

Database Management System

WA-RD 89.1

Program Documentation

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Washington State Department of Transportation

Planning, Research and Public Transportation Division

In Cooperation With

United States Department of Transportation

Federal Highway Administration

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16. Abstract The database management system was created in DBase III Plus. Included in this database is all research project historical and administrative information necessary to generate budget, expenditure, and management reports. A menu system was created to enable the user to view and update the database information, update and print all reports, and enter information on new projects.					
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INTRODUCTION

To get into Dbase:

1. At the DOS "C:" prompt type:
2. At dBase "." prompt type:
3. This will give you the main menu
4. Now go from here!

Db
do DBMENU

REPORTS CONTAINED IN THE DATABASE FILES

1. Monthly Expenditure Report
2. Proposal Development Worksheet
3. Project Management Report
4. Project Implementation/Evaluation Report
5. Fy86 Work Program Revisions
6. Research Program by Functional Area
7. Research Program by HPR/MVF
8. Principal Investigator's List

DOCUMENTATION

MAIN.PRG

This program was written to compare the existing information in the database against the new information entered. If the fields are different then both of them will be printed out.

For every field in the DBF files IDENTIFY and DENTIFY, there is a comparison made in Main.prg. When a user enters new information it compares the information to the previous information and if it is different it prints all the information and then replaces the old with the new.

PRINT.PRG

This program is a menu which appears on the screen. It lists all the reports which a user can print. If you ever add new reports to the database you will have to create an .FRM file and put the name of the .FRM file into this program.

DBMENU.PRG

This program produces the first menu the user sees on the screen; with each option the user chooses it directs the user to a new program. If you choose "update" you are directed to the Update.prg. If you choose "print" you are directed to Print.prg. If you choose "view" you are directed to the BROWSE command. If you choose "enter" you are directed to the Main.prg. Type "Q" to exit the program.

CHECK.PRG

This program locates the item number the user enters and searches for it in the old data. If it is found, the user will only be able to update; if it is not found then the user enters in new data. The new data is then appended into the old database.

If new fields are added to IDENTIFY.DBF or DENTIFY.DBF then each field will have to be added to this program also.

UPDATE.PRG

This program is called from Dbmenu.prg. It allows the user to update each report. A separate program has been written for each report. The user can update individual reports because of this.

DIRECTORY OF FILES

Format (.fmt) files

- A. BUDGET = format file for the budget report
- B. SHE1 = format file for the equipment inventory
- C. PI = format file for the pi report
- D. BUDGET = data entry screen for HPR/MVF work program
- E. EXPEND = data entry screen for monthly expenditure report
- F. MGNTUPDT = data entry screen for project management report
- G. DEVELMT = data entry screen for proposal development worksheet

Report form (.frm) files

- A. DEVELOPM = proposal development worksheet
- B. PILIST = report form for P.I. list
- C. HPRBUDG = research program by HPR/MVF
- D. HPRSUMM = summary sheet for HPRBUDG
- E. MGNTRPT = report form for management report
- F. MOEXPEND = report form for monthly expenditure report
- G. SHE1 = inventory report form
- H. HPRALPHA = research program worksheet sorted by functional area
- I. ALPHASUM = summary sheet for HPRALPHA

Command (.prg) files

- A. DBMENU = program for main mainu
- B. IDENTIFY = program for the main database
- C. MAIN = program to check if user has entered new information
- D. SHE1 = program for the inventory
- E. UPDATE = program to let the user update
- F. PRINT = program to let the user print
- G. MGNTRPT2 = print project management report
- H. DEVEL = print proposal development worksheet
- I. CHECK = program which checks old data against new data
- J. HPRBUDG = print research program by HPR/MVF
- K. UPDATE_M = update project management report
- L. UPDATE_B = update research program reports
- M. UPDATE_D = update proposal development worksheet
- N. PIRPT = print principal investigator list
- O. HPRALPHA = print research program by functional area
- P. MTHLYRPT = print monthly expenditure report
- Q. MOEXPEND = update monthly expenditure report

