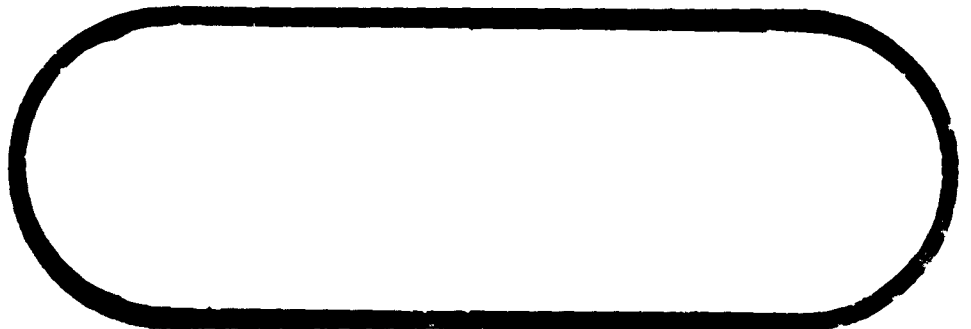


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PART IX (a): LCF AND LF SCN SECURE CODE CHANGE OPERATIONS

20 March 1963

**Volume I D2-5859
3-116A**

PART IX (b): SMSB SCN SECURE CODE CHANGE OPERATIONS

20 March 1963

Volume I

D2-5859

3-116D

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT GSE USED
LCF and LF SCN Secure Code Change Operations Establish need for code hardware change Initiate maintenance response when faults occur in the following equipment: 1243 The launch panel for the Launch Control Console 1228 The decoder drawer in the Data Processing Equipment (Digital, SCN/L) 1201 The electro-mechanical decoder in the Launcher Programmer Group and associated equipment having direct interface with Figures A 1243, 1228 and 1201 Maintenance response at LCC 1243 The launch panel for the LCC Travel to LCF from SMSB Replace and checkout Travel to SMSB Maintenance response at LF 1228 Decoder drawer in Data Processing Equipment or 1201 Electro-Mechanical decoder in Programmer Group Travel to LF Gain Access Repair by replacement and checkout Secure site Travel to SMSB Establish need for code hardware change Code change due to compromise or due to periodic requirement Initiate code change due to compromise or due to specified periodic requirement Obtain "Y" pack command signals decoder and launch panels (with new code installed) from code room	31254G 54150G 31254G 54150G XXXXXX 31254G	1 1 1 1 1 1 1 1	2.86 3.32 2.86 2.86 1.15 5.57^h 1.00 2.95 10	1243 Launch panel for the Launch Control Console

3-5241-3-3

PART IX (a): LCF AND LF SCN SECURE CODE CHANGE OPERATIONS

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS.	SPECIAL TOOLS TEST EQUIPMENT GSE USED
Transport new launch panel to LCC's	31254G XXXXX	1	2.45	4179 Case, Encoder
Gain access to LCC's		1	.30	
Report code change in process to squadron command post	1825G	1	.05	1243 Launch Control Console
Remove installed launch panel and install new launch panel	31254G	1	.25	4179 Case, Encoder
Erase code in removed launch panel secure coding units	XXXXX	1	.17	Screwdriver
Check SCN malfunction display for indication of malfunction			.05	1213 Data Processing Equipment, (Digital, SCN/LCC)
Transport new "Y" code pack and CSD to LF	31254G XXXXX	1	2.40	4584 Case, Code Pack Set
Gain access to launcher (site opened by separate Electro-Mechanical Team prior to arrival of Code Change Team.)	31254G	1	1.15	
Report code change in process to squadron command post	54150G	1		
Launch Control Officer places missile in calibrate	XXXXX	1		
1268 Command Signals Decoder	1825G	1	.15	1243 Console, Launch Control
Volatilize and remove installed CSD and install new CSD			.20	
1228 Data Processing Equipment (Digital, SCN/L)	31254G	1		
Volatilize and remove installed "Y" code pack and install new "Y" code pack	XXXXX	1	.05	4584 Case, Code Pack Set
Interrogate the voice reporting signal assembly after calibration mode completed.			.10	

NOTE: When there is a requirement to change both "X" and "Y" packs, no code change team shall, at any time, have in its possession a coded "X" and a coded "Y" VCP. Two code change teams will be dispatched so that they are separated by time and distance as required by operational considerations.

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME	SPECIAL TOOLS TEST EQUIPMENT GSE USED
SMSB SCH Secure Code Change Operations Perform code inserter-verifier certification test. Initiate code insertion and verification Install "Y" and/or "X" master card pack into code inserter-verifier. Inspect volatile code packs for cleanliness, freedom from defects, and complete erasure. Insert code into "Y" or "X" volatile code pack. Verify "Y" or "X" volatile code packs against "Y" or "X" master card pack. Verify "Y" and "X" VCP's for serial number identity. Insert code into mechanical code units. Place three (3) mechanical code units into launch control panel. Verify launch control panel against "Y" or "X" master code packs OR Verify launch control panel against "Y" or "X" volatile code packs	31256G	1		4252 Code Inserter-Verifier
	31256G	1		1228 Data Processing Equipment, Digital 1243 Launch Control Console 1268 Decoder, Command Signals 4252 Code Inserter-Verifier Truck, Hand, Code Pack
	31256G	1		4252 Code Inserter-Verifier
	31256G	1		1228 Data Processing Equipment, Digital 4252 Code Inserter-Verifier Truck, Hand, Code Pack
	31256G	1		1228 Data Processing Equipment, Digital 4252 Code Inserter-Verifier
	31256G	1		1228 Data Processing Equipment, Digital 4252 Code Inserter-Verifier Truck, Hand, Code Pack
	31256G	1		1228 Data Processing Equipment, Digital 4252 Code Inserter-Verifier
	31256G	1		1243 Launch Control Console 4252 Code Inserter-Verifier Truck, Hand, Code Pack
	31256G	1		1243 Launch Control Console
	31256G	1		1243 Launch Control Console 4252 Code Inserter-Verifier AND 1228 Data Processing Equipment, Digital Truck, Hand, Code Pack
	31256G	1		
	31256G	1		
	31256G	1		

2-2201-3-3

PART IX (b): SMSB SCH SECURE CODE CHANGE OPERATIONS

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME	SPECIAL TOOLS TEST EQUIPMENT GSE USED
Verify coded launch control panels for function	31256G	1		1243 Launch Control Console 4252 Code Insertion-Verifier
Insert fire code into operator readout.	31256G	1		4252 Code Insertion-Verifier
Manually insert fire code into command signals decoders.	31256G	1		1268 Decoder, Command Signals 4252 Code Insertion-Verifier 4443 Code Change Tool Truck, Hand, Code Pack
Verify command signals decoders against "X" and "Y" master card packs OR Verify command signals decoders against "X" and "Y" volatile code packs OR Verify command signals decoders against launch control panel (mechanical code units)	31256G	1		1268 Decoder, Command Signals 4252 Code Insertion-Verifier
Verify coded command signals decoders for function.	31256G	1		1228 Data Processing Equipment, Digital 1243 Launch Control Console 1268 Decoder, Command Signals 4252 Code Insertion-Verifier Truck, Hand, Code Pack
Prepare coded and verified units for storage or transport. Note: It is mandatory that coded X and Y VCP's must never be transported together or be in the common possession of an individual, or team of individuals, once the coded packs are removed from the Encoder Decoder facility.	31256G	1		1268 Decoder, Command Signals 4252 Code Insertion-Verifier 1228 Status Command Message Processing Group 1243 Console, Launch Control 1268 Decoder, Command Signals 4252 Code Insertion-Verifier 4584 Case, Code Pack Set Standard Military Vehicle
Perform procedural shutdown	31256G	1		4252 Code Insertion-Verifier

2-9241-3-3

PART IX (b): SMSB 8CN SECURE CODE CHANGE OPERATIONS.

Recommended Team and Composition	No. of Teams	3124G	304X2	312X4G	312X5G	312X6G	331X0B	361X1	361X2	442X0Z	443X0G	541X0G	542X0G	543X0	545X0Y	603X0B	XXXXX	Totals
Missile Team	20																	
1-312X4G				20														
2-331X0B						40												
1-443X0G											20							
1-541X0G												20						
Transport. & Handling Team	8																	
1-443X0G											8							
3-603X0B																24		
Targeting & Alignment Team	4																	
1-3124G		14																
1-312X4G				14														
1-443X0G											14							
Electro- #1 Mechanical	15																	
1-312X4G				15														
1-541X0G												15						
1-XXXXX																	15	
Electro- #2 Mechanical	5																	
1-312X4G				5														
1-541X0G												5						
1-542X0G													5					
Electro- #3 Mechanical	2																	
1-312X4G				2														
1-541X0G												2						
1-545X0Y																2		
Electro- #4 Mechanical	2																	
1-312X4G				2														
1-541X0G												2						
1-361X2									2									
Electro- #5 Mechanical	1																	
1-312X4G				1														
1-541X0G												1						
1-543X0														1				
Electro- #6 Mechanical	1																	
1-312X4G				1														
1-541X0G												1						
1-442X0Z										1								
Electro- #7 Mechanical	6																	
1-312X4G				6														
2-304X2			12															
HICS Maintenance								34										
AFSC		3124G	304X2	312X4G	312X5G	312X6G	331X0B	361X1	361X2	442X0Z	443X0G	541X0G	542X0G	543X0	545X0Y	603X0B	XXXXX	
MOBILE MAINTENANCE SUB-TOTAL		14	12	66			40	34	2	1	42	46	5	1	2	24	15	304
SUPPORT BASE MAINTENANCE SUB-TOTAL		5	1	5	1	3	11	7	1	1	1	1	3		1			41
TOTAL MAN MONTHS MAINTENANCE BY AFSC		19	13	71	1	3	51	41	3	2	43	47	8	1	3	24	15	345
MISSILE COMBAT CREW (AFSC 1825G)																		150
GRAND TOTAL																		495

MINUTEMAN DIRECT SUPPORT MANNING SUMMARY - WING I
TABLE 5-2

20 March 1963

Volume I D2-5859

5-5

MAINTENANCE AT THE SUPPORT BASE

AFSC	OGE MAINT.	RPIE MAINT.	MGE MAINT.	R/V & R/V MGE MAINT.	MCC OPERATION	CABLE PLANT IN PLACE RECORDS MAINT.	TOTAL SUPPORT BASE MAINT. MONTHS
3124G					5.00		5
30452	0.37		C.01				1
31254G					4.22		5
31255G			0.34				1
31256G	2.14		0.58				3
33150B				11.0			11
36152	0.79						1
44250Z			0.43				1
44350G			0.51				1
54150G		0.03	0.35				1
54250G	1.59	0.12	0.40				3
36151						7.0	7
54550Y	0.17	0.0528	C.18				1

TABLE 5-5

20 March 1963

Volume I

D2-5859

5-8

THE [REDACTED] COMPANY
SEATTLE 3, WASHINGTON

Unclassified

DTD 12-18-62
MSC GUIDE NS193A

DOCUMENT NO. D2-5859 Volume I
CODE IDENT. 81205
UNCLASSIFIED TITLE Qualitative Personnel Requirements

Information for WS-133A Minuteman Hardened and Dispersed (U)

MODEL NO. WS-133A CONTRACT NO. AFD4(647)-289

ISSUE NO. 466 ISSUED TO AF Systems Command
Ballistics Systems

CLASSIFIED TITLE Attn: Tech. Data Center
(STATE CLASSIFICATION) Totem HFD, Calif.

78100	2-5263	520313
WORK ORDER NO.	UNIT NO.	ITEM NO.

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The technical information contained herein has been coordinated with the System Design H&D Unit of the Systems Engineering Section.

Customer Service Department
Minuteman Service Engineering Section
PREPARED BY Personnel Requirements Unit

SUPERVISED BY J. S. Larson R. M. Coomer

APPROVED BY J. S. Larson R. M. Coomer

CLASS & DISTR. 62 27
APPROVED BY J. M. Barker D. A. Cole
D. A. Cole (DATE)

J. B. Marcella 7/27
J. B. Marcella, Chief
System Design H&D Unit

NO. OF PAGES 211 (EXCLUDING TITLE AND REVISION AND ADDITION PAGES.)

DOCUMENT TITLE PAGE

MODEL WS-133A DOCUMENT NO. D2-5859 Volume 1

TITLE Qualitative Personnel Requirements Information for WS-133A
Minuteman Hardened and Dispersed

REVISIONS				ADDITIONS			
PAGE	DATE	PAGE	DATE	PAGE	DATE	PAGE	DATE
Complete revision of all pages	22 March 1961						
Complete revision of all pages	21 April 1961						
Complete revision of all pages	July 1962						

MODEL WS-133ADOCUMENT NO. D2-5859

Volume I

TITLE The Wing II QPRI Supplement for WS-133A Minuteman H&D

REVISIONS				ADDITIONS			
PAGE	DATE	PAGE	DATE	PAGE	DATE	PAGE	DATE
				1-0.2	12/20/2		
				1.2			
				1-1.2			
Delete				1-8A.2			
1-3	12-20-62			4-9A.2			
				4-10A.2			
				4-11A.2			
5-5				4-12A.2			
5-8	12-20-62			4-13A.2			
				4-14A.2			
				4-15A.2			
				4-16A.2			
				4-17A.2			
				4-30A.2			
				4-31A.2			
				4-32A.2			
				4-39A.2			
				4-40A.2			
				5-5.2			
				5-5.2A			
				5-5.2B			
				5-5.2C			
				5-6.2			
				5-7.2			

BOEING AIRPLANE COMPANY

MODEL WS-133A DOCUMENT NO D2-5859 Volume 1

TITLE The Wing III QPRI Supplement for WS-133A Minuteman H&D

REVISIONS				ADDITIONS			
PAGE	DATE	PAGE	DATE	PAGE	DATE	PAGE	DATE
				1 0. 3	3/20/63		
				i. 3 thru			
				xvii. 3			
				4-14. 3			
				4-15. 3			
				4-25. 3			
				4-26. 3			
				4-30 3			
				thru			
				4-36. 3			
				4-39. 3			
				4-40. 3			
				5-5. 3			
				5-5A. 3			
				5-5B. 3			
				5-5C. 3			
				5-6 3			
				5-7 3			
				5-c. 3			

MODEL WS-133A DOCUMENT NO D2-5859 Volume I

TITLE Wing II QPRI Supplement for WS-133A Minuteman H&D

REVISIONS				ADDITIONS			
PAGE	DATE	PAGE	DATE	PAGE	DATE	PAGE	DATE
Delete Following Pages Dated 12/20/62 4-16A. 2 4-17A. 2	3/20/63			1-0. 2 1. 2 1-1. 2 4-8A. 2 4-9A. 2 4-10A. 2 4-11A. 2 4-12A. 2 4-13A. 2 4-14A. 2 4-15A. 2 4-16A. 2 4-17A. 2 4-30A. 2 4-31A. 2 4-32A. 2 4-39A. 2 4-40A. 2 5-5. 2 5-5. 2A 5-5. 2B 5-5. 2C 5-6. 2 5-7. 2	12/20/62		
				1-1. 2 1-2. 2 4-16. 2 4-17. 2 4-25. 2 4-26. 2	3/20/63		

JOB OPERATION

ADDENDUM PAGE: The following changes should be made in Volume 1, D2 5859, QPRI for WS-133A Minuteman H&D dated July 1962, with pen and ink:

Page 3-40	1211	Launcher Environmental Control System	ADD
Page 3-62	1212	Environmental Control System	ADD
Page 3-64	1241	Shock Attenuation System, LCC	DELET CHANC
Page 3-65	1323	Electrical System, LCC	DELET
	1326	Blast Door Installation, LCC	CHANC DELET ADD
Page 3-69	1217	Closure Launch Tube	CHANC DELET
Page 3-70	1323	Electrical System, LCC (12 Months)	DELET CHANG
	1323	Electrical System, LCC (1 Week)	DELET ADD
Page 3-71	1326	Blast Door Installation, LCC	CHANG
	1331	Security System, Launcher	ADD
Page 3-72	1396	Monitoring System Equipment Fault, LCF	ADD
	1415	Fixture, Emergency Lighting and Alarm, Battery Operated, LCC	DELET ADD
Page 3-73		Operational Retargeting Calibrate from LCC	ADD
Page 3-99	1284	Power Supply Group	ADD
Page 3-101	1243	Launch Control Console	ADD
Page 3-112	3109	Test Set, Alarm Set (BGS-43)	DELET ADD
Page 3-116	4333	Test Set, Telephone Equipment	DELET ADD

Volume I

Document No D2 5859

Page No. 1

		AFSC	NUMBER OF PERSONNEL	TIME HRS.	SPECIAL TOOLS TEST EQUIPMENT GSE USED
le in Volume I, D2 5859, QPRI July 1962, with pen and ink:					
System	ADD	44250Z	1		
	ADD	44250Z	1		
	DELETE	~~31254G~~			
	CHANGE	54150G	1 2		
	DELETE	~~31254G~~	1		
	CHANGE	54150G	1 2		
	DELETE	~~31254G~~	1		
	ADD	44250Z	2		
	CHANGE	54150G	1 2		
	DELETE	~~44250Z~~	1		
ths)	DELETE	~~54250G~~	1		
	CHANGE	54350	1 2		
	DELETE	~~54150G~~	1		
	ADD	54350	1		
	CHANGE	54150G	1 2		
t)	ADD	31254G	1		
	ADD	54250G	1		
ult, LCF	ADD	54250G	1		
Alarm, Battery Operated.	DELETE	~~54150G~~	1		
	ADD	54250G	1		
	ADD	1825G	1		
	ADD	31256G	1		
	ADD	31256G	1		
	DELETE	~~31256G~~	1		
	ADD	30452	1		
	DELETE	~~31256G~~	1		
	ADD	36152	1		



NOTE: To declassify D2 5859, Volume I, delete page 1-3 and change classification marking on page 2-1 from "Confidential" to "Unclassified."

APPROVAL PAGE

The Initial WS-133A Draft QPRI dated 7 March 1960, was subjected to a thorough review by various Air Force agencies including Headquarters USAF, the Strategic Air Command, Air Training Command and the Air Force Ballistic Missile Division in conjunction with Space Technology Laboratories, Incorporated.

Following review by the major commands, a Personnel Planning Conference was convened under the auspices of the Director of Personnel Planning, Headquarters USAF. The contents of the Personnel Planning Guidance document resulting from this conference were incorporated into the QPRI for WS-133A, dated April 1961.

After the publication of the April 1961 revision, the System Engineering effort continued to generate new requirements and changes to old requirements for incorporation in the WS-133A Model Document. As a result, a QPRI Data Review Conference was held in February 1962 to update Position Definitions and to provide the latest detailed duty and task information in support of Type II Training. It was decided that a revision to the QPRI would be required to incorporate the updated Position Definitions and the latest System Engineering data to support Category II testing and the activation of the first operational base. In addition, this revision will be a base-line for supplements covering subsequent bases. These supplements will be issued as System Engineering data becomes available.

John V. Patterson, Jr.
JOHN V. PATTERSON, Jr., LtCol, USAF
Chief, Personnel Subsystems Div
Dep Directorate, Test & Deployment
MINUTEMAN SPO

LAUNCH FACILITY

MISSILE TEAM
AFSC 3124G
54150G
44350G
33150B
33150B

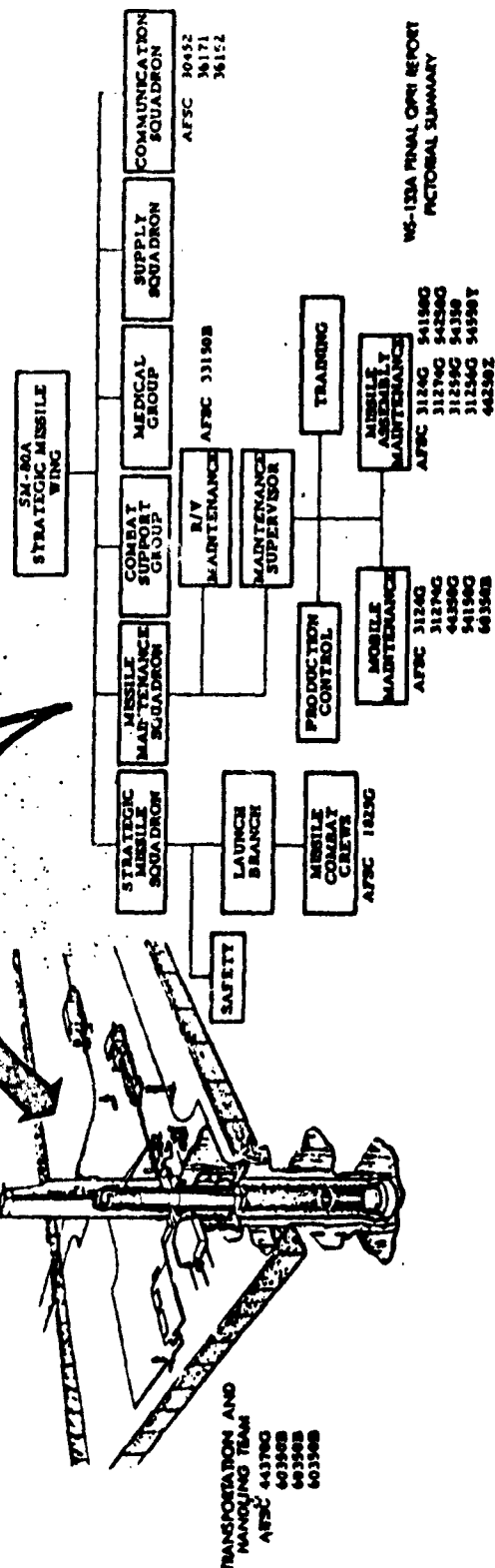
TARGETING AND
ALIGNMENT TEAM
AFSC 3124G
31254G
44350G

LAUNCH CONTROL FACILITY
MISSILE
COMBAT CREW
AFSC 1825G
1825G

TRANSPORTATION AND
HANDLING TEAM
AFSC 44370G
44380B
44380B
44380B

MOBILE MAINTENANCE SEQUENCE

- Upon receipt of a "Track" indication on the operator's panel, the Missile Combat Crew will initiate VERA. The resulting VERA information, together with panel indicators, will be coordinated with the Maintenance Control Center. The Missile Combat Crew will perform any further tests necessary to assist the Maintenance Control Center in fault diagnosis.
- The Electro-Mechanical Team, composed of selected personnel (composition depends on the fault) from the Maintenance Mobile Branch are dispatched from the MB to perform organizational, and occasionally, field maintenance, for all non-missile faults. This team also responds to requests for maintenance originating at LCFC.
- The Missile Team is dispatched for missile faults. If missile removal is required, the Missile Transportation and Handling Team is also dispatched.
- A Targeting and Alignment Team is required to start-up and target the missile (achieve STRATEGIC ALERT status) after Missile, R/V, or GAG Section removal. The Electro-Mechanical Team can return the missile to STRATEGIC ALERT with the Start-Up Unit after repairing an OGE failure that had resulted in a missile No-Go.
- Optical alignment checks are made periodically by the Targeting and Alignment Team. This team also performs optical alignment when the missile is repaired.



WS-135A FINAL OPM REPORT
PICTORIAL SUMMARY

QUALITATIVE PERSONNEL REQUIREMENTS INFORMATION

for

WS-133A MINUTEMAN

HARDENED AND DISPERSED

June 1962

(Supersedes issue dated 21 April 1961)

**Prepared by: The Boeing Company
Seattle, Washington**

**Prepared for: Ballistic Systems Division
Air Force Systems Command
Los Angeles 45, California**

Volume I

D2-5859

Page iv

SUMMARY OF CHANGES

The major changes in the Minuteman Personnel Subsystem that have occurred between April 1961 and July 1962 are summarized as follows:

- 1. Changes of AFSC numbers and titles resulted from the restructuring of the Ballistic Missile Career fields by Headquarters USAF (AFDPD) and a subsequent shread-out of specialties applicable to Minuteman. Table 1 correlates new and old AFSCs.**
- 2. The position description for the Inertial Guidance Mechanic, AFSC 312X2G, was deleted because field level maintenance of the G&C section was deleted from the system. The position description for the Ballistic Missile Launch Equipment Repairman/Technician, AFSC 312X6G, was added to the system, this position picking up all responsibility formerly assigned to the 312X2G, except G&C section testing.**
- 3. A requirement for a Fault Reader Team was deleted by incorporation of a remote fault indicating device, the Voice Reporting Signalling Assembly (VRSA), Figure A 1412.**
- 4. Changes in the position descriptions are primarily the result of additions and deletions of equipments in the assigned area of responsibility of each AFSC. Table 2 shows Figure As added to, or deleted from each AFSC.**
- 5. Increases in the numbers of people predicted to maintain the Minuteman-peculiar equipments are due primarily to an increase in predicted failure rates and by consideration of "Second Trips" in response to a VRSA fault. See Section V for a more detailed explanation of these factors.**

TABLE I

July 1962		April 1961	
AFSC	Title	AFSC	Title
1825G/ 1816	Missile Launch Officer/ Missile Operations Staff Officer	1824G/ 1816	Missile Launch Officer/ Missile Operations Staff Officer
3124G/ 3116	Missile Officer/Missile Staff Officer	3124D/ 3116	Missile Officer/ Missile Staff Officer
30452/72	Ground Communications Equipment Repairman (Light)/Maintenance Technician	30452/72	Ground Communications Equipment Repairman (Light)/Maintenance Technician
312X4G	Ballistic Missile Analyst Specialist/Technician	314X0P	Missile Systems Analyst Specialist/Technician
312X5G	Ballistic Missile Checkout Equipment Specialist/Technician	315X0P	Missile Test Equipment Specialist/Technician
312X6G	Ballistic Missile Launch Equipment Repairman/Technician	311X0P	Guidance Systems Mechanical/ Technician
331X08	Nuclear Weapons Specialist/ Technician	331X08	Nuclear Weapons Specialist/ Technician
361X1	Cable Splicer/Cable Splicing Technician	361X1	Cable Splicer/Cable Splicing Technician
361X2	Telephone Installer-Repairman/ Telephone Installation and Repair Supervisor	361X2	Telephone Installer-Repairman/ Telephone Installation and Repair Supervisor
442X0Z	Missile Pneumatic Repairman/ Repair Technician	421X2	Aircraft and Missile Pneumatic Repairman/Repair Technician
443X0G	Missile Mechanic/ Maintenance Technician	443X0	Missile Mechanic/ Maintenance Technician
541X0G	Missile Facilities Specialist/Technician	421X3	Aircraft and Missile Ground Support Equipment Repairman/Repair Technician
542X0G	Electrician/Electrical Technician	561X0	Electrician/Electrician Supervisor
543X0	Electrical Power Production Specialist/Technician	567X0	Electrical Power Production Specialist/Technician
545X0Y	Refrigeration Specialist/Technician	566X08	Refrigeration Specialist/ Supervisor
603X08	Vehicle Operator/Motor Transportation Superintendent	603X0	Vehicle Operator/Motor Transportation Superintendent

TABLE II

AFSC	MAJOR CHANGES			
		Fig. A	Nomenclature	
304X2	Added	1412 1368 3109 4539	Voice Reporting Signalling Assembly Radio Set Test Set, Alarm Set Voice Reporting Signalling Assembly, Test Set	
312X4G	Added	1412 4490 4419 10709	Voice Reporting Signalling Assembly Missile Simulator Start-Up Unit Test Set, Missile Control Group	
	Deleted	1218	Annunciator Assembly	
312X5G	Added	10709 4490 4489	Test Set, Missile Control Group Missile Simulator Message Generator	
	Deleted	4152 622 695 3109 4187	Test Equipment, Electronic Facility - Base Maintenance G&C Test Group (C-89) Test Set, Control-Guidance Coupler Test Set, Alarm Set Transport Monitoring System	
312X6G	Added	695 4452 4419	Test Set, Control-Guidance Coupler Code Inserter Verifier Start-Up Unit	
	Deleted	1218 622 1283	Annunciator Panel G&C Test Group (C89) Motor Generator Set	
331X0B	Deleted	----	All driving functions.	
361X1	Added	1207	Drier-Air Compressor, Hardened Cable	
361X2	Added	1338	Communication Control Panel (Less Launch Enable Switch)	
443X0G	Added	4625	Purging Unit, Inert Gas	
541X0G	Deleted	4059	Transporter Erector	
542X0G	Added	1283 1367 4451	Motor Generator Set Motor Generator Set Controller, Power Azimuth Drive	
	Deleted	4152	Test Equipment, Electronic Facility - Base Maintenance	
				 See Section IV for current position definitions.

ABBREVIATIONS

A

AC	Alternating current
A/C	Autocollimator
A&D	Arm and disarm
ADJ	Adjust
A-E	Architect-Engineer
A&F	Arming and fusing
AF-A/F	Air Force
AFBM	Air Force Ballistic Missile
AFBMC	Air Force Ballistic Missile Center
AFBSD	Air Force Ballistic Systems Division
AFM	Air Force Manual
AFR	Air Force Regulation
AFS	Air Force Specialty
AFSC	Air Force Specialty Code
AFW	Air Force Warehouse
AMA	Air Materiel Area; also organization that operates any one of these areas under AMC
AMC	Air Materiel Command
AMP	Amperes
AN	Autonetics
APU	Auxiliary Power Unit
A&R	Assembly and Recycle
AS	Area Surveillance
ASSY	Assembly
A&T	Assembly and Test
ATC	Air Training Command
AUX	Auxiliary
AV	Avco
AVG	Average

B

BMC	Ballistic Missile Center of AMC
BNCH	Bench
BO	The Boeing Company
Boeing	The Boeing Company
BSD	Ballistic Systems Division

C

CB	Contractor's designation for location of electrical panel
CCP	Contract Change Proposal
CCW	Counter Clockwise
CEP	Circle of Equal Probability
CFM	Cubic Feet per Minute
C. L.	Closure latched
CMS	Chief Master Sergeant
C. O.	Closure open
C/O	Checkout
COMP.	Compartment
CONT.	Control
CSC	Central Security Center
CTE	Cable Termination Equipment

D

D	Document
DAMP	Damper
DC	Direct current
DEI	Development Engineering Inspection
DPE	Data Processing Equipment
DR.	Drive
DWG	Drawing

E

EC	Environmental Control
ECU	Environmental Control Unit
ELECT	Electric
EM	Electromagnetic
E & M	Leads of a signaling system
SMPL	Emplacement
E. S. D.	Earth Surface disturbance
E. T. A.	Estimated time of arrival
Equip.	Equipment

F

Fac.	Factory
ff	Following
FSE	Factory support equipment
FST	First stage transporter
FTE	Factory test equipment
Funct	Function
Fwd.	Forward

G

GC G&C G&CC GFE GFP GGE* GPM GSE**	Guidance Compartment Guidance and Control Guidance and Control Coupler Government furnished equipment Government furnished property Ground operational equipment Gallons per minute Ground support equipment

H

H H&D H. C. H. C. L. T. H. L. H. O. Hq Hrs. Htr. HVC Hwy	Hard Hardened and Dispersed Hatch closed Hatch combination lock tamper Hatch latched Hatch open Headquarters Hours Heater Hardened Voice Channel Highway

I

ICBM IOC	Intercontinental Ballistic Missile Initial Operational Capability

K

KC kva	Kilocycles Kilovolt amperes

L

LA LCB LCC LCDA	Contractors designation for location of electrical panel Contractors designation for location of electrical panel Launch Control Console Contractors designation for location of electrical panel

* Changed to OGE 14 April 1961
 ** Changed to MGE 14 April 1961

L

LCDB	Contractors designation for location of electrical panel
LCF	Launch Control Facility
LCS	Launch control system
LCSB	Contractors designation for location of electrical panel
LDA	Contractors designation for location of electrical panel
LDB	Contractors designation for location of electrical panel
LEDC	Low Energy Detonating Cord
LF	Launch Facility
LH	Left hand
LS	Launch Site
L. S. B.	Launch support building
L. S. B. O.	Launch support building door open
LSM	Logistic Support Manager
L. T. W. D.	Launch tube wall disturbance

M

M	Month
Maint.	Maintenance
MC	Megacycle
MCC	Maintenance Control Center
MCS	Multicable Storage
MCSM	Multicable Storage Magazine
Mech.	Mechanical
MF	Munitions facility
MFWH	Munitions facility, Warhead
MG	Motor Generator
MGE	Maintenance ground equipment
MIL D	Military Document
MMT	Mobile Maintenance Team
M/Mo	Man Months
Msl.	Missile
MTBF	Mean time between failures
MV	Millivolt
MCAT	(Obsolete: See SSCBM)

N

NCU	Nozzle control unit
NS 10	Missile Guidance Set (Guidance and Control Section)

O

OA
OGE
OPR

Operational Area
Operational ground equipment
Operator

P

P/B - P. B.
PCA
P/N
Port.
PRT
PSI
PTO
PU

Push button
Printed circuit assembly
Part Number
Portable
Personnel Review Team
Pounds per square inch
Power take off
Prior to use

Q

QPR
QPRI
QQPRI

Qualitative Personnel Requirements
Qualitative Personnel Requirements
Information
Qualitative and Quantitative Personnel
Requirements Information

R

RCA
R&D
Ref.
Req.
RF or R-F
RH
RH
RPIE
RPM
R/V

Radio Corporation of America
Research and Development
Reference.
Required
Radio Frequency
Rail head
Right hand
Real Property Installed Equipment
Revolutions per minute
Re-entry Vehicle

S

S
S&A
SAC
SB
SCC
SCN

Soft
Safe and arm
Strategic Air Command
Support Base
Security Control Center
Sensitive Command Network

S

SCU	Secure Code Unit
Sec.	Second
S. F. G. O.	Security fence gate open
SIN	Support Information Network
SM-80	The MINUTEMAN Missile
SMS	Strategic Missile Squadron
SMS	Senior Master Sergeant
SMSA	Strategic Missile Support Area (refer to SB)
S/N	Serial number
SPCE	Sequentially programmed checkout equipment
SRA	Specialized repair area
SS	Security system
SSCBM	Shipping and Storage Container, Ballistic Missile
Std.	Standard
STL	Space Technology Laboratories, Incorporated.
STP	Seattle Test Program
SVMF	Support Vehicle Maintenance Facility

T

TAA	Thiokol, Aerojet, Aerojet engine configuration
TA	Test Area
TAH	Thiokol, Aerojet, Hercules engine configuration
TBC	The Boeing Company
TE or T-E	Transporter Erector
TC	Temperature Control
Temp.	Temperature
TEPI	Training Equipment Planning Information
TO	Technical Order
TR or T-R	Transformer-rectifier
TTE	Telephone Terminal Equipment

U

UHF	Ultra High Frequency
Unk.	Unknown
USAF	United States Air Force

V

VAFB	Vandenberg Air Force Base
VHF	Very High Frequency
Vib.	Vibration
VM	Velocity meters
VRSA	Voice Reporting Signaling Assembly

W

WADC
W/H
WS
WS 133A
WSM

Wright Air Development Center
Warhead
Weapon System
MINUTEMAN Hardened and Dispersed Force
Weapon System Manager

1.

INTRODUCTION

1.0 Scope. This document is a complete revision of the forecast of personnel requirements for WS-133A Minuteman, Hardened and Dispersed, reported in the QPRI of 21 April 1961. Recommended revisions to the QPRI resulting from reviews held by AFBSD, STL, Headquarters USAF and Headquarters SAC as well as additional data stemming from further development of the weapon system, are included in the present report. Both volumes of the April submittal are obsolete and should no longer be used.

1.0.1 The major purpose of this complete revision, which reflects the major changes in equipment and concepts that have occurred since April 1961, is to provide a basis for changing the current Unit Manning Document and for up-dating present training plans. This document will also provide a source of data for the further development and/or revision of existing maintenance and operations concepts and plans.

1.0.2 The latest QPRI contains a system description and recommendations for all operator and maintenance positions directly associated with the operational configuration of the system. Positions in Minuteman directly associated with the system are defined as those ground positions recommended to be assigned for the operation, organizational and field level support of the system in accordance with the latest Operations/Maintenance/Logistics plans or concepts.

1.0.3 Information derived from the Minuteman System Engineering Plan, which provides systematic documentation of the analysis and supplies complete requirements on equipment and personnel to operate and maintain the system, has been the source of data for this QPRI. Personnel data associated with operational ground equipment was obtained from Boeing Document D2-6952, "OGE System Specification H&D, S-133-11," Spring 1962. Boeing Document D2-6951, "MGE System Specification H&D, S-133-12," Spring 1962, supplied the detailed personnel data covering maintenance aspects of the system.

1.0.4 A request for waiver of the publication requirements guiding the preparation of Section IV, POSITION DEFINITIONS was requested by the Integrating Contractor and granted by the Minuteman Program Office. This waiver permitted the contractor to publish position definitions as Volume II of the QPRI document. Volume II contains the general features, plus duty and task statements, for each of the sixteen (16) positions recommended for the Minuteman H&D System. Collectively, Volume II constitutes a complete Section IV. In the latest QPRI document, Volume I, only a statement of the general features of each position type is retained. This publication deviation

SUMMARY OF EQUIPMENT CHANGES FOR WING II - Volume I

AFSC	Subsystem/Operation Involved	Status	Page	
30452	1293 Antenna	Deleted	4-8	
	1295 Transducer	Deleted	4-8	
	1296 Alarm, Anti-Intrusion	Deleted	4-8	
	1411 Arrestor, Electrical Surge	Deleted	4-8	
	2900 Alarm Monitor, OZSS	Added	4-8A. 2	
	2901 Pedestal, Antenna, RF Transmitter	Added	4-8A. 2	
	2902 Antenna, Long Range RF Receiver	Added	4-8A. 2	
	2903 Transmitter, RF	Added	4-9A. 2	
	2904 Antenna, Short Range RF Receiver	Added	4-9A. 2	
	2905 Receiver, RF	Added	4-9A. 2	
	2906 Arrestor, ESA	Added	4-9A. 2	
	2907 Pedestal, Antenna RF Rec.	Added	4-9A. 2	
	2908 Ring, Pedestal Mounting	Added	4-9A. 2	
	2909 Antenna, RF Transmitter OZSS	Added	4-9A. 2	
	2910 Alarm Monitor	Added	4-9A. 2	
	2911 Transducer, Motional Pickup	Added	4-9A. 2	
	2950 Fault Locator, Portable OZSS/IZPS	Added	4-9A. 2	
	2952 Test Set, OZSS/IZPS	Added	4-9A. 2	
	2958 Simulator, Intrusion OZSS	Added	4-9A. 2	
	3109 Test Set, Security System	Deleted	4-9	
31254G	602. 2 Collimator	Changed	4-11A. 2	
	604. 2 Coupler, Control Guidance	Changed	4-11A. 2	
	717. 2 Test Set, Photo-Electronic Collimator	Changed	4-11A. 2	
31255G	717. 2 Test Set, Photo-Electronic Collimator	Changed	4-14A. 2	
	3007. 2 Test Set, Explosive Set Circuitry	Changed	4-14A. 2	
31256G	603. 2 Missile Targeting Set	Changed	4-16A. 2	
	4491. 2 Start-Up Unit	Changed	4-16. 2	R
44250Z	1211 Blast Valve and Manual Control Components, LF	Delete	4-25	R
	1212 Blast Valve and Manual Control Components, LCF	Delete	4-25	R
	1417. 2 Blast Valve, 8-Inch (LF)	Add	4-25. 2	R
	1418. 2 Blast Valve, 24-Inch (LCF)	Add	4-25. 2	R
54150G	1417. 2 Valve Blast, 8-Inch	Added	4-31A. 2	
	1418. 2 Valve Blast, 24-Inch	Added	4-31A. 2	
	1420. 2 Sway Damper Assembly	Added	4-31A. 2	
	1421. 2 Shock Isolator	Added	4-31A. 2	

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TABLE 1 - 1.2A

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1-1.2

is consistent with the intent of AFBM Exhibit 58-18C which states that the basic purpose of the QPRI document is utilitarian.

1.0.5 Inclusion of all Mil-D-9412C duty and task data in the QPRI Report proper would have detracted from the general utility, readability, and overall appearance of the document. The compromise achieved by the use of Volume II makes maximum utilization of all relevant personnel data possible and permits users of QPRI to select information in Section IV to the level of detail required to meet their unique purposes. Volume II is unclassified.

1.0.6 This report is submitted in partial fulfillment of Letter Contract AF 04(647)-289, and in accordance with STL Letter 6600.33.25 dated 15 April 1960, Subject: Specifications S-133-11, -11M, -12, -12M, and -16, QPRI and TEPI.

1.1 Credits. The latest QPRI for the Hardened and Dispersed System has been a joint effort among the Air Force Ballistic Systems Division, Los Angeles 45, California; The Boeing Company, Seattle 24, Washington; Autonetics, A Division of North American Aviation Company, Downey, California; Avco Manufacturing Corporation, Research and Advanced Development Division, Wilmington, Massachusetts, and the Ralph M. Parsons Co., Los Angeles, California. AFBSD and STL and the Minuteman Associate Contractors gratefully acknowledge the cooperation of Headquarters USAF and personnel from Headquarters SAC and Headquarters ATC (including prime base personnel) who participated as members of the QPRI Data Review Conference which assisted in the development of this report.

1.2 Military Organization. The basic tactical unit for Minuteman operations will be the Strategic Missile Squadron (SMS) under direct operational control of Headquarters SAC. SMSs will be assigned to a Wing Organization for command, administration and staff supervision. The primary capability of the SMS will be operational.

1.2.1 The organization of Minuteman missile squadrons will be standardized to the extent consistent with geographical and support requirements of the weapon system. Some variations in size will probably occur due to locale. A typical SMS will consist of fifty (50) missiles controlled from about five (5) Launch Control Centers. The operational organization will be capable at full strength, of launching all in-commission missiles on a twenty-four hour-a-day continuous basis.

1.2.2 Support Bases (SB) will provide weapon system logistic support for Minuteman squadrons. For each broad deployment area, there will be one SB, which will be located on an active military installation. The basic function of the SBs will be to perform SAC organizational and field level maintenance and weapon system supply support for designated SMSs.

SUMMARY OF EQUIPMENT CHANGES FOR WING II - Volume I

AFSC	Subsystem/Operation Involved	Status	Page
54150G	(Continued) 1324. 2 Water Supply System 1390. 2 Ventilation System	Changed Changed	4-31A. 2 4-31A. 2
54550Y	603. 2 Missile Targeting Set	Changed	4-39A. 2

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TABLE 1 - 1. 2A

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1-2. 2

2.

SYSTEM DESCRIPTION

2.0 Minuteman Military Purpose and Operational Characteristics. The Mission of the Minuteman Weapon System is to deliver thermo-nuclear Warheads against pre-selected enemy targets from Launchers within the continental United States. The Minuteman Weapon System (WS-133A) is an Intercontinental Ballistic Missile with a target range of 2000 to 5500 nautical miles. Guidance of the missile is inertial, based upon pre-selected trajectories. Control during flight is maintained by swiveling the engine nozzles during operation to alter the thrust vector. To achieve the design CEP, precise thrust termination is accomplished on command from the Guidance System by firing thrust termination ports on the third stage engine. At this point, the Re-Entry Vehicle containing the Warhead separates from the third stage engine and continues on its ballistic trajectory. An ablative type of heat dissipating Re-Entry Vehicle is used. (C)

2.0.1 It is assumed that the enemy will mount the first strike and that SAC Minuteman Launchers will be among the initial targets. In order for SAC to accomplish its dual mission of deterring the enemy from initiating war or, if war is initiated, of mounting a retaliatory attack to destroy the enemy's capability and will to wage war, the Minuteman Weapon System must be capable of maintaining a maximum number of missiles on a 24-hour day continuous readiness status. This requires a high degree of reliability with a minimum possibility of inadvertent launch to realize these goals.

2.0.2 The hardened and dispersed force will include a large number of missiles individually dispersed in underground Launchers. The Launchers will be unmanned and hardened to withstand enemy weapon-effects. Groups of Launchers will be remotely controlled by manned Launch Control Centers which are also hardened.

2.1 Operational Plan. The basic Minuteman tactical unit will be the Squadron. Squadron operational facilities will be hardened and dispersed and will consist of five (5) manned Launch Control Centers and fifty (50) unmanned Launchers. The exact number of missiles and LCCs may vary between squadrons, based on local terrain features. Each Launch Control Center will have the capability of remote launching, testing, calibration, and monitoring of all its assigned missiles. The Launchers will be separated from one another and from the Launch Control Center by at least five (5) nautical miles. The resulting separation between LCCs generally will be several times this distance, but in any case will not be less than eight (8) nautical miles. The Launch Facility will consist of an underground Launcher covered with a protective cover opened just prior to firing. There will be one missile per Launcher. The operational Launcher will not be reusable.

2.1.1 The major functions of control, sequence, monitor and report are implemented through the Launch Control System. The Launch Control System provides for launching of missiles from Unmanned Launch Facilities, which are remotely controlled from manned, hardened Launch Control Centers; monitoring of the weapon system readiness status; detection of, and reaction to security violations; and control of missile supporting operations. Commercial electric power is used as the basic source of power; however, standby power is provided to cover emergencies as long as ten (10) days at Launch Facilities and thirty (30) days at Launch Control Facilities.

