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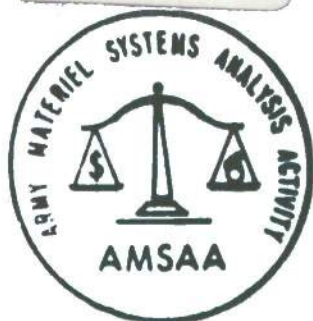
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TECHNICAL REPORT NO. 317



(ADDENDUM TO AMSAA TECHNICAL REPORT NO. 311)

A METHODOLOGY FOR SIMULATING MISSION DEFERMENT
IN THE TACTICAL VEHICLE EVALUATION MODEL (TVEM)

STANLEY C. BUTLER

NOVEMBER 1980

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) A methodology to permit the deferral of missions in anticipation of slack periods in the mission schedule has been developed and incorporated in the Tactical Vehicle Evaluation Model (TVEM). This report, an addendum to AMSAA Technical Report No. 311, dated October 1980, documents this methodology improvement. Included are the program listing, deferment program narrative, test case input and output, and other detailed documentation.		

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A METHODOLOGY FOR SIMULATING MISSION DEFERMENT IN THE TACTICAL
VEHICLE EVALUATION MODEL (TVEM)
(Addendum to AMSAA Technical Report No. 311)

1. INTRODUCTION

The Tactical Vehicle Evaluation Model (TVEM) is a computer simulation designed to compare various tactical vehicle fleet mixes in an operational context by combining vehicle performance factors with scenario-related requirements information. The vehicle fleet is organized into pools; each pool consists of a specified number of vehicles, with similar weight and cubic capacities, operating from a given location. To each pool is assigned a schedule of supply missions to be performed. For each mission, the schedule specifies the amount of cargo to be hauled, the day and time that the mission is to occur, and the route on which the vehicles must travel. Given the amount of mission cargo, the vehicle hauling capacity, and the travel and cargo handling times for the route, the TVEM determines the number of vehicles required for the mission as well as its duration. The results of the simulation for each pool consist of the number of missions completed, the number of assigned vehicles used, the percentage of unused vehicle capacity, and other measures of efficiency.

AMSAA Technical Report No. 311¹ documents the TVEM and the reader is referred to that report for a thorough discussion of the model logic and input development as well as instructions for setting up the input data for the TVEM computer program. In the discussion of the model logic, TR-311 points out that the model has several limitations. One limitation is that missions assigned to a pool cannot be deferred or postponed in anticipation of slack time. That is, if an insufficient number of vehicles is available to undertake a mission at its scheduled time, it will either be transferred to a support pool or skipped, i.e. unfulfilled, even though enough vehicles might be available perhaps a short time later.

The methodology to permit, whenever desirable, the deferral of missions has been incorporated in the TVEM and it is the purpose of this report to document the model improvement.

2. DISCUSSION

The deferral methodology is designed to give the TVEM user a wide variety of options in the exercising of this form of mission disposition. In TR-311 it is pointed out that one of the necessary input items for each mission is a value that denotes whether the mission may be transferred to a support pool or if it must be skipped in the event that it cannot be undertaken at the scheduled time. Another input item that must now be provided

¹ Butler, S. and Ferguson, W., Tactical Vehicle Evaluation Model (TVEM), AMSAA TR-311, October 1980. UNCLASSIFIED REPORT.

for each mission denotes whether it is permissible to defer the mission for a time if it cannot be fulfilled or if, instead, it must be transferred immediately or skipped. In the TVEM main program are two delay times, "TRTM" and "DFTM," whose values are given in a FORTRAN DATA Statement. The delay times are in minutes and must satisfy the relationship that the value assigned to "TRTM" cannot be greater than that assigned to "DFTM." The two delay times govern the deferral of missions, for which deferral is permissible, as follows. A mission which may not be transferred to a support pool will be held for as long as "DFTM" minutes. If vehicles cannot start the mission before "DFTM" minutes elapse, the mission will be skipped and, hence, unfulfilled. Transferable missions, on the other hand, are modeled in a more complicated manner. A TVEM control parameter, called "ITRNS," interacts with "TRTM" and "DFTM" to control the handling of each mission in this category. Depending upon the user assigned value of "ITRNS," all such missions will be treated in one of three ways:

- (a) the missions will be transferred without delay,
- (b) the missions will be deferred for at most "TRTM" minutes, or
- (c) the missions will be deferred for at most "DFTM" minutes.

In the latter two cases any mission that cannot be undertaken within the applicable delay time will be transferred at the end of that delay time.

One exception to the execution of mission deferrals occurs when the tonnage or cube specified in the mission input information is such that more vehicles are required than are assigned to the pool and the mission cannot be split. In this case the TVEM makes no attempt to defer the mission even though it may have been denoted by the user to be permissible to do so in the mission input information. The user need not check the mission input information for the potential occurrence of these illogical deferral attempts because a check built into the coding of the deferral routines automatically aborts such attempts and ensures that the disposition of the missions is properly controlled.

The values assigned to the delay times and to the control parameter are easily changed. For a consolidated list of all TVEM control parameters and option variables, see Appendix B.

Figure 1 is a flowchart of the main simulation portion of the improved version of the TVEM. It gives an overview of the methodology for deferring missions and shows how it fits into the overall model logic.

If the TVEM determines that a mission cannot be undertaken at the scheduled time, the routines associated with deferring a mission first determine whether it is permissible to defer the mission and whether there are enough vehicles assigned to the pool to undertake the mission. When a pool does not have enough vehicles assigned to undertake a mission, the mission is either transferred to another pool or skipped. If it is permissible to defer the mission and enough vehicles are assigned to the pool, the model searches the schedule of remaining missions for a period of

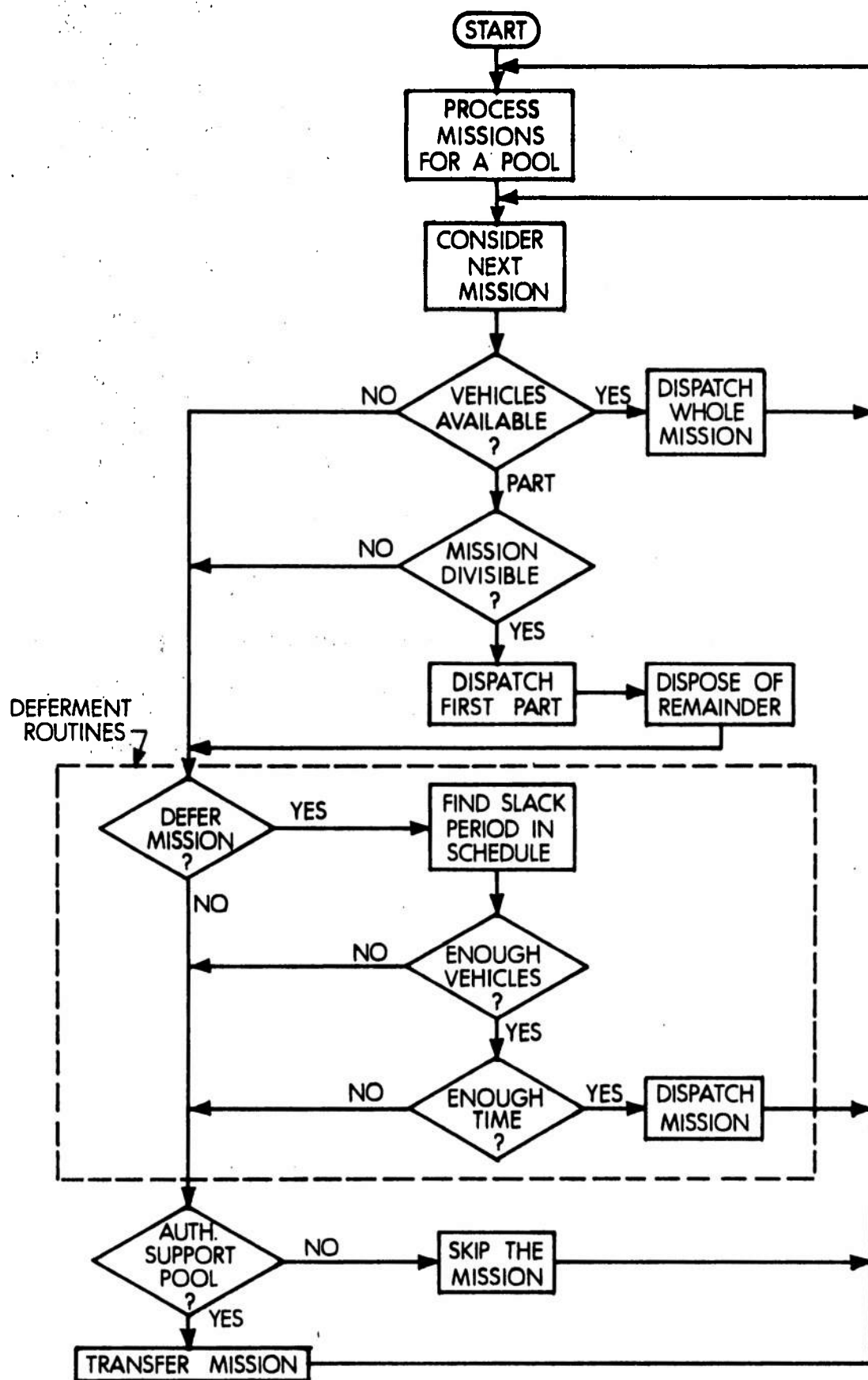


Figure 1. Flowchart of Improved TVEM.

slack time during which the mission can be completed. If the model determines that a suitable slack period in the schedule does not exist either because a sufficient number of vehicles will not be available or because the slack period begins after the permissible delay time, the attempt to defer the mission is abandoned and the mission is transferred or skipped. However, if the model determines that a suitable slack period does exist, the mission is considered completed. In any event, after the proper disposition of the mission has been determined, the TVEM considers the next scheduled event for the pool.

Any mission that cannot be deferred when necessary or one that has been deferred unsuccessfully will appear among those missions in the Mission Status Report that were transferred or skipped. Information on missions that have been successfully deferred is given under a separate disposition category in the Mission Status Report. In addition, a separate report dedicated exclusively to deferred missions is printed with the simulation results for each pool. Called the Deferred Missions Report, it gives the number of such missions completed, the per-mission average number of hours delay, the per-mission average number of trucks required, etc.

Refer to Appendix C for a more detailed discussion of the mission deferment methodology.

3. SUMMARY

The documentation contained in this report enables the TVEM user to use the mission deferment feature recently added to the model. It is believed that this methodology improvement incorporates sufficient flexibility to permit the user to conform to various doctrinal considerations in the deferment of missions. Detailed documentation of the basic TVEM is found in the referenced report.

APPENDIX A
PROGRAM LISTING

MMMMMM
MMMMMM
MMMMMM

77

1.5 B R L VER 010 *** 09/18/80 80262

LS=377K FLL=1750K MXS=300K MXL=1305K MXB=1305B

GIN

AD

BRL NNS/BE 1.3 L499 VER 006 08/18/80
-STANB,STMFZ,T10. IMPROVED TACTICAL VEHICLE EVALUATION MODEL
-ACCOUNT,SA***. STAN BUTLER 367/2173
-DISPOSE(OUTPUT,ST=MFA,*PR)
-COMMENT. SET LCM TO 262,144 WORDS.
-RFL(L=1000)
-BEGIN,ATTACH,PLOTLIB.
PF646 - PFMACRO - ATTACH - PLOTLIB - PLOTLIB
PF254 - CYCLE 4 ATTACHED FROM SN=SYSTEM
-ATTACH,PLOTBINARY,ID=SPBPLTLIB,MR=1.
PF053 - LFN IS PLOTBIN
PF254 - CYCLE 4 ATTACHED FROM SN=SYSTEM
-LIBRARY,*,PLOTBIN.
-REVERT.
-REQUEST(TAPE13,*PF)
-ATTACH(OLDPL,TVEN,CY=1,ID=SBUTLER)
PF254 - CYCLE 1 ATTACHED FROM SN=SYSTEM
-UPDATE(F)
READING INPUT
UPDATE COMPLETED
-FTN(I,SL,R=0,LCM=I)
2.986 CP SECONDS COMPILATION TIME
-MAP(OFF)
-LGO.
LD610 - FLS REQUIRED TO LOAD - 0016431 DU.COG
LD603 - EXECUTION INITIATED OS.EXP
FORTRAN LIBRARY 508 05/27/80
STOP
054000 FINAL EXECUTION FL.
.092 CP SECONDS EXECUTION TIME.
-BEGIN,PLOT,CALCOMP,TAPE13.
PF646 - PFMACRO - ATTACH - CALCOMP - CALCOMP
PF254 - CYCLE 6 ATTACHED FROM SN=SYSTEM
-IFE,FILE(TAPE13,AS.AND.RD),GOODFILE.
-ATTACH,ZZPLTZQ,ID=SPBPLTQUE,PW=*****.
PF053 - LFN IS ZZPLTZQ
PF254 - CYCLE 1 ATTACHED FROM SN=SYSTEM
-EXIT,U.
-IFE,FILE(ZZPLTZQ,PF.AND.WR),PLOTFILE.
-REWIND,ZZPLTZQ,TAPE13.
-SKIPF,ZZPLTZQ,131071,17.
UT031 - EOI ENCOUNTERED
-IFE,NUM(0).EQ.FALSE,INMODE.
ENDIF,INMODE.
-COPYR,TAPE13,ZZPLTZQ,100000.
UT031 - EOI ENCOUNTERED
UT035 - EOR - 0
-EXTEND,ZZPLTZQ.
PF257 - FILE EXTENDED
-RETURN,ZZPLTZQ.
-REVERT.
-EXIT.
JM166 - MAXIMUM USER SCH 54000B WORDS
JM167 - MAXIMUM USER LCM 100000B WORDS
JM170 - MAXIMUM JS+IO LCM 135B BUFFERS
RM770 - MAXIMUM ACTIVE FILES 5
RM771 - OPEN/CLOSE CALLS 52
RM772 - DATA TRANSFER CALLS 20,001
RM773 - CONTROL/POSITIONING CALLS 164
RM774 - BM DATA TRANSFER CALLS 2,865
RM775 - BM CONTROL/POSITIONING CALLS 202

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RM775 - BM CONTROL/POSITIONING CALLS		392
RM776 - QUEUE MANAGER CALLS		663
RM777 - RECALL CALLS		622
SCM	73.742	KWS
LCM	1 207.621	KWS
I/O	0.121	MW
RMS	0.248	MWS
USER	1.563	SEC
JJB	4.612	SEC
DIA	1 447.406	KW
SS	7.668	SEC
COST ESTIMATE	\$1.49	
SC050 - 000002 SC/LC SWAPS		

PROGRAM TVEM(INPUT,OUTPUT,TAPE5=INPUT,TAPE6=OUTPUT,TAPE13)	MAIN	2
DIMENSION T(100,9,25), A(500,9,25), E(1000,2,25), P(15,25)	DEFER4	1
DIMENSION D(500,9), F(500,2,25), O(6,5,25), Q(12,25), G(25,5)	DEFER4	2
DIMENSION C(500,25), DT(6,25)	DEFER5	1
INTEGER P	MAIN	5
C-----	DEFER4	4
C LCM REQUIREMENT -- 252,000 OR 754,1408 WORDS.	DEFER4	5
C-----	DEFER4	6
LEVEL 2, T,A,F,E,D,C	DEFER4	7
COMMON / / NPOOLS,NY,B5,B6,NTRCK	DEFER4	8
COMMON / AAA / A	DEFER4	9
COMMON / BBB / D,E,F,T	DEFER4	10
COMMON / CCC / C	DEFER4	11
COMMON / DDD / ITRNS,TRTM,DFTM,NCE,IB,NZE,DT	DEFER5	2
COMMON / GGG / G	MAIN	8
COMMON / QQQ / Q	DEFER3	2
COMMON / PPP / P	MAIN	9
COMMON / QQQ / Q	MAIN	10
COMMON / MCOL / MCT,MCA,MCG	MAIN	11
COMMON / MAX / MMISS,MLINK	MAIN	12
DATA MAXP/ 25 /	DEFER	5
DATA MLINK,MCT/ 100, 9 /	MAIN	14
DATA MMISS,MCA / 500, 9 /	DEFER4	13
DATA MRG,MCG/ 25, 5 /	DEFER	6
DATA LIST/ 1 /	MAIN	17
DATA IPLOT/ 0 /	MAIN	18
DATA ISP/ 0 /	MAIN	19
DATA IDF / 0 /	DEFER4	14
DATA ITRNS / 0 /	DEFER4	15
DATA TRTM,DFTM / 90. , 120. /	DEFER4	16
10 FORMAT(16I5)	MAIN	20
20 FORMAT(10F8.0)	MAIN	21
100 FORMAT(1H1)	MAIN	22
110 FORMAT(1H ,125(1HX))	MAIN	23
C	MAIN	24
C	MAIN	25
C	MAIN	26
C	MAIN	27
IF(TRTM.LE.DFTM) GO TO 1000	DEFER5	3
TEMP=TRTM	DEFER5	4
TRTM=DFTM	DEFER5	5
DFTM=TEMP	DEFER5	6
C-----	MAIN	28
C READ IN THE NUMBER OF POOLS TO BE SIMULATED.	MAIN	29
C-----	MAIN	30
1000 READ(5,10) NPOOLS	MAIN	31
IF(NPOOLS.LT.0) STOP	MAIN	32
IF(NPOOLS.GT.0 .OR. NPOOLS.LE. MAXP) GO TO 1005	MAIN	33
WRITE(6,160) NPOOLS	MAIN	34
160 FORMAT(1H ,WARNING-- NUMBER OF POOLS IS',I5)	MAIN	35
STOP	MAIN	36
C-----	MAIN	37
C READ THE DATA FOR THE POOLS.	MAIN	38
C-----	MAIN	39
1005 DO 1040 K=1,NPOOLS	MAIN	40
C-----	MAIN	41
C READ IN --	MAIN	42