Database (.DBF) files

- A. IDENTIFY = contains all of the data
- B. MAILABEL = mail label database
- C. SHE1 = inventory database
- D. DENTIFY = second database for IDENTIFY.DBF
- E. HE = second database for the inventory

Index (.NDX) files

- A. ITEMSORT = by item number
- B. FUNCSORT = by functional area and project type and project title
- C. PISORT = by pi name and project title
- D. STATUSOR = status and functional area and project type and project title
- E. HPRSORT = by HPR_MVF and fund type and item number
- F. SHE1 = index for the inventory database

FIELD NAMES

<u>NAME</u>	<u>TYPE</u>	<u>DESCRIPTION</u>
ACCT_NO	Number	Account number
ACT_FY84	Number	Actual project costs FY84
ACT_FY85	Number	Actual project costs FY85
AGMT_NO	Number	Agreement number
BUDG_NOTES	Character	Budget notes (contained in research work program budget worksheets)
CMTS_PI	Character	Comments on draft report to P.I. (contained in project management report)
CNTCT_CMTS	Character	P.I. Contact comments (contained in project management report)
CNTCT_DATE	Date	Last P.I. contact date (contained in project management report)
COMP_DATE	Date	Project completion date
CO_FNAME	Character	Co-P.I. first name
CO_LNAME	Character	Co-P.I. last name
CTRCT_EXEC	Date	Contract execution (contained on project management report)
DFT_DUE	Date	Draft report due date (contained in project management report)
DFT_RCVD	Date	Draft report received (contained in project management report)
DFT_RVW	Date	WSDOT draft report review complete (contained in project management report)
DIST_COMP	Date	Final report distribution complete (contained in project management report)
EST_FY86	Number	Estimated project cost FY86
EST_FY87	Number	Estimated project cost FY87

<u>NAME</u>	<u>TYPE</u>	<u>DESCRIPTION</u>
FINAL_RCVD	Date	Final report received (contained in project management report)
FUNC_AREA	Character	Functional area (administration, highway operations, materials, planning and multimodal, implementation projects, special programs, special projects, national program)
FUND_TYPE	Character	Fund/source type (administration/HPR or MVF, TRB, type A & B projects/HPR, other programs/ HPR or MVF)
FY86EXPEND	Number	Current FY86 project expenditure
HPR_MVF	Character	HPR, RTAP, FHWA or MVF funds
ITEM_NO	Number	Item number
LINE	Character	Used for adding lines to reports
MARTY_FY86	Number	Marty's FY86 estimated project costs
MTH_EXPEND	Number	Current monthly expenditure
ORIG_SUBM	Number	Original proposal submitter
PART_AGENCY	Character	Participating agency
PI_FNAME	Character	P.I. first name
PI_LNAME	Character	P.I. last name
PI_PHONE	Character	P.I. phone
PREFY86	Number	Previous FY86 expenditure (used for calculating FY86 expenditure for the FY86 expenditure report)
PREV_QTR	Number	Previous quarter expenditure (used to calculate QTR_EXPEND for the monthly expenditure report)
PREV_TOTAL	Number	Previous total (used for calculating TOTAL_EXPEN for monthly expenditure report)
PRE_PROP_C	Date	Pre-proposal conference (contained in the project development report)

<u>NAME</u>	<u>TYPE</u>	<u>DESCRIPTION</u>
PRNTG_COMP	Date	Final report printing complete (contained in project management report)
PROJ_MGR	Character	Project manager
PROJ_TITL	Character	Project title
PROJ_TYPE	Character	Project type (bridge or PCC programs; district, executive, TRAC, or city/county special programs; demonstration projects, experimental projects, experimental features, implementation projects, or RTAP program)
PROP_ACCPT	Date	WSDOT final proposal acceptance (contained in project development report)
PROP_COMP	Date	Draft proposal complete (actual date contained in project development report)
PROP_EST	Date	Draft proposal complete (estimated date contained in project development report)
PROP_FHWA	Date	Proposal to FHWA for approval (contained in project development report)
QTRPT_RCVD	Date	Quarterly progress report received (contained in project management report)
QTR_EXPEND	Number	Current quarter expenditure
RES_AGENCY	Character	Research agency
REV_FY86	Number	Revised FY86 expenditure
RPT_PRNTR	Date	Final report to printer (contained in project management report)
RVW_CONF	Date	Proposal review conference (contained in project development report)
RVW_DOT	Date	Draft proposal review(contained in project development report)
START_DATE	Date	Project start date

