

**** TSO FOREGROUND HARDCOPY ****

10:28:26

MAY 9, 2020

DSNAME=JAY01.OFFLOAD.DATA

./ ADD NAME=CASE

MACRO

CASE

COPY GBLVARS

LCLA &NBR,&CASENO

PUSHLAB

&NBR AIF (N'&SYSLIST EQ 1).LDSUBL

SETA N'&SYSLIST

AGO .LDAIND

.LDSUBL ANOP

&NBR SETA N'&SYSLIST(1)

.LDAIND AIF (&NBR LE 0).NOPRMS

&AIND(&AI) SETA &AIND(&AI)+&NBR

.TSTSUBL AIF (T'&SYSLIST(1,2) EQ '0' AND &NBR NE 1).NOTSUBL

&CASENO SETA &SYSLIST(1,&NBR)

AGO .TSTMULT

.NOTSUBL ANOP

&CASENO SETA &SYSLIST(&NBR)

.TSTMULT AIF (&CASENO-(&CASENO/&MULT(&AI))*&MULT(&AI) NE 0).NOTMULT

AIF (&CASENO EQ 0).NOTMULT

AIF (&CI GE 200).OVER

&CI SETA &CI+1

&CIND1(&CI) SETA &CASENO

&CIND2(&CI) SETC '&LIND(&LI)'

.RETRNPT ANOP

&NBR SETA &NBR-1

AIF (&NBR NE 0).TSTSUBL

.FRSTIME AIF ('&NEST(&NI)')(3,1) NE ' ').BCGEN1

&NEST(&NI) SETC ' Y'.'&NEST(&NI)')(4,5)

AGO .EQUGN1

.BCGEN1 AIF ('&NEST(&NI)')(4,1) EQ 'B').BCINST

L &RIND(&AI),&LIND(&LI-2)

BCR 15,&RIND(&AI)

AGO .EQUGN1

.BCINST BC 15,&LIND(&LI-1)

.EQUGN1 ANOP

&LIND(&LI) EQU *

&LI SETA &LI-1

MEXIT

.NOTMULT MNOTE 8,'CASE &CASENO DELETED. NOT MULTIPLE OF &MULT(&AI).'

&AIND(&AI) SETA &AIND(&AI)-1

AGO .RETRNPT

.NOPRMS MNOTE 'NO PARAMETERS FOUND WITH CASE MACRO'

AGO .FRSTIME

.OVER MNOTE 8,'CASE NUMBER STK EXCEEDED. FURTHER EXPANSIONS INVALID'

MEND

./ ADD NAME=CASEENTRY

MACRO

CASEENTRY &P1,&VECTOR=,&POWER=0

COPY GBLVARS

PUSHNEST CASE

PUSHLAB

PUSHLAB

AIF (&AI GE 50).OVER

&AI SETA &AI+1

&AIND(&AI) SETA 0

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&RIND(&AI) SETC  '&P1'
&MULT(&AI) SETA  1
&CTR      SETA  &POWER
.SHIFTLP  AIF    (&CTR LE 0).GENSHFT
&MULT(&AI) SETA  &MULT(&AI)+&MULT(&AI)
&CTR      SETA  &CTR-1
          AGO    .SHIFTLP
.GENSHFT  AIF    (&MULT(&AI) EQ 4).TESTVEC
          AIF    (&MULT(&AI) GT 4).RTSHIFT
          SLA    &P1,2-&POWER
          AGO    .TESTVEC
.RTSHIFT  SRA    &P1,&POWER-2
.TESTVEC  AIF    ('&VECTOR' EQ 'B' OR '&VECTOR' EQ 'BR').BRVEC
          PUSHLAB
          A      &P1,&LIND(&LI)
          L      &P1,0(&P1)
          BCR    15,&P1
&LIND(&LI) DC  A(&LIND(&LI-2))
&LI      SETA  &LI-1
          MEXIT
.BRVEC    BC      15,&LIND(&LI-1)(&P1)
&NEST(&NI) SETC  '      B'.'&NEST(&NI)')(5,4)
          MEXIT
.OVER     MNOTE  8,'TOTAL CASES STK EXCEEDED. FURTHER EXPANSIONS INVALID'
          MEND
./ ADD NAME=CHKSTACK
          MACRO
          CHKSTACK
          GBLA  &AI,&CI,&II,&LI,&NI
          LCLA  &SI
          LCLC  &STACK(5)
          AIF   (&AI LE 0).FIXC
&SI      SETA  &SI+1
&STACK(&SI) SETC  'TOTLCASE'
.FIXC    AIF   (&CI LE 0).FIXI
&SI      SETA  &SI+1
&STACK(&SI) SETC  'CASELABL'
.FIXI    AIF   (&II LE 0).FIXL
&SI      SETA  &SI+1
&STACK(&SI) SETC  'INSTRCTN'
.FIXL    AIF   (&LI LE 0).FIXN
&SI      SETA  &SI+1
&STACK(&SI) SETC  'LABEL'
.FIXN    AIF   (&NI LE 0).TEST
&SI      SETA  &SI+1
&STACK(&SI) SETC  'NESTING'
.TEST    AIF   (&SI EQ 0).END
          MNOTE  8,'&STACK(&SI) STACK NOT EMPTY'
&SI      SETA  &SI-1
          AGO    .TEST
.END      MEND
./ ADD NAME=DO
          MACRO
          DO      &P1,&FROM=,&TO=,&BY=,&UNTIL=,&WHILE=
          PUSHNEST DO
          DOPROC  &FROM,&TO,&BY,&UNTIL,&WHILE,&P1
          MEND
./ ADD NAME=DOEXIT
          MACRO
          DOEXIT  &P1,&P2,&P3,&P4,&P5,&P6,&P7,&P8,&P9,&P10,&P11,&P12,&P13,X

