NO. 3 ESS
TEST FRAME
POWER VERIFICATION TESTS

CONTENTS

1. GENERAL INFORMATION

1.1 Description

1.11 This section provides a method of verifying that power with the proper voltages and polarities appears at the No. 3 ESS Test (TST) Frame. It also provides a method for verifying the operation of the fuse alarm circuits on the TST Frame and the lamps on the Voltmeter and Trunk and Line Test Panel.

1.12 The TST Frame is a single bay frame which requires two -48V power feeders (one from each bus) and one +24V A Bus power feeder. The +24V and -48V A Bus power feeders supply all the TST Frame units except the KS-20816 Inverter Unit which is powered by the remaining -48V B Bus power feeder.

1.13 The Peripheral Test Unit (PTU) on the TST Frame requires ±130V A Bus and ±130V B Bus power from the 130V Converter Units on the Miscellaneous Power Frame. The +130V and -130V power is not fused at the TST Frame as it connects directly to the PTU.

1.14 -48V power is supplied directly from the -48V POWER Frame while +24V is supplied from converters on the Miscellaneous Power Frame.

1.2 Sequence

1.21 Refer to Handbook 269, Section 1 for test sequence information.

1.22 The -48V Power Plant and the +24V and ±130V Converters on the Miscellaneous Power Frame must be operational prior to the performance of this test. Handbook 21, Sections 211 and 399 provide test procedures for the 151A Power Plant and Miscellaneous Power Frame, respectively.

1.23 This section must be applied after Control Complex Power Verification Tests (HB 269, Section 150) has been completed.

NOTE: This requirement is very important because the TST and MTCE Frames share the +24V A Bus fuse (MF-0) on Miscellaneous Power Frame.

1.3 References

1.31 The following documents will be useful as references during the performance of this test:

Document	Title
SD-3H520-01	Peripheral Test Unit Circuit
SD-3H904-01	Test Frame Circuit
SD-3H905-01	Miscellaneous Power Circuit
SD-3H907-01	DC Power Distribution Circuit

1.4 Records

1.41 The results of these tests should be recorded on Forms SD-97-1313 and SD-97-1315. Information regarding the completion of these forms appears in Handbook 3, Section 6B.

2. TEST EQUIPMENT

2.1 Test Set

2.11 The following test set will be required for the performance of these tests:

Amt.	ITE	Description
1	5632	Digital Multimeter

2.2 Accessories

2.21 The following accessories are required for the performance of these tests:

Amt.	ITE	Description	With ITE
1	4715	Capacitor Forming Tool	*5543
1	5590	70 Type Fuse Alarm Verification Test Set	*5543
1	9169D	6 in. Test Cord with E-Z Mini-Hook on each end	*5543

* 3ACC/Auxiliary Processor Test Accessory Set.

3. TEST PREPARATION

3.1 Remove the base covers from the TST Frame.

3.2 At the POWER Frame, remove the -48V fuses supplying the TST Frame.

3.3 At Miscellaneous Power (MP) Frame, verify 130V fuses +T1(0), -T1(0), +T1(1) and -T1(1) are removed from the 130V fuse block.

3.4 Remove all distributing fuses from the TST Frame fuse panel.

NOTE: The +24V fuses should have been previously removed as a precautionary requirement per Handbook 269, Section 150 necessitated by the fact that the MTCE and TST Frames share the +24V A Bus Distribution fuse at MP-0.

3.5 Unseat or remove the FC181 circuit packs from Peripheral Test Unit (PTU) locations 56-24, 56-25, 56-27 and 56-29.

4. TEST PROCEDURE

4.1 False Ground Check

4.11 Set up ITE-5632 Digital Multimeter for resistance measurement.

4.12 At the Power Frame, measure the resistance between the ground bus at the rear of the Power Frame and the load terminal of the -48V Bus A (15 Amp) fuse supplying the TST Frame circuits by connecting the positive meter lead to the ground bus and the negative lead to the load terminal.

4.13 This resistance should read infinite ohms after the plates of the electrolytic capacitors have formed.

4.14 Repeat paragraph 4.12 for the -48V Bus B (35 Amp) fuse supplying the TST Frame Inverter Unit.

4.15 This resistance should read infinite ohms.

4.2 +24V, -48V and ±130V Distribution

4.201 At the Power Frame, insert ITE-4715 Capacitor Forming Tool in the alarm fuse socket of the -48V Bus A (15 Amp) fuse supplying the TST Frame. Leave the tool in the socket until the lamp extinguishes indicating the filter capacitor is fully charged.

4.202 Replace the -48V Bus A (15 Amp) fuse supplying the TST Frame.

4.203 At the TST Frame, measure the voltage between the terminals of filter capacitor C2(-48) at the bottom front of the frame. This voltage should read between -42.75 and -52.5 volts DC.

4.204 Measure the voltage between the terminals of filter capacitor C3 (+24) located at the bottom front of the TST Frame. This voltage should read between +20.75 and +26.25 volts DC.

4.205 At the Power Frame, replace the -48V B Bus (30 Amp) fuse supplying the TST Frame Inverter Unit.

4.206 At the TST Frame, measure the voltage between terminals 1 (GRD) and 2 (-48V) of TB 1 on the Inverter Unit. This voltage should read between -42.75 and -52.5 volts DC.

