



**** * **********************

NATIONAL BUREAU OF STANDARDS-1963-A

....



ECURITY CLASSIFICATION OF THIS PAGE					
REPORT (DOCUMENTATIO	N PAGE			Form Approved OM8 No. 0704-0188
. REPORT SECURITY CLASSIFICATION		15. RESTRICTIVE	MARKINGS		
UNCIASSITIED		3. DISTRIBUTIO	VAVALABILITY	OF REPORT	
b. DECLASSIFICATION / DOWNGRADING SCHEDU	LE	Approved is unlim	for public ted.	release;	distribution
. PERFORMING ORGANIZATION REPORT NUMBE CECOM-TR-87-3	R(S)	5. MONITORING	ORGANIZATION	REPORT NUMB	BER(S)
a. NAME OF PERFORMING ORGANIZATION S Army Communications-Electroni Plans, Operations & Analysis	66. OFFICE SYMBOL CS (If applicable) AMSEL-PL-SA	7a. NAME OF N	IONITORING ORG	ANIZATION	
C ADDRESS (Ciry, State, and ZIP Code) S Army Communications-Electroni Plans, Operations and Analysis D TTN: AMSEL-PL-SA, Fort Monmouth	cs Command Directorate 1, NJ 07703-5000	76. ADDRESS (C	ity, State, and Zif	Code)	
a. NAME OF FUNDING/SPONSORING ORGANIZATION	8b. OFFICE SYMBOL (If applicable)	9. PROCUREMEN	IT INSTRUMENT I	DENTIFICATION	I NUMBER
c ADDRESS (City, State, and ZIP Code)	L	10. SOURCE OF	FUNDING NUMBE	RS	
-		PROGRAM ELEMENT NO.	PROJECT NO.	TASK NO.	WORK UNIT
PERSONAL AUTHOR(S) Sa, TYPE OF REPORT Technical Report 5. SUPPLEMENTARY NOTATION	Imeri DVERED TO	14. DATE OF REP 1987	O USER'S GL ORT (Year, Month September	JIDE (U) , Day) 15. PA	AGE COUNT 251
PERSONAL AUTHOR(S) Sa. TYPE OF REPORT Technical Report 5. SUPPLEMENTARY NOTATION COSATI CODES FIELD GROUP SUB-GROUP	IMERI DVERED TOTO 18. SUBJECT TERMS (C Multipurpose T Repair Analysi	14. DATE OF REP 1987 Continue on rever est Equipme s (10RA) Mo	ORT (Year, Month September Se if necessary ar nt; Optiona delling: Su	DIDE (U)	AGE COUNT 251 block number) on; Level of laintenance
PERSONAL AUTHOR(S) Charles J. Plu Ja. TYPE OF REPORT Technical Report 6. SUPPLEMENTARY NOTATION FIELD FIELD GROUP SUB-GROUP J. ABSTRACT (Continue on reverse if necessary	IMERI DVERED TOTO 18. SUBJECT TERMS (C Multipurpose T Repair Analysi Modelling and identify by block out	14. DATE OF REP 1987 Continue on rever est Equipme s (LORA) Mo (mber)	OUSER'S GU ORT (Year, Month September Se if necessary ar nt; Optiona delling; Su	DIDE (U) , Day) 15. PA identity by I Allocation oply and M	AGE COUNT 251 block number) on; Level of laintenance
PERSONAL AUTHOR(S) Charles J. Plu 3a. TYPE OF REPORT Technical Report 5. SUPPLEMENTARY NOTATION 5. SUPPLEMENTARY NOTATION 5. COSATI CODES FIELD GROUP 9. ABSTRACT (Continue on reverse if necessary The Optimum Supply and Maintena support and maintenance policie the types of information that s concept is being formulated. I (MTD) and Replacement Fask Dist compares the cost of throwing a sions the model considers the s be needed to support the maintenance and documentation are also cons The original release of the OSA ments and special repairmen to determine at which maintenance	18 SUBJECT TERMS (C Multipurpose T Repair Analysi Modelling and identify by block nu ance Model (OSAM es for a new equ should be availa The model determ tributions (RTD) away an item wit spares, special enance policy. sidered. AMM allowed for ea echelon repair	ALLEASE 2 14. DATE OF REP 1987 1987 Continue on rever est Equipme s (LORA) Mo (mber) M) is design ipment. In ble early in ines optima for the may h the cost of test equipme Other costs only one rep ch type of should be po	DRT (Year, Month September se if necessary ar nt; Optiona delling; Su ned to simu puts to the n development Maintenand jor items in of repairs. ent and spec such as tra pair time ar repair action	dident y by boot ident y by i Allocati oply and M itaneously model are it when th ce Task Di in an equip In makin cial repai ansportati on. The m yen this o	AGE COUNT 251 block number) on; Level of laintenance e limited to be maintenance stribution ment. It als ig these deci- rmen that wil on, catalogin c of test equi model would one (contd
PERSONAL AUTHOR(S) Charles J. Plu Sa. TYPE OF REPORT Technical Report 6. SUPPLEMENTARY NOTATION FIELD GROUP 9. ABSTRACT (Continue on reverse if necessary The Optimum Supply and Maintena support and maintenance policie the types of information that s concept is being formulated. I (MTD) and Replacement Fask Dist compares the cost of throwing a sions the model considers the s be needed to support the maintenance and documentation are also cons The original release of the OSA ments and special repairmen to determine at which maintenance D DISTRIBUTION/AVAILABILITY OF ABSTRACT (MID) SAME AS R	INTERED TO	A DATE OF REP 14. DATE OF REP 1987 Continue on rever est Equipme s (LORA) Mo (mber) M) is design ipment. In ble early in ines optima for the man h the cost of test equipme Other costs only one rep ch type of should be po 21. ABSTRACT S Unclass	DRT (Year, Month September se if necessary ar nt; Optiona delling; Su ned to simu puts to the n developmen 1 Maintenand jor items in of repairs. ent and spec such as tra pair time ar repair action erformed given	dident y by by list of a lident y by list Allocation oply and M list aneously model are not when the cation and one set on any equip in makin cial repai ansportation to one set on. The m yen this of cation	AGE COUNT 251 block number) on; Level of Maintenance e limited to be maintenance stribution ment. It also ig these deci- rmen that will on, catalogin c of test equi model would one (contd
PERSONAL AUTHOR(S) Charles J. Plu 3a. TYPE OF REPORT Technical Report 5. SUPPLEMENTARY NOTATION 5. SUPPLEMENTARY NOTATION 5. SUPPLEMENTARY NOTATION 5. COSATI CODES FIELD GROUP 9. ABSTRACT (Continue on reverse if necessary The Optimum Supply and Maintena support and maintenance policie the types of information that s concept is being formulated. I (MTD) and Replacement Task Dist compares the cost of throwing a sions the model considers the s be needed to support the maintenance and documentation are also cons The original release of the OSA ments and special repairmen to determine at which maintenance 0. DISTRIBUTION/AVAILABILITY OF ABSTRACT (MID) SAME AS R NAME OF RESPONSIBLE INDIVIDUAL Charles J. Plumeri	IMERI IN SUBJECT TERMS (C Multipurpose T Repair Analysi Modelling and identify by block of ance Model (OSAM es for a new equ should be availa (he model determ tributions (RTD) away an item wit spares, special enance policy. Sidered. AMM allowed for be input for ea echelon repair	ALLEASE 2 14. DATE OF REP 1987 Continue on rever est Equipme s (LORA) Mo (mber) M) is design ipment. In ble early in ines optima for the man h the cost of test equipme Other costs only one rep ch type of should be po 21. ABSTRACT S Unclass 22b TELEPHONE 201-532-	DRT (Year, Month September se if necessary ar nt; Optiona delling; Sup ned to simu puts to the n developmen 1 Maintenand jor items in of repairs. ent and spec such as tra pair time ar repair action erformed giv ECURITY CLASSIFIN ified (Include Area Coo 5170	d identi y by d identi y by Allocati oply and M taneously model are twhen th ce Task Bi n an equip In makin cial repai ansportati ansportati ansportati d one set on. The m yen this of CATION AMSEL	AGE COUNT 251 block number) ion; Level of laintenance r optimize e limited to he maintenance stribution ment. It als ig these deci- rmen that wil on, catalogin i of test equi hodel would one (contd E SYMBOL , -PL-SA

e **4** ge

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE

19. ABSTRACT (contd)

method of repair. \gg Release 2.0 contains three run modes, one of which accepts up to three different options for each repair action. The improved model is thus able to trade-off among three repair methods. This capability can be used to analyze such repair actions as common, automatic, and special test equipment to determine how repair should be done as well as where it should be done. The original model remains as one of the run modes of the enhanced model, however.

A third run mode of the enhanced model examines the value of screening or "go-no/go" testing. Screening is used to verify that an item has indeed failed before it is sent back for repair or is discarded. Only one repair method is permitted when the model is run in the screening mode. In this mode, the user identifies those items which are candidates for screening. The model considers any equipment or special repairmen needed, the effectiveness, the time required, the cost of an end-to-end test program set, and the supply implications to determine if screening is cost effective for each item. The decision is not made by looking at each item individually, but is made by considering the system as a whole.

The User's Guide gives a brief description of the model, defines the inputs required, and explains the output. It also contains a chapter which describes the various types of sensitivity analyses that can be performed using the model. Kern the second for the form

UNCLASSIFIED SECURITY CLASSIFICATION OF THIS PAGE

MAIN OUTPUT FILE

í

.

. .

PREPUDCESSOR MAINTENANCE MUÜFL A N U א ו ח ח ח א ו א M U M I I A U

ľ

H7/07/28 UATF VEHSION

87/09/02. DATE N N N

THIS IS A RASIC PUN

REPAIR MODULES ORG LOWEST ECHELON TO HEPAIR END ITEM REPAIR COMPONENTS ONG ONG

END TTEM INFORMATION

FALSE REMOVAL DEFAULT UNSEPVICEAULE Return Rate 1.00 AVAILARILITY TARGET TAT DEFAULTS (USED ONLY IF TAT IS NUT INPUT WITH EACH COMPONENT ON MODULE) Ong usu gsu dep 1. 3. 30. 120. .900 MTBF MTR (HOURS) (HOURS) 1300. -25 UPERATING HOURS 730. LIFE (YEARS) 15 **B325.** PRICE SINCGARS V ENI) ITEM

.10

THERE ARE NO TEST EQUIPMENTS OR SPECIAL REPAIRMEN NEEDED TO REPAIR THE END ITEM

DEPLOYMENT INFORMATION

нSС	IVSYS	CLAT	MANTS		DENSITY		051		РГТ	CONTACT	OPER	ATING LEV	EL
¢	>	500. 1-		65U 24.	144750.	046-050 2.0	0.04	40.0	510.0	160.0 760.0	046 15.0	0.5U 30.0	30.0
		101 2"66E	ERAGE 97.5 8	0UPS 322.9									
	5	0151ANCI 346-050 7.	E (MIL) 050-1 2'	ES) HETN 6SU 50.	4FEN 6SU-DEPOT 3500.								
					U	COST PARAM	IE TERS						
HASE	5	046 7.06	05U 10.5U	HOR RATE	5 65U 34.50	DEPOT 34.50 50 03							
EFFE	FAC CTIVE	. 85 13.95	20 9			58.85 58.85							
968 968 968	0 1 m-fi	TRAN 046-DSU 01177 08	SРОНТА П5U- •00•	TION CO 65U 034 • 09	5T 65(J-DEPOT .00035 1.23								
				01HER	C0515								
INITI CATAL 653.	006 L	RECURR1NG CATALOG 162.47	-	NI TI AL HIN 220.16	RECURR BIN 35.0	1NG 32	HOLDING FHACTION .03	COST REQUIS 23.	PER 11110N 78	COST PER 1ECH 300	₽ 4 6€ 0F Dnc •00		
			C05	T PARAM	ETEPS IN TE (PVF = 1	ЕНМЅ ()F Pf 7.94638351	ZE SENT VAL	.06					
<u>ب</u>	ABOR R4 0R6 111.44	ATE (PRESE) DSU 167-16-47	NT VAL 65U 0.02 4	UE) DLPOT 70.02									
ΓÓ	HANSPOR RG-DSU •66	214110N CU DSU-65U G .69	ST (PR SII-0EP 9.78	ESENT V	4LUE)								

۲

COSRE0 189.32

COSH1N 502+24

COSNSN 1795.86

111

CONTRACTOR AND A DESCRIPTION OF A DESCRI

ALAU INAMALUDA 1241

EUUIPMENT NIMMER 1

EUUIPMENT P							ATE ON Y
NAME COMMON EU	DEVEL	OPMENT U	JSEFUL LIFE 15	CUMMUN AROVE ORG	NOT ALLOWEU H		UN
مَ	ARAME TERS	HY ECHELON			I		
ũ	CHELON	UNIT COST	MA [N TENANCE FACTOR	INSTALLATION	AVAILARLE TEST HUURS	VALUE	
	05 U 05 05 U	34940. 34990. 34990.	.27 .27 .27	•••	1768. 1768. 1764.	110440.	
EQUIPMENT	NUMHER 2						V INO GI V
NAMF BREAK BUX	DEVEI	LUPMENT 0.	USEFUL LIFE 15	CUMMON ABOVE DEP	NOT ALLOWED I	JELOW FUNK WE	10
G.	DAYAME TEKS	RY ECHELON					
ų	CHELON	UNLE COST	MAINTENANCE E ACTOR	INSTALLATION	AVAILABLE TEST HOUPS	PHF SENT VALUE	
	05U 05U 0EP	350. 350. 350.		••• • • •	1768. 1768. 1768.	4 4 0 •	
EQUIPMENT	NUMHER 3	~					
NAME STATIC P	AU DEVE	сцормент 0.	USEFUL LIFE 15	COMMON ABOVE DEP	NUT ALLOWED	BELOW FOR KI	LPAIK UNC
	PAHAMETER	S AY ECHELON					
	ECHELON	UNIT COST	MAJNTENANCF. FACTOR	INSTALLATION	AVAILAHLE TEST HOURS	PRESENT VALUE	
	050 651 0EP	100. 100. 100.	10.	•••	1768. 1768. 1768.	108.	
EUNIPHENI	T NUMBER	\$					Y IND OT 1 D
NAME REPAIR	VAN DEV	/ELUPMENT 0.	USEFUL LIFE 15	COMMON AHOVE DSU	NOT ALLOWED GSU		ON
	PAHAME TEF	15 BY ECHELON	7			11133114	
	ECHELON	UNIT COST	MAINTENANCE FACTOR	INSTALLATIUN	AVAILAHLE TEST HOURS	VALUE VALUE	
	4 JU 05 0	1150000.	01.	•••	1744.	2045420	
N 3Md I NN 3	IT NUMBER	ŝ			Helder	N BELINY FOR	NU GLAD
NAME I CD 1	30	VELUPMENT 0.	USEFUL LIFE 15	CUMMUN ABOVF DE.P	Se INCON		C N

112

• •

PANAMETERS BY ECHELON

	ECHLON	UNIT COST	MA I N I È NÀNCE	INSTALLATION	AVAJL AHLF	The Stud	
	n 10 NS 9	604. 604.	FACTOR •12 •12	•••	TEST MOURS 1769. 1764.	VALUE 11A3. 1163.	
E UU [PMEN	H NIJMHER	ç					
NAME ICD 2	30	VELOPMENT U.	טאניטע נודנ אנ	COMMON AHOVF DEP	NOT ALLOWED 65U	HELOW FOR REPAIR O NO	UNLY
	PANAME TE	HS BY ECHELON					
	E CHELON	UNIT COST	MAINTENANCE	INSIALLATION	AVAILAHLE TEET UNHDE	PRESENT	
	4 30 D£ b	529. 529.	- 12 - 12 - 12	•••	1768. 1768.	1036.	
EULTPMEN	T NIJMBEN	2					
NAME ICD 3	DE	VELOPMENT 0.	USEFUL LIFE 15	COMMUN ABOVE DEP	NOT ALLOWED GSU	HELOW FUR HEPAIR O No	ONL Y
	PAPAMETEI	HY ECHELON					
	ECHELON	UNIT COST	MAINTENANCE	INSTALLATION	AVAILAHLE	PUESENT	
11	6SU DEP	1397.	F ACTUR .10 .10	•••	1EST HOURS 1768. 1768.	VALUF. 2445. 2445.	
C EUUIPMEN	T NIMBER	æ					
NAME ICD 4	DE	VELUPMENT 0.	USEFUL LIFE 15	CUMMUN AROVE DEP	NOT ALLOWED GSU	HELOW FOR REPAIR O NO	ONL Y
	PANAMETE	RS BY ECHFLON					
	ECHELON	UNIT COST	MAINTENANCE	INSTALLATION	AVAILAHLE	PRESENT	
	65U 125	179.	FACTOR .10 .10	•••	тезт ноикs 1768. 1764.	VALIJE 322. 322.	
NJWdlnnJ	IT NUMBER	¢					
NAME ICU 5	<u>D</u> E	VELUPMENT 0.	USEFUL LIFE 15	COMMUN AHOVE DEP	NOT ALLOWED 6SU	HELUW FUH REPAIR O NU	ONL Y
	PAPAME TE	RS HY ECHELON					
	ECHFLON	UNIT COST	MAINTENANCE	INSTALLATION	AVAILARLE TET MOUDE	PRESENT	
	65U 0EP	3622. 3622.	- 10 - 10	•••	1251 HUUMS 1768. 1768.	4400 6515. 6515.	
EOUIPMEN	IT NUMBER	10					
NAME TACF IRF	1CU DE	VELOPHENT U.	USEFUL LIFE 15	COMMON AHOVE DSU	01 VOL VLLOWED	HELOW FOR REPAIN O No	UNL Y
	PARAHETE	RS BY ECHELON					

	f (14 COM	UNIT COST	MAINTE NANCE	INSTALL AT TON	AVAILAHLE	1 N 45 3mm
	65U DEP	1500. 1500.	FAC 10H	•••	TEST HOURS 1768. 1768.	VAL IE 24 14. 24 14.
FUUTPMEN	I L HAMMIN I	_				
NAME ICD 6	DEVE	.L.ОРМЕNT 0.	USFFUL LIFE 15	CUMMON AHOVE DEP	NOT ALLOWED E 65U	3ΕLOW FOR REPAIR ONLY NO
	PARAME TERS	HY ECHELON				
	ECHELON	UNIT COST	MA INTENANCE	INSTALLATION	AVAILAHLE	PHE SENT
	430 0EP	.479. 478.	-12 -12	•••	1251 HUNKS 1768. 1768.	VALUE 936. 936.
EUUIPMEN	T NUMBER 12					
NAME ICD 7	DEVE	LOPMENT 0.	USEFUL LIFE 15	CUMMON ABOVE DEP	NOT ALLOWED + 65U	HFLOW FOR REPATH ONLY NO
	PAHAME TERS	BY ECHELON				
	ECHELON	UNIT COST	MAINTENANCE E ACTUR	INSTALLATION	AVAILABLE TE ET MONOE	PHE SENT
	6SU DEP	724. 124.	.12	•••	1251 HUUKS 1768. 1768.	VALUE 1426. 1426.
EUUIPMEN	T NUMMER 13	_				
NAME ICD B	DEVE	.L.ОРМЕ N Т 0.	USEFUL LIFE 15	COMMON ABOVE DEP	NOT ALLOWED E 65U	JELOW FOR REPAIR ONLY NO
	PARAMETERS	BY ECHELON				
	ECHELON	UNIT COST	MAINTENANCE	INSTALLATION	AVAILABLE TELT UNDER	PRESENT
	6SU DE P	107.	-12 -12 -12	•••	1251 HUUX5 1769. 1768.	VALUE 210. 210.
EGUIPMEN	T NIJMRER 14	•				
NAMF ICD 9	DEVE	сцормент 0.	USEFUL LIFE 15	CUMMON ABOVE DEP	NOT ALLOWED F	HELOW FOR REPATH ONLY NU
	PARAME TERS	BY ECHELON				
	ECHELON	UNIT COST	MAINTENANCE E ACTOR	INSTALL ATION	AVAILAHLF Test Hunds	PAF SENT
	6SU DF P	334. 334.	.10	•••	1768.	601. 501.
EGUTPMEN	T NUMBER 15					
NAME ICI) 10	UEVE	сь ирме и т 0.	USEFUL LIFE 15	COMMON AHOVE DEP	NOT ALLOWED +	4FL0# F119 RFPATH 1)NLY NO
	PARAME TERS	S HY ECHELON				
	I CHELON	TINIT FOST	MA TRITE RIANCE	ThICTALL ATTON	AVA11 AU1 6	

	a 10	. 14. .)]4.	.10	•••	1 764. 1 764.	•104 •01.	
EUUIPMENI	I NIMBER I	£					
NAME ICO 11	IA 40	EL UPML NT 0.	USEFUL LIFE 15	CUMMUN ABOVE DEP	NOT ALLOWED GSU	HELOW FOR REPAIN NO	UNLY
	PARAME TER	S HY ECHFLON					
	ECHELON	UNIT COST	MAINTENANCE	INSTALLATION	AVAILAHLE	PRE SENT	
	430 159	.334. .334.	FACTOR .10 .10	•••	ТЕЗТ НОИРЗ 1768. 1768.	VALUE 601. 601.	
EUUIPMENI	I NIMBER I						
NAME ICD 12	DEVE	FL ОРМЕ N T 0.	USEFUL LIFE 15	COMMUN ABOVE DEP	NOT ALLOWED 6SU	HELOW FOR REPAIR No	UNLY
	PARAME TEH	S HY ECHELON					
	ECHELON	UNIT COST	MAINTENANCE	INSTALLATION	AVAILAHLE	PRESENT	
	05U 05P	334. 334.	F AC TOR .10 .10	•••	1681 HOURS 1768. 1768.	VALUE 601. 601.	
EUUIPMENI	I NIMBER I	æ					
NAME ICD 13	DEVI	EL UPMENT 0.	USEFUL LIFE 15	COMMON ABOVE DEP	NOT ALLOWED GSU	BELOW FOR REPAIR No	ONLY
	PARAME TER'	S HY ECHELON					
	ECHELUN	UNIT COST	MAINTENANCE Eactor	INSTALLATION	AVAILAHLE Tect would	PHE SENT	
	65U UEP	334. 334.	01.	0. 0.	1251 HUUKS 1768. 1768.	601.	
EQUIPMENT	L NUMBER 1	•					
NAME USM-410	DEVI	Е LOPMENT 0.	USEFUL LIFE 15	COMMON AROVE DSU	NOT ALLOWED GSU	BELUW FOR REPAIR NO	UNLY
	PARAME TEN	S BY ECHELON					
	ECHFLON	UNLT COST	MAINTENANCE	INSTALLATION	AVAJI AHLE	TN 45 BHA	
	65U DE P	но0000. Во0000	01.	•• • •	1768. 1768. 1764.	VALUE 1438911. 1439911.	
EUUIPMENI	IS HJABER J	c					
NAME USM-465	DEVI	ELOPMENT 0.	USEFUL LIFE 15	COMMON AROVE DSU	NOT ALLOWED (-50	4ELOV FOR REPAIR NO	A JNO
	PARAME TERS	S BY ECHELON					
	ECHELON	UNIT COST	MAINTENANCF FACTOU	INSTALLATION	AVATEANING TECT MUNIC	the state	

e.

115

I

	033 13	40000.	- -	• •	I 764. I 764.	11446. 11446.
Euul PMEN.	C UIMHEN 1	1				
44MF 1CD 14	UF V	/FL0P4ENT 1).	רואב ארר בואב	CUMMON AROVE DEP	NOT ALLOWED F 650	HELOW FOR REPAIR ONLY NO
	PAWAME TEL	AS BY ECHELON				
	ECHELON	UNIT COST	MA [NTE NANCE	INSTALLATION	AVAIL AHLE	PRESENT
	65U DFP	425. 425.	-12 -12	•••	1 EST HOURS 1 768. 1 768.	VALUE 832. 832.
IN 3MA 1 OD 3	I NUMHER 2	~				
NAMF ICU 15	UE V	•0 10-0рме и 1	USEFUL LIFE 15	CUMMON ABOVE DEP	NOT ALLOWED 4 65U	BELO⊯ FOR REPATR ONLY NO
	PANAME TEH	IS BY ECHELON				
	ECHFLON	UNIT COST	MAINTENANCE	INSTALLATION	AVAIL AHLE	PHE SENT
	65U DEP	390. 390.	+ ACIUM •12 •12	••0	1EST HOURS 1768. 1768.	VALUE 764. 764.

116

- -

• 、

NOTIONHO INT IN HOUND

NUMBER OF EQUIPZRED 3 VUMPER OF EQUIPIRED NUMBER OF EQUIP/REP 3
 IPS MAINI TPS PV
 NUMBER OF EQUIP/REP

 • 00
 0.
 3
TPS MATHE TPS PV NUMBER OF FOULPZRED MOR AL 1 NUM AL T NIJM AL T AL I NIM AL T TAT UMG [151] 4513 DFP 1. 3. 30. 120. TAT 0PG 0SU 65U 0EP 1- 3- 30-120. TAT 04G 05U 65U 0EP 1. 3. 30. 120. 086 DSU 65U DEP 1. 3. 30.120. TAT 006 050 650 0EP 1- 4- 30-120-TPS MAINT TPS PV .00 00. TAT TPS MAINT TPS PV -00 -1PS MAINT TPS PV •00 FALSF REMOVAL FALSF PEMOVAL C FALSF Removal •10 FALSF HEMOVAL •10 FAL SF HE MOVAL • 10 .10 .10 UNIT WEIGHT FSS HAS WASH PHICE USN .010 010 ON WASH 1PS DEV 0. TPS DEV 0. MASH •020 TPS DEV 0. MASH .010 TPS_DEV 0. WASH 010. TPS DEV 0. NSN NSN ND WEIGHT ESS HAS NSN UNIT WEIGHT ESS HAS PRICE NSN 1960. 42.50 1 NO NSN NSN 0N 10 UNIT WFIGHT ESS PHICE 9.50 1 5163. 10.50 1 ۱ (۱۲**۰**۰ UNIT WEIGHT ESS PRICE . 75 1 PAGE S 56. PAGE S 144. PAGES 2975. 840. 3.50 1 NAME WITH UIAG TIME PAGES ALTI .50 .00 56. NAME MITR UIAG TIME PAGFS ALTI •50 •00 56• ALT# NAME MITH DIAG TIME I ALTI .50 .00 NAME MITH DIAG TIME ALTI .50 .00 EUZREP NUM TIME USED UIAG TIME TIME USED .50 EQ/REP NUM TIME USED 4 .50 5 .50 20 .50 EUZREP NUM TIME USED UNIT PRICE EUZREP NUM TIME USED • 0 • 50 868. •50 .50 мттн • 50 HEF COMP COMP COMPONENT NUM NUM IO NAME 4 4 5000 VFH MOUNT HEF COMP COMP COMPONENT NUM NUM IO NAME 5 5 6000 IVRCU HEF COMP COMP COMPONENT NUM NUM 1U NAME I I 1000 RT HEF COMP COMP COMPONENT NUM NUM ID NAME Z Z 2000 PWEH AMP LU/REP NUM Н НЕГ СОМР СОМР СОМРОИЕNT 11 NUM NUM 11 NAME 2 3 3000 ЕССМ NAME ALTI 41 AL 7# 1 ALTW AL T# AL T# 1 --



PSEUDIO COMPONENTS

F A I L 1945 PF H YEAR • 495E-01 • 264f • 00 • 396E-01
MTHF 14752. 2726. 14440.
NEW VA415 J J
TOTAL PARTS 1 3
FALSE REMOVAL .10 .10 .10
ESS 1 1
WE IGHT . 80 2.43 1.50
AVEHAGE PHICE 76. 112. 115.
COMPONENT NAME MAME Man Ani Ven Ani Hat Case
СОМР 11) 7000 8000 9000
NUN NUN A ~ 6
не г NUM 8 - 4

THERE ARE A COMPONENTS

N,

РАНІЅ СО5Т РЕм перати 25.00		PARTS COST PER REPAIR 25.00		PARTS COST Per Revair 25.00			PARTS COST Per Remain 25.00			PARTS COST PER Repair 25.00	
NIJM OF NEW PARTS 96.		NUM OF NFW PARTS 14. JIP/REP		NUM OF NEW PARTS 13.	d3k/dlf		NIM NF NEW PANTS 28.	JIP/REP		NIM OF NEW PARTS 14.	ส 4ช/สไป
NUM ALT 1 0F EOL	~	NUM ALT 1 0F EOU		NUM ALT 1	0F E0(NIJM AL T	0F E0U		NIM NIM	104 V
45U DEP 30. 120. NUMHER		65-U 06P 30, 120, NUMBER		r 65U DEP 30. 120.	NIMHFR		1 150 DEP 30. 120.	NUMAER		r 151 DED 124	er genntijf
1A1 0R6 0SU 1. 3. TPS PV	•	TAT 0.45 DSU 1. 3. 1.PS PV 0.		TAT 046 DSU 1. 3.	14 241 0.		TAT 0PG DSU 1. 3.	74 241 0.		TA1 ()26 PS() 1. ¹ .	Alt Soft
FALSE HEMOVAL .In IPS MAINF	00 •	FALSE Removal .10 TPS Maint .00		FALSE HEMUVAL •10	TPS MAINT • 00		FALSE Removal .10	TPS MAINT .00		F AL SF 14E MOVAL • 10	1175 2411 00
HAS WASH NSN 050 NO 050 TPS DEV	•	HAS WASH NSN 050 ND 050 TPS DEV 0.		HAS WASH 145N NO 050	TPS DEV 0.		HAS WASH NSN NO .050	1PS DEV 0.		HAS WASH NSN 050 .050	. n N 10: 241
IGHT ESS 5.00 l PAGES	. 119.	16HT ESS .42 1 PAGES 1594.		16HT ESS •42 1	PAGES 221.		1GHT ESS •42 1	PAGES 193.		1GHT ESS •42 1	РА6F 5 1 км.
UNIT WF Phice 1409. Uiag Time	.00 11ME USFD .50 .50	UNIT WE PRICE 3A2. DIAG TIME •00	11ME USED .50 .50	UNIT WE PRICE 190.	UIAG TIME •00	11ME USED 50 50 50 50 50	UNIT WE PRICE 394.	UIAG TIME •00	FIME USED -50 -50 -50 -50	UNIT WE PRICE 359.	DIAG TIME
MODULE NAME CHASIS NAME MITR	ALTI .50 E074EP NUM 20 20	MODULE NAME Control Name Mitr Alti .50	EQ/REP NUM 4 5 20	MODULE NAME PWR ASSY	NAME MTTR ALTI .50	EU/KEP NUM 4 12 13 19	MODULE NAME TUNEH/MIX	NAME MITR Alti .50	EQ/REP NUM 4 10 11 19	MODILE NAME IF IJEMOD	NAME MTTR ALTI L
M01) 1001	_	MOD 1002		00W 01 1001	a 		MOD 10 1004	*		MON 10 1005	* -
HEF MOD NJM NUM Y I		HEF MOU NUM NUM 10 2 Al		(ICW J 12 120	Ì		REF MOU NUM NUM 12 4	ĕ		REF MOU NUM NUM 13 5	Ŧ

۰- ,

NULLAWARD AND A JUNION

PARTS COST PFR REPAIN 25.00 PAPTS COST PEP REPAIR PLN REPAID 25.00 PANTS COST PER REPAIR PARTS COST 25.00 25.00 NUM OF NEW PAPTS NFW PAPTS 15. NIM OF NEW PAPTS NFW PARTS 32. . • ċ NIJM OF NUM OF NUMPER OF EQUIP/REP NUMAFR OF EQUIP/REP NUMBER OF FOULD/REP derainoe do bennin NI IM AL T AL T AL T NIJM ALT I NIM AL T ----TAT UNG DSU 6.5U DFP 1. 3. JO. 120. TAT 046 USU 65U DEP 1. 3. 30. 120. TAT 086 DSU 650 DEP 1. 3. 30. 120. 086 050 650 0FP 1. 3. 30. 120. TAT 1P5 PV 0. .0 0 195 PV 0. 105 PV FALSF Hemoval •10 TPS MAINT .00 FALSF MEMOVAL •10 1PS MAINT •00 TPS MAINT TPS MAINT FALSE Removal •10 FALSE Removal .10 • 0.0 • 00 .050 WASH HSAW •050 WASH •050. TPS DEV 0. HSVM .050 TPS DEV 0. TPS DEV 0. TPS DEV 0. S N H HAS NSN NO SVH HAS NSN õ NSN g Ñ WEIGHT ESS UNIT WEIGHT ESS PRICE WFIGHT ESS WEIGHT ESS 1 24. 1 24. .42 1 •42 l PAGES 671. PAGES 394. PAGE S 1080. PAGES 203. E UTAG TIME UIAG TIME .00 11ME USED .50 .50 .50 .50 11ME USED •50 •50 •50 •50 TIME USED .50 .50 .50 .50 DIAG TIME UIAG TIME TIME USED TIME USED UNIT PRICE 00 UNIT PRICE .00. UNIT PRICE r . . . 540. 406. 50 171. 965. M1 1 H •50 •50 NAME MITH ALTI .50 NAME MTTR ALTI .50 MTTR FU/REP NUM NUM ID NAME I IOUT SYNTHESIS EQ74FP NUM EQ/REP NUM FUZHEP NUM MODULE NAME EQ/REP NUM MODULE NAME TWO+WIKE MODULE Name SW ASSY IOD MUN MONULE IUM 10 NAME 6 1006 EXCITFH NAME ALTI NAME AL 1 1 222 2220 2725 222 0 1 1 6 3 3 REF MON MON NUM NUM IU 17 9 1009 MUD UM 11) A 100A (iCh ALTH AL 7# AL 7# AL T# _---HEF MOD NUM NUM HEF MOD NUM NUM 15 7 NUM NUM 16 A REF MOD 4

PARTS COST Per Repair 25.00 РАЧТЅ COST РГН ЧГРАТИ 25.00 PARTS COST Per Repair 25.00 PAPTS COST PEN REPAIN 75.00 PANTS CUST PFR REPAIR 25.00 NUM OF NEW PAHTS 17. NUM OF NEW PARIS NILM OF NIM OF NEW PAHTS NEW PARTS ۲. 3 10. NIM OF NUMMER OF EQUIP/UFP ыымаға пғ Едитр/АЕР 5 NUMBER OF EQUIPIAED 5 NIMMEN OF EQUIPER NUMBER OF EQUIP/REP 5 ALT ALT NUM AL T NI JA AL T ALT AL T AL T --~ 040 050 050 0FD TAT 046 USU 65U DEP 1. 3. 30. 120. 046 DSU 650 DEP 1. 1. 30, 120. TAT 0RG USU 6SU DEP 1. 3. 30. 120. 046 DSU 65U 0EP 1. 3. J0. 120. TAT IAT 1 4 1 145 PV 0. 145 PV 0. 1P5 PV 0. V4 S41 105 MAINI 105 PV .00 F AL SE HE MOVAL • 10 TUS MAINT .00 1PS MAJNI .00 TPS MAINT .00 TPS MAINT .00 HE MUVAL .10 FALSE Removal •10 FALSF REMOVAL •10 F AL SE REMOVAL 00. .10 F AL SF 040. •050 .050 •050 • 050 1P5 N.V 0. HAS WASH 1PS DEV 0. WASH TPS DEV 0. WASH TPS DEV 0. 1PS (JEV n. MASH MASH HAS NSN 0 V NSN NSN HAS NSN HAS NSN VO Ŋ NSN 2 Z UNIT WEIGHT ESS PRICE 42 1 198. 42 1 UNIT WEIGHT ESS PRICE -42 I 271- -42 I WEIGHT ESS UNTE WEIGHT ESS PRICE .42 1 .42 1 PAGE S 257. PAGE S 453. PAGES 1223. PAGES 156. PAGES 173. -42 NAME MITH UIAG TIME ALTI .50 .00 TIME USFD .50 .50 .50 DIAG TIME 11ME USED .50 .50 .50 .50 .50 MTTR DIAG TJMF .50 .00 TIME USED .50 MTTR UIAG TIME .50 .00 TIME USED .50 MITH UIAG TIME 1 1011 2011 .00. .00 00 UNIT PRICE 00. 223. 50 50 50 50 50 195. MTTR .50 .50 VED MULL MULL MULLI MULLI MULM NUM IU NAME 18 10 1010 REMOTE I/O CON MATCH. ENJUED NIN FO/PEP NUM EQ/REP NUM EQ/REP NUM EQ/REP NUM MODULE MODULF. NAME AUD PS MODULE NAME MODULE NAME AUD CON NAME 0/1 QUA 3 9 Q * 9 = 7 9 2226 NAME ALT] NAMF ALT1 1126 4 4 NAME ALT1 NAME ALT1 PEF MOD MUN NUM NUM ID 21 13 1013 / MOD MOD NUM ID 14 1014 10 1012 II IIII 00H **G** N AL. T # AL 7.0 ALT# ALTR ALTN ~ --REF MOD NUM NUM REF MOD NUM NUM 22 14 NUN NUN NUM 20 19

F

	PANTS COST PER REPAIN 25.00			РАНТЅ COST Рен игратя 25.00		,	PAHTS COST PER HEPAIR 25.00			PANTS COST PEN RFPAIR 25.00			РАНТЅ COST РЕЧ НЕРАЈн 25.00	
	NJM OF NEW PANTS 10.	a 387 a l f		NIIM OF NEW PARTS 12.	d ja∕d[t		NUM OF NEW PARTS 1.	l p / RF, p		NIJM OF NEW PARTS 19.	n ja∕dlí		NUM OF 11FW PANTS 22.	a ju/a li
	NLI NLI I	0F EUI 3		NIM AL T	0F EQI 4		NUM ALT 1	OF EUL 3		NIM AL T J	OF FOL 3		NI JM AL T	0F F ()t 4
	r 65U ()FP 30+ 120+	NIMHER		65U DEP 30. 120.	NI IMHE P		r 65U DEP 30, 120.	NUMBER		1 65U NEP 30. 120.	NJURFR		120. 1150 30. 120.	THIMHE &
	1A1 046 D50 1. 3.	V4 S4T		тат 086 050 1. 3.	10 PV		TAI 0RG DSU 1. 3.	TPS PV U.		TAT 0RG DSU 1. 3.	1PS PV 0.		141 046 050 1. 1.	-n -n
	FALSF REMOVAL •10	100 . .00		FALSE Removal .10	TPS MAINT .00		FALSE REMOVAL •10	TPS MAINT .00		FALSE HEMUVAL .1n	1P5 MA141 .00		F AL 5+ HF MIVAL •10	1175 MATHT 00°
	MASH .050.	DE V 0.		WASH • 050	DEV 0.		WASH .050	DE V 0.		WASH .050	DEV 0.		420°	DEV n.
	HAS NSN NU	SqL		HAS NSN NO	Sal		NSN NSN NC	1PS		HAS NSN 101	5d1		NSN NSN	541
	LSS I	ES 12.		ESS 1	530 .		ESS 1	FS.		ESS 1	FS 50.		ESS 1	ES 94.
	E 16HT	PAG 1		E 16HT 1 • 75	PAG		E 16HT 1.75	PAG		E1GHT 5+00	PAG		E I GHT 1.50	PAG
ر ب ب و ب و ب	UNIT W PHICE 658.	U146 T1ME .00	TIME USED .50 .50 .50	UNIT W PRICE 333.	U1AG T1ME .00	11ME USED .50 .50 .50	UNIT # PHICE 168.	DIAG TIME •00	11ME USED •50 •50	UNIT # PRICE 496.	UIAG TIME •00	11ME USED •50 •50	UNIT # PHICE 406.	UIAG TIME .00
5 ° ¢	ODULE NAME S F ILT	MTTR .50	EP NUM 4 16 19	DDULE Vame HD	мттк • 50	ЕР ИИМ 4 17 21	MINILE NAME JUER	мТТР •50	EP NUM 4 18 19	NDIJLE NAME - WATT	MTTR .50	FP NUM 4 14 19	OUNLE NAME SUPP	MTTR .50
-	Ŭ Ŭ Ŭ	NAME AL T]	EQZRI	N N N	NAME ALTI	FO/H		NAME ALT1	EO/RI	NO NO	NAME ALTI	EQ/RI	X X	NAME ALTI
	M0F 10 2001	ALT# 1		M00 10 2002	ן 1		ноп 10 2005	יו		MOM 11) 5001	AL T.#		но 10 5002	11
	F MOD JM NUM			F MOD MUM 16	~		F MOU M NUM 5 17	-		F MOD 6 13	-		F MOD M NUM 7 19	-
	ΞźΥ			W D N X Z			జి⊋~ 1.23			¥ R ~			802	

:

4

	PANTS COST Pen repair 25.00			PARTS COST Per Repair 25.00			PARTS COST Per Repair 25.00			PARTS COST PFR REPAIR 25.00			PARTS COST PER RFPAIR 25.00
	NUM NF NEW PARTS HA.	11P/REP		NIJM OF NEW PARTS 5.	11P/4FP		NUM OF NEW PARTS R.	JIP∕REP		NUM OF NEW PARTS 2.	JIP∕¤£P		NIM OF NEW PAPTS 2.
	NUM AL T 1	OF EQU		NUM AL T	0F ΕΟ: ,		ALT	0F EQI		NIM AL T	0F E0		
	65U DEP 30. 120.	NUMBER		65U DFP 30. 120.	NUMHER		65U DEP 30. 120.	NUMBER		65U DEP 10. 120.	NUMRER		r 650 DFP J0. 120.
	TAT 186 DSU 1. 3.	14 241 0.		TAT HG 115U 1. 3.	1PS PV 0.		TAT PRG DSU 1. 3.	TPS PV 0.		TAT DRG DSU 1. 3.	14 Sul		TAT 196 ()5() 1. 1.
	FALSE Removal 0.10	TPS MAINT .00		FALSE Removal 0.10	1P5 MA[NT .00		FALSE Removal .10	TPS MAINT .00		FALSE REMOVAL (.10	1P5 MAINT .00		FALSF HFMOVAL .10
	145 WASH VSN NU 050	TPS DEV 0.		LAS WASH VSN NO 050	TPS DEV n.		HAS WASH NSN NO .050	TPS DEV 0.		HAS WASH NSN NJ 059	TPS DEV 0.		HAS WASH NSN 1/10 .050
	F 16MT ESS 1 26.00 1	PAGE 5 355.		E1GHT ESS + • 38 1	PAGE S 165.		E16HT ESS . 3A 1	PAGE S 164 .		EIGHT ESS .38 1	PAGE 5 526.		1616HT ESS • 38 1
50 50 50 50	UNIT W PHICE 941.	DIAG TIME .00	11ME_USED .50 .50	UNIT W PRICE 153.	01AG TIME .00	11ME USEN 50 50 50 50 50	UNIT PHICE	0146 TIME .00	11ME USED 50 50 50 50 50 50	UNIT PRICE 120.	UIAG TIME .00	11ML USED • 50 • 50 • 50	UNIT V PRICE 185.
3 Y O V	MODULE Name Pa Chasis	NAME MITR Alti .50	EQ/HEP NUM 4 7 20	MODULE NAME ANALOG	NAME MTTR Alti .50	EQ/REP NUM 10 11 13 19	MODIALE NAME IVHCU PS	NAME MTTR Alti .50	EU/REP NUM 4 10 11 13	MODILLE NAME DECOUZTIM	NAME MTTR ALTI .50	E0/REP NUM 6 20 20	MODULF. NAME M[CHO
	400 10 5003			400 11 6001	•		MON 1D 6002	۲. ۲		M00 10 6003	ן ור זי		MOD 10 6004
	HEF MOO Num Num 28 20	•		REF MOD NUM NUM 29 21	4		REF MOD NUM NUM 30 22	4		REF MOU NUM NUM 31 23	-		REF MOD NUM NUM 32 24

.

	: :	יי י אך ו ו		00° • 11 0010	2 11-11 - 1 2 40 -	105 DEV 0.	1115 MA141 .00	10. 0.	to themests	1603 Ju 1		
		F074EP NL 5 20	2	11ML USFD •50 •50 •50								
KEF MOU NJM NUM 33 25	400 10 6005	MODULE NAME IVRCU CH	S T	UNIT PRICE	WE IGHT ESS 2.00 1	HAS WASH NSN NU .050	F AL SF. He moval • 10	14 086 050 1. 3.	1 65U 0EP 30. 120.	AL T AL T	NIJM OF NEW PARTS 25.	PARTS COST PEN PEDAIn 25.00
	AL 1. I	NAME AL T Ì	м118 •50	UIAG TIM .00	F PAGES 355.	TPS DEV n.	TPS MAINT .00	TPS PV	NUMAER	0F EQUI	P/HE P	
		E0/KEP NL 8 20	L	TIME USED .50 .50 .50								
HEF MUD NUM NUM 34 26	мол 01 2004	MORULE NAME MIG TRAT		UNIT PRICE 411.	WEIGHT ESS 10.00 1	HAS WASH NSN NO .250	FALSF MEMOVAL •10	14 086 05U 1. 3.	T 650 DEP 30. 120.	AL T I	NUM OF NEW PARTS 21.	PARTS COST PER REPair 17.00
	۱ ۱	NAME ALTI	мтт 102.	UIAG TIM .00	E PAGES 5.	1PS DEV 0.	TPS MAINT .00	V4 241 0.	NIJMAER	0F FOUT 0	P/RF U	

.

PSENDO MODULES

NFW PAHTS 22
101AL Pa415 55
FALSF Removal .10
ESS I
NE 16HT
AVERAGE PRICE 25.
MOUIILE NAME ECCM P15
100 100 100 100 100 100 100 100 100 100
DOM NUN 72
L L L L L L L L L L L L L L L L L L L

THERE ARE 27 MODULES

.

-

APPL ICATIONS

FALLUHFS	PFH YEAH	10-3152.	10-3242.	.2A1E-U1	.5545-01	10-31HE.	.622E-U!	.4455-01	.322E-01	.5696-01	.164E-Ul	10-3645.	.224E-U]	.4906-01	.3326.	.124E-01	.7916-02	. h04E-02	.5A5E-01	•509E-D1	.241E-01	.101E-01	.4H2E-U2	.3325-02	.251E-02	.355E-02	•410E-02	• 321E-U3
MTHF		14007.	27863.	25974.	12443.	18461.	11741.	15686.	22650.	12440.	44405.	28818.	32541.	14892.	21968.	58850.	92326.	120522.	12472.	14350.	30286.	72195.	151371.	219843.	291099.	205617.	178200.	2273451.
MODULF	NAME	CHASIS	CONTHUL	PWH ASSY	1UNER/MIX	IF DEMOD	EXCITER	SVNTHESIS	TWO-WIRF	SW ASSY	REMOTE 1/0	CON MATCH	AUU PS	AUD 1/0	AUD CON	CHAS FILT	AMP HO	DECODER	ECCM PTS	ONE-WATT	PWH SUPP	PA CHASIS	ANALOG	IVACU PS	DECOULTIM	MICRO	JVRCU CHAS	MIG TRAT
COMPONI NT	NAME	нТ	R	н	нТ	14	RT	47	нт	41	н	н1 Н	RT	RT	RT	DWER AMP	PWER AMP	PWER AMP	FCCM	VEH MOUNT	VEH MOUNT	VEH MOUNT	I VRCU	I VRCU	IVRCU	IVRCU	I VHCU	VEH MOUNT
(iOw	01	1001	1002	1003	1004	1005	1006	1007	1004	1009	0101	1011	1012	C 1 0 1	1014	2001	2002	2003	1000	5001	5002	5003	6001	6002	6003	6004	6005	2004
Слмр	01	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	2000	2000	2000	3000	5000	5000	5000	6000	6000	6000	6000	6000	5000
()() N	NUM	-	2	-	4	s	¢	~	¢	•	10	7	12	6	14	15	41	11	27	Ы	19	20	21	22	23	24	52	Ś
COMP	MUN	-	-			-		7	-	-	-		-		-	N	~	~	. .	3	t	\$	ŝ	J	ŝ	'n	ŝ	\$
AUP	MON	ſ	~	-	t	ŝ	£	~	æ	o	01	11	12	13	*	5	16	~	H	61	20	21	22	2	42	52	56	21
يە تە	J	2	E	ŝ	40	3	4	3		ŝ	4.5	41	48	54	50	5	25	5	\$ 0	55	ŝ	57	58	5	60	61	29	69

THERE ARE 27 APPLICATIONS

127

··· - -

THERE ARE 1.09 END ITEM FAILURES PER YEAR THE DERIVED MTRF IS 669, MOURS THE INPUT MTRF IS 1300, MOURS

· ·

.