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&P14,&P15,&P16,&P17,&P18,&P19,&P20,&P21,&P22,&P23,&P24,&X
P25,&P26,&P27,&P28,&P29,&P30,&P31,&P32,&P33,&P34,&P35,&PX
36,&P37,&P38,&P39,&P40,&P41,&P42,&P43,&P44,&P45,&P46,&P4X
7,&P48,&P49,&P50,&CC=
COPY   GBLVARS
PUSHLAB
&NEST(&NI) SETC   '    Y'.'&NEST(&NI) '(5,4)
IFPROC &CC,&P1,&P2,&P3,&P4,&P5,&P6,&P7,&P8,&P9,&P10,&P11,&P12,X
&P13,&P14,&P15,&P16,&P17,&P18,&P19,&P20,&P21,&P22,&P23,&X
P24,&P25,&P26,&P27,&P28,&P29,&P30,&P31,&P32,&P33,&P34,&PX
35,&P36,&P37,&P38,&P39,&P40,&P41,&P42,&P43,&P44,&P45,&P4X
6,&P47,&P48,&P49,&P50
MEND
./ ADD NAME=DOPROC
MACRO
DOPROC &FROM,&TO,&BY,&UNTIL,&WHILE,&P1
COPY   GBLVARS
LCLA   &I
LCLC   &LCLWK1
PUSHLAB
PUSHINS (EQU,*,,, &LIND(&LI))
&ST(&NI) SETA   &II+1
PUSHLAB
AIF     (T'&FROM EQ '0').NOIND
AIF     ('&FROM(3)' EQ '').INCR
LA      &FROM(3),&LIND(&LI)
.INCR
&I
SETA    &I+1
AIF     ('&SYSLIST(&I,2)' EQ '').TEST
AIF     ('&SYSLIST(&I,2)' EQ '0').GENSR
AIF     ('&SYSLIST(&I,2)'(1,1) EQ '-').NEGVAL
AIF     (T'&SYSLIST(&I,2) EQ 'N').POSVAL
AIF     ('&SYSLIST(&I,2)'(1,1) EQ '(').GENLR
L        &SYSLIST(&I,1),&SYSLIST(&I,2)
.GENLR  AGO      .TEST
LR       &SYSLIST(&I,1),&SYSLIST(&I,2)
AGO      .TEST
.POSVAL  AIF     (&SYSLIST(&I,2) GE 4096).TSTMAG
LA       &SYSLIST(&I,1),&SYSLIST(&I,2)
AGO      .TEST
.TSTMAG  AIF     (&SYSLIST(&I,2) GE 32768).FULLIT
AGO      .HALFLIT
.NEGVAL  ANOP
&LCLWK1 SETC     '&SYSLIST(&I,2)'(2,7)
AIF     (&LCLWK1 GE 32768).FULLIT
.HALFLIT LH      &SYSLIST(&I,1),=H'&SYSLIST(&I,2)'
AGO      .TEST
.FULLIT  L        &SYSLIST(&I,1),=F'&SYSLIST(&I,2)'
AGO      .TEST
.GENSR   SR       &SYSLIST(&I,1),&SYSLIST(&I,1)
.TEST    AIF     (&I LT 3).INCR
AIF     (T'&UNTIL NE '0').ERRMG2
.CKWHILE AIF     (T'&WHILE NE '0').COMPGEN
&LIND(&LI) EQU *
.POSTIND AIF     (T'&P1 EQ '0').GETIND
AIF     (T'&BY NE '0').PFB
AIF     (T'&TO NE '0').PFT
AIF     ('&FROM(3)' NE '').BCTRZ
PUSHINS (BCT,&FROM(1),&LIND(&LI))
AGO      .ERRMG

