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# Maintenance Resource Prediction Model-Data Base Manager (MRPM-DBM) System Programmer's Manual

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The Maintenance Resource Prediction Model-Data Base Manager (MRPM-DBM) is a personal computer (PC) based system designed to assist in planning and programming maintenance resources, based on the anticipated resource requirements of actual U.S. Army installation facilities, for any prediction period.

This manual provides system programmers with a comprehensive description of each procedure required to learn, operate, and maintain the personal computer MRPM-DBM.

This data base and computer system are presently used by U.S. Army Corps of Engineers (USACE) designers at district and installation levels, and by resource programmers at the USACE Headquarters, Army Major Command (MACOM), and installation levels. These products may also prove useful to other Government agencies and to the private sector.

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## FOREWORD

This research was conducted for the Office of the Chief of Engineers, under various RDTE and FAD funding documents. Work began under RDTE in 1980 and continued in reimbursable projects from 1984 through 1989. The technical monitor on the RDTE part was Dr. Larry Schindler (CEMP-EC) and on the reimbursable part was Ms. Val Corbridge (DAEN-ZCP-B).

The work was performed by the Facility Systems Division (FS), U.S. Army Construction Engineering Research Laboratory (USACERL). The principal investigator was Dr. Edgar Neely. Mr. James Stirn and Mr. Kurt Giehler, of USACERL, assisted on the project. The primary contractor for development of the initial computer system and much of the data was the Department of Architectural Engineering, Pennsylvania State University. The Construction Automation Support Center (CASC), Urbana, IL extensively modified the MRPM-DBM program. Dr. Michael J. O'Connor is Chief, USACERL-FS. The USACERL technical editor was Mr. William J. Wolfe, Information Management Office.

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**MAINTENANCE RESOURCE PREDICTION MODEL-DATA BASE  
MANAGER (MRPM-DBM) SYSTEM PROGRAMMER'S MANUAL**

**1 INTRODUCTION**

The primary purpose of this manual is to provide the system programmers with a comprehensive description of each procedure required to learn, operate, and maintain the PC-based MRPM-DBM system. Chapter 2 describes the most efficient method for learning the functions and organization of the MRPM-DBM system. Chapter 3 defines the program flow from subroutine to subroutine. Chapter 4 contains a variable cross reference table. Chapter 5 is a system data dictionary. Chapter 6 is a data base structure summary. Chapter 7 describes the standard programming packages used in MRPM-DBM. Chapter 8 contains programming notes. Chapter 9 describes resources required to support the MRPM-DBM system.

## 2 LEARNING THE FUNCTIONS

The first and most important step in introducing MRPM-DBM is to train the maintainer as a functional user of the system. Give the new person a user's manual and access to the MRPM-DBM system on a PC. The person should read the user's manual, learn the system, and write down any questions, without having had any verbal description of the system. All information should be contained in the user's manual.

Revise the user's manual as needed, using the programmer's questions as a guide. If the new person had the question, it is probable others will also. This method provides active feedback between the user and system documentation, and improves the capabilities of both.

The user's manual is a self-teach document. The learning process takes approximately 3 days and should be very smooth and efficient. Once the maintainer knows the functions, this programmer's manual can be used.

---

Robert P. Winkler, Edgar S. Neely, and Robert D. Neathammer, *Maintenance Resource Prediction Model-Data Base Manager (MRPM-DBM) User's Manual*, Automatic Data Processing (ADP) Report P-92/03 (U.S. Army Construction Engineering Research Laboratory (USACERL), November 1991).

### 3 PROGRAM FLOW

This chapter presents the flow of the program by functional use. Table 1 lists the program functions displayed on the screen, their associated programs, and the data files that the programs access.

**Table 1**  
**MRPM-DBM Files\***  
**Ordered by Menu Option**

Function	Program		Data Files			
Main Menu	RN-MAIN	PRG	RN-AREA	DBF		
			RN-SYS	DBF		
			RN-SUB	DBF		
			RN-REF	DBF		
			RN-AREA	NDX		
			RN-SYS	NDX		
			RN-SUB	NDX		
			RN-REF	NDX		
Add data to database	RN-ADD	PRG	RN-TASK	DBF		
			RN-COMP	DBF		
			RN-TASK2	DBF		
			RN-TASK	NDX		
			RN-COMP	NDX		
			RN-TASK2	NDX		
	RN-ENTR	PRG				
	RN-ADD	FMT				
	RN-ADD1	FMT				
	RN-ADD2	FMT				
RN-ADD3	FMT					
RN-CALC	PRG					
Edit data in database	RN-ARE	PRG	RN-REF	DBF		
	RN-REF	FMT	RN-REF	NDX		
Locate data in database	RN-SRCH	PRG	RN-SYS	DBF		
			RN-SUB	DBF		
			RN-COMP	DBF		
			RN-TASK	DBF		
			RN-REF	DBF		
			RN-SYS	NDX		
			RN-SUB	NDX		
			RN-COMP	NDX		
			RN-TASK	NDX		
			RN-REF	NDX		
			RN-SRCT	PRG		
			RN-REF	FMT		
Generate reports	RN-RPT	PRG	RN-TASK	DBF		
			RN-RPT51	DBF		
			RN-RPT52	DBF		
			RN-TASK	NDX		

The listing of programs is in menu order. Each MRPM function has a corresponding program file name and a list of accessed data file names.

Table 1 (Cont'd)  
MRPM-DBM Files  
Ordered by Menu Option

Function	Program	Data Files
		RN-PRT5P NDX
		RN-RPT3 OUT
		RN-RPT5 OUT
	RN-RPT5A PRG	
	RN-RPT51 PRG	RN-TASK2 DBF
		RN-TASK2 NDX
	RN-RPTB PRG	
	RN-RPT2 PRG	RN-TASK DBF
		RN-TASK NDX
	RN-RPT2A PRG	
	RN-RPT2B PRG	
	RN-RPTA PRG	
	RN-RPTB PRG	
	RN-RPT2C PRG	
	RN-RPT3 PRG	RN-F3IN DBF
		RN-TASK2 DBF
		RN-COMP DBF
		RN-SYS DBF
		RN-SUB DBF
		RN-PW DBF
		RN-F3IN2 DBF
		RN-TASK2 NDX
		RN-COMP NDX
		RN-SYS NDX
		RN-SUB NDX
	RN-RPTB PRG	
	RN-RPT4 PRG	RN-REF DBF
		RN-REF NDX
	RN-RPTA PRG	
	RN-RPT4 PRG	
	RN-RPT5 PRG	RN-F3IN DBF
		RN-TASK2 DBF
		RN-PW1 DBF
		RN-PW2 DBF
		RN-RPT51 DBF
		RN-RPT52 DBF
		RN-COMP DBF
		RN-SYS DBF
		RN-SUB DBF
		RN-AREA DBF
		RN-UOM DBF
		RN-TRAD DBF
		RN-TASK2 NDX
		RN-RPT5T NDX
		RN-COMP NDX
		RN-SYS NDX
		RN-SUB NDX
		RN-AREA NDX
		RN-UOMI NDX
		RN-TRADI NDX
File utilities	RN-UTL PRG	RN-TASKB DBF
		RN-TASK DBF
		RN-COMP B DBF
		RN-COMP DBF

#### 4 VARIABLE CROSS REFERENCE

The following cross reference table indicating variable use in program files by name. The named variables can be found at the program source code line numbers following the program name. A legend is provided to interpret variable usage within the program file.

System: MRPM-DBM  
Author: USA-CERL  
02/19/91 08:53:33  
Token Cross-Reference Report

-----  
This report includes 575 variables.

##### Legend for context symbols:

(blank) reference does not change the variable or field value.  
= variable or field is changed in an assignment statement.  
! PROCEDURE or FUNCTION statement.  
x variable is released.  
A array is declared.  
G GET or MENU statement changes variable or field.  
P variable is declared PUBLIC.  
R field is replaced.  
U database is USED  
V variable is declared PRIVATE.  
& variable is referenced in a macro--takes precedence over all others.  
@ variable passed as a var parameter--Clipper only  
? reference is of unknown type.

File types appear next to tokens used as file names. Some tokens may also be used in other ways.

A&LI  
RN-RPT3.PRG 266

A&SI  
RN-RPT3.PRG 327 329  
RN-RPT5.PRG 304 306 403 406

A&ST  
RN-RPT3.PRG 125= 127= 134= 135= 135 137  
RN-RPT5.PRG 207= 209= 217= 218= 218 255

A->CMSUR  
RN-RPT5.PRG 144  
RN-RPT2B.PRG 98  
RN-RPT2C.PRG 94

A->LTOTAL  
RN-RPT5.PRG 407

A->MTOTAL  
RN-RPT5.PRG 407

A->TASK\_CLAS  
RN-RPT2B.PRG 142 147

A->TASK\_CODE  
RN-RPT1.PRG 89  
RN-RPT3.PRG 123 204  
RN-RPT5.PRG 92 93 94 95 205  
RN-RPT2B.PRG 177 259

RN-RPT2C.PRG	144	179				
A->TASK_DSCR						
RN-RPT5.PRG	405					
A->TRADE						
RN-RPT2B.PRG	138					
RN-RPT2C.PRG	129					
A->T_DUR						
RN-RPT5.PRG	407					
A1						
RN-RPT3.PRG	113					
RN-RPT5.PRG	198					
A2						
RN-RPT3.PRG	113					
RN-RPT5.PRG	198					
A2&LI2						
RN-RPT3.PRG	267					
A2&SI						
RN-RPT3.PRG	352	354				
A2&ST2						
RN-RPT3.PRG	206=	208=	215=	216=	216	218
A22						
RN-RPT3.PRG	195					
A23						
RN-RPT3.PRG	195					
A24						
RN-RPT3.PRG	195					
A25						
RN-RPT3.PRG	195					
A26						
RN-RPT3.PRG	195					
A27						
RN-RPT3.PRG	195					
A3						
RN-RPT3.PRG	113					
RN-RPT5.PRG	198					
A4						
RN-RPT3.PRG	113					
RN-RPT5.PRG	198					
A5						
RN-RPT3.PRG	113					
RN-RPT5.PRG	198					
A6						
RN-RPT3.PRG	113					
RN-RPT5.PRG	198					
A7						

RN-RPT3.PRG	113																			
RN-RPT5.PRG	198																			
AA																				
RN-RPT2B.PRG	37	50=	52=	54=																
RN-RPT2C.PRG	37	50=	52=	54=																
ACT_COMPON																				
RN-RPT5.PRG	382R	408R																		
ACT_LINE																				
RN-RPT.PRG	347																			
RN-RPT5.PRG	383R	409R	459P																	
ADDLINE.PRG	17R																			
ADD.FMT																				
RN-ADD.PRG	158																			
RN-SRCT.PRG	71																			
ADD1.FMT																				
RN-ADD.PRG	160																			
RN-SRCT.PRG	73																			
ADD2.FMT																				
RN-ADD.PRG	162																			
RN-SRCT.PRG	75																			
ADD3.FMT																				
RN-ADD.PRG	170																			
RN-SRCT.PRG	81																			
ADDLINE (program file)																				
RN-RPT5.PRG	166	177	188																	
RN-RPT5A.PRG	24	26	32	36	38	42	46	50	54	58										
	62	66																		
ALLNOTE																				
RN-RPT2C.PRG	187=	190=	195=	203																
ALW_LBR																				
RN-CALC.PRG	18R	6	96	99	99															
XX																				
RN-RPT2.PRG	181=	182&	187=	188	199=	200&														
YES_NO																				
RN-ADD.PRG	108=	109G	112	116G	119															
Z																				
RN-SRCH.PRG	31=	32	58=																	
ZONE																				
RN-CALC.PRG	23																			
RN-RPT5.PRG	101=	102	105	154	221	235	428	430=	431	434=										
	434	435	436	438																
BT																				
RN-RPT5.PRG	102=	431=	436=	438=																
BTAB																				
RN-ADD.PRG	171=																			
RN-CALC.PRG	33	37	41	45	49															
RN-SRCT.PRG	82=																			

Z\_TAB  
RN-ADD.PRG 171  
RN-ADD3.FMT 51G  
RN-SRCT.PRG 82

## 5 DATA DICTIONARY

The following data dictionary cross references data base field names by program files that use the data base fields. The named data base fields can be found at the program source code line numbers following the program name. A legend is provided to interpret data base field usage within the program file.

System: MRPM-DBM  
Author: USA-CERL  
02/19/91 08:53:24  
Database Structure Summary

---

20 databases in the system:

RN-AREA.DBF  
RN-SYS.DBF  
RN-SUB.DBF  
RN-REF.DBF  
RN-TASK.DBF  
RN-COMP.DBF  
RN-TASK2.DBF  
RN-RPT51.DBF  
RN-RPT52.DBF  
RN-TASKB.DBF  
RN-COMP.B.DBF  
RN-NOTE.DBF  
RN-ZONE.DBF  
RN-F3IN.DBF  
RN-PW.DBF  
RN-F3IN2.DBF  
RN-PW1.DBF  
RN-PW2.DBF  
RN-UOM.DBF  
RN-TRAD.DBF  
RN-CALC.PRG

Legend for context symbols:

(blank) reference does not change the variable or field value.  
= variable or field is changed in an assignment statement.  
! PROCEDURE or FUNCTION statement.  
x variable is released.  
A array is declared.  
G GET or MENU statement changes variable or field.  
P variable is declared PUBLIC.  
R field is replaced.  
U database is USED  
V variable is declared PRIVATE.  
& variable is referenced in a macro--takes precedence over all others.  
@ variable passed as a var parameter--Clipper only  
? reference is of unknown type.