C	POOL NUMBER, VEHICLE TYPE NUMBER, PAYLOAD (STX10),	MAIN	43
C	CAPACITY (CUBE), NUMBER OF TRUCKS IN POOL.	MAIN	44
C	-----	MAIN	45
	READ(5,10) (P(J,K),J=1,5)	MAIN	46
C	-----	MAIN	47
C	READ IN INFORMATION ON THE LINKS.	MAIN	48
C	-----	MAIN	49
	K1=0	MAIN	50
	DO 1010 I=1,NLINK	MAIN	51
	READ(5,20) (T(I,J,K),J=1,MCT)	MAIN	52
	IF(T(I,1,K).LT.0.) GO TO 1020	MAIN	53
	K1=I	MAIN	54
	1010 CONTINUE	MAIN	55
	1020 P(6,K)=K1	MAIN	56
C	-----	MAIN	57
C	READ IN INFORMATION ON THE MISSIONS.	MAIN	58
C	-----	MAIN	59
	K1=0	MAIN	60
	DO 1030 I=1,MMISS	MAIN	61
	READ(5,20) (A(I,J,K),J=1,MCA)	MAIN	62
	IF(A(I,1,K).LT.0.) GO TO 1035	MAIN	63
	K1=I	MAIN	64
	1030 CONTINUE	MAIN	65
	1035 P(7,K)=K1	MAIN	66
	IF(LIST.GT.0) CALL OUT1(K)	MAIN	68
	1040 CONTINUE	MAIN	70
C		MAIN	71
C		MAIN	72
C		MAIN	73
C	-----	MAIN	74
C	BEGIN SIMULATING THE MISSIONS, PROCESSING ONE POOL AT A	MAIN	75
C	TIME.	MAIN	76
C	-----	MAIN	77
	DO 7000 K=1,NPOOLS	MAIN	78
	WRITE(6,120) P(1,K)	MAIN	79
	120 FORMAT(1H0,10X,'SIMULATING POOL NO.',I5)	MAIN	80
	NM=P(7,K)	MAIN	81
	IF(NM.LE.0) GO TO 7000	MAIN	82
	DO 1060 I=1,6	DEFER4	17
	DT(I,K)=0.	DEFER5	7
	DO 1050 J=1,5	DEFER4	18
	D(I,J,K)=0.	MAIN	85
	1050 CONTINUE	MAIN	86
	1060 CONTINUE	MAIN	87
	NL=P(6,K)	MAIN	88
C	-----	MAIN	89
C	PROCESS THE MISSIONS FOR THIS POOL.	MAIN	90
C	-----	MAIN	91
	DO 2010 I=1,NM	MAIN	92
	DO 1065 L=1,NL	MAIN	93
	I3=L	MAIN	94
	IF(T(L,1,K).EQ.A(I,1,K)) GO TO 1070	MAIN	95
	1065 CONTINUE	MAIN	96
	WRITE(6,130) P(1,K),A(I,1,K)	MAIN	97
	130 FORMAT(1H0,'WARNING--- FILE',I3,' DOES NOT CONTAIN LINK',F7.0,10X,	MAIN	98
	*SKIPPING TO NEXT POOL')	MAIN	99
	GO TO 7000	MAIN	100

1070 CONTINUE	MAIN	101
C-----	MAIN	102
C CALCULATE THE TIME REQUIRED TO ACCOMPLISH THE MISSION,	MAIN	103
C (IF UNDERTAKEN).	MAIN	104
C-----	MAIN	105
F(I,1,K)=0.	MAIN	106
DO 1080 J=2,MCT	MAIN	107
F(I,1,K)=F(I,1,K)+T(I3,J,K)	MAIN	108
1080 CONTINUE	MAIN	109
IF(A(I,3,K).EQ.0.) GO TO 1090	MAIN	110
C-----	MAIN	111
C CALCULATE DEPARTURE TIME (IN TOTAL MINUTES).	MAIN	112
C-----	MAIN	113
E(I,1,K)=1440.*A(I,2,K)+A(I,3,K)-40.*AINT(A(I,3,K)/100.)	MAIN	114
GO TO 2000	MAIN	115
C-----	MAIN	116
C CALCULATE THE DEPARTURE TIME (IN TOTAL MINUTES) REQUIRED	MAIN	117
C TO MEET THE SCHEDULED DELIVERY TIME.	MAIN	118
C-----	MAIN	119
1090 F(I,1,K)=1440.*A(I,2,K)+A(I,4,K)-40.*AINT(A(I,4,K)/100.)-F(I,1,K)	MAIN	120
C-----	MAIN	121
C IF IT IS A SUPPLY MISSION, DROP THE TIME REQUIRED TO	MAIN	122
C RETURN TO THE SUPPORT POOL.	MAIN	123
C-----	MAIN	124
IF(T(I3,9,K).EQ.0. .OR. A(I,8,K).GT.2.)	MAIN	125
* E(I,1,K)=E(I,1,K)+T(I3,7,K)+T(I3,8,K)	MAIN	126
2000 CONTINUE	MAIN	127
C-----	MAIN	128
C CALCULATE THE TIME THE VEHICLES WILL BE AVAILABLE TO	MAIN	129
C UNDERTAKE THE NEXT MISSION.	MAIN	130
C-----	MAIN	131
I7=I+P(7,K)	MAIN	132
E(I7,1,K)=E(I,1,K)+F(I,1,K)	MAIN	133
E(I,2,K)=FLOAT(I)	MAIN	134
E(I7,2,K)=-E(I,2,K)	MAIN	135
C-----	MAIN	136
C FIND THE PERCENT WT. CAPACITY OF A VEHICLE REQUIRED FOR	MAIN	137
C THE MISSION.	MAIN	138
C-----	MAIN	139
B5=100.*A(I,5,K)/FLOAT(P(3,K))	MAIN	140
C-----	MAIN	141
C FIND THE PERCENT CUBE CAPACITY OF A VEHICLE REQUIRED.	MAIN	142
C-----	MAIN	143
B6=100.*A(I,6,K)/FLOAT(P(4,K))	MAIN	144
C-----	MAIN	145
C STORE THE MORE STRINGENT REQUIREMENT. (THIS IS REALLY	MAIN	146
C THE NUMBER OF VEHICLES REQUIRED, MULTIPLIED BY 100).	MAIN	147
C-----	MAIN	148
F(I,2,K)=AMAX1(B5,B6)	MAIN	149
C(I,K)=F(I,2,K)	DEFER4	19
2010 CONTINUE	MAIN	150
F(MISS,1,K)=1.	MAIN	151
C-----	MAIN	152
C SORT THE MISSION TIMES (INCLUDING AVAILABILITY TIMES)	MAIN	153
C FROM EARLIEST TO LATEST, GIVING A CHRONOLOGICAL	MAIN	154
C SEQUENCE OF MISSION EVENTS.	MAIN	155
C-----	MAIN	156

CALL SORT(K)	MAIN	158
-----	MAIN	160
STORE THE EARLIEST DISPATCH OR DEPARTURE TIME.	MAIN	161
-----	MAIN	162
P(9,K)=E(1,1,K)	MAIN	163
-----	MAIN	164
STORE LATEST VEHICLE AVAILABILITY TIME.	MAIN	165
-----	MAIN	166
I7=2*P(7,K)	MAIN	167
P(10,K)=E(I7,1,K)	MAIN	168
P(8,K)=0	MAIN	169
P(11,K)=0	MAIN	170
NZ3=0	MAIN	171
NZ7=0	MAIN	172
DO 2040 I=1,NM	MAIN	173
IF(A(I,8,K).GT.2.) GO TO 2030	DEFER4	20
IF(ISP) 2020,2030,2025	DEFER4	21
2020 A(I,8,K)=1.	DEFER4	22
GO TO 2030	DEFER4	23
2025 A(I,8,K)=2.	DEFER4	24
2030 CONTINUE	DEFER4	25
IF(IDF) 2033,2040,2037	DEFER4	26
2033 A(I,9,K)=0.	DEFER4	27
GO TO 2040	DEFER4	28
2037 A(I,9,K)=1.	DEFER4	29
2040 CONTINUE	MAIN	179
C	MAIN	180
C	MAIN	181
C	MAIN	182
C*****	MAIN	183
C	MAIN	184
PROCESS EACH EVENT.	MAIN	185
C	MAIN	186
C*****	MAIN	187
NZ=NM	MAIN	188
IB=0	DEFER4	30
DO 5000 I=1,I7	MAIN	189
NCE=I	DEFER4	31
NY=INT(ABS(E(I,2,K)))	MAIN	190
-----	DEFER4	32
FIND THE NUMBER OF VEHICLES REQUIRED FOR THIS MISSION.	DEFER4	33
-----	DEFER4	34
NTRCK=INT(F(NY,2,K)/100.)	DEFER4	35
IF(AMOD(F(NY,2,K),100.).NE.0.) NTRCK=NTRCK+1	DEFER4	36
-----	MAIN	191
IS IT A MISSION OR A RETURN FROM A MISSION.	MAIN	192
-----	MAIN	193
IF(E(I,2,K).LT.0.) GO TO 2050	MAIN	194
-----	MAIN	195
DETERMINE HOW MANY VEHICLES WILL BE OCCUPIED IF THIS MISSION IS UNDERTAKEN.	DEFER4	37
-----	DEFER4	38
P(8,K)=P(8,K)+NTRCK	MAIN	197
-----	DEFER4	39
ARE THERE ENOUGH VEHICLES IN THE POOL.	MAIN	200
-----	MAIN	201
IF(P(8,K).LE.P(5,K)) GO TO 4050	MAIN	202
-----	MAIN	203

NZ7=1	MAIN	204
-----	MAIN	205
DETERMINE THE NUMBER OF VEHICLES RETURNING FROM A MISSION	MAIN	206
OR IF THERE ARE NOT ENOUGH VEHICLES IN THE POOL TO	MAIN	207
TAKE THE WHOLE MISSION, RESET THE INDICATOR.	MAIN	208
-----	MAIN	209
2050 P(8,K)=P(8,K)-NTRCK	DEFER4	40
IF(NZ7.EQ.0) GO TO 5000	MAIN	212
NZ7=0	MAIN	213
I8=INT(A(NY,8,K))	MAIN	214
IF(I8.GT.15) I8=I8-15	DEFER	7
GO TO (2060,3020,5000,3040,5000,3050,5000,4020), I8	MAIN	216
-----	MAIN	217
C***** ORIGINAL MISSIONS *****	DEFER4	41
-----	DEFER4	42
2060 IF(P(8,K).EQ.P(5,K)) GO TO 3000	MAIN	218
A(NY,8,K)=27.	MAIN	219
NZ=NZ+1	DEFER	8
BT=AMAX1(A(NY,5,K)/FLOAT(P(3,K)),A(NY,6,K)/FLOAT(P(4,K)))	MAIN	221
ZT=FLOAT(P(5,K)-P(8,K))	MAIN	222
Z5=100.*ZT	MAIN	223
TEMP=ZT/BT	MAIN	224
-----	MAIN	225
HOW MUCH OF THIS CARGO CAN THE POOL HAUL (IN TONS AND	MAIN	226
CUBE) WITH THE VEHICLES AVAILABLE.	MAIN	227
-----	MAIN	228
B5=A(NY,5,K)*TEMP	MAIN	229
B6=A(NY,6,K)*TEMP	MAIN	230
F(NY,2,K)=Z5	MAIN	231
-----	MAIN	232
INCREASE THE INDICATOR TO ACCOUNT FOR THE PARTIAL MISSION	MAIN	233
-----	MAIN	234
P(8,K)=P(5,K)	MAIN	235
-----	MAIN	236
STORE THE INFO ON THE MISSION COMPLETED IN PART. THE	MAIN	237
REMAINDER OF THE MISSION WILL BE DEFERRED (COMPLETED	MAIN	238
LATER), TRANSFERRED, OR SKIPPED.	DEFER4	43
-----	DEFER4	44
DO 2070 J=1,MCA	MAIN	241
A(NZ,J,K)=A(NY,J,K)	MAIN	242
2070 CONTINUE	MAIN	243
A(NZ,5,K)=B5	MAIN	244
A(NZ,6,K)=B6	MAIN	245
A(NZ,8,K)=3.	MAIN	246
F(NZ,1,K)=F(NY,1,K)	MAIN	247
F(NZ,2,K)=Z5	MAIN	248
NA=2*NZ	MAIN	249
E(NA,1,K)=E(I,1,K)+F(NY,1,K)	MAIN	250
E(NA,2,K)=-FLOAT(NZ)	MAIN	251
NB=NA-1	MAIN	252
E(NB,1,K)=E(I,1,K)	MAIN	253
E(NB,2,K)=FLOAT(NZ)	MAIN	254
F(MMISS,1,K)=3.	MAIN	255
GO TO 4030	MAIN	256
-----	DEFER3	3
-----	MAIN	292
-----	MAIN	293

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C-----	MAIN	294
C NO VEHICLES AVAILABLE TO HAUL EVEN PART OF THE CARGO. IF	MAIN	295
C THE MISSION CAN'T BE DEFERRED OR TRANSFERRED, IT	DEFER4	45
C WILL BE SKIPPED.	DEFER4	46
C-----	MAIN	297
C 3000 A(NY,8,K)=7.	DEFER4	47
C GO TO 4040	DEFER3	4
C	MAIN	314
C	MAIN	315
C-----	MAIN	316
C THE MISSION CAN'T BE SPLIT. IF IT CAN'T BE DEFERRED OR	DEFER4	48
C TRANSFERRED, IT WILL BE SKIPPED.	DEFER4	49
C-----	MAIN	319
C 3020 A(NY,8,K)=9.	DEFER4	50
C GO TO 4040	DEFER3	5
C	MAIN	336
C ***** ADDITIONAL MISSIONS *****	DEFER4	51
C	DEFER4	52
C-----	MAIN	337
C ADDITIONAL MISSION RESULTING FROM TRANSFERRAL OF THE	MAIN	338
C REMAINDER OF A SPLIT MISSION. SINCE THERE ARE NOT	MAIN	339
C ENOUGH VEHICLES, THE MISSION WILL BE SKIPPED (WILL	MAIN	340
C NOT BE SPLIT FURTHER) IF IT CAN'T BE DEFERRED.	MAIN	341
C-----	DEFER4	53
C 3040 A(NY,8,K)=13.	MAIN	343
C A(NY,7,K)=0.	DEFER4	54
C GO TO 4040	DEFER4	55
C	DEFER4	56
C	MAIN	347
C	MAIN	348
C-----	MAIN	349
C ADDITIONAL MISSION RESULTING FROM TRANSFERRAL OF AN	MAIN	350
C ENTIRE MISSION.	MAIN	351
C-----	MAIN	352
C 3050 IF(P(8,K).EQ.P(5,K)) GO TO 4000	MAIN	353
C A(NY,8,K)=26.	DEFER	10
C NZ=NZ+1	MAIN	355
C BT=AMAX1(A(NY,5,K)/FLOAT(P(3,K)),A(NY,6,K)/FLOAT(P(4,K)))	MAIN	356
C ZT=FLOAT(P(5,K)-P(8,K))	MAIN	357
C Z5=100.*ZT	MAIN	358
C TEMP=ZT/BT	MAIN	359
C-----	MAIN	360
C HOW MUCH OF THIS CARGO CAN THE POOL HAUL (IN TONS AND	MAIN	361
C CUBE) WITH THE VEHICLES AVAILABLE.	MAIN	362
C-----	MAIN	363
C B5=A(NY,5,K)*TEMP	MAIN	364
C B6=A(NY,6,K)*TEMP	MAIN	365
C F(NY,2,K)=Z5	MAIN	366
C-----	MAIN	367
C INCREASE THE INDICATOR TO ACCOUNT FOR THE PARTIAL MISSION	MAIN	368
C-----	MAIN	369
C P(8,K)=P(5,K)	MAIN	370
C-----	MAIN	371
C STORE THE INFO ON THE MISSION COMPLETED IN PART. THE	MAIN	372
C REMAINDER OF THE MISSION WILL BE DEFERRED,	DEFER4	57
C TRANSFERRED, OR SKIPPED.	DEFER4	58
C-----	MAIN	376