<u>ب</u> هم

USAMM II PHOTATAPE 2 VERSION DATE BIZOTZIG

WAINTENANCE POLICIES HY APPLICATION

AUP	COMPUNE NT	MODULLE	30	האומל.	: עבר	FHACTION	MOINILF	5FN5111V17Y
MUN	NAME	NAME	14	COMP	(10 H	UF TIME	0310m0Hd	F1 A(1
-	14	CHAS I S	940	050	650	1.000		
~	۴I	CONTROL	OH(050	650	1.000		
~	кı	PWH ASSY	0HC	050	650	1.000		
4	14	TUNEH/MIX	980	050	650	1.000		
ŝ	нТ	IF DEMOU	0RG	DSU	6SU	1.000		
¢	нT	E XCI TER	0H0	050	650	1.000		
1	нŢ	STNTHE STS	086	USU	650	1.000		
10	нт	Tw0-w1RE	040	050	DEP	1.000		
3	RT	SW ASSY	080	020	650	1.000		
10	нТ	REMOTE 1/0	040	050	650	1.000		
11	RT	CON MATCH	040	050	0EP	1.000		
12	нT	AUD PS	040	050	650	1.000		
61	13	AUD 1/0	040	nsn	650	1.000		
14	нT	AUD CON	0HG	DSU	650	1.000		
۲۶	PWFR AMP	CHAS FILT	0HG	650	650	1.000		
16	PWER AMP	AMP HU	OHG	650	651	1.000		
17	PWFR AMP	DECODER	0HG	650	6 S U	1.000		
81	ECCM	ECCM PTS	ORG	65U	1055	1.000		
91	VEH MOUNT	UNE-WATT	ORG	050	650	1.000		
20	VEH MOUNT	PWR SUPP	086	DSU	6SU	1.000		
21	VEH MOUNT	PA CHASIS	080	050	650	1.000		
22	IVRCU	ANALUG	940	050	1055	1.000		
53	IVRCU	IVHCU PS	980	050	1055	1.000		
54	UD4VI	DECOD/11M	ORG	0SU	1055	1.000		
22	I VPCIJ	MICHU	040	050	6 S U	1.000		
26	1 VPCU	I VRCU CHAS	086	050	65U	1.000		
27	VEH MOUNT	MTG INAT	040	050	050	1.000		
28	MAN ANI	NONE	086	1055		1.000		
59	VEN ANT	NONE	046	1055		1.000		
30	HAT CASE	NONE	940	1055		1.000		

130

SPECTAL TEST EQUIPMENTZPEPATRMAN REQUIREMENTS

PECULIAN FUULPMENIZHEPAIRMAN

EUUIP	FOUTPMENT	ECHELON	REUUTREMENT	ULANTITY	101 017	HARDWH CST	DEVELOPMENT	ACCUMULATING
E D Z	IMAN		FER SHUP	FLK SHUP	ALECH	LIULAL PVI		
								F OULPMENT
								IND ECHELONS
2	BREAK HOX	050	191.	-	100	48976.	0.	100
~	STATIC PAU	DSU	646.	-	100	10799.	0.	100
ა	1(1)	650	515.	-	54	28388.	0.	52
Ŷ	ICD 2	6SU .	• 0 0 •		54	24863.	.0	54
~	ICD 3	6 S U	· 022	-	54	59873.	•0	24
8	ICD 4	650	600 *	-	54	1721.	• -	24
3	1CD 5	(155)	.115	-	54	156352.	•0	24
Ξ	1CD 6	650	.495	-	24	22466.	• 0	54
11	1CD 6	UEP	3.05A	4	t	3744.	.0	29
12	1CD 7	6SU	.303	-	54	34217.	0.	54
2	ICD A	050	.461	~	54	5029.	0.	24
13	1CD H	1)E P	1.346	~	ر م	419.	•0	26
14	1CD 9	059	.113	-	きて	14418.	•0	24
ς	ICD 10	6SU	620.	-	*:	14418.	0.	24
16	1C0 11	65U	6H0.	-	54	14418.		54
17	ICD 12	650	.018	-	24	14418.	•0	24
18	IC0 13	650	610.	-	24	14418.	0.	54
71	1CD 14	650	610°	-	24	19975.	•0	24
22	ICD 15	650	• 053	~	24	1H330.	0.	54

513249. TOTAL PHESENT VALUE OF PECULJAR SPECIAL TEST EQUIPMENT/HEPAIMMENTINC. DEVPMT COST) =

SPECIAL TEST FOUTPMENT/REPAIPMEN COMMON AT HIGHER ECHELONS

1

ACCIMULATING OTY OF THIS FOULDMENT	UP ECHELONS 34.32	36.48	39.44	19.14	22.20	24.00	24.05	10.88
DEVELOPMENT COST	•0	•0	•0	. 0	.	•0	••	•0
HARDWK CST (TOTAL PV)	4011461.	76951530.	6380626.	56221.	8984°	37408325.	4400432.	743085.
TUT UTY AT ECH	36.32	36.88	3.06	19.14	3.06	26.00	3.06	10.48
UUANTITY PER SHOP	.363	1.537	3.058	147.	3.058	1.083	3.058	•474
REQUIREMENT	.363	1.5.1	3.058	141.	3.058	1.043	3.054	• 454
ECHELON	USU	650	DEP	650	DEP	6 S U	0EP .	650
E QUIPMENT NAME	COMMON EU	REPAIN VAN	REPAIN VAN	TACF INE ICD	TACF LRF ICD	USM-410	USM-410	USM-465
4100 MUN	-	4	\$	10	10	61	61	20

TOTAL PRESENT VALUE OF EQUIPMENT/HEPAIRMEN WHERE COMMON = 130000664.

TUTAL PRESENT VALUE OF SPECIAL TEST FOULPMENT/REPAIRMEN REQUIRED = 130513913.

LUGISTICS CUSTS LUGISTICS COSTS FOR COMPONENTS (PRESENT VALUE).

TOTAL COST	42.482.320. 6.543.817.	15.565.A30. 9.705.301.	2+382+793.	10.161.306.72.936.906.	11.947.882.	4 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	221.816.155.
NTHER COST	9.432.646. 2.440.433	3.789.009.	1.252.848.	2.164.3.049. 9.413.049.	2.291.877.	8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	33+982+567.
1905 1805	• c	20	•		•0	ł	•0
LAHOR COST	9.020.781. 2.25.22.21	2.610.270.	302+430	•••	•0	9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	14+570+553.
CONSUMP. SPARES(5)	49.447.850. 446.412	4.457.652	269.715.	6,599,563. 52,631,369.	7.948.945.	3 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	124.144.023.
1N111AL SPARES(\$)	24.581.043. 2.461.536	4.708.400. 2.161.840.	557.760.	1 • 393 • 384 • 10 • 892 • 448 •	1.707.060.	3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	01ALS: 44.464.011.
COMPONENT NAME	RТ риги Амр	FCCM VEH MOUNT	IVHCU	VEN ANT	HAT CASE		VENT COLUMN T
COMP NUM	- ^	ריי ו די ריי ו	ŝ	6 r	£		ючно)

LUGISTICS COSTS FOR MODULES (PRESENT VALUE).

CONSUMP.
0. 6.3/8.57
1. H69.34
1. 463.B4
1.930.27
1. 1.206.94
1. 5.211.70
1. 2.182.92
. 478.72
5. 2.005.02
i. 347.00
i. 407.06
1. 434.54
1. 1.153.91
3. 571.52
10H+98
5. 228+70 6
5. 8H.389
2.191.732.
i. 850.045
3。 R261495
i. 1.281.84F
7. 524,941
. 522.19
. 57,05
5. 148,38
16.12 .
1. 2.439.383
9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1. 33-567-483.

-

.

TIME A MUN & TOWN ARCUND TIME

1

TATCINC SHUWAIT) JEP ORG USU GSU UI DOD 1 0 8 0 10 120.00	
65U	
RTU 050	
086	
UEP	
ม 65ป	
MTI NSU	
ยุศบ	
MASH	.010 .010 .050 .010 .010 .010 .1.000
COMPONENT NAME	HI Lufed amd Eccm Ven Mount Ven Mount Man Ant Ven Ant Hat Case
COMPONENT NUMBER	ーこうようら~れ

•

MID A WID & TURN AROUND I IME

¥

.

F

III	d 30	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.6	120.0	120.0	120.4	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	•
I NC	(151)	6.06	30.4	30.6	ל.06	ځ.0(31.8	30.7	30.0	30.7	30.4	30.0	30.9	4°06	10.1	30.4	13.1	0.16	30.5	31.3	۲6.5	30.0	30.0	30.0	31.2	76.8	30.0	•
TAT	050	0.6) . 0	J.U	3.0	0.6	3.0	3.0	3.0	0° E) • 0	3.0	3.0	3 • 0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0° 0	0.6	9 •0	3.0	114.8	•
	580	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	•
	DEP	• 000	000	.000	• 000	.000	.000	000	.000	.000	000.	.000	.000	• 000	.000	.000	.000	.000	• 000	• 000	.000	• 000	.000	.000	.000	• 000	.000	•000
	651	.000	.000	.000	.000	.000	000.	• 0 0 0	000.	000.	.000	• 000	.000	.000	.000	000.1	1.000	000.1	• 000	• 000	• 000	• 000	• 000	• 000	.000	• 000	.000	000.1
(11 a	050	1.000	1.000	1.000	000.1	000.1	000.1	1.000	1.000	000.1	1.000	1.000	000.1	000.1	1.400	.000	000.	000	1.000	1.000	000.1	1.000	1.000	1.000	1.000	1.000	1.000	• 000
	086	.000	000.	000.	.000	.000	.000	.000	.000	.000	.000	.000	000.	.000	• 000	• 000	• 000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	• 000
	ner	. 000	.000	.000	.000	.000	.000	.000	. 450	• 000	.000	050.	• 000	.000	.000	• 000	• 000	• 000	• 000	.000	.000	• 000	.000	• 000	• 000	.000	• 000	• 000
~	650	046.	046.	.950	0¢6*	.950	0ć9.	.950	• 000	.950	.950	• 000	.950	.450	. 950	050.	046.	.950	.950	.950	025.	.000	.00.	.000	056.	050.	.000	• • • •
I H	050	.000	.000	.000	.000	000-	.000	• 000	• 000	.000	.000	.000	.000	.000	.000	• 000	.000	.000	• 000	.000	.000	.000	• 000	• 000	.000	.000	. 750	.000
	080	.000	.000	000.	• 000	• 000	.000	000.	• 000	.000	• 001	• 000	.000	• 000	• 000	• 000	.000	.000	.000	• 000	.000	• 000	• 000	.000	.000	.000	000.	• 000
HSAN		.050	.050	.050	.050	.050	050	.050	.050	050	.050	.050	.050	.050	.050	• 050	.050	.050	.050	.050	040.	1.000	1.000	1.000	.050	• 150	045.	1.000
MODULE	NAME	CHASIS	CUNTHOL	PWR ASSY	TUNER/MIX	1F DEMOD	EXCITER	STNTHE SIS	THO-WIPE	SW ASSY	REMOTE 1/0	CON MATCH	AUD PS	AUD 1/0	AUD CON	CHAS FILT	AMP HD	DECODER	ONF-WATT	PWH SUPP	PA CHASIS	ANAL ()G	IVHCU PS	UE COU/TIM	M] CR0	IVHCU CHAS	MIG TRAT	ECCM PTS
MUDULF	NUMBER	-	~	m	4	ŗ	£	7	œ	5	10	11	12	61	4	15	ž	17	н	19	o ک	21	~~	53	54	55	ر	17

. .

SESAME OUTPUT FOR COMPONENTS

r `

SPANES

O JUMIN	LOWDONE NT		ANCES	PFR CL	AIMANT	41Y • UP	FAIL PER END	ITEM PER Y	<u> </u>
	NAME	OHG	DSU	650	DEPOL				
-	R I	~	19.	6 .	1717.	24.541.043.	.600		
• ^	PWER AMP	-	7.	48.	.06	2.461,536.	.029		
			5.	104.	929.	4.708.900.	• 0 0 •		
. 3	VEH MOUNT	-		-	279.	2.161.880.	•00*		
r ur	IVRCU	-	-	•	64.	557,760.	.020		
n ve	MAN ANT		13.	51.	15310.	1.343,384.	• 054		
. ~	VEN ANT		22.	90.	27558.	3.630.816.	460.		
æ	HAT CASE	-		4l.	12260.	1.707.060.	• 0 4 4		

SESAME NUTPUT FOR MODULES

SPARES

v

ŧ

NUMHE R	MUDIJLE	ארר	OWANCF.	S PER	CLAIM.	017 * UP	EALL PER FNIL ITEM DEN YD
	NAME	040	050	เรเ	10430		
1	CHASIS	•0	.61	-05	H21.	6-031.929.	. 057
~	CONTROL	•0	7.	46.	419.	H49.1H6.	• 020
m	PWH ASSY		в.	49.	448.	460.560.	160.
4	TUNER/MIX	•	14.	97.	9 87.	1.818.310.	. 051
r	IF 0EMOD	•	10.	67.	613.	1.156.339.	- 042
¢	EXCITEN	0.	16.	107.	476.	4.953.960.	. 048
~	SYNTHESIS .	•0	12.	80.	734.	2.091.160.	.051
T	JHIM-ONI	ċ	°.	33.	4215.	1.010.097.	.035
5	SW ASSY	•0	دا	98.	894.	1.926.876.	.062
10	HEMUTE I/O	•	ئ	29.	266.	355+266.	.01A
11	CON MATCH	•0	7.	26.	.1321.	A59,325.	, 02H
12	AUD PS	••	ç.	.96°	360.	422.808.	• 024
2	AUD 1/0	•	13.	84 .	173.	1.104.119.	.053
14	AUD CON	•	\$	57.	524.	553,608.	.036
15	CHAS FILI	••	•	10.	203.	- 494 - 195	.014
14	AMP HD	•		6 .	.161	91.575.	•00 •
17	DECODER	•	•0	ۍ ۲	102.	37.296.	.007
18	UNE - WATT	•	13.	θ7.	801.	2.077.744.	.055
61	PWR SUPP	•	7.	42.	386.	A50.164.	• 026
20	PA CHASIS	•	ŗ.	18.	166.	845.018.	.011
21	ANALUG	÷.	~	6 .	1504.	282,744.	• 005
22	I VPCU PS	•	-	* *	1041.	112.567.	•00*
23	DF.COD/TIM	•	l.	Ē.	.067	115,440.	, nn 3
54	MICHO	•	-	6 .	62.	56.610.	• 004
25	IVHCU CHAS	•	~ ~	۲.	70.	182.646.	• 004
56	MIG THAT	••	•	•	30.	12,330.	.000
27	ECCM PIS	0.	••	~	328.	9.400.	100*

.

LOUISTICS TUTALS

.

INITIAL SPARFS COST	83.843.117.
CUNSUMPTION SPARES (PRESENT VALUE)	185,806,462.
INVENTORY HOLDING CUST (PHFSENT VALUF)	20+088+049.
THANSPORTATION COST (PRESENT VALUF)	5,522,589.
REQUISITION COST (PRESENT VALUE)	35, 328, 795,
CATALOGING COST (PHESENT VALUE)	953,603.
BIN COST (PRESENT VALUE)	9.139.244.
REPAIN COST (PRESENT VALUE)	.641.959.64
SCREENING COST	•0
DOCUMENTATION COST	3.944.400.
TEST PROGHAM SETS COST	••
T01AL L061511C5 C05T	388.555.451.

139

TOTAL COST FUR THIS MAINTENANCE CUNCEPT IN TERMS UF PRESENT VALUE

388.555.451.	130+513+913.	519,069,364.
TOTAL LOGISTICS COST	TOTAL TEST EQUIPMENT/REPAIRMAN COST	TOTAL

OPERATIONAL AVAILAHILIIY ACHIEVED AND CURVE PARAM USED .9951
POLICY FILE

•

1.0000	1.0000	1.0000	1.0000	1.0000 1.0000 1.0000	1.0000 1.0000 1.0000 1.0000	1.0000 1.0000 1.0000 1.0000 1.0000 1.0000
-~~	4 2 0 40 1	~ I J G	222	4555	22 22 22 22 22	52 52 52 52 52 52 52 52 52 52 52 52 52 5
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	222	121 124 123	221		221 221 221 221 251 251	125 123 123 123 123 123 123 123 123

## OTHER COST BREAKOUT

-

OTHER LOGISTICS COSIS FOR COMPONENTS (PRESENT VALUE).

COMD	COMPORENT	ULUING	. AZNAHI	REQ	N 1 H	CATLOG	00CUM.
8 - 0 T T T T T T T T T T T T T T T T T T	NAME RT PWER AMP PWER AMP ECCM VER MOUNT VEN ANT VEN ANT VEN ANT RAT CASE		1.788.800. 152.546. 30.507. 1.133.027. 1.33.027. 1.33.027. 1.549.988. 1.549.988. 1.45.092.	1,421,942. 1,339,279. 1,422,092. 1,422,092. 1,422,092. 1,472,092. 1,472,092. 4,422,092.	313.899. 313.899. 313.899. 301.846. 313.899. 313.899. 313.899. 313.899.	1.796. 1.796. 1.796. 1.796. 1.796. 5.388. 1.796.	16.800 43.200 43.200 15.800 16.800 0.0
COMPO	NENT COLUMN TO	)1ALS: 11.611.565.	4.956.678.	13,283,322.	3,126,938.	.049.11	986.100.

•

UTHER LOWISTICS COSTS FOR MODULES (PRESENT VALUE).

-

00m 100	MODULE NAME	ного]не	1 PANSP.	иЕО	Z H	CATLOS	DOCUM.
-	СНАЗТЗ	1.445.199.	104.687_	282.545.	62 • 780 -	01141	007-515
2	CONTROL	201.458.	41421.	282.017	62 7H0.	26. 414	478-200
-	PHH ASSY	110.344.	4.742.	282.595.	62.1AD.	25.142	66.300.
\$	TUNEH/WIX	4 35.652.	9.517.	282.595	62.780.	52.080	57.300.
r	1F DEWOD	277.049.	6.531.	282.595	62.7A0.	35.417.	50.400
ç	FACITEN	I.149.323.	10.491.	282.595.	62.780.	1.146.	201+300.
1	SYNTHE STS	49H.62A.	1.852.	282,595.	62.7H0.	59.763.	114.200.
10	1w0-w1k6	242.011.	61.613.	282.595.	62.780.	29.734	60.900.
3	SW ASSY	441.563.	9.593.	282,595.	62.7HD.	35,917.	324.000.
10	4EMOTE 1/0	A5.119.	2.174.	261,857.	62 · 7HU .	8.479.	366.900.
1	CON MAICH	205.887.	44.426.	282.595.	62.780.	32,326	77.100.
77	SH UNV	101.301.	3.785.	274.238.	62.7A0.	14.367.	46.800.
1	0/1 (I)V	265.496.	H.271.	2H2,595.	62.7HJ.	14.754.	51.900.
t -	AUD CON	132.640.	5.607.	282,595.	62.7HQ.	14.367.	135.900.
ζ	CHAS FILT	69.H34.	1.420.	25+623.	12.556.	14.754.	51.600.
15	AMP BID	21,941.	1.472.	16.332.	12.556.	23.346.	39.000.
17	ne couer	B.9Jh.	1.124.	12.511.	12.556.	3.542.	4 3 HD0.
Η	ONE-WATT	497.H10.	102.185.	282,595.	62 · 7 A D .	15.917.	45.000.
61	PWR SUPP	203.692.	14.525.	277.684.	62.780.	41.305.	58.200.
20	PA CHASIS	202.459.	105.617.	248,786.	62,780.	145.465	106.500.
21	ANALOG	67.743.	4.171.	253,927.	62,780.	1.196.	
22	I VHCI PS	26.970.	2.472.	191.875.	62,780.	1.146.	
53	DF COU/ 1 1M	21.658.	2.169.	158,296.	62,180.	1.746.	
54	MICHO	13.563.	542.	154.003.	62.780.	5,348.	236.700.
ረን	IVACU CHAS	43.760.	3.291.	177,697.	62.780.	46.632.	104.500.
54	MTG THAT	2 • 95 4 •	1.827.	6.633.	502.	39.509.	1.500
21	ECCM PTS	123.869.	29.882.	2.320.341.	690.579.	39.509.	0
			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				****
2 0 0 0 0 M							
	ירשאוטו אשטשט פ	6.964.966.	.116.606	8,052,964.	2.109.909.	435.644.	2.458.300.

LOGISTICS CUSTS FOR PARTS (PRESENT VALUE). (PARTS CATALOGING COSTS ARE INCLUDED IN MODULE CATALOGING COSTS)

		TAUT TAE	CONSUMD.	() IOH	HFO	HIN
MUD. NUM	MUD. NAME	PARTS (\$)	PAHTS (S)	C051	C051	COST
		540,400	2.150.115.	139.155.	2.045.399.	1 + 205 + 374 .
- r	CHARLS	- 10.4.00	1-040-944	.1.158.	765.142.	175,784.
		050.250.	1.159.611.	59.958.	711.046.	163.228.
•		508-200-	201.121.2	121.760.	1.531.484.	151.567
<b>1</b> U	IF DEMOD	14.8.175	1.596.933.	83.420.	1.039.221.	238.564.
		47.975	2.565.348.	116.915.	54.695.	12.556.
c r	CAUTHE STS	624	1.920.167.	102.929.	1.750.268.	401.791.
- a	TWO-WIRF	442.750.	1.329.740.	118.059.	0.	1.534.
c 0		493.050	2.345.175.	114.131.	1.039.221.	د ۱۹ <b>۰</b> 564.
-		141.400.	678.296.	JJ.A78.	218.783.	• • 22 • 0 <
1	CON MATCH	341.850	1,045,171.	93.884.	•0	H+53R.
	AUD PS	192.500	925+594.	46.121.	382.471.	н7,892.
		417.250.	2.022.545.	99.970.	544.959.	125.560.
	ALLO CON	280.000	1.371.074.	67.0A6.	342,871.	A1.892.
	CHAS F11 I	118.500.	511.805.	28.392.	446.829.	125.560.
<u> </u>	AMP BD	61.200	326.233.	14.663.	310.312.	6.027.
1	DECODER	50.175.	249.911.	12.022.	54.696.	12.556.
		44H.R75.	2.094.937.	107.547.	1.039.221.	238.564.
		P. P. P. C.	994.511	53.633.	945,978.	276,231.
	SISHU VA	A6.000.	417.200-	20.605.	396,841.	40,179.
20	MICBO	11.400	146.485.	7.571.	109.392.	25,112.
r K		-047-51	169.022	8.086.	160.774.	12.556.
, 4 , 7	MIP TOAT	1.185	7.112.	428.	19.898.	10.547.
				1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
PART CULUE	IN TOTALS:	4+308+935.	21.4 39.956.	1.511.567.	13+992+503+	3+902+398.

145

6.308.935.

AVAIL & JURVE PAR 9977 1000. AVAIL & CURVE PAR 9977 1000. AVAIL & CURVE PAR 9951 0. AVAIL & CURVE PAR 9951 0. AVAIL & CURVE PAR 9000 0. AVAIL & CURVE PAR 90000 0. AVAIL & CURVE TO DBIAIN AVG PHODUCTIVE HEPAIR HRS AT ECHELON K. UIVIDE RY EFFECTIVE LAROR RAIF AT ISEE PREPROCESSOR!

1 ہے۔

ł

.00

×

P STOCKAGE LISTS

F

URGANIZATION UNIT STOCKAGE LIST

S VALUE	10.326. 1.008. 868. 1.960. 840. 76. 112.	
QUANTITY	~	
TYPE/ESS.		
NAME	RT PWER AMP ECCM VEH MOUNT IVRCU MAN ANT VEN ANT RAT CASE	
NUM	ーミョルらもての	

TOTAL DOLLAR VALUE OF LIST IS: 15.305.

DIMECT SUPPORT UNIT STOCKAGE LIST

*(1)	MAME	JYPE	/E \S.	UUANTITY	\$ VALUE
-	14	ں	-	19.	98,097.
· ∼	PWEH AMP	U	1	۲.	7.056.
e	ECCM	v		15.	13.020.
4	VEH MOUNT	U	-		5,880.
'n	IVRCU	υ	-	-	B40.
9	MAN ANT	υ	-	13.	988.
~	VEN ANT	J	-	22.	2 . 464 .
æ	HAT CASE	U	-	::	1.265.
-	CHAS15	I	1	13.	18.317.
~	CONTHRL	Σ	-	7.	2.674.
	PWH ASSY	T	-	в.	1.520.
5	TUNER/MIX	Σ	٦	14.	5.516.
ŝ	IF DEMOD	I	-	10.	3.540.
• •	EXCLTER	I	-	١۴.	15.440.
~	SYNTHE SIS	Σ	-	12.	6.480.
T	TWO-WIRE	¥	-	9.	1.534.
7	SW ASSY	I	-	15.	6.040.
10	REMOTE 1/0	ĩ		ις. Γ	1.215.
Ξ	CON MATCH	I	-	7.	1.245.
12	AID PS	Σ	-	¢.	1.33H.
13	AUU 1/0	ĩ	-	13.	3.523.
]4	AUD CON	Σ	-	•	1.782.
18	ONE-WATT	Σ	-	13.	6.448.
14	ddU2 AWQ	2		۲.	2.842.
20	PA CHASIS	I	-		2.823.
21	ANALOG	Σ	-	<del>،</del>	304.
22	IVRCU PS	I	-	:	.19
53	DECOD/11M	Σ	-	-	120.
54	MICRO	X	-	-	145.
٢S	I VRCU CHAS	I		~	834.
TOTAL	DULLAR VALU	E OF	L 151 1	12. 213.51	А.

149

.

## APPENDIX F

## SAMPLE SCREENING RUN

Sample input and output files from a screening run are contained in this appendix. While the data was derived from a real system, some of it has been modified to demonstrate certain features of the OSAMM. Thus, no data from this appendix should be used in any other analysis. Furthermore, the data in this appendix should not be compared to that in any of the other sample runs in this manual. INPUT FILE

V

.

ہ ا 7

1 3 30 120 C	2200 2	40 4	60 210 7	1 200	5 30 30		_	
74125716501907 04659	6468 15247	91022	35.12	60	)6 H165	01177	*6000	51.000
1 COMMON EU 34990 1768	-	אן ג' ז ו						
014-MSU 50		23		17240	00101500	711		
03 USM-465		23				-		
04 PEP VAN		23	1	1017	00510100			
05 MARATHONCP		4		1937	50101500	1-;	1010000	0.05
271000101500 06 MARATHONST		4						
478600101500 07 AC STATION								
00410100075		r r						
09  F STATION 87000101500		t t						
10 TUNER STA		t t						
II SYN STA		t t						
112000101500 12 FXCIT STA		3						
118000101500		•						
13 PA STA 3000101500		t t						
15 SWITCH STA		t t						
54000101500 16 AUDIO 170		9 9						
0051010029		•						
17 AUD CON STA 62000101500		5 5						
18 AUD PS STA		7 7						
00210100082 19 TWO WINE S		t t						
47000101500								
22 ONE WAT STA 4400101400		7 7						
23 VEH PS SIA		t t						
43000101500 25 PA CHA STA		4 4						
45000101500		t r						
26 AMP HU 51A 45000101500		4						
27 SCREENER	n02	4   7						
28 SCREFN PA	100	4 1						
130 1500								
66 66								
1000HT	201 2914	10			l			
ALTI 5 2000PWER AMP	56 1008 95	10	10		_	-		
ATE 15 5		4 3200		۲ .	د	•		
1 3000 500 3000	000 868 7	151 0	2А 50	-	Ţ	-		
ATE 15 5 200 4000	00	893000	1 4 0	~ `	S			
SODOVEH MOUNT	1960 425	10		u.				
ALTI 5 Montvru	56 840 19	10	10 1		-			
ALT 5	56		10		-			

	196	141	181	182	161	108	148	151	161	4 1	171	11	101	11	101	121	-	161	22	Uн	s	Ĩ
	52	ۍ ۲	25	5'5	<del>ر</del> ۲	52	5	25	25	25	52	ŚŻ	ر،ح	<b>د</b> ر	çç	ۍر	<b>5</b> 2	22	۶ç	<del>ر</del> ۲	ŕ	ŕ
4752 2726 8440	s -	5 ۲	1 25	رج ا	1 55	1 25	ا دې	۱ ۲۶	ا 25	<del>ر</del> ۲	1 25	1 25	۱ ۲5	1 25	ر ۲۶	1 25	- <u>-</u> -	25	1 55	، ۱ ۲	ۍ ۱ ۲	- J
2.2	r ,	~ ~ ~	, n	01		, 12 , 12	. = .	2	ر 15	~ ~ ,	~	د ۱۴	16	د ر ۲۱	د د 25	 	~	, 22 ,	5	•	2	٩
- ~ -	3		-	- - * *	, 7 , 7	1 7	. * .		- 4	-		27 4 1	- ч С	1	- 4 C	5 4 5 5 7 5	-	1 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7		4	4	•
	2 1001	5 82000	00001 5	5 25000	40000	70000	30006	5000	00006 5	69000	5 10000	30000	20000 2	00000	00005 5	50000	38000 3	65000	24000	2 00039	95000 5	5 2000
н 2431 151	د 23	124	421 2	421	421 5	421 H	421 6	421 4	421 7	421 36	421 5	421 6	42] 4	421 421	- 3 2	1751	1751	ע - יר	15 1	26 1 10	381	381
22	1409	382	061	394	359	965	540	171	406	243	145	223	00 271	00 14A	00 658	333	168	474	406	941	ניו	16
w	ŝ	5 5	Y 25 25	1X 25 4000	0 25 4000	25	15 25 4000	E 25	25	1/0 5 5	CH 25	4000 25	6000 25	4000 25	-1 -1 -25 -25	55	5	T 25 4000	52 52	15 5	5	u
IN ANI N ANI	14515 15	00100L	125 125	JNER/M	05M0	125 125 00	NTHES 125	125 125	125 125	NOTE 15	N MAT	00 PS 125	0 1/0	00 CON	125 125	IP 80	CODEP 15	125 125 00	I 25	IS 15	ALUG 15	5 2 2 2
7000M 2000M 2000H	1001CI	1002C	100.0P	1004TU STE	100514 STE	10065) STE	1007S	100814 STE	100954 STE	1010RE ATE	1011CC STE	1012AL STE	1013AU STE	1014AL STE	2001CF STE	2002AP STE	2003DE ATE	515 2	5002P4 STE	S003P4	5001Ar ATE	60021V Atf

153

•

•

002	20002	60			2	r,		
A00 JULCOD.	1114	120	341	r				
ATF 15	Ś	40.0	151	0006	t	-	~	s
500441C40		Υ. Η	I H					
40051v071		413	9:5- -	0007	4	-	•	Λ
A1E 15	i v	-	1064	0000	3		~	J
5004M16 11	4.41	114	1 01	Ś		•	•	•
ALT1 5		J.						
6666								
JODIECCM I	519	ŕ	152	ŝ	~	~		
9949								
10010001	14001	_						
10001002	27R63	_						
10001003	25974							
10001004	12943	_						
10001005	19891							
10001006	11741							
10001007	15686							
10001004	22650	_						
10001009	12440	-						
01010001	44405	_						
10001011	HIHNS	_						
10001012	32541							
£101000f	14892							
1000104	21968	_						
20002001	58850	_						
2002002	92126	_						
20002003	120522							
10060006	12472	_						
50005001	14350	_						
50050002	30286							
50005003	56122	_						
60006001	151371							
<b>6006002</b>	219843							
60006003	660162	_						
<b>40004004</b>	205617							
<b>6004001</b>	178200	_						
2004004	2213457	_						
0000								

,

MAIN OUTPUT FILE

87/01/24 UATE V F R S I O N

•

:

,

.

:

••••

A7/09/02. DATE NNH

THIS IS A SCREENING RUN

REPAIR MODULES DRG LOWFST ECHELON TO HEPAIR FND ITEM REPAIR COMPONENTS ORG ORG LOWEST ECHELON TO Schefn Cumponfints Screen Mudules DSU DSU

END ITEM INFORMATION

,

END ITFM SINCGARS V	PRICE B325.	LIFE (YEARS) , 15	0PERAT1NG H0URS 730.	MTHF (HOURS) 700.	MTR (HOURS) •25	AVAILARILITY Target .950	UNSERVICEARLE Return rate 1.00	FALSE REMOVAL DEFAULT .50
TAT DEFA URG D' 1.	ULTS (USE( 51) 6SU 3. 30.	D ONLY IF DEP 120.	TAT IS NUT INPU	T WITH EACH	COMPONENT	T OR MOULED		

DETECTION FRACTION DEFAULT .80 TAT DEFAULTS FOR SCREENING 1. 1. 15. 60. THERE APE NO TEST EQUIPMENTS OR SPECIAL REPAIRMEN NEEDED TO REPAIR THE END ITEM

## DEPLOYMENT INFORMATION

HSC IVS	rs ci	LAIMANIS		DENSITY	11301-200	05T 051-651	030-033	PL T	CONTACT	0PF B1	ATTNG LFV	fl. ceu
6 V	500.	100.	24 <b>.</b>	2200.	2.0	40.0	0*0*	510.0	760.0	15.0	30.0	90°0
	<b>† •</b> <del>1</del>	AVERAGE 22.0	2.16 2.10									
	1210 USU-0900 •1	ANCE (MI DSU	LES) RE1 J-65U 250.	WEEN 65U-DEPOT 3500.								
				-	CUST PANAN	4E TERS						
RASE Loaded Prod Fac Effective	046 7.06 11.46 13.95	05 10. 20.	AROR RA1 50 53 79 85	۲5 550 25,01 25,01 29,43	0EP01 17.55 25.01 25.01 29.43							
PEH L8-MI PER POUND	т URG-DSU 171.0. В 0.	44NSP0RT USU • 0	14110N CC J-65U 10034 •09	151 65U-0EPOT 00035 1.23								
			OTHFR	2 COSTS								
IN111AL Catalog 653.40	RECURK CATAL	1NG 06 47	INITIAL HIN 220.16	HE CUHR H IN 35.	1NG 32	HOLDING FHACTION .03	COST HEQUIS 23.	PEH 51710N 78	COST PER TECH 300	PAGE OF DOC .00		
		CC	JST PARAM	AETERS IN T (PVF =	ERMS UF PI 7.9863835	RESENT VAL	ŪĒ					
LAHOR 0R( 111.4	НАТЕ (РН 5 0SU •4 167.16	ESENT VA 650 235.01	4LUE) DEPOT 235.01									
TUANCE	NOTATION	1 T202	JDE CENT V	( 41 11E 1								

157

THANSPONTATION COST (PRESENT VALUE) 0RG-DSU DSU-GSU GSU-DEP •66 •68 9.78

COSNSN COSHIN 1795.86 502.24

С054£0 149.92

ALAU IN MALINE I LETT

E GUTPMENT NUMBER

NAMF COMMON F	DE VE	.L.ОРМЕ NT 0.	USFFUL LIFE 15	COMMUN AHOVF DHG	NUT ALLOWED F 050	AEL OW FOR	אן אט אן אט אט
	PAPAME TE45	BY ECHELUN					
	ECHELON	UNIT CUST	MAINTENANCE	INSTALLATION	AVAILAHLE TEST HOUDS	PRESENT VALUE	
	NŝU	34990.	-27	• •	1768. 1764	110440.	
	65U DE P	34990. 34990.	.21	•••	1763.	110440.	
EUUTPMENT	L NUMBER	0					
NAMF USM-4]0	ne ve	LOPMENT 0.	USEFUL LIFE 15	CUMMUN AROVF USU	NUT ALLOWED 1 (551)	RELOW FOR	י REPAIN חארץ אח
	PARAMETER	S 4Y ECHELON					
	ECHELON	UNIT COST	MAINTENANCE E ACTOR	INSTALL ATION	AVATLAHLF TEST HOURS	PUESFUT VALUF	
	05 P	1724000. 1145000.	.10	•••	1500. 1500.	3100853. 2059441.	
EQUIPMEN	I NUMBER	ſ					
NAME USM-465	DEV	0. 0.	USEFUL LIFE 15	COMMON ABOVE DSU	NOT ALLOWED 65U	BELOW FU	REPAIR ONLY NO
	PARAME TE R	S BY ECHELON	-				
	ECHELON	UNIT COST	MAINTENANCE EACTOR	INSTALLATION	AVAILABLE TEST HOURS	PHE SENT VALUE	
	65U 0EP	71000.	.10	•••	1500.	127703. 127703.	
EOUIPMEN	11 NUMBER	5					
NAME REP VAN	DE V	IELOPMENT 0.	USEFUL LIFE 15	COMMON AHOVE DSU	NOT ALLOWED 65U	HELOM FO	R REPAIR ONLY YES
	PARAME TEH	IS BY ECHELO	7				
	ECHELON	UNIT COST	MAINTENANCE	INSTALL AT 1914	AVAILAHLE TEST HOUPS	PPFSEUT VALUE	
	650 050	193750. 30000	• 10	• • • •	1500. 1500.	344444. 53952	
EQUIPMEN	UT NUMBER	5					
NAM MARATH(	E DEI	VELOPMENT 0.	USEFUL LIFE 15	COMMON AROVE DEP	010 AU 04F0 050	BFL0+ F0	HP REPATE ONLY NO
	PAPAME TEF	45 BY ECHELO	z				

1111 1111

no idrivit

.

FOR UFPALR ON Y NOT ALLOWED RELOW FIRE REPAIR ONLY FOR REPAIR ONLY FOR REPAIR ONLY FOR REPAIR ONLY ŝ ŝ 01. QN ç VALUE 205045. VALUE 156482. 441411. 447431. RLOHZH. 97126. R60R2H. VALUE PRESENT TN 32 344 PRESENT 1N32344 PRE SFNT VAL UE VALUE. NOT ALLAWED HELOW NOT ALLOWED RELOW NUT ALLOWED HELOW NOT ALLOWFU RELOW DEP 055 d 30 DEP AVAILAHLF TEST HOURS 1500. AVAILARLE Test Hours 1500. AVAILABLE TEST HOURS 1500. AVATLAHLE TEST HOURS 1500. TEST HODRS AVAILARLE TEST HOURS 1500. 1500. 1500. INSTALLATION **INSTALLATION** INSTALLATION INSTALLATION INSTALLATION COMMON AHOVE DEP COMMON ABOVE DEP COMMON AHOVE DLP COMMON ABOVE DEP CUMMON ABOVE DEP • • ; ..... • • • • MAINTENANCE FACTOR -10 MAINTENANCE MAINTENANCE FACTOR MAINTENANCE FACTOR MAINTENANCE. USFFUL LIFE 15 USFFUL LIFE 15 HSFFUL LIFE 15 USEFUL LIFE 15 USEFUL LIFE 15 FACTOR FACTOR HOL DV 1 ÷... .10 .10 .10 .10 PARAMETERS BY ECHELON PARAMETERS BY ECHELON PARAMETERS BY ECHELON PARAMETERS BY ECHELON PAHAMETERS BY ECHELON UNIT COST UNIT COST UNIT COST UNIT COST UNIT COST 271000. 47H500. A7000. 112000. 478600. 54000. 114000. DE VELOPMENT DEVELOPMENT 0. . : DE VEL UPMENT . DE VELOPMENT • DEVELOPMENT ¢ EQUIPMENT NUMMER 10 EQUIPMENT NUMBER 11 EQUIPMENT NUMBER 7 EGUIPMENT NUMBER 9 ECHELON ECHELON ECHELON ECHELON EUUIPMENT NUMBER ECHELUN DEP 050 050 139 130 DEP IJЕР 0E P AC STATION MAHATHONST IF STATION NAME ' TUNER STA NAME NAME NAME NAME SYN STA

k

159

VAL 114 201447

21 Advisor to the total of

ł

Vant Facil Sta	DF VELOPMENT 0.	USFFUL LIFE 15	СОММОN АВОУЕ DEP	NOT ALLOWED DEP	RELOW FOR	8FPAJU 0NLY NO 410
PARAMF	ТЕРЅ НУ ЕСНЕГОМ	-				
ECHFLO	N UNIT COST	MA JNTENANCE	INSTALLATION	AVAJLAHLF	PHF SENT	
υEΡ	114000.	FACTOR .10	• 0	TEST HOURS 1500.	VALUE 212239.	
EQUIPMENT NUMBE	EL H					
NAME Pa Sta	05 VE L OPMENT	USEFUL LIFE 15	CUMMON ABOVE DEP	NOT ALLOWED	RELOW FOR	RFMALR ONLY NO
PARAME	TERS BY ECHELUN	_				
ECHELO	N UNIT COST	MAINTENANCE	INSTALLATION	AVAILAHLE	PRFSFNT	
θBU	10000	• 10 ·	•0	1500.	VALUE 53454.	
EQUIPMENT NUMME	۶۱ <b>۲</b>					
NAME Switch sta	DE VELOPMENT 0.	USEFUL LIFE 15	CUMMON AROVE DEP	NOT ALLOWED DEP	HELOW FOR	REPALR ONLY NO
рарам	TERS BY ECHELON	_				
ECHFLO	N UNIT COST	MAINTENANCE	INSTALLATION	AVAILABLE	PHESFNT	
13(I)	54000	• aCFOR	• 0	1551 HOURS	VALUE 97126.	
FULLPMENT NUMBE	Р 15-					
NAMF AUDIO I/U	nEvel,∩PMENT 0.	USEFUL LIFE 15	СОММОN АНОVE ВЕР	NOT ALLOWED DEP	HELOW FOR	PEPAIR ONLY
ранаме	TERS BY ECHELON	-				
ECHELO	N UNIT COST	MAINTENANCE	INSTALLATION	AVAILABLE TECT HUNDE	PHE SENT	
1)FP	62000.	.10	0.	1500.	VALUE 111516.	
OUTPMENT NUMBE	4 17					
NAME AUD CON ST	DEVELOPMENT 0.	USEFUL LIFE 15	COMMON AROVE DEP	NOT ALLOWED DEP	HELOW FOR	04 מניסעוא מארא
PARAME	TERS BY ECHELON	-				
ECHELC	NULT COST	MAINTENANCE EACTOR	INSTALLATION	AVA 11 AHI F	PEFSENT MANA	
d 3(t	62000.	• 10	• 0	1500.	111516.	
SULPMENT NUMBE	R 18					
NAME Audi PS STA	DEVELOPMENT 0.	USFFUL LIFE 15	COMMON AROVE DEP	a sa a sa tina tan	an wû Fa	PLP DIL PLPATR ONLY

	ECHELON	UNLT COST	MA INTENANCE	INSTALLATION	AVAILAHI.F	TN 35 3Hd	
	nFP	58000.	F ACTOR .10	•0	1551 HOURS 1500.	VALUE 194321.	
EQUIPMEN	T NUMBER 19						
NAME	DEVE	LOPMENT	USEFUL LIFE	COMMON ABOVE	NOT ALLOWED	HELOW FOD	REPAIR ONLY
TWO WIR	F S	••0	15	DEP	ŊFP		0N
	PARAMETERS	HY ECHELON					
	ECHELON	UNIT COST	MAINTENANCE	INSTALLATION	AVAILABLE TEET NOUDE	Paf SFNT	
	05P	47000.	• 10	• 0	1500.	VALUE 84536.	
EQUIPMEN	55 HJEMUN T						
NAME UNE WAT	DEVE	LOPMENT 0.	USEFUL LIFE 15	CUMMON AHOVE DEP	NOT ALLOWED DEP	HELOW FOR	PEPALH ONLY NO
	PARAME TE45	BY ECHELUN					
	ECHELON	UNIT COST	MAINTENANCE	INSTALLATION	AVA]LABLE Teet under	PHF SENT	
	nEP	44000.	- 10 - 10	0.	1500. 1500.	79140.	
EQUIPMEN	T NUMHER 23						
NAME VEH PS	DEVE	LOPMENT 0.	USEFUL LIFE 15	COMMON ABOVE DEP	NUT ALLOWED DEP	RELOW FOR	PEPAIR ONLY NO
	PANAME TERS	BY ECHELON					
	ECHELON	UNIT COST	MAINTENANCE	INSTALLATION	AVAILABLE TECT MOUNC	PHESENT VALUE	
	ŊĘP	43000.	.10	• 0	1500.	77341.	
NƏMAINDƏ	T NUMBER 25						
NAME Pa C4a	STA DEVE	.LOPMENT 0.	USEFUL LIFE 15	COMMON ABOVE DEP	NOT ALLOWED	HELOW FUR	REPAIR ONLY ND
	PARAME TE RS	HA ECHELON					
	ECHELON	UNIT COST	MAINTENANCE Eactor	INSTALL ATTON	AVAILARLE TEST MOUDS	PUFSENT VALUE	
	DEP	45000.	.10	• 0	1500.	R0934.	
NJMAINDJ	T NUMBER 26	_					
NAME Amp HD	DEVE STA	LOPMENT 0.	USFFUL LIFE 15	COMMON AROVE DE P	NOT ALLOWED DEP	HELOW FOR	PEPAIR ONLY NO
	PARAMETERS	BY ECHELON					
	ECHELON	UNIT COST	MAINTENANCE FACTOH	INSTALLATION	AVAILANIF TEST HOUPS	PPE SENT VALUE	
	DEP	45000.	.10	• c	1500.	+0.4 HV.	

22 A HUNDA TH AMALONA

ŀ

NAMF SCHFENFI	r DF c	LUPMENT 500.	USEFUL LIFE 15	COMMON AROVE DEP	NUT ALLOWFD DRG	BELOW FOR	1 REPAIR NO	ONL Y
	PANAME TE R	S НҮ ЕСНЕLON	_					
	ECHELON	UNIT COST	MAINTENANCE FACTOR	INSTALLATION	AVAILARLE TEST MOURS	PRESENT VALUE		
	()a()	120.	12.	•0	1400.	379.		
	050	120.	12.	0.	1400.	374.		
	651	120.	.27	0.	1 HOO.	319.		
	0F P	120.	.21	•0	1800.	379.		
NAME SCHEEN H	DE VE	EL OPMENT 700.	USEFUL LIFE 15	COMMON AROVE DEP	NOT ALLOWED Org	HELOW FOR	REPALR N()	טאך ץ
	PAPAME TE R	S HY ECHELON	_					
	ECHELON	UNIT COST	MAINTENANCE Factor	INSTALL ATION	AVATI.AHLE IF ST HOUPS	PRFSFNT Value		
	940	130.	.27	•0	1500.	410.		
	050	130.	.27	۰ <b>.</b>	1500.	410.		
	650	130.	12.	•0	1500.	410.		
	DEP	130.	.21	•	1500.	410.		

