50V,CHIP,X7R
C27047	1622-0101-001T	CAP,100PF,50V,CHIP
C27048	1618-0474-025T	CAP,0.47UF,25V,TANT,SMD
C27049	1580-1000-200	CAP,10UF,25V,ELE,RDL
C27050	1580-1000-200	CAP,10UF,25V,ELE,RDL
C27051	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27052	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27053	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27054	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27055	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27056	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27058	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27061	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27062	1622-0220-001T	CAP,22PF,100V,5%,1206,NPO
C27063	1622-0103-001T	CAP,0.01UF,50V,CHIP,X7R
C27064	1622-0220-001T	CAP,22PF,100V,5%,1206,NPO
C27065	1618-0474-025T	CAP,0.47UF,25V,TANT,SMD
C27066	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27067	1622-0220-001T	CAP,22PF,100V,5%,1206,NPO
C27068	1622-0101-001T	CAP,100PF,50V,CHIP
C27069	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27070	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27071	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27072	1619-0476-010T	CAP,47UF,10V,TANT,SMD
C27073	1580-1000-200	CAP,10UF,25V,ELE,RDL
C27074	1580-1000-200	CAP,10UF,25V,ELE,RDL
C27075	1618-0474-025T	CAP,0.47UF,25V,TANT,SMD
C27076	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27077	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27078	1622-0103-001T	CAP,0.01UF,50V,CHIP,X7R
C27079	1622-0103-001T	CAP,0.01UF,50V,CHIP,X7R
C27080	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27081	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27082	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27083	1619-0106-025T	CAP,10UF,25V,TANT,SMD
C27084	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27085	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27086	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27087	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27088	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27089	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27090	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27092	1622-0103-001T	CAP,0.01UF,50V,CHIP,X7R
C27093	1622-0103-001T	CAP,0.01UF,50V,CHIP,X7R
C27094	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27095	1622-0103-001T	CAP,0.01UF,50V,CHIP,X7R
C27096	1622-0101-001T	CAP,100PF,50V,CHIP
C27097	1619-0106-025T	CAP,10UF,25V,TANT,SMD
C27098	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27099	1619-0106-025T	CAP,10UF,25V,TANT,SMD
C27100	1622-0101-001T	CAP,100PF,50V,CHIP

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REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
C27101	1580-1020-049	CAP,1000UF,6.3V,ELE,30
C27102	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27103	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27104	1622-0103-001T	CAP,0.01UF,50V,CHIP,X7R
C27105	1622-0103-001T	CAP,0.01UF,50V,CHIP,X7R
C27106	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27107	1622-0103-001T	CAP,0.01UF,50V,CHIP,X7R
C27108	1622-0102-001T	CAP,1000PF,50V,CHIP,NPO
C27109	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27110	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27111	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27112	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27113	1622-0103-001T	CAP,0.01UF,50V,CHIP,X7R
C27114	1622-0103-001T	CAP,0.01UF,50V,CHIP,X7R
C27115	1622-0103-001T	CAP,0.01UF,50V,CHIP,X7R
C27116	1622-0103-001T	CAP,0.01UF,50V,CHIP,X7R
C27117	1622-0103-001T	CAP,0.01UF,50V,CHIP,X7R
C27118	1622-0103-001T	CAP,0.01UF,50V,CHIP,X7R
C27119	1622-0103-001T	CAP,0.01UF,50V,CHIP,X7R
C27120	1580-3310-025	CAP,330UF,25V,ELE,RDL
C27121	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27122	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27123	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27124	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27125	1622-0103-001T	CAP,0.01UF,50V,CHIP,X7R
C27126	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27127	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27128	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
C27129	1622-0104-001T	CAP,0.1UF,50V,CHIP,X7R
CR27001	4816-0000-004T	DIODE,HSMS-2803,S-BAR SOT-23
CR27002	4816-0000-004T	DIODE,HSMS-2803,S-BAR SOT-23
CR27003	4816-0000-006T	DIODE, HSMS 2802, SOT-23
CR27004	4816-0000-006T	DIODE, HSMS 2802, SOT-23
CR27005	4815-0000-005T	DIODE, 4148,SIGNAL 75PRV SMD
CR27006	4815-0000-005T	DIODE, 4148,SIGNAL 75PRV SMD
CR27007	4815-0000-005T	DIODE, 4148,SIGNAL 75PRV SMD
CR27008	4815-0000-005T	DIODE, 4148,SIGNAL 75PRV SMD
CR27009	4815-0000-005T	DIODE, 4148,SIGNAL 75PRV SMD
CR27010	4815-0000-005T	DIODE, 4148,SIGNAL 75PRV SMD
CR27011	4818-0000-003	DIODE ZENER, 5.1V .5W
CR27012	4815-0000-005T	DIODE, 4148,SIGNAL 75PRV SMD
CR27013	4818-0000-029	DIODE, LM236AH-2.5 REF TO-46
CR27014	4815-0000-005T	DIODE, 4148,SIGNAL 75PRV SMD
CR27015	4816-0000-006T	DIODE, HSMS 2802, SOT-23
CR27016	4818-0000-033	DIODE,IN5281B ZENER 200V INDL
CR27017	4818-0000-033	DIODE,IN5281B ZENER 200V INDL
CR27018	4815-0000-005T	DIODE, 4148,SIGNAL 75PRV SMD
DL27001	4730-0000-001	DELAY LINE,INDL.PASSIVE 10NS
G27001	5850-0000-031	OSC,40.0000MHZ 14-P INDL
J27051	2115-0005-002	CONN,LKING HEADER 2-P GOLD
J27052	2115-0005-020	CONN,LKING HEADER 20P GOLD

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REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
JTB27001	2129-1087-002	CONN, HDR. D.R. RTANG. 2-P
L27001	1811-6103-003T	IND,SM 10UH 10% C 1812
P27007	2129-1002-148	CONN,RA TPL ROW DIN MALE 48P
P27015	2129-1002-196	CONN,RA
Q27001	4809-0000-021T	TRANS, 3904, NPN SMD
Q27002	4809-0000-021T	TRANS, 3904, NPN SMD
Q27003	4809-0000-021T	TRANS, 3904, NPN SMD
Q27004	4809-0000-021T	TRANS, 3904, NPN SMD
Q27005	4811-0000-001	TRANS,SJE1461 ,NPN PWR AMP
Q27006	4801-0000-006T	TRANS,2N2222,NPN HS SW,SOT
Q27007	4801-0000-006T	TRANS,2N2222,NPN HS SW,SOT
Q27008	4801-0000-006T	TRANS,2N2222,NPN HS SW,SOT
R27001	4722-5111-001T	RES,5.11K,1/8W,1%
R27002	4722-1001-001T	RES,1.0K,1/8W,1%
R27003	4721-0181-002T	RES,180,1/4W,5%,CHIP
R27004	4722-1002-001T	RES,10.0K,1/8W,1%
R27005	4722-1002-001T	RES,10.0K,1/8W,1%
R27006	4722-2211-001T	RES,2.21K,1/8W,1%
R27007	4721-0221-003T	RES,220,1/4W,5%,CHIP
R27008	4721-0221-003T	RES,220,1/4W,5%,CHIP
R27009	4722-1002-001T	RES,10.0K,1/8W,1%
R27010	4722-1002-001T	RES,10.0K,1/8W,1%
R27011	4722-1002-001T	RES,10.0K,1/8W,1%
R27013	4722-2211-001T	RES,2.21K,1/8W,1%
R27014	4722-1002-001T	RES,10.0K,1/8W,1%
R27015	4722-6810-001T	RES,681,1/8W,1%
R27016	4722-5620-001T	RES,562,1/8W,1%
R27017	4722-2553-001T	RES,255K,1/8W,1%
R27018	4722-5620-001T	RES,562,1/8W,1%
R27019	4722-2211-001T	RES,2.21K,1/8W,1%
R27020	4722-1001-001T	RES,1.0K,1/8W,1%
R27021	4706-3092-001	RES,30.9K,1/4W,1%
R27022	4706-7682-001	RES,76.8K,1/4W,1%
R27023	4706-1002-001	RES,10.0K,1/4W,1%
R27024	4706-3092-001	RES,30.9K,1/4W,1%
R27025	4706-1002-001	RES,10.0K,1/4W,1%
R27026	4706-2211-001	RES,2.21K,1/4W,1%
R27027	4722-1002-001T	RES,10.0K,1/8W,1%
R27028	4722-1502-001T	RES,15.0K,1/8W,1%
R27029	4722-8252-001T	RES,82.5K,1/8W,1%
R27030	4722-1001-001T	RES,1.0K,1/8W,1%
R27031	4721-0221-003T	RES,220,1/4W,5%,CHIP
R27032	4721-0221-003T	RES,220,1/4W,5%,CHIP
R27033	4722-5623-001T	RES,562K,1/8W,1%
R27034	4722-5623-001T	RES,562K,1/8W,1%
R27035	4722-2211-001T	RES,2.21K,1/8W,1%
R27036	4722-2211-001T	RES,2.21K,1/8W,1%
R27037	4752-2103-002	POT,10K OHM S.ADJ MULTI-TURN
R27038	4722-1002-001T	RES,10.0K,1/8W,1%
R27039	4722-1002-001T	RES,10.0K,1/8W,1%
R27040	4722-1002-001T	RES,10.0K,1/8W,1%

7010-8132-800 PCB ASSY, FRONT PANEL PULSE (cont) A

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
R27041	4752-2103-002	POT,10K OHM S.ADJ MULTI-TURN
R27042	4722-8252-001T	RES,82.5K,1/8W,1%
R27043	4722-6811-001T	RES,6.81K,1/8W,1%
R27044	4722-1002-001T	RES,10.0K,1/8W,1%
R27045	4722-1502-001T	RES,15.0K,1/8W,1%
R27046	4722-1002-001T	RES,10.0K,1/8W,1%
R27047	4722-1502-001T	RES,15.0K,1/8W,1%
R27048	4722-1002-001T	RES,10.0K,1/8W,1%
R27049	4722-1502-001T	RES,15.0K,1/8W,1%
R27050	4722-1001-001T	RES,1.0K,1/8W,1%
R27051	4722-1001-001T	RES,1.0K,1/8W,1%
R27052	4722-1002-001T	RES,10.0K,1/8W,1%
R27053	4722-1002-001T	RES,10.0K,1/8W,1%
R27054	4722-4750-001T	RES,475,1/8W,1%
R27055	4721-0221-003T	RES,220,1/4W,5%,CHIP
R27056	4722-1002-001T	RES,10.0K,1/8W,1%
R27057	4722-1000-001T	RES,100,1/8W,1%
R27058	4722-1002-001T	RES,10.0K,1/8W,1%
R27059	4722-1000-001T	RES,100,1/8W,1%
R27060	4722-1002-001T	RES,10.0K,1/8W,1%
R27061	4722-1000-001T	RES,100,1/8W,1%
R27062	4722-1002-001T	RES,10.0K,1/8W,1%
R27069	4722-1003-001T	RES,100K,1/8W,1%
R27070	4722-2740-001T	RES,274,1/8W,1%
R27071	4722-2740-001T	RES,274,1/8W,1%
R27072	4722-1823-001T	RES,182K,1/8W,1%
R27073	4722-1003-001T	RES,100K,1/8W,1%
R27074	4722-8252-001T	RES,82.5K,1/8W,1%
R27075	4722-6811-001T	RES,6.81K,1/8W,1%
R27076	4722-1001-001T	RES,1.0K,1/8W,1%
R27077	4722-2211-001T	RES,2.21K,1/8W,1%
R27078	4722-2553-001T	RES,255K,1/8W,1%
R27079	4722-2211-001T	RES,2.21K,1/8W,1%
R27080	4722-3653-001T	RES,365K,1/8W,1%
R27081	4722-1002-001T	RES,10.0K,1/8W,1%
R27082	4722-1002-001T	RES,10.0K,1/8W,1%
R27083	4722-1002-001T	RES,10.0K,1/8W,1%
R27084	4722-1002-001T	RES,10.0K,1/8W,1%
R27085	4722-1002-001T	RES,10.0K,1/8W,1%
R27086	4722-1002-001T	RES,10.0K,1/8W,1%
R27087	4722-2740-001T	RES,274,1/8W,1%
R27088	4722-2740-001T	RES,274,1/8W,1%
R27089	4722-2740-001T	RES,274,1/8W,1%
R27090	4722-2740-001T	RES,274,1/8W,1%
R27091	4722-2740-001T	RES,274,1/8W,1%
R27092	4722-2740-001T	RES,274,1/8W,1%
R27093	4722-2740-001T	RES,274,1/8W,1%
R27094	4722-1002-001T	RES,10.0K,1/8W,1%
R27095	4722-1002-001T	RES,10.0K,1/8W,1%
R27096	4722-1002-001T	RES,10.0K,1/8W,1%
R27097	4722-1002-001T	RES,10.0K,1/8W,1%

7010-8132-800 PCB ASSY, FRONT PANEL PULSE (cont) A

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
R27098	4722-1002-001T	RES,10.0K,1/8W,1%
R27099	4722-1002-001T	RES,10.0K,1/8W,1%
R27100	4722-1002-001T	RES,10.0K,1/8W,1%
R27101	4722-1002-001T	RES,10.0K,1/8W,1%
R27102	4722-1002-001T	RES,10.0K,1/8W,1%
R27103	4722-1002-001T	RES,10.0K,1/8W,1%
R27104	4722-1500-001T	RES,150,1/8W,1%
R27105	4722-1500-001T	RES,150,1/8W,1%
R27106	4722-1500-001T	RES,150,1/8W,1%
R27107	4722-1500-001T	RES,150,1/8W,1%
R27108	4722-1500-001T	RES,150,1/8W,1%
R27109	4722-1500-001T	RES,150,1/8W,1%
R27110	4722-1500-001T	RES,150,1/8W,1%
R27111	4722-1500-001T	RES,150,1/8W,1%
R27112	4722-1500-001T	RES,150,1/8W,1%
R27113	4722-1500-001T	RES,150,1/8W,1%
R27114	4722-1500-001T	RES,150,1/8W,1%
R27115	4722-1500-001T	RES,150,1/8W,1%
R27116	4722-1500-001T	RES,150,1/8W,1%
R27120	4702-0229-003	RES,2.2,1/4W,5%
R27121	4753-0103-002	POT, 10K OHM
RN27001	4690-0910-300	RES NETWORK,10K,BUSS,10-P,SIP
S27001	5136-0002-000	SWITCH KSAOM421 BLUE
TP27001	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27002	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27004	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27005	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27006	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27007	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27008	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27009	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27010	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27011	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27014	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27015	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27016	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27017	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27023	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27026	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27027	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27028	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27029	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27031	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27032	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27033	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27035	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27037	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27038	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27048	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27049	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27057	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE

7010-8132-800 PCB ASSY, FRONT PANEL PULSE (cont) A

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
TP27058	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27059	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27060	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27061	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27062	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27063	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27064	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27078	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP27079	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
U27001	3135-0000-066	IC,80C188,8/16-B CPU, PLCC
U27002	3210-3074-000T	IC,DUAL D,FF/SET/RESET INDL
U27004	3214-9403-003T	IC,OCTAL,3,STATE,DRIVER SOL
U27006	3214-9403-003T	IC,OCTAL,3,STATE,DRIVER SOL
U27007	3214-9403-006T	IC,DUAL,D,FLIP,FLOP,SMD SOL
U27008	3210-3000-005T	IC,3-TO-8 LINE DCDR/DEMUX SOL
U27009	3210-3000-009T	IC,OCT-BUS XCVR,3-STATE INDL
U27010	3210-3000-001T	IC,OCT.TRANS.LCH,3-STATE INDL
U27011	3214-9100-016T	IC,QUAD 2IN NAND CMOS INDL
U27014	3214-9100-014T	IC,QUAD BFR/LINEDRVR SO14INDL
U27015	3210-3000-003T	IC,QUAD 2-IN MUX.SOL-16 INDL
U27016	3210-3000-003T	IC,QUAD 2-IN MUX.SOL-16 INDL
U27017	3260-0100-802	IC,SRAM 1230 28-PIN
U27018	3135-0001-059T	IC,INDL,TEMP.VOLT.SUPV.SO-8
U27019	3214-9403-003T	IC,OCTAL,3,STATE,DRIVER SOL
U27020	3214-9403-003T	IC,OCTAL,3,STATE,DRIVER SOL
U27021	3214-9403-003T	IC,OCTAL,3,STATE,DRIVER SOL
U27022	3271-2064-701	IC,XC2064-70PC68I LGC.CMSINDL
U27023	3228-0017-000	IC,262,144 BIT DUAL DRAM INDL
U27024	3228-0017-000	IC,262,144 BIT DUAL DRAM INDL
U27025	3210-3000-004T	IC,HEX INPUT, ST SO-14 INDL
U27026	3210-3000-007T	IC,OCT.BFR/LINE DRVR.SOL INDL
U27027	3214-9403-003T	IC,OCTAL,3,STATE,DRIVER SOL
U27028	3223-0005-006	IC,INDL.RS-232 DRVR. CMOS
U27029	3272-8106-100	IC,22V10 ATC601 FP PULSE V1.00
U27030	3135-0000-078	IC,CMOS,82510 UART PLCC INDL
U27032	3228-0006-001T	IC,5018 D/A CONVERTER SOL
U27033	3228-0006-001T	IC,5018 D/A CONVERTER SOL
U27034	3224-0016-000	IC,QUAD OP-AMP 248 INDL
U27036	3214-9100-018T	IC,3-8 DEMUX CMOS SO-16 INDL
U27039	3214-9100-015T	IC,4-BIT BIN CNTR CMOS INDL
U27040	3214-9403-011T	IC, F/F NONINVRT 3-STAT SOIC
U27041	3228-0006-001T	IC,5018 D/A CONVERTER SOL
U27042	3228-0016-000	IC,12-BIT D/A CONVERTER INDL
U27043	3228-0006-001T	IC,5018 D/A CONVERTER SOL
U27044	3271-3090-070	IC,LOGIC CELL ARRAY 175P INDL
U27045	3229-1015-800T	IC, 10-BIT CMOSD A/D 10158
U27047	3224-0015-000	IC,556 DUAL TIMER INDL
U27050	3133-0000-124T	IC BIMOS CA3130 OP AMP SO
U27051	3210-3000-004T	IC,HEX INPUT, ST SO-14 INDL
U27052	3214-9403-002T	IC,QUAD 2 INPUT OR GATE SOL
U27053	F260-8120-100	A-D INTERFACE XC7336-15 V1.00

7010-8132-800 PCB ASSY, FRONT PANEL PULSE (cont) A

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
U27054	3135-0001-022T	IC,QUAD LOW NOISE OP AMP,SO14
U27055	3135-0001-022T	IC,QUAD LOW NOISE OP AMP,SO14
U27056	3210-3000-009T	IC,OCT-BUS XCVR,3-STATE INDL
U27057	3210-3000-009T	IC,OCT-BUS XCVR,3-STATE INDL
U27058	3210-3000-009T	IC,OCT-BUS XCVR,3-STATE INDL
U27059	3135-0001-021T	IC, TL072 OP AMP SO-8
U27060	3214-9403-002T	IC,QUAD 2 INPUT OR GATE SOL
XU27001	3101-0000-031	SOCKET,68-P LCC JEDEC H/P TIN
XU27003	3101-0000-013	SOCKET,8P DIP, DUAL WIPE
XU27005	3101-0000-013	SOCKET,8P DIP, DUAL WIPE
XU27012	3101-0000-055T	SOCKET,32-P PLCC W/O PINS SMD
XU27013	3101-0000-055T	SOCKET,32-P PLCC W/O PINS SMD
XU27017	3101-0000-029	SOCKET,28-P DIP,GOLD,LO PROFIL
XU27022	3101-0000-031	SOCKET,68-P LCC JEDEC H/P TIN
XU27031	3101-0000-013	SOCKET,8P DIP, DUAL WIPE
XU27044	3101-0000-048	SOCKET, 175 P

7010-8132-800 PCB ASSY, FRONT PANEL PULSE B

Contains all parts shown in Revision A minus the following:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
R27100	4722-1002-001T	RES,10.0K,1/8W,1%
R27101	4722-1002-001T	RES,10.0K,1/8W,1%

Contains all parts shown in Revision A plus the following:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
R27118	4722-1002-001T	RES,10.0K,1/8W,1%
R27119	4722-1002-001T	RES,10.0K,1/8W,1%

7005-8143-100 ASSY, LINE SUPPLY B

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	1400-8152-500	BRKT LINE SUPPLY
2	2803-0250-006	SCREW,4-40 X 1/4 PPHM
3	2809-1000-006	SCREW,10-32X1 PPHM
4	2804-0375-006	SCREW,6-32 X 3/8 PPHM
5	6011-0042-000	TUBING,TF,18 AWG,NATURAL,SW
6	6012-0166-100	TUBING,PVC-105, 6 AWG,CLEAR
8	6004-6005-400	TY-RAP,4.0 LG
A1	7010-8133-100	PCB ASSY, LINE SUPPLY
BR33001	4823-0000-001	RECT,PK10 ,BRIDGE, 100V,10A
J11062	2115-0001-034	CONNECTOR,2-P,MATE-N-LOK,CAP
J11062-1	2114-0000-064	CONTACT,MATE-N-LOK,PIN,18GA
J11062-2	2114-0000-064	CONTACT,MATE-N-LOK,PIN,18GA
T33001	5604-8100-003	TRANSFORMER,TOROIDAL POWER
W1	6008-5000-002	WIRE, CSA, 600V,18GA,BROWN
W2	6008-5009-007	WIRE, UL 600V 18GA, 75,BLUE

7005-8143-100 ASSY, LINE SUPPLY C

Contains all parts shown in Revision B.

7005-8143-100 ASSY, LINE SUPPLY D

Contains all parts shown in Revision C with the following exceptions:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
3	2809-1000-102	SC,10-32X1,ASH,SS,PA

7005-8143-100 ASSY, LINE SUPPLY E

Contains all parts shown in Revision D.

7005-8143-100 ASSY, LINE SUPPLY E1

Contains all parts shown in Revision E plus the following:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
7	1050-0000-019	THERMAL COMPOUND
9	1050-0000-047	LOC-TITE 222

7005-8143-100 **ASSY, LINE SUPPLY** **F**

Contains all parts shown in Revision E1.

7010-8133-100 PCB ASSY, LINE SUPPLY A

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	1700-8123-100	PC BD, LINE SUPPLY
2	6004-6005-400	TY-RAP,4.0 LG
C15003	1579-0222-035	CAP,UF 2200 35V 20% RDL ELE
CR15001	4832-0000-001	DIODE,NS2001,RECT,100V,2A
CR15002	4901-4752-100	DIODE,1N4752A,ZENER,33V,1W
J26001	2115-0005-004	CONN,LKING HEADER 4-P GOLD
Q15001	4822-0000-002	RECT,2N6397,THYR,TO-220
R15001	4705-0500-002	RES,50,2W,5%,WW
R15002	4702-0102-003	RES,1.0K,1/4W,5%
S15001	5135-2026-100	SWITCH,SLIDE,DPDT,115/230,PCM

7005-8143-500 ASSY, POWER SUPPLY C

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	7010-8130-500	PCB ASSY, PWR SUPPLY
2	1414-3554-600	COVER,POWER SUPPLY
3	2803-0313-003	SCREW 4-40 X 5/16 PFHMS
4	2803-0250-006	SCREW,4-40 X 1/4 PPHM
5	2804-0188-003	SCREW 6-32X3/16 PHIL FLAT HD
6	1415-8151-400	ENCLOSURE, PWR SUPPLY
7	2803-0250-003	SCREW,4-40 X 1/4 PFHM
8	2803-0375-006	SCREW, 4-40 X 3/8 PPHM
9	6004-7800-200	TY-RAP,#4 SCREW MOUNT,5.5L
14	2840-6153-500	WASHER PPS SHOULDER
15	4835-0000-103	INSUL,MICA,TO-220 TRANS,DF103B
16	2840-0000-009	WASHER,FLAT,4,MS15795-803
17	2850-0000-020	NUT,HEX,SMALL PAT,4-40
18	2400-7856-800	LABEL,ESD
Q23001	5050-2445-200	TRANS TMOSPWR 80V/.065R SNSFET
Q23002	5050-2445-200	TRANS TMOSPWR 80V/.065R SNSFET
U23004	5050-2402-100	IC, 1A LOW DROPOUT REG
U23005	5050-2402-100	IC, 1A LOW DROPOUT REG
W1	7007-8580-300	WIRE HARN ASSY, POWER SUPPLY

7005-8143-500 ASSY, POWER SUPPLY D

Contains all parts shown in Revision C with the following exceptions:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
Q23001	5050-2445-500	TRANS,SENSEFET 100V,28A,.077 R
Q23002	5050-2445-500	TRANS,SENSEFET 100V,28A,.077 R

7005-8143-500 ASSY, POWER SUPPLY E

Contains all parts shown in Revision D.