DD 3060 J=1,MCA	MAIN	377
A(NZ,J,K)=A(NY,J,K)	MAIN	378
3060 CONTINUE	MAIN	379
A(NZ,5,K)=85	MAIN	380
A(NZ,6,K)=86	MAIN	381
A(NZ,8,K)=18.	DEFER	11
F(NZ,1,K)=F(NY,1,K)	MAIN	383
F(NZ,2,K)=Z5	MAIN	384
NA=2*NZ	MAIN	385
E(NA,1,K)=E(I,1,K)+F(NY,1,K)	MAIN	386
E(NA,2,K)=--FLOAT(NZ)	MAIN	387
NB=NA-1	MAIN	388
E(NB,1,K)=E(I,1,K)	MAIN	389
E(NB,2,K)= FLOAT(NZ)	MAIN	390
F(MISS,1,K)=3.	MAIN	391
GO TO 4030	DEFER3	7
C	MAIN	424
C	MAIN	425
C-----	MAIN	426
C NO VEHICLES AVAILABLE TO HAUL EVEN PART OF THE CARGO. IF	MAIN	427
C THE MISSION CAN'T BE DEFERRED OR TRANSFERRED, IT	DEFER4	59
C WILL BE SKIPPED.	DEFER4	60
C-----	MAIN	429
C 4000 A(NY,8,K)=15.	DEFER4	61
C GO TO 4040	DEFER3	8
C	MAIN	446
C	MAIN	447
C-----	MAIN	448
C THE MISSION CAN'T BE SPLIT. IF IT CAN'T BE DEFERRED OR	DEFER4	62
C TRANSFERRED, IT WILL BE SKIPPED.	DEFER4	63
C-----	MAIN	451
C 4020 A(NY,8,K)=17.	DEFER4	64
C GO TO 4040	DEFER3	9
C	DEFER3	10
C	DEFER3	11
C-----	DEFER4	65
C FIND THE AMOUNT OF CARGO REMAINING FROM THE SPLIT MISSION	DEFER4	66
C-----	DEFER4	67
C 4030 CALL REMAIN(K)	DEFER4	68
C-----	DEFER4	69
C CAN THE MISSION BE COMPLETED LATER.	DEFER4	70
C-----	DEFER4	71
C 4040 CALL PSTPN(K,IRT)	DEFER4	72
C-----	DEFER4	73
C IF IT CAN BE COMPLETED LATER AND IT'S AN ENTIRE MISSION -	DEFER4	74
C	DEFER4	75
C IF(IRT.EQ.1 .AND. A(NY,8,K).LT.26.) GO TO 4050	DEFER4	76
C-----	DEFER6	1
C BUT IF IT CAN'T BE COMPLETED LATER AND IT'S AN ENTIRE	DEFER6	2
C MISSION -	DEFER6	3
C-----	DEFER6	4
C IF(IRT.EQ.0 .AND. A(NY,8,K).LT.26.) F(NY,2,K)=0.	DEFER5	8
C-----	DEFER4	77
C IF IT'S THE REMAINDER OF A SPLIT MISSION, STORE THE INFO	DEFER4	78
C FOR REPORTING LATER AS A MISSION DEFERRED,	DEFER4	79
C TRANSFERRED, OR SKIPPED.	DEFER4	80
C-----	DEFER4	81

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C	IF(A(NY,8,K).GE.26.) CALL STRMSS(K)	DEFER4	82
C	-----	DEFER3	19
C	IF IT CAN'T BE COMPLETED AT A LATER TIME ---	DEFER4	83
C	CAN THE ENTIRE MISSION OR THE REMAINDER OF THE SPLIT	DEFER3	20
C	MISSION BE TRANSFERRED. IF SO ---	DEFER3	21
C	INCREASE THE COUNTER FOR MISSIONS TRANSFERRED AND STORE	DEFER3	22
C	THE MISSION INFO FOR LATER EXECUTION OF TRANSFER.	DEFER3	23
C	-----	DEFER3	24
C	IF(IRT.EQ.0 .AND. A(NY,7,K).GT.0.) CALL TRNSFR(K)	DEFER5	9
C	GO TO 4080	DEFER4	85
C	-----	MAIN	468
C	-----	MAIN	469
C	-----	MAIN	470
C	SET THE MISSION DISPOSITION INDICATOR FOR MISSIONS THAT	MAIN	471
C	WERE COMPLETED.	MAIN	472
C	-----	MAIN	473
C	4050 I8=INT(A(NY,8,K))	MAIN	474
C	A(NY,8,K)=12.	DEFER	17
C	IF(I8.EQ.4 .OR. I8.EQ.19) GO TO 4080	DEFER	18
C	A(NY,8,K)=14.	DEFER	19
C	IF(I8.EQ.6 .OR. I8.EQ.21) GO TO 4080	DEFER	20
C	A(NY,8,K)=16.	DEFER	21
C	IF(I8.EQ.8 .OR. I8.EQ.23) GO TO 4080	DEFER	22
C	A(NY,8,K)=5.	DEFER4	86
C	IF(I8.EQ. 7.) GO TO 4080	DEFER4	87
C	A(NY,8,K)=10.	DEFER4	88
C	IF(I8.EQ. 9.) GO TO 4080	DEFER4	89
C	A(NY,8,K)=20.	DEFER4	90
C	IF(I8.EQ.13.) GO TO 4080	DEFER4	91
C	A(NY,8,K)=22.	DEFER4	92
C	IF(I8.EQ.15.) GO TO 4080	DEFER4	93
C	A(NY,8,K)=24.	DEFER4	94
C	IF(I8.EQ.17.) GO TO 4080	DEFER4	95
C	A(NY,8,K)=FLOAT(I8)	MAIN	481
C	-----	MAIN	482
C	SET THE INDICATOR FOR MAXIMUM VEHICLE USEAGE IN THE POOL.	MAIN	483
C	-----	MAIN	484
C	4080 NZ3=MAX0(NZ3,P(8,K))	DEFER4	96
C	5000 CONTINUE	MAIN	487
C	-----	MAIN	488
C	-----	MAIN	489
C	-----	MAIN	490
C	P(7,K)=NZ	MAIN	491
C	P(8,K)=NZ3	MAIN	492
C	DO 5010 I=1,NZ	MAIN	493
C	IF(A(I,8,K).LT.26.) GO TO 5010	DEFER5	10
C	F(I,2,K)=0.	DEFER4	105
C	-----	DEFER4	106
C	RESET INDICATORS FOR REMAINDERS OF SPLIT MISSIONS THAT	DEFER4	107
C	WERE COMPLETED LATER THAN THE SCHEDULED TIME.	DEFER4	108
C	-----	DEFER4	109
C	IF(A(I,7,K).LT.0.) F(I,2,K)=C(I,K)	DEFER4	110
C	5010 CONTINUE	MAIN	496
C	CALL SORT(K)	MAIN	498
C	-----	MAIN	500
C	MOVE THE INFORMATION ON MISSIONS TO BE TRANSFERRED TO THE	MAIN	501
C	PROPER POOLS.	MAIN	502

C-----	MAIN	503
CALL MVSSN(K)	DEFER3	27
C	MAIN	534
C	MAIN	535
C-----	MAIN	536
C	MAIN	537
C-----	MAIN	538
F1=0.	MAIN	539
F2=0.	MAIN	540
F3=0.	MAIN	541
F4=0.	MAIN	542
DO 6005 I=1,12	MAIN	543
Q(I,K)=0.	MAIN	544
6005 CONTINUE	MAIN	545
I7=P(7,K)	MAIN	546
DO 6040 I=1,I7	MAIN	547
IF(F(I,2,K).EQ.0.) GO TO 6040	MAIN	548
DO 6010 L=1,NL	MAIN	549
NY=L	MAIN	550
IF(T(L,1,K).EQ.A(I,1,K)) GO TO 6015	MAIN	551
6010 CONTINUE	MAIN	552
6015 CONTINUE	MAIN	553
F5=F(I,2,K)/100.	MAIN	554
F1=F1+F5	MAIN	555
F2=F2+AIN(T(F5)	MAIN	556
F3=F3+A(I,6,K)	MAIN	557
F4=F4+A(I,5,K)	MAIN	558
IF(AMOD(F(I,2,K),100.).EQ.0.) GO TO 6020	MAIN	559
F2=F2+1.	MAIN	560
F(I,2,K)=100.*AIN(T(F5)+100.	MAIN	561
F5=F(I,2,K)/100.	MAIN	562
6020 Q(1,K)=Q(1,K)+F5*(T(NY,4,K)+T(NY,7,K))	MAIN	563
Q(2,K)=Q(2,K)+F5*T(NY,2,K)	MAIN	564
Q(3,K)=Q(3,K)+F5*T(NY,5,K)	MAIN	565
Q(4,K)=Q(4,K)+F5*T(NY,8,K)	MAIN	566
IF(T(NY,9,K).EQ.0.) GO TO 6030	MAIN	567
C-----	MAIN	568
C	MAIN	569
C-----	MAIN	570
Q(5,K)=Q(5,K)+F5*T(NY,6,K)	MAIN	571
Q(6,K)=Q(6,K)+F5*T(NY,9,K)	MAIN	572
GO TO 6040	MAIN	573
C-----	MAIN	574
C	MAIN	575
C-----	MAIN	576
6030 Q(5,K)=Q(5,K)+F5*T(NY,3,K)	MAIN	577
Q(6,K)=Q(6,K)+F5*T(NY,6,K)	MAIN	578
6040 CONTINUE	MAIN	579
IF(P(5,K).EQ.0) GO TO 6050	MAIN	580
C-----	MAIN	581
C	MAIN	582
C-----	MAIN	583
Q(7,K)=100.*(F2-F1)/F2	MAIN	584
C-----	MAIN	585
C	MAIN	586
C-----	MAIN	587
Q(8,K)=100.*F3/(F1+FLOAT(P(4,K)))	MAIN	588

C-----	MAIN	589
C WEIGHT EFFICIENCY-	MAIN	590
C-----	MAIN	591
Q(9,K)=100.*F4/(F1*FLOAT(P(3,K)))	MAIN	592
6050 CONTINUE	MAIN	593
7000 CONTINUE	MAIN	594
C	MAIN	595
C	MAIN	596
C	MAIN	597
C	MAIN	598
C*****	MAIN	599
C POST-PROCESSOR SECTION	MAIN	600
C	MAIN	601
C	MAIN	602
C*****	MAIN	603
DO 10000 K=1,NPOOLS	MAIN	604
WRITE(6,100)	MAIN	605
WRITE(6,110)	MAIN	606
CALL OUT2(K)	MAIN	608
DO 7060 I=1,MRG	MAIN	610
DO 7050 J=1,MCG	MAIN	611
G(I,J)=0.	MAIN	612
7050 CONTINUE	MAIN	613
7060 CONTINUE	MAIN	614
NM=P(7,K)	MAIN	615
IF(NM.LE.0) GO TO 9050	MAIN	616
DO 9010 I=1,NM	MAIN	617
L=INT(A(I,8,K))	MAIN	618
IF(L.GE.1.AND. L.LE.27) GO TO (7070,7070,8000,9010,7085,7080,7090	DEFER4	111
A ,7080,7090,7085,9010,8010,8020,8030,8040,8030,8040,8060,9010,8015	DEFER4	112
B ,8035,8038,8035,8038,9010,8050,8070), L	DEFER4	113
WRITE(6,150) L	MAIN	622
150 FORMAT(1H,'WARNING-- IMPROPER MISSION DISPOSITION CODE-',I5)	MAIN	623
GO TO 9010	MAIN	624
C-----	MAIN	625
C MISSION COMPLETED IN FULL. A8 CODE WAS 1 OR 2.	MAIN	626
C-----	MAIN	627
7070 I1=2	MAIN	628
I2=1	MAIN	629
GO TO 8090	MAIN	630
C-----	MAIN	631
C MISSION TRANSFERRED IN FULL. A8 CODE WAS 6 OR 8.	MAIN	632
C-----	MAIN	633
7080 I1=3	MAIN	634
I2=1	MAIN	635
GO TO 8090	MAIN	636
C-----	DEFER	27
C MISSION DEFERRED IN FULL. A8 CODE WAS 5 OR 10.	DEFER	28
C-----	DEFER	29
7085 I1=4	DEFER	30
I2=1	DEFER	31
GO TO 8090	DEFER	32
C-----	MAIN	637
C MISSION SKIPPED IN FULL. A8 CODE WAS 7 OR 9.	MAIN	638
C-----	MAIN	639
7090 I1=5	DEFER	33
I2=1	MAIN	641

GO TO 8090	MAIN	642
C-----	MAIN	643
C MISSION COMPLETED IN PART. A8 CODE WAS 3.	MAIN	644
C-----	MAIN	645
8000 I1=6	DEFER	34
GO TO 9000	MAIN	647
C-----	MAIN	648
C ADDITIONAL FRACTIONAL MISSION COMPLETED. A8 CODE WAS 12.	DEFER	40
C-----	MAIN	650
8010 I1=12	DEFER	41
I2=11	DEFER	42
I3=10	DEFER	43
GO TO 8080	MAIN	654
C-----	DEFER	44
C ADDITIONAL FRACTIONAL MISSION DEFERRED. A8 CODE WAS 20.	DEFER	45
C-----	DEFER	46
8015 I1=13	DEFER	47
I2=11	DEFER	48
I3=10	DEFER	49
GO TO 8080	DEFER	50
C-----	MAIN	655
C ADDITIONAL FRACTIONAL MISSION SKIPPED. A8 CODE WAS 13.	DEFER	51
C-----	MAIN	657
8020 I1=14	DEFER	52
I2=11	DEFER	53
I3=10	DEFER	54
GO TO 8080	MAIN	661
C-----	MAIN	662
C ADDITIONAL MISSION COMPLETED IN FULL. A8 CODE- 14 OR 16.	DEFER	55
C-----	MAIN	664
8030 I1=16	DEFER	56
I2=15	DEFER	57
I3=10	DEFER	58
GO TO 8080	MAIN	668
C-----	MAIN	669
C ADDITIONAL MISSION TRANSFERRED IN FULL. A8 CODE-21 OR 23.	DEFER	59
C-----	MAIN	671
8035 I1=17	DEFER	60
I2=15	DEFER	61
I3=10	DEFER	62
GO TO 8080	MAIN	675
C-----	DEFER	63
C ADDITIONAL MISSION DEFERRED IN FULL. A8 CODE-22 OR 24.	DEFER	64
C-----	DEFER	65
8038 I1=18	DEFER	66
I2=15	DEFER	67
I3=10	DEFER	68
GO TO 8080	DEFER	69
C-----	MAIN	676
C ADDITIONAL MISSION SKIPPED IN FULL. A8 CODE WAS 15 OR 17	DEFER	70
C-----	MAIN	678
8040 I1=19	DEFER	71
I2=15	DEFER	72
I3=10	DEFER	73
GO TO 8080	MAIN	682
C-----	MAIN	683
C ADDITIONAL MISSION SKIPPED IN PART. A8 CODE WAS 26.	DEFER4	114