4.207 At the MP Frame, replace 130V B Bus fuses -T1(1) and +T1(1) supplying the TST Frame.

4.208 At the rear of the TST Frame, measure the voltage between frame ground and terminal R (right side viewed from rear) of resistance lamp CC (065-13). This voltage should read approximately +130 volts DC.

4.209 Measure the voltage between frame ground and terminal R of resistance lamp CR (065-15). This voltage should read approximately -130 volts DC.

4.210 At MP Frame, replace the 130V A Bus fuses -T1(0) and +T1(0) supplying the TST Frame.

4.211 At the rear of TST Frame, measure the voltage between frame ground and 048-10-010. This voltage should read approximately +130 volts DC.

4.212 Measure the voltage between frame ground and 048-10-207. This voltage should read approximately -130 volts DC.

4.3 Fuse Alarm Circuit Check

4.31 Insert ITE-5590, 70 Type Fuse Alarm Verification Test Set, into fuse position TT (-48V) and verify that the FA relay is operated and the -48FA lamp is lit. Remove ITE-5590 and verify that the -48FA lamp is extinguished and the FA relay is released.

4.32 Repeat paragraph 4.31 for fuse position ACL (-48V).

4.33 Repeat paragraph 4.31 for fuse position ST (+24V) observing the +24FA lamp.

4.34 Replace all fuses in the TST Frame fuse panel and verify no fuse alarms occur.

4.35 Position keys on Voltmeter and Trunk and Line Test Panel (TLTP) such that NO lamps are lit.

4.4 Test Voltage Supply Check

4.41 Apply AC power to the KS-19412,L1 Rectifier Unit.

4.42 Verify the +200, +116, -116, +100 and +20 potentials at the test jacks on the front of the KS-19412,L1 Rectifier Unit.

4.5 Voltmeter Control Key/Lamp Verification

4.51 Using an ITE-9169D, activate the TLTP by grounding 056-29-218. Verify ON lamp is lit.

4.52 Perform this test according to the instructions in Table A.

TABLE A

STEP	KEY*		LAMP	
	OPERATE	RELEASE	LIGHTS	EXTINGUISHES
1	-STA		-STA	
2		-STA		-STA
3	+STA		+STA	
4		+STA		+STA
5	BT		BT	
6		BT		BT
7	VMR		VMR	
8		VMR		VMR
9	TRR		TRR	
10		TRR		TRR
11	GRD		GRD	
12		GRD		GRD
13	VM1 (on TLTP)		VM1 100K	
14	20K		20K	100K
15	1K		1K	20K
16	MVM		MVM	1K
17	FEMF		FEMF	MVM
18		FEMF	MVM	FEMF
19		MVM	1K	MVM 100K
20		1K	20K	1K
21		20K	100K	20K
22		VM1		VM1 100K
23	VM2 (on TLTP)		VM2 100K	
24		VM2		VM2 100K

* All keys are locking type.

→ 4.6 Trunk and Line Test Panel (TLTP) Key/ Lamp Verification

4.61 Lamp Test

4.611 Depress and hold LAMP TEST key and verify all lamps and LEDs on TLTP are lit.

NOTE: RELEASE 1, RELEASE 2, RELEASE COMM LINE, COIN RETURN, COIN COLLECT and ROH are switches only (no lamp).

4.612 Release LAMP TEST key and verify all lamps and LEDs are extinguished.

→ 4.62 Access Trunk Control and Test Select Keys

4.621 Momentarily operate ACCESS TRUNK 1 key and verify ACCESS TRUNK 1 lamp is lit.

4.622 Momentarily operate HOLD key and verify HOLD lamp is lit and ACCESS TRUNK 1 lamp remains lit or flashes at 30 IPM.

4.623 Momentarily operate RELEASE 1 key and verify ACCESS TRUNK 1 and HOLD lamps are extinguished.

4.624 Repeat 4.621 through 4.623 for ACCESS TRUNK 2 and RELEASE 2 keys and lamps and then COMM LINE and RELEASE COMM LINE keys and lamps.

4.625 Operate BALANCE 1, VM 1, TRMT 1 and MONITOR 1 keys and verify the lamp within each key is lit.

4.626 Operate (to release) BALANCE1, VM 1, TRMT 1 and MONITOR 1 keys and verify each lamp is extinguished.

4.627 Repeat 4.625 and 4.626 for BALANCE 2, VM 2, TRMT 2 and MONITOR 2 keys and lamps.

→ 4.63 Transmission Test and Line Test Keys

4.631 Operate 0 DBM key and verify 0 DBM lamp is lit. Operate (to release) 0 DBM key and verify 0 DBM lamp is extinguished.

4.632 Repeat 4.631 for the following keys and lamps:

TRMT OPEN
CAL
-10 DBM
TRMT SHORT
REVERSE ACCESS TRUNKS
LINE TRMSN TEST
TALK LINE
CDF IN
CDF OUT

4.633 Replace the FC181 circuit packs in the PTU and remove the ITE-9169D Test Cord from the rear of the PTU.

→ Arrows indicate new or changed information.

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