7010-8130-500 **PCB ASSY, POWER SUPPLY** **C1**

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	1700-7420-300	PC BD,MLS-801 PWR SUPPLY
2	2510-5064-301	HUB, TRANSFORMER MOUNTING
3	2803-0313-006	SCREW,4-40 X 5/16 PPHM
4	2804-1000-006	SCREW 6-32 X 1 PBHMS
5	2840-0000-001	WASHER,LOCK,INT TOOTH,6
6	2840-0000-003	WASHER,LOCK,INT TOOTH,4
7	2840-7600-216	WASHER,PHEN,.63OD,.140ID,.060T
8	2850-0000-002	NUT,HEX,SMALL PAT,6-32
9	2850-0000-008	NUT,HEX,REG PAT,4-40
10	6003-0001-006	WIRE,HOOK,TFE,30GA,SOLID,BLU
11	6010-0125-100	TUBING,HS, 1/8 ID,CLEAR
C14001	1580-3312-215	CAP,330UF,16V,ELE,RDL
C14003	1521-0000-008	CAP,0.1UF,50V,DIP,Z5U
C14005	1506-0332-017	CAP,3000PF,100V,5%,NPO
C14006	1521-0000-008	CAP,0.1UF,50V,DIP,Z5U
C14007	1506-0471-017	CAP,470PF,100V,5%,NPO
C14008	1580-4700-215	CAP,47UF,25V,ELE,30
C14009	1506-0102-017	CAP,1000PF,100V,5%,NPO
C14010	1507-0105-018	CAP,1UF,35V,20%,TANT
C14011	1506-0102-017	CAP,1000PF,100V,5%,NPO
C14012	1506-0332-017	CAP,3000PF,100V,5%,NPO
C14013	1521-0000-008	CAP,0.1UF,50V,DIP,Z5U
C14014	1506-0221-017	CAP,220PF,100V,5%,NPO
C14015	1506-0102-017	CAP,1000PF,100V,5%,NPO
C14016	1580-3312-215	CAP,330UF,16V,ELE,RDL
C14017	1508-0107-020	CAP,100UF,20V,TANT,RDL
C14018	1508-0226-018	CAP,22UF,35V,20%,TANT,RDL
C14019	1580-3312-215	CAP,330UF,16V,ELE,RDL
C14020	1508-0107-020	CAP,100UF,20V,TANT,RDL
C14021	1508-0226-018	CAP,22UF,35V,20%,TANT,RDL
C14022	1580-3312-215	CAP,330UF,16V,ELE,RDL
C14023	1580-3312-215	CAP,330UF,16V,ELE,RDL
C14025	1521-0000-008	CAP,0.1UF,50V,DIP,Z5U
C14026	1521-0000-008	CAP,0.1UF,50V,DIP,Z5U
C14027	1521-0000-008	CAP,0.1UF,50V,DIP,Z5U
C14028	1521-0000-008	CAP,0.1UF,50V,DIP,Z5U
C14029	1521-0000-008	CAP,0.1UF,50V,DIP,Z5U
C14030	1580-3312-215	CAP,330UF,16V,ELE,RDL
C14031	1508-0226-018	CAP,22UF,35V,20%,TANT,RDL
C14032	1508-0226-018	CAP,22UF,35V,20%,TANT,RDL
C14034	1506-0471-017	CAP,470PF,100V,5%,NPO
C14035	1521-0000-008	CAP,0.1UF,50V,DIP,Z5U
C14037	1580-3312-215	CAP,330UF,16V,ELE,RDL
C14038	1580-3312-215	CAP,330UF,16V,ELE,RDL
C14039	1521-0000-008	CAP,0.1UF,50V,DIP,Z5U
C14040	1521-0000-008	CAP,0.1UF,50V,DIP,Z5U
C14042	1580-4792-305	CAP,4.7UF,35V
C14043	1580-4792-305	CAP,4.7UF,35V
C14044	1521-0000-008	CAP,0.1UF,50V,DIP,Z5U
CR14001	4815-0000-003	DIODE, 1N4148 ,SIGNAL, 75PRV
CR14002	4815-0000-003	DIODE, 1N4148 ,SIGNAL, 75PRV

7010-8130-500 **PCB ASSY, POWER SUPPLY (cont)** **C1**

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
CR14003	4920-5158-450	DIODE,80SQ045 ,RECT,PS,45V,8A
CR14004	4818-0000-017	DIODE,NS2002 ,RECT, 200V, 2A
CR14005	4901-5245-200	DIODE, 1N5245B ,ZENER, 15V,.5W
CR14006	4901-5245-200	DIODE, 1N5245B ,ZENER, 15V,.5W
CR14007	4818-0000-017	DIODE,NS2002 ,RECT, 200V, 2A
CR14008	4920-5158-300	DIODE,80SQ035 ,RECT,PS,30V,8A
CR14009	4945-0150-050	DIODE,5KP5.0 ,TZORB, 5V,5KW
CR14010	4815-0000-003	DIODE, 1N4148 ,SIGNAL, 75PRV
CR14011	4815-0000-003	DIODE, 1N4148 ,SIGNAL, 75PRV
CR14012	4816-0000-001	DIODE,5082-2800,S BAR, 70VBR
CR14013	4815-0000-003	DIODE, 1N4148 ,SIGNAL, 75PRV
CR14014	4920-5158-450	DIODE,80SQ045 ,RECT,PS,45V,8A
CR14015	4920-5158-450	DIODE,80SQ045 ,RECT,PS,45V,8A
CR14016	4816-0000-001	DIODE,5082-2800,S BAR, 70VBR
F14001	5106-0000-040	FUSE 7AMP PICO II
L14001	1800-5354-900	IND,TOROID,30-T #20 MAGNET
L14003	1800-5354-900	IND,TOROID,30-T #20 MAGNET
L14005	1800-5354-900	IND,TOROID,30-T #20 MAGNET
L14006	1800-5354-900	IND,TOROID,30-T #20 MAGNET
L14007	1800-5354-900	IND,TOROID,30-T #20 MAGNET
L14008	1801-0102-001	IND, 1.0MH, I=28MA, 3.4 OHMS
P23047	2205-3510-103	CONN,D-SUB,M,15-P,PCM,R.A
Q14001	4801-0000-001	TRANSISTOR NPN HS SW
Q14002	4805-0000-001	TRANS,2N2907A,PNP HS SW (3251)
Q14004	4801-0000-001	TRANSISTOR NPN HS SW
Q14005	4807-0000-002	TRANS, 2N3905 ,PNP HS SW
Q14006	4805-0000-001	TRANS,2N2907A,PNP HS SW (3251)
Q14007	4801-0000-001	TRANSISTOR NPN HS SW
Q14008	4805-0000-001	TRANS,2N2907A,PNP HS SW (3251)
Q14011	4805-0000-001	TRANS,2N2907A,PNP HS SW (3251)
Q14012	4807-0000-002	TRANS, 2N3905 ,PNP HS SW
Q14013	4801-0000-002	TRANS, 2N2405 ,NPN AMP
Q14014	4801-0000-001	TRANSISTOR NPN HS SW
Q14015	4801-0000-001	TRANSISTOR NPN HS SW
Q14016	4801-0000-001	TRANSISTOR NPN HS SW
Q14017	4805-0000-001	TRANS,2N2907A,PNP HS SW (3251)
R14001	4709-0108-004	RES,0.1,5W,5%,WW
R14003	4701-0474-003	RES,470K,1/8W,5%
R14004	4701-0472-003	RES,4.7K,1/8W,5%
R14006	4701-0471-003	RES,470,1/8W,5%
R14007	4753-0203-002	POT 20K OHM
R14008	4701-0822-003	RES,8.2K,1/8W,5%
R14009	4701-0101-003	RES,100,1/8W,5%
R14010	4701-0103-003	RES,10K,1/8W,5%
R14011	4701-0270-003	RES,27,1/8W,5%
R14012	4701-0102-003	RES,1.0K,1/8W,5%
R14013	4701-0103-003	RES,10K,1/8W,5%
R14014	4701-0100-003	RES,10,1/8W,5%
R14015	4701-0150-003	RES,15,1/8W,5%
R14016	4701-0103-003	RES,10K,1/8W,5%
R14017	4701-0103-003	RES,10K,1/8W,5%

7010-8130-500 **PCB ASSY, POWER SUPPLY (cont)** **C1**

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
R14018	4701-0103-003	RES,10K,1/8W,5%
R14019	4701-0104-003	RES,100K,1/8W,5%
R14020	4701-0223-003	RES,22K,1/8W,5%
R14021	4701-0153-003	RES,15K,1/8W,5%
R14022	4701-0103-003	RES,10K,1/8W,5%
R14023	4701-0102-003	RES,1.0K,1/8W,5%
R14024	4701-0103-003	RES,10K,1/8W,5%
R14025	4701-0103-003	RES,10K,1/8W,5%
R14026	4701-0103-003	RES,10K,1/8W,5%
R14027	4701-0103-003	RES,10K,1/8W,5%
R14028	4701-0102-003	RES,1.0K,1/8W,5%
R14029	4701-0270-003	RES,27,1/8W,5%
R14030	4701-0103-003	RES,10K,1/8W,5%
R14031	4701-0479-003	RES,4.7,1/8W,5%
R14032	4701-0100-003	RES,10,1/8W,5%
R14033	4701-0221-003	RES,220,1/8W,5%
R14034	4701-0221-003	RES,220,1/8W,5%
R14044	4701-0102-003	RES,1.0K,1/8W,5%
R14046	4701-0102-003	RES,1.0K,1/8W,5%
R14047	4701-0331-003	RES,330,1/8W,5%
R14049	4701-0103-003	RES,10K,1/8W,5%
R14050	4701-0333-003	RES,33K,1/8W,5%
R14051	4701-0472-003	RES,4.7K,1/8W,5%
R14052	4701-0152-003	RES,1.5K,1/8W,5%
R14053	4701-0181-003	RES,180,1/8W,5%
R14054	4701-0103-003	RES,10K,1/8W,5%
R14055	4701-0391-003	RES,390,1/8W,5%
R14057	4701-0104-003	RES,100K,1/8W,5%
R14058	4701-0224-003	RES,220K,1/8W,5%
R14059	4701-0272-003	RES,2.7K,1/8W,5%
R14060	4701-0152-003	RES,1.5K,1/8W,5%
R14061	4753-0102-002	POT 1K OHM
R14062	4701-0103-003	RES,10K,1/8W,5%
R14063	4701-0820-003	RES,82,1/8W,5%
R14064	4701-0101-003	RES,100,1/8W,5%
R14065	4701-0182-003	RES,1.8K,1/8W,5%
R14066	4701-0223-003	RES,22K,1/8W,5%
R14067	4701-0103-003	RES,10K,1/8W,5%
R14068	4701-0221-003	RES,220,1/8W,5%
R14069	4701-0221-003	RES,220,1/8W,5%
R14070	4701-0103-003	RES,10K,1/8W,5%
R14071	4701-0103-003	RES,10K,1/8W,5%
R14072	4701-0471-003	RES,470,1/8W,5%
R14073	4702-0279-003	RES,2.7,1/4W,5%
R14074	4756-2510-400	POT 100K OHM
R14075	4701-0184-003	RES,180K,1/8W,5%
R14078	4701-0682-003	RES,6.8K,1/8W,5%
R14079	4701-0472-003	RES,4.7K,1/8W,5%
R14080	4701-0393-003	RES,39K,1/8W,5%
R14081	4702-0331-003	RES,330,1/4W,5%
R14082	4701-0102-003	RES,1.0K,1/8W,5%

7010-8130-500 PCB ASSY, POWER SUPPLY (cont) C1

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
RT14001	4800-0000-003	THERM,2KOHM,25/125=19.8,2H-202
T14001	5604-7401-100	TRANSFORMER MLS-801
T14002	5604-7401-100	TRANSFORMER MLS-801
TP14001	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP14002	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
U14001	3135-0000-002	IC, LIN PWM CONTROL CIRCUIT
U14002	3133-0000-004	IC,4027B,DUAL JK MS FLIP-FLOP
U14003	3135-0000-002	IC, LIN PWM CONTROL CIRCUIT
U14006	3224-0010-100	IC,LOW PWR LOW OFS V QUAD COMP
U14008	3224-0010-100	IC,LOW PWR LOW OFS V QUAD COMP

7010-8130-500 PCB ASSY, POWER SUPPLY D

Contains all parts shown in Revision C1 with the following additions and exceptions:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
10	6008-0000-009	WIRE,HOOK,TFE,30GA,SOLID,WHT
12	6011-0027-001	TUBING,TF,22 AWG,NATURAL,TW
CR14017	4822-0000-012	RECT, ULTRAFAST 100V 1AMP
CR14018	4822-0000-012	RECT, ULTRAFAST 100V 1AMP
R14015	4701-0390-003	RES,39,1/8W,5%
R14031	4701-0100-003	RES,10,1/8W,5%

7010-8130-500 PCB ASSY, POWER SUPPLY E

Contains all parts shown in Revision D with the following exceptions:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
F14001	5106-0000-040	FUSE 7AMP PICO II

7005-8544-200 **ASSY, FRONT PANEL** **C**

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	7010-8131-700	PCB ASSY,VIDEO DETECTOR
2	7010-8532-300	PCB ASSY,FT.PNL LED
4	7005-8142-100	MECH ASSY,PWR TERMINATION
5	1405-8158-200	PANEL,FRONT
6	1414-8150-200	COVER,POWER TERM
7	1050-0000-285	TAPE,1/2" WIDE
8	2803-0188-006	SCREW,4-40 X 3/16 PPHM
9	3900-8157-100	LENS,10OHM ITO,7.375 X 3.375
10	2803-1125-006	SCREW 4-40 X 1 1/8 PBHMS
11	2850-0000-008	NUT,HEX,REG PAT,4-40
12	2289-0001-001	CAP,TNC MALE W/CHAIN
13	2289-0001-002	CAP,BNC,MALE W/CHAIN
14	2403-8553-500	OVERLAY,TCAS-201-2
15	1400-8156-900	BRACKET,SHIELD SUPPORT
17	2800-0453-500	SPACER,.250 O.D,.125 I.D,.065L
18	6020-0063-200	TUBING,HS 1/16ID BLACK,UL
19	2840-8158-000	WASHER,.312OD,.151ID,.078THK
20	2840-8158-300	WASHER,.312OD,.151ID,.109THK
21	7010-8138-400	PCB ASSY,LCD DISPLAY,MOD
22	6004-6005-400	TY-RAP,4.0 LG
23	1414-0000-200	COVER,METAL LEMO BRC.2S.200NDS
24	2400-7856-800	LABEL,ESD
25	6050-0040-350	COAX ASSY,FLEXIBLE,RG 316/U
26	6043-1150-350	COAX ASSY CONFRML MSMA/MSMA
27	6043-1150-250	COAX ASSY,CONF,S M SMA/S M SMA
28	2289-0001-003	CAP,BNC M W/CHAIN 50 OHM TERM
29	2803-0375-006	SCREW,4-40 X 3/8 PPHM
30	2801-0188-006	SCREW 2-56 X 3/16 PPHMS
32	2800-8451-400	STANDOFF,HEX M-F.188*.40,4-40
33	2850-7894-800	NUT,FUSE HOLDER
35	2803-0625-006	SCREW,4-40 X 5/8 PPHM
36	2803-0313-006	SCREW,4-40 X 5/16 PPHM
37	2288-0000-006	CHAIN,#6 MOUNTING EYELET
41	2508-8157-700	SHIELD,FOIL
42	6004-7800-200	TY-RAP,#4 SCREW MOUNT,5.5L
43	1050-0000-170	TAPE,VINYL FOAM 3/4" 2-SIDED
45	1050-0000-288	PRIMER,ADHESIVE,LOCTITE N
46	1050-0000-289	ADHESIVE,THREADLOC,LOCTITE271
47	1050-0000-140	ADHESIVE
50	2111-0001-001	CLIP,ADHESIVE,.25 BUNDLE
51	6011-0042-000	TUBING,TF,18 AWG,NATURAL,SW
52	2850-0000-002	NUT,HEX,SMALL PAT,6-32
53	6012-0166-100	TUBING,PVC-105,6 AWG,CLEAR
54	6020-1000-200	TUBING,HS,1 ID,BLK
55	6020-1500-200	TUBING,HS,1 1/2ID,BLK
56	6004-6005-550	TY-RAP,5.5 LG
57	2831-0003-000	GROMMET,RBR BIK,.25 ID .56 OD
58	2845-0000-018	FINGERSTOCK,BECU,WALL CLIP-ON
59	2508-8158-500	SHIELD,DISPLAY
F1	5106-4501-000	FUSE,1.0A,250V,FAST,1.25 GL
F2	5106-4501-000	FUSE,1.0A,250V,FAST,1.25 GL

7005-8544-200 ASSY, FRONT PANEL (cont) C

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
FL1	2220-1021-100	CONN,PWR,FLTR AC,MALE RCPT
GL1	2850-0000-026	LUG,GND,6
J10053	2217-9011-700	CONN,LEMO RA2.310NYL
J10054	2123-0000-074	CONN,BLKHD JACK BNC FT MTG
J10055	2123-0000-074	CONN,BLKHD JACK BNC FT MTG
J10056	2123-0000-074	CONN,BLKHD JACK BNC FT MTG
J10057	2123-0000-074	CONN,BLKHD JACK BNC FT MTG
J10058	2123-0000-073	CONN,BLKHD JACK TNC FT MTG
RV12001	4800-0000-011	VARISTOR,SURGE PROTECTOR
W1	7007-8181-600	WIRE HARN ASSY,BACKLIGHT
W2	7007-8580-100	WIRE HARN ASSY,LINE SUPPLY
W3	6008-5009-007	WIRE,UL 600V 18GA,75,BLUE
W4	6008-5000-002	WIRE,CSA,600V,18GA,BROWN
W5	6008-9009-056	WIRE,UL,600V,16GA,GRN/YEL
W6	7007-8181-700	WIRE HARN ASSY,FT PNL COMM
W17	7007-8181-500	WIRE HARN ASSY,DISP-FP PULSE
XF1	5105-0000-100	FUSE HOLDER RF SHIELD 3AG
XF2	5105-0000-100	FUSE HOLDER RF SHIELD 3AG

7005-8544-200 ASSY, FRONT PANEL D

Contains all parts shown in Revision C with the following exceptions:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
7	1050-0000-302	TAPE,SCOTCH VHB 1/4" WIDE

Contains all parts shown in Revision C minus the following:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
W1	7007-8181-600	WIRE HARN ASSY,BACKLIGHT

7005-8544-200 ASSY, FRONT PANEL D1

Contains all parts shown in Revision D plus the following:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
F1	5106-0000-016	FUSE,0.5A,250V,FAST,1.25 GL
F2	5106-0000-016	FUSE,0.5A,250V,FAST,1.25 GL

7005-8544-200 **ASSY, FRONT PANEL** **E**

Contains all parts shown in Revision D1 with the following exceptions:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
13	2289-0001-006	CAP,BNC,MALE W/CABLE
28	2289-0001-007	CAP,BNC M W/CABLE 50 OHM TERM

7005-8540-100 ASSY, FRONT PANEL A

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	7010-8131-700	PCB ASSY, VIDEO DETECTOR
2	7010-8532-300	PCB ASSY,FNT PNL LED,201-2
4	7005-8142-100	MECH ASSY, PWR TERMINATION
5	1405-8158-200	PANEL, FRONT
6	1414-8150-200	COVER,POWER TERM
7	1050-0000-302	TAPE, SCOTCH VHB 1/4" WIDE
8	2803-0188-006	SCREW,4-40 X 3/16 PPHM
9	3900-8157-100	LENS, 10OHM ITO, 7.375 X 3.375
10	2803-1125-006	SCREW 4-40 X 1 1/8 PBHMS
11	2850-0000-008	NUT,HEX,REG PAT,4-40
12	2289-0001-005	CAP,TNC MALE W/CABLE
13	2289-0001-006	CAP,BNC,MALE W/CABLE
14	2403-8553-500	OVERLAY, TCAS-201-2
16	2850-0000-020	NUT,HEX,SMALL PAT,4-40
17	2840-0000-008	WASHER,FLAT,4,AN960-C4
18	6020-0063-200	TUBING, HS 1/16ID BLACK UL
22	6004-6005-400	TY-RAP,4.0 LG
23	1414-0000-200	COVER,METAL LEMO BRC.2S.200NDS
25	6050-0040-350	COAX ASSY,FLEXIBLE,RG 316/U
26	6043-1150-350	COAX ASSY CONFRML MSMA/MSMA
27	6043-1150-250	COAX ASSY,CONF,S M SMA/S M SMA
28	2289-0001-007	CAP,BNC,M W/CABLE 50 OHM TERM
29	2803-0375-006	SCREW, 4-40 X 3/8 PPHM
30	2801-0188-006	SCREW 2-56 X 3/16 PPHMS
31	1051-5000-500	TAPE, ALUMINUM 1/2"
32	2818-3356-900	STANDOFF,.188HEX,M/S,.25LG
33	2850-7894-800	NUT, FUSE HOLDER
35	2803-0625-006	SCREW,4-40 X 5/8 PPHM
36	2803-0313-006	SCREW,4-40 X 5/16 PPHM
37	2288-0000-006	CHAIN,#6 MOUNTING EYELET
41	2508-8157-700	SHIELD, FOIL
42	6004-7800-200	TY-RAP,#4 SCREW MOUNT,5.5L
43	1050-0000-170	TAPE, VINYL FOAM 3/4" 2-SIDED
45	1050-0000-288	PRIMER,ADHESIVE,LOCTITE N
46	1050-0000-289	ADHESIVE,THREADLOC,LOCTITE271*
47	1050-0000-140	ADHESIVE,QUICK SET 404
48	1400-3556-800	BRACKET,DISPLAY SUPPORT
50	2111-0001-001	CLIP, ADHESIVE, .25 BUNDLE
51	6011-0042-000	TUBING,TF,18 AWG,NATURAL,SW
52	2850-0000-002	NUT,HEX,SMALL PAT,6-32
53	6012-0166-100	TUBING,PVC-105, 6 AWG,CLEAR
54	6020-1000-200	TUBING,HS, 1 ID, BLK
55	6020-1500-200	TUBING,HS,1 1/2ID,BLK
56	6004-6005-550	TY-RAP,5.5 LG
59	2508-3556-900	SHIELD,DISPLAY
A2	7010-3533-900	PCB ASSY,LCD DISPLAY,BACKLIGHT
F1	5106-0000-016	FUSE,.5AMP,250V,FAST,1.25GL
F1	5106-4501-000	FUSE,1.0AMP,250V,FAST,1.25GL
F2	5106-0000-016	FUSE,.5AMP,250V,FAST,1.25GL
F2	5106-4501-000	FUSE,1.0AMP,250V,FAST,1.25GL
FL1	2220-1021-100	CONN, PWR, FLTR AC, MALE RCPT

7005-8540-100 ASSY, FRONT PANEL (cont) A

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
J10053	2217-9011-700	CONN,LEMO RA2.310NYL
J10054	2123-0000-074	CONN,BLKHD JACK BNC FT MTG
J10055	2123-0000-074	CONN,BLKHD JACK BNC FT MTG
J10056	2123-0000-074	CONN,BLKHD JACK BNC FT MTG
J10057	2123-0000-074	CONN,BLKHD JACK BNC FT MTG
J10058	2123-0000-073	CONN,BLKHD JACK TNC FT MTG
RV12001	4800-0000-011	VARISTOR,SURGE PROTECTOR
W2	7007-8580-100	WIRE HARN ASSY, LINE SUPPLY
W3	6008-5009-007	WIRE, UL 600V 18GA, 75,BLUE
W4	6008-5000-002	WIRE, CSA, 600V,18GA,BROWN
W5	6008-9009-056	WIRE,UL,600V,16GA,GRN/YEL
W6	7007-8181-700	WIRE HARN ASSY, FT PNL COMM
XF1	5105-0000-100	FUSE HOLDER RF SHIELD 3AG
XF2	5105-0000-100	FUSE HOLDER RF SHIELD 3AG

7005-8540-100 ASSY, FRONT PANEL B

Contains all parts shown in Revision A.