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.BCTRZ	PUSHINS (BCTR,&FROM(1),&FROM(3)) AGO .ERRMG	
.PFT	PUSHINS (&P1,&FROM(1),&TO(1),&LIND(&LI)) MEXIT	
.PFB	PUSHINS (&P1,&FROM(1),&BY(1),&LIND(&LI)) MEXIT	
.GETIND	AIF ('&FROM(3)' EQ '').BCTR1 PUSHINS (BCTR,&FROM(1),&FROM(3)) MEXIT	
.BCTR1	AIF (T'&BY NE '0').FB AIF (T'&TO EQ '0').FONLY PUSHINS (BXLE,&FROM(1),&TO(1),&LIND(&LI)) MEXIT	
.FONLY	PUSHINS (BCT,&FROM(1),&LIND(&LI)) MEXIT	
.FB	AIF (T'&TO NE '0').FTB AIF ('&BY(2)' EQ '').GENBXLE AIF ('&BY(2)'(1,1) NE '-').GENBXLE	
.FTB	AGO .GENBXH AIF ('&TO(2)' EQ '' OR '&FROM(2)' EQ '').GENBXLE AIF ('&FROM(2)'(1,1) EQ '-').TRYTNEG	
	AIF (T'&FROM(2) NE 'N').GENBXLE AIF ('&TO(2)'(1,1) EQ '-').GENBXH AIF (T'&TO(2) NE 'N').GENBXLE AIF (&FROM(2) GT &TO(2)).GENBXH	
.GENBXLE	PUSHINS (BXLE,&FROM(1),&BY(1),&LIND(&LI)) MEXIT	
.TRYTNEG	AIF ('&TO(2)'(1,1) NE '-').GENBXLE AIF ('&FROM(2)'(2,7) GE '&TO(2)'(2,7)).GENBXLE	
.GENBXH	PUSHINS (BXH,&FROM(1),&BY(1),&LIND(&LI)) MEXIT	
.NOIND	AIF (T'&WHILE EQ '0').NOWHILE AIF (T'&UNTIL NE '0').COMPGEN	
	BC 15,&LIND(&LI) PUSHLAB	
&LI	SETA &LI-1	
&LIND(&LI+1)	EQU *	
	AIF ('&WHILE(6)' EQ '').OKSUBL STKINS &WHILE	
.OKSUBL	MEXIT STKINS (&WHILE(1),&WHILE(2),&WHILE(3),&WHILE(4), &WHILE(5),&LIND(&LI))	X
	AIF ('&WHILE(2)' EQ '').LABEL PUSHINS (BC,&CCVAL,&LIND(&LI+1)) MEXIT	
.LABEL	PUSHINS (BC,&CCVAL,&LIND(&LI+1),,,&LIND(&LI)) MEXIT	
.NOWHILE	AIF (T'&UNTIL EQ '0').TRYINF	
&LIND(&LI)	EQU *	
.UNT	STKINS &UNTIL PUSHINS (BC,15-&CCVAL,&LIND(&LI)) MEXIT	
.TRYINF	AIF ('&P1' NE 'INF').ERRMG1	
&LIND(&LI)	EQU *	
	PUSHINS (BC,15,&LIND(&LI)) MEXIT	
.COMPGEN	AIF ('&WHILE(6)' EQ '').OK STKINS &WHILE	
	AGO .BCHINST	
.OK	STKINS (&WHILE(1),&WHILE(2),&WHILE(3),&WHILE(4),	X

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        &WHILE(5),&LIND(&LI))
AIF      (N'&WHILE GT 1).ENDCOMP
&LIND(&LI) BC      15-&CCVAL,&LIND(&LI-1)
        AGO      .FLAGEQU
.ENDCOMP ANOP
&ST(&NI+1) SETA   &II
        POPINS  &ST(&NI+1)
.BCHINST BC      15-&CCVAL,&LIND(&LI-1)
.FLAGEQU ANOP
&NEST(&NI) SETC   '    Y'. '&NEST(&NI)')(5,4)
        AIF      (T'&FROM NE '0').POSTIND
        AGO      .UNT
.ERRMG   MNOTE 4, 'POSITIONAL PARAMETER IGNORED. BCT/BCTR LOOP END USED'
        MEXIT
.ERRMG2  MNOTE 4, 'UNTIL KEYWORD INVALID WITH INDEXING GROUP. IGNORED'
        AGO      .CKWHILE
.ERRMG1  MNOTE 4, 'NO WHILE, UNTIL, OR INDEXING PARAMETERS ON DO MACRO.'
        MEND
./ ADD NAME=ELSE
        MACRO
        ELSE
        COPY   GBLVARS
&LIND(&LI+1) SETC  '&LIND(&LI) '
&LI      SETA   &LI-1
        PUSHLAB
        BC      15,&LIND(&LI)
&LIND(&LI+1) EQU  *
        MEND
./ ADD NAME=ENDCASE
        MACRO
        ENDCASE
        COPY   GBLVARS
        LCLA   &K,&I
        AIF      ('&NEST(&NI)')(4,1) EQ 'B').BVECT1
        L        &RIND(&AI),&LIND(&LI-1)
        BCR      15,&RIND(&AI)
&LIND(&LI-1) DC    A(&LIND(&LI))
        AGO      .BLDVECT
.BVECT1  ANOP
&LIND(&LI-1) BC      15,&LIND(&LI)
.BLDVECT AIF      (&AIND(&AI) LE 0).TESTCI
&K      SETA   &MULT(&AI)
.LOOPIN  ANOP
&I      SETA   1
.LOOP1   AIF      (&K EQ &CIND1(&CI-&I+1)).ELEND
        AIF      (&I EQ &AIND(&AI)).GENTRY
&I      SETA   &I+1
        AGO      .LOOP1
.GENTRY  AIF      ('&NEST(&NI)')(4,1) EQ 'B').BVECT2
        DC      A(&LIND(&LI))
        AGO      .INCRK
.ELEND   AIF      ('&NEST(&NI)')(4,1) EQ 'B').BVECT3
        DC      A(&CIND2(&CI-&I+1))
        AGO      .DECSTK
.BVECT3  BC      15,&CIND2(&CI-&I+1)
.DECSTK  ANOP
&AIND(&AI) SETA   &AIND(&AI)-1
&CI      SETA   &CI-1
        AIF      (&AIND(&AI) EQ 0).TESTCI
.LOOP2   AIF      (&I EQ 1).INCRK