2.2 Maintenance Concept. The primary objective of the MINUTEMAN Maintenance Program is to assure that the operational equipment will receive the support necessary to fulfill the operational functions outlined in the Operational Ground Equipment Specification, S-133-11. This objective is accomplished by a three level maintenance program:

Organizational Level Maintenance
Field Level Maintenance
Depot Maintenance

2.2.1 Organizational Level Maintenance will be performed by the Using Command, and is primarily confined to all maintenance performed at the Launch Facility and the Launch Control Facility. On-site missile maintenance will consist of R/V removal and replacement; G&C removal and replacement; and missile, less R/V, removal and replacement. Operational Ground Equipment On-Site Maintenance will consist of fault isolation and component removal and replacement. The Maintenance Control Center (MCC) at the Support Base (SB) will direct all of the foregoing maintenance effort.

2.2.2 Field Level Maintenance will be performed by the Using Command at centralized facilities located at the SMSA. No field level maintenance will be accomplished on the missile, except for the R/V. Both OGE and MGE will be maintained in accordance with applicable technical orders. The SB will be equipped to provide maintenance personnel with the capability of fault isolation and replacement at the card level in electronic equipment and to equivalent replaceable components in electro-mechanical equipment. The R/V will receive field level maintenance at the Munitions Facility (located on the same Host Base as the SB). This will be limited to:

Mating of the warhead and nose cone
Inspection Check
Test and Replacement of major warhead components
Storage and handling of warheads and/or warhead nose cone assemblies.

2.2.3 Depot Level Maintenance beyond the capability of the SB will be accomplished in accordance with provisions set forth in Technical

Order 00-25-27, except that RPIE maintenance will be accomplished in accordance with SAC Manual 80-1.

Whenever a malfunction occurs at a Launch Facility, a fault signal will be transmitted to its controlling LCC. The following fault signal will be displayed:

Fault
Warhead Alarm
Inner Security Violated
Outer Security Violated

Upon receipt of a "Fault" signal or a Warhead Alarm signal at the LCC, the LCC operator will interrogate the Voice Reporting Signaling Assembly (VRSA) to determine more precisely the nature of the fault. The MCC will be informed of the fault information by the LCC operator, and will dispatch the appropriate Mobile Maintenance Teams, vehicles, MGE and spares.

2.2.4 The operating squadron will be responsible for limited on-site maintenance of OGE at the LCF. This on-site maintenance will be limited to operator maintenance which includes:

Inspection
Servicing
Limited removal and replacement of components

The LCC operators will remove only the replaced components of equipment for which they have fault isolation capability and available spares. Other maintenance required at the LCF will be accomplished by Mobile Maintenance Teams from the SB.

2.3 New Equipment. A list and description of each new major component of the system can be found in the following Boeing Documents:

- a. D2-6951, S-133-12 WS-133A Maintenance Ground Equipment System Specification, Volume V, MGE Figure A's, Spring 1962.
- b. D2-6952, S-133-11 WS-133A Operational Ground Equipment System Specification, Volume II, OGE Figure A's, Spring 1962.

Figure A's provided the method of deriving equipment to satisfy technical requirements identified by System Analysis and/or Maintenance Analysis. In their completed form, they represent a definition and substantiation of end item equipment recommendation to the Air Force technical and procurement personnel. The information contained in the sources listed above satisfies specific conditions of paragraph 6.4.3, "New Equipment" in AFBM Exhibit 58-18C dated 12 October 1959.

2.4 Other Data. Other information describing the operational characteristics of the weapon system and detailed maintenance and operational concepts and plans will be found in Boeing Document D2-6300 Model Document (Secret) General Description and Information H&D Minuteman System. The Model Document will also satisfy the additional requirements of paragraph 6.4.3 in AFBM Exhibit 58-18C for illustrations to show the relation of equipment to the total weapon system.

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3. MAINTENANCE/OPERATIONS SUMMARY

3.0 Introduction. This section includes the activities, by job operation, involved in the maintenance and operation of the Hardened and Dispersed Minuteman System. The summary consists of tables of job operations which are grouped under the following eight headings:

Part I : LCC Operations

The LCC is manned by Missile Launch Officers, whose primary duties are to monitor communications originating at SAC Headquarters and other LCCs for launch instructions. In addition, they monitor status signals originating from the LFs under their command, initiate system test and calibration at appropriate intervals, and interrogate VRSA for "Fault" information.

Part II : Maintenance Control Center Responses

A LF fault is indicated by a "Fault" status signal at the LCC. The Launch Control Officer interrogates the VRSA for specific fault information. In response to the report of a specific malfunction by the LCC and VRSA, the MCC dispatches the appropriate Mobile Maintenance Team with the required vehicles, spares, and special tools.

Part III : LF Unscheduled Major Missile Assemblies Replacement

This segment of the maintenance loop encompasses removal and replacement of the missile, the G&C Section, and R/V. These operations are handled as three separate loops originating at the SB since they can be performed independently. However, a common team structure is dictated by the homogeneity of tasks in the three operations. A basic team for the remove and replace operations must be supplemented by a Transportation and Handling Team, a Targeting and Alignment Team in the case of missile replacement, and by a Targeting Team in the case of R/V or G&C Section replacement.

Part IV : (a) Unscheduled OGE/RPIE Maintenance - LF

(b) Unscheduled OGE/RPIE Maintenance - LCF

Maintenance of these items which are an integral part of, or in direct support of, the weapon system is provided from a pool of maintenance men at the SB. Electronic, electrical, pneumatic and mechanical maintenance personnel are available for integration into a team structured by the specific nature of the fault at the LF or LCF. Maintenance at this level is primarily remove and replace.

Part V : Scheduled OGE/RPIE Maintenance - LF and LCF

Scheduled maintenance at the LF (except scheduled missile and autocollimator alignment) or LCF is performed whenever a team

is called to the site for unscheduled maintenance. This eliminates travel time for scheduled maintenance and in most cases will have negligible effect on the down time of the sites. Performance of scheduled and unscheduled maintenance concurrently may, in some cases, require an additional man on an OGE/RPIE Maintenance Team.

Part VI : (a) Scheduled Missile and Autocollimator Alignment
A periodic 90-day check of primary and secondary alignment mirrors and the autocollimator is required. This involves shooting benchmarks, making precise measurements using theodolites and, under some conditions, rotation and leveling of the missile. The Alignment Team will be supervised by an officer due to the critical nature of the job.

(b) Operational Retargeting

Part VI(b) is essentially the same job as Part VI(a) except that in some cases of operational retargeting the G&C Umbilical must be repositioned. Operational retargeting is accomplished by the Alignment and Targeting Team.

Part VII : (a) Transport Flow, Air Mode, SMSA to A&R
(b) Transport Flow, Air Mode, A&R to SMSA
(c) Transport Flow, Rail Mode, TE/SSCBM
(d) Transport Flow, Highway Mode, TE
(e) Transport Flow, Rail Mode, TE/SSCBM

Missile handling and transportation is presented as a series of loops which describe the preparation for and execution of the various optional modes of transporting a missile to and from the SB. Team structure is constant from one mode to another.

Part VIII: (a) SB Maintenance - RV Maintenance/Recycle
(b) SB Handling, NS10 Missile Guidance Set
(c) SB Maintenance - OGE Returned from LF and LCF
(d) SB Maintenance - MGE

Maintenance of items returned to the SB is essentially field maintenance consisting of removal and replacement of faulty modules or components isolated by special test equipment. Specialists accomplish this repair in applicable maintenance areas.

The information presented in each table consists of a statement of the job operation(s), identification of associated personnel by AFSC and number, an estimation of the time to perform or accomplish the job operation and a listing of the special tools, test equipment, and MGE used. A further explanation of both the format headings and the data contained in the summary tables follow.

3.0.1 JOB OPERATION - A total series of the events representative of what occurs from the beginning of a specific maintenance-operations sequence until that sequence begins again; or, all the

events that occur during some particular time segment at a specific work location.

In this column, job operations are described by either listing or summarizing the duty/task statements derived from the function(s) which comprise unique maintenance and operations loops.

3.0.2 AFSCs. - The Air Force Specialty Code (AFSC) assigned to individual(s) or team members involved in specific job operations.

The structure of Mobile Maintenance Teams and their general functions as they participate in performing major weapon system activities are summarized in paragraph 4.3 of Section IV, Position Definitions.

3.0.3 NUMBER OF PERSONNEL - Quantities of various position-types required to accomplish each job operation.

The number of each position-type and the number of Mobile Maintenance Teams per month required to effectively man a Strategic Missile Squadron and/or a Strategic Missile Support Squadron is presented in Section V, Manning Estimates, of this volume. Gross maintenance loading (frequency) data is not contained in this section but can be found in Section V where it provides backup information for the manning estimates.

3.0.4 TIME - An estimate of the elapsed time required to perform or accomplish each job operation, expressed in hours and/or decimal fractions of an hour. Elapsed times in Parts IV and V are sometimes given in parentheses. These entries indicate an average time for a series of homogeneous operations, weighted according to the predicted frequency of repair.

3.0.5 SPECIAL TOOLS, TEST EQUIPMENT, MGE USED - The listing of all items of Special Tools, Test Equipment and MGE required to perform or accomplish each job operation.

3.1 Summary by Job Operation.

PART I: LCC OPERATIONS

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JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME TAKEN HRS.	SPECIAL TOOLS TEST EQUIPMENT OR USED
Hardened and Dispersed Launch Complex Operations Verify Launch Command and War Plan from SAC Verify Launch Command with other Launch Control Officers Initiate Launch Command Signal Monitor and interpret the following Status Displays on the Command Control Console Strategic Alert Armed Launch Commanded Launch in Process Missile Away Standby Fault Warhead Alarm Security Violated - Outer Zone Security Violated - Inner Zone Dispatch Security Team to Launch Site Initiate Launch Wet Test and periodically initiate test, calibration, and timing synchronization signals. Respond to Alarm and Fault Displays by interrupting VTEA and advising the maintenance supervisor of the need for dispatching Mobile Maintenance Teams to a given Launch Site.	1825G 1825G 1825G 1825G	1 1 2 1	2.0 (1 day)	1243 Command Control Console 1243 Command Control Console
	1825G	1		Telephone (S20)
	1825G	1		1243 Command Control Console
	1825G	1		1302 SSM Telephone Equipment

9-4000-0-3

PART E: LCC Operations

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JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME IN HS	SPECIAL TOOLS TEST EQUIPMENT GSE USED
Hardened and Dispersed Launch Complex Operations (Cont.) Respond to unauthorized launch in process by initiating inhibit launch. Perform a daily visual inspection of the LCC air condition system. Monitor and interpret SCN malfunction displays and Command Control Console malfunctions.	1825G 1825G 1825G	1 1 1		LM43 Command Control Console

PART II: MAINTENANCE CONTROL CENTER RESPONSE

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JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME PER PERSONNEL HRS	SPECIAL TOOLS TEST EQUIPMENT GSE USED
MCC Operations Maintenance Response				
Response to Request for Maintenance at LF				
MCC Receives Request for Maintenance and initiates preparation and distribution of job orders & records	3124G	1	Avg. 2.15	
Prepare Personnel, OGE Spares and Maintenance Equipment for dispatch to Site			1.70	
Load Spares and MGE on vehicles.	3045Z	1	50	
For Electronic Maintenance	31254G	1		
For Electronic/or Mechanical Maintenance	33140B	1		
For R/V or GAC Maintenance	3615Z	1		
For Missile Remove or Emplace	44250Z	1		
For Missile Targeting	54150G	1		
For Cable Maintenance	44350G	1		
For Refueling Standby Power	54250G	1		
For Security Escort	54550Y	1		
Travel to Site (Round Trip)	54350	1		
Response After Maintenance at Site			5.72	
Receive Faulty OGE Components			1.06	
Unload MGE From Maintenance Van.				
Return Defective Components to Appropriate Shops for Maintenance				

2-5901-3-3

PART II: Maintenance Control Center Response

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT USE USED
Response After Maintenance at Site (Cont'd) Return Maintenance Crew to Dispatch Facility & Vehicle to Motor Pool Receive and Process Defective Components from shops A/F Weapons Supply Receives and Processes Components to SNA/ Factory for Depot Maintenance.				

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT GSE USED
Security Violation Response Determine if Security Force is Available LCF Dispatches Security Force to LF (If Available) LCF Notifies SCC of Security Violation & if local Security Force is inadequate Security Force Proceeds from LCF as directed Security Force Proceeds from LCF to LF as required Security Force Notifies LCF of arrival at LF & Reports Status Security Force Penetrants LF as required Security Force Inspects LF for Evidence of Intrusion Security Force Counteracts intruders if present Security Force Reports Result of Inspection to LCC LCC Commands Standby or Resecure Site Security Force Rescues Site & Verifies Security re-established Security Force Returns to base or stands by as instructed.	Air Police (Not Included in OPRM A) Minimums - Peculiar Personnel)	AVE. 2 hours		

PART III: LF UNSCHEDULED MAJOR MISSILE ASSEMBLIES REPLACEMENT

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JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT GSE USED
GUIDANCE AND CONTROL SECTION REPLACEMENT R/V-GC Van travels to site Enter site, clean and penetrate launcher equipment room Install work cage and equipment Safe the missile Disconnect R/V electrically and perform interface test Clean closure area as required Position R/V-GC Van over launcher Unload and emplace closure open and close assembly Partially install environmental cover and safety barrier Release launch tube closure lock and take up slack in cables Open closure Complete installation of environmental cover and safety barrier Emplace R/V handling equipment Disconnect R/V mechanically Remove R/V and stow Disconnect G&C electrically and verify malfunction to G&C Section or Missile Downstage Disconnect G&C umbilical Emplace G&C handling equipment Disconnect G&C mechanically Remove G&C and stow	3125-AG 54150G 44150G 31150B	1 1 1 2	33.80	Kit, Mating Test Set Semitrailer, R/V-G&C Section Truck Tractor, R/V-G&C Maintenance Van 857 Adapter, R/V 4043 Elevator and Work Cage 4452 Traverse Plates, Access Door 4263 Safety Barrier, Launch Tube Access Door 4144 Headset Interphone 818 SIN/LCT, LF 684 Section, Protective 815 Autocollimator Window 804 Yoke, Lifting and 837 Rooling R/V Stand 495 Test Set, G&C Coupler 10709 Test Set, Flight Control Group 4523 Power Supply, Portable, Common 3119 Adapter, Spanner 4025 Box, Storage, Safe and Arm Pins and Umbilical Covers 4103 Cable Grip Set, Umbilical, Upper and Lower 4104 Hoist, Chain, Hand Operated 4286 Drain Unit, Coolant, G&C Compartment 4405 Support Hoist, Upper Umbilical Cable 4028 Adapter, Hoisting, G&C Assembly 4302 Cord Assembly, Electrical

2-3231-3-3

PART III: LF UNSCHEDULED MAJOR MISSILE ASSEMBLIES REPLACEMENT

1	JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT GSE USED
	GUIDANCE AND CONTROL SECTION REPLACEMENT (Cont.) Clean sealant from 3rd Stage and raceway Remove G&C handling equipment Remove upper half of G&C shipping container Prepare G&C for installation Check G&C interface Position and index G&C Mate G&C electrically and mechanically Connect G&C umbilical Stow faulty G&C Check R/V electrically Lower R/V onto missile Perform R/V-GC electrical test Mate R/V mechanically and electrically Remove and stow equipment in R/V-GC Remove missile safing pins, secure launch tube and remove equipment Close launcher closure, remove environmental shield, safety barriers and open-close assembly Remove R/V-OC Van from launcher R/V-GC Van travels to SB				

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME PER	SPECIAL TOOLS TEST EQUIPMENT ONE USED
GUIDANCE AND CONTROL SECTION REPLACEMENT (Cont.) Targeting van travels to site Enter the site, emplace equipment and connect power cables Turn on targeting equipment and perform self test Transfer control to site and enable G&C Fill and verify, fine align and test Initiate 90-minute warmup Transfer control from LF to LCF Initiate calibration Disconnect targeting equipment and slow Secure equipment room and site Targeting van travels to SB Complete calibration from LCC <u>TOTAL LOOP TIME BY TEAMS</u> Missile Team Targeting and Alignment Team	3124G 3124AG 44350G	1 1 1	18.33	Truck, Van, Targeting Control, Missile Targeting, C&B Power Supply, DC Portable, C&B Cable Set, Operational Targeting Vehicle Receiver-Transmitter, 4195 Radio (vehicle) 18711 Guidance and Control Test, Ther- 18712 Operational Flight Test 717 Test, vehicle, C&B, Antenna, Alignment Group
		5 3	74.06 23.33	

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT GSE USED
R/V REPLACEMENT R/V-GC Van travels to site Enter site, clean and penetrate launcher equipment room Install work cage and equipment Safe the missile Test spare R/V in van Disconnect R/V electrically and perform interface test Clean closure area as required Position R/V-GC Van over launcher Unload and emplace closure open and close assembly Partially install environmental cover and safety barrier Release launch tube closure lock and take up slack in cables Open closure Complete installation of environmental cover and safety barrier Emplace R/V Handling equipment Disconnect R/V mechanically Remove R/V and stow Remove R/V handling equipment and stow Install R/V handling equipment Lower R/V onto missile Perform R/V-GC interface test	31254G 54150G 44350G 33150B	1 1 1 2	18.35	9074 Semitrailer, Van, R/V & G&C Maintenance 4116 Truck Tractor, R/V & G&C Maintenance Van 4043 Elevator and Work Cage, Passenger and Equipment (Portable) 4053 Adapter, Hoisting, Stabilizing Ring 4144 Headset, Interphone 4263 Barrier, Safety, Launch Tube Access Door 802 Kit, Mating 804 Cradle, Re-entry Vehicle 815 Yoke, Re-entry Vehicle 829 Lifting and Rotating Test Set, Pre-Installation 837 Stand, Assembly and Transport, Re-entry Vehicle 857 Adapter, R/V 4452 Traverse Plate, Access Door 818 Section Cup 4182 Cord Assembly, Electrical 4104 Hoist, Chain-Hand Operated 4183 Ring, Umbilical Cable, Upper and Lower

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT CASE USED
R/V REPLACEMENT (Cont.)				
Mate R/V mechanically and electrically				
Remove and stow equipment in R/V-GC Van				
Close launcher closure and remove environmental shield and safety barrier				
Remove R/V-GC Van from over launcher tube				
Remove missile safing pins, secure launch tube and remove equipment				
R/V-GC Van travels to SB				
Targeting van travels to site				
Perform start-up and fusing				
Secure the site				
Targeting van travels to SB				
	3124G 31254G 44356G	1 1 1	9.45	4042 Truck, Van, Targeting 603 Camcorder, Missile 647 Targeting, C24 721 Portable, C95 4193 Cable Set, Operational Receiver-Transmitter, Radio (Vehicle) 10711 Guidance and Control Test Tape 10712 Operational Flight Tape 717 Tester, Portable, C21, Alignment Alignment Group
<u>TOTAL LOOP TIME BY TEAMS</u>				
Missile Team		5	31.20	
Targeting and Alignment Team		3	23.30	

3-0001-3-3

PART III: LF UNSCHEDULED MAJOR MISSILE ASSEMBLIES REPLACEMENT

JOB OPERATION	ATSC	NUMBER OF PERSONNEL	TIME IN'S	SPECIAL TOOLS TEST EQUIPMENT CASE USED
MISSILE REPLACEMENT R/V-G&C Van travels to site Enter site, clean and penetrate launcher equipment room Install work cage and equipment Safe the missile Disconnect R/V electrically and perform interface test Clean closure area as required Position R/V-G&C Van over launcher Unload and emplace closure open and close assembly Partially install environmental cover and safety barrier Release launch tube closure lock and take up slack in closure cables Open closure Complete installation of environmental cover and safety barrier Emplace R/V handling equipment Disconnect R/V mechanically Remove R/V and stow Secure handling equipment in van Verify malfunction to missile damage Disconnect G&C Umbilical Install missile stabilizer ring adapter Partially remove environmental cover and safety barrier	3124G 54150G 44350G 33150B	1 1 1 2	44.78 For total Missile Tease Remove & Replace Functions	3119 Adapter, Spanner 4024 Semitrailer, Van, Main- tenance, R/V-G&C 4043 Elevator and Work Cage, Passenger and Equipment (Portable) 4053 Adapter, Hoisting, Stabilizer Ring 4103 Sling, Umbilical Cable, Upper and Lower 4104 Hoist, Chain-Hand Operated 4107 Level Set, Missile Base Support 4116 Truck Tractor, R/V-G&C Maintenance Van 4144 Headset, Interphone, SIN/LCF-LF 4286 Drain Unit, Coolant (G&C Compartment) 684 Corner-Protective, Guidance Compartment Window 802 Kit, Matting 804 Grapple, Re-entry Vehicle Barrier, Safety, Launch Tube Access Door 815 Tube, Re-entry Vehicle Lifting and Rotating 820 Test Set, Pre-Installation Stand, Assembly and Transport, Re-entry Vehicle

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS.	SPECIAL TOOLS TEST EQUIPMENT CASE USED
MISSILE REPLACEMENT (Cont.) Close launcher closure Remove R/V-G&C Van (Stow environmental cover and remove jacks.) •T-E travel to site (Empty) Position and check harnesses Position T-E at launcher •Prepare T-E for erection •Erect container and open T-E environmental shield Disconnect umbilical and base support clamps Attach skirt clamps Rotate missile to unload position Open closure and install environmental covers and safety barriers Ground missile to T-E and remove ground from base adapter ring to base support assembly Connect hoisting sling and positioning mechanism to base adapter ring See work cage •Insert missile into T-E •Close launcher closure and remove environmental covers and safety barrier •Eject environmental shield and lower container •Prepare T-E and missile for transport •T-E travel to SB (Loaded) Set up launch capability test equipment • For all Transport and Handling Team (Empty) Functions	44350G 60350B	1 3	25.24⁰	0059 Semi-Trailer Transporter-Erector Sling Rod and Yoke Type Missile Engagement 0066 Clamp Assembly, Missile 0069 Start to Base Adapter Ring 0075 Truck Tractor Transporter-Erector 0078 Harrow, Blading Engine, Stage I 4119 Truck, Special Escort 4120 Engine, Blading Engine, Stage II 4121 Harrow, Blading Engine, Stage III 4107 Monitor System Transport 4100 Jack, Lifting-Support Transporter-Erector 4264 Cable and Rod Assembly Greening, Missile 4265 Prod. Chaining, Missile Sling Rod Ends 4271 Cover, Fitted, T-E Support, Cradle, Engine 4274 Stage II Harrow Proble 4270 Shelter, Environmental T-E Launch Tube 4280 Adapter, Positioning Engine Stage I, Harrow 4281 Support Cradle, Engine Stage II Harrow, Portable 4283 Support Cradle, Engine Stage I Harrow, Portable

PART III: LF UNSCREWED MAJOR MISSILE ASSEMBLIES REPLACEMENT

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JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS.	SPECIAL TOOLS TEST EQUIPMENT CASE USED
MISSILE REPLACEMENT (Com.) Perform launch capability test Disconnect and stow test equipment oot-T-E travel from SB (Loaded) Prepare launch tube for missile installation ooPosition T-E ooPrepare T-E for erection ooErect T-E Open launcher closure and install environmental covers and safety barrier ooLower missile onto base support ring Install work cage Remove shunt clamps and verify base support clamps secured Disconnect and retract T-E hoist sling rods; attach lower umbilical and ground base ring Rotate missile to approximate azimuth Connect the GAC Umbilical Close launcher closure and remove environmental shield and safety barrier ooLower T-E container ooPrepare empty T-E for transport ooEmpty T-E travel to SB	44390G 66350B	1 3	21.66	4302 Adapter, Positioning, Engine Stage III Harness 4303 Adapter, Positioning, Engine Stage II Harness 4306 Plate, Adjustable, T-E 4307 Hinge to Pylon 4452 Adapter, Reestraut, Base Adapter Ring to T-E Traverse Plates, Access Door 4405 Support Mount, Upper Umbilical Cable 4382 Cord Assembly, Electrical 4445 Stand Assembly, T-E Control Panel 4404 Hook, Hoist, Support, Lower Umbilical Cable 4451 Controller, Powered Annuath Drive 4490 Simulator Kit, Electronic Missile 4491 Start-Up Unit Launch Facility 4487 Simulator, Operational, Mechanical Decoder 4523 Power Supply, Portable Test Set 4484 Generator, Message, L/SCN 695 Test Set, Guidance and Control Computer 897 Adapter Kit, R/V, Circuit Tester

oo For all Transport and Handling Team (Loaded) Functions

3-000-3-3

PART III. LF UNSCHEDULED MAJOR MISSILE ASSEMBLIES REPLACEMENT

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS.	SPECIAL TOOLS TEST EQUIPMENT GSE USED
MISSILE REPLACEMENT (Cont.) Position R/V-G&C Van over launcher Open launcher closure and install environmental covers and safety barrier Remove stabilizer ring adapter Install R/V handling equipment Check R/V electrically Lower R/V onto missile Perform R/V-G&C electrical test Mate R/V mechanically and electrically Remove and stow equipment in R/V-G&C van Close launcher closure and remove environmental shield and safety barrier Remove R/V-G&C van from over launcher Remove missile safing pins, secure launch tube and remove equipment R/V-G&C Van travels to SB Alignment van travels to site Enter site, emplace start-up and calibration and connect power cables Turn on equipment and perform self test Transfer control to site and enable G&C Align the missile and autocollimator Initiate 90-minute warm-up of G&C Align the missile and autocollimator	31254G 54150G 44350G 33150B	1 1 1 2	15, 20	603 Console, Missile Targeting, C24 667 Power Supply, DC 667 Portable 4042 Truck, Van Targeting 4144 Headset, Interphone 50N/LCF-LF 631 Mirror, Azimuth Alignment, C92 642 Alignment Group, Optical, C94 648 Theodolite 649 Mount, Theodolite

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT CASE USED
MISSILE REPLACEMENT (Cont.) Fill and verify, fine align and test Interrogate VERA Transfer control from LP to LCF Disconnect targeting equipment and stow Secure equipment room and site Travel to BB Calibrate from LCC TOTAL LOOP TIME BY TEAMS Missile Team Transportation and Handling Team (Dispatch Empty) Transportation and Handling Team (Dispatch Loaded) Targeting and Alignment Team		5 4 4 3	98.36 52.34 52.34 41.72	675 Mirror, Optical Transfer 717 Tester, Portable, C21 Astimath Alignment Group 4520 Truck, Van, Alignment Support 719 Optical Alignment Group 4441 Protractor Strip, Autocollimator Bench Ball 721 Cable Set, Operational 4193 Targeting Vehicle 10711 Receiver-Transmitter, Radio (Vehicle) 10712 Guidance and Control Test Tape Operational Flight Tape

D-600-3-3

PART III: LP UNSCHEDULED MAJOR MISSILE ASSEMBLIES REPLACEMENT

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PART IV(a): LF UNSCHEDULED OGE/RPIE MAINTENANCE

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JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT CASE USED
LF Control and Monitor Subsystem Maintenance van travels to LF Maintenance crew arrives and gains entrance to LF equipment room Test Sequencer and Monitor is isolated to a replaceable unit Repair the Control and Monitor Subsystem by replacing or repairing one of the following items: 1201 Programmer Group Drawers Cabinet Assembly Wire Tray Assembly	31254G 54154G XXXXX	1 1 1	2.06 .08	Truck, Van, Electronic Maintenance Truck, Hand, Lift Launcher and Launch Control Facility Test Set, SHM (Portable) Shipping and Storage Container, Electronic Test Set, Decoder, SHM Power Supply, Portable Test Equipment Case, Carrying Programming Card Truck, Hand, Lift Start-Up Unit, Launch Facility Headset, Interphone SIN/LCF-LF Wrench Set, Pipe
1412 Voice Reporting Signalling Assembly	31254G 54154G XXXXX	1 1 1	.69	Truck, Van, Electronic Maintenance Headset, Interphone SIN/LCF-LF

PART IV(b): LF UNSCHEDULED OGE/EPIE MAINTENANCE

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09

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS.	SPECIAL TOOLS TEST EQUIPMENT CASE USED
604 Guidance and Control Computer Drawer, (Typical) Wire Tray Assembly	31254G 54150G XXXXXX	1 1	4.10	695 Test Set, Portable 4063 Truck, Van, Electronic Maintenance 646 Truck, Hand 584 Time Interval Unit 3140 Indicator, Digital Display 10706 Video Amplifier 623 Test Adapter Group 624 Test Center 597 Patchboard Kit 564 Storage, Check-out Tapes 583 Alignment Kit 4132 Test Bench, Electronic 717 Test Set, Callimator
602 Callimator Set	31254G 3124G 44356G	1 1 1	1.10	
Start-up M required Secure equipment room and site Maintenance van travels to SB			.70 2.86	4491 Start-Up Unit

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS.	SPECIAL TOOLS TEST EQUIPMENT CASE USED
Environmental Control System, G&C Compartment Maintenance was travels to LF Maintenance crew arrives and gains entrance to LF equipment room Visually check for obvious defects or leaks and check under level in tank Test to isolate to a malfunction Repair environmental control system by repairing or replacing one of the following items: 1214 Cooling Unit, G&C Compartment Water Chiller Unit Pump and Valve Assembly Electronic Control, G&C Compartment Temperature Back, Electronic Equipment	312540 541500 54550Y	1 1 1	2.06 .08	Truck, Van, Mechanical Maintenance Test Set Control Circuity, G&C Temperature Leak Detector Multimeter Truck, Hand Lift Meter, Installation Flow-Rate Indicating Tank, Demineralized Water 4031 Truck, Van, Mechanical Maintenance 3035 Test Set Control Circuity, G&C 3039 Leak Detector 4001 Multimeter 4149 Truck, Hand Lift 4190 Meter, Installation 4191 Tank, Demineralized 4192 Bridge, Resistance 4319 Load Set, Test 4378 Sling, Chiller Unit and Pump and Valve Assembly
1318 Plumbing Set, G&C Cooling Valve Assembly, Solenoid Tank Cut-Off Tubing, Flexible	541500 54550Y 312540	1 1 1	2.99	Truck, Van, Mechanical Maintenance Chiller and Work Cages Plumbing and Equipment (Portable) 4190 Meter, Installation Flow-Rate Indicating 4191 Tank, Demineralized Water 4091 Start-Up Unit
Start-up and calibrate when required Secure equipment room and after Maintenance was travels to ED			.70 2.05	

PART IVa: LF UNSCHEDULED O&M/PM MAINTENANCE

2-000-3-3

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS.	SPECIAL TOOLS TEST EQUIPMENT GSE USED
SCN System, LF Maintenance van travels to LF Maintenance crew arrives at LF and gains entrance to equipment room Repair system by replacement and checkout of one or more of the following items: 1228 Data Processing Equipment, Digital, SCM/L Drawer, (Typical) Connector Assembly Breakwire Grid	31254G 54156G XXXXX	1 1 1	2.06 .08 4.51	Test Set, SCM Equipment (Portable) Shipping & Storage Container, Electronic Equipment Case, Carrying (Cable Pouch) Case, Carrying (Decoder Drawer) Truck, Bus, L/R. Launcher and Launch Control Facility Truck, Bus, L/R Truck, Van, Electronic Maintenance Truck, Special Escort Wrench Set, Pipe
1251 Cable Termination Equipment Drawer, (Typical)	31254G 54156G XXXXX	1 1 1	7.08	Truck, Van, Electronic Maintenance Truck, Bus, L/R. Launcher and Launch Control Facility Shipping and Storage Container, Electronic Equipment Test Set, SCM Equipment (Portable) Truck, Bus, L/R Container, Shipping and Storage, Wire Harness Assembly

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS.	SPECIAL TOOLS TEST EQUIPMENT GSE USED
1268 Decoder, Electro-Mechanical	31254G 54150G XXXX	1 1 1	3.97	4442 Case, Shipping and Storage, Electro-Mechanical Decoder 4063 Truck, Van, Electronic Maintenance 4001 Multimeter 4319 Lead Set, Test
1279 Repeaters, Terminal Hardened Voice Channel	36132 31254G 54150G	1 1 1	1.90	3096 Shipping and Storage Container, Electronic 4149 Truck, Road, LIA 4580 Test Set (Transmission Measuring) 4583 Adapter Set (CTE)
1374 Arrestor, Electro-Magnetic Pulse, LF Arrestor, Assembly	31254G 54150G XXXX	1 1 1	.85	4001 Multimeter 4319 Lead Set, Test 4031 Truck, Van, Mechanical Maintenance 4144 Headset 3022 Truck, Dolly
Start-up if required Secure equipment room and site Maintenance van travels to SB			.70 2.86	4491 Start-Up Unit

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS.	SPECIAL TOOLS TEST EQUIPMENT GSE USED
SIN System, LF Maintenance van travels to the LF Maintenance crew arrives and gains access to equipment room Perform composite test of SIN to detect faults Visual inspect components for damage Test to verify and isolate fault Repair systems by replacement and checkout of the following: 1303 Terminal Equipment, Telephone Cabinet Assembly Drawers, (Typical)	34152 31254G 94150G	1 1 1	2.84 .88	3066 Truck, Hand, Lift, Launcher, and Launch Control Facility 3096 Shipping and Storage Containers, Electronic Equipment 4063 Truck, Van, Electronic Maintenance 4388 Test Set, SIN/HVC Equipment, Portable 4001 Multimeter 4386 Wrench Set, Pipe
1304 Jack Assembly, Telephone SIN/LCC/LF	34152 94150G 31254G	1 1 1	.64	3066 Truck, Van, Mechanical Maintenance 4388 Test Set, SIN/HVC Equipment, Portable 4319 Load Set, Test Headset 4144 Headset
1306 Telephone Set, Wall Type SIN/LF	34152 94150G 31254G	1 1 1	.74	4388 Test Set, SIN/HVC Equipment, Portable 4319 Load Set, Test Headset 4031 Truck, Van, Mechanical Maintenance 4144 Headset

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT GSE USED
1361 Jack Assembly, Telephone, SIN/LF, Launcher Equipment Room	36152 31254G 54150G	1 1 1	.71	4388 Test Set, SIN/HVC Equipment, Portable 4319 Load Set, Test 4031 Truck, Van, Mechanical Maintenance 4144 Headset
1363 Jack Assembly, Telephone, SIN/LF (Curb, Mounted, SIN/LF)	36152 54150G 31254G	1 1 1	.59	4388 Test Set, SIN/HVC Equipment, Portable 4144 Headset 4031 Truck, Van, Mechanical Maintenance 4319 Load Set, Test 4491 Start-Up Unit
Start-up if required Secure the site Travel to SB			.70 2.86	

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT GSE USED
Launcher Closure System Maintenance Vehicle travels to LF Maintenance crew arrive and gain access to LF equipment room Repair by replacing one of the items listed below: 1280 Actuating & Locking Mechanism, Launcher Closure Ballistic Actuating Assembly Ballistic Gas Generator Cartridge Assembly Multiplying Linkage Assembly Lock Assembly Moving Sheave Assembly Cable Assembly	54150G XXXXX 31254G	/ 1 1 1	2.86 .88 4.97	Truck, Van, Mechanical Maintenance 4031 Test Set, Electrical Squib 3007 Truck, Daily 3022 Hoisting Unit, Portable 4117 Harness, Ballistic 4163 Actuator Assembly 4258 Wrench, Torque 4289 Rod, Launcher Closure Lock Assembly 4290 Pulley, Multiplying Linkage 4291 Clamp, Ballistic Actuator Rod 4292 Cover, Environmental Launcher Opening 4293 Bar, Retaining Cable 4394 Ring, Ballistic Gas Generator 4054 Crane, Truck Mounted 4105 Tractor, Launcher Closure, Portable 4219 Adapter, Hoisting Unit 4305 Cylinder & Valve Assembly, Pneumatic, Mobile, Compressed Gas 4567 Support, Hoist 4568 Wrench, Strap (Actuator)

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT GSE USED
1363 Gear Rack, LF Start-up if required Secure equipment room and site Return to SB	54150G 31254G XXXXX	1 1 1	2.70 .70 2.06	4031 Truck, Van, Mechanical Maintenance 4491 Start-Up Unit

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PART IV(a): LF UNSCHEDULED OOE/AFPE MAINT. ENANCE

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JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT GSE USED
Retract Mechanism, G&C Umbilical Maintenance crew travel to LF Enter LF equipment room Install work cage Visually check G&C umbilical retract mechanism Repair the G&C umbilical retract mechanism by replacing one of the following items. 1202 Retract Mechanism, G&C Umbilical Brace Assembly, Support, G&C Umbilical Rotary Actuator Assembly, Ballistic Support Assembly, Umbilical Remove work cage Perform Start-up and Calibration if required Secure equipment room and site Travel to SB	54150G XXXXX 31254G	1 1 1	2.86 .88 3.18 .70 2.86	4031 Truck, Van, Mechanical Maintenance 3007 Test Set, Electrical Squib 4043 Elevator and Work Cage, Passenger and Equipment (Portable) 4140 Truck, Hand, Lift 4299 Hoist Chain 4565 Weight Test 4569 Support, Pulley Assembly 4570 Adapter Kit (Cylinder Valve Assembly, Comp-ressed Gas) 4119 Start-Up Unit

3-3361-3-3

PART IV(a): LF UNSCHEDULED OGE/EPUE MAINTENANCE

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT GSE USED
Maintenance van travels to LF Gain access to equipment room			2.86 .88	
1385 Junction Box, Power and Communications Filters Slag Coil Relay Board Assembly, Terminal Connectors, Receptacle Socket, Relay Wiring Secure equipment room and alte Maintenance van travels to SB	54150G 31254G XXXXX	1 1 1	1.56 .70 2.86	4001 Multimeter 4319 Lead Set, Test 4382 Cord Assembly, Electrical 4031 Truck, Van, Mechanical Maintenance

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT GSE USED
Maintenance van travels to LF Gain access to equipment room			2.86 .88	
1377 Interconnecting Box, SIN/SCN	54250G 54150G 31254G	1 1 1	4.39	4001 Multimeter 4319 Lead Sst, Test 4031 Truck, Van, Mechanical Maintenance 4144 Headset, Interphone, SIN/LCC-LF 3022 Truck, Dolly
Secure equipment room and site Maintenance van travels to SB			.70 2.86	

P-3804-2-3

PART IV(a): LF UNSCHEDULED OGE/RPIE MAINTENANCE

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT GSE USED
1296 Alarm Set Group Converter Monitor Receiver Transmitter Power Supply	31254G 30452	1 2	2.06	4063 Truck, Van, Electronic Maintenance 3066 Truck, Hand, Lift, Launcher, and Launch Control Facility 4149 Truck, Hand Lift 3109 Test Set, Security System, Portable 4386 French Set, Pipe 3096 Shipping and Storage Container, Electronic Equipment 4102 Truck, Hand Lift, LCC
1411 Arrestor, Electro-Magnetic Pulse, Security Antenna, LF	30452 31254G	2 1	1.47	4031 Truck, Van, Mechanical Maintenance 4392 Cord Assembly, Electrical 4001 Multimeter 4319 Lead Set, Test 4491 Start-Up Unit
Start-up if required Secure equipment room and site Maintenance van travels to SB			.70 2.06	

PART IV(a): LF UNSCHEDULED OGE/RPIE MAINTENANCE

2-2203-2-2

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS.	SPECIAL TOOLS TEST EQUIPMENT GSE USED
OGE/RPTE MAINTENANCE Electrical Power Sub-system - Launch Facility Maintenance van travels to LF Gain access to equipment room Test system to isolate malfunction Repair system by replacement and checkout of the following items: 1248 Intrinette Cable System			2.86	4063 Truck, Van, Electronic Maintenance
			.88	
	31254G	1	3.68	4001 Multimeter
	44350G	1		Lead Set, Test
	54150G	1		Truck, Van, Electronic Maintenance
	54250G	1		4063 Sling, Umbilical Cable, Upper & Lower
				4286 Drain Unit, Coolant, G&C Compartment
				3119 Adapter, Spanner
				4258 Wrench, Torque
				4043 Elevator & Work Cage
1284 Power Supply Group Power Supply Assembly Power Monitor Assembly Circuit Breakers Relay				3007 Test Set, Electric Squib
				4031 Truck, Van, Mechanical Maintenance
	31254G	1	4.90	3066 Truck, Hand LIA, LF & LCC
	54150G	1		Shipping & Storage Container, Electronic Equipment
	54250G	1		4063 Truck, Van, Electronic Maintenance
				4144 Monitor, Interphone, SON/LCC-LF
				4199 Truck, Hand LIA
				4366 Wrench Set, Pipe
				4505 Indicator, Voltage, AC-DC

PART IV(a): LF UNSCHEDULED OGE/RPTE MAINTENANCE

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JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT CSE USED
1282 Battery Storage, Emergency Power Storage Battery Unit	54150G 31254G XXXXXX	1 1 1	1.57	4031 Truck, Van, Mechanical Maintenance 3022 Truck, Dolly 3037 Hoist, Chain (12128) 3046 Container, Dismantled 3046 Sling, Battery Handling 3047 Voltmeter (80058) 4106 Wrench, Pipe (Strap) 4117 Hoisting Unit, Portable
1283 Motor Generator Brush, Carbon Relay Voltage Regulator Assembly Contacter Brush Lifting Assembly Socket, Connector Plug, Connector Insulated Wire	31254G 54150G 54250G	1 1 1	6.70	4031 Truck, Van, Mechanical Maintenance 3022 Truck, Dolly 3037 Hoist, Chain (12128) 4144 Handset, Interphone SUN/LCF-LF (OB-156) 4145 Sling, Multiple Leg 4142 Tachometer 4319 Lead Set, Test 4512 Injector, Oil Compressor, Refrigeration System (33287) 4513 Cap, Protective, Dust and Moisture Seal (33287) 4515 Converter, Frequency, Electronic 3140 Indicator, Digital Display (28408) 4001 Multimeter (80058) 4546 Test Set Relay MC Set 4117 Hoisting Unit, Portable 4507 Tester, Relay

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT GSE USED
1337 Junction Box, Main Safe & Arm Module Distribution Box Circuit Breakers Relays Electric Cable Bundle Assembly 1379 Battery Charger, Alarm Set Group Battery Charger Relay Start-up & Calibration, if required, after repair of Electrical Power Subsystem - LF Secure Equipment Room & Site Maintenance van travels to SB	31252G 54150G 54250G	1 1 1	3.98	4001 Multimeter (80058) 4220 Test Set, Relay 4319 Lead Set, Test 3066 Truck, Hand Lift, Launcher & Launch Control Facility 4931 Truck Van, Mechanical Maintenance 4144 Headset, Interphone SIN/LCF-LF (OR-156) (02734)
	31254G 54150G 54150G	1 1 1	1.97	4001 Multimeter 4319 Lead Set, Test 4144 Headset, Interphone SIN/LCF-LF 3066 Truck, Hand, Lift, LF/LCC 4306 Wrench, Pipe (Strap) 4031 Truck, Van, Mechanical Maintenance 4149 Truck, Hand, Lift 4491 Start-Up Unit
			.70 2.86	

PART IV(a): LF UNSCHEDULED OOR/NP/E MAINTENANCE

3-000-3-3

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT USE USED
RPTE Maintenance, LF Maintenance vehicle travels to LF Maintenance crew arrives and gains access to LF equipment room 1209 Water-Control and Removal System Install work cage Repair Water Control and Removal System by replacing or repairing items listed below as required: Float Switch, Liquid Level Panel, Power Distribution Pump, Rotary, Power Driven Check Valve Remove work cage 1211 Launcher Environmental Control System Repair Launcher Environmental Control System by replacing items listed below as required: Cooling Coil, CC-2 Thermostat, TA-1 Thermostat, TH-1 Temperature Controller, TC-1 Thermostat, TA-2 Airflow Controller, FA-1	31254G 54150G 54250G	1 1 1	2.86 .88 2.28	Multimeter Truck Van, Mechanical Maintenance Elevator and Work Cage Truck Dolly Hoist, Chain, Hand Operated Headset, Interphone, SBN/LCC-1 Barrier, Safety, Launch Tube Access Door Pump, Rotary, Hand Driven
	31254G 54150G 54550Y	1 1 1	1.76	Leak Detector, Refrigerant Truck, Dolly Multimeter Truck, Van, Mechanical Maintenance Crane, Truck Mounted Truck, Refrigeration System Servicing Tool Kit, Thermostat Servicing Cage Set, Pressure Gauge, Differential Pressure Dial Indicating Stopwatch Test Stand, Pump