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C-----	MAIN	686
8050 I1=15	DEFER	76
I2=10	DEFER	77
GO TO 8090	MAIN	689
C-----	MAIN	690
C ADDITIONAL MISSION COMPLETED IN PART. A8 CODE WAS 18.	DEFER	78
C-----	MAIN	692
8060 I1=20	DEFER	79
GO TO 9000	MAIN	694
C-----	MAIN	695
C MISSION SKIPPED IN PART. A8 CODE WAS 27.	DEFER	85
C-----	MAIN	697
8070 I1=1	MAIN	698
GO TO 9000	MAIN	699
8080 G(I3,1)=G(I3,1)+1.	MAIN	700
G(I3,2)=G(I3,2)+A(I,5,K)	MAIN	701
G(I3,4)=G(I3,4)+A(I,6,K)	MAIN	702
8090 G(I2,1)=G(I2,1)+1.	MAIN	703
G(I2,2)=G(I2,2)+A(I,5,K)	MAIN	704
G(I2,4)=G(I2,4)+A(I,6,K)	MAIN	705
9000 G(I1,1)=G(I1,1)+1.	MAIN	706
G(I1,2)=G(I1,2)+A(I,5,K)	MAIN	707
G(I1,4)=G(I1,4)+A(I,6,K)	MAIN	708
9010 CONTINUE	MAIN	709
C-----	MAIN	710
C ORIGINAL MISSIONS DEFERRED, TRANSFERRED, OR SKIPPED IN	DEFER7	1
C PART.	DEFER7	2
C ADDITIONAL WHOLE MISSIONS DEFERRED, TRANSFERRED, OR	DEFER7	3
C SKIPPED IN PART.	DEFER7	4
C-----	MAIN	715
DO 9020 J=1,MCG	MAIN	716
G(7,J)=G(1,J,K)	DEFER	86
G(8,J)=G(2,J,K)	DEFER4	115
G(9,J)=G(3,J,K)	DEFER4	116
G(21,J)=G(4,J,K)	DEFER4	117
G(22,J)=G(5,J,K)	DEFER4	118
G(23,J)=G(6,J,K)	DEFER4	119
9020 CONTINUE	MAIN	721
DO 9030 I=1,MRG	MAIN	722
G(I,3)=100.*G(I,2)/(G(1,2)+G(10,2))	DEFER	90
G(I,5)=100.*G(I,4)/(G(1,4)+G(10,4))	DEFER	91
9030 CONTINUE	MAIN	725
DO 9040 I=1,MRG	MAIN	726
G(I,2)=G(I,2)/10.	MAIN	727
G(I,4)=G(I,4)/100.	MAIN	728
9040 CONTINUE	MAIN	729
CALL OUT3	MAIN	731
CALL OUT5(K)	DEFER5	11
CALL OUT4(K)	MAIN	732
IF(IPLDT.EQ.0) GO TO 9050	MAIN	734
CALL PLOT(K)	MAIN	736
9050 WRITE(6,110)	MAIN	738
10000 CONTINUE	MAIN	739
GO TO 1000	MAIN	740
END	MAIN	741

E SORT

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C*****	SORT	2
C	SORT	3
C**** SUBROUTINE SORT	SORT	4
C SORT TIMES FOR THE POOL.	SORT	5
C	SORT	6
C*****	SORT	7
SUBROUTINE SORT(K)	SORT	8
DIMENSION T(100,9,25), A(500,9,25), E(1000,2,25), P(15,25)	SORT1	1
DIMENSION D(500,9), F(500,2,25)	SORT1	2
INTEGER P	SORT	11
LEVEL 2, T, A, F, E, D	SORT	12
COMMON / AAA / A	SORT1	3
COMMON / BBB / D, E, F, T	SORT1	4
COMMON / MAX / MMISS, MLINK	SORT	14
COMMON / PPP / P	SORT	15
C	SORT	16
C	SORT	17
KS=INT(F(MMISS,1,K))	SORT	18
IF(KS.EQ.2) GO TO 500	SORT	19
IF(KS.GE.3) GO TO 200	SORT	20
F(MMISS,1,K)=2.	SORT	21
200 JH=2*P(7,K)	SORT	22
IM=JH-1	SORT	23
DO 400 I=1, IM	SORT	24
I1=I+1	SORT	25
DO 300 J=I1, JH	SORT	26
IF(E(I,1,K).LT.E(J,1,K)) GO TO 300	SORT	27
IF(E(I,1,K).GT.E(J,1,K)) GO TO 210	SORT	28
IF(E(I,2,K).LE.E(J,2,K)) GO TO 300	SORT	29
GO TO 250	SORT	30
210 TEMP=E(I,1,K)	SORT	31
E(I,1,K)=E(J,1,K)	SORT	32
E(J,1,K)=TEMP	SORT	33
250 TEMP=E(I,2,K)	SORT	34
E(I,2,K)=E(J,2,K)	SORT	35
E(J,2,K)=TEMP	SORT	36
300 CONTINUE	SORT	37
400 CONTINUE	SORT	38
500 RETURN	SORT	39
END	SORT	40

REMAIN 76/76 DPT=1 POUND=+-*/

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C*****	REMAIN	1
C	REMAIN	2
C**** SUBROUTINE REMAIN	REMAIN	3
C FIND THE AMOUNT OF CARGO REMAINING FROM A SPLIT MISSION.	REMAIN	4
C	REMAIN	5
C*****	REMAIN	6
SUBROUTINE REMAIN(K)	REMAIN	7
DIMENSION A(500,9,25), P(15,25)	REMAIN	8
DIMENSION C(500,25)	REMAIN	9
LEVEL 2, A,C	REMAIN	10
INTEGER P	REMAIN	11
COMMON / / NPOOLS,NY,B5,B6,NTRCK	REMAIN	12
COMMON / AAA / A	REMAIN	13
COMMON / CCC / C	REMAIN	14
COMMON / PPP / P	REMAIN	15
C	REMAIN	16
C	REMAIN	17
N=NY	REMAIN	18
B5=A(N,5,K)-B5	REMAIN	19
B6=A(N,6,K)-B6	REMAIN	20
C-----	REMAIN	21
C FIND THE AMOUNT OF TRUCK CAPACITY NEEDED TO HAUL THE REMAINING	REMAIN	22
C CARGO.	REMAIN	23
C-----	REMAIN	24
U=100.*AMAX1(B5/FLOAT(P(3,K)),B6/FLOAT(P(4,K)))	REMAIN	25
C(N,K)=U	REMAIN	26
C-----	REMAIN	27
C FIND THE NUMBER OF TRUCKS REQUIRED.	REMAIN	28
C-----	REMAIN	29
NTRCK=INT(U/100.)	REMAIN	30
IF(AMOD(U,100.).NE.0.) NTRCK=NTRCK+1	REMAIN	31
RETURN	REMAIN	32
END	REMAIN	33

PSTPN 76/76 OPT=1 ROUND=+*/

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C*****	PSTPN	1
C	PSTPN	2
C**** SUBROUTINE PSTPN	PSTPN	3
C POSTPONE THE MISSION UNTIL ENOUGH TIME AND VEHICLES ARE	PSTPN	4
C AVAILABLE.	PSTPN	5
C	PSTPN	6
C*****	PSTPN	7
C SUBROUTINE PSTPN(K,IRT)	PSTPN	8
C DIMENSION T(100,9,25), A(500,9,25), E(1000,2,25), P(15,25)	PSTPN	9
C DIMENSION D(500,9), F(500,2,25)	PSTPN	10
C DIMENSION B(500,2,25), DT(6,25)	PSTPN1	1
C INTEGER P	PSTPN	12
C LEVEL 2, T,A,F,E,D,B	PSTPN	13
C COMMON / / NPOOLS,NY,B5,B6,NTRCK	PSTPN	14
C COMMON / AAA / A	PSTPN	15
C COMMON / BBB / D,E,F,T	PSTPN	16
C COMMON / DDD / ITRNS,TRTH,DFTM,NCE,IB,NZ3,DT	PSTPN1	2
C COMMON / EEE / B	PSTPN	18
C COMMON / PPP / P	PSTPN	19
C	PSTPN	20
C	PSTPN	21
C I=NCE	PSTPN	22
C N=NY	PSTPN	23
C IRT=0	PSTPN	24
C-----	PSTPN	26
C ARE THERE ENOUGH TRUCKS ASSIGNED TO THE POOL TO COMPLETE THE	PSTPN	27
C MISSION EVEN IF IT IS POSTPONED.	PSTPN	28
C-----	PSTPN	29
C IF(NTRCK.GT.P(5,K)) RETURN	PSTPN	30
C-----	PSTPN	31
C IS IT PERMISSIBLE TO POSTPONE THE MISSION.	PSTPN	32
C-----	PSTPN	33
C IF(A(N,9,K).EQ.0.) RETURN	PSTPN	34
C-----	PSTPN	35
C IS IT TO BE TRANSFERRED AT ONCE (NO DELAY).	PSTPN	36
C-----	PSTPN	37
C IF(ITRNS.LT.0 .AND. A(N,7,K).GT.0.) RETURN	PSTPN	38
C-----	PSTPN	39
C FIND THE CRITICAL DELAY TIME.	PSTPN	40
C-----	PSTPN	41
C DELAY=DFTM	PSTPN	42
C IF(ITRNS.EQ.0 .AND. A(N,7,K).GT.0.) DELAY=TRTH	PSTPN	43
C-----	PSTPN	44
C IF OTHER MISSIONS HAVE BEEN COMPLETED LATER THAN SCHEDULED,	PSTPN	45
C ARRANGE THE DISPATCH TIMES IN CHRONOLOGICAL ORDER.	PSTPN	46
C-----	PSTPN	47
C IF(IB.GT.1) CALL SEQ(K)	PSTPN	48
C-----	PSTPN	49
C WHAT IS THE CURRENT TIME.	PSTPN	50
C-----	PSTPN	51
C CTIME=E(I,1,K)	PSTPN	52
C-----	PSTPN	53
C HOW MANY TRUCKS ARE CURRENTLY OCCUPIED.	PSTPN	54
C-----	PSTPN	55
C NOCC=P(8,K)	PSTPN	56
C-----	PSTPN	57
C HOW MANY EVENTS REMAIN.	PSTPN	58

C-----	PSTPN 59
NOE=2*P(7,K)	PSTPN 60
NXT=NCE+1	PSTPN 61
IF(NXT.GE.NOE) RETURN	PSTPN 62
C-----	PSTPN 63
C CHECK THE REMAINING EVENTS FOR A SLACK PERIOD.	PSTPN 64
C-----	PSTPN 65
DO 5000 J=NXT,NOE	PSTPN 66
NW=INT(ABS(E(J,2,K)))	PSTPN 67
NT=INT(F(NW,2,K)/100.)	PSTPN 68
IF(AMOD(F(NW,2,K),100.) .NE. 0.) NT=NT+1	PSTPN 69
IF(E(J,2,K).LT.0.) GO TO 500	PSTPN 70
NOCC=NOCC+NT	PSTPN 71
GO TO 5000	PSTPN 72
500 TMNXT=E(J,1,K)	PSTPN 73
NOCC=NOCC-NT	PSTPN 74
C-----	PSTPN 75
C ARE THERE ENOUGH TRUCKS AVAILABLE.	PSTPN 76
C-----	PSTPN 77
C IF(NOCC+NTRCK.GT.P(5,K)) GO TO 5000	PSTPN 78
C-----	PSTPN 79
C IS IT TOO LATE.	PSTPN 80
C-----	PSTPN 81
C IF(E(J,1,K).GT.CTIME+DELAY) GO TO 6000	PSTPN 82
TMLST=TMNXT	PSTPN 83
NCC=NOCC	PSTPN 84
NJ=NJ+1	PSTPN 85
C-----	PSTPN 86
C IS THERE ENOUGH TIME TO COMPLETE THIS MISSION BEFORE THE	PSTPN 87
C TRUCKS WILL BE NEEDED FOR ANOTHER MISSION.	PSTPN 88
C-----	PSTPN 89
C DO 4000 J1=NJ,NOE	PSTPN 90
IF(J1.EQ.NOE) GO TO 1050	PSTPN 91
NX=INT(ABS(E(J1,2,K)))	PSTPN 92
NT=INT(F(NX,2,K)/100.)	PSTPN 93
IF(AMOD(F(NX,2,K),100.) .NE. 0.) NT=NT+1	PSTPN 94
IF(E(J1,2,K).LT.0.) GO TO 3500	PSTPN 95
NCC=NCC+NT	PSTPN 96
C-----	PSTPN 97
C PERHAPS THERE WILL STILL BE ENOUGH TRUCKS.	PSTPN 98
C-----	PSTPN 99
C IF(NCC+NTRCK.LE.P(5,K)) GO TO 4000	PSTPN 100
C-----	PSTPN 101
C CHECK THE TIME GAP TO SEE IF THERE IS ENOUGH TIME TO PERFORM	PSTPN 102
C THE MISSION AND CHECK TO ENSURE THAT THE TIME GAP HASN'T	PSTPN 103
C BEEN FILLED WITH OTHER POSTPONED MISSIONS.	PSTPN 104
C-----	PSTPN 105
1050 TMNXT=E(J1,1,K)	PSTPN 106
IF(TMNXT-TMLST.LT.F(N,1,K)) GO TO 5000	PSTPN 107
IF(IB.EQ.0) GO TO 3000	PSTPN 108
DO 2000 J2=1,IB	PSTPN 109
IF(B(J2,1,K).LE.TMLST .AND. B(J2,2,K).GE.TMNXT) GO TO 5000	PSTPN 110
IF(B(J2,1,K).GE.TMNXT) GO TO 3000	PSTPN 111
IF(B(J2,2,K).LE.TMLST) GO TO 2000	PSTPN 112
IF(B(J2,1,K)-TMLST.GE.F(N,1,K)) GO TO 3000	PSTPN 113
TMLST=B(J2,2,K)	PSTPN 114
IF(TMNXT-TMLST.LT.F(N,1,K)) GO TO 5000	PSTPN 115

PSTPN 76/76 OPT=1 ROUND=+-*/

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C-----	PSTPN	116
C IS IT TOO LATE.	PSTPN	117
C-----	PSTPN	118
IF(TMLST.GT.CTIME+DELAY) GO TO 6000	PSTPN3	2
2000 CONTINUE	PSTPN	120
C-----	PSTPN	121
C THERE IS ENOUGH TIME AND THERE ARE ENOUGH TRUCKS FOR THE	PSTPN	122
C MISSION TO BE COMPLETED.	PSTPN	123
C RESET THE MISSION DISPATCH AND RETURN TIMES.	PSTPN	124
C-----	PSTPN	125
3000 IB=IB+1	PSTPN1	3
DT(1,K)=FLOAT(IB)	PSTPN1	4
DT(2,K)=DT(2,K)+(TMLST-E(I,1,K))	PSTPN1	5
DT(3,K)=DT(3,K)+FLOAT(NTRCK)	PSTPN1	6
DT(4,K)=DT(4,K)+B5	PSTPN1	7
DT(5,K)=DT(5,K)+B6	PSTPN1	8
E(I,1,K)=TMLST	PSTPN1	9
DO 3200 I7=NXT,NOE	PSTPN	127
IF(-E(I7,2,K).EQ.N) GO TO 3300	PSTPN	128
3200 CONTINUE	PSTPN	129
RETURN	PSTPN	130
3300 E(I7,1,K)=TMLST+F(N,1,K)	PSTPN	131
B(IB,1,K)=E(I,1,K)	PSTPN	133
B(IB,2,K)=E(I7,1,K)	PSTPN	134
IZ3=NCCC+NTRCK	PSTPN	135
NZ3=MAX0(NZ3,IZ3)	PSTPN	136
IRT=1	PSTPN	137
IF(A(N,8,K).GE.26.) A(N,7,K)=-1.	PSTPN	138
RETURN	PSTPN	139
3500 NCC=NCC+NT	PSTPN	140
4000 CONTINUE	PSTPN	141
5000 CONTINUE	PSTPN	142
6000 IF(A(N,7,K).LE.0.) RETURN	PSTPN3	3
E(I,1,K)=E(I,1,K)+DELAY	PSTPN3	4
DO 6100 I7=NXT,NOE	PSTPN3	5
IF(-E(I7,2,K).EQ.N) GO TO 6200	PSTPN3	6
6100 CONTINUE	PSTPN3	7
RETURN	PSTPN3	8
6200 E(I7,1,K)=E(I,1,K)+F(N,1,K)	PSTPN3	9
RETURN	PSTPN	143
END	PSTPN	144