<u>NAME</u>	<u>TYPE</u>	<u>DESCRIPTION</u>
STATUS	Character	Project status (P=proposed, A=active, C=completed)
STMT_APPRV	Date	Statement approved (contained in project development report)
STMT_SUBMT	Date	Statement submitted (contained in project development report)
TASK_NO	Number	Task number
TECH_CNTCT	Character	Technical contact
TOTAL_AUTH	Number	Total authorized dollars
TOTAL_COST	Number	Total project cost or total estimated cost
TOTAL_EXPN	Number	Total dollars expended to date

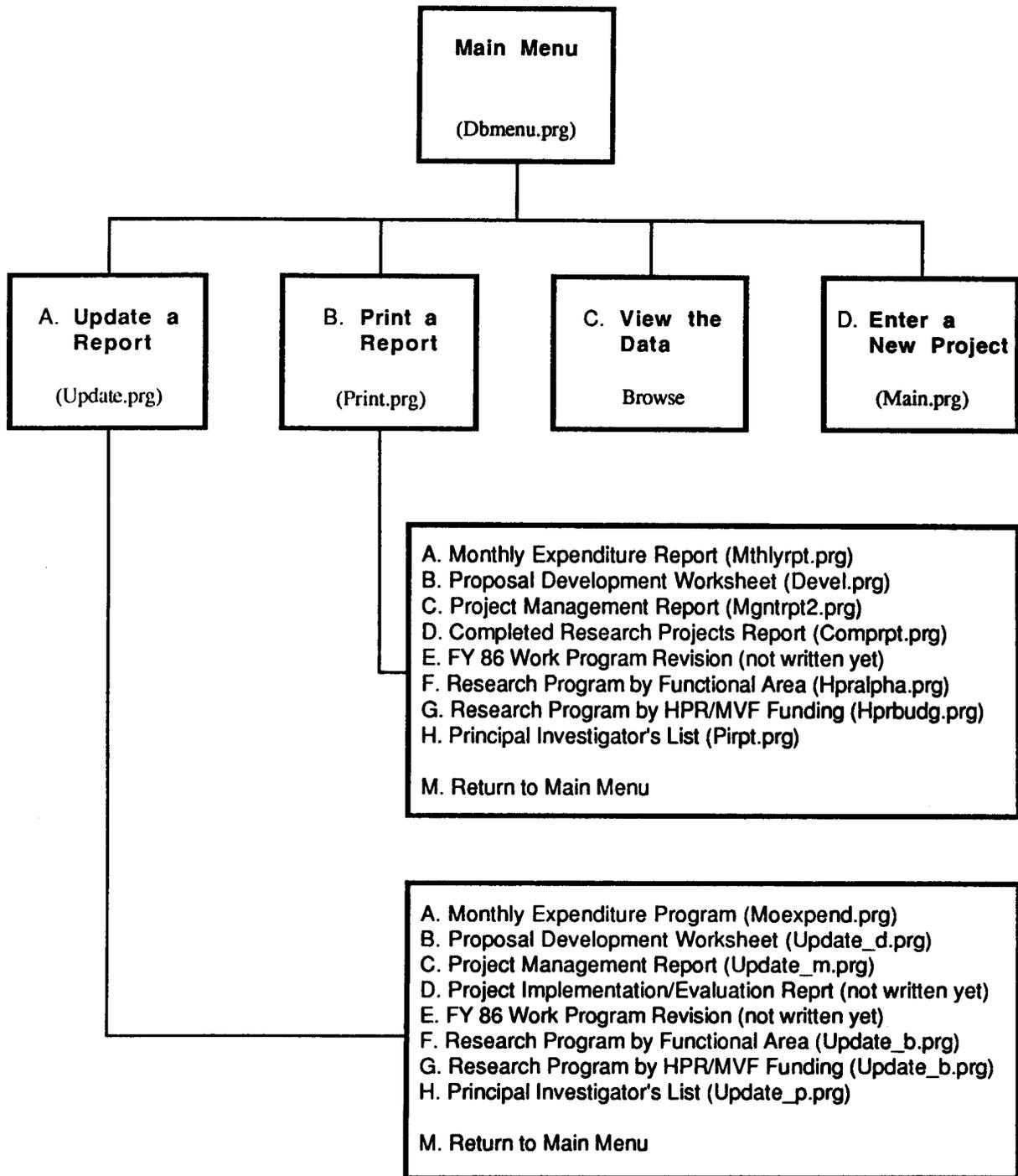


Figure 1. Dbase Program Chart.

DBMENU.PRG

```
* Dbmenu.prg
* This program displays the main screen.
CLEAR ALL
SET TALK OFF
FLG = .T.
**
DO WHILE FLG
CLEAR
@ 1,30 SAY "M A I N   M E N U"
@ 1,0 SAY TIME()
@ 1,72 SAY DTOC(DATE())
@3,0 SAY "===== "
@3,40 SAY "===== "
@ 6,15 SAY "Do you want to -"
@ 8,20 SAY "A) Update a report?"
@ 10,20 SAY "B) Print a report?"
@ 12,20 SAY "C) View the data?"
@ 14,20 SAY "D) Enter a new project?"
@ 17,15 SAY "Enter 'Q' if you wish to Quit"
@ 20,0 SAY " "
ACCEPT "      Enter Choice " TO ANS
ANS = UPPER(ANS)
***
DO case
CASE ANS = "A"
  Do Update
CASE ANS = "B"
  do Print
CASE ANS = "C"
  USE Identify.dbf
  BROWSE
CASE ANS = "D"
  DO main
CASE ANS = "Q"
  FLG = .F.
  CLEAR
  RETURN
ENDCASE
***
ENDDO
**
```

```

* Print.prg
* This menu program is used for printing the reports.
SET TALK OFF