HOLLEMAN INL INFORMATION

NUMPER OF SCHEENING FOUID/REP WIMBER OF SCHEENING FOULP/REP dandinos su estimiti TPS MAINT TPS PV NUMBER OF EQUIP/94P .00 493000. 2 AIMMAR OF FUILP/PED NUMAER OF EQUIPIRED 21 M NUM AL T ALT NUM AL I ---<del>م</del> FALSF TAT HEMOVAL OHG USH USH DFP +6:00001 0HG 151 USH 050 FALSE TAT HEMOVAL ORG DSU GSU DEP +50 1. 3. 30.120. 046 PSU 65U PEP 1. 3. 30.120. 046 DSU 650 DFP 1. 3. 30. 120. PV 30000. 40000 1P5 MAINI 1P5 PV .00 43290. ۸d 1PS MAINE TPS PA TAT 111 TPS MAINT TPS PV .00 0. באה דה באה דף? 1)5 VEL אאדיאד 40000- 00 END TO END TPS DEVEL MAINT 30000. .00 F AL SF. REMOVAL F AL SF REMOVAL •50 . 10 • 00 0،۲۰ HAS WASH WFIGHT ESS HAS WASH 010. 020. 1PS DEV 893000. c WASH 010. TPS DEV .010 WASH 1PS 0EV 0. 43200. 7PS DEV DE LECTION FRACTION DETECTION FHACTION ÛN HAS NSN HAS Ngn 0N N 0<u>7</u> NSN 0N NSN UNIT WEIGHT ESS PRICE UNIT WEIGHT ESS PRICE wf [(,HT E 5S 1960. 42.50 1 . 75 1 . 80 . ЧО DIAG TIME PAGES .00 \$163. 10.50 1 9.50 1 PAGES ALT# NAME • MITR UIAG TIME PAGES 1 ATE 1.50 •50 0. NAME MITH UIAG TIME PAGES ALTI .50 .00 56. TIME USED TIME USED • 20 10. THIS ITEM IS A CANDIDATE FOR SCHEENING THIS TTEM IS A CANDIDATE FOR SCHEENING FO/HEP NUM TIME USED EQ/HEP NUM TIME USE() NAME MITR DIAG TIME Ate 1.50 .50 EQ/REP_NUM______15ED 4_______1_00 EU/PEP NUM TIME USED 1 .50 869. UNIT PRICE ۰5۰ 1009. .50 UNIT PHICE 1. 1. 15. 60. 1. 1. 15. 60. SCRN TIME SCREEN TAT NAME MITR •50 SCRN TIME SCREEN TAT HEF COMP COMP COMPONENT NUM NUM 11) NAME 2 2 2000 PWER AMP 4 5000 VEH MOUNT SCREENING EQTREP NUM HEF COMP COMP COMP ONF.NT NUM NUM TO 11AME HEF COMP COMP COMPONENT NUM NUM 11 NAME 3 3 3000 ECCM SCHFFNING EQ/REP NUM 24 HEF CUMP CUMP COMPONENT NUM NUM 1U NAME 1 1 1000 RT AL 1 1 AL T * • 20 ALTW ALTH .10 ~ _ 3

TPS MAINT TPS PV NUMHER OF EQUIP/PFD .00 0. 1. 1 FALSE FAT NUV HEMOVAL OHK ()SU GSU DFP ALT •50 1. 3. 30. 120. 1 1P5 0EV 0. UNIT WEIGHT ESS HAS WASH PHICE NSN NSN H40. 3.50 1 NO .010 ALT HAME MITH UJAG TIME PAGES 1 ALTI .50 .00 56. FOZREP NUM TIME USED 1 • 50 HIF COMP COMP COMPONENT NUM NUM 10 110 114ME 5 5 6000 1VMC0

STRANDAMO2 DOUASY

FALLUHE S
MTHF 14752. 2775. 18440.
NFW PANTS 1 2 1 1
T0TAL PARTS 1 3 1
FALSE REMOVAL 50 50 50
f. 55 1 1 1
WE 1GH1 . 80 2.43 1.50
AVERAGE PRICE 76. 112. 115.
COMPONENT NAME MAN ANT VEN ANT HAT CASF
COMP 10 7000 8000 9000
R 46 RUM RUM
АС И С И С И С И С И С И С И И С И С И С

THERE ARE & COMPONENTS

NOI
-
NMAD
-
Z
_
Ľ,
-
-
Ξ
-
Σ

РАНТЅ CUST РЕН ВЕРАТН PARTS COST PER REPAIR 25.00 PARTS COST PFR Repair 25.00 25,00 NUMBER OF SCREENING EQUIP/REP NUMHER OF SCHEENING EQUIP/RFP NUMMER OF SCREENING FOUIP/RED NIJM IJI MUN ALT IJI W PARTS NUM NUM OF ALT NEW PARTS NUM OF NEW PARTS 44. 14. 13. иимнғи бғ ЕФПР/н£р 2 TPS PV NUMMER OF EQUIP/REP 478200. 2 NIMMEN OF EQUIPINED ~ NUM AL T --~ 086 050 650 650 0FP FALSE TAT Removal urg dsu gsu dep •50 1. 3. 30. 120. FALSE TAT REMOVAL DHG DSU GSU DEP •50 1. 3. 10. 120. ۰0004 PV 40000. 40000 V TAT TPS MAINT TPS PV •00 233700. 2 1PS MAINT 1PS PV •00 51000. END TO END TPS END TO END TPS DEVEL MAINT 40000. .00 END TO END TPS • 00 MA [N] 00. FALSE REMUVAL .50 TPS MAINT .00 DEVEL 40000. UF VEL 40000. HAS WASH NSN N0 .050 TPS 0EV 233700. HAS WASH NSN 1PS DEV 478200. NO .050 HAS WASH NSN .050 1PS DEV 51000. DETECTION FRACTION DETECTION FRACTION DETECTION FHACTION ç WFIGHT ESS UNIT WEIGHT ESS PRICE 1 00.5 WEIGHT ESS .80 •42 I ALT# NAME MITR DIAGTIME PAGES 1 ALTI 1.50 .50 0. .θ0 1 2**4**. ALT# NAME MITR DIAGTIME PAGES 1 ATE 1.50 .50 0. .80 MTTR ULAG TIME PAGES 1.25 .25 0. 11ME USED •20 TIME USED .20 THIS ITEM IS A CANDIDATE FOR SCREENING THIS ITEM IS A CANDIDATE FOR SCHEFNING THIS ITEM IS A CANDIDATE FOR SCREENING EQ/HEP NUM TIME USED 4 1.00 1409. EU/REP NUM TIME USED EQ/PEP NUM TIME USEN 382. UNIT PRICE .50 .50 UNIT PRICE 190. °2. 1. 1. 15. 60. 1. 1. 15. 60. .20 1. 1. 15. 60. SCREEN TAT SCHEEN TAT SCRN TIME SCREEN TAT HEF MID MOD MODULE NUM NIJ ID NAME Y 1 1001 CHASIS SCREENING EQ/REP NUM SCREENING EQTHEP NUM REF MOD MOD MODULE NUM NUM ID NAME 10 2 1002 CONTROL HEF MOD MU'I MODULE NUM NUM ID NAME 11 3 1003 PWR ASSY NAME STF 13 ٢5 . SCAN TIME SCHN 11ME ۰20 • 20 ALT -

TIME USED

SCRFENING EUZREP NUM

11

NUM NUM	UNUN 4	1004 NUL	MODIFLE NAME TINER/MIX	UNIT PRICE 194.	ме 1 с.н	T ESS 42 1	HAS NSN NO	ма5н • 050	FALSF HEMOVAL •50	TAT 086 050 1. 3.	650 DEP 30. 120.	NIJM AL T 1	NUM OF NEW PARTS 29.	РАНТ5 СИ5Т Рек Rf Рати 25.00
	AL		NAME MT1 51E 1.0	14 01A6 11	a Uj	AGE S 0.	1PS 5	DEV 2500.	TPS MA[NT .00	1PS PV 52500.	SHMIN	2 0F EQU 2	I P / Rt P	
			F0/HEP NUM 4 10	11ME USE 1.00 .25	Q									
-	I SIH.	TEM L'	S A CANDIDATE	E FOR SCHEE	NING									
	SCRN	TIME	SCREEN.	TAT	DE TE	CTION FR	ACTION	_	ENU TO	END TPS	-02 20	48ER OF	SCREENING EG	ULP/REP
		• 20	1. 1.	15. 60.		.80		-	40000 ·	00 40	.000		-	
	SCREI	FNING	EQ/HEP NUM 27		114E US .20	ED								
13	MUN I NUN I	400 10 1005	MOUULE NAME IF DEMOD	UNIT PHICE 359.	wE 16H	11 ESS 42 1	HAS NSN NO	WASH .050	F AL SF REMOVAL •50	та Онб DSU 1. 3.	T 65U DEP 30. 120.	NUM ALT 1	NUM OF NEW PARTS 19.	РАНТЅ СОST РЕН РЕРАТР 25.00
	<		NAME MT STE I.	TR DIAG T 25 • 25	1 ME P	.AGF 5 0.	d L	5 UEV 54000.	TPS MAINT .00	TPS PV 54000.	BBMUN	R OF EOU	lp/964	
			EQ/REP NUM 4 9	11ME US 1.00 .25	ED									
-	1 2141	TEM 1	S A CANDIDAT	E FUR SCRE	ENING									
	NHDS	1 T I ME	SCHEEN	TAT VE 60	0616	ECTION FF	ACTIO	z	END TO DEVEL MA	END 7PS	V. V.	MAER OF	SCREENING E	QUTP/RFP
			1. 1.	• ^ • • • • • • •		•								
	SCRE	ENING	EQTREP NUM		TIME ()'	SED								
NUN N	Н МО М NUM 6	MUF 1006	MODULE NAME FXCITER	UNIT PHICE 965.	WEIG	HT ESS •42 1	HAS NSN MO	MASH .050	FALSF HEMOVAL •50	TA 086 DSU 1. 3.	1 65U DFF 30. 120.	NUM ALT	NUM OF NEW PARTS RO.	PANTS COST PEN REPAIN 25.00
	-1	AL T#	NAME MI STE 1.	118 DIAG 1 25 25	LIME -	PAGES 0.	41	S DEV 87000.	TPS MAINI .00	TPS PV 87000.	NUMBE	R OF EU	J1P7REP	
			ED/REP NUM 4 12	TIME U 1.00	5E0									
	THIS I	I TEM	IS & CANDIDA	TE FOR SCRF	ENING									
	SCR	MI 1	SCREEN	1 ^ 1	DE T	ECTION F	RACTIO	Z	Erib TO DEVEL M	FND TPS	2	јмнға оғ	SCREENING F	(ji][p/kFp
		• 20	1. 1.	15. 60.		.80			40000.	· 00	• 6 0 0 0		-	
	SCRI	EENIN	6 EQ/REP NUM 21		TIME U .20	ISED								
ű.	F MOD	ic <b>m</b>		11417 1	51.30	11 F C C	n v c	11761	1 11 1				1	トレビビー シレー・ビ

MUN MUN 1 SI	(1) (1)	NAME SYNTHE SI S	-1- РИТСЕ 540.	≠ 1001.1+ 542	- z -		020	ו אראד אבאטעאנ גיז אינייי	086 1.	141 0-0-0 1 <b>-0</b>	50 DEP	AL F	NIM OF NEW PARTS N2.	РАНТА СОЗТ Рен Ренати 25.00
A L		NAME MITH STE 1.29	25 • 25	IF PAGES		1PS DI 630	£V 00.	TPS MAINI •00	5-1 1-9	PV 000	NUMAF	2 (1F EGI	a tr/alf	
	-	EQ/REP NIJM 4 11	TIME USE 1.00 .25											
<b>THIS 11</b>	EM 15	A CANDIUATE	FUR SCHEET	9N16										
NHOS	1 I ME	SCREEN TI	A T	DETECTION	V FRAC	1 I ON	ŝ	END TO	END TF	ž	'nN	HFP OF	SCHEENING F	a'38/alik
•	20	1. 1.	15. 60.	•	ÛH		<u> </u>	1 VEL MA 0000	100	1004	0.		1	
SCRFEI	- SNIN	EQ.REP NUM	F	[ME USED .20										
REF MOU NUM NUM 16 R	MON 10 1008	MODULE NAME THO-WIRE	UNIT PRICE 171.	ME.16HT 1 •42	н и и и и	A S S S S S S S S S S S S S S S S S S S	АSH 050	FALSE Removal .50	ов6 1.	TAT DSU 6 3. J	SU DEP 0. 120.	NIIM ALT I	NUM OF NEW PANTS 15.	PARTS COST PER REPAIN 25.00
<b>.</b>	1 1 1 1 1	NAME MITH SIE 1.29	4 DIAG TI	HE PAGES		1P5 D 475	EV 00.	TPS MAINT .00	1 P S	500.	NUMREJ	2 OF EQ	d Jazaln	
	-	EQ/REP NUM 4 19	TIME USEI 1.00 .25	0										
1HIS 111	EM IS	A CANDIDATE	FUR SCREET	5N 1 v										
SCHN	3W I 1	SCREEN T	AT	DETECTIO	N FHAC	110N	C	END TO	ENU TF	s.	INN	ЧРЕН ПГ	SCHENING E	JU1P∕REP
•	20	1. 1.	15. 60.	•	80		24	0000	00	0004	.0		1	
SCREE	NING 2	EQ/REP NUM 1	F	1ME USED •20										
REF MOD NUM NUM 17 9	400 1009	MODULE NAME SW ASSY	UNIT PRICE 406.	WE 16HT	ESS H I	N N N N N N N N N N N N N N N N N N N	145H 050	FALSE PEMOVAL •50	086 1.	TAT 050 6 3. 3	SU DEP 0.120.	NUM AL T 1	NUM OF NEW PARTS 19.	PARTS COST PER PEPAIH 25.00
AL	*	NAME MITI STE 1.2	R DIAG 11	ME PAGES	•	069 0	6 V 0 D •	100 . 00	100 2,5	. PV	Jawin	R OF EO 2	UIP/REP	
		EQ/REP NUM 4 15	TIME USE 1.00 .25	c										
THIS IT	EMIS	A CANDIDATE	FOR SCREF	9n I n										
SCRN	1 I ME	SCREEN T	AT	DETECTIO	N FHAC	1104	5	END TO	FND TH	رم الالال	Ĩ	yuf R OF	SCHEENING E	d3k/d1nt
÷	20	l. l.	15. 60.	•	04		23	0000.	0	1004	<b>.</b>		_	
SCREE	NING 2	EU/REP NUM	F	IME USED .20										
REF MOD NUM NUM 18 10	M0() 10 1010	MODULE NAME REMOTF 1/0	UNIT PRICE 243.	WE I 6H I • 4 2	E55 H 	M SN W SN	45H	F AL 4F RF MOV AL • 30			fort for	1 JA 1	NIM OF 14 PANTS 4.	PARTS COST PER Repair 25.00

PANTS COST PER REPAIR PAHTS COST PER RFPAIN PANTS COST PER REPAIN 25.00 25.00 25.00 MINIMEN OF SCHEENING FOUTD/REP NUMBER OF SCREENING FOULP/DED NUMHER OF SCREENING FOULP/REP NUM NUM OF ALT NEW PAPTS NUM NUM OF ALT NEW PARTS 1 7. NUM NUM OF ALT NEW PARTS 17. 10. d tezalnoj je ajumin NUMBER OF FOULP/NED NUMBER OF EQUIP/REP FULMAR I2 OF EQUIDIZARD -----~ ~ FALSE TAI REMOVAL OPG DSU GSU DFP •50 1. 3. 30. 120. FALSE 141 HEMOVAL ORG DSU USU DEP +50 1. 3. 30.120. ۸d , PV 40000. 40000° DEVEL MAINT PV 60000. .00 60000. 1PS MAINT TPS PV •00 63000. 105 40141 105 0V .00 366900. 51000. TPS MAINT TPS PV .00 51000. TPS MALIE TESS PV 2000 Assesse END TO FNU TPS L MAINT 0. .00 4 END TO END TPS DEVEL MAINT 40000. .00 END TO END TPS 125 DEV 366900. UNIT WEIGHT ESS HAS WASH PPICE NSN 1PS DEV 51000. NO .050 HAS WASH 040. ON HAS WASH 070°00 63000. TPS DEV 45000. 11:5 DF V DETECTION FRACTION DETECTION FHACTION DETECTION FRACTION NSN NSN NSN WEIGHT ESS UNIT WEIGHT ESS PRICE PAGES 0. •42 l . НО .80 . 40 1 2**7**. 271. .42 ] NAME WITR DIAG TIME PAGES STE 1.25 .25 0. ÷. MTTR DIAG TIME PAGES 1.25 .25 n. NAME MITR DIAGTIME PAGES STE 1.25 .25 0. TIME USED TIME USED TIME USED • 20 10. 202. THIS ITEM IS A CANDIDATE FUN SCREENING THIS ITEM IS A CANDIDATE FOR SCREENING THIS ITEM IS A CANDIDATE FOR SCREFNING MIIA DIAG IIM 1.50 .50 EUZREP NUM TIME USED 4 1.00 EQZREP NUM TIME USED 4 1.00 EAZREP NUM TIME USED 4 1.00 1A5. 223. ٥٢. UNIT PRICE • 25 • 25 1. 1. 15. 60. .20 1. 1. 15. 60. .10 1. 1. 15. 60. SCRN TIME SCREEN TAT SCRN TIME SCREEN TAT SCAN TIME SCREEN TAT REF MOD MOD MODULE Num Num [d] Name 19 11 1011 con match SCREENING ED/REP NUM SCHEENING EQ7REP NUM REF MOD MO') MODIILE NUM NUM IU NAME 20 12 1012 AVD PS SCREENING EQ7KEP NUM 28 HEF MOD MON MODULE NUM NUM ID NAME ZI I3 1013 AUN 170 4 1 ria vif A T F ALT# NAME 1 STE 27 , <del>-</del> . 4, 1. 1 AL T # ALTM -• 20

РАНТЅ COST РЕН ВЕРАТЯ 25.00 PAHTS COST PER PEPAIR 25.00 PARTS COST PEP REPA14 25.00 PV NUMHER OF SCHEENING FOULP/REP NUMRER OF SCHEENING FOULPIRED NIJMREN OF SCHEFNING FOUIP/REP NUM OF NEW PARTS NUM OF NEW PAPTS 10. FALSF TAT 1114 NUM UF HEMOVAL ORG 1533 6531 0FP ALT NEW PAHTS -50 1. 3. 30, 120. 1 12. ۲. TPS MAINT TPS PV NUMHER OF EQUIP/HEP •00 60000. 2 TPS MAINT TPS PV NUMMER OF EQUIP/RED • 00 45000. איז איז άξα νν μιμικά οε ευμιργάερ FALSE TAT NUM PEMOVAL ORG DSU GSU DEP ALT •50 1. 3. 30. 120. 1 FALSE TAT NUM HEMOVAL NRG USU GSU DFP ALT •50 1. 3. 30.120. 1 40000 PV 40000. MAINT PV .0000. END TO END TPS ()FVEL MAINT 40000. 00 4 45000. END TO END THS UEVEL MAINT 40000. .00 END TO END TPS .00 00. 105 MAINT .00 DF VEL 40000. HAS WASH NSN ND .050 6000v4 UNIT WFIGHT ESS HAS WASH PRICE NSN NSN 659. 6.00 1 NO 050 NO .050 TPS DEV 45000. TPS DEV UNIT WEIGHI ESS HAS WASH PRICE NSN 1P5 DFV 45000. 10 .050 DETECTION FRACTION ULTECTION FHACTION UETECTION FRACTION UNIT WEIGHT ESS PRICE .Аŋ 1 24. . ВО 6.00 l ALT# NAME MITR UIAG TIME PAGES I STE 1.25 .25 0. .80 ALT# NAME MITH UIAGTIME PAGES 1 STE 1.25 .25 0. 1.75 1 ALT# NAME MITR DIAGTIME PAGES I STE 1.25 .25 0. TIME USED TIME USED TIME USED ٥2. 02· THIS ITEM IS A CANDIDATE FOR SCHEENING THIS ITEM IS A CANDIDATE FOR SCRFENING 02. THIS ITEM IS A CANDIDATE FOR SCREENING EO.REP NUM TIME USED 4 1.00 17 .25 198. EQZREP NUM TIME USED 4 1.00 EUJAEP NUM TIME USED 4 1.00 1. 1. 15. 60. 333. \$**2**• 1. 1. 15. 60. 1. 1. 15. 60. SCHEEN TAT REF MUD MOD MODULE NUM NUM IO NAME 22 14 1014 AUD CON SCHEEN TAT REF MOD MUN MODULE NUM NUM TU NAME 23 15 2001 CHAS FILT SCREEN TAT SCHEENING EQ.REP NUM SCREENING EQZREP NUM SCREFNING EO/HEP NUM REF MOD MOD MODULE NUM NUM ID NAME 24 16 2002 AMP HD ŝ 2 SCAN TIME 2 SCRN TIME 5 •20 SCHN TIME 02. •20

170

11MF USED 1.00

FOZHER NUM

ۍ. ۲

£

THIS ITEM IS A CANDIDATE FOR SCREENING

PARTS COST Per repair PARTS COST PER REPAIR PARTS COST PER REPAIR PAPTS COST PER REPAIR 25.00 25.00 25.00 25.00 NIJMHEP OF SCREENING FOUID/HED NUMBER OF SCREENING FUUIP/REP NIJM OF NEW PARTS NUM OF NEW PARTS NUM OF NEW PARTS NEW PAUTS .01 н0. -22. NIM OF NUMMEN OF EQUIP/4EP 2 NUMBER OF FOULD/RED NUMBER OF EQUIP/REP NUMBER OF FOUTP/BEP ALT NUM ALT NUM PL1 AL T -~ è. ٨ 086 USU 65U DEP 086 DS0 650 DEP 1. 3. 30. 120. 046 DSU 6SU 0FP 1. 3. 30. 120. 086 DSU 65U DFP 3. 30. 120. 3. 30. 120. 40000. 40000. ۶d 1 A 1 TAT 2 TAT TAT 4 3400. 5H500. 106500. 47400. TPS PV V4 S41 TPS PV **TPS PV** END TO END TPS DEVEL MAINT 40000. .00 END TO END TPS DEVEL MAINT 40000. .00 --TPS MAINT **TPS MAINT** TPS MAINT TPS MAINT F AL SE REMOVAL F AL SF. REMOVAL • 00 FALSE REMUVAL • 00 FALSE REMOVAL 00. 00. .50 .50 .50 •50 .050 TPS DFV 104500. • 050 TPS DEV 58500. HAS WASH NSN .050 WASH .050 HAS WASH NSN WASH 43800. 41400. TPS DEV 1PS DFV ULTECTION FRACTION DETECTION FRACTION HAS 0N N 0<u>N</u> NSN 0 Z 0N NSN WEIGHT ESS WEIGHT ESS WEIGHT ESS WEIGHT ESS • 80 .80 1.75 1 5.00 1 1.50 1 26.00 1 PAGE 5 0. PAGES 0. PAGES 0. • PAGES TIME USED TIME USED • 20 .01 THIS ITEM IS A CANDIDATE FOR SCREENING UIAG TIME DIAG TIME DIAG TIME UIAG TIME TIME USED TIME USED TIME USED TIME USED •50 UNIT PHICE • 25 •50 1.00 • 25 1.00 1.00 .50 • 25 406. \$2. 168. 1.00 UNIT PRICE 496. 941. UNIT PHICE 1. 1. 15. 60. PHICE 1. 1. 15. 60. UNIT 411H MTTR 1.25 SCRFEN TAT SCREEN TAT MITR MTTR 1.50 1.25 REF MOD MOD MODUILE NUM NUM IU NAME 28 20 5003 PA CHASIS SCRFENING EQ74EP NUM EQ/REP NUM EQ/REP NUM FO/REP NUM EO/REP NUM SCREENING EQ/REP NUM 27 
 REF
 MOD
 MOD
 MOD/LF

 NUM
 NUM
 10
 NAME

 27
 19
 5002
 PWR
 SUPP
HEF MUD MOD MODULE NUM NUM ID NAME 26 18 5001 ONE-WATT MOD MODULE 10 NAME 
 REF
 MOD
 MOI
 MODULE

 NUM
 NUM
 ID
 NAME

 25
 17
 2003
 DECODER
NAME NAME NAME N 2 \$ NAME 4 22 \$ ATE STE STE ATE ۲ SCHN IIME SCRN TIME AL 1# .10 ALT# ALTH • 20 AL T # ------

171

PARTS COST PER RFPAIR 25.00 PEN REPAIR **PAHTS COST PEH REPAIR** PARIS COST Per Repair PER REPAIN PARTS CUST 24.00 25.00 25.00 25.00 NIJMBER OF SCHEENING FOUIP/REP NIM UF NEW PARTS NEW PARTS NEW PAPTS NFW PARTS ~ 25• . . ~ æ NUM OF NUM OF NUM OF NUM OF THRAFT OF FOULD/REP. NUMPER OF EQUIPZREP NUMBER OF EQUIP/RFP NUMBER OF FOULP/REP NUMBER OF FOULP/REP AL T ۸L F AI, T 114 1 AL T L Ξĩ MIN --۰, r N TAT 046 050 650 0FP 1. 4. 30, 120, FALSE IA' REMOVAL ORG DSU 5SU DEP -50 1. 3. 30.120. HEMOVAL 044 050 050 050 -50 1. 3. 30. 120. 0PG DSU 65U 65D DEP 1. 3. 30. 120. 086 050 650 060 3. 30. 120. 40000. TAT 2 2 IAI ΙΛΊ 195 PV 157800. 44500. 214700. 44200. 104440 7P5 PV 7 PS PV VA 241 TULAN 241 זהל אעריד דויק אין END TO END THS -DEVEL MAINT 40000. .00 • 00 F AL SF HEMUVAL НЕ МUVAL .50 TPS MAINT TPS MAINT TPS MAINT HEMUVAL. • 0 0 • • • • 00 • 0 0 • 0 0 ۰ د د FALSE F AL SE F AL SE .050 •050 1PS DEV 157890. •050 HAS WASH NSN HAS WASH NSN 1P5 DEV 236700. MA'NH 020. UN MASH NO .050 WASH 49200. 106500. 49500. 1PS DEV TPS DEV **TPS DEV UETECTION FRACTION** HAS ΥAS ŝ NSN NSN Ē 0 Z NSN NSN wFIGHT ESS WEIGHT ESS WEIGHT ESS WEIGHT ESS WEIGHT ESS .80 . 96 . .3A 1 1 46. PAGES 0. 1 86. PAGES 0. 2.00 1 PAGES PAGES 0. DIAG TIME PAGES -50 0. TIME USED •20 IHIS ITEM IS A CANDIDATE FUN SCHEFNING TIME USED 1.00 UIAG TIME TIME USED 1.00 UIAG TIME UIAG TIME UIAG TIME TIME USED TIME USED • 20 UNIT PRICE 1.00 .50 • 50 •50 • 50 •1• .50 .50 •50 1.85 1.00 153. 120. 417. PHICE 101 M UNIT UNIT PRICE PRICE 1. 1. 15. 60. UNIT . MTTR MITH 411H 411H 1.50 SCREEN TAT 1.50 MITR 1.50 1.50 1.50 ID NAME 6005 IVRCU CHAS ED/4EP NIM FULREP NUM 23 6003 DECOD/11M ED/VED NUM FO/REP NUM SCREENING EQIREP NUM MODULE NAME MODULE 22 6002 IVRCU PS MODULE MODULE MUDULE NAMĘ NAME NAME NAME NAME ANAL UG NAME 30 \$  $\sim$ 4 \$ MICRO NAME NAME ATE ATF AFF ATE ATF 21 29 21 6001 11) 6004 40M 11 uch U ЧOМ SCRN TIME MOD CON N AL1# 10 ALTW • 20 AL T# ALT# ALTN -----KEF MOU NUM NUM 33 25 HEF 400 NUM NUM REF MUD NUM NUM 30 22 REF MOD NUM NUM 31 23 HEF MOD NUM NUM 32 24

-

PANTS COST PLR RFPAI4 17.00 
 TAF
 NUM
 NUM
 NUM
 OF

 ORG
 USU
 GSU
 DFP
 AL
 NFM
 DATS

 1.
 3.
 30.
 120.
 1
 21.
 21.
NIMMER OF FUUTPZAFP 0 TPS MAINT TPS PV .00 00. F AL SF HEMOVAI • 50 UNIT WFIGHT FSS HAS WASH PRICE NSN 411. 10.00 1 NO .250 1PS 0EV 0. DIAG TIME PAGES .00 5. нттн •50 
 KFF
 M(J)
 M(J)
 M(J)
 M(J)
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 F
 <thF</th>
 <thF</th>
 F
 < ALT# NAME 1 ALT1

Ð

- - - •

Տ 4 ՌՈԺՕԽ ԾՈՒՅՏԺ

NFW PARTS 22
101AL Parts 55
FALSE REMOVAL •50
E 55 1
WE I GHT . 25
AVERAGE PHICE 25.
MODULLE NAME ECCM PTS
M00 10 3001
MUN 27
NUM NUM JS

THERE ARE 27 MODULES

APPL ICATIONS

FAILURFS PER VEAP	.521E-01	.2625-01	.281E-01	.564E-01	.3978.	.6225-01	.445E-01	.322E-01	•569E-01	.1645-01	.253E-01	.224E-01	.4905-01	.332E-01	.124E-01	.791E-02	.606E-02	.5A5E-01	.5095-01	.2416-01	.101E-01	.4RZE-02	.332E-02	.251E-02	.355E-02	.410E-02	.321E-03
MTBF	14007.	27863.	25974.	12943.	18861.	11741.	15686.	22650.	12840.	44405.	28818.	32541.	14892.	21968.	5AB50.	92326.	120522.	12472.	14,350.	30286.	12195.	151371.	219843.	291099.	205617.	178200.	2273457.
MODULE NAME	CHAS I S	CONTROL	PWR ASSY	TUNER/MIX	IF DEMOD	EXCLTER	SYNTHES15	TWO-WIRE	SW ASSY	REMOTE 1/0	CON MATCH	AUD PS	AUD 1/0	AUD CON	CHAS FILT	AMP RD	DECODER	ECCM PTS	ONE-WATT	PWR SUPP	PA CHASIS	ANAL 06	IVRCU PS	DE COD/TIM	MICR0	IVRCU CHAS	MIG TRAT
COMPONF NT NAME	RT	н1	RТ	RI	RT	п	н T	ят	нт	RT	RT	RТ	RI	нт	PWER AMP	PWER AMP	PWER AMP	ECCM	VEH MOUNT	VEH MOUNT	VEH MOUNT	IVRCIJ	IVRCU	I VRCU	JVRCU	IVRCU	VEH MOUNT
00w 10	1001	1002	1003	1004	1005	1006	1007	1008	1009	1010	1011	1012	1013	1014	2001	2002	2003	1006	5001	5002	5003	6001	6002	6003	6004	6005	5004
COMP IU	1000	1000	1000	1000	1000	1000	1000	0001	1000	1000	1000	1000	1000	1000	2000	2000	2000	000C	5000	5000	5000	6000	0009	6000	6000	6000	5000
00H NUN	-	~	-	4	ŝ	÷	~	æ	σ	10	11	12	13	14	15	16	17	27	Iя	19	20	21	22	23	24	22	26
COMP	~	-	٦	~	-	-	-	-	-	-	~	-	-	-	~	~	~	ſ	4	t	ţ	ŝ	S	ۍ	ŝ	ۍ	4
APP	-	2	m	4	ſ	Ŷ	1	æ	•	10	11	12	1	14	15	16	17	18	19	20	21	22	5	54	25	26	27
REF NUM	37	38	96	04	[ •	24	64	44	4 U	46	47	48	49	50	51	52	53	°.	55	56	57	SB	59	6 9	61	62	63

THERE APE 27 APPLICATIONS

175

THERE ARE 1.09 END ITEM FAILURES PER YEAR The derived wire is 669. Hours The input wire is 760. Hours
APEX FOUND OPTIMUM SOLUTION

•

USAMM 11 PRUTOTYPE 2 VERSION DATE 81/07/16/

F

# MAINTENANCE POLICIES BY APPLICATION

.

٢

			•					
44A	COMPONENT	MODULE	ΡE	PAIR LI	EVEL	FRACTION	MODULE	SENSITIVITY
NUM	NAME	NAME	F I	COMP	ЧOМ	OF TIME	PHOMOTED	FLAG
	RT	CHASIS	040	050	650	1.000		
~	нТ	CONTRUL	0HG	050	1055	1.000		
ſ	нT	PWH ASSY	0H0	050	1059	1.000		
4	RI	TUNER/MIX	090	1150	DEP	1.000		
S	RT	IF DEWOD	0H0	020	DEP	1.000		
•	н	EXCITER	0BG	0SU	1)EP	1.000		
1	н	SYNTHE SIS	040	050	DEP	1.000		
T	нт	TWD-WIRE	086	050	1055	1.000		
3	RT	SW ASSY	ORG	nsa	06 P	1.000		
10	RT	REM0TE 1/0	0RG	050	1055	1.000		
11	RT	CON MATCH	ORG	050	1055	1.000		
12	КГ	AIN PS	040	050	1055	1.000		
2	14	AUD 1/0	0RG	050	06P	1.000		
14	RT	AUD CON	086	020	1055	1.000		
15	PWED AMP	CHAS FILT	080	650	05 0	1.000		
16	PUFR AMP	AMP B()	086	6SU	1055	1.000		
17	PWER AMP	DECODER	086	651	1055	1.000		
18	ECCH	ECCM PTS	ORG	6SU	1055	1.000		
19	VEH MOUNT	ONE-WATT	0RG	050	0E P	1.000		
20	VEH MOUNT	PWR SUPP	ORG	050	DEP	1.000		
21	VEH MOUNT	PA CHASIS	OHG	050	1055	1.000		
22	IVRCU	ANALOG	OHG	050	1055	1.000		
23	IVRCU	IVRCU PS	086	050	1055	1.000		
54	I VRCU	DECOU/TIM	ORG	nsa	1055	1.000		
25	I VRCU	MICRO	ORG	nso	1055	1.000		
26	IVRCU	IVRCU CHAS	ORG	050	1055	1.000		
27	VEH MOUNT	MIG TRAT	940	020	1055	1.000		
28	MAN ANT	NONE	080	1055		1.000		
59	VEN ANT	NONE	940	1055		1.000		
00	RAT CASE	NONE	086	1055		1.000		

### SCHEENING POLICIES BY ITEM

COMPONENT NUMBER 3	COMPONENT NAME FCCM	SCREENED AT DSU	REPAIRED AT GSU	FRAC UF TIME 1.0000	SENS FLAG
MOD (REF) NUMBE 9	MUPULE Name	SCREENED A1	REPAIRED AT	FRAC OF TIME	SENS FLAG
σ	CHASIS	nsu	650	1.0000	
10	CONTROL	US(I	1055	1.0000	
11	PWR ASSY	nsu	1055	1.0000	
12	TUNER/MIX	DSU	DEP	1.0000	
5	IF DEMON	. DSU	μEP	1.0000	
14	EXCITER	DSU	DEP	1.0000	
15	STNTHESIS	050	DEP	1.0000	
16	1w0-w1kE	050	1055	1.0000	
17	SW ASSY	DSU	DEP	1.0000	
18	REMOTE 1/0	nSu	1055	1.0000	
19	CON MATCH	050	1055	1.0000	
21	AUD 1/0	05U	DEP	1.0000	
22	AUD CON	nsu	1055	1.0000	
5 <b>6</b>	ONE-WATT	nsu	0EP	1.0000	

•

### PECULIAR FUNIPMENT/REPAIRMAN

ACCUMULATING UTY OF THIS FOULPMENT	UP FCHELONS		_	_	_	-	-	-	-	100
DE VEL OPMENT COST	•0	° c		.0	.0	.0	0.	•0	•0	500.
HARDWK CST (TOTAL PV)	156482.	205045.	201447.	212239.	97126.	111516.	79140.	.17341.	.96939.	37876.
TUT 01Y AT ECH	_	-	-	-	-	1	I	-	-	100
UUANTITY PER SHOP	-	-	-	-	-	-	-	1	-	-
REQUIREMENT PER SHOP	600°	.014	110.	.015	.014	-012	.012	<b>600</b>	• 005	• 002
FCHELON	DEP	υEP	0EP	0EP	DEP	DEP	DEP	05 P	DEP	050
E OU I PMF NT NAME	IF STATION	TUNER STA	SYN STA	EXCIT STA	SWITCH STA	AUD10 1/0	ONE WAT ST	VEH PS STA	PA CHA SIA	SCREENER
EQUIP	σ	10	11	12	15	16	22	53	22	27

1259651. TUTAL PRESENT VALUE OF PECULIAN SPECIAL TEST EQUIPMENT/REPAIMMENTINC. DEVPMT COST) =

# SPECIAL TEST FOULPMENT/REPAIRMEN COMMON AT HIGHER ECHELONS

ACCUMULATING	OTV OF THIS	E OULPHENT	UP ECHELONS	. 40	• 02	• 06	.19	. 14	
I)E VELOPMENT	C05T			•0	•	• •	•0	<b>.</b> 0	
HARDAR CST	(TOTAL PV)			44181.	69554.	1563.	66815.	29555.	
101 017	AT ECH			.40	-02	•0•	61.	• 55	
QUANTITY	PLA SHOP			.004	.001	-002	.00A	• 548	
REQUIREMENT	PER SHOP			•00*	100.	-002	.004	• 54A	
ECHELON				US(I	650	65U	650	DEP	
FOULPMENT	NAME			COMMUN F Q	USM-410	USM-465	REP VAN	REP VAN	
FOULP	NUM			-	2	~	ŧ	4	

TOTAL PRESENT VALUE OF EQUIPMENT/REPAIRMEN WHERE COMMON =

217668.

TOTAL PRESENT VALUE OF SPECIAL TEST EQUIPMENT/REPAIRMEN REQUIRED = 1477319.

1

, ,

•

LUGISTICS CUSTS LOGISTICS COSTS FOR COMPONENTS (PRESENT VALUE).

COMP	COMPONE NT NAME	INITIAL SPARES(S)	CONSUMP. SPARES(\$)	L ABOH C 0 S T	145 COST	0THER . COST	101AL COST
- ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	RT PWER AMP ECCM VEH MOUNT 1VRCU MAN ANT VEN ANT PAT CASE	1.187.490. 50.400 14.3.220. 207.760. 1.680. 35.568. 36.800.	742,646. 7.005. 66.948. 4.0119. 4.051. 99.117. 790.459. 119.984.	99.353. 23.721. 49.024. 15.547. 3.331. 0. 0.	6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	729.593. 61.945. 61.945. 171.661. 171.661. 171.661. 111.444. 111.444. 1172.099. 150.004.	2,759,082 186,261 1,323,854 459,139 459,139 459,139 302,275 302,275 306,788
COMPON	IENT COLUMN TOT	AL S: 1.891.398.	1.874.328.	190,976.	936,200.	2,275,043.	7.167.996.

LUGISTICS COSTS FOR MODULES (PHESENT VALUE).

4

. . . . . . . .

6.470.355.	1.910.735.	611.575.	.001.399	297.747.	1.672.237.	916.962.	E COLUMN TOTALS: -	MODUL
8 8 9 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9		F I I I I I I I	• • • •	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0 6 1 1 1 1 1 1 1	1		
150.947.	104.736.	٥.	•	• 0	34.637.	9.625.	FCCM PTS	12
1.178.	3.102.	•	•0	0.	3 . 4 4 3 .	1.233.	MTG TRAT	92 92
64.121.	9.959.	• °	•0	•0	44.571.	9.591.	IVRCU CHAS	52
28.473.	7.636.	•0	•0	•0	17.137.	3.700.	MICHO	3.0
15+526.	5 + H 7 +		•0	•0	7,852.	1.800.	DECODITIM	5.0
31.250.	19,453.	• c	0.	•0	7.484.	3.413.	I VHCU PS	22
32+718.	9,335.	•0	•0	•0	14.252.	4.131.	ANALOG	12
333,412.	35.781.	•0	.0	0.	248,259.	49.873.	PA CHASIS	20
240.270.	93,830.	3R.25H.	47.400.	16.347.	12.767.	31,668.	PWR SUPP	51
367.146	126.984.	62.263.	58.500.	32.419.	32.917.	54,064.	ONE-WATT	91
19.917.	1.723			•	26.550.	5.544.	DFCODER	11
104-10	10.007	Ċ		0	58.698.	13.986.	AMP H()	16
	- 447.7C	10 007	• 000 • 44	• ~ ~ ~ H	10.648	16.450.	CHAS FILT	
274.137.	92,566.	53.373.	.000.44	JI.238.	1/. 190.	.052.55		
217.542.	51.114.	• U	•0	•	130.526.	35.903.		2
205.181.	47.244.	0.	40.000.	•0	91.297.	26.640.	CON MATCH	~
175.889.	36.679.	•0	40.000.	•	77.426.	21.384.	PEMUTE 1/0	10
383.702.	122.381.	68.325.	69,000.	36.230.	30,113.	57.652.	SH ASSY	<b>?</b>
231.271.	55.004	c	40.000	•0	107.368.	2н.899.	TWO-N PE	£
3A3.440.	134.208.	68.710.	63.000.	29.657.	32,785.	55.080.	SYNTHES IS	~
667.793.	252.873.	118.374.	87.000.	39.622.	18.273.	121.590.	EXCITEN	o
287.653	99.104	51.191.	54.000.	24.665.	18.127.	40.567.	IF DE400	v
385.594	137.563.	75.044.	52,500.	35,942.	28,990.	55,554.	TUNERZMIX	\$
224.065	50.774.	.0	40.000.	•0	160.401	29+260.	PWP ASSY	•
114.990	51.027.	•0	40,000.	•0	194,477.	46.986.	CONTROL	~
R47.276.	244.850.	123,130.	233,700.	43.215.	95.798.	122.583.	CHASIS	-
COST	C05T	C05T	C051	COST	SPAHES (\$)	SPAHES (\$)	NAME	M N N
TOTAL	01468	PANTS	5d1	LAHOH	CONSUMP.	INITIAL	MODIA E	00M

SCHEENING CUSTS & SAVINGS FOR COMPONENTS (FXCLUDING TE/HEPAIMMEN SAVINGS)

COMP NUM 3	COMPONEN NAME ECCM	VT SCHNG LAHOR COST 645P.	REPAIP Savings 2421.	LNGISTICS SAVINGS 42206.	IS TPS ONLY FOR SCREENING? NO
		9 9 1 9 1 4			
COMPONE	NT COLUM	4 TOTALS 6458.	2421.	42204.	

SCREENING COSTS & SAVINGS FOR MOUULFS (EXCLUDING TE/REPAIRMEN SAVINGS)

00M	MODIJLE	SCREENING	REPAIH	L061571C5	IS TPS ONLY
MUN	NAME	C051	SAVINGS	SAVINGS	FOR SCREENING?
-	CHASIS	5692.	2134.	76533.	ON
• •	CONTROL	2862.	•••	106847.	YES
	PWH ASSY	.0100	••	61055.	YES
• -4	TUNE R/M1 X	6160.	2310.	49624.	UN UN
· ·	IF DEMOD	4227.	1585.	41960.	ON
	EXCLIFH	6791.	2546.	.10169	ON
~	SYNTHE SIS	50R3.	1906.	57973.	ÛN
œ	Two-wire	3520.		.67155	YES
. 9-	SW ASSY	6210.	2328.	51269.	ON
01	HEM01F 1/0	1796.	0.	47740.	YES
	CON MATCH	2767.	•0	59331.	YES
	AUD 170	5 154.	2007.	31579.	ON
3	AUD CON	3630.	• •	н1760.	YFS
	ONE -WATT	5556.	20H3.	58153.	ON
MODULE	COLUMN TOTAL	5 6271A.	16899.	907697.	

MID & WID & TUAN AROUND I M

COMPONENT	COMPONE NI	HYAN		Σ	0			Гч	0		ΙA	TINC	SPU WA	[1]
NUMHER	NAME		086	050	650	()E P	980	เกริเม	651	DF P	940	nsu	รง	NEP
-	нт	.010	.000	046.	.000	.000	1.000	• 000	.000	.000	1.0	37.3	30.0	120.0
2	PWER AMP	.010	.000	.000	066.	.000	1.000	• 000	.000	.000	1.0	3.0	15.7	120.0
•	ECCM	.050	.000	.253	164.	.000	1.000	• 000	.000	000.	1.0	1.0	90.0	120.0
4	VEH MOUNT	.010	.000	066.	.000	.000	1.000	.000	• 000	.000	1.0	44.7	30.0	120.0
ŝ	IVRCU	.010	.000	.990	.000	.000	1.000	• 000	.000	.000	1.0	R5.1	30.0	120.0
r	MAN ANT	1.000	.000	.000	.000	.000	1.000	.000	.000	.000	0.	•	••	••
~	VEN ANT	1.000	.000	.000	.000	.000	1.000	.000	.000	• 000	••	•	•	· •
œ	HAT CASE	1.000	• 000	• 0 0 0	.000	• 000	1.000	000.	• 000	• 000	••	د. •	•	•
WASH & M	ID & TAT WITH	OUT SCREE	9NING											
-	нT		.000	066.	•000	.000	1.000	• 000	• 000	.000	1.0	37.3	30.0	120.0
2	PWER AMP	.010	• 000	.000	066.	.000	1.000	.000	.000	.000	1.0	3.0	75.7	120.0
Ē	ECCM	.050	.000	.000	.950	.000	1.000	.000	• 000	.000	1.0	3.0	0.06	120.0
t	VEH MOUNT	.010	.000	066.	.000	.000	1.000	•000	• 000	.000	1.0	44.7	30.0	120.0
Ś	IVRCU	.010	• 000	000.	.000	.000	1.000	• 000	• 000	• 000	1.0	85.1	30.0	120.0
r	MAN ANT	1.000	.000	.000	.000	.000	1.000	• 000	.000	.000	•	••	•	•
1	VEN ANT	1.000	.000	.000	• 000	.000	1.000	• 000	.000	• 000	•	••	•	•
α	HAT CASE	1.000	• 000	• 0 0 0	.000	.000	1.000	• 000	000.	.000	0.	•	•	۰.

1 [ MF	
Q14()()4Q	
NCOL	
~	
() L ()	
æ	

C WAIT SU DEP .8 120.0 .0 120.0		0.051 0. 0.051 0. 0.051 0. 0.051 0.	0 120 0 0 127 1 0 120 0 0 123 5 0 123 5 0 123 5			0 120 0 100 0 120 0 120 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
1AT 1AT 1A 5U 5U 0 94 0 30							
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0							
000 000 000		000 000 000 000	• • • • • • • • • • • • • • • • • • •				
65U 000 000							
RTD 050 1.000 1.000							
000 1 000 1							
()EP 000 000 000	769 769 769	000 000 000	000 269 000 000 000 000	• • • • • • • • • • • • • • • • • • •	000 000 000 000 000 000 000 000 000 00	000 000 000 000 000 000 000 000 000	6000 000 000 000 000 000 000
) 65() •000 •000							
MTL USU 253 253			-000 -000 -000 -000				
000 000 000					00000000000000000000000000000000000000		
4050 • 050 • 147	050 050	020 141 141	1.000 .050 .747 .050 1.000	• • • • • • • • • • • • • • • • • • •	0.11 SCREE 1.000 1.000 0.50 0.50 0.50 0.50 1.000 1.000 1.000		
MODULE NAME CHASIS CONTROL PWP ASSY	TUNERZMIX IF LEMOD EXCITER SYNTHESIS	STNTRESTS TWO-WIKE SW ASSY HEMUTE IZU CON MATCH	AUD PS AUD LZO AUD CON CMAS FILT AMP BD DECODFR	UNE - WATT PWK SUPP PACHASIS ANALOG IVPCU PS UECOUTIM MICRO IVECU CHAS MIG TRAT ECCM PIS	ID & TAT WITHE CHASIS CUASIS CONTROL PWR ASSY TUNEH/MIX TINNEH/MIX TE DEMOD EXCITER SYNTHESIS SYNTHESIS SYNTHESIS SYNTHESIS	HENDIE IN HENDIE IN CON MATCH AUD PS AUD IN AUD CON CHAS FILT AMP HD DECODER UNE WATT	PAR SUPP PA CHASIS ANALOG IVRCU PS DE COUVIIM
					ĩ		

SESAME OUTPUT FOR COMPONENTS

F

4

SPARES

NUMBER	COMPONENT	ALLOW.	ANCES	PER CL	A [ MANT	01Y * UP	FAIL PER END ITEM PER YU
•	NAME	040	050	650	DEPOT		
	r I a	•0	<b>ح</b>	•0	30.	1.187.490.	.419
• ~	PUER AMP	c	•	~	~~ ~	50.400.	. () 4 ()
	WUU I	•0		2.	17.	143.220.	<b>.</b> 0.8.8
3	VEH MOUNT	.0	-	.0	ę.	207.760.	.128
J	IVRCU	• •		.0	~	1.680.	.027
£	MAN ANT		~ ~		244.	35,568.	•074
~	VEN ANT	•0	ۍ• د	2.	432.	76.160.	.134
£	HAT CASE	•0	-	-	196.	36,800.	.059

SESAME OUTPUT FOR MODULFS

-

SPARES

ттем рек үр

NUMRER	MUDULE	ALL	OWANCE S	PER S	CLAIM.	017 * UP	FALL PEN END
	NAME	OHG	050 (	.50	DE POT	•	
1	CHASIS	•0	•		15.	122,583.	.077
2	CONTROL	• •	•	-	. 66	46.986.	950.
m	PWP ASSY	•0	•0	~	106.	29.260.	042
4	TUNERZMIX	•0	••	~	93.	55.554.	0.44
ŝ	IF DEMOD	•0	•0	~~ ~	65.	40.567.	150-
9	EXCITER	<b>د</b> .	•0	-	102.	121.590.	660
-	SYNTHESIS .	••	0.	-	78.	55.080.	.069
8	TWO-WIRE		0.	2.	121.	28,899.	H40.
9	SW ASSY	•••	0.	~ ~	. 76	57.652.	-084
10	REMOTE 1/0	•0	••	_	64.	21.344.	720
11	CON MATCH	•0	•	<b>د</b> .	96.	26.640.	018
12	AUD PS	••	•	~	113.	J5+903.	110
13	AUD I/O	•	<b>.</b> 0	~. ~	82.	35,230.	670.
14	AUD CON	•	•	~	124.	34.056.	. 40
τ	CHAS FILT	•••	• C	•	25.	14.450.	018
16	AMP HD	0.	••	•0	42.	13.986.	210
17	DECODER	•0		0.		5.544.	000
81	ONE-WATT	0.0	0.	-	85.	54.064.	076
6	PWR SUPP	c	0.	<b>-</b>	54.	31.668.	-036
20	PA CHASIS	••	•0	0.	53.	49.873.	-015
21	ANALOG	•0	•0	•	27.	4.131.	2007
22	I VRCU PS	•0	°.	-	19.	3.913.	500
53	DECOD/TIM	••	•	•	15.	1.800.	.004
54	MICHO	•0		•	20.	3.700.	- 005
25	I VRCU CHAS	• •	••	•	23.	9.591.	.006
26	MIG TRAT	•0	••	•	<b>.</b>	1.233.	000
27	ECCM PTS	••	•0	••	7.	175.	.002

LUGISTICS TOTALS

2,969,910.
3.824.916.
711.565.
115.183.
1.866.371.
705.774.
905+035+
488.724.
69.175.
50.400.
1.931.300.
13.638.353.