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&I      SETA  &I-1
&CIND1(&CI-&I+1)  SETA  &CIND1(&CI-&I+2)
&CIND2(&CI-&I+1)  SETC  '&CIND2(&CI-&I+2) '
      AGO    .LOOP2
.BVECT2 BC    15,&LIND(&LI)
.INCRK  ANOP
&K      SETA  &K+&MULT(&AI)
      AGO    .LOOPIN
.TESTCI AIF   (&CI LT 0).ASTKERR
&LIND(&LI) EQU  *
&LI     SETA  &LI-2
&AI     SETA  &AI-1
      POPNEST CASE
      AIF   (&AI LT 0).ASTKERR
      MEXIT
.ASTKERR MNOTE 8, 'NEGATIVE CASE MACRO STACK PTR. EXPANSION INVALID.'
      MEND
./ ADD NAME=ENDDO
      MACRO
      ENDDO
      GBLA  &ST(51),&NI,&LI,&II
&II     SETA  &II-1
      POPNEST DO
&LI     SETA  &LI-2
      MEND
./ ADD NAME=ENDIF
      MACRO
      ENDIF
      COPY GBLVARS
      POPNEST IF
&LIND(&LI) EQU  *
&LI     SETA  &LI-1
      MEND
./ ADD NAME=ENDLOOP
      MACRO
      ENDLOOP
      COPY GBLVARS
      AIF   ('&NEST(&NI)')(3,1) EQ 'P').CALLEND
      BC    15,&LIND(&LI-3)
&LIND(&LI) EQU  *
.CALLEND ANOP
&NEST(&NI) SETC  '    '.'&NEST(&NI)')(4,5)
      POPINS &ST(&NI)
&II     SETA  &II-1
&LI     SETA  &LI-3
      MEND
./ ADD NAME=ENDSRCH
      MACRO
      ENDSRCH
      COPY GBLVARS
      POPNEST SRCH
&LIND(&LI) EQU  *
&LI     SETA  &LI-1
      MEND
./ ADD NAME=EXITIF
      MACRO
      EXITIF &P1,&P2,&P3,&P4,&P5,&P6,&P7,&P8,&P9,&P10,&P11,&P12,&P13,X
             &P14,&P15,&P16,&P17,&P18,&P19,&P20,&P21,&P22,&P23,&P24,&X
             &P25,&P26,&P27,&P28,&P29,&P30,&P31,&P32,&P33,&P34,&P35,&PX