7005-8540-100 ASSY, FRONT PANEL C

Contains all parts shown in Revision B.

7005-8540-100 ASSY, FRONT PANEL D

Contains all parts shown in Revision C with the following exceptions:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
17	2840-0000-009	WASHER,FLAT,4,MS15795-803

7010-8131-700 PCB ASSY, VIDEO DETECTOR D

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	1700-8121-700	PC BD,VIDEO DETECTOR
2	2400-7856-800	LABEL,ESD
C30001	1622-0030-001	CAP,3PF,50V,CHIP
C30002	1622-0100-001	CAP,10PF,100V,CHIP
CR30001	4816-0000-005	DIODE,HSMS-2800,SOT-23
CR30002	4816-0000-018	DIODE,SOT-23 PIN
CR30003	4816-0000-018	DIODE,SOT-23 PIN
J30043	2123-0000-054	CONN,RF SUB,SMA,PCB RTANG JACK
J30044	2200-2094-200	CONN,M SMB,PC MTG,RIGHT ANGLE
J30045	2115-0000-122	CONN,HDR SROW R.A.GOLD 3P .1"
J30061	2123-0000-054	CONN,RF SUB,SMA,PCB RTANG JACK
R30001	4722-1509-001	RES,15,1/8W,1%
R30002	4722-2219-001	RES,22.1,1/8W,1%
R30003	4722-2210-001	RES,221,1/8W,1%
R30004	4722-1829-001	RES,18.2,1/8W,1%
R30005	4722-3929-001	RES,39.2,1/8W,1%
R30006	4722-5119-001	RES,51.1,1/8W,1%
R30007	4722-5629-001	RES,56.2,1/8W,1%
R30008	4722-3320-001	RES,332,1/8W,1%
R30009	4722-1820-001	RES,182,1/8W,1%
R30010	4722-3929-001	RES,39.2,1/8W,1%
R30011	4722-6819-001	RES,68.1,1/8W,1%
R30012SAT	4722-3329-001	RES,33.2,1/8W,1%
R30012SAT	4722-3659-001	RES,36.5,1/8W,1%
R30012SAT	4722-4649-001	RES,46.4,1/8W,1%
R30012SAT	4722-5629-001	RES,56.2,1/8W,1%
R30012SAT	4722-6499-001	RES,64.9,1/8W,1%
R30012SAT	4722-7509-001	RES,75,1/8W,1%
R30013	4722-1002-001	RES,10.0K,1/8W,1%
R30014	4722-6819-001	RES,68.1,1/8W,1%

7010-8131-700 PCB ASSY, VIDEO DETECTOR E

Contains all parts shown in Revision D minus the following:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
2	2400-7856-800	LABEL,ESD

Contains all parts shown in Revision D with the following exceptions:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
C30001	1622-0030-001T	CAP,3PF,50V,CHIP
C30002	1622-0100-001T	CAP,10PF,100V,CHIP
CR30001	4816-0000-005T	DIODE,HSMS-2800,SOT-23
CR30002	4816-0000-018T	DIODE,SOT-23 PIN
CR30003	4816-0000-018T	DIODE,SOT-23 PIN
R30001	4722-1509-001T	RES,15,1/8W,1%
R30002	4722-2219-001T	RES,22.1,1/8W,1%
R30003	4722-2210-001T	RES,221,1/8W,1%
R30004	4722-1829-001T	RES,18.2,1/8W,1%
R30005	4722-3929-001T	RES,39.2,1/8W,1%
R30006	4722-5119-001T	RES,51.1,1/8W,1%
R30007	4722-5629-001T	RES,56.2,1/8W,1%
R30008	4722-3320-001T	RES,332,1/8W,1%
R30009	4722-1820-001T	RES,182,1/8W,1%
R30010	4722-3929-001T	RES,39.2,1/8W,1%
R30011	4722-6819-001T	RES,68.1,1/8W,1%
R30012SAT	4722-3329-001T	RES,33.2,1/8W,1%
R30012SAT	4722-3659-001T	RES,36.5,1/8W,1%
R30012SAT	4722-4649-001T	RES,46.4,1/8W,1%
R30012SAT	4722-5629-001T	RES,56.2,1/8W,1%
R30012SAT	4722-6499-001T	RES,64.9,1/8W,1%
R30012SAT	4722-7509-001T	RES,75,1/8W,1%
R30013	4722-1002-001T	RES,10.0K,1/8W,1%
R30014	4722-6819-001T	RES,68.1,1/8W,1%

7010-8131-700 PCB ASSY, VIDEO DETECTOR E1

Contains all parts shown in Revision E.

7010-8532-300 PCB ASSY, FRONT PANEL LED A

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	1700-8120-300	PC BD,FT PNL LED
2	6004-6005-400	TY-RAP,4.0 LG
3	2800-8153-900	SPACER,LT.SENSOR 1/4" DELRIN
4	2114-0000-022	CONTACT,DCANT,CRIMP,22-30,TIN
CR13001	4950-0500-000	LED,RED,HLMP 3750
CR13002	4950-0500-000	LED,RED,HLMP 3750
CR13003	4818-0000-024	LED,BICOLOR,T-1 3/4
P25010	2115-0003-001	CONN,TERM HSING LCK,7-P
R13001	4723-0000-100	PHOTO RES,NSL-5150,TO-18
R13002	4701-0331-003	RES,330,1/8W,5%
R13003	4701-0331-003	RES,330,1/8W,5%
	6003-0000-001	WIRE,HOOK,TFE,26GA,7S,BLACK
	6003-0000-004	WIRE,HOOK,TFE,26GA,7S,ORANGE
	6003-0000-007	WIRE,HOOK,TFE,26GA,7S,BLUE
	6003-0000-013	WIRE,HOOK,TFE,26GA,7S,WHT/RED
	6003-0000-014	WIRE,HOOK,TFE,26GA,7S,WHT/ORG
	6003-0000-015	WIRE,HOOK,TFE,26GA,7S,WHT/YEL
	6003-0000-017	WIRE,HOOK,TFE,26GA,7S,WHT/BLU

7010-8532-300 PCB ASSY, FRONT PANEL LED B

Contains all parts shown in Revision A minus the following:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
4	2114-0000-022	CONTACT,DCANT,CRIMP,22-30,TIN
	6003-0000-001	WIRE,HOOK,TFE,26GA,7S,BLACK
	6003-0000-004	WIRE,HOOK,TFE,26GA,7S,ORANGE
	6003-0000-007	WIRE,HOOK,TFE,26GA,7S,BLUE
	6003-0000-013	WIRE,HOOK,TFE,26GA,7S,WHT/RED
	6003-0000-014	WIRE,HOOK,TFE,26GA,7S,WHT/ORG
	6003-0000-015	WIRE,HOOK,TFE,26GA,7S,WHT/YEL
	6003-0000-017	WIRE,HOOK,TFE,26GA,7S,WHT/BLU

Contains all parts shown in Revision A plus the following:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
W13001	7007-8182-400	WIRE HARNESS ASSY,F.P.LED

7005-8142-100 ASSY, POWER TERMINATION B2

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	1700-8122-100	PC BD,PWR TERMINATION
2	1415-8151-300	ENCL,BLK,POWER TERMINATION
3	2801-0156-006	SCREW,2-56 X 5/32 PPHM
4	2803-0250-006	SCREW,4-40 X 1/4 PPHM
5	2803-0250-002	SCREW,4-40X1/4,SHCSSS
J28028	2105-7610-100	CONN 2502-1201 AMERICON MOD 1
J28029	2105-7610-100	CONN 2502-1201 AMERICON MOD 1
R28001	4721-0510-003	RES,51,1/4W,5%,CHIP
R28002	5650-8100-100	TERMINATION,FLG MNT

7005-8142-100 ASSY, POWER TERMINATION B3

Contains all parts shown in Revision B2.

7010-8138-400 PCB ASSY, LCD DISPLAY (MODIFIED) A3

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	3107-8158-400	INSULATOR,DISPLAY #2
2	3107-8157-800	INSULATOR,DISPLAY
3	1050-0000-093	TAPE,KAPTON,3/8
4	2800-0000-039	SPCR,NYL.125OD,.047ID,.040LG
A1	7110-8138-400	LCD DISPLAY
A2	1700-8128-400	PC BD,LCD ADAPTER
J1	2115-0200-020	CONN,S.ROW,.120" RA HDR 20-P

7010-8138-400 PCB ASSY, LCD DISPLAY (MODIFIED) B

Contains all parts shown in Revision A3 plus the following:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
5	2831-0003-000	GROMMET,RBR BIK,.25 ID .56 OD
6	6004-6005-400	TY-RAP,4.0 LG
W1	7007-8181-600	WIRE HARN ASSY, BACKLIGHT

7010-8138-400 PCB ASSY, LCD DISPLAY (MODIFIED) C

Contains all parts shown in Revision B.

7010-3533-900 PCB ASSY, LCD DISPLAY (MODIFIED) A

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	6004-6005-400	TY-RAP,4.0 LG
4	2400-7856-800	LABEL,ESD
A01	7110-3500-300	PURCHASED ASSY,LCD DISPLAY
W01	7007-8181-600	WIRE HARN ASSY, BACKLIGHT
W02	7007-3582-200	RBN CABLE ASSY,DISP-FP PULSE

7005-8545-500 ASSY, RF A

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	1414-8150-400	COVER,SSB SOURCE
2	1414-8150-500	COVER,SSB MIXER
3	1414-8550-700	COVER, DETECTOR
4	7005-8540-200	MECH ASSY, SSB, TCAS-201
5	7005-8541-100	MECH ASSY, ANALOG IF
6	2803-1000-006	SCREW 4-40 X 1 PBHMS
7	2803-0250-006	SCREW,4-40 X 1/4 PPHM
8	7010-8132-200	PCB ASSY, DRIVER
9	6050-0041-130	COAX ASSY,316,R F SMB/R F SMB
10	6050-0560-400	COAX ASSY,316,RM SMA/RF SMB
11	1414-8153-100	COVER, ANALOG IF
14	7005-8541-000	MECH ASSY, DETECTOR
15	6050-0040-870	COAX ASSY,316,R F SMB/R F SMB
16	2803-1750-006	SCREW, 4-40 X 1.75 PPHM
17	2400-7856-800	LABEL,ESD
18	1414-8550-200	COVER,DECODER
19	7005-8541-300	MECH,ASSY DECODER
20	6050-0040-300	COAX ASSY,316,R F SMB/R F SMB
21	2803-0750-006	SCREW,4-40 X 3/4 PPHM
22	6004-6005-400	TY-RAP,4.0 LG

7005-8545-500 ASSY, RF B

Contains all parts shown in Revision A minus the following:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	1414-8150-400	COVER,SSB SOURCE
2	1414-8150-500	COVER,SSB MIXER

7010-8132-200 **PCB ASSY, DRIVER** **B**

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	1700-8122-200	PC BD, DRIVER
2	2400-7856-800	LABEL,ESD
C20001	1506-0470-017	CAP,47PF,100V,NPO
C20002	1506-0470-017	CAP,47PF,100V,NPO
C20003	1506-0470-017	CAP,47PF,100V,NPO
C20006	1506-0680-017	CAP,68PF,100V,5%,NPO
C20007	1507-0105-018	CAP,1UF,35V,20%,TANT
C20008	1521-0000-008	CAP,0.1UF,50V,DIP,Z5U
C20009	1508-0157-020	CAP,150UF,15V,TANT,RDL
C20012	1521-0000-008	CAP,0.1UF,50V,DIP,Z5U
C20013	1521-0000-008	CAP,0.1UF,50V,DIP,Z5U
C20014	1605-3360-475	CAP,30UF,16V,TANT,RDL
C20015	1508-0476-018	CAP,47UF,35V,TANT,RDL
C20016	1580-1000-200	CAP,10UF,25V,ELE,RDL
C20017	1506-0101-017	CAP,100PF,100V,5%,NPO
J17021	2129-1001-016	CONN,RBN CA 16-P .1X.1GRD HDR
J17022	2115-0002-003	CONN,HEADER,LCK GOLD,7-P
J17023	2200-2010-400	CONN,M SMB,PC MTG,STR,.453LG
J17024	2200-2010-400	CONN,M SMB,PC MTG,STR,.453LG
J17027	2115-2000-003	CONN,HDR LKING AG,3-P
J20025	2115-0005-012	CONN,LKING HEADER 12-P GOLD
J20026	2115-0005-012	CONN,LKING HEADER 12-P GOLD
J20062	2115-0005-004	CONN,LKING HEADER 4-P GOLD
Q20001	4809-0000-030	TRANS,LM394 NPN
Q20002	4809-0000-030	TRANS,LM394 NPN
Q20003	4807-0000-001	TRANS,2N3903,NPN HS SW
Q20005	4807-0000-001	TRANS,2N3903,NPN HS SW
R20001	4702-0472-003	RES,4.7K,1/4W,5%
R20002	4701-0824-003	RES,820K,1/8W,5%
R20003	4701-0103-003	RES,10K,1/8W,5%
R20004	4701-0104-003	RES,100K,1/8W,5%
R20005	4701-0473-003	RES,47K,1/8W,5%
R20006	4701-0392-003	RES,3.9K,1/8W,5%
R20007	4706-1000-001	RES,100,1/4W,1%
R20008	4701-0222-003	RES,2.2K,1/8W,5%
R20009	4753-0503-002	POT 50K OHM
R20010	4753-0204-002	POT 200K OHM
R20011	4701-0222-003	RES,2.2K,1/8W,5%
R20012	4701-0223-003	RES,22K,1/8W,5%
R20013	4701-0222-003	RES,2.2K,1/8W,5%
R20014	4702-0222-003	RES,2.2K,1/4W,5%
R20015	4706-1000-001	RES,100,1/4W,1%
R20016	4753-0502-002	POT 5K OHM
R20017	4701-0103-003	RES,10K,1/8W,5%
R20018	4701-0222-003	RES,2.2K,1/8W,5%
R20019	4753-0503-002	POT 50K OHM
R20020	4756-2510-400	POT 100K OHM
R20021	4701-0471-003	RES,470,1/8W,5%
R20024	4702-0470-003	RES,47,1/4W,5%
R20025	4702-0470-003	RES,47,1/4W,5%
R20026	4702-0121-003	RES,120,1/4W,5%

7010-8132-200 PCB ASSY, DRIVER (cont) B

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
R20027	4702-0121-003	RES,120,1/4W,5%
R20029	4756-3110-300	POT,10K OHM
R20030	4702-0273-003	RES,27K,1/4W,5%
R20032	4753-0503-002	POT 50K OHM
R20033	4701-0184-003	RES,180K,1/8W,5%
R20034	4701-0474-003	RES,470K,1/8W,5%
R20035	4706-2802-001	RES,28.0K,1/4W,1%
R20036	4706-2003-001	RES,200K,1/4W,1%
R20040	4701-0822-003	RES,8.2K,1/8W,5%
R20041	4701-0103-003	RES,10K,1/8W,5%
R20042	4701-0103-003	RES,10K,1/8W,5%
R20043	4701-0103-003	RES,10K,1/8W,5%
R20044	4701-0103-003	RES,10K,1/8W,5%
R20046	4701-0272-003	RES,2.7K,1/8W,5%
R20047	4701-0183-003	RES,18K,1/8W,5%
R20048	4706-2051-001	RES,2.05K,1/4W,1%
R20049	4706-2611-001	RES,2.61K,1/4W,1%
R20050	4701-0100-003	RES,10,1/8W,5%
R20051	4701-0152-003	RES,1.5K,1/8W,5%
R20052	4701-0273-003	RES,27K,1/8W,5%
R20053	4701-0100-003	RES,10,1/8W,5%
R20054	4752-0503-002	POT 50K OHM
R20055	4701-0184-003	RES,180K,1/8W,5%
R20056	4702-0471-003	RES,470,1/4W,5%
RT20002	4800-0000-003	THERM,2KOHM,25/125=19.8,2H-202
TP20001	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
U20001	3135-0000-080	IC,JFET-INPUT OP AMP
U20002	3135-0000-080	IC,JFET-INPUT OP AMP
U20003	3135-0000-080	IC,JFET-INPUT OP AMP
U20005	3132-0300-001	IC,QUAD 2-INPUT NAND GATE
U20006	3132-0300-001	IC,QUAD 2-INPUT NAND GATE
U20007	3133-0000-024	IC,3130,BIMOS OP AMP,PLAST DIP
U20008	3224-0009-000	IC,2931,ADJ 3V-24V REGULATOR

7010-8132-200 PCB ASSY, DRIVER C

Contains all parts shown in Revision B plus the following:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
W20001	1050-0000-073	WIRE,BUS,TINNED COPPER,22GA
	6011-0027-001	TUBING,TF,22 AWG,NATURAL,TW

7005-8541-000 ASSY, DETECTOR B

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	7010-8531-000	PCB ASSY, DETECTOR
2	1415-8553-000	ENCLOSURE, DETECTOR
3	2803-0188-006	SCREW,4-40 X 3/16 PPHM
4	6004-6005-400	TY-RAP,4.0 LG
7	2840-7600-229	WASHER,ALUM,.305D,.196ID,.038T
FL32012	5801-0000-006	PI FILTER,EMI/RFI 1500PF 8-32
FL32013	5801-0000-006	PI FILTER,EMI/RFI 1500PF 8-32
FL32014	5801-0000-006	PI FILTER,EMI/RFI 1500PF 8-32
GL32003	2850-0000-100	LUG,GND,#8 RT.ANG NON-LOCKING
J17030	2123-0000-038	CONN,M SMB,W/TERM,STR BULKHD
J17031	2123-0000-038	CONN,M SMB,W/TERM,STR BULKHD
J17064	2123-0000-038	CONN,M SMB,W/TERM,STR BULKHD
J32032	2123-0000-038	CONN,M SMB,W/TERM,STR BULKHD
J32067	2123-0000-038	CONN,M SMB,W/TERM,STR BULKHD
W1	7007-8182-200	WH ASSY, DETECTOR-DRIVER
W2	7007-8580-500	WH ASSY, DECODER-DETECTOR

7010-8531-000 **PCB ASSY, DETECTOR** **C3**

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	1700-8521-000	PC BD,DETECTOR
2	2400-7856-800	LABEL,ESD
3	6011-0022-001	TUBING,TF,24 AWG,NATURAL,TW
C21001	1622-0331-001	CAP,330PF,50V,CHIP
C21002	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C21003	1618-0105-016	CAP,1UF,16V,TANT,SMD
C21004	1622-0331-001	CAP,330PF,50V,CHIP
C21005	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C21006	1622-0331-001	CAP,330PF,50V,CHIP
C21007	1618-0105-016	CAP,1UF,16V,TANT,SMD
C21008	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C21009	1618-0105-016	CAP,1UF,16V,TANT,SMD
C21010	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C21011	1618-0224-016	CAP,0.22UF,16V,TANT,SMD
C21012	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C21013	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C21014	1618-0105-016	CAP,1UF,16V,TANT,SMD
C21015	1622-0150-001	CAP,15PF,100V
C21016	1618-0105-016	CAP,1UF,16V,TANT,SMD
C21017	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C21018	1622-0680-001	CAP,68PF,100V,CHIP
C21019	1622-0391-001	CAP,390PF,100V,CHIP
C21020	1622-0330-001	CAP,33PF,100V,CHIP
C21021	1622-0821-001	CAP,820PF,50V,CHIP
C21022	1622-0680-001	CAP,68PF,100V,CHIP
C21023	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C21024	1622-0121-001	CAP,120PF,100V,CHIP,NPO
C21025	1622-0391-001	CAP,390PF,100V,CHIP
C21026	1622-0390-001	CAP,39PF,100V,CHIP
C21027	1622-0561-001	CAP,560PF,100V,CHIP
C21028	1622-0102-001	CAP,1000PF,50V,CHIP,NPO
C21029	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C21030	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C21031	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C21032	1622-0150-001	CAP,15PF,100V
C21033	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C21034	1622-0103-001	CAP,0.01UF,50V,CHIP,X7R
C21035	1622-0560-001	CAP,56PF,50V,CHIP
C21036	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C21037	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C21038	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C21039	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C21040	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C21041	1622-0101-001	CAP,100PF,50V,CHIP
C21042	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
CR21001	4816-0000-008	DIODE,SCHOTTKY GEN PURPOSE
CR21002	4816-0000-008	DIODE,SCHOTTKY GEN PURPOSE
CR21003	4816-0000-008	DIODE,SCHOTTKY GEN PURPOSE
CR21004	4816-0000-019	DIODE,SCHOTTKY BARRIER
CR21005	4816-0000-005	DIODE,HSMS-2800,SOT-23
CR21006	4816-0000-005	DIODE,HSMS-2800,SOT-23

7010-8531-000 **PCB ASSY, DETECTOR (cont)** **C3**

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
L21001	1811-6103-101	IND,SM,10UH 10% F 1008
L21002	1811-6103-101	IND,SM,10UH 10% F 1008
L21003	1811-6562-101	IND,SM,5.6UH 10% F 1008
L21004	1811-6562-101	IND,SM,5.6UH 10% F 1008
L21005	1811-6562-101	IND,SM,5.6UH 10% F 1008
L21006	1811-6561-001	IND,SM,.56UH 10% C 1008
L21007	1811-6122-001	IND,SM,1.2UH 10% C 1008
L21008	1811-6681-001	IND,SM,.68UH 10% C 1008
L21009	1811-6122-001	IND,SM,1.2UH 10% C 1008
L21010	1811-6222-001	IND,SM,2.2UH 10% C 1008
Q21001	4809-0000-014	TRANS,MMBTH10,VHF/UHF NPN
Q21002	4809-0000-014	TRANS,MMBTH10,VHF/UHF NPN
Q21003	4809-0000-014	TRANS,MMBTH10,VHF/UHF NPN
Q21004	4809-0000-023	TRANS NPN RF AMPLR SOT-23
Q21005	4809-0000-021	TRANS,3904,NPN,SMD
Q21006	4809-0000-021	TRANS,3904,NPN,SMD
Q21007	4809-0000-023	TRANS NPN RF AMPLR SOT-23
Q21008	4809-0000-021	TRANS,3904,NPN SMD
Q21009	4809-0000-021	TRANS,3904,NPN SMD
R21001	4722-1000-001	RES,100,1/8W,1%
R21002	4722-1502-001	RES,15.0K,1/8W,1%
R21003	4722-8251-001	RES,8.25K,1/8W,1%
R21004	4722-4750-001	RES,475,1/8W,1%
R21005	4722-3920-001	RES,392,1/8W,1%
R21006	4722-1502-001	RES,15.0K,1/8W,1%
R21007	4722-4751-001	RES,4.75K,1/8W,1%
R21008	4722-1000-001	RES,100,1/8W,1%
R21009	4722-1502-001	RES,15.0K,1/8W,1%
R21010	4722-8251-001	RES,8.25K,1/8W,1%
R21011	4722-4750-001	RES,475,1/8W,1%
R21012	4722-3920-001	RES,392,1/8W,1%
R21013	4722-1502-001	RES,15.0K,1/8W,1%
R21014	4722-4751-001	RES,4.75K,1/8W,1%
R21015	4722-1000-001	RES,100,1/8W,1%
R21016	4722-1502-001	RES,15.0K,1/8W,1%
R21017	4722-8251-001	RES,8.25K,1/8W,1%
R21018	4722-1821-001	RES,1.82K,1/8W,1%
R21019	4722-3920-001	RES,392,1/8W,1%
R21020	4722-4751-001	RES,4.75K,1/8W,1%
R21021	4722-1502-001	RES,15.0K,1/8W,1%
R21022	4722-2211-001	RES,2.21K,1/8W,1%
R21023	4722-2211-001	RES,2.21K,1/8W,1%
R21024	4722-4759-001	RES,47.5,1/8W,1%
R21025	4722-3650-001	RES,365,1/8W,1%
R21026	4722-3920-001	RES,392,1/8W,1%
R21027	4722-5629-001	RES,56.2,1/8W,1%
R21028	4722-3329-001	RES,33.2,1/8W,1%
R21029	4722-3650-001	RES,365,1/8W,1%
R21030	4722-1503-001	RES,150K,1/8W,1%
R21031	4722-1002-001	RES,10.0K,1/8W,1%
R21032	4722-3921-001	RES,3.92K,1/8W,1%

