2. Calibration/Verification

A. General

(1) Calibration/Verification Schedule

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

- Failure to Meet Specifications

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

- Module/Assembly Replacement

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

- Annual Calibration/Verification

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

(2) Controls, Connectors and Indicators

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

(3) Test Record

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

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

B. Precautions

(1) Safety

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

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

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

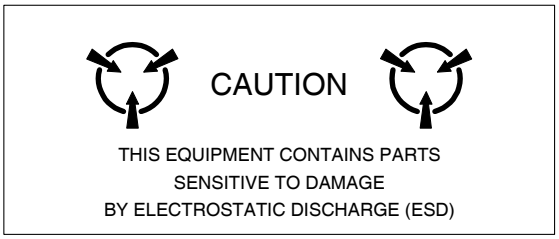
WARNING: FOR ADDED INSULATION, PLACE RUBBER BENCH MAT UNDERNEATH ALL POWERED BENCH EQUIPMENT, AS WELL AS A RUBBER MAT UNDERNEATH TECHNICIAN'S CHAIR.

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

Back To Contents

(2) ESD

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



(3) EMC and Safety Compliance

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

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

C. Requirements

(1) Test Set Configuration

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

(2) Test Equipment

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

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

(3) Disassembly

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

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

(4) Environment

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

D. Procedure Instruction

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

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

Back To Contents

E. Verification Procedures

Back To Contents

(1) Preparation for Testing

STEP	PROCEDURE

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

Back To Contents

(2) XPDR Interrogation Pulse Spacing

PREREQUISITES: None

TEST EQUIPMENT: Oscilloscope

STEP PROCEDURE

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

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

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

Back To Contents

(3) XPDR Pulse Width

PREREQUISITES: None

TEST EQUIPMENT: Oscilloscope

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

STEP	PROCEDURE

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

Back To Contents

(4) XPDR Interrogation PRF Frequency

PREREQUISITES: None

TEST EQUIPMENT: Frequency Counter

STEP	PROCEDURE

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

Back To Contents

(5) Framing Pulse Spacing (XPDR)