SEQ 76/76 OPT=1 ROUND=+-*/

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C*****	SEQ	1
C	SEQ	2
C**** SUBROUTINE SEQ	SEQ	3
C SORT DISPATCH TIMES FOR POSTPONED MISSIONS.	SEQ	4
C	SEQ	5
C*****	SEQ	6
SUBROUTINE SEQ(K)	SEQ	7
DIMENSION B(500,2,25)	SEQ	8
LEVEL 2, B	SEQ	9
COMMON / DDD / ITRNS,TRTM,DFTM,NCE,IB,NZ3	SEQ	10
COMMON / EEE / B	SEQ	11
C	SEQ	12
C	SEQ	13
IF(IB.LE.1) RETURN	SEQ	14
JM=IB	SEQ	15
IM=JM-1	SEQ	16
DO 200 I=1,IM	SEQ	17
I1=I+1	SEQ	18
DO 100 J=I1,JM	SEQ	19
IF(B(I,1,K).LT.B(J,1,K)) GO TO 100	SEQ	20
TEMP=B(I,1,K)	SEQ	21
B(I,1,K)=B(J,1,K)	SEQ	22
B(J,1,K)=TEMP	SEQ	23
100 CONTINUE	SEQ	24
200 CONTINUE	SEQ	25
RETURN	SEQ	26
END	SEQ	27

STRMSS 76/76 OPT=1 ROUND=+-*/

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C***** STRMSS 1
C STRMSS 2
C**** SUBROUTINE STRMSS STRMSS 3
C STORE, FOR REPORTING LATER, THE INFO ON PARTIAL MISSIONS STRMSS 4
C SKIPPED OR TRANSFERRED. EACH IS THE REMAINDER OF A SPLIT STRMSS 5
C MISSION. STRMSS 6
C STRMSS1 1
C***** STRMSS 7
C SUBROUTINE STRMSS(K) STRMSS 8
C DIMENSION A(500,9,25), O(6,5,25), P(15,25) STRMSS2 1
C LEVEL 2, A STRMSS1 3
C INTEGER P STRMSS2 2
C COMMON / / NPOOLS,NY,B5,B6,NTRCK STRMSS1 4
C COMMON / AAA / A STRMSS1 5
C COMMON / OOO / O STRMSS 13
C COMMON / PPP / P STRMSS2 3
C STRMSS 14
C STRMSS 15
C N=NY STRMSS1 6
C IF(A(N,8,K).LT.26.) RETURN STRMSS1 7
C IF(A(N,7,K).LE.0.) GO TO 50 STRMSS2 4
C T7=A(N,7,K)-100.*FLOAT(INT(A(N,7,K)/100.)) STRMSS2 5
C DO 25 KK=1,NPOOLS STRMSS2 6
C IF(INT(T7).EQ.P(1,KK)) GO TO 35 STRMSS2 7
25 CONTINUE STRMSS2 8
C RETURN STRMSS2 9
35 IF(KK.LE.K) A(N,7,K)=0. STRMSS2 10
C----- STRMSS 22
C STORE THE MISSION INFO. STRMSS 23
C L1=1 -- ORIGINAL MISSION TO BE TRANSFERRED, STRMSS 24
C L1=2 -- ORIGINAL MISSION COMPLETED AFTER DEFERMENT, STRMSS1 8
C L1=3 -- ORIGINAL MISSION TO BE SKIPPED, STRMSS1 9
C L1=4 -- ADDITIONAL MISSION TO BE TRANSFERRED, STRMSS1 10
C L1=5 -- ADDITIONAL MISSION COMPLETED AFTER DEFERMENT, STRMSS1 11
C L1=6 -- ADDITIONAL MISSION TO BE SKIPPED. STRMSS1 12
C----- STRMSS 28
C 50 IF(A(N,8,K).EQ.26.) GO TO 100 STRMSS2 11
C L1=1 STRMSS 30
C IF(A(N,7,K).LT.0.) L1=2 STRMSS1 14
C IF(A(N,7,K).EQ.0.) L1=3 STRMSS1 15
C GO TO 200. STRMSS 32
100 L1=4 STRMSS1 16
C IF(A(N,7,K).LT.0.) L1=5 STRMSS1 17
C IF(A(N,7,K).EQ.0.) L1=6 STRMSS1 18
200 O(L1,1,K)=O(L1,1,K)+1. STRMSS 35
C O(L1,2,K)=O(L1,2,K)+B5 STRMSS 36
C O(L1,4,K)=O(L1,4,K)+B6 STRMSS 37
C RETURN STRMSS 38
C END STRMSS 39

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TRNSFR 76/76 OPT=1 ROUND=+-*/

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C*****	TRNSFR	1
C	TRNSFR	2
C**** SUBROUTINE TRNSFR	TRNSFR	3
C STORE, FOR TRANSFER LATER, INFO ON MISSIONS TO BE TAKEN BY	TRNSFR	4
C OTHER POOLS. INCLUDES WHOLE MISSIONS AND REMAINDERS OF	TRNSFR	5
C SPLIT MISSIONS.	TRNSFR	6
C	TRNSFR1	1
C*****	TRNSFR	7
SUBROUTINE TRNSFR(K)	TRNSFR	8
DIMENSION T(100,9,25), A(500,9,25), E(1000,2,25), P(15,25)	TRNSFR1	2
DIMENSION D(500,9), F(500,2,25)	TRNSFR1	3
INTEGER P	TRNSFR	11
LEVEL 2, T,A,F,E,D	TRNSFR	12
COMMON / / NPOOLS,NY,B5,B6,NTRCK	TRNSFR1	4
COMMON / AAA / A	TRNSFR1	5
COMMON / BBB / D,E,F,T	TRNSFR1	6
COMMON / PPP / P	TRNSFR	16
COMMON / MCOL/ MCT,MCA,MCG	TRNSFR	17
10 FORMAT(1H0,'IMPROPER MISSION DISPOSITION CODE,',I3,', IN POOL NO.	TRNSFR	18
*,I3)	TRNSFR	19
C	TRNSFR	20
C	TRNSFR	21
N=NY	TRNSFR1	7
C-----	TRNSFR	23
C IS MISSION TRANSFER PERMITTED.	TRNSFR	24
C-----	TRNSFR	25
IF(A(N,7,K).LE.0.) RETURN	TRNSFR1	8
T7=A(N,7,K)-100.*FLOAT(INT(A(N,7,K)/100.))	TRNSFR2	1
DO 25 KK=1,NPOOLS	TRNSFR2	2
IF(INT(T7).EQ.P(1,KK)) GO TO 35	TRNSFR2	3
25 CONTINUE	TRNSFR2	4
RETURN	TRNSFR2	5
35 IF(KK.LE.K) RETURN	TRNSFR2	6
C-----	TRNSFR	27
C INCREASE THE COUNTER FOR NUMBER OF MISSIONS TO BE TRANSFERRED.	TRNSFR	28
C-----	TRNSFR	29
P(11,K)=P(11,K)+1	TRNSFR	30
IP=P(11,K)	TRNSFR	31
C-----	TRNSFR	32
C STORE THE MISSION INFO.	TRNSFR	33
C-----	TRNSFR	34
DO 100 J=1,MCA	TRNSFR	35
D(IP,J)=A(N,J,K)	TRNSFR1	9
100 CONTINUE	TRNSFR	37
C-----	TRNSFR	38
C CHANGE THE MISSION DISPOSITION CODE.	TRNSFR	39
C-----	TRNSFR	40
I8=INT(A(N,8,K))	TRNSFR1	10
IF(I8.GT.25) GO TO 300	TRNSFR	42
I8N=6	TRNSFR	43
IF(I8.EQ.7) GO TO 200	TRNSFR	44
I8N=8	TRNSFR	45
IF(I8.EQ.9) GO TO 200	TRNSFR	46
I8N=21	TRNSFR	47
IF(I8.EQ.15) GO TO 200	TRNSFR	48
I8N=23	TRNSFR	49
IF(I8.EQ.17) GO TO 200	TRNSFR	50

TRNSFR 76/76 OPT=1 ROUND=+*/

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WRITE(6,10) I8,K
STOP
200 A(N,8,K)=FLOAT(I8N)
GO TO 400

FOR THE REMAINDERS OF SPLIT MISSIONS STORE REMAINING CARGO
AND CHANGE MISSION DISPOSITION CODE.

300 D(IP,5)=B5
D(IP,6)=B6
I8N=4
IF(I8.EQ.27) GO TO 400
I8N=19
IF(I8.EQ.26) GO TO 400
WRITE(6,10) I8,K
STOP
400 D(IP,8)=FLOAT(I8N)
RETURN
END

TRNSFR 51
TRNSFR 52
TRNSFR1 11
TRNSFR 54
TRNSFR 55
TRNSFR 56
TRNSFR 57
TRNSFR 58
TRNSFR 59
TRNSFR 60
TRNSFR 61
TRNSFR 62
TRNSFR 63
TRNSFR 64
TRNSFR 65
TRNSFR 66
TRNSFR 67
TRNSFR 68
TRNSFR 69

E MVMSSN 76/76 OPT=1 ROUND=+-*/

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C***** MVMSSN 1
C MVMSSN 2
C**** SUBROUTINE MVMSSN MVMSSN 3
C EXECUTE THE TRANSFER OF MISSIONS TO OTHER POOLS. MVMSSN 4
C MVMSSN1 1
C***** MVMSSN 5
SUBROUTINE MVMSSN(K) MVMSSN 6
DIMENSION T(100,9,25), A(500,9,25), E(1000,2,25), P(15,25) MVMSSN1 2
DIMENSION D(500,9), F(500,2,25) MVMSSN1 3
INTEGER P MVMSSN 9
LEVEL 2, T, A, F, E, D MVMSSN 10
COMMON / / NPOOLS, NY, B5, B6, NTRCK MVMSSN1 4
COMMON / AAA / A MVMSSN1 5
COMMON / BBB / D, E, F, T MVMSSN1 6
COMMON / PPP / P MVMSSN 14
COMMON / MCOL / MCT, MCA, MCG MVMSSN 15
COMMON / MAX / MMISS, MLINK MVMSSN 16
10 FORMAT(1H) MVMSSN 17
11 FORMAT(1H, 125(1HX)) MVMSSN 18
14 FORMAT(1H, 'WARNING--- MISSION OVERFLOW IN POOL', I3, 10X, 'TRUNCATED MVMSSN 19
* AT ', I4, ' MISSIONS') MVMSSN 20
C MVMSSN 21
C MVMSSN 22
NTRANS=P(11,K) MVMSSN 23
IF(NTRANS.EQ.0) RETURN MVMSSN 24
IF(K.GE.NPOOLS) RETURN MVMSSN2 1
KP=K+1 MVMSSN3 1
DO 500 KK=KP, NPOOLS MVMSSN2 3
DO 400 NN=1, NTRANS MVMSSN 28
C----- MVMSSN1 7
C FIND THE POOL TO WHICH THIS MISSION IS TO BE TRANSFERRED. MVMSSN1 8
C----- MVMSSN1 9
T7=D(NN,7)-100.*FLOAT(INT(D(NN,7)/100.)) MVMSSN 29
IF(INT(T7).NE.P(1,KK)) GO TO 400 MVMSSN2 4
IF(P(7,KK).LT.MMISS) GO TO 200 MVMSSN 31
WRITE(6,10) MVMSSN 32
WRITE(6,11) MVMSSN 33
WRITE(6,14) KK, P(7,KK) MVMSSN 34
WRITE(6,11) MVMSSN 35
GO TO 500 MVMSSN 36
200 P(7,KK)=P(7,KK)+1 MVMSSN 37
I7=P(7,KK) MVMSSN 38
C----- MVMSSN1 11
C ADD THE INFO FOR THIS MISSION TO THAT FOR THE OTHER MISSIONS MVMSSN1 12
C ASSIGNED TO THE POOL. MVMSSN1 13
C----- MVMSSN1 14
DO 300 J=1, MCA MVMSSN 39
A(I7,J,KK)=D(NN,J) MVMSSN 40
300 CONTINUE MVMSSN 41
A(I7,7,KK)=FLOAT(INT(D(NN,7)/100.)) MVMSSN 42
C----- MVMSSN 43
MISSION WILL NOT BE TRANSFERRED TO YET ANOTHER POOL. MVMSSN 44
C (THIS OVERRIDES THE PREVIOUS ASSIGNMENT). MVMSSN 45
C----- MVMSSN 46
A(I7,7,KK)=0. MVMSSN 47
400 CONTINUE MVMSSN 48
500 CONTINUE MVMSSN 49

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F MVHSSN 76776 OPT=1 ROUND=+-*/

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RETURN
END

MVHSSN 50
MVHSSN 51

C*****	OUT1	2
C	OUT1	3
C**** SUBROUTINE OUT1	OUT1	4
C PRINT OUT INPUT DATA FOR THE POOL.	OUT1	5
C	OUT1	6
C*****	OUT1	7
SUBROUTINE OUT1(K)	OUT1	8
DIMENSION T(100,9,25), A(500,9,25), E(1000,2,25), P(15,25)	DEFER4	120
DIMENSION D(500,9), F(500,2,25)	DEFER4	121
INTEGER P	OUT1	11
LEVEL 2, T, A, F, E, D	OUT1	12
COMMON / AAA / A	DEFER4	122
COMMON / BBB / D, E, F, T	DEFER4	123
COMMON / MCCL / MCT, MCA, MCG	OUT1	14
COMMON / PPP / P	OUT1	15
5 FORMAT(1H)	OUT1	16
10 FORMAT(1H1)	OUT1	17
20 FORMAT(1H ,125(1HX))	OUT1	18
100 FORMAT(1H ,125(1H-))	OUT1	19
110 FORMAT(1H0)	OUT1	20
C	OUT1	21
C	OUT1	22
WRITE(6,10)	OUT1	23
WRITE(6,20)	OUT1	24
WRITE(6,30) P(1,K)	OUT1	25
30 FORMAT(1H0,10X,'POOL NUMBER ',I5)	OUT1	26
WRITE(6,40) P(2,K)	OUT1	27
40 FORMAT(1H ,10X,'VEHICLE NUMBER ',I5)	OUT1	28
WRITE(6,50) P(3,K)	OUT1	29
50 FORMAT(1H ,10X,'VEH. PAY.(STX10)',I5)	OUT1	30
WRITE(6,60) P(4,K)	OUT1	31
60 FORMAT(1H ,10X,'VEH. CUBIC CAP. ',I5)	OUT1	32
WRITE(6,70) P(5,K)	OUT1	33
70 FORMAT(1H ,10X,'NO. OF VEHICLES ',I5)	OUT1	34
WRITE(6,80) P(6,K)	OUT1	35
80 FORMAT(1H ,10X,'NUMBER OF LINKS ',I5)	OUT1	36
WRITE(6,90) P(7,K)	OUT1	37
90 FORMAT(1H ,10X,'NO. OF MISSIONS ',I5)	OUT1	38
WRITE(6,100)	OUT1	39
WRITE(6,110)	OUT1	40
WRITE(6,115)	OUT1	41
115 FORMAT(1H0,59X,'LINKS')	OUT1	42
WRITE(6,116)	OUT1	43
116 FORMAT(1H ,59X,'-----')	OUT1	44
WRITE(6,5)	OUT1	45
WRITE(6,120)	OUT1	46
120 FORMAT(1H ,20X,'C1 C2 C3 C4 C5	OUT1	47
*C6 C7 C8 C9')	OUT1	48
WRITE(6,130)	OUT1	49
130 FORMAT(1H ,1T(R,C)',7X,'/',',', '-----	OUT1	50
*-----')	OUT1	51
N=P(6,K)	OUT1	52
IF(N.GT.0) GO TO 135	OUT1	53
WRITE(6,133)	OUT1	54
133 FORMAT(1H0,51X,'NO LINKS ASSIGNED')	OUT1	55
GO TO 153	OUT1	56
135 DO 150 I=1,N	OUT1	57

E OUT1

76/76 OPT=1 ROUND=+-*/

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WRITE(6,140) I,(T(I,J,K),J=1,MCT)
 140 FORMAT(1H,6X,'R',I3,3X,'/',9F10.1)
 150 CONTINUE

153 WRITE(6,110)
 WRITE(6,110)
 WRITE(6,155)

155 FORMAT(1H0,57X,'MISSIONS')
 WRITE(6,156)

156 FORMAT(1H,57X,'-----')
 WRITE(6,5)
 WRITE(6,120)
 WRITE(6,160)

160 FORMAT(1H,'A(R,C)',7X,'/','-----')
 *-----')

N=P(7,K)

IF(N.GT.0) GO TO 164

WRITE(6,163)

163 FORMAT(1H0,47X,'NO MISSIONS ASSIGNED')
 GO TO 175

164 DO 170 I=1,N

WRITE(6,140) I,(A(I,J,K),J=1,MCA)

170 CONTINUE

175 WRITE(6,110)

WRITE(6,110)

WRITE(6,20)

RETURN

END

OUT1	58
OUT1	59
OUT1	60
OUT1	61
OUT1	62
OUT1	63
DEFER4	124
OUT1	65
DEFER4	125
OUT1	67
DEFER4	126
OUT1	71
DEFER4	127
DEFER4	128
OUT1	74
OUT1	75
OUT1	76
OUT1	77
OUT1	78
OUT1	79
DEFER4	129
OUT1	82
OUT1	83
OUT1	84
OUT1	85
OUT1	86
OUT1	87