7010-8531-000 **PCB ASSY, DETECTOR (cont)** **C3**

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
R21033	4722-3321-001	RES,3.32K,1/8W,1%
R21034	4722-3320-001	RES,332,1/8W,1%
R21035	4722-1500-001	RES,150,1/8W,1%
R21036	4722-4759-001	RES,47.5,1/8W,1%
R21037	4722-3320-001	RES,332,1/8W,1%
R21038	4722-4649-001	RES,46.4,1/8W,1%
R21039	4722-4320-001	RES,432,1/8W,1%
R21040	4722-1500-001	RES,150,1/8W,1%
R21041	4722-4759-001	RES,47.5,1/8W,1%
R21042	4722-2740-001	RES,274,1/8W,1%
R21043	4722-1500-001	RES,150,1/8W,1%
R21044	4722-4649-001	RES,46.4,1/8W,1%
R21045	4722-2210-001	RES,221,1/8W,1%
R21046	4722-6811-001	RES,6.81K,1/8W,1%
R21047	4722-1002-001	RES,10.0K,1/8W,1%
R21048	4749-0503-005	POT,SMD,50K OHM
R21049	4722-2211-001	RES,2.21K,1/8W,1%
R21050	4722-2210-001	RES,221,1/8W,1%
R21051	4722-1000-001	RES,100,1/8W,1%
R21052	4722-2211-001	RES,2.21K,1/8W,1%
R21053	4722-2210-001	RES,221,1/8W,1%
R21054	4722-1001-001	RES,1.0K,1/8W,1%
R21055	4722-2210-001	RES,221,1/8W,1%
R21056	4722-3929-001	RES,39.2,1/8W,1%
R21057	4722-3929-001	RES,39.2,1/8W,1%
R21058	4749-0103-005	POT,SMD,10K OHM
R21059	4722-2210-001	RES,221,1/8W,1%
R21060	4722-3653-001	RES,365K,1/8W,1%
R21061	4722-1403-001	RES,140K,1/8W,1%
R21062	4722-6811-001	RES,6.81K,1/8W,1%
R21063	4722-1651-001	RES,1.65K,1/8W,1%
R21064	4722-8250-001	RES,825,1/8W,1%
R21065	4722-1002-001	RES,10.0K,1/8W,1%
RT21001	4800-0000-003	THERM,2KOHM,25/125=19.8,2H-202
T21001	5604-8100-001	TRANSFORMER,4:1RF .2-350MHZ
U21001	3223-0219-000	IC,HI SPEED DUAL CONP.,INDL
U21002	3210-7474-000	IC,DUAL D-TYPE FLIP-FLOP
U21003	3210-7400-000	IC,QUAD 2-INPUT NAND GATE
U21004	3223-0219-000	IC,HI SPEED DUAL CONP.,INDL

7005-8541-100 **ASSY, ANALOG IF** **D1**

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	1415-8150-600	ENCLOSURE,ANALOG IF
2	7010-8531-100	PCB ASSY,ANALOG IF
3	2803-0188-006	SCREW,4-40 X 3/16 PPHM
4	6004-6005-400	TY-RAP,4.0 LG
5	2840-7600-229	WASHER,ALUM,.305D,.196ID,.038T
6	2114-0000-022	CONTACT,DCANT,CRIMP,22-30,GOLD
7	2127-9900-100	KEY,POLARIZIN
8	6010-0125-100	TUBING,HS,1/8 ID,CLEAR
FL19001	5801-0000-006	PI FILTER,EMI/RFI 1500PF 8-32
FL19002	1526-0000-006	CAP,100PF,200V,FEEDTHRU
FL19003	1526-0000-006	CAP,100PF,200V,FEEDTHRU
FL19004	1526-0000-006	CAP,100PF,200V,FEEDTHRU
FL19005	5801-0000-006	PI FILTER,EMI/RFI 1500PF 8-32
FL19006	5801-0000-006	PI FILTER,EMI/RFI 1500PF 8-32
FL19007	5801-0000-006	PI FILTER,EMI/RFI 1500PF 8-32
FL19008	5801-0000-006	PI FILTER,EMI/RFI 1500PF 8-32
FL19010	5801-0000-006	PI FILTER,EMI/RFI 1500PF 8-32
FL19011	5801-0000-006	PI FILTER,EMI/RFI 1500PF 8-32
GL19001	2850-0000-100	LUG,GND,#8 RT.ANG NON-LOCKING
J17034	2123-0000-038	CONN,M SMB,W/TERM,STR BULKHD
J17035	2123-0000-038	CONN,M SMB,W/TERM,STR BULKHD
J19033	2123-0000-038	CONN,M SMB,W/TERM,STR BULKHD
J19036	2123-0000-038	CONN,M SMB,W/TERM,STR BULKHD
J19060	2123-0000-038	CONN,M SMB,W/TERM,STR BULKHD
P20025	2115-0004-012	CONN,LKING TERM HOUSING 12-P
	6002-0000-001	WIRE,HOOK,TFE,22GA,7S,BLACK
	6002-0000-003	WIRE,HOOK,TFE,22GA,7S,RED
	6003-0000-003	WIRE,HOOK,TFE,26GA,7S,RED
	6003-0000-004	WIRE,HOOK,TFE,26GA,7S,ORANGE
	6003-0000-012	WIRE,HOOK,TFE,26GA,7S,WHT/BRN
	6003-0000-013	WIRE,HOOK,TFE,26GA,7S,WHT/RED
	6003-0000-014	WIRE,HOOK,TFE,26GA,7S,WHT/ORG
	6003-0000-015	WIRE,HOOK,TFE,26GA,7S,WHT/YEL
	6003-0000-016	WIRE,HOOK,TFE,26GA,7S,WHT/GRN
	6003-0000-017	WIRE,HOOK,TFE,26GA,7S,WHT/BLU
	6003-0000-018	WIRE,HOOK,TFE,26GA,7S,WHT/VIO
	6003-0000-019	WIRE,HOOK,TFE,26GA,7S,WHT/GRY

7005-8541-100 ASSY, ANALOG IF E

Contains all parts shown in Revision D1 with the following exceptions:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
4	2850-0000-100	LUG,GND,#8 RT.ANG NON-LOCKING
6	6004-6005-400	TY-RAP,4.0 LG
7	6010-0188-100	TUBING,HS,3/16 ID,CLEAR

Contains all parts shown in Revision D1 minus the following:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
8	6010-0125-100	TUBING,HS,1/8 ID,CLEAR
GL19002	2850-0000-100	LUG,GND,#8 RT.ANG NON-LOCKING

Contains all parts shown in Revision D1 plus the following:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
W19001	7007-8182-300	WIRE HARN ASSY,ANALOG IF

7005-8541-100 ASSY, ANALOG IF F

Contains all parts shown in Revision E plus the following:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
W19002	6008-3000-003	WIRE,UL1213,22GA,7X30,RED

7010-8531-100 **PCB ASSY, ANALOG IF** **E**

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	1700-8121-100	PC BD,ANALOG IF
2	4835-0000-012	PAD,MTG,TO-5 TRANS,511-038
3	2400-7856-800	LABEL,ESD
5	1050-0000-075	WIRE,BUS,TINNED COPPER,26GA
C22001	1506-0103-017	CAP,0.01UF,100V,NPO
C22002	1506-0330-017	CAP,33PF,100V,5%,NPO
C22003	1506-0270-017	CAP,27PF,100V,5%,NPO
C22004	1550-0006-500	CAP VAR,18415,NPO,S.ADJ
C22005	1506-0102-017	CAP,1000PF,100V,5%,NPO
C22006	1506-0151-017	CAP,150PF,100V,5%,NPO
C22007	1506-0151-017	CAP,150PF,100V,5%,NPO
C22008	1506-0101-017	CAP,100PF,100V,5%,NPO
C22009	1506-0103-017	CAP,0.01UF,100V,NPO
C22010	1506-0103-017	CAP,0.01UF,100V,NPO
C22011	1506-0101-017	CAP,100PF,100V,5%,NPO
C22012	1506-0101-017	CAP,100PF,100V,5%,NPO
C22013	1506-0102-017	CAP,1000PF,100V,5%,NPO
C22014	1506-0102-017	CAP,1000PF,100V,5%,NPO
C22015	1506-0103-017	CAP,0.01UF,100V,NPO
C22016	1506-0331-017	CAP,330PF,100V,5%,NPO
C22017	1506-0102-017	CAP,1000PF,100V,5%,NPO
C22018	1506-0681-017	CAP,680PF,100V,5%,NPO
C22019	1506-0681-017	CAP,680PF,100V,5%,NPO
C22020	1521-0000-008	CAP,0.1UF,50V,DIP,Z5U
C22021	1506-0102-017	CAP,1000PF,100V,5%,NPO
C22022	1506-0680-017	CAP,68PF,100V,5%,NPO
C22023	1506-0020-017	CAP,2.2PF,100V,NPO,25
C22024	1506-0680-017	CAP,68PF,100V,5%,NPO
C22025	1506-0680-017	CAP,68PF,100V,5%,NPO
C22026	1506-0220-017	CAP,22PF,100V,5%,NPO
C22027	1506-0102-017	CAP,1000PF,100V,5%,NPO
C22028	1506-0103-017	CAP,0.01UF,100V,NPO
C22029	1506-0102-017	CAP,1000PF,100V,5%,NPO
C22030	1506-0102-017	CAP,1000PF,100V,5%,NPO
C22031	1506-0102-017	CAP,1000PF,100V,5%,NPO
C22032	1506-0103-017	CAP,0.01UF,100V,NPO
C22033	1506-0102-017	CAP,1000PF,100V,5%,NPO
C22034	1521-0000-008	CAP,0.1UF,50V,DIP,Z5U
C22035	1506-0102-017	CAP,1000PF,100V,5%,NPO
C22036	1506-0181-017	CAP,180PF,100V,5%,NPO
C22037	1506-0101-017	CAP,100PF,100V,5%,NPO
C22038	1506-0181-017	CAP,180PF,100V,5%,NPO
C22039	1506-0331-017	CAP,330PF,100V,5%,NPO
C22040	1506-0181-017	CAP,180PF,100V,5%,NPO
C22041	1506-0101-017	CAP,100PF,100V,5%,NPO
C22042	1506-0181-017	CAP,180PF,100V,5%,NPO
C22043	1506-0101-017	CAP,100PF,100V,5%,NPO
C22044	1506-0103-017	CAP,0.01UF,100V,NPO
C22045	1506-0101-017	CAP,100PF,100V,5%,NPO
C22046	1506-0102-017	CAP,1000PF,100V,5%,NPO
C22047	1506-0103-017	CAP,0.01UF,100V,NPO

7010-8531-100 **PCB ASSY, ANALOG IF (cont)** **E**

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
C22048	1506-0390-017	CAP,39PF,100V,5%,NPO
C22049	1506-0102-017	CAP,1000PF,100V,5%,NPO
C22050	1506-0101-017	CAP,100PF,100V,5%,NPO
C22051	1506-0103-017	CAP,0.01UF,100V,NPO
C22052	1506-0390-017	CAP,39PF,100V,5%,NPO
C22053	1506-0101-017	CAP,100PF,100V,5%,NPO
C22055	1550-0006-500	CAP,VAR,18415,NPO,S.ADJ
C22056	1506-0102-017	CAP,1000PF,100V,5%,NPO
C22057	1506-0103-017	CAP,0.01UF,100V,NPO
C22058	1506-0103-017	CAP,0.01UF,100V,NPO
C22059	1506-0102-017	CAP,1000PF,100V,5%,NPO
C22060	1506-0181-017	CAP,180PF,100V,5%,NPO
C22061	1506-0101-017	CAP,100PF,100V,5%,NPO
C22062	1506-0181-017	CAP,180PF,100V,5%,NPO
C22063	1506-0331-017	CAP,330PF,100V,5%,NPO
C22064	1506-0181-017	CAP,180PF,100V,5%,NPO
C22065	1506-0101-017	CAP,100PF,100V,5%,NPO
C22066	1506-0181-017	CAP,180PF,100V,5%,NPO
C22067	1506-0102-017	CAP,1000PF,100V,5%,NPO
C22068	1521-0000-008	CAP,0.1UF,50V,DIP,Z5U
C22069	1506-0102-017	CAP,1000PF,100V,5%,NPO
C22070	1506-0102-017	CAP,1000PF,100V,5%,NPO
C22071	1506-0103-017	CAP,0.01UF,100V,NPO
C22072	1506-0102-017	CAP,1000PF,100V,5%,NPO
C22073	1506-0103-017	CAP,0.01UF,100V,NPO
C22074	1506-0102-017	CAP,1000PF,100V,5%,NPO
C22076	1506-0102-017	CAP,1000PF,100V,5%,NPO
C22077	1506-0103-017	CAP,0.01UF,100V,NPO
C22079	1507-0105-018	CAP,1UF,35V,20%,TANT
C22080	1622-0020-001	CAP,2PF,50V,CHIP
C22081	1521-0000-008	CAP,0.1UF,50V,DIP,Z5U
C22082	1622-0220-001	CAP,20PF,100V,NPO,CHIP
CR22001	3223-0006-000	IC,PRECISION TEMP SENSOR
CR22002	4826-0000-015	DIODE,VARAC 25PF/-3V AXIAL
CR22003	4815-0000-003	DIODE,1N4148,SIGNAL, 75PRV
CR22004	4816-0000-001	DIODE,5082-2800,S BAR, 70VBR
CR22005	4816-0000-001	DIODE,5082-2800,S BAR, 70VBR
CR22006	4816-0000-003	DIODE,5082-2835,S-BAR 8 VBR
CR22007	4816-0000-003	DIODE,5082-2835,S-BAR 8 VBR
CR22008	4815-0000-003	DIODE, 1N4148,SIGNAL, 75PRV
CR22009	4815-0000-003	DIODE, 1N4148,SIGNAL, 75PRV
CR22010	4815-0000-003	DIODE, 1N4148,SIGNAL, 75PRV
CR22011	4815-0000-003	DIODE, 1N4148,SIGNAL, 75PRV
CR22012	4816-0000-003	DIODE,5082-2835,S-BAR 8 VBR
CR22013	4816-0000-003	DIODE,5082-2835,S-BAR 8 VBR
L22001	1801-0479-001	IND,4.7 UH,1.2OHM
L22002	1801-0828-001	IND,.82UH.85OHM,1025-18
L22003	1808-8100-001	IND,.10UH VAR,INDL
L22004	1801-0229-001	IND,2.2 UH,.4 OHM,1025-28
L22005	1808-8100-001	IND,.10UH VAR,INDL
L22006	1801-0478-001	IND,.47UH,.35OHM,1025-12

7010-8531-100 **PCB ASSY, ANALOG IF (cont)** **E**

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
L22007	1808-8100-001	IND,.10UH VAR,INDL
L22008	1801-0228-001	IND,.22UH,.14OHM,1025-04
L22009	1801-0010-001	IND,10UH,3.7OHM,1025-44
L22010	1801-0128-003	IND,.12UH,.09OHM,1025-96
L22011	1801-0398-001	IND,.39 UH .30 OHM,1025-10
L22012	1801-0338-001	IND,.33UH,.2 OHM,1025-08
L22013	1801-0108-001	IND,.10UH,.08OHM,1025-94
L22015	1801-0229-001	IND,2.2 UH,.4 OHM,1025-28
L22018	1801-0010-001	IND,10UH,3.7OHM,1025-44
L22019	1801-0101-001	IND,100UH, 8 OHM,1025-68
L22020	1801-0828-001	IND,.82UH.85OHM,1025-18
L22021	1801-0010-001	IND,10UH,3.7OHM,1025-44
L22022	1801-0101-001	IND,100UH, 8 OHM,1025-68
L22023	1801-0828-001	IND,.82UH.85OHM,1025-18
L22024	1801-0010-001	IND,10UH,3.7OHM,1025-44
L22025	1801-0010-001	IND,10UH,3.7OHM,1025-44
L22026	1801-0568-100	IND,.56UH,.5 OHM,1025-14
L22027	1800-8181-200	INDUCTOR ASSY, ANALOG IF
L22028	1801-0568-100	IND,.56UH,.5 OHM,1025-14
L22029	1801-0108-001	IND,.10UH,.08OHM,1025-94
L22030	1801-0338-001	IND,.33UH,.2 OHM,1025-08
L22031	1801-0398-001	IND,.39 UH .30 OHM,1025-10
L22032	1801-0128-003	IND,.12UH,.09OHM,1025-96
L22033	1801-0479-001	IND,4.7 UH,1.2OHM
L22034	1801-0688-001	IND,.68UH,.6 OHM,1025-16
MXR22001	5250-0100-100	MIXER,RF,DBL BAL,1-500MHZ
Q22001	4809-0100-100	TRANS,55100,NPN HF AMP
Q22002	4807-0000-001	TRANS,2N3903,NPN HS SW
Q22003	4807-0000-001	TRANS, 2N3903,NPN HS SW
Q22004	4809-0100-100	TRANS,55100,NPN HF AMP
Q22005	4809-0100-100	TRANS,55100,NPN HF AMP
Q22006	4803-0000-003	TRANS,2N5109,NPN PWR HF AMP
Q22007	4803-0000-003	TRANS,2N5109,NPN PWR HF AMP
Q22008	4809-0100-100	TRANS,55100,NPN HF AMP
Q22009	4803-0000-003	TRANS,2N5109,NPN PWR HF AMP
Q22010	4803-0000-003	TRANS,2N5109,NPN PWR HF AMP
Q22011	4809-0100-100	TRANS,55100,NPN HF AMP
Q22012	4809-0100-100	TRANS,55100,NPN HF AMP
Q22013	4809-0100-100	TRANS,55100,NPN HF AMP
Q22014	4809-0100-100	TRANS,55100,NPN HF AMP
R22001	4752-2103-002	POT,10K OHM S.ADJ MULTI-TURN
R22002	4701-0103-003	RES,10K,1/8W,5%
R22003	4701-0154-003	RES,150K,1/8W,5%
R22004	4701-0822-003	RES,8.2K,1/8W,5%
R22005	4701-0152-003	RES,1.5K,1/8W,5%
R22006	4701-0180-003	RES,18,1/8W,5%
R22007	4701-0122-003	RES,1.2K,1/8W,5%
R22008	4701-0153-003	RES,15K,1/8W,5%
R22009	4701-0822-003	RES,8.2K,1/8W,5%
R22010	4701-0151-003	RES,150,1/8W,5%
R22011	4701-0152-003	RES,1.5K,1/8W,5%

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7010-8531-100 **PCB ASSY, ANALOG IF (cont)** **E**

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
R22012	4701-0561-003	RES,560,1/8W,5%
R22013	4701-0332-003	RES,3.3K,1/8W,5%
R22014	4701-0332-003	RES,3.3K,1/8W,5%
R22015	4701-0101-003	RES,100,1/8W,5%
R22016	4701-0101-003	RES,100,1/8W,5%
R22017	4701-0471-003	RES,470,1/8W,5%
R22018	4701-0102-003	RES,1.0K,1/8W,5%
R22019	4701-0472-003	RES,4.7K,1/8W,5%
R22020	4701-0101-003	RES,100,1/8W,5%
R22021	4701-0221-003	RES,220,1/8W,5%
R22022	4701-0223-003	RES,22K,1/8W,5%
R22023	4701-0683-003	RES,68K,1/8W,5%
R22024	4701-0270-003	RES,27,1/8W,5%
R22025	4701-0220-003	RES,22,1/8W,5%
R22026	4701-0101-003	RES,100,1/8W,5%
R22027	4701-0121-003	RES,120,1/8W,5%
R22028	4701-0332-003	RES,3.3K,1/8W,5%
R22029	4701-0821-003	RES,820,1/8W,5%
R22030	4701-0101-003	RES,100,1/8W,5%
R22031	4701-0101-003	RES,100,1/8W,5%
R22032	4701-0220-003	RES,22,1/8W,5%
R22033	4701-0392-003	RES,3.9K,1/8W,5%
R22034	4701-0152-003	RES,1.5K,1/8W,5%
R22035	4701-0100-003	RES,10,1/8W,5%
R22036	4701-0680-003	RES,68,1/8W,5%
R22037	4701-0103-003	RES,10K,1/8W,5%
R22038	4701-0103-003	RES,10K,1/8W,5%
R22039	4701-0103-003	RES,10K,1/8W,5%
R22040	4701-0391-003	RES,390,1/8W,5%
R22041	4701-0560-003	RES,56,1/8W,5%
R22042	4701-0220-003	RES,22,1/8W,5%
R22043	4701-0220-003	RES,22,1/8W,5%
R22044	4701-0680-003	RES,68,1/8W,5%
R22045	4701-0333-003	RES,33K,1/8W,5%
R22046	4701-0151-003	RES,150,1/8W,5%
R22047	4701-0330-003	RES,33,1/8W,5%
R22048	4701-0560-003	RES,56,1/8W,5%
R22049	4753-0501-002	POT 500 OHM
R22050	4701-0220-003	RES,22,1/8W,5%
R22051	4701-0222-003	RES,2.2K,1/8W,5%
R22052	4701-0331-003	RES,330,1/8W,5%
R22053	4701-0561-003	RES,560,1/8W,5%
R22054	4701-0680-003	RES,68,1/8W,5%
R22055	4701-0510-003	RES,51,1/8W,5%
R22056	4701-0471-003	RES,470,1/8W,5%
R22057	4701-0152-003	RES,1.5K,1/8W,5%
R22058	4701-0221-003	RES,220,1/8W,5%
R22059	4701-0270-003	RES,27,1/8W,5%
R22060	4701-0331-003	RES,330,1/8W,5%
R22061	4701-0151-003	RES,150,1/8W,5%
R22062	4753-0201-002	POT 200 OHM

7010-8531-100 **PCB ASSY, ANALOG IF (cont)** **E**

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
R22063	4701-0391-003	RES,390,1/8W,5%
R22064	4701-0680-003	RES,68,1/8W,5%
R22065	4701-0331-003	RES,330,1/8W,5%
R22066	4701-0473-003	RES,47K,1/8W,5%
R22067	4701-0220-003	RES,22,1/8W,5%
R22068	4701-0562-003	RES,5.6K,1/8W,5%
R22069	4701-0122-003	RES,1.2K,1/8W,5%
R22070	4701-0331-003	RES,330,1/8W,5%
R22071	4701-0101-003	RES,100,1/8W,5%
R22072	4701-0560-003	RES,56,1/8W,5%
R22073	4753-0501-002	POT 500 OHM
R22074	4701-0331-003	RES,330,1/8W,5%
R22075	4701-0333-003	RES,33K,1/8W,5%
R22076	4701-0331-003	RES,330,1/8W,5%
R22077	4701-0101-003	RES,100,1/8W,5%
R22078	4701-0392-003	RES,3.9K,1/8W,5%
R22079	4701-0821-003	RES,820,1/8W,5%
R22080	4701-0820-003	RES,82,1/8W,5%
R22082	4701-0270-003	RES,27,1/8W,5%
R22083	4701-0510-003	RES,51,1/8W,5%
R22084	4701-0390-003	RES,39,1/8W,5%
R22085	4701-0101-003	RES,100,1/8W,5%
R22086	4701-0471-003	RES,470,1/8W,5%
R22087	4702-0331-003	RES,330,1/4W,5%
R22088	4702-0152-003	RES,1.5K,1/4W,5%
R22089	4702-0222-003	RES,2.2K,1/4W,5%
R22090	4701-0330-003	RES,33,1/8W,5%
R22091	4701-0560-003	RES,56,1/8W,5%
R22092	4701-0151-003	RES,150,1/8W,5%
R22094	4701-0102-003	RES,1.0K,1/8W,5%
R22095	4701-0153-003	RES,15K,1/8W,5%
R22096	4701-0479-003	RES,4.7,1/8W,5%
RT22001	4800-0101-003	THERM,100 OHM,25/125 19.38
RT22002	4800-0101-003	THERM,100 OHM,25/125 19.38
TP22001	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP22002	2200-2010-400	CONN,M SMB,PC MTG,STR,.453LG
TP22003	2200-2010-400	CONN,M SMB,PC MTG,STR,.453LG
U22001	3132-0300-002	IC,DUAL FLIP-FLOP SET,RESET
Y22001	2363-0134-000	XTAL,10.000000MHZ HC-43/U INDL

7010-8531-100 PCB ASSY, ANALOG IF (cont) F

Contains all parts shown in Revision E with the following exceptions:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
C22080SAT	1523-0000-014	CAP,3PF,50V,NPO,CHIP
C22080SAT	1620-1090-511	CAP,1PF,50V,CHIP
C22080SAT	1620-2090-510	CAP,2PF,200V,CHIP,NPO
C22080SAT	1620-4090-510	CAP,3.9PF,50V,CHIP,NPO
C22080SAT	1620-5090-511	CAP,5PF,50V,CHIP
C22080SAT	1622-0020-001	CAP,2PF,50V,CHIP
C22082SAT	1622-0220-001	CAP,22PF,100V,5%,1206,NPO
C22082SAT	1622-0120-001	CAP,12PF,100V
C22082SAT	1622-0180-001	CAP,18PF,100V,CHIP
C22082SAT	1622-0270-001	CAP,27PF,100V,CHIP
C22082SAT	1622-0330-001	CAP,33PF,100V,CHIP
R22065SAT	4701-0221-003	RES,220,1/8W,5%
R22065SAT	4701-0271-003	RES,270,1/8W,5%
R22065SAT	4701-0331-003	RES,330,1/8W,5%
R22065SAT	4701-0391-003	RES,390,1/8W,5%
R22065SAT	4701-0471-003	RES,470,1/8W,5%
R22065SAT	4701-0561-003	RES,560,1/8W,5%
R22065SAT	4701-0681-003	RES,680,1/8W,5%

Contains all parts shown in Revision E plus the following:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
C22083SAT	1523-0000-014	CAP,3PF,50V,NPO,CHIP
C22083SAT	1620-1090-511	CAP,1PF,50V,CHIP
C22083SAT	1620-2090-510	CAP,2PF,200V,CHIP,NPO
C22083SAT	1620-4090-510	CAP,3.9PF,50V,CHIP,NPO
C22083SAT	1620-5090-511	CAP,5PF,50V,CHIP

7010-8531-100 PCB ASSY, ANALOG IF (cont) F1

Contains all parts shown in Revision F.