CLEAR ALL
FLAG = .T.
**
DO WHILE FLAG
CLEAR
@1,25 SAY "- PRINTING OF RESEARCH REPORTS -"
@1,0 SAY TIME()
@1,70 SAY DTOC( DATE() )
@3,0 SAY "===== "
@3,40 SAY "===== "
@5,5 SAY "Enter the letter for the report you would like to print:"
@6,5 SAY "          (only one at a time)          "
@8,5 SAY "          A.  Monthly Expenditure Report          "
@9,5 SAY "          B.  Proposal Development Worksheet      "
@10,5 SAY "          C.  Project Management Report           "
@11,5 SAY "          D.  Completed Research Projects Report  "
@12,5 SAY "          E.  FY 86 Work Program Revisions        "
@13,5 SAY "          F.  Research Program by Functional Area  "
@14,5 SAY "          G.  Research Program by HPR/MVF Funding  "
@15,5 SAY "          H.  Principal Investigator's List       "
@17,5 SAY "          M.  Return to Main Menu                 "
@20,5 SAY " "
ACCEPT "ENTER CHOICE " TO X
X = UPPER(X)
***
DO CASE
CASE X = "A"
DO Mthlyrpt
CASE x = "B"
DO Devel
CASE x = "C"
DO Mgntrpt2
CASE x = "D"
DO Comprpt
CASE x = "E"
CLEAR
@ 5,5 SAY "This report has not been written."
@ 6,5 SAY "You will be returned to the Main Menu"
WAIT
DO MAIN
CASE x = "F"
DO Hpralpha
CASE x = "G"
DO Hprbudg
CASE x = "H"
DO Pilist
CASE X = "M"
CLEAR
RETURN TO MASTER
OTHERWISE
CLEAR
@ 5,5 SAY "This is not one of the possible choices."
@ 15,1 say " "
WAIT
ENDCASE
***