FOLLOWING SAVINGS ALREADY CONSIDERED IN ABOVE TOTAL

100 LOGISTICS SAVINGS DUE TO SCREEN 949403. REPAIR SAV DUE TO SCREEN 19320. TOTAL COST FUR THIS MAINTENANCE CONCEPT IN TERMS OF PRESENT VALUE

TOTAL LOGISTICS COST		13.638.353
TUTAL TEST EQUIPMENT/REPAIRMAN	COST	1.477.319
	1 1 1 1 1 1	15.115.672

OPERATIONAL AVAILABILITY ACHIEVED .9674

CURVE PARAM USED 4902.6

AND

POLICY FILE

•

1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000	1.0000 1.0000 1.0000 1.0000 1.0000 1.0000			
-~~*****	\$912044	2222222222	24 25 25 25 25 25 25 25 25 25 25 25 25 25	112555 112245 112245 15245 15245 15245 119255 119255 21245 21245 21255 21255 21255 26245
225555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 255555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 255555 255555 255555 255555 255555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 25555 255555 25555 25555 25555 25555 25555 25555 25555 25555 25555 2555	125		125 125 125 125 155 155 155 155 155 155	

OTHER COST BREAKOUT

Ś

193

٠

·· .

WINER LOGISTICS COSTS FOR COMPONENTS (PRESENT VALUE).

COMP	COMPCINENT NAME	HOLDING	TRANSP.	REQ	BIN	CATL06	DOCUM.
-~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	RT PWER AMP ECCM VEH MOUNT VEH MOUNT IVRCU MAN ANT VEN ANT RAT CASE	284.513. 12.075 34.314. 49.778. 403. 403. 54.7 2. 54.7 2. 8.522.	26,866. 2,291. 407. 17,017. 300. 1,453. 23,880. 2,179.	348.893. 33.216. 65.907. 54.597. 11.697. 93.040. 499.750. 74.432.	50.726. 12.556. 62.780. 50.726. 50.726. 502. 62.780. 188.340. 62.780.	1.796. 1.796. 1.796. 1.796. 1.796. 2.348. 1.796.	16.800. 16.800. 16.800. 16.800. 0.
COMPO	NENT COLUMN TOTALS	: •53•164•	74,393.	1.181.532.	491.190.	17.960.	50.400.

OTHER LOGISTICS COSTS FOR MODULES (PHESENT VALUE).

MUN	MUUULE NAME	HOLDING	TRANSP.	PFO	NIA	CATLOG	DOCUM.
1	CHASIS	29,370.	1.272.	25.761.	12,556.	174.199.	<b>.</b> .
~	CONTRUL	11.257.	201.	24.275.	12,554.	1.796.	- -
n	PWR ASSY	7.010.	.106	26.041.	12,556.	1.796.	•0
4	TUNER/MIX	13,310.	1,198.	52.258.	12.556.	52,080.	.0
ŝ	IF DEMOD	9.720.	822.	35.861.	12.556.	35.917.	•0
9	EXCITER	.29.132.	1.321.	57,608.	12.556.	145+465.	•0
7	SYNTHESIS	13.197.	. 586	43.120.	12.556.	59+263.	.0
æ	TWO-NIRE	6.924.	345.	29,862.	12,556.	1.746.	•0
•	SW ASSY	13,813.	1.208.	52,678.	12.556.	35,917.	••
10	REMOTE 1/0	5.123.	176.	15.232.	12.556.	1.796.	
11	CON MATCH	6,383.	272.	23.471.	12.556.	1.796.	• 0
12	AUD PS	8,602.	322.	27.838.	12.556.	1.745.	•0
13	AUD 1/0	A.441.	1.041.	45,419.	12.556.	19.754.	• •
] 4	AUD CON	B,160.	356.	30,789.	12.556.	1.796.	
15	CHAS FILT	3,941.	4.758.	7,696.	502.	19.754.	.0
16	AMP HD	3.351.	442.	4,906.	502.	1.796.	- -
17	DECODER	1,328.	.919.	3,758.	502.	1.796.	.0
81	ONE-WATT	12,953.	12.867.	47,134.	12.556.	35.917.	••
61	PWR SUPP	7.587.	2.472.	29,910.	12.556.	<b>41.</b> 30'.	
20	PA CHASIS	11.949.	8,986.	12.547.	502.	1.796.	
2	ANALOG	.090	63.	5.984.	502.	1,796.	••
22	IVRCU PS	938.	43.	4.121.	12,556.	1.796.	•0
23	DECOD/11M	431.	33.	3,112.	502.	1.796.	•0
54	MICHO	886.	46.	4.406.	502.	1.746.	••
25	I VHCU CHAS	2,298.	280.	5.083.	502.	1.796.	ċ
26	MTG THAT	295.	110.	398.	502.	1.796.	.0
15	ECCM PTS	2,306.	449.	34 . 849 .	27.623.	39.509.	•0
				8 6 8 8 8 8			:
MODULI	E COLUMN TOTALS:						·
		219.695.	40.792.	654,117.	245.593.	687.816.	•0

## LUGISTICS COSTS FOR PARTS (PRESENT VALUE). (PARTS CATALOGING COSTS ARE INCLUDED IN MODULE CATALOGING COSTS)

AIN COST	48.715 14.063 9.543 40.179 15.072 9.543 9.543 5.022 9.543 11.049
REQ COST	30.719. 0. 0. 0. 0. 0. 0. 0. 0.
HOL D COST	2,300 5,031 3,414 7,667 4,552 4,752 1,198 1,198 2,372
CONSUMP. PARTS (S)	32, 295, 32, 395, 32, 950, 33, 950, 33, 528, 33, 34, 528, 33, 34, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 31, 523, 523, 523, 523, 523, 523, 523, 523
INITIAL Parts(\$)	9.600. 21.000. 32.009. 19.200. 19.200. 14.500. 17.100. 9.900.
USED ON MOD. NAME	CHASIS TUNEHZMIX IF DEMOU Exciter Svithesis Sw ASSY AUD I/O CHAS FILT ONE-WATT PWR SUPP
USED ON MOD. NUM	- 4 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6

168.250.

.017.06

38.706.

278.350.

161.550.

PART COLUMN TOTALS:

	33666.62
	37.28 •00 15073.93
1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	LON .00 E TO CTDEL IS: .00 15051.56
94237 94237 94237 9409 9409 94678 96744 96744 96744 96744 96744 96744 96744 96744 96744 96744 96744 96744 96744 96744 96744 96744 96000 96000 96000 96000	SRU BY ECHE IN DAYS! DU ECHELON
9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	FOR IME (
CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE CURVE	10475) 0044 1 18 C05
••••••••••••••••••••••••••••••••••••••	AVE WALT AVERAGE AVE REPA

5

TO OBTAIN AVG PRODUCTIVE REPAIR MRS AT ECHELON K+ DIVIDE BY EFFECTIVE LABOR RATE AT K (SEE PREPROCESSOR)

• 00

### STOCKAGE LISTS

٦,

URGANIZATION UNIT STOCKAGE LIST

THERE ARE NO ITEMS ON LIST

ULNECT SUPPORT UNIT STOCKAGE LIST

TOTAL BOLLAH VALUE OF LIST IS: 13.645.





GMICROCOPY RESOLUTION TEST CHART NATIONAL BUREAU OF STANDARDS-1963-A

··· · · · ·

38 W 75

1

### APPENDIX G

### SAMPLE MULTIPLE REPAIR ALTERNATIVE RUN

Sample input and output files from a multiple repair alternative run are contained in this appendix. While the data was derived from a real system, some of it has been modified to demonstrate certain features of the OSAMM. Thus, no data from this appendix should be used in any other analysis. Furthermore, the data in this appendix should not be compared to that in any of the other sample runs in this manual.



· • · • · • - • · -

----

•— ·

۲	7 30	0700	25 YE	50 l	-			<b>T</b>
י ~	10 40 5	10 760	15 3(	0 30	36000 36000 4614			
220 15	16 35. 1 2	32	ES E0	78 300				
	5 3							
	د ع	-	72400010	1500	1145000101500			
	162		7100010	1500				
			19375010	1500	30000101500			
	n F							
	ر با							
	5							
	4 4							
	4 4							
	5 5							
	4 4							
	, ,							
	4							
	5 5							
	4 4							
	t t							
	4 4							
	r r							
	5 5							
	4							
	5 5							
	•							
	7 \$							
	4							
9	501 1		-					
95	01 1		-					
i.	43200 4 31 050 4	-	2 2					
	930000 4		د م بر در بر بر	ł				
,250	8,0000 4	-	د 106 1	<u>د</u> ح د				
35(	10 1 10	_	-					
	10	_						
8 2 2 8			14752 2726 18440					
_	-	-						

203

....

96		14		6		28		19		80	1	5		L -	\$		6		\$		11		1	•	-		•	-		~		12		-	5	-		22		9.0		ŝ	:	ĩ	ñ.	•	e
55	ž	25	36	52 52		25		25		ۍ ۲	ı	1	Ŋ	ł	ŝ		25		25	20	25		25	, ,	2	0	j,	C)	ļ	22		25		25	5		I	25		25	36	25 25	, a J 1	52	ረን	ļ	5
~	5 04 0	2	ې د. ۲	0 ~ \;	in n L	~ ~	ນີ້	°.	υ,	ເົ	ۍ ۱	ຮິ	ۍ ۲	52	v J	25	~ , ,	s S	~	5 7 4	~	مرب	ŝ	ۍ ۱	52°	ۍ د	52	ົ້	22	~ ∪ 0	32	<u>م</u>	r گ	-	ر م	່ ທ	ζ,	ي. د	, ۲	~	ۍ د ۲	י <b>ר</b> ט ו	υ Γ	- 	, <b>~</b>	م	•
	<b>ر</b> س	n	u ب	n	∼ ŗ	-	~ c	2	~ ~	<b>&gt;</b>	~	12	2	11	^	61	ſ	ν S		~~ J	r	~ '	~	~	18	~	15	•	17	~	25	•	2 v 2		$\sim$	~	22	2	· 2	, ,	m u	n	~	~	J	•	
		-		-		-		-		-	-	-	-	-	-	. –	•				•	~ .	-	-	-	-	-	-		-		•		•	-	-	-			•		~	-		•	-	
	3 3	7	4.	\$	4 4	,	3 4	\$	3.	3	4	\$	4	4	4	4	•	t t		4 4	1	4	4	4	4	4	4	4	4	4	4	•	t t		\$	t	3	4	1 3		4 4	\$	\$	4	r	4	
5 I 5	2337000	421 5	4782000	421 5	663000	421 5	579000	5 124	504000	540000 -421 5	2013000	870000 C	1182000	630000	د 124 ۵۵۹۵۵۵	475000	421 5	000004	421 5	3669000	421 5	771000	510000	468000	630000	519000	450000	1354000	600000	6 1 5 516000	000055	1751 5	450000	1751 5	5 1 5	450000	585000	15 1 5 582000	474000	26 1 5	1065000	381 5	495000	381 5 000042	381 5	1578000	
1409		382		140		394		359		965	1	C 4 D			1/1		404		243		185		100	1	110	2	001	4,1	1	658		513		168	404	r r		404		196		153	1	16	りごし		50.0
	ιĭ		ur n	Ç	u Srie	3	ហំ	Ĉ	ŝ	ŝ	ഹ	ŝ	Ś	25	ď	22	L	ۍ بر	c	ŝ	3	s,	Ş	٦	22	ŝ	23	S	ž	ď	55	L	<b>د</b> %	1	r	ſ	22	ď	<i>.</i> ۲	: <b>i</b>	u r r	Ç	ŝ	ď	r	S	
1001CHA51S	ALII 15 Stf 125	1002CONTROL	ATE 15 etc 136	1003PWR ASSY	ATE 15 ere 120	1004 TUNER/MIX	ATE 15 ere 15	10051F DEMOU	ATE 15	1006FACITER	ATE 15	STE 125 10075vuturete	ATE 15	STE 125	BOUNIMU-WING ATF 15	STE 125	100954 ASSY	STE 12 STE 125	1010REMATE 1/	ATE 15 STE 125	1011CON MATCH	ATE 15	STE 125 1012AUD PS	ATE 15			STE 125		STE 125	2001CHAS FILT	STE 125	2002AMP 80	SIE 125	200 3DE CODEH		ATE 15	STE 125	5002PWR SUPP	STE 125	5003PA CHASIS		516 1C7 6001ANALOG	ATE IS	50021VRCU PS	6003DEC0D/11M	AIE 15	

1 3 5 25 1 3 5 25 1 5 06 6 25 1 17	
2 4 4	
1000 5 5 6000 5 5 5 5 5 5 5 5 5 5 5 5 5 5	τ° Γ
2 1 2 1 0 5 1 0 5 1 0 5 1 0 5 1 0 5 1 0 5 1 0 5 1 0 5 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0	142
417 411 5	
255 25	27960 27960 27960 27960 12964 11749 127450 21996 21996 21996 21996 21996 21996 21996 21996 21996 21996 21996 21996 21996 21996 221996 221996 221996 221996 221996 221996 221996 221996 221996 221996 221996 221996 221996 221996 221996 221996 221996 221996 221996 221996 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 221966 2219666 2219666 2219666 2219666 2219666 2219666 221966666 2219666 2219666 22196666 2219666 2219666
CU CF 155 125 541	
A IF 50051VR A 1E 51E 5004416 AL 71 0000	99991 99991 99991 99991 99991 99991 99991 99991 99991 99991 99999 99999 999999 99999999

ž

### MAIN OUTPUT FILE

. .

- --

PREPHOCESSOR MAINTENANCE MODEL A N SUPPLY NUNIIAO

87/01/28 DATE z o VERSI

87/09/02. UATE N (1 N

THIS RUM EXAMINES MULTIPLE REPAIR ALTERNATIVES

REPAIN MODULES ეყი LOWEST ECHELON TO Repair end item Repair components ong ong

END ITEM INFORMATION

FALSE REMOVAL DEFAILT .10 UNSEPVICEABLE Return Rate 1.00 AVAILABILITY Target .960 MTHF MTP (HOURS) (HOURS) •25 700. OPERATING HOURS 730. LIFE (YEARS) 15 8325. PRICE SINCGARS V END ITEM

TAT DEFAULTS (USED ONLY IF TAT IS NUT INPUT WITH FACH COMPONENT ON MUDULE) ORG DSU GSU DEP 1. 3. 30. 120.

THERE ARE NO TEST FOULPMENTS OR SPECIAL WEVAIRMEN NEEDED TO REPAIR THE END ITEM

DEPLOYMENT INFORMATION

r

F

÷

-

.

1

1

EL (551) 30•0										
ATING LEV DSU 30.0										
046 046 15.0						R РАGE ОF 14 ПОС 10.00				
CONTACT DELAY 760.0						C051 PF				
PLT 510.0						T PER 151710N 3.78				
65U-DEP 40.0						COS COS S	ላር ሀნ			
150 050-050 0.04			METERS			H0LDING FRACT10 .03	PRESFNT V 15)			
กหลู-กรบ 2.ก			CUST PARA	UEPOT 17.25 25.01 .85 29.43	_	RIN6 N • 32	тения ОF 7.98634			
71121430 2200.		ИЕЕN 16SU-DEPOT 3500.		ES 6\$U 17.25 25.01 865 865 29.43	51 65IJ-UEP01 • 00035 1•23	с (0515 нЕ син сб	METE45 [14 (PVF =		VALUE)	COSREQ 189.92
۲ <b>۵.</b> ۲۵. ۲۵.	1. 16 UPS	411,FS) BETV SU-6SU . 250.		LABOK RATI 050 0.59 7.79 85 0.93	RTATION CO 150-650 • 00034 • 09	014FH 1N171AL 81N 229.16	COST PANA	VALUE) 11 DEPUT 81 235-01	(PRFSENT 1-06P 9.78	1581N 12.24
CLAIMANT RG DSU 100. 100.	AVEHA( 4.4 27.0	DISTANCE () 5-DSU D1 7.		046 7.06 1.466 1.466 1.855 3.95 2.85	TRANSPG 16-050 C 01177 08	RECURPING CATALOG 162.47		TE (PRESENT 050 65 167.16 235•	TATTON COST DSU-65U 65U .68	50 50 50
1vsys 0 v 5		080		SF ADEO 100 FAC FECTIVE	0 2 LH-MI • 2 POUND	ITIAL F Talog 53.40		LABOR RA ORG 111.44	TRANSPOR Org-DSU .66	COSNS 1795.8
4SC 6				88 Pk F	PEH	A N N				

208

- **1**4 - 2 - 5

Section States of

ها الموج به الجم

a c

It ST EQUIPMENT DATA

F ¢

ż

)

U JUMIN ļ ā

EUUIPHENI						CLAN FOR UFPAIR ONLY
NAME COMMON EG	DE VEL	ОРМЕИТ U	ISEFUL LIFE	CUMMUN AHOVE UNG	NUI ALLUTLU D	
Ľ	ARAME TEHS	HY ECHELON				
-	CHELON	UNIT COST	MA INTENANCE	INSTALLATION	AVAILABLE Test Hours	PHE SFNT VALUE
	11301	16990.	FACTOH	•0	1768.	110440.
	0 2 2 4 4 1 2	-0664E	12.	•••	1 768. 1 768.	110440.
E OUT PHENT	2 A 3HMUN					
NAME	DEVE	LOPMENT	JSEFUL LIFE	COMMON ABOVE	NOT ALLOWED F	AFLOW FOR REPAIR ONLY NO
014-450		0.	ł۱	050		
	PARAME TERS	HY ECHELUN				1
	ECHELON	UNIT COST	MAINTENANCE EACTOR	INSTALLATION	AVAILAHLE TEST HOURS	VALUE
	43(I 1)E P	1145009.	01.		1500.	.100H2. 2059441.
EUUIPHENI	NUMBER	_				
NAME USM-465	0E VÊ	CLOPMENT 0.	USEFUL LIFE 15	COMMON AROVE DSU	NOT ALLOWED 65U	BELOW FOR REPAIR UNLT NO
	PAQAME TER	S BY ECHELON				
	ECHELON	UNIT COST	MA INTENANCE 5 AC TOH	INSTALLATION	AVAILAHLE TEST HOURS	PHFSENT VALUE
	65U NE P	71000.	.10	• • c	1500.	127703.
E GU I PMF N	HJAMIN I	\$				TOT HEBATD ONLY
, NAME HEP VAN	DEV	FLOPMENT 0.	USEFUL LIFE 15	CUMMON ABOVE DSU	NOT ALLOWED 65U	
	PARAME TEH	IS HY ECHELON				
	ECHELON	UNIT COST	MAINTENANCE FACTOR	INSTALL AT 10N	AVAILABLE TEST HOURS	PHE SENT VALIJE 32 OKPE
	65U NEP	193759. 30009.	.10	•••	1500.	53459.
EOUIPHEN	4T NUMBER	ζ.				
IMAN IMAN MARATH	E DE DNCP DE	VEL OPMENT 0.	USEFUL LIFE 15	COMMON AROVE DEP	13 4MG 13 V 10 N	
	PARAME TE	RS BY ECHELON	7			
		יאינג עטנב	STATE STATE	ter a b t i n t b inte		

110 12110 3
	(151) 116 P	-000122 -271000	4 AC 104 • 10 • 10	• • • •	1651 HOUMS 1500. 1500.	VAL 11 VAL 11 4174 11 . 4474 11 .
INJHAIND J	NUMBF R	£				
NAME MAPATHON	IST D	Е VEL ОРМЕ NT 0.	USFFUL LIFE 15	COMMON ABOVE DEP	NOT ALLOWED 1 65U	HU HELOW FOR HEPATH ONLY
	PARAME T	ERS HY ECHELON	_			
	ECHELON	UNIT COST	MAINTENANCE Eactor	INSTALLATION	AVATLAHLE	PHE SENT
	65U DF P	473400. 478600.	- 10 - 10 - 10	•••	1500. 1500. 1500.	VALUE R600.29. R60828.
TN 3Md [ NN 3	a Huutt	7				
NAME AC STATI	IQ NO	EVEL UPMENT 0.	USEFUL LIFE 15	COMMON ABOVE DEP	NOT ALLOWED H	JELOW FOR REPAIN ONLY NO
	PAPAMF TI	ERS BY ECHELON	_			
	ECHELON	UNIT COST	MAINTENANCE	INSTALLATION	AVAILAHLE Tect united	PHE SENT
	nep	54000	• 10	• 0	1500. 1500.	VAL'JE 97126.
EQUEPMENT	NIMAER	σ				
NAME IF STATI	ē No	EVELOPMENT 0.	USEFUL LIFE 15	COMMON AHOVE DEP	NOT ALLOWED F	JELOW FOR REPAIR ONLY NO
	PARAME TI	ERS HY ECHELON	_			
	F CHEL ON	UNIT COST	MAINTENANCE FACTOR	<b>INSTALLATION</b>	AVAILARLF TEST HOUDS	PRESENT
	nf p	H 7000.	• 10	0.	1500.	156482 <b>.</b>
EQUIPMENT	NUMBER	10				
NAME TUNER ST	C .	EVELUPMENT 0.	טאבדטע גודב נו	СОМНОМ АНОVЕ DEP	NOT ALLOWFD : DEP	JELOW FOR PEPAIR ONLY NO
	PAHAME TI	ERS BY ECHELON	_			
	ECHELON	UNIT COST	MA [NTE NANCE E ACTOR	INSTALLATION	AVAILAHLF Test Jourse	PHE SENT
	υĘΡ	114000.	. 10	• 0	1500.	705045.
EQUIPMENT	NIMHED	11				
NAME SYN STA	ē	EVFLOPMENT 0.	USFFUL LIFE 15	CUMMON AROVE DEP	NOT ALLOMED F	AFLOW FOR REPAIR ONLY NO
	PARAME TI	ERS HY ECHELON	_			
	ECHELON	UNIT COST	MAINTENANCF Factor	INSTALLATION	AVAILAN F TEST MONDS	PLF SF 11 4 A1 11
	ÛF P	112000.	•10	<b>.</b> u	1500.	2014+7.

210

• • •

- -

_

**-** -

والإسارية المراجع والمراجع وال

NAME Exclt Sta	DF VEL	0. 0.	USEFUL LIFE 15	CUMMON ABOVE DEP	NOT ALLOWED F	JELOW FOR	PREPATH ONLY NO
PARI	AME TERS	HY ECHELON					
ECHE	FLON	UNIT COST	MAINTENANCE	INSTALLATION	AVAILAHLE TEST HOURS	PRE SENT VAL JE	
ĩ	đ	118000.	.10	•0	1500.	,965515	
COLIPMENT NUT	([ J]HER ]]						
NAME Pa Sta	DÊVEL	0046NT	USEFUL LIFE 15	COMMON ABOVE DEP	NOT ALLOWED DEP	BELOW FOI	REPAIN ONLY NO
PAR	AME TERS	HY ECHFLON					
ECH	ELON	UNIT COST	MAINTENANCE	INSTALLATION	AVAILAHLE TEST HOURS	PRESENT VALUE	
Õ	đ	30000.	.10	•	1500.	53959.	
EQUIPMENT NU	IMRER 15						
NAMF Switch Sta	DEVE	L ОРМЕ N Т 0.	USEFUL LIFE 15	CUMMON ABOVE DEP	NOT ALLOWED	HELOW FO	R REPAIR ONLY ND
₽₩d	ZAME TERS	BY ECHELON					
ECH	<del>i</del> elon	UNIT COST	MAINTENANCE	INSTALLATION	AVAILABLE Test mours	PRE SENT VALUE	
Ľ	ЭЕР	54000.	- 10 - 10	•0	1500.	97126.	
EQUIPMENT NL	<b>ЭМ</b> ЮЕР 16						
NAME AUDIO 1/0	DEVE	.LOPMENT 0.	USEFUL LIFE 15	CUMMON AHOVE DEP	NOT ALLOWED	HELOW FO	JA REPAIR ONLY NO
PAS	RAMETERS	BY ECHELON					
EC	HELON	UNIT COST	MAINTENANCE FACTOD	INSTALLATION	AVAILABLF TEST HOURS	PRE SENT VALUE	
	DEP	4200ú.	.10	• 0	1500.	111516.	
EQUIPMENT N	UMHER 1	~					
NAME AUD CON ST	DE VI	EL OPMENT 0.	USEFUL LIFE 15	COMMON ABOVE DEP	NOT ALLOWED	BELOW F	OR REPAIN UNLY NG
PA	RAME TER	S BY ECHELO	z				
EC	HELON	UNIT COST	MAINTENANCE Eactod	INSTALLATION	AVAILABLE Test Hours	PRESENT VALUE	
	DEP	62000.	• 10	•0	1500.	111516.	
EQUIPMENT N	JUMBER 1	£					
NAME AUD PS STA	DEV	ELOPMENT 0.	USEFUL LIFE 15	COMMON AHAVE DEP	NOT ALLOWED	HELOW F	OR REPAIR ONL

211

PARAMETERS AY ECHELON

F.CHELOA DEP	4 11111 COST 59000-	MAINTH NANCF FACIOR .10	1:45741.LAT10N A.	AVAILAHLE TEST HOHRS 1500.	104321 - 104321 - 104321 - 104321 - 104321 - 104321 - 104321 - 104321 - 104321 - 104321 - 104321 - 104321 - 104
EQUIPMENT NUMME	6l 8		31004	NOT ALLOWED H	ELUW FOH HEPATA ONLY
NAME I THO MIRE S	DE VELUPMENT 0.	טאדיוע בודב וא	CUMMUN ARUVC	069	(in
PARAME	TERS BY ECHELON				
ECHELD	N UNIT COST	MA [NTENANCE FACTOH	INSTALLATION	AVAILAHLE Test Hours	VALUE VALUE
DF P	47000.	.10	••	1500.	• 66 6 4 4
EUUIPMENT NUMBE	R 22				VIND GLAGIA UNI
NAME (NE WAT ST	DE VEL OPMENT 0.	USEFUL LIFE 15	COMMON ABOVE	NOT ALLOWED I	
PARAME	TERS BY ECHELON				
ECHELC	NN UNIT COST	MAINTENANCE Eactor	INSTALLATION	AVAILARLE TEST HOURS	PHESENT VALUE
0EP	44000.	.10	•0	1500.	• (14] 6/
EQUIPMENT NUMRI	ER 23				
NAME VFH PS STA	DE VEL OPMENT 0.	USEFUL LIFE 15	CUMMON ABOVE UEP	NOT ALLOWED DEP	BELOW FOR REPAIR WAL
MAHAM	ETERS HY ECHELON	-			
ECHEL	DN UNIT COST	MAINTENANCE FACTOR	INSTALLATION	AVAILABLE TEST HOURS	VAL VE VAL VE
DEP	•0006+	.10	•0	•0051	
EQUIPMENT NUME	3ER 25				THE REPUBLIC ONFL
NAME . Pa Cha Sta	DE VEL OPMENT 0 •	15 15 15	COMMON AROVE DEP	NOT ALLOWED	
PARA	МЕТЕРЅ ЮУ ЕСНЕГС	2			
ECHEI	LON UNIT COST	MAINTENANCE FACTOR	INSTALLATION	AVAILAHLF TEST HUU4S	PPE 5F N 1 VAL 11E VAL 12
0E	ب 45000.	.10	•0	• 0051	•
EQUIPMENT NUM	HER 26				
NAME AMP BD STA	DEVELOPMENT 0.	15EFUL LIFE	COMMON AROVE	NOT ALLOWF	
¥4¥d	METERS BY ECHEL	NC			T 4 12 100
ECHE	TON MULT CUS	T MAINTENANCE FACTOR	INSTALLATION	AVALLANDE TEST HUDDES	
ŝ	.p 45000.	.10	<b>.</b> a	* 0.15. [	

212

ء ام

ſ,

MULINMO ML IN MONIO

NUMBER OF FOUTPINED NUMBER OF EQUIP/REP NIMBER OF EQUIPTREP NUMMER OF FOULP/REP NUMBER OF EQUIP/PEP NUMPER OF EQUIP/PEP NUM AL T AL T 2 NUM ALT 1 NUM AL I AL T I 006 050 650 0E0 1. 3. 30. 120. 046 USU 65U DEP 1. 3. 30. 120. 046 050 650 0FP TAT 0RG 0SU GSU DEP 1. 3. 30. 120. TAT 046 PSU 65U DEP 1. 3. 30. 120. 1 / 1 TAT TAT TPS MAINT TPS PV .00 TPS MAINT THS PV nn 1PS PV 0. 1P5 PV 893000. 105 PV 87000. 43200. TPS MAINT TPS PV .00 43200. 1PS MAINT .00 TPS MAINT •00 TPS MAINT .00 FALSE Removal .10 FALSF PFMOVAL •10 F AL SF PEMOVAL F ALSE Removal REMOVAL .10 .10 .10 F ALSE HAS WASH NSN NO .050 .010 TPS DEV 87000. TPS DEV 0. .010 .050 .010 WASH HUSAW 010. TPS NFV 0. HAS WASH NSN WASH ċ 43200. A93000. TPS DEV TPS DEV TPS DEV HAS NSN SAH cz WE LGHT ESS HAS 0N CN 0N N NSN NSN WEIGHT ESS UNIT WEIGHT ESS PRICE UNIT WEIGHT ESS PHICE WFIGHT ESS 3.50 1 1 0<.01 42.50 1 9.50 1 . 75 ] PAGE S 56. PAGES 0. PAGES 0. 56. DIAG TIME PAGFS 56. PAGE S PAGE S 0146 TIME .25 DIAG TIME MTTR DIAG TIME UTAG TIME UIAG TIME TIME USFD .50 .16.314 TIME USED 1.00 TIME USED 1.00 TIME USED TIME USED 1460. B40. UNIT PHICE • 00 • 00 • 0 0 1.00 • 50 .50 .50 • 06 UNIT PRICE 1008. .50 868. 1)NU PHICE MT18. ИАМЕ МТТР АТЕ 1.50 мття 1.25 NAME MITR ATE 1.50 NAME MITR ALTI .50 •50 HEF COMP COMPONENT NUM NUM 10 NAME 2 2 2000 PWER AMP HEF COMP COMP COMPONENT NUM HUM ID NAME 5 5 6000 IVRCU FO/RFP NUM EQ/REP NUM REF COMP COMP COMPONENT NUM NUM 10 NAME 3 J 3000 ECCM EQ/REP NUM REF COMP COMP COMPONENT NUM NUM ID NAME 4 5000 VEH MOUNT FO/REP NUM EQ/PEP NUM HEF COMP COND COMPONENT NUM NUM 110 NAME JM ID HAME 5 6000 IVRCU NAME STE N m ŝ 3 4 NAME **AL T I** NAME AL 1 1 1 1000 AT AL T * AL T# 2 ALTW ALT# ALTW ۵۱ ۲۳ . ------\$

STN INCOMOD DULLING

FA1LUPES PFH YEAR •495F-01 •268E+00 •396E-01
MTBF 1475, 2726, 18440,
NAN PARTS 1 U
T0TAL PARTS 1 3
FALSE HEMOVAL 10 10
E55
WE IGHT . 80 2.43 1.50
але вабе Ријсе 76. 112.
COMPONFNT NAME MAN ANT VEN ANT BAT CASE
CUMP 10 7000 8000 9000
COMP NUM 6 7
46F NUM 5 8

THERE ARE & COMPONENTS

-

MODULE INFORMATION

PARTS COST Per Repair 25+00 PARTS COST DFD DFDATD PA4TS COST PEH REPAI4 25+00 РАНТЅ COST РЕЯ ВЕРАТИ 25.00 NUM OF NUM OF NEW PARTS NUM OF NEW PARTS 14. riim Num () Alt New PAPTS 2 96. 13. NUMMER OF FUILD/4FP NIMMEN OF EUUIP/REP 2 NUMMER OF EQUIP/46P NUMHER OF EQUIP/REP NUMPER OF EQUIP/JE NUMBER OF EQUIP/NEP MIN F IV ALT 2 ALT ALT עוסט דריז יינוו ואנט 046 050 050 050 0EP 1. 3. 30. 120. 046 050 650 0FP 1. 3. JU. 120. 0#6 050 650 nEP 1. 3. 30. 120. 1 4 1 TAT 7PS PV 51040. TAT 1PS PV 66300. TAT 1P5 PV 90000 1P5 PV 478200. 1PS PV 54000. 74 241 233700. TPS MAINT .00 TPS MAINT .00 TPS MAINT .00 TPS MAINT +00 TPS MAINT .00 TPS MAINT .00 F AI SF FALSE Removal .10 FALSF PEMOVAL FALSE Removal •10 .10 MASH HAS WASH NSN TPS_DEV 66300. 1PS DEV 51000. HAS WASH NSN NO .050 .050 1PS DEV 40000. .050 125 DEV 478200. HAS WASH NSN • 020 TPS DEV 54000. TPS DEV 233700. WEIGHT ESS HAS 20 ŝ UNIT WEIGHT ESS PRICE UNIT WEIGHT ESS PRICE WE LGHT ESS .42 1 PAGES 0. .42 1 PAGES PAGES 0. PAGES 0. 5.00 1 PAGES 0. PAGES 0. DIAG TIME .25 TIME USED 1.00 .25 DIAG TIME .25 NAME MITH DIAG TIME ATE 1.50 .50 11ME USED 1.00 MITR DIAG TIME 1.50 .50 TIME USED 1.00 .50 TIME USED 1.00 .05 .25 MITR DIAG TIME 1.25 .25 TIME USED 1.00 UIAG TIME TIME USED **.**50 .091 1.00 .50 •0<del>•</del> •25 382. 1409. UN11 UNIT PRICE MTTR 1.25 мтт 1.25 MTTR 1.50 EQTREP NUM EQ/REP NUM EQ/HEP NUM ED.HEP NUM 101) MUN MODULE 10m ID NAME 3 1003 PWR ASSY MODULE EQ/REP NUM EU/REP NUM MODULE MOUULE NAME CHASIS UM IU NAME Z 1002 CONTROL \$ 13 30 NAME A T E 4 U C 5 0 ÷ NAME STF NAME NAME STE AL TI NAME STE HOD H 00 400 UM 10 1 1001 ALT# NOD AL T# ALT# 2 al 1# AL 7# AL T# -N --HEF MOI) NUM NUM 11 3 RFF MOD REF MOD NUM NUM 10 Z REF MOD NUM NUM 9 I

215

s. 1

• •

24	4 100-	+ IUNE NZM	¥   ¥	. 446	<b>ا</b> ۲ <b>۰</b> ۰	040 01	.10	l. 3.	JO. 120.	r	° н∕	00-25
	1 I 1	NAME ATE	MITR 1.50	DIAG TIME • 50	PAGES 0.	TPS DEV 57909.	TPS MAINT .00	14 S41	H JPMUN	0F FOU 2	त ने स / त	
		EQ/RFP N 4 2	MUM	11ME USED 1.00 .50								
	&L 1# 2	NAME STF	мттр 1.25	D1AG T1ME .25	PAGES 0.	TPS DEV 52500.	TPS WAINT .00	1PS PV 52500.	A JAMLIN	OF EQU 2	ી⊁∕¥ŁΡ	
		EU/REP N 4 10	MU)	TIME USED 1.00 .25								
NUM NUM N 13	01 S	D MOUUL NAME 5 IF DEMO	ы С	UNIT WE PRICE 359.	16HT ESS •42 1	HAS WASH NSN NO .050	FALSE Remuval .10	TA1 0RG DSU 1. 3.	65U DFP 30. 120.	NUM Al. T 2	NUM OF NEW PARTS 19.	PARTS COST PER RFPAIX 25.00
	AL 1# 1	NAME A I F	MTTR 1.50	D1AG T1ME •50	PAGES 0.	TPS DEV 50400.	TPS MAINT .00	1PS PV V4 201	NUMBER	OF FOU	d3n/al	
		E0/REP N 4 2	MUN	TIME USED 1.00 .50								
	ALT# 2	NAME STE	м11R 1.25	UIAG TIME .25	PAGES D.	TPS DEV 54000.	TPS MAINT .00	1PS PV 54000.	NUMBER	OF EQU 2	IP/REP	
		E0/HEP A 4 9	MUN	11ME USED 1.00 .25								
HEF M NUM N 14	00 MUI UM 10 6 1000	D MODUL NAME 5 EXCITEN	щ.,	UNIT WE PRICE 965.	16HT ESS •42 1	HAS WASH NSN .050	FALSE Hemoval •10	TAI URG DSU 1. 3.	65U DEP 30. 120.	NUM ALT 2	NUM OF New Parts 80.	PARTS COST PER REPair 25.00
	AL T# 1	NAME ATE	MTTR 1.50	UIAG TIME .50	PAGFS 0.	125 DEV 201300.	TPS MAINT .00	TPS PV 201300.	NUMBER	OF EQU 2	lP/REP	
	·	EQ/REP 5 4 2	H),	TIME USED 1.00 .50								
	AL T# 2	NAME STE	MTTR 1.25	0146 T1MF •25	PAGE S 0.	1P5 DEV 87000.	TPS MAINT .no	1PS PV 87000.	NUMRER	OF EQU 2	IP/REP	
		E0/REP A 4 12	MUN	11ME USED 1.00 .25								
REF M NUM N 15	00 HOI	D MODUL NAME 7 SYNTHES	.е 15	UNIT WE PRICF 540.	16HT ESS •42 1	HA5 WA5H NSN N050	F ALSE HE40VAL • 10	TA ¹ 0PG DSU 1. 3.	1 1511 DEP 311. 120.	NUM AL T 2	NUM OF NEW PAPTS 32.	PARTS COST PER REPAIN 25.00
	ALTN	NAME Ate	MTTR 1.50	UIAG TIME .50	PAGES 0.	105 0FV 118209.	TPS MAINT .00	105 PV 118200.	NIMAFR	0F EQU 2	1P/Rt.P	
		E0/RFP 5	HUA	11ME USED 1.00 .50								

216

۰. .

PARTS COST PER REPAIR 25.00 PANTS COST PER REPAIN 25.00 PANTS COST Per Repain 25.00 NUM OF NEW PARTS NUM OF NEW PARTS NUM NUM OF ALT NEW PARTS 2 19. 15. NUMMER OF FOUIP/MEP NUMBER OF EQUIP/REP 2 NUMRER OF EQUIP/REP 2 NUMBER OF EQUIP/REP 2 NUMBER OF EQUIP/REP NUMBER OF ENUIP/AED NUMMER OF EQUIPZHEP ALT 2 AL T 2 TAT ORG NSU GSU DFP 1. 3. 30. 120. TAT ORG DSU GSU DFP 1. J. 30. 120. 046 050 650 0FP 1. 3. 30.120. 1PS PV 346400. 14 241 14 241 1P5 PV 324000. TAT 1PS PV 69000. 1P5 PV 47500. 1PS PV 60909 125 PV 63000. TPS MAINT .00 TPS MAINT TPS MAINT .00 F AL SE REMOVAL FALSE Removal •10 FALSE Removal .10 .10 •00 HAS WASH NSN NO .050 TPS DEV 69000. HAS WASH NSN TPS DEV 366900. .050 TPS DEV 324000. 1PS DEV 69000. HSVM TPS DEV 47500. 1P5 DEV 63000. .050 TPS DEV 60900. NSN CN N 0N N UNIT WEIGHT ESS PHICE -42 1 243. -42 1 UNIT WEIGHT ESS PRICE UNIT WEIGHT ESS PRICE .42 1 PAGES 0. PAGE5 0. PAGES 0. .42 ] PAGES 0. PAGES 0. PAGES 0. PAGES 0. DIAG TIME ,50 01AG TIME .25 MTTR DIAG TIME 1.25 .25 MTTR DIAG TIME 1.50 .50 TIME USED 1.00 .50 TIME USED 1.00 .25 EQ.REP NUM TIME USED 4 1.00 11ME USED 1.00 NAME MITR ULAG TIME STE 1.25 .25 TIME USED 1.00 TIME USED 1.00 11ME USED 1.00 .25 MTTP DIAG TIME 1.50 .50 MITH DIAG TIME 1.25 .25 ٥٢. .50 .50 • 25 406. 171. мТТР 1.50 MTTR 1.25 RFF MUD MUD MODULE NUM NUM ID NAME IR 10 1010 HEMOTE 1/0 EQ/REP NUM. EQ/REP NUM EQ/REP NUM ED/REP NUM EO/REP NUM EQ/REP NUM UD MON MODULE UM 1D NAME 9 1009 SW ASSY 00 M00 M00tLE UM 10 NAME 8 100A TWO-WIPF. NAME ATE 4 U NAME STE 4 N 19 4 ALT# NAME 1 ATE AMEN NAME STE 3 Ξ NAME STE ATE ALTN AL 1" 1 AL T# 2 AL 7# AL 7# N AL 1# 2 -REF MUD NUM NUM 17 9 KEF MOO NUM NUM 9

F

.

