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NOAA Eastern Region Computer Programs  
and Problems NWS ERCP - No. 39

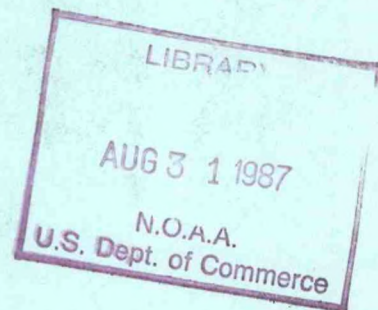


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CRASHQ: Listing Products Being Transmitted At the Time of a Crash

William C. Randel  
National Weather Service Forecast Office  
Cleveland, Ohio

Scientific Services Division  
Eastern Region Headquarters  
January 1987



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**U.S. DEPARTMENT OF  
COMMERCE**

National Oceanic and  
Atmospheric Administration

National Weather  
Service

## NOAA TECHNICAL MEMORANDUM

## National Weather Service, Eastern Region Computer Programs and Problems

The Eastern Region Computer Programs and Problems (ERCP) series is a subset of the Eastern Region Technical Memorandum series. It will serve as the vehicle for the transfer of information about fully documented AFOS application programs. The format ERCP - No. 1 will serve as the model for future issuances in this series.

- 1 An AFOS version of the Flash Flood Checklist. Cynthia M. Scott, March 1981. (PB81 211252).
- 2 An AFOS Applications Program to Compute Three-Hourly Stream Stages. Alan P. Blackburn, September 1981. (PB82 156886).
- 3 PUPPY (AFOS Hydrologic Data Reporting Program). Daniel P. Provost, December 1981. (PB82 199720).
- 4 Special Search Computer Program. Alan P. Blackburn, April 1982. (PB83 175455).
- 5 Conversion of ALEMBIC\$ Workbins. Alan P. Blackburn, October 1982. (PB83 138313).
- 6 Real-Time Quality Control of SAOs. John A. Billet, January 1983. (PB83 166082).
- 7 Automated Hourly Weather Collective from HRR Data Input. Lawrence Cedrone, January 1983 (PB83 167122).
- 8 Decoders for FRH, FTJ and FD Products. Cynthia M. Scott, February 1983. (PB83 176057).
- 9 Stability Analysis Program. Hugh M. Stone, March 1983. (PB83 197947).
- 10 Help for AFOS Message Comp. Alan P. Blackburn, May 1983. (PB83 213561).
- 11 Stability and Other Parameters from the First Transmission RAOB Data. Charles D. Little, May 1983. (PB83 220475).
- 12 TERR, PERR, and BIGC: Three Programs to Compute Verification Statistics. Matthew R. Peroutka, August 1983. (PB84 127521).
- 13 Decoder for Manually Digitized Radar Observations. Matthew R. Peroutka, June 1983. (PB84 127539).
- 14 Slick and Quick Data Entry for AFOS Era Verification (AEV) Program. Alan P. Blackburn, December 1983. (PB84 138726).
- 15 MDR--Processing Manually Digitized Radar Observations. Matthew R. Peroutka, November 1983. (PB84 161462) (Revised June 1985, PB85-220580/AS)
- 16 RAMP: Stability Analysis Program. Hugh M. Stone, February 1984.(PB84 161447)
- 17 ZONES. Gerald G. Rigdon, March 1984. (PB84 174325)
- 18 Automated Analysis of Upper Air Soundings to Specify Precipitation Type. Joseph R. Bocchieri and Gerald G. Rigdon, March 1984. (PB84 174333)

(Continued on Inside Rear Cover)

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## CRASHQ: LISTING PRODUCTS BEING TRANSMITTED AT THE TIME OF A CRASH

William C. Randel  
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Cleveland, OH

### I. Introduction

The QRESTORE program which is in the AFOS startup macros will only display the products that were on the asynchronous queue at the time of a crash. The products actually being transmitted are not shown.