```

ENDDO

**

UPDATE.PRG

```

* Update.prg
* This menu program is used for updating the reports.
SET TALK OFF
CLEAR ALL
FLAG = .T.
**
DO WHILE FLAG
CLEAR
@1,25 SAY "- UPDATING OF RESEARCH REPORTS -"
@1,0 SAY TIME()
@1,70 SAY DTOC(DATE())
@3,0 SAY "=====
@3,40 SAY "=====
@5,5 SAY "Enter a 1-10 for the report you would like to update:"
@6,5 SAY " (enter only one number) "
@8,5 SAY " A. Monthly Expenditure Report "
@9,5 SAY " B. Proposal Development Worksheet "
@10,5 SAY " C. Project Management Report "
@11,5 SAY " D. Project Implementation/Evaluation Report "
@12,5 SAY " E. FY 86 Work Program Revisions "
@13,5 SAY " F. Research Program by Functional Area "
@14,5 SAY " G. Research Program by HPR/MVF Funding "
@15,5 SAY " H. Principal Investigator's List "
@17,5 SAY " M. Return to Main Menu "
@20,5 SAY " "
ACCEPT "ENTER CHOICE " TO X
X = UPPER(X)
***
DO CASE
CASE X = "A"
DO Moexpend
CASE X = "B"
DO Update_d
CASE X = "C"
DO Update_m
CASE X = "D"
CLEAR
@ 5,5 SAY "This report has not been written."
@ 6,5 SAY "You will be returned to the Update Menu"
@ 15,1 SAY " "
WAIT
CASE X = "E"
CLEAR
@ 5,5 SAY "This report has not been written."
@ 6,5 SAY "You will be returned to the Update Menu"
@ 15,1 SAY " "
WAIT
CASE X = "F"
DO Update_b
CASE X = "G"
DO Update_b
CASE X = "H"
DO Pirpt
CASE X = "M"
RETURN TO MASTER
OTHERWISE
CLEAR
@ 5,5 SAY "This is not one of the possible choices."
@ 15,1 SAY " "

```

WAIT
ENDCASE

ENDDO
**

MAIN.PRG

```

SET TALK OFF
*
FLAG = .T.
CLEAR
DO WHILE FLAG = .T.
SELECT A
USE IDENTIFY INDEX ID2
SELECT B
USE IDENTIFY INDEX D3
SELECT A
CLEAR
@ 3,0 SAY "ENTER ITEM NO. (TYPE 'QUIT' IF DONE) "
ACCEPT TO ITEMNO
L = LEN(ITEMNO)
ITEMNO = ITEMNO + SPACE(4-L)
L = LEN(ITEMNO)
*
  IF ITEMNO="QUIT"
    FLAG = .F.
  ENDIF
  LOCATE FOR ITEM_NO = ITEMNO
  IF .NOT. EOF()
    SET FORMAT TO IDENTIFY
    CHANGE ALL FOR ITEM_NO = ITEMNO
  ELSE
    APPEND BLANK
    ITEM_NO = ITEMNO
    SET FORMAT TO IDENTIFY
    READ
  ENDIF
*
SELECT B
LOCATE FOR ITEM_NO = ITEMNO
IF EOF()
  APPEND BLANK
  ITEM_NO=A->ITEM_NO
  ACCT_NO=A->ACCT_NO
  AGMT_NO=A->AGMT_NO
  TASK_NO=A->TASK_NO
  PROJ_NO=A->PROJ_NO
  PROJ_TITL=A->PROJ_TITL
  STATUS=A->STATUS
  START_DATE=A->START_DATE
  COMP_DATE=A->COMP_DATE
  FUNC_AREA=A->FUNC_AREA
  PROJ_TYPE=A->PROJ_TYPE
  FUND_TYPE=A->FUND_TYPE
  HPR_MVF=A->HPR_MVF
  ORIG_SUBM=A->ORIG_SUBM
  PI_LNAME=A->PI_LNAME
  PI_FNAME=A->PI_FNAME
  PI_PHONE=A->PI_PHONE
  PART_AGENCY=A->PART_AGENCY
  PROJ_MGR=A->PROJ_MGR
  RES_AGENCY=A->RES_AGENCY
  TECH_CNTCT=A->TECH_CNTCT
  MARTY_FY86=A->MARTY_FY86
  EST_FY86=A->EST_FY86
  EST_FY87=A->EST_FY87