217

• 25

- 40			NILLIU NAME CON MATO	2	UNLT -	1 1 1 6 4 1	•2 I	SAH NSM NON	H20M	FALSE HEMOVAL •10	046 D5 1. 3	1 A 1 61 6551 1. 30.	1 17FD	4LT 2	NI)4 ()F 14F W PAHTS 17+	рацт5 С051 РЕН НЕРАТЧ 24.00
-	¥		NAME ATE	M114 1.50	05. DIAG TIME	14	46E S 0.	201 21	DEV 1100.	1P5 MAINT .00	1 2 4 1 2 1 1 1	.00	a Jum(IN	0F E0UI 2	d tat b	
			EQ/HEP N 4 2	н	1ME USED 1.00 .50											
	AL	2	NAME STE	м11к 1.25	0146 T1M	ā	AGES 0.	1PS 5	DEV 1000.	TPS MAINT .00	1 PS 1	٠ ٥٥	NUMBER	0F EQU1 2	p/REp	
			EQ/REP N 4 7	۲ ۲	ILME USED 1.00 .25											
NUM 20 20	60M NUN VI	MOD 10 1012	MODUL NAME AUD PS	ïسا	UNIT PRICE 223.	ы£ Ј GH	T ESS 42 I	NSN NSN NO	MASH .050	FALSE Removal .10	0RG D 1.	TAT SU 755 3. 30	U DEP • 120.	AL T 2	NUM OF NEW PARTS 7.	PARTS COST Per Repaim 25.00
	A	- 1 <b>-</b>	NAME Até	MTTR 1.50	0146 11M .50	e ط	AGES 0.	1P5 4	DEV 6800.	INIAM 201 .00	1PS 468	PV 00.	NIJUBER	0F EQU 2	I P/RE P	
			EG/HEP 1 4 2	WIN	11ME USE() 1.00 .50											
	<	1.1# 2	NAME STE	MTTR 1.25	UIAG TIV .25	A A	.AGE 5 0.	9 541	DEV 3000.	TPS MAINT .00	1PS 830	PV 00.	NUMAER	0F EQU 2	1 <b>P/RE</b> P	
			E0/REP 1 4 19	M	TIME USEC 1.00 .25											
REF NUM 21	HON NON	01 01	MODU MAN MAU	ш цир	UNIT PRICE 271.	NE I G	41 ESS •42 1	HAS NSN NO	MASH . 050	FALSE Removal .10	0RG [	TAT 50 6 3. 3	5U 0EP 0. 120.	ALT ALT	NUM OF New Parts 10.	PARTS COST PEH REPAIR 25.00
-	•	1 1 1	NAME ATE	MTTR 1.50	05* 11 9410	¥	PAGES 0.	TP	5 DEV 51900.	TPS MAINT *00	1PS 51	PV 200.	NUMBER	OF EUL	d∃e/d[I	
			EQ/REP 4 2	MUN	TIME USE 1.00 .50	0										
	-	AL T# 2	NAME STE	м118 1.25	0146 11 • 25	ц Ж	PAGES 0.	41	S DEV 45000.	1PS MAINT .00	45	۲۷ 000	NUWHEL	t af Eal	11P/4EP	
			E0/REP 4 16	NUM	TIME USE 1.00 .25	۵										
REF NUM 22	м00 NUM 14	MOR 10 1014	MODU NAM	т Ц	UNIT PRICE 198.	wF 16	HT ESS •42 1	HAS NSN NO	424 020	FALSE PEMOVAL •10	0PG 1.		50 DFP 120.	AL T 2	NUM OF NEW PARTS 7.	PARTS COST PEH REPair 25.00
		ALT#	NAME A T E	MTTR 1.50	01AG TI .50	ж Ш	PAGES 0.	<u> </u>	5 DEV 135900.	TPS MAIN.	5a1 1	.004	NIJHRE	R (1F EQ	UI P/REP	
			EQ/REP	MUM	IIME USE	0										

218

· • • · · · ·

PARTS COST PEP REPAIR 25.00 PAHTS COST PEP REPAIR 25.00 PARTS COST Per repair 25.00 PARTS COST PER REPAIN 25.00 NJM OF NEW PARTS 1. NIJM OF NEW PARTS 19. NUM OF NEW PARTS NUM OF NEW PARTS 10. 12. MIMER OF FOULD/RED NUMBER UF EQUIP/REP 2 NUMBER OF EQUIP/REP NIJMBER OF EQUIP/REP 2 NUMBER OF EQUIP/REP NUMBER OF EQUIP/REP NUMBER OF EQUIP/REP ALT ALT 2 ALT ALT N N 086 050 650 0EP TAT ORG DSU GSU DEP 1. 3. 30.120. 0RG 0SU 65U 0EP 1. 3. 30. 120. ORG DSU GSU DEP 1. 3. 30. 120. TAT TAT TAT 1PS PV 43800. 1PS PV 45000. 1PS PV 45000. 1PS PV 39000. 1PS PV 60000. 1PS PV 51600. TPS MAINT TPS FV TPS MAINT .00 TPS MAINT .00 TPS MAINT 5. .00 TPS MAINT .00 TPS MAINT .00 TPS MAINT .00 FALSE Hemoval ,10 FALSE REMOVAL FALSE Removal .10 F AL SE REMOVAL .10 •10 .050 HSAN .050 050. TPS UEV 43800. **H**ASH WASH .050 TPS DEV 45000. TPS DEV 39000. 1PS DEV 45000. HSAN TPS DEV TPS DEV 60000. 1PS DEV 51600. HAS NSN HAS NSN NSN HAS NSN Ŷ ĝ ŝ Ŷ WEIGHT ESS WEIGHT ESS WEIGHT ESS WEIGHT ESS ~ 1.75 1 PAGES 0. 6.00 1 PAGES 0. PAGES 0. PAGES 0. PAGES 0. MITR DIAG TIME PAGES PAGES 0. 1.75 5.00 DIAG TIME .25 DIAG TIME MTTR DIAG TIME 1.50 .50 TIME USED 1.00 DIAG TIME .25 TIME USED 1.00 NAME MITR DIAG TIME ATE 1,50 .50 TIME USED 1.00 DIAG TIME 11ME USED 1.00 TIME USED 1.00 TIME USED 1.00 UNIT PRICE 168. • 25 .50 •50 .50 496. •50 -25 658. •50 • 25 .003. UNIT PRICE .50 • 25 UNI T PRICE UNIT PRICE MTTR 1.50 MTTR 1.25 MTTR 1.25 мття 1.25 EQ/REP NUM EQ/REP NUM EQ/REP NUM MODULE NAME REF MOD MON MODULE NUM NUM ID NAME 23 15 2001 CHAS FILT EQ/REP NUM EQ/REP NUM EQ/REP NUM REF MOD MOD MODULE NUM NUM ID NAME 25 17 2003 DECODER REF MOD MOD MODULE NUM NUM ID NAME 26 18 5001 ONE-WATT 400 MOD MOD MODULE VUM 11) NAME 16 2002 AMP BD NAME ATE NAME STF NAME ATE 3 N 23 ¢ 3 26 4 2 3 N AME 111 NAME STE NAME STE AL T # 2 ALT# 2 ALT# AL T . AL TH ALTH ALT# ---REF MOD NUM NUM 24 15

PAHTS COST PEN REPAIN 75.00 PARTS COST Per Repair 25.00 PAHTS COST PER REPalh 25.00 PARTS COST UFD DEPATU NUM OF NEW PARTS 5. NUM OF NEW PARTS NIM OF NUTS NUM OF NEW PARTS 22. ÷06 NUMBER OF FOUTP/REP NUMHER OF EQUIP/REP 2 NUMHER OF EQUIPIRED NIJMHER OF EQUIP/REP NUMMER OF FOULP/HEP NUMHER OF EQUIPZHEP AL T AL T AL T 2 M F TAT NUM ORG PSU GSU DFP ALT 1. 3. 30. 120. 2 ~ TAT 046 DSU 65U DEP 1. 3. 30.120. TAT 046 1151 651 11FP 1. 3. 30. 120. : 1 / 1 TPS PV 58200. 1PS PV 35000. 145 FV 44500. 1PS PV 106500. TPS MAINT TPS PV .00 59500. 47400. 1.1. 200 TPS MAINT TPS PV .00 47400. TPS MAINT .00 1P5 MAINT •00 TPS MAINT .00 TPS MAINT .00 FALSE Removal .10 FALSE Removal .10 F AL SE Removal F AL ST 14F MAVAI .10 HSAW MAS! 1PS DEV 58500. HAS WASH NSN TPS DEV 47400. 1PS DEV 106500. TPS DFV 35000. TPS DEV 44500. .050 TPS DEV 58200. WASH 040. NO .050 HAS NSN HAS NSN <u>02</u> 0N N LA S MEIGHT ESS UNIT WEIGHT ESS PRICF UNIT WEIGHT ESS PHICE UNIT WEIGHT ESS PHICE 26.00 1 1 86. 1.50 1 PAGES 0. PAGES 0. PAGES 0. PAGES PAGES • PAGES MTH DIAG TIME 1.25 .25 ALT# NAME MITH UIAG TIME 1 ATE 1.50 .50 UIAG TIME 11₩E USED 1.00 ALT# NAME MITR UIAGTIME I ATE 1.50 .50 TIME USED 1.00 TIME USED 1.00 NAME, MITR DIAG TIME ATE 1.50 .50 TIME USF() 1.00 MTTR UIAG TIME 1.25 .25 11ME USED 1.00 .25 11ME USED 1.00 TIME USED 1.00 •50 406. .50 .146 •25 • 50 .50 8. 8. 2 <u>ب</u> بر 153. .50 UN11 PRICF WT:H ( HEF MOD MOD MODULE NUM NUM 10 NAME 27 19 5002 PWR SUPP HEF MOD MOD MODULE NUM NUM IV NAME 28 20 5003 PA CHASIS EU/REP NUM EQ/HEP NUM EQ/REP NUM EQ/REP NUM FO/REP NUM EQ74EP NUM EO/REP NUM MODULE NAME KEF MOD MOD MODULE NUM NUM ID NAME 29 21 5001 ANALOG 3 5 s o 4 N \$ 4 22 \$ NAME STE NAME STE NAME STE 00w AL 1# 2 -AL 7" 2 AL T# ] ALT# 2 HEF MOD

• • • • • • •

PARTS COST PER REPAIR 17.00 PARTS COST PFR RFPATR 25.00 PARTS COST Per Repain 25.00 1. 3. 30. 120. 1 2. 2. 25.00 PANTS COST PFN RFPALU 25.00 
 TAT
 NUM
 OF

 ORG
 DSU
 GSU
 DEP
 ALT
 NEW
 DATS

 1.
 3.
 30.
 120.
 1
 21.
 FALSE TAT NIM NIM OF REMOVAL ORG DSU GSU DEP ALT NEW PAHTS •10 1. 3. 30.120. 1 2. 
 FALSF
 TAT
 NIJH
 NUM
 OF

 REMOVAL
 ORG
 USU
 GSU
 DFP
 ALT
 NEW
 PARTS

 •10
 1
 3
 30
 120
 1
 2

 FALSE
 TAT
 NUM
 OF

 REMOVAL
 0RG
 0S1
 6SU
 DEP
 ALT
 NEW
 PARTS

 *10
 1.
 3.
 30.
 120.
 2
 25.
 1PS MAINT TPS PV NIMMER OF EQUIP/REP .00 236700. 2 TPS MATHT TPS PV HIMHER UF EQUIPZNEP .00 49200. 2 TPS MAINT TPS PV NUMBER OF FOUID/HEP .00 157800. 2 TPS MAINT TPS PV NUMMER OF EQUIP/HEP -00 106500. 2 TPS "AINT TPS PV NUMHER OF EQUIP/HEP .00 0. 1PS MAINT TPS PV NUMBEN OF EQUIP/REP .00 45000. 3 FALSE PEMOVAL .10 .10 010 010 TP5 DEV 49200 TPS DEV 45000. UNIT WEIGHT ESS HAS WASH PHICE NSN NSN 200 157900. TPS DEV 236700. NO .050 TPS DEV 106500. WASH .250 τρς ΔΕν Δ. UNIT WFIGHT ESS HAS WASH PRICE NSN 040. ON HAS WASH NSN HAS NSN 0**N** WEF MOD MOD MODULE UNIT WEIGHT ESS NUM NUM ID NAME PRICE 34 25 5004 MTG THAT 411, 10,00 1 UNIT WEIGHT ESS PRICE жисс 185. . . Зн 1 417. 2.00 1 . HI . ALT® NAME MITR DIAGINE PAGES I ATE 1.50 .50 0. ALI® NAME MITR DIAGTIME PAGES I ATE 1.50 .50 0. PAGES 0. PAGES 0. PAGES 0. ALT# NAME MITH DIAG TIME PAGFS I ALT# .50 .00 5. NAME MITR DIAG TIME Atf 1.50 .50 ALT# NAME MITH UIAG TIME 2 STF 1.25 .25 NAME MITH UIAG TIME ATE 1.50 .50 EO/HEN NUM TIME USED 4 1.00 1 50 EQ2/REP NUM TIME USED 4 1.00 3 .50 ED/HEP NUM TIME USED 4 1.00 EQ/REP NUM TIME USED 4 1.00 F.Q.REP NUM 11M USED 50 .50 .50 • 0 • 05. 65. •06 •25 KEF MOID MOID MOIDULE NUM NUM 115 NAME 31 23 6003 DFCOD711M НЕЕ МОЮ МОЮ МОЮИЕ NUM NUM II) NAME 33 25 500% IVPCU СНАS 10 22 6002 TVPCU PS HEF MOD MUD MODULE NUM NUM 10 NAME 32 24 6004 MICHO 4 N \$ 15 0 AL T# ALTN

F

PSENDO MODILES

----

NEW PARTS 22
101AL Parts 55
FALSE REMOVAL .10
E55 1
WE 16HT • 25
AVERAGE PRICE 25.
MOULE NAME ECCM PIS
00M 1005
UON NUN 72
NUM NUM SE

THERE ARE 27 MODULES

## APPLICATIONS

t

ADN WEP ALT	6	c	c	0	0	0	•	0	0	0	0	0	0	c	0	0	•	0	0	0	c	c	0	0	0	0	0
FAILUNES PER YFAR	.5211-01	.2625-01	.2015-01	•564E-0]	. JA7E-01	.622E-0]	.465E-0]	.3225-01	.569E-U]	.1645-01	.253101	.224E-01	.4905-01	.3326-01	1245-01	.791E-02	.604F-02	.5856-01	10-3605.	.241E-01	.101E-01	.4825-02	.3326-02	-2516-02	.355E-02	.410E-02	.3215-03
MTHF	14007.	21A63.	25974.	12943.	14461.	11741.	15686.	22650.	12940.	44405.	ZAAIA.	32541.	14892.	21968.	58R50.	92326.	120522.	12472.	14350.	30286.	72195.	151371.	219843.	291099.	205617.	178200.	2273457.
MODUL E NAME	CHASIS	CONTROL	PWH ASSY	TUNEH/MIX	IF DEMOU	EXCLIER	STNTHE STS	TWO-WIRE	SW ASSY	HE MOTE 1/0	CUN MATCH	AUD PS	AUU 1/0	AUD CUN	CHAS FILT	AMP HU	DECODER	ECCM PTS	ONE-WATT	PWR SUPP	PA CHASIS	ANALUG	IVRCU PS	DECOD/TIM	0HD IM	IVRCU CHAS	HIG TRAT
COMPONE NT NAME	нT	нT	ыT	нT	14	R	н	нт	41	11	Ъ	14	RT	la	PWER AMP	PWEN AMP	PWER AMP	ECCM	VEH MOUNT	VEH MOUNT	VEH MOUNT	I VRCU	I VRCU	IVRCU	IVACU	1 VHCU	THUM HIT
ê e	1001	1002	1003	1004	1005	1006	1007	1008	1009	1010	1011	1012	1013	1014	2001	2002	C002	1006	1005	5002	5003	6001	6002	6003	<b>6004</b>	6005	5004
COMP 1U	1000	1010	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1 000	2000	2000	2000	3000	5000	5000	5000	6000	0004	6000	6000	6000	2000
U U U U U V	-	~	n	4	сr	¢	1	T	0	10	11	12	13	7	5	15	17	27	18	<del>.</del>	20	21	22	ົ	54	22	24
C UND NUM		-		~		-	-		~	-	-	-	-	-	2	<b>∼</b> ;	~	~	4	\$	\$	J	ŝ	ŝ	ŝ	r	4
4 MUM	-	~	•	4	ŝ	¢	•	œ	÷	01	Π	12	1 1	*	<del>ر</del> ا	5	17	Ĩ	2	20	21	22	53	54	25	26	27
NUM	16	96	9	40	1,	42	64	4	4 5	94	47	1) 9	6.4	00	51	52	53	54	55	56	51	58	59	6 6	61	29	63

THERF ANF 27 APPLICATIONS

•

 THENE
 ANE
 1.09
 END
 ITFM
 FAILURES
 PER
 YEAH

 THE
 DEMIVED
 MIHF
 IS
 669.
 HOURS

 THE
 INPUT
 MIHF
 IS
 669.
 HOURS

• 5

UNAMM IT PROTOTYPE 2 VENSION DATE B7/07/16/

MAINTENANCE POLICIES HY APPLICATION

1055 000 000 000 000 1005 1005 1005 100
nso nso nso nso nso nso nso nso nso nso
00000000000000000000000000000000000000
TUNEHZMIX TUNEHZMIX EXCITER SYNTHESIS SYNTHESIS SW ASSY REMOTE I/O CON MATCH AUD PS AUD PS AUD PS AUD CON AUD I/O AUD I/O AUD PS ANPP DECODER PA CHASIS PA CHASIS ANALOG IVRCU PS
нт нт пт пт пт пт пт пт пт пт пт пт пт пт пт

-

BY REMOVE AND REPLACE O
<b>)</b>
COMP 1 R1
COMP 2 PI
COMP 3 E
COMP 4 V
COMP 5 1
COMP 6 P
COMP 7 V
COMP B
-
-
M00 1
MOD 2
M0() 3
4 UOM
MOD 5
M01) 6
4 UUM

226

,

SENSITIVITY Flag

00001	0000.	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0001	1 00.00		6000 <b>.</b> 1	1.0000	1.0000	1.0000	1.0000	1 0000		1,9000	1.0000	
	Ξ		[]	111	1.11	۲.LI	LTF.	ΠE	175	TF		רך היו ר	11	111	111	111	111		אר ו ז	AL T I	<b>ALT</b>	
«	< 	-	-	-	_	-	-	_	_	-	• •	~	_	_	_	-	-	• •	_	-	-	
12 3-()=	N ASSY WO	4F MOTE 1/0	CON MATCH	Set they	0/1 (10	AUD CON	CHAS FILT	CIH CHU	DF CODE R	CCM DTC		ONE-WATI	PW9 SUPP	PA CHASIS	ANALOG	IVRCU PS	D: COD / T M		MICHO	IVRCU CHAS	MTG THAT	
Ŧ	?	0	_	~	-	3	ŗ	¢	, <b>~</b>		-	Ŧ	o	0	-	~		2	\$	Š	56	
1101	HON	MO0 1	MOD	MOD	MOL	MOD	MOU	- COM	NOD N			(IOM	HOD H	NOU S	MOD	UOM			000	00M	CIOM	
10,01 - 2	0.0	2 11511	1511 ~	2 11511	1150 2						000 6	2 DSU	2 050	1511 2	2 11511	2 050		DCH 2	2 DSU	2 050	2 050	
					1	- <b>1</b> -					ECCH	VEH MUINNT	VEH MOUNT	VEH MUINI	1 VDCI			IVHCU	IVPCU	IVRCU	VEH MOUNT	
-							- ^				~	4	3	1	r u	n u	•	r	ſ	۰.	• 4	t
. feefi 8 - M	1 - r 11462	0000								A= CUMP	X= COMP	X = COMP	X- COMP					X= COMP	X= COMP	K - COMP		
	ر د ۱		ç .		r : 5 ·	7 C 7 .	р. г.	7	2	γ γ	5¢	5					2	60	14	5	3	5

F

SPECIAL TEST FUUIPMENT/PEPAIRMAN REQUIREMENTS

PECULIAN EQUIPMENI/PEPAIRMAN

ACCIMULATING 127 OF THIS FOULPMENT 110 FCHFLONS	1
DEVELOPMENT COST	•0
HARDWR CST (TOTAL PV)	97126.
TOT 01Y AT ECH	1
QUANTITY PER SHOP	-
REQUIREMENT PER SHOP	• 050
ECHELUN	nEP
F OU I PME N I NAME	SWITCH STA
EOUTP	15

97126. TOTAL PRESENT VALUE OF PECULIAR SPECIAL TEST EQUIPMENT/REPAIRMENTINC. DEVPMT COST) =

-

SPECTAL TEST EQUIPMENT/REPAIRMEN COMMON AT HIGHER ECHELONS

ACCUMULATING UTY OF THIS FOULPWENT UP ECHELONS	60 75 71 41 41
DEVELOPMENT COST	
HARDWR CST (TOTAL PV)	44 [8]. 61559. 508678. 10313. 66815. 29555.
TOT 01Y AT ECH	.40 .02 .098 .098 .19
QUANTITY PER SHOP	004 001 003 003 003 003
не опткеми NT Рек Shop	004 001 247 003 003 003
FCHELON	nsu 6SU 6SU 6SU 0FP
FOULPMENT NAME	COMMUN E1 USM-410 USM-410 USM-465 USM-465 NEP VA1 REP VA1
4100 J	しこうりゅう

•-

-

TOTAL PRESENT VALUE OF EQUIPMENT/PEPAIMMEN WHERE COMMON = 721101.

1014L PRFSENT VALUE OF SPECIAL 1551 FUUIPMEN1/REPAIRMEN RLUUIRFD = MIR22M.

--

**-**----

-

•

٠

. .

LOGISTICS CUSTS LOGISTICS COSTS FOR COMPONENTS (PRESENT VALUE).

total C051	1.776.039. 1.72.194. 1.280.777. 424.847. 190.630. 237.551. 1.395.711. 247.235.	. 5.725.948.
01HER COST	497.030. 52.466 153.541 171.147 98.664 171.147 171.147 171.147 171.147 171.147 171.147 139.64 124.196	1+867+082
1PS COST	6 4 3 - 200 6 4 3 - 200 6 9 3 - 000 6 9 3 - 000 6 9 9 - 00 7 0 0 - 00 7 0 - 00 7 0 0 - 00 7 0 - 00	936.200.
LABOR COST	99.353. 20.995. 45.393. 15.547. 3.331. 0. 0.	184.619.
CUNSUMP. SPARES (S)	544.607. 5.137. 5.137. 32.353. 5.971. 72.686. 77.988. 87.988.	1.314.508.
INITIAL SPARES(\$)	635,049. 50,400. 139.748. 205.800. 85.680. 25.004. 190.848. 31.050.	101ALS: 1.363.579.
CUMPONENT NAME	RT FUER AMP FCCM VEH MOUNT IVHCU MAN ANT RAT CASE RAT CASE	NENT COLUMN
COMP	しょうらからです	СОМРО

.,

230

۰.

.

.- •

LOGISTICS COSTS FOR MODULES (PRESENT VALUE).

OTHER TOTAL COST COST	241.164. R06.837.	49.544. ZH1.261.	47,143. 178,196.	187+658. 453+624.	94.143. 267.844.	249.897. 795.373.	131.063. 430.526.	50.862. 1H4.870.	172.44A. 440.2A3.	34,550. 132,127.	43,964. 159,901.	40.173. 160.575.	141.355. 339.547.	53+006. 212+558.	32,385. 129,437.	R, 773. 69.807.	6+309. 29+979.	120.114. 330.033.	H3.930. 227.936.	27.107. 246.804.	7.466. 24.644.	5.678. 12.825.	4.920. 11.998.		6.22A. 21.570.	6.228. 21.570. 8.030. 48.221.	6.228. 21.570. 8.030. 48.221. 2.968. 6.215.
Р A H T S C U S T	103.351.	•0	•0	5A.78J.	40.045.	98.1HJ.	.010.55	•0	54.220 <b>.</b>	•0	••	.0	40.934.	•0	15.618.	•0	•0	44.146.	31.547.	•0	••	••	•0	•0		•0	•••
1200 C051	233.700.	••	••	57,900.	50.400.	201,300.	114.200.	°.	69.000.	•0	•0	•0	51.900.		51,600.	•0	•0	45.000.	58.200.	•0	••	•0	•0	•0		•0	•••
LABOR CUST	40.014.	••	•0	43,304.	29.716.	47.737.	35.731.	•0	35,648.	•0	•0	•0	37.636.	•0	9.524.	••	•	39,058.	18.506.	••	•	•0	•0	0.		•0	•••
CONSUMP. SPAHES (\$)	10.252.	191.496.	102.174.	21,260.	13,293.	57.401.	24.042.	105.451.	22,0A3.	76.436.	<b>B9.667.</b>	95.719.	12.709.	125.892.	7.809.	50.378.	14.470.	24.139.	9.362.	182.056.	14.118.	5.782.	5.75A.	12.567.	207 11	· CDU • 20	2,525.
INITIAL SPARES (\$)	114,356,	46.222.	28.880.	84.710.	40.208.	141.855.	66.420°	28.557.	86.884.	21.141.	26.270.	24.084.	55.013.	33,660.	12,502.	10.656.	4.200.	52,576.	26,390.	37,640.	3.060.	1.365.	1.320.	2,175.	7.506.		822
MØDIJLE NAMF.	CHASIS	CONTROL	PWH ASSY	TUNER/MIX	IF DEMOD	EXCITER	SYNTHF STS	TWO-WIRE	SW ASSY	REM01E 1/0	CON MATCH	AUD PS	AUD 1/0	AUD CON	CHAS FILT	AMP HD	DECODER	ONE-WATT	PWH SUPP	PA CHASIS	ANALOG	I VHCU PS	DE COD/11M	MICHO	IVRCU CHAS		MTG TRAT
MUN	-	~	Ē	4	r	¢	1	30	2	10	11	12	1	14	15	16	17	18	61	20	21	22	53	24	25	è	\$

MODULE COLUMN TOTALS:

•

6.138.397.

1,946,052.

546,437.

937.200.

336.874.

1.401.391.

969.947.

MID & WID & TUMN AROUND TIME

	TH JUDGHUD	1007		M	_			114	-		TAT	UNC.	SHU WA	1
							200		1120	010	500	150	115.5	050
NUMBER	NAME		080	020	650	252	221	050	200					
		010	000	000	. 000	.000	1.000	.000	.000	.000	۰. ۱	35.5	0.05	50.0
	ľ							000	000	000	1.0	1.0	76.21	20°0
~	PWER AMP	010.	.000	• • • •	055.	• • • •	1.000	• • • •						
, -		020	000	. 000	. 350	.000	1.000	.000	.000	.000	1.0	0.1	103.8	
•			•				000	000	000	000	1.0	56.7	30.01	20.0
4	VEH MOUNT	.010	.000	066.	• • • •	• • • •	1.000							0.00
ď	17471	.010	.000	066.	.000	.000	1.000	.000	• 000	• 000		20.05	- n• n¢	
	MAN ANT		000	000	.000	-000	1.000	.000	.000	.000	•	•	•	-
c							000	000	.000	.000		0	•	c.
~	VEN ANT	1.000	• 0 0 0	.000	• • • •	• • • •						, •		c
æ	BAT CASE	1.000	.000	• 000	• 000	• 000	1.000	.000	• • • •	• • • •	•	•	•	•

v

-

.

MIU & RTU & TURN AROUND IIME

TAT INC WALT	nag DSU GSU DEP	1.0 3.0 111.2 120.0	1.0 3.0 30.0 120.0	1.0 3.0 30.0 120.0	1.0 3.0 30.0 124.4	1.0 3.0 30.0 124.7	1.0 3.0 30.0 123.9	1.0 3.0 30.0 123.6	1.0 3.0 30.0 120.0	1.0 3.0 30.0 121.9	1.0 3.0 30.0 120.0	1.0 3.0 30.0 120.0	1.0 3.0 30.0 120.0	1.0 3.0 30.0 123.7	1.0 3.0 30.0 120.0	1.0 1.0 30.0 124.0	1.0 3.0 30.0 120.0	1.0 3.0 30.0 120.0	1.0 3.0 30.0 123.2	1.0 3.0 30.0 125.9	1.0 3.0 30.0 120.0	1.0 3.0 30.0 120.0	1.0 3.0 30.0 120.0	1.0 3.0 30.0 120.0	1.0 3.0 30.0 120.0	1.0 3.0 30.0 120.0	1.0 3.0 30.0 120.0	0* 0* 0* 0*
	nEP	.000	• 000	• 000	.000	.000	.000	.000	• 000	.000	• 000	• 000	• 000	.000	.000	.000	.000	.000	.000	• 000	.000	• 000	000-	.000	.000	.000	.000	• 000
	650	.000	.000	.000	.000	.000	• 000	•00.	.000	• 000	• 000	.000	000.	.000	• 000	1.000	1.000	1.000	.000	• 000	• 000	.000	.000	.000	.000	• 000	.000	1.000
610	DSO	1.000	000.1	1.000	000.1	1.000	000.1	1.000	000.1	1.000	1.000	1.000	000.1	000	1.000	• 000	.000	.000	000.1	1.000	1.000	000.1	1.000	1.000	1.000	1.000	1.000	• 000
	040	000.	000.	.000	.000	.000	.000	.000	.000	000.	. 000.	.000	000.	.000	.000.	• 000	000.	.000	.000	. 000.	000.	000.	000.	.000	.000	.000	.000	• 000
	DEP	.000	.000	• 000	.950	.950	.950	.950	.000	.950	.000	.000	.000	.950	.000	.950	.000	• 000	056.	.950	• 000	• 000	• 000	.000	.000	.000	• 000	• 000
~	650	.950	.000	.000	.000	.000	•000	.000	000-	.000	.000	.000	.000	• 000	.000	• 000	• 000	.000	• 000	• 000	• 000	• 000	• 000	• 000	• 000	.000	• 000	• 000
H	050	.000	.000	.000	• 000	.000	.000	.000	• 000	.000	• 000	• 000	.000	• 000	.000	• 000	• 000	.000	• 000	• 000	.000	• 000	.000	• 000	.000	• 000	.000	.000
	0RG	.000	.000	.000	• 000	•000•	000.	• 000	• 000	.000	• 000	• 000	.000	.000	• 000	.000	.000	.000	.000	• 000	.000	.000	.000	.000	.000	.000	.000	• 000
HSAW		.050	1.000	1.000	.050	.050	.050	.050	1.000	050	1.000	1.000	1.000	• 050	1.000	.050	1.000	1.000	.050	.050	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
MODULE	NAME	CHAS [ S	CONTROL	PWR ASSY	TUNE R/MIX	IF DEMOD	EXCITER	SYNTHE SIS	TWO-WIRF	SW ASSY	REMOTE 1/0	CON MATCH	AUD PS	AUD 1/0	AUD CON	CHAS FILT	AMP BU	DECODER	ONE-WATT	PWR SUPP	PA CHASIS	ANAL 06	IVPCU PS	DEC00/11M	MICRO	IVPCU CHAS	MTG TRAT	ECCM PTS
MODULE	NUMHER	-	2	Ē	4	ŝ	•	2	æ	<b>J</b>	10	11	12	51	14	15	16	17	18	19	20	21	22	23	54	25	<b>2</b> 6	27

SE SAME DUTPUT FOR CUMPONENTS

F

SPAHE S

NUMHER	COMPONENT	ALLOW	IANCES	PER CL	ALMANT	01Y * UP	FAIL PER FND ITEM PEN YU
1	NAME	940	050	650	0EP01		
	нт		ι.		23.	635+049*	.400
• ^	PWFH AMP			~	2.	50.400.	•029
, m	ECCM			~	13.	139.748.	• 064
	VEH MOUNT	.0	-	.0		205.800.	*00*
۰ v	IVRCII		_	0	~~	A5.680.	.020
. ve	MAL ANT		-	`~	181.	25.004.	• 054
•	VEN ANT	•0	~	~	320.	63.616.	. U9A
œ	HAT CASE	• 0	١.	-	146.	31.050.	• 0 4 4

, ·

## SESAME OUTPUT FOR MODULES

1

SPAHES

FAIL PER FNI) ITEM PER YR		. 057	. 124	(60,	.061	- 042	.064	.051	• 035	.062	.01H	.028	420 *	.053	•036	.014	.009	.007	.055	.026	.011	• 005	• () 0 4	E00.	• 004	•00*	.000	
01Y * UP		118.356.	46.222.	2A . BHO.	H4+710.	40.208.	141.855.	66.420.	28,557.	86,884.	21.141.	26+270.	24,084.	55.013.	33.660.	12.502.	10.656.	4.200.	52,576.	26,390.	37.640.	3,060.	1,365.	1.320.	2.775.	7,506.	A22.	
CLAIM.	06.P01	12.	97.	104.	91.	64.	94.	15.	119.	40.	63.	94.	84.	14.	122.	19.	32.	25.	A2.	4].	40.	20.	15.	11.	15.	19.	2.	
- <del>Н</del> Зс	50	<b>.</b>	۳.	°. ∿	-	۶.	N	2.	۶.	-	-	ج• ۲	-	-	ي. م	•	•	•	-	-	•	•	•	•	•	••	••	
WANCE S	050 6	••	•	••	-		•0	••	•0	-	• •	•	•	۱.	•		•	• c	•0	•	c	•0	••	••	••	••	••	
ALLO	086	••	•0	••	•	•0	•0	••	•0	••	•0	••	•0	••	••	••	••	••		••	0.	•••	••	•0	•	•0	•0	
MODULE	NAME	CHASIS	CONTROL	PWR ASSY	1UNE H/MIX	IF DEMOD	EXCITEN	SYNTHESIS	TWD-WIKE	SW ASSY	HEMOTE 1/0	CON MATCH	AUU PS	AUD 1/0	ALID CON	CHAS FILT	QH HMA	DECODER	ONE-WATT	PWR SUPP	PA CHASIS	ANALUG	I VHCU PS	DE COD / 1 1 M	0401w	I VRCU CHAS	MTG THAT	
NUMBEH		-	2	•	4	ŝ	¢	1	æ	•	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	2¢	

235

,

LUGISTICS TUTALS

2.454.176.	(PRESENT VALUE) 2.980.021.	051 1PHESENT VALUE! 588.479.	IPRESENT VALUES 90.167.	RESENT VALUE) 1.504.601.	ESENT VALUE) 705.774.	ALUE) 1.093-877.	T VALUEI 521.494.	•0	50+400.	057 1.473.400.	
INITIAL SPARES COST	CONSUMPTION SPARES (PI	INVENTORY HOLDING COS	TRANSPORTATION COST 1	REGUISITION COST (PRE	CATALOGING COST (PRES)	BIN COST PRESENT VAL	REPAIR CUST (PRESENT	SCREENING CUST	DOCUMENTATION COST	TEST PROGRAM SETS COS	

236

TOTAL COST FOH THIS MAINTENANCE CONCEPT IN TERMS OF PRESENT VALUE

11.864.388.	818.228. 18.228. 12.682.616.	•
LOGISTICS COST	TEST EQUIPMENT/REPAIRMAN COST	
TOTAL	TOTAL	

OPERATIONAL AVAILABILITY ACHIEVED AND ,9618

CURVE PARAM USED 8241.7 POLICY FILE

V

7

. . . . **. .** ....**.** 

... ..... ....

.....

,

_____

_____

- - -----

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	* * * * 86 0 I N N X N X X X 86 0 I N N X X X X X X X X X X X X X X X X X	00 1112 1112 1112 1112 1112 1112 1112 1	2010 2010 2010 2010 2010 2010 2010 2010
25 25 25 25 25 25 25 25 25 25 25 25 25 2	125 135 135 135 135 135 135 135 135 135 13	∩	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4

-

•-

.

0000.1 1522 AVW 0000.1 1572 AVW 0000.1 1572 AVW 0000.1 1572 AVW 0000.1 1502 AVW 0000.1 1503 AVW 0000.1 1503 AVW 0000.1 1503 AVW

239

۰.

2

.....

•

.

OTHER COST EREAKOUT

arment ports for custs row commute consecution varues.

Miles Miles	COMPONENT MAR	964 O 1000	THANSP.	0 1 8	71 8	C & TL 06	DoCuM.
-	2	152.152.	19.701.	255.855.	50.124.	1.7.46.	14.800.
- ^	UNA HIU	.210.51	1.640.	24. 144	12.54.	1.7.46.	• •
		11.482	116.	55.147.	62.7HU.	1.746.	
n a	VEH MINIMIT	- HUL - 54	12.474.	40.034.	50.124.	1.746.	14.800.
: J	I VUCI	A.C. 05	220.	R.51H.	50.126.	1.746.	16.400.
- -	NAN ANT	100.5	1.06'.	64.229.	62.740.	1.746.	•0
	VEN AUT	45.126.	.514.11	364.229.	1 HH . 140.	5. JHR.	•0
- 1	HAT CASE	1.439	1.544.	54.583.	62,7H0.	1.745.	ċ
,				\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	* * * *	 	6 6 1 6
() dM() O	NENT COLUMN TOT	1 AL 5: 126-701	54.541.	474.01A.	541.414.	17.960.	50.400.

UTHER LOGISTICS COSTS FOR MODULES (PRESENT VALUE).

	001	MODULE	HOLUING	TRANSP.	REO	NIA	CA1L06	DOCUM.
	NUN	NAMF					. 100.	0.
			ל אך . סנ	1.153.	24,899.		1.746	• 0
	-	CHASIS	11-074-	276.	23.842.	12,556	1.746.	.
	~	CONTHOL		246.	25.576.		C 2 . 0 K 0 .	• •
	~	PWH ASSY		1 198	51,325.	62.180.		•0
	4	TINFH/WIX	20.246.		155.25	12.556.	- 1	ć
	1 4	IC DEMON	9.633.			12.556.	145.465.	
	n		- 7 HO . LE	1.309.	• • • • • • • • • •		59.203.	•
	ç	FALTIEN	16-016	980.	42.350.		1 746	•
	•	SYNTHE SIS		.011	29.329.	-000-21	10 11 2	
	r	140-w14E	6.846		51.737.	62.7HG.		
	: a	SH ASSY	20.817.	• • • • • •	16.960	12,556.	.196.	
	•	DEMOTE 170	5,065.	173.		12.556.	1.796.	
	2		••52•4	267.		10.556	1.746.	• 0
	-	CUN MAILT	5 . 7 7 0 .	236.			19.754.	••
	2	24 (11)		1,032.	44.608.		1-746	•
	[]	AUD 1/0		150	30.240.		10.754	.0
	3	AUD CON	8+UD3-	1.449	5.644.	• 205		•0
	5	CHAS FILT			3.598.	• 205		0.
	: <u>+</u>	OH AMP	2.553.		2.156.	502.		
	22	DE CODE R	1.006.		46.201.	12,556.		
			12.597.	.167.21		12.556.	• GOE • 1 •	5 <
	5		6.323.	1.812.		502	1.796.	•
	-		9.018.	4,590.	• 1 = 2 • 5		1.795.	•••
	20	CHANNER PA		40.	.985.4		1.796.	•
2	21	ANALUG		12.	3.022.		1 - 746	•
4	22	IVHCU PS		. 90	2,282.	• 20 5	1.706	•0
2	1	nF cuD/1 [M		10.1	3.231.	502.	1111	0.
	76	MICHO	662.	100	1.128.	502.		Ū
	, r , r	TVHCU CHAS	1.798.	• • • • • • • • • • • • • • • • • • • •	- 262	502.	1.140.	
	2 4	MTG TRAT	197.		26.26.	27.623.	* 60C*6E	
			1.647.	• 525				•
	21							
								č
	MODU	IL F COLUMN TOTALS:		36.515	606.059.	384+211.	687.81h.	>
			232,389.	• • • • • • • • •				

LUGISTICS COSTS FOR PARTS (PRESENT VALUE). (PARTS CATALOGING COSTS ARE INCLUDED IN MODULE CATALOGING COSTS) -

•-

USED ON	USED ON NAME	INITIAL PARTS(\$)	CONSIMP.	HOLD CUST	REG COST	HIN COST
- 4 2 6 2 0 2 2 2 2 2	CHASIS TUNEW/MIX IF DEMOD FXCITER SYNIMESIS SYNIMESIS SWIMESIS SWIMESIS SWIMESIS MUD IZO CHAS FILT DWL-WATT PWH SUPP	7.200. 15.400. 10.450. 24.000. 14.000. 11.0000. 13.300.	23.683. 25.63U. 17.588. 28.254. 21.148. 25.736. 22.276. 22.275. 23.117. 23.117.	1.725. 3.690. 2.504. 5.750. 3.450. 3.450. 2.635. 3.187. 1.845.	22.529. 0. 0. 0. 0. 0.	48.215. 14.063. 2.543. 2.072. 9.543. 9.543. 5.072. 5.072. 5.072. 11.049.
PANT COL	UMN TUTALS:	122.650.	204.123.	29,386.	22.524.	168.250.

243

AVAIL	-	CURVE	PAR	.9076	1000.		
AVAIL	æ	CURVE	4Vd	10 1266.	.0000.		
AVAIL	æ	CURVE	AAU	. 9780	0000.		
AVAIL	٢	CURVE	PAR	. 9225	3162.		
AVAIL	٩	CURVE	PAR	. 4545	542].		
AVAIL	ھ	CURVE	PAH	1146.	7499.		
AVAIL	٩	CURVE	PAR	.9631	R660.		
AVAIL	ø	CURVE	PAR	1126.	R054.		
AVAIL	s	CURVE	РАК	.4618	R354.		
AVAIL	۵	CURVE	9AR	.9517	8205.		
AVAIL	æ	CURVE	HAH	.9618	8279.		
AVAIL	۵	CURVE	PAH	.9618	R242.		
AVAIL	÷	CURVE	PAR	1126.	8223.		
AVAIL	٠	CUHVE	н¥д	.9577	9232.		
AVAIL	æ	CURVE	9AP	. 9618	8242.		
AVAIL	æ	CURVE	PAH	.9618	8242.		
AVAIL	چ	CURVE	HAH	.0000	•0		
AVAIL	ھ	CUHVE	PAR	.0000	0,		
AVAIL	ۍ	CURVE	PAR	• 0000	0.		
AVAIL	٠	CURVE	PAR	.0000	0.		
AVAIL	æ	CURVE	PAR	.0000	0.		
AVAIL	æ	3 <i>i</i> .and	PAR	• 0000	0.		
AVAIL	æ	CURVE	PAR	.0000	0.		
AVAIL	æ	CUHVE	PAR	.0000	•0		
AVAIL	æ	CURVE	PAR	.0000	0.		
AVAIL	۵	CURVE	PAR	.0000	•0		
AVE WA	Ξ	(I)AYS	FOR	SRU HY ECHELON	• 00	37.10	65.01
AVERAG	ų	DOWN	1 JME	(IN DAYS) DUE TO) CTUEL 1S:	• 00	
AVE RE	PA	IN CO	ST BY	ECHELON	.00 14804.09	13322.94	37170.90
00 01							

5

TU OBTAIN AVG PHODUCIIVE REPAIR HRS AT Echelon K. Divide By Effective Laroh Hate at K (see Preprocessor)

• 00

244

,

•

STOCKAGE LISTS

F

.
UNGANIZATION UNIT STOCKAGE LIST

F

1

1

THERE ARE NO TIEMS ON LIST

DINECT SUPPORT UNIT STUCKAGE LIST

ł

.

-	цТ	U	T	1.	5.163.
	FCCM	U		.	848.
4	VEH MOUNT	U	-	-	1,960.
ŝ	IVRCU	J	-	-	840.
¢	MAN ANT	ပ	-	l.	e :
~	VEN ANT	U	1	5 .	224.
80	BAT CASE	ပ	-		-C 1 201
5	TUNE H/MIX	Σ		-	•••
,	SW ASSY	T	-		404
1	AUD 1/0	T	-	-	·112

· (7

F

101AL UNLLAH VALUE OF LIST 1S: 10.317.

PREFACE

The purpose of this manual is to enable an analyst or engineer to perform level of repair analysis (LORA) using the Optimum Supply and Maintenance Model (OSAMM). It is assumed that users have a working knowledge of the U.S. Army's logistics system and of basic supply and maintenance terminology. The manual describes the input file that must be constructed and the outputs generated by the model. It also contains a discussion of how the model can be used to perform sensitivity analysis. Readers interested in algorithms internal to the model are directed to the theoretical documentation [1]. Since actual execution procedures may change over time, they are not included here but will be provided to users on an as required basis.

Accesson For
NTIS CRASE
DTIC 113
Unarria de la companya de
Janti Loca
Ev
Q. A. P. C.
A 20 Martin Province
Dict States

i

TABLE OF CONTENTS

-

ł

ч ····р —---

Chapter 1 - The Model

1.1	Introductionl
1.2	Indenture Levels
1.3	Test Equipment and Special Repairmen
1.4	A Note Concerning Repair Labor
1.5	Cost Factors

Chapter 2 - Input

2.1	Control Parameters
2.2	End Item Information8
2.3	Turnaround Time (TAT) Defaults and End Item
	Repair Information8
2.4	End Item Repair Alternatives11
2.5	End Item Repair Equipments/Repairmen
	Associated with Specific Alternatives11
2.6	Deployment Information12
2.7	Labor Rates and Transportation Information12
2.8	Cost Parameters12
2.9	Test Equipment Information12
2.10	Repairman Information13
2.11	Component Information13
2.12	Pseudo Component Information14
2.13	Module Information14
2.14	Pseudo Module Information14
2.15	Application Information15

Chapter 3 - Preprocessor Output

3.1	Introduction
3.2	Normal Output

Chapter 4 - Final Output

4.1	Introduction
4.2	Main Output File
4.2.1	Maintenance Concept
4.2.2	Test Equipment and Special Repairman Requirements22
4.2.3	Logistics Costs
4.2.4	SESAME Type Inputs and Outputs
4.3	Other Cost Breakout
4.4	Stockage Lists

Chapter 5 - Sensitivity Analysis

5.1	Introduction
5.2	Policy File
5.3	Evaluation of User Defined Maintenance Policies28
5.4	Input Parameter Change
5.5	Reliability Changes
5.6	Split Maintenance Policies

-

Chapter 6 - Advanced Topics

- -

1

6.1	Introduction
6.2	Special Modeling Techniques
6.2.1	An Example of Components Inside a Component
6.2.2	Promoted Modules
6.2.3	Fixed Price Repair
6.2.4	Test Equipments and Repairmen Entered Twice
	for the Same Repair
6.3	Inside the Model
6.3.1	The OSAMM Programs
6.3.2	The Equipment Stack
6.3.3	Size Restrictions
	- /
	References
Appendix	A Input Variable Definitions
Appendix	B Input Data Formats
Appendix	C Preprocessor Variable List
Appendix	D Preprocessor Error Messages
Appendix	E Sample Basic Run
Appendix	F Sample Screening Run
Appendix	G Sample Multiple Repair Alternative Run201

.....

.....

· · · ·

.....

Chapter 1

THE MODEL

1.1 INTRODUCTION

The Optimum Supply and Maintenance Model (OSAMM) is a tool used to conduct level of repair analysis (LORA) for a new equipment entering the field. It helps the analyst or engineer determine at which of the Army maintenance levels (organization, intermediate forward, intermediate rear, or depot) various repair actions should be performed. Another possible "repair level" is no repair. In other words, the item in question is discarded when it fails. For the remainder of this manual the term "repair level" is taken to include the discard at failure option.

two major factors contributing to the repair level The decision are the maintenance and supply requirements. Maintenance requirements include the test equipments and special repairmen that must be deployed to support repair. Supply is concerned with the placement of spares in the field to achieve a readiness objective such as operational availability. These two factors are interrelated and cannot be considered independently when selecting levels of repair. Suppose, for example, that the level of repair was chosen so as to minimize the test equipment required. Since this would mean placing test equipment at the most central location, all repairs would be at the depot. The spares that would be required in the field to achieve an operational availability in this case would be quite extensive. Similarly, if the repair level was chosen to minimize spares, test equipment would have to be distributed to each of the many field maintenance shops. Because of this interdependence, the OSAMM is designed to choose repair levels by simultaneously optimizing supply and maintenance.

Inputs to the model are limited to the types of information that should be available early in development when the maintenance concept is being formulated. The model determines the optimal Maintenance Task Distribution (MTD) and Replacement Task Distribution (RTD) for major items in an equipment. It also compares the cost of throwing away an item with the cost of repair. In making these decisions the model considers the spares, test equipment and special repairmen that will be needed to support the maintenance policy. Other costs such as transportation, cataloging and documentation are also considered.

The Selected Essential-Item Stockage Availability Method (SESAME) model is used in OSAMM to optimize supply. It should be noted, however, that the model is not designed to replace SESAME. The OSAMM should be used early in development to help establish a maintenance concept when detailed data on a new equipment is

unknown. The SESAME model should be used later in development after the maintenance concept has been determined and more detailed data is available.

The original release of the OSAMM allowed for only one repair time and one set of test equipments and special repairmen to be input for each type of repair action. The model would determine at which maintenance echelon repair should be performed given this one method of repair. The enhanced version of the model contains three run modes one of which accepts up to three different options for each repair action. The improved model is thus able to trade-off among three repair methods. This capability can be used to analyze such repair options as common, automatic, and special test equipment to determine how repair should be done as well as where it should be done. The original model remains as one of the run modes of the enhanced model, however.

A third run mode of the enhanced model examines the value of screening or "go-no/go" testing. Screening is used to verify that an item has indeed failed before it is sent back for repair or is discarded. Only one repair method is permitted when the model is run in the screening mode. In this mode, the user identifies those items which are candidates for screening. The model considers any equipment or special repairmen needed, the effectiveness, the time required, the cost of an end-to-end test program set and the supply implications to determine if screening is cost effective for each item. The decision is not made by looking at each item individually, but is made by considering the system as a whole.

1.2 INDENTURE LEVELS

The model looks at three levels of indenture within an end item; components, modules and piece parts. The end item in figure 1 is broken down into two components. Component 1 is composed of three modules, and component 2 is composed of two modules. There is a module 3 in both component 1 and component 2. The applications listed on the bottom of the figure describe how the components and modules are assembled. Piece parts contained in the modules are not shown. Since detailed piece part data is not generally available in early development, piece parts are considered only in an aggregate manner.

Occasionally there are parts or groups of parts that do not fit exactly into the indenture level structure. These parts or groups can be designated as pseudo components or pseudo modules. One example of a pseudo component would be a component that contains no modules and has a washout rate of one. Another would be a set of wires connecting components. In general, a pseudo component is not repaired and is not removed and replaced as a unit (unless it consists of only one part). When parts that make up a pseudo component are replaced, the end item is repaired directly. Since the end item and not the component is repaired by such a maintenance action, test equipment or special repairmen required are associated with end item repair as described in paragraph 1.3b below. Repair

FIGURE 1







times are considered in the development of the end item mean time to repair.

In order for a group of parts to be combined into a pseudo module, they must be contained in a component which is removed and replaced as a unit. Replacement of the parts will repair the component outside the end item. Test equipments or special repairmen needed are associated with the application as described in paragraph 1.3e below. Repair times are considered in the development of the mean time to repair for the component.

The difference between a pseudo component and pseudo module lies more in how repair is accomplished rather than in the actual construction. Suppose an automobile is considered as an end item. The engine would clearly be a major component. Considering the spark plugs as a pseudo module would mean that when the spark plugs fail, the engine (component) will be replaced with a new engine. The old engine will then be placed in stock after the spark plugs are changed. This is obviously not how one goes about changing the spark plugs in a car. The car (end item) is repaired directly without removing the engine. The spark plugs should therefore be considered as a pseudo component. A spark plug wrench would be listed with test equipment needed to repair the end item when the spark plug pseudo component fails.

The first step a user must take in using the OSAMM is to identify components, modules, pseudo components, and pseudo modules. A general rule for distinguishing between components and modules follows the same logic as above. If the removal and replacement of an item results in repair of the end item, that item should be considered as a component or pseudo component. If the removal and replacement of an item results in repair of another item which has been labeled a component, that item is a module or pseudo module. Once the user has classified an item as a component or module he must determine if it is a pseudo item or not. An item is considered to be a pseudo item (component or module) if it has no lower level of indenture and hence could not possibly be repaired. The lower level of indenture for a repairable component is a module, and the lower level of indenture for a repairable module is a piece part.

An example derived from electronics serves to illustrate the identification process. Suppose that the built in test (BIT) for a given electronic end item can fault isolate to the circuit card level. This means that the end item can be repaired by replacing the faulty circuit card assembly (CCA). Thus, the CCA is a component. The CCA has a lower level of indenture and can be repaired by replacing individual resistors, capacitors, integrated circuits (IC) etc. These items are called modules since their replacement results in repair of a component. Since these items cannot typically be repaired they are designated as pseudo modules. Each one of these items may be listed individually, or they may be grouped together for simplicity.

The identifications in the example above would change with a reduction in the capability of the BIT. Suppose that the BIT could

only fault isolate to the "black box" level. Then, the "black box" would be a component, and the CCA's inside the box would be modules. In this case, the modules are repairable with the lower level of indenture being the resistors, capacitors and IC's which would be called piece parts.

The model is based on applications or failure modes. This gives OSAMM greater flexibility than most models. Commonality within an end item can be considered. The same module may be contained in two different components, e.g. module 3 in Figure 1. Since failure data is input by application, the model can account for the fact that the module may have a different failure rate depending on the component in which it is installed. A significant error could occur if module 3 was treated as two different modules in each of its applications. Suppose repair of module 3 is justified if there are at least 100 failures per year. Treated individually, 50 failures in component 1 and 60 failures in component 2 would not justify repair. Module 3 would be incorrectly labeled as a throwaway. The OSAMM recognizes that the same module is in both components and considers all 110 failures in making the repair decision.