E OUT2

76/76 OPT=1 ROUND=+-*/

FTN 4.8+508

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C*****	OUT2	2
C	OUT2	3
C**** SUBROUTINE OUT2	OUT2	4
C PRINT HEADING FOR OUTPUT FROM SIMULATION.	OUT2	5
C	OUT2	6
C*****	OUT2	7
SUBROUTINE OUT2(K)	OUT2	8
DIMENSION P(15,25)	DEFER	100
INTEGER P	OUT2	10
COMMON / PPP / P	OUT2	11
C	OUT2	13
C	OUT2	14
WRITE(6,10) P(1,K)	OUT2	15
10 FORMAT(1H0,10X,'OUTPUT FOR POOL NO. ',15)	OUT2	16
WRITE(6,20) P(2,K)	OUT2	17
20 FORMAT(1H,10X,'VEHICLE NUMBER ',15)	OUT2	18
WRITE(6,30) P(3,K)	OUT2	19
30 FORMAT(1H,10X,'VEHICLE PAYLOAD (STX10)',15)	OUT2	20
WRITE(6,40) P(4,K)	OUT2	21
40 FORMAT(1H,10X,'VEHICLE CUBIC CAPACITY ',15)	OUT2	22
WRITE(6,50) P(5,K)	OUT2	23
50 FORMAT(1H,10X,'NO. OF VEHICLES IN POOL',15)	OUT2	24
IF(P(7,K).GT.0) GO TO 100	OUT2	25
WRITE(6,60)	OUT2	26
60 FORMAT(1H0,20X,'NO MISSIONS ASSIGNED')	OUT2	27
100 RETURN	DEFER	101
END	OUT2	30

C*****	OUT3	2
C	OUT3	3
C**** SUBROUTINE OUT3	OUT3	4
C PRINT MISSION STATUS REPORT.	OUT3	5
C	OUT3	6
C*****	OUT3	7
SUBROUTINE OUT3	OUT3	8
DIMENSION G(25,5)	DEFER	102
COMMON / GGG / G	OUT3	10
COMMON / MCDL / MCT,MCA,MCG	OUT3	11
10 FORMAT(1H0)	OUT3	12
1000 FORMAT(1H+,31X,F4.0,F10.1,1X,F8.1,F9.1,1X,F8.1)	OUT3	13
C	OUT3	14
C	OUT3	15
WRITE(6,10)	BLANK	5
WRITE(6,10)	OUT3	17
WRITE(6,20)	OUT3	18
20 FORMAT(1H,'MISSION STATUS REPORT')	OUT3	19
WRITE(6,30)	OUT3	20
30 FORMAT(1H,'-----')	OUT3	21
WRITE(6,40)	OUT3	22
40 FORMAT(1H0,31X,' NO. S.T. % ST 100 CF % CF')	OUT3	23
WRITE(6,50)	OUT3	24
50 FORMAT(1H,31X,'-----')	OUT3	25
WRITE(6,60)	OUT3	26
WRITE(6,1000) (G(1,J),J=1,MCG)	OUT3	27
60 FORMAT(1H,'1) ORIGINAL MISSIONS ASSIGNED')	OUT3	28
WRITE(6,70)	OUT3	29
WRITE(6,1000) (G(2,J),J=1,MCG)	OUT3	30
70 FORMAT(1H,9X,'COMPLETED IN FULL')	OUT3	31
WRITE(6,80)	OUT3	32
WRITE(6,1000) (G(3,J),J=1,MCG)	OUT3	33
80 FORMAT(1H,9X,'CONTRACTED IN FULL')	OUT3	34
WRITE(6,85)	DEFER	103
WRITE(6,1000) (G(4,J),J=1,MCG)	DEFER	104
85 FORMAT(1H,9X,'DEFERRED IN FULL')	DEFER	105
WRITE(6,90)	OUT3	35
WRITE(6,1000) (G(5,J),J=1,MCG)	DEFER	106
90 FORMAT(1H,9X,'SKIPPED IN FULL')	OUT3	37
WRITE(6,100)	OUT3	38
WRITE(6,1000) (G(6,J),J=1,MCG)	DEFER	107
100 FORMAT(1H,9X,'COMPLETED IN PART')	OUT3	40
WRITE(6,110)	OUT3	41
WRITE(6,1000) (G(7,J),J=1,MCG)	DEFER	108
110 FORMAT(1H,9X,'CONTRACTED IN PART')	OUT3	43
WRITE(6,115)	DEFER	109
WRITE(6,1000) (G(8,J),J=1,MCG)	DEFER	110
115 FORMAT(1H,9X,'DEFERRED IN PART')	DEFER	111
WRITE(6,120)	OUT3	44
WRITE(6,1000) (G(9,J),J=1,MCG)	DEFER	112
120 FORMAT(1H,9X,'SKIPPED IN PART')	OUT3	46
WRITE(6,130)	OUT3	47
WRITE(6,1000) (G(10,J),J=1,MCG)	DEFER	113
130 FORMAT(1H0,'2) ADDITIONAL MISSIONS ASSIGNED')	OUT3	49
WRITE(6,140)	OUT3	50
WRITE(6,1000) (G(11,J),J=1,MCG)	DEFER	114
140 FORMAT(1H,9X,'FRACTIONAL MISSIONS')	OUT3	52

E OUT3

76/76 OPT=1 ROUND=+--*/

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        WRITE(6,150)
        WRITE(6,1000)(G(12,J),J=1,MCG)
150    FORMAT(1H,9X,' COMPLETED      ')
        WRITE(6,155)
        WRITE(6,1000)(G(13,J),J=1,MCG)
155    FORMAT(1H,9X,' DEFERRED        ')
        WRITE(6,160)
        WRITE(6,1000)(G(14,J),J=1,MCG)
160    FORMAT(1H,9X,' SKIPPED          ')
        WRITE(6,170)
        WRITE(6,1000)(G(15,J),J=1,MCG)
170    FORMAT(1H,9X,' WHOLE MISSIONS   ')
        WRITE(6,180)
        WRITE(6,1000)(G(16,J),J=1,MCG)
180    FORMAT(1H,9X,' COMPLETED IN FULL ')
        WRITE(6,185)
        WRITE(6,1000)(G(17,J),J=1,MCG)
185    FORMAT(1H,9X,' CONTRACTED IN FULL ')
        WRITE(6,187)
        WRITE(6,1000)(G(18,J),J=1,MCG)
187    FORMAT(1H,9X,' DEFERRED IN FULL  ')
        WRITE(6,190)
        WRITE(6,1000)(G(19,J),J=1,MCG)
190    FORMAT(1H,9X,' SKIPPED IN FULL   ')
        WRITE(6,200)
        WRITE(6,1000)(G(20,J),J=1,MCG)
200    FORMAT(1H,9X,' COMPLETED IN PART ')
        WRITE(6,210)
        WRITE(6,1000)(G(21,J),J=1,MCG)
210    FORMAT(1H,9X,' CONTRACTED IN PART ')
        WRITE(6,215)
        WRITE(6,1000)(G(22,J),J=1,MCG)
215    FORMAT(1H,9X,' DEFERRED IN PART  ')
        WRITE(6,220)
        WRITE(6,1000)(G(23,J),J=1,MCG)
220    FORMAT(1H,9X,' SKIPPED IN PART   ')
        RETURN
        END

```

```

OUT3      53
DEFER     115
OUT3      55
DEFER     116
DEFER     117
DEFER     118
OUT3      56
DEFER     119
OUT3      58
OUT3      59
DEFER     120
OUT3      61
OUT3      62
DEFER     121
OUT3      64
OUT3      65
DEFER     122
OUT3      67
DEFER     123
DEFER     124
DEFER     125
OUT3      68
DEFER     126
OUT3      70
OUT3      71
DEFER     127
OUT3      73
OUT3      74
DEFER     128
OUT3      76
DEFER     129
DEFER     130
DEFER     131
OUT3      77
DEFER     132
OUT3      79
OUT3      80
OUT3      81

```

OUT4 76/76 OPT=1 ROUND=+--/

FTN 4.8+508

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C*****	OUT4	2
C	OUT4	3
C**** SUBROUTINE OUT4	OUT4	4
C PRINT VEHICLE STATUS REPORT.	OUT4	5
C	OUT4	6
C*****	OUT4	7
SUBROUTINE OUT4(K)	OUT4	8
DIMENSION T(100,9,25), A(500,9,25), E(1000,2,25), P(15,25)	DEFER4	130
DIMENSION D(500,9), F(500,2,25), Q(12,25)	DEFER4	131
INTEGER P	OUT4	11
LEVEL 2, T, A, F, E, D	OUT4	12
COMMON / AAA / A	DEFER4	132
COMMON / BBB / D, E, F, T	DEFER4	133
COMMON / PPP / P	OUT4	14
COMMON / QQQ / Q	OUT4	15
5 FORMAT(1H)	OUT4	16
10 FORMAT(1H0)	OUT4	17
1000 FORMAT(1H+,23X,F10.1,8X,F6.1,7X,F8.2)	OUT4	18
C	OUT4	19
C	OUT4	20
WRITE(6,10)	BLANK	6
WRITE(6,10)	BLANK	7
WRITE(6,10)	OUT4	22
WRITE(6,20)	OUT4	23
20 FORMAT(1H,'V E H I C L E S T A T U S R E P O R T')	OUT4	24
WRITE(6,30)	OUT4	25
30 FORMAT(1H,'-----')	OUT4	26
WRITE(6,40) P(8,K)	OUT4	27
40 FORMAT(1H,'NO. OF VEHICLES USED',I3)	OUT4	28
IF(P(8,K).GT.0) GO TO 60	OUT4	29
WRITE(6,5)	OUT4	30
WRITE(6,50)	OUT4	31
50 FORMAT(1H,'NO MISSIONS PERFORMED')	OUT4	32
WRITE(6,5)	OUT4	33
GO TO 215	OUT4	34
60 WRITE(6,70) Q(7,K)	OUT4	35
70 FORMAT(1H,'UNUSED CAPACITY (%)',F4.0)	OUT4	36
WRITE(6,80) Q(8,K)	OUT4	37
80 FORMAT(1H,'VEHICLE CUBIC EFFICIENCY (%)',F4.0)	OUT4	38
WRITE(6,90) Q(9,K)	OUT4	39
90 FORMAT(1H,'VEHICLE PAYLOAD EFF. (%)',F4.0)	OUT4	40
WRITE(6,5)	OUT4	41
WRITE(6,10)	BLANK	8
WRITE(6,100)	OUT4	42
100 FORMAT(1H,'CONSIDERING ONLY THE VEHICLES USED AND MISSIONS PERFORMED')	OUT4	43
*MED=')	OUT4	44
WRITE(6,5)	OUT4	45
WRITE(6,110)	OUT4	46
110 FORMAT(1H,25X,'TOT. VEH-HRS PERCENT AVER/MISSION')	OUT4	47
WRITE(6,120)	OUT4	48
120 FORMAT(1H,25X,'-----')	OUT4	49
S=FLOAT(P(8,K)*(P(10,K)-P(9,K)))	OUT4	50
U=0.	OUT4	51
N7=P(7,K)	OUT4	52
DO 130 I=1,N7	OUT4	53
IF(F(I,2,K).EQ.0.) GO TO 130	OUT4	54
U=U+1.	OUT4	55

OUT4 76/76 OPT=1 ROUND=+--/

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130 CONTINUE	OUT4	56
U=60.*U	OUT4	57
V=0.	OUT4	58
DO 140 I=1,6	OUT4	59
V=V+Q(I,K)	OUT4	60
140 CONTINUE	OUT4	61
T1=Q(1,K)/60.	OUT4	62
T2=100.*Q(1,K)/S	OUT4	63
T3=Q(1,K)/U	OUT4	64
WRITE(6,150)	OUT4	65
WRITE(6,1000) T1,T2,T3	OUT4	66
150 FORMAT(1H,'TRAVEL')	OUT4	67
T1=Q(2,K)/60.	OUT4	68
T2=100.*Q(2,K)/S	OUT4	69
T3=Q(2,K)/U	OUT4	70
WRITE(6,160)	OUT4	71
WRITE(6,1000) T1,T2,T3	OUT4	72
160 FORMAT(1H,'DELAY (DEPT. POINT)')	OUT4	73
T1=Q(3,K)/60.	OUT4	74
T2=100.*Q(3,K)/S	OUT4	75
T3=Q(3,K)/U	OUT4	76
WRITE(6,170)	OUT4	77
WRITE(6,1000) T1,T2,T3	OUT4	78
170 FORMAT(1H,'DELAY (INTERM. POINT)')	OUT4	79
T1=Q(4,K)/60.	OUT4	80
T2=100.*Q(4,K)/S	OUT4	81
T3=Q(4,K)/U	OUT4	82
WRITE(6,180)	OUT4	83
WRITE(6,1000) T1,T2,T3	OUT4	84
180 FORMAT(1H,'DELAY (RTN POINT)')	OUT4	85
T1=Q(5,K)/60.	OUT4	86
T2=100.*Q(5,K)/S	OUT4	87
T3=Q(5,K)/U	OUT4	88
WRITE(6,190)	OUT4	89
WRITE(6,1000) T1,T2,T3	OUT4	90
190 FORMAT(1H,'LOADING')	OUT4	91
T1=Q(6,K)/60.	OUT4	92
T2=100.*Q(6,K)/S	OUT4	93
T3=Q(6,K)/U	OUT4	94
WRITE(6,200)	OUT4	95
WRITE(6,1000) T1,T2,T3	OUT4	96
200 FORMAT(1H,'UNLOADING')	OUT4	97
T1=(S-V)/60.	OUT4	98
T2=100.*(S-V)/S	OUT4	99
T3=(S-V)/U	OUT4	100
WRITE(6,210)	OUT4	101
WRITE(6,1000) T1,T2,T3	OUT4	102
210 FORMAT(1H,'IDLE')	OUT4	103
215 WRITE(6,5)	OUT4	104
T1=FLOAT(P(10,K)-P(9,K))/60.	OUT4	105
WRITE(6,220) T1	OUT4	106
220 FORMAT(1H0,'HOURS FROM FIRST DEPARTURE TO LAST DESIRED ARRIVAL= ',	BLANK	9
* F8.2)	BLANK	10
RETURN	OUT4	109
END	OUT4	110

E OUT5

76/76 OPT=1 ROUND=+-*/

FTN 4.8+508

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```

C*****
C
C**** SUBROUTINE OUT5
C      PRINT STATISTICS ON DEFERRED MISSIONS.
C
C*****
C      SUBROUTINE OUT5(K)
C      DIMENSION DT(6,25)
C      COMMON / DDD / ITRNS,TRTH,DFTM,NCE,IB,NZE,DT
C      5  FORMAT(1H0)
C      10 FORMAT(1H1)
C      1000 FORMAT(1H+,25X,F8.1,8X,F8.2)
C
C      WRITE(6,10)
C      WRITE(6,5)
C      WRITE(6,5)
C      WRITE(6,20)
C      20  FORMAT(1H,'D E F E R R E D   M I S S I O N S   R E P O R T')
C      WRITE(6,25)
C      25  FORMAT(1H,'-----')
C      WRITE(6,30)
C      30  FORMAT(1H0,26X,' TOTAL          AVG/MISSION')
C      WRITE(6,35)
C      35  FORMAT(1H,26X,' -----')
C      T1=DT(1,K)
C      IF(T1.LE.0.) GO TO 900
C      WRITE(6,100)
C      WRITE(6,1000) T1
C      100  FORMAT(1H,'NO. OF MISSIONS. ')
C      T1=DT(2,K)/60.
C      T2=T1/DT(1,K)
C      WRITE(6,200)
C      WRITE(6,1000) T1,T2
C      200  FORMAT(1H,'NO. OF HOURS DELAYED ')
C      T1=DT(3,K)
C      T2=T1/DT(1,K)
C      WRITE(6,300)
C      WRITE(6,1000) T1,T2
C      300  FORMAT(1H,'NO. OF TRUCKS ')
C      T1=DT(4,K)/10.
C      T2=T1/DT(1,K)
C      WRITE(6,400)
C      WRITE(6,1000) T1,T2
C      400  FORMAT(1H,'NO. OF SHORT TONS ')
C      T1=DT(5,K)/100.
C      T2=T1/DT(1,K)
C      WRITE(6,500)
C      WRITE(6,1000) T1,T2
C      500  FORMAT(1H,'NO. OF HUNDREDS OF CF')
C      RETURN
C      900  WRITE(6,950)
C      950  FORMAT(1H0,10X,'NO DEFERRED MISSIONS')
C      RETURN
C      END