ANS

RN-ADD.PRG	179=	180	181=	183G	187	187
RN-ARE.PRG	120=	121	122=	123G	127	127
RN-SRCH.PRG	113=	114	115=	117G	121	

ARE

RN-MAIN.PRG 98

AREA						
RN-MAIN.PRG	83	83				
RN-RPT5.PRG	136	136				
RN-RPT2B.PRG	45	45				
RN-RPT2C.PRG	45	45				
AVER&JC						
RN-RPT2B.PRG	236					
AVER&JJ						
RN-RPT2C.PRG	169					
AVER&SI						
RN-CALC.PRG	35R		39R	43R	47R	51R
AVER&ZT						
RN-RPT5.PRG	207	211	266			
AVER6						
RN-ADD3.FMT	34G					
RN-CALC.PRG	35	39	43	47	51	
RN-RPT1.PRG	92					
RN-RPT3.PRG	125	206				
A_DSCR						
RN-RPT5.PRG	140					
RN-RPT2B.PRG	47					
RN-RPT2C.PRG	47					
BEGA						
RN-RPT1.PRG	105=		108			
RN-RPT3.PRG	131=		134			
RN-RPT5.PRG	214=		217			
RN-RPT2B.PRG	112=		115			
RN-RPT2C.PRG	107=		110			
BEGA2						
RN-RPT3.PRG	212=		215			
BEGH						
RN-RPT1.PRG	101=		104			
RN-RPT2B.PRG	108=		111			
RN-RPT2C.PRG	103=		106			
BEGL						
RN-RPT1.PRG	109=		112			
RN-RPT2B.PRG	116=		119			
RN-RPT2C.PRG	111=		114			
BOOK_NO						
RN-REF.FMT	21G					
C->C_ADM						
RN-CALC.PRG	42	43	44			
C->C_HOUS						
RN-CALC.PRG	34	35	36			
C->E						
RN-RPT5.PRG	375					
C->H_ADM						
RN-CALC.PRG	46	47	48			

C->H_HOUS								
RN-CALC.PRG	38	39	40					
C->LH								
RN-RPT5.PRG	375							
C->M								
RN-RPT5.PRG	375							
C->TOT								
RN-RPT5.PRG	375							
CACES								
RN-REF.FMT	19G							
CCT1								
RN-ADD2.FMT	26G							
RN-RPT2B.PRG	307	309						
RN-RPT2C.PRG	210							
CCT2								
RN-ADD2.FMT	27G							
RN-RPT2B.PRG	308	309						
RN-RPT2C.PRG	211							
CCT3								
RN-ADD2.FMT	28G							
RN-RPT2B.PRG	308	309						
RN-RPT2C.PRG	212							
CCT4								
RN-ADD2.FMT	29G							
RN-RPT2B.PRG	308	309						
RN-RPT2C.PRG	213							
CCT5								
RN-ADD2.FMT	30G							
RN-RPT2B.PRG	308	309						
RN-RPT2C.PRG	214							
CCT6								
RN-ADD2.FMT	31G							
CCT7								
RN-ADD2.FMT	32G							
CCT8								
RN-ADD2.FMT	33G							
CCT9								
RN-ADD2.FMT	34G							
CHO								
RN-UTL.PRG	28=	29	30=	31G	36	39		
CHO1								
RN-UTL.PRG	46=	47	48=	49G	54	57	71	
CMSUR								
RN-ADD.PRG	136R	138R	140R	142R	144R	146R	148R	
RN-SRCT.PRG	36R	38R	40R	42R	44R	46R	48R	
RN-RPT1.PRG	117							

CODE									
RN-MAIN.PRG	34=								
COMP.DBF									
RN-UTL.PRG	81								
COMPB.DBF									
RN-UTL.PRG	80	82							
COMPOA									
RN-RPT5.PRG	76=		95=						
COMPON									
RN-RPT3.PRG	69=		70	87	94	102	115	253	314
451									
RN-RPT5.PRG	106=		107	114	121	129	137	200	382
408									
COMPON2									
RN-RPT3.PRG	148=		149	169	176	184	100		
C_RATE									
RN-RPT5.PRG	240=		242=	363					
C_SUB									
RN-RPT3.PRG	102=		103	259					
RN-RPT5.PRG	129=		130	184	193				
C_SUB2									
RN-RPT3.PRG	184=		185	229	260				
C_SUBA									
RN-RPT5.PRG	75=		94=	184	193=				
C_SUDSCR									
RN-RPT3.PRG	105=		107=	259					
RN-RPT5.PRG	132=		134=	185					
C_SUDSCR2									
RN-RPT3.PRG	187=		189=	229	260				
C_SYDSCR									
RN-RPT3.PRG	97=		99=	257					
RN-RPT5.PRG	124=		126=	174					
C_SYDSCR2									
RN-RPT3.PRG	179=		181=	229	258				
C_SYS									
RN-RPT3.PRG	94=		95	257					
RN-RPT5.PRG	121=		122	173	182				
C_SYS2									
RN-RPT3.PRG	176=		177	229	258				
C_SYSA									
RN-RPT5.PRG	74=		93=	173	182=				
C_TRADE									
RN-RPT5.PRG	229=		238						
C_UOMDSCR									
RN-RPT5.PRG	148=		150=	374					

D->E	RN-RPT3.PRG	433								
D->LH	RN-RPT3.PRG	433								
D->M	RN-RPT3.PRG	433								
DASH	RN-RPT2B.PRG	75	77	77	78	80	80	124	125	125
		125								
			127	141	146	309	309	309	309	309
DESC&IC	RN-RPT2B.PRG	186	191							
DESC&NN	RN-RPT2C.PRG	156								
DESC1	RN-ADD2.FMT	37G								
DESC2	RN-ADD2.FMT	40G								
DESC3	RN-ADD2.FMT	43G								
DESC4	RN-ADD2.FMT	46G								
DESC5	RN-ADD2.FMT	49G								
DESC6	RN-ADD2.FMT	52G								
DESC7	RN-ADD2.FMT	55G								
DTE	RN-MAIN.PRG	33=								
E1	RN-RPT5.PRG	324R	324	340						
ENDA	RN-RPT1.PRG	106=	108							
	RN-RPT3.PRG	132=	134							
	RN-RPT5.PRG	215=	217							
	RN-RPT2B.PRG	113=	115							
	RN-RPT2C.PRG	108=	110							
ENDA2	RN-RPT3.PRG	213=	215							
ENDH	RN-RPT1.PRG	102=	104							
	RN-RPT2B.PRG	109=	111							
	RN-RPT2C.PRG	104=	106							

ENDL				
RN-RPT1.PRG	110=		112	
RN-RPT2B.PRG	117=		119	
RN-RPT2C.PRG	112=		114	
ENTR				
RN-ADD.PRG	102			
ENTRY				
RN-ADD.PRG	100=		103=	
ECC				
RN-RPT1.PRG	63=		65	
RN-RPT2.PRG	130=		137	174=
RN-RPT3.PRG	30=		68	594= 597=
RN-RPT5.PRG	43=		104	445= 449=
RN-RPTB.PRG	21=		25=	29=
EOP				
RN-RPT.PRG	33=		344	
RN-RPT3.PRG	238	446		
EQU				
RN-RPT1.PRG	116=		119	
ERAT				
RN-RPT.PRG	290=		297G	
RN-RPT5.PRG	363			
ET&LI				
RN-RPT3.PRG	474			
RN-RPT5.PRG	351			
ET&ST				
RN-RPT3.PRG	142=			
RN-RPT5.PRG	226=			
ET2&LI2				
RN-RPT3.PRG	489			
ET2&ST2				
RN-RPT3.PRG	223=			
ETOTAL				
RN-CALC.PRG	106R			
RN-RPT3.PRG	142	223		
RN-RPT5.PRG	226			
RN-RPT2B.PRG	93			
EXIST				
RN-RPT3.PRG	71=			
EXIST2				
RN-RPT3.PRG	150=			
F&SI				
RN-RPT3.PRG	327	329=	329	
RN-RPT5.PRG	304	306=	306	
F&SK				
RN-RPT3.PRG	334=			
RN-RPT5.PRG	311=			

F->PW						
RN-RPT3.PRG	379	380	381	389	390	391
RN-RPT5.PRG	334	335	336	338	339	340
F1						
RN-RPT3.PRG	297					
RN-RPT5.PRG	287					
F2						
RN-RPT3.PRG	297					
RN-RPT5.PRG	287					
F2&SI						
RN-RPT3.PRG	352	354=	354			
F2&SK2						
RN-RPT3.PRG	359=					
F21						
RN-RPT3.PRG	297					
F22						
RN-RPT3.PRG	297					
F23						
RN-RPT3.PRG	297					
F24						
RN-RPT3.PRG	297					
F25						
RN-RPT3.PRG	297					
F26						
RN-RPT3.PRG	297					
F27						
RN-RPT3.PRG	297					
F3						
RN-RPT3.PRG	297					
RN-RPT5.PRG		287				
F3IN						
RN-RPT3.PRG	52	288				
RN-RPT5.PRG	50	283				
F3IN2						
RN-RPT3.PRG	293					
F4						
RN-RPT3.PRG	297					
RN-RPT5.PRG	287					
F5						
RN-RPT3.PRG	297					
RN-RPT5.PRG	287					
F6						
RN-RPT3.PRG	297					
RN-RPT5.PRG	287					

F7	RN-RPT3.PRG	297							
	RN-RPT5.PRG	287							
FA	RN-RPT2B.PRG	121=		123					
	RN-RPT2C.PRG	116=		119					
FACTOR	RN-RPT5.PRG	45=		47=					
	RN-RPT5A.PRG	44							
FC	RN-RPT.PRG	276=		293G		301G		304	
	RN-RPT5.PRG	44	54	60		364			
FH	RN-RPT2B.PRG	120=		123					
	RN-RPT2C.PRG	115=		118					
FIRST2	RN-RPT2.PRG	180=		181		186=	187	192	198= 199
FIRSTPAG	RN-RPT5.PRG	72	91						
	RN-RPT5A.PRG	20	28						
FL	RN-RPT2B.PRG	122=		123					
	RN-RPT2C.PRG	117=		120					
FLAG	RN-RPT2B.PRG	174	199	208=		244			
FLAG1	RN-RPT2B.PRG	174	216	219=		221		227	
FLAG2	RN-RPT2B.PRG	174	221	224=		227			
FLAG3	RN-RPT2B.PRG	174	185	195=					
FLAG4	RN-RPT2B.PRG	174	214=	244					
FLINE	RN-RPT3.PRG	114=		137=		137			
FLINE2	RN-RPT3.PRG	196=		218=		218			
FOUND2	RN-RPT3.PRG	147=		228=		233	347	485	
FREQ_A	RN-ADD.FMT	20G							
	RN-RPT1.PRG	105	106	107		108		108	
	RN-RPT3.PRG	131	132	133		134		134	
215	RN-RPT5.PRG	214	215	216		217		217	
	RN-RPT2B.PRG	112	113	114		115		115	
	RN-RPT2C.PRG	107	108	109		110		110	
							212	213	214 215
							219	266=	272

FREQ\_H

RN-ADD.FMT 19G  
 RN-RPT1.PRG 101 102 103 104 104  
 RN-RPT2B.PRG 108 109 110 111 111  
 RN-RPT2C.PRG 103 104 105 106 106

FREQ\_L

RN-ADD.FMT 21G  
 RN-RPT1.PRG 109 110 111 112 112  
 RN-RPT2B.PRG 116 117 118 119 119  
 RN-RPT2C.PRG 111 112 113 114 114

GOODNUM

RN-ADD.PRG 113=

GOODREF

RN-ADD.PRG 97=

GROUP

RN-RPT.PRG 37= 63= 67 158= 199= 201  
 RN-RPTA.PRG 24= 25 26= 27G 31 33 36 39  
 42  
 RN-RPT2.PRG 116= 118  
 RN-RPT4.PRG 56= 58 70 72 74 76  
 RN-RPT3.PRG 593  
 RN-RPT5.PRG 444  
 RN-RPTB.PRG 19 23 27

HAS\_NOTE

RN-ADD.PRG 150R  
 RN-ADD1.FMT 62G  
 RN-ADD2.FMT 58 83  
 RN-SRCT.PRG 50 65R  
 RN-RPT2B.PRG 256 274  
 RN-RPT2C.PRG 176