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT CSE USED
1211 Launcher Environmental Control System (Cont.) Operator Damper, FC-3D Operator Damper, FC-4D Axial Vane Fan, S-2 Centrifugal Fan, S-3 Heating Coil, HC-2 Thermostat, TC-4 Airflow Controller, VA-2 Thermostat, TA-4 8-inch Blast Valve Assembly Panel, Control, Blast Valve Switch, Pressure, PE-2 Switch, Pressure, PE-3 Gage, Pressure, Dal Pump, Brine, Centrifugal Chiller, Brine Operator, Damper, FC-1D Centrifugal Fan, S-4 Controller, Pressure, FC-1 Damper, Operator, TD-1D Operator, Damper, FC-3D				4554 Test Stand, Hydraulic System Components 4560 Test Stand, Brine Chiller 4606 Sling Sec (Blast Valves) 4608 Dolly, Handling and Elevating, 8-inch Blast Valve 4609 Alignment Fixture, 8-inch Blast Valve

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PART IV(b): LF UNSCHEDULED OOE/EPIC MAINTENANCE

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HOURS	SPECIAL TOOLS TEST EQUIPMENT GSE USED
1211 Launcher Environmental Control System (Cont.) Operator, Dumper, FC-5D Fan, Centrifugal, Condenser Thermostat, TC-5 Transformer, Variable Air Compressor Unit				
1217 BPIE - Launcher Closure Repair Launcher Closure by replacing items listed below as required: Wiper Seal Weather Seal Ring Seal EM Shielding Gasket Shirt Seal Rails, Sliding Door Close Launcher Cover	31254G 54150G XXXXX	1 1 1	7.73	4305 Cylinder and Valve Assembly, Pneumatic, Compressed Gas 4292 Cover, Environmental 4105 Launcher Opening 4141 Closure, Portable 4277 Truck, Dolly, Tractor, Launcher Closure 4282 Sling, Launcher Closure 4285 Tractor Crane, Jib Heater, Duct Type, Portable
1249 BPIE - Hatch Installation, Launcher Equipment Room Pump, Rotary, Power Driven Tank, Oil, Hydraulic System Cylinder Assembly, Actuating Gage, Pressure, Dial Indicating Relief Valve, Safety	31254G 44502 54150G	1 1 1	3.71	4001 Multimeter 4031 Truck, Van, Mechanical 4149 Maintenance 4240 Truck, Hand Lift 4267 Ladder, Personnel Access 4375 Shelter, Environmental Entrance Hatch Lock, Door Actuator Launcher Equipment Room 4557 Gage Set, Pressure

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT USE USED
1249 RPTE - Hatch Installation, Launcher Equipment Room (Cont'd) Valve, Solenoid Relay, Solenoid Bolt, Manually Rotated Housing, Bearing Unit RPTE - LF Electrical System Repair LF Electrical System by repair or replacing items listed below as required:				4554 Test Stand, Hydraulic System Components
1329 Power Distribution Panel, Engine Cranking Automatic Transfer Switch Generator Set, Diesel Engine Battery Charger, Diesel Engine Battery, Water-Activated Voltmeter Ammeter Circuit Breaker, Main	31254G 54150G 541350	1 1 1	.59	4001 Multimeter 4031 Truck, Van, Mechanical Maintenance 4054 Crane, Truck Mounted Container, Demineralized Water 4339 Ohmmeter 4461 Ammeter, AC/DC 4546 Meter, Electrical Frequency 4551 Voltmeter, AC 4552 Indicator, Phase Sequence
1330 RPTE - LF Equipment Room Shock Attenuation System Repair Shock Attenuation System by replacing or repairing items listed below as required: Shock Absorber, Direct Action, Spring Shock Absorber, Direct Action	31254G 54150G XXXXX	1 1 1	4.92	4031 Truck, Van, Mechanical Maintenance 4270 Plumb Bob Set 4400 Dolly, Handling and Elevating, 8-inch Blast Valve

PART IV(a): LF UNSCHEDULED OCE/RPTE MAINTENANCE

9-000-3-3

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT GSE USED
1331 RPTE - LF Security System Repair Security System by replacing or repairing items listed below as required: Cover, Locking, Security Pit Switch, Magnetic, Contact Switch, Sensitive, Position	31254G 54150G 54250G	1 1 1	2.49	4292 Cover, Environmental 4305 Launcher Opening Cylinder and Valve Assembly, Pneumatic, Mobile 4001 Multimeter 4031 Truck, Van, Mechanical Maintenance 3109 Test Set, Security System 4105 Tractor, Launcher Glove, Portable 4141 Truck, Dolly, Tractor, Launcher Closure 4144 Headset, Interphone, SIN/LCC-L 4277 Bling, Launcher Closure 4282 Tractor, Jib (Launcher Closure Tractor)
1405 RPTE - Diesel Fuel Oil System, LF Repair Diesel Fuel Oil System by replacing items listed below as required: Pump, Rotary, Power-Driven Pump, Rotary, Hand-Driven Indicator-Transmitter, Liquid, Quantity Switch, Float, Liquid Level Start-up and calibrate if required Secure equipment room and site Return to ED or travel to next destination	31254G 54150G XXXXX	1 1 1	9.74 .76 2.06	4001 Multimeter 4031 Truck, Van, Mechanical Maintenance 4144 Headset, Interphone, SIN/LCC-L 4550 Test Stand, Pump
				4491 Start-Up Unit

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PART IV(b): LCF UNSCHEDULED OGE/RPIE MAINTENANCE

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JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT GSE USED
Control and Monitor Travel to LCF Checkout Test to isolate faults Repair or replace the following components as required: 1243 Console, Launch Control Indicator-Launcher, Missile Status Panel, Alarm Monitor Panel, Program Control Panel, Launch Control Filter, DC Power Control Alarm Alarm Assembly, Audible Control Panel, Communications Cable Assembly Checkout Travel to SB	31254G 54150G	2 1	2.86 2.33 2.86	4043 Truck, Van, Electronic Maintenance 3013 Test Set, Command Control Console 3096 Shipping and Storage Container, Electronic Equipment 4001 Multimeter 4179 Case, Encoder and Decoder 4319 Load Set, Test

PART IV(b): LCF UNSCHEDULED OCE/RPE MAINTENANCE

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JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT GSE USED
Communication System Travel to LCF Checkout Test for faults Repair or replace the following components as required: 1336 Console, Communication Control Control Panel Arming and Status Panel Checkout after maintenance Travel to SB	31254G 36152	1 1	2.06 2.06	4063 Truck, Van, Electronic Maintenance 4001 Multimeter 4578 Kit, Missile Saling (Maintenance and Test) 3013 Test Set, Command Control Console 4306 Strip, Wrench, Pipe 4319 Load Set, Test

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PART IVB: LCF UNSCHEDULED OCS/NPTE MAINTENANCE

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT GSE USED
Electrical Power Subsystem Maintenance Van travels to LCF Visually inspect power equipment Fault isolate to a removal valve unit Repair the system by replacing one of the following 1244 Intra-Site Cable	31254G 54250G 54150G	1 1 1	2.86 .50 2.88	4063 Truck, Van, 4386 Electronic Maintenance 4001 Wrench Set, Pipe 4319 Multimeter Lead Set, Test

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT GSE USED
1288 Battery, Emergency Power	54150G 54250G 31254G	1 1 1	2.34	4031 Truck, Van, Mechanical Maintenance 3022 Truck, Dolly 5046 Container, Dematerialized Water 4117 Hoisting Unit, Portable 3048 Sling, Battery Handling 3047 Voltmeter 4386 Wrench, Pipe 3066 Truck, Hand, Lift, Launcher and Launch Control Facility 3095 Shipping and Storage Container, Electronic Equipment 4386 Wrench Set, Pipe 4001 Multimeter 4508 Dummy Load Electrical, Portable 6504 4149 Truck, Hand, Lift 4031 Truck, Van, Mechanical Maintenance 4063 Truck, Van, Electronic Maintenance 4102 Truck, Hand Lift, LCC
1289 Power Supply Set, DC Power Supply Assembly Battery Charger DC Circuit Breaker (Typical) AC Circuit Breaker (Typical) Contactors Wire Tray Assembly	31254G 54150G 54250G	1 1 1	2.43	4001 Multimeter 4319 Lead Set, Test 4117 Hoisting Unit, Portable 3022 Truck, Dolly 4031 Truck, Van, Mechanical Maintenance 4566 Test Set, Relay Headset, Interphone, SIN/LCC-LF 4144
1367 Motor Generator DC Motor Generator AC Motor Generator Coupling Disc 60 Cycle Voltage Regulator Assembly 400 Cycle Voltage Regulator Assembly Panel, Transfer, Selected Assembly	54250G 54150G 31254G	1 1 1	5.92	

PART IV(B): LCF UNSCHEDULED OGE/RPIE MAINTENANCE

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JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT GSE USED
1380 Panel, Power, 60 Cycle, AC, LCF Circuit Breaker Cable Installation Return to SB	54150G 54250G	1 1	1.76 2.06	4001 Multimeter 4319 Lead Set, Test 4306 Wrench Set, Pipe 4031 Truck, Van, Mechanical Maintenance 4144 Headset, Interphone, SW/LCC-LF

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT GSE USED
Survival and Emergency Lighting System Travel to LCF Checkout Test for faults Repair or replace the following components as required: 1370 Survival and Emergency Lighting, LCC Lamp, Incandescent, 28 Volt Lamp, Reflector Type Checkout after maintenance. Travel to SB	34250G	1	2.86	4031 Truck, Van, Mechanical Maintenance 4001 Multimeter 4319 Load Set, Test 4144 Headset, Interphone

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT GSE USED
Inter-Connecting Box Travel to LCF Checkout Test for faults Repair or replace the following components as required. 1376 Junction Box, ESA, LCF Interconnecting Box Wire, Insulated Connector Checkout after maintenance Travel to SB	54150C 54250C 31254C	1 1 1	2.86 7.70 2.86	4001 Multimeter 4319 Lead Set, Test 3022 Truck, Dolly 4031 Truck, Van, Mechanical Maintenance 4144 Handset, Interphone

PART IV(b): LCF UNSCHEDULED OGE/RPIE MAINTENANCE

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JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT GSE USED
Sensitive Command Network, LCF Maintenance van travels to LCF Repair system by replacement and checkout of the following: 1213 Data Processing Equipment, Rack A Data Processing Equipment, Rack A Data Processing Equipment, Rack B Drawer (Typical)	31254G 54150G	1 1	2.86 5.118	4063 Truck, Van, Electronic Maintenance 3066 Truck, Head, Lift, Launcher and Launch Control Facility 3096 Shipping and Storage Container, Electronic Equipment 4012 Test Set, SCN Equipment (Portable) 4001 Multimeter 4102 Truck, Head Lift, LCF
1265 Cable Termination Equipment Drawer (Typical) Connector Assembly, Electrical	31254G 54150G	1 1	2.23	4063 Truck, Van, Electronic Maintenance 3066 Truck, Head, Lift, Launcher and Launch Control Facility 4012 Test Set, SCN Equipment (Portable) 4300 Test Set, SN/NVC Equipment, Portable 4570 Kit, Missile Siding (Maintenance and Test) 4149 Truck, Head, Lift 4503 Adapter Set (CTS) 3096 Shipping and Storage Container, Electronic Equipment 4503 Container, Shipping and Storage, Wire Harness Assembly 4102 Truck, Head Lift, LCF

PART IV(b): LCF UNSCHEDULED OCE/SPIE MAINTENANCE

3-0001-2-2

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT USE USED
1281 Pressure Fault Locator, Hardened Cable System, SCN/LCF Assembly, C-F-L Drawer Panel Assembly, Alarm and Test Set Power Supply	31254G 36151	1 1	1.09	4001 Multimeter Lead Set, Test 4319 Truck, Van, Electronic 4063 Maintenance 3096 Shipping and Storage Container, Electronic Equipment 4149 Truck, Hand, Lift
1339 Cable System, Pressurized, Hardened SCN Splice Case, Cable System Tubing, Pressure, LCF Tubing, Pressure, Access Valve, Pressure, Access Valve, Pressure, Monitoring Contactors, Pressure	36151	4	13.20	3126 Excavator, Multipurpose, Track Mounted 4344 Fault Locator, SCN Cable 4348 Cylinder, Regulator Gauge, Compressed Gas 4349 Test Kit, Pressure, SCN Cable System 4362 Ahmmeter, Surveying 4403 Carrier, Cargo 4538 Test Set, Insulation Breakdown 4001 Multimeter 4006 Oscillator, Audio Frequency 4192 Bridge, Resistance Receiver, Transmitter, 4193 Radio (Vehicle) 4339 Ohmmeter 4343 Bridge, Impedance 4347 Test Set, Telephone 3020 Pump, Centrifugal, Portable
1373 Arrestor, Electro-Magnetic Pulse, LCC Cable Bus-Bar Assembly Arrestor, Electrical Surge Travel to SB	31254G 34150G	1 1	.85 2.86	4001 Multimeter Lead Set, Test 4319 Truck, Van, Mechanical 4031 Maintenance 3022 Truck, Dolly

PART IV(b): LCF UNSCHEDULED OGE/RPIE MAINTENANCE

3-1000-3-3

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME (HRS)	SPECIAL TOOLS TEST EQUIPMENT GSE USED
HF/UHF System Travel to LCF Checkout Test for faults Repair or replace the following components as required: 1309 Antenna System, Radio, UHF/HF LCC Weather Dome UHF Antenna Sleeve Assembly, UHF Antenna Coaxial Cable Assemblies Shell, UHF Antenna HF Antenna Coupler Coaxial Connectors, HF and UHF Electrical Cable, HF Coupler Checkout after maintenance Travel to SB	30452 31254G	2 1	2.06 3.60	4031 Truck, Van, Mechanical Maintenance 4544 Adapter, Hoist 4063 Truck, Van, Electronic Maintenance 4054 Crane, Truck Mounted 4348 Cylinder, Regulator Gauge, Compressed Gas

PART IV(b): LCF UNSCHEDULED OCE/RPIE MAINTENANCE

2-89d-3-3

JOB DESCRIPTION	AISC	NUMBER OF PERSONNEL	TIME (HRS)	SPECIAL TOOLS TEST EQUIPMENT GSE USED
Support Information Network, LCF Maintenance van travels to the LCF Perform composite test of SIN to detect faults Visually inspect components for damage Repair by replacing or repairing one of the following items			2.86	
1300 Handset, (Control Panel, Communications)	36152	1	.78	4031 Truck Van, Mechanical Maintenance
1301 Headset, (Control Panel, Communications)	36152	1	.78	4031 Truck Van, Mechanical Maintenance
1302 Terminal Equipment, Telephone Cabinet Assembly Drawer (Typical)	36152 31254G	1 1	1.74	4063 Truck Van, Electronic Maintenance 3006 Truck, Hand, Lift Launcher and Launch Control Facility 3096 Shipping and Storage Container, Electronic Equipment 4388 Test Set, SIN/HVC Equipment, Portable 4102 Truck, Hand, Lift, LCC 4388 Test Set, SIN/HVC Equipment, Portable 4144 Headset 4319 Load Set, Test 4031 Truck, Van, Mechanical Maintenance
1304 Jack Assembly Telephone, SIN/LX F/L Resistors Connector	36152	1	.64	4388 Test Set, SIN/HVC Equipment, Portable 4144 Headset 4319 Load Set, Test 4031 Truck, Van, Mechanical Maintenance
1341 Telephone Set, SIN/LCC	36152	1	.34	4388 Test Set, SIN/HVC Equipment, Portable 4144 Headset 4031 Truck, Van, Mechanical Maintenance 4319 Load Set, Test

PART IV(b). LCF UNSCHEDULED OGE/RPIE MAINTENANCE

B-3201-3-3

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME (hrs)	SPECIAL TOOLS TEST EQUIPMENT USE USED
1343 Telephone Set, Wall Type, SIN/LCC Resistors, Fixed Capacitor, Electrolytic Ringar, Telephone Set Travel to SB	36152	1	.74	4388 Test Set, SIN/HVC Equipment, Portable 4144 Headset 4319 Lead Set, at Truck, Van, Mechanical Maintenance 4031 2.86

PART IV(b): LCF UNSCHEDULED OGE/RPIE MAINTENANCE

3-2241-2-2

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT CASE USED
Sensitive Command Network System Maintenance van travels to LCF 1339 Cable System, Pressurized, Hardened, SCN <u>Pneumatic Maintenance</u> Inspect cable route and measure pressure at first pressure contact closure Valve, Pressure Monitoring Remove (if foreign material or physical damage exist) Pressure Monitoring Valve Install: Pressure Monitoring Valve Checkout: Pressure Monitoring Valve Checkout: Cable System Continue test to isolate fault to splice case area Excavate area to expose splice case Contactor, Pressure Remove (if pressure access readings are normal). Pressure Contactor Install: Pressure Contactor Checkout: Pressure Contactor Back Fill Checkout: Cable System	36171	4	2.86 13.20	3020 Pump, Centrifugal, Portable 3126 Ditching Machine 4001 Multimeter 4006 Oscillator, Audio Frequency 4192 Bridge, Resistance 4193 Receiver-Transmitter, Radio (Vehicle) 4339 Ohmmeter 4342 Test Set, Electrical Cable (Voltage Breakdown) 4343 Test Set, Electrical Cable (Capacity Breakdown) 4344 Fault Locator, SCN Cable 4347 Test Set, Telephone 4548 Cylinder, Compressed Gas 4349 Testing Kit, Pressure SCN Cable System 4950 Stripper, Cable Hand 4351 Applicator, Gun, Type C 4354 Gradations 4362 Altimeter, Surveying 4363 Power Plans, Electrical, Portable 4401 Repair Kit, Electrical Cable Insulation 4402 Shaking Screen 4403 Carrier, Cargo 4426 Rod, Ground 4427 Lead, Electrical 4428 Mat, Floor 1264 Panel Installation Meter, Air Flow, SCN/LCC

PART IV(b): LCF UNSCHEDULED OGE/RPIE MAINTENANCE

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JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME IN HRS	SPECIAL TOOLS, TEST EQUIPMENT, USE USED
1339 Cable System, Pressurized, Hardened, SCN (Cont.) Valve, Pressure Access Test: Pressure Access Valve Remove: Pressure Access Valve Install: Pressure Access Valve Checkout: Pressure Access Valve Back Fill Checkout: Cable System Splice Case Test: Splice Case Repair: Splice Case Checkout: Splice Case Complete Back Fill Checkout: Cable System Cable Section Excavate, 5-foot Cable Section Test to determine direction of leak Move 50 feet and bracket leak by repeating above two steps Excavate the 50-foot cable section Repair: Cable Section Checkout: Cable Section				1281 Panel Fault Locator, Hardened Cable, SCN/LCC 4538 Test Set, Breakdown, Insulation

2-3241-3-3

PART IV(b): LCF UNSCHEDULED COI RPIE MAINTENANCE

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME	SPECIAL TOOLS TEST EQUIPMENT GSE USED
1339 Cable System, Pressurized, Hardened, SCN (Cont.) Cable Section (Cont.) Back Fill 50-foot Cable Section Checkout: Cable System Tubing, Pressure, LCF Test: Pressure Tubing Remove: Pressure Tubing Install: Pressure Tubing Checkout: Pressure Tubing Checkout: Cable System Tubing, Pressure Access Test: Pressure Access Tubing Remove: Pressure Access Tubing Install: Pressure Access Tubing Checkout: Pressure Access Tubing Checkout: Cable System				

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME	SPECIAL TOOLS TEST EQUIPMENT GSE USED
1339 Cable System, Pressurized, Hardened, SCN (Cont.) <u>Electrical Maintenance</u> Cable Section Test: Cable Section Excavate: 10-foot Trench Repair: Cable Section Checkout: Cable Section Back Fill 10-foot Trench Checkout Cable System Return to Support Base			2.86	

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PART IV(b). LCF UNSCHEDULED OGE/RPIE MAINTENANCE

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JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME	SPECIAL TOOLS TEST EQUIPMENT GSE USED
RPIE Maintenance, LCF Maintenance vehicle travels to LCF Repair the following systems by repairing or replacing component subsystem items as listed: 1212 Environmental Control System Chiller, CH-1 Meter, Flow Rate, Indicating, Float Type Pump, Centrifugal, Brine, P-1 Gauge, Pressure, Dial Indicating Operator Damper, PC-1D Switches, Pressure (PE-2, PE-3) Controller, Pressure, PC-1 Operator Damper, TC-1D Fan, Centrifugal, Condenser Cooling Coil, CC-2 and CC-1 Fan, Centrifugal, E1 Thermostat, TA-1 Controller, Air Flow, FA-1 Temperature Controller, HL-1 Fan, Centrifugal, S-4 Switches, Pressure, PE-4 and PE-5 Temperature Controller, TC-1	31254G 54350V 54150G	1 1 1	2.86 2.23	3022 Truck, Dolly 4001 Multimeter 4031 Truck, Van, Mechanical Maintenance 4054 Crane, Truck Mounted 3039 Leak Detector (Refrigerant) 3059 Stopwatch 4299 Chain Hoist 4316 Truck, Refrigeration System Servicing Tool Kit, Thermostat 4545 Adjustment and Repair 4550 Test Stand, Pump 4554 Test Stand, Hydraulic System Components 4557 Gage Set, Pressure 4560 Test Stand, Brine Chiller 4605 Dolly, Handling 4606 Sling Set (Blind Valve) 4607 Draw Bolt and Wrench Set 4608 Dolly, Handling and Elevating 4611 Gage, Differential Pressure

PART IV(b): LCF UNSCHEDULED OGE/RPIE MAINTENANCE

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JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME	SPECIAL TOOLS TEST EQUIPMENT GSE USED
1212 Environmental Control System (Cont.) Filter, CBR Operator Damper, FC-1D Fan, Anal, S1 Coil, Heating, Electric, HC-1 Transformer, Variable Power Pump, Centrifugal, Brine, P-2 Heat Exchanger, HX-101 Purifier, Air, KO₂ Unit Carbon Canister, OC-1 Compressor Unit, Air Temperature Controller, TC-3 Blast Valve, 24-inch Panel, Control, Blast Valve Valve, By-Pass Valve, Control, 4-way Unit, Cooling, Package, Emergency Pneumatic Target Gauge, SA-3 Thermostat, TA-3 Compressor Unit, Air Air Velocity Meter Pump, Hydraulic Ram, Hand-Driven				

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PART IV(b). LCF UNSCHEDULED OGE/RPIE MAINTENANCE

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JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME	SPECIAL TOOLS TEST EQUIPMENT GSE USED
1230 Diesel Fuel Oil System, LCF Pump Rotary, Power-Driven Pump Rotary, Hand-Driven Switch, Float, Liquid Level, LCC Indicator-Transmitter, Liquid Quantity Shock Attenuation System, LCC Shock Attenuation Assembly Valve, Pressure Regulating, PR-1 Gage, Pressure, Dial Indicating, G-1, G-2 and G-3 Sway Damper Assembly Cylinder, Compressed Gas Panel, Pressure, Control Indicator	54150G 54150G 54350	1 1 1	4.01	4001 Multimeter 4031 Truck, Van, Mechanical Maintenance 4144 Headset, Interphone, SIN/LCC-L 4550 Test Stand, Pump
1241	54150G 31254G	1	3.08	4031 Truck, Van, Mechanical Maintenance 4557 Gage Set, Pressure 4605 Dolly Set, Handling 4608 Dolly, Handling and Elevating
1242 Lift, Service, LCC Winch, Drum, Power Operated Motor, Alternating Current Brake, Electric Pully, Grooved Reel, Cable Panel, Power Distribution	54150G 54250G	1 1	1.82	4001 Multimeter 4031 Truck, Van, Mechanical Maintenance 3022 Truck, Dolly 3083 Compressor, Reciprocating, Power Drive

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PART 1(b): LCF UNSCHEDULED OGE/RPIE MAINTENANCE

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME	SPECIAL TOOLS TEST EQUIPMENT GSE USED
1323 Electrical System, LCC Panel, Power Distribution, Engine Cranking Charger, Battery, Diesel Engine Generator Set, Diesel Engine Battery, Water Activated Panel, Indicator, Commercial Power Circuit Breaker, Main, No. 1 Circuit Breaker, Main, No. 2 Switch, Sensitive, Ammeter Selector Switch, Sensitive, Voltmeter Selector Blast Door Installation, LCC Pump, Reciprocating, Hand-Driven Cylinder Assembly, Actuating Linear Housing, Bearing, Unit Pillow Block Seal, Rubber Channel Section Plate, Electrical Shield	54350 54150G 31254G	1 1 1	.69	4001 Multimeter 4031 Truck, Van, Mechanical Maintenance 4339 Ohmmeter 4551 Voltmeter 4461 Ammeter, AC/DC 4552 Indicator, Phase- Sequencing Meter 4546 Frequency Meter 3046 Container, Demineralize Water
1326	54150G 31254G	1 1	.83	4031 Truck, Van, Mechanical Maintenance 3059 Stopwatch 4554 Test Stand, Hydraulic System Components
1327 Security System, LCC Gate, Metal, Sliding Lock, Manual-Electric Actuated Casters, Rigid Door Assembly, Electric	54250G 54150G 31254G	1 1 1	2.46	4001 Multimeter 4031 Truck, Van, Mechanical Maintenance

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PART IV(b): LCF UNSCHEDULED OGE/RPIE MAINTENANCE

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JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME	SPECIAL TOOLS TEST EQUIPMENT GSE USED
1327 Security System, LCC (Cont.) Panel, Alarm-Power Distribution Floodlight Assembly Relay, Solenoid Return to SB or travel to next destination			2.86	

PART V: LF & LCF SCHEDULED OGE/RPIE MAINTENANCE

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JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME (HRS)	SPECIAL TOOLS TEST EQUIPMENT GSE USED
OGC/RPIE Scheduled Maintenance, Launch Facility and Launch Control Facility In order to minimize maintenance travel time, scheduled maintenance is integrated with unscheduled maintenance. 1209 Water Control and Removal System, LF 12 Months Visually Check 1210 Sewage Disposal System, LCC 12 Months Clean and Visually Check 3 Months Service, Pumping Unit, Sewage 1211 Environmental Control System, LF 3 Months Clean and Visually Check System Service: Brine Subsystem Service: Distribution Subsystem including various Damper Operators Service and Checkout, 8-Inch Blast Valve Assembly Service and Checkout: Emergency Subsystem, i.e., Damper Operators and Centrifugal Fan Service: Control Air Subsystem 12 Months Service: Damper Operators	54150G 54150G 54150G 54150G 54550Y 54150G	1 1 1 1 1	5.18 2.70 .70 6.48 .01	4043 Elevator and Work Cage 4144 Headset, Interphone, SIN/LCF-LF 4031 Truck, Van, Mechanical Maintenance 4031 Truck, Van, Mechanical Maintenance 3039 Refrigerant, Leak Detector 4316 Truck, Refrigeration System, Servicing 4031 Truck, Van, Mechanical Maintenance

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Part V RPIE SCHEDULED MAINTENANCE, LF-LCF

JOB OPERATION		AFSC	NUMBER OF PERSONNEL	TIME (hrs)	SPECIAL TOOLS TEST EQUIPMENT GSE USED
1212	Environmental Control System, LCC				
12 Months	Service and Checkout Blast Valve Assembly, Calibrate Air Velocity Meter Checkout, Emergency Environmental Control Subsystem Service: Damper Operator, FC-1D	54150G 54550Y	1 1	2.34	3039 Leak Detector, Refrigerant
3 Months	Service: Brine Subsystem, Chilled Service: Emergency Environmental Control Subsystem Service: Control Air Subsystem	54150G 54550Y	1	2.25	4316 Truck, Refrigeration System Servicing 4031 Truck, Van, Mechanical Maintenance
2 Months	Service Air Purifier, KO ₂ Unit	54150G	1	.05	
1 Month	Service, Carbon Canister, OC-1	54150G	1	.15	
1217	Closure, Launch Tube				
12 Months	Clean, Visually Inspect and Checkout Closure Service, Ring Seal	54150G 44550Z	1 1	7.27	4285 Heater, Duct Type, Portable 4031 Truck, Van, Mechanical Maintenance 4105 Tractor, Portable 4141 Truck, Dolly, Tractor 4277 Sling, Launcher Closure, Tractor 4282 Hoist, Jib, Tractor 4305 Cylinder and Valve Assembly 4392 Cover, Environmental
1241	Shock Attenuation System LCC				
1 Day	Visually Inspect	1824G	1	.05	

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JOB OPERATION		AISC	NUMBER OF PERSONNEL	TIME IN HRS	SPECIAL TOOLS TEST EQUIPMENT CSE USED
1323	Electrical System, LCC				
	12 Months Clean and Inspect. Electrical System	54250G	1	5.20	4031 Truck, Van, Mechanical Maintenance
	Checkout (300 Hour or 12 Month)	54150G	1		
	3 Months Inspect: Diesel Generator Set	54350	1	.81	
	1 Month Service: Diesel Generator Set	54350	1	.30	3046 Container, Demineralized Water
	Service: Battery, Water-Activated				
	200 Hours Service: Diesel Generator Set	54350	1	.32	
	1 Week Checkout: Standby Electrical Subsystem	54150G	1	2.14	
	Water Supply System, LCC				
	12 Months Clean and Inspect System	54150G	1	3.91	4557 Gauge Set, Pressure
1324	Drain and Flush: Pneumatic Tank				
	Service: Pump Motor				
	Calibrate Various Pressure Gages				
	6 Months Service: Filter, Fluid, Pressure, F-102	54150G	1	.43	
	3 Months Service: Filter, Fluid, Pressure, F-101	54150G	1	.68	
	Service: Water Softener				
	1 Month Purge: Water System Strainer	54150G	1	.26	
	Service: Water Softener				
	7 Days Service: Water Demineralizer	54150G	1	.02	
	3 Days Service: Hypochlorinator	54150G	1	.40	
1325	Service: Chemical Feeder				
	Heating System, LCCB				
	6 Months Clean and Inspect: Heating System Components	54150G	1	7.30	

* Operating Hours

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JOB OPERATION		AFSC	NUMBER OF PERSONNEL	TIME (HRS)	SPECIAL TOOLS TEST EQUIPMENT GSE USED
1326	Blast Door Installation, LCC 12 Months Clean, Service, Inspect and Checkout	54150G	1	2.95	3059 Stop Watch
1328	Alarm System, Fire, LCC 12 Months Checkout System	54150G	1	.72	4547 Heater, Immersion, Electric 4001 Multimeter
1329	Electrical System, Launcher 12 Months Clean and Inspect System Checkout: Standby Electrical Subsystem (500 Hour)	54150G 54250G 54350	1 1	5.11	4031 Truck, Van, Mechanical Maintenance 4461 Ammeter, AC/DC 4546 Meter, Electrical 4551 Frequency 4551 Voltmeter, AC 4552 Indicator, Phase Sequence
	3 Months Inspect: Primary and Secondary Fuel Oil and Lube Oil Filters, Diesel Generator	54350	1	.81	
	1 Month Service, Generator Set, Diesel Engine Service, Battery, Water-Activated	54350	1	.40	3046 Container, Demineralized Water 4031 Truck, Van, Mechanical Maintenance
	1 Week Checkout Standby Electrical Subsystem	54150G	1	2.21	
	2000 Hours Remove, Generator Set, Diesel Engine	54350	2	.63	
	200 Hours Service, Generator Set, Diesel Engine	54350	1	.32	
1331	Security System, Launcher 12 Months Clean: Security Violation Detecting System	54150G	1	1.00	

* Operating Hours

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME PER	SPECIAL TOOLS TEST EQUIPMENT GSE USED
1390 Ventilation System, LCC 12 Months Clean and Inspect System Service: AC Motor and Power-Driven Louver Units	54150G	1	2.70	
1396 Monitoring System, Equipment Fault, LCF 12 Months Clean and Inspect: Monitoring System Alarm Panel Replace: Necessary Parts Checkout System	54150G	1	1.95	4144 Headset, Interphone, SIN/LCF-LF
1415 Fixture, Emergency Lighting and Alarm, Battery Operated, LCC 1 Month Service, Battery, Water-Activated	54150G	1	.15	3046 Container, Demineralized Water

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Part V:

RPIE SCHEDULED MAINTENANCE, LF-LCF

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**PART VI(a): SCHEDULED MISSILE AND AUTOCOLLIMATOR
ALIGNMENT RETARGETING**

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JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME IN HOURS	SPECIAL TOOLS - TEST EQUIPMENT - GSE USED
Missile and Collimator Alignment Sequence (North Star as First Order Reference) Maintenance van travels to SB Maintenance crew gains access to equipment room Perform periodic first order reference check Place azimuth frequency sighting and missile alignment equipment into and near launcher Install theodolite(s) as required Verify primary mirror reference (North Star method) Verify primary mirror reference (Azimuth reference, Monument method) Establish secondary mirror reference if required Install photoelectric collimator test set Check and if necessary correct collimator set alignment Single theodolite method (Check, if necessary correct collimator set alignment) Dual theodolite method (Check, if necessary correct collimator set alignment) Secure equipment room and LF Maintenance van travels to SB	3124G 31254G 44350G	1 1 1	2.86 .88 10.50	631 Mirror, Azimuth Alignment, C92 4520 Vehicle, Alignment Support 642 Alignment Group Optical C96 648 Theodolite 660 Mount, Theodolite 675 Mirror, Optical Transfer 719 Accessory Kit, Optical Alignment 717 Test Set, Collimator 4062 Truck, Van, Targeting 4446 Cover, Personnel Access 4441 Projector, Strip, Auto-collimator Bench Rail 4440 Plate, Mounting Theodolite
			.70	
			2.86	

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PART VI(a) SCHEDULED MISSILE AND AUTOCOLLIMATOR ALIGNMENT RETARGETING

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME (Hrs)	SPECIAL TOOLS TEST EQUIPMENT CSE USED
Seismic Alarm Response Alignment van travels to site Enter launcher equipment room and launcher tube to safe missile Perform reference check Place North Star sighting and or missile alignment equipment into launcher Install theodolite as required Verify reference mirror azimuth If reference mirror has shifted, do the following tasks Establish new primary mirror reference Establish secondary mirror reference If reference mirror is okay, omit preceding two operations Install photo-electric collimator test set Check and if necessary correct collimator set alignment by Single theodolite method, or Dual theodolite method Remove optical alignment set from launcher Secure equipment room and site Travel to SB Calibrate from LCC	3124G 31254G 44350G	1 1 1	2.86 .88 7.17	631 Mirror Azimuth Alignment C92 4024 Semitrailer, R/V-G&C 4031 Maintenance Van 4063 Truck, Van, Mechanical 4063 Maintenance Truck, Van, Electronic 4062 Maintenance Truck, Van, Targeting 4285 Heater, Duct Type, Portable 4520 Truck, Van, Alignment 4375 Support Lock, Door Actuator 4260 Launcher Equipment Room 4267 Ladder, Straight, Personnel 4041 Shelter, Environmental 4042 Entrance Hatch 4042 Tester, Gas, Portable 4144 Mask, Gas 4144 Headset, Interphone, SIN/LCF-LF 4382 Cord Assembly, Electrical 642 Optical Alignment Set, C92 719 Optical Alignment Group 717 Test Set, C143 4441 Protractor, Strip, Auto-collimator Bench Rail 675 Mirror, Optical Transfer

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JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME PER	SPECIAL TOOLS, TEST EQUIPMENT, GSE USED
Collimator Set Malfunction Alignment van travels to site Enter launcher equipment room and launcher tube to safe missile Perform reference check Place North Star sighting and missile alignment equipment into launcher Install theodolite as required Perform maintenance of collimator set Check and if necessary, correct collimator set alignment by: Single theodolite method, or Dual theodolite method Remove optical alignment set from launcher	3124G 31254G 44350G	1 1 1	2.86 .88 5.72	4024 Semitrailer, R/V-GMC Maintenance Van 4031 Truck, Van, Mechanical Maintenance 4063 Truck, Van, Electrical Maintenance 4062 Truck, Van, Targeting 4285 Heater, Duct Type, Portable 4520 Truck, Van, Alignment Support 4375 Lock, Door Actuator, Launcher Equipment Room 4260 Ladder, Straight 4267 Personnel Entrance Shelter, Environmental 4041 Tester, Gas, Portable 4042 Mask, Gas 4144 Headset, Interphone 4382 SIN/LCF-LF 642 Cord Assembly, Electrical Optical Alignment Set, C96P 719 Optical Alignment Group 4441 Protractor, Strip, Auto-collimator Bench Rail 675 Mirror, Optical Transfer
Secure equipment room and site Travel to SB Calibrate from LCC			.70 2.86	

PART VI(b): OPERATIONAL RETARGETING

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JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME IN HRS	SPECIAL TOOLS TEST EQUIPMENT GSE USED
Operational Retargeting: Maintenance van travels to Launch Facility Maintenance crew gains access to Launch Facility equipment room Perform reference check Install work cage Rotate missile and G&C umbilical to approximate azimuth Emplace alignment equipment Perform C24 self test Transfer control to LF Align missile and autocollimator Perform 90-minute equipment warm-up Fill and verify computer and perform fine alignment Transfer control to LCC Stow equipment Secure site Travel to SB Calibrate from LCC	3124G 31254G 44350G	1 1 1	2.86 .83 10.05	Console, Missile Targeting, C24 Mirror, Azimuth Alignment, C92 Theodolite Mount, Theodolite Mirror, Optical Alignment 603 631 642 648 660 675 719 720 724
			.70 2.86	Accessory Kit, Optical Alignment Vehicle, Operational Targeting, WS-133A Vehicle, Alignment Support

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PART VII(a): TRANSPORT FLOW, AIR MODE, SMSA TO A&R

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JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS, TEST EQUIPMENT, GSE USED
Missile transfer from T-E to SSCBM (Cont.) Disconnect Transport Monitor System from T-E Indicator Panel Connect transfer system Transfer missile from T-E to SSCBM Secure missile to SSCBM Disconnect transfer and alignment equipment and store Transfer SSCBM to transient storage Depending on schedules, a storage space is required for loaded SSCBM and SSCBM Trailer.	44350G	1	.31	4188 Jack, Leveling Support, Transporter-Erector 4535 Alignment Set, Missile Transfer 4585 Rail, Bridge, TE/SSCBM 4448 Extension, Missile Base 4307 Adapter Ring Restraint Set, Base Adapter Ring to T-E Semi-Trailer 4078 Harness, Handling, Engine, Stage I 4078 Harness, Handling, Engine, Stage I 4095 Shipping and Storage Container, Ballistic Missile (SSCBM) 4129 Trailer, SSCBM 4130 Tractor, SSCBM 4187 Monitor System, Transport 4115 Environmental Control Unit, Transport
Missile transfer from SSCBM Trailer to aircraft Prepare SSCBM for transport Transport SSCBM to aircraft Prepare aircraft for transfer of SSCBM Position aircraft at loading facility Open ramp and secure in position Install aircraft roll system, if required Prepare SSCBM for transfer to aircraft	43151 44350G 60173 60350R	2 1 2 3	3.02	3078 Truck, Lift, Fork 4078 Harness, Handling, Engine, Stage I 4095 Shipping and Storage Container, Ballistic Missile (SSCBM) 4096 Adapter Kit, C-133 Missile Transport 4120 Harness, Handling, Engine, Stage II 4129 Trailer, SSCBM 4130 Tractor, SSCBM 4187 Monitor System, Transport 4201 Lock-Out, Engine Harness Suspension, Stage I

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JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME (H:M:S)	SPECIAL TOOLS TEST EQUIPMENT GSE USED
Missile transfer from SSCBM Trailer to aircraft (Cont.) Position SSCBM Trailer to aircraft Stabilize Trailer to minimize relative motion between the Trailer and the aircraft Transfer SSCBM to aircraft Connect aircraft ramp to transport trailer guides and connect transfer system Prepare aircraft for transport (flight) Secure SSCBM to aircraft Lock-out harness suspensions (It is required that the Missile Harness Suspensions be rendered inoperative in the static loaded position.) Disconnect and remove transfer ramp support and rolls Dispatch Trailer and Tractor to support vehicle parking facility				4202 Lock-Out, Engine Harness Suspension, Stage II 4203 Lock-Out, Engine Harness Suspension, Stage III 4206 Support Ramp, C-133B Aircraft 4115 Environmental Control Unit, Transport 4493 Skis, SSCBM 4175 Jack Set, Translating SSCBM/T-E 4121 Harness, Handling, Engine, Stage III

PART VII(b): TRANSPORT FLOW, AIR MODE, A&R TO SMSA

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JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME	SPECIAL TOOLS TEST EQUIPMENT CASE USED
Transport and Handling Air Mode to SMSA from AER				
Receive missile at air field	44350G	1	.25	4095 Shipping and Storage
Inspect missile in aircraft	60350B	3		Container, Ballistic
Dispatch SSCBM Trailer and Tractor to unloading site				4187 Missile (SSCBM),
Position aircraft at unloading site				Monitor System,
Transfer SSCBM from aircraft to SSCBM Trailer				4129 Transport
Prepare aircraft and SSCBM for transfer to SSCBM Trailer	44350G	1	2.31	4130 Trailer, SSCBM
Prepare SSCBM Trailer for roll transfer	60350B	3		Tractor, SSCBM
Transfer SSCBM to SSCBM Trailer				3078 Truck, Lift, Fork
Prepare SSCBM and SSCBM Trailer for movement				4078 Harness, Handling, En
				Engine, Stage I
				4095 Shipping and Storage
				Container, Ballistic
				4096 Missile (SSCBM)
				Adapter Kit, C-133
				4120 Missile Transport
				Harness Handling,
				4121 Engine, Stage II
				Harness, Handling,
				4129 Engine, Stage III
				Trailer, SSCBM
				4130 Tractor, SSCBM
				4187 Monitor System,
				Transport
				4201 Lock-Out, Engine
				Harness Suspension,
				Stage I
				4202 Lock-Out, Engine
				Harness Suspension,
				Stage II
				4203 Lock-Out, Engine
				Harness Suspension,
				Stage III
				4206 Support Ramp, C-133B
				Aircraft
				4175 Jack Set, Translating
				4493 Skid, SSCBM
				4115 Environmental Control
				Unit, Transport

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME	SPECIAL TOOLS TEST EQUIPMENT GSE USED
Transfer SSCBM to missile transient storage as required Tow loaded SSCBM Trailer to transient storage area Prepare for storage Return tractor to support vehicle maintenance facility Move loaded SSCBM Trailer two feet (Storage in excess of 24 hours) Move SSCBM from transient storage Move Tractor from support vehicle maintenance facility to storage area Prepare SSCBM for transport Transfer missile to Transporter-Erector Drive loaded Transporter-Erector to transient storage area Assemble convoy	44350G 60350B	1 3	.36	4129 Trailer, SSCBM 4130 Tractor, SSCBM 4187 Monitor System, Transport 4095 Shipping and Storage Container, Ballistic Missile (SSCBM) 4115 Environmental Control Unit, Transport
	44350G 60350B	1 3	4.20	4059 Semi-Trailer, Transporter-Erector 4075 Truck, Tractor, Transporter-Erector 4119 Truck, Special Escort 4129 Trailer, SSCBM 4130 Tractor, SSCBM 4187 Monitor System, Transport 4115 Environmental Control Unit, Transport 4095 Shipping and Storage Container, Ballistic Missile (SSCBM) 4446 Extension Missile Base Adapter Ring

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PART VIII(b): TRANSPORT FLOW, AIR MODE, A&R TO SMSA

PART VII(c): TRANSPORT FLOW, RAIL MODE, TE/SSCBM

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JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT GSE USED
Rail Shipment of Loaded T-E or SSCbM Assemble T-E, Railcar and transfer equipment at railhead Deliver T-E to railhead RR delivers Railcar to railhead Deliver Railcar T-E Adapter Kit and handling equipment to railhead Receive and inspect T-E equipment, Railcar and Monitor System Batteries Prepare Railcar for loading Load T-E Semi-Trailer on the Railcar Prepare T-E for rail transport Couple Railcar into train Load tools and equipment into transport vehicle Drive vehicles to SVMF	44350C 60350B	1 3	2.06	3078 Truck, Lift, Fork 4059 Semi-Trailer 4075 Transporter-Erector 4115 Truck Tractor 4119 Transporter-Erector 4129 Environmental Control Unit, Transport 4130 Truck, Special Escort Trailer, SSCbM 4187 Tractor, SSCbM 4193 Monitor System, Transport 4217 Receiver-Transmitter, Radio (Vehicle) 4525 Support, Frame, T-E 4524 Semi-Trailer 4525 Stop, Railcar Wheel 4524 Wrench, Portable, Electric 4493 Skis, SSCbM 4095 Shipping and Storage Container, Ballistic Missile (SSCBM)
Assemble SSCbM, Railcar and transfer equipment at railhead RR delivers Railcar at railhead Deliver Railcar/SSCBM and handling equipment to railhead Inspect SSCbM Railcar and equipment Prepare SSCbM Railcar for loading Position SSCbM for transfer to Railcar Transfer SSCbM from Trailer to Railcar Prepare SSCbM for rail transport	44350C 60350B	1 3	1.37	3078 Truck, Lift, Fork 4059 Semi-Trailer 4075 Transporter-Erector 4115 Truck Tractor 4119 Transporter-Erector 4129 Environmental Control Unit, Transport 4130 Truck, Special Escort Trailer, SSCbM 4187 Tractor, SSCbM 4193 Monitor System, Transport 4217 Receiver-Transmitter, Radio (Vehicle) 4525 Support, Frame, T-E 4524 Semi-Trailer

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PART VII(c): TRANSPORT FLOW, RAIL MODE, T-E/SSCBM

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SPECIAL TOOLS TEST EQUIPMENT CSE USED	TIME HRS	NUMBER OF PERSONNEL	AFSC	JOB OPERATION
4525 Stop, Railcar Wheel 4524 Wrench, Portable, Electric 4493 Skis, SSCBM 4095 Shipping and Storage Container, Ballistic Missile (SSCBM)				Assemble SSCBM, Railcar and transfer equipment at railhead (Cont.) Remove and store equipment and return to SB Couple Railcar into train
3078 Truck, Lift, Fork 4059 Semi-Trailer 4075 Transporter-Erector Truck Tractor 4115 Transporter-Erector Environmental Control Unit, Transport 4119 Truck, Special Escort 4187 Monitor System, Transport 4217 Support, Frame, T-E Semi-Trailer 4524 Wrench, Portable Electric 4525 Railway Car, Stop, Railcar Wheel 4193 Receiver-Transmitter, Radio (Vehicle)	1.29	1 3	443502 60350B	Unload T-E from Railcar Transport T-E Tractor and handling equipment to railhead from SMSA Inspect Railcar event recorder and equipment and then notify MCC of condition Prepare Railcar for unloading Prepare T-E Semi-Trailer for unloading Unload T-E Semi-Trailer Prepare T-E Railcar for travel Assemble convoy for road
4095 Shipping and Storage Container, Ballistic Missile (SSCBM) 4129 Trailer, SSCBM 4130 Tractor, SSCBM 4524 Wrench, Portable, Electric 4525 Stop, Railcar Wheel 4115 Environmental Control Unit Transport 4187 Monitor System, Trans- port	1.08	1 3	44350G 60350B	Unload SSCBM from Railcar Transport SSCBM Trailer and handling equipment to railhead Inspect Railcar and equipment and then notify MCC of condition Prepare SSCBM Railcar for unloading Prepare SSCBM Trailer for unloading Prepare SSCBM Trailer for loading Transfer SSCBM from Railcar to SSCBM Trailer

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PART VIII(c). TRANSPORT FLOW, RAIL MODE, T-E/SSCBM

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT GSE USED
Unload SSCBM from Railcar (Cont.) Prepare SSCBM and Trailer for road transport Prepare SSCBM Railcar for travel Assemble convoy for road				

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PART VIII(c): TRANSPORT FLOW, RAIL MODE, T-E SSCBM

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PART VII(d): TRANSPORT FLOW, HIGHWAY MODE, TE

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME /HRS	SPECIAL TOOLS TEST EQUIPMENT CSE USED
Transportation Flow, Highway Mode Place loaded T-E in transient storage if necessary Dispatch and travel to storage area Place T-E in short time storage Place T-E in long time storage Place T-E container in short storage Remove loaded T-E container from transient storage Remove T-E container from transient storage Check Environmental Control System and Transport Monitor System Assemble convoy and prepare for travel Drive to destination or storage	44350G 60350B 44350G 60350B	1 1 3	.20 .63	4075 Truck Tractor, Transporter-Erector 4115 Environmental Control Unit, Transport 4187 Monitor System, Transport 4059 Semi-Trailer, Transporter-Erector 4059 Semi-Trailer, Transporter-Erector 4075 Truck Tractor, Transporter-Erector 4115 Environmental Control Unit, Transport 4119 Truck, Special Escort 4187 Monitor System, Transport

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PART VIII(d). TRANSPORT FLOW, HIGHWAY MODE T-E

PART VII(e): MISSILE TRANSFER - SSCBM TO TE (OR TE TO SSCBM)

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JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT GSE USED
Missile Transfer SSCBM to T-E Drive empty T-E to transfer facility Drive loaded SSCBM to transfer facility Prepare SSCBM for missile transfer Prepare T-E for missile transfer Align T-E and SSCBM for missile transfer Transfer missile from SSCBM to T-E Prepare empty SSCBM for movement Drive SSCBM to SB Prepare loaded T-E for movement Drive loaded T-E to destination	4435OG 6035OG	1 3	3.77	3078 Truck Lift, Fork 4054 Semi-Trailer, Transporter-Erector 4075 Truck, Tractor, Transporter-Erector 4078 Harness, Handling, Engine, Stage I 4095 Shipping and Storage Container, Ballistic Missile (SSCBM) 4120 Harness, Handling, Engine, Stage II 4129 Trailer, SSCBM 4130 Tractor, SSCBM 4175 Jack, Translating 4187 Monitor System, Transport 4188 Jack, Leveling-Support, Transporter-Erector 4307 Adapter, Restraining, Base Adapter Ring to T-E 4053 Adapter, Hoisting, Stabilizing Ring 4115 Environmental Control Unit, Transport 4493 Skis, SSCBM 4535 Alignment Set, Missile Transfer 4448 Extension, Missile Base Adapter Ring 4121 Harness, Handling, Engine Stage III 4585 Rail, Bridge, TE/SSCBM

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PART VIII(e): MISSILE TRANSFER SSCBM TO T-E (OR T-E TO SSCBM)

PART VIII(a): SB MAINTENANCE - RV MAINTENANCE/RECYCLE

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME (HRS)	SPECIAL TOOLS TEST EQUIPMENT GSE USED
Perform Re-entry Vehicle Maintenance/Recycle Re-entry Vehicle, M7 5, Mod 3	33150B	3		801 Adapter and Stand, Hoisting Arm and Fusing 804 Cradle, R/V 814 Sling, Beam Type, R/V 815 Yoke, R/V Lifting & Rotating 817 Maintenance Platform R/V 818 Suction Cup, Rear Cover Removal 819 Test Set, R/V 830 Tools, Special Hand Stand, Assembly & 837 Transport, R/V 838 Adapter, W/H, Safety & Monitor Test Set 842 Tool Kit, Dismantling Cord 844 Maintenance Kit, Ablation Mat. 809 Truck, Hand Shelf 810 Truck, Lift, Fork 811 Truck, Hand, Lift Pallet, Electrical 823 Test Set, Warhead Safety Monitor 849 Adapter, Hoisting, Nose 850 Adapter, Hoisting, Flare 839 Cover, Protective, Re- entry Vehicle 843 Tool Kit, R/V Assembly 829 Kit, Tool, Electrical, Bench Maintenance 828 Kit, Tool, Mechanical Bench Maintenance

PART VIII(b): SB HANDLING, NS10 MISSILE GUIDANCE SET

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JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT GSE USED
NSIOP/Q Inertial Navigation Set-Operations At The Support Base NSIOP/Q Maintenance Functions At The SB Have Been Deleted.				