```

PLOT 76/76 OPT=1 ROUND=+*+/*

FTN 4.8+508

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```

C***** PLOT 2
C PLOT 3
C**** SUBROUTINE PLOT PLOT 4
C PLOT OUTPUT FOR THE POOL. PLOT 5
C PLOT 6
C***** PLOT 7
SUBROUTINE PLOT(K) PLOT 8
DIMENSION T(100,9,25), A(500,9,25), E(1000,2,25), P(15,25) PLOT1 1
DIMENSION D(500,9), F(500,2,25), G(25,5) PLOT1 2
DIMENSION HR(2000), VEH(2000), TON(2000), CUBE(2000), TM(2000) PLOT 13
DIMENSION LABEL(4), SS(10), SR(10), RS(10), PP(10) PLOT 14
DIMENSION RRR(10), RSS(10), RSR(10), SRS(10) PLOT 15
INTEGER P PLOT 16
LEVEL 2, T, A, F, E, D PLOT 17
COMMON / AAA / A PLOT1 3
COMMON / BBB / D, E, F, T PLOT1 4
COMMON / GGG / G PLOT 19
COMMON / PPP / P PLOT 20
DATA LABEL/'S BUTLER','BLDG.367','X-2173','CSD-SMB'/ PLOT3 1
C PLOT3 2
C PLOT3 3
NM=P(7,K) PLOT 22
IF(NM.EQ.0) RETURN PLOT 23
N2=2*NM PLOT 24
START=FLOAT(P(9,K)) PLOT 25
NL=P(6,K) PLOT 27
T1=0. PLOT 28
T2=0. PLOT 29
TV=0. PLOT 30
TT=0. PLOT 31
TC=0. PLOT 32
DO 1100 I=1,N2 PLOT 33
J1=2*I-1 PLOT 34
VEH(J1)=TV PLOT 35
TON(J1)=TT PLOT 36
CUBE(J1)=TC PLOT 37
J2=2*I PLOT 38
NY=INT(ABS(E(I,2,K))) PLOT 39
HR(J2)=(E(I,1,K)-START)/60. PLOT 40
VEH(J2)=TV+SIGN(F(NY,2,K),E(I,2,K))/100. PLOT 41
TM(J2)=HR(J2) PLOT 42
IF(E(I,2,K).GT.0.) GO TO 1050 PLOT 43
DO 1025 L=1,NL PLOT 44
I3=L PLOT 45
IF(T(L,1,K).EQ.A(NY,1,K)) GO TO 1035 PLOT 46
1025 CONTINUE PLOT 47
1035 IF(T(I3,9,K).GT.0.) GO TO 1045 PLOT 48
TM(J2)=(E(I,1,K)-(T(I3,7,K)+T(I3,8,K))-START)/60. PLOT 49
1045 IF(F(NY,2,K).EQ.0.) GO TO 1050 PLOT 50
T1=T1+A(NY,5,K) PLOT 51
T2=T2+A(NY,6,K) PLOT 52
1050 TON(J2)=10.*T1/(G(1,2)+G(10,2)) PLOT1 5
CUBE(J2)=T2/(G(1,4)+G(10,4)) PLOT1 6
HR(J1)=HR(J2) PLOT 55
TM(J1)=TM(J2) PLOT 56
TV=VEH(J2) PLOT 57
TT=TON(J2) PLOT 58

```

E PLOT

76/76 OPT=1 ROUND=+--*/

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TC=CUBE(J2)	PLOT	59
1100 CONTINUE	PLOT	60
N3=2*N2-1	PLOT	61
ENCODE(50, 1200, SS)	PLOT	62
1200 FORMAT(' NUMBER OF VEHICLES IN USE VS. TIME>')	PLOT	63
ENCODE(30, 1300, SR)	PLOT	64
1300 FORMAT(' NUMBER OF VEHICLES>')	PLOT	65
ENCODE(30, 1400, RS)	PLOT	66
1400 FORMAT(' TIME, IN HOURS>')	PLOT	67
ENCODE(100, 1500, RRR)	PLOT	68
1500 FORMAT(' SHORT TONS DELIVERED (% OF TOTAL ASSIGNED) VS. TIME>')	PLOT	69
ENCODE(70, 1600, RSS)	PLOT	70
1600 FORMAT(' % OF TOTAL SHORT TONS ASSIGNED>')	PLOT	71
ENCODE(100, 1700, RSR)	PLOT	72
1700 FORMAT(' CUBIC FEET DELIVERED (% OF TOTAL ASSIGNED) VS. TIME>')	PLOT	73
ENCODE(50, 1800, SRS)	PLOT	74
1800 FORMAT(' % OF TOTAL CUBIC FEET ASSIGNED>')	PLOT	75
ENCODE(40, 1900, PP) P(1,K)	PLOT2	1
1900 FORMAT(' POOL NUMBER', I3, '>')	PLOT	77
CALL PLTBEG(13. , 29. , 1.0 , 13 , LABEL)	PLOT	78
CALL FIXSCA(HR , N3+1 , 8. , XS , XMIN , XMAX , DX)	PLOT	79
CALL FIXSCA(VEH , N3+1 , 6. , YS , YMIN , YMAX , DY)	PLOT	80
CALL PLTSCA(2. , 2. , XMIN , YMIN , XS , YS)	PLOT	81
CALL PLTDTS(1 , 0 , HR , VEH , N3+1 , 0)	PLOT	82
CALL PLTAXS(DX , DY , XMIN , XMAX , YMIN , YMAX , 4)	PLOT	83
CALL LABELA(DX , DY , XMIN , XMAX , YMIN , YMAX , 1.0 , 1.0)	PLOT	84
CALL PLTSYM(0.10 , SS , 0. , XMIN+(XS*2) , YMAX+(YS*0.25))	PLOT	85
CALL PLTSYM(0.08 , SR , 90. , XMIN-(XS*0.75) , YMIN+(YS*2))	PLOT	86
CALL PLTSYM(0.08 , RS , 0. , XMIN+(XS*3) , YMIN-(YS*0.5))	PLOT	87
CALL PLTSYM(0.15 , PP , 0. , XMIN+(XS*3.25) , YMAX+(YS*0.75))	PLOT	88
C BEGIN PLOT OF SHORT TONS DELIVERED	PLOT	89
CALL FIXSCA(TM , N3+1 , 8. , XS , XMIN , XMAX , DX)	PLOT	90
CALL PLTSCA(2. , 11. , TM , 0 , XS , 16.66)	PLOT	91
CALL PLTDTS(1 , 0 , TM , TON , N3+1 , 0)	PLOT	92
CALL PLTAXS(DX , 10. , XMIN , XMAX , 0. , 100. , 4)	PLOT	93
CALL LABELA(DX , 10. , XMIN , XMAX , 0. , 100. , 1.0 , 1.0)	PLOT	94
CALL PLTSYM(0.10 , RRR , 0 , XMIN+(XS*1) , 102.)	PLOT	95
CALL PLTSYM(0.08 , RSS , 90. , XMIN-(XS*0.5) , 20.)	PLOT	96
CALL PLTSYM(0.08 , RS , 0. , XMIN+(XS*3) , -9.)	PLOT	97
CALL PLTSYM(0.15 , PP , 0. , XMIN+(XS*3.25) , 108.)	PLOT	98
C BEGIN PLOT OF CUBIC FEET DELIV.	PLOT	99
CALL FIXSCA(TM , N3+1 , 8. , XS , XMIN , XMAX , DX)	PLOT	100
CALL PLTSCA(2. , 20. , TM , 0 , XS , 16.66)	PLOT	101
CALL PLTDTS(1 , 0 , TM , CUBE , N3+1 , 0)	PLOT	102
CALL PLTAXS(DX , 10. , XMIN , XMAX , 0. , 100. , 4)	PLOT	103
CALL LABELA(DX , 10. , XMIN , XMAX , 0. , 100. , 1.0 , 1.0)	PLOT	104
CALL PLTSYM(0.10 , RSR , 0. , XMIN+(XS*1) , 102.)	PLOT	105
CALL PLTSYM(0.08 , SRS , 90. , XMIN-(XS*0.5) , 20.)	PLOT	106
CALL PLTSYM(0.08 , RS , 0. , XMIN+(XS*3) , -9.)	PLOT	107
CALL PLTSYM(0.15 , PP , 0. , XMIN+(XS*3.25) , 108.)	PLOT	108
CALL PLTPGE	PLOT	109
RETURN	PLOT	110
END	PLOT	111

APPENDIX B
TVEM CONTROL PARAMETERS

APPENDIX B

TVEM CONTROL PARAMETERS

This appendix gives a listing of all control parameters contained in the TVEM. The values that can be assigned to each parameter and the effect of each is also given.

TVEM CONTROL PARAMETERS

Parameters Contained in DATA Statements -

LIST	=	$\begin{cases} 0 \\ 1 \end{cases}$	$\begin{cases} \text{Input data are not printed.} \\ \text{Input data for each pool are printed.} \end{cases}$
IPLOT	=	$\begin{cases} 0 \\ 1 \end{cases}$	$\begin{cases} \text{No plots.} \\ \text{Results for each pool are plotted.} \end{cases}$
ISP	=	$\begin{cases} -1 \\ 0 \\ +1 \end{cases}$	$\begin{cases} \text{All missions will be split if necessary.} \\ \text{Each mission will be split or not according to mission} \\ \text{parameter as input (A(I,8,K)).} \\ \text{All missions will not be permitted to be split.} \end{cases}$
IDF	=	$\begin{cases} -1 \\ 0 \\ +1 \end{cases}$	$\begin{cases} \text{All missions will be prevented from being postponed.} \\ \text{Missions will be postponed or not according to mission} \\ \text{parameter as input (A(I,9,K)).} \\ \text{All missions will be postponed if necessary.} \end{cases}$
ITRNS	=	$\begin{cases} -1 \\ 0 \\ +1 \end{cases}$	$\begin{cases} \text{If a mission can be transferred, it will be transferred} \\ \text{with no postponement.} \\ \text{If a mission can be transferred, it will be postponed for} \\ \text{only TRTM minutes.} \\ \text{All missions will be postponed for at most DFTM minutes} \\ \text{whenever necessary.} \end{cases}$
TRTM	-		If ITRNS = 0, missions that can be transferred will be postponed for only TRTM minutes.
DFTM	-		If a mission cannot be transferred or if ITRNS = +1, the mission will be postponed for at most DFTM minutes.

Note: If DFTM exceeds TRTM, a check in the TVEM will reverse the values assigned to ensure that $\text{TRTM} \leq \text{DFTM}$.

Parameters Introduced by Input -

$$A(I,7,K) = \begin{cases} 0 & \text{The I-th mission assigned to the K-th pool cannot be transferred.} \\ N & \text{The mission can be transferred to the pool whose ID No. is N, whenever necessary.} \end{cases}$$

$$A(I,8,K) = \begin{cases} 1 & \text{The I-th mission assigned to the K-th pool can be split whenever necessary.} \\ 2 & \text{The mission cannot be split.} \end{cases}$$

$$A(I,9,K) = \begin{cases} 0 & \text{The I-th mission assigned to the K-th pool will not be postponed} \\ 1 & \text{The mission will be postponed, in full or in part, whenever necessary.} \end{cases}$$

APPENDIX C
MISSION DEFERMENT NARRATIVE

APPENDIX C

MISSION DEFERMENT NARRATIVE

This appendix consists of a detailed documentation of those TVEM routines concerned with the deferment of missions. The documentation is in the form of a nearly line-by-line explanation of the FORTRAN coding. Included at various points in the narrative are line numbers which refer to the program lines of coding as shown at the right hand side of each page of the program listing in Appendix A.

MISSION DEFERMENT NARRATIVE

If a mission cannot be completed because of a shortage of available vehicles, the mission can be postponed for a specified amount of time in the hope of finding a slack period in the schedule of remaining missions.

Subroutine REMAIN.

If the mission is the remainder of a split mission, the amount of remaining cargo is calculated along with the required truck capacity and the number of trucks needed. The amount of required capacity is stored for later use.

Subroutine PSTPN.

For entire missions as well as the remainders of split missions, the index of the current event is obtained and the index to access the mission information is also obtained. Next, a control parameter, IRT, is set to zero. If the mission can be completed later, IRT will be reset to one. If the mission of interest is an entire mission, the amount of truck capacity that was earlier determined to be required for the mission is set to zero. If the number of trucks required for the mission exceeds that assigned to the pool, the attempt to defer the mission is aborted. Otherwise, if permission to defer the mission has been denied by input, the attempt is aborted. Alternatively, if the parameter, ITRNS, is negative and the mission can be transferred, the transfer will not be delayed. However, if ITRNS is equal to zero and the mission can be transferred, it will be delayed for only TRTM minutes. Otherwise, the mission can be delayed for DFTM minutes in attempting completion.

If other missions for this pool that were deferred are scheduled for completion, the departure times are put into chronological order (PSTPN 48). The scheduled departure time for the mission of interest is obtained along with the number of trucks that are occupied. Next, the number of scheduled events is calculated and the index of the next event is obtained. If the mission of interest is the last one scheduled, the attempt to defer it is aborted. Otherwise, the remaining events are inspected to find a

slack period (loop PSTPN 66 - PSTPN 142). For a remaining event, the number of trucks involved is calculated and the number of trucks that are occupied is increased or decreased according to whether the trucks are departing or returning. If the event is a departure, the routine continues checking the remaining events. If the event is a return, the routine checks to see if enough trucks are back from the mission that a sufficient number of vehicles would be available for the pool to accomplish the delayed mission. If not, the routine continues checking the remaining events. On the other hand, if enough trucks would be available, the routine checks to see if it would be too late anyway. That is, whether the time associated with the vehicle return from mission is later than the critical delay time as determined by adding the permissible delay to the time that the trucks were originally scheduled to depart on the mission. If it is too late, the attempt to defer the mission is aborted at this point (PSTPN 82).

If it is not too late, the model must check that enough vehicles will be available for a sufficient length of time to complete the mission. First, the time that the mission could be tentatively scheduled for vehicle departure is stored and the index of the next event is obtained. The model then cycles through each of the remaining scheduled event times. The object of this loop (PSTPN 90 - PSTPN 143) is to find the first scheduled mission departure that would require the use of one or all of the trucks that are needed for the deferred mission. The time gap, defined by the time that enough vehicles would first be available for the deferred mission until the earliest time that a scheduled mission would require at least one of those vehicles, will then be checked to see if there would be enough time to complete the deferred mission.

In checking each of the remaining events the model first determines the number of trucks associated with the event. If it is a return from a mission, the number of vehicles that are occupied is decreased by the number of returning trucks and the routine continues checking the remaining events. On the other hand, if it is a mission departure, the number of trucks occupied is increased by the number of trucks required for the scheduled mission and a check is made to see if there will still be enough trucks available for the deferred mission. If so, the model considers the next event. However, if the scheduled mission would require at least one of the trucks needed for the deferred mission, the time gap thus defined is checked to see if it is sufficient for the deferred mission (PSTPN 107). If not, the model continues the search for another time gap. On the other hand, if the time gap is sufficient for the deferred mission, the model must then check to ensure that the time gap has not been usurped by other deferred missions.

If no other missions have yet been deferred, all is well. Otherwise, the times of the deferred missions, having been ordered chronologically by the mission departure times, are checked in turn (PSTPN 109 - PSTPN 120). If the mission departure and return times completely span the time