CRASHQ displays a list of AFOS products that may have been in the process of being transmitted on AFOS' asynchronous circuits at the time of a crash. No circuit numbers are listed but the program gives a good first guess of what was being transmitted.

### II. Methodology and Software Structure

The program reads the RDOS system directory (SYS.DR) to find files that may have been created by the AFOS asynchronous transmission software.

When an AFOS product is being transmitted, this software first writes it to the disk as an RDOS file. The filename, except for some zone forecast products, is the AFOS product identifier and version number preceded with an "A". When only a portion of the zones are being transmitted the asynch software will precede the zone identifier with a "B". If extracted zones are sent on more than one circuit these files will begin with progressively higher letters, i.e. BPITZFPPA.04, CPITZFPPA.04...

AFOS product identifiers are 7 to 9 characters long. Therefore when they are written to the disk, the RDOS filename will be 8 to 10 characters long with a 2 character extension.

The CRASHQ program starts by opening SYS.DR and creating the file CRASHQ.SC. The program writes data to CRASHQ.SC which will eventually be stored as the AFOS product ASYNCHQUE.

The program then calls the subroutine CRHDR. CRHDR writes the standard AFOS header data, a string of text, and the run time of the program to CRASHQ.SC. Other variables are determined in CRHDR that will be used throughout the program. The function JDATE (Peroutka, 1983) is used in CRHDR to determine the Julian date.

The program then begins to read SYS.DR a block at a time. There are 14 User File Descriptions (UFDs) per block and each UFD is 18 words long. If the first word of the UFD is 0 the file has been deleted.

If a file exists the program then performs several checks to see if its name matches filename characteristics of files created by the asynch transmission software. It first checks to see if the first character is an "A" or if the 5th to 7th characters are "ZFP". It then checks to see if the file is at least 8 characters long and has a 2 character extension. The program also skips files having an extension of "SV" or "MC".

If the filename meets the above criteria, the subroutine WRDAT is then called. WRDAT determines when the file was created. If it was created less than 20 minutes from the time CRASHQ was initiated, the program assumes that the file is a current and valid asynchronous transmission file.

WRDAT then writes the filename minus the first character and extension to CRASHQ.SC.

When SYS.DR is completely read, CRASHQ.SC is stored into the AFOS product ASYNCHQJE. Figure 1 shows a copy of the output.

### III. Cautions and Restrictions

The CRASHQ program may find files that the asynch software did not create, but limiting valid files to those that were created during the past 20 minutes should eliminate almost all old or non asynch files.

### IV. References

Peroutka, M.R., 1983: MDR--Processing Manually Digitized Radar Observations. NOAA Eastern Region Computer Programs and Problems NWS ERCP NO. 15, National Oceanic and Atmospheric Administration, National Weather Service, 35 pp.

V.

ERCP #39  
October 1986

CRASHQ

PART A: INFORMATION AND INSTALLATION

PROGRAM NAME: CRASHQ.SV

AAL ID:

REVISION NO.: 1.00

PURPOSE: Generates a list of AFOS products that may have been in the process of being transmitted when AFOS crashed. Stores the list in ASYNCHQUE.

PROGRAM INFORMATION:

Development Programmer:

Bill Randel

Location: WSFO Cleveland, OH

Phone: (FTS) 942-4949

Language: FORTRAN IV/REV 5.57

Date: 9/10/86

Running Time: approx. 20 seconds

Disk Space:

Program 19 RDOS blocks

Maintenance Programmer:

Bill Randel

Location: WSFO Cleveland, OH

Phone: (FTS) 942-4949

Type: Standard

PROGRAM REQUIREMENTS

Program Files:

NAME

CRASHQ.SV

AFOS Products:

ID

ASYNCHQUE

Action

Output

LOAD LINE

RLDR CRASHQ CRDAT CRHDR WRDAT JDATE <TOP UTIL BG FORT>.LB

PROGRAM INSTALLATION

1. Move CRASHQ.SV to APPL1 and link to the master directory (DP0 or SYSZ).

CRASHQ

PART B: EXECUTION AND ERROR CONDITIONS

PROGRAM NAME: CRASHQ.SV

AAL ID:

REVISION NO.: 1.00

PROGRAM EXECUTION:

1. The most convenient way to run CRASHQ is to add it to the local AFOS startup macro. The operator will be alerted at an ADM if the product ASYNCHQUE has been set to alert at that console.
2. To run the program manually at an ADM type: RUN:CRASHQ

An ADM alert "JOB CRASHQ.SV COMPLETED: PRODUCT ASYNCHQUE STORED" will appear at the initiating ADM. The alert light will also flash if the AFOS product ASYNCHQUE has been alerted.

ERROR CONDITIONS

Dasher Messages

Meaning

"CAN'T OPEN SYS.DR"

Problem opening SYS.DR.  
Program aborted.

"CAN'T OPEN CRASHQ.SC"

Problem opening or creating  
file CRASHQ.SC.  
Program aborted.

# VI. Figures

## ASYNCHQUE

FOLLOWING PRODUCTS MAY HAVE BEEN IN THE PROCESS OF BEING TRANSMITTED  
JUST PRIOR TO WHEN PROGRAM WAS RUN AT: 10/26/85 20:15Z

SDFZFPKY  
CLESWROH

Figure 1

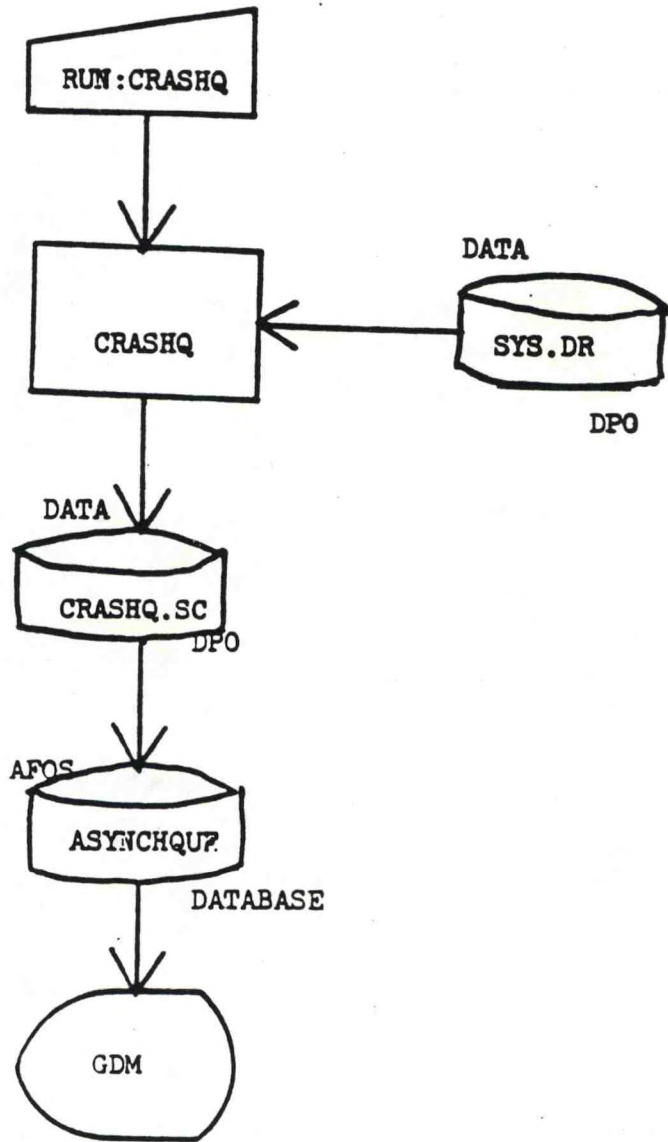


Figure 2: Data and program flow



MAIN PROGRAM

CRASHQ

SUBROUTINES

CRDAT  
CRHDR-----[JDATE  
WRDAT

LOAD LINE

RLDR CRASHQ CRDAT CRHDR WRDAT JDATE CRASHQREV <TOP UTIL BG FORT>.LB

Figure 3: Software Structure and Load Line

## VII. Program Listing

```

C
C
C CRASHQ.SV      REV. 1.00
C
C OCTOBER, 1985      WILLIAM C. RANDEL   WSFO CLE   FTS-942-4949
C FORTRAN IV/REV 5.57  DG ECLIPSE (S230)   RDOS/REV 6.19
C
C PURPOSE
C   DISPLAYS A LIST OF PRODUCTS WHICH MAY HAVE BEEN IN THE PROCESS OF BEING
C   TRANSMITTED ON AFOS'S ASYNCHRONOUS CIRCUITS AT THE TIME OF A CRASH.  IT
C   STORES THE PRODUCT INTO ASYNCHQUE.  IT DOES NOT PRINT CIRCUIT NUMBERS.
C   THE PROGRAMS SEARCHES SYS.DR FOR FILES THAT BEGIN WITH A "A" OR HAVE