PART VIII(c): SB MAINTENANCE - OGE RETURNED FROM LF AND LCF

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JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT GSE USED
Perform bench maintenance on components returned to the Support Base of. Electrical Power System - Launch Facility and Launch Control Facility 1284 Power Supply Group Power Monitor Assembly Power Supply Assembly Circuit Breakers Relays Wire Tray Assembly 1337 Distribution Box, Main Insulated Wire Receptacle 1283 Motor Generator Set Socket, Connector, Polarised Insulated Wire	54250G	1	42.04	4511 Test Cover, Power Supply Assembly 4510 Test Card, Power Supply Assembly 4508 Voltmeter 3018 Extractor-Insert Tool, Connector Contact 3019 Crimping Tool, Terminal, Hand 3096 Shipping and Storage Container, Electronic Equipment 4001 Multimeter 4004 Oscilloscope 4152 Table, Electrical Test and Maintenance 4167 Load Bank, Electrical 4319 Lead Set, Test 4339 Ohmmeter 3018 Extractor-Insert Tool, Connector Contact 3019 Crimping Tool, Terminal Hand 4001 Multimeter 4220 Test Set, Relay 4319 Lead Set, Test 4339 Ohmmeter 3019 Crimping Tool, Terminal, Hand 3018 Extractor-Insert Tool, Connector Contact

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT GSE USED
Electrical Power System - Launch Facility and Launch Control Facility 1289 Power Supply Group Battery Charger Power Supply Assembly Wire Tray Assembly Contactors AC Circuit Breakers DC Circuit Breakers	54250G	1	38.08	3018 Extractor-Insert Tool, Coaxial Contact 3019 Crimping Tool, Terminal, Hand 3096 Shipping and Storage Container, Electronic Equipment 4001 Multimeter 4004 Oscilloscope 4152 Table, Electrical Test and Maintenance 4167 Load Bank, Electrical 4339 Ohmmeter 4510 Test Card, Power Supply 4511 Test Cover, Power Assembly 4587 Table, Oscilloscope 4508 Voltmeter 4319 Lead Set, Test
1367 Motor Generator DC Motor Generator AC Motor Generator Coupling Disc Voltage Regulator Assembly, 60 Cycle Voltage Regulator Assembly, 400 Cycle Panel, Transfer, Selected, Assembly	54250G	1	.25	
1379 Battery Charger Alarm Set Group Battery Charger Relay	54250G	1	.19	4001 Multimeter 4319 Lead Set, Test 4339 Ohmmeter
1380 Panel, Power, 60-Cycle, AC. Circuit Breaker Cable Installation	54250G	1	.14	4001 Multimeter 4319 Lead Set, Test 4339 Ohmmeter

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT GSE USED
Control and Monitor Subsystem, Launch Facility and Launch Control Facility 1201 Programmer Group Drawers Cabinet Assembly Wire Tray Assembly 1243 Launch Control Console Indicator Launcher, Missile Status Panel, Alarm Monitor Panel, Program Control Panel, Launch Control Filter, DC Power Control Alarm Alarm Assembly, Audible Control Panel, Communications Cable Assemblies	31256G 31256G	1 1	5.01 6.42	624 Test Set, Programming 646 Hand Truck, Shelf 3009 Puller, Printed Circuit Removal 3018 Extractor-Insert Tool 3019 Connector Contact 3019 Crimping Tool, Terminal, Hand 3096 Shipping and Storage Container, Electronic Equipment 3113 Decoder, Maintenance 4001 Multimeter 4004 Oscilloscope 4018 Adapter Group, Test Table, Electrical Test and Maintenance 4152 Electrical Load Bank 4167 Motor Generator 4169 Lead Set, Test 3141 Voltmeter 4127 Power Supply 4001 Multimeter 4564 Adapter 4366 Pulse Generator 4004 Oscilloscope 4587 Table, Oscilloscope 4319 Lead Set, Test 3013 Test Set, Console 4386 Wrench Pipe (Strap)

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT CSE USED
Control and Monitor Subsystem, Launch Facility and Launch Control Facility 604 Guidance and Control Coupler Drawer (Typical)	31256G	1	3.53	4001 Multimeter 4004 Oscilloscope 623 Test Group, C90 624 Programming Test Set, C91 3140 Digital Display Indicator 584 Time Interval Unit 10706 Video Plug-In Amplifier 10714 Test Set, Group 564 Storage, Checkout Tapes, Patchboards
1338 Communications Control Console Control Panel Arming and Status Panel	36152 31256G	1 1	6.38	4127 Power Supply 4001 Multimeter 4319 Lead Set, Test 1301 Headset 4574 Adapter Cable, Assembly 4004 Oscilloscope 4587 Table, Oscilloscope (Mobile) 3013 Test Set, Consoles
Security System, Launch Facility 1296 Alarm Set Group, Anti-Intrusion, Restricted Area Receiver-Transmitter Converter-Monitor, Alarm Power Supply	30452	1	8.85	4471 Power Meter 3009 Puller, Printed Circuit Assembly 3096 Shipping and Storage Container, Electronic Equipment 3141 Voltmeter 4001 Multimeter 4004 Oscilloscope 4127 Power Supply 4152 Table, Electrical Test and Maintenance 4319 Lead Set, Test 4472 Signal Generator 4613 Test Set, RF Power 4479 Oscilloscope, Dual Beam

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PART VIII(c) SB MAINTENANCE - OGE RETURNED FROM LF AND LCF

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT GSE USED
1296 Alarm Set Group, Anti-Intrusion, Restricted Area (Cont.)				4615 Preamplifier, Fast Rise 4614 Preamplifier, High Gain (Type D) 4478 Probe, Waveguide 4480 Attenuator 4456 Frequency Converter 3140 Digital Indicator
Environmental Control System, G&C Compartment				
1214 Cooler, Liquid, Guidance Section Chiller, Water, Refrigerating Pumping Assembly, Liquid Cooler Back, Electronic Equipment	54550Y	1	3.90	3019 Leak Detector 4149 Truck, Hand, Lift 4150 Test Bench, G&C Cooling Unit
1318 Plumbing Set, G&C Cooling Valve Assembly, Solenoid	54550Y	1	.65	4127 Power Supply
Sensitive Command Network System				
1213 Data Processing Equipment, Digital Data Processing Equipment, Rack A Data Processing Equipment, Rack B Drawer (Typical)	31256G	1	4.58	3059 Stop Watch 624 Test Set, Programming, C91 646 Hand Truck, Shelf 3096 Shipping and Storage Container, Electrical Equipment 4001 Multimeter 4018 Adapter, Electronic, Programming Test Center 4318 Cover, Electrical Connector 4407 Cleaner, Vacuum

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME (HRS)	SPECIAL TOOLS TEST EQUIPMENT GSE USED
Sensitive Command Network System 1228 Data Processing Equipment, Digital Grid, Breakwire Drawer, Typical Connector Assembly	31256G	1	3.64	624 Test Set, Programming, C91 646 Hand Truck, Shelf 3096 Shipping and Storage Container, Electronic Equipment 4018 Adapter, Electronic, Programming, Test Center 4160 Wire Wrapping Kit 4318 Cover, Electrical Connector 4407 Vacuum Cleaner
	31256G	1	4.87	624 Test Set, Programming, C91 646 Hand Truck, Shelf 3096 Shipping and Storage Container, Electronic Equipment 4001 Multimeter 4018 Adapter, Electronic, Programming, Test Center 4127 Power Supply 4160 Wire Wrapping Kit 4318 Cover, Electrical Connector 4319 Lead Set, Test 4590 Test Set, Signal Level 4576 Cradle, Maintenance
1265 Cable Termination Equipment Drawer (Typical) Connector Assembly, Electrical	31256G	1	5.54	624 Test Set, Programming, C91 646 Hand Truck, Shelf 3096 Shipping and Storage Container, Electronic Equipment

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PART VIII(c): SB MAINTENANCE - OGE RETURNED FROM LF AND LCF

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT GSE USED
Sensitive Command Network System 1265 Cable Termination Equipment (Cont.)				3141 Voltmeter, Differential 4580 Test Set, Signal Level 4149 Truck, Hand Lift 4583 Adapter Set, CTE 4018 Adapter, Electronic, Programming, Test Center 4127 Power Supply 4160 Wire Wrapping Kit 4318 Cover, Electrical Connector 4576 Cradle, Maintenance
	36152	1	57.30	Test Set, Programming, C91 Shipping and Storage Container, Electronic Equipment 4127 Power Supply 4018 Adapter, Electronic, Programming, Test Center 4160 Wire Wrapping Kit 4141 Voltmeter, Differential 4580 Test Set, Signal Level 4576 Cradle, Maintenance
1279 Repeaters, Telephone				
1281 Fault Locator, Hardened Cable System	31256G	1	1.97	Multimeter 4001 Lead Set, Test 4319 Shipping and Storage Container, Electronic Equipment 3096 Cradle, Maintenance 4576 Cradle, Maintenance 4160 Wrapping Kit, Solderless

PART VIII(C): SB MAINTENANCE - OGE RETURNED FROM LF AND LCF

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT GSE USED
Support Information Network System 1302 Terminal Equipment, Telephone, SIN/LCF Cabinet Assembly Drawer (Typical)	36152	1	5.37	3140 Indicator, Digital Display 4587 Oscilloscope Table 4536 Voltmeter, Vacuum 3141 Voltmeter, Differential 4481 Test Fixture, SIN 3096 Shipping and Storage Container, Electronic Equipment 4388 Test Kit, SIN/HVC 646 Hand Truck, Shelf 4172 Plug-In Unit, Oscilloscope Multimeter 4001 Oscilloscope 4004 Oscillator, Audio 4006 Frequency 4127 Power Supply 4318 Cover, Electrical 4319 Connector 4319 Lead Set, Test 4576 Cradle, Maintenance
1303 Terminal Equipment, Telephone, SIN/LF Cabinet Assembly Drawer (Typical)	36152	1	4.58	646 Hand Truck, Shelf 3140 Indicator, Digital Display 3096 Shipping and Storage Container, Electronic Equipment 3141 Voltmeter, Differential 4001 Multimeter 4004 Oscilloscope 4006 Oscillator, Audio 4318 Frequency 4318 Cover, Electrical 4319 Connector 4127 Power Supply 4319 Lead Set, Test 4576 Cradle, Maintenance 4481 Test Set, SIN 4172 Plug-In Unit, Oscilloscope 4536 Voltmeter, Vacuum Tube 4587 Table, Oscilloscope

JOB OPERATION		AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT GSE USED
Support Information Network System					
1304	Jack Assembly, Telephone, SIN/LCC-LF Resistor Receptacle, Electrical Connector	36152	1	.06	4001 Multimeter
1306	Telephone Set, Wall Type, SIN/LF Ringer Resistor	36152	1	.31	4001 Multimeter
1361	Jack Assembly, Telephone, SIN/LF Equipment Room Coil Capacitor	36152	1	.31	4001 Multimeter
1363	Jack Box (Curb Mounted), LF Connector Coil Capacitor	36152	1	.31	4001 Multimeter 4319 Lead Set, Test
1300	Handset	36152	1	.53	4001 Multimeter
1301	Handset	36152	1	.10	4001 Multimeter
1341	Telephone Set, SIN/LCC	36152	1	.27	4001 Multimeter
1343	Telephone Set, Wall Type, SIN/LCC Resistor Ringer	36152	1	.37	4001 Multimeter

PART VIII(d): SB MAINTENANCE - MGE

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JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME (HRS)	SPECIAL TOOLS TEST EQUIPMENT GSE USED
Perform Bench Maintenance on MGE: 603 Mirelle Targeting Set (C 24)	31256G	1		564 Storage Cabinet, Check-out Tapes, Patchboards and T. O. Manuals 583 Alignment Kit, Module Connector 623 Test Adapter Group 624 Test Center Programmer (C 91) 721 Electrical Power Cables 3140 Digital Display Indicator Multimeter 4004 Oscilloscope 4167 Electrical Load Bank 4461 Ammeter 10707 Plug-In Unit Tck. Type D 10708 Variable Transformer, 3 Phase 10713 Patch Board Kit and Tape 10723 Electrical Connector 10724 Maintenance Kit 555 Voltage Standard, Precision DC 564 Storage Cabinet, Check-out Tapes, Patchboards, and T. O. Manuals 583 Module Connector Alignment Kit 624 Test Center Programmer (C 91) 646 Hand Truck 3140 Digital Display Indicator Multimeter 4004 Oscilloscope 4169 Motor-Generator 10567 Tool Kit Electrical Connector Field Maintenance 10716 Patch Board Kit and Tape
623 Adapter Group, Test (C 90)	31255G	1		

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT GSE USED
Perform Beach Maintenance on MGE: 624 Test Center Programmer - Fault Locator (C 91)	31755C	1		553 Ratio Transformer 554 Phase Shifter 555 Voltage Standard, Precision DC 558 Audio Signal Generator 559 Oscillator, 400 Cycle 560 AC - DC Converter 564 Storage Cabinet, Check- out Tapes, Patchboards, and T. O. Manuals 583 Module Connector Align- ment Kit 584 Time Interval Unit, Plug-In 590 Voltmeter, Precision DC 593 Resistance Box 623 Test Adapter Group (C90) 646 Hand Truck 3140 Digital Display Indicator 4001 Multimeter 4004 Oscilloscope 4152 Test Equipment, Electronic Facility 4167 Load Bank, Electrical 4172 Plug-In Unit, Oscilloscope 4458 Multimeter, Electronic 10700 Potentiometer: 10708 Variable Transformer, 3 Phase 10717 Patch Board Kit and Tape 10720 Programming Tape Rewind Kit 10723 Electrical Connector Maintenance Kit

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME (HRS)	SPECIAL TOOLS TEST EQUIPMENT GSE USED
Perform Bench Maintenance on MGE				
642 Optical Alignment Set (C96)	31256G	1		675 Optical Transfer Mirror 3141 Voltmeter, Differential 10718 Battery Charger
667 Battery Power Supply	31256G	1		646 Hand Truck 4001 Multimeter
695 Test Set, Guidance Coupler (C119)	31256G	1		584 Time Interval Unit 623 Test Adapter Group (C90) 624 Test Center Programme (C91) 3140 Digital Display Indicator 4001 Multimeter 4004 Oscilloscope 10707 Plug-In Unit, Tek Type D
717 Test Set, Photo-Electronic Collimator	31255G	1		3141 Voltmeter, Differential 4127 Power Supply
721 Cables, Electrical Power	31256G	1		646 Hand Truck
3007 Test Set, Explosive Set Circuitry	31255G	1		
3013 Test Set, Consoles, Communication - Launch Control	31255G	1		3009 Printed Circuit Puller 3141 Voltmeter, Differential 4001 Multimeter 4127 Power Supply 4319 Connector Adapter Set 4574 Cable Assembly Adapter
3035 Test Set, Guidance Section Liquid Cooler	94550Y	1		4001 Multimeter 4150 Test-Repair Set, Guidance Section Cooler 4319 Connector Adapter Set 4343 Impedance Bridge 4513 Voltmeter, AC

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME hrs	SPECIAL TOOLS TEST EQUIPMENT GSE USED
Perform Bench Maintenance on MGE 3092 Test Set, Programmer Group (BGS-74)	31255G	1		584 Time Interval Unit, Plug-In 624 Test Center Program - mer (C91) 3009 Printed Circuit Pulser 3140 Digital Display Indicator 3141 Voltmeter, Differential 4001 Multimeter 4004 Oscilloscope 4018 Test Adapter Group 4127 Power Supply 4172 Plug-In Unit, Oscillo- scope 4366 Pulse Generator, Fast Rise 4523 Power Supply 4579 Calibration Adapter 4587 Oscilloscope Table, Mobile
3109 Test Set, Alarm Set (BGS-48)	31255G	1		

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PART VIII(d): SB MAINTENANCE - MGE

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME (HRS)	SPECIAL TOOLS TEST EQUIPMENT CASE USED
Perform Bench Maintenance on MGE				
3113 Dummy Decoder-Relay Assembly	31255G	1		4001 Multimeter 4127 Power Supply 4152 Electronic Facility Test Equipment 4319 Connector Adapter Set
4012 Test Set, Data Analysis Central	31255G	1		4018 Test Adapter Group
4018 Adapter Group, Test	31255G	1		624 Test Center Program-meter (C91) 3009 Printed Circuit Puller 3140 Digital Display Indicator 3141 Voltmeter, Differential 4001 Multimeter 4004 Oscilloscope 4127 Power Supply 4149 Truck, Hand Lift 4152 Electronic Facility Test Equipment 4160 Wire Wrapping Kit 4167 Load Bank, Electrical 4172 Plug-in Unit, Oscilloscope 4319 Connector Adapter Set 4366 Pulse Generator, Fast Rise 4386 Wrench Set, Electrical Connectors 4576 Maintenance Cradle 4597 Connector Adapter
4024 Semitrailer, Guidance Control/Re-Entry Vehicle	54150G 54550 Y	1 1		3039 Refrigerant Gas Leak Detector 3074 Fish Steel Tape 3078 Fork Lift Truck 4001 Multimeter 4116 Truck, Tractor, R/V 4316 GAC Maintenance Vehicle Refrigeration Service Truck 4591 Hoist Rod Adapter

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT GSE USED
Perform Bench Maintenance on MGE				
4031 Truck, Mechanical Maintenance	54150G 54250G	1 1		4001 Multimeter 4591 Hoist Rod Adapter
4043 Elevator-Work Cage, Passenger and Equipment	54150G 54250G 36192	1 1 1		4001 Multimeter 4319 Connector Adapter Set
4059 Semitrailer, Transporter-Erector	44250Z 44350G 54250G 54550Y	1 1 1 1		3023 Thermometer, Self-Indicating; 3052 Shing, Multiple Leg 3053 Clamp Hydraulic Actuator Restraining 3056 Test Stand, Hydraulic 3078 Truck, Fork Lift 4001 Multimeter 4075 Truck, Tractor, Transporter-Erector 4127 Power Supply 4244 Fixture, Hoist, Transporting 4258 Wrench, Torque 4270 Plumb Bob Set, TE 4306 Plate Set, T-E Hinge-To-Pylon 4319 Connector Adapter Set 4415 SPM2, T-E Actuator 4445 Missile Erection Control 4521 Alignment Kit, Optical 4535 Alignment Set, Missile Transfer 4591 Hoist Rod Adapter Set 4593 Wrench, Torque 4596 Support, Cable Transfer

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT GSE USED
Perform Bench Maintenance on MGE				
4062 Truck, Targeting	54150G 54250G	1 1		4001 Multimeter
4063 Truck, Electronic Maintenance	54150G 54250G	1 1		3078 Truck, Fork Lift 4001 Multimeter 4319 Connector Adapter Set 4591 Hoisting Rod Adapter
4069 Clamp Set, Adapter Ring to Missile Skirt	44350G	1		
4075 Truck-Tractor, Transporter-Erector	44350G 60350B 54550Y	1 1 1		3039 Refrigerant Gas Leak Detector 3054 Hydraulic Pumping Unit 3056 Hydraulic Test Stand 4001 Multimeter 4316 Truck, Refrigeration 4319 System Servicing Connector Adapter Set
4105 Gearcase Motor	54250G	1		4001 Multimeter 4141 Dolly, Gearcase Motor 4277 Sling, Gearcase Motor 4339 Ohmmeter 4370 Test Stand, Gearcase Motor
4115 Air Conditioner	54550Y	1		3039 Refrigerant Gas Leak Detector 3078 Truck, Fork Lift 4001 Multimeter 4316 Truck, Refrigeration 4319 System Servicing 4476 Connector Adapter Set 4476 Tester, Pyrometer and Thermocouple 4586 Sling, Air Conditioner Campy

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT GSE USED
Perform Bench Maintenance on MGE				
4220 Test Set, Relay	31255G	1		4001 Multimeter 4127 Power Supply 4319 Lead Set Test 4508 Voltmeter
4368 Test Set, Telephone Equipment	31255G	1		
4490 Simulator Set, Electrical Functions, Missile and Launch	31255G	1		3009 Puller, Printed Circuit 3141 Voltmeter, Differential 4001 Multimeter 4127 Power Supply 4319 Connector Adapter Set
4491 Start-up Unit, Launch Facility	31256G	1		3009 Puller, Printed Circuit 3141 Voltmeter 4001 Multimeter 4004 Oscilloscope
4539 Test Set, Voice Reporting Signal Assembly	30452	1		4001 Multimeter 4004 Oscilloscope 4004 Power Supply 4152 Test Equipment, Electronic Facility 4319 Connector Adapter Set 4587 Table, Oscilloscope (Mobile)

4.

POSITION DEFINITIONS

4.0 Introduction. This section contains only a statement of the general features of each position type recommended for the MIN-UTEMAN H&D System. The general features plus detailed duty and task statements for each position are found in Volume II which comprises a complete Section IV. The reasons for deviating from the standard publication requirements in AFBM Exhibit 58-18C in preparing this section are fully described in Section I of this volume.

4.1 Description of Data Available in Volume II. In order to assist the user of this series of documents who requires more detailed data than is available in Volume I, a short description of the detailed data available in Volume II, by column heading in that document, follows.

4.1.1 SUBSYSTEM/OPERATION INVOLVED - An indenture number and nomenclature for each item of equipment covered is provided. Numbers preceding equipment nomenclature are provided to indicate the disassembly order of an equipment item. For example, a "0" indicates a system, "1" an end item of the system, "2" a component of "1", "3" and "4" successively lower components of "2". This data is identical with the indenture coding in the Model Document.

4.1.2 DUTIES AND TASKS - A list of detailed duties and tasks is provided. This list is similar to the Job Operation data included in Section II of Volume I, but is arranged by AFSC rather than by Job Operation. In addition, the data is broken down to much finer detail.

4.1.3 SPECIAL TOOLS, TEST EQUIPMENT, MGE USED - Item numbers (Figure "A" Numbers) and nomenclature of equipment used in performing duties and tasks are keyed to OGE and MGE definitions found in the WS-133A Model Document.

4.1.4 SKILL LEVEL/CRITICALITY - A three digit figure is entered which is indicative of the types of human skills and the levels of these skills required for duty/task performance. The skills covered are Perceptual, Judgmental, and Motor, and these are coded as to low, medium, or high demand for each skill. A fourth digit is provided which indicates the criticality of duty/task performance based on a three point value scale.

4.1.5 TIME/PLACE/FREQUENCY - The clock hours to perform the duty/task; the place where the duty/task is performed; and the frequency of duty/task performance is provided.

4.2 Team Structure. A listing by AFSC, to indicate kinds of personnel on each team, and a description of the functional responsibilities of each Mobile Maintenance Team is presented below.

4.2.1 MISSILE TEAM.

AFSC 31274G (Team Coordinator)
54150G
44350G
33150B (2)

The functions of this team are to perform all activities associated with removing and replacing a R/V, G&C Section, or a missile less R/V, except transporting the missile, locating the T-E, optical alignment, and startup and targeting after a replacement.

4.2.2 MISSILE TRANSPORTATION AND HANDLING TEAM.

AFSC 44350G (Team Supervisor)
60350B (3)

The functions of this team are: receive the missile at an airbase or railhead; transfer the missile from the Shipping and Storage Container, Ballistic Missile to a T-E, if required; drive the T-E; position the T-E at a launcher; assist in removing and replacing the missile; and deliver defective missiles to an airbase or railhead for shipment.

4.2.3 ELECTRO-MECHANICAL TEAM.

AFSC 31254G Team Coordinator
54150G
30452
36152
36171
44250Z
44350G
54250G
54350
54550Y

} As required

The functions of this variably composed team are to perform all non-missile maintenance at LF's and all maintenance at LCF's. AFS 31254G is primarily responsible for electronic OGE; AFS 54150G for electro-mechanical OGE and RPIE. These two specialists are supported by specialists having field maintenance training for their areas of specialization.

4.2.4 TARGETING AND ALIGNMENT TEAM.

AFSC 3124G (Team Coordinator)
31254G
44350G

The functions of this team are to use the Startup and Targeting Set (C24) to apply power, fill and verify the airborne computer, and bring the LF to a Strategic Alert condition after all missile Faults. In addition, it will perform all scheduled or unscheduled optical alignments or realignments, using the North Star as primary angular reference.

RECOMMENDED OR
AUTHORIZED AFSC
AFSC 1825G/1816

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POSITION DEFINITION

POSITION
NO. 1

POSITION TITLE

Missile Launch Officer/Missile Operations Staff Officer

GENERAL FEATURES

POSITION SUMMARY:

The Missile Launch Officer is a member of the Missile Combat Crew and is responsible for maintaining Strategic Alert, initiating launch activities, and performing operator maintenance within the Launch Control Center. On receipt of launch command from SAC, he verifies the command with Missile Combat Crews located at other Launch Control Centers and initiates the launch command signal. He is responsible for monitoring and interpreting status displays on the Launch Control Console. He periodically interrogates the Voice Reporting Signalling Assembly to determine detailed status of the Launchers under his control. When required he resets the Voice Reporting Signalling Assembly. He is responsible for arming missiles and selecting targets.

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He responds to security alarms by dispatching Security Teams to Launch Facilities. He initiates a Sensitive Command Network test as required and periodically initiates test and calibrate signals. He responds to Missile and Operational Ground Equipment fault displays by alerting the Maintenance Control Center to faults at the Launch Facilities and by patching in Voice Reporting Signalling Assembly to the Maintenance Control Center for a detailed report. He responds to unauthorized launch in process by initiating Inhibit Launch, by contacting other Launch Control Centers for verification, and notifying the Security Control Center.

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The Missile Combat Crew Commander is responsible for a daily visual inspection of the Launch Control Center equipment (both emergency and normal) and for monitoring and inter-

POSITION NO. 1 **POSITION TITLE** **RECOMMENDED OR AUTHORIZED AFSC**

Missile Launch Officer/Missile Operations Staff Officer

AFSC 1825G/1816

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POSITION DEFINITION

POSITION SUMMARY: (Cont.)

preting Sensitive Command Network malfunction displays, and other Launch Control malfunctions. He contacts the Maintenance Supervisor for support of all maintenance required at the Launch Control Facility.

ENVIRONMENT:

Work Location:

The Missile Launch Officer's duty location is at the Launch Control Facility, with major functions performed in the underground Launch Control Center.

Team Relationship:

Both members of the Missile Combat Crew are required to act simultaneously to initiate a launch command signal.

Lines of Supervision:

The Missile Launch Officer is responsible to the Strategic Missile Squadron Commander for all functions except initiation of launch. For launch activities he is responsible only to Headquarters SAC or a Numbered Air Force Commander.

QUALIFICATIONS:

This position requires low perceptual skill for all tasks except console monitoring, which requires medium perceptual skill. High judgmental skill is required in making decisions associated with command/control and other assigned responsibilities. Low motor skills are required for all tasks.

POSITION
NO. 1

POSITION TITLE

Missile Launch Officer/Missile Operations Staff Officer

**RECOMMENDED OR
AUTHORIZED AFSC**
AFSC 1825G/1816

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POSITION DEFINITION

QUALIFICATIONS: (Cont.)

Emotional stability is a requirement for this position, as well as maturity, sound judgment, integrity, and a high degree of responsibility.

The Missile Launch Officer's duties are highly critical to mission success. .

RELATIONSHIP TO EXISTING AIR FORCE SPECIALTIES:

This position falls within the scope of AFS Missile Launch Officer/Missile Operations Staff Officer, AFSC 1825G/1816.

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POSITION
No. 2

POSITION DEFINITION

POSITION TITLE
Missile Officer/Missile Staff Officer

RECOMMENDED OR
AUTHORIZED AFSC
AFSC 3124G/3116

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GENERAL FEATURES

POSITION SUMMARY:

The Missile Officer is responsible for the maintenance activities associated with the missile, Operational Ground Equipment, Maintenance Ground Equipment, and Real Property Installed Equipment identified in support of the weapon system. He is responsible for directing maintenance personnel in accomplishing all organizational and field level maintenance necessary to transport, handle, test, repair, checkout, and calibrate the weapon system. He is also responsible for coordinating and directing the dispatch of maintenance personnel to Launch Control Facilities and Launch Facilities as requirements arise. The Missile Officer, or another person so delegated, maintains communications with the Missile Combat Crew on maintenance problems or other conditions affecting Launch Complex readiness. As supervisor of the Targeting and Alignment Team, the Missile Officer participates in and is responsible for missile azimuth alignment and missile targeting. He verifies and inspects work performed by the Mobile Maintenance Teams.

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ENVIRONMENT:

Work Location:

The Missile Officer is stationed at the Support Base where he directly, or through delegated authority, supervises and directs maintenance personnel. He effects the dispatch of maintenance personnel to Launch Control Facilities and Launch Facilities and maintains communications with Missile Combat Crews. When assigned to a Targeting and Alignment Team, he performs duties at each Launch Facility as required.

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POSITION
NO. 2

POSITION DEFINITION

RECOMMENDED OR
AUTHORIZED AFSC
AFSC 3124G/3116

POSITION TITLE

Missile Officer/Missile Staff Officer

ENVIRONMENT: (Cont.)

Lines of Supervision: He is responsible to the Missile Staff Officer, AFSC 3116.

QUALIFICATIONS:

This position requires high perceptual skill, high judgmental skill in making decisions and carrying out assigned responsibilities, and high motor skills.

The Missile Officer's duties are highly critical to missile success.

The Missile Officer must obtain maximum utilization of maintenance capabilities to achieve a minimum down-rate.

RELATION TO EXISTING AIR FORCE SPECIALTIES:

Except for the functions involved in performing optical alignment, all other responsibilities assigned to this position fall within the scope of AFS Missile Officer/Missile Staff Officer, AFSC 3124G/3116.

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POSITION
NO. 3

POSITION DEFINITION

RECOMMENDED OR
AUTHORIZED AFSC
AFSC 30452/72

POSITION TITLE

Ground Communications Equipment

Repairman (Light)/Maintenance Technician

GENERAL FEATURES

POSITION SUMMARY:

The Ground Communications Equipment Repairman is responsible for maintaining USAF standard HF and UHF communications equipment. In addition, he is responsible for fault isolating, removing, and installing Launch Facility components of the Security System such as the RF Transmitter-Receiver, the RF Antenna Assembly, the Security Electronics drawer and Vibration Detectors. Bench repair of the RF Transmitter-Receiver and the Security Electronics drawer at the Support Base is also his responsibility.

At the Support Base he fault isolates the Security System RF Transmitter-Receiver using the Security System Test Set and standard radio shop equipment. In checking the Security Electronic System at the Launch Facilities, he uses the Security System Portable Test Set. He performs operational checks of the Security System Test Set by using standard radio shop equipment.

The equipment for which the Ground Communications Equipment Repairman is responsible includes:

1293	Antenna
1294	Switch, Sensitive
1295	Transducer, Motional, Pickup
1296	Alarm Set, Anti-Intrusion, Restricted Area
1368	Radio Set
1411	Arrestor, Electro Magnetic Pulse, Security Antenna

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POSITION NO. <u>3</u>	POSITION DEFINITION	RECOMMENDED OR AUTHORIZED AFSC AFSC 30452/72
	POSITION TITLE Ground Communications Equipment Repairman (Light)/Maintenance Technician	
POSITION SUMMARY: (Cont.)		
1412	Voice Reporting Signalling Assembly (VRSA)	
1424	Antenna, Set, Radio	
3109	Test Set, Alarm Set	
4539	Voice Reporting Signalling Assembly Test Set	
ENVIRONMENT:		
Work Location:	Locations are at the Launch Facility, Launch Control Facility, and the Support Base.	
Lines of Supervision:	At the Launch Facilities and Launch Control Facilities, his work is coordinated by the Ballistic Missile Analyst Specialist/AFSC 31254G.	
	At the Support Base he is supervised by the Chief, Communications Section.	
QUALIFICATIONS:		
This position requires low to high perceptual skill (high perceptual skill is required for test and repair of radio and radio components); it requires medium electronics judgmental skill for carrying out detailed maintenance functions; and it requires low to medium motor skills (medium skills are required for calibration, adjustment and some repair tasks).		
Task performance for this position is non-critical to system operation.		

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POSITION
NO. 3

POSITION DEFINITION

RECOMMENDED OR
AUTHORIZED AFSC
AFSC 30452/72

POSITION TITLE

Ground Communications Equipment
Repairman (Light)/Maintenance Technician

RELATION TO EXISTING AIR FORCE SPECIALTIES:

This position falls within the scope of AFS Ground Communications Equipment Repairman (Light)/Maintenance Technician, AFSC 30452/72.

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POSITION
NO. 4

POSITION DEFINITION

POSITION TITLE
Ballistic Missile Analyst Specialist/Technician

**RECOMMENDED OR
AUTHORIZED AFSC**
AFSC 31254G/74G

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GENERAL FEATURES

POSITION SUMMARY:

The Ballistic Missile Analyst Specialist/Technician is responsible for the fault isolation, using portable test equipment, and repair, by removing and replacing drawers or interconnecting cables of such equipment as the following:

602	Collimator Set	RR
604	Coupler, Control-Guidance	RR
1201	Programmer Group	
1213	Data Processing Equipment, Launch Control Facility	R
1228	Data Processing Equipment, Launch Facility	R
1243	Launch Control Console	
1251	Cable Termination Equipment, Launch Facility	
1265	Cable Termination Equipment, Launch Control Facility	
1268	Decoder, Electro Mechanical	
1412	Voice Reporting Signalling Assembly	R

As coordinator on the Mobile Maintenance Teams, his duties include:

- a. General Functions
 1. Notifies the Missile Combat Crew when arriving at a Launch Facility, accepts

POSITION
NO. 4

POSITION DEFINITION

RECOMMENDED OR
AUTHORIZED AFSC
AFSC 31254G/74G

POSITION TITLE
Ballistic Missile Analyst Specialist/Technician

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POSITION SUMMARY: (Cont.)

the security responsibility and coordinates with the Missile Combat Crew during the Maintenance operation.

2. Verifies faults from the VRSA and/or indications located on the equipment in the Launcher.

3. Installs and removes Safing Pins in the Main Junction Box.

4. Cleans the Equipment room and ensures the security of the Launch Facility.

b. Missile Team and Electro-Mechanical Team:

1. Coordinates (and directs) those specific duties of other team members to ensure a coordinated team effort.

2. Is responsible for ensuring the safety of personnel, equipment, and the practice of sound maintenance techniques.

3. Directs and assists in troubleshooting, repair, and composite test functions.

4. Uses the missile simulator set to perform Launch Facility closed loop tests.

5. Uses the Start-Up Unit to bring the Launch Facility to strategic alert after Ground Operational Equipment "NO-GO's".

c. Targeting and Alignment Team

1. Uses optical alignment equipment to coarse and fine align the missile and collimator and performs necessary Theodolite computations.

2. Uses the Missile Targeting Console (C24) to apply power, fill and verify the air-

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ENVIRONMENT:

Work Location:

The Ballistic Missile Analyst Specialist's duty locations are at the Launch Control Facility, Launch Facilities, and the Support Base. He is a member of and the coordinator of Mobile Maintenance Teams.

Lines of Supervision: He is supervised by the Missile Officer, AFSC 3124G.

QUALIFICATIONS:

The Ballistic Missile Analyst Specialist's perceptual and judgmental skill demands range from high to medium (high skill is required for troubleshooting). Motor skills are essentially medium.

Task performance is generally critical to overall system operation.

RELATION TO EXISTING AIR FORCE SPECIALTIES:

The responsibilities of this position fall within the scope of AFS Ballistic Missile Analyst Specialist/Technician, AFSC 31254G/74G.

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POSITION
NO. 5

Ballistic Missile Checkout Equipment Specialist/Technician

RECOMMENDED OR
AUTHORIZED AFSC
AFSC 31255G/75G

POSITION DEFINITION

POSITION TITLE

GENERAL FEATURES

POSITION SUMMARY:

The Ballistic Missile Checkout Equipment Specialist is responsible for the Support Base maintenance and calibration of Electronic Test Equipment such as:

- 623 C90 Adapter Group, Test
- 624 C91 Test Center, Programmer - Fault Locator
- 717 C143 Test Set, Photo - Electronic Collimator
- 3007 Ordnance Circuit Test Set
- 3013 Test Set, Command Control Console
- 3092 Test Set, Programmer Group
- 4012 Test Set, Sensitive Command Network
- 4018 Test Adapter C91
- 4152 Test Equipment, Electronic Facility - Base Maintenance
- 4490 Missile Simulator
- 4489 Message Generator
- 10709 C153 Test Set, Missile Control Group

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The Ballistic Missile Checkout Equipment Specialist is responsible for troubleshooting and repairing interconnecting circuits of the Sensitive Command Network, Security System, Programmer Group, and Command Control Console when returned to the Support Base.

POSITION DEFINITION

**RECOMMENDED OR
AUTHORIZED AFSC**
AFSC 31255G/75G

**POSITION
NO. 5**

POSITION TITLE

Ballistic Missile Checkout Equipment Specialist/Technician

POSITION SUMMARY: (Cont.)

Checkout and testing is accomplished using self test features of programmed checkout equipment, and by using standard voltmeters, frequency meters, oscilloscopes and hand tools.

ENVIRONMENT:

Work Location:

The Ballistic Missile Checkout Equipment Specialist's duty location is in the Maintenance Branch - Electronic Section at the Support Base.

Lines of Supervision:

He will be supervised at the Support Base by the Missile Officer, AFSC 3124G

QUALIFICATIONS:

The Ballistic Missile Checkout Equipment Specialist is required to perform at a low to high perceptual skill level (high level is required for test, visual inspection, function checkout, and repair of test equipment); high judgmental skill level is required for accomplishing all detailed electronic maintenance functions; motor skill demands range from high to low.

Task performance is generally critical to subsystem operation.

RELATION TO EXISTING AIR FORCE SPECIALTIES:

This position type falls within the scope of AFS Ballistic Missile Checkout Equipment Specialist/Technician, AFSC 31255G/75G.