HIGH&JC

RN-RPT2B.PRG 235

HIGH&JJ

RN-RPT2C.PRG 168

HIGH&SI

RN-CALC.PRG 34R 38R 42R 46R 50R

HIGH6

RN-ADD3.FMT 33G  
 RN-CALC.PRG 34 38 42 46 50  
 RN-RPT1.PRG 91

IC

RN-RPT2B.PRG 181= 183=

JC

RN-RPT2B.PRG 229= 231=

JJ

RN-RPT2C.PRG 167=

KIND

RN-ADD.PRG 46= 47 48= 49G 54 54  
 RN-ARE.PRG 34= 35 36= 37G 42 42

L								
	RN-RPT1.PRG	93=	97=	112=	118			
	RN-RPT2B.PRG	119=	122					
	RN-RPT2C.PRG	114=	117					
LAB								
	RN-RPT1.PRG	114=	119					
LASTT								
	RN-RPT3.PRG	232=	264	324	330	332	471	
	RN-RPT5.PRG	247=	301	307	309	349	396	
LASTT2								
	RN-RPT3.PRG	234=	265	349	355	357	486	
LDIR								
	RN-CALC.PRG	103R	105					
	RN-RPT2B.PRG	85						
	RN-RPT2C.PRG	204						
LENA								
	RN-RPT1.PRG	107=	108					
	RN-RPT3.PRG	133=	134					
	RN-RPT5.PRG	216=	217					
	RN-RPT2B.PRG	114=	115					
	RN-RPT2C.PRG	109=	110					
LENA2								
	RN-RPT3.PRG	214=	215					
LENH								
	RN-RPT1.PRG	103=	104					
	RN-RPT2B.PRG	110=	111					
	RN-RPT2C.PRG	105=	106					
LENL								
	RN-RPT1.PRG	111=	112					
	RN-RPT2B.PRG	118=	119					
	RN-RPT2C.PRG	113=	114					
LH								
	RN-RPT3.PRG	341R	341	366R	366	375	379	385 389
431		473R						
		488R	498R	503	509R	513	518R	523 529R
533								
	RN-RPT5.PRG	318R	318	334	350R	355R	360R	
LH1								
	RN-RPT5.PRG	322R	322	338				
LHRS								
	RN-CALC.PRG	75R	103	104				
LHRS&IC								
	RN-RPT2B.PRG	189 203	212					
LHRS&NN								
	RN-RPT2C.PRG	150						
LHRS&SI								
	RN-CALC.PRG	72						
LHRS1								
	RN-ADD.FMT	32G						

LHRS10	RN-ADD.FMT	59G
LHRS11	RN-ADD.FMT	62G
LHRS12	RN-ADD1.FMT	19G
LHRS13	RN-ADD1.FMT	22G
LHRS14	RN-ADD1.FMT	25G
LHRS15	RN-ADD1.FMT	28G
LHRS16	RN-ADD1.FMT	31G
LHRS17	RN-ADD1.FMT	34G
LHRS18	RN-ADD1.FMT	37G
LHRS19	RN-ADD1.FMT	40G
LHRS2	RN-ADD.FMT	35G
LHRS20	RN-ADD1.FMT	43G
LHRS21	RN-ADD1.FMT	46G
LHRS22	RN-ADD1.FMT	49G
LHRS3	RN-ADD.FMT	38G
LHRS4	RN-ADD.FMT	41G
LHRS5	RN-ADD.FMT	44G
LHRS6	RN-ADD.FMT	47G
LHRS7	RN-ADD.FMT	50G
LHRS8	RN-ADD.FMT	53G
LHRS9	RN-ADD.FMT	56G

LI	RN-RPT3.PRG	264=	471=					
	RN-RPT5.PRG	349=						
LI2	RN-RPT3.PRG	265=	486=					
LIND	RN-CALC.PRG	104R	105					
	RN-RPT2B.PRG	86						
	RN-RPT2C.PRG	205						
LINE1	RN-ADD.PRG	151=						
	RN-ADD2.FMT	60G	88	92				
	RN-SRCT.PRG	55=	63	68				
	RN-RPT2B.PRG	261=	268	272	277			
LINE2	RN-ADD.PRG	152=						
	RN-ADD2.FMT	61G	88	92				
	RN-SRCT.PRG	56=	63	68				
	RN-RPT2B.PRG	262=	268	272	280			
LINE3	RN-ADD.PRG	153=						
	RN-ADD2.FMT	62G	88	92				
	RN-SRCT.PRG	57=	63	68				
	RN-RPT2B.PRG	263=	268	272	282			
LINE4	RN-ADD.PRG	154=						
	RN-ADD2.FMT	63G	88	92				
	RN-SRCT.PRG	58=	63	68				
	RN-RPT2B.PRG	264=	268	268	272	272	285	
LINE5	RN-ADD.PRG	155=						
	RN-ADD2.FMT	64G	88	92				
	RN-SRCT.PRG	59=	63	68				
	RN-RPT2B.PRG	265=	268	272	292			
LINE6	RN-ADD.PRG	156=						
	RN-ADD2.FMT	65G	88	92				
	RN-SRCT.PRG	60=	63	68				
	RN-RPT2B.PRG	266=	268	272	299			
LN	RN-RPT5.PRG	163=	174=	185=	261=	277=	374=	374 378=
378		380=						
	RN-RPT5A.PRG	21=	380 383	405=	409	455=	459	
47=		51=		25=	31=	33=	37=	39=
		59=		55=				43=
	ADDLINE.PRG	17		63=				
LOW&JC	RN-RPT2B.PRG	237						
LOW&JJ	RN-RPT2C.PRG	170						

LOW&SI									
RN-CALC.PRG	36R		40R	44R	48R		52R		
LOW6									
RN-ADD3.FMT	35G								
RN-CALC.PRG	36	40	44	48	52				
RN-RPT1.PRG	93								
LS									
RN-CALC.PRG	65=		72=	72	75				
LT&LI									
RN-RPT3.PRG	475								
RN-RPT5.PRG	352								
LT&SI									
RN-RPT3.PRG	341								
RN-RPT5.PRG	318	322							
LT&ST									
RN-RPT3.PRG	141=								
RN-RPT5.PRG	225=								
LT2&LI2									
RN-RPT3.PRG	490								
LT2&SI									
RN-RPT3.PRG	366								
LT2&ST2									
RN-RPT3.PRG	222=								
LTOTAL									
RN-CALC.PRG	105R		106	107					
RN-RPT1.PRG	114								
RN-RPT3.PRG	141	222							
RN-RPT5.PRG	225	252	274						
RN-RPT2B.PRG	87								
RN-RPT2C.PRG	206								
M									
RN-RPT2.PRG	45=		70=	83=	88=	91=	96=	102	103=
105=	129=								
RN-RPT3.PRG	143=		148=	152	153=	155=	175		
431	342R		342	367R	367	376	380	386	390
	474R								
	489R		499R	503	510R	513	519R	523	530R
533									
RN-RPT5.PRG	319R		319	335	351R	356R	361R	363	
RN-RPT2B.PRG	71	72	73	76	77	79	80	100	103
123									
	124	125	127	129	130	132	134	135	140
141									
	142	145	146	147	157	158	159	160	162
163									
	164	165	166	169	170	188	189	191	192
193									
	200	202	203	206	211	212	217	218	222
223									
	234	235	236	237	275	277	278	279	280
281									
	282	283	284	285	286	287	288	289	290
291									

305	292	293	294	295	297	298	299	300	301
	306	307	309	310					
M1									
RN-RPT5.PRG	323R		323	339					
MAREA									
RN-RPT2B.PRG	40=		46	49	51	53			
RN-RPT2C.PRG	40=		46	49	51	53			
MAT									
RN-RPT1.PRG	115=		119						
MAXLIN									
RN-RPT5.PRG	71=		90=	167	178	189	390	416	423
MAXLINE									
RN-RPT1.PRG	51=		54=	59=	85				
MAXYEARS									
RN-RPT3.PRG	35=		40=	45=	248	304	449		
MC									
RN-RPT.PRG	146=		147G	151	153	160=	166G	168	170
190=	192								
RN-RPT2.PRG	34=		35G	39	42	55	57G	65	67
78=	84=								
RN-RPT4.PRG	92=		138=	144=	179=	185=	186		
RN-RPT5.PRG	28=		30G	37	45=	46	67=		
RN-RPT2B.PRG	85								
RN-RPT2C.PRG	40	41	42	43	72				
	40	41	42	43	71				
MCC									
RN-RPT.PRG	198=		205						
RN-RPTA.PRG	34=		35	37=	38	40=	41	43=	
44									
RN-RPT2.PRG	114=		123						
RN-RPT4.PRG	54=								
RN-RPT5.PRG	83								
RN-RPT2B.PRG	43=		67						
RN-RPT2C.PRG	43=		67						
MCOMP_DSCR									
RN-ENTR.PRG	24=		26	27G	31				
MDIR									
RN-CALC.PRG	98R		100						
RN-RPT2B.PRG	88								
RN-RPT2C.PRG	207								
MDUR									
RN-RPT2B.PRG	94=		130	305					
RN-RPT2C.PRG	91=		123						
ME									
RN-RPT.PRG	161=		177G	179	181				
RN-RPT2.PRG	55	59G	90	98					
RN-RPT4.PRG	29=		32G	46					
RN-RPT3.PRG	596								
RN-RPT5.PRG	448								
MFAC									

RN-RPT.PRG	243=		244G	291=	296G	
RN-RPT3.PRG	431	433	503	513	523	533
RN-RPT5.PRG	361	366	370	380	407	
MSUB						
RN-RPT2B.PRG	42=		62			
RN-RPT2C.PRG	42=		62			
MSYS						
RN-RPT2B.PRG	41=		58			
RN-RPT2C.PRG	41=		58			
MT						
RN-CALC.PRG	77=		90=	90	93	
RN-RPT2B.PRG	37					
RN-RPT2C.PRG	37					
MT&LI						
RN-RPT3.PRG	474					
RN-RPT5.PRG	351					
MT&SI						
RN-RPT3.PRG	342					
RN-RPT5.PRG	319	323				
MT&ST						
RN-RPT3.PRG	140=					
RN-RPT5.PRG	224=					
MT1						
RN-RPT2B.PRG	74	81=	206			
MT10						
RN-RPT2B.PRG	74	90=	297			
MT11						
RN-RPT2B.PRG	74					
MT12						
RN-RPT2B.PRG	74					
MT13						
RN-RPT2B.PRG	74	93=				
MT2						
RN-RPT2B.PRG	74					
MT2&LI2						
RN-RPT3.PRG	489					
MT2&SI						
RN-RPT3.PRG	367					
MT2&ST2						
RN-RPT3.PRG	221=					
MT3						
RN-RPT2B.PRG	74					
MT4						
RN-RPT2B.PRG	74					
MT5						
RN-RPT2B.PRG	74	85=	288			

MT6	RN-RPT2B.PRG	74	86=	289					
MT7	RN-RPT2B.PRG	74	87=	290					
MT8	RN-RPT2B.PRG	74	88=	295					
MT9	RN-RPT2B.PRG	74							
MTASK	RN-RPT2B.PRG	37							
	RN-RPT2C.PRG	37							
MTASKCODE	RN-ADD.PRG	37=		58G	62&	72	73	164	169
	RN-ARE.PRG	26=		46G	50&	60	61	115	
	RN-ENTR.PRG	25	30						
	RN-ADD.FMT	17							
	RN-ADD2.FMT	86	91						
	RN-CALC.PRG	20	97						
	RN-SRCT.PRG	28=		53	76	80			
MTOTAL	RN-CALC.PRG	100R							
	RN-RPT1.PRG	115							
	RN-RPT3.PRG	140	221						
	RN-RPT5.PRG	224	253	275					
	RN-RPT2B.PRG	90							
	RN-RPT2C.PRG	208							
M_TOT	RN-CALC.PRG	93R	98						
	RN-RPT2B.PRG	81							
	RN-RPT2C.PRG	161							
N2	RN-RPT3.PRG	301=	352=	353	354	365	366	367	368
NAME	RN-SRCH.PRG	54=	64=	67=	71=	75=	80=		
NLINE	RN-RPT1.PRG	66=	84=	85	120=	120			
NN	RN-RPT2C.PRG	148=	155=						
NO_PRSN	RN-ADD.FMT	23G							
	RN-CALC.PRG	107							
	RN-RPT2B.PRG	129							
	RN-RPT2C.PRG	122							
NPAGE	RN-RPT1.PRG	61=	67=	67	76				
NTASK	RN-RPT1.PRG	64=	121=	124					
OPER_NO	RN-REF.FMT	23G							

OUT									
RN-RPT1.PRG	29=		31G	33	50	52	55	68	73
PAGENO									
RN-RPT.PRG	341	342	343	345					
RN-RPT5.PRG	89	382R	408R	459R					
ADDLINE.PRG	17R								
PANO									
RN-RPT5.PRG	70	89=	382R	408R	459R				
RN-RPT5A.PRG	30=		30	35					
ADDLINE.PRG	17R								
PANO1									
RN-RPT.PRG	312=		314G	328					
PANO2									
RN-RPT.PRG	313=		315G	342					
PANOA									
RN-RPT.PRG	341=		343	345=					
PERC_APP									
RN-REF.FMT	27G								
PN1									
RN-RPT.PRG	328=		340						
PW									
RN-RPT3.PRG	286								
PW1									
RN-RPT5.PRG	55								
PW2									
RN-RPT5.PRG	57								
PW_E									
RN-RPT3.PRG	299	381=	381	520					
RN-RPT5.PRG	288	336=	336	362	363				
PW_E1									
RN-RPT5.PRG	288	340=	340	367=	367	371=	371	376	
PW_E2									
RN-RPT3.PRG	299	391=	391	531					
PW_L									
RN-RPT3.PRG	299	379=	379	518					
RN-RPT5.PRG	288	334=	334	360	363				
PW_L1									
RN-RPT5.PRG	288	338=	338	365=	365	369=	369	376	
PW_L2									
RN-RPT3.PRG	299	389=	389	529					
PW_M									
RN-RPT3.PRG	299	380=	380	519					
RN-RPT5.PRG	288	335=	335	361					
PW_M1									
RN-RPT5.PRG	288	339=	339	366=	366	370=	370	376	