C   "ZFP" IN THE 5-7 CHARACTERS; AND THE FILE IS 8 TO 10 CHARACTERS LONG
C   WITH A 2 CHARACTER EXTENSION.
C
C EXTERNALS
C   CRAND (UTIL)      CRHDR                                DELET (UTIL)
C   ERROR (UTIL)     GCHN (UTIL)                          IAND (FORT)
C   ISHFT (UTIL)     / KLOSE (UTIL)                       OPENE (UTIL)
C   OPENR (UTIL)     RDB (UTIL)                            WMOVE (UTIL)      WRDAT
C
C CHANNELS
C
C   IC - READS SYS.DR
C   IB - WRITES DATA TO CRASHQ.SC
C
C VARIABLES
C   IBLK - BLOCK COUNTER
C   IBUF( ) - ARRAY - HOLDS BLOCK OF DATA FROM SYS.DR
C   IDAT( ) - ARRAY - CONTAINS SINGLE UFD THAT IS PASSED ON TO WRDAT.FR
C   IDT( ) - ARRAY WITH CURRENT MONTH, DAY, YEAR
C   ITM( ) - ARRAY WITH CURRENT HOUR, MIN, SEC
C   LOC - POINTER TO BEGINNING OF USER FILE DESCRIPTION (UFD).
C         WITHIN BLOCK DATA THERE CAN BE 14 UFDS.
C
C DIMENSION IBUF(256), IDT(3), ITM(3), IDAT(18)
C IBLK = 0
C
C CALL GCHN(IC, IER)
C CALL OPENR(IC, "SYS.DR", 0, IER) ;OPEN SYS.DR
C CALL ERROR(IER, "CAN-T OPEN SYS.DR")
C CALL DFILW("CRASHQ.SC", IER)
C CALL CRAND("CRASHQ.SC", IER) ;CREATE SCRATCH FILE
C CALL GCHN(IB, IER)
C CALL OPENE(IB, "CRASHQ.SC", 0, IER)
C CALL ERROR(IER, "CAN-T OPEN CRASHQ.SC")
C CALL CRHDR(IB, IDT, ITM, CMIN) ;SUBROUTINE-WRITES HEADER
C   N=1 ;DATA TO SCRATCH FILE
25 CALL RDB(IC, IBUF, IBLK, N, IER) ;READ A BLOCK FROM SYS.DR
C   IF(IER .NE. 1) GOTO 9999 ;LAST BLOCK FROM SYS.DR READ
C   IF(IBUF(1) .EQ. 0) GOTO 150 ;1ST WORD IN BLOCK = # OF UFD-S
C   IN BLOCK
C DO 100 I = 1, 14 ;14 UFDS IN EACH BLOCK
C   LOC = I*18-16 ;LOCATION IN IBUF OF 1ST WORD
C   IF(IBUF(LOC) .EQ. 0) GOTO 100 ;IN FILE NAME. IF IBUF(LOC) = 0
C   FILE HAS BEEN DELETED