POSITION
NO. 6

POSITION TITLE
Ballistic Missile Launch Equipment Repairman/Technician

RECOMMENDED OR
AUTHORIZED AFSC
AFSC 31256G/76G

GENERAL FEATURES

POSITION SUMMARY:

The Ballistic Missile Launch Equipment Repairman is responsible for receiving, storing, and preparing for shipment Guidance and Control sections of the missile at the Support Base. He is also responsible for repair and maintenance at the Support Base for such equipment as:

603	C24 Missile Targeting Set	RR
604	Coupler, Control - Guidance	RR
642	C96 Optical Alinement Set	RR
667	C95 Battery Power Supply	RR
695	C119 Test Set, Control - Guidance Coupler	RR
1201	Programmer Group	R
1213	Data Processing Equipment, Launch Control Facility	R
1228	Data Processing Equipment, Launch Facility	
1243	Launch Control Console	
1251	Cable Termination Equipment, Launch Facility	
1265	Cable Termination Equipment, Launch Control Facility	
1268	Electro-Mechanical Decoder	RR
1338	Communication Control Console (Launch Enable Switch)	RR
4252	Insertion Verifier	R
4491	Start-Up Unit	R

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POSITION NO. <u>6</u>	POSITION TITLE <u>Ballistic Missile Launch Equipment Repairman/Technician</u>	RECOMMENDED OR AUTHORIZED AFSC <u>AFSC 31256G/76G</u>
<u>GENERAL FEATURES</u>		
POSITION SUMMARY:		
The Ballistic Missile Launch Equipment Repairman is responsible for receiving, storing, and preparing for shipment Guidance and Control sections of the missile at the Support Base. He is also responsible for repair and maintenance at the Support Base for such equipment as:		
603.2	Missile Targeting Set	
604	Coupler, Control-Guidance	
642	C96 Optical Alinement Set	
667	C95 Battery Power Supply	
695	C119 Test Set, Control-Guidance Coupler	
1201	Programmer Group	
1213	Data Processing Equipment, Launch Control Facility	
1228	Data Processing Equipment, Launch Facility	
1243	Launch Control Console	
1251	Cable Termination Equipment, Launch Facility	
1265	Cable Termination Equipment, Launch Control Facility	
1268	Electro-Mechanical Decoder	
1338	Communication Control Console (Launch Enable Switch)	
4252	Code Interter Verifier	
4491.2	Start-Up Unit	

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POSITION
NO. 6

POSITION TITLE
Ballistic Missile Launch Equipment Repairman/Technician

RECOMMENDED OR
AUTHORIZED AFSC
AFSC 31256G/76G

POSITION SUMMARY: (Cont.)

Checkout and testing of the above items are accomplished using the C91 Programming Electronic Test Center, its adapters, and standard electronic test equipment. In addition, he is responsible for the operation of the Insertor Verifier.

He may be called upon to assist in troubleshooting at the Launch Site and Launch Control Center.

ENVIRONMENT:

Work Location:

The Ballistic Missile Launch Equipment Repairman's primary duty location is at the Maintenance Branch, Electronic Section at the Support Base.

Lines of Supervision:

He will be supervised by the Missile Officer, AFSC 3124G.

QUALIFICATIONS:

This position requires low to high perceptual skill (high perceptual skill being required for some tests, repair and troubleshooting tasks); it requires medium to high electronics judgmental skill for carrying out detailed maintenance functions; it requires low to high motor skills (high level being required for calibration, adjustment, and some repair tasks).

The importance of proper task performance ranges from noncritical to critical for subsystem and system operation.

RELATION TO EXISTING AIR FORCE SPECIALTIES:

This position falls within the scope of AFS Ballistic Missile Launch Equipment Repairman/Technician, AFSC 31256G/76G.

POSITION NO. <u>6</u>	POSITION TITLE Ballistic Missile Launch Equipment Repairman/Technician	RECOMMENDED OR AUTHORIZED AFSC AFSC 31256G/76G
POSITION SUMMARY: (Cont.) Checkout and testing of the above items are accomplished using the C91 Programming Electronic Test Center, its adapters, and standard electronic test equipment. In addition, he is responsible for the operation of the Inserter Verifier. He may be called upon to assist in troubleshooting at the Launch Site and Launch Control Center.		
ENVIRONMENT: Work Location: The Ballistic Missile Launch Equipment Repairman's primary duty location is at the Maintenance Branch, Electronic Section at the Support Base. Lines of Supervision: He will be supervised by the Missile Officer, AFSC 3124G.		
QUALIFICATIONS: This position requires low to high perceptual skill (high perceptual skill being required for some tests, repair and troubleshooting tasks); it requires medium to high electronics judgmental skill for carrying out detailed maintenance functions; it requires low to high motor skills (high level being required for calibration, adjustment and some repair tasks). The importance of proper task performance ranges from non-critical to critical for subsystem and system operation.		
RELATION TO EXISTING AIR FORCE SPECIALTIES: This position falls within the scope of AFS Ballistic Missile Launch Equipment Repairman/Technician, AFSC 31256G/76G.		

POSITION
NO. 7

POSITION DEFINITION

POSITION TITLE
Nuclear Weapons Specialist/Technician

**RECOMMENDED OR
AUTHORIZED AFSC**
AFSC 33150B/70B

GENERAL FEATURES

POSITION SUMMARY:

The Nuclear Weapons Technician is responsible for the receipt, unloading, inspection, assembly, disassembly, maintenance, checkout, test and repair of Re-Entry Vehicle Subsystem components in the Re-Entry Vehicle Maintenance Branch at the Support Base. He is responsible for receipt, unloading, inspection, transportation, and storing of Warheads. He is responsible for mating and unmating of the Warhead to the Re-Entry Vehicle and the installation and removal of the Arming and Fuzing package and Low Energy Detonating Cord. He performs quality control and munitions control functions. He performs maintenance of Re-Entry Vehicle mechanical and electrical Maintenance Ground Equipment.

He is responsible for the Re-Entry Vehicle during transportation to and from the Launch Facility and during mating and unmating operations at the Launch Tube. As a member of the Missile Team, he assists in positioning the Re-Entry Vehicle-Guidance and Control Section over the Launch Tube; attaching tie-downs, emplacing environmental covers, safety railings and covers, ladders and hoists; positioning and removing the work cage; attaching Re-Entry Vehicle handling equipment; mechanically and electrically mating and demating the Re-Entry Vehicle to Guidance and Control Section.

Specific maintenance duties and equipment responsibilities include Re-Entry Vehicle test set, Warhead safety monitor test set, Radiac set, Pre-installation test set, Re-Entry Vehicle, Warhead, Re-Entry Vehicle cradle, Re-Entry Vehicle Lifting and Rotating Yoke, and related

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POSITION NO. 7	POSITION DEFINITION	RECOMMENDED OR AUTHORIZED AFSC AFSC 33150B/70B
POSITION TITLE Nuclear Weapons Specialist/Technician		
POSITION SUMMARY: (Cont.)		
lifting and handling equipment. In addition, he is responsible for maintenance of Re-Entry Vehicle associated equipment for the Re-Entry Vehicle-Guidance and Control Van.		
Position duties include receiving, cleaning, visual inspection, monitoring, fault isolation, trouble shooting, hooking up and testing (using test equipment), removing and replacing, installing, calibrating, adjusting; storing and protecting.		
Checkout and testing is accomplished using such test sets and equipment as: Multimeter Warhead Safety Monitor, Pre-Installation test set, Re-Entry test set, Radiac set, Mating Kit, Re-Entry Vehicle Cradle, Control Hoist, Tool Kit (Electrical and Mechanical), Overhead Crane, Vacuum Cleaner, Air Compressor, Hand Trucks, Fork Lift Trucks, Re-Entry Vehicle Container, and Hoisting and Handling equipment, etc.		
ENVIRONMENT:		
Work Location: The Nuclear Weapons Technician performs his duties in the Re-Entry Vehicle Maintenance Branch at the Support Base and at Launch Facilities as a member of the Missile Team.		

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POSITION
NO. 7

POSITION DEFINITION

POSITION TITLE

Nuclear Weapons Specialist/Technician

RECOMMENDED OR
AUTHORIZED AFSC
AFSC 33150B/70B

ENVIRONMENT: (Cont'd)

Lines of Supervision: At the Support Base, he is supervised by the Nuclear Weapons Officer AFSC 3275A. As a member of the Missile Team, his efforts are coordinated by the Ballistic Missile Analyst Technician, AFSC 31274G.

QUALIFICATIONS:

The Nuclear Weapons Specialist's perceptual skill requirements vary from low to high: examples of high requirements are inspection of the ablative material on Re-Entry Vehicle and inspections during mating operations. Motor skill requirements vary from low to high: high motor skill is required for managing hoist controls while moving the Re-Entry Vehicle or Warhead. His judgmental skill requirements are almost all high in accepting responsibility for the Warhead.

Task performance associated with handling, assembling and disassembling the Re-Entry Vehicle is considered highly critical to system operation. Inspections and repair of Maintenance Ground Equipment, involve task performance which is critical only to subsystem operation

RELATION TO EXISTING AIR FORCE SPECIALTIES:

This position type falls within the scope of AFS Nuclear Weapon Specialist/Technician, AFSC 33150B/70B.

POSITION
NO. 8

POSITION DEFINITION

POSITION TITLE

Cable Splicer/Cable Splicing Technician

**RECOMMENDED OR
AUTHORIZED AFSC**
AFSC 36151/71

GENERAL FEATURES

POSITION SUMMARY:

The Cable Splicing Technician is responsible for locating a cable fault in the buried Sensitive Command Network pressurized cable, excavating the area where the break is located, repairing the cable, checking the repair, covering the cable and notifying the Missile Combat Crew at the Launch Control Center that repairs are completed. He is also responsible for the maintenance of the pure gas compressor.

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The Cable Splicing Technician's principle fault-locating equipment consists of items such as:

- 1207 Drier-Air Compressor, Hardened Cables
- 4006 Audio Oscillator
- 4192 Wheatstone Bridge
- 4339 Ohmmeter
- 4343 Capacity Unbalance Set
- 4344 Fault Locator Sensitive Command Network
- 4349 Testing Kit, Pressure
- 4362 Altimeter

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ENVIRONMENT:

Work Location:

The Cable Splicing Technician will be stationed at the Support Base and will respond to cable faults as required.

Lines of Supervision:

At the Support Base he is supervised by the Communications Section Chief.

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POSITION NO. <u>8</u>	POSITION DEFINITION		RECOMMENDED OR AUTHORIZED AFSC <u>AFSC 36151/71</u>
	POSITION TITLE <u>Cable Splicer/Cable Splicing Technician</u>		
<u>GENERAL FEATURES</u>			
<u>QUALIFICATIONS:</u>			
The perceptual, judgmental and motor skills for this position range from low to high but are primarily medium.			
Task performance is critical to subsystem operation and may result in some system degradation if not correctly performed.			
<u>RELATION TO EXISTING AIR FORCE SPECIALTIES:</u>			
This position falls within the scope of AFS Cable Splicer/Cable Splicing Technician AFSC 36131/71.			

POSITION
NO. 9

POSITION DEFINITION

POSITION TITLE
Telephone Installer-Repairman/Telephone
Installation and Repair Supervisor

**RECOMMENDED OR
AUTHORIZED AFSC**
AFSC 36152/72

GENERAL FEATURES

POSITION SUMMARY:

The Telephone Installer-Repairman is responsible for removing, installing and checking at the Launch Facilities or Launch Control Facilities, equipment such as:

- 1243 Launch Control Console
- 1279 Repeater, Telephone
- 1300 Handset, Telephone
- 1301 Headset, Telephone
- 1302 Telephone, Connecting and Switching Set
- 1303 Repeater, Telephone
- 1304 Jack Box, Telephone
- 1306 Telephone
- 1338 Communications Control Console (Less Launch Enable Switch)
- 1341 Telephone
- 1343 Telephone
- 1361 Jack Box, Telephone
- 1363 Jack Box, Telephone
- 4382 Cord Assembly

Fault isolating and checking is accomplished using Test Set, Support Information Network Equipment, Portable.

At the Support Base, he repairs telephone equipment using a multimeter and common hand

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POSITION
NO. 9

POSITION DEFINITION

POSITION TITLE

Telephone Installer-Repairman/Telephone
Installation and Repair Supervisor

**RECOMMENDED OR
AUTHORIZED AFSC**
AFSC 36152/72

POSITION SUMMARY: (Cont.)

tools. He also repairs maintenance telephones such as the Communications Control Assembly removed from Work Cage and Interphone.

ENVIRONMENT:

Work Location:

The Telephone Installer-Repairman works at the Launch Facilities, Launch Control Facilities and at the Support Base.

Lines of Supervision:

At the Launch Facility and Launch Control Facility, his efforts normally will be coordinated by the Ballistic Missile Analyst Technician, AFSC 31274G.

QUALIFICATIONS:

The duties and tasks of the Telephone Installer-Repairman require medium perceptual, judgmental and motor skills. For removing and installing Telephone and Intercom equipment at Launch Control Facilities or Launch Facilities, task performance is considered critical to subsystem operation.

RELATION TO EXISTING AIR FORCE SPECIALTIES:

This position falls within the scope of AFS Telephone Installer-Repairman/Telephone Installation and Repair Supervisor, AFSC 36152/72.

POSITION NO. 10 POSITION TITLE Missile Pneudraulic Repairman/Repair Technician	RECOMMENDED OR AUTHORIZED AFSC AFSC 44250Z/70Z										
GENERAL FEATURES											
POSITION SUMMARY: The Missile Pneudraulic Repairman is responsible for Support Base repair, checkout and testing of the hvdraulic equipment components removed from Transporter-Erectors. He is also responsible for assisting the Missile Mechanic / Technician in fault isolating, removing, installing and checking hvdraulic equipment components of the Transporter-Erector Tractor and Transporter-Erector Trailer.											
He is responsible for testing and repair of pneudraulic components found in equipment such as: <table border="0"> <tr> <td>1241</td> <td>Shock Attenuation System</td> </tr> <tr> <td>1249</td> <td>Personnel Hatch Installation System</td> </tr> <tr> <td>1326</td> <td>Blast Door</td> </tr> <tr> <td>1417.2</td> <td>Blast Valve 14-Inch (LF)</td> </tr> <tr> <td>1418.2</td> <td>Blast Valve 24-Inch (LCC)</td> </tr> </table>		1241	Shock Attenuation System	1249	Personnel Hatch Installation System	1326	Blast Door	1417.2	Blast Valve 14-Inch (LF)	1418.2	Blast Valve 24-Inch (LCC)
1241	Shock Attenuation System										
1249	Personnel Hatch Installation System										
1326	Blast Door										
1417.2	Blast Valve 14-Inch (LF)										
1418.2	Blast Valve 24-Inch (LCC)										
He also provides assistance on an "as required" basis to the Electro-Mechanical Team for detailed troubleshooting and repair of pneudraulic components at the Launch Facility and the Launch Control Facility.											
ENVIRONMENT: Work Location: The Missile Pneudraulic Repairman is assigned to the Mechanical Section of the Missile Maintenance Squadron											

POSITION
NO. 10

POSITION TITLE

Missile Pneudraulic Repairman/Repair Technician

RECOMMENDED OR
AUTHORIZED AFSC

AFSC 44250Z/70Z

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GENERAL FEATURES

POSITION SUMMARY:

The Missile Pneudraulic Repairman is responsible for Support Base repair, checkout and testing of the hydraulic equipment components removed from Transporter-Erectors. He is also responsible for assisting the Missile Mechanic/Technician in fault isolating, removing, installing and checking hydraulic equipment components of the Transporter-Erector Tractor and Transporter-Erector Trailer.

He is responsible for testing and repair of pneudraulic components found in equipment such as:

1211	Blast Valves and Manual Control Components, Launch Facility
1212	Blast Valves and Manual Control Components, Launch Control Facility
1241	Shock Attenuation System
1249	Personnel Hatch Installation System
1326	Blast Door

He also provides assistance on an "as required" basis to the Electro-Mechanical Team for detailed troubleshooting and repair of pneudraulic components at the Launch Facility and the Launch Control Facility.

ENVIRONMENT:

Work Location: The Missile Pneudraulic Repairman is assigned to the Mechanical Section

POSITION
NO. 10

POSITION DEFINITION

**RECOMMENDED OR
AUTHORIZED AFSC**
AFSC 44250Z/70Z

POSITION TITLE
Missile Pneudraulic Repairman/Repair Technician

ENVIRONMENT: (Cont.)

of the Missile Maintenance Squadron.

Lines of Supervision: He is supervised by the Missile Officer, AFSC 3124G.

QUALIFICATIONS:

The perceptual, judgmental and motor skills required for this position are essentially low to medium. For functions such as fault isolation and checkout, these same skills are considered medium to high.

Task performance is considered critical to subsystem operations.

RELATION TO EXISTING AIR FORCE SPECIALTIES:

This position falls within the scope of AFS Missile Pneudraulic Repairman/Repair Technician, AFSC 44250Z/70Z.

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POSITION N.O. 10	POSITION DEFINITION	RECOMMENDED OR AUTHORIZED AFSC AFSC 44250Z/70Z
	POSITION TITLE	
	Missile Pneudraulic Repairman/Repair Technician	
ENVIRONMENT: (Cont.)	Lines of Supervision: He is supervised by the Missile Officer, AFSC 3124G.	
QUALIFICATIONS:	The perceptual, judgmental and motor skills required for this position are essentially low to medium. For functions such as fault isolation and checkout these same skills are considered medium to high.	
	Task performance is considered critical to subsystem operations.	
	RELATION TO EXISTING AIR FORCE SPECIALTIES.	
	This position falls within the scope of AFS Missile Pneudraulic Repairman/Repair Technician, AFSC 44250Z/70Z.	

POSITION
NO. 11

POSITION DEFINITION

POSITION TITLE

Missile Mechanic/Maintenance Technician

**RECOMMENDED OR
AUTHORIZED AFSC**

AFSC 44350G/70G

R

GENERAL FEATURES

POSITION SUMMARY:

The Missile Mechanic/Maintenance Technician is the supervisor of the Missile Transportation and Handling Team. He is responsible for acceptance of the missile at the Railroad or Airhead; he supervises activities of the vehicle operators in movement of the missile; he supervises and assists in removal and replacement of the missile at the Launcher; and he determines the need for service, maintenance, and repair of the Transporter-Erector, Ballistic Missile Shipping and Storage Container (SSCBM); Air Transport Trailer, missile harness bands, and transportation fixtures. His responsibility for the Transporter-Erector includes monitoring, inspecting, connecting and servicing the Transport Monitor System; connecting and operating the Transporter-Erector Environmental Control System; preparing the T-E container for erection; leveling the rear carriage; and operating the T-E Control Panel to hoist and lower the missile.

As a member of the Missile Team, he assists in opening and closing the Equipment Room; positioning portable Maintenance Ground Equipment; opening and closing the Launch Tube closure; installing and removing safing pins in the missile; preparing the Launch Tube and handling equipment for remove and replace operations; operating the Missile Base Drive, connecting umbilicals; inspecting missile and attaching it to the base support; connecting hoist sling and stabilizing adapter; and assists in removing and replacing the R/V, G&C, and missile.

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RR

POSITION DEFINITION

POSITION
NO. 11

POSITION TITLE

Missile Mechanic/Maintenance TechnicianRECOMMENDED OR
AUTHORIZED AFSC
AFSC 44350G/70G

POSITION SUMMARY: (Cont'd)

As a member of the Targeting and Alignment Team he levels the missile base support and operates the missile base drive, hoist and vehicles.

His duties at the Support Base as supervisor of the Transporter-Erector vehicle include inspection, service and checkout of Restraint fixtures, emplacement stabilizing equipment, container carriage tow bar, slings, jacks, level, engine harness assemblies; and coordination of the maintenance and repair of the Transporter-Erector.

The equipment for which the Missile Mechanic is responsible includes:

4625	Purging Unit, Inert Gas
4059	Transporter-Erector Trailer
4075	Transporter-Erector, Tractor
4095	SSCBM
4107	Level Set, Missile Base Support
4129	Trailer, SSCBM
4175	Jack Set, Translating
4188	Jack Set, Leveling
4264	Cable and Reel Assembly, Grounding
4270	Plumb Bob Set, T-E

POSITION DEFINITION

POSITION
NO. 11

POSITION TITLE

Missile Mechanic/Maintenance Technician

RECOMMENDED OR
AUTHORIZED AFSC
AFSC 44350G/70G R

ENVIRONMENT:

Work Location:

The Missile Mechanic's duty locations are in the Launch Facilities, Launch Control Facilities, and the Support Base.

Lines of Supervision:

At the Launch Facility and Launch Control Facilities his work is coordinated by the Ballistic Missile Analyst Technician, AFSC 31274G. As supervisor of the Missile Transportation and Handling Team, he is responsible to the Missile Officer, AFSC 3124G. In his activities at the Support Base, he is also responsible to this officer.

QUALIFICATIONS:

Perceptual, judgmental and motor skill levels vary from low to high for his prime duties and tasks. Missile safing requires medium level proficiency for all three skill types. Emplacement System Control Panel monitoring and hoist operation requires medium level perceptual skills. Medium to high judgmental skill is required to accomplish hoist-operation functions while medium motor skills are involved in emplacement tasks.

Task performance is generally critical to system operation.

RELATION TO EXISTING AIR FORCE SPECIALTIES:

This position falls within the scope of AFS Missile Mechanic/Maintenance Technician, AFSC 44350G/70G.

POSITION
NO. 12

POSITION DESCRIPTION

POSITION TITLE

Missile Facilities Specialist/Technician

**RECOMMENDED OR
AUTHORIZED AFSC**

AFSC 54150G/70G

GENERAL FEATURES

POSITION SUMMARY:

The Missile Facilities Specialist/Technician is a member of the Missile Team. As a member of this team, he assists in opening and closing the Launch Tube Closure; emplacing and handling environmental covers, personnel cage, safety barriers, and blowers; and assists in preparing the Re-Entry Vehicle - Guidance and Control Van for Missile, Re-Entry Vehicle or Guidance and Control Section removal and replacement.

The Missile Facilities Specialist/Technician is a member of Electro-Mechanical Team and is responsible for the inspecting, servicing, troubleshooting, removal and replacement of equipment and components such as:

1202	G&C Umbilical Retraction Mechanism	R
1209	Water Control & Removal System, Launcher	R
1210	Sewage Disposal System, LCC	R
1211	Environmental Control System, Launcher	
1212	Environmental Control System, LCC	
1214	Guidance Section Liquid Cooler	
1217	Closure, Launcher Tube	
1230	Diesel Fuel Oil System, Launch Facility and Launch Control Facility (including Standby Generator).	R

POSITION
NO. 12

POSITION DEFINITION

**RECOMMENDED OR
AUTHORIZED AFSC**
AFSC 54150G/70G

POSITION TITLE
Missile Facilities Specialist/Technician

POSITION SUMMARY: (Cont.)

- 1241 Shock Attenuation System, LCC
- 1242 Service Lift, Launch Control Facility
- 1249 Hatch Installation, Launcher
- 1280 Launcher Closure Actuating and Locking Mechanism
- 1282 Battery, Emergency Power
- 1288 Battery, Emergency Power
- 1283 Motor Generator Set
- 1318 G&C Cooling Plumbing Set
- 1325 Heating System, LCCSB
- 1326 Blast Door Installation, Launch Control Capsule
- 1330 Shock Attenuation System, Launcher Equipment Room Floor
- 1383 Gear Rack

He is assisted in detailed trouble shooting of these equipments by the appropriate AFS having detailed knowledge, such as 44250Z, 54550Y, 54250G or 54350

He performs maintenance and tests at the Launch Facility on the ballistic charge on the Rotary Actuator Assembly and the Ballistic Gas Generator in the Launch Tube Closure Actuator Mechanism.

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POSITION DEFINITION		RECOMMENDED OR AUTHORIZED AFSC
POSITION NO. <u>12</u>	POSITION TITLE <u>Missile Facilities Specialist/Technician</u>	<u>AFSC 54150G/79G</u>
POSITION SUMMARY: (Cont'd) At the Support Base he is responsible for inspection, servicing and referral to the appropriate section in the Maintenance Branch for detailed repair of mechanical Maintenance Ground Equipment, such as: Elevator and Work Cage, Safety Barrier, Truck Dolly, Launcher Closure Tractor, etc.		
ENVIRONMENT: Work Location: He performs his duties and tasks at the Launch Facilities, Launch Control Facilities, and the Support Base.		
Lines of Supervision: As a member of the Mobile Maintenance Teams, his work is coordinated by the Ballistic Missile Analyst Technician, AFSC 31274G. At the Support Base he is supervised by the Missile Officer, AFSC 3124G.		
QUALIFICATIONS: The Missile Facilities Specialist/Technician's skill requirements range from low to medium. Medium perceptual skill is required for troubleshooting, inspection, and checkout functions. Medium judgmental skill is required for accomplishing the various detailed maintenance procedures. Medium motor skill is required for installation and removal of assemblies and for aligning and adjusting tasks.		

POSITION NO. 12 POSITION DEFINITION POSITION TITLE Missile Facilities Specialist/Technician RECOMMENDED OR AUTHORIZED AFSC AFSC 54150G/70G

QUALIFICATIONS: (Cont'd)

Composite-test, checkout, visual check and some non-verifiable repair, installation and servicing functions involve tasks whose performance are critical to subsystem operation but which may affect system operation if not correctly performed.

RELATION TO EXISTING AIR FORCE SPECIALTIES:

This position type falls within the scope of AFS Missile Facilities Specialist/Technician, AFSC 54150G/70G.

POSITION
NO. 13

POSITION DEFINITION

POSITION TITLE

Electrician/Electrical Technician

**RECOMMENDED OR
AUTHORIZED AFSC**
AFSC 54250G/70G

GENERAL FEATURES

POSITION SUMMARY:

The Electrician/Electrical Technician is responsible for maintenance at the Support Base of electrical power source and distribution system components returned from Launch Facilities and Launch Control Facilities. He also provides assistance on an "as required" basis to the Electro-Mechanical Team for detailed trouble shooting and repair of the electrical power system at the Launch Facilities and Launch Control Facilities.

His duties and tasks include tests to isolate faults to a removable sub-unit, repair by replacing faulty units, and the organizational and field maintenance of such equipment as:

1209	Water Control and Removal System, Elec. Components
1242	Service Lift, Launch Control Facility
1246	Cable Assembly Set, Launch Control
1248	Launcher Intra-Site Cabling
1249	Hatch Installation System, Launch Control Facility
1283	Motor Generator
1284	Power Supply Group
1289	Power Supply Group, LCC
1323	Electrical Systems, LCC
1329	Electrical System, Launcher
1337	Junction-Box, Main, Launch Facility

POSITION
NO. 13

POSITION DEFINITION

**RECOMMENDED OR
AUTHORIZED AFSC**
AFSC 54250G/715

POSITION SUMMARY: (Cont.)

1367	Motor Generator	R
1379	Battery Charger Alarm Set Group	R
1380	60-Cycle Power Panel	R
1385	Junction Bdx, Power & Communication - LCC	RR
1389	Heating and Ventilating System, LSB	R
1396	Monitoring System, Equipment	R
1415	Fixture, Emergency Lighting and Alarm	RR
4024	Semi-Trailer, G&C Re-Entry Vehicle	R
4043	Elevator Work Cage	R
4059	Electrical Components, T-E, Emplacement System	
4105	Gearcase, Motor	
4119	Truck, Transporter-Erector Support	
4166	Cable Assembly Set, Electrical	
4451	Controller, Power Azimuth Drive	

Checkout, testing, and maintaining will be accomplished, using Electrical Power Test Equipment, Battery Chargers, and Standard Electrical Test Equipment.

POSITION DEFINITION

POSITION
NO. 13

RECOMMENDED OR
AUTHORIZED AFSC
AFSC 54250G/70G

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ENVIRONMENT:

Work Location:

The Electrician/Electrical Technician's primary duty location is the Maintenance Branch-Mechanical Section at the Support Base and at Launch Facilities and Launch Control Facilities when serving as a member of the Electro-Mechanical Team.

Lines of Supervision:

At the Support Base he is supervised by the Missile Officer, AFSC 3124G. When acting as a member of the Electro-Mechanical Team, his work is coordinated by the Ballistic Missile Analyst Technician, AFSC 31274G.

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QUALIFICATIONS:

The duties and tasks of the Electrician/Electrical Technician involve low to medium perceptual, judgmental and motor skills.

Task performance is generally critical to subsystem operation.

RELATION TO EXISTING AIR FORCE SPECIALTIES:

This position type falls within the scope of AFS Electrician/Electrical Technician, AFSC 54250G/70G.

POSITION
NO. 14

POSITION DEFINITION

POSITION TITLE

Electrical Power Production Specialist/
Technician

**RECOMMENDED OR
AUTHORIZED AFSC**

AFSC 54350/70

R

GENERAL FEATURES

POSITION SUMMARY:

The Electrical Power Production Specialist/Technician is responsible for on-site maintenance of Standby Power Equipment located at Launch Facilities and Launch Control Facilities.

He performs Support Base maintenance on Standby Power Equipment Components returned from Launch Facilities and Launch Control Facilities.

ENVIRONMENT:

Work Location:

The Electrical Power Production Specialist/Technician performs his duties in the Maintenance Branch-Mechanical Section at the Support Base. He also performs duties at Launch Facilities and Launch Control Facilities when serving as a member of the Electro-Mechanical Team.

Line of Supervision:

At the Support Base he is supervised by the Missile Officer AFSC 3124G. When acting as a member of the Electro-Mechanical Team, his work is coordinated by the Ballistic Missile Analyst Technician, AFSC 31274G.

R

POSITION NO. <u>14</u>	POSITION DEFINITION	RECOMMENDED OR AUTHORIZED AFSC <u>AFSC 54350/70</u>
POSITION TITLE <u>Electrical Power Production Specialist/ Technician</u>		
QUALIFICATIONS:		
The perceptual, judgmental, and motor skills for this position are essentially medium.		
Task performance is critical to subsystem operation, but may also affect missile operation.		
RELATION TO EXISTING AIR FORCE SPECIALTIES:		
This position falls within the scope of AFS Electrical Power Production Specialist/Technician, AFSC 54350/70.		

R

POSITION
NO. 15

POSITION DEFINITION

POSITION TITLE
Refrigeration Specialist/Technician

**RECOMMENDED OR
AUTHORIZED AFSC**
AFSC 54550Y/70Y

GENERAL FEATURES

POSITION SUMMARY:

The Refrigeration Specialist/Technician is responsible for Support maintenance of the following: Environmental Control and Equipment Cooling components' returned from Launch Facilities and Launch Control Facilities, Maintenance Ground Equipment Cooling Units used at the Support Base, and Transporter-Erector Environmental Control System components. He also provides back-up assistance on an "as required" basis to the Electro-Mechanical Team.

His duties and tasks include tests to isolate faults to a removable sub-unit, repair by replacing faulty units, and organizational and field maintenance of equipment such as:

603	Environmental System, C24
1211	Environmental System, Launch Facility
1212	Environmental System, Launch Control Facility
1214	Cooling Unit, Guidance & Control Compartment
1318	Guidance & Control Cooling Plumbing Set
3035	Test Set, Cooling Liquid, Guidance and Control
4024	Environmental System, R/V-G&C Van
4059	Environmental System, Transporter-Erector
4075	Environmental System, Transporter-Erector
4115	Environmental Control, Auxiliary

R
R
R
R
R

POSITION DEFINITION		RECOMMENDED OR AUTHORIZED AFSC <u>AFSC 54550Y/70Y</u>
POSITION NO. <u>15</u>	POSITION TITLE <u>Refrigeration Specialist/Technician</u>	
POSITION SUMMARY: (Cont'd)		
4150	Test Bench, Guidance and Control Ground Cooling	
4191	Tank, Liquid Storage, Metal	
Checkout and testing is accomplished using such equipment as a Multimeter, Refrigeration Repair Kit, Thermometer, Air Flow meters, and hand tools.		
ENVIRONMENT:		
Work Location:	The Refrigeration Specialist/Technician's primary duty is at the Maintenance Branch-Mechanical Section at the Support Base and at Launch Facilities and Launch Control Facilities when required as a member of the Electro-Mechanical Team.	
Line of Supervision:	At the Support Base he is supervised by the Missile Officer, AFSC 3124G. When acting as a member of Electro-Mechanical Team, his work is coordinated by the Ballistic Missile Analyst Technician, AFSC 31274G.	

R

R

5241-3-2

POSITION NO. 15	POSITION DEFINITION		RECOMMENDED OR AUTHORIZED AFSC <u>AFSC 54550Y170Y</u>
	POSITION TITLE	<u>Refrigeration Specialist/Technician</u>	
QUALIFICATIONS			
The duties and responsibilities of the Refrigeration Specialist/Technician require medium perceptual and motor skills, and high to medium judgmental skill in fault isolating and testing functions.			
Task performance is generally critical to subsystem operation.			
RELATION TO EXISTING AIR FORCE SPECIALTIES			
The duties of this position fall within the scope of AFSC Refrigeration Specialist/Technician AFSC 54550Y170Y.			

POSITION
NO. 16

POSITION DEFINITION

POSITION TITLE

Vehicle Operator/Motor Transportation Superintendent

**RECOMMENDED OR
AUTHORIZED AFSC**
AFSC 60350B/70B

GENERAL FEATURES

POSITION SUMMARY:

The Vehicle Operator is a member of the Missile Transportation Team. He operates empty and loaded missile Transporter-Erectors to and from the Support Base, transporting aircraft or Railhead, and Launch Facilities. He performs routine operator preventive maintenance on the Transporter-Erectors and handles slings, fixtures, stands and other equipment associated with missile transportation and handling activities.

Position duties include: driving the Transporter-Erector; removing accessory equipment from the Transporter-Erector; locating the Transporter-Erector at the Launch Tube; connecting leveling jacks; preparing loaded Transporter-Erectors for travel; connecting Transporter-Erector Tractor to container; positioning Transporter-Erector for loading on the railcar or aircraft; operator inspection, servicing and maintenance of Transporter-Erector Escort vehicles as required.

His duties also include: driving the SSCBM Tractor and Trailer; removing accessory equipment from the SSCBM, Tractor and Trailer; locating the SSCBM for roll transfer; connecting leveling jacks; preparing the loaded SSCBM for travel; positioning the SSCBM and Trailer for loading on railcar or aircraft; and operator inspection, servicing and maintenance of the SSCBM Tractor and Trailer.

POSITION NO. <u>16</u>	POSITION TITLE <u>Vehicle Operator/Motor Transportation Superintendent</u>	POSITION DEFINITION	RECOMMENDED OR AUTHORIZED AFSC <u>AFSC 60350B/70B</u>
ENVIRONMENT:			
Work Location:	The Vehicle Operator/Motor Transportation Supervisor, as a member of the Missile Transportation Team, is assigned to the Launch Maintenance Branch, and performs his duties at the Launch Facility and the Support Base.		
Lines of Supervision:	As a member of the Missile Transportation Team his work is coordinated by the Missile Mechanic, AFSC 44350G/70G.		
QUALIFICATIONS:			
The Vehicle Operator/Motor Transportation Supervisor tasks require low to medium perceptual, judgmental, and motor skills.			
Task performance is considered critical for subsystem operation.			
RELATION TO EXISTING AIR FORCE SPECIALTIES:			
This position type falls within the scope of AFS Vehicle Operator/Motor Transportation Superintendent, AFSC 60350B/70B.			

5.

MANNING ESTIMATES

5.0 Scope. This section presents the manning estimates for Malmstrom Air Force Base SM-80 Strategic Missile Wing, based on the latest predicted reliability data and elapsed time estimates which are obtained from maintenance loading charts and VRSA response charts in Boeing Document D2-6951, Volume II. Manning estimate tables in this section fall into two parts. Part I, consisting of Table 5-1, and Table 5-2, presents manning estimates for all Minuteman direct support functions, broken down by team and by AFSC. Part II, Tables 5-3 through 5-5, presents a detailed breakdown of manning estimates for the LF, LCF and SB.

5.1 Manning Concept. Launch Control Centers will be manned by two officers, 24 hours per day, 7 days per week. Mobile maintenance personnel will work daylight hours, they will be dispatched from the SB with applicable MGE and spares, and they will remain overnight at nearby LCCs in the event of lengthy maintenance operations. SB personnel will work 8 hours per day, 5 days per week. To calculate manning listed in Tables 5-2, 5-3, 5-4 and 5-5, the following assumptions were used:

- a. The first SM-80 Wing at Malmstrom AFB consists of 15 LCFs and 150 LFs.
- b. The average one-way distance from the SB to an LF/LCF is 100 miles.
- c. The average speed of maintenance vehicles is 35 mph.
- d. The average speed of Transporter-Erectors is 15 mph.
- e. Maintenance personnel on mobile maintenance teams will drive the vehicles (except Transporter-Erectors and R/V and GC Vans).
- f. A repair operation equals one maintenance loop, i. e., trips to accomplish unscheduled maintenance will not be combined.
- g. All LF/LCF scheduled maintenance will be combined with trips made for the purpose of accomplishing unscheduled maintenance (except periodic reference mirror alignment).
- h. There are 140 productive hours per man per month.
- i. The manpower estimating formula for unscheduled maintenance is:

$$\frac{\text{Average number of malfunctions/month} \times \text{Maintenance elapsed time}}{\text{Productive hours per man per month}}$$

- j. All RSA fault indicator channels can be activated by more than one equipment fault. This ambiguity, considered in the light of cost effectiveness, dictates that the dispatch of Mobile Maintenance Teams, spares, and MGE be accomplished on a probability basis. When a team dispatched to repair a specific fault finds that a fault of lower probability has activated the VRSA, and that they are not provisioned to repair that fault, there are two courses of action open. If the maintenance requires extensive additional MGE and spares, a "Second Trip" is dispatched from the SB, complete with personnel, MGE and spares to complete the maintenance, while the team that was first dispatched returns to the SB. If equipment requirements for repairing the unexpected fault are small, the team will wait, or "Holdover" while the required items are delivered to the site, probably by air. These "Second Trips" and "Holdovers" are predicted and included in the manning estimates.
- k. The order of failure will be a convenient one, i.e., a queue of men waiting for failure or failures waiting for men will NOT develop.
- l. No consideration is given to manpower requirements for supervisory functions.

Note: See paragraph 6.1.1, Section VI, this document, for further discussion regarding manpower estimates.

5.2 Relationship of Positions. "The listing of recommended AFSCs or authorized AFSCs and corresponding Air Force Specialties in the following tables is not intended to imply that the QPRI positions and these Air Force Specialties (AFSs) are simply identical. On the contrary, the exact relationship between these AFSs and the QPRI positions can only be determined from the subparagraphs entitled, 'Relation to Existing Air Force Specialties' found in the Position Definitions (Section IV). Personnel planning agencies and personnel involved in the preparation of Unit Manning Documents are cautioned to read these subparagraphs carefully before reaching a firm decision on the appropriate classification or manning action."

5.3 Manning Tables. Table 5-1, "Manning Estimates Comparison" summarized the manning estimates in this section and shows also the comparable estimates from the March 1960 QPRI and from the April 1961 QPRI. The increase shown over the April 1961 estimate is due primarily to an increase in the estimated number of equipment failures per month and secondarily to a VRSA response manpower loading philosophy which requires some second trips to the LF or LCF for a single fault.

Table 5-2 summarizes the direct support manning estimates in terms of numbers of teams and AFSCs required for Mobile Maintenance and

numbers of each AFSC required for Support Base functions, as derived from the 9412C analysis of the weapon system. This tables does not reflect supervisory, administrative, or military requirements, nor does it show people required to maintain GFE items which do not appear in the 9412C analysis.

Tables 5-3 through 5-5 support Table 5-2 with detailed man-hours per month per AFSC cross referenced against malfunction indication. Table 5-3 shows team-hours per month against VRSA fault indications. Table 5-4 shows team-hours per month against LCF fault indications. Table 5-5 details Support Base manning estimates by AFSC against OGE, MGE and RPIE.

	150 MISSILES (1 WING)			
	MARCH 1960 QPRI ESTIMATES	MARCH 1961 QPRI ESTIMATES	JULY 1962 QPRI ESTIMATES	
	NO.	NO.	NO.	
TOTAL PERSONNEL				
MISSILE COMBAT CREW PERSONNEL	150	150	150	
MOBILE MAINTENANCE PERSONNEL FOR UNSCHEDULED MAINTENANCE	198	185	229	
MOBILE MAINTENANCE PERSONNEL FOR SCHEDULED MAINTENANCE 1	0	30	30	
SUPPORT BASE, BENCH MAINTENANCE	55	43	30	
SUPPORT BASE, MUNITIONS FACILITY	31	10	6	
TOTAL	434	418	445	

1 Based on 210 malfunctions per month

2 Based on 209 malfunctions per month

3

Based on 362 malfunctions per month

4

Alignment mirror checks and operational retargeting

TABLE 5 - 1 MANNING ESTIMATES COMPARISON

1

[illegible]

[illegible]

NOTES:

1) Based on 337 Airborne/OGE/RP/E Failures/Month
105 HF/UHF Failures/Month
15 MGE Failures/Month

2) Figures Show Men Per Month

TABLE 5-2 MINUTEMAN DIRECT SUPPORT MANNING SUMMARY
FROM 9412C ANALYSIS

2-5260-0-30

WING III MINUTEMAN DIRECT SUPPORT MANNING SUMMARY

Recommended Team and Composition	No. of Teams	3124G	30452	31254G	31255G	31256G	33150B	36151	36152	44250Z	44350G	54150G	54250G	54350	54550Y	60350B	XXXXX
Missile Team	9			9													
1-31254G																	
2-33150B							18										
1-44350G											9						
1-54150G												9					
Transport & Handling Team	3																
1-44350G											3						
3-60350B																9	
Alignment & Targeting Team	8																
1-3124G		8															
1-31254G				8													
1-44350G											8						
Electro- #1 Mechanical	5			5													
1-31254G												5					
1-54150G													2				
1-XXXXX																5	
Electro- #2 Mechanical	2			2													
1-31254G																	
1-54150G													2				
1-54250G														2			
Electro- #3 Mechanical	1																
1-21254G				1													
1-54150G												1					
1-54550Y															1		
Electro- #4 Mechanical	1																
1-54150G																	
1-54250G																	
1-36152									1								
Electro- #5 Mechanical	2																
1-31254G																	
1-54150G																	
1-54250G																	
1-54350G																	
1-54150G																	
1-54250G																	
Electro- #6 Mechanical	1																
1-31254G																	
1-54150G																	
1-54250G																	
1-54350G																	
Electro- #7 Mechanical	5																
1-31254G																	
1-54150G																	
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1-54150G																	

TEAM COMPOSITION COMPARISON CHART

WING I

Team Composition by AFSCs			No. of Teams Recommended	No. of AFSCs Recommended	No. of Teams Recommended
Recommended Team Name	No on Team	AFSC			
Missile Team	1	312X4G	20	20	12
	2	331X0B		10	
	1	443X0G		20	
	1	541X0G		20	
Transport & Handling	1	443X0G	8	8	4
	3	603X0B		24	
Alignment & Targeting	1	3124G	14	14	12
	1	312X4G		14	
	1	443X0G		14	
Electro Mech. No. 1	1	312X4G	15	15	8
	1	541X0G		15	
	1	XXXXX		15	
Electro-Mech. No. 2	1	312X4G	5	5	2
	1	541X0G		5	
	1	542X0G		5	
Electro-Mech. No. 3	1	312X4G	2	2	2
	1	541X0G		2	
	1	545X0Y		2	
Electro-Mech. No. 4	1	312X4G	2	2	2
	1	541X0G		2	
	1	361X2		2	
Electro-Mech. No. 5	1	312X4G	1	1	1
	1	541X0G		1	
	1	543X0		1	
Electro-Mech. No. 6	1	312X4G	1	1	1
	1	541X0G		1	
	1	443X0G		1	
Electro-Mech. No. 7	1	312X4G	6	6	7
	1	541X0G		6	
	1	304X2		12	
Hardened Cable System Team	5	361X1	2	10	2
TOTALS			76	186	53

1 Includes loading for 100% of HF/UHF Failures.

* Wing I requires a team consisting of One (1) 312X4G and two (2) 304X2's

COMPOSITION COMPARISON CHART

WING I

WING II

WING III

No. of AFSCs
Recommended

No. of Teams
Recommended

No. of AFSCs
Recommended

No. of Teams
Recommended

No. of AFSCs
Recommended

20	12	12	9	9
40		24		18
20		12		9
20		12		9
2+	4	4	3	3
		12		9
14	12	12	8	8
14		12		8
14		12		8
15	8	8	5	5
15		8		5
15				5
5	2	2	2	2
5		2		2
5		2		2
2	2	2	1	1
2		2		1
2		2		1
2	2	2	1	1
2		2		1
2		2		1
1	1	1	2	2
1		1		2
1		1		2
1	1	1	1	1
1		1		1
1		1		1
6	7	7	5	5
4		7		5
12		7		5
10	2	10	2	10
8	53	191	39	142

(2) 304X2's



Position	AFSC	Title	WING I	
			Calculated Loading	New by Fi
1	1825G/1816	Missile Launch Officer/Missile Operations Staff Officer	150	1421.2
2	3124G/3116	Missile Officer/Missile Staff Officer	19	
3	304X2	Ground Communications Equipment Repairman (Light)/ Tech.	13	2900, 2901, 2906, 2907, 2950, 2952, 2
4	312X4G	Ballistic Missile Analyst Specialist/ Technician	71	602.2, 604.2
5	312X5G	BM Checkout Equipment Specialist/ Technician	1	717.2, 3007.
6	312X6G	BM Launch Equipment Repairman/ Technician	6	603.2
7	331X0B	Nuclear Weapons Specialist/ Technician	51	
8	361X1	Cable Splicer/Cable Splicing Technician	13	
9	361X2	Telephone Installer-Repairman/ Installation and Repair Super.	3	
10	442X0Z	Missile Pneudraulic Repairman/ Technician	1	
11	443X0G	Missile Mechanic/ Maintenance Technician	44	
12	541X0G	Missile Facilities Specialist/ Technician	47	1324.2, 1323, 1418.2, 1212, 1211.2, 1405.
13	542X0G	Electrician/Electrical Tech.	9	
14	543X0	Electrical Power Production Specialist/ Technician	1	
15	545X0Y	Refrigeration Specialist/ Tech.	3	603.2
16	603X0B	Vehicle Operator/ Motor Transportation Supervisor	24	
	XXXXX	Unspecified AFSC	15	
WING MANNING TOTALS			471	

ING COMPARISON CHART

WING II

Equipment Figure A No.	Deleted Equipment by Figure A No.	Calcu Loading	New Equip By Figure A
		156	
		17	
2902, 2903, 2904, 2905, 2908, 2909, 2910, 2911, 2958	1293, 1295, 1296, 1411, 3109	8	
2, 717.2	602, 604, 717, 1411	52	
.2	717, 3007	1	3007
	603	3	
		33	
		13	
		3	
		1	
		30	
3.2, 1390.2, 1417.2, 2.2, 1240.2, 1421.2, 5.2, 1242.2	1323, 1324, 1390, 1211, 1405, 1212, 1242	36	1209.3, 1210.3, 1211.3, 1405.3, 1429.3, 14 1242.3, 1390.3, 1396.3, 1241.3, 13 1440.3, 1450.3 1432.3
		5	1323.3, 1396.3, 1437.3, 1209.3, 1242.3, 12
		1	
	603	3	1211.3, 1212.3
		12	
		8	
		376	

2

CHART 5-2.3

WING III

Equipment Figure A No.	Deleted Equipment by Figure A No.