```

```
ACT_FY84=A->ACT_FY84
ACT_FY85=A->ACT_FY85
BUDG_NOTES=A->BUDG_NOTES
TOTAL_COST=A->TOTAL_COST
TOTAL_AUTH=A->TOTAL_AUTH
TOTAL_EXPN=A->TOTAL_EXPN
MTH_EXPEND=A->MTH_EXPEND
PREV_QTR=A->PREV_QTR
QTR_EXPEND=A->QTR_EXPEND
PREVFY86=A->PREVFY86
FY86EXPEND=A->FY86EXPEND
REV_FY86=A->REV_FY86
STMT_SUBMT=A->STMT_SUBMT
STMT_APPRV=A->STMT_APPRV
PRE_PROP_C=A->PRE_PROP_C
PROP_EST=A->PROP_EST
PROP_COMP=A->PROP_COMP
RVW_DOT=A->RVW_DOT
RVW_CONF=A->RVW_CONF
PROP_ACCPT=A->PROP_ACCPT
PROP_FHWA=A->PROP_FHWA
CTRCT_EXEC=A->CTRCT_EXEC
CO_LNAME=A->CO_LNAME
CO_FNAME=A->CO_FNAME
CNTCT_DATE=A->CNTCT_DATE
QTRPT_RCVD=A->QTRPT_RCVD
DFT_DUE=A->DFT_DUE
DFT_RCVD=A->DFT_RCVD
DFT_RVW=A->DFT_RVW
CMTS_PI=A->CMTS_PI
FINAL_RCVD=A->FINAL_RCVD
RPT_PRNTR=A->RPT_PRNTR
PRNTG_COMP=A->PRNTG_COMP
DIST_COMP=A->DIST_COMP
RPT_TYPES=A->RPT_TYPES
COMMENTS=A->COMMENTS
LINE=A->LINE
ENDIF
ENDDO
DO check.prg
```

```
CLEAR
CLEAR all
SET TALK OFF
FLAG = .T.
SELECT a
USE identify index id2
SELECT b
USE dentify index d3
SELECT A
@ 5,5 SAY "ENTER IN AN ITEM NUMBER"
ACCEPT TO ITEMNO
LOCATE FOR ITEM_NO = ITEMNO
SELECT B
LOCATE FOR ITEM_NO = ITEMNO
SELECT A
DO WHILE FLAG = .T.
CLEAR
  IF ACCT_NO = B->ACCT_NO
  ELSE
    @6,5 SAY "ACCT_NO:" GET ACCT_NO
    @6,25 SAY "ORIG ACCT_NO"
    @6,37 SAY B->ACCT_NO
  ENDIF
  IF AGMT_NO = B->AGMT_NO
  ELSE
    @7,5 SAY "AGMT_NO:" GET AGMT_NO
    @7,25 SAY "ORIG AGMT_NO"
    @7,37 SAY B->AGMT_NO
  ENDIF
  IF TASK_NO = B->TASK_NO
  ELSE
    @8,5 SAY "TASK NO:" GET TASK_NO
    @8,25 SAY "ORIG_TASK_NO"
    @8,37 SAY B->TASK_NO
  ENDIF
  IF PROJ_NO = B->PROJ_NO
  ELSE
    @9,5 SAY "PROJ_NO" GET PROJ_NO
    @9,25 SAY "ORIG PROJ_NO"
    @9,37 SAY B->PROJ_NO
  ENDIF
  IF PROJ_TITL = B->PROJ_TITL
  ELSE
    @9,5 SAY "PROJ_TITL:" GET PROJ_TITL
    @9,25 SAY "ORIG PROJ_TITL"
    @9,39 SAY B->PROJ_TITL
  ENDIF
  IF STATUS = B->STATUS
  ELSE
    @10,5 SAY "STATUS:" GET STATUS
    @10,25 SAY "ORIG STATUS"
    @10,39 SAY B->STATUS