```

C  
C  
C  
C  
C

FOLLOWING 4 IF STATEMENTS CHECK TO SEE IF FILENAME IS  
THE TYPE OF FILE THAT ASYSH SOFTWARE CREATS. FILE BEGINS  
WITH AN "A"; OR "ZFP" IN 5-7 BYTE LOCATION; AND FILE MUST  
HAVE AT LEAST 8 CHAR AND 2 CHAR EXTENSION; AND NOT "SV" OR  
"MC" FILE

IF(ISHFT(IBUF(LOC),-8) .NE. "<0>A" .AND. (IBUF(LOC+2) .NE. "ZF"  
+ .OR. ISHFT(IBUF(LOC+3),-8) .NE. P)) GOTO 100  
IF(IAND(IBUF(LOC+3),377K) .EQ. 0) GOTO 100 ;8 CHAR OR MORE LONG  
IF(IAND(IBUF(LOC+5),377K) .EQ. 0) GOTO 100 ;MUST HAVE 2 CHAR EXT  
IF(IBUF(LOC+5) .EQ. "MC" .OR. IBUF(LOC+5) .EQ. "SV")GOTO 100

C

CALL WMOVE(IBUF(LOC),18,IDAT) ;MOVE UFD TO ARRAY IDAT  
CALL WRDAT(IDT,ITM,CMIN,IDAT,IB) ;SUBROUTINE- CHKS CREATION TIME OF  
FILE AND WRITE DATA TO CRASHQ.SC

C

C

100

CONTINUE

150

IBLK = IBLK + 1

; INCREASE BLOCK COUNTER

GOTO 25

9999

CALL KLOSE(IB,IER)

CALL KLOSE(IC,IER)

CALL USTOR("CRASHQ.SC",IER) ;STORE INTO AFOS DATABASE

IF(IER .NE. 1)CALL FORKE("CRASHQ.SV","CAN-T STORE",IRR)

IF(IER .EQ. 1)CALL FORKP("CRASHQ.SV","ASYNCHQUE",IRR)

CALL DELET("CRASHQ.SC",IER)

STOP

END

BLOCK DATA

C

OCTOBER 1985

WILLIAM C RANDEL

WSFO CLE/FTS 942-4949

C

REV 1.00

C

C

PURPOSE

THIS SUBROUTINE INITIALIZES DATA THAT WILL BE USED FOR THE AFOS  
HEADER BLOCK AND ADDED STANDARD STATEMENT THAT WILL BE PRINTED

C

C

C

C

C

C

C

VARIABLES

IHDR( ) - COMMON BLOCK ARRAY WITH HEADER AND ADDED TEXT

COMMON /DAT/ IHDR(78)

C

DATA IHDR/"ASYNCHQUE000",2\*-1,"50", "<305><200>",2\*6412K, ;24BYTE  
+\*FOLLOWING PRODUCTS MAY HAVE BEEN IN THE PROCESS OF BEING TRANSMITTED\*,  
+6412K,"JUST PRIOR TO WHEN PROGRAM WAS RUN AT: MM/DD/YY HH:MMZ ",;68,60  
+2\*6412K/ ;4 BYTE