3007. 2

3, 1441. 3, 1323. 3, 1443. 3, 1212. 3, 1230. 3,
3, 1325. 3, 1330. 3, 1428. 3, 1436. 3, 1439. 3,

3, 1246. 3, 1248. 3, 1329. 3, 1389. 3

1209. 2, 1210. 2, 1405. 2, 1230. 2, 1396, 1241. 2, 1283,
1211. 2, 1417. 2, 1212. 2, 1242. 2, 1323. 2, 1324. 2,
1390. 2, 1383, 4141, 4282, 1325. 2, 1330

1249, 4105, 4166, 1323. 2, 1396, 1209. 2, 1242. 2,
1246. 2, 1248, 1329. 2, 1389. 2

1211. 2, 1212. 2

3

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WING III

	Deleted Equipment by Figure A No.	Calculated Loading
		150
		13
		6
		39
	3007. 2	1
		3
		29
		13
		2
		1
		22
12. 3, 1230. 3, 36. 3, 1439. 3,	1209. 2, 1210. 2, 1405. 2, 1230. 2, 1396, 1241. 2, 1283, 1211. 2, 1417. 2, 1212. 2, 1242. 2, 1323. 2, 1324. 2, 1390. 2, 1383, 4141, 4282, 1325. 2, 1330	27
39. 3	1249, 4105, 4166, 1323. 2, 1396, 1209. 2, 1242. 2, 1246. 2, 1248, 1329. 2, 1389. 2	5
		2
	1211. 2, 1212. 2	2
		9
		5
		329

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4

CHANNEL	1	6	7	8	9	10	11	12	13	14	15	16	17
FIRST FIG 'A' TRIP	1283	R/V	R/V	1201	G&C	DWN-STG.	1214	604 - 1284	602	1201	1201	1201	1201
SEC FIG 'A' TRIP		1201	1201	DWN-STG.	1201 1284	G&C 1201	1201	1284 G&C	1201				
HOLD FIG 'A'	1412			1412			1412 1318	1412 1201	1412	1412	1412	1412	1412
MISSILE TEAM 1-31254G 2-33150B 1-44350G 1-54150G		51.75	104.23	8.51	1641.33	855.28 67.60		6.42					
TRANSPORT. & HANDLING 1-44350G 2-60350B				9.39		889.20							
ALIGNMENT & TARGETING 1-3124G 1-31254G 1-44350G		26.64	53.68	2.89	452.56	273.60 20.66		.63	29.94 (.48)				
ELECTRO-MECHANICAL 1-31254G 1-54150G 1-XXXX		2.82	3.07	6.66 (.48)	2.30	2.04	2.30		2.30	4.86 (.48)	46.21	11.01	10.81
#2 1-31254G 1-54150G 1-54250G	80.745 (.68)				19.56			159.34 15.87 (.48) (1.20)					
#3 1-31254G 1-54150G 1-54550Y							77.31 (.48) (1.48)						
#4 1-31254G 1-54150G 1-36192													
#5 1-31254G 1-54150G 1-54350													
#6 1-31254G 1-54150G 1-44250Z													
#7 1-31254G 2-30452													

NOTE: All figures in Month per Te
Second-Trip l
Hold-Over h

1

ORGANIZATIONAL MAINTENANCE AT LAUN

17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
1201	1209	1379	1379	1201	1201	1211	1211	1211	1405	1405	1228	1251	1251	1228	1228
		1201	1201			1201	1201	1201	1201	1201	1251			1251	1251
1412	1412	1412	1412	1412	1412	1412	1412	1412	1412	1412	1412	1412	1412	1412	1412
											1201	1201	1201	1201	1201

10.88	2.30	2.43	4.22	3.07	2.30	2.30	2.30	3.30	2.45	54.52	3.37	9.07	30.00	17.39	16
(48)			(48)	(48)	(48)	(48)	(48)	1.53	1.53	(48)	(48)	(48)	(48)	(48)	(48)
								(48)	(48)	(48)	(48)	(48)	(48)	(48)	(48)

13.45 7.88 7.97

(48) (48) (48)

48.81 30.82 11.24

res in matrix indicate Hours per
per Team.

Trip hours are underlined.

over hours are enclosed in a cartouch.

2

AT LAUNCH FACILITY

VRSA PLUS OTHER INDICATIONS

(32)	(33)	(34)	(40)	(41)	(42)	(43)	(44)	(45)	(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)
1228 1251	1220	1201	1412	1228	1228 1251	1228	1251	1251	1251	1228 1251	1201	1201	1201	1201	1201	1201
1412 1201	1412 1201	1412 1201														

07.39 167.72 196 10.64 303.35 94.45 20.09 19.94 71.72 36.17 30.01 14.08 30.08 29.55 60.42 12

71.28
48
114

3

(2)	(53)	(54)	(55)	(56)	(57)	(58)	(59)	UNDETERMINED FAULTS LF	UNMONITORED FAULTS LF	TOTAL TEAM/HOURS/MONTH for LF	NUMBER OF TEAMS FOR OF TEAMS FOR LF
01	1201 604	1201 604	1201	12	1329	1284	1251			2735 12	19.53
										898.59	7.98
										SAFSA Missile Handling → 219.27	
										TOTAL 1117.86	
										860.60	13.82
										Periodic Mirror Check → 917.00	
										Operational Retargeting → 157.36	
										TOTAL 1934.96	
42	12.80	6.40	1.02	29.00		41.66	181.36	15.41		1695.22	12.11
					32.38		186.84	48.70		576.54	4.11
							11.89	15.56		206.65	1.47
							136.78	8.77		145.55	1.04
					18.60		79.24			97.84	.70
								53.53		53.53	.38
								4.75		78 35	.55

4

TABLE 5-3

YRSA CHANNEL	1A	1B	2	3	5	6A	6B	7A	7B	8A	8B	9A	9B
First Trip Figure A's	1283	1412.2	604.2 G&C	604.2 G&C	1201	R/V	1412.2 1201	R/V	1412.2 1201	1337.2	1412.2 1201	G&C 1284	G&C
Second Trip						<u>1201</u>		<u>1201</u>		<u>D</u> <u>1201</u>		<u>1201</u> <u>604.2</u>	
Hold Over													
Missile Team 1-31254G 2-33150B 1-44350G 1-54150G			12.9	12.9		11.4		22.5		<u>9.7</u>		431.1	47
Transport & Handling 1-44350G 3-60350B										<u>7.0</u>			
Alignment & Targeting 1-3124G 1-31254G 1-44350G			2.1	2.1						<u>2.2</u>		80.0	10
Electro- Mechanical #1 1-31254G 1-54150G 1-XXXXX		.8			.2	<u>.1</u>	.8	<u>.1</u>	.8	<u>.1</u>	.8	<u>7.8</u>	
1-31254G #2 1-54150G 1-54250G	58.2												
1-31254G #3 1-54150G 1-54550Y													
1-31254G #4 1-54150G 1-36152													
1-31254G #5 1-54150G 1-54350													
1-31254G #6 1-54150G 1-44350G										7.8			
1-31254G #7 1-54150G 1-30452													

1

9C	9D	9E	10A	10B	10C	11A	11B	11C	12A	12B	12C	12D	13A	13B	13C	14
G&C 1201	604.2 1201	1412.2 1201	G&C D 604.2 1201	D 1282 1284 1379.2	1412.2 1201	1214 1318 G&C 1337.2 1201	G&C 1201	1412.2 1201	604.2 G&C (1201)	604.2	604.2	1412.2 1201	602.2 G&C (604.2)	1201	1412.2 1201	1201
30.8			77.9	318.8		4.5	5.1		37.5				18.7			
			12.5	211.2												
6.9			16.6	65.2		1.0	1.1		8.6				28.1 4.3			
.2	.7	.8	.1		.8	.1	.1	.8	37.5	1.6	1.2	.8		.1	.8	.2
				13.2												
						54.5										
						1.8										

2

[illegible]

ORGANIZATIONAL MAINTENANCE

7B	18A	18B	19A	19B	20A	20B	21A	21B	23A	23B	24A	24B	25A	25B	26A	26B	2
12.2 01	1201 1209.3	1412.2 1201	1201	1412.2 1201	1201	1412.2 1201	1329.3 1201	1412.2 1201	1211.3 1201	1412.2 1201	1211.3 1201	1412.2 1201	1211.3 1201	1412.2 1201	1201	1412.2 1201	1
							1409.3 (1201)		1201		1201		1201				
8	.2	.8	.1	.8	.1	.8		.8		.8		.8		.8	.1	.8	
									30.6		24.8		5.5				
							20.0										
							.5										

4

AT LAUNCH FACILITY

	27B	28A	28B	29A	29B	30A	30B	31A	31B	31C	32A	32B	33A	33B	34A	34B
1	1412.2 1201	1228	1251 1201 1412.2	1251	1251 1201 1412.2	1228	1251 1201 1412.2	1228	1228	1251 1201 1412.2	1251 1228	1412.2 1251 1201	1228	1201 1251 1412.2	2900	2900 2903
									1228		1251 1228					
	. 8	6. 3	1. 1	25. 1	1. 2	22. 1	1. 2	2. 4	17. 0	1. 2	27. 9 . 2	1. 1	10. 5	1. 2		
															1. 5	26. 4

5

TABLE 5-3.3

LAUNCH

34B	34C	40	I	II	IIIA	IIIB	IV	V	VI	VII	VIII	IXA	IXB	XA	XB	X
2900 2903	2900 1412.2 (1201)	1412.2	1412.2 1251	1251	1284 1251 1228 <u>1228</u> 1379.2	1251	1228	G&C 604.2 1201	1201	604.2	1228 1251	1201	1251 1201	1201	1201	1201
								42.7								
								8.6								
			21.7	3.2		6.6	.2		.2	1.5	45.0	23.5	1.7	2.2	.1	1.0
					34.7 <u>4.5</u>											
26.4	1.7 (.1)	.6														

WING III

6

FACILITY FAILURE INDICATIONS

**All figures in matrix indicate hours per
Second Trip hours are underlined.
Hold Over hours are enclosed in cartouche**

XXVI	XXVII	XXVIII	XXIX	XXX	XXXI				
1201	2900 2905	2910 2911	1331.3 (1251)	2900 1331.3	2910 2911 1311.3	Unmonitored Faults LF	TOTAL TEAM HOURS/MONTH FOR LF		NUMBERS OF TEAMS FOR LF
						5.7	R/V Scheduled Sampling	1109.8 55.7	8.3
							TOTAL	1165.5	
							Missile Handling SMSA	234.4 166.1	2.9
							TOTAL	400.5	
							Periodic Mirror Check	242.3 674.8	7.6
							Operational Retargeting	152.7	
							TOTAL	1069.8	
1.8			.7 (.1)			111.7		552.0	3.9
								127.9	0.9
								123.2	0.9
						3.9		22.7	0.2
cate hours per month per team. derlined. osed in cartouch.								138.2	1.0
						4.3		89.3	0.6
	6.5	.6		6.9	4.4	10.5		69.2	0.5

P-5. JUNE

P-5. JUNE

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80																				

MAINTENANCE AT THE SUPPORT BASE

AFSC	OGE MAINT.	RPIE MAINT.	MGE MAINT.	R/V & R/V MGE MAINT.	MCC OPERATION	CABLE PLANT IN PLACE RECORDS MAINT.	TOTAL SUPPORT BASE MAINT. MAN/ MONTHS
3124G					5.00		5
30452	.37		.01				1
31254G					4.22		5
31255G			.34				1
31256G	2.14		.58				3
33150B				8.93			9
36152	.79						1
44250Z			.43				1
44350G			.51				1
54150G		.03	.35				1
54250G	1.59	.12	.40				3
36151						3	3
54550Y	.170	.0528	.18				1

TABLE 5-5

DEC 20 1952

Volume I

D2-5859

6.

SPECIAL PROBLEM AREAS

6.0 Introduction. This section is designed to outline any unusual personnel problems inherent in the proposed operational and maintenance employment of the system. In the April 1961 revision, problem areas were grouped into three areas titled Design Changes, AFS Assignments, and Additional Data Requirements. All problems noted in the 1961 edition were resolved prior the publication of this revision. However, two new problems have arisen.

6.1 New Problems.

6.1.1 Manpower Estimates

Problem: All manpower estimates included in Section V are based on the formula:

$$\frac{(\text{Average number of malfunctions/month})(\text{Average maintenance time})}{140 \text{ productive hours per month per man}}$$

This formula provides an answer in terms of the number of men required in the Weapon System to service malfunctions.

Comment: When interpreting the results of this formula, two related critical assumptions must be made.

- (1) Failures will occur in convenient order so that no queues of malfunctions waiting for men or men waiting for malfunctions will develop.
- (2) The men provided by the formula are "ideal" men that are immediately available and on call at any time, but if not called, the activity they are engaged in is not chargeable against the 140 hours per month each man is capable of contributing to the service of malfunctions.

Both these assumptions deviate from operational conditions. The amount of deviation will determine the amount of error in the answer obtained from the manpower estimating formula. The size of this error is not known at this time.

In order to explore this area more fully, a computer simulation for the Personnel Subsystem was designed and run. A complete report on this simulation is contained in Boeing Document, D2-10112, Computer Simulation for Wing I, dated May 18, 1962. Although this simulation was based on data that is outdated in several specific areas; i. e., different failure rates than those currently in use, the Fault Reader Team concept which is now replaced by the VRSA system; it is sufficiently current to support the following conclusions regarding the manpower estimating formula:

* Includes travel time and on-site time.

- (a) The formula provides a base line for manning the system that is adequate for ideal conditions.
- (b) Under expected operational conditions, the formula provides a low estimate.
- (c) As more stringent scheduling restrictions are placed on the use of manpower, such as using a five day work week instead of seven, or limiting dispatch of personnel to 8 a. m. the day following the occurrence of a malfunction, the formula provides even lower estimates.

Recommendations:

- (1) The manpower loading figures in Tables 5-2, 5-3, 5-4, and 5-5, Section V, are applicable to ideal conditions only and should be augmented to compensate for limitations imposed by operational conditions. If the Air Force has sufficient confidence that the augmentation factor can be developed based upon past experience and sound management programming, the current estimating formula can be considered as sufficient in providing base line manpower loading.
- (2) If the Air Force is not able to generate an augmentation factor in which they have sufficient confidence, additional work should be done with mathematical models and/or computer simulations to develop a more accurate formula that would take fuller cognizance of operational considerations such as the maintenance philosophy and shift and dispatch policy. This approach would be especially helpful in supporting advanced models of the WS-133A or future Weapon Systems.

6.1.2 Communication Maintenance Personnel Loading

Problem: Under the current analytical manpower loading procedures, the manning requirement for communications personnel as listed in Table 5-2, Section V, AFSC 30452, 36151 and 36152, is ten (10) individuals. SAC communications representatives indicate that under provisions of AFCSM 26-1, Manpower and Organization Criteria, the requirements is 108. Thus the manning estimate derived by analytical methods is less than 10% of that derived from AFCSM 26-1. Although the loadings are not directly comparable because the analytical derivation covers only Minuteman peculiar equipment while the AFCSM 26-1 derivation covers total base requirements, the difference is substantially greater than can be accounted for by this difference in viewpoint.

Recommendations: SAC should study this problem further, recommend appropriate changes in the UMD, and notify Air Training Command of additional training requirements.

7.**REFERENCE DOCUMENTS****Boeing**

D2-4508 Minuteman Health & Safety Document, WS-133A, January 1961

D2-6300 WS-133A System Model Document (Operational), SECRET, (When Released)

D2-6951 S-133-12 WS-133A Maintenance Ground Equipment System Specification, All Volumes,

D2-6952 S-133-11 WS-133A Operational Ground Equipment System Specification, All Volumes,

D2-5859 WS-133A Qualitative Personnel Requirements Information for Hardened & Dispersed System, April 1961

D2-10112 Computer Simulation for Wing I,

Air Force

A 31-59-OONM-074 SM-80 Weapon System Logistic Plan

DPLP-59-26 SAC Preliminary Operation Plan (Minuteman)

WSTPR-294 BSD Development Plan

AFM 35-1 Military Personnel Airman Classification Manual, Volumes I and II

AFM 36-1 Officers Classification Manual

AFP 35-1-2 The Personnel Classification System

AFM 35-2 Military Personnel Occupational Analysis

RDPP-59-43 AFBSD MINUTEMAN Development Plan (H&D)

AFBM Exhibit 58-18C Qualitative Personnel Requirements Information (QPRI), 12 October 1959

STL

GM-58-R003-00350
(R4M-917G-58-60)

Weapon System Specifications S-133-1

GM-TN-RD01-00154
(R4M-917L-154)

Weapon System Specification S-133-2

GM-60-0000-04692

Operational Facilities Specification, S-133-3

6600. 5. 1114

WS-133A and WS-133A-M Data Specification
S-133-5

GM-59-0000-12380

MINUTEMAN Operational Data Summary

6600. 33. 25

Attachment B Letter, Copy to ARDC, SAC, ATC, from USAF, AFPDP-2A dated March 24, 1960, Subject: MINUTEMAN Personnel Planning Guidance

Clarifications & Instructions for Preparing July 1960 Issues of Specifications S-133-11, S-133-12, S-133-16 QPRI and TEPI.

**WS-133A MINUTEMAN Glossary of Terms,
Guidance Equations, Notation, and Abbrevia-
tions, February 1960**

Instructions for Development of Training Equipment Information (TEPI) and Qualitative Personnel Requirements Information (QPRI) Utilizing Functional Specification S-133-11 and S-133-12

Letter to AFBMD (MD), Hq ATC, and Boeing Airplane Co., Aero-Space Division (E. B. Slobodnick, MS 42-20) from Hq SAC (DPP), dated 28 March 1961, Subject: Recommended Revisions to WS-133A MINUTEMAN Hardened and Dispersed QPRI

**Copy of Letter to AFSC, ATC, SAC, and
AFLC from Hq USAF (AFDPDP) dated 7 April
1961, Subject: Personnel Planning Guidance
for MINUTEMAN**

8.

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MODEL Minuteman

DOCUMENT NUMBER D2-5859, Volume I

SECTION OR ADDENDUM NO. 2

TITLE

The Wing II QPRI Supplement for WS-133A Minuteman Hardened and Dispersed.

NO OF PAGES 24

DATE December 20, 1962

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The technical information contained herein has been coordinated with the System Functional Analysis of System Engineering.

E. A. Melick
J. B. Marcella, Chief
System Functional
Analysis

78100
WORK ORDER

2-5261
UNIT NO.

52133
ITEM NO

Sub-section title page
Documents

PAGE 1-0.2

INTRODUCTION

The Wing II Supplement should be used with the Wing I QPRI. The supplement updates the Wing I document to the Wing II configuration.

Wing II has the capability of using the Mark XI Warhead in addition to the Mark V that is used in Wing I. Multiple targeting capability has been added for Wing II. The Outer Zone and Inner Zone Security Subsystem at the Launcher Facilities is new and peculiar to Wing II. There are minor changes in the Real Property Installed Equipment (RP1E) that will effect some details in training courses.

Table 1-1. 2A (Volume I) and Table 1-1. 2B (Volume II) of the summary identify personnel by Air Force Specialty Code (AFSC) that are affected by equipment changes. The equipment is identified by Figure "A" number and name. The "Status" column of Table 1-1. 2A and Table 1-1. 2B show how the Duties and Tasks have changed, as follows: Changed means that Wing I Duties and Tasks have been revised for Wing II. Added signifies that the Duties and Tasks are an addition to those for Wing I. Deleted shows that the Duties and Tasks are performed in Wing I but not in Wing II.

The "Page" column in Table 1-1. 2A and Table 1-1. 2B shows the page in the Wing I QPRI Document (D2-5859) affected by changes. The suffixes A 2, B 2, C 2, . . . Z 2 added to the page number shows Wing II peculiarity, (. 2) and the A, B, C . . . Z part of the suffixes shows the sequential order of pages added to amplify a particular page in the basic Wing I document.

The tables in the Wing II Supplement have the same numbering as corresponding Tables in the Wing I document, but in addition they have a ". 2" suffix, for example, Table 5-2 is a Manning Summary for Wing I and Table 5-2 2 is a Manning Summary for Wing II.

Tables 1-1. 2A, 1-1. 2B and 5-2. 2B are in the Wing II supplement only. Table 5-2. 2B shows the composition of Minuteman Mobile Maintenance Teams for Wing II. Charts 5-1. 2 and 5-2. 2 compare Wing I and Wing II Team and Manning Summaries.

CAUTION

The QPRI and QPRI Supplements are planning documents and should not be considered as the final source of detailed procedural information.

The Technical Orders (T. O. 's) or T. O. Checklists are the official source of detailed information on the use and maintenance of Aero-Space Equipment (AGE) and should be referred to for more complete and authoritative procedures.

To assist the reader in locating appropriate T. O. data, a matrix that cross references equipment Figure A numbers to T. O. numbers is provided as Appendix A-2, Volume II of Wing II Supplement to D2-5859.

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i. 2

SUMMARY OF EQUIPMENT CHANGES FOR WING II - Volume I

AFSC	Subsystem/Operation Involved		Status	Page
30452	1293	Antenna	Deleted	4-8
	1295	Transducer	Deleted	4-8
	1296	Alarm, Anti-Intrusion	Deleted	4-8
	1411	Arrestor, Electrical Surge	Deleted	4-8
	2900	Alarm Monitor, OZSS	Added	4-8A. 2
	2901	Pedestal, Antenna, RF Transmitter	Added	4-8A. 2
	2902	Antenna, Long Range RF Receiver	Added	4-8A. 2
	2903	Transmitter, RF	Added	4-9A. 2
	2904	Antenna, Short Range RF Receiver	Added	4-9A. 2
	2905	Receiver, RF	Added	4-9A. 2
	2906	Arrestor, ESA	Added	4-9A. 2
	2907	Pedestal, Antenna RF Rec.	Added	4-9A. 2
	2908	Ring, Pedestal Mounting	Added	4-9A. 2
	2909	Antenna, RF Transmitter OZSS	Added	4-9A. 2
	2910	Alarm Monitor	Added	4-9A. 2
	2911	Transducer, Mctional Pickup	Added	4-9A. 2
	2950	Fault Locator, Portable OZSS/IZPS	Added	4-9A. 2
	2952	Test Set, OZSS/IZPS	Added	4-9A. 2
	2958	Simulator, Intrusion OZSS	Added	4-9A. 2
	3109	Test Set, Security System	Deleted	4-9
31254G	602. 2	Collimator	Changed	4-11A. 2
	604. 2	Coupler, Control Guidance	Changed	4-11A. 2
	717. 2	Test Set, Photo-Electronic Collimator	Changed	4-11A. 2
31255G	717. 2	Test Set, Photo-Electronic Collimator	Changed	4-14A. 2
	3007. 2	Test Set, Explosive Set Circuitry	Changed	4-14A. 2
31256G	603. 2	Missile Targeting Set	Changed	4-16A. 2
54150G	1417. 2	Valve Blast, 8-Inch	Added	4-31A. 2
	1418. 2	Valve Blast, 24-Inch	Added	4-31A. 2
	1420. 2	Sway Damper Assembly	Added	4-31A. 2
	1421. 2	Shock Isolator	Added	4-31A. 2
	1324. 2	Water Supply System	Changed	4-31A. 2
	1390. 2	Ventilation System	Changed	4-31A. 2
54550Y	603. 2	Missile Targeting Set	Changed	4-39A. 2

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TABLE 1 - 1.2A

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1-1. 2

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POSITION DEFINITION

**RECOMMENDED OR
AUTHORIZED AFSC**
AFSC 30452/72

**POSITION
NO.** 3

POSITION TITLE

Ground Communications Equipment

Repairman (Light)/Maintenance Technician

GENERAL FEATURES**POSITION SUMMARY:**

The Ground Communications Equipment Repairman is responsible for maintaining USAF standard HF and UHF communications equipment. In addition, he is responsible for fault isolating, removing, and installing Launch Facility components of the Security System such as the RF Transmitter and RF Receiver, the RF Antennas, the Motion Pickup Transducer and Security System Monitors.

At the Support Base he fault isolates the Security System RF Transmitter and Security System Monitors using the Security System Outer Zone and Inner Zone Test Set and standard radio shop equipment. In checking the Security Electronic System at the Launch Facilities, he uses the Security System Portable Fault Locator. He performs operational checks of the Security System Test Set by using standard radio shop equipment.

The equipment for which the Ground Communications Equipment Repairman is responsible includes:

1294	Switch, Sensitive
1368	Radio Set
1412	Voice Reporting Signalling Assembly (VRSA)
1424	Antenna, Set. Radio
2900	Alarm Monitor, OZSS
2901	Pedestal, Antenna, RF Transmitter
2902	Antenna, Long Range RF Receiver

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POSITION DEFINITION		RECOMMENDED OR AUTHORIZED AFSC AFSC 30452/72
POSITION NO. 3	POSITION TITLE Ground Communications Equipment Repairman (Light)/Maintenance Technician	
POSITION SUMMARY: (Cont.)		
2903	Transmitter, RF	
2904	Antenna, Short Range RF Receiver	
2905	Receiver, RF	
2906	Arrestor, ESA	
2907	Pedestal, Antenna RF Receiver	
2909	Antenna, RF Transmitter OZSS	
2910	Alarm Monitor	
2911	Transducer, Motional Pickup	
2950	Fault Locator, Portable OZSS/IZPS	
2952	Test Set, OZSS/IZPS	
2958	Simulator, Intrusion, OZSS	
4539	Voice Reporting Signalling Assembly Test Set	
ENVIRONMENT:		
Work Location:		Locations are at the Launch Facility, Launch Control Facility, and the Support Base
Lines of Supervision:		At the Launch Facilities and Launch Control Facilities, his work is coordinated by the Ballistic Missile Analyst Specialist/AFSC 31254G. At the Support Base he is supervised by the Chief, Communications Section.

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POSITION NO. <u>3</u>	POSITION DEFINITION		RECOMMENDED OR AUTHORIZED AFSC AFSC 30452/72
	POSITION TITLE Ground Communications Equipment Repairman (Light)/Maintenance Technician		
QUALIFICATIONS:			
This position requires low to high perceptual skill (high perceptual skill is required for test and repair of radio and radio components); it requires medium electronics judgmental skill for carrying out detailed maintenance functions; and it requires low to medium motor skills (medium skills are required for calibration, adjustment and some repair tasks). Task performance for this position is non-critical to system operation			
RELATION TO EXISTING AIR FORCE SPECIALTIES:			
This position falls within the scope of AFS Ground Communications Equipment Repairman (Light)/Maintenance Technician, AFSC 30452/72			

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POSITION DEFINITION

RECOMMENDED OR
AUTHORIZED AFSC
31254G/74G

POSITION
NO. 4

POSITION TITLE

Ballistic Missile Analyst Specialist/Technician

POSITION SUMMARY: (Cont)

2. Verifies faults from the VRSA and/or indications located on the equipment in the Launcher.
3. Installs and removes Safing Pins in the Main Junction Box.
4. Cleans the Equipment room and ensures the security of the Launch Facility
- b. Missile Team and Electro-Mechanical Team:
 1. Coordinates (and directs) those specific duties of other team members to ensure a coordinated team effort.
 2. Is responsible for ensuring the safety of personnel, equipment, and the practice of sound maintenance techniques
 3. Directs and assists in troubleshooting, repair, and composite test functions.
 4. Uses the missile simulator set to perform Launch Facility closed loop tests.
 5. Uses the Start-Up Unit to bring the Launch Facility to strategic alert after Ground Operational Equipment "NO-GO's "
- c. Targeting and Alignment Team
 1. Uses optical alignment equipment to coarse and fine align the missile and collimator and performs necessary Theodolite computations
 2. Uses the Missile Targeting Console (C24) to apply power, fill and verify the airborne computer, and bring the Launch Facility to strategic alert condition after all missile "NO-GO's "
 3. Uses the Start-Up Unit to bring the Launch Facility to strategic alert after Ground Operational Equipment "NO-GO's "

POSITION DEFINITION

RECOMMENDED OR
AUTHORIZED AFSC
AFSC 31254G/74G

POSITION
NO. 4

POSITION TITLE

Ballistic Missile Analyst Specialist/Technician

ENVIRONMENT:

Work Location:

The Ballistic Missile Analyst Specialist's duty locations are at the Launch Control Facility, Launch Facilities, and the Support Base. He is a member of and the coordinator of Mobile Maintenance Teams

Lines of Supervision: He is supervised by the Missile Officer, AFSC 3124G

QUALIFICATIONS:

The Ballistic Missile Analyst Specialist's perceptual and judgmental skill demands range from high to medium (high skill is required for troubleshooting) Motor skills are essentially medium.

Task performance is generally critical to overall system operation.

RELATION TO EXISTING AIR FORCE SPECIALTIES:

The responsibilities of this position fall within the scope of AFS Ballistic Missile Analyst Specialist/Technician, AFSC 31254G/74G

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RECOMMENDED OR
AUTHORIZED AFSC
AFSC 31255G/75G

POSITION DEFINITION

POSITION
NO. 5

POSITION TITLE

Ballistic Missile Checkout Equipment Specialist/Technician

GENERAL FEATURES

POSITION SUMMARY:

The Ballistic Missile Checkout Equipment Specialist is responsible for the Support Base maintenance and calibration of Electronic Test Equipment such as:

- 623 C90 Adapter Group, Test
- 624 C91 Test Center, Programmer - Fault Locator
- 717.2 Test Set, Photo-Electronic Collimator
- 3007.2 Test Set, Explosive Set Circuitry
- 3013 Test Set, Command Control Console
- 3092 Test Set, Programmer Group
- 4012 Test Set, Sensitive Command Network
- 4018 Test Adapter C91
- 4152 Test Equipment, Electronic Facility Base Maintenance
- 4490 Missile Simulator
- 4489 Message Generator
- 10709 C153 Test Set, Missile Control Group

The Ballistic Missile Checkout Equipment Specialist is responsible for troubleshooting and repairing interconnecting circuits of the Sensitive Command Network, Security System, Programmer Group, and Command Control Console when returned to the Support Base.

POSITION DEFINITION

POSITION NO. 5 Ballistic Missile Checkout Equipment Specialist/Technician RECOMMENDED OR AUTHORIZED AFSC AFSC 31255G/75G

POSITION SUMMARY: (Cont.)

Checkout and testing is accomplished using self test features of programmed checkout equipment, and by using standard voltmeters, frequency meters, oscilloscopes and hand tools.

ENVIRONMENT:

Work Location: The Ballistic Missile Checkout Equipment Specialist's duty location is in the Maintenance Branch - Electronic Section at the Support Base.

Lines of Supervision: He will be supervised at the Support Base by the Missile Officer, AFSC 3124G.

QUALIFICATIONS:

The Ballistic Missile Checkout Equipment Specialist is required to perform at a low to high perceptual skill level (high level is required for test, visual inspection, function checkout, and repair of test equipment); high judgmental skill level is required for accomplishing all detailed electronic maintenance functions; motor skill demands range from high to low.

Task performance is generally critical to subsystem operation.

RELATION TO EXISTING AIR FORCE SPECIALTIES:

This position type falls within the scope of AFS Ballistic Missile Checkout Equipment Specialist/Technician, AFSC 31255G/75G.

POSITION
NO. 6

POSITION DEFINITION

**RECOMMENDED OR
AUTHORIZED AFSC**
AFSC 31256G/76G

POSITION TITLE
Ballistic Missile Launch Equipment Repairman/Technician

GENERAL FEATURES

POSITION SUMMARY:

The Ballistic Missile Launch Equipment Repairman is responsible for receiving, storing, and preparing for shipment Guidance and Control sections of the missile at the Support Base. He is also responsible for repair and maintenance at the Support Base for such equipment as:

603.2	Missile Targeting Set
604	Coupler, Control-Guidance
642	C96 Optical Alignment Set
667	C95 Battery Power Supply
695	C119 Test Set, Control-Guidance Coupler
1201	Programmer Group
1213	Data Processing Equipment, Launch Control Facility
1228	Data Processing Equipment, Launch Facility
1243	Launch Control Console
1251	Cable Termination Equipment, Launch Facility
1265	Cable Termination Equipment, Launch Control Facility
1268	Electro-Mechanical Decoder
1338	Communication Control Console (Launch Enable Switch)
4252	Insertion Verifier
4491	Start-Up Unit

POSITION DEFINITION

POSITION
NO. 6

Ballistic Missile Launch Equipment Repairman/Technician

RECOMMENDED OR
AUTHORIZED AFSC
AFSC 31256G/76G

POSITION SUMMARY: (Cont.)

Checkout and testing of the above items are accomplished using the C91 Programming Electronic Test Center, its adapters, and standard electronic test equipment. In addition, he is responsible for the operation of the Inserter Verifier.

He may be called upon to assist in troubleshooting at the Launch Site and Launch Control Center.

ENVIRONMENT:

Work Location: The Ballistic Missile Launch Equipment Repairman's primary duty location is at the Maintenance Branch, Electronic Section at the Support Base.

Lines of Supervision: He will be supervised by the Missile Officer, AFSC 3124G.

QUALIFICATIONS:

This position requires low to high perceptual skill (high perceptual skill being required for some tests, repair and troubleshooting tasks); it requires medium to high electronics judgmental skill for carrying out detailed maintenance functions; it requires low to high motor skills (high level being required for calibration, adjustment and some repair tasks).

The importance of proper task performance ranges from non-critical to critical for subsystem and system operation.

RELATION TO EXISTING AIR FORCE SPECIALTIES:

This position falls within the scope of AFS Ballistic Missile Launch Equipment Repairman/Technician, AFSC 31256G/76G.

J 4 - 304.2

POSITION DEFINITION		RECOMMENDED OR AUTHORIZED AFSC AFSC 54150G/70G
POSITION NO. 12	POSITION TITLE Missile Facilities/Specialist/Technician	
GENERAL FEATURES		
POSITION SUMMARY: The Missile Facilities Specialist/Technician is a member of the Missile Team. As a member of this team, he assists in opening and closing the Launch Tube Closure; emplacing and handling the environmental covers, personnel cage, safety barriers, and blowers; and assists in preparing the Re-Entry Vehicle-Guidance and Control Van for Missile, Re-Entry Vehicle or Guidance and Control Section removal and replacement. The Missile Facilities Specialist/Technician is a member of Electro-Mechanical Team and is responsible for the inspecting, servicing, troubleshooting, removal and replacement of equipment and components such as:		
1202	G&C Umbilical Retraction Mechanism	
1207	Drier, Air Compressor Hardened Cable, SCN/LCC	
1209	Water Control & Removal System, Launcher	
1210	Sewage Disposal System, LCC	
1211	Environmental Control System, Launcher	
1212	Environmental Control System, LCC	
1214	Guidance Section Liquid Cooler	
1217	Closure, Launcher Tube	
1230	Diesel Fuel Oil System, LF and LCC (including Standby Generator	
1241	Shock Attenuation System, LCC	
1242	Service Lift, Launch Control Facility	

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POSITION DEFINITION

POSITION
NO. 12

RECOMMENDED OR
AUTHORIZED AFSC
AFSC 54150G/70G

POSITION TITLE

Missile Facilities Specialist/Technician

POSITION SUMMARY: (Cont.)

At the Support Base he is responsible for inspection, servicing and referral to the appropriate section in the Maintenance Branch for detailed repair of mechanical Maintenance Ground Equipment, such as: Elevator and Work Cage, Safety Barrier, Truck Dolly, Launcher Closure Tractor, etc.

ENVIRONMENT:

Work Location:

He performs his duties and tasks at the Launch Facilities, Launch Control Facilities, and the Support Base.

Lines of Supervision:

As a member of the Mobile Maintenance Teams, his work is coordinated by the Ballistic Missile Analyst Technician, AFSC 31274G. At the Support Base he is supervised by the Missile Officer, AFSC 3124G.

QUALIFICATIONS:

The Missile Facilities Specialist/Technician's skill requirements range from low to medium. Medium perceptual skill is required for troubleshooting, inspection, and checkout functions. Medium judgmental skill is required for accomplishing the various detailed maintenance procedures. Medium motor skill is required for installation and removal of assemblies and for aligning and adjusting tasks.

Composite-test, checkout, visual check and some non-verifiable repair, installation and servicing functions involve tasks whose performance are critical to subsystem operation but which may affect system operation if not correctly performed.

RELATION TO EXISTING AIR FORCE SPECIALTIES:

This position type falls within the scope of AFS Missile Facilities Specialist/Technician, AFSC 54150G/70G.

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POSITION NO. 15	POSITION DEFINITION		RECOMMENDED OR AUTHORIZED AFSC AFSC 54550Y/70Y
	POSITION TITLE <u>Refrigeration Specialist/Technician</u>		
<u>GENERAL FEATURES</u>			
<u>POSITION SUMMARY:</u>			
The Refrigeration Specialist/Technician is responsible for Support maintenance of the following: Environmental Control and Equipment Cooling components returned from Launch Facilities and Launch Control Facilities, Maintenance Ground Equipment Cooling Units used at the Support Base, and Transporter-Erector Environmental Control System components. He also provides back-up assistance on an "as required" basis to the Electro-Mechanical Team.			
His duties and tasks include tests to isolate faults to a removable sub-unit, repair by replacing faulty units, and organizational and field maintenance of equipment such as:			
603.2	Environmental System, C24 (Missile Targeting Set)		
1211	Environmental System, Launch Facility		
1212	Environmental System, Launch Control Facility		
1214	Cooling Unit, Guidance and Control Compartment		
1318	Guidance and Control Cooling Plumbing Set		
3035	Test Set, Cooling Liquid, Guidance and Control		
4024	Environmental System, R/V-G&C Van		
4059	Environmental System, Transporter-Erector		
4075	Environmental System, Transporter-Erector		
4115	Environmental Control, Auxiliary		
4150	Test Bench, Guidance and Control Ground Cooling		
4191	Tank, Liquid Storage, Metal		

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I 4 4-4-2

POSITION DEFINITION	
POSITION NO. <u>15</u>	RECOMMENDED OR AUTHORIZED AFSC AFSC 54550Y/70Y
POSITION TITLE Refrigeration Specialist/Technician	
POSITION SUMMARY: (Cont.) Checkout and testing is accomplished using such equipment as a Multimeter, Refrigeration Repair Kit, Thermometer, Air Flow meters, and hand tools.	
ENVIRONMENT:	
Work Location:	The Refrigeration Specialist/Technician's primary duty is at the Maintenance Branch-Mechanical Section at the Support Base and at Launch Facilities and Launch Control Facilities when required as a member of the Electro-Mechanical Team.
Lines of Supervision:	At the Support Base he is supervised by the Missile Officer. AFSC 3124G. When acting as a member of Electro-Mechanical Team, his work is coordinated by the Ballistic Missile Analyst Technician, AFSC 31274G.
QUALIFICATIONS: The duties and responsibilities of the Refrigeration Specialist/Technician require medium perceptual and motor skills, and high to medium judgmental skill in fault isolating and testing functions. Task performance is generally critical to subsystem operation.	
RELATION TO EXISTING AIR FORCE SPECIALTIES: The duties of this position fall within the scope of AFS Refrigeration Specialist/Technician, AFSC 54550Y/70Y.	



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TABLE 5-2.2.

[illegible]

WING II
MINUTEMAN MOBILE MAINTENANCE TEAMS

Team Composition by AFSCs

<u>Team</u>	<u>No.</u>	<u>AFSC</u>
Missile Team	1	312X4G
	2	331X0B
	1	443X0G
	1	541X0G
Transport & Handling	1	443X0G
	3	603X0B
Alignment & Targeting	1	3124G
	1	312X4G
	1	443X0G
Electro-Mech. No. 1 	1	312X4G
	1	541X0G
	1	XXXXX
Electro-Mech. No. 2	1	312X4G
	1	541X0G
	1	542X0G
Electro-Mech. No. 3	1	312X4G
	1	541X0G
	1	545X0Y
Electro-Mech. No. 4	1	312X4G
	1	541X0G
	1	361X2
Electro-Mech. No. 5	1	312X4G
	1	541X0G
	1	543X0
Electro-Mech. No. 6	1	312X4G
	1	541X0G
	1	442X0Z
Electro-Mech. No. 7	1	312X4G
	1	541X0G
	1	304X2
Hardened Cable System Team	5	361X1

<u>AFSC</u>	<u>Title</u>
3124G/3116	Missile Officer
312X4G	Ballistic Missile Analyst Specialist/ Technician
331X0B	Nuclear Weapons Specialist
304X2	Ground Communications Equipment Repairman/ Tech.
361X2	Telephone Installer Repairman
442X0Z	Missile Pseudraulic Repairman/ Technician
443X0G	Missile Mechanic/Maintenance Technician
541X0G	Missile Facilities Specialist/ Technician
542X0G	Electrician/Electrical Tech.
543X0	Electrical Power Production Specialist/ Technician
545X0Y	Refrigeration Specialist/ Tech.
603X0B	Vehicle Operator/Motor Transportation Supervisor
361X1	Cable Splicer/Cable Splicing Technician

 The Electro-Mechanical Teams are numbered 1 through 7. Each E-M Team has a minimum of three (3) people and each team has a 312X4G and a 541X0G. E-M Team No. 1 has any of the other AFSCs available for the third person. E-M Teams No. 2 through 7 have a specific AFSC for the third man depending on what job is to be done.

TABLE 5-2.2B

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5-5.2A

WING I VS WING II MANNING COMPARISON CHART

Position	AFSC	Title	New Equipment by Figure A No.	Delet by Fi
1	1825G/ 1816	Missile Launch Officer/ Missile Operations Staff Officer	1421.2	
2	3124G/ 3116	Missile Officer/Missile Staff Officer		
3	304X2*	Ground Communications Equipment Repairman (Light)/Technician	2900, 2901, 2902, 2903, 2904, 2905, 2906, 2907, 2908, 2909, 2910, 2911, 2950, 2952, 2958	1293, 1411,
4	312X4G	Ballistic Missile Analyst Specialist/Technician	602.2, 604.2, 717.2	602,
5	312X5G	BM Checkout Equipment Specialist/Technician	717.2, 3007.2	717,
6	312X6G	BM Launch Equipment Repairman/Technician	603.2	603
7	331X0B	Nuclear Weapons Specialist/Technician		
8	361X1	Cable Splicer/Cable Splicing Technician		
9	361X2	Telephone Installer- Repairman/Installation and Repair Supervisor		
10	442X0Z	Missile Pneudraulic Repairman/Technician		
11	443X0G	Missile Mechanic/ Maintenance Technician		
12	541X0G	Missile Facilities Specialist/Technician	1324.2, 1390.2, 1417.2, 1421.2, 1240.2, 1421.2	1324,
13	542X0G	Electrician/Electrical Technician		
14	543X0	Electrical Power Pro- duction Specialist/Tech.		
15	545X0Y	Refrigeration Specialist/ Technician	603.2	603
16	603X0B	Vehicle Operator/Motor Transportation Super.		
	XXXXX	Unspecified AFSC		

WING MANNING TOTALS

* Position Definition text slightly changed to account
for nomenclature change for Security System

WING MANNING COMPARISON CHART

New Equipment
by Figure A No.