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		36,&P37,&P38,&P39,&P40,&P41,&P42,&P43,&P44,&P45,&P46,&P4X 7,&P48,&P49,&P50,&CC=
	IFPROC	&CC,&P1,&P2,&P3,&P4,&P5,&P6,&P7,&P8,&P9,&P10,&P11,&P12,X &P13,&P14,&P15,&P16,&P17,&P18,&P19,&P20,&P21,&P22,&P23,&X P24,&P25,&P26,&P27,&P28,&P29,&P30,&P31,&P32,&P33,&P34,&PX 35,&P36,&P37,&P38,&P39,&P40,&P41,&P42,&P43,&P44,&P45,&P4X 6,&P47,&P48,&P49,&P50
	MEND	
	./ ADD NAME=GBLVARS	
	GBLA	&CCVAL COND CODE VARIABLE
	GBLA	&CTR MACRO PARAMETER COUNTER
	GBLA	&SEQ LABEL NUMBER GENERATOR
	GBLA	&AI INDEX FOR TOTAL NO. CASES STK
	GBLA	&CI INDEX FOR CASE AND LBL NO.STKS
	GBLA	&II PTR TO INST STKS
	GBLA	&LI INDEX FOR LABEL NUMBER STK
	GBLA	&NI PTR TO NEST STK
	GBLA	&AIND(50) TOTAL CASES STK
	GBLA	&CIND1(200) CASE NUMBER STK
	GBLA	&MULT(50) CASE NUMBER MULTIPLIER
	GBLA	&ST(51) INST STK INCREASE AT EACH LEVEL
	GBLC	&CIND2(200) LABEL NUMBER STK FOR CASES
	GBLC	&IIND1(100) INSTRUCTION STK 1
	GBLC	&IIND2(100) INSTRUCTION STK 2
	GBLC	&I22(100) INSTRUCTION STK 2, 2ND PART
	GBLC	&I23(100) INSTRUCTION STK 2, 3RD PART
	GBLC	&I24(100) INSTRUCTION STK 2, 4TH PART
	GBLC	&IIND3(100) INSTRUCTION STK 3
	GBLC	&I32(100) INSTRUCTION STK 3, 2ND PART
	GBLC	&I33(100) INSTRUCTION STK 3, 3RD PART
	GBLC	&I34(100) INSTRUCTION STK 3, 4TH PART
	GBLC	&IIND4(100) INSTRUCTION STK 4
	GBLC	&I42(100) INSTRUCTION STK 4, 2ND PART
	GBLC	&I43(100) INSTRUCTION STK 4, 3RD PART
	GBLC	&IIND5(100) INSTRUCTION NAME STACK
	GBLC	&LIND(101) LABEL NUMBER STK
	GBLC	&NEST(50) NESTING STK
	GBLC	&RIND(50) REG STK FOR CASENTRY MACRO
	./ ADD NAME=GETCC	
	MACRO	
	GETCC	&COND
	GBLA	&CCVAL
	LCLC	&LWK1
&CCVAL	AIF	('&COND'(1,1) LT '0' OR '&COND'(1,1) GT '9').NOTNUM
	SETA	&COND
	MEXIT	
.NOTNUM	AIF	(K'&COND NE 1).TWOCHAR
&LWK1	SETC	'&COND'
	AGO	.CALCC
.TWOCHAR	AIF	(K'&COND NE 2).INVCOND
	AIF	('&COND'(1,1) NE 'N').OTHERMN
&LWK1	SETC	'&COND'(2,1)
	AGO	.CALCC
.OTHERMN	AIF	('&COND' EQ 'EQ').BC8
	AIF	('&COND' EQ 'LT').BC4
	AIF	('&COND' NE 'LE').TRYGT
&CCVAL	SETA	13
	MEXIT	
.TRYGT	AIF	('&COND' EQ 'GT').BC2
	AIF	('&COND' NE 'GE').INVCOND

&CCVAL	SETA	11	
	MEXIT		
.CALCC	AIF	('&LWK1' NE '0').TRYH	
&CCVAL	SETA	1	
	AGO	.TSTN	
.TRYH	AIF	('&LWK1' EQ 'P' OR '&LWK1' EQ 'H').BC2	
	AIF	('&LWK1' EQ 'L' OR '&LWK1' EQ 'M').BC4	
	AIF	('&LWK1' EQ 'E' OR '&LWK1' EQ 'Z').BC8	
	AGO	.INVCOND	
.BC8	ANOP		
&CCVAL	SETA	8	
	AGO	.TSTN	
.BC4	ANOP		
&CCVAL	SETA	4	
	AGO	.TSTN	
.BC2	ANOP		
&CCVAL	SETA	2	
.TSTN	AIF	('&COND'(1,1) NE 'N').DONE	
&CCVAL	SETA	15-&CCVAL	
.DONE	MEXIT		
.INVCOND	ANOP		
&CCVAL	SETA	15	
	MNOTE	4, 'INVALID CONDITION MNEMONIC. NOP GENERATED'	
	MEND		
./ ADD NAME=IF	MACRO		
	IF	&P1,&P2,&P3,&P4,&P5,&P6,&P7,&P8,&P9,&P10,&P11,&P12,&P13,X	
		&P14,&P15,&P16,&P17,&P18,&P19,&P20,&P21,&P22,&P23,&P24,&X	
		P25,&P26,&P27,&P28,&P29,&P30,&P31,&P32,&P33,&P34,&P35,&PX	
		36,&P37,&P38,&P39,&P40,&P41,&P42,&P43,&P44,&P45,&P46,&P4X	
		7,&P48,&P49,&P50,&CC=	
	PUSHNEST IF		
	PUSHLAB		
	IFPROC	&CC,&P1,&P2,&P3,&P4,&P5,&P6,&P7,&P8,&P9,&P10,&P11,&P12,X	
		&P13,&P14,&P15,&P16,&P17,&P18,&P19,&P20,&P21,&P22,&P23,&X	
		P24,&P25,&P26,&P27,&P28,&P29,&P30,&P31,&P32,&P33,&P34,&PX	
		35,&P36,&P37,&P38,&P39,&P40,&P41,&P42,&P43,&P44,&P45,&P4X	
		6,&P47,&P48,&P49,&P50	
	MEND		
./ ADD NAME=IFPROC	MACRO		
	IFPROC		
	COPY	GBLVARS	
	LCLB	&ANDIND,&ORIND	
	PUSHLAB		
&CTR	SETA	2	
&ST(&NI+1)	SETA	&II+1	
&NEST(&NI)	SETC	' R'.'&NEST(&NI) '(4,5)	
	AIF	(T'&SYSLIST(1) EQ '0').LOOP	
	AIF	(&SYSLIST(1) LE 0 OR &SYSLIST(1) GE 15).INVALCC	
&CCVAL	SETA	&SYSLIST(1)	
	AIF	('SYSLIST(2)' EQ '').ENDBOOL	
	MNOTE	4, 'CC KEYWORD USED. OTHER PARAMETERS IGNORED'	
	AGO	.ENDBOOL	
.INVALCC	MNOTE	4, 'CC OUTSIDE VALID RANGE OF 1 TO 14. NOP GENERATED'	
&CCVAL	SETA	15	
	AGO	.ENDBOOL	
.LOOP	STKINS	&SYSLIST(&CTR),&SYSLIST(&CTR+1),&SYSLIST(&CTR+2),	X
		&SYSLIST(&CTR+3),&SYSLIST(&CTR+4)	
	AIF	('&SYSLIST(&CTR+1)' EQ 'AND').ANDPROC	