7005-8541-300 ASSY, DECODER A

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	7010-8531-300	PCB ASSY DECODER
2	1415-8550-100	ENCLOSURE, DECODER
3	2803-0188-006	SCREW,4-40 X 3/16 PPHM
4	2840-7600-229	WASHER,ALUM,.305D,.196ID,.038T
6	6004-6005-400	TY-RAP,4.0 LG
FL35001	5801-0000-006	PI FILTER,EMI/RFI 1500PF 8-32
FL35002	5801-0000-006	PI FILTER,EMI/RFI 1500PF 8-32
FL35003	5801-0000-006	PI FILTER,EMI/RFI 1500PF 8-32
GL35004	2850-0000-100	LUG,GND,#8 RT.ANG NON-LOCKING
J17065	2123-0000-038	CONN,M SMB,W/TERM,STR BULKHD
J35066	2123-0000-038	CONN,M SMB,W/TERM,STR BULKHD
W35001	7007-8581-300	WIRE HARNESS,DECODER

7005-8541-300 ASSY, DECODER B

Contains all parts shown in Revision A.

7010-8531-300 PCB ASSY, DECODER C4

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	1700-8521-300	PC BD,DECODER
2	2400-7856-800	LABEL,ESD
C36001	1622-0102-001	CAP,1000PF,50V,CHIP,NPO
C36002	1622-0102-001	CAP,1000PF,50V,CHIP,NPO
C36003	1622-0102-001	CAP,1000PF,50V,CHIP,NPO
C36004	1550-0100-550	CAP,7-50PF,TRIMMER,SMD
C36005	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C36006	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C36007	1622-0150-001	CAP,15PF,100V
C36008	1622-0560-001	CAP,56PF,50V,CHIP
C36009	1622-0689-001	CAP,6.8PF,50V
C36010	1622-0820-001	CAP,82PF,50V,CHIP
C36011	1622-0103-001	CAP,0.01UF,50V,CHIP,X7R
C36012	1622-0103-001	CAP,0.01UF,50V,CHIP,X7R
C36013	1622-0103-001	CAP,0.01UF,50V,CHIP,X7R
C36014	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C36015	1622-0121-001	CAP,120PF,100V,CHIP,NPO
C36016	1622-0471-001	CAP,470PF,100V,CHIP
C36017	1622-0101-001	CAP,100PF,50V,CHIP
C36018	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C36019	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C36020	1622-0102-001	CAP,1000PF,50V,CHIP,NPO
C36021	1622-0102-001	CAP,1000PF,50V,CHIP,NPO
C36022	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C36023	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C36024	1622-0689-001	CAP,6.8PF,50V
C36025	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C36026	1622-0182-001	CAP,1800PF,50V,CHIP
CR36001	4816-0000-006	DIODE,HSMS 2802,SOT-23
L36001	1811-6122-001	IND,SM 1.2UH 10% C 1008
L36002	1811-6391-001	IND,SM .39UH 10% C 1008
L36003	1808-8100-001	IND,.10UH VAR,INDL
L36003	1808-8100-001	IND,.10UH VAR,INDL
L36004	1808-8100-001	IND,.10UH VAR,INDL
L36004	1808-8100-001	IND,.10UH VAR,INDL
L36005	1811-6331-001	IND,SM .33UH 10% C 1008
L36006	1811-6681-001	IND,SM .68UH 10% C 1008
L36007	1811-6471-001	IND,SM .47UH 10% C 1008
L36008	1811-6102-001	IND,SM 1.0UH 10% C 1008
L36009	1811-6102-001	IND,SM 1.0UH 10% C 1008
L36010	1811-6392-001	IND,SM 3.9UH 10% C 1008
MXR36001	5250-0000-009	MIXER,DOUBLE BALANCED SMD
MXR36002	5250-0000-009	MIXER,DOUBLE BALANCED SMD
Q36001	4809-0000-030	TRANS,LM394 NPN
Q36001	4809-0000-030	TRANS,LM394 NPN
Q36002	4809-0000-023	TRANS NPN RF AMPLR SOT-23
Q36003	4809-0000-023	TRANS NPN RF AMPLR SOT-23
Q36004	4809-0000-023	TRANS NPN RF AMPLR SOT-23
Q36005	4809-0000-023	TRANS NPN RF AMPLR SOT-23
Q36006	4809-0000-023	TRANS NPN RF AMPLR SOT-23
R36001	4722-5629-001	RES,56.2,1/8W,1%

7010-8531-300 **PCB ASSY, DECODER (cont)** **C4**

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
R36002	4722-1001-001	RES,1.0K,1/8W,1%
R36003	4722-1001-001	RES,1.0K,1/8W,1%
R36004	4722-1210-001	RES,121,1/8W,1%
R36005	4722-1509-001	RES,15,1/8W,1%
R36006	4722-2210-001	RES,221,1/8W,1%
R36007	4722-1001-001	RES,1.0K,1/8W,1%
R36008	4722-1001-001	RES,1.0K,1/8W,1%
R36009	4722-1000-001	RES,100,1/8W,1%
R36010	4722-1000-001	RES,100,1/8W,1%
R36011	4722-8259-001	RES,82.5,1/8W,1%
R36012	4722-1001-001	RES,1.0K,1/8W,1%
R36013	4722-1001-001	RES,1.0K,1/8W,1%
R36014	4722-1000-001	RES,100,1/8W,1%
R36015	4722-5629-001	RES,56.2,1/8W,1%
R36016	4722-1000-001	RES,100,1/8W,1%
R36017	4722-1001-001	RES,1.0K,1/8W,1%
R36018	4722-1001-001	RES,1.0K,1/8W,1%
R36019	4722-6810-001	RES,681,1/8W,1%
R36020	4722-1000-001	RES,100,1/8W,1%
R36021	4722-6810-001	RES,681,1/8W,1%
R36022	4722-4751-001	RES,4.75K,1/8W,1%
R36023	4722-1500-001	RES,150,1/8W,1%
R36024	4722-4759-001	RES,47.5,1/8W,1%
R36025	4722-1001-001	RES,1.0K,1/8W,1%
R36026	4722-2210-001	RES,221,1/8W,1%
R36027	4722-1002-001	RES,10.0K,1/8W,1%
R36028	4722-3929-001	RES,39.2,1/8W,1%
R36029	4722-5629-001	RES,56.2,1/8W,1%
R36030	4722-1002-001	RES,10.0K,1/8W,1%
R36031	4722-2743-001	RES,274K,1/8W,1%
R36032	4722-8259-001	RES,82.5,1/8W,1%
R36033	4722-1001-001	RES,1.0K,1/8W,1%
R36034	4722-4751-001	RES,4.75K,1/8W,1%
TP36001	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP36001	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP36002	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP36002	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP36003	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
TP36003	2114-0000-007	TEST POINT,LOOP PROFILE,WHITE
U36001	3210-3074-000	IC,DUAL D,FF/SET/RESET,INDL
U36002	3223-0219-000	IC,HI SPEED DUAL CONP.,INDL
U36002	3223-0219-000	IC,HI SPEED DUAL CONP.,INDL
U36003	3210-7400-000	IC,QUAD 2-INPUT NAND GATE
W36001	4722-0000-001	RES,0,1/8W,1%

7005-8540-200 ASSY, SSB C

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	1415-8152-300	ENCLOSURE,SSB
2	7010-8132-300	PCB ASSY,LO SOURCE
3	7010-8530-800	PCB ASSY,MIXER
4	6004-6005-400	TY-RAP,4.0 LG
5	6010-0125-100	TUBING,HS,1/8 ID,CLEAR
6	7010-8131-200	PCB ASSY,ATTENUATOR
7	6011-0034-000	TUBING,TF,20 AWG,NATURAL,SW
9	2840-7600-229	WASHER,ALUM,.305D,.196ID,.038T
10	2840-7600-208	WASHER,ALUM,.38OD,.250ID,.020T
11	6011-0018-001	TUBING,TF,26 AWG,NATURAL,TW
12	2803-0188-006	SCREW,4-40 X 3/16 PPHM
13	6042-8180-300	COAX ASSY M SMA/M SMA S/R
15	1050-0000-072	WIRE,BUS,TINNED COPPER,20GA
16	7010-8131-800	PCB ASSY,SOURCE MODULE VCO
C16001	1521-0000-008	CAP,0.1UF,50V,DIP,Z5U
C16002	1501-0103-005	CAP,0.01UF,50V,20%,DISC
C16003	1521-0000-008	CAP,0.1UF,50V,DIP,Z5U
FL16001	5801-0000-006	PI FILTER,EMI/RFI 1500PF 8-32
FL16002	5801-0000-006	PI FILTER,EMI/RFI 1500PF 8-32
FL16003	5801-0000-006	PI FILTER,EMI/RFI 1500PF 8-32
FL16005	5801-0000-006	PI FILTER,EMI/RFI 1500PF 8-32
FL16006	5801-0000-006	PI FILTER,EMI/RFI 1500PF 8-32
FL16007	5801-0000-006	PI FILTER,EMI/RFI 1500PF 8-32
FL16008	1526-0000-006	CAP,100PF,200V,FEEDTHRU
FL16009	1526-0000-006	CAP,100PF,200V,FEEDTHRU
FL16010	1526-0000-006	CAP,100PF,200V,FEEDTHRU
FL16011	1526-0000-006	CAP,100PF,200V,FEEDTHRU
FL16012	1526-0000-006	CAP,100PF,200V,FEEDTHRU
FL16014	5801-0000-006	PI FILTER,EMI/RFI 1500PF 8-32
FL16015	5801-0000-006	PI FILTER,EMI/RFI 1500PF 8-32
FL16016	1526-0000-006	CAP,100PF,200V,FEEDTHRU
GL16001	2850-0000-100	LUG,GND,#8 RT.ANG NON-LOCKING
GL16002	2850-0000-100	LUG,GND,#8 RT.ANG NON-LOCKING
GL16003	2850-0000-100	LUG,GND,#8 RT.ANG NON-LOCKING
GL16004	2850-0000-100	LUG,GND,#8 RT.ANG NON-LOCKING
J16039	2123-0000-038	CONN,M SMB,W/TERM,STR BULKHD
J16042	2123-0000-030	CONN,FSMA,W/TERM,STR BULKHEAD
J17037	2123-0000-030	CONN,FSMA,W/TERM,STR BULKHEAD
J17038	2123-0000-030	CONN,FSMA,W/TERM,STR BULKHEAD
J18041	2123-0000-030	CONN,FSMA,W/TERM,STR BULKHEAD
J31040	2123-0000-030	CONN,FSMA,W/TERM,STR BULKHEAD
R16001	4701-0103-003	RES,10K,1/8W,5%
TP16001	5801-0000-006	PI FILTER,EMI/RFI 1500PF 8-32
TP16002	2123-0000-038	CONN,M SMB,W/TERM,STR BULKHD
TP16003	5801-0000-006	PI FILTER,EMI/RFI 1500PF 8-32
W12	6008-1000-003	WIRE,UL/CSA 1213,LV,26GA,RED
W13	6008-1000-003	WIRE,UL/CSA 1213,LV,26GA,RED
W14	6008-1000-002	WIRE,UL/CSA,1213,LV,26GA,BROWN
W15	6008-1000-002	WIRE,UL/CSA,1213,LV,26GA,BROWN
W17	6003-0001-009	WIRE,HOOK,TFE,30GA,SOLID,WHT
W18	6003-0001-009	WIRE,HOOK,TFE,30GA,SOLID,WHT

7005-8540-200 ASSY, SSB (cont) C

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
W19	7007-8580-400	WH,SSB 601/201

7005-8540-200 ASSY, SSB D

Contains all parts shown in Revision C.

7005-8540-200 ASSY, SSB E

Contains all parts shown in Revision D plus the following:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
17	2803-0125-006	SCREW,4-40 X 1/8 PPHM

7005-8540-200 ASSY, SSB F

Contains all parts shown in Revision E plus the following:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
18	6040-0010-014	CORD,SHLD,AL MESH,.080 DIA
19	1414-8150-500	COVER, SSB MIXER
20	2803-0313-006	SCREW,4-40 X 5/16 PPHM
21	1414-8150-400	COVER, SSB SOURCE

7005-8540-200 ASSY, SSB F1

Contains all parts shown in Revision F.

7005-8540-200 ASSY, SSB F2

Contains all parts shown in Revision F1.

7010-8131-200 PCB ASSY, ATTENUATOR A

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	1700-8121-200	PC BD,ATTENUATOR
2	2400-7856-800	LABEL,ESD
C31001	1523-0000-004	CAP,47PF,50V,NPO,CHIP
C31002	1620-5600-511	CAP,56PF,100V,CHIP,NPO
C31003	1620-0335-001	CAP,3.3PF,50V,CHIP
C31004	1620-0335-001	CAP,3.3PF,50V,CHIP
C31005	1620-5600-511	CAP,56PF,100V,CHIP,NPO
C31006	1523-0000-014	CAP,3PF,50V,NPO,CHIP
C31007	1523-0000-014	CAP,3PF,50V,NPO,CHIP
C31008	1620-5600-511	CAP,56PF,100V,CHIP,NPO
C31009	1523-0000-014	CAP,3PF,50V,NPO,CHIP
C31010	1523-0000-014	CAP,3PF,50V,NPO,CHIP
C31011	1620-5600-511	CAP,56PF,100V,CHIP,NPO
C31012	1620-1000-511	CAP,10PF,100V,CHIP,NPO
C31013	1550-0101-500	CAP,VAR,35435
C31014	1523-0000-004	CAP,47PF,50V,NPO,CHIP
C31015	1550-0101-500	CAP,VAR,35435
C31016	1523-0000-014T	CAP,3PF,50V,NPO,CHIP
C31016SAT	1620-0335-001	CAP,3.3PF,50V,CHIP
C31017	1523-0000-014T	CAP,3PF,50V,NPO,CHIP
C31017SAT	1620-0335-001	CAP,3.3PF,50V,CHIP
C31018	1523-0000-004	CAP,47PF,50V,NPO,CHIP
C31019	1523-0000-004	CAP,47PF,50V,NPO,CHIP
C31021	1523-0000-004	CAP,47PF,50V,NPO,CHIP
CR31003	4816-0000-018	DIODE,SOT-23 PIN
CR31004	4816-0000-018	DIODE,SOT-23 PIN
CR31005	4816-0000-018	DIODE,SOT-23 PIN
CR31006	4816-0000-018	DIODE,SOT-23 PIN
CR31007	4816-0000-027	DIODE,SCHOTTKY 2805 SOT-143
R31001	4722-4759-001	RES,47.5,1/8W,1%
R31002	4722-4759-001	RES,47.5,1/8W,1%
R31003	4722-4759-001	RES,47.5,1/8W,1%
R31004	4722-1829-001	RES,18.2,1/8W,1%
R31005	4722-1829-001	RES,18.2,1/8W,1%

7010-8131-200 PCB ASSY, ATTENUATOR B

Contains all parts shown in Revision A plus the following:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
C31016SAT	1523-0000-014T	CAP,3PF,50V,NPO,CHIP
C31017SAT	1523-0000-014T	CAP,3PF,50V,NPO,CHIP

7010-8131-200 PCB ASSY, ATTENUATOR C

Contains all parts shown in Revision B plus the following:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
C31016SAT	1620-4090-510	CAP,3.9PF,50V,CHIP,NPO
C31017SAT	1620-4090-510	CAP,3.9PF,50V,CHIP,NPO

7010-8132-300 **PCB ASSY, LO SOURCE** **C1**

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	1700-6820-400	PC BD, 1006.2MHZ SOURCE
2	1050-0000-075	WIRE,BUS,TINNED COPPER,26GA
3	2400-7856-800	LABEL,ESD
4	6011-0018-001	TUBING,TF,26 AWG,NATURAL,TW
C24001	1622-0103-001	CAP,0.01UF,50V,CHIP,X7R
C24002	1622-0103-001	CAP,0.01UF,50V,CHIP,X7R
C24003	1622-0103-001	CAP,0.01UF,50V,CHIP,X7R
C24004	1622-0220-001	CAP,20PF,100V,NPO,CHIP
C24005	1550-0101-510	CAP,VAR,9402-0
C24006	1622-0159-001	CAP,1.5PF,50V,NPO,CHIP
C24009	1622-0103-001	CAP,0.01UF,50V,CHIP,X7R
C24010	1622-0220-001	CAP,20PF,100V,NPO,CHIP
C24011	1622-0050-001	CAP,5PF,50V,CHIP
C24013	1622-0103-001	CAP,0.01UF,50V,CHIP,X7R
C24014	1622-0220-001	CAP,20PF,100V,NPO,CHIP
C24015	1622-0050-001	CAP,5PF,50V,CHIP
C24018	1622-0220-001	CAP,20PF,100V,NPO,CHIP
C24019	1622-0220-001	CAP,20PF,100V,NPO,CHIP
C24020	1622-0220-001	CAP,20PF,100V,NPO,CHIP
C24021	1622-0562-001	CAP,5600PF,50V,CHIP
C24022	1622-0562-001	CAP,5600PF,50V,CHIP
C24023	1622-0153-001	CAP,0.015UF,50V,CHIP
C24024	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C24025	1622-0101-001	CAP,100PF,50V,CHIP
C24032	1622-0030-001	CAP,3PF,50V,CHIP
C24033	1622-0159-001	CAP,1.5PF,50V,NPO,CHIP
C24034	1622-0103-001	CAP,0.01UF,50V,CHIP,X7R
C24035	1622-0220-001	CAP,20PF,100V,NPO,CHIP
C24036	1622-0030-001	CAP,3PF,50V,CHIP
C24037	1622-0159-001	CAP,1.5PF,50V,NPO,CHIP
C24038	1622-0103-001	CAP,0.01UF,50V,CHIP,X7R
C24039	1622-0220-001	CAP,20PF,100V,NPO,CHIP
C24040	1622-0030-001	CAP,3PF,50V,CHIP
C24041	1622-0159-001	CAP,1.5PF,50V,NPO,CHIP
C24042	1622-0103-001	CAP,0.01UF,50V,CHIP,X7R
C24043	1622-0220-001	CAP,20PF,100V,NPO,CHIP
C24044	1622-0220-001	CAP,20PF,100V,NPO,CHIP
C24046	1622-0680-001	CAP,68PF,100V,CHIP
C24050	1622-0030-001	CAP,3PF,50V,CHIP
C24051	1622-0030-001	CAP,3PF,50V,CHIP
CR24001	4818-0000-025	DIODE,1S2836,H/S SWITCHING
CR24002	4935-0101-200	DIODE,STEP RECOVERY,100NS MIN
CR24003	4816-0000-006	DIODE,HSMS 2802,SOT-23
L24001	1811-6223-003	IND,SM 22UH 10% C 1812
L24002	1811-6221-001	IND,SM .22UH 10% C 1008
L24006	1811-6153-003	IND,SM 15UH 10% C 1812
Q24001	4809-0000-020	TRANS,3906,PNP SMD
Q24002	4809-0000-017	TRANS,DRIVER 1GHZ FT,NPN,SO-8
Q24003	5050-2502-005	TRANS,SI NPN,MED PWR L6GHZ
Q24004	5050-2502-005	TRANS,SI NPN,MED PWR L6GHZ
Q24005	5050-2502-005	TRANS,SI NPN,MED PWR L6GHZ

7010-8132-300 **PCB ASSY, LO SOURCE (cont)** **C1**

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
Q24007	5050-2502-005	TRANS,SI NPN,MED PWR L6GHZ
Q24008	5050-2502-005	TRANS,SI NPN,MED PWR L6GHZ
Q24009	5050-2502-005	TRANS,SI NPN,MED PWR L6GHZ
Q24010	4809-0000-032	TRANS,5087 PNP SOT-23 SMD
R24001	4722-1000-001	RES,100,1/8W,1%
R24002	4722-1501-001	RES,1.50K,1/8W,1%
R24003	4722-4759-001	RES,47.5,1/8W,1%
R24004	4722-1002-001	RES,10.0K,1/8W,1%
R24005	4722-1001-001	RES,1.0K,1/8W,1%
R24006	4722-1509-001	RES,15,1/8W,1%
R24007	4722-1509-001	RES,15,1/8W,1%
R24008	4722-4750-001	RES,475,1/8W,1%
R24009	4722-4752-001	RES,47.5K,1/8W,1%
R24010	4722-4750-001	RES,475,1/8W,1%
R24011	4722-2742-001	RES,27.4K,1/8W,1%
R24012	4722-4750-001	RES,475,1/8W,1%
R24013	4722-2742-001	RES,27.4K,1/8W,1%
R24014	4722-2740-001	RES,274,1/8W,1%
R24015	4722-2740-001	RES,274,1/8W,1%
R24016	4722-1829-001	RES,18.2,1/8W,1%
R24018	4722-2742-001	RES,27.4K,1/8W,1%
R24019	4722-2214-001	RES,2.21M,1/8W,1%
R24020	4722-6810-001	RES,681,1/8W,1%
R24021	4722-2212-001	RES,22.1K,1/8W,1%
R24022	4749-0104-001	POT,100K OHM,SIDE ADJ,SMD
R24023	4722-1003-001	RES,100K,1/8W,1%
R24025	4749-0203-001	POT,20K OHM,SIDE ADJ,SMD
R24026	4749-0501-001	POT,SIDE ADJ. 500 OHM,SMD
R24027	4722-3321-001	RES,3.32K,1/8W,1%
R24028	4722-1002-001	RES,10.0K,1/8W,1%
R24034	4722-6819-001	RES,68.1,1/8W,1%
R24035	4722-1000-001	RES,100,1/8W,1%
R24036	4722-6812-001	RES,68.1K,1/8W,1%
R24037	4722-6810-001	RES,681,1/8W,1%
R24038	4722-4759-001	RES,47.5,1/8W,1%
R24039	4722-1003-001	RES,100K,1/8W,1%
R24040	4722-6810-001	RES,681,1/8W,1%
R24041	4722-4759-001	RES,47.5,1/8W,1%
R24042	4722-5621-001	RES,5.62K,1/8W,1%
R24043	4722-6810-001	RES,681,1/8W,1%
R24044	4722-3321-001	RES,3.32K,1/8W,1%
R24045	4722-4759-001	RES,47.5,1/8W,1%
R24046	4722-4320-001	RES,432,1/8W,1%
R24047	4722-6811-001	RES,6.81K,1/8W,1%
R24049	4722-3321-001	RES,3.32K,1/8W,1%
R24050	4722-1000-001	RES,100,1/8W,1%
R24051	4722-1509-001	RES,15,1/8W,1%
R24052	4722-1000-001	RES,100,1/8W,1%
R24053	4722-1509-001	RES,15,1/8W,1%
R24054	4722-1829-001	RES,18.2,1/8W,1%
R24055	4722-1829-001	RES,18.2,1/8W,1%

7010-8132-300 PCB ASSY, LO SOURCE (cont) C1

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
R24056	4701-0683-003	RES,68K,1/8W,5%
U24001	3133-0000-124	IC BIMOS CA3130 OP AMP SO
W24001	1050-0000-075	WIRE,BUS,TINNED COPPER,26GA
W24003	6008-1000-002	WIRE,UL/CSA,1213,LV,26GA,BROWN
W24004	4722-0000-001	RES,0,1/8W,1%
W24005	4722-0000-001	RES,0,1/8W,1%

7010-8132-300 PCB ASSY, LO SOURCE C2

Contains all parts shown in Revision C1 minus the following:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
2	1050-0000-075	WIRE,BUS,TINNED COPPER,26GA
4	6011-0018-001	TUBING,TF,26 AWG,NATURAL,TW

Contains all parts shown in Revision C1 plus the following:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
W24006	6008-1000-002	WIRE,UL1213,26GA,7X34,BRN

7010-8132-300 PCB ASSY, LO SOURCE D

Contains all parts shown in Revision C2 minus the following:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
3	2400-7856-800	LABEL,ESD

Contains all parts shown in Revision C2 with the following exceptions:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
R24034	4722-6819-001T	RES,68.1,1/8W,1%
R24056	4722-6812-001T	RES,68.1K,1/8W,1%

7010-8132-300 PCB ASSY, LO SOURCE (cont) D

Contains all parts shown in Revision C2 plus the following:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
W24003	6008-1000-002	WIRE,UL/CSA,1213,LV,26GA,BROWN
W24005	4722-0000-001	RES,0,1/8W,1%

7010-8132-300 PCB ASSY, LO SOURCE E

Contains all parts shown in Revision D.