PW_M2									
RN-RPT3.PRG	299	390=	390	530					
QU									
RN-CALC.PRG	86=		88=	90					
QUAN&IC									
RN-RPT2B.PRG	192								
QUAN&NN									
RN-RPT2C.PRG	157								
QUAN&SI									
RN-CALC.PRG	85	86	86						
QUAN1									
RN-ADD2.FMT	38G								
QUAN2									
RN-ADD2.FMT	41G								
QUAN3									
RN-ADD2.FMT	44G								
QUAN4									
RN-ADD2.FMT	47G								
QUAN5									
RN-ADD2.FMT	50G								
QUAN6									
RN-ADD2.FMT	53G								
QUAN7									
RN-ADD2.FMT	56G								
RATE									
RN-RPT5.PRG	240								
RE&SI									
RN-RPT5.PRG	321								
RE&ST									
RN-RPT5.PRG	228=		248=	273=					
RECNOINI									
RN-RPT5.PRG	199=		433						
REF									
RN-MAIN.PRG	97	97							
RN-ARE.PRG	49	49							
RN-SRCH.PRG	82	82							
RN-RPT4.PRG	36	36	53	53					
REP									
RN-RPT.PRG	34=		35	41=	51	52=	53G	58	60
73	89								
	109	109	110	212	239	275			
REP2OPT									
RN-RPT2.PRG	29=		47	72	82	90	133	142	
RN-RPT2A.PRG	23G		30	37	39	39			

REP3OPT									
RN-RPT.PRG	213=		219G	221	258		258		
RN-RPT3.PRG	34	39	44	237	241		247	250	255 272
276									
	435								
REP5OPT									
RN-RPT.PRG	278=		279G	282	288				
REPDAT									
RN-RPT.PRG	289=		295G						
REPL									
RN-ADD.PRG	136	138	140	142	144		146	148	150 169
RN-ARE.PRG	115								
RN-ENTR.PRG	19	30	31						
RN-ADD2.FMT	88	91	92						
RN-CALC.PRG	18	19	34	35	36		38	39	40 42
43									
	44	46	47	48	50		51	52	75 93
97									
	98	100	103	104	105		106	107	
RN-SRCT.PRG	36	38	40	42	44		46	48	65
RN-RPT3.PRG	314	316	319	321	336		340	341	342 343
361									
	365	366	367	368	470		473	474	475 484
488									
	489	490	497	498	499		500	508	509 510
511									
	517	518	519	520	528		529	530	531
RN-RPT5.PRG	317	318	319	320	322		323	324	348 350
351									
	352	354	355	356	357		359	360	361 362
363									
	382	408	459						
RN-RPT2B.PRG	73								
ADDLINE.PRG	17								
REPT									
RN-RPT.PRG	82=		83	84=	85G		96=	97	98=
99G	123=		124						
	125=		126G	143	145		159	159	159 165
175	189								
	194								
RN-RPT2.PRG	30	32	53	53	58		82	90	98 110
161									
RN-RPT4.PRG	25	27	27	31	50				
RN-RPT3.PRG	590	595							
RN-RPT5.PRG	65	82	108	385	411		441	447	453
RN-RPT2A.PRG	19								
ADDLINE.PRG	19								
RE_E									
RN-RPT5.PRG	254=		276=	276	380				
RE_L									
RN-RPT5.PRG	252=		274=	274	380				
RE_M									
RN-RPT5.PRG	253=		275=	275	380				
RE_YR									
RN-RPT5.PRG	255=		377	380					

RN										
98	RN-MAIN.PRG	83	83	87	87	91	91	94	97	97
		102	104	106						
162	RN-ADD.PRG	61	61	78	78	102	127	127	158	160
		167	167	170	175					
	RN-ARE.PRG	49	49	117						
82	RN-SRCH.PRG	63	63	68	68	72	72	77	77	82
		103	106							
164	RN-RPT.PRG	65	65	66	70	88	107	150	150	164
		197	197	200	254	265	299	305	305	307
307		334								
	RN-UTL.PRG	66	67	68	80	81	82			
	RN-ADD2.FMT	85	85							
	RN-CALC.PRG	23								
	RN-SRCT.PRG	52	52	71	73	75	79	79	81	85
	RN-RPT1.PRG	88	88	123						
93	RN-RPT2.PRG	38	38	46	50	64	64	71	79	85
		113	113	117	132	139	145	150	164	164
189										
77	RN-RPT4.PRG	36	36	46	53	53	57	71	73	75
168	RN-RPT3.PRG	52	58	58	86	86	93	93	101	101
		168	175	175	183	183	286	288	293	591
113	RN-RPT5.PRG	50	52	52	55	57	61	63	78	113
		120	120	128	128	136	136	145	145	160
169										
97	RN-RPT2B.PRG	45	45	57	57	61	61	66	66	97
		180	191	237	237	283	392	418	425	442
		137	137	176	176	258	258			
93	RN-RPT2C.PRG	45	45	57	57	61	61	66	66	93
		128	128	143	143	178	178			
RNO										
	RN-RPT3.PRG	72=								
RNO2										
	RN-RPT3.PRG	151=								
RPT										
	RN-MAIN.PRG	104								
RPT1										
	RN-RPT.PRG	70								
RPT2										
	RN-RPT.PRG	88								
RPT2A										
	RN-RPT2.PRG	46	71	132						
RPT2B										
	RN-RPT2.PRG	50	79	85	93	139	145			

RPT2C									
RN-RPT2.PRG	189								
RPT3									
RN-RPT.PRG	265								
RPT3.OUT									
RN-RPT.PRG	254								
RPT4									
RN-RPT.PRG	107								
RN-RPT4.PRG	46	71	73	75	77				
RPT5									
RN-RPT.PRG	299								
RPT5.OUT									
RN-RPT.PRG	334								
RPT51									
RN-RPT.PRG	305								
RN-RPT5.PRG	61								
RPT52									
RN-RPT.PRG	307								
RN-RPT5.PRG	63								
RPT5A									
RN-RPT5.PRG	160	169	180	191	392	418	425		
RPT5P									
RN-RPT.PRG	305	307							
RPT5T									
RN-RPT5.PRG	78								
RPTA									
RN-RPT.PRG	66	200							
RN-RPT2.PRG	117								
RN-RPT4.PRG	57								
RPTB									
RN-RPT1.PRG	123								
RN-RPT2.PRG	150								
RN-RPT3.PRG	591								
RN-RPT5.PRG	442								
S0									
RN-MAIN.PRG	49=	50	51=	52G	57	62	101	103	
105									
S3									
RN-SRCH.PRG	47=	48	49=	50G	57	61	65	69	
73	78								
	102	105							
SA									
RN-MAIN.PRG	71=	72	73=	74G	79	81	85	89	
93	95								
SHOWSCREEN									
RN-RPT.PRG	36=	102G	104	242G	247				
RN-RPT1.PRG	39G	41							
RN-RPT2.PRG	168G	170							

SHOWTOTALS										
RN-RPT.PRG	240=		241G							
RN-RPT3.PRG	241	481								
SI										
RN-CALC.PRG	27=		29=	68=	70=	80=	82=			
RN-RPT3.PRG	326=		351=							
RN-RPT5.PRG	303=		399=							
SK										
RN-RPT3.PRG	333=									
RN-RPT5.PRG	310=									
SK2										
RN-RPT3.PRG	358=									
SP										
RN-RPT.PRG	162=		235=	236G						
RN-RPT2.PRG	56=		61G	101	126=	127G	151			
RN-RPT3.PRG	437									
SPACERBLNK										
RN-RPT3.PRG	37=		42=	47=	248	253	253	257	258	
259	260									
432	262	263	266	267	278	279	280	281	432	
	449	455	456	457	458	504	504	524	524	
SPACERLEFT										
RN-RPT3.PRG	36=		41=	46=	248	253	257	259	262	
266	277									
457	278	280	283	431	436	449	451	454	455	
	459	478	503	523	534					
SPACERLINE										
RN-RPT3.PRG	38=		43=	48=	277	277	283	283	436	
436	454									
	454	459	459	478	478	534	534			
SRCH										
RN-MAIN.PRG	102									
SRCT										
RN-SRCH.PRG	103									
ST										
RN-RPT3.PRG	117=									
RN-RPT5.PRG	202=		260=							
ST2										
RN-RPT3.PRG	198=									
SUB										
RN-MAIN.PRG	91	91								
RN-SRCH.PRG	68	68								
RN-RPT3.PRG	101	101	183	183						
RN-RPT5.PRG	128	128								
RN-RPT2B.PRG	61	61								
RN-RPT2C.PRG	61	61								
SUBTSK&IC										
RN-RPT2B.PRG	187	188	201	202	210	211				

SUBTSK&NN		
RN-RPT2C.PRG	149	
SUBTSK1		
RN-ADD.FMT	31G	
SUBTSK10		
RN-ADD.FMT	58G	
SUBTSK11		
RN-ADD.FMT	61G	
SUBTSK12		
RN-ADD1.FMT	18G	
SUBTSK13		
RN-ADD1.FMT	21G	
SUBTSK14		
RN-ADD1.FMT	24G	
SUBTSK15		
RN-ADD1.FMT	27G	
SUBTSK16		
RN-ADD1.FMT	30G	
SUBTSK17		
RN-ADD1.FMT	33G	
SUBTSK18		
RN-ADD1.FMT	36G	
SUBTSK19		
RN-ADD1.FMT	39G	
SUBTSK2		
RN-ADD.FMT	34G	
SUBTSK20		
RN-ADD1.FMT	42G	
SUBTSK21		
RN-ADD1.FMT	45G	
SUBTSK22		
RN-ADD1.FMT	48G	
SUBTSK3		
RN-ADD.FMT	37G	
SUBTSK4		
RN-ADD.FMT	40G	
SUBTSK5		
RN-ADD.FMT	43G	
SUBTSK6		
RN-ADD.FMT	46G	
SUBTSK7		
RN-ADD.FMT	49G	

SUBTSK8									
	RN-ADD.FMT	52G							
SUBTSK9									
	RN-ADD.FMT	55G							
SUB_DSCR									
	RN-RPT3.PRG	105	187						
	RN-RPT5.PRG	132							
	RN-RPT2B.PRG	63							
	RN-RPT2C.PRG	63							
SYS									
	RN-SRCH.PRG	93&							
SYSA									
	RN-SRCH.PRG	62=	66=	70=	74=	79=	86		
SY_DSCR									
	RN-RPT3.PRG	97	179						
	RN-RPT5.PRG	124							
	RN-RPT2B.PRG	59							
	RN-RPT2C.PRG	59							
T									
	RN-RPT3.PRG	112=	117	144=	144	232			
	RN-RPT5.PRG	197=	202	233=	233	246=	246	247	260
262									
T&SI									
	RN-RPT3.PRG	340R	365R						
	RN-RPT5.PRG	317R							
T&SK									
	RN-RPT3.PRG	336R							
T&SK2									
	RN-RPT3.PRG	361R							
T2									
	RN-RPT3.PRG	194=	198	225=	225	234			
TA&SI									
	RN-RPT5.PRG	401							
TA&ST									
	RN-RPT3.PRG	138=							
	RN-RPT5.PRG	222=	250	265	270				
TA1									
	RN-RPT5.PRG	428							
TA2&ST2									
	RN-RPT3.PRG	219=							
TAB									
	RN-RPT2C.PRG	36=	71&	73&	74&	75&	76&	77&	
96&		100&	118&						
		119&	120&	122&	123&	131&	135&	137&	
149&		150&	156&						
		157&	158&	161&	168&	169&	170&	203&	
204&		205&	206&						
		207&	208&	209&	210&	211&	212&	213&	
214&									

TASK										
RN-ADD.PRG	61	61	127	127						
RN-SRCH.PRG	77	77								
RN-RPT.PRG	65	65	150	150	164	164	197		197	
RN-RPT2.PRG	38	38	64	64	113	113	164		164	
TASK2										
RN-ADD.PRG	167	167								
RN-SRCT.PRG	79	79								
RN-RPT1.PRG	88	88								
RN-RPT3.PRG	58	58								
RN-RPT5.PRG	52	52								
RN-RPT2B.PRG	176	176								
RN-RPT2C.PRG	143	143								
TASKB.DBF										
RN-UTL.PRG	66	68								
TASKCOUNT										
RN-RPT2.PRG	175									
RN-RPT2C.PRG	33=		33	34						
TASK_CLAS										
RN-ADD.FMT	25G									
RN-RPT5.PRG	227									
RN-RPT2C.PRG	137									
TASK_CODE										
RN-ADD.PRG	63	169R								
RN-ARE.PRG	51	115R								
RN-RPT.PRG	190									
RN-UTL.PRG	68	82								
RN-ENTR.PRG	30R									
RN-ADD2.FMT	91R									
RN-CALC.PRG	97R									
RN-REF.FMT	17									
RN-RPT1.PRG	64	86	117	121	124					
RN-RPT2.PRG	78	84	90	92	98	138	144	179	180	
185										
	192	193	198							
RN-RPT4.PRG	45	46	46	67	71	73	75	75	77	
RN-RPT3.PRG	69	115	121	138	148	197	202	219	593	
596										
RN-RPT5.PRG	106	200	203	222	263	444	448			
RN-RPTB.PRG	20	24	24	28						
RN-RPT2B.PRG	107	131	216	221	227	244				
RN-RPT2C.PRG	102	163								
TASK_DSCR										
RN-ADD.PRG	131G									
RN-SRCT.PRG	31G									
RN-RPT1.PRG	117									
RN-RPT2B.PRG	79									
RN-RPT2C.PRG	77									
TASK_NO										
RN-REF.FMT	25G									
TC&SI										
RN-RPT5.PRG	321	403								
TC&ST										
RN-RPT5.PRG	227=									