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      AIF    ('&SYSLIST(&CTR+1)' NE 'ANDIF').TESTOR
.&ANDPROC PUSHINS (BC,15-&CCVAL,&LIND(&LI-1))
&ANDIND  SETB  1
      AIF    ('&SYSLIST(&CTR+1)' NE 'ANDIF' OR NOT &ORIND).TESTLP
      POPINS &ST(&NI+1)
&LIND(&LI) EQU  *
&ORIND   SETB  0
&LI      SETA  &LI-1
      PUSHLAB
      AGO    .TESTLP
.&TESTOR  AIF    ('&SYSLIST(&CTR+1)' EQ 'OR').ORPROC
      AIF    ('&SYSLIST(&CTR+1)' NE 'ORIF').TESTLP
.&ORPROC  PUSHINS (BC,&CCVAL,&LIND(&LI))
&ORIND   SETB  1
      AIF    ('&SYSLIST(&CTR+1)' NE 'ORIF' OR NOT &ANDIND).TESTLP
      PUSHINS (EQU,*,*,*,&LIND(&LI-1))
&ANDIND  SETB  0
      PUSHLAB
&LI      SETA  &LI-1
&LIND(&LI-1) SETC '&LIND(&LI+1)'
.&TESTLP  ANOP
&CTR     SETA  &CTR+2
      AIF    ('&SYSLIST(&CTR-1)' NE '').LOOP
.&ENDBOOL AIF    ('&NEST(&NI)')(5,4) EQ 'DO').DOEND
      POPINS &ST(&NI+1)
      BC     15-&CCVAL,&LIND(&LI-1)
      AIF    (NOT &ORIND).POPLBL
&LIND(&LI) EQU  *
.&POPLBL  ANOP
&LI      SETA  &LI-1
      MEXIT
.&DOEND   ANOP
&CTR     SETA  &ST(&NI+1)
      AGO    .ENDLBL
.&NXTLBL  AIF    ('&IIND3(&CTR)' NE '&LIND(&LI)').INCTR
&IIND3(&CTR) SETC  '&LIND(&LI-3)'
.&INCTR   ANOP
&CTR     SETA  &CTR+1
.&ENDBLBL AIF    (&CTR LE &II).NXTLBL
      POPINS &ST(&NI+1)
      BC     &CCVAL,&LIND(&LI-3)
      AIF    (NOT &ANDIND).POP2LBL
&LIND(&LI-1) EQU  *
.&POP2LBL ANOP
&LI      SETA  &LI-2
&NEST(&NI) SETC  '    Y'. '&NEST(&NI)')(5,4)
      MEND
./ ADD NAME=MACROS
      COPY   CASE
      COPY   CASENTRY
      COPY   CHKSTACK
      COPY   DO
      COPY   DOEXIT
      COPY   DOPROC
      COPY   ELSE
      COPY   ENDCASE
      COPY   ENDDO
      COPY   ENDIF
      COPY   ENDLOOP
      COPY   ENDSRCH