PREREQUISITES: None

TEST EQUIPMENT: 34 dB Pad
Transponder

STEP	PROCEDURE

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

Back To Contents

(6) A/C CODE Mode Readout

PREREQUISITES: None

TEST EQUIPMENT: Transponder

STEP	PROCEDURE

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

Back To Contents

(7) A/C ALT Mode Readout

PREREQUISITES: None

TEST EQUIPMENT: Test Switch Assembly
Transponder

STEP	PROCEDURE

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

Back To Contents

(8) XPDR System Self Test

PREREQUISITES: None

TEST EQUIPMENT: None

STEP	PROCEDURE

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

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

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

Back To Contents

(9) IDENT PULSE Indicator - XPDR

PREREQUISITES: None

TEST EQUIPMENT: Transponder

STEP	PROCEDURE

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

Back To Contents

(10) INVALID ALT Indicator - XPDR

PREREQUISITES: None

TEST EQUIPMENT: Test Switch Assembly
Transponder

STEP	PROCEDURE

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

Back To Contents

(11) NO ALT Indicator - XPDR

PREREQUISITES: None

TEST EQUIPMENT: Test Switch Assembly
Transponder

STEP	PROCEDURE

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

Back To Contents

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

PREREQUISITES: None

TEST EQUIPMENT: Test Switch Assembly
Transponder

STEP	PROCEDURE

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

Back To Contents

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

PREREQUISITES: None

TEST EQUIPMENT: 34 dB Pad
Transponder

STEP	PROCEDURE

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

Back To Contents

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

PREREQUISITES: None

TEST EQUIPMENT: Signal Generator

STEP PROCEDURE

1. Set Signal Generator controls as follows:

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

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

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

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

Back To Contents

(15) Squitter Frequency - DME

PREREQUISITES: None

TEST EQUIPMENT: Frequency Counter

STEP PROCEDURE

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

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

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

Back To Contents

(16) IDENT Tone and Pulse Spacing - DME

PREREQUISITES: None

TEST EQUIPMENT: Frequency Counter

STEP	PROCEDURE

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

Back To Contents

(17) X and Y Channel Pulse Spacing - DME

PREREQUISITES: None

TEST EQUIPMENT: DME 2-Pulse Generator
Oscilloscope

STEP	PROCEDURE

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

Back To Contents

(18) Pulse Width - DME

PREREQUISITES: None

TEST EQUIPMENT: Oscilloscope

STEP	PROCEDURE

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

Back To Contents

(19) Range Slew - DME

PREREQUISITES: None

TEST EQUIPMENT: DME 2-Pulse Generator
Oscilloscope

STEP	PROCEDURE

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

Back To Contents

(20) 50% Reply - DME

PREREQUISITES: None

TEST EQUIPMENT: DME 2-Pulse Generator
Frequency Counter

STEP	PROCEDURE

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

Back To Contents

(21) DME PRF - DME

PREREQUISITES: None

TEST EQUIPMENT: DME 2-Pulse Generator

STEP	PROCEDURE

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

Back To Contents

F. Verification Data Sheet

TECHNICIAN: _____ DATE: _____

ATC-600A-2 S/N: _____

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

Back To Contents

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

Back To Contents

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

Back To Contents

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Back To Contents

G. Calibration Procedures

Back To Contents

(1) Preparation for Testing

STEP	PROCEDURE

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

Back To Contents

(2) Power Supply Voltages

PREREQUISITES: None

TEST EQUIPMENT: Digital Multimeter (DMM)

STEP PROCEDURE

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

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

Back To Contents

(3) Battery Charger and Timer

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

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

STEP	PROCEDURE

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

Back To Contents

(4) Oscillator Frequencies

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

TEST EQUIPMENT: 270 Ω Resistor
Frequency Counter

STEP PROCEDURE

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

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

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

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

Back To Contents

(5) XPDR Interrogation Pulse Spacing

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

TEST EQUIPMENT: Oscilloscope

STEP PROCEDURE

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

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

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

Back To Contents

(6) XPDR Interrogation PRF Frequency

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

TEST EQUIPMENT: Frequency Counter

STEP	PROCEDURE

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

Back To Contents

(7) XPDR Pulse Width

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

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

STEP	PROCEDURE

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

CONTROL	SETTING
Frequency	1030 MHz
Level	0 dBm

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

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

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

Back To Contents

(8) Framing Pulse Spacing (XPDR)

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

TEST EQUIPMENT: Function Generator
Oscilloscope

STEP PROCEDURE

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

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

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

Back To Contents

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

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

TEST EQUIPMENT: Test Switch Assembly
Transponder

STEP	PROCEDURE

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

Back To Contents

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

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

TEST EQUIPMENT: 34 dB Pad
Transponder

STEP	PROCEDURE

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

Back To Contents

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

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

TEST EQUIPMENT: Signal Generator

STEP PROCEDURE

1. Set Signal Generator controls as follows:

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

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

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

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

Back To Contents

(12) Squitter Frequency - DME

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

TEST EQUIPMENT: Frequency Counter

STEP	PROCEDURE

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

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

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

Back To Contents

(13) IDENT Tone and Pulse Spacing - DME

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

TEST EQUIPMENT: Frequency Counter

STEP	PROCEDURE

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

Back To Contents

(14) Noise Amplifier Output - DME

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

TEST EQUIPMENT: Oscilloscope

STEP	PROCEDURE

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

Back To Contents

(15) AGC Operation - DME

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

TEST EQUIPMENT: DME 2-Pulse Generator
Function Generator
Oscilloscope

STEP PROCEDURE

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

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

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

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

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

Back To Contents

(16) Decoder Gate Width - DME

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

TEST EQUIPMENT: DME 2-Pulse Generator
Function Generator
Oscilloscope

STEP PROCEDURE

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

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

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

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

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

Back To Contents

(17) Decoder Gate Centering - DME

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

TEST EQUIPMENT: DME 2-Pulse Generator
Function Generator
Oscilloscope

STEP PROCEDURE

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

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

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

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

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

Back To Contents

(18) X and Y Channel Pulse Spacing

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

TEST EQUIPMENT: DME 2-Pulse Generator
Function Generator
Oscilloscope

STEP PROCEDURE

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

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

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

Back To Contents

STEP	PROCEDURE

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

Back To Contents

(19) DME PRF - DME

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

TEST EQUIPMENT: DME 2-Pulse Generator
Function Generator
Oscilloscope

STEP PROCEDURE

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

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

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

Back To Contents

H. Calibration Data Sheet

TECHNICIAN: _____ DATE: _____

ATC-600A-2 S/N: _____

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

Back To Contents

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

Back To Contents

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

Back To Contents