Deleted Equipment
by Figure A No.

Wing I
Calculated
Loading

Wing II
Calculated
Loading

1421.2

150

150

2900, 2901, 2902, 2903, 2904, 2905,
2906, 2907, 2908, 2909, 2910, 2911,
2950, 2952, 2958

1293, 1295, 1296,
1411, 3109

13

8

602.2, 604.2, 717.2

602, 604, 717, 1411

71

52

717.2, 3007.2

717, 3007

1

1

603.2

603

6

3

43

33

8

8

3

3

2

2

43

29

1324.2, 1390.2, 1417.2, 1421.2,
1240.2, 1421.2

1324, 1390

47

36

9

5

1

1

603.2

603

3

3

24

12

15

8

458

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WING MANNING TOTALS

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5-5.2C

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Chart 3-2.2

[illegible]

ORGANIZATIONAL MAINTENANCE

13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
602 604 1201 1412 G&C 1201	1201 1412	Down 84g 1201 1337 1412 604 1379	1201 1412	~~1201~~ ~~1412~~	1201 1209 1412	1201 1412	1201 1412	1201 1339 1412	1201 1412	1201 1211 1412	1201 1211 1412	1201 1211 1411	1201 1412	1201 1412	1201 1228 1251 1412	1201 1251 1412	1201 1251 1412
3.80		539.86 (5.3)															
		332.29															
0.07		158.61															
44.61 (.17)	1.04		9.87	3.32	12.09				.91				.91	.91	14.01	65.93	43.1
						2.57	2.57										
										39.51 (.13)	32.07 (.13)	7.67 (.13)					
								21.15 (2.45)									

MAINTENANCE AT LAUNCH FACILITY

LAUNCH FACIL

29	30	31	32	33	34	40	I	II	III	IV	V	VI	VII	VIII	IX	X	X
1201 1251 1412	1201 1228 1251 1412	1201 1228 1251 1412	1228 1251 1412 1201	1201 1228 1412 1251 1412	1201 1412 SecSys (LF)	1412	1228	1251 1412	1251	1228 1251 1284	1201	G&C 604 1201	1201	604	1228 1251	1201 1251	12
												56.49					
												21.74					
65.93	43.33	8.08	38.48 (.40)	26.07	.91	.51	.60	16.62	.62	53.34	32.62		.27	2.62	98.17 (6.23)	8.83	4.5
										(24.01)							
Note: All figures in matrix indicate hours per month per team. Second Trip hours are underlined Hold Over hours are enclosed in cartouch.																	
						130.57											

TABLE 5-3.2

WING II

3

LAUNCH FACILITY FAILURE INDICATIONS

VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII	XVIII	XIX	XX	XXI	XXII	XXIII			
604 1228 1251 1228	1201 1251	1201 1251	1201	1201	1228 1251	1201 1228 1337 1201 1228 1284 1251	604 1201 1209 1211 1228 1268 1284 1337 1303 G&C Down Stg (9.15) (4.34) (2.60)		1201	1228	1228	1228	1228	1228		1201 1282	Unmonitored Faults LF	T
																	R/ Sa	
																	Missi	
																	R/V S Perio Opera	
2.62 (6.23)	98.17 (6.23)	8.83	4.54	.94	33.88 (1.73)		(180.86)		.13	1.04	1.04 (2.26)	5.20	6.84	.30	(16.24)	9.35		
						39.50 (6.34)	(16.23)										112.20	
							(13.74)										15.56	
							143.72 (8.23)										7.20	
																	64.81	
																	57.32	
																	3.21	

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V.

IONS

XV	XVI	XVII	XVIII	XIX	XX	XXI	XXII	XXIII			
604 1201 1209 1211 1228 1268 1284 1337 1303 G&C Team Avg		1201	1228	1228	1228	1228	1228		Unmonitored Faults LF	TOTAL TEAM/HOURS/MONTH FOR LF	NUMBER OF TEAMS FOR LF
(9.15)										1479.58 R/V Scheduled Sampling 118.38	11.41
(4.34)										TOTAL 1597.96	
(2.60)										361.88 Missile Handling SMSA 147.13	3.64
(180.86)		.13	1.04	1.04 (2.26)	5.20	6.84	.30	(16.24)	9.35	TOTAL 509.01	
(16.23)									112.20	518.96 R/V Scheduled Sampling 70.56 Periodic Mirror Check 917.56 Operational Retargeting 157.00 TOTAL 1664.02	11.89
(13.74)										848.41	6.06
	143.72 (8.23)								15.56	264.07	1.88
									7.20	186.25	1.33
									64.81	159.15	1.14
									57.32	88.41	.53
									3.21	57.32	.41
										132.78	.95

5

	1A	1B	2	3	4	5	6	7	8	9	10	11	12	
FAULT	1213 ALL XMIT TONE LOST	1213 PART XMIT TONE LOST	1213 1265 LOSS OF INPUT MARKS	1213 CYCLE DETECTOR	1213 1243 ZERO DETECTOR	NET TRAFFIC	1213 INPUT COUPLER	1265 NO HARD VOICE CHAN.	121 LINE MONITOR	1213 LOSS OF STATUS	1213 LF STATUS ERROR 1-5	1213 LF STATUS ERROR 6-10	1213 NOT TEST RECEIVED	1
Electro- #1 Mechanical 1-31254G 1-54150G 1-XXXXX	.66	.65	2.49 6.69	2.93		.65	2.38	5.65	.87	4.89	.33	5.53	1.95	1
Electro- #2 Mechanical 1-31254G 1-54150G 1-54250G														
Electro- #3 Mechanical 1-31254G 1-54150G 1-54550Y														
Electro- #4 Mechanical 1-31254G 1-54150G 1-36152					.65 5.96									
Electro- #5 Mechanical 1-31254G 1-54150G 1-54350														
Electro- #6 Mechanical 1-31254G 1-54150G 1-44250Z														
Electro- #7 Mechanical 1-31254G 1-54150G 1-30452														
HCS Team 5-36151														



The Hardened Cable System (HCS) gear works on the HC where needed at LCF, LF and between LCFs and LFs.

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TIONAL MAINTENANCE AT LAUNCH CONTROL FACILITY

11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
1213 LF STATUS ERROR 6-10	1213 NOT TEST RECEIVED	1213 SCN ALARM	1213 NO STATUS DISPLAY	1265 1338 NO VRSA	1265 1243 1302 1338 NO SIN	1265 NO COMMANDS	MISSILE AWAY	1265 ARMED LF	1289 SCN DPE #2	CCC PANEL #1	1243 NO AUDIBLE ALARM	1243 INCORRECT STATUS	1243 NO TEST IN PROGRESS	1213 1281 UNDETER- MINED FAULTS	UNMONITORED FAULTS AND RPIE FAULTS LCF	TOTAL TEAM
5.53	1.95	1.73	1.73			3.34	.96	.64			5.07		.32	2.83 1.61	125.55	18
									1.79	.82						2
															18.98	1
				8.20	5.07 28.30 4.94 .64										12.58	1
															18.48	
															2.98	
															758.7	7
works on the HCS GFs and LFs.																



LAUNCH CONTROL FACILITY

15	16	17	18	19	20	21	22	23	24	25			
NO VRSA 1265 1243 1302 1338	NO SIN 1265 1243 1302 1338	NO COMMANDS 1265	MISSILE AWAY 1265	ARMED LF 1265	SCN DPE #2 1289	CCC PANEL #1	NO AUDIBLE ALARM 1243	INCORRECT STATUS 1243	NO TEST IN PROGRESS 1243	UNDETERMINED FAULTS 1213 1281	UNMONITORED FAULTS AND RPIE FAULTS LCF	TOTAL TEAM HOURS/MONTH FOR LCF	NUMBER OF TEAMS FOR LCF
		3.34	.96	.64			5.07		.32	2.83 1.61	125.55	183.64	1.31
					1.79	.82						20.03	
											18.98	18.98	.14
20	5.07 28.30 4.94 .64										12.58	64.65	.46
											18.48	18.48	.13
											2.98	2.98	.02
											758.7	758.76	5.42
													22

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TABLE 5-4.2

MAINTENANCE AT THE SUPPORT BASE

AFSC	OGE MAINT.	RPIE MAINT.	MGE MAINT.	R/V & R/V MGE MAINT.	MCC OPERATION RECORDS MAINT.	CABLE PLANT IN PLACE MAINT.	TOTAL SUPPORT BASE MAINT. MAN/ MONTHS
3124G					5.00		5
30452	.37		.01				1
31254G					4.22		5
31255G			.34				1
31256G	2.14		.58				3
33150B				8.93			9
36152	.79						1
44250Z			.43				1
44350G			.51				1
54150G		.03	.35				1
54250G	1.59	.12	.40				3
36151						3 (Est.)	3
54550Y	.170	.0528	.18				1

WING II TABLE 5.2 Note: Figures show men per month.

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MODEL Minuteman

DOCUMENT NUMBER D2-5859, Volume I

SECTION OR ADDENDUM NO. . 3

TITLE

The Wing III QPRI Supplement for WS-133A Minuteman Hardened and Dispersed.

NO. OF PAGES 38

DATE 20 March 1963

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The technical information contained herein has been coordinated with the System Functional Analysis of System Engineering.

78100
WORK ORDER

2-5261
UNIT NO.

52133
ITEM NO.

E. Melick
for J. B. Marcella, Chief
System Functional
Analysis

Sub-section title page
Documents

PAGE 1-0.3

INTRODUCTION

The Wing III Supplement should be used with the Wing I QPRI and the Wing II Supplement. This supplement updates the Wing I document with the Wing II Supplement to the Wing III configuration.

The major Wing III changes resulted from hardening and extending the survival period of the Launch Facility and the Launch Control Facility. An entirely new structure, the Launch Control Equipment Building, was constructed adjacent to the Capsule. It houses the equipment necessary to sustain the Capsule and the EWO capability for extended periods. Also, a hydraulic pusher was substituted for the gearcase motor. A list of Figure A changes with a brief explanation will be found on pages iv 3 through xv. 3.

Table i-1A. 3 (Volume I) and Table i-1B. 3 (Volume II) identify personnel by Air Force Specialty Code (AFSC) that are affected by equipment changes. The equipment is identified by Figure "A" number and name. The "Status" column of Table i-1A. 3 and Table i-1B. 3 show how the Duties and Tasks have changed, as follows: Changed means that Wing II Duties and Tasks have been revised for Wing III. Added signifies that the Duties and Tasks are an addition to those for Wing II. Deleted shows that the Duties and Tasks are performed in Wing II but not in Wing III.

The "Page" column in Table i-1A. 3 and Table i-1B. 3 shows the page in the Wing I and Wing II QPRI affected by changes. The suffixes A. 3, B. 3, C. 3 . . . Z. 3 added to the page number show Wing III peculiarity, (. 3). The A. B. C. . . . Z. part of the suffix shows the sequential order in which pages should follow a particular page in the basic Wing I and II document. These added pages amplify existing pages or inject new material between existing pages.

Editors Note: Whenever duty/task information has been changed or added for a given AFSC, new duty/task pages have been provided which replace or supplement pages issued previously. These new duty/task pages are listed in Table i-1A. 3 to the right of the AFSC to which they apply. Whenever duty/task information has been deleted for a given AFSC, the work "Deleted" has been entered in the "Status" column and the page number on which the data is to be deleted is listed in the "Page" column of Table i-1A. 3. Because the deleted data is, in many instances, still applicable to earlier wings, and there may be other data on the page that is still current, it is suggested that a handwritten note be placed opposite the deleted data on the duty/task page to the effect that "Figure A XXXX (or Form B XX-XXXXX) duties and tasks deleted for Wing III and on."

The tables in the Supplement have the same basic numbering as corresponding tables in the Wing I document and Wing II Supplement, but in addition, they have a . 3 suffix. For example; Table 5-2. 2 is a Manning Summary for Wing II and Table 5-2. 3 is a Manning Summary for Wing III.

Tables i-1A. 2 or . 3, i-1B. 2 or . 3 and 5-2B. 2 or . 3 are in the Wing II and III Supplements only. Table 5-2B. 3 shows the composition of Minuteman Mobile Maintenance Teams for Wing III. Charts 5-1. 3 and 5-2. 3 compare Wing I, II and III Team and Manning Summaries.

CAUTION

The QPRI and QPRI Supplements are planning documents and should not be considered as the final source of detailed procedural information.

The Technical Orders (T.O. 's) or T.O. Checklists are the official source of detailed information on the use and maintenance of Aerospace Ground Equipment (AGE) and should be referred to for more complete and authoritative procedures.

To assist the reader in locating appropriate T.O. data, a matrix that cross references equipment Figure A numbers to T.O. numbers is provided as Appendix A-2, Volume II of Wing III Supplement to D2-5859

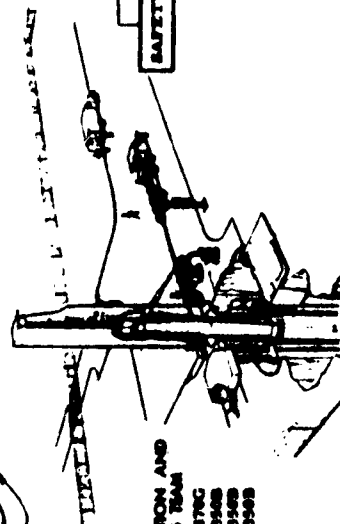
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MISSILE TEAM
APSC 31274C
54154G
44354G
33154B
31154B

- 1



3120G	AFBC	3120G	54150G
31270G		31270G	54250G
64300G		31250G	54350
54150G		31250G	50550Y
64350G			64200Z

REAL PROPERTY INSTALLED EQUIPMENT (RPIE) CHANGES

1. Figure A 1209.3 - Water Control and Removal System, LF
 - a. Check valve added on the discharge line of the Sump Pump to prevent reverse flow.
2. Figure A 1210.3 - Sewage Disposal System, LCC
 - a. Add automatic/manual valves on drain and vent lines penetrating the capsule.
 - b. Add 2" floor drain in the LCEB.
 - c. Add a 3500 gallon emergency sewage overflow tank located outside the Tunnel Junction and connected to the sewage sump.
 - d. Revise the size of the sump pump in the Tunnel Junction.
- *3. Figure A 1230.3 - Fuel System, LCSB
 - a. This Figure A now furnishes fuel for the mobile standby generator (Figure A 1437.3) instead of the standby power source (Figure A 1323.3).
 - b. Fuel quantity is now figured for a sixty day hot water supply instead of ten day for hot water and standby power.
 - c. Delete above-ground day tank, transfer pumps and low-level alarm.
4. Figure A 1241.3 - Shock Attenuation System, LCC
 - a. Increase the number of air storage cylinders at each shock isolator from one to two.
- *5. Figure A 1242.3 - Lift, Service, LCC
 - a. Increase live load capacity from 2,000 to 6,000 pounds.
 - b. Decrease operating speed from 50 to 25 fpm.
 - c. Increase load equipment envelope from 30 x 42 x 68 to 58 wide x 114 long x 94 high.
- *6. Figure A 1323.3 - Electrical System, LCC (Hard)
 - a. Revise electric power ground.
 - b. Revise telephone equipment ground.

* Indicates Figure A's included in Wing III QPRI Supplement.

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6. Figure A 1323.3 - Electrical System, LCC (Hard) (Cont.)

- c. Relocate standby engine-generator and transfer switch from LCSB to LCEB.
- d. Change engine starting control from manual to automatic.
- e. Change load transfer from manual to automatic.
- f. Delete engine-shutdown for high lube oil temperature.
- g. Add automatic engine exerciser.
- h. Interlock engine operation with 36" Blast Valve operation.
- i. Add power distribution within the LCEB.
- j. Decrease standby generator capacity from 150 KW to 75 KW.
- k. Decrease commercial power requirements from 225 kva to 130 KW with 85% PF.
- l. Provide power for Blast Valve Control System, Figure A 1432.3.

7. Figure A 1324.3 - Water Supply System, LCC

- a. Add shock attenuators on the water line at point of capsule penetration.
- b. Add remote controlled (LCC Supervisory Panel) air-operated shutoff valve on water line at point of capsule penetration.
- c. Add 3500 gallon water storage tank (TK-112) buried outside the LCEB for emergency usage. Add seven compressed air bottles and solenoid valve inside the LCEB to pressurize the tank during the survival period.
- d. Add an emergency shutoff valve on the water line entering the LCEB. Valve is closed manually or mechanically by an upward movement of the floor.
- e. The water treatment equipment is revised to meet conditions at the various sites.
- f. Add a pipe with shutoff valve to supply raw water to the sewage lagoon. Note: AIO will maintain this system.

8. Figure A 1325.3 - Heating System, LCSB

- a. Reduce boiler capacity to 250,000 btu/hr.
- b. Add chemical pot feeder to heating system.

* Indicates Figure A's included in Wing III QPRI Supplement.

9. Figure A 1327.3 - Security System, LCC
 - a. Delete exterior door to the Security Room in the LCSB.
 - b. Change size of exterior door to the Access Shift Vestibule in the LCSB from 3 x 7 to 5 x 8-6.
10. Figure A 1328.3 - Fire Alarm System, LCC
 - a. Add second system for LCEB with an interlock to shut down the ventilating system for the LCC.
 - b. Add visual and aural signals for fire in LCEB in both LCEB and LCC.
11. Figure A 1329.3 - Electrical System, Launcher
 - a. Revise number of connected circuits.
 - b. Reduce commercial power requirement from 112.5 kva to 75 KW with 0.81 PF.
 - c. Divide the engine-generator control panel into an engine control panel and a generator control panel, and revise instrumentation.
 - d. Shock mount equipment in the LSB.
 - e. Remove emergency power test contactor from IWS panel and modify power switching arrangement to delete emergency power test sequence. (Boeing must initiate this change by FCIR. Change description is part of ECP 358.)
 - f. On startup of the standby diesel generator, the load is not connected until the generator output reaches given levels. These levels have been raised from 55 cps for Wing II to 60 cps on Wing III and from 80% of nominal voltage on Wing II to 90% on Wing III.
12. Figure A 1330.3 - Shock Attenuation System, LER
 - a. Add shock attenuation equipment for the launcher electrical distribution panel.
13. Figure A 1331.3 - Security System, Launcher
 - a. Secure personnel access covers with commercial padlocks rather than conventional hardware with keyed locksets in standard hollow steel door.
14. Figure A 1333.3 - Personnel Support Equipment, LCC
 - a. Revise the equipment list to eliminate those items of a "Stock" nature (refrigerator).

- b. Include items of built-in nature (bathroom fixtures) not previously called out in any Figure A.
- c. Revise quantities to accommodate new estimated personnel requirements.

15. Figure A 1389. 3 - Heating and Ventilating System, LSB

- a. Relocate unit heater from ceiling of room to underside of shock mounted floor.
- b. Add 10,000 cfm supply fan.
- c. Change exhaust fan from a 3450 cfm propeller type to a 10,000 cfm centrifugal type.
- d. Delete snow melting requirement.

*16. Figure A 1390. 3 - Ventilating System, LCSB

- a. Delete provision for ventilating engine-generator and brine-chiller relocated to LCEB.

*17. Figure A 1396. 3 - Monitor System, Equipment Fault, LCC

- a. Add "LCC Supervisory Panel" in LCC (Capsule) containing the following:
 - (1) Pushbutton for electric door operator between rooms 101 and 102 in the LCSB. At Wing II there is a pushbutton located separately near the inside of the blast door operating the door between rooms 104 and 105 in the LCSB.
 - (2) To display light, buzzer and silence push-button connected to the control panel on the engine-generator and the Equipment Building Alarm Panel.
 - (3) An "open-close" switch that controls a solenoid valve in the LCEB between the compressed air cylinders and the buried water storage tank.
 - (4) A display light, bell and silence push-button connected to the Fire Alarm Control Cabinet (Figure A 1328. 3) located in the LCEB.
 - (5) A display light that indicates when the Tunnel Junction Blast Door is closed and locked.
 - (6) A display light and three position switch connected to the three power phases in Panel LCPA located in the LCC (Capsule) to monitor incoming power.

* Indicates Figure A's included in Wing III QPRI Supplement.

***17. Figure A 1396. 3 - Monitor System, Equipment Fault, LCC (Cont.)**

- a. (7) An "open-close" switch that controls three solenoid valves, which in turn control air-operated valves on the cold water, drain and vent lines where they enter the capsule.
- (8) An "open" pushbutton and "closed" pushbutton to provide manual control for the Shock Contactor located in the LCEB.
- b. The Equipment Room Alarm Panel located in the Equipment Room of the LCSB at Wing II is now the Equipment Building Alarm Panel located in the LCEB at Wing III and is changed as follows:
 - (1) The three display lights for the deleted second environmental control equipment have been removed.
 - (2) A display light for no (low) LCC air exhaust has been added. The type and location of monitor are not resolved.
- c. The following changes are made in the monitoring provisions of the Generator Instrument Panel:
 - (1) The panel, which is attached to the engine-generator, is now located in the LCEB rather than the LCSB.
 - (2) A visual display "Engine failure to start" has been added.
 - (3) A visual display "air intake and/or exhaust blast valves closed" has been added.
- d. Add monitor to show closed and locked condition of Tunnel Junction Blast Door, Figure A 1440. 3. Indication appears on LCC Supervisory Panel.
- e. The LCC Monitor and Alarm Station at Wing II is renamed the LCSB Monitor and Alarm Station at Wing III and is changed as follows:
 - (1) The display lights (2) for the Generator Room and the Equipment Room are deleted.
 - (2) The two-way selector switch for the flood lights is deleted.
 - (3) A display light for the water treatment system is added. The monitor for this display is located on the water meter in the Water Treatment Room, LCSB.

***18. Figure A 1405. 3 - Fuel System, Launcher**

- a. Increase the size of the bulk storage tank located by the LSB from 1500 to 14,300 gallons.

* Indicates Figure A's included in Wing III QPRI Supplement.

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***18. Figure A 1405. 3 - Fuel System, Launcher (Cont.)**

- b. Change the day tank located in the LSB from a horizontal to a vertical configuration.
- c. Add flexible connections between the bulk storage tank and the day tank.
- d. Delete the 10" inspection outlet and manway to grade on the bulk storage tank and add an 18" buried manhole.
- e. Relocate the bulk storage tank conservation vent inside the LSB.

***19. Figure A 1436. 3 - Ventilating System, LCEB**

- a. This new requirement is generated by relocating the engine-generator and brine chiller from the LCSB.
- b. These provisions were formerly included in Figure A 1390. 3, Ventilating System, LCSB.

***20. Figure A 1437. 3 - Electrical System, LCSB**

- a. New Figure A providing for electrical distribution system in the LCSB. Figure A 1323 previously provided for the LCSB, but now provides only for the hardened structures.
- b. Provide for mobile standby generator (to be furnished by SAC) for maintaining service in the LCSB.

***21. Figure A 1438. 3 - Fuel System, LCEB**

- a. Provide fuel storage for the standby engine-generator.
- b. This requirement was previously satisfied by Figure A 1230, Fuel System, LCSB.

***22. Figure A 1439. 3 - Shock Attenuation System, LCEB**

- a. Provide shock floor and attenuators for the new structure, complying with Wing III shock criteria.

***23. Figure A 1440. 3 - Blast Door Installation, LCC, Tunnel Junction**

- a. Add blast door at the elevator shaft entrance to the Tunnel Junction. This door protects the equipment and space both within the Tunnel Junction and the LCEB.

***24. Figure A 1441. 3 - Shock Attenuation System, LSB**

- a. This is a new requirement providing for increased shock protection of essential equipment in the LSB.

* Indicates Figure A's included in Wing III QPRI Supplement.

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*25. Figure A 1450.3 Accumulator Set, 24-Inch Blast Valve Control

* Indicates Figure A's included in Wing III QPRI Supplement.

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OPERATIONAL GROUND EQUIPMENT (OGE) CHANGES

- *1. Figure A 1211.3 - Environmental Control System, Launcher
- a. Delete the 8" blast valve on the air duct to the LER.
 - b. Reduce the size of the make-up air duct between the LSB and the LER from 6" to 2" and add a buried serpentine coil to increase the total length.
 - c. Mount control panels in the LER on shock mounts.
 - d. Replace the blast check valves on the brine lines entering the LER with "safety heads."
 - e. Add an absolute filter to the end of the make-up air duct located in the LSB.
 - f. Redesign the shock mounting of the equipment.
 - g. Redesign the control panel to provide automatic starting and stopping with 36" blast damper operation.
- *2. Figure A 1212.3 - Environmental Control System, LCC
- a. Relocate the air conditioning equipment from the LCSB to the LCEB.
 - b. Add provision for automatic shutdown of the air conditioning equipment in the event of fire in the LCEB.
 - c. Add a "clean room" to enclose the air handling equipment in the LCEB.
 - d. Add a monitor to sense low exhaust air flow from the capsule.
 - e. In the SRCC configuration, replace the dual units used in Wing II with a single large-capacity chiller and air handling unit.
- *3. Figure A 1246.3 - Cable Assembly Set, Launch Control Facility
- a. ECP 403 - Delete, revise, and add cables as required to accommodate changes made to mating facilities and RPIE in the LCF.
4. Figure A 1248.3 - Cable Assembly Set, Launcher
- a. ECP 358 - Delete, revise, and add cables as required to accommodate changes made to OGE by this ECP.

* Indicates Figure A's included in Wing III QPRI Supplement.

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5. Figure A 1373.3 - Electrical Surge Arrestor, LCF
- a. ECP 401 - Change the ESA to accommodate cable conductor pair count and the hard and soft cable plant peculiar to Wing III. Add surge protection for the soft lines connected to equipment relocated to the LCEB.
6. Figure A 1374.3 - Electrical Surge Arrestor, LF
- a. ECP 401 - Revise to accommodate changes similar to those for Figure A 1373.3.
7. Figure A 1376.3 - Interconnecting Box, LCC
- a. ECP 402 - Revise wiring to accommodate new signal conductors and routing peculiar to Wing III.
8. Figure A 1377.3 - Interconnecting Box, LF
- a. ECP 402 - Revise to accommodate changes in plug and connector sizes resulting from an increase in number of signal conductors. Revise internal and shorting plug wiring to accommodate new signal conductors and routing peculiar to Wing III.
- *9. Figure A 1383 - Gear Rack Assembly, Launcher Closure
- This item is deleted.
- *10. Figure A 1417.2 - Valves, Blast (8")
- This item is deleted.
11. Figure A 1418.3 - Valves, Blast (24"), LCC
- a. ECP 396 - Revise to contain limit switches for indicating open and closed positions.
- *12. Figure A 1428.3 - Valves, Blast (36"), LCEB
- a. ECP 396 - Provide two new 36" valves to protect the LCEB from blast. Design the valves for hydraulic operation and provide a means for electrical interlock control for standby generators.
- *13. Figure A 1429.3 - Blast Dampers, LSB
- a. ECP 396 - Provide two new blast dampers in each LSB. Design the valves to be actuated to the closed position by overpressure alone and to reopen automatically upon return of atmospheric pressure to near normal.

* Indicates Figure A's included in Wing III Supplement.

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***14. Figure A 1432.3 - Control System Blast Valve**

- a. ECP 396 - Provide a new Blast Valve Control System to power and control the blast valves installed in the LCEB and the LCC.**
 - (1) The LCEB portion of the system, used to control the 36" Blast Valves, consists of a hydraulic pump and motor, reservoir, hydraulic-nitrogen accumulator and hydraulic-electrical control panel.**
 - (2) The LCC portion of the system, used to control the 24" Blast Valves, consists of a hydraulic-electrical control panel, a hydraulic reservoir and a hydraulic-nitrogen accumulator. Also included, but packaged separately, is a portable hand-operated hydraulic pump with reservoir.**

***15. Figure A 1443.3 - Rail, Hydraulic Jack**

- a. ECP 321 - Modify and permanently attach to the LF apron a 90 pound per yard railroad track rail with notches appropriately spaced to be compatible with Hydraulic Jack, Figure A 4640.3.**

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MAINTENANCE GROUND EQUIPMENT (MGE) CHANGES

- *1. Figure A 4105 - Gearcase-Motor, Launcher Closure
 - a. ECP 321 - This item is deleted.
- *2. Figure A 4141 - Dolly, Gearcase-Motor
 - a. ECP 321 - This item is deleted.
- *3. Figure A 4277 - Sling, Gearcase-Motor
 - a. ECP 321 - This item is deleted.
- *4. Figure A 4282 - Hoist, Gearcase-Motor
 - a. ECP 321 - This item is deleted.
- 5. Figure A 4370 - Test Stand, Gearcase-Motor
 - a. ECP 321 - This item is deleted.
- 6. Figure A 4540.3 - Cable Assembly Set
 - a. ECP 450 - This Figure A will require reduced quantities to accommodate differences in hardware allocation.
- *7. Figure A 4640.3 - Jack Kit, Hydraulic
 - a. ECP 321 - This is a new item of MGE, replacing Figure A 4105, Gearcase Motor. This new item was initiated through BSD/STL direction. As an off-the-shelf procurement, this Figure A will be controlled by a Specification Control Drawing.
- *8. Figure A 4645.3 - Dolly, Hydraulic Jack
 - a. ECP 321 - This is a new item of MGE, replacing Figure A 4141, Dolly, Gearcase Motor. This new item will facilitate handling of the Hydraulic Jack Kit at the Launch Facility. In addition, this item will support the Hydraulic Jack Kit during transportation between the SMSB and the Launch Facility. This is to be a Boeing designed piece of equipment.
- *9. Figure A 4646.3 - Sling, Hydraulic Jack
 - a. ECP 321 - This is a new item of Boeing designed MGE, replacing Figure A 4277, Sling, Gearcase Motor. This sling will be used to facilitate the handling of the Hydraulic Jack Kit (with Dolly) between the Launcher Apron and the transporting vehicle.

* Indicates Figure A's included in Wing III Supplement.

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*10. Figure A 4648.3 - Hoist, Hydraulic Jack

- a. ECP 321 - This is a new item of MGE, replacing Figure A 4282, Hoist, Gearcase Motor. This hoist will operate both on the Launcher-Closure and on the Launcher-Apron to facilitate handling of the Hydraulic Jack Kit, with Dolly. This will be a Boeing designed item.

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SUMMARY OF EQUIPMENT CHANGES FOR WING III - Volume I				
AFSC	Subsystem/Operation Involved		Status	Page
31255G	3007	Test Set, Explosive Set Circuitry	Changed	4-14.3
44250Z	1211	Blast Valves and Manual Control Components - LF	Deleted	4-25
	1212	Blast Valves and Manual Control Components - LCF	Deleted	4-25
	1241	Shock Attenuation System	Deleted	4-25
	1428.3	Valves, Blast, 36-Inch	Added	4-25.3
	1432.3	Hydraulic System, Blast Valves	Added	4-25.3
54150G	1209.3	Water Control and Removal System, Launcher	Changed	4-30.3
	1210.3	Sewage Disposal System, LCF	Changed	4-30.3
	1211.3	Environmental Control System, Launcher	Changed	4-30.3
	1212.3	Environmental Control System, LCF	Changed	4-30.3
	1230.3	Fuel System, LCSB	Changed	4-30.3
	1241.3	Shock Attenuation System	Changed	4-30.3
	1242.3	Service Lift, LCF	Changed	4-31.3
	1324.3	Water Supply System, LCF	Deleted	4-31.A2
	1325.3	Heating System	Changed	4-31.3
	1330.3	Shock Attenuation System, L	Changed	4-31.3
	1383	Gear Rack	Deleted	4-31A.2
	1390.3	Ventilation System, LCSB	Changed	4-31.3
	1417.2	Valve, Blast 8-inch	Deleted	4-31A.2
	1418.3	Valve Blast, 24-Inch	Changed	4-31.3
	1443.3	Rail, Hydraulic Pusher	Added	4-31.3
54250G	1209.3	Water Control and Removal System	Changed	4-34.3
	1242.3	Service Lift, LCF	Changed	4-34.3
	1246.3	Cable Assembly Set, LCF	Changed	4-34.3
	1248.3	Cable Assembly Set, LF	Changed	4-34.3
	1249	Hatch Installation System, LCF	Deleted	4-34
	1323.3	Electrical System, LCC	Changed	4-34.3
	1329.3	Electrical System, LF	Changed	4-34.3
	1389.3	Heating and Ventilating System	Changed	4-35.3
	1396.3	Monitoring System, Equipment Fault	Changed	4-35.3
	4105	Gearcase Motor	Deleted	4-35
	4166	Cable Assembly Set	Deleted	4-35

SUMMARY OF EQUIPMENT CHANGES FOR WING III - Volume I				
AFSC	Subsystem/Operation Involved		Status	Page
54550Y	1211.3	Environmental Control System, LF	Changed	4-39.3
	1212.3	Environmental Control System, LCF	Changed	4-39.3
	1390.3	Ventilation System LCSB	Added	4.40.3
	1436.3	Ventilation System LCEB	Added	4-40.3

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POSITION DEFINITION		RECOMMENDED OR AUTHORIZED AFSC AFSC 31255G/75G
POSITION NO. 5	POSITION TITLE Ballistic Missile Checkout Equipment Specialist/Technician	
<u>GENERAL FEATURES</u>		
<u>POSITION SUMMARY:</u>		
The Ballistic Missile Checkout Equipment Specialist is responsible for the Support Base maintenance and calibration of Electronic Test Equipment such as:		
623	C90 Adapter Group, Test	
624	C91 Test Center, Programmer - Fault Locator	
717.2	Test Set, Photo-Electronic Collimator	
3007	Test Set, Explosive Set Circuitry	
3013	Test Set, Command Control Console	
3092	Test Set, Programmer Group	
4012	Test Set, Sensitive Command Network	
4018	Test Adapter C91	
4152.2	Test Equipment, Electronic Facility, Base Maintenance	
4490	Missile Simulator	
4489	Message Generator	
10709	C153 Test Set, Missile Control Group	
The Ballistic Missile Checkout Equipment Specialist is responsible for troubleshooting and repairing interconnecting circuits of the Sensitive Command Network, Security System, Programmer Group, and Command Control Console when returned to the Support Base.		

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POSITION NO. <u>5</u>	POSITION TITLE <u>Ballistic Missile Checkout Equipment Specialist/Technician</u>	RECOMMENDED OR AUTHORIZED AFSC <u>AFSC 31255G/75G</u>
POSITION SUMMARY: (Cont.)		
Checkout and testing is accomplished using self test features of programmed checkout equipment, and by using standard voltmeters, frequency meters, oscilloscopes and hand tools.		
ENVIRONMENT:		
Work Location:	The Ballistic Missile Checkout Equipment Specialist's duty location is in the Maintenance Branch - Electronic Section at the Support Base.	
Lines of Supervision:	He will be supervised at the Support Base by the Missile Officer, AFSC 3124G.	
QUALIFICATIONS:		
The Ballistic Missile Checkout Equipment Specialist is required to perform at a low to high perceptual skill level (high level is required for test, visual inspection, function checkout, and repair of test equipment); high judgmental skill level is required for accomplishing all detailed electronic maintenance functions; motor skill demands range from high to low.		
Task performance is generally critical to subsystem operation.		
RELATION TO EXISTING AIR FORCE SPECIALTIES:		
This position type falls within the scope of AFS Ballistic Missile Checkout Equipment Specialist/Technician, AFSC 31255G/75G.		

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POSITION NO. 10	POSITION DEFINITION	RECOMMENDED OR AUTHORIZED AFSC AFSC 44250Z/70Z
	POSITION TITLE Missile Pneudraulic Repairman/Repair Technician	
<u>GENERAL FEATURES</u>		
POSITION SUMMARY: The Missile Pneudraulic Repairman is responsible for Support Base repair, checkout and testing of the hydraulic equipment components removed from Transporter-Erectors. He is also responsible for assisting the Missile Mechanic/Technician in fault isolating, removing, installing and checking hydraulic equipment components of the Transporter-Erector Tractor and Transporter-Erector Trailer. He is responsible for testing and repair of pneudraulic components found in equipment such as: 1249 Personnel Hatch Installation System 1326.2 Blast Door He also provides assistance on an "as required" basis to the Electro-Mechanical Team for detailed troubleshooting and repair of pneudraulic components at the Launch Facility and the Launch Control Facility. ENVIRONMENT: Work Location: The Missile Pneudraulic Repairman is assigned to the Mechanical Section of the Missile Maintenance Squadron.		

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POSITION DEFINITION		RECOMMENDED OR AUTHORIZED AFSC AFSC 44250Z/70Z
POSITION NO. 10	POSITION TITLE Missile Pneudraulic Repairman/Repair Technician	
ENVIRONMENT: (Cont.)		
Lines of Supervision:		He is supervised by the Missile Officer, AFSC 3124G.
QUALIFICATIONS:		
The perceptual, judgmental and motor skills required for this position are essentially low to medium. For functions such as fault isolation and checkout, these same skills are considered medium to high.		
Task performance is considered critical to Subsystem operations.		
RELATION TO EXISTING AIR FORCE SPECIALTIES:		
This position falls within the scope of AFS Missile Pneudraulic Repairman/Repair Technician, AFSC 44250Z/70Z.		

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POSITION No. 12	POSITION TITLE <u>Missile Facilities Specialist/ Technician</u>	POSITION DEFINITION	RECOMMENDED OR AUTHORIZED AFSC <u>AFSC 54150G/70G</u>
<u>GENERAL FEATURES</u>			
<u>POSITION SUMMARY:</u> The Missile Facilities Specialist/ Technician is a member of the Missile Team. As a member of this team, he assists in opening and closing the Launch Tube Closure; emplacing and handling environmental covers, personnel cage, safety barriers, and blowers; and assists in preparing the Re-Entry Vehicle - Guidance and Control Van for Missile, Re-Entry Vehicle or Guidance and Control Section removal and replacement. The Missile Facilities Specialist/ Technician is a member of Electro-Mechanical Team and is responsible for the inspecting, servicing, troubleshooting, removal and replacement of equipment and components such as:			
1202	G&C Umbilical Retraction Mechanism		R
1207	Drier-Air Compressor, Hardened Cable		R
1209. 3	Water Control and Removal System, Launcher		R
1210. 3	Sewage Disposal System, Launch Control Center		R
1211. 3	Environmental Control System, Launcher		R
1212. 3	Environmental Control System, Launch Control Center		R
1214	Guidance Section Liquid Cooler		
1217	Closure, Launcher Tube		
1230. 3	Diesel Fuel Oil System, Launch Control		R
1241. 3	Shock Attenuation System, LCC		R
1242. 3	Service Lift, Launch Control Facility		R

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POSITION NO. 12	POSITION DEFINITION		RECOMMENDED OR AUTHORIZED AFSC AFSC 54150G/70G
	POSITION TITLE		
	Missile Facilities Specialist/Technician		
POSITION SUMMARY: (Cont.)			
1249	Hatch Installation, Launcher		
1280	Launcher Closure Actuating and Locking Mechanism		
1282	Battery, Emergency Power		
1288	Battery, Emergency Power		
1283	Motor Generator Set		
1318	G&C Cooling Plumbing Set		
1325. 3	Heating System, LCSB		
1326. 2	Blast Door Installation, Launch Control Capsule		
1330. 3	Shock Attenuation System, Launcher Equipment Room Floor		
1390. 3	Ventilation System		
1418. 3	Valve, Blast, 24-Inch		
1420. 3	Damper Set, Sway, Shock Attenuation		
1421. 2	Shock Isolator, Shock Attenuation		
1443. 3	Rail, Hydraulic Pusher		
1447	Drier, Air Compressor, Hardened Cable		
He is assisted in detailed troubleshooting of these equipments by the appropriate AFS having detailed knowledge, such as 44250Z, 54550Y, 54250G or 54350.			
He performs maintenance and tests at the Launch Facility on the ballistic charge on the			

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POSITION NO. 12	POSITION DEFINITION	RECOMMENDED OR AUTHORIZED AFSC AFSC 54150G/70G
POSITION TITLE		
<u>Missile Facilities Specialist/Technician</u>		
POSITION SUMMARY: (Cont.)	Rotary Actuator Assembly and the Ballistic Gas Generator in the Launch Tube Closure Actuator Mechanism.	
	At the Support Base he is responsible for inspection, servicing and referral to the appropriate section in the Maintenance Branch for detailed repair of mechanical Maintenance Ground Equipment, such as: Elevator and Work Cage, Safety Barrier, Truck Dolly, Launcher Closure Tractor, etc.	
ENVIRONMENT:	Work Location: He performs his duties and tasks at the Launch Facilities, Launch Control Facilities, and the Support Base.	
Lines of Supervision:	As a member of the Mobile Maintenance Teams, his work is coordinated by the Ballistic Missile Analyst Technician, AFSC 31274G. At the Support Base he is supervised by the Missile Officer, AFSC 3124G.	
QUALIFICATIONS:	The Missile Facilities Specialist/Technician's skill requirements range from low to medium. Medium perceptual skill is required for troubleshooting, inspection, and checkout functions. Medium judgmental skill is required for accomplishing the various detailed maintenance procedures. Medium motor skill is required for installation and removal of assemblies and for aligning and adjusting tasks.	
	Composite-test, checkout, visual check and some non-verifiable repair, installation and servicing functions involve tasks whose performance are critical to subsystem operation but which may affect system operation if not correctly performed.	

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POSITION NO. 12	POSITION DEFINITION POSITION TITLE Missile Facilities Specialist/Technician	RECOMMENDED OR AUTHORIZED AFSC AFSC 54150G/70G
RELATION TO EXISTING AIR FORCE SPECIALTIES: This position type falls within the scope of AFS Missile Facilities Specialist/Technician, AFSC 54150G/70G.		

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POSITION NO. 13	POSITION TITLE Electrician/Electrical Technician	POSITION DEFINITION	RECOMMENDED OR AUTHORIZED AFSC AFSC 54250G/70G																																				
GENERAL FEATURES																																							
POSITION SUMMARY: The Electrician/Electrical Technician is responsible for maintenance at the Support Base of electrical power source and distribution system components returned from Launch Facilities and Launch Control Facilities. He also provides assistance on an "as required" basis to the Electro-Mechanical Team for detailed troubleshooting and repair of the electrical power system at the Launch Facilities and Launch Control Facilities.																																							
His duties and tasks include tests to isolate faults to a removable sub-unit, repair by replacing faulty units, and the organizational and field maintenance of such equipment as: <table border="0"> <tr> <td>1209.3</td> <td>Water Control and Removal System, Elec. Components</td> <td>R</td> </tr> <tr> <td>1242.3</td> <td>Service Lift, Launch Control Facility</td> <td>R</td> </tr> <tr> <td>1246.3</td> <td>Cable Assembly Set, Launch Control</td> <td>R</td> </tr> <tr> <td>1248.3</td> <td>Launcher Intra-Site Cabling</td> <td>R</td> </tr> <tr> <td>1283</td> <td>Motor Generator</td> <td></td> </tr> <tr> <td>1284</td> <td>Power Supply Group</td> <td></td> </tr> <tr> <td>1289</td> <td>Power Supply Group, LCC</td> <td></td> </tr> <tr> <td>1323.3</td> <td>Electrical Systems, LCC</td> <td></td> </tr> <tr> <td>1329.3</td> <td>Electrical System, Launcher</td> <td>R</td> </tr> <tr> <td>1337.2</td> <td>Junction-Box, Main, Launch Facility</td> <td>R</td> </tr> <tr> <td>1367.2</td> <td>Motor Generator</td> <td></td> </tr> <tr> <td>1379.2</td> <td>Battery Charger Alarm Set Group</td> <td></td> </tr> </table>				1209.3	Water Control and Removal System, Elec. Components	R	1242.3	Service Lift, Launch Control Facility	R	1246.3	Cable Assembly Set, Launch Control	R	1248.3	Launcher Intra-Site Cabling	R	1283	Motor Generator		1284	Power Supply Group		1289	Power Supply Group, LCC		1323.3	Electrical Systems, LCC		1329.3	Electrical System, Launcher	R	1337.2	Junction-Box, Main, Launch Facility	R	1367.2	Motor Generator		1379.2	Battery Charger Alarm Set Group	
1209.3	Water Control and Removal System, Elec. Components	R																																					
1242.3	Service Lift, Launch Control Facility	R																																					
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1289	Power Supply Group, LCC																																						
1323.3	Electrical Systems, LCC																																						
1329.3	Electrical System, Launcher	R																																					
1337.2	Junction-Box, Main, Launch Facility	R																																					
1367.2	Motor Generator																																						
1379.2	Battery Charger Alarm Set Group																																						

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POSITION DEFINITION		RECOMMENDED OR AUTHORIZED AFSC AFSC 5-250G/70G
POSITION NO. 13	POSITION TITLE Electrician/Electrical Technician	
POSITION SUMMARY: (Cont.)		
1380	60 Cycle Power Panel	
1385	Junction Box, Power and Communication - LCC	
1389. 3	Heating and Ventilating System, LSB	
1396. 3	Monitoring System, Equipment	
1415	Fixture, Emergency Lighting and Alarm	
4024	Semi-Trailer, G&C Re-Entry Vehicle	
4043	Elevator Work Cage	
4059	Transporter-Erector Semi-Trailer (Electrical Components)	
4119	Truck, Transporter-Erector Support	
4451	Controller, Power Azimuth Drive	
Checkout, testing and maintaining will be accomplished, using Electrical Power Test Equipment, Battery Chargers, and Standard Electrical Test Equipment.		
ENVIRONMENT:		
Work Location: The Electrician/Electrical Technician's primary duty location is the Maintenance Branch-Mechanical Section at the Support Base and at Launch Facilities and Launch Control Facilities when serving as a member of the Electro-Mechanical Team.		
Lines of Supervision: At the Support Base he is supervised by the Missile Officer, AFSC 3124G. When acting as a member of the Electro-Mechanical Team, his work is coordinated by the Ballistic Missile Analyst Technician, AFSC 31274G.		