TD&L1				
RN-RPT3.PRG	473			
RN-RPT5.PRG	350			
TD&SI				
RN-RPT3.PRG	343			
RN-RPT5.PRG	320	324		
TD&ST				
RN-RPT3.PRG	139=			
RN-RPT5.PRG	223=			
TD2&LI2				
RN-RPT3.PRG	488			
TD2&SI				
RN-RPT3.PRG	368			
TD2&ST2				
RN-RPT3.PRG	220=			
TDC				
RN-ADD.PRG	33=	72=	79&	
RN-ARE.PRG	22=	60=		
TDCODE				
RN-ADD.PRG	130G			
RN-SRCT.PRG	30G			
RN-RPT2B.PRG	79			
RN-RPT2C.PRG	76			
TOT				
RN-RPT5.PRG	363R			
TOTAL E				
RN-RPT3.PRG	298	377=	377	500
RN-RPT5.PRG	288	357		
TOTAL E2				
RN-RPT3.PRG	298	387=	387	511
TOTAL L				
RN-RPT3.PRG	298	375=	375	498
RN-RPT5.PRG	288	355		
TOTAL L2				
RN-RPT3.PRG	298	385=	385	509
TOTAL M				
RN-RPT3.PRG	298	376=	376	499
RN-RPT5.PRG	288	356		
TOTAL M2				
RN-RPT3.PRG	298	386=	386	510
TRAD				
RN-RPT5.PRG	237			
RN-RPT2B.PRG	137			
RN-RPT2C.PRG	128			
TRADE				
RN-ADD.FMT	24G			
RN-RPT1.PRG	117			
RN-RPT5.PRG	229			

RN-RPT2B.PRG	145	146							
RN-RPT2C.PRG	135								
TRADI									
RN-RPT5.PRG	237								
RN-RPT2B.PRG	137								
RN-RPT2C.PRG	128								
T_DUR									
RN-CALC.PRG	107R								
RN-RPT1.PRG	116								
RN-RPT3.PRG	139	220							
RN-RPT5.PRG	223	254	276						
RN-RPT2B.PRG	94								
RN-RPT2C.PRG	91	209							
UM									
RN-RPT2B.PRG	38=								
RN-RPT2C.PRG	38=								
UOM									
RN-RPT5.PRG	145	148							
RN-RPT2B.PRG	97								
RN-RPT2C.PRG	93								
UOMI									
RN-RPT5.PRG	145								
RN-RPT2B.PRG	97								
RN-RPT2C.PRG	93								
UTL									
RN-MAIN.PRG	106								
WHAT_NOW									
RN-ADD.PRG	81=	82	83=	86	93	93	96	96	
99	99								
XX									
RN-RPT2.PRG	181=	182&	187=	188	199=	200&			
YES_NO									
RN-ADD.PRG	108=	109G	112	116G	119				
Z									
RN-SRCH.PRG	31=	32	58=						
ZONE									
RN-CALC.PRG	23								
RN-RPT5.PRG	101=	102	105	154	221	235	428	430=	
431	434=								
	434	435	436	438					
ZT									
RN-RPT5.PRG	102=	431=	436=	438=					
ZTAB									
RN-ADD.PRG	171=								
RN-CALC.PRG	33	37	41	45	49				
RN-SRCT.PRG	82=								
Z_TAB									
RN-ADD.PRG	171								
RN-ADD3.FMT	51G								
RN-SRCT.PRG	82								

## 6 DATABASE STRUCTURE SUMMARY

The following list summarizes the data base fields used in the MRPM-DBM system by field name. The summary also indicates which program files use the named data bases.

System: MRPM-DBM  
Author: USACERL  
02/19/91 08:53:24  
Database Structure Summary

-----  
20 databases in the system:

RN-AREA.DBF  
RN-SYS.DBF  
RN-SUB.DBF  
RN-REF.DBF  
RN-TASK.DBF  
RN-COMP.DBF  
RN-TASK2.DBF  
RN-RPT51.DBF  
RN-RPT52.DBF  
RN-TASKB.DBF  
RN-COMP.B.DBF  
RN-NOTE.DBF  
RN-ZONE.DBF  
RN-F3IN.DBF  
RN-PW.DBF  
RN-F3IN2.DBF  
RN-PW1.DBF  
RN-PW2.DBF  
RN-UOM.DBF  
RN-TRAD.DBF

-----  
Structure for database : RN-AREA.DBF

Number of data records : 9  
Last updated : 04/09/89 at 19:20

Field	Field name	Type	Width	Dec	Start	End
1	A_NO	Character	2		1	2
2	A_DSCR	Character	35		3	37
** Total **			38			

This database appears to be associated with index file(s):  
: RN-AREA.NDX (A\_NO)

Used by: RN-MAIN.PRG  
: RN-RPT5.PRG  
: RN-RPT2B.PRG  
: RN-RPT2C.PRG

-----  
Structure for database : RN-SYS.DBF

Number of data records : 49  
Last updated : 01/04/88 at 20:31

Field	Field name	Type	Width	Dec	Start	End
1	SY_NO	Character	3		1	3
2	SY_DSCR	Character	23		4	26
** Total **			27			

This database appears to be associated with index file(s):  
: RN-SYS.NDX (SY\_NO)

Used by: RN-MAIN.PRG  
: RN-SRCH.PRG  
: RN-RPT3.PRG  
: RN-RPT5.PRG  
: RN-RPT2B.PRG  
: RN-RPT2C.PRG

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Structure for database : RN-SUB.DBF  
Number of data records : 159  
Last updated : 02/17/88 at 21:11

Field	Field name	Type	Width	Dec	Start	End
1	TASK_CODE	Character	4		1	4
2	SUB_DSCR	Character	24		5	28
** Total **			29			

This database appears to be associated with index file(s):  
: RN-SUB.NDX (TASK\_CODE)

Used by: RN-MAIN.PRG  
: RN-SRCH.PRG  
: RN-RPT3.PRG  
: RN-RPT5.PRG  
: RN-RPT2B.PRG  
: RN-RPT2C.PRG

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Structure for database : RN-REF.DBF  
Number of data records : 390  
Last updated : 01/22/88 at 11:53

Field	Field name	Type	Width	Dec	Start	End
1	TASK_CODE	Character	7		1	7
2	CACES	Numeric	9		8	16
3	BOOK_NO	Character	9		17	25
4	OPER_NO	Character	12		26	37
5	TASK_NO	Character	10		38	47
6	PERC_APP	Character	12		48	59
** Total **			60			

This database appears to be associated with index file(s):  
: RN-REF.NDX (TASK\_CODE)

This database appears to be associated with report form(s):  
: RN-RPT4.FRM

Used by: RN-MAIN.PRG  
: RN-ARE.PRG  
: RN-SRCH.PRG  
: RN-RPT4.PRG

Structure for database : RN-TASK.DBF

Number of data records : 3232

Last updated : 10/18/89 at 14:52

Field	Field name	Type	Width	Dec	Start	End
1	TASK_CODE	Character	7		1	7
2	NO_PRSN	Numeric	2		8	9
3	TRADE	Character	3		10	12
4	FREQ_H	Character	6		13	18
5	FREQ_A	Character	6		19	24
6	FREQ_L	Character	6		25	30
7	LHRS	Numeric	12	6	31	42
8	SUBTSK1	Character	31		43	73
9	SUBTSK2	Character	31		74	104
10	SUBTSK3	Character	31		105	135
11	SUBTSK4	Character	31		136	166
12	SUBTSK5	Character	31		167	197
13	SUBTSK6	Character	31		198	228
14	SUBTSK7	Character	31		229	259
15	SUBTSK8	Character	31		260	290
16	SUBTSK9	Character	31		291	321
17	SUBTSK10	Character	31		322	352
18	SUBTSK11	Character	31		353	383
19	SUBTSK12	Character	31		384	414
20	ALW_LBR	Numeric	6	2	415	420
21	ALW_MTR	Numeric	6	2	421	426
22	CCT1	Character	7		427	433
23	CCT2	Character	7		434	440
24	CCT3	Character	7		441	447
25	CCT4	Character	7		448	454
26	CCT5	Character	7		455	461
27	CCT6	Character	7		462	468
28	CCT7	Character	7		469	475
29	CCT8	Character	7		476	482
30	CCT9	Character	7		483	489
31	LHRS1	Numeric	12	6	490	501
32	LHRS2	Numeric	12	6	502	513
33	LHRS3	Numeric	12	6	514	525
34	LHRS4	Numeric	12	6	526	537
35	LHRS5	Numeric	12	6	538	549
36	LHRS6	Numeric	12	6	550	561
37	LHRS7	Numeric	12	6	562	573
38	LHRS8	Numeric	12	6	574	585
39	LHRS9	Numeric	12	6	586	597
40	LHRS10	Numeric	12	6	598	609
41	LHRS11	Numeric	12	6	610	621
42	LHRS12	Numeric	12	6	622	633
43	LDIR	Numeric	14	6	634	647
44	LIND	Numeric	14	6	648	661
45	LTOTAL	Numeric	14	6	662	675
46	MDIR	Numeric	14	6	676	689
47	MTOTAL	Numeric	14	6	690	703
48	ETOTAL	Numeric	14	6	704	717
49	T_DUR	Numeric	14	6	718	731
50	M_TOT	Numeric	14	6	732	745
51	TDCODE	Character	10		746	755
52	TASK_DSCR	Character	50		756	805
53	C_MSUR	Character	10		806	815
54	CMSUR	Character	1		816	816
55	DESC1	Character	12		817	828
56	DESC2	Character	12		829	840
57	DESC3	Character	12		841	852
58	DESC4	Character	12		853	864
59	DESC5	Character	12		865	876
60	DESC6	Character	12		877	888

61	DESC7	Character	12		889	900
62	QUAN1	Character	15		901	915
63	QUAN2	Character	15		916	930
64	QUAN3	Character	15		931	945
65	QUAN4	Character	15		946	960
66	QUAN5	Character	15		961	975
67	QUAN6	Character	15		976	990
68	QUAN7	Character	15		991	1005
69	COST1	Numeric	12	4	1006	1017
70	COST2	Numeric	12	4	1018	1029
71	COST3	Numeric	12	4	1030	1041
72	COST4	Numeric	12	4	1042	1053
73	COST5	Numeric	12	4	1054	1065
74	COST6	Numeric	12	4	1066	1077
75	COST7	Numeric	12	4	1078	1089
76	CRPLC	Character	10		1090	1099
77	SUBTSK13	Character	31		1100	1130
78	SUBTSK14	Character	31		1131	1161
79	SUBTSK15	Character	31		1162	1192
80	SUBTSK16	Character	31		1193	1223
81	SUBTSK17	Character	31		1224	1254
82	SUBTSK18	Character	31		1255	1285
83	SUBTSK19	Character	31		1286	1316
84	SUBTSK20	Character	31		1317	1347
85	SUBTSK21	Character	31		1348	1378
86	SUBTSK22	Character	31		1379	1409
87	LHRS13	Numeric	12	6	1410	1421
88	LHRS14	Numeric	12	6	1422	1433
89	LHRS15	Numeric	12	6	1434	1445
90	LHRS16	Numeric	12	6	1446	1457
91	LHRS17	Numeric	12	6	1458	1469
92	LHRS18	Numeric	12	6	1470	1481
93	LHRS19	Numeric	12	6	1482	1493
94	LHRS20	Numeric	12	6	1494	1505
95	LHRS21	Numeric	12	6	1506	1517
96	LHRS22	Numeric	12	6	1518	1529
97	HAS_NOTE	Logical	1		1530	1530
98	TASK_CLAS	Numeric	1		1531	1531
** Total **			1532			

This database appears to be associated with index file(s):  
: RN-TASK.NDX (task\_code)

Used by: RN-ADD.PRG  
: RN-SRCH.PRG  
: RN-RPT.PRG  
: RN-UTL.PRG  
: RN-RPT2.PRG

-----  
Structure for database : RN-COMP.DBF  
Number of data records : 1030  
Last updated : 07/06/88 at 21:15

Field	Field name	Type	Width	Dec	Start	End
1	TASK_CODE	Character	6		1	6
2	COMP_DSCR	Character	26		7	32
** Total **			33			

This database appears to be associated with index file(s):  
: RN-COMP.NDX (TASK\_CODE)

Used by: RN-ADD.PRG  
 : RN-SRCH.PRG  
 : RN-UTL.PRG  
 : RN-RPT3.PRG  
 : RN-RPT5.PRG  
 : RN-RPT2B.PRG  
 : RN-RPT2C.PRG