gap, it is abandoned and the model continues the search for another suitable time gap. But, if the departure time for the deferred mission is later than the end of the contemplated time gap, all is well because any remaining deferred missions will have their departure times even later. If the return time for the deferred mission is earlier than the beginning of the time gap, the model considers the remaining deferred missions, if any. On the other hand, if the deferred mission ends within the time gap of interest, the time span defined by the beginning of the gap and the departure of the deferred mission is checked to see if it is long enough to accommodate the mission that we wish to defer. If so, all is well. Otherwise, the starting time of the time gap is set equal to the return time of the previously deferred mission. If the resulting time gap is too short for the mission to be deferred, the gap is abandoned and the model searches for another suitable slack period. If the time gap is sufficiently long, but the starting time would be beyond the permissible delay period, the time gap is abandoned and the attempt to defer the mission is aborted (PSTPN 2.1). Otherwise, the model has determined that there exists enough time and enough trucks to successfully reschedule the mission. Accordingly, the mission start and return times are reset. The index for the number of successfully deferred missions is incremented by one and the start and return times are stored in a separate array so that they are available for checking in the course of attempting to defer any subsequent regularly scheduled missions. The parameter to record the maximum number of vehicles occupied is checked and the control parameter, IRT, is set equal to one. Finally, if the mission that has been rescheduled is the remainder of a split mission, the variable that stores the number of the pool to which the mission could have been transferred is set to minus one before program control returns to the main program.

The dispatch and return times for any transferable mission that has been deferred unsuccessfully must be increased by the amount of time the mission was delayed before program control returns to the main program.

A few more details in the main program remain concerning the deferment methodology. Upon returning from Subroutine PSTPN, the model checks to see if the mission has been successfully deferred and is an entire mission. If so, the model resets the mission disposition code to one of five values indicating that it is an entire mission deferred in full. The model then considers the next scheduled event. If it is an entire mission that was not successfully deferred, the amount of truck capacity required for the mission is set to zero.

Subroutine STRMSS.

But, if the mission is the remainder of a split mission, Subroutine STRMSS is called for storage of the mission tonnage and cube. This information is printed out in the Mission Status Report. Subroutine STRMSS is also used to store information on the remainders of split missions that are to be transferred or skipped. The proper storage of the mission

information is controlled by the value stored in the variable A(N,7,K) which contains the number of the pool to which the mission can be transferred. At this point in the mission processing, the value in A(N,7,K) could be positive, indicating that the mission is to be transferred. The variable A(N,7,K) could be negative, indicating that the mission has been successfully deferred or it could be zero, indicating that the mission will be skipped. After the mission information has been properly stored for later reporting, program control returns to the main TVEM program.

If the mission has not been successfully deferred and it is permissible to transfer the mission to another pool, the program calls Subroutine TRNSFR which stores the mission information temporarily pending later execution of the mission transfer.

Finally, the model checks the variable which stores the maximum vehicle usage and proceeds to check the next scheduled event.

After all of the mission events for a pool have been processed, the model inspects each of the missions (the coding lines between MAIN 493 and MAIN 496). If the mission is the remainder of a split mission, the value of the truck capacity required for the mission is first set to zero. If the mission was successfully deferred, the capacity is reset to a value that was determined in Subroutine REMAIN.

APPENDIX D
TEST CASE INPUT AND OUTPUT

APPENDIX D

TEST CASE INPUT AND OUTPUT

Test Case Input

For an explanation of the TVEM input structure and formats the user is advised to refer to TR-311¹, Section 2.3 and Appendix C.

According to the first input card, the data for the test case consist of information on two vehicle pools. The important points regarding the input data are given in the following paragraphs.

The first pool, identified as Pool Number 1, consists of two trucks, each of which can haul 1/2 ton or 100 cubic feet of cargo. The next six cards give the information for the routes on which the missions assigned to the pool are to occur. The data for the routes are terminated by a negative value on the ninth card.

The next five cards comprise the schedule of missions assigned to the pool. Each of the missions can be transferred to Pool Number 4, if necessary. Notice, however, that according to the entry in the ninth field of each card, each mission may be deferred if it cannot be dispatched at the scheduled time. Each of the missions can be split, if necessary, with the exception of the fourth mission. Notice also, that this mission requires that 1.5 tons of cargo be hauled. Because there are not enough trucks assigned to the pool to haul this much cargo, any attempt to defer the mission will be aborted and the mission will be transferred.

For this test case, the values of TRTM and DFTM have been established as 90 minutes and 120 minutes, respectively (see Appendix A). Moreover, the control parameter, ITRNS, has been set to zero. Therefore, any mission that cannot be undertaken by the pool at the scheduled time will not be transferred immediately, but will be delayed for 90 minutes at most.

The data for the second pool, identified as Pool Number 4, are identical to those of the first pool except that the missions can neither be transferred nor deferred.

¹ Loc.Cit.

TEST CASE INPUT

	2								
	1	7	5	100	2				
1.	1.	1.	1.	1.	6.	6.	1.	6.	0.
2.	2.	2.	2.	2.	5.	5.	2.	5.	0.
3.	3.	3.	3.	3.	4.	4.	3.	4.	0.
4.	4.	0.	4.	3.	3.	3.	4.	3.	3.
5.	5.	0.	5.	2.	2.	5.	5.	2.	2.
6.	6.	0.	6.	1.	1.	6.	1.	1.	1.
-100001.									
5.	1.	0.	115.	15.	75.	4.	1.	1.	
1.	1.	0.	127.	5.	50.	4.	1.	1.	
6.	1.	115.	0.	10.	110.	4.	1.	1.	
4.	1.	0.	200.	15.	90.	4.	2.	1.	
2.	1.	830.	0.	10.	70.	4.	1.	1.	
-100002.									
	4	7	5	100	2				
1.	1.	1.	1.	1.	6.	6.	1.	6.	0.
2.	2.	2.	2.	2.	5.	5.	2.	5.	0.
3.	3.	3.	3.	3.	4.	4.	3.	4.	0.
4.	4.	0.	4.	3.	3.	3.	4.	3.	3.
5.	5.	0.	5.	2.	2.	5.	5.	2.	2.
6.	6.	0.	6.	1.	1.	6.	1.	1.	1.
-200001.									
5.	1.	0.	115.	15.	75.	0.	1.	0.	
1.	1.	0.	127.	5.	50.	0.	1.	0.	
6.	1.	115.	0.	10.	110.	0.	1.	0.	
4.	1.	0.	200.	15.	90.	0.	2.	0.	
2.	1.	830.	0.	10.	70.	0.	1.	0.	
-200002.									
-9999									

Test Case Output

The first two pages of output from the simulation are the listings of the input data for each of the two pools, to include the pool characteristics and the links and missions arrays for each.

The next four pages of output give the simulation results by pool. Two pages are devoted to the results of each. For Pool Number 1, we see that five missions were assigned. Of these five missions, two were completed in full, one was transferred, and one was deferred in full. The remaining mission was split, with one part completed and the remainder deferred. Thus, two missions were deferred; one entire mission and the remainder of a split mission. The mission that was transferred required more vehicles than were assigned to the pool, so the TVEM made no attempt to defer it.

The second page of output for the pool gives some information about the five deferred missions in the Deferred Missions Report. In addition to giving the amount of cargo and the number of trucks required, the number of hours that the missions were delayed is also reported. The table also gives the per-mission average values for these items.

Recalling that the missions assigned to Pool Number 4 were very similar to those assigned to Pool Number 1, it is no surprise to find that the output for Pool 4 is identical to that of Pool 1, except for the following differences. Whereas, in the first pool, one mission was transferred in full and one was deferred in full, the corresponding missions assigned to Pool 4 were skipped in full. Also, the remainder of the split mission was skipped, unlike that in Pool 1 where the remainder of the corresponding mission was deferred. Finally, because Pool Number 4 was not permitted to defer any of the missions, the Deferred Missions Report contains no information.

1	POL NUMBER
7	VEHICLE NUMBER
5	VEH. PAY.(STX10)
100	VEH. CUBIC CAP.
2	NO. OF VEHICLES
6	NUMBER OF LINKS
5	NO. OF MISSIONS

		LINKS								
		C1	C2	C3	C4	C5	C6	C7	C8	C9
T(R,C)	/									
	1	1.0	1.0	1.0	1.0	6.0	6.0	1.0	6.0	0.0
R	2	2.0	2.0	2.0	2.0	5.0	5.0	2.0	5.0	0.0
R	3	3.0	3.0	3.0	3.0	4.0	4.0	3.0	4.0	0.0
R	4	4.0	4.0	0.0	4.0	3.0	3.0	4.0	3.0	3.0
R	5	5.0	5.0	0.0	5.0	2.0	2.0	5.0	2.0	2.0
R	6	6.0	6.0	0.0	6.0	1.0	1.0	6.0	1.0	1.0

$A(R, C)$	C1	C2	C3	C4	C5	C6	C7	C8	C9
1	5.0	1.0	0.0	115.0	15.0	75.0	4.0	1.0	1.0
R 2	1.0	1.0	0.0	127.0	5.0	50.0	4.0	1.0	1.0
R 3	6.0	1.0	115.0	0.0	10.0	110.0	4.0	1.0	1.0
R 4	4.0	1.0	0.0	200.0	15.0	90.0	4.0	2.0	1.0
R 5	2.0	1.0	830.0	0.0	10.0	70.0	4.0	1.0	1.0

XXXXXXXXXXXXXXXXXXXXXXXXXXXX

4	POOL NUMBER
7	VEHICLE NUMBER
5	VEH. PAY.(STX10)
100	VEH. CUBIC CAP.
2	NO. OF VEHICLES
6	NUMBER OF LINKS
5	NO. OF MISSIONS

		LINKS								
		C1	C2	C3	C4	C5	C6	C7	C8	C9
T(R,C)	/									
R 1	/	1.0	1.0	1.0	1.0	6.0	6.0	1.0	6.0	0.0
R 2	/	2.0	2.0	2.0	2.0	5.0	5.0	2.0	5.0	0.0
R 3	/	3.0	3.0	3.0	3.0	4.0	4.0	3.0	4.0	0.0
R 4	/	4.0	4.0	0.0	4.0	3.0	3.0	4.0	3.0	3.0
R 5	/	5.0	5.0	0.0	5.0	2.0	2.0	5.0	2.0	2.0
R 6	/	6.0	6.0	0.0	6.0	1.0	1.0	6.0	1.0	1.0

		MISSIONS								
		C1	C2	C3	C4	C5	C6	C7	C8	C9
A(P,C)	/									
R 1	/	5.0	1.0	0.0	115.0	15.0	75.0	0.0	1.0	0.0
R 2	/	1.0	1.0	0.0	127.0	5.0	50.0	0.0	1.0	0.0
R 3	/	6.0	1.0	115.0	0.0	10.0	110.0	0.0	1.0	0.0
R 4	/	4.0	1.0	0.0	200.0	15.0	90.0	0.0	2.0	0.0
R 5	/	2.0	1.0	830.0	0.0	10.0	70.0	0.0	1.0	0.0

SIMULATING POOL NO. 1

SIMULATING. POGL NO. 4

XX

OUTPUT FOR POOL NO. 1
 VEHICLE NUMBER 7
 VEHICLE PAYLOAD (STX10) 5
 VEHICLE CUBIC CAPACITY 100
 NO. OF VEHICLES IN POOL 2

MISSION STATUS REPORT

	NO.	S.T.	% ST	100 CF	% CF
1) ORIGINAL MISSIONS ASSIGNED	5.	5.5	100.0	4.0	100.0
COMPLETED IN FULL	2.	2.0	36.4	1.8	45.6
CONTRACTED IN FULL	1.	1.5	27.3	.9	22.8
DEFERRED IN FULL	1.	.5	9.1	.5	12.7
SKIPPED IN FULL	0.	0.0	0.0	0.0	0.0
COMPLETED IN PART	1.	1.0	18.2	.5	12.7
CONTRACTED IN PART	0.	0.0	0.0	0.0	0.0
DEFERRED IN PART	1.	.5	9.1	.3	6.3
SKIPPED IN PART	0.	0.0	0.0	0.0	0.0
2) ADDITIONAL MISSIONS ASSIGNED	0.	0.0	0.0	0.0	0.0
FRACTIONAL MISSIONS	0.	0.0	0.0	0.0	0.0
COMPLETED	0.	0.0	0.0	0.0	0.0
DEFERRED	0.	0.0	0.0	0.0	0.0
SKIPPED	0.	0.0	0.0	0.0	0.0
WHOLE MISSIONS	0.	0.0	0.0	0.0	0.0
COMPLETED IN FULL	0.	0.0	0.0	0.0	0.0
CONTRACTED IN FULL	0.	0.0	0.0	0.0	0.0
DEFERRED IN FULL	0.	0.0	0.0	0.0	0.0
SKIPPED IN FULL	0.	0.0	0.0	0.0	0.0
COMPLETED IN PART	0.	0.0	0.0	0.0	0.0
CONTRACTED IN PART	0.	0.0	0.0	0.0	0.0
DEFERRED IN PART	0.	0.0	0.0	0.0	0.0
SKIPPED IN PART	0.	0.0	0.0	0.0	0.0

DEFERRED MISSIONS REPORT

	TOTAL	AVG/MISSION
NO. OF MISSIONS	2.0	
NO. OF HOURS DELAYED	2.3	1.16
NO. OF TRUCKS	2.0	1.00
NO. OF SHORT TONS	1.0	.50
NO. OF HUNDREDS OF CF	.5	.25

VEHICLE STATUS REPORT

NO. OF VEHICLES USED	2
UNUSED CAPACITY (%)	0.
VEHICLE CUBIC EFFICIENCY (%)	44.
VEHICLE PAYLOAD EFF. (%)	125.

CONSIDERING ONLY THE VEHICLES USED AND MISSIONS PERFORMED-

	TOT. VEH-HRS	PERCENT	AVER/MISSION
TRAVEL	1.1	6.7	.21
DELAY (DEPT. POINT)	.5	3.3	.11
DELAY (INTERM. POINT)	.4	2.5	.08
DELAY (RTN POINT)	.4	2.5	.08
LOADING	.2	1.4	.04
UNLOADING	.4	2.5	.08
IDLE	13.0	81.2	2.60

HOURS FROM FIRST DEPARTURE TO LAST DESIRED ARRIVAL= 8.02
XX

XX)

OUTPUT FOR POOL NO. 4
 VEHICLE NUMBER 7
 VEHICLE PAYLOAD (STX10) 5
 VEHICLE CUBIC CAPACITY 100
 NO. OF VEHICLES IN POOL 2

MISSION STATUS REPORT

	NO.	S.T.	% ST	100 CF	% CF
1) ORIGINAL MISSIONS ASSIGNED	5.	5.5	78.6	4.0	81.4
COMPLETED IN FULL	2.	2.0	28.6	1.8	37.1
CONTRACTED IN FULL	0.	0.0	0.0	0.0	0.0
DEFERRED IN FULL	0.	0.0	0.0	0.0	0.0
SKIPPED IN FULL	2.	2.0	28.6	1.4	28.9
COMPLETED IN PART	1.	1.0	14.3	.5	10.3
CONTRACTED IN PART	0.	0.0	0.0	0.0	0.0
DEFERRED IN PART	0.	0.0	0.0	0.0	0.0
SKIPPED IN PART	1.	.5	7.1	.3	5.2
2) ADDITIONAL MISSIONS ASSIGNED	1.	1.5	21.4	.9	18.6
FRACTIONAL MISSIONS	0.	0.0	0.0	0.0	0.0
COMPLETED	0.	0.0	0.0	0.0	0.0
DEFERRED	0.	0.0	0.0	0.0	0.0
SKIPPED	0.	0.0	0.0	0.0	0.0
WHOLE MISSIONS	1.	1.5	21.4	.9	18.6
COMPLETED IN FULL	0.	0.0	0.0	0.0	0.0
CONTRACTED IN FULL	0.	0.0	0.0	0.0	0.0
DEFERRED IN FULL	0.	0.0	0.0	0.0	0.0
SKIPPED IN FULL	1.	1.5	21.4	.9	18.6
COMPLETED IN PART	0.	0.0	0.0	0.0	0.0
CONTRACTED IN PART	0.	0.0	0.0	0.0	0.0
DEFERRED IN PART	0.	0.0	0.0	0.0	0.0
SKIPPED IN PART	0.	0.0	0.0	0.0	0.0

DEFERRED MISSIONS REPORT

TOTAL AVG/MISSION

NO DEFERRED MISSIONS

VEHICLE STATUS REPORT

NO. OF VEHICLES USED 2
 UNUSED CAPACITY (%) 0.
 VEHICLE CUBIC EFFICIENCY (%) 38.
 VEHICLE PAYLOAD EFF. (%) 100.

CONSIDERING ONLY THE VEHICLES USED AND MISSIONS PERFORMED-

	TOT. VEH-HRS	PERCENT	AVER/MISSION
TRAVEL	.9	5.4	.29
DELAY (DEPT. POINT)	.4	2.7	.14
DELAY (INTERM. POINT)	.3	1.7	.09
DELAY (RTN POINT)	.3	1.7	.09
LOADING	.2	1.0	.06
UNLOADING	.3	1.7	.09
IDLE	13.8	85.9	4.59

HOURS FROM FIRST DEPARTURE TO LAST DESIRED ARRIVAL= 8.02
 XX

***** STANB9V 0002383 LINES PRINTED. (LS10)
 ***** STANB9V 0002383 LINES PRINTED. (LS10)

XX
 XXX
 XXX

NICJB XXXXXXXXXXXXXXXX
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