7010-8131-800 PCB ASSY, SOURCE MODULE VCO C

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	1700-8121-800	PC BD,SOURCE MODULE VCO
C1	1620-2200-500	CAP,22PF,100V,CHIP,NPO
C2	1620-2200-500	CAP,22PF,100V,CHIP,NPO
C3	1620-0479-001	CAP,4.7PF,100V
C4	1620-2090-510	CAP,2PF,200V,CHIP,NPO
C5	1620-2200-500	CAP,22PF,100V,CHIP,NPO
C6	1620-2090-510	CAP,2PF,200V,CHIP,NPO
C7	1521-0000-020	CAP,VAR
C9	1620-2090-510	CAP,2PF,200V,CHIP,NPO
C10	1622-0104-001	CAP,0.1UF,50V,CHIP,X7R
C11	1620-2200-500	CAP,22PF,100V,CHIP,NPO
CR1	4826-0000-011	DIODE,MMBV105G,VARC,2.3PF/-3V
L1	1811-6560-001	IND,SM .056UH 10% C 1008
L2	1811-6560-001	IND,SM .056UH 10% C 1008
Q1	5050-2502-002	TRANS,NPN,41411 SOT-143
R1	4722-8251-001	RES,8.25K,1/8W,1%
R2	4722-2741-001	RES,2.74K,1/8W,1%
R3	4722-1000-001	RES,100,1/8W,1%
R4	4722-1000-001	RES,100,1/8W,1%
R5	4722-3329-001	RES,33.2,1/8W,1%
R6	4722-1008-001	RES,1,1/8W,1%

7010-8131-800 PCB ASSY, SOURCE MODULE VCO C1

Contains all parts shown in Revision C.

7010-8131-800 PCB ASSY, SOURCE MODULE VCO D

Contains all parts shown in Revision C1 with the following exceptions:

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
C3	1624-0479-150T	CAP,4.7PF,150V,ATC,TOL
C4	1624-0020-150T	CAP,2PF 150WVDC,ATC
C6	1624-0020-150T	CAP,2PF 150WVDC,ATC

7010-8131-800 PCB ASSY, SOURCE MODULE VCO E

Contains all parts shown in Revision D.

7010-8530-800 **PCB ASSY, MIXER** **D1**

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
1	1700-8120-800	PC BD,MIXER
2	2800-0000-033	SPACER,INSUL.
4	2400-7856-800	LABEL,ESD
C18001	1622-0030-001	CAP,3PF,50V,CHIP
C18003	1622-0103-001	CAP,0.01UF,50V,CHIP,X7R
C18004	1622-0102-001	CAP,1000PF,50V,CHIP,NPO
C18005	1622-0470-001	CAP,47PF,50V,CHIP
C18006	1622-0470-001	CAP,47PF,50V,CHIP
C18007	1622-0270-050	CAP,27PF,50V,5%,CHIP,TOL
C18008	1622-0050-001	CAP,5PF,50V,CHIP
C18009	1622-0010-001	CAP,1PF,50V,CHIP
C18011	1622-0120-001	CAP,12PF,100V
C18012	1622-0120-001	CAP,12PF,100V
C18013	1550-0100-550	CAP,7-50PF,TRIMMER,SMD
C18014	1622-0680-001	CAP,68PF,100V,CHIP
C18015	1622-0820-001	CAP,82PF,50V,CHIP
C18016	1550-0100-550	CAP,7-50PF,TRIMMER,SMD
C18017	1622-0270-050	CAP,27PF,50V,5%,CHIP,TOL
C18018	1622-0390-001	CAP,39PF,100V,CHIP
C18019	1622-0390-001	CAP,39PF,100V,CHIP
C18020	1622-0391-001	CAP,390PF,100V,CHIP
C18021	1622-0391-001	CAP,390PF,100V,CHIP
C18022	1622-0010-001	CAP,1PF,50V,CHIP
C18023	1622-0279-001	CAP,2.7PF,50V,CHIP
C18024	1622-0010-001	CAP,1PF,50V,CHIP
C18025	1622-0159-001	CAP,1.5PF,50V,NPO,CHIP
C18026	1622-0159-001	CAP,1.5PF,50V,NPO,CHIP
C18027	1622-0472-001	CAP,4700PF,50V,CHIP
C18028	1622-0472-001	CAP,4700PF,50V,CHIP
C18029	1622-0010-001	CAP,1PF,50V,CHIP
C18030	1622-0279-001	CAP,2.7PF,50V,CHIP
C18031	1622-0010-001	CAP,1PF,50V,CHIP
C18032	1622-0020-001	CAP,2PF,50V,CHIP
C18033	1622-0470-001	CAP,47PF,50V,CHIP
C18034	1550-0101-500	CAP VAR,35435
CR18001	4815-0000-009	DIODE,SWITCH,914 SOT-23,SMD
L18001	1811-6471-001	IND,SM .47UH 10% C 1008
L18003	1811-6471-001	IND,SM .47UH 10% C 1008
L18004	1811-6680-001	IND,SM .068UH 10% C 1008
L18005	1811-6390-001	IND,SM .039UH 10% C 1008
L18008	1811-6101-001	IND,SM .1UH 10% C 1008
L18009	1811-6102-001	IND,SM 1.0UH 10% C 1008
L18010	1811-6101-001	IND,SM .1UH 10% C 1008
L18011	1811-6102-001	IND,SM 1.0UH 10% C 1008
L18012	1811-6391-001	IND,SM .39UH 10% C 1008
L18013	1811-6392-001	IND,SM 3.9UH 10% C 1008
L18014	1811-6391-001	IND,SM .39UH 10% C 1008
L18015	1811-6392-001	IND,SM 3.9UH 10% C 1008
L18016	1811-6080-001	IND,SM .008UH 10% C 1008
L18017	1811-6080-001	IND,SM .008UH 10% C 1008
L18018	1811-6390-001	IND,SM .039UH 10% C 1008

7010-8530-800 **PCB ASSY, MIXER (cont)** **D1**

REFERENCE DESIGNATOR	PART NUMBER	DESCRIPTION
L18019	1811-6390-001	IND,SM .039UH 10% C 1008
L18020	1811-6180-001	IND,SM .018UH 10% C 1008
L18021	1811-6080-001	IND,SM .008UH 10% C 1008
L18022	1811-6080-001	IND,SM .008UH 10% C 1008
MXR18001	5250-0000-014	MIXER,DBL BAL,.5-2000MHZ
MXR18002	5250-0000-014	MIXER,DBL BAL,.5-2000MHZ
Q18001	4809-0000-032	TRANS,5087 PNP SOT-23 SMD
Q18002	5050-2502-005	TRANS,SI NPN,MED PWR L6GHZ
Q18003	4809-0000-031	TRANS,5812 NPN SO-8,SMD
Q18004	4809-0000-032	TRANS,5087 PNP SOT-23,SMD
R18001	4722-1001-001	RES,1.0K,1/8W,1%
R18002	4722-4759-001	RES,47.5,1/8W,1%
R18003	4722-3920-001	RES,392,1/8W,1%
R18004	4722-2439-001	RES,24.3,1/8W,1%
R18005	4722-1001-001	RES,1.0K,1/8W,1%
R18006	4722-3920-001	RES,392,1/8W,1%
R18007	4749-0102-005	POT,SMD,TOP ADJ,1K OHM
R18008	4749-0102-005	POT,SMD,TOP ADJ,1K OHM
R18009	4723-0101-002	RES,100,1/10W,5%
R18010	4723-0390-002	RES,39,1/10W,5%
R18011	4722-1000-001	RES,100,1/8W,1%
R18012	4722-5119-001	RES,51.1,1/8W,1%
R18013	4749-0101-005	POT,SMD TOP ADJ,100 OHM
R18014	4722-2000-001	RES,200,1/8W,1%
R18015	4749-0101-005	POT,SMD TOP ADJ,100 OHM
R18020	4722-4750-001	RES,475,1/8W,1%
R18021	4722-2439-001	RES,24.3,1/8W,1%
R18022	4722-1500-001	RES,150,1/8W,1%
T18001	1808-8100-003	IND,1UH VAR CNTR TAPPED,IND
T18002	5604-8100-002	TRANSFORMER,2:1RF .07-200MHZ
T18003	5604-8100-002	TRANSFORMER,2:1RF .07-200MHZ
W18001	4722-0000-001	RES,0,1/8W,1%
W18002	4722-0000-001	RES,0,1/8W,1%

APPENDIX A - CONNECTOR PIN-OUT TABLES

1. Table of I/O Connectors

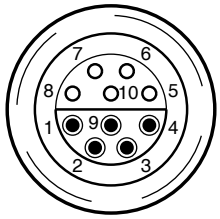
CONNECTOR	TYPE	SIGNAL NAME	SIGNAL TYPE	INPUT/OUTPUT
J10050	IEC-320	AC PWR	ac Line Power	INPUT
J10053	LEMO	COMM	RS-232C	INPUT/OUTPUT
	Refer to Appendix A, Table 2 for COMM Connector Pin-Out description.			
J10054	BNC	INTERR VIDEO	VIDEO (Direct Connection Only)	OUTPUT
J10055	BNC	SYNC	TTL	OUTPUT
J10056	BNC	MONITOR	TTL VIDEO	OUTPUT
J10057	BNC	ANTENNA	RF	INPUT/OUTPUT
J10058	TNC	RF I/O	RF	INPUT/OUTPUT

I/O Connectors
Table 1

2. COMM Connector (J10053) Pin-Out Table

PIN NO.	SIGNAL NAME	SIGNAL TYPE	INPUT/OUTPUT	POLARITY
1	EXT SYNC	TTL	OUTPUT	RISING EDGE
2	EXT PULSE	TTL	INPUT	ACTIVE LOW
3	EXT DPSK IN	TTL	INPUT	
4	EXT DPSK OUT	CMOS	OUTPUT	
5	SPARE			
6	TXD	BIPOLAR	OUTPUT	
7	DTR	BIPOLAR	OUTPUT	ACTIVE LOW
8	RXD	BIPOLAR	INPUT	
9	CTS	BIPOLAR	INPUT	ACTIVE LOW
10	GND		OUTPUT	GROUND

Pin-Out for COMM Connector
Table 2



8518021

● = Female ○ = Male

COMM Connector (J10053)
Figure 1

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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
3 dB Fixed Attenuator	HP8491A or Equivalent
10 dB Coupler	NARDA 4242-10 or Equivalent
Digital Multimeter	FLUKE 8010A or Equivalent
Heterodyne Monitor	Aeroflex 7018-0013-600 or Equivalent
Measuring Receiver	HP8902A or Equivalent
Mode S Ramp Test Set	Aeroflex ATC-601-2 or Equivalent
Mode S Test System	Aeroflex ATC-1400A-2 mated with Aeroflex S-1403, S-1403C, S-1403DL or Equivalent
Oscilloscope	TEK 5032B with Counter/Timer/Trigger Option or Equivalent
Power Meter	Aeroflex 6970 or Equivalent
Power Sensor	HP11722A or Equivalent Aeroflex 6912 or Equivalent
RF Signal Generator	Aeroflex NAV-750C or Equivalent
Spectrum Analyzer	Aeroflex AN1830 or Equivalent
Temperature Probe	FLUKE 80TK or Equivalent
Universal Timer/Counter	HP 53131A with Option 015 or Equivalent

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APPENDIX C - PAL EQUATIONS

1. Equation Definitions

   $\overline{XXX}$ =Active Low Signal

   * =AND

   → =Go To

   / =Invert

   : =On Clock Rising Edge

   + =OR

2. Digital IF PCB Assy

   A. Digitizer Control PAL (U26015)

      (1) Pin Assignments

PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL
1	CLK1	6	A14	11	OE	16	DRDY
2	CLK2	7	A15	12	DIG CLK	17	RAM WR
3	DS	8	TRIG	13	LOWB	18	RAMQ
4	STRB	9	RCO	14	NC	19	RAMI
5	A0	10	GND	15	ENA	20	V_{CC}

      (2) Equations

      DIG CLK =/NC*/RAM WR*CLK2 + NC + RAM WR

      LOWB =/(/A14*A15*/STRB*/DS)

      NC :=RCO + NC*TRIG

      ENA :=/(RAM WR*NC + /ENA*NC)

      DRDY :=/[RAM WR*ENA + /DRDY*/(/A14*A15*/STRB*/DS)*TRIG]

      RAM WR :=NC

      RAMQ =CLK2*/NC*/RAM WR + (NC+RAM WR)*/(A0*/A14*A15*/STRB*/DS)

      RAMI =CLK2*/NC*/RAM WR + (NC+RAM WR)*/(/A0*/A14*A15*/STRB*/DS)

B. DSP External RAM Access/System Interface PAL (U26016)

(1) Pin Assignments

PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL
1	IS	6	R/$\overline{W}$	11	A15	16	DPCS
2	STRB	7	A10	12	DPOE	17	SROE
3	DS	8	A11	13	RDYCS	18	SRWE
4	BUSY	9	A14	14	READY	19	SRCS
5	Q	10	GND	15	J	20	V_{CC}

(2) Equations

DPOE =/(A15*A14*/DS*/STRB*(R/$\overline{W}$)]

RDYCS =/[/IS*/STRB*/(R/$\overline{W}$)]

READY =(/IS + DS*IS + /DS*/A15 + /DS*A15*/A14 + Q)*BUSY

J =A15*A14*/DS

DPCS =/(A15*A14*/DS)

SROE =/[/A15*/A11*A10*/DS*/STRB*(R/$\overline{W}$) + /A15*A11*A10*/DS*STRB*(R/$\overline{W}$)]

SRWE =/[/A15*/A11*A10*/DS*/STRB*/(R/$\overline{W}$) + /A15*A11*A10*/DS*STRB*/(R/$\overline{W}$)]

SRCS =/(/A15*A11*A10*/DS + /A15*A11*/A10*/DS)

3. Front Panel Pulse PCB Assy

A. LCD Control PAL (U27029) Pin Assignments

PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL
1	NC	8	NC	15	NC	22	NC
2	CLK0	9	IO CH RDY	16	R83	23	ARDY
3	BALE	10	RESET	17	E	24	DIR
4	$\overline{WR}$	11	$\overline{BMCS0}$	18	R/W	25	$\overline{MEMR}$
5	$\overline{RD}$	12	R81	19	NC (Q2)	26	$\overline{MEMW}$
6	DT/RN	13	R82	20	NC (Q1)	27	NC (WAIT)
7	$\overline{PCS5}$	14	GND	21	NC (Q0)	28	V_{CC}

B. LCD Control PAL (U27029) Equations

E :=/Q2*Q1 + Q2*/Q1 + Q2*/Q0

R/W =/(DT/RN)

Q2 =Refer to Appendix C, 3C.

Q1 =Refer to Appendix C, 3C.

Q0 =Refer to Appendix C, 3C.

ARDY=/(/WAIT + /IO CH RDY)

DIR =/(/$\overline{\text{BMCS0}}$*/$\overline{\text{RD}}$)

$\overline{\text{MEMR}}$ =/(/$\overline{\text{BMCS0}}$*/$\overline{\text{RD}}$)

$\overline{\text{MEMW}}$ =/(/$\overline{\text{BMCS0}}$*/$\overline{\text{WR}}$)

WAIT :=/Q2*/Q1*/Q0 + Q2*Q1*Q0

C. LCD Control PAL (U27029) Wait State Assignments

S0 =/Q2*/Q1*/Q0 (000) S0 :=COND1 →S1 + →S0

S1 =/Q2*/Q1*Q0 (001) S1 :=COND0 →S0 + →S2

S2 =/Q2*Q1*/Q0 (010) S2 :=COND0 →S0 + →S3

S3 =/Q2*Q1*Q0 (011) S3 :=COND0 →S0 + →S4

S4 =Q2*/Q1*/Q0 (100) S4 :=COND0 →S0 + →S5

S5 =Q2*/Q1*Q0 (101) S5 :=COND0 →S0 + →S6

S6 =Q2*Q1*/Q0 (110) S6 :=COND0 →S0 + →S7

S7 =Q2*Q1*Q0 (111) S7 :=COND0 →S0 + →S7

Conditions:

COND0 =RESET + PCS5

COND1 =/PCS5*(/WR+/RD)

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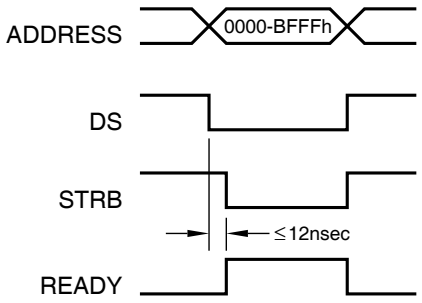
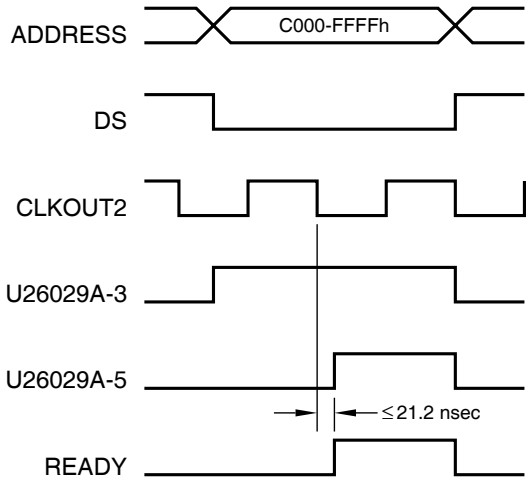
APPENDIX D - TIMING DIAGRAMS