-----  
 Structure for database : RN-TASK2.DBF

Number of data records : 654

Last updated : 07/06/88 at 21:25

Field	Field name	Type	Width	Dec	Start	End
1	TASK_CODE	Character	7		1	7
2	Z TAB	Character	2		8	9
3	HIGH1	Numeric	7	3	10	16
4	HIGH2	Numeric	7	3	17	23
5	HIGH3	Numeric	7	3	24	30
6	HIGH4	Numeric	7	3	31	37
7	HIGH5	Numeric	7	3	38	44
8	HIGH6	Numeric	7	3	45	51
9	HIGH7	Numeric	7	3	52	58
10	HIGH8	Numeric	7	3	59	65
11	HIGH9	Numeric	7	3	66	72
12	HIGH10	Numeric	7	3	73	79
13	HIGH11	Numeric	7	3	80	86
14	AVER1	Numeric	7	3	87	93
15	AVER2	Numeric	7	3	94	100
16	AVER3	Numeric	7	3	101	107
17	AVER4	Numeric	7	3	108	114
18	AVER5	Numeric	7	3	115	121
19	AVER6	Numeric	7	3	122	128
20	AVER7	Numeric	7	3	129	135
21	AVER8	Numeric	7	3	136	142
22	AVER9	Numeric	7	3	143	149
23	AVER10	Numeric	7	3	150	156
24	AVER11	Numeric	7	3	157	163
25	LOW1	Numeric	7	3	164	170
26	LOW2	Numeric	7	3	171	177
27	LOW3	Numeric	7	3	178	184
28	LOW4	Numeric	7	3	185	191
29	LOW5	Numeric	7	3	192	198
30	LOW6	Numeric	7	3	199	205
31	LOW7	Numeric	7	3	206	212
32	LOW8	Numeric	7	3	213	219
33	LOW9	Numeric	7	3	220	226
34	LOW10	Numeric	7	3	227	233
35	LOW11	Numeric	7	3	234	240
** Total **			241			

This database appears to be associated with index file(s):  
 : RN-TASK2.NDX (TASK\_CODE)

Used by: RN-ADD.PRG  
 : RN-SRCT.PRG  
 : RN-RPT1.PRG  
 : RN-RPT3.PRG  
 : RN-RPT5.PRG  
 : RN-RPT2B.PRG  
 : RN-RPT2C.PRG

-----  
Structure for database : RN-RPT51.DBF

Number of data records : 20

Last updated : 04/10/89 at 2:28

Field	Field name	Type	Width	Dec	Start	End
1	PAGENO	Numeric	5		1	5
2	LINENO	Numeric	2		6	7
3	ACT_COMPON	Character	6		8	13
4	ACT_LINE	Character	176		14	189
** Total **			190			

This database appears to be associated with index file(s):

: RN-RPT5P.NDX (PAGENO\*100+LINENO)

Used by: RN-RPT.PRG

: RN-RPT5.PRG  
-----

Structure for database : RN-RPT52.DBF

Number of data records : 207

Last updated : 02/22/89 at 2:07

Field	Field name	Type	Width	Dec	Start	End
1	PAGENO	Numeric	5		1	5
2	LINENO	Numeric	2		6	7
3	ACT_COMPON	Character	6		8	13
4	ACT_LINE	Character	176		14	189
** Total **			190			

This database appears to be associated with index file(s):

: RN-RPT5P.NDX (PAGENO\*100+LINENO)

: RN-RPT5T.NDX (ACT\_COMPON)

Used by: RN-RPT.PRG

: RN-RPT5.PRG  
-----

Structure for database : RN-NOTE.DBF

Number of data records : 164

Last updated : 07/21/88 at 9:32

Field	Field name	Type	Width	Dec	Start	End
1	TASK_CODE	Character	7		1	7
2	NOTE	Character	240		8	247
** Total **			248			

This database appears to be associated with index file(s):

: RN-NOTE.NDX (TASK\_CODE)

Used by: RN-ADD2.FMT

: RN-SRCT.PRG

: RN-RPT2B.PRG

: RN-RPT2C.PRG

-----  
Structure for database : RN-ZONE.DBF

Number of data records : 11  
Last updated : 06/12/86 at 13:21

Field	Field name	Type	Width	Dec	Start	End
1	C_HOUS	Numeric	5	2	1	5
2	H_HOUS	Numeric	5	2	6	10
3	C_ADM	Numeric	5	2	11	15
4	H_ADM	Numeric	5	2	16	20
** Total **			21			

Used by: RN-CALC.PRG  
-----

Structure for database : RN-F3IN.DBF

Number of data records : 9  
Last updated : 02/11/91 at 17:00

Field	Field name	Type	Width	Dec	Start	End
1	COMP	Character	6		1	6
2	T1	Numeric	3		7	9
3	T2	Numeric	3		10	12
4	T3	Numeric	3		13	15
5	T4	Numeric	3		16	18
6	T5	Numeric	3		19	21
7	T6	Numeric	3		22	24
8	T7	Numeric	3		25	27
9	LH	Numeric	12	4	28	39
10	M	Numeric	12	4	40	51
11	E	Numeric	12	4	52	63
12	TOT	Numeric	12	4	64	75
13	LH1	Numeric	12	4	76	87
14	M1	Numeric	12	4	88	99
15	E1	Numeric	12	4	100	111
** Total **			112			

Used by: RN-RPT3.PRG  
: RN-RPT5.PRG  
-----

Structure for database : RN-PW.DBF

Number of data records : 80  
Last updated : 10/31/86 at 15:37

Field	Field name	Type	Width	Dec	Start	End
1	PW	Numeric	6	4	1	6
** Total **			7			

Used by: RN-RPT3.PRG

Structure for database : RN T3IN2.DBF

Number of data records : 9

Last updated : 02/11/91 at 17:00

Field	Field name	Type	Width	Dec	Start	End
1	COMP	Character	6		1	6
2	T1	Numeric	3		7	9
3	T2	Numeric	3		10	12
4	T3	Numeric	3		13	15
5	T4	Numeric	3		16	18
6	T5	Numeric	3		19	21
7	T6	Numeric	3		22	24
8	T7	Numeric	3		25	27
9	LH	Numeric	12	4	28	39
10	M	Numeric	12	4	40	51
11	E	Numeric	12	4	52	63
12	TOT	Numeric	12	4	64	75
13	LH1	Numeric	12	4	76	87
14	M1	Numeric	12	4	88	99
15	E1	Numeric	12	4	100	111
** Total **			112			

Used by: RN-RPT3.PRG

---

Structure for database : RN-PW1.DBF

Number of data records : 80

Last updated : 06/14/88 at 13:20

Field	Field name	Type	Width	Dec	Start	End
1	PW	Numeric	6	4	1	6
** Total **			7			

Used by: RN-RPT5.PRG

---

Structure for database : RN-PW2.DBF

Number of data records : 80

Last updated : 01/29/88 at 8:31

Field	Field name	Type	Width	Dec	Start	End
1	PW	Numeric	6	4	1	6
** Total **			7			

Used by: RN-RPT5.PRG

---

Structure for database : RN-UOM.DBF  
 Number of data records : 7  
 Last updated : 06/12/86 at 13:23

Field	Field name	Type	Width	Dec	Start	End
1	IND_NUM	Character	1		1	1
2	UOM	Character	4		2	5
3	DESC	Character	20		6	25
** Total **			26			

This database appears to be associated with index file(s):  
 : RN-UOMI.NDX (IND\_NUM)

Used by: RN-RPT5.PRG  
 : RN-RPT2B.PRG  
 : RN-RPT2C.PRG

Structure for database : RN-TRAD.DBF  
 Number of data records : 12  
 Last updated : 12/15/87 at 9:52

Field	Field name	Type	Width	Dec	Start	End
1	IND_NUM	Character	3		1	3
2	DESC	Character	20		4	23
3	RATE	Numeric	5	2	24	28
** Total **			29			

This database appears to be associated with index file(s):  
 : RN-TRADI.NDX (IND\_NUM)

Used by: RN-RPT5.PRG  
 : RN-RPT2B.PRG  
 : RN-RPT2C.PRG

System: Maintenance Resource Prediction System  
 Author: University of Iowa  
 02/19/91 08:53:28  
 Data Dictionary

Field Name	Type	Len	Dec	Database
ACT_COMFON	C	6	0	RN-RPT51.DBF RN-RPT52.DBF
ACT_LINE	C	176	0	RN-RPT52.DBF RN-RPT51.DBF
ALW_LBR	N	6	2	RN-TASK.DBF
ALW_MTR	N	6	2	RN-TASK.DBF
AVER1	N	7	3	RN-TASK2.DBF
AVER10	N	7	3	RN-TASK2.DBF
AVER11	N	7	3	RN-TASK2.DBF
AVER2	N	7	3	RN-TASK2.DBF
AVER3	N	7	3	RN-TASK2.DBF

AVER4	N	7	3	RN-TASK2.DBF
AVER5	N	7	3	RN-TASK2.DBF
AVER6	N	7	3	RN-TASK2.DBF
AVER7	N	7	3	RN-TASK2.DBF
AVER8	N	7	3	RN-TASK2.DBF
AVER9	N	7	3	RN-TASK2.DBF
A_DSCR	C	35	0	RN-TASK2.DBF
A_NO	C	2	0	RN-AREA.DBF
BOOK_NO	C	9	0	RN-AREA.DBF
CACES	N	9	0	RN-REF.DBF
CCT1	C	7	0	RN-REF.DBF
CCT2	C	7	0	RN-TASK.DBF
CCT3	C	7	0	RN-TASK.DBF
CCT4	C	7	0	RN-TASK.DBF
CCT5	C	7	0	RN-TASK.DBF
CCT6	C	7	0	RN-TASK.DBF
CCT7	C	7	0	RN-TASK.DBF
CCT8	C	7	0	RN-TASK.DBF
CCT9	C	7	0	RN-TASK.DBF
CMSUR	C	1	0	RN-TASK.DBF
COMP	C	6	0	RN-TASK.DBF
COMP_DSCR	C	26	0	RN-F3IN.DBF
COST1	N	12	4	RN-F3IN2.DBF
COST2	N	12	4	RN-COMP.DBF
COST3	N	12	4	RN-TASK.DBF
COST4	N	12	4	RN-TASK.DBF
COST5	N	12	4	RN-TASK.DBF
COST6	N	12	4	RN-TASK.DBF
COST7	N	12	4	RN-TASK.DBF
CRPLC	C	10	0	RN-TASK.DBF
C_ADM	N	5	2	RN-TASK.DBF
C_HOUS	N	5	2	RN-ZONE.DBF
C_MSUR	C	10	0	RN-ZONE.DBF
DESC	C	20	0	RN-TASK.DBF
DESC1	C	12	0	RN-UOM.DBF
DESC2	C	12	0	RN-TRAD.DBF
DESC3	C	12	0	RN-TASK.DBF
DESC4	C	12	0	RN-TASK.DBF
DESC5	C	12	0	RN-TASK.DBF
DESC6	C	12	0	RN-TASK.DBF
DESC7	C	12	0	RN-TASK.DBF
E	N	12	4	RN-TASK.DBF
E1	N	12	4	RN-F3IN2.DBF
ETOTAL	N	14	6	RN-F3IN.DBF
FREQ_A	C	6	0	RN-F3IN.DBF
FREQ_H	C	6	0	RN-F3IN2.DBF
FREQ_L	C	6	0	RN-TASK.DBF
HAS_NOTE	L	1	0	RN-TASK.DBF
HIGH1	N	7	3	RN-TASK.DBF
HIGH10	N	7	3	RN-TASK2.DBF
HIGH11	N	7	3	RN-TASK2.DBF
HIGH2	N	7	3	RN-TASK2.DBF
HIGH3	N	7	3	RN-TASK2.DBF
HIGH4	N	7	3	RN-TASK2.DBF
HIGH5	N	7	3	RN-TASK2.DBF
HIGH6	N	7	3	RN-TASK2.DBF
HIGH7	N	7	3	RN-TASK2.DBF
HIGH8	N	7	3	RN-TASK2.DBF
HIGH9	N	7	3	RN-TASK2.DBF
H_ADM	N	5	2	RN-TASK2.DBF
				RN-ZONE.DBF