Repair level decisions made by the model are output by application. The model will describe what should be done when the end item fails due to the failure of a certain module in a certain component. As an example, suppose that the end item pictured in figure 1 has failed because module 3 has failed in component 2. The model may suggest that the end item be repaired at the organizational level, component 2 be repaired at intermediate forward and module 3 be repaired at the depot. If module 4 had caused the failure, however, the model might suggest that because module 4 requires more skill and more expensive test equipment to remove, repair of component 2 should be done at intermediate rear. The model will also determine which components and modules should be thrown away instead of repaired. This set of repair level decisions is commonly referred to as the "maintenance concept" for the equipment.

1.3 TEST EQUIPMENT AND SPECIAL REPAIRMEN

A test equipment or special repairman is peculiar at an echelon if it is not currently located at that echelon. A decision to perform a repair action requiring the use of such an equipment or repairman at that echelon would necessitate an addition to the equipment or skill level already there. New pieces of equipment would have to be purchased, or repairmen with skills not common to the echelon would have to be moved in. The model assumes that if an equipment or repairman is peculiar to an echelon it will be peculiar to all echelons below that echelon. A test equipment that is peculiar at a GSU cannot be common at a DSU, for example. On the other hand, an equipment or repairman common at a higher echelon may be peculiar to the retail echelons.

Fractional requirements are computed for test equipments and repairmen labeled as common, but requirements for peculiar test equipments and repairmen are constrained to be integer valued. It is

necessary to compute both fractional and integer requirements for the same test equipment if it is already in use at higher echelons, e.g. depot and intermediate rear, but would be new to forward echelons. The placement of special test equipment/repairmen can be constrained allowing the user to prevent their deployment below a specified echelon.

Test equipment and special repairmen are needed for five different kinds of repair actions:

a. Repair end item whenever it fails.

The equipment or repairman is needed whenever the end item fails.

b. Repair end item when it fails due to the failure of a specific component.

Occasionally there are test equipments or repairmen that are not needed every time the end item fails but are needed when the failure is caused by a specific component. One example of this type of test equipment would be an equipment used to realign or tune the end item when a specific component such as an antenna is replaced. Another would be an equipment needed to remove and replace a specific component. Even though it is used for end item repair, requirements for this equipment are based on the number of failures of the specific component and not the total number of end item failures.

c. Repair a component whenever it fails.

The equipment or repairman is needed whenever the component fails.

d. Repair a module whenever it fails.

e. Repair a component when it fails due to the failure of a specific module.

The equipment or repairman is not normally needed to repair the component, but it is needed when a specific module fails. (See b above).

Note: An equipment or repairman can be used for more than one of the above purposes and can be used on any number of different components and modules.

1.4 A NOTE CONCERNING REPAIR LABOR

The OSAMM can account for labor costs in either of two ways. The user may define a special repairman, or he may assume that repair is performed by a common repairman. If no special repairman is assigned to a given repair action the model will use the Mean Time to Repair (MTTR) and an hourly labor rate to determine the labor cost associated with the repair action. When a special repairman is assigned, the model uses the MTTR or a time input by the user to

determine the fraction of the special repairman's time to be charged to the repair action. Total requirements for the special repairman are then computed considering all of the repair actions he must perform. If the repairman is peculiar at an echelon, these requirements are rounded to the next integer. Finally, the requirements are multiplied by an annual cost derived from the repairman's annual salary, training costs and rotation to yield the annual labor cost associated with this type of special repairman.

The user is free to select which of the methods described above are used to calculate repair labor costs. He does so by either including or not including a special repairman when describing each type of repair action. It is not necessary to use the same method for all repair actions. Some may use the simple hourly rate calculation, and others may contribute to the workload of a special repairman. Whenever repair is performed by someone specially trained for or associated with the end item, however, a special repairman should be used. Special repairmen should also be used when new skills are introduced to any repair level. Costs can be based on an hourly rate if the repairman repairs this system as well as a host of others, and if he requires no additional training outside of the basic training he would normally receive.

1.5 COST FACTORS

One time and annual recurring costs are both considered in the model. Comparisons are made using the net present value method as per DoDI 7041.3. The net present value method of comparison is based on the principle that a dollar received today is worth more than a dollar received in the future.

Time phasing of deployment is not considered by the OSAMM. Repair level decisions are based on full deployment. The model assumes that full deployment takes place in the first year. This means that cost estimates produced are not true life cycle costs, but they are useful for ranking repair level alternatives. This steady state approach was taken to simplify data requirements and processing with the expectation that it would not unduly bias the choice of one alternative over another. It does tend to exaggerate the impact of cost which will phase in over time. Note that not only do annual costs such as requisition processing build up to full deployment levels, but even "one-time" costs, such as purchase price for test equipment, are not really all incurred at one time. Test equipment, for example, need only be deployed as the weapon system is introduced over time to additional fighting units. Although some refinements to the model may ultimately be necessary, the basic premise that the choice of repair levels should be based on the full deployment will not change.

Chapter 2

INPUT

2.0 INPUT DATA FILE

Input data for the model must be stored on a file consisting of 80 column records. All records are mandatory except where noted. The input file is summarized in Figure 2. The "99" and "9999" records signal the end of various types of data. A brief description of each record or set of records is given here. Detailed definitions of the data elements can be found in Appendix A. Formats, defaults and column locations are given in Appendix B.

The input data file is read by the OSAMM preprocessor program. The preprocessor reformats user inputs and computes data required by the main program. It also performs several edit checks and produces a variety of error messages. By reviewing the preprocessor output the user can detect errors in his inputs and correct them before expending the resources to run the full model only to find that there is an error in the input data.

2.1 CONTROL PARAMETERS

The first record in the file contains information which controls the execution of the model. Among the inputs on this record are the run mode selector and the policy selector variables. The run mode selector defines the type of run that is to be made and indicates what other data will be input. For example, if the run mode selector is set for a screening run (IMODE = 1), the model will look for screening parameters. Similarly, the model will only accept more than one repair alternative for an item if the run mode selector is set for examination of multiple repair alternatives (IMODE = 2). The policy selector variables are used to limit the number of levels that are considered for certain types of repair or screening actions. The user can employ these variables to restrict the model's optimization.

2.2 END ITEM INFORMATION

The second record in the file contains information concerning the end item itself. The MTBF multiplier is used for sensitivity analysis. All MTBF's input to the model will be multiplied by this factor. The false removal rate default input on this record represents an overall average for the end item. This value will be used when a specific false removal rate is not input with an individual component or module.

2.3 TURNAROUND TIME (TAT) DEFAULTS AND END ITEM REPAIR INFORMATION

This record follows the end item information record and contains default values for turnaround times and the screening detection fraction which are used when specific data is not input with an

SUMMARY OF INPUT FILE

F

1.	Control Parameters
2.	End Item Information
3.	TAT Defaults and End Item Repair Information
4.	End Item Repair Alternatives (OPTIONAL) *
5.	End Item Repair Equipments/Repairmen Associated With Specific Components (OPTIONAL) * -One record for each component and alternative to be entered 9999
6.	Deployment Information
7.	Labor Rates and Transportation Information
8.	Cost Parameters
9.	Test Equipment Information -Two records per test equipment Record 1 - Basic Information Record 2 - Parameters by Echelon
	99 .
10.	Repairman Information -Two records per test equipment Record 1 - Basic Information Record 2 - Parameters by Echelon 99
11.	Component Information -One set of records per component Record 1 - Basic Information Record 2 - Repair Information for First Repair Alternative * Records 3,4 - Repair Information for Second and Third Repair Alternatives (OPTIONAL - can be used only if IMODE = 2) * Record 5 - Screening Information (OPTIONAL - can be used only if IMODE = 1) * 9999
12.	Pseudo Component Information -One or two records per pseudo component Record 1 - Basic Information Record 2 - Screening Information (OPTIONAL - can be used only if IMODE = 1) *
	9999 Figure 2

SUMMARY OF INPUT FILE (cont.)

13. Module Information -One set of records per module Record 1 - Basic Information Record 2 - Repair Information for First Repair Alternative * Records 3,4 - Repair Information for Second and Third Repair Alternatives (OPTIONAL - can be used only if IMODE = 2) * Records 5 - Screening Information (OPTIONAL - can be used only if IMODE = 1) * 9999 14. Pseudo Module Information -One or two records per pseudo module Record 1 - Basic Information Record 2 - Screening Information (OPTIONAL - can be used only if IMODE = 1) * 9999 15. Application Information -One set of records per application Record 1 - Basic information Records 2,3,4 - Additional Information for a Given Component Repair

9999

* Each record marked with an asterisk contains a list of test equipments and/or repairmen. This list may be continued on an additional record if necessary.

IMODE = 2) *

Alternative (OPTIONAL - Records 3

and 4 can be used only if

Figure 2 (cont.)

1Ø

individual component or module. These defaults along with the false removal rate default on the previous record are used to simplify input requirements. This data need not be entered again on individual component or module records unless it is different from the default values entered here.

This record also contains information concerning repair of the end item itself. Two variables, the number of end item repair alternatives and the indicator for test equipments or repairmen associated with specific components, tell the model if record types four and five will be input. If the number of repair alternatives is greater than zero, the model will look for one record type 4 for each repair alternative. If the indicator is set to one (1) type 5 records must be input.

2.4 END ITEM REPAIR ALTERNATIVES

£

Þ

These records define end item repair alternatives and contain lists of test equipments and/or repairmen that are required to repair the end item each time it fails as described in paragraph 1.3a. The time each test equipment or repairman is required may also be entered on this record. Each set of test equipments and/or repairmen for a given alternative is assigned a name on this record which identifies the list to the preprocessor. If more than ten (10) test equipments and repairmen are required, the list may be continued by using an equipment/repairman continuation record.

This type of record is optional and need only be included if the number of end item repair alternatives input on the previous record is greater than zero. If the number of alternatives is greater than zero, there must be one record of this type (plus continuation if necessary) for each end item repair alternative. An end item repair alternative must be defined by this type of record if test equipments or repairmen to repair the end item when specific components fail are going to be input on the following records even if no test equipments or repairmen are required for every end item failure.

2.5 END ITEM REPAIR EQUIPMENTS/REPAIRMEN ASSOCIATED WITH SPECIFIC COMPONENTS

These records contain lists of test equipments and/or repairmen that are needed to repair the end item when specific components fail as described in paragraph 1.3b. Each record of this type must have an alternative name which matches the name of an end item repair alternative defined above and the identification of the component with which the list of test equipments/repairmen is associated. Test equipments and/or repairmen listed above that are needed for every end item failure should not be repeated here.

These records are required only if the indicator on the TAT and End Item Repair Information record is equal to 1. There must be one record (plus continuation if necessary) for each component whose failure necessitates the use of additional test equipment or repairmen under a given repair alternative. If these records are used they must be followed by a record with "9999" in the first four columns. .

2.6 DEPLOYMENT INFORMATION

The next record in the file contains SESAME type data concerning the supply structure which supports the end item. The OSAMM assumes a worldwide symmetric support structure. The model divides the worldwide density by the number of each type of maintenance unit to yield the average number of end items supported by each. Thus, each unit at a given echelon is treated as if it were the same as all other units at the echelon. While this may not be exactly true, this averaging approach is sufficient when making repair level decisions.

2.7 LABOR RATES AND TRANSPORTATION INFORMATION

The record following the deployment information contains data which defines common repairmen at each maintenance level and data which is used to calculate transportation costs. The effective hourly labor rate computed from the common repairman data on this record is used by the model to account for labor costs when no special repairman is needed for a given repair action (see paragraph 1.4).

2.8 COST PARAMETERS

Other cost parameters are listed on the next record. The first ten columns of this record must be left blank. The blank field is used by the preprocessor to insure that all of the mandatory records are present in the input file. This record is required even if all of its fields are blank (using all default values).

2.9 TEST EQUIPMENT INFORMATION

Test equipment information records follow the cost parameters. The user assigns each test equipment an identification number between 1 and 30. There are two records for each test equipment. The first contains basic information, including the identification number, which is not echelon dependent. Parameters that may vary by maintenance level are listed on the second record. There is one section on this record for each maintenance echelon. If the entire section for a given echelon is left blank, the preprocessor will automatically use the values in the previous section. For example, if the parameters are the same for all echelons, the user need only enter the parameters for the organizational level. The direct support parameters will be set equal to these values since the direct support level will then be set to the direct support values which were themselves taken from the organizational section. Finally, the depot parameters are set equal to these general support values. If data is entered only in the organizational and general support sections, values in the organizational section will be used for the organization and direct support levels, and the values in the general support section will be used for the general support and depot levels.

The two records for each test equipment must be kept together and in the proper order. Otherwise, the test equipments may be input in any order. This set of records must be followed by a record with "99" in columns 1 and 2. If there are no test equipments, a record with "99" in columns 1 and 2 must be placed after the cost parameter card.

2.10 REPAIRMAN INFORMATION

The repairmen information records follow the test equipment information. The special repairmen are also assigned identification numbers between 1 and 30. These numbers must be different than those given to the test equipments. Thus, there can be no more than a total of thirty test equipments and special repairmen. As with equipments, are required for each two records special test The first contains basic information, and the second repairman. contains parameters that may vary by echelon. The preprocessor will automatically use the values in the previous section if the entire section for a given echelon is left blank on the second record.

The two records for each special repairman must be kept together and in the proper order. This set of records must also be followed by a record with "99" in columns 1 and 2. If there are no repairmen, two cards with "99" in the first two columns must be placed after the test equipment data instead of one. There should be at least one test equipment or special repairman.

2.11 COMPONENT INFORMATION

component information records which follow the special The repairman data contain information about the individual components. The number of records for each component depends on the run mode and the number of repair alternatives. At least two records are required The first contains basic information which describes in all cases. component. the It includes a four character alphanumeric identification which identifies the component to the preprocessor. The component name which also appears on this record is only for the convenience of the user. The second record defines the first repair alternative for the component and contains the identificati a numbers of test equipments and/or special repairmen needed for every repair action (see 1.3c). Since each component must have at least one repair alternative regardless of the run mode, this record is required.

The number of additional records input with the component depends on the run mode. When the run mode is set to zero only the two records described above are required or permitted. If the run mode is set to examine multiple repair alternatives (IMODE = 2), one or two records defining additional repair alternatives may follow the required records. The total number of repair alternatives to be included is entered on the first record which contains the basic component information. For screening (IMODE = 1), only one record in addition to the required records is permitted. This record contains screening information and is included if and only if the component is identified as a candidate for screening by the indicator on the first record.

The records for each particular component must be kept together and in the proper order. Otherwise, the components may be input in any order. A record with "9999" in the first four columns should follow the component records.

2.12 PSEUDO COMPONENT INFORMATION

The pseudo component information records follow the regular component records in the file. There is only one record for each pseudo component unless the model is being run in a screening mode and the pseudo component is a candidate for screening. Since pseudo components themselves are not repairable, no repair alternatives are defined. Test equipments and/or special repairmen needed for maintenance actions associated with a pseudo component are repairing the end item and therefore must be listed with test equipments and special repairmen used to repair the end item when the specific pseudo component fails (see 1.3b).

If there are two records for a pseudo component, they must be kept together and in the proper order. This set of records is followed by a record with "9999" in the first four columns. If there are no pseudo components, two records with "9999" in the first four columns must follow the regular component records. The first record signals the end of the component data, and the second signals the end of the pseudo component data.

2.13 MODULE INFORMATION

The module information records which follow the pseudo component information records are arranged in exactly the same manner as the component information records. Module data is also followed by a record with "9999" in the first four columns.

2.14 PSEUDO MODULE INFORMATION

The pseudo module information records which follow are arranged in the same manner as the pseudo component information records. Unlike pseudo components, however, no failure rate information is input on these records. As with repairable modules, failure information is entered on the application records. Test equipment and special repairmen needed for maintenance actions associated with a pseudo module are repairing the component and therefore must be listed with the appropriate applications (see 1.3e).

If there are two records for a pseudo module (screening mode), they must be kept together and in the proper order. The pseudo module records are followed by a record with "9999" in the first four

columns. If there are no pseudo modules, two records with "9999" in the first four columns must follow the regular module records. The first record signals the end of the module data, and the second signals the end of the pseudo module data.

2.15 APPLICATION INFORMATION

The final set of records in the file describes the applications. There is one required record that defines each application. It lists a module, the component to which it belongs, and the mean time between failure (MTBF) of the module in this application. Since a given module may be part of different components, it may appear in several applications. Thus, the failure rate depends not only on the module itself, but also on where it is installed. Multiple occurrences of a module in the same component should be entered as one application, however. The MTBF for this application should represent the combined MTBF of all occurrences of the module in the one component. Since each repairable component must contain at least one module, it must be listed with at least one application. Similarly, since each module (repairable or not) must be part of a component, each module must be listed with at least one application.

All data concerning repair of components is normally entered with the component information. In some cases, this data may change when the component failure is due to a specific module. The most common example of this type of data is test equipment and/or special repairmen in addition to those already listed with component repair information that are needed to repair the component when the specific module has failed (see 1.3e). The component mean time to repair (MTTR) may also change for a given application. Additional or changed repair information of this type is input on the optional application records described below.

There is one additional repair information record for each component repair alternative to be modified. Thus, there can be more than one additional record only if the run mode is set to examine multiple repair alternatives (IMODE = 2). The data on an additional repair information record pertains to repair of the component when the specific module fails for the component and module listed on the basic application record. The component repair alternative that is being modified is identified on the additional record. This identification must match the identification of a repair alternative that was defined when the component data was input. If there is more than one record for an application, they must be kept together and in the proper order. Otherwise, the applications may be input in any order. An ending record with "9999" in the first four columns must be placed at the end of the application records.

Chapter 3

PREPROCESSOR OUTPUT

3.1 INTRODUCTION

The preprocessor generates an output which should be used to check the input data for errors before running the entire model. Several error messages, which are discussed in Appendix D, point to specific errors in the input data. All user inputs are listed on the preprocessor output. Some computations done by the preprocessor are also reflected in the output. Sample input files and the resulting output files are given in Appendices E, F and G.

3.2 NORMAL OUTPUT

Preprocessor output is divided into several sections. The first contains control, end item, deployment and general cost data. The next section has test equipment and special repairman data. The final sections list data associated with specific components, modules, and applications.

The control parameters describe the maintenance policies the model will consider. They give the lowest echelon where the end item, components, and modules can be repaired. The model will not consider any policy which has repair below these levels. In a screening run the lowest echelons to screen components and modules End item information is output as it was input. are also listed. The false removal rate default is applied to each component and module if a false removal rate is not entered with the specific module or component. Similarly, turnaround times listed with the end item information are used when turnaround times are not entered with individual components and modules. In a screening run, turnaround time defaults and a detection fraction default, which are also used when data is not entered with individual components and modules, are Test equipments and special repairmen needed to repair the listed. end item every time it fails and those needed only when specific components fail follow this information.

Deployment information and cost parameters as they were input by the user are output after end item information. The results of several calculations done by the preprocessor are also shown. The average Operational Units of Program (OUPS) is computed from the claimants and the deployment density. The effective labor rate is the hourly salary of a common repairman loaded with the cost of benefits and adjusted for productivity. The transportation cost per pound is computed from the cost per pound per mile and the distance between echelons. All other input cost parameters are also listed. Cost parameters in terms of present value that are actually used by the model are given at the end of the cost parameter output. The next section of the preprocessor output contains test equipment and special repairman data. The maintenance level listed under "common above" gives the highest echelon at which a test equipment or special repairman is peculiar. It will be considered as common for all echelons above that echelon. Test equipments and special repairmen which have nothing under "common above" are considered as common everywhere. Those which are common above the depot are peculiar everywhere. If a test equipment or repairman is designated as "For Repair Only" it is not used for diagnostics and consequently is not required for false removals. Echelon data is listed only for those maintenance echelons where the test equipment or repairman can be placed. The preprocessor automatically fills in data for echelons where no data has been input by the user. The output reflects this process and lists the data that will be used by The only data in this section that was not input by the the model. user is the present value. Details of the present value calculations can be found in Appendix C.

The final sections of preprocessor output contain all of the data associated with the individual components, modules, and applications. Component and module names are only for the convenience of the user. The component and module ID's, however, are used by the preprocessor for identification. Therefore, each component and module must have a unique ID. Each component, module and application is given a reference number by the preprocessor to aid in debugging. These numbers are cumulative except for a jump of 1 between pseudo modules and applications. The extra reference number is reserved for internal purposes, Components, modules and applications are also assigned separate numbers which are not cumulative.

Preprocessor output for components is structured in the same manner as is the input. There is basic component data, data which describes repair alternatives, and screening data (IMODE = 1). Most data appears exactly as it was input by the user. If the user has left any data fields blank, the defaults used by the model will be listed. Pseudo component output is also a listing of the inputs. No repair alternatives are given since pseudo components are not repairable, but there will be screening information if the pseudo component is a candidate for screening (IMODE = 1). The failures per year, which are computed from the mean time between failure (MTBF) and the annual operating hours, are the expected number of failures of the pseudo component in one end item per year. This value is given in exponential or "E" format. In "E" format the value .1E+01 means 1.0, and the value .1E-01 means 0.01.

Module and pseudo module outputs are essentially the same as component and pseudo component outputs. The additional information output with modules describes the parts that are necessary to perform module repair. The "new parts" entry gives the number of piece parts in the module which will require a new NSN if the module is to be repaired, and the "parts cost per repair" is the average price of piece parts required for each repair action. There is no failure data for pseudo modules since failure information for pseudo modules appears with the applications.

Each application is identified by the component and module name, number, and ID. The ID's are input by the user on the application The preprocessor supplies the names and numbers from data record. the component and module information. The MTBF and the number of failures per end item per year of the module in the component are also printed. If any component repair information is modified for a particular application the new information is also listed. The of pages of technical "pages saved" represents the number documentation concerning repair of the component that would be saved if the entire component were thrown away when the module failed.

The preprocessor output concludes with a summary of the failure data that has been input. The number of failures per end item per year is the sum of the pseudo component and application failures. This number is used along with the annual operating hours to derive an MTBF for the end item. The end item MTBF input by the user is If the derived MTBF is substantially greater also repeated here. than the input MTBF, then either individual MTBF's are too high, or some items and their failures have been omitted. If, on the other hand, the derived MTBF is much lower than the input MTBF, then there are more end item failures than expected, and the input MTBF may have In either case the discrepancies should be to be changed. reconciled.

Chapter 4

FINAL OUTPUT

4.1 INTRODUCTION

The OSAMM can be run in either an optimization mode or an evaluation mode. In the full optimization mode a maintenance concept which minimizes cost is chosen by the model and evaluated. In the evaluation only mode the costs associated with a maintenance concept chosen by the user are computed. The evaluation mode is useful for performing sensitivity analysis and answering "what if" type questions. Except for a message which describes the performance of the optimization, the model's output is the same in either case.

The OSAMM actually creates several files which present the model's results in various formats and levels of detail. Samples are presented in appendices E, F, and G. The main output file describes the maintenance concept either chosen by the model (optimization run) or input by the user (evaluation run) and contains test equipment and special repairman requirements as well as summaries of costs associated with individual components and modules. The main output file also lists the initial spares requirements and the SESAME type parameters such as MTD and RTD that were used to compute them. A second output file breaks out costs summarized on the main output. The third output file contains stockage lists and costs for organizational and direct support units.

4.2 MAIN OUTPUT FILE

The main output file begins with the output from the preprocessor. In an optimization run this is followed by a message which describes the performance of the optimization. The message either states that an optimum solution was found or that the solution found is within a given percentage of the optimum. The optimization algorithm is set to stop if a solution is within one half of one percent of a bound on the best solution. Since the bound may or may not be achievable, the solution found may indeed be optimal even though the message states that it is only within a percentage of optimum.

4.2.1 Maintenance Concept

The remainder of the output file contains the results of the run. It begins with a listing of the maintenance policies suggested by the model (optimization run) or input by the user (evaluation run). The level at which end item, component, and module repair should be performed is given for each application. Suppose application 1 consisted of MODULE 1 and COMPONENT 1, and the repair levels for end item, component, and module were ORG, DSU, and DEP

respectively. This would mean that when the end item failed because MODULE 1 failed in COMPONENT 1, the end item should be repaired at the organizational level, COMPONENT 1 should be repaired at the DSU, and MODULE 1 should be repaired at the depot. If the component should be thrown away instead of repaired, no repair level will be listed for the module.

To avoid the deployment of an extra test equipment or special repairman which would be idle for most of the time, it may sometimes be advantageous to have two different maintenance policies for the same application. As an example, suppose that one special test equipment can handle almost all repair of a module at a DSU. Instead of buying a second piece of test equipment to handle all repair of the module, it may be better to ship a few modules to the GSU when the test equipment is unavailable at the DSU. It may even be better to throw away a few modules rather than buy an extra piece of test equipment that is hardly ever needed. When the model suggests such a split maintenance policy, a sensitivity flag will be printed. The number in the fraction of time column will be the fraction of repairs performed according to the maintenance policy listed.

Certain approximations are made by the model when considering split maintenance policies. The approximations are not made in evaluating the costs for these policies, however. Although the approximations do not introduce a significant error, split maintenance policies suggested by the model are flagged with an asterisk in the sensitivity column and should be examined by the user in his sensitivity analysis as described in Chapter 5. A more detailed discussion of the approximations can be found in the theoretical documentation to the model.

The column headed, "MODULE PROMOTED," will generally be blank. An asterisk in this column indicates that the module is considered as a line replaceable unit (LRU) for this application and is included in the availability computation. A module is promoted if it is removed from a component at the same level as the end item is repaired and if the component has a washout rate of zero. If the promoted module is the only module in the component, the MTD and RTD for the component will be zero. The component will not be stocked since it never washes out and the end item is repaired by replacing the module. There is no need to stock the component if the module is stocked and considered in the availability computation.

The maintenance policies are followed by a listing of screening policies if IMODE = 1 or by a description of repair alternatives selected if IMODE = 2. No such output is given or required if IMODE = \emptyset .

Screening policies are listed by component and module. Items should be screened at the echelon listed before they are sent back for repair at the designated maintenance level. As with maintenance policies, the fraction of time a particular screening policy is to be followed is given for each item. This fraction may be less than one either because there is a true split policy or because the fraction is equal to a theoretical bound. A true split policy, marked by an

asterisk in the sensitivity column, is one that is followed for a fraction of time which is less then the theoretical bound. One example would be an item which is screened at different levels but is always repaired at the same level. This is done to reduce the number of test equipments and special repairman required. The theoretical bound arises because the fraction of items screened at an echelon cannot be greater than the fraction of the items which are returned to that echelon but are not repaired there. Suppose, for example, that a module, which is always repaired at the depot, is part of two different components. If one component is repaired at the DSU and the other at the depot, only those modules that are part of the first component can be screened at the GSU. In this case, the bound will be less than one. If the fraction of time a particular policy can be followed is equal to its bound a "B" will be printed in the sensitivity column. Sensitivity analysis is not normally required since any item reaching the level and not repaired there is screened. There is no split in the policy.

When there are multiple repair alternatives (IMODE = 2), the maintenance policies are followed by a listing of the alternative selected for each repair action. Each repair action is assigned a reference number which is used when performing sensitivity analysis. The repair action is then described by identifying the item being repaired (end item, component or module), the maintenance level at which the repair takes place, and the item that is being removed and replaced to effect repair. Finally, the repair alternative suggested by the model and the fraction of the time this alternative should be used are listed. As with screening policies, these fractions may be less than one or sum to a number less than one for several reasons. There may be true split repair alternative decisions which are generated to reduce the number of test equipments and special repairmen that are required. In this case, which is marked by an asterisk in the sensitivity column, two different repair alternatives are used for the same item at the same level. A second reason for the total of the fractions associated with a particular reference number being less than one is that an item or its higher assembly may sometimes be thrown away. These cases are marked by a "T" in the sensitivity column. As an example, suppose a module is part of two different components one of which is discarded at failure. The fraction of time a repair alternative may be followed is limited by the fraction of modules that are part of the component which is The third reason for fractions which total less then one repaired. is that the basic maintenance policies for an item or its higher assembly may be split. This can also occur if a module is part of two different components. The model may suggest that when the module fails in the first component it should be repaired at the GSU, but when it fails in the second it should be repaired at the depot. Even though the fractions associated with the basic maintenance decisions are all 1.0000, this is a split because the module is repaired at different levels. The letter "Q" is printed in the sensitivity column when the fractions are less than one because of a split maintenance policy.

A sample of this section of the output is given in Figure 3. The complete output for the run can be found in Appendix G. Several examples will illustrate how to interpret this data. For reference number 1 the output should be read as follows: "When the end item is repaired at echelon 1, organization, by removing and replacing component 1, the RT, repair alternative 1 which has no name (ØNAM) should be used." Similarly, for reference number 9 the output is read as "When module 1, the CHASIS, is repaired at echelon 3, GSU, by removing and replacing PARTS repair alternative 1 called ALT 1 should be used." Finally, for reference number 51 the output means: "When component 2, the Power AMP, is repaired at echelon 3, GSU, by removing and replacing module 15, the CHAS FILT, repair alternative 1 called ATE should be used."

4.2.2 Test Equipment and Special Repairman Requirements

Ĺ

Test equipment and special repairman requirements are divided into two categories. The first consists of the requirements for test equipments and repairmen where they are peculiar. These requirements are given as both fractional and whole numbers. The fractional numbers indicate the extent to which the test equipment or repairman is actually utilized. Since a fraction of a peculiar test equipment or repairman cannot be deployed, however, the integer quantities are used for all calculations.

Requirements for test equipments and special repairmen where they are common, given next, can be fractional. These test equipments and special repairmen' may have to be deployed, but the quantity depends on what is currently available at the echelon. As an example, suppose a piece of test equipment at DSU is only used to fifty percent of its capacity. If the requirement for this equipment to support the new end item were 2.4, only two more need be deployed. Three more would have to be deployed if the requirement were 2.9.

The remainder of the output in both the peculiar and common categories summarizes costs and quantities for each test equipment and special repairman. The value in the column headed "Total Qty at Echelon" is computed as the quantity per shop times the number of shops at that echelon. The hardware cost listed is the present value of the costs associated with the total quantity of the test equipment This includes annual maintenance for test or special repairman. equipments and training for special repairmen. The final column of test equipment and special repairman output adds quantities across echelons from organization to depot. Suppose, for example, that the total requirements for a test equipment at DSU, GSU, and depot were 0.2, 0.3, and 0.4 respectively. Then, the entry in the column for the DSU would be 0.2. The entry for GSU would be 0.5 (0.2 + 0.3). The entry for the depot would be 0.9 (0.5 + 0.4). Thus, the entry in this column associated with the last appearance of the test equipment in the table represents the total quantity of the test equipment that will be required worldwide.

55%5171V177 Flag																																												
THIS FHAC OF INE TIME	C000-1	1.0000	1.0000	1.0000	1.0009	1.0909	1.0005	1.0005	1.0005	1.0000	1.0003	1.0001	1.0000	1.0009	1.0009	1.0000	1.0000	1.0000	1.0005	1.0000	1.0003	1.0000	1.0000	1.0000	1.0309	1.0000	1.0300	1.0000	1.0000	1.0000	1.0000			1.0060	1.0001	1.0000	1.0005	1.0000	1.0900	1.0003	1.0000	1.0009	1.0009	1 - 0 0 9 6
USE REPAIR ALTERNATIVE	I ONA4	I ONAM	1 ONAM	NANO I	I ONAM	I UNAM	I DNAM	I ONAM	1 ALT1	1 ATE	1 ATE	1 ATE	1 ATE	2 STE	1 ATE) ATE	1 ATE	1 ATE	1 ALTI	1 ALTI	I ALTI	I ALTI	1 ALT1	1 411	1 ALTI	1 ALTI	1 ALTI	1 ALTI	1 ALTI	I ALTI	1 AL 11			I ATE	1 ATE	1 ALTI	1 ALTI	1 ALT1	1 ALT]	1 ALTI	1 ALT1	1 ALT]	I ALTI	1 AL 1
EMOVE PLACE OF	RT	PUER AND	ECCH	VEH MOUNT	IVACU	MAN ANT	VEN ANT	HAT CASE	PAHIS	PAHIS	PARTS	PARTS	PARTS	PARTS	PARTS	PARTS	PARIS	PARIS	CHAS15	CUNTROL	PWH ASSY	TUNER/MIX	IF DEMOD	EXCITER	SYNTHESIS	INO-WIKE	SH ASSY	REMOTE 1/0	CON MATCH	AUD PS	AUD 1/0			DECODER	ECCM PTS	ONE-WATT	PWR SUPP	PA CHASIS	ANAL OG	IVRCU PS	0EC00/11M	HICRO	I VRCU CHAS	MIG THAT
а́т в ж в		v n	~	t	ŝ	ۍ د	~	8											~	N	~	¢	ŝ	¢	~	90	9	2	Ξ	2		1 u	1	22	27	16	61	20	7	22	23	54	ŝ	56
AND	COME	UCU I	COM		COMC	COM	COM	COM											MUD M	ŰÕ	MOD	MOD	00H	MOO	NOU	00M	ΩŨ	00M							DOM	DOM	004	QOM	00H	QOH	QOM	NOM NOM	00H	
REPAIZED AT	1 086	1 0RG	1 ORG	1 086	1 046	1 ORG	1 096	1 ORG	3 650	X 4 0EP	4 0EP	4 DEP	S 4 DEP	4 DEP	4 DEP	1 4 064	4 DEP	4 DEP	2 0SU	2 0SU	2 050	2 DSU	2 DSU	2 0SU	2 DSU	2 DSU	2 DSV	2 DSU	2 050	2 050	2 050			050 5	3 650	1 2 050	1 2 DSU	17 2 0SU	2 0SU	2 DSU	2 DSU	2 0SU	2 0SU	11 Z DSU
NAME									I CHASIS	4 TUNER/MI	5 IF DEMOU	6 EXCLTER	7 SYNTHESI	9 SH ASSY	3 AUD 1/0	5 CHAS FIL	B ONE-WATT	9 PWR SUPP	1 41	1 HT	1 AT	1 + 1	l ƙT	l kT	1 41	1 HT	1 k1	Ter T	I HT	L K L		1 MI 2 ULFU AND			3 ECCM	4 VEH MOUN	4 VEH MOUN	4 VEH MOUN	5 IVRCU	5 IVRCU	5 IVRCU	5 IVRCU	5 IVRCU	4 VEH MOUN
Ŷ															٦	-	-	-	٩.	٩	٩	٩	٩	a	à	a	۵.	۵.	٩	•	a . c				•	•	۰ م	•	•	•	۰ ۵	0	<u> </u>	- n
EN	13	5	5	5	3	Ξ	E C	Ξ	00H	NOD	CON	N	DOM	0 H	0 P	Dom	0 N	DOM	¥00	NOU COM	S	90 0	В	NO N	Ē	ð	100 00	No.	N N N N	50					NO N	No.	1 0 0 0	E Co	NO N	Э Ю О	NO N	1 0 0	NO.	
Ţ	a X	X	# X	1	*	11 X	×	×	11	n M	11	"	H M	# X	11 X	11	×	×	X	lt M	×	ž	R K	×	×	×	×	×	×	×	W 1	1 I < ,	• •	• *	11	Ĭ	×	ň	×	×	×	×	11 ×	11 14
REF NO	-	2	-	4	Ś	•	~	80	• •	12		*	15	17	21	23	2 6	27	16	38	5	04	4	42	64	4 5	45	40	47	6 4	0-0 4-0		10	25	35	55	56	57	58	59	60	9	62	63

FIGURE 3 - SAMPLE MULTIPLE REPAIR OUTPUT

4.2.3 Logistics Costs

Logistics costs for components and modules are listed after test equipment and special repairman requirements. Initial spares. consumption spares, common labor and TPS development costs are presented on the main output file. Other costs associated with components, modules, and module repair parts are only summarized here. Costs presented are not true "life cycle costs" as noted in paragraph 1.5. All costs, except for initial spares, are given in terms of net present value. Initial spares costs are incurred "up front" and need not be discounted. Consumption spares costs are the present value of the replenishment spares that will be purchased over the operating life of the end item. Similarly, labor costs represent the present value of common repairmen used to fix individual items. If a special repairman is used to repair an item the common labor cost will be zero.

In a screening run (IMODE = 1), the logistics costs are followed by a description of some of the costs and savings associated with screening each component and module. These costs do not reflect all of the savings resulting from screening since they do not include any reduction in test equipment or special repairmen which cannot typically be identified with a single component or module. The screening cost shown is the cost of common labor needed to screen each item. As with repair labor, this value will be zero if a special repairman is used. The repair labor saved represents the cost of the labor that would have been expended to perform diagnostics on false removals that were detected by screening. The difference between other logistics costs with screening and what they would have been without screening is also listed.

4.2.4 SESAME Type Inputs and Outputs

The maintenance concept for each component and module is restated in terms of a washout rate, maintenance task distribution (MTD), and replacement task distribution (RTD) at the beginning of this section of output. The parameters listed here are those that were used by SESAME algorithms within the the model to compute initial Component turnaround times shown are provisioning requirements. adjusted to include time waiting for modules needed for repair, and module turnaround times are similarly adjusted to reflect time waiting for repair parts.

Two sets of SESAME input parameters are listed in a screening run. The first considers the effect of screening, and the second shows the parameters as they would be without screening. In the first set, which is used for provisioning calculations, the detection of false removals at a given level appears in the MTD as repair at that level. As an example, suppose an item to be screened at GSU and repaired at the depot has a washout rate of 0.05, a false removal rate of 0.10, and a detection fraction of 0.80. If there are 100 actual failures there will be 110 total removals. Since it is assumed that 5% of the 10 false removals will washout, 7.6 (.95 x 10 x .8) of the 10 false removals will be detected at the GSU. This represents 6.9% of the total removals. Thus, the MTD at the GSU is equal to 0.069 (7.6/110). SESAME type output follows the inputs described above. The suggested number of initial spares at each level and the associated total cost are given. The effective failure rate in terms of failures per end item per year that was used to compute the stockage is also printed here.

The main output file concludes with a summary of all costs computed by the model and the operational availability achieved given the suggested maintenance policies and stockage. In some cases the operational availability achieved will be higher than the target input by the user. This can occur for either of two reasons. If the curve parameter used is zero, then the operational availability was achieved by standard initial provisioning (SIP) calculations. Stockage below SIP quantities is normally not considered. If, on the other hand, the curve parameter is greater than zero and the operational availability is above the target, the operational availability follows what is termed a "step function." This means that stocking one less of an item will cause the operational availability to drop below the target. Thus, the target cannot be met exactly. The situation usually occurs when there are only a few components in the end item. To achieve a lower operational availability in this case the target must be reduced.

4.3 OTHER COST BREAKOUT

The second OSAMM output file reports other costs such as inventory holding and cataloging which are summarized on the main output file. All costs shown are given in terms of net present value over the life of the end item. In addition to costs associated with individual components and modules, logistics costs for module repair parts are listed on this file. These costs are only estimates computed from the limited part input data. They are included as a means of considering repair parts when making repair level decisions for modules. No parts costs will be shown for modules that are to be discarded at failure.

The last page of this file contains additional information for the more advanced user. It begins with a summary of the availability search performed by the evaluator. The curve parameters tried and the resulting operational availabilities are listed. The average waiting times for SRU's which follow are the average of the waiting times that have been added to individual turnaround times at each level. The average amount of down time resulting from the use of a contact team or the end item being evacuated to the DSU for repair is then listed as down time due to CTDEL. (This delay time would be added to the end item MTTR when running the SESAME model.) If all end item repair is done at the organizational level, this time will be zero. The average annual cost of common labor at each maintenance location concludes this output. The values given here do not include present value. The annual number of maintenance man-hours at each level can be derived from these numbers by dividing them by the effective labor rates listed on the preprocessor output.

4.4 STOCKAGE LISTS

The third OSAMM output file contains stockage lists for organizational and direct support units. The quantity of each component and module to be stocked is given along with its dollar value. A one letter code identifies each item as a component (C) or module (M). Unless a module has been promoted, operational availability is driven primarily by component stockage.

Chapter 5

SENSITIVITY ANALYSIS

5.1 INTRODUCTION

Several types of sensitivity analysis can be performed using the OSAMM. They range in complexity from a change to a single input parameter to the evaluation of a completely different maintenance concept. Only a few types of sensitivity analysis will be discussed here. The analysis that should be performed depends on the system being studied, the quality of the input data, and the results of the optimization. Very often one sensitivity run will suggest several others. Before discussing any type of sensitivity in detail, however, another output file and its use must be described.

5.2 POLICY FILE

In addition to the output files described in Chapter 4, an optimization run will produce a file which contains, in abbreviated form, the maintenance policies chosen by the model. Sample policy files for each run mode are included in appendices E, F and G. In all three cases, the data on the policy file is equivalent to the data reported on the main output file in the maintenance concept section.

Each policy file begins with a listing of the maintenance policies by application. There are three entries on each line in this portion of the file. The middle entry identifies the application by number. The first entry consists of three digits that specify the maintenance levels at which the end item, component and module should be repaired. For this listing and in subsequent listings on the file, 1 = ORG, 2 = DSU, 3 = GSU, 4 = DEP and 5 = TOSS(throwaway). The final entry on the line is the fraction of the time the policy specified by the first entry should be followed for that particular application. If this fraction is less than one (1.0000) there will be multiple lines for the same application. The sum of the fractions for each application should equal one. If IMODE = 0, there is no other data on the policy file.

In a screening run (IMODE = 1) the basic maintenance data is followed on the policy file by a description of the screening decisions made by the model. These entries are labeled "CRV" and correspond to the "SCREENING POLICIES BY ITEM" on the main output file. The screening results are given as a sequence of digits which are followed by the letter "S". The first one, two, or three digits are the reference number of the component or module being screened. The same reference number is listed on the main output file. The last two digits in the series are the maintenance level at which the item should be screened and the level at which it is repaired. The fraction of the time this screening policy should be followed is also listed for each item.

In a multiple repair alternative run (IMODE = 2) the basic maintenance data on the policy file is followed by the repair alternative selected for each maintenance action. Each line in this portion of the file begins with "WVA". The series of digits which describes the alternative begins with the reference number which is the same as the reference number on the main output file. The last two digits give the maintenance level at which repair is to be performed and the number of the repair alternative that should be used. As with the other types of policy files, each line concludes with a number which represents the fraction of the time that particular policy should be followed. ۱

5.3 EVALUATION OF USER DEFINED MAINTENANCE POLICIES

Several types of sensitivity analysis can be performed by running the OSAMM in an evaluation only mode. In this mode the policy file described above is an input to the model. The evaluator computes costs associated with the policies listed in that file. The policy file used can be the result of a full optimization run, or it can be generated by the user. Suppose, for example, that the user wished to evaluate the cost of the optimum policy if the unit prices of some components and modules are changed. Once the unit prices on the basic data file are modified, the new data can be evaluated using the policy file created by the optimization run. If, on the other hand, the user wished to keep the basic data intact but wanted to see the effect of changing the optimum policy, the policy file can be edited, and the evaluator run using the new policy file.

Since a policy file must follow a specific format, user generated files are typically modified versions of files created by an optimization run. A text editor can be used to change the digits which describe the maintenance policy, screening policy or repair alternative chosen. Changes to the basic maintenance policy are relatively simple. The user need only change the digit representing repair level or the fraction of time a particular policy is followed on the first part of the policy file. Care must be taken to insure that the fractions assigned to the same application always sum to 1.0000. A line in the first part of the file can be deleted only if there are multiple lines for the same application and the fractions on the remaining line or lines are adjusted so that the total is 1.9999. Similarly, a line may be added to this part of the file if a split policy is being generated.

When IMODE = 0 the maintenance policies by application are the only entries on the policy file. If IMODE = 1 or IMODE = 2 the CRV or WVA entries are related to the repair level entries. Since these relationships are somewhat complex, the evaluator will automatically adjust this data if the maintenance policies for some applications are modified as described above. The user should not modify the CRV or WVA entries when changing basic maintenance policies. In a screening run, the screening level will remain the same. In a run which considers multiple repair alternatives, the same repair alternative as originally selected will be assumed. If an item is changed from throwaway to repairable, the first repair alternative will be used. All fractions associated with the CRV or WVA entries will be automatically adjusted as appropriate. The evaluator will also create a new policy file containing the revised CRV or WVA information. This policy file may be used in subsequent sensitivity analysis.

The user may modify CRV entries to consolidate split screening decisions or to add or delete screening at a level. To consolidate a split screening decision the line or lines which describe the screening to be eliminated should be deleted from the file. The fraction on the one remaining line should then be set to 1.0000. If there is a bound on this fraction which is less than 1.0000 the evaluator will automatically reset the fraction equal to the bound. If screening is to be added at a given level a line or lines must be added to the file. Each line must follow the format of the other CRV entries and have a reference number equal to the reference number assigned to the item by the preprocessor. There is one line for each level at which the item is repaired as long as the repair level is above the desired screening level. The fraction of time the policy is to be followed should be set to 1.0000 on each line. The evaluator will automatically reset these fractions to their upper bounds. Finally, screening of an item may be eliminated simply by deleting any lines in the CRV section of the policy file which refers to that item.

The user may consolidate a split repair alternative decision or change a repair alternative decision by modifying the WVA entries on the policy file. To change the repair alternative for an item the change the digit which specifies the repair user need only alternative on the line or lines in the WVA section of the policy file which correspond to repair of that item. The lines which must be changed can be identified by matching the reference number on the policy file with the reference number on the main output file. There will be no WVA entries for items that are to be discarded at If the user changes the item to repairable the first repair failure. alternative will be used, and the appropriate WVA entries will appear on the new policy file. The new file can then be used to select a different repair alternative. If the user wants to consolidate split policies where repair of the same item is performed using two different repair alternatives at the same level, he can delete the line representing the unwanted alternative and increase the fraction associated with the desired alternative to 1.0000. Once again, the evaluator will make any adjustments necessary to the fraction of time a policy is followed. It should be noted here that if the repair level decision for an item is split (indicated by a "T" or a "Q" on the output) the maintenance policies by application given at the beginning of the policy file can also be changed.

5.4 INPUT PARAMETER CHANGE

The simplest type of sensitivity that can be performed using the OSAMM involves changing one or more of the basic input parameters.

This should be done if the user is unsure of his inputs. After changing the data on the input file, the optimization can be rerun. If the maintenance concept does not change then the user can feel confident in the final maintenance decisions regardless of the value of the particular input parameter. If on the other hand, the maintenance policies change, additional analysis is recommended. The data in the new input file should be evaluated using the maintenance policy file created by the original optimization (See 5.3). The results of this analysis when compared with the cost of the optimum policy for the new data help quantify the risk if the maintenance concept chosen by the original optimization is adopted and the new input data is correct. Similarly, the new maintenance policy file can be evaluated using the original input data file to assess the risk associated with adopting the new maintenance concept.

5.5 RELIABILITY CHANGES

Reliability data is often suspect and therefore is a candidate for sensitivity analysis. The OSAMM has an input variable which can be used to make universal changes to all input MTBF values. The MTBF multiplier on the end item information record automatically adjusts each input MTBF. The user can edit the input file and change the multiplier to modify all MTBF's without manually changing each one. The optimization can then be rerun, and the same type of analysis as described above for a single input parameter change can be performed.

A few cautions concerning the use of the MTBF multiplier must be noted here. First, the multiplier effects all MTBF's in the same proportion. A value of 0.5 will cut all MTBF's in half. If some MTBF's are increasing while others are decreasing, the multiplier cannot be used, and the individual MTBF's must be changed on the input file.

The user is also cautioned against overusing the MTBF multiplier. There is sometimes a tendency to rerun the optimization with each of several MTBF multipliers. This consumes large amounts of computer resources and is often not necessary. If the maintenance policies do not change when MTBF's are cut in half or doubled, they will not change when the MTBF's are multiplied by 0.75 and 1.5. It is generally more efficient to examine the effects of drastic changes in reliability before considering 5% or 10% variations.