1. Digital IF PCB Assy



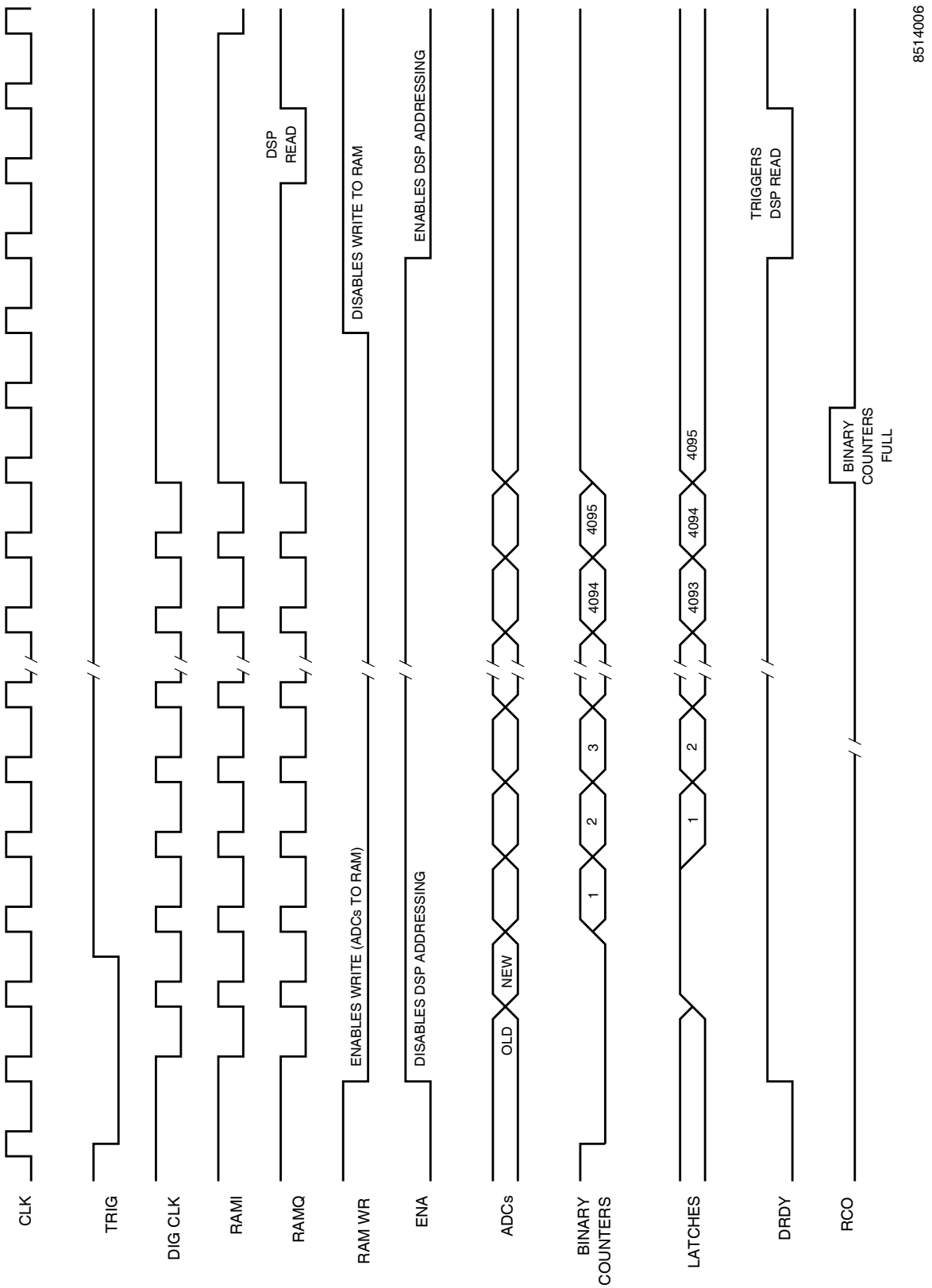
0 WAIT STATES



1 WAIT STATE

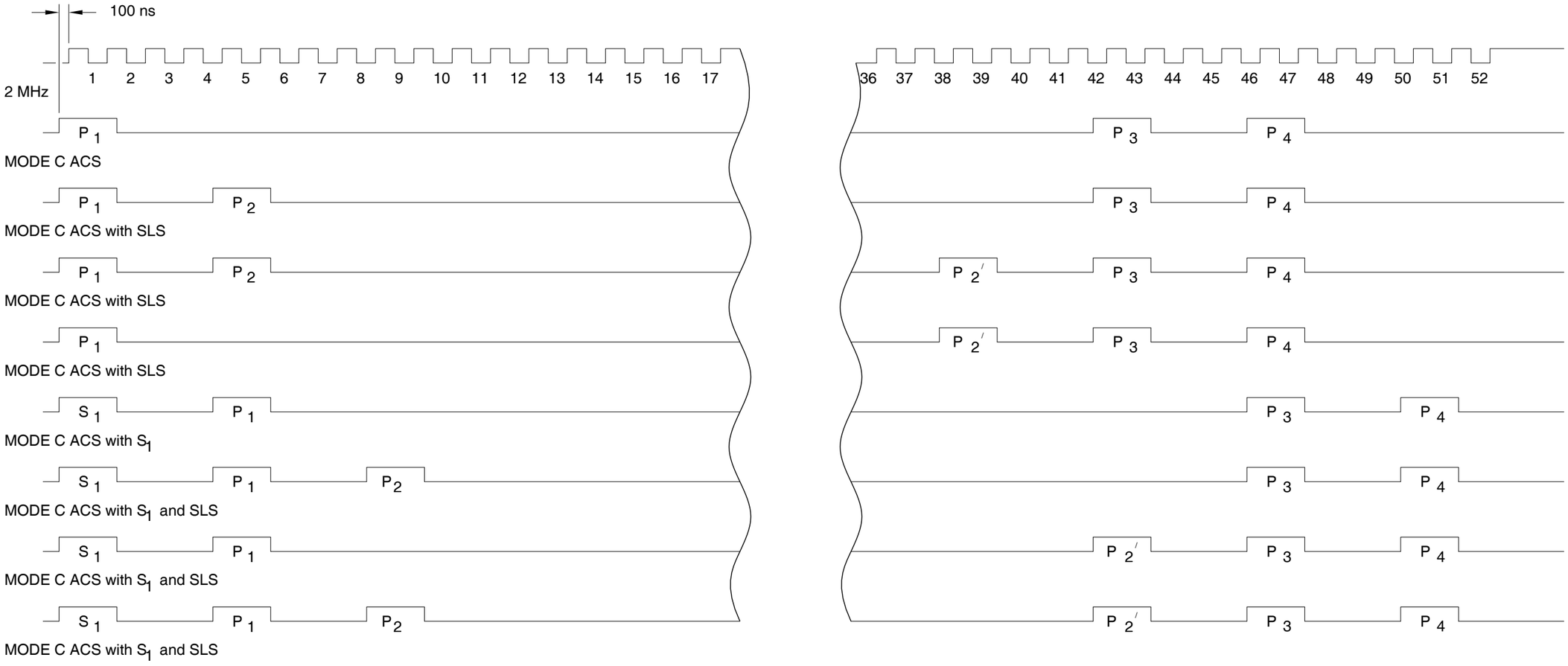
8514011

System Interface PAL Wait States
Figure 1



Digitizer
Figure 2

2. Front Panel Pulse PCB Assy

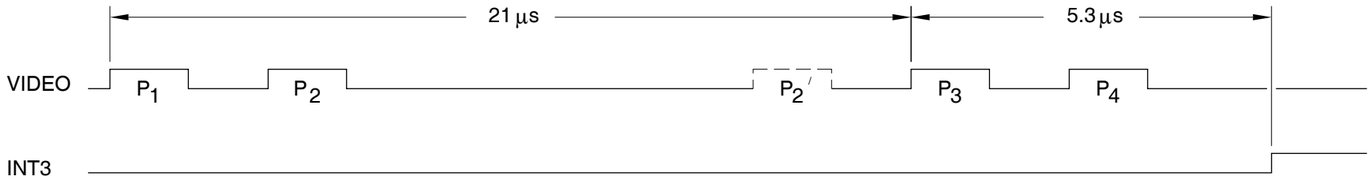


NOTE: P_2' IS AN ADDITIONAL SLS CONDITION.

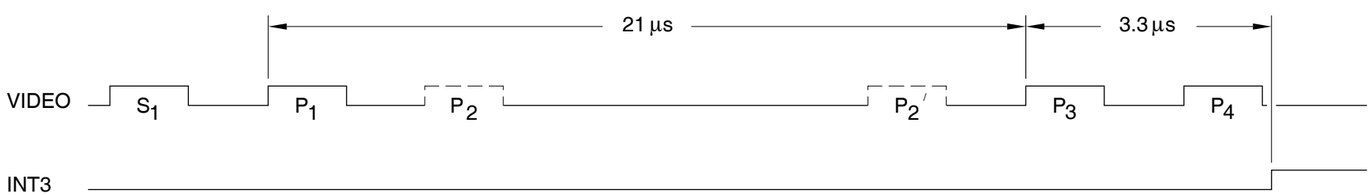
8514001

Mode C Timing
Figure 3

MODE C ALL CALL with NO SUPPRESSION



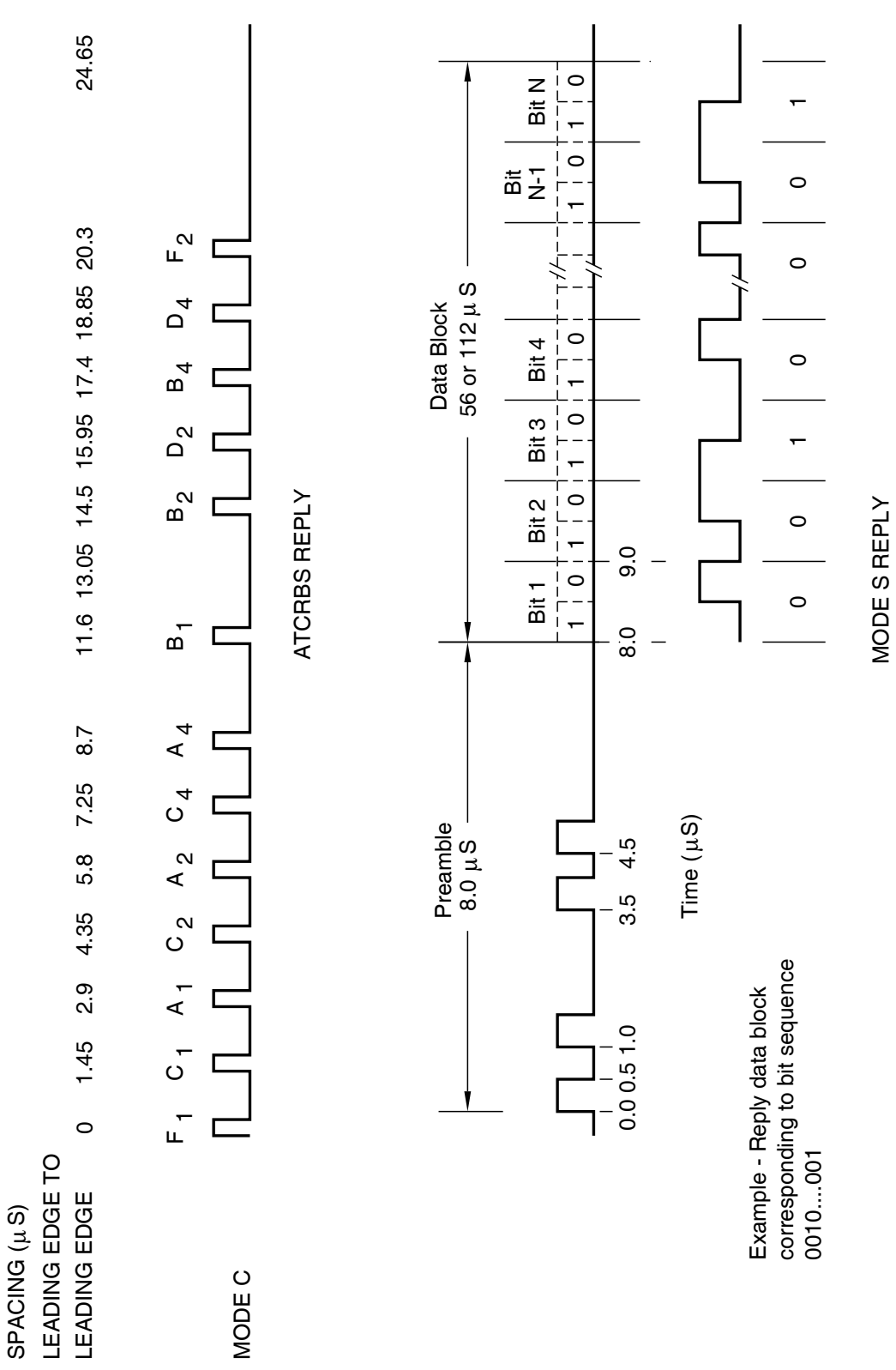
MODE C ALL CALL with SLS



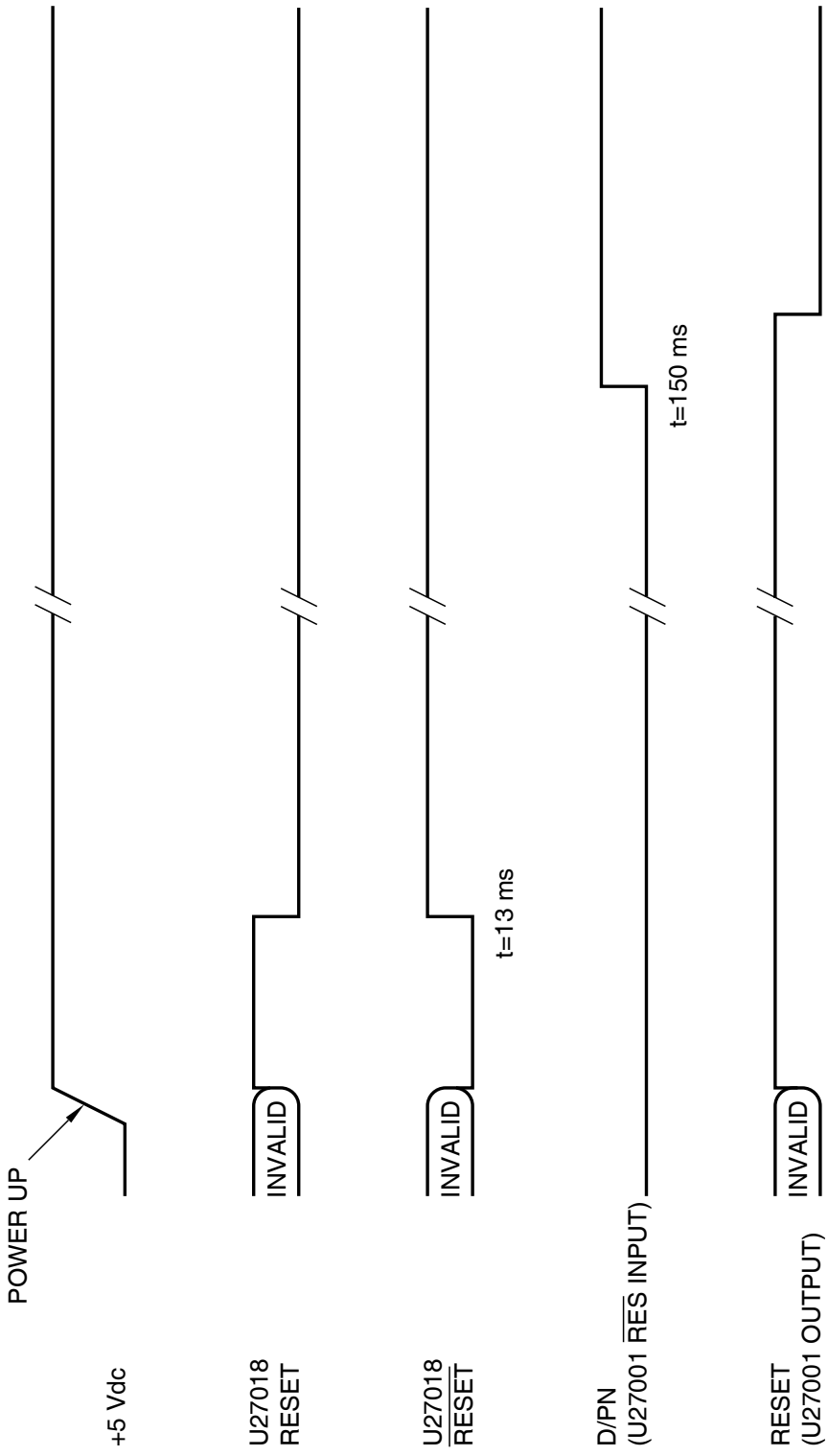
MODE C ALL CALL with S_1 PULSE (with or without SLS)

8514002

ATCRBS Interrogations Interrupt and Pulse Generator Trigger Timing
Figure 4

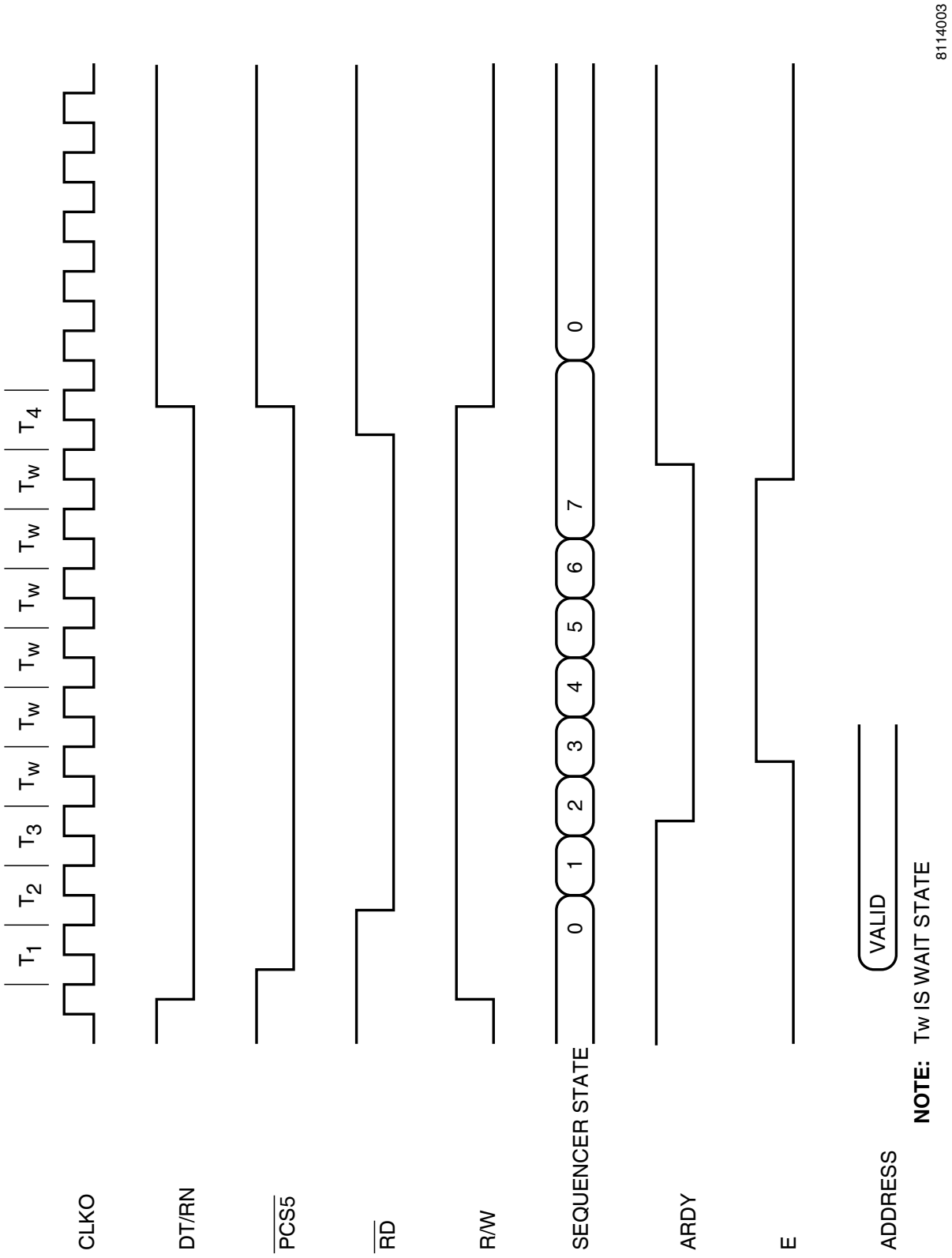


ATCRBS/Mode S Replies
Figure 5

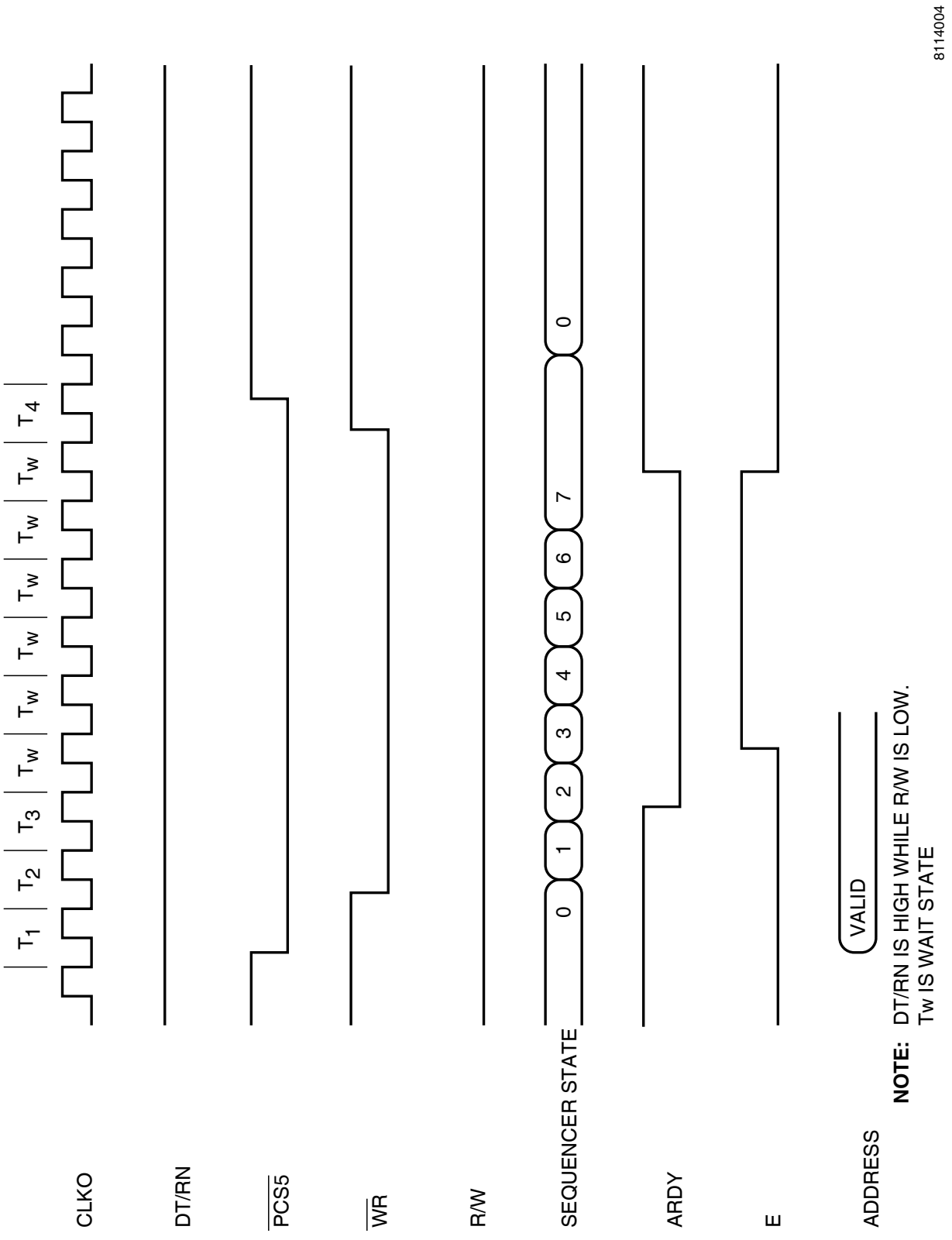


NOTE: LCA COMPONENTS ARE DONE PROGRAMMING AT t=150 ms. EITHER COMPONENT HOLDS D/PN LOW. BOTH MUST BE FINISHED PROGRAMMING FOR D/PN TO GO HIGH

LCA Components Reset
Figure 6



LCD Read Cycle
Figure 7



LCD Write Cycle
Figure 8

APPENDIX E - METRIC/BRITISH IMPERIAL CONVERSION TABLE WITH NAUTICAL DISTANCE CONVERSIONS

TO CONVERT:	INTO:	MULTIPLY BY:	TO CONVERT:	INTO:	MULTIPLY BY:
cm	feet	0.03281	meters	feet	3.281
cm	inches	0.3937	meters	inches	39.37
feet	cm	30.48	m/sec	ft/sec	3.281
feet	meters	0.3048	m/sec	km/hr	3.6
ft/sec	km/hr	1.097	m/sec	miles/hr	2.237
ft/sec	knots	0.5921	miles	feet	5280
ft/sec	miles/hr	0.6818	miles	km	1.609
ft/sec^2	cm/sec^2	30.48	miles	meters	1609
ft/sec^2	m/sec^2	0.3048	miles	nmi	0.8684
grams	ounces	0.03527	miles/hr	ft/sec	1.467
inches	cm	2.54	miles/hr	km/hr	1.609
kg	pounds	2.205	miles/hr	knots	0.8684
kg/cm^2	psi	0.0703	nmi	feet	6080.27
km	feet	3281	nmi	km	1.8532
km	miles	0.6214	nmi	meters	1853.2
km	nmi	0.5396	nmi	miles	1.1516
km/hr	ft/sec	0.9113	ounces	grams	28.34953
km/hr	knots	0.5396	pounds	kg	0.4536
km/hr	miles/hr	0.6214	psi	kg/cm^2	0.0703
knots	ft/sec	1.689	100 ft	km	3.048
knots	km/hr	1.8532	100 ft	miles	1.894
knots	miles/hr	1.1516	100 ft	nmi	1.645

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APPENDIX F - SPECIFICATIONS

SIGNAL GENERATOR (REPLY CHARACTERISTICS)

RF Signal

Output Frequency:	1090 MHz (±10 kHz), DCXO controlled
Level (referenced to P_1/F_1):	-67.35 dBm (±2 dB) at RF I/O Connector (19.5 dB Attenuation) manually adjustable from nominal in 0.5 dB steps
Attenuation:	
Range:	0 to 50 dB (automatically set according to antenna separation distance specified in Setup or manually set in 0.5 dB steps [Whisper-Shout Monitor])
Accuracy:	±0.5 dB (0 to 40 dB)

Reply

Reply Modes:	C (with or without Altitude Reporting) S (Downlink Formats [DF] 0, 16) (Squitter DF11)

Pulse Characteristics (Measured at 50% Amplitude Points)

Spacing:

ATCRBS:

F_1 to F_2:	20.30 µs (±50 ns)
F_1 to C_1:	1.45 µs (±50 ns)
F_1 to A_1:	2.90 µs (±50 ns)
F_1 to C_2:	4.35 µs (±50 ns)
F_1 to A_2:	5.80 µs (±50 ns)
F_1 to C_4:	7.25 µs (±50 ns)
F_1 to A_4:	8.70 µs (±50 ns)
F_1 to B_1:	11.60 µs (±50 ns)
F_1 to D_1:	13.05 µs (±50 ns)
F_1 to B_2:	14.50 µs (±50 ns)
F_1 to D_2:	15.95 µs (±50 ns)
F_1 to B_4:	17.40 µs (±50 ns)
F_1 to D_4:	18.85 µs (±50 ns)