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POSITION NO. <u>13</u>	POSITION DEFINITION	RECOMMENDED OR AUTHORIZED AFSC <u>AFSC 54250G/70G</u>
	POSITION TITLE <u>Electrician/Electrical Technician</u>	
QUALIFICATIONS: The duties and tasks of the Electrician/Electrical Technician involve low to medium perceptual, judgmental and motor skills. Task performance is generally critical to subsystem operation.		
RELATION TO EXISTING AIR FORCE SPECIALTIES: This position type falls within the scope of AFS Electrician/Electrical Technician, AFSC 54250G/70G.		

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POSITION NO. 15	POSITION DEFINITION	RECOMMENDED OR AUTHORIZED AFSC AFSC 5-550Y/70Y
POSITION TITLE <u>Refrigeration Specialist/Technician</u>		
<u>GENERAL FEATURES</u>		
POSITION SUMMARY:		
The Refrigeration Specialist/Technician is responsible for Support maintenance of the following: Environmental Control and Equipment Cooling components returned from Launch Facilities and Launch Control Facilities, Maintenance Ground Equipment Cooling Units used at the Support Base, and Transporter-Erector Environmental Control System components. He also provides back-up assistance on an "as required" basis to the Electro-Mechanical Team.		
His duties and tasks include tests to isolate faults to a removable sub-unit, repair by replacing faulty units, and organizational and field maintenance of equipment such as:		
603. 2	Environmental System, C24 (Missile Targeting Set)	R R
1211. 3	Environmental System, Launch Facility	
1212. 3	Environmental System, Launch Control Facility	
1214	Cooling Unit, Guidance and Control Compartment	
1318	Guidance and Control Cooling Plumbing Set	
3035	Test Set, Cooling Liquid, Guidance and Control	
4024	Environmental System, R/V-G&C Van	
4059	Environmental System, Transporter-Erector	
4075	Environmental System, Transporter-Erector	
4115	Environmental Control, Auxiliary	
4150	Test Bench, Guidance and Control Ground Cooling	
4191	Tank, Liquid Storage, Metal	

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POSITION DEFINITION		RECOMMENDED OR AUTHORIZED AFSC AFSC 54550Y/70Y
POSITION NO. 15	POSITION TITLE Refrigeration Specialist/Technician	
POSITION SUMMARY: (Cont.)		
1390.3	Ventilation System. LCSB	R R
1436.3	Ventilation System LCEB	
Checkout and testing is accomplished using such equipment as a Multimeter, Refrigeration Repair Kit, Thermometer, Air Flow meters, and hand tools.		
ENVIRONMENT:		
Work Location: The Refrigeration Specialist/Technician's primary duty is at the Maintenance Branch-Mechanical Section at the Support Base and at Launch Facilities and Launch Control Facilities when required as a member of the Electro-Mechanical Team.		
Lines of Supervision: At the Support Base he is supervised by the Missile Officer, AFSC 3124G When acting as a member of Electro-Mechanical Team, his work is coordinated by the Ballistic Missile Analyst Technician, AFSC 31274G		
QUALIFICATIONS:		
The duties and responsibilities of the Refrigeration Specialist/Technician require medium perceptual and motor skills; and high to medium judgmental skill in fault isolating and testing functions.		
Task performance is generally critical to subsystem operation		
RELATION TO EXISTING AIR FORCE SPECIALTIES:		
The duties of this position fall within the scope of AFS Refrigeration Specialist/Technician, AFSC 54550Y/70Y.		

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**WING III
MINUTEMAN MOBILE MAINTENANCE TEAMS**

Team Composition by AFSCs

<u>Team</u>	<u>No</u>	<u>AFSC</u>
Missile Team	1	312X4G
	2	331X0B
	1	443X0G
	1	541X0G
Transport & Handling	1	443X0G
	3	603X0B
Alignment & Targeting	1	312X4G
	1	312X4G
	1	443X0G
Electro-Mech. No. 1 	1	312X4G
	1	541X0G
	1	XXXXX
Electro-Mech. No. 2	1	312X4G
	1	541X0G
	1	542X0G
Electro-Mech. No. 3	1	312X4G
	1	541X0G
	1	545X0Y
Electro-Mech. No. 4	1	312X4G
	1	541X0G
	1	361X2
Electro-Mech. No. 5	1	312X4G
	1	541X0G
	1	513X0
Electro-Mech. No. 6	1	312X4G
	1	541X0G
	1	443X0G
Electro-Mech. No. 7	1	312X4G
	1	541X0G
	1	304X2
Hardened Cable System Team	5	361X1

<u>AFSC</u>	<u>Title</u>
3124G	Missile Officer
312X4G	Ballistic Missile Analyst Specialist/ Technician
331X0B	Nuclear Weapons Specialist
304X2	Ground Communications Equip. Repairman/ Tech.
361X2	Telephone Installer Repair - man
443X0G	Missile Mechanic/ Maint- enance Technician
541X0G	Missile Facilities Special- ist/ Technician
542X0G	Electrician/ Electrical Tech.
543X0	Electrical Power Production Specialist/ Technician
545X0Y	Refrigeration Specialist/ Technician
603X0B	Vehicle Operator/ Motor Transportation Supervisor
361X1	Cable Splicer/ Cable Splic- ing Technician

 The Electro-Mechanical Teams are numbered 1 through 7. Each E-M Team has a minimum of three (3) people and each team has a 312X4G and a 541X0G. E-M Team No. 1 has any of the other AFSCs available for the third person. E-M Teams No. 2 through 7 have a specific AFSC for the third man, depending on what job is to be done.

TABLE 5-2B.3

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WING III

ORGANIZATIONAL MAINTENANCE AT LAUNCH CONTROL FACILITY

	OGE	RPIE	Total Team Hours / Month	Number of Teams
Electro - Mechanical #1				
1 - 31254G 1 - 54150G 1 - XXXXX	69.3	28.8	98.1	.7
Electro - Mechanical #2				
1 - 31254G 1 - 54150G 1 - 54250G	4.8	17.3	22.1	.2
Electro - Mechanical #3				
1 - 31254G 1 - 54150G 1 - 54550Y	3.5		3.5	
Electro - Mechanical #4				
1 - 31254G 1 - 54150G 1 - 36152	38.4		38.4	.3
Electro - Mechanical #5				
1 - 31254G 1 - 54150G 1 - 54350G		8.9	8.9	.1
Electro - Mechanical #7				
1 - 31254G 1 - 54150G 1 - 30452	603.6		603.6	4.3
HCS Team 5 - 36151			195.9	1.4

Note: Work on the Hardened Cable System (HCS) may be conducted at the LCF, LF, or between them

Table 5-4.3

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MAINTENANCE AT THE SUPPORT BASE

AFSC	OGE MAINT.	RP/E MAINT.	MGE MAINT.	R/V & R/V MGE MAINT	MCC OPERATION	CABLE PLANT IN PLACE RECORDS MAINT.	TOTAL SUPPORT BASE MAN/ MONTHS
3124G					5.00		5
30452	0.27		0.01				1
31254G					4.22		5
31255G			0.35				1
31256G	1.81		0.58				3
33150B				11.0			11
36151						3.0	3
36152	0.69						1
44250Z			0.43				1
44350G			0.51				1
54150G		0.03	0.34				1
54250G	1.88	0.12	0.39				3
54550Y	0.16	0.05	0.18				1

Note: Figures show men per month.

TABLE 5-5.3

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GLOSSARY

ASSEMBLY

A number of parts or subassemblies or any combination thereof joined together to perform a specific function. Note: An assembly in one instance may be a subassembly in another where it forms a portion of an assembly. (Mil-Std-280)

ASSOCIATE CONTRACTOR

A prime contractor responsible for designing, fabricating and testing a subsystem of the weapon system, or responsible for assembling and testing the weapon system. These include the Assembly and Test Contractor, the Guidance and Control Contractor, the Re-entry Vehicle Contractor, Propulsion Contractor, etc. Current Associate Contractors are Aerojet, Autonetics, Avco, Boeing, Hercules and Thiokol.

CABLING SYSTEM

The electrical cables, connectors, junction boxes and grounding scheme for power and signal circuits within and interconnecting all missile stages, or within and interconnecting ground equipments.

CHECKOUT

A testing procedure to determine the capability of a device for performing a required operation or function. A checkout usually consists of the application of a series of operational and calibration tests in a certain sequence, with the requirement that the response of the device to each test be within a pre-determined tolerance.

CHECKOUT OPERATIONS (LAUNCH SITE)

The periodic testing of the weapon system and its subsystems to establish a high confidence level of successful launch on command. Weapon System reliability and the desired confidence level establish the required periodicity of checkout operations.

CIRCLE OF EQUAL PROBABILITY

The design Circle of Equal Probability (CEP), the radius of the circle within which 50% of the reliable shots are designed to land. Preferred over terms such as "Circular Error Probable" and "Circle of Error."

COMPONENT

A unit which is a self-contained element of a complete operating equipment and which performs a distinctive function necessary to the operation of that equipment (i. e., beacon, power unit, receiver, transmitting-tuning units, rotating antenna, modulator unit, amplifier unit, blower unit, gyroscope).

COST EFFECTIVENESS

The aggregate cost of men and material and their required support which are needed to inflict a specified damage level on an enemy installation. A widely-used concept in comparing the effectiveness of weapon systems and their influence on the military budget requirements.

CRITICALITY

Weighting applied to subsystems or parts, determined by effect on mission of subsystem as a malfunction occurs. Preferred over "Importance Factor."

DATA ANALYSIS

The critical examination, evaluation, correlation, study and interpretation of reduced data obtained from data processing control. The purpose of data analysis is to determine conformance of subsystems (as measured by the data acquisition system) to design objectives and criteria, and performance specifications (model specifications).

DESIGN CRITERIA

The factors which establish the limitations and goals which must be met by the design.

FACILITIES

Land, buildings, nonseverable outfitting utilities, pads, launch tubes, roads, and all other brick and mortar items are included in the facility

FACILITIES (Cont.)

FIELD MAINTENANCE

category. (Operational Ground Equipment (OGE), and Maintenance Ground Equipment (MGE) are not facilities.)

Field level maintenance is that maintenance normally performed in the missile assembly and maintenance shop located at the support base: however, it may be necessary to perform field maintenance at the launch site on certain items which are difficult or impossible to remove because of size and/or method of installation.

a. Field maintenance consists of:

- (1) Bench check of components; repair of unserviceable parts, components, sub-assemblies, and specified modules.
- (2) Performing technical order compliances and calendar inspection.
- (3) Performing functional acceptance checks on equipment initially received from supply sources.
- (4) Local manufacture of non-available parts as authorized.
- (5) Testing, calibration, and reclamation as authorized.
- (6) Operating and maintaining assigned system maintenance bench mock-ups.

b. Standard system bench mock-ups and test equipment (scopes, signal generators, vacuum-tube voltmeters, spectrum analyzers, etc.) are required to support field maintenance. An adequate level of bench stock must be maintained to repair components.

**FIELD MAINTENANCE
(Cont.)**

c. Field maintenance specialists will require knowledge of theory, system function, circuit analysis, and a high degree of repair skill.

FUNCTION ALLOCATION

Assignment for the performance of duty or action to equipment or personnel or a combination thereof.

FUNCTIONAL ANALYSIS

A detailed study directed toward a determination of the duties of actions which must be performed by personnel and equipment to achieve operational objectives in an optimum fashion.

FUNCTIONAL MODEL

A preliminary statement listing, in chronological sequence, the actions which must occur within a system if an idealized system is to meet its operational requirements.

**GOVERNMENT FURNISHED
AIRBORNE EQUIPMENT
(GFAE)**

Equipment furnished by the government for installation in airborne vehicles. Title remains with the government.

GROUND ALIGNMENT SET

Equipment to be used at the launch site to align the missile relative to the target prior to flight.

GUIDANCE AND CONTROL

The synthesis of all processes of accepting and generating intelligence and maneuver-command or response necessary to determine and adjust the course of a re-entry vehicle sufficient to insure the vehicle reaching a specified destination, with emphasis on re-entering the earth's atmosphere at a particular speed and direction.

**GUIDANCE AND CONTROL
SECTION**

The geometrical section of the missile located between the third stage engine and the re-entry vehicle of the operational missile. The structural section houses the guidance and control equipment except the entire power servos (actuators, transducers, servo power supplies, second and third stage servo electronics, and missile cabling), and

GUIDANCE AND CONTROL SECTION (Cont.)

the angular accelerometer package or packages. This section provides support for the re-entry vehicle. The mechanical and electrical interface to Stage III is a part of this section. On development flight articles the aft end of the guidance and control section provides an interface with the instrumentation section.

GUIDANCE SYSTEM COUPLER

The guidance and control system coupler provides the interconnection between the monitor and control electronics portions of the sequencer and monitor equipment, the missile auxiliary support equipment, the missile targeting equipment, and the missile. The calibrate sequence and the missile test portions of the test sequence are performed and controlled by the airborne guidance computer in conjunction with the guidance and control system coupler. The guidance and control system coupler provides the logic functions and signal conditioning required for signal interchange and provides the monitor equipment with go, no-go type signals corresponding to the status of the missile and missile auxiliary support equipment; i. e., autocollimator and associated electronics. During targeting of the missile from the missile targeting equipment, the guidance and control system coupler provides required signal conditioning of the targeting equipment and the airborne guidance computer.

HARDENED AND DISPERSED FORCE (WS 133A)

That portion of the over-all Weapon System designed for monitoring and launching MINUTEMAN missiles from hardened underground facilities and Launch Tubes. Sometimes referred to as Hardened Force, Hardened and Dispersed System, or Hardened System. Hardened and Dispersed Force, or Hardened Force are preferred.

HARDENED FACILITIES

Weapon system facilities designed to survive nuclear blasts.

HARDENED FORCE

Same as Hardened and Dispersed Force.

IGNITER

A mechanism to ignite the propellant in a rocket motor, usually consisting of a small amount of pyrotechnic material which is fired by an electric charge.

IN-COMMISSION RATE

Percentage of missiles in a given location which are in "Operational Readiness" condition. May be expressed for a given instant or as an average over a period of time.

INERTIAL GUIDANCE SYSTEM (IGS)

A dead-reckoning missile guidance system that employs sensitive elements which respond to the Earth's gravitational field and to inertial effects in accordance with the Newtonian laws of motion. The system therefore is not dependent on information obtained from transmitters outside the missile.

INTERFACE

(1) The boundary, electrical and/or mechanical, existing between two systems or components. Characteristics are usually specified by installation, interface or coordination drawings, and coordinated tooling.

(2) The boundary between two media, or phases in a heterogeneous system, especially as transited by a propagated wave.

LAUNCH COMPLEX

That portion of the Operational Weapon System which includes the Launch Control Center; the launch tubes controlled from the LCC; the communication system connecting the launch tubes and the LCC; and the security network encompassing the LCC, launch tubes, and communication system.

LAUNCH CONTROL CENTER (LCC)

A hardened installation, the primary function of which is to control the launching of missiles within a squadron. The secondary mission of the LCC is to monitor and checkout nearby assigned missiles.

LAUNCH CONTROL FACILITY

Comprises:

- (1) Launch Control Support Facility
- (2) Launch Control Center (formerly called hardened underground capsule)
- (3) Access means (between the Launch Control Center and the Launch Control Support Building)
- (4) Service Area (parking for transporter-erector and maintenance vehicles at designated locations)
- (5) Security and perimeter fences.

LAUNCH CONTROL OPERATIONS

The minimum number of commands and system responses required to launch a missile from a state of readiness, or to hold-fire. System responses are limited to those commands sent to activate or actuate components or subsystems which are known to fail upon shutdown or activation (i. e., lamp filaments) or which, upon malfunction, are known to cause hazardous conditions for subsequent operations.

LAUNCH CONTROL SYSTEM

The Launch Control System includes the personnel, equipment and communications required to control, monitor and display the status of the MINUTEMAN missile; to support operations which involve personnel and communications where such communications are peculiar to MINUTEMAN or are implemented with the equipment and/or communication links common to the foregoing items; and to establish compatibility

LAUNCH CONTROL SYSTEM (Cont.)

of MINUTEMAN with SAC communications and other SAC inputs. The LCS includes: control and display equipment (consoles), data processing equipment, transmitting and receiving equipment, sequencer and monitor equipment, communication links, support communications equipment, and emergency power and power distribution equipment.

LAUNCH FACILITY

Comprises:

(1) Launcher

- a. Equipment Room
- b. Launch Tube
- c. Closure (for launch tube)
- d. Hatch (covering personnel and equipment access to equipment room)

(2) Service Area (parking for transporter-erector and maintenance facilities, tie-down and jack points)

(3) Launcher Support Building, and

(4) Security fence.

LAUNCH TUBE

A hardened underground cylinder in which the MINUTEMAN missile (SM-80) is stored and out of which it is launched. Formerly called "Silo."

LAUNCH TUBE LINER

A cylindrical casing which is part of the Launch Tube. It is located between the SM-80 and the outer wall of the Launch Tube.

LAUNCHER

The unmanned, hardened, and instrumented underground structures, including launch tube, ready to receive and fire an operational missile. These contain environmental control equipment, shock isolation equipment, security alarm equipment, primary and emergency power equipment, and elements of OGE and MGE.

**MAINTENANCE GROUND
EQUIPMENT (MGE)**

That equipment required to maintain the MINUTEMAN missile and the OGE in a condition such that the weapon system is capable of performing its mission. The term maintain includes such functions as test, repair, and transport.

**MEAN TIME BETWEEN
FAILURES (MTBF)**

The total measured operating time of a population of equipments divided by the total number of failures within the population during the measured period of time. The measured operating time of the equipments of the population which did not fail must be included. This measurement is normally made during that period of time between the early life and wear-out failures.

MILESTONE

A significant and frequently critical event (DEI, flight test, etc.) which represents important progress in achieving program objectives. These events must have a clear and objectively defined terminal point so that progress may be evaluated in terms of the program schedule.

MINUTEMAN

This is the name given to the three-stage, solid-propellant, rocket-powered intercontinental ballistic missile (SM-80) used with WS 133A.

MISSILE

In the MINUTEMAN Program, the term missile designates the fully assembled Stage I, Stage II, Stage III, Interstages, Re-entry Vehicle, and all other elements which normally leave the ground at launch. The Air Force MINUTEMAN designation is SM-80. The experimental version of MINUTEMAN is designated XSM-80.

**OPERATIONAL GROUND
EQUIPMENT (OGE)**

That equipment required to support the MINUTEMAN missile in the direct performance of its mission. This includes the equipment required to ready the missile during the launch sequence and to initiate launch.

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ORGANIZATIONAL MAINTENANCE

Organizational Maintenance is that level of maintenance which is normally performed on the missile and applicable to OGE/MGE at the launch site.

- a. Organizational maintenance consists of performing:
 - (1) Trouble shooting functions, isolating malfunctions to the smallest removable unit, and replacing major components, subassemblies and/or modules.
 - (2) Necessary alignment, calibration, checkout, and performance tests.
 - (3) Pre-launch, daily storage inspections, and preventive maintenance.
 - (4) Periodic inspection which consists of performing complete inspection, repair, replacement, cleaning, lubrication, and preservation as necessary, thorough performance check, and alignment at predetermined time intervals.
- b. Organizational maintenance will require special test and checkout equipment to permit specialists to checkout missile systems and make immediate defective component replacement without having to repair the component. Test equipment must be simple to operate, rugged, and reliable. It must present data necessary to determine proper operation or malfunction, and it will normally be of the go-no-go type.
- c. An adequate supply of missile OGE/MGE, and test equipment

**ORGANIZATIONAL
MAINTENANCE (Cont.)**

components (pre-issue items) is required to support organizational maintenance.

- d. System analysts require detailed knowledge of data flow of a particular system with lesser knowledge of operation characteristics of individual components or stages. Analysts must know how to use test equipment, diagnose malfunctioning systems, localize malfunctions to one or more components, replace components, and adjust and align as necessary.

**OPERATIONAL
CAPABILITY**

The extent to which a system or weapon can fulfill its assigned operational mission.

**OPERATIONAL
READINESS**

That condition of the weapon system from which the command "Prepare to Fire" could be immediately acted upon.

**OPERATIONAL SUPPORT
FUNCTION**

A function to be performed in the operational area by in-service personnel.

OPERATIONAL USE

Ultimate use for which the product was designed, constructed, and activated.

PART

One piece, or two or two or more pieces joined together which are not normally subject to disassembly without destruction of designed use. (Mil-Std-280)

POSITION DEFINITION

A brief description of the duties of operator, support, or maintenance personnel and the general conditions under which these duties will have to be performed.

POSITION STRUCTURE

The basis for methodical assignment of all tasks within an organizational unit.

**POST-INSTALLATION
CHECK**

Performed after the missile, OGE, MGE, or modules have been replaced

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**POST-INSTALLATION
CHECK (Cont.)**

to verify satisfactory performance of the replaced item and the system of which it is a part.

PROTOTYPE

A model (of a guided missile or other equipment) that is suitable for complete evaluation of form, design, and performance. A prototype model utilizes approved parts and is representative of the final equipment. It follows an experimental model and precedes the production model.

**QUALITATIVE PERSONNEL
REQUIREMENTS INFORMATION (QPRI)**

Essential information about operational and position requirements from which Qualitative Personnel Requirements (QPR) can be formulated. QPR consists of the specifications for human capabilities in a system, and the characteristics whereby such capabilities can be obtained by means of position, structure, selection, training, training devices, proficiency tests, operating procedures, handbooks of instructions and other printed material.

REACTION TIME

The time required by the weapon system to launch a missile following receipt of an execution order, without benefit of prior alert.

**REAL PROPERTY
INSTALLED EQUIPMENT
(RPIE)**

Equipments which are budgeted and procured under P-300 series funds and for which the facilities contractor has installation responsibility. These include such items as water outlets, power junction boxes, ladders, air-conditioning equipment, doors, etc.

RE-ENTRY VEHICLE

That portion of the missile designed to re-enter the earth's atmosphere at a particular speed and direction and deliver a payload (instruments or warhead) to the target. Sometimes termed nose cone.

RELIABILITY

Reliability is the probability of performing without failure a specified function under given conditions for a specified period of time.

SEQUENCER AND MONITOR EQUIPMENT

The sequencer and monitor equipment is part of the Launch Control System. On command from the Launch Control Center, the sequencer and monitor equipment initiates a programmed sequence of automatic power-on, calibration, control, test, launch, and monitoring operations. The guidance and control system coupler provides the interconnection between the monitor and control electronics portions of the sequencer and monitor equipment, the missile auxiliary support equipment, the missile targeting equipment, and the missile. The calibrate sequence, and the missile test portions of the test sequence are performed and controlled by the airborne guidance computer in conjunction with the guidance and control system coupler. The guidance and control system coupler provides the logic functions and signal conditioning required for signal interchange and provides the monitor equipment with go, no-go type signals corresponding to the status of the missile and missile auxiliary support equipment; i. e., autocollimator and associated electronics. During targeting of the missile from the missile targeting equipment, the guidance and control coupler provides required signal conditioning of the targeting-control and information signals transmitted between the missile targeting equipment and the airborne guidance computer.

SILO

Colloquial for Launch Tube. This term is not to be used in official correspondence.

SM-80

This is the Air Force designation for the MINUTEMAN missile. See also "Missile."

SQUADRON

As applied to WS 133A, Air Force organization comprising a specified number of Launch Control Centers, and "loaded" Launch Tubes.

STRATEGIC ALERT

A 30-second readiness condition, i. e. , the missile is capable of being launched within 30 seconds.

**STRATEGIC MISSILE
SUPPORT AREA (SMSA)**

A group of facilities on or adjacent to an active military installation centrally located within each broad deployment area. The SMSA will encompass SAC organizations that will be responsible for organizational and field level maintenance. This is to include transportation, erection, and checkout of all missiles in the launch tubes with the exception of the initial installations and checkout. The AMC's assembly and repair functions may be conducted within the SMSA, if so, they will be responsible for command and support of their functions.

SUBASSEMBLY

Two or more parts which form a portion of an assembly or a unit as a whole, but having a part or parts which are individually replaceable.

SUBSYSTEM

The necessary assemblies, subassemblies and parts connected or associated together to perform a specified function, usually as a major subdivision of a complete operational system.

**SUPPORT FUNCTIONAL
ANALYSIS**

A continuing analysis in chronological sequence of all functions necessary to be performed on any equipment from initial Air Force acceptance at the factory through the complete life cycle of the equipment.

SUPPORT FACILITIES

See definitions for "Facilities", "Launch Facility", and "Launch Control Facility."

SYSTEM

A combination of two or more sets of subsystems, connected or associated together when in operation, and such other assemblies, subassemblies and parts necessary to perform an operational function or functions. (Modified Mil-Std-280)

TECHNICAL DIRECTION

The coordinated guidance by the Systems Engineering and Technical Direction (SE and TD) Contractor (STL) of the efforts of independent WS 133A contractors toward an integrated weapon system capable of efficiently achieving program objectives. The SE and TD contractor provides technical direction based on his continuing broad systems analysis and on his solutions to more detail technical problems as required. Thus, technical direction is an organizational method for coordinating the efforts of Associate Contractors in bringing complex systems into being. The issuance of technical directives, as defined below, is the formal procedure by which technical direction is implemented.

THEODOLITE

An optical instrument for measuring horizontal and vertical angles with precision.

UMBILICAL

A cable fitted with a quick disconnect plug at the missile end; through which missile equipment is controlled and tested while missile is still attached to launching equipment.

WEAPON SYSTEM

A weapon system is composed of equipment, skills and techniques, the composite of which forms an instrument of combat, usually but not necessarily having an air vehicle as its major operational element. The complete weapon system includes all related equipment, materials, services, and personnel required solely for the operation of the air vehicle, or other major element of the system, so that the instrument of combat becomes a self-sufficient unit of striking power in its intended operational environment.

REVISIONS				ADDITIONS			
PAGE	DATE	PAGE	DATE	PAGE	DATE	PAGE	DATE
Delete Following Pages Dated 12/20/62 4-16A.2 4-17A.2	3/20/63			1-0.2 1.2 1-1.2 4-8A.2 4-9A.2 4-10A.2 4-11A.2 4-12A.2 4-13A.2 4-14A.2 4-15A.2 4-16A.2 4-17A.2 4-30A.2 4-31A.2 4-32A.2 4-39A.2 4-40A.2 5-5.2 5-5.2A 5-5.2B 5-5.2C 5-6.2 5-7.2	12/20/62		
				1-1.2 1-2.2 4-16.2 4-17.2 4-25.2 4-26.2	3/20/63		

FROM: MS 45-60

TO:

DEPT.

MS:

4560 1 - #342-H. AFBSD (AFSC) Air Force Pool office
Los Angeles, Calif
attn: TDC

SUMMARY OF EQUIPMENT CHANGES FOR WING II - Volume I

AFSC	Subsystem/Operation Involved	Status	Page	
30452	1293 Antenna	Deleted	4-8	
	1295 Transducer	Deleted	4-8	
	1296 Alarm, Anti-Intrusion	Deleted	4-8	
	1411 Arrestor, Electrical Surge	Deleted	4-8	
	2900 Alarm Monitor, OZSS	Added	4-8A. 2	
	2901 Pedestal, Antenna, RF Transmitter	Added	4-8A. 2	
	2902 Antenna, Long Range RF Receiver	Added	4-8A. 2	
	2903 Transmitter, RF	Added	4-9A. 2	
	2904 Antenna, Short Range RF Receiver	Added	4-9A. 2	
	2905 Receiver, RF	Added	4-9A. 2	
	2906 Arrestor, ESA	Added	4-9A. 2	
	2907 Pedestal, Antenna RF Rec.	Added	4-9A. 2	
	2908 Ring, Pedestal Mounting	Added	4-9A. 2	
	2909 Antenna, RF Transmitter OZSS	Added	4-9A. 2	
	2910 Alarm Monitor	Added	4-9A. 2	
	2911 Transducer, Motional Pickup	Added	4-9A. 2	
	2950 Fault Locator, Portable OZSS/IZPS	Added	4-9A. 2	
	2952 Test Set, OZSS/IZPS	Added	4-9A. 2	
	2958 Simulator, Intrusion OZSS	Added	4-9A. 2	
	3109 Test Set, Security System	Deleted	4-9	
31254G	602. 2 Collimator	Changed	4-11A. 2	
	604. 2 Coupler, Control Guidance	Changed	4-11A. 2	
	717. 2 Test Set, Photo-Electronic Collimator	Changed	4-11A. 2	
31255G	717. 2 Test Set, Photo-Electronic Collimator	Changed	4-14A. 2	
	3007. 2 Test Set, Explosive Set Circuitry	Changed	4-14A. 2	
31256G	603. 2 Missile Targeting Set	Changed	4-16A. 2	
	4491. 2 Start-Up Unit	Changed	4-16. 2	R
44250Z	1211 Blast Valve and Manual Control Components, LF	Delete	4-25	R
	1212 Blast Valve and Manual Control Components, LCF	Delete	4-25 -	R
	1417. 2 Blast Valve, 8-Inch (LF)	Add	4-25. 2	R
	1418. 2 Blast Valve, 24-Inch (LCF)	Add	4-25. 2	R
54150G	1417. 2 Valve Blast, 8-Inch	Added	4-31A. 2	
	1418. 2 Valve Blast, 24-Inch	Added	4-31A. 2	
	1420. 2 Sway Damper Assembly	Added	4-31A. 2	
	1421. 2 Shock Isolator	Added	4-31A. 2	

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TABLE 1 - 1.2A

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SUMMARY OF EQUIPMENT CHANGES FOR WING II - Volume I

AFSC	Subsystem/Operation Involved	Status	Page
54150G	(Continued) 1324.2 Water Supply System 1390.2 Ventilation System	Changed Changed	4-31A.2 4-31A.2
54550Y	603.2 Missile Targeting Set	Changed	4-39A.2

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POSITION DEFINITION		RECOMMENDED OR AUTHORIZED AFSC AFSC 31256G/76G
POSITION NO. 6	POSITION TITLE	
	Ballistic Missile Launch Equipment Repairman/Technician	
<u>GENERAL FEATURES</u>		
<u>POSITION SUMMARY:</u>		
The Ballistic Missile Launch Equipment Repairman is responsible for receiving, storing, and preparing for shipment Guidance and Control sections of the missile at the Support Base. He is also responsible for repair and maintenance at the Support Base for such equipment as:		
603.2	Missile Targeting Set	
604	Coupler, Control-Guidance	
642	C96 Optical Alinement Set	
667	C95 Battery Power Supply	
695	C119 Test Set, Control-Guidance Coupler	
1201	Programmer Group	
1213	Data Processing Equipment, Launch Control Facility	
1228	Data Processing Equipment, Launch Facility	
1243	Launch Control Console	
1251	Cable Termination Equipment, Launch Facility	
1265	Cable Termination Equipment, Launch Control Facility	
1268	Electro-Mechanical Decoder	
1338	Communication Control Console (Launch Enable Switch)	
4252	Code Inserter Verifier	
4491.2	Start-Up Unit	

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4-17.2

POSITION DEFINITION		RECOMMENDED OR AUTHORIZED AFSC
POSITION NO. <u>6</u>	POSITION TITLE Ballistic Missile Launch Equipment Repairman/Technician	AFSC 31256G/76G
POSITION SUMMARY: (Cont.)		
Checkout and testing of the above items are accomplished using the C91 Programming Electronic Test Center, its adapters, and standard electronic test equipment. In addition, he is responsible for the operation of the Insertor Verifier. He may be called upon to assist in troubleshooting at the Launch Site and Launch Control Center.		
ENVIRONMENT:		
Work Location:	The Ballistic Missile Launch Equipment Repairman's primary duty location is at the Maintenance Branch, Electronic Section at the Support Base.	
Lines of Supervision:	He will be supervised by the Missile Officer, AFSC 3124G.	
QUALIFICATIONS:		
This position requires low to high perceptual skill (high perceptual skill being required for some tests, repair and troubleshooting tasks); it requires medium to high electronics judgmental skill for carrying out detailed maintenance functions; it requires low to high motor skills (high level being required for calibration, adjustment and some repair tasks); The importance of proper task performance ranges from non-critical to critical for sub-system and system operation.		
RELATION TO EXISTING AIR FORCE SPECIALTIES:		
This position falls within the scope of AFS Ballistic Missile Launch Equipment Repairman/Technician, AFSC 31256G/76G.		

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POSITION DEFINITION

RECOMMENDED OR
AUTHORIZED AFSC
AFSC 44250Z/70Z

POSITION
NO. 10

POSITION TITLE

Missile Pneudraulic Repairman/Repair Technician

GENERAL FEATURES

POSITION SUMMARY:

The Missile Pneudraulic Repairman is responsible for Support Base repair, checkout and testing of the hydraulic equipment components removed from Transporter-Erectors. He is also responsible for assisting the Missile Mechanic/Technician in fault isolating, removing, installing and checking hydraulic equipment components of the Transporter-Erector Tractor and Transporter-Erector Trailer.

He is responsible for testing and repair of pneudraulic components found in equipment such as:

1241	Shock Attenuation System
1249	Personnel Hatch Installation System
1326	Blast Door
1417.2	Blast Valve, 8-Inch (LF)
1418.2	Blast Valve, 24-Inch (LCC)

He also provides assistance on an "as required" basis to the Electro-Mechanical Team for detailed troubleshooting and repair of pneudraulic components at the Launch Facility and the Launch Control Facility.

ENVIRONMENT:

Work Location: The Missile Pneudraulic Repairman is assigned to the Mechanical Section of the Missile Maintenance Squadron.

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POSITION DEFINITION		RECOMMENDED OR AUTHORIZED AFSC AFSC 44250Z/70Z
POSITION NO. 10	POSITION TITLE Missile Pneudraulic Repairman/Repair Technician	
ENVIRONMENT: (Cont.) Lines of Supervision: He is supervised by the Missile Officer, AFSC 3124G.		
QUALIFICATIONS: The perceptual, judgmental and motor skills required for this position are essentially low to medium. For functions such as fault isolation and checkout, these same skills are considered medium to high. Task performance is considered critical to subsystem operations.		
RELATION TO EXISTING AIR FORCE SPECIALTIES: This position falls within the scope of AFS Missile Pneudraulic Repairman/Repair Technician, AFSC 44250Z/70Z.		

TITLE Qualitative Personnel Requirements Information for WS-133A
Minuteman Hardened and Dispersed

REVISIONS				ADDITIONS			
PAGE	DATE	PAGE	DATE	PAGE	DATE	PAGE	DATE
Complete Revision of all pages	22 March 1961			i 3-116A through 3-116F	12/20/62 3/20/63		
Complete Revision of all pages	21 April 1961						
Complete Revision of all pages	July 1962						
Delete 1-3 5-5 5-8	12/20/62						
Revisions 5-5 5-8	3/20/63						

PART IX (a): LCF AND LF SCN SECURE CODE CHANGE OPERATIONS

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PART IX (b): SMSB SCN SECURE CODE CHANGE OPERATIONS

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JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT GSE USED
LCF and LF SCN Secure Code Change Operations Establish need for code hardware change Initiate maintenance response when faults occur in the following equipment: 1243 The launch panel for the Launch Control Console 1228 The decoder drawer in the Data Processing Equipment (Digital, SCN/L) 1201 The electro-mechanical decoder in the Launcher Programmer Group and associated equipment having direct interface with Figures A 1243, 1228 and 1201 Maintenance response at LCC 1243 The launch panel for the LCC Travel to LCF from SMSB Replace and checkout Travel to SMSB Maintenance response at LF 1228 Decoder drawer in Data Processing Equipment or 1201 Electro-Mechanical decoder in Programmer Group Travel to LF Gain Access Repair by replacement and checkout Secure site Travel to SMSB Establish need for code hardware change Code change due to compromise or due to periodic requirement Initiate code change due to compromise or due to specified periodic requirement Obtain "Y" pack command signals decoder and launch panels (with new code installed) from code room	31254G 54150G	1 1	2.86 3.32 2.86	1243 Launch panel for the Launch Control Console

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PART IX (a): LCF AND LF SCN SECURE CODE CHANGE OPERATIONS

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JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME HRS	SPECIAL TOOLS TEST EQUIPMENT GSE USED
Transport new launch panel to LCC's	31254G XXXXXX	1 1	2.45	4179 Case, Encoder
Gain access to LCC's			.30	
Report code change in process to squadron command post	1825G	1	.05	1243 Launch Control Console
Remove installed launch panel and install new launch panel	31254G	1	.25	4179 Case, Encoder
Erase code in removed launch panel secure coding units	XXXXXX	1	.17	Screwdriver
Check SCN malfunction display for indication of malfunction			.05	1213 Data Processing Equipment, (Digital, SCN/LCC)
Transport new "Y" code pack and CSD to LF	31254G XXXXXX	1 1	2.40	4584 Case, Code Pack Set
Gain access to launcher (site opened by separate Electro-Mechanical Team prior to arrival of Code Change Team.)	31254G 54150G XXXXXX	1 1 1	1.15	
Report code change in process to squadron command post	1825G	1	.15	1243 Console, Launch Control
Launch Control Officer places missile in calibrate				
1268 Command Signals Decoder	31254G XXXXXX	1 1	.20	
Volatilize and remove installed CSD and install new CSD				
1228 Data Processing Equipment (Digital, SCN/L)				
Volatilize and remove installed "Y" code pack and install new "Y" code pack.			.05	4584 Case, Code Pack Set
Interrogate the voice reporting signal assembly after calibration mode completed.			.10	

NOTE: When there is a requirement to change both "X" and "Y" packs, no code change team shall, at any time, have in its possession a coded "X" and a coded "Y" VCP. Two code change teams will be dispatched so that they are separated by time and distance as required by operational considerations.

PART IX (a): LCF AND LF SCN SECURE CODE CHANGE OPERATIONS

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JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME	SPECIAL TOOLS TEST EQUIPMENT CSE USED
SMSB SCN Secure Code Change Operations Perform code inserter-verifier certification test. Initiate code insertion and verification. Install "Y" and/or "X" master card pack into code inserter-verifier. Inspect volatile code packs for cleanliness, freedom from defects, and complete erasure. Insert code into "Y" or "X" volatile code packs. Verify "Y" or "X" volatile code packs against "Y" or "X" master card pack. Verify "Y" and "X" VCP's for serial number identity. Insert code into mechanical code units. Place three (3) mechanical code units into launch control panel. Verify launch control panel against "Y" or "X" master code packs. Verify launch control panel against "Y" or "X" volatile code packs. OR Verify launch control panel against "Y" or "X" volatile code packs.	31256G	1		4252 Code Inserter-Verifier
	31256G	1		1228 Data Processing Equipment, Digital 1243 Launch Control Console 1268 Decoder, Command Signals
				4252 Code Inserter-Verifier Truck, Hand, Code Pack
	31256G	1		4252 Code Inserter-Verifier
	31256G	1		1228 Data Processing Equipment, Digital 4252 Code Inserter-Verifier Truck, Hand, Code Pack
	31256G	1		1228 Data Processing Equipment, Digital 4252 Code Inserter-Verifier
	31256G	1		1228 Data Processing Equipment, Digital 4252 Code Inserter-Verifier Truck, Hand, Code Pack
	31256G	1		1228 Data Processing Equipment, Digital 4252 Code Inserter-Verifier
	31256G	1		1243 Launch Control Console 4252 Code Inserter-Verifier Truck, Hand, Code Pack
	31256G	1		1243 Launch Control Console
	31256G	1		1243 Launch Control Console 4252 Code Inserter-Verifier AND
	31256G	1		1228 Data Processing Equipment, Digital Truck, Hand, Code Pack

JOB OPERATION	AFSC	NUMBER OF PERSONNEL	TIME	SPECIAL TOOLS TEST EQUIPMENT GSE USED
Verify coded launch control panels for function	31256G	1		1243 Launch Control Console 4252 Code Inserter-Verifier
Insert fire code into operator readout.	31256G	1		4252 Code Inserter-Verifier
Manually insert fire code into command signals decoders	31256G	1		1268 Decoder, Command Signals 4252 Code Inserter-Verifier 4443 Code Change Tool
Verify command signals decoders against "X" and "Y" master card packs	31256G	1		Truck, Hand, Code Pack
OR				1268 Decoder, Command Signals
Verify command signals decoders against "X" and "Y" volatile code packs	31256G	1		4252 Code Inserter-Verifier
OR				1228 Data Processing Equipment, Digital
Verify command signals decoders against launch control panel (mechanical code units)	31256G	1		1243 Launch Control Console 1268 Decoder, Command Signals
Verify coded command signals decoders for function.	31256G	1		4252 Code Inserter-Verifier Truck, Hand, Code Pack
Prepare coded and verified units for storage or transport.	31256G	1		1268 Decoder, Command Signals 4252 Code Inserter-Verifier
Note: It is mandatory that coded X and Y VCP's must never be transported together or be in the common possession of an individual, or team of individuals, once the coded packs are removed from the Encoder Decoder facility.	31256G	1		1228 Status Command Message Processing Group 1243 Console, Launch Control 1268 Decoder, Command Signals 4252 Code Inserter-Verifier 4584 Case, Code Pack Set Standard Military Vehicle
Perform procedural shutdown.	31256G	1		4252 Code Inserter-Verifier

Recommended Team and Composition	No. of Teams	3124G	304X2	312X4G	312X5G	312X6G	331X0B	361X1	361X2	442X0Z	443X0G	541X0G	542X0G	543X0	545X0Y	603X0B	XXXXX	Totals
Missile Team	20																	
1-312X4G				20														
2-331X0B						40												
1-443X0G										20								
1-541X0G											20							
Transport. & Handling Team	8										8							
1-443X0G																		
3-603X0B																24		
Targeting & Alignment Team	4																	
1-3124G		14																
1-312X4G				14														
1-443X0G										14								
Electro-Mechanical #1	15																	
1-312X4G				15														
1-541X0G											15							
1-XXXXX																	15	
Electro-Mechanical #2	5																	
1-312X4G				5														
1-541X0G											5							
1-542X0G												5						
Electro-Mechanical #3	2																	
1-312X4G				2														
1-541X0G											2							
1-545X0Y															2			
Electro-Mechanical #4	2																	
1-312X4G				2														
1-541X0G											2							
1-361X2									2									
Electro-Mechanical #5	1																	
1-312X4G				1														
1-541X0G											1							
1-543X0														1				
Electro-Mechanical #6	1																	
1-312X4G				1														
1-541X0G											1							
1-442X0Z										1								
Electro-Mechanical #7	6																	
1-312X4G				6														
2-304X2			12															
HICS Maintenance								34										
AFSC		3124G	304X2	312X4G	312X5G	312X6G	331X0B	361X1	361X2	442X0Z	443X0G	541X0G	542X0G	543X0	545X0Y	603X0B	XXXXX	
MOBILE MAINTENANCE SUB-TOTAL		14	12	66			40	34	2	1	42	46	5	1	2	24	15	304
SUPPORT BASE MAINTENANCE SUB-TOTAL		5	1	5	1	3	11	7	1	1	1	1	3		1			41
TOTAL MAN MONTHS MAINTENANCE BY AFSC		19	13	71	1	3	51	41	3	2	43	47	8	1	3	24	15	345
MISSILE COMBAT CREW (AFSC 1825G)																		150
GRAND TOTAL																		495

MINUTEMAN DIRECT SUPPORT MANNING SUMMARY - WING I
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MAINTENANCE AT THE SUPPORT BASE

AFSC	OGE MAINT.	RPIE MAINT.	MGE MAINT.	R/V & R/V MGE MAINT.	MCC OPERATION	CABLE PLANT IN PLACE RECORDS MAINT.	TOTAL SUPPORT BASE MAINT. MAN/ MONTHS
3124G					5.00		5
30452	0.37		0.01				1
31254G					4.22		5
31255G			0.34				1
31256G	2.14		0.58				3
33150B				11.0			11
36152	0.79						1
44250Z			0.43				1
44350G			0.51				1
54150G		0.03	0.35				1
54250G	1.59	0.12	0.40				3
36151						7.0	7
54550Y	0.17	0.0528	0.18				1

TABLE 1-5

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