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	COPY	EXITIF
	COPY	GETCC
	COPY	IF
	COPY	IFPROC
	COPY	ORELSE
	COPY	POPINS
	COPY	POPNEST
	COPY	PUSHINS
	COPY	PUSHLAB
	COPY	PUSHNEST
	COPY	STKINS
	COPY	STRTSRCH
./	ADD	NAME=ORELSE
	MACRO	
	ORELSE	
	COPY	GBLVARS
&LIND(&LI+1)	SETC	'&LIND(&LI)'
&LI	SETA	&LI-1
	PUSHLAB	
	BC	15,&LIND(&LI-3)
&LIND(&LI+1)	EQU	*
&NEST(&NI)	SETC	' P'.'&NEST(&NI)''(4,5)
	MEND	
./	ADD	NAME=POPINS
	MACRO	
	POPINS	&P
	COPY	GBLVARS
&W	LCLA	&W
	SETA	&P
	AGO	.TEST
.UNSTACK	AIF	('&IIND3(&W)' EQ ' ').ONEOP
	AIF	('&IIND4(&W)' NE ' ').THREEOP
&IIND5(&W)		&IIND1(&W) &IIND2(&W)&I22(&W)&I23(&W)&I24(&W),&IIND3(&W)X
		&I32(&W)&I33(&W)&I34(&W)
	AGO	.INCTR
.THREEOP	ANOP	
&IIND5(&W)		&IIND1(&W) &IIND2(&W)&I22(&W)&I23(&W)&I24(&W),&IIND3(&W)X
		&I32(&W)&I33(&W)&I34(&W),&IIND4(&W)&I42(&W)&I43(&W)
	AGO	.INCTR
.ONEOP	ANOP	
&IIND5(&W)		&IIND1(&W) &IIND2(&W)&I22(&W)&I23(&W)&I24(&W)
.INCTR	ANOP	
&W	SETA	&W+1
.TEST	AIF	(&W LE &II).UNSTACK
&II	SETA	&P-1
	AIF	('&NEST(&NI)''(3,1) NE ' ' OR '&NEST(&NI)''(4,1) EQ ' ').NEQ
&IIND5(&II)		&IIND1(&II) &IIND2(&II)
.NEQ	AIF	(&II GT 0 OR (&II EQ 0 AND '&NEST(&NI)''(5,4) EQ 'IF')).END
	MNOTE	8, 'NEGATIVE INSTRUCTION STACK PTR. EXPANSION INVALID.'
.END	MEND	
./	ADD	NAME=POPNEST
	MACRO	
	POPNEST	&P1
	COPY	GBLVARS
&SUFFIX	LCLC	&SUFFIX
	SETC	'&NEST(&NI)''(5,4)
	AIF	('&NEST(&NI)''(5,4) EQ '&P1').GOOD
	MNOTE	8, '&SUFFIX MACRO AT SAME LEVEL AS &P1 TERMINATOR.'
.GOOD	ANOP	
&NI	SETA	&NI-1

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      AIF  (&NI GE 0).OK
      MNOTE 8, 'NEGATIVE NEST STACK POINTER. CHECK NUMBER OF ENDS.'
.OK    MEND
./ ADD NAME=PUSHINS
      MACRO
      PUSHINS &PAM
      COPY GBLVARS
      LCLA &WK, &I, &J, &K
&I     SETA 3
&J     SETA 4
&K     SETA 4
      AIF  ('&PAM(1)' NE 'TS').NOTTS
&J     SETA 3
&I     SETA 5
      AGO  .SETK
.NOTTS AIF  ('&PAM(1)' EQ 'BAL' OR '&PAM(1)' EQ 'BALR').SETK
      AIF  ('&PAM(1)'(1,1) EQ 'B' OR '&PAM(1)' EQ 'EQU').BCH
      AIF  ('&PAM(5)' EQ '').TWOPERS
&J     AIF  ('&PAM(1)'(1,1) EQ 'C').SETK
      SETA 5
      AGO  .GETCOND
.TWOPERS AIF  ('&PAM(1)'(1,1) NE 'C').SETK
&I     SETA 4
&J     SETA 3
.SETK   ANOP
&K     SETA 5
.GETCOND GETCC &PAM(&J)
.BCH    AIF  (&II GE 100).OVERI
&II     SETA &II+1
&IIND1(&II) SETC '&PAM(1)'
&IIND2(&II) SETC '&PAM(2)'(1,8)
&WK     SETA K'&SYSLIST(1,2)
      AIF  (&WK GE 25).LD24
&I24(&II) SETC ''
      AIF  (&WK GE 17).LD23
&I23(&II) SETC ''
      AIF  (&WK GE 9).LD22
&I22(&II) SETC ''
      AGO  .PAM3
.LD24   ANOP
&I24(&II) SETC '&PAM(2)'(25,8)
.LD23   ANOP
&I23(&II) SETC '&PAM(2)'(17,8)
.LD22   ANOP
&I22(&II) SETC '&PAM(2)'(9,8)
.PAM3   AIF  ('&PAM(&I)' NE '').LD31
&IIND3(&II) SETC ''
      AGO  .BLKOUT3
.LD31   ANOP
&IIND3(&II) SETC '&PAM(&I)'(1,8)
.BLKOUT3 ANOP
&WK     SETA K'&SYSLIST(1,&I)
      AIF  (&WK GE 25).LD34
&I34(&II) SETC ''
      AIF  (&WK GE 17).LD33
&I33(&II) SETC ''
      AIF  (&WK GE 9).LD32
&I32(&II) SETC ''
      AGO  .PAM4
.LD34   ANOP