Mode S:

P_1 to P_2	1.00 µs (±50 ns)
P_1 to P_3:	3.50 µs (±50 ns)
P_1 to P_4:	4.50 µs (±50 ns)
P_1 to D_1:	8.00 µs (±50 ns)
D_1 to Dn (n=2 to 112):	(1.0 µs times [n-1]) (±50 ns)

Widths:	
ATCRBS:	0.45 µs (±50 ns)
Mode S:	
P_1 through P_4:	0.50 µs (±50 ns)
D_1 through D_{112}:	0.50 µs (±50 ns) pulse width in a 1.00 µs (±50 ns) chip (bit) width (PPM data: first half = "1" second half = "0")
Rise and Fall Times:	
Rise Time (All Modes):	50 to 100 ns
Fall Time (All Modes):	50 to 200 ns
Amplitude Levels:	
All Pulses:	±1 dB relative to F_1 (ATCRBS) or P_1 (Mode S) level

Displayed Functions

Percent Reply:	0 to 100%
Resolution:	10%
Accuracy:	±1%
Range Delay (selected range plus antenna separation distance):	
Range:	0.5 to 30 nmi
Resolution:	50 ns steps
Accuracy:	±0.02 nmi
Range Rate:	-1200 to +1200 kts
Resolution:	10 kts
Accuracy:	±10%
Altitude Range:	-1000 to +126,700 feet
Resolution:	100 feet
Altitude Rate:	-10000 to +10000 fpm
Resolution:	100 fpm
Accuracy:	±10%
Mode S Address:	Selectable
Squitter Control:	ON or OFF
Range:	0.8 to 1.2 sec

UUT MEASUREMENTS (INTERROGATIONS)

Frequency (Mode S) (Average over 30 seconds of operation):

- Range: 1029.9 to 1030.1 MHz
- Accuracy: ±10 kHz
- Resolution: 1 kHz

Power (Mode S) (Average over 30 seconds of operation):

- Direct Connection-Peak Pulse Power:
  - Range: +46 to +58 dBm (40 to 631 W)
  - Accuracy: ±1 dB
  - Resolution: 0.1 dB
- Effective Radiated Power (ERP) (Mode S):
  - Range: +48 to +56 dBm (63 to 398 W)

Detectable Modes: ATCRBS Only All-Call (Mode C)
Mode S Uplink Formats 0 and 16

Pulse Spacing:

- ATCRBS (Mode C All-Call):
  - S_1 to P_1:
    - Accepts: 2.0 µs (±200 ns)
    - Rejects: ±1.0 µs
  - P_1 to P_3:
    - Accepts: 21.0 µs (±200 ns)
    - Rejects: ±1.0 µs
  - P_1 to P_4:
    - Accepts: 23.0 µs (±250 ns)
    - Rejects: ±1.0 µs
- Mode S:
  - P_1 to P_2:
    - Accepts: 2.0 µs (±100 ns)
    - Rejects: ±1.0 µs
  - P_1 to SPR:
    - Accepts: 4.75 µs (±100 ns)
    - Rejects: ±1.0 µs

Simulated Transponder MTL: +44.25 dBm (±2 dB) at RF I/O Connector (19.5 dB Attenuation) manually adjustable from nominal in 0.5 dB steps

ATCRBS Suppression Detection:

Rejects:	P_2 or S_1 >0.5 dB above Level of P_1 (<10% replies)
Accepts:	P_2 or S_1 >0.5 dB below MTL (>90% replies)

TEST ANTENNA

Remote Antenna VSWR:	<1.5:1
Gain:	9.5 dB typically, specified on the antenna
Range:	6 feet (1.83 meters) to 500 feet (152.4 meters)

BATTERY OPERATION

Duration:	1.5 hours before recharge at 25° C
Automatic shutoff:	After 15 minutes of non-use

POWER REQUIREMENTS

Source Voltage and Frequency:	100 to 120 VAC at 60 Hz 220 to 240 VAC at 50 Hz
Power Consumption:	37 W Maximum 34 W Nominal at 115 VAC 26 W Nominal at 230 VAC
Nominal Input Current:	0.4 A at 115 VAC 0.2 A at 230 VAC

FUSE REQUIREMENTS

F1 and F2:

100 to 120 VAC:	1.0 A, 250 V, Type F
220 to 240 VAC:	0.5 A, 250 V, Type F

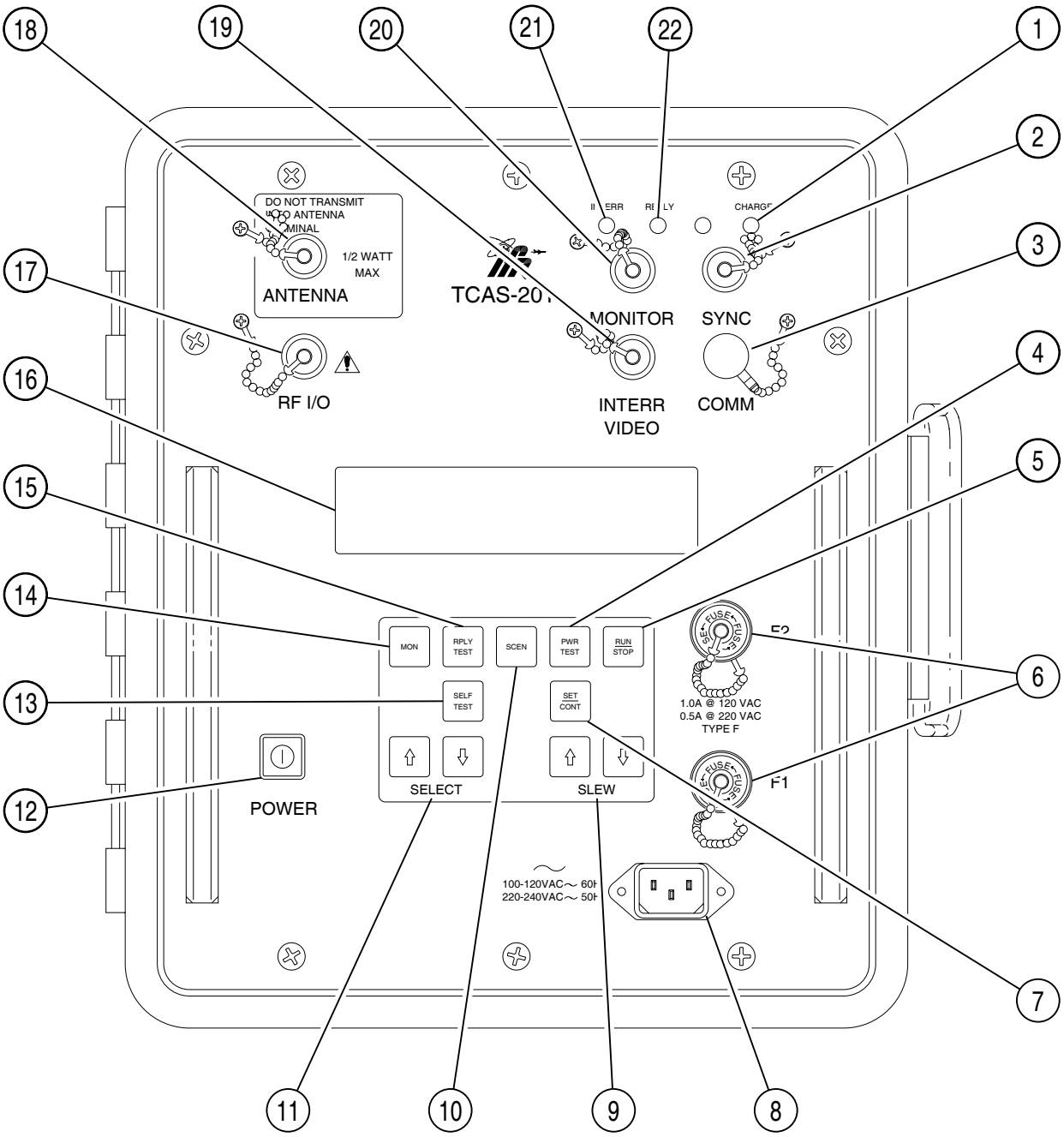
SAFETY

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 CONSIDERATIONS

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

APPENDIX G - CONTROLS, CONNECTORS AND INDICATORS



8507040

TCAS-201 Front Panel
Figure 1

CONTROLS, CONNECTORS AND INDICATORS (NUMERIC ORDER)	CONTROLS, CONNECTORS AND INDICATORS (ALPHABETICAL ORDER)	
1. CHARGE Indicator	AC PWR Connector (J10050)	8
2. SYNC Connector (J10055)	ANTENNA Connector (J10057)	18
3. COMM Connector (J10053)	CHARGE Indicator	1
4. PWR TEST Key	COMM Connector (J10053)	3
5. RUN/STOP Key	DISPLAY	16
6. FUSES	FUSES	6
7. SET/CONT Key	INTERR Indicator	21
8. AC PWR Connector (J10050)	MONITOR Connector (J10056)	20
9. SLEW Keys	MON Key	14
10. SCEN Key	POWER Key	12
11. SELECT Keys	PWR TEST Key	4
12. POWER Key	REPLY Indicator	22
13. SELF TEST Key	INTERR VIDEO Connector (J10054)	19
14. MON Key	RF I/O Connector (J10058)	17
15. RPLY TEST Key	RPLY TEST Key	15
16. DISPLAY	RUN/STOP Key	5
17. RF I/O Connector (J10058)	SCEN Key	10
18. ANTENNA Connector (J10057)	SELECT Keys	11
19. INTERR VIDEO Connector (J10054)	SELF TEST Key	13
20. MONITOR Connector (J10056)	SET/CONT Key	7
21. INTERR Indicator	SLEW Keys	9
22. REPLY Indicator	SYNC Connector (J10055)	2

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1. Front Panel

Refer to Appendix G, Figure 1.

ITEM	DESCRIPTION

1. CHARGE Indicator

   LED indicates the charger is active (ac applied with Test Set Off). Red indicates when battery is charging and green indicates battery is more than 80% charged.

2. SYNC Connector (J10055)

   BNC type connector provides Oscilloscope Sync. Long pulse goes from low to high before a reply and from high to low before an interrogation.

3. COMM Connector (J10053)

   LEMO type connector not used at this time.

4. PWR TEST Key

   Enters Power & Frequency screen onto the DISPLAY.

5. RUN/STOP Key

   Initiates or terminates Scenario Test, Reply Test or Monitor actions. The RUN/STOP Key also activates the store or recall operation in the Setup #1 Menu screen.

6. FUSES

   Provide safe operation with ac input power applied to the TCAS-201. Refer to Appendix F for correct fuse size and type.

7. SET/CONT Key

   Enters Setup Menus onto the DISPLAY. Pressing once from any other screen enters the Setup #1 Menu onto the DISPLAY. Setup #1 Menu allows the user to set initial or default test parameters and control data storage. Pressing once from the Setup #1 Menu enters the Setup #2 Menu onto the DISPLAY. Setup #2 Menu allows the user to set DISPLAY characteristics and Scenario Test Range and Altitude limitations.

8. AC PWR Connector (J10050) ∿

   Provides the input for an external ac power source (100 to 120 VAC at 60 Hz or 220 to 240 VAC at 50 Hz) for recharging the battery or operating the Test Set. The operating voltage range depends on the Line Supply Switch Setting, only serviceable by a qualified technician. Refer to Battery/Voltage Instructions.

9. SLEW Keys

   Used to:

   - Adjust values in Scenario Test, Reply Test and Monitor screens.
   - Select Signal Type and adjust Attenuation in Diagnostics screen.
   - Set parameters and select memory storage in Setup Menus.

   Variable slew rates are available, depending on item being edited. Keeping SLEW Key pressed provides greater rate of change, in most instances, than pressing and releasing.

10. SCEN Key

    Enters Scenario Test screen (for programming intruder scenarios) onto the DISPLAY.

ITEM DESCRIPTION

11. SELECT Keys

    Used to select:

    - Items to edit in Setup Menus, Scenario Test screens and Reply Test screens.
    - Diagnostics screen from Self Test screen.

12. POWER Key ⏻

    Applies power to the Test Set; push On (***I***) or push Off (***O***).

    NOTE: When operating on battery power, an internal automatic time-out removes power from the Test Set following 15 min of no key activity.

13. SELF TEST Key

    Enters Self Test screen onto the DISPLAY.

14. MON Key

    Enters Monitor screens onto the DISPLAY. When operating in ATCRBS, the TCAS-201 displays the Whisper-Shout Monitor screen. When operating in Mode S, the TCAS-201 displays the Surveillance Monitor screen. Pressing the MON Key from the Surveillance Monitor screen enters the Broadcast Monitor screen onto the DISPLAY.

15. RPLY TEST Key

    Enters Reply Test screen onto the DISPLAY. The intruder selected in the Setup #1 Menu determines whether the TCAS-201 displays the ATCRBS or Mode S Reply Test screen.

16. DISPLAY

    LCD readout displays various test screens.

17. RF I/O Connector (J10058) ⚠

    CAUTION: MAXIMUM INPUT POWER MUST NOT EXCEED +58 dBm (631 W).

    TNC type connector provides for RF input and output when directly connected with the UUT (Direct Connect).

18. ANTENNA Connector (J10057)

    CAUTION: DO NOT TRANSMIT DIRECTLY INTO ANTENNA TERMINAL. MAXIMUM OVER-THE-AIR INPUT POWER MUST NOT EXCEED 1/2 W.

    BNC type connector is used with the Test Set Antenna (Flat Antenna or Flexible Antenna). Over-the-air testing of the UUT is accomplished through the ANTENNA connector. The connector cover, when attached, provides the 50 Ω load required when connecting the RF I/O Connector to the UUT (Direct Connect) or running the Self Test.

19. INTERR VIDEO Connector (J10054)

    BNC type connector provides demodulated (linearly detected) interrogation (only when direct connection with UUT is used) for use with an Oscilloscope.

20. MONITOR Connector (J10056)

    BNC type connector provides interrogation and reply pulses clipped at 50% amplitude point to preserve pulse shape.

ITEM	DESCRIPTION

21. INTERR Indicator

    Illuminates when the Test Set receives a valid interrogation signal.

22. REPLY Indicator

    Illuminates when the Test Set generates a reply signal.

2. Flat Antenna

Refer to Appendix G, Figure 2.

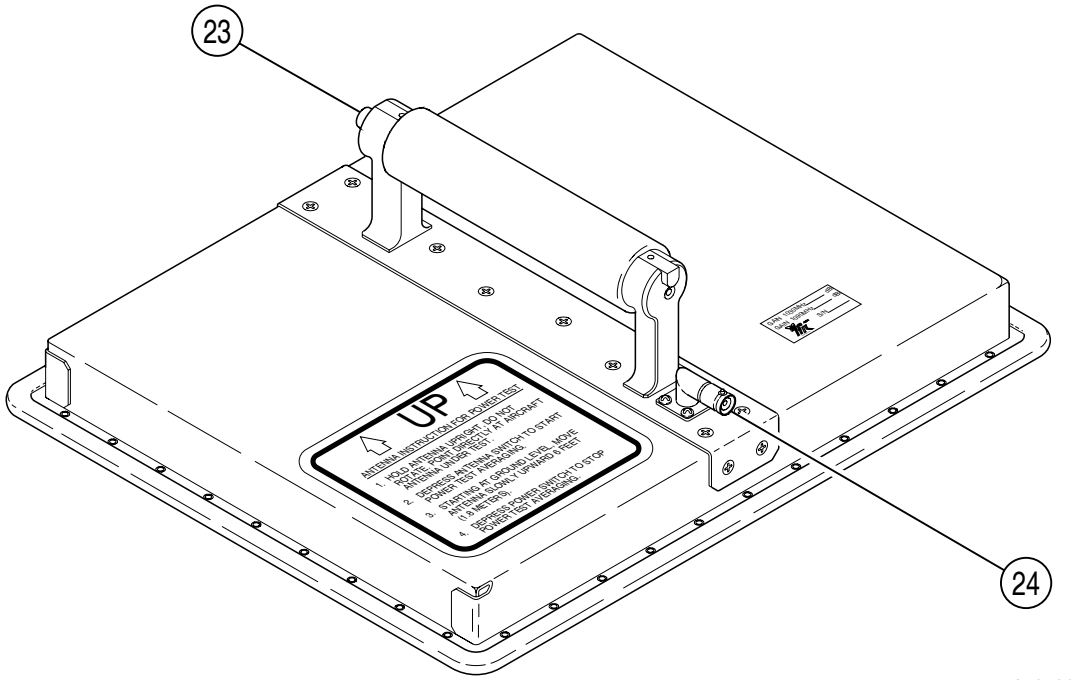
ITEM	DESCRIPTION

23. ANTENNA PUSH BUTTON Switch

Starts or stops testing, same as the RUN/STOP Key.

24. FLAT ANTENNA Connector (J29001)

BNC type connector is used to connect Flat Antenna to TCAS-201 Test Set.



Flat Antenna
Figure 2

APPENDIX H - ABBREVIATIONS

A	
AA	Announced Address
AC	Altitude Code
AC/ac	Alternating Current
ACAS	Airborne Collision Avoidance System
ACS	Comm-A Capability Subfield
A/D	Analog to Digital
ADC	Analog to Digital Converter
AIS	Comm-A Capability Subfield
ALT	Altitude
AMPL	Amplifier
ANT	Antenna
AP	Address Parity
AQ	Special Acquisition
Assy	Assembly
ATC	Air Traffic Control
ATC	ATCRBS (on screen)
ATCRBS	Air Traffic Control Radar Beacon System
ATE	Automatic Test Equipment
ATTEN	Attenuation
AUTO	Automatic
AVG	Average
B	
BATT	Battery
BCS	Comm-B Capability Subfield
BDS	B-Definition Subfield
BIT	Built In Test
BPF	Bandpass Filter
BR	Bridge Rectifier
BT	Battery
C	
C	Centigrade
CA	Transponder Capability
CAS	Column Address Strobe
CFS	Continuation Subfield
CHAN	Channel
CHC	Cancel Horizontal Resolution Advisory Complement
CLI	Coordination Lock Indicator
CMOS	Complementary Metal-Oxide Semiconductor
COMM	Communication
COMP	Compensator
CONT	Control
Cont	Continued
COMPTR	Comparator
CTS	Clear to Send
CVC	Cancel Vertical Resolution Advisory Complement
CW	Continuous Wave
D	
D/A	Digital to Analog
DAC	Digital to Analog Converter
dB	Decibel
dBi	Decibels above isotropic
dBm	Decibels above one milliwatt
dB W/m^2	Decibels above one watt per square meter
DCXO	Digitally Compensated Crystal Oscillator
DET	Detector
DF	Downlink Format
DI	Designator Identification
Div	Division
DMA	Direct Memory Access
DMM	Digital Multimeter
DPCS	Dual Port RAM Chip Select
DPOE	Dual Port RAM Output Enable
DPR	Dual Port RAM
DPSK	Differential Phase Shift Key
DR	Downlink Request
DRAM	Dynamic RAM
DRVR	Driver
DSP	Digital Signal Processor
DTR	Data Terminal Ready
E	
ECS	Extended Capability Subfield
ELM	Extended Length Message
EOC	End of Cycle
EPROM	Erasable Programmable Read-Only Memory
ERP	Effective Radiated Power
ESB	Encoded Sense Bits
Ext	External
F	
FCC	Federal Communications Commission
FET	Field Effect Transistor
FIFO	First In First Out
FPM	Feet Per Minute
FREQ	Frequency
FS	Flight Status
Ft	Feet
G	
GEN	Generator
GND	Ground
GPIB	General Purpose Interface Bus

H

h	Hexadecimal
HET	Heterodyne
hr	Hour
HRC	Horizontal Resolution Advisory Complement
Hz	Hertz

I

ID	Identification (4906 Code)
IDS	Identifier Designators Subfield
IF	Intermediate Frequency
II	Interrogator Identification
IIS	Interrogator Identification Subfield
INTERR	Interrogation
I/O	Input/Output
ITM	Intermode

K

KE	ELM Control
kHz	Kilohertz (10^3)
km	Kilometer (10^3)
kts	Knots (Velocity)

L

LC	Inductor-Capacitor
LCA	Logic Cell Array
LCD	Liquid Crystal Display
LCK	Coordination Lock Subfield
LCS	Lower Chip Select
LED	Light Emitting Diode
LO	Local Oscillation
LOAMP	Logarithmic Amplifier
LOG	Logarithmic
LOS	Lockout Subfield
LPF	Low-Pass Filter
LSD	Least Significant Digit

M

m	meters
MA	Comm-A Message
Max	Maximum
MB	Comm-B Message
MBS	Multisite Comm-B Subfield
MC	Comm-C Message
MCS	Mid-Range Chip Select
MD	Comm-D Message
MEAS	Measure
MES	Multisite ELM Subfield
MHz	Megahertz (10^6)
MID	Mode S Address
MOD	Modulator
MON	Monitor
MPU	Microprocessing Unit
ms	Millisecond (10^{-3})
MSD	Most Significant Digit
MTB	Multiple Threat Bit
MTL	Minimum Triggering Level
MU	Comm-U Message
MUX	Multiplexer
MV	Comm-V Message

N

N/A	Not Applicable
NC	C-Segment Number
ND	D-Segment Number
nmi	Nautical Miles
NO	Number
ns	Nanosecond (10^{-9})

P

PAL	Programmable Array Logic
PC	Protocol
PC	Printed Circuit
PCB	Printed Circuit Board
PCS	Peripheral Chip Select
PI	Parity/Interrogator Identity
PLCS	Places
PPG	Pulse Power Gate
PPM	Pulse Position Modulation
PR	Reply Probability
PRF	Pulse Repetition Frequency
PROM	Programmable Read-Only Memory
PSK	Phase Shift Keying
PWM	Pulse Width Modulation
PWR	Power

R

RAM	Random Access Memory
RAC	Resolution Advisory Complement
RAS	Row Address Strobe
RC	Reply Control
RC	Resistor-Capacitor
RCV	Receive
RCVR	Receiver
Ref	Reference
REFLD	Reflected
RF	Radio Frequency
RGLTR	Regulator
RI	Reply Information, Air-to-Air
RL	Reply Length
RMS	Root Mean Square
ROM	Read Only Memory
RR	Reply Request
RRS	Reply Request Subfield
RSS	Reservation Status Subfield
RTCA	Radio Technical Commission for Aeronautics
RX	Receive

S

SAM	Serial Access Memory
SAT	Select At Test
SCOPE	Oscilloscope
SD	Special Designator
sec	Second(s)
SL	Sensitivity Level
SLS	Side Lobe Suppression
SMENU	Sequence Menu
SNSR	Sensor
SPI	Special Identifier Pulse
SPR	Synchronous Phase Reversal
SRCS	Static RAM Chip Select
SROE	Static RAM Output Enable
SRWE	Static RAM Write Enable
SRQ	Service Request
SRS	Segment Request Subfield
SSR	Secondary Surveillance Radar
SW	Switch
SYNC	Synchronization

T

TAS	Transmission Acknowledgement Subfield
TCAS	Traffic Alert and Collision Avoidance System
TEMP	Temperature
TMS	Tactical Message Subfield
Trig	Trigger
TTL	Transistor- Transistor Logic
TX	Transmit

U

UART	Universal Asynchronous Receiver-Transmitter
UCS	Upper Chip Select
UDS	U-Definition Subfield
UF	Uplink Format
UM	Utility Message
UUT	Unit Under Test

V

V	Volts
Vp	Volts, Peak
Vp-p	Volts, Peak-to-Peak
VAC	Volts Alternating Current
VCO	Voltage Controlled Oscillator
Vdc	Volts Direct Current
VDS	V-Definition Subfield
VERS	Version
VRAM	Video Random Access Memory
VRC	Vertical Resolution Advisory Complement
Vrms	Volts Root Mean Square
VS	Vertical Status
VSWR	Voltage Standing Wave Ratio

W

W	Watts

X

XCVR	Transceiver
XMTR	Transmitter
XOR	Exclusive OR
XPDR	Transponder

µF	Microfarad
µH	Microhenry
µs	Microsecond

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