H_HOUS	N	5	2	RN-ZONE.DBF
IND_NUM	C	1	0	RN-UOM.DBF
IND_NUM	C	3	0	RN-TRAD.DBF
LDIR	N	14	6	RN-TASK.DBF
LH	N	12	4	RN-F3IN2.DBF
				RN-F3IN.DBF
LH1	N	12	4	RN-F3IN2.DBF
				RN-F3IN.DBF
LHRS	N	12	6	RN-TASK.DBF
LHRS1	N	12	6	RN-TASK.DBF
LHRS10	N	12	6	RN-TASK.DBF
LHRS11	N	12	6	RN-TASK.DBF
LHRS12	N	12	6	RN-TASK.DBF
LHRS13	N	12	6	RN-TASK.DBF
LHRS14	N	12	6	RN-TASK.DBF
LHRS15	N	12	6	RN-TASK.DBF
LHRS16	N	12	6	RN-TASK.DBF
LHRS17	N	12	6	RN-TASK.DBF
LHRS18	N	12	6	RN-TASK.DBF
LHRS19	N	12	6	RN-TASK.DBF
LHRS2	N	12	6	RN-TASK.DBF
LHRS20	N	12	6	RN-TASK.DBF
LHRS21	N	12	6	RN-TASK.DBF
LHRS22	N	12	6	RN-TASK.DBF
LHRS3	N	12	6	RN-TASK.DBF
LHRS4	N	12	6	RN-TASK.DBF
LHRS5	N	12	6	RN-TASK.DBF
LHRS6	N	12	6	RN-TASK.DBF
LHRS7	N	12	6	RN-TASK.DBF
LHRS8	N	12	6	RN-TASK.DBF
LHRS9	N	12	6	RN-TASK.DBF
LIND	N	14	6	RN-TASK.DBF
LINENO	N	2	0	RN-RPT52.DBF
				RN-RPT51.DBF
LOW1	N	7	3	RN-TASK2.DBF
LOW10	N	7	3	RN-TASK2.DBF
LOW11	N	7	3	RN-TASK2.DBF
LOW2	N	7	3	RN-TASK2.DBF
LOW3	N	7	3	RN-TASK2.DBF
LOW4	N	7	3	RN-TASK2.DBF
LOW5	N	7	3	RN-TASK2.DBF
LOW6	N	7	3	RN-TASK2.DBF
LOW7	N	7	3	RN-TASK2.DBF
LOW8	N	7	3	RN-TASK2.DBF
LOW9	N	7	3	RN-TASK2.DBF
LTOTAL	N	14	6	RN-TASK.DBF
M	N	12	4	RN-F3IN2.DBF
				RN-F3IN.DBF
M1	N	12	4	RN-F3IN2.DBF
				RN-F3IN.DBF
MDIR	N	14	6	RN-TASK.DBF
MTOTAL	N	14	6	RN-TASK.DBF
M_TOT	N	14	6	RN-TASK.DBF
NOTE	C	240	0	RN-NOTE.DBF
NO_PRSN	N	2	0	RN-TASK.DBF
OPER_NO	C	12	0	RN-REF.DBF
PAGENO	N	5	0	RN-RPT52.DBF
				RN-RPT51.DBF
PERC_APP	C	12	0	RN-REF.DBF
PW	N	6	4	RN-PW1.DBF
				RN-PW.DBF
				RN-PW2.DBF
QUAN1	C	15	0	RN-TASK.DBF
QUAN2	C	15	0	RN-TASK.DBF

QUAN3	C	15	0	RN-TASK.DBF
QUAN4	C	15	0	RN-TASK.DBF
QUAN5	C	15	0	RN-TASK.DBF
QUAN6	C	15	0	RN-TASK.DBF
QUAN7	C	15	0	RN-TASK.DBF
RATE	N	5	2	RN-TRAD.DBF
SUBTSK1	C	31	0	RN-TASK.DBF
SUBTSK10	C	31	0	RN-TASK.DBF
SUBTSK11	C	31	0	RN-TASK.DBF
SUBTSK12	C	31	0	RN-TASK.DBF
SUBTSK13	C	31	0	RN-TASK.DBF
SUBTSK14	C	31	0	RN-TASK.DBF
SUBTSK15	C	31	0	RN-TASK.DBF
SUBTSK16	C	31	0	RN-TASK.DBF
SUBTSK17	C	31	0	RN-TASK.DBF
SUBTSK18	C	31	0	RN-TASK.DBF
SUBTSK19	C	31	0	RN-TASK.DBF
SUBTSK2	C	31	0	RN-TASK.DBF
SUBTSK20	C	31	0	RN-TASK.DBF
SUBTSK21	C	31	0	RN-TASK.DBF
SUBTSK22	C	31	0	RN-TASK.DBF
SUBTSK3	C	31	0	RN-TASK.DBF
SUBTSK4	C	31	0	RN-TASK.DBF
SUBTSK5	C	31	0	RN-TASK.DBF
SUBTSK6	C	31	0	RN-TASK.DBF
SUBTSK7	C	31	0	RN-TASK.DBF
SUBTSK8	C	31	0	RN-TASK.DBF
SUBTSK9	C	31	0	RN-TASK.DBF
SUB_DSCR	C	24	0	RN-SUB.DBF
SY_DSCR	C	23	0	RN-SYS.DBF
SY_NO	C	3	0	RN-SYS.DBF
T1	N	3	0	RN-F3IN2.DBF
				RN-F3IN.DBF
T2	N	3	0	RN-F3IN.DBF
				RN-F3IN2.DBF
T3	N	3	0	RN-F3IN2.DBF
				RN-F3IN.DBF
T4	N	3	0	RN-F3IN2.DBF
				RN-F3IN.DBF
T5	N	3	0	RN-F3IN.DBF
				RN-F3IN2.DBF
T6	N	3	0	RN-F3IN2.DBF
				RN-F3IN.DBF
T7	N	3	0	RN-F3IN.DBF
				RN-F3IN2.DBF
TASK_CLAS	N	1	0	RN-TASK.DBF
TASK_CODE	C	6	0	RN-COMP.DBF
TASK_CODE	C	7	0	RN-TASK.DBF
				RN-TASK2.DBF
TASK_CODE	C	4	0	RN-SUB.DBF
TASK_CODE	C	7	0	RN-NOTE.DBF
				RN-REF.DBF
TASK_DSCR	C	50	0	RN-TASK.DBF
TASK_NO	C	10	0	RN-REF.DBF
TDCODE	C	10	0	RN-TASK.DBF
TOT	N	12	4	RN-F3IN.DBF
				RN-F3IN2.DBF
TRADE	C	3	0	RN-TASK.DBF
T_DUR	N	14	6	RN-TASK.DBF
UOM	C	4	0	RN-UOM.DBF
Z_TAB	C	2	0	RN-TASK2.DBF

## 7 STANDARD PROGRAMMING PACKAGES

These programming packages are used by the MRPM-DBM system:

dBase III+  
Clipper Summer 87  
ClipDBG Debugger  
Dr. Switch

Each package has its own printed documentation.\*

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\* dBase III+ is a product of Ashton-Tate, 20101-T Hamilton, Torrance, CA; Clipper and ClipDBG Debugger are products of Nantucket Corp., 12555-T Jefferson Blvd, Suite 300, Los Angeles, CA; Dr. Switch is a product of Black and White, Inc., NY.

## 8 PROGRAMMING NOTES

### Introduction

A "makefile" and linker response file "rmain.lnk" for compiling MRPM-DBM under Clipper Summer 87 have been provided. See the notes at the top of the makefile for usage instructions.

The makefile assumes the use of the blinker linker, but any linker can be substituted on the link command line in the makefile.

Modifications have been made to the source code for compilation under Clipper.

An example of a well-documented program is provided for reference (p 58). All programs must be documented in this manner to better help the programmer find errors in and improve program code.

### Makefile for MRPM-DBM

```
*-----
* Name.....: makefile
* Project...: rmain.exe
*
* Author....: david michaelis
* Notice....: copyright (c) 1991 by
*             resource center enterprises, inc.
*             all rights reserved
*
* Date.....: june 12, 1991
* Mod Date..:
* Release...: opus make 5.1
* Compile...: n/a
* Link.....: n/a
*
* Notes.....: makefile is a response file for opus make 5.1. it works
*             exactly as make under unix. this makefile should run
*             with other versions of make, as long as they are unix
*             compatible. see opus manual for more information.
*
*             The binaries mv and ls used in the shell command line
*             below are dos work-alikes of their unix complements.
*             they can easily be substituted with dos commands such as
*             copy, delete and dir within the shell command line.
*             obviously, the supplied paths should be changed to reflect
*             the current working environment.
*
* Usage.....: make
*
* Parameters: n/a
*
* Variables.: MKMF_SUFFIX : dependancy rule for opus mkmf to use when
*                   creating lists of sources and objects.
*
*                   OBJS  : list of target .obj files to be used when
*                   checking for dependencies.
*
*                   SRCS  : list of source .prg files to be used when
*                   checking for dependencies.
*
* Functions.: n/a
*
* Databases.: n/a
*
* Indexes...: n/a
*-----
MKMF_SUFFIX = .SRCS
*-----
* mkmf list of source .prgs
*-----
```

```

SRCS = addline.prg rnadd.prg rnadd1.prg rnadd2.prg rnadd3.prg \
      rnadda.prg rnare.prg rncalc.prg rnenr.prg rnmain.prg \
      rnrref.prg rnrpt.prg rnrpt1.prg rnrpt2.prg rnrpt2a.prg \
      rnrpt2b.prg rnrpt2c.prg rnrpt3.prg rnrpt4.prg rnrpt5.prg \
      rnrpt5a.prg rnrpt5x.prg rnrpta.prg rnrptb.prg rnsrch.prg \
      rnsrct.prg rnutl.prg simedit.prg trunc_it.prg

```

```

#-----
# mkmf list of target .objs
#-----

```

```

OBJS = addline.obj rnadd.obj rnadd1.obj rnadd2.obj rnadd3.obj \
      rnadda.obj rnare.obj rncalc.obj rnenr.obj rnmain.obj \
      rnrref.obj rnrpt.obj rnrpt1.obj rnrpt2.obj rnrpt2a.obj \
      rnrpt2b.obj rnrpt2c.obj rnrpt3.obj rnrpt4.obj rnrpt5.obj \
      rnrpt5a.obj rnrpt5x.obj rnrpta.obj rnrptb.obj rnsrch.obj \
      rnsrct.obj rnutl.obj simedit.obj trunc_it.obj

```

```

#-----
# dependancy rule for making .exe
#-----

```

```

f:\clmrps\rnmain.exe : $(OBJS)
    blinker @rnmain
    (mv rnmain.exe f:/clmrps; f; cd \clmrps; ls -las rnmain.exe)

```

```

#-----
# eof() makefile
#-----

```

## Make INIT File

```

#-----
# Name.....: make.ini
#
# Author.....: david michael's
# Notice.....: copyright (c) 1991 by
#              resource center enterprises, inc.
#              all rights reserved
#
# Date.....: june 12, 1991
# Mod Date...:
# Release...: opus make 5.1
# Compile...: n/a
# Link.....: n/a
#
# Notes.....: init file for opus make.  describes dependancy rules for # creating an .obj file
#              from a .prg.
#
#              unix compatible.
#
# Usage.....: n/a
#
# Parameters: n/a
#
# Variables.: .SUFFIXES : target file extensions
#              CFLAGS   : clipper summer 87 compiler flags
#              LIBS     : clipper libraries to be searched at link edit
#
# Functions.: n/a
#
# Databases.: n/a
#
# Indexes...: n/a
#-----

```

```

.SUFFIXES : .obj .prg

```

```

CFLAGS      = -m
LIBS        = clipper, extend

```

```

#-----
# dependancy rule for make
#-----

```

```

.prg.obj:
    $clipper $* $CFLAGS

```

```

#-----

```

```
# eof() make.ini
#-----
```

### Linker Response File for MRPM-DBM

```
#-----
# Name.....: rnmain.link
#
# Author.....: david michael's
# Notice.....: copyright (c) 1991 by
#               resource center enterprises, inc.
#               all rights reserved
#
# Date.....: june 12, 1991
# Mod Date...:
# Release...: blinker 1.11
# Compile...: n/a
# Link.....: n/a
#
# Notes.....: link edit response file for mrps.  creates rnmain.exe.
#               ndx.obj and debug.obj are clipper summer 87 binaries.
#               clipdbg.obj is a shareware binary that creates a hook for
#               source level debugging of summer 87 code.  to use clipdbg,
#               set a watch in the clipper debugger as follows:
#
#               sdebug(_src, procline())
#
#               this will open a window in the lower half of the screen
#               displaying the source for the current module.  see docs
#               for more information.
#
#               once the application is thoroughly debugged, debug.obj and
#               clipdbg.obj can be commented out in this file, reducing
#               the size of the .exe by approximately 35k.
#
#               it is important to keep the ndx.obj linked, as this
#               provides compatability with dbase type indices.
#
# Usage.....: blinker @rnmain (invoked from makefile)
#
# Parameters: n/a
#
# Variables.: n/a
#
# Functions.: n/a
#
# Databases.: n/a
#
# Indexes...: n/a
#-----
```

```
#-----
# set output filename
#-----
```

OUTPUT RNMAIN.EXE

```
#-----
# list of .obj files to link (note: no overlay specification)
#-----
```

```
FILE RNMAIN.OBJ
FILE ADDLINE.OBJ
FILE CLIPDBG.OBJ
FILE DEBUG.OBJ
FILE NDX.OBJ
FILE RNADD.OBJ
FILE RNADD1.OBJ
FILE RNADD2.OBJ
FILE RNADD3.OBJ
FILE RNACDA.OBJ
FILE RNARE.OBJ
FILE RNALC.OBJ
FILE RNENTR.OBJ
FILE RNREF.OBJ
FILE RNRPT.OBJ
FILE RNRPT1.OBJ
FILE RNRPT2.OBJ
FILE RNRPT2A.OBJ
```

```

FILE RNRPT2B.OBJ
FILE RNRPT2C.OBJ
FILE RNRPT3.OBJ
FILE RNRPT4.OBJ
FILE RNRPT5.OBJ
FILE RNRPT5A.OBJ
FILE RNRPT5X.OBJ
FILE RNRPTA.OBJ
FILE RNRPTB.OBJ
FILE RNSRCH.OBJ
FILE RNSRCT.OBJ
FILE RNUTL.OBJ
FILE SIMEDIT.OBJ
FILE TRUNC IT.OBJ
FILE SWITCHIT.OBJ