  ENDIF
  IF START_DATE = B->START_DATE
  ELSE
    @11,5 SAY "START_DATE:" GET START_DATE
    @11,25 SAY "ORIG_START_DATE"
    @11,39 SAY B->START_DATE
  ENDIF
ENDIF
```

```

IF COMP_DATE = B->COMP_DATE
ELSE
    @12,5 SAY "COMP DATE:" GET COMP_DATE
    @12,25 SAY "ORIG COMP DATE"
    @12,39 SAY B->COMP_DATE
ENDIF
IF FUNC_AREA = B->FUNC_AREA
ELSE
    @13,5 SAY "FUNC AREA:" GET FUNC_AREA
    @13,25 SAY "ORIG FUNC AREA"
    @13,39 SAY B->FUNC_AREA
ENDIF
IF PROJ_TYPE = B->PROJ_TYPE
ELSE
    @14,5 SAY "PROJ TYPE:" GET PROJ_TYPE
    @14,25 SAY "ORIG PROJ TYPE"
    @14,39 SAY B->PROJ_TYPE
ENDIF
IF FUND_TYPE = B->FUND_TYPE
ELSE
    @15,5 SAY "FUND TYPE:" GET FUND_TYPE
    @15,25 SAY "ORIG FUND TYPE"
    @15,39 SAY B->FUND_TYPE
ENDIF
IF PI_LNAME = B->PI_LNAME
ELSE
    @19,5 SAY "PI LNAME:" GET PI_LNAME
    @19,25 SAY "ORIG PI LNAME"
    @19,40 SAY B->PI_LNAME
ENDIF
IF MARTY_FY86 = B->MARTY_FY86
ELSE
    @33,5 SAY "MARTY_FY86" GET MARTY_FY86
    @33,25 SAY "ORIG MARTY_FY86"
    @33,40 SAY B->MARTY_FY86
ENDIF
IF EST_FY86 = B->EST_FY86
ELSE
    @33,5 SAY "EST_FY86:" GET EST_FY86
    @33,25 SAY "ORIG EST_FY86"
    @33,40 SAY B->EST_FY86
ENDIF
IF EST_FY87 = B->EST_FY87
ELSE
    @34,5 SAY "EST_FY87:" GET EST_FY87
    @34,25 SAY "ORIG EST_FY87"
    @34,40 SAY B->EST_FY87
ENDIF
IF ACT_FY84 = B->ACT_FY84
ELSE
    @35,5 SAY "ACT_FY84:" ACT_FY84
    @35,25 SAY "ORIG ACT_FY84"
    @35,40 SAY B->ACT_FY84
ENDIF
IF ACT_FY85 = B->ACT_FY85
ELSE
    @36,5 SAY "ACT_FY85:" GET ACT_FY85
    @36,25 SAY "ORIG ACT_FY85"
    @36,40 SAY B->ACT_FY85
ENDIF

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```
IF TOTAL_COST = B->TOTAL_COST
ELSE
    @37,5 SAY "TOTAL_COST:" GET TOTAL_COST
    @37,25 SAY "ORIG_TOTAL_COST"
    @37,40 SAY B->TOTAL_COST
ENDIF
IF TOTAL_AUTH = B->TOTAL_AUTH
ELSE
    @38,5 SAY "TOTAL_AUTH:" GET TOTAL_AUTH
    @38,25 SAY "ORIG_TOTAL_AUTH"
    @38,40 SAY B->TOTAL_AUTH
ENDIF
ENDDO
```