5.6 SPLIT MAINTENANCE POLICIES

Sensitivity analysis of true split maintenance policies is always recommended. When the model suggests that a repair action should sometimes be performed at one maintenance level and sometimes at another the evaluator should be run with a policy file that assumes all repair at one level or the other. The policy file is created by editing the original policy file, eliminating multiple lines for the repair action in question, and changing the fraction on the one remaining line to 1.0000 as described in paragraph 5.3. This procedure should also be followed for a split screening policy or for a split decision on the repair alternative selected if an asterisk is printed in the sensitivity column. This type of sensitivity analysis can be used to pinpoint the requirement that caused the policy to be split. Very often a test equipment or special repairman is being used to its capacity. Rather than add an extra test equipment or repairman the model will shift a fraction of the repair to another level. The splitting of the maintenance policy, although possibly impractical, usually results in lower total costs. By performing the sensitivity analysis the user can determine what it costs to be "practical".

Since some approximations that are made for the optimization are not made for final evaluation, the "pure" policy may occasionally be slightly less expensive than the split policy. In this case the difference in total cost should not be significant. If the split policy is more economical, however, the difference in total cost may be considerable. Details of the approximations can be found in the theoretical documentation to the model [1].
Chapter 6

ADVANCED TOPICS

6.1 INTRODUCTION

The information presented in this chapter is intended for the more advanced OSAMM user. Section 6.2 contains several techniques that can be used to model some unusual situations. Section 6.3 is designed primarily for the user who is interested in the inner workings of the model. Whereas the average user may occasionally employ some of the special techniques, he typically need not concern himself with the details of how the model functions.

6.2 SPECIAL MODELING TECHNIQUES

The OSAMM, like any other computer model, does not fit every situation exactly. Special techniques have been developed to adapt the inputs so that some of these circumstances can be modeled. Several of these are described below. It is expected that as individual users gain experience with the model they will develop other innovative modeling approaches.

6.2.1 An Example of Components Inside a Component

The following, example is presented to illustrate how an item which may not appear to be a component can be considered as a component for modeling purposes. Suppose an electronic box contains ten (10) circuit card assemblies (CCA's) which are numbered 1 If one of the first six fails the entire box must be through 10. replaced and sent back for repair. If one of the last four fails, however, the CCA can be removed and replaced directly. According to the definitions of components and modules in section 1.2 the box and the last four CCA's should be considered as components. The first six CCA's should be modules. This is exactly how the problem is The component representing the electronic box is entered modeled. with its unit price equal to the price of the entire box including all ten CCA's. There are six applications for the component corresponding to the six CCA's which are modules. The last four CCA's are entered as components with their repair parts considered as pseudo modules. Since the model computes the failure rate for a component from the applications, the box will be sent for repair only when one of the first six CCA's fails. Stockage for the box will also be based on only those failures. The last four CCA's will treated as components and considered separately in the be availability calculation.

6.2.2 Promoted Modules

As noted earlier, if a component and the end item are repaired at the same level, and the washout rate of the component is zero, modules in the component will be promoted and considered in the availability calculation. The user can utilize this feature to have the model help select which items should be line replaceable units (LRU's). Since the model will compute replenishment spares for a component based on a minimum washout rate of 0.001% even if the input washout rate is zero, the user can input a zero washout rate and allow the model to promote modules as appropriate without totally sacrificing the replenishment calculation. In addition, there will always be at least one of each component stocked at the depot. The only exception to the baseline replenishment calculation for a component occurs if all of its modules are promoted. In this case, the component is eliminated from the replenishment and cataloging cost calculations. Repair labor and test equipment costs are considered, however.

It may be an informative exercise to set the washout rate of some components to zero for a sensitivity run even if their inherent washout rates are greater than 0.001. If any modules are promoted as a result they can be recoded as components in the original input file, and the end item MTR and test equipments can be adjusted to include requirements originally generated by component repair. The new input file, with the correct washout rates for the components, can then be rerun through the optimization to determine if a better maintenance concept is possible when the modules are considered as LRU's.

6.2.3 Fixed Price Repair

Except for test equipments and special repairmen, the OSAMM computes the cost to repair an item based on the common labor rate and the cost of repair parts. Occasionally, the cost to repair an item is given in terms of a fixed cost per repair action at the depot or contractor repair facility. This can be modeled with the OSAMM by considering all costs in the common labor calculation. Since the fixed cost includes repair parts, the parts costs input to the model should be \$0.01. A test equipment costing \$1.00 which is allowed only at the depot should be listed with the item to force repair at the depot. The fixed repair cost is divided by the effective labor rate at the depot, and the resulting value entered as the MTTR for the item. The model will multiply the MTTR times the effective labor rate to get the "labor" cost which is charged for each repair action. The model will also charge for stockage of repair parts and the test equipment at the depot, but these costs will be insignificant.

Implementation of the procedure outlined above is slightly different for components and modules. If the item is a module, the parts cost per repair action is simply set to \emptyset . \emptyset and the number of parts needing an NSN is set to \emptyset . Implementation is more complicated when the item in question is a component. A pseudo module and an application must be created. The price of parts replaced in a repair action entered with the pseudo module must be d.dl, the number of total parts set to 1, and the number of new into set to \emptyset . The application should be the only application for emponent. 6.2.4 Test Equipments and Repairmen Entered Twice for the Same Repair

If the same test equipment or special repairman is entered with a component and an application involving that component the OSAMM preprocessor will generate an error message. A similar message is printed when a test equipment or repairman that has been entered as needed for every end item repair action is entered as necessary when a specific component fails. These messages are printed because the model will consider both requirements when computing the total requirement for the test equipment or repairman. As an example, suppose that a test equipment was needed for one hour every time a component failed. If it was also input as needed for one hour with a specific application involving the component, the model would charge the test equipment for two hours when the module in that application caused the failure.

There are a few cases where a test equipment or special repairman may be listed both with the component and with an application. If the test equipment or special repairman is normally needed for a certain amount of time every time the component fails and is needed for an additional period of time when the failure is caused by a specific module, the test equipment or special repairman may be listed with the component and with the application defined by The "time used" entered with the the component and module. application should only be the additional time the test equipment or special repairman is needed. The same procedure may be followed for test equipment or special repairman needed for every end item а repair action and for an extra amount of time when the failure is caused by a specific component. The error message printed in either case can be ignored.

6.3 INSIDE THE MODEL

The information presented below deals with the internal workings of the OSAMM. Most of what is discussed here is done automatically by the model. The average user need not be concerned with these details, but analysts with a programming background may find them informative.

6.3.1 The OSAMM Programs

actually consists of several separate computer OSAMM The programs each of which has a different function. The programs are linked together by various intermediate files. The programs and connecting files are pictured in Figure 4. The first program is the preprocessor which is described in Chapter 3. The preprocessor This program formulates a mixed feeds data to the formulator. integer linear programming problem that can be solved by a standard software package. Currently, the OSAMM uses the APEX-IV package. The APEX-IV output is not normally seen by the average user. It is scanned, however, by a small program which generates the message which describes the performance of the optimization. The solution the linear program is output as a policy file. Unfortunately, to the policy file created by APEX-IV is written in binary code. The INEVAL program translates this files into the policy file that is discussed in section 5.2.



The last OSAMM program is the evaluator. This program takes the policy file from the optimization and combines it with cost data from the preprocessor to calculate the costs associated with the maintenance concept defined by the policy file. In the evaluation mode the preprocessor and evaluator are run with a policy file generated by the user. The evaluator produces the output files described in Chapter 4 and the corrected policy file described in Chapter 5.

6.3.2 The Equipment Stack

The preprocessor produces a second output file which is used primarily for debugging. Part of this file is the equipment stack. The equipment stack describes how test equipments and special repairmen are used when specific failures occur. Components, modules and applications are identified by reference number for this list. The integer part of each entry is the test equipment or special repairman identification number. The fractional part is the reciprocal of the number of repair actions the test equipment or special repairman can perform in one year.

Test equipments and special repairmen are not grouped in the same manner as they are input for this output. A test equipment or special repairman listed with a component is needed to repair the end item when that component fails (Sec 1.3a or 1.3b). Test equipments and special repairmen listed with a module are used to repair that module (See 1.3d). Finally, test equipments and special repairmen listed with an application are used to repair the component when the module fails (See 1.3c or 1.3e). These groupings are necessary because the model works with applications. A test equipment or special repairman used to repair a component every time it fails is input with the component. Since the module works with applications, however, this test equipment or special repairman must application involving that component. listed with every be Similarly, an equipment or repairman used to repair the end item must be associated with the component that has caused the failure. If an equipment or repairman is needed every time the end item fails, it must be associated with every component since the failure of any component will mean that the test equipment or special repairman is needed. The preprocessor performs these manipulations automatically, and it is not essential for the user to understand the details of the groupings.

6.3.3 Size Restrictions

applications, test numbers of components, modules, The equipments, and special repairmen that can be input to the OSAMM are the size of the DIMENSION statements in the individual limited by The nominal values for these limits, which should be programs. sufficient for almost all systems being modeled, are given at the beginning of Appendix C. Since raising these limits can cause significant increases in run time, they will only be adjusted by the model developers on a case by case basis.

REFERENCES

- Kaplan, Alan J. and Orr, Donald A., "Optimum Supply and Maintenance Model Technical Documentation," AMSAA Army Inventory Research Office, Philidelphia, May 1987.
- 2. Kaplan, Alan J., "Mathematics of SESAME Model," AMSAA Army Inventory Research Office, Philadelphia, February 1980.
- 3. AMC Pamphlet 700-18, "User's Guide for the Selected Essential-Item Stockage for Availability Method (SESAME) Program," 29 July 1983.
- 4. DoDI 7041.3, "Economic Analysis and Program Evaluation for Resource Management," October 1972.

APPENDIX A

INPUT VARIABLE DEFINITIONS

1. Control Parameters

IMODE: Run mode selector. Run mode \emptyset is a standard run which does not consider screening and allows for one repair alternative. Run mode 1 is a screening run which considers one repair alternative and examines the cost effectiveness of screening. Run mode 2 examines multiple repair alternatives but does not consider screening.

<u>IPOL</u>: This series of variables defines the echelons that the model is permitted to select for different types of repair actions. For example, if the lowest echelon to repair components is 3 (GSU), then the model will only consider policies that have component repair at GSU or Depot. The lowest level to repair the end item must be a 1 or 2, and no screening is permitted at the organizational level.

DISCOUNT RATE: The discount rate used to compare one-time and annual recurring costs. As per DoDI 7041.3 a discount rate of 10% should be used.

INPUT CURVE PARAMETER: The input curve parameter to be used for special analysis. Normally, this field is left blank, and the model automatically selects the proper curve parameter.

CURVE PARAMETER MULTIPLIER: The selected curve parameter is multiplied by this factor for special analysis. Normally, the field is left blank, and the selected curve parameter is unchanged.

2. End Item Information

END ITEM IDENTIFICATION: Alphanumeric identification of the end item.

END ITEM UNIT PRICE: The unit purchase price of one end item.

LIFE: The expected number of years the end item is to be supported. The value is used in the comparison of one-time costs and annual recurring costs. *

ANNUAL OPERATING HOURS: The number of hours that the end item operates in one year. This value is used to convert mean time between failure data into failures per year. *

END ITEM MEAN TIME BETWEEN FAILURES (MTBF): The MTBF of the end item in hours. This value is used in the computation of operational availability.

END ITEM MEAN TIME TO REPAIR (MTR): The average time it takes in hours for end item repair. Include in this variable the time required to transport the end item to the organization or the time it takes organizational personnel to travel to the user. This time is used in the computation of operational availability and as a default for test equipment and special repairman requirements.

* Indicates possible government furnished data.

AVAILABILITY TARGET: The desired operational availability of the end item.

UNSERVICEABLE RETURN RATE (URR): In principle, the net demand on the wholesale level should reflect only system washouts -- as everything else should be repaired. Experience indicates, to the contrary, that net demand on the wholesale level is ordinarily greater than would be expected from estimated washout rates. This is usually due to the fact that not all depot repairable items are returned for repair. In order to correct for this, OSAMM and SESAME, as well as ARCSIP and RDES, use an unserviceable return rate (URR) which is intended as an estimate of the ratio of unserviceable returns to the wholesale level to total demands on the wholesale level. The URR, in conjunction with the washout rate and the MTD for the depot, enables the SESAME algorithms to estimate the net wholesale demand. This input variable is not currently used by the OSAMM but is reserved for future releases of the model. Once certain policy issues concerning how the URR should be considered in the optimization are resolved, this input will become active. It cannot be used as it currently is by SESAME since it would unduly bias repair level decisions away from the depot.

FALSE REMOVAL RATE DEFAULT: The fraction of removals of operational items. This value, input with the end item information, represents the overall false removal rate associated with the end item and will be used when a specific false removal rate is not input with individual components and modules. Failure rates are increased by this fraction to reflect the burden placed on the maintenance and supply system by removal of operational components and modules.

MTBF MULTIPLIER: All MTBF's, including the end item, are multiplied by this factor. This variable is used in performing sensitivity analysis.

3. Turnaround Time (TAT) Defaults and End Item Repair Information

TAT DEFAULTS: These values, input with the end item, will be used when turnaround times are not input with individual components and modules. Turnaround time is the average elapsed time from the arrival of a failed component or module at the maintenance echelon where it is to be repaired until it is repaired and ready for use. This time includes administrative waiting time, processing time, and actual repair time. It does not include shipping time. Shipping time is assumed to be equal to the OST and will be added internally by the model. Waiting time for parts to repair a module or modules to repair a component will also be added internally by the model and should not be included here.

HOW MANY END ITEM REPAIR ALTERNATIVES: This variable tells the preprocessor how many end item repair alternatives are going to be input. If there are no test equipments or repairmen needed for end item repair this variable may be set to Ø. Unless IMODE is equal to 2, this variable must be less than or equal to 1.

ARE THERE END ITEM REPAIR EQUIPMENT OR REPAIRMEN ASSOCIATED WITH SPECIFIC COMPONENTS: This variable should be set to 1 if there are test equipments or repairmen needed to repair the end item only when specific

components fail as described in paragraph 1.3b. If it is set to zero, the preprocessor will not expect any such equipments or repairmen to be input. This is strictly an indicator type variable.

*****---*****- *****---

٠

TAT DEFAULTS FOR SCREENING: These values, input with the end item only if IMODE is equal to 1, will be used when turnaround times for screening are not input with individual components and modules. Screening turnaround time is the average elapsed time from the arrival of a suspected failed component or module at the echelon where it is to be screened until it is screened and sent for repair or returned to stock and ready for use. This time includes waiting time, processing time, and actual screening time. It does not include shipping time. Shipping time is assumed to be equal to the OST and will be added internally by the model. *

SCREENING DETECTION FRACTION DEFAULT: This value, input with the end item only if IMODE is equal to 1, will be used when a detection fraction is not input with individual components and modules. The detection fraction is the fraction of false removals that are detected by screening. For example, if there are 100 actual failures and the false removal rate is .10, then there will be 110 total removals and 10 false removals. A detection fraction of .80 would mean that 8 of the 10 false removals would be detected. These items would be returned to stock, and 102 items would be sent on for repair.

4. End Item Repair Alternatives (Optional)

Note: There must be one record (plus continuation record if necessary) for each end item repair alternative. No records are required if the number of repair alternatives input on the previous record is equal to 0.

ALTERNATIVE NAME: The four character alphanumeric identification of the repair alternative. This identifies the alternative to the preprocessor. Each end item repair alternative must have a unique identifier.

EQUIPMENT/REPAIRMAN NUMBER: The identification numbers of the test equipments or repairmen that are required. These test equipments and repairmen are used every time the end item fails as described in paragraph 1.3a.

TIME USED: The length of time each particular test equipment or repairman will be required is listed after the identification numbers. This time is used in conjunction with the available test hours to determine the number of repair actions the test equipment or repairman can perform in a year. If no time is input here, the end item MTR will be used.

PLUS: Continuation indicator. If a test equipment/repairman continuation record is necessary, a plus sign, "+", should be entered in this field.

5. End Item Repair Equipments/Repairmen Associated With Specific Components. (Optional)

These records are required only if the indicator Note: on the TAT and End Item Repair Information record is 1. equal to There must be one record (plus continuation record if necessary) for each component whose failure necessitates the use of additional test or repairman under a equipment given repair alternative. If this type of information is input it must be followed by a record with "9999" in the first four columns.

COMPONENT IDENTIFICATION: The four character alphanumeric identification of the component whose failure necessitates the use of test equipment or repairmen to repair the end item.

ALTERNATIVE NAME: The four character alphanumeric identification of the end item repair alternative under which these additional test equipments or repairmen are necessary. This identification must match the identification of a repair alternative that has been defined above.

EQUIPMENT/REPAIRMAN NUMBER: The identification numbers of the test equipments or repairmen that are required. These equipments and repairmen are used to repair the end item when the specific component fails as described in paragraph 1.3.b. Test equipments and repairmen used under this alternative every time the end item fails which have already been input should not be listed here. (see 6.2.4 for exceptions)

TIME USED: The length of time each particular test equipment or repairman will be required. This time is used in conjunction with the available test hours to determine the number of repair actions the test equipment or repairman can perform in a year. If no time is input here, the end item MTR will be used.

<u>PLUS</u>: Continuation indicator. If a test equipment/repairman continuation record is necessary, a plus sign, "+", should be entered in this field.

6. Deployment Information

RETAIL STOCKAGE CRITERION: The number of demands per year that must be experienced by a retail stock point to qualify for stockage of a spare of that part. It is usually six per year for all items except aircraft, missile systems, and ammunition which all require three. This number is the basis of Standard Initial Provisioning (SIP) stock.*

SUPPLY SYSTEM: The supply support system that is used by the SESAME algorithms in computing stockage levels. Under a vertical system (V), the GSU performs a normal supply mission. Under a non-vertical system (N), the GSU performs a maintenance function and stocks only those items removed and replaced at the GSU in quantities necessary

to provide shop stock. If an item is repaired by a GSU it is assumed that the item is being repaired for a DSU on a job order basis, and that it is returned immediately. The repair time is considered in computing DSU stock. Under a direct exchange system (D), the GSU is permitted to stock those items which are repaired at the GSU in addition the necessary shop stock. The additional items are stocked only if the number of issues at the GSU equals or exceeds the stockage criterion.* 1

NUMBER OF SHOPS AT...: The number of maintenance/supply shops at each echelon which supports the end item in the field. If there are no GS shops a zero should be entered in the GS field. In this case, all transportation costs and times between the DSU and depot will be based on data input in the DSU-GSU fields. The GSU-Depot fields should be left blank. Any data in these fields will automatically be reset to zero.*

DENSITY: The total number of end items which are fielded worldwide.*

ORDER SHIP TIME: The time between the initiation of a stock replenishment action and the receipt of the material by the requesting activity. In a non-vertical (N) or direct exchange (D) supply system the OST between DSU and Depot is taken to be the maximum of the OST's input for DSU-GSU and GSU-Depot. If there are no GS shops, the OST from DSU to depot will be taken from the DSU-GSU field. The GSU-Depot OST will be set to zero.*

PROCUREMENT LEAD TIME: The time it takes for the wholesaler to procure spares from the manufacturer.*

CONTACT TEAM DELAY TIME: The time it takes for a DSU contact team to travel to the organization or for the end item to be evacuated to the DSU for repair and returned to the user. In either case, repair is considered as being performed by the DSU. Do not include actual repair time in this variable since it will be added automatically. The contact team delay time is added to the end item downtime whenever the end item is repaired by the DSU.*

OPERATING LEVEL: The number of days worth of stock intended to sustain normal operation during the interval between receipt of replenishment shipment and submission of a subsequent replenishment requisition.*

7. Labor Rates and Transportation Information

UNLOADED (BASE) HOURLY RATE: The unloaded hourly labor rate for a common repairman. *

COMMON LABOR RATE LOADING FACTOR: This factor is used to load the common labor rate with benefits, overhead, etc. A loading factor of .5 yields a loaded rate of 1.5 times the base rate. *

PRODUCTIVITY FACTOR: This factor is used to compute an effective hourly rate from the loaded hourly rate. It accounts for a common repairman's non-productive time such as time on leave. Suppose, for

example, that the loaded rate is 20.00 per hour and the productivity factor is .85. The effective rate would then be 23.52 per hour (20/.85). *

DISTANCE BETWEEN...: The average one-way distance between maintenance echelons. *

TRANSPORTATION COST PER POUND PER MILE: The cost of shipping one pound one mile between echelons. *

8. Cost Parameters

INITIAL CATALOGING COST: The initial cost to obtain an NSN for a new item entering the inventory system. *

RECURRING CATALOGING COST: The annual cost of maintaining the new NSN in the inventory system after the first year. *

INITIAL BIN COST: The initial cost of adding a line to an authorized stockage list (ASL). *

RECURRING BIN COST: The annual administrative cost of stocking an item at an echelon. *

HOLDING COST FRACTION: Annual inventory holding costs are computed as a fraction of the dollar value of stock. These costs include obsolescence, loss, and storage. Interest costs are not included here since they are considered in the discount rate.

REQUISITION COST: The cost to process a requisition. It is assumed that every demand for an item results in a requisition. There is a limit, however, of twelve requisitions per item per year since it is assumed no one part will be ordered more than once a month. *

COST OF TECHNICAL DOCUMENTATION PER PAGE: The cost of one page of technical documentation.

9. Test Equipment Information

Record 1: Basic Information

TEST EQUIPMENT IDENTIFICATION NUMBER: A number between 1 and 30 which identifies the test equipment.

TEST EQUIPMENT NAME: Any name, up to 10 characters long, to identify the test equipment for the user.

ONE TIME DEVELOPMENT COST: The investment cost to develop the test equipment. If the test equipment has already been developed for this or another weapon system, the development cost is sunk and this variable should be 0. The entire development cost will be charged once, regardless of how many are required, if the test equipment is used at any echelon for any reason.

TEST EQUIPMENT LIFE: The expected life of the test equipment. If this life is less than the end item life, the test equipment will be replaced when it wears out. No salvage value is considered. (* only if common) 4

<u>HIGHEST ECHELON AT WHICH PECULIAR</u>: This variable tells the model where a test equipment is common and peculiar. An entry of 2 means the equipment is peculiar at Org and DSU but common at GSU and Depot. Integer requirements are computed for a test equipment where it is peculiar. An entry of \emptyset means the equipment is common everywhere. The requirements for a test equipment where it is common can be fractional. *

LOWEST ECHELON ALLOWED: The lowest echelon at which the test equipment will be authorized. An entry of 2, for example, means that the test equipment is not allowed at organizational level.

FOR REPAIR ONLY: This variable indicates test equipments that are used solely for repair and not for diagnostics (fault isolation) or screening. This means that test equipments coded for repair only are not used on false removals or washouts. Requirements for these test equipments will be based only on actual failures which can be repaired.

Record 2: Information by Echelon.

UNIT PRICE: The per unit purchase price of a piece of test equipment. The amount of test equipment will be determined by the model. Research.and development costs for the test equipment should not be included here. (* only if common)

ANNUAL MAINTENANCE FACTOR: This factor will be multiplied by the test equipment purchase price to yield the annual cost to maintain the test equipment. Test equipment maintenance costs are treated in this simple manner to limit the input data required to run the model. (* only if common)

AVAILABLE TEST HOURS PER YEAR: Requirements for a test equipment are based on the available test hours and the time required for each type of repair action it must perform. For example, if there are 2000 available test hours one piece of this test equipment can perform 4000 repair actions that take .5 hours or 2000 repair actions that take 1 hour. (* only if common)

ONE TIME INSTALLATION: Any one-time, per unit cost such as installation associated with a piece of test equipment. (* only if common)

10. Repairman Information:

Record 1: Basic Information

REPAIRMAN IDENTIFICATION NUMBER: A number between 1 and 30 which identifies the repairman. A repairman and a test equipment cannot have the same identification number.

REPAIRMAN NAME: Any name, up to 10 characters long, to identify the repairman for the user.

HIGHEST ECHELON AT WHICH PECULIAR: Same as for test equipment.

LOWEST ECHELON ALLOWED: Same as for test equipment.

FOR REPAIR ONLY: Same as for test equipment.

Record 2: Information by Echelon.

ANNUAL SALARY: The base (unloaded) salary of the repairman. *

MILITARY/CIVILIAN INDICATOR: A variable to indicate whether a repairman is military or civilian. Military and civilian repairmen have different default values for salary loading factor and turnover rate.

SALARY LOADING FACTOR: This factor is used to load the annual salary of the repairman with benefits, overhead, etc. A loading factor of .5 yields a loaded salary of 1.5 times the basic salary. *

TRAINING COST: The cost of training each repairman. *

TURNOVER: The average length of time the repairman stays at the same maintenance location. After this period of time a new repairman must be trained. *

AVAILABLE TEST HOURS: Same as for test equipment. The available test hours for a repairman are only those actually available to perform repair. Time for administrative and other duties as well as any non productive time such as leave should not be included. Productivity factors may be considered in developing this value. *

11. Component Information.

Record 1: Basic Information

<u>COMPONENT</u> IDENTIFICATION: The four character alphanumeric identification of the component. This identifies the component for use in the preprocessor. Each component must have a unique identifier.

COMPONENT NAME: Any name, up to 10 characters long, to identify the component for the user.

UNIT PRICE: The unit price that one expects to pay for spare components.

PACKAGED SHIPPING WEIGHT: The packaged shipping weight of the component.

ESSENTIALITY CODE: A component coded 1, 5 or 7 is essential to the operation of the end item. A component coded 3, 6 or blank is not essential and is not considered in the availability computation.

DOES THE COMPONENT HAVE AN NSN: This is an indicator variable which should be set to one (1) if the component has an existing NSN. If it is zero, no NSN exists and the cost of acquiring one is incurred.

WASHOUT RATE: The fraction of failures that are non-reparable because of physical damage, loss, etc. This fraction is used to compute replenishment spares.

FALSE REMOVAL RATE: The fraction of removals of operational items. Failure rates are increased by this fraction to reflect the burden placed on the maintenance and supply system by removal of operational components. If no value is input here the false removal rate default that was input with the end item information will be used.

TURNAROUND TIME (TAT): The average elapsed time from the arrival of a failed component at the maintenance echelon where it is to be repaired until it is repaired and ready for use. This time includes administrative waiting time, processing time and actual repair time. It does not include shipping time. Shipping time is assumed to be equal to the OST and will be added internally by the model. Waiting time for modules to repair the component will also be added internally and should not be entered here. If no values are input here, the turnargund times that were input with the end item information will be used. *

NUMBER OF REPAIR ALTERNATIVES: This variable tells the preprocessor how many repair alternatives are going to be input for this component. This number should be 1 unless IMODE is equal to 2 (multiple repair alternative run).

CAN THE COMPONENT BE SCREENED: This indicator variable should be set to 1 if the component is a candidate for screening (IMODE = 1). If this variable is equal to 1, the preprocessor will look for a record with screening information (Record 3 below).

Record 2, 3, or 4: Repair Information

Note: There must be one record (plus continuation if necessary) for each component repair alternative. There must be at least one repair alternative defined for each component.

ALTERNATIVE NAME: The four character alphanumeric identification of the repair alternative. This identifies the repair alternative to the preprocessor and the user. Each repair alternative for a the component must have a unique identifier. The same name may be for different components, however.





<u>MEAN TIME TO REPAIR (MTTR)</u>: The average amount of time required to repair the component under the repair alternative. Component repair consists of isolation to and removal and replacement of a faulty module. Thus, the MTTR should include diagnostic time. If no special repairmen are required, the MTTR will be multiplied by the effective common rate to yield the labor cost associated with each repair action. This time will also be used to compute test equipment requirements if no time is input with the individual test equipment.

DIAGNOSTIC TIME: The time required to fault isolate the component to the module level under this repair alternative. This time does not include time for corrective action. Washouts and false removals will be charged for this diagnostic time only.

NUMBER OF PAGES OF TECHNICAL DOCUMENTATION: The number of pages of technical documentation that must be purchased under this repair alternative if the component is repaired. This cost is incurred only if the component is repaired.

(TPS) DEVELOPMENT COST: One-time, up front costs TEST PROGRAM SET associated with the development of a TPS to repair the component if a is required under this repair alternative. TPS These costs, primarily software development, are identified with the specific As with technical documentation, if the component is component. discarded at failure these costs will not be incurred. If an interconnect device (ICD) is used solely for this component its development cost should be included here. Shared interconnect devices requiring extensive development should be regarded as test equipment and their overall development cost should be input with the Only development costs which would be test equipment information. incurred if this specific component is repaired and not incurred if the component is not repaired should be included here.

ANNUAL TPS MAINTENANCE COST FACTOR: This factor will be multiplied by the initial development cost above to yield the annual cost to maintain the TPS.

EQUIPMENT/REPAIRMAN IDENTIFICATION NUMBER: The identification numbers of the test equipments and/or repairmen that are needed to repair the component every time it fails under this alternative are listed here.

TIME USED: The length of time each particular test equipment or repairman is required to repair the component is listed after the identification number. This time is used in conjunction with the available test hours to determine the number of component repairs the test equipment or repairman can perform in a year. If no time is entered here the component MTTR will be used unless the equipment or repairman is coded as for repair only. In that case, the time used will default to the MTTR minus the diagnostic time.

<u>PLUS</u>: Continuation indicator. If a test equipment/repairman continuation record is necessary, a plus sign, "+", should be entered in this field.

Record 5: Screening Information

Note: This record is required only if the component is a candidate for screening as indicated on Record 1. (IMODE = 1 only).

SCREENING DETECTION FRACTION: The fraction of false removals that are detected by screening. For example, if there are 100 actual failures and the false removal rate is .10, then there will be 110 total removals and 10 false removals. A detection fraction of .80 would mean that 8 of the 10 false removals would be detected. Those items would be returned to stock, and 102 items would be sent on for repair. If no value is input here the detection fraction input with the end item information will be used.

SCREENING TIME: The average amount of time required to screen the component to determine if it has actually failed or if it is a false removal. The screening time will be multiplied by the effective common labor rate, if no special repairmen are required, to yield the labor cost associated with each screening action. If special repairmen are required this time will be used to compute their requirements when no time is input with the individual repairmen. This time will also be used to compute test equipment requirements if no time is input with the individual test equipment.

END TO END TPS DEVELOPMENT COST: One-time, up front costs associated with the development of TPS to perform a "go/no-go" test on the component. These costs, primarily software development, are identified with the specific component. If the component is not screened these costs will not be incurred. If an interconnect device (ICD) is used solely for screening this component, its development cost should be entered here. Shared interconnect devices requiring extensive development should be regarded as test equipment and their overall development cost should be input with the test equipment information. Only development costs which would be incurred if the specific component is screened and not incurred if the component is not screened, should be included here. Currently the model picks up TPS costs for screening if there is no repair. Otherwise, it assumes this development is part of the development of the repair TPS and costs are included in the repair TPS cost.

ANNUAL TPS MAINTENANCE COST FACTOR: This factor will be multiplied by the initial development cost above to yield the annual cost to maintain the end to end TPS.

TAT FOR SCREENING: Screening turnaround time is the average elapsed time from the arrival of a suspected failed component at the echelon where it is to be screened until it is screened and sent for repair or returned to stock. This time includes waiting time, processing

time, and actual screening time. It does not include shipping time. Shipping time is assumed to be equal to the OST and will be added internally by the model. If no values are input here, the turnaround times that were input with the end item information will be used. *

EQUIPMENT/REPAIRMAN IDENTIFICATION NUMBER: The identification numbers of the test equipments and/or regairmen that are needed to screen the component are listed here.

TIME USED: The length of time each particular test equipment or repairman is required to screen the component is listed after the identification number. If no time is entered here the screening time will be used.

PLUS: Continuation indicator. If a test equipment/repairman continuation record is necessary, a plus sign, "+", should be entered in this field.

12. Pseudo Component Information.

Record 1: Basic Information

ſ

ĺ

COMPONENT IDENTIFICATION, COMPONENT NAME: Same as for regular components.

PRICE OF PARTS USED IN AVERAGE REPAIR ACTION: An average repair action of the end item when a pseudo component fails results in the replacement of some parts. The price of the parts replaced in an average repair action is entered here.

WEIGHT OF PARTS USED IN AVERAGE REPAIR ACTION: The packaged shipping weight of the parts replaced in an average repair action.

ESSENTIALITY CODE: Same as for regular components.

TOTAL NUMBER OF PARTS: The total number of parts that have been grouped together to form a pseudo component. A bin will be charged for each of these parts wherever the pseudo component is stocked.

NUMBER OF PARTS NEEDING NSN's: The number of parts described above which do not have an existing NSN.

TOTAL MTBF: The combined mean time between failures for all of the parts which make up the pseudo component. If MTBF(i) is the MTBF of part i, then the total MTBF, MTBF(t), is computed as follows:

1/MTBF(t) = 1/MTBF(1) + 1/MTBF(2) + ... + 1/MTBF(n)

where n is the total number of parts defined above.

FALSE REMOVAL RATE: Same as for regular components.

CAN THE COMPONENT BE SCREENED: Same as for regular components.

Record 2: Screening Information

Note: This record is required if the pseudo component is a candidate for screening (IMODE = 1 only). The definitions of variables on this record are identical to those for corresponding variables concerning screening regular components.

13. Module Information.

Record 1: Basic Information

IDENTIFICATION, NAME, PRICE, WEIGHT, ESSENTIALITY CODE, NSN, WASHOUT, FALSE REMOVAL, TAT, NUMBER OF ALTERNATIVES: Same as for components.

AVERAGE PRICE OF PIECE PARTS USED IN EACH REPAIR ACTION: A module repair action results in the replacement of piece parts. The cost of the parts used in an average repair action is entered here. This amount will be charged for each module repair action.

NUMBER OF PIECE PARTS NEEDING AN NSN: If the module is repaired, the cost of obtaining NSN's and opening bins for the new repair parts will be added. They will not be added if the module is thrown away.

CAN THE MODULE BE SCREENED: Same as for components.

Record 2, 3, or 4: Repair Information

Record 5: Screening Information

The definitions of all variables on these records are the same as those for the corresponding variables on the component records except that these inputs refer to repair of the specific module. Module repair consists of isolation to and removal and replacement of faulty piece parts.

14. Pseudo Module Information.

All pseudo module information is the same as the corresponding pseudo component information. The MTBF for a pseudo module is entered with application information, however.

15. Application Information.

Record 1: Basic Information.

COMPONENT IDENTIFICATION: The four character alphanumeric identification of the component. This identification must match the identification of a component which has been defined above.

MODULE IDENTIFICATION: The four character alphanumeric identification of the module. This identification must match the identification of a module which has been defined above.

MEAN TIME BETWEEN FAILURE (MTBF) OF THE MODULE IN THE COMPONENT: The MTBF of the module is entered here. If the module is part of several components, the MTBF must be entered separately for each application. Multiple occurrences of the module in the same component should be entered as one application with the MTBF's combined. The number of failures of the module in each component will be computed by the model and added to obtain the total number of module failures. In the case of a pseudo module, the total MTBF, which is computed in the same manner as described above for a pseudo component, is entered here.

NUMBER OF COMPONENT REPAIR ALTERNATIVES WHICH REQUIRE ADDITIONAL <u>INFORMATION FOR THIS APPLICATION:</u> General component repair information is input above with the component. In some cases, however, this information must be augmented or changed when the failure of the component is due to the failure of a specific module. This variable tells the preprocessor how many alternatives for repair of the component when the specific module listed on this record fails must be altered. This variable must be Ø or 1 unless IMODE is equal to 2. If this variable is greater than Ø the preprocessor will expect the next record(s) to contain the additional information.

Record 2: Additional Repair Information

Ĺ

Note: There must be one record (plus continuation if necessary) for each component repair alternative which is to be augmented or changed. If no changes from the basic component repair information are needed (Number of repair alternatives which require additional information = \emptyset) no records of this type are necessary.

ALTERNATIVE NAME: The four character alphanumeric identification of the component repair alternative that is being modified. This must match the name of a repair alternative that was defined with the component information.

MTTR: The new component MTTR. The time to repair the component under this repair alternative when the specific module fails. A new MTTR would be input here if it were known that when this specific module failed it would take more or less time than normal to repair the component. If the repair time is the same as the component MTTR input with the component information under this repair alternative, this field should be left blank.

NUMBER OF PAGES OF TECHNICAL DOCUMENTATION SAVED: This variable is set to zero in standard usage. The number of pages of technical documentation that would not have to be purchased if the entire component was discarded when this specific module failed. This number of pages will be subtracted from the number of pages input

* Indicates possible government furnished data.

with the component information if the component is throwaway when the specific module fails. Normally this cost saving is negligible and this variable is set to \emptyset .

EQUIPMENT/REPAIRMAN IDENTIFICATION NUMBER: The identification numbers of the test equipments and/or repairmen needed in addition to those listed with the component to repair the component under this alternative when the specific module fails. If a test equipment or repairman is listed with the component, it should not be listed here (see 6.2.4 for exceptions).

TIME USED: The length of time each particular test equipment or repairman is required to repair the component when the module fails is listed after the identification number. If no time is entered here the component MTTR (modified for this application as described above) will be used unless the equipment or repairman is coded for repair only. In that case, the time used will default to the MTTR minus the diagnostic time.

<u>PLUS</u>: Continuation indicator. If a test equipment/repairman continuation record is necessary, a plus sign, "+", should be entered in this field.

ł

APPENDIX B

INPUT DATA FORMATS

This appendix lists the formats for each of the data records described in Chapter 2. Some of the variables have default values which will be used if a zero is input or if the data field for that variable is left blank. These values should be used only when better data is not available. The correct values for these variables may change, but the defaults may not reflect the change for some time.

All data entries should be right justified in their fields except for alphanumeric variables which should be left justified. The decimal point will automatically be placed so that the entry has the number of decimal places indicated. The user may insert his own decimal point which will override the assumed decimal point, however.

As an example, suppose the variable SAMPLE is to be input in columns 25-30 with 2 decimal places. The following

column	 26	27	28	29	30
		1	Ø	2	5

would set SAMPLE equal to 10.25. The following

column	25	26	27	28	29	30
	2	5	•	3	7	5
				<u> </u>		L

would set SAMPLE equal to 25.375.

. . .

CONTROL PARAMETERS

VARIABLE	UNITS	DEFAULT	COLUMNS	DECIMAL
IMODE	Ø-NORMAL 1-SCREEN 2-MULTIPLE	Ø	1	I
IPOL - LOWEST ECHELON TO REPAIR END ITEM REPAIR COMPONENTS REPAIR MODULES SCREEN COMPONENTS (IMODE = 1) SCREEN MODULES (IMODE = 1)	1 OR 2 1,2,3 OR 4 1,2,3 OR 4 2,3 OR 4 2,3 OR 4		3 4 5 6 7	I I I I I
DISCOUNT RATE	N/A	.10	9-10	2
INPUT CURVE PARAMETER	N/A	Ø	12-21	Ø
CURVE PARAMETER MULTIPLIER	N/A	1.0	22-26	2

END ITEM	INFO	ORMA	TION	ļ
----------	------	------	------	---

ARIABLE	UNITS	DEFAULT	COLUMNS	DECIMAL
END ITEM IDENTIFICATION	ALPHANUM		1-10	
END ITEM UNIT PRICE	DOLLARS		12-21	Ø
LIFE	YEARS		23-25	I
ANNUAL OPERATING HOURS	HOURS		27-33	Ø
END ITEM MTSF	HOURS		35-41	Ø
END ITEM MTR	HOURS	.50	43-47	2
AVAILABILITY TARGET	N/A		49-51	3
COMPONENT AND MODULE UNSERVICEABLE RETURN RATE (NOT CURRENTLY USED, SEE APPENDIX A)	N/A		53-55	2
FALSE REMOVAL RATE DEFAULT (USED WHEN RATE NOT INPUT WITH COM/MOD)	N/A	.10	57-59	2
MTBF MULTIPLIER	N/A	1.00	61-65	2

ĺ

TAT DEFAULTS AND END ITEM REPAIR INFORMATION (DEFAULTS USED WHEN DATA IS NOT INPUT WITH INDIVIDUAL COMPONENTS ANS MODULES)

VARIABLE	UNITS	DEFAULT	COLUMNS	DECIMAL
TURNAROUND TIME (TAT) DEFAULTS (USED WHEN TAT NOT INPUT WITH COM/MOD)	DAYS			
ORG			1-3	Ø
DSU			5-7	Ø
GSU			9-11	Ø
DEPOT			13-15	Ø
HOW MANY END ITEM REPAIR ALTERNATIVES	N/A	Ø	17	I
ARE THERE END ITEM REPAIR EQUIP/REPMAN ASSOCIATED WITH SPECIFIC COMPONENTS	1 - YES Ø - NO	Ø	19	I
TAT DEFAULTS FOR SCREENING (IMODE = 1) (USED WHEN TAT NOT INPUT WITH COM/MOD)	DAYS			
ORG			21-23	ø
DSU			25-27	Ø
GSU			29-31	Ø
DEPOT			33-35	Ø
SCREENING DETECTION FRACTION DEFAULT (USED WHEN NOT INPUT WITH COM/MOD)	N/A		37-39	2

٠

56

END ITEM REPAIR ALTERNATIVES (OPTIONAL) (ONE RECORD FOR EACH ALTERNATIVE)

Ĺ

.RIABLE				UNITS	DEFAULT	COLUMNS	DECIMAL
ALTERNATIVE NAME				ALPHANUM		1-4	
EQUIPMENT/REPAIRMAN TIME USED	ID	NUMBER		HOURS	EI MTR	10-11 12-16	I 2
EQUIPMENT/REPAIRMAN TIME USED	ID	NUMBER		HOURS	EI MTR	17-18 19-23	I 2
EQUIPMENT/REPAIRMAN TIME USED	ID	NUMBER		HOURS	EI MTR	24-25 26-30	I 2
EQUIPMENT/REPAIRMAN TIME USED	ID	NUMBER		HOURS	EI MTR	31-32 33-37	I 2
EQUIPMENT/REPAIRMAN TIME USED	ID	NUMBER		HOURS	EI MTR	38-39 40-44	I 2
EQUIPMENT/REPAIRMAN TIME USED	ID	NUMBER		HOURS	EI MTR	45-46 47-51	I 2
EQUIPMENT/REPAIRMAN TIME USED	ID	NUMBER	C	HOURS	EI MTR	52-53 54-58	I 2
DUIPMENT/REPAIRMAN .ME USED	ID	NUMBER		HOURS	EI MTR	59-60 61-65	I 2
EQUIPMENT/REPAIRMAN TIME USED	ID	NUMBER		HOURS	EI MTR	66-67 68-72	I 2
EQUIPMENT/REPAIRMAN TIME USED	IJ	NUMBER		HOURS	EI MTR	73-74 75-79	I 2
PLUS (IF LIST IS TO	BE	CONTINUED)		+	BLANK	80	

END ITEM REPAIR EQUIPMENTS/REPAIRMEN ASSOCIATED WITH SPECIFIC COMPONENTS (OPTIONAL)

.