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&I34(&II)   SETC  '&PAM(&I) '(25,8)
.LD33      ANOP
&I33(&II)   SETC  '&PAM(&I) '(17,8)
.LD32      ANOP
&I32(&II)   SETC  '&PAM(&I) '(9,8)
.PAM4      AIF    ('&PAM(&K)' NE '').LD41
&IIND4(&II) SETC  ''
          AGO    .BLKOUT4
.LD41      ANOP
&IIND4(&II) SETC  '&PAM(&K) '(1,8)
.BLKOUT4   ANOP
&WK        SETA   K'&SYSLIST(1,&K)
          AIF    (&WK GE 17).LD43
&I43(&II)   SETC  ''
          AIF    (&WK GE 9).LD42
&I42(&II)   SETC  ''
          AGO    .PAM5
.LD43      ANOP
&I43(&II)   SETC  '&PAM(&K) '(17,8)
.LD42      ANOP
&I42(&II)   SETC  '&PAM(&K) '(9,8)
.PAM5      AIF    ('&PAM(6)' EQ '').BLKOUT5
          AIF    ('&PAM(6) '(1,4) NE '#@LB').BLKOUT5
&IIND5(&II) SETC  '&PAM(6)'
          MEXIT
.BLKOUT5   ANOP
&IIND5(&II) SETC  ''
          MEXIT
.OVERI     MNOTE 8, 'INSTRN STK SIZE EXCEEDED. FURTHER EXPANSIONS INVALID'
          MEND
./ ADD NAME=PUSHLAB
          MACRO
          PUSHLAB
          COPY GBLVARS
          AIF    (&LI GE 100).OVER
&SEQ       SETA   &SEQ+1
&LI        SETA   &LI+1
&LIND(&LI) SETC  '#@LB&SEQ'
          MEXIT
.OVER      MNOTE 8, ' LABEL STK SIZE EXCEEDED. FURTHER EXPANSIONS INVALID'
          MEND
./ ADD NAME=PUSHNEST
          MACRO
          PUSHNEST &P1
          COPY GBLVARS
&NI        SETA   &NI+1
          AIF    (&NI GE 50).OVER
&NEST(&NI) SETC  ' '. '&P1'
          MEXIT
.OVER      MNOTE 8, 'NEST STACK SIZE EXCEEDED. FURTHER EXPANSIONS INVALID'
          MEND
./ ADD NAME=STKINS
          MACRO
          STKINS &P1,&P2,&P3,&P4,&P5,&P6
          COPY GBLVARS
          AIF    ('&P1(2)' EQ '').NOTSUBL
          AIF    ('&P1(6)' EQ '' OR '&P1(6)' EQ '&LIND(&LI)').OKSUBL
          MNOTE 12, 'TOO MANY OPERANDS INSIDE PARENTHESES'
          MEXIT
.OKSUBL    PUSHINS (&P1(1),&P1(2),&P1(3),&P1(4),&P1(5),&P1(6))

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MEXIT
.NOTSUBL AIF      ('&P2' EQ '' OR '&P2' EQ 'OR' OR '&P2' EQ 'AND' OR '&P2'X
EQ 'ORIF' OR '&P2' EQ 'ANDIF').SGLOPR
AIF      ('&P5' EQ 'OR' OR '&P5' EQ 'AND' OR '&P5' EQ 'ORIF' OR  X
'&P5' EQ 'ANDIF').TWOPER2
PUSHINS (&P1,&P2,&P3,&P4,&P5,&P6)
&CTR    SETA    &CTR+4
MEXIT
.TWOPER2 PUSHINS (&P1,&P2,&P3,&P4,,&P6)
&CTR    SETA    &CTR+3
MEXIT
.SGLOPR  GETCC  &P1(1)
MEND
./ ADD NAME=STRTSRCH
MACRO
STRTSRCH &P1,&FROM=,&TO=,&BY=,&UNTIL=,&WHILE=
PUSHLAB
PUSHNEST SRCH
DOPROC  &FROM,&TO,&BY,&UNTIL,&WHILE,&P1
PUSHLAB
MEND
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