C

C

END

```

SUBROUTINE WRDAT(IDT, ITM, CMIN, IDAT, IB)
C
C   OCTOBER 1985           WILLIAM C RANDEL           WSFO CLE/FTS 942-4949
C   REV 1.00
C
C   PURPOSE
C     PROGRAM RECEIVES USER FILE DESCRIPTION (UFD) FROM CALLING PROGRAM.
C     CREATION TIME OF FILE IS DETERMINED. IF FILE WAS CREATED IN PAST
C     20 MINUTES THE FILENAME WILL BE WRITTEN TO CRASHQ.SC
C
C   ARGUMENTS
C     CMIN   - OUTPUT - JULIAN MINUTE
C     IB     - INPUT - CHANNEL NUMBER TO FILE CRASHQ.SC
C     IDT( ) - OUTPUT ARRAY CONTAINING MONTH, DAY, YEAR
C     ITIM( ) - OUTPUT ARRAY CONTAINING HOUR, MINUTE, SEC
C     IDAT( ) - INPUT ARRAY CONTAINING FILE UFD
C
C   EXTERMANLS
C     FLOAT (FORT)      IAND  (FORT)      ISHFT  (FORT)      JDATE
C     RDATE (TOP)      STBYTE (UTIL)     WRS    (UTIL)
C
C   VARIABLES
C     JDF   - JULIAN DAY FOR CREATION OF FILE
C     ITMF( ) - CREATION MONTH DAY AND YEAR OF FILE
C     IDTF( ) - CREATION HOUR MINUTE OF FILE
C     CMINF  - CREATION TIME OF FILE IN JULIAN MINUTES FROM BEGINNING
C             OF THE YEAR
C
C   DIMENSION IDT(3), ITM(3), IDTF(3), ITMF(3), IDAT(18)
C   IVAL = 40K ;SPACE - SENT TO 1ST BYTE IN IDAT
C
C   CALL RDATE(IDAT(13), IDTF) ;CREATION MON-DAY-YEAR OF FILE
C   JDF = JDATE(IDTF(1), IDTF(2), IDTF(3)) ;JULIAN DAY FOR FILE CREATION
C   ITMF(1) = ISHFT(IDAT(14), -8) ;HOUR FILE WAS CREATED
C   ITMF(2) = IAND(IDAT(14), 377K) ;MINUTE FILE WAS CREATED
C   ;JULIAN MINUTE FILE WAS CREATED
C   CMINF = FLOAT(JDF-1)*1440. + FLOAT(ITMF(1))*60. + FLOAT(ITMF(2))
C
C   CALL DATE FOR SYSTEM TIME RETURNS YEAR IN 4 DIGITS. CALL RDATE
C   FOR FILE CREATION TIME RETURNS YEAR IN TWO DIGITS. FOLLOWING
C   2 STEPS CALL SYSTEM YEAR TO 2 DIGITS
C   IF(IDT(3) .GE. 2000) IDT(3) = IDT(3) - 2000
C   IF(IDT(3) .GE. 1900) IDT(3) = IDT(3) - 1900
C   IF(IDT(3) .EQ. IDTF(3)) GOTO 100 ;FILE CREATED IN SAME YEAR
C   IF(IDT(3) .NE. IDTF(3)+1) GOTO 9999 ;CHECK TO SEE IF FILE WAS
C   IF(CMIN .GT. 20.) GOTO 9999 ;CREATED END OF DAY ON 12/31
C   IF(IDT(2) .NE. 1 .AND. IDTF(1) .NE. 12 .AND. IDTF(2) .NE. 31) GOTO 9999
C   CMIN = CMIN + 1440.
100  DIF = CMIN - CMINF
C   IF(DIF .GT. 20. .OR. DIF .LT. 0.) GOTO 9999 ;FILE IS LESS THAN 20
C   N=1 ;MINUTES OLD
C   CALL STBYTE(IVAL, IDAT, N)
C   N=10
C   CALL WRS(IB, IDAT, N, IER)
C   N=2
C   CALL WRS(IB, "<15><12>", N, IER)
9999 RETURN
END

```

SUBROUTINE CRHDR(IB, IDT, ITM, CMIN)

OCTOBER 1985  
REV 1.00

WILLIAM C RANDEL

WSFO CLE/FTS 942-4949

PURPOSE

WRITES AFOS HEADER INFORMATION AND A STANDARD TEXT TO CRASHQ.SC FILE.  
ALSO RETURN SYSTEM DATE-TIME, JULIAN DAY, AND JULIAN MINUTE.