VARIABLE		UNITS	DEFAULT	COLUMNS	DECIMAL
COMPONENT IDENTIFIC	ATION	ALPHANUM		1-4	
ALTERNATIVE NAME		ALPHANUM		6-9	
EQUIPMENT/REPAIRMAN TIME USED	ID NUMBER	HOURS	EI MTR	10-11 12-16	I 2
EQUIPMENT/REPAIRMAN TIME USED	ID NUMBER	HOURS	EI MTR	17-18 19-23	I 2
EQUIPMENT/REPAIRMAN TIME USED	ID NUMBER	HOURS	EI MTR	24-25 26-30	I 2
EQUIPMENT/REPAIRMAN TIME USED	ID NUMBER	HOURS	EI MTR	31-32 33-37	I 2
EQUIPMENT/REPAIRMAN TIME USED	ID NUMBER	HOURS	EI MTR	38-39 40-44	I 2
EQUIPMENT/REPAIRMAN TIME USED	ID NUMBER	HOURS	EI MTR	45-46 47-51	I 2
EQUIPMENT/REPAIRMAN TIME USED	ID NUMBER	HOURS	EI MTR	52-53 54-58	I 2
EQUIPMENT/REPAIRMAN TIME USED	ID NUMBER	HOURS	EI MTR	59-60 61-65	I 2
EQUIPMENT/REPAIRMAN TIME USED	ID NUMBER	HOURS	EI MTR	66-67 68-72	I 2
EQUIPMENT/REPAIRMAN TIME USED	ID NUMBER	HOURS	EI MTR	73-74 75-79	I 2
PLUS (IF LIST IS TO	BE CONTINUED)	+	BLANK	80	

DEPLOYMENT INFORMATION

VARIABLE	UNITS	DEFAULT	COLUMNS	DECIMAL
RETAIL STOCKAGE CRITERION	N/A		1	I
SUPPLY SYSTEM	V-VERTICAL N-NONVERT D-DX		2	
NUMBER OF SHOPS AT ORG DSU GSU			4-7 8-11 12-15	0 0 9
DENSITY			16-21	Ø
ORDER AND SHIP TIME . ORG-DSU DSU-GSU GSU-DEPOT	DAYS		22-25 26-29 30-33	0 0 0
PROCUREMENT LEAD TIME	DAYS		34-37	Ø
CONTACT TEAM DELAY TIME	DAYS		38-41	Ø
OPERATING LEVEL ORG DSU GSU	DAYS		43-46 47-50 51-54	0 0 0

LABOR RATES AND TRANSPORTATION INFORMATION

VARIABLE	UNITS	DEFAULT	COLUMNS	DECIMAL
UNLOADED (BASE) HOURLY RATE ORG DSU GSU DEPOT	DOLLARS	7.25 10.30 21.00 21.00	1-4 5-8 9-12 13-16	2 2 2 2
LOADING FACTORS ORG DSU GSU DEPOT	N/A	.90 .90 .45 .45	18-19 20-21 22-23 24-25	2 2 2 2
PRODUCTIVITY FACTORS ORG DSU GSU DEPOT	N/A	.85 .85 .85 .85	27-28 29-30 31-32 33-34	2 2 2 2
DISTANCE BETWEEN ORG-DSU DSU-GSU GSU-DEPOT	MILES .	7 250 3500	36-41 42-47 48-53	0 0 0
TRANSPORTATION COST PER FOUND PER MILE ' ORG-DSU DSU-GSU GSU-DEPOT	DOLLARS	.01 .0004 .0004	55-61 62-68 69-75	5 5 5

COST PARAMETERS

l

VARIABLE	UNITS	DEFAULT	COLUMNS	DECIMAL
INITIAL CATALOGING COST	DOLLARŞ	700	11-16	2
RECURRING CATALOGING COST	DOLLARS	175	18-23	2
INITIAL BIN COST	DOLLARS	238	25-30	2
RECURRING BIN COST	DOLLARS	38	32-37	2
HOLDING COST FRACTION	N/A	.06	43-44	2
COST PER REQUISITION	DOLLARS	26	46-51	2
COST OF TECHNICAL DOC. PER PAGE	DOLLARS	382	53-58	2

TEST EQUIPMENT INFORMATION BASIC INFORMATION

VARIABLE	UNITS	DEFAULT	COLUMNS	DECIMAL
TEST EQUIPMENT ID NUMBER	MAX 30		1-2	I
TEST EQUIPMENT NAME	ALPHANUM		4-13	
ONE TIME DEVELOPMENT COST	DOLLARS	ø	15-24	Ø
TEST EQUIPMENT LIFE	YEARS	LIFE	26-27	I
HIGHEST ECHELON AT WHICH PECULIAR	 Ø - COMMON 1 - ORG 2 - DSU 3 - GSU 4 - DEPOT 	0	29	I
LOWEST ECHELON AT WHICH ALLOWED	1 - ORG 2 - DSU 3 - GSU 4 - DEPOT	1	31	τ
FOR REPAIR ONLY	1 - YES Ø - NO	0	33	I

62

1

TEST EQUIPMENT INFORMATION PARAMETERS BY ECHELON

VARIABLE	UNITS	DEFAULT	COLUMNS	DECIMAL
ORG				
UNIT PRICE	DOLLARS		1-7	Ø
ANNUAL MAINTENANCE FACTOR	N/A	.27	8-9	2
AVAILABLE TEST HOURS PER YEAR	HOURS		10-13	J
ONE TIME INSTALLATION	DOLLARS	Ø	14-20	Ø
DSU				
UNIT PRICE	DOLLARS		21-27	ø
ANNUAL MAINTENANCE FACTOR	N/A	.27	28-29	2
AVAILABLE TEST HOURS PER YEAR	HOURS		30-33	Ø
ONE TIME INSTALLATION	DOLLARS	Ø	34-40	Ø
GSU				
UNIT PRICE	DOLLARS		41-47	Ø
ANNUAL MAINTENANCE FACTOR	N/A	.27	48-49	2
AVAILABLE TEST HOURS PER YEAR	HOURS		50-53	Ø
ONE TIME INSTALLATION	DOLLARS	Ø	54-60	Ø
DEPOT				
UNIT PRICE	DOLLARS		61-67	Ø
ANNUAL MAINTENANCE FACTOR	N/A	.27	68-69	2
AVAILABLE TEST HOURS PER YEAR	HOURS		70-73	Ø
ONE TIME INSTALLATION	DOLLARS	0	74-80	ø

 ${\bf x}_{i} = {\bf x}_{i}$

REPAIRMAN INFORMATION BASIC INFORMATION

I

•

VARIABLE	UNITS	DEFAULT	COLUMNS	DECIMAL
REPAIRMAN ID NUMBER	MAX 30		1-2	I
REPAIRMAN NAME	ALPHANUM		4-13	
HIGHEST ECHELON AT WHICH PECULIAR	0 - COMMON 1 - ORG 2 - DSU 3 - GSU 4 - DEPOT	0	15	I
LOWEST ECHELON ALLOWED	1 - ORG 2 - DSU 3 - GSU 4 - DEPOT	1	17	I
FOR REPAIR ONLY	1 - YES Ø - NO	Ø	19	I

REPAIRMAN INFORMATION PARAMETERS BY ECHELON

1

1

¥

ţ

VARIABLE	UNITS	DEFAULT	COLUMNS	DECIMAL
ORG				
ANNUAL SALARY	DOLLARS		1-5	ø
MILITARY/CIVILIAN INDICATOR	MIL/CIV 1 / 2		6	I
SALARY LOADING FACTOR	N/A	.9/.45	7-8	2
TRAINING COST	DOLLARS		9-13	ø
TURNOVER	YEARS	2.5/5.	14-16	2
AVALIABLE TEST HOURS PER YEAR	HOURS		17-20	Ø
DSU				
ANNUAL SALARY	DOLLARS		21-25	Ø
MILITARY/CIVILIAN INDICATOR	MIL/CIV 1 / 2		26	I
SALARY LOADING FACTOR	N/A	.9/.45	27-28	2
TRAINING COST	DOLLARS		29-33	Ø
TURNOVER	YEARS	2.5/5.	34-36	2
AVALIABLE TEST HOURS PER YEAR	HOURS		37-40	ø
GSU				
ANNUAL SALARY	DOLLARS		41-45	Ø
MILITARY/CIVILIAN INDICATOR	MIL/CIV 1 / 2		46	I
SALARY LOADING FACTOR	N/A	.9/.45	47-48	2
TRAINING COST	DOLLARS		49-53	Ø
TURNOVER	YEARS	2.5/5.	54-56	2
AVALIABLE TEST HOURS PER YEAR	HOURS		57-60	ø
DEPOT				
ANNUAL SALARY	DOLLARS		61-65	Ø
MILITARY/CIVILIAN INDICATOR	MIL/CIV 1 / 2		66	I
SALARY LOADING FACTOR	N/A	.9/.45	67-68	2
TRAINING COST	DOLLARS		69-73	Ø
TURNOVER	YEARS	2.5/5.	74-76	2
AVALIABLE TEST HOURS PER YEAR	HOURS		77-80	Ø
Ì

COMPONENT INFORMATION

VARIABLE	UNITS	DEFAULT	COLUMNS	DECIMAL
COMPONENT IDENTIFICATION	ALPHANUM		1-4	
COMPONENT NAME	ALPHANUM		5-14	
UNIT PRICE	DOLLARS		15-21	ø
PACKAGED SHIPPING WEIGHT	POUNDS		22-27	2
ESSENTIALITY CODE	N/A		28	I
DOES THE COMPONENT HAVE AN NSN	1 - YES Ø - NO	Ø	29	I
WASHOUT RATE	N/A		31-34	3
FALSE REMOVAL RATE	N/A	SEE EI	35-36	2
TAT ORG DSU GSU DEPOT	DAYS	TAKEN FROM EI INFO	37-39 40-42 43-45 46-48	0 0 0 0
NUMBER OF REPAIR ALTERNATIVES (IF IMODE = 0, DEFAULT IS 1)	N/A		49	I
CAN THE COMPONENT BE SCREENED (IMODE=1)	1 - YES Ø - NO	Ø	61	I

,

COMPONENT/MODULE REPAIR INFORMATION (ONE RECORD FOR EACH ALTERNATIVE)

(ONE RECORD FOR	EACH ALTERNA	rive)		
VARIABLE	UNITS	DEFAULT	COLUMNS	DECIMAL
ALTERNATIVE NAME	ALPHANUM		1-4	
MTTR (INCLUDING DIAGNOSTIC TIME)	HOURS		6-10	2
DIAGNOSTIC TIME	HOURS		12-16	2
NUMBER OF PAGES OF TECHNICAL DOC	N/A	Ø	18-22	Ø
TPS DEVELOPMENT COST	DOLLARS	Ø	23-32	Ø
ANNUAL TPS MAINTENANCE COST FACTOR	N/A	Ø	33-34	2
EQUIPMENT/REPAIRMAN ID NUMBER TIME USED	HOURS	MTTR ABOVE	35-36 37-41	I 2
EQUIPMENT/REPAIRMAN ID NUMBER TIME USED	HOURS	MTTR Above	42-43 44-48	I 2
EQUIPMENT/REPAIRMAN ID NUMBER 1E USED	HOURS	MTTR ABOVE	49-50 51-55	I 2
EQUIPMENT/REPAIRMAN ID NUMBER TIME USED	HOURS	MTTR Above	56-57 58-62	I 2
EQUIPMENT/REPAIRMAN ID NUMBER TIME USED	HOURS	MTTR ABOVE	63-64 65-69	I 2
EQUIPMENT/REPAIRMAN ID NUMBER TIME USED	HOURS	MTTR Above	70-71 72-76	I 2
PLUS (IF LIST IS TO BE CONTINUED)	+	BLANK	80	

SCREENING INFORMATION (OPTIONAL, IMODE = 1 ONLY)

VARIABLE		UNITS	DEFAULT	COLUMNS	DECIMAL
SCREENING DETECTION FR	ACTION	N/A	SEE EI	1-2	2
SCREENING TIME (SCRT)		HOURS		4-8	3
END TO END TPS DEVELOP	MENT COST	DOLLARS		9-18	Ø
ANNUAL TPS MAINTENANCE	COST FACTOR	N/A	Ø	19-20	2
TAT FOR SCREENING ORG DSU GSU DEPOT		DAYS	TAKEN FROM EI INFO	21-23 24-26 27-29 30-32	0 0 0
EQUIPMENT/REPAIRMAN ID TIME USED	NUMBER	HOURS	SCRT Above	35-36 37-41	I 2
EQUIPMENT/REPAIRMAN ID TIME USED	NUMBER	HOURS	SCRT Above	42-43 44-48	I 2
EQUIPMENT/REPAIRMAN ID TIME USED	NUMBER	HOURS	SCRT ABOVE	49-50 51-55	I 2
EQUIPMENT/REPAIRMAN ID TIME USED	NUMBER	HOURS	SCRT ABOVE	56-57 58-62	I 2
EQUIPMENT/REPAIRMAN ID TIME USED	NUMBER	HOURS	SCRT Above	63-64 65-69	I 2
EQUIPMENT/REPAIRMAN ID TIME USED	NUMBER	HOURS	SCRT Above	70-71 72-76	I 2
PLUS (IF LIST IS TO BE	CONTINUED)	+	BLANK	80	

PSEUDO COMPONENT INFORMATION

VARIABLE	UNITS	DEFAULT	COLUMNS	DECIMAL
COMPONENT IDENTIFICATION	ALPHANUM		1-4	
COMPONENT NAME	ALPHANUM		5-14	
PRICE OF PARTS USED IN - Average Repair Action	DOLLARS		15-21	Ø
WEIGHT OF PARTS USED IN Average Repair Action	POUNDS		22-27	2
ESSENTIALITY CODE	N/A		28	I
TOTAL NUMBER OF PARTS	N/A		29-33	I
NUMBER OF PARTS NEEDING AN NSN	N/A		34-38	I
TOTAL MTBF	HOURS		39-48	Ø
FALSE REMOVAL RATE	N/A	SEE EI	49-50	2
CAN THE COMPONENT BE SCREENED (IMODE=1)	1 - YES Ø - NO	Ø	51	I

MODULE INFORMATION

VARIABLE	UNITS	DEFAULT	COLUMNS	DECIMAL
MODULE IDENTIFICATION	ALPHANUM		1-4	
MODULE NAME	ALPHANUM		5-14	
UNIT PRICE	DOLLARS		15-21	Ø
PACKAGED SHIPPING WEIGHT	POUNDS		22-27	2
ESSENTIALITY CODE	N/A		28	I
DOES THE MODULE HAVE AN NSN	1 - YES Ø - NO	Ø	29	I
WASHOUT RATE	N/A		31-34	3
FALSE REMOVAL RATE	N/A	SEE EI	35-36	2
TAT ORG DSU GSU DEPOT	DAYS	TAKEN FROM EI INFO	37-39 40-42 43-45 46-48	୪ ୪ ୪
NUMBER OF REPAIR ALTERNATIVES (IF IMODE = 0, DEFAULT IS 1)	N/A		49	I
AVERAGE PRICE OF PIECE PARTS USED IN EACH REPAIR ACTION	DOLLARS		50-55	2
NUMBER OF PIECE PARTS NEEDING AN NSN	N/A		56-60	I
CAN THE MODULE BE SCREENED (IMODE=1)	1 - YES Ø - NO	ø	61	I

PSEUDO MODULE INFORMATION

VARIABLE	UNITS	DEFAULT	COLUMNS	DECIMAL
MODULE IDENTIFICATION	ALPHANUM		1-4	
MODULE NAME	ALPHANUM		5-14	
PRICE OF PARTS USED IN . Average Repair Action	DOLLARS		15-21	Ø
WEIGHT OF PARTS USED IN Average Repair Action	POUNDS		22-27	2
ESSENTIALITY CODE	N/A		28	I
TOTAL NUMBER OF PARTS	N/A		29-33	I
NUMBER OF PARTS NEEDING AN NSN	N/A		34-38	I
FALSE REMOVAL RATE	N/A	SEE EI	49-50	2
CAN THE MODULE BE SCREENED (IMODE=1)	1 - YES Ø - NO	Ø	51	I

APPLICATION INFORMATION

VARIABLE	UNITS	DEFAULT	COLUMNS	DECIMAL
COMPONENT IDENTIFICATION	ALPHANUM		1-4	
MODULE IDENTIFICATION	ALPHANUM		5-8	
MTBE OF THE MODULE IN THE COMPONENT	HOURS		9-18	ø
NUMBER OF COMPONENT REPAIR ALTERNATIVES WHICH REQUIRE ADDITIONAL INFORMATION FOR THIS APPLICATION		Ø	19	I

ADDITIONAL REPAIR INFORMATION FOR A GIVEN ALTERNATIVE

VARIABLE	UNITS	DEFAULT	COLUMNS	DECIMAL
ALTERNATIVE NAME (MUST BE THE SAME AS AN ALTERNATIVE NAME LISTED WITH COMPONENT REPAIR INFO)	ALPHANUM		1-4	
MTTR	HOURS	COM P MTTR	6-10	2
NUMBER OF PAGES OF TECHNICAL DOC SAVED	N/A	ø	12-16	I
EQUIPMENT/REPAIRMAN ID NUMBER	HOURS	COM P	35-36	т
TIME USED		MTTR	37-41	2
EQUIPMENT/REPAIRMAN ID NUMBER	HOURS	COM P	42-43	I
TIME USED		MTTR	44-48	2
EQUIPMENT/REPAIRMAN ID NUMBER	HOURS	COM P	49-50	I
TIME USED		MTT R	51-55	2
TOUIPMENT/REPAIRMAN ID-NUMBER	HOURS	COMP	56-57	I
ME USED		MTTR	58-62	2
EQUIPMENT/REPAIRMAN ID NUMBER	HOURS	COM P	63-64	I
TIME USED		MTT R	65-69	2
EQUIPMENT/REPAIRMAN ID NUMBER	HOURS	COM P	70-71	I
TIME USED		MTT R	72-76	2
PLUS (IF LIST IS TO BE CONTINUED)	+	BLANK	80	

EQUIPMENT/REPAIRMAN CONTINUATION RECORD (USED AS NECESSARY)

VARIABLE			UNITS	DEFAULT	COLUMNS	DECIMAL
EQUIPMENT/REPAIRMAN TIME USED	ID	NUMBER	HOURS		1-2 3-7	I 2
EQUIPMENT/REPAIRMAN TIME USED	ID	NUMBER	HOURS		8-9 10-14	I 2
EQUIPMENT/REPAIRMAN TIME USED	ID	NUMBER	HOURS		15-16 17-21	I 2
EQUIPMENT/REPAIRMAN TIME USED	ID	NUMBER	HOURS		22-23 24-28	I 2
EQUIPMENT/REPAIRMAN TIME USED	ID	NUMBER	HOURS		29-30 31-35	I 2
EQUIPMENT/REPAIRMAN TIME USED	ID	NUMBER	HOURS		36-37 38-42	I 2
EQUIPMENT/REPAIRMAN TIME USED	ID	NUMBER	HOURS		43-44 45-49	I 2
EQUIPMENT/REPAIRMAN TIME USED	ID	NUMBER	HOURS		50-51 52-56	I 2
EQUIPMENT/REPAIRMAN TIME USED	ID	NUMBER	HOURS		57-58 59-63	I 2
EQUIPMENT/REPAIRMAN TIME USED	ID	NUMBER	HOURS		64-65 66-70	I 2
PLUS (IF LIST IS TO	BE	CONTINUED)	+	BLANK	8 Ø	

APPENDIX C

Preprocessor Parameter List

LSTK

Length of equipment stacks VALUE: 2000

NAPPL

Number of possible applications VALUE: 250

NCM

Number of possible components plus modules VALUE: 300

NCOMP

Number of possible components VALUE: 150

NSTE

Number of possible test equipments plus repairmen VALUE: 30

NTOT

Total number of possible components plus modules plus applications VALUE: 500

Preprocessor Variable List

Main Program

ALTNM(I, IA) Name associated with repair alternative IA for the component, module or application with reference number I. ALPHANUMERIC 4 CHARACTERS INPUT AVTAR Availability target REAL INPUT CF(K) Annual maintenance cost factor for a test equipment at echelon K REAL INPUT for each test equipment DEFAULT: .27 CHF Factor used only in evaluator to remove holding cost from unit price REAL COMPUTED: 1.+ COSHOL * PVF CLMULT (K) Ratio of labor rate at echelon K to labor rate at ORG REAL COMPUTED: RATL(K)/RATL(1) COMTST(IEQ, I, IA) Indicator for test equipment/repairman IEO to repair component I under repair alternative IA INTEGER INTERNAL: 1 if equipment IEQ is used Ø else COSBI Initial cost to open a bin REAL INPUT DEFAULT: 238

COSBIN Present value of a bin REAL COMPUTED: COSBI + PVF * COSBR COSBR Annual recurring cost to maintain a bin REAL INPUT DEFAULT: 38 COSHOL Holding cost fraction REAL INPUT DEFAULT: .06 COSNSI First year cataloging cost REAL INPUT DEFAULT: 700 COSNSN Present value of cataloging cost REAL COMPUTED: COSNSI + COSNSR * (PVF - .5 * (1. + 1./(1. + DIS)))COSNSR Annual recurring cost to maintain an NSN REAL INPUT DEFAULT: 175 COSREQ Cost per requisition REAL INPUT DEFAULT: 26 COMPUTED: COSREQ = COSREQ * PVFCOSTD Cost of technical documentation per page REAL INPUT DEFAULT: 382

COSTRA(K) Present value of transportation cost per pound between echelon K and echelon K + 1 REAL COMPUTED: CPM(K) * DIST(K) * PVF CPM(K) $\overline{\mathbf{T}}$ ransportation cost per pound-mile between echelon K and echelon K + 1 REAL INPUT DEFAULT: CPMD(K) CPMD(K) Default transportation cost per pound-mile between echelon K and echelon K + 1REAL INTERNAL VALUES: ORG-DSU .01 DSU-GSU .0004 GSU-DEPOT .0004 CTDEL DS contact team delay time in days REAL INPUT CURIN Input curve parameter REAL INPUT DEFAULT: Model searches for curve parameter CURMUL Curve parameter multiplier REAL INPUT DEFAULT: 1 DET(I) Detection fraction for screening of item I where I is the reference number of the component or module REAL INPUT DEFAULT: DETDEF DETDEF Screening detection fraction default REAL INPUT

DIAG(I,IA) Diagnostic time for the component or module with reference number I under repair alternative number IA REAL INPUT DIAGP(I,IA) Fraction of MTTR of item I under alternative IA used for fault isolation REAL COMPUTED: Components DIAG(ILRU, IA) /MTTR(I, IA) where = Reference number of application I (failure mode) IA = Alternative number ILRU = Reference number of component Modules DIAG(I, IA) /MTTR(I, IA) where I = Reference number of module IA = Alternative number DIS Discount rate REAL INPUT DEFAULT: Ø.10 DIST(K) Distance in miles between echelons K and K + 1REAL INPUT DEFAULTS: DISTD(K) DISTD(K) Default distance between echelon K and echelon K + 1REAL INTERNAL VALUES: ORG-DSU 7 DSU-GSU 250 GSU-DEPOT 3500 DMTBF Derived MTBF REAL COMPUTED: OH/FAILSUM

DC(I,IA) Cost of documentation to repair under repair alternative IA for the component, module, or application with reference number I REAL COMPUTED: PAGE * COSTD ECH Echelon names for output ALPHANUMERIC 3 CHARACTERS INTERNAL VALUES: ORG, DSU, GSU, DEP, bbb EIALTN(IA) Name associated with end item repair alternative IA ALPHANUMERIC CHARACTERS 4 INPUT EITEST (IEQ, IA) Indicator for test equipment/repairman IEQ to repair end item under end item repair alternative IA INTEGER INTERNAL: 1 if equipment IEQ is used 'Ø else EQCST (IEQ, K) Present value of test equipment/repairman IEQ at echelon K REAL COMPUTED: Test Equipment EUP(K) + CF(K) + EUP(K) + PVF + STALL(K) + REPCSTRepairman (SAL(K) * (1 + FL(K)) + TRMOS(K)/RTR(K)) * PVFEQDEV(IEQ) Development cost of test equipment IEQ REAL INPUT DEFAULT: Ø

£

EOSTK List of test equipments/repairmen needed by component, module and application REAL INTERNAL N.X where N = test equipment/repairman number X = throughput = 1 divided by number of repair actions per year ERR(I) False removal rate for the component or module with reference number I REAL INPUT DEFAULT: ERRDEF ERRDEF False removal rate default REAL INPUT DEFAULT: Ø.10 EUP(K) Test equipment unit price at echelon K. REAL INPUT for each test equipment FAIL(I) Number of failures per end item per year of pseudo component with reference number I or of the module in the component which make up the application with reference number I. REAL COMPUTED: OH/(TBF * TBFACT) FAILSUM Sum of all failures REAL COMPUTED FL(K) Repairmen salary loading factor at echelon K REAL INPUT for each repairman DEFAULTS: Military .90 Civilian .45

FLATE Internal variable used to inflate default values. REAL INTERNAL VALUE: 1.0 ENSN(I) New NSN indicator/fraction for component or module with reference real number I. REAL INPUT: for components and modules 1 if has existing NSN Ø if does not have existing NSN COMPUTED: for pseudo components and pseudo modules 1 - PARTSN/PARTST HRS(K) Available test hours for test equipment/repairman at echelon K. REAL INPUT for each test equipment/repairman IA Index for alternatives INTEGER INTERNAL IALT(I) Number of repair alternatives associated with the component, module, or application with reference number I. INTEGER INPUT IAPP Index number for application. INTEGER INTERNAL IBEG Index of starting point where entries are added to STK INTEGER INTERNAL ID(I) Identification of component or module with reference number ALPHANUMERIC **4** CHARACTERS INPUT

IDD

Identification of component, used when end item repair equipments are input with specific components. ALPHANUMERIC 4 CHARACTERS INPUT

IDDL

Identification of component on application record ALPHANUMERIC 4 CHARACTERS INPUT

IDDS

Identification of module on application record ALPHANUMERIC 4 CHARACTERS INPUT

IDEI

End item identification. ALPHANUMERIC 10 CHARACTERS INPUT

IDL (IAPP)

Component number in application IAPP. INTEGER INTERNAL

IDLT

Temporary variable used in test for components with no modules. INTEGER INTERNAL

IDONE

Number of pseudo modules used to create dummy applications. INTEGER INTERNAL: NLRU-NLRUR

IDS (IAPP)

Module number (not reference number) in application IAPP. INTEGER INTERNAL

IDST

Temporary variable used in test for modules that are not used. INTEGER INTERNAL

IEQ

```
Index number for test equipment or repairman.
INTEGER
INPUT
```

IEQPEC(IEQ) Highest echelon at which test equipment or repairman IEQ is peculiar INTEGER INPUT DEFAULT: Ø IEQPLA(IEQ) Lowest echelon at which test equipment or repairman IEQ can be placed. INTEGER INPUT DEFAULT: 1 IESS(I) Essentiality code of component or module with reference number I. INTEGER INPUT IFIN Number of components, modules and applications. INTEGER INTERNAL: NLRU + NSRU + NAPP IFIXON (IEQ) Indicator for fix only equipment. INTEGER INPUT: If equipment or repairman IEQ is used for 1 repair only. If equipment or repairman IEQ is also used Ø for fault isolation. DEFAULT: Ø IFLAGA(IA) Special repairman flag used when repairmen are input with applications under repair alternative IA. INTEGER INTERNAL: 1 If a special repairman has been input. Ø If no special repairman has been input. IFLAGT Dummy variable for call to BLDSTK INTEGER INTERNAL ILIFE Test equipment useful life. INTEGER INPUT DEFAULT: NLIFE

ŧ

ILRU Index for components. INTEGER INTERNAL IMODE Run mode indicator. INTEGER INPUT DEFAULT: Ø INDSTK(I, IA) End of EQSTK for equipments and repairmen associated with repair of item I under alternative IA. If item I is a component, the equipments are for end item repair. If item I is a module, equipments are for module repair. If item I is an application, equipments are to repair the component when the module fails. For screening: IA = 2 - Screening equipments/repairmen IA = 3 - Equipment/repairmen is used on false no go. Input with component or module and IFIXON = Ø. (e.g. a diagnostic equip). INTEGER INTERNAL INSTK(I, IA) End of STK for equipments/repairmen associated with repair of item I under alternative IA. If item I is a component, the equipments/repairmen are for component repair (all failures). If item I is a module, the equipments are for module repair. If item I is an application, equipments are to repair component when specific module fails. For screening = See INDSTK INTEGER INTERNAL INSTK1(IA) End of STK for equipments/repairmen to repair end item every time it fails under alternative IA. INTEGER INTERNAL IPECE Temporary variable used as an index for output variable ECH. INTEGER INTERNAL: IEQPEC (IEQ)

I PLA Temporary variable used as an index for output variable ECH. INTEGER INTERNAL: IPLA = IEOPLA(IEO)I PLAM1 Temporary variable for a loop. INTEGER INTERNAL: IEQPLA(IEQ)-1 IPOL(I) Policy Indicator. I=1 Lowest echelon to repair end item I=2 Lowest echelon to repair components I=3 Lowest echelon to repair modules Lowest echelon to screen components I ≈4 I=5 Lowest echelon to screen modules INTEGER INPUT IPOSCR(I) Indicator for screening of component or module with reference number I. INTEGER I.IPUT: 1 If item I is a candidate of screening If item I is not a candidate for screening ø DEFAULT: Ø IREP Index used when buying test equipment if ILIFE is less than NLIFE INTEGER INTERNAL IREPFL(IEQ) Repairman indicator for test equipment or repairman IEQ INTEGER INTERNAL: 1 If IEQ is a repairman. Ø If IEQ is a test equipment. IREPL(I) Replication number for component or module with reference number I. INTEGER INTERNAL: 1 for real components and modules PARTST for pseudo components and modules IRSC Retail stockage criterion. INTEGER INPUT

ISCR

```
Dummy variable for calls to BLDSTK.
INTEGER
INTERNAL: Ø
```

ISRT

Starting position for reading test equipment or repairmen for CNTSTK INTEGER INTERNAL

ISRU

Index (reference number) for modules INTEGER INTERNAL

ITEM

Reference number for components and modules. INTEGER INTERNAL

IVSYS

SESAME support system. ALPHANUMERIC 1 CHARACTER INPUT

LORN

Component or module indicator. ALPHANUMERIC 1 CHARACTER INTERNAL

LS

Component indicator. ALPHANUMERIC 1 CHARACTER INTERNAL: L

LSRUF

Component or module flag INTEGER INTERNAL: 1 for components and modules Ø for applications

MAXEQ

Largest identification number of test equipments and repairmen. INTEGER INTERNAL

MAXSTK

Index of last entry in EQSTK. INTEGER INTERNAL

MCTBF Mean calendar time between failures. REAL COMPUTED: MTBF * 365.25/OH MIL(K) Military/civilian indicator at level K INTEGER INPUT for each repairman MTBF End item mean time between failures. REAL INPUT MTR End item mean time to repair. REAL INPUT MTTR(I,IA) Mean time to repair under alternative IA for pseudo component with reference number I or application with reference number I. REAL INPUT NALT Number of repair alternatives input with application where there is additional information. INTEGER INPUT DEFAULT: Ø NALTEI Number of end item repair alternatives. INTEGER INPUT DEFAULT: Ø NALTN Temporary alternative name used when inputing test equipments or repairmen to repair end item when specific components fail. ALPHANUMERIC **4** CHARACTERS INPUT NAME(I) Name of component or module with reference number I. 10 CHARACTERS ALPHANUMERIC INPUT

NAPP

Number of applications including those for pseudo components. INTEGER INTERNAL

NAPPT

Number of applications excluding those for pseudo components. INTEGER INTERNAL

NC 3

Number of possible components times three. INTEGER INTERNAL: NCOMP * 3

NINE

Data separator check. ALPHANUMERIC 4 CHARACTERS INTERNAL: 9999

NITEMS

Number of components and modules INTEGER INTERNAL: NLRU + NSRU

NLE

Multiples of ILIFE used for buying test equipment in later years.

```
INTERNAL: ILIFE * IREP
```

NLIFE

Useful life of end item. INTEGER INPUT

NLRU

Number of components which have been input including pseudo components. INTEGER INTERNAL

NLRUR

Number of components which have been input excluding pseudo components. INTEGER INTERNAL

NNSTE

Index used for test equipment and repairmen inputs INTEGER INTERNAL: NSTE + 1 Module indicator. ALPHANUMERIC INTERNAL: N

1 CHARACTER

NSPEC

Indicator for test equipments or repairmen used to repair end item when specific components fail. INTEGER

INPUT: 1 If there are such equipment/repairmen
 Ø If not.
DEFAULT: Ø

NSRU

Number of modules that have been input. INTEGER INTERNAL

NSTACK(I, IA)

Number of entries in EQSTK associated with repair of item I under alternative IA. If item I is a component, the equipments/repairmen are for end item repair. If item I is a module, equipments/repairmen are for module repair. If item I is an application equipments/repairmen are to repair the component when the module fails.

> For screening: IA = 2 screening equipment/repairmen IA = 3 equipment/repairmen is used on false no go; input with component or module and IFIXON = Ø INTEGER

INTERNAL

NSTK(I,IA)

End of STK for equipment/repairmen associated with repair of item I under alternative IA. If item I is a component, the equipments/repairmen are for component repair (all failures). If item I is a module, the equipments/repairmen are for module repair. If item I is an application, equipments are to repair component when specific module fails.

For screening: See NSTACK INTEGER INTERNAL

NSTK1(IA)

Number of equipments/repairmen in STK to repair end item every time it fails under alternative IA. INTEGER INTERNAL

NS

NTEMP Temporary number of test equipments/repairmen used to repair end item when specific components fail. INTEGER INTERNAL ОН Annual end item operating hours. REAL INPUT OPL(K) Operating level at echelon K. REAL INPUT OST (K) Order ship time in days between echelon K and echelon K + 1, K = 1, 2, 3. Procurement lead time, K = 4. REAL INPUT OUPS (K) Number of shops at echelon K, K = 1,2,3. Worldwide density, K = 4. REAL INPUT OUP1 Operational units of program at echelon 1. REAL COMPUTED: OUP(4)/OUP(1)OUP2 Operational units of program at echelon 2 REAL COMPUTED: OUP(4)/OUP(2)OUP3 Operational units of program at echelon 3. REAL COMPUTED: OUP(4)/OUP(3)PAGE Pages of technical documentation REAL INPUT for each component and module

PARTSN Number of parts in a pseudo component or pseudo module needing an NSN. REAL INPUT PARTSP(I) Average cost of parts used in each repair action of module with reference number I. REAL INPUT: set to Ø for components, pseudo components and bseudo modules. PARTSR(I) Number of parts needing an NSN on module with reference number I. REAL INPUT: Set to Ø for components, pseudo components and pseudo modules. PARTST Total parts in a pseudo component or pseudo module. REAL INPUT PLUS Continuation indicator for input of test equipment/ repairmen. ALPHANUMERIC 1 CHARACTER INPUT: + indicates more to follow. PRODF(K) Common labor productivity factor at echelon K INPUT DEFAULT: PRODED(K) PRODED(K) Common labor productivity factor default at echelon K INTERNAL VACUEDE ORG 0.85 DSU Ø.85 GSU Ø.85 DEPOT Ø.85 PVF Present value factor REAL COMPUTED: .5 + (1. - (1. + DIS) ** (-NLIFE + 1))/DIS + .5 * (1. + DIS) ** (-NLIFE)

RATL(K) Common	<pre>labor rate at echelon K. REAL INPUT DEFAULT: RATLD(K) COMPUTED: RATL(K) = RATL(K) * (1 + RATLF(K))/PRODF(K)</pre>
RATLD (K)	
Default	common labor rate at echelon K.
	KEAL INTERNAL
	VALUES:
	ORG 7.25
	DSU 10.30
	GSU 21.00
	DEPOT 21.00
RATLF(K)	
Common	labor rate loading factor at echelon K
	INPUT
	DEFAULT: RATLED (K)
RATLED (K)	
Common	labor rate loading factor default at echelon K
	INTERNAL
	VALUES:
	DCII 00
	GSU .45
	DEPOT .45
$\frac{REPC(1, IA)}{Cost to}$	repair item with reference number I under
alterna	tive IA at ORG.
	For Screening:
	IA = 2 cost to screen
	REAL COMPUTED.
	TMTTR * RATL(1)
	Where:
	TMTTR = MTTR(I,IA) if there are no repairmen input
	= Ø if repairman is input
	For Screening; $IA \neq 2$:
	Where:
	SCRTT = SCRT if there are no repairmen for
	screening.
	# Ø if there are repairmen for screening.

REPCST Test equipment replacement cost. REAL COMPUTED: ((1. + DIS) ** (1 - NLE) + (1. + DIS) ** (-NLE))* .5 * EUP(K) RTR(K) Turnover period for repairman at echelon K. REAL INPUT for each repairman DEFAULTS: Military 2.5 Civilian 5.0 SAL(K) Repairman annual salary at echelon K REAL INPUT for each repairman SCRT Screening time for a component or module. REAL INPUT for each component or module that is a candidate for screening STALL (K) Test equipment installation cost at echelon K. REAL INPUT for each test equipment DEFAULT: Ø STENM (IEQ) Name of test equipment or repairman IEQ. ALPHANUMERIC 10 CHARACTERS INPUT STK Temporary list of test equipments and repairmen needed by component, module, and application. Used to build EOSTK REAL INTERNAL: See EQSTK TAT(I,K) Turnaround time to repair component or module with reference number I at echelon K REAL INPUT DEFAULT: TATDEF(K)

TATDEF(K) Default turnaround time for repair at echelon K. REAL INPUT TATSCR(I,K) Turnaround time for screening component or module with reference number I at echelon K. REAL INPUT DEFAULT: TATSCRD(K) TATSCRD (K) Default turnaround time for screening at echelon K. REAL INPUT TBF Mean time between failures for a given component or module REAL INPUT for each pseudo component and each application TBFACT MTBF multiplier. REAL INPUT DEFAULT: 1.0 TEHR Time test equipment or repairman is used. Used to build STK. REAL INPUT: See TEMHR DEFAULT: MTTR if IFIXON = \emptyset MTTR-DIAG if IFIXON = 1 TEMHR Temporary variable to read TEHR. (To eliminate need to input number of test equipment or repairman types). REAL INPUT TEMSTK Temporary variable to build STK. (To eliminate need to input number of test equipment or repairman types). REAL INPUT

TERAT (K, IEQ) Ratio of available test hours for test equipment or repairman IEQ at echelon K to available test hours at lowest allowable echelon. REAL COMPUTED: HRS(K)/TESTHR(IEO) TESTHR (IEQ) Available test hours for test equipment or repairman IEQ at lowest allowable echelon. REAL INTERNAL: HRS(IPLA) TPS(I,IA) Present value of the cost of a test program set to diagnose component or module with reference number I under alternative IA. For screening: IA = 2 cost of end to end TPS. REAL COMPUTED: TPS(I,IA) = TPSI(I,IA) * (1.+TPSR(I,IA) * PVF)TPSI(I,IA) Development cost for test program set to diagnose component or module with reference number I under alternative IA. For screening: IA = 2 development cost of end to end TPS. REAL INPUT DEFAULT: Ø (no TPS) TPSR(I,IA) Annual maintenance cost factor for test program set to diagnose component or module with reference number I under alternative IA. For screening: IA = 2 development cost of end to end TPS. REAL INPUT DEFAULT: Ø (no annual maintenance cost) TRMOS(K) Training cost for repairman at echelon K. REAL INPUT for each repairman

ſ

UP(I) Unit price of component or module with reference number I. REAL INPUT COMPUTED: UP(I) * CHF UPEI Unit price of end item. REAL INPUT URR Unservicable return rate. REAL INPUT WASH(I) Washout rate for component or module with reference number I REAL INPUT WGT(I) Weight of component or module with reference number I. REAL INPUT YESNO Yes or No for output. ALPHANUMERIC **3 CHARACTERS** VALUES: NO, YES

.

•

APPENDIX D

PREPROCESSOR ERROR MESSAGES

The preprocessor has several error messages to aid in checking input data. The program may execute normally even though an error message is printed, but every error message should be investigated. In addition, any time a data field on the preprocessor output is filled with asterisks, the data for that field should be verified. The asterisks indicate that the number to be written in the field is too large. Since the data fields should be big enough to accommodate the entries that are supposed to fill them, asterisks usually indicate an error in the input data. There can be no asterisks on the data file that is passed to the main program. Incorrect data may cause warning or error messages that are not part of the preprocessor to be printed. These errors must also be investigated.

The preprocessor error messages and possible causes are as follows:

THE DISCOUNT RATE X.XX IS NOT STANDARD

The standard discount rate for present value calculations is 10%. If any other discount rate is input this message is printed.

OPERATING LIFE IS ZERO

The operating life of the end item has been set to zero. None of the cost calculations will be correct.

ONLY ONE END ITEM REPAIR ALTERNATIVE IS ALLOWED UNLESS (MODE IS 2

The number of end item repair alternatives on the TAT and End Item Repair Information record must be \emptyset or 1 unless IMODE = 2.

TIME FOR EQUIPMENT/REPAIRMAN XX IS XXX.XX WHICH IS GREATER THAN MTR

A "time used" for test equipment or repairman XX which is greater than the end item MTR has been entered. Since the test equipment/repairman is used for every end item repair action, the MTR should be at least as long as the time the equipment/repairman is required. The only exception to this occurs if the time entered actually represents the work of more than one repairman.

THIS END ITEM REPAIR ALTERNATIVE XXXX HAS NOT BEEN INPUT

Test equipments or repairmen to repair the end item when a specific component fails under repair alternative XXXX have been entered. Repair alternative XXXX, however, has not been defined as an end item repair alternative (see 2.4).

THIS TEST EQUIPMENT/REPAIRMAN XX IS USED FOR EVERY END ITEM REPAIR ACTION UNDER THIS ALTERNATIVE XXXX, IT SHOULD NOT BE ENTERED WITH INDIVIDUAL COMPONENTS

1

A test equipment or repairman to repair the end item when a specific component fails has been entered. This test equipment/repairman has already been entered as required for every end item repair. This will cause requirements for the test equipment/repairman to be doubled counted (See 6.2.4 for exceptions)

TIME USED FOR EQUIPMENT/REPAIRMAN XX IS ZERO, END ITEM MTR WILL BE USED

No time used has been entered for test equipment/repairman number XX. The preprocessor assumes that it will be required for the end item MTR.

CLAIMANTS AT XXXX IS ZERO, DIVISION BY ZERO OCCURS

This message is printed if the claimants at organization or intermediate direct support is zero. There must be claimants at these levels.

COST BETWEEN XXXX AND YYYY IS ZERO

Order and ship times between all levels must be entered unless there are no GS shops in which case the OST between GSU and Depot can be zero.

COST CARD STARTS IN WRONG COLUMN, MUST HAVE BLANK CARD IF USING ALL DEFAULTS

The first ten columns of the cost data record must be left blank. If some other record is read as the cost data record, this error will occur. The cost data record must be included in the file even if it is blank (using all defaults).

EQUIPMENT NUMBER FIELD IS BLANK FOR EQUIPMENT WITH DEVELOPMENT COST

Data for a test equipment was input without assigning an identification number. The messages gives the development cost to help locate the incorrect data.

UNIT PRICE IS ZERO FOR EQUIPMENT NUMBER XX

Equipment number XX has no unit purchase price.

EQUIPMENT NUMBER XX HAS ZERO AVAILABLE TEST HOURS AT ECHELON X

The number of available test hours for each test equipment must be input at each echelon where the test equipment is allowed. This value is used to compute test equipment requirements.

REPAIRMAN NUMBER FIELD IS BLANK

Data for a special repairman was input without assigning an identification number.

Í

MILITARY/CIVILIAN INDICATOR IS BLANK FOR REPAIRMAN XX AT ECHELON X, ASSUMED TO BE MILITARY

This message reminds the user that since no indicator was input, the repairman will be considered as military. This assumption is important when defaults for turnover and loading factors are used.

TRAINING COST IS BLANK FOR REPAIRMAN XX AT ECHELON X

This message warns the user that the training cost for a special repairman is zero. While zero is a possible input, it is hardly realistic and should be reconsidered. The message identifies the repairman and the echelon where the error occurs.

REPAIRMAN NUMBER XX HAS ZERO AVAILABLE TEST HOURS AT ECHELON X

The number of available test hours for each special repairman must be input at each echelon where he is allowed. This value is used to compute requirements for the special repairman.

EQUIPMENT NUMBER XX IS COMMON ABOVE XXXX. SINCE DEVELOPMENT FOR COMMON EQUIPMENT IS NORMALLY A SUNK COST, DEVELOPMENT COST SHOULD USUALLY BE ZERO

If a test equipment is common at any echelon its development has most likely been completed. Therefore, the development cost is sunk and should not be considered in the repair level decision.

YOU HAVE ENTERED MORE THAN ONE REPAIR ALTERNATIVE FOR THE FOLLOWING ITEM XXXXXXXX, ONLY ONE REPAIR ALTERNATIVE IS PERMITTED IN A NORMAL OR SCREENING RUN

The number of repair alternatives for a component or module must be equal to 1 unless IMODE = 2.

THIS IS NOT A SCREENING RUN, IPOSCR FOR THIS ITEM XXXXXXXXX HAS BEEN SET TO ZERO

A value other than zero has been entered in the field which designates an item as a candidate for screening. This only permitted in a screening run (IMODE = 1).

NUMBER OF REPAIR ALTERNATIVES FOR THIS ITEM XXXXXXXXX IS NOT 1, 2, OR 3

The number of repair alternatives must be 1, 2 or 3. There cannot be more than three repair alternatives for each component or module. (IMODE = 2).

TOTAL REPAIR TIME FOR THIS ITEM XXXXXXXXX IS LESS THAN DIAGNOSTIC TIME

The diagnostic time that has been entered is greater than the MTTR. Since the MTTR includes diagnostic time it should always be greater than the diagnostic time.

SCREENING TPS COST IS GREATER THAN REPAIR TPS COST FOR THIS ITEM XXXXXXXX

The model assumes that an end to end TPS is developed as part of the repair TPS. Therefore, the repair TPS should be more costly to develop.

MTBF FOR PSEUDO COMPONENT XXXXXXXXX IS ZERO DIVISION BY ZERO OCCURS

The MTBF for pseudo component XXXXXXXXX has been read as zero. An MTBF must be entered for each pseudo component.

MTBF FOR PSEUDO MODULE XXXXXXXX MUST BE INPUT WITH AN APPLICATION

This message occurs when an attempt is made to input an MTBF for a pseudo module. As with regular modules, pseudo module failure information is input with application data.

THIS PSEUDO COMPONENT/MODULE XXXXXXXXX HAS ZERO TOTAL PARTS, DIVISION BY ZERO OCCURS

A pseudo component or module must be comprised of at least one part. The preprocessor has read a value of zero for the total number of parts.

EQUIPMENT/REPAIRMAN SCREENING TIME IS ZERO FOR EQUIP/REP NUMBER XX, SCREENING TIME FOR XXXXXXXXX WILL BE USED

No "time used" was entered for test equipment or repairman XX which is needed for screening. The model assumes that the test equipment/repairman is needed for the entire screening time which was input on the screening data record.

EQUIPMENT/REPAIRMAN XX HAS NOT BEEN INPUT, PROGRAM DIVIDES BY ZERO

A repair action has been defined which requires test equipment or repairman XX, but test equipment/repairman XX has not been defined. If the message lists test equipment/repairman number Ø, an error has occurred in specifying the identification number.

ILLEGAL RUN MODE CODE

A run mode other than 0, 1 or 2 has been entered.
THIS COMPONENT ID XXXX DOES NOT MATCH ANY THAT HAVE BEEN INPUT, CHECK FOR TYPO ERROR

The component identification listed on an end item repair record or on an application record does not match the identification of any of the components that have been input. The component identification must be identical to the identification on the component information record.

THIS MODULE ID XXXX DOES NOT MATCH ANY THAT HAVE BEEN INPUT, CHECK FOR TYPO ERROR

The module identification on an application record does not match the identification of any of the modules that have been input. The module identification must be identical to the identification on the module identification record.

MTBF FOR APPLICATION NUMBER XXX IS ZERO, DIVISION BY ZERO OCCURS

The MTBF on an application record has been read as zero.

THE REPAIR ALTERNATIVE XXXX HAS NOT BEEN INPUT FOR THIS COMPONENT XXXXXXXXX

An attempt has been made to modify component repair information by entering data with an application. The component repair alternative identified on this record does not match any of those that were input with component repair information.

TEST EQUIPMENT/REPAIRMAN XX IS USED FOR EVERY COMPONENT REPAIR ACTION UNDER THIS ALTERNATIVE XXX, IT SHOULD NOT BE ENTERED WITH THE APPLICATION

A test equipment or special repairman to repair the component has been entered with the application. This test equipment/repairman has already been listed for every component repair action under the given alternative. This will cause requirements for the test equipment/repairman to be doubled counted (See 6.2.4 for exceptions).

ONLY ONE REPAIR ALTERNATIVE CAN BE CONSIDERED IN THIS RUN, TO EXAMINE MULTIPLE REPAIR ALTERNATIVES SET IMODE = 2

The number of component repair alternatives which require additional information for an application has been set to a number greater than 1, and the run mode is not set to examine multiple repair alternatives.

THIS MODULE XXXXXXXXX IS NOT LISTED WITH AN APPLICATION, EACH MODULE MUST APPEAR IN AT LEAST ONE APPLICATION

The preprocessor has scanned all applications and the module listed does not appear in any of them. All modules, including pseudo modules, must appear in at least one application.

THIS COMPONENT XXXXXXXXX HAS NO MODULES, EACH REPAIRABLE COMPONENT MUST HAVE AT LEAST ONE MODULE

If a component is repairable it must have a lower level of indenture (see 1.2). The preprocessor has scanned the applications to insure that at least one module is listed as the lower level of indenture for the component, and none has been found.

THIS ID XXXX HAS BEEN INPUT MORE THAN ONCE, CHECK FOR TYPO ERROR

The same alphanumeric identification has been assigned to two different components or modules. Each component and module must have a unique alphanumeric identification.

APPENDIX E

SAMPLE BASIC RUN

Sample input and output files from a basic run are contained in this appendix. While the data was derived from a real system, some of it has been modified to demonstrate certain features of the OGAMM. Thus, no data from this appendix should be used in any other analysis. Furthermore, the data in this appendix should not be compared to that in any of the other sample runs in this minual.

INPUT FILE

21177 00034 00035 2 006 6162 0C 0E 1 006 45 2010 1010 -0 14752 2726 14440 51 60 05 20 20 15 20 001 2 40 40 510 760 04 050 3532 **1**4 10 2 0 130 **n** -**ر** 4 23 د ۱ د ۲ ۍ ه ۳ ۱ ۹ ۱ د ع ر م ۍ م ۍ ۹ 22016 15 1 2 15 4 2 15 2 3 ۴ ۲ 4 4 4 9 4 9 ۍ م 9 1543 15 4 2 N 9501 151 **J**501 8 | 243| 15 | 10501 42501 65340 16247 2 65340 16247 2 34990 1768 2 4464 40x 350 51764 1 3 5741C Pad 111 0 CI 25(FA V V 25) CI 25(FA V V 25) CI 20 051 0 CI 20 100 24 CO 2019 CO 2019 CO 2010 CO 20 5163 56 1008 144 868 2975 1960 54 840 56 76 112 115 49 99 10085 ALTI 5 2000PMER AMM ALTI 5 ALTI 5 5000VEM MOUNT ALTI 5 21 1C0 14 425121769 22 1C0 15 1160000101764 5 1001 6 04121764 6 100 2 524121768 7 100 3 1347101768 8 100 4 34101758 161011 34101758 171012 134101759 18101759 334101769 334101769 3622101768 10 14CFTHETCD 1500121769 334101769 15 1CD 10 R00000101758 728121768 13 1CD 8 107121768 14 1CD 9 40000101754 390121768 179101764 474121764 7000MAN ANT 8000ven Ant 4000mat fase 100 11768 4 HEMATH VAN ALTI 5 60001vRCU ALTI 5 9999 11 1C0 5 9 ICD 5 12 ICO 7

0, 20 1 25 0, 20 0, 20 1, 25 1, 26 1, 25 1, 26 1,	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	08 20 17 21
5 1 5 4 421 5 4 421 5 04 421 5 04 421 5 04 421 5 04	421 421 421 50 421 50 421 50 421 50 421 50 421 50 421 50 421 50 50 421 50 50 50 50 50 50 50 50 50 50 50 50 50	 421 5 1751 5 <	10 1 25 ⁰⁴ 251 55 2
404 474 479 479 1594 191 191 191 191	LIS 203 554 965 965 965 965 171 260 171 260 171 260 171 260 185 185 185	LI 150 LI	1 255 2 14 1 2 25 2 2 25 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
774 174 175 175 175 175 175 175 175 175 175 175	LTL 5 0075YNTHE 5 0075YNTHE 5 LTL 5 LTL 5 LTL 5 LTL 5 0095W ASSY LTL 5 LTL 5 LT 5 LT	0111CON MAT 121 121 121 121 124 124 125 101 124 125 101 120 120 120 120 120 120 120	LT1 5 004MTG 5 999 5 999 6 999 7 0001002 0001002 0001003

2047 1952 1947	14415 1445 145	12622	30296 72195 151371 219843	20105 219505 1719505 1719505 2213451
1101000	101000	0002003 0003001 0003001	5005000 5006000 50000000000000000000000	0006001 0006004 0005004 0005004