```

```

#-----
# list of libraries to search in link
#-----

```

```

LIBRARY C:\CLIPPER\LIB\CLIPPER.LIB
LIBRARY C:\CLIPPER\LIB\EXTEND.LIB

```

```

#-----
# eof() rmain.lnk
#-----

```

### Example of a Well-Documented Program

```

*-----
* Name.....: simedit.prg
*
* Author....: david michael
* Notice....: copyright (c) 1991 by
*             resource center enterprises, inc.
*             all rights reserved
*
* Date.....: june 15, 1991
* Mod Date..:
* Release...: clipper summer 87
* Compile...: make
* Link.....: blinker @rmain (invoked from makefile)
*
* Notes.....: simedit is designed to be a clone of the dbase iii+ edit/
*             append interactive module.  it is designed to look
*             like the edit/append module when it is invoked.  as in
*             iii+, it comes up with help on, and pressing f1 will toggle
*             the help screen off.  deleted records will flag with a
*             'Del' on the top row.
*
*             differences between simedit and dbase edit/append:
*
*             simedit does not test for insert, numlock or capslock.
*             while it is possible to add this functionality using
*             assembler, it was decided not to pursue these functions
*             as they do not significantly contribute to the program.
*             the addition of the code to report deleted records, and
*             allow for the toggling of the deleted/undeleted condition
*             was deemed necessary for ease of use, and mimics the
*             <ctrl-u> dbase action.
*
*             simedit only handles two datafields at this time.  that
*             is the maximum number of edit fields mrps uses, so the code
*             only allows for this number.  it would be easy to make this
*             a generic data driven function that could handle any number
*             of fields by making a few changes to the parameter list
*             and dropping the case statement that explicitly opens the
*             correct database.  instead of passing in a token that
*             represents the database to use, simedit could open an
*             intermediate file and read the name of the database to use.
*             by adding code to handle afields(), implementation of the
*             rest of the system becomes obvious.
*
* Usage.....: DO simedit WITH <editing>, <token> [, <seek_string>]
*
* Parameters: editing      : boolean -- if ('editing') {
*                           goto bottom;
*                           append rec;
*
*
* }

```

```

*
*      token      : numeric -- var for case to determine dbf/ndx
*                  to use
*
*      seek_string : char   -- optional value to seek in ndx
*
* Variables.: ctrl_u   : ascii value of control - u keystroke sequence
*             downarrow : ascii value of downarrow key
*             enter     : ascii value of enter key
*             escape    : ascii value of escape key
*             fl        : ascii value of F1 key
*             first_time : boolean for first fieldinit() entry
*             fld       : current editing field
*             help_active : boolean for toggling help screen
*             maxfld    : maximum number of editing fields
*             mvar1     : memory variable for first dbf field
*             mvar2     : memory variable for second dbf field
*             pageup    : ascii value of pageup key
*             pagedown  : ascii value of pagedown key
*             uparrow   : ascii value of uparrow key
*
* Functions.: bof()      : clipper function
*             deirec()   : udf to toggle deleted status of record
*             dispreno() : udf to plot record info on screen
*             eof()      : clipper function
*             fieldinit() : udf to assign memvars dbf values
*             lastkey()  : clipper function
*             len()      : clipper function
*             need_help() : udf to toggle help status for help display
*             readexit() : clipper function
*             recno()    : clipper function
*             refresh()  : udf to paint screen in help or non-help mode
*             savit()    : udf to assign dbf fields memvar values
*             space()    : clipper function
*             updated()  : clipper function
*
* Databases.: rn-area.dbf
*             rn-comp.dbf
*             rn-sub.dbf
*             rn-sys.dbf
*
* Indexes...: rn-area.ndx
*             rn-comp.ndx
*             rn-sub.ndx
*             rn-sys.ndx
*-----

```

parameters editing, token, the\_record

```

*
* debugging stuff (comment out for final compile)
*

```

```

mystatus = sdinit("d:\cimsrsrc\src\simedit.prg")

```

```

altg(.t.)

```

```

*
* variable declarations
*

```

```

private mvar1, mvar2, fld, maxfld, uparrow, downarrow, pageup, pagedown
private ctrl_u, enter, escape, fl, help_active, first_time

```

```

*-----
* initialize variables and constants
*-----

```

```

*-----
* variables
*-----

```

```

fld          = 1
maxfld       = 2
help_active  = .T.
first_time   = .T.

```

```

*-----
* constants
*-----

```

```
UPARROW      = 5
DOWNARROW    = 24
PAGEUP       = 18
PAGEDOWN     = 3
ENTER        = 13
ESCAPE       = 27
CTRL_U       = 21
F1           = 28
```

```
*-----
* map hot keys
*-----
```

```
set key CTRL_U to delrec
set key F1 to need_help
```

```
*-----
* environmental setup
*-----
```

```
set color to w/n
readexit(.t.)
```

```
*-----
* close everything - penn state code might cause problems if file hanging
*-----
```

```
close databases
```

```
*-----
* use correct database and index files
*-----
```

```
do case
```

```
  case token = 1
```

```
    select 0
    use rn-area index rn-area alias foo
```

```
  case token = 2
```

```
    select 0
    use rn-comp index rn-comp alias foo
```

```
  case token = 3
```

```
    select 0
    use rn-sub index rn-sub alias foo
```

```
  case token = 4
```

```
    select 0
    use rn-sys index rn-sys alias foo
```

```
  otherwise
```

```
    *
    * error handling hook (not implemented)
    *
```

```
endcase
```

```
*-----
* setup for appending if necessary
*-----
```

```
if (!editing)
```

```
  goto bottom
  append blank
```

```
endif
```

```
*-----
* display the screen
*-----
```

```
fieldinit()
```

```

refresh()

*-----
* main processing loop
*-----

do while .t.

  do case

    case fld = 1

      if help_active
        @ 8, 13 get mvar1
      else
        @ 2, 13 get mvar1
      endif

      read

    case fld = 2

      if help_active
        @ 9, 13 get mvar2
      else
        @ 3, 13 get mvar2
      endif

      read

  endcase

  key = lastkey()

  do case

    case key = UPARROW .or. key = PAGEUP

      if (fld = 1)

        if (updated())
          savit()
        endif

        if (bof())
          return
        else
          skip -1
          fieldinit()
          disppecno()
        endif

      else

        fld = fld - 1

      endif

    case key = DOWNARROW .or. key = PAGEDOWN .or. key = ENTER

      if (fld = maxfld)

        if (updated())
          savit()
        endif

        if (eof())
          return
        else
          skip
          fld = 1
          fieldinit()
          disppecno()
        endif

      else

        fld = fld + 1

      endif

  endcase

```

```

    case key = ESCAPE
        close databases
        return

    otherwise

    *
    * error handling hook (not implemented)
    *

endcase

enddo

set key CTRL_U to
set key F1 to

return

*-----
* udf code
*-----

*-----
function refresh
*-----

clear

fld = 1

if help_active

    @ 2, 0 SAY "plicate('+replicate('+replicate('+replicate('
    @ 3, 0 SAY " CURSOR <-- --> "+space(9)+"UP DOWN DELETE Insert Mode: Ins "
    @ 4, 0 SAY " Char: "+chr(27)+" Field: "+chr(24)+" "+chr(25)+" Char: Del
Exit/Save: ^End "
    @ 5, 0 SAY " Word: Home End Page: PgUp PgDn Field: ^Y Abort:"+space(8)+"Esc "
    @ 6, 0 SAY ""+space(18)+" Help: F1"+space(10)+" Record: ^U Memo:"+space(8)+"^Home "
    @ 7, 0 SAY "eplicate('+replicate('+replicate('+replicate('

do case

    case token = 1

        @ 8, 0 SAY "A_NO"
        @ 9, 0 SAY "A_DSCR"

    case token = 2

        @ 8, 0 SAY "TASK_CODE"
        @ 9, 0 SAY "COMP_DSCR"

    case token = 3

        @ 8, 0 SAY "TASK_CODE"
        @ 9, 0 SAY "SUB_DSCR"

    case token = 4

        @ 8, 0 SAY "SY_NO"
        @ 9, 0 SAY "SY_DSCR"

    otherwise

    *
    * error handling hook (not implemented)
    *

endcase

else

do case

    case token = 1

```

```

        @ 2, 0 SAY "A_NO"
        @ 3, 0 SAY "A_DSCR"

    case token = 2

        @ 2, 0 SAY "TASK_CODE"
        @ 3, 0 SAY "COMP_DSCR"

    case token = 3

        @ 2, 0 SAY "TASK_CODE"
        @ 3, 0 SAY "SUB_DSCR"

    case token = 4

        @ 2, 0 SAY "SY_NO"
        @ 3, 0 SAY "SY_DSCR"

    otherwise

        *
        * error handling hook (not implemented)
        *

    endcase

endif

disprecno()

return (0)

*-----
function delrec
*-----
parameters x, y, z

    if deleted()

        recall
        @ 1, 43 say space(3)

    else

        delete
        @ 1, 43 say "Del"

    endif

return (0)

*-----
function disprecno
*-----

    @ 1, 0 say "Record No. " + str(recno())

    if deleted()

        @ 1, 43 say "Del"

    else

        @ 1, 43 say space(3)

    endif

    set color to n/w

    if help_active

        @ 8, 13 say mvar1
        @ 9, 13 say mvar2

    else

        @ 2, 13 say mvar1

```

```

    3 3, 13 say mvar2
endif

set color to w/n

return (0)

*-----
function savit
*-----

if len(mvar1) = 0 .or. len(mvar2) = 0
    delete
    pack
    return (0)
else
    do case
        case token = 1
            replace foo->a_no      with mvar1
            replace foo->a_dscr    with mvar2
        case token = 2
            replace foo->task_code with mvar1
            replace foo->comp_dscr with mvar2
        case token = 3
            replace foo->task_code with mvar1
            replace foo->sub_dscr  with mvar2
        case token = 4
            replace foo->sy_no     with mvar1
            replace foo->sy_dscr   with mvar2
        otherwise
            *
            * error handling hook (not implemented)
            *
    endcase
endif

return (0)

```

```

*-----
function fieldinit
*-----

if (editing)
    if (first_time)
        first_time = .F.
        goto the_record
    else
        endif
endif

do case
    case token = 1
        mvar1 = foo->a_no
        mvar2 = foo->a_dscr
    case token = 2

```

```

        mvar1 = foo->task_code
        mvar2 = foo->comp_dscr

    case token = 3

        mvar1 = foo->task_code
        mvar2 = foo->sub_dscr

    case token = 4

        mvar1 = foo->sy_no
        mvar2 = foo->sy_dscr

    otherwise

        *
        * error handling hook (not implemented)
        *

    endcase

return (0)

*-----
function need_help
*-----
parameters x, y, z

    if help_active
        help_active = .F.
    else
        help_active = .T.
    endif

    refresh()

return (0)

*-----
* eof() simedit.prg
*-----

```

## 9 RESOURCES

Five basic functions must be maintained to provide full-service system support:

1. Supervision
2. Functional user training
3. Hotline
4. PC system maintenance
5. Newsletter.

### Supervision

The supervisor's functions include scheduling training; reviewing and assigning report logs; and managing all corrections, improvements, and problem identification. This function should consume no more than 20 percent of a person-year at a GS-11 level.

### Functional User Training

There are three types of training:

1. Self-teach using the user's manual
2. Onsite training of users
3. Centralized training.

The self-teach method requires the user to have access to someone who can answer questions as the self-teaching progresses. This function is usually performed by the Hotline operator.

Onsite training involves sending one person to a site for a minimum of 1 day. The installation provides equipment and the training room. The cost for each such session would be:

GS-11 trainer, 3 days @ \$200/day	\$600
TDY, 2 days @ \$100/day, plus air and car	800
Supplies, manuals, etc.	<u>300</u>
Total	\$1700

Centralized training is the most expensive way for the Army to train. All students must travel to one central site. The central site must rent computer equipment, which may (likely) not be of the type used by any of the students at their installations. Training facilities must be found and a central Army training center must be paid to plan and conduct the session. During this training, there should be no more than two students assigned to one PC. Estimated costs would be:

GS-11 trainer, 3 days @ \$200/day	\$600
TDY, 2 days @ \$100/day, plus air and car	800
Supplies, manuals, etc.	300
Computer rental (if available), \$100/day (each) for 3 days	300
Room rental, \$100/day @ 3 days	300
Student TDY, 2 days \$100/day plus air (each)	<u>600</u>
For a class of 20 students (10 computers)	Total \$17,000

### **Hotline**

The Hotline telephone number supports users by directly answering questions, handling problems, and accepting suggestions for improvement. This number is given to all users. The Hotline operator should be able to find quick answers to all basic problems, or to refer the request to someone else for action. This activity would require about 15 percent of one GS-9 or \$8000/yr.

### **PC System Maintenance**

One standard system is required at an initial purchase cost of about \$4000. Annual system hardware maintenance costs run about \$200/yr. Two GS-9 dBase III+ programmers must be trained to use the system; training will take 2 months at a cost of \$10,000. Normal annual requirement will be the equivalent of one quarter-time person at a cost of \$7000/yr.

### **Newsletter**

A quarterly newsletter should inform users of updates and answers to common questions. The annual cost is estimated at \$5000.

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