ARGUMENTS

CMIN - OUTPUT - JULIAN MINUTE  
IB - INPUT - CHANNEL NUMBE TO FILE CRASHQ.SC  
IDT( ) - OUTPUT ARRAY CONTAINING MONTH, DAY, YEAR  
ITM( ) - OUTPUT ARRAY CONTAINING HOUR, MINUTE, SEC

EXTERMANLS

DATE (UTIL) JDATE PACK (UTIL)  
STDG (TOP) TIME (UTIL) WRS (UTIL)

VARIABLES

JD - JULIAN DAY  
CMIN - JULIAN MINUTE

DIMENSION IDT(3), ITM(3), IAR(14)  
COMMON /DAT/ IHDR(78)

CALL DATE(IDT, IER)

CALL TIME(ITM, IER)

JD = JDATE(IDT(1), IDT(2), IDT(3)) ; JULIAN DATE

; JULIAN MINUTE

CMIN = FLOAT(JD-1)\*1440. + FLOAT(ITM(1))\*60. + FLOAT(ITM(2))

CALL SDTG(IAR, 1)

; PLACES MM/DD/YY HH:MM INTO  
UNPACK ARRAY IAR

CALL PACK(IAR, 14, IHDR(69))

; PACK IAR INTO IHDR ARRAY

N=156

; # BYTES IN IHDR ARRAY

CALL WRS(IB, IHDR, N, IER)

; WRITE HEADER DATA TO CRASHQ.SC

RETURN

END

## Eastern Region Computer Programs and Problems (Continued)

- 19 Verification of Asynchronous Transmissions. Lawrence Cedrone, March 1984. (PB84 189885)
- 20 AFOS Hurricane Plotter. Charles Little, May 1984. (PB84 199629)
- 21 WARN - A Warning Formatter. Gerald G. Rigdon, June 1984. (PB84 204551)
- 22 Plotting TDL Coastal Wind Forecasts. Paula Severe, June 1984 (Revised) (PB84 220789)
- 23 Severe Weather Statistics STADTS Decoder (SWX) and Plotter (SWY). Hugh M. Stone, June 1984. (PB84 213693)
- 24 WXR. Harold Opitz, August 1984. (PB84 23722) (Revised August 1985, PB84 100815/AS)
- 25 FTASUM: Aviation Forecast Summaries. Matthew Peroutka, August 1984. (PB85 112977)
- 26 SAOSUM: A Short Summary of Observations. Matthew Peroutka, October 1984. (PB85 120384)
- 27 TRAJ - Single Station Trajectory Plot. Tom Nizioł, December 1984. (PB85 135002)
- 28 VIDTEX. Gerald G. Rigdon, February 1985. (PB85 175669/AS)
- 29 Isentropic Plotter. Charles D. Little, February 1985. (PB85 175651/AS)
- 30 CERR: An Aviation Verification Program. M. Peroutka, April 1985. (PB85 204824/AS)
- 31 Correlation and Regression Equation - REGRS. Hugh M. Stone, May 1985. (PB85 213353/AS)
- 32 Scatter Diagram and Histogram Program - SCATR. Hugh M. Stone, May 1985. (PB85 213346/AS)
- 33 TIMCHEK. Gerald G. Rigdon, June 1985. (PB85-221257/AS)
- 34 A MOS Temperature - PoP Forecast Plot. William C. Randel, October 1985. (PB86 120029/AS)
- 35 ROTODRAW. Thomas Nizioł, November 1985 (PB86 131828/AS)
- 36 LAWEB: Data Processing for the Great Lakes. William C. Randel and Matthew R. Peroutka, March 1986. (PB86 176658/AS)
- 37 Convective Parameters & Hodograph Program - Convect. Hugh M. Stone, April 1986. (PB86-197225/AS)
- 38 DWXR - SHEF Product Compression Program. Harold H. Opitz, September 1986.

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