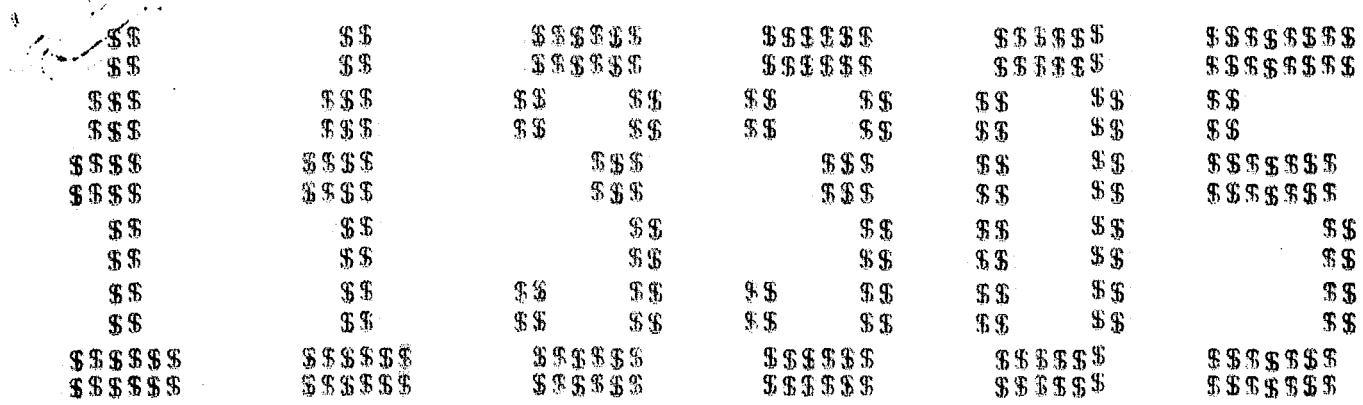

********** NYU/CIMS SCOPE 3,2/32 ***** 10/09/72 **********

NEW VERSIONS OF THE RUN COMPILER AND LIBRARY ARE NOW AVAILABLE FOR TESTING, THEY MAY BE OBTAINED FROM THE PERMANENT FILES NAMED RUN AND RUNLIB,

AS OF MONDAY,9 OCT, SNOBOL 3,9 (PURDUE) WILL BE AVAILABLE FROM THE CIMLIB TAPE IN TWO FORMATS - SNOBOLP (ABSOLUTE OVERLAY) AND SNOBOLR (RELOCATABLE), THE NEW VERSION CORRECTS SEVERAL PROBLEMS FOUND IN THE OLDER VERSION, BUT DOES NOT INCORPORATE ANY NEW FEATURES,

THE FOLLOWING CDC MANUALS ARE PRESENTLY AVAILABLE IN RM 505 AT THE PRICES LISTED , CHECK THIS LIST FOR MANUAL UPDATES,

PRICE	REV	NAME OF MANUAL
$4,50	C	CDC SCOPE USERS GUIDE (VERY USEFUL FROM USER/S STANDPOINT)
$2,80	B	CDC UPDATE REFERENCE MANUAL
$2,70	N	CDC 6600 COMPUTER SYSTEM REFERENCE MANUAL
$9,00	L	CDC SCOPE 3,2 OPERATING SYSTEM REFERENCE MANUAL
$3,70	E	CDC FORTRAN REFERENCE MANUAL
$5,50	J	CDC FORTRAN EXTENDED REFERENCE MANUAL
$5,20	C	CDC 6000/7000 COMPASS 2,0 REFERENCE MANUAL
$2,00	C	CDC BASIC 2,0 REFERENCE MANUAL
$2,40		CDC SORT/MERGE REFERENCE MANUAL
$2,00	A	CDC INTERCOM I USER/S MANUAL
$2,00		NYU USER/S GUIDE TO THE CDC 6600
$3,00		NYU SNOBOL IV MANUAL
$3,00		NYU ARTSPEAK MANUAL
$1,00		NYU GUIDE TO COMPUTER ART FOR THE PRINTER - CAP

PLEASE REPORT ANY PROBLEMS OR DIFFICULTIES ENCOUNTERED IN USING THIS VERSION OF THE SYSTEM TO THE APPLICATIONS ANALYSTS IN RM 305 (460-7391)

****

Listing of Mind

```
                      PROGRAM TEST(INPUT,OUTPUT)
                    COMMENT  THIS TEST PROGRAM IS USED TO SEE IF AINV IS WORKING PROPERL
000003                DIMENSION A(25,25),L(25),M(25),B(625)
000003         100    READ 1, N
000011         1      FORMAT(I5)
000011                IF(N.EQ.0) CALL EXIT
000013                READ 2, ((A(I,J),J=1,N),I=1,N)
000033         2      FORMAT(8F10.0)
000033                NN=N*N
000035                CALL INV(A,N,NN,B,L,M)
000041                PRINT 5, N
000047         5      FORMAT(5X,*THIS IS A SQUARE MATRIX OF DIMENSION *,I5)
000047                PRINT 10, ((A(I,J),J=1,N),I=1,N)
000067         10     FORMAT(5X,8(3X,E14.7))
000067                GO TO 100
000070                END
```

RUN VERSION 2,3 - CDC LEVEL 26 - NYU LEVEL 11

TEST

PROGRAM LENGTH INCLUDING I/O BUFFERS
006617

FUNCTION ASSIGNMENTS

STATEMENT ASSIGNMENTS

1	-	000101	2	-	000103	5	-	000106	10	-	000114
100	-	000003									

BLOCK NAMES AND LENGTHS

VARIABLE ASSIGNMENTS

A	-	000123	B	-	001366	I	-	002550	J	-	002551
L	-	001304	M	-	001335	N	-	002547	NN	-	002552

START OF CONSTANTS
000072

START OF TEMPORARIES
000117

START OF INDIRECTS
000123

UNUSED COMPILER SPACE
003200

```
                      SUBROUTINE INV(A,N,K,B,L,M)
000011                DIMENSION A(25,25),B(K),L(N),M(N)
000011                NN=0
000012                DO 20 I=1,N
000013                DO 20 J=1,N
000014                NN=NN+1
000016           20   B(NN)=A(I,J)
000027                CALL MINV(B,N,DET,L,M)
000031                NN=0
000032                DO 30 I=1,N
000037                DO 30 J=1,N
000040                NN=NN+1
000042           30   A(I,J)=B(NN)
000052                RETURN
000052                END
```

```
RUN VERSION 2,3 - CDC LEVEL 26 - NYU LEVEL 11

INV

SUBPROGRAM LENGTH
000065

FUNCTION ASSIGNMENTS

STATEMENT ASSIGNMENTS

BLOCK NAMES AND LENGTHS

VARIABLE ASSIGNMENTS
DET    - 000064    I      - 000062    J      - 000063    NN     - 000061

START OF CONSTANTS
000054

START OF TEMPORARIES
000055

START OF INDIRECTS
000057

UNUSED COMPILER SPACE
003200
```

```
                      SUBROUTINE MINV(A,N,D,L,M)
                C
                C     SUBROUTINE TO INVERT AN NXN MATRIX A, D IS THE VALUE OF THE
                C     DETERMINANT OF A, L AND M ARE WORK VECTORS OF LENGTH N
                C
    000010            DIMENSION A(1),L(1),M(1)
    000010            D=1.0
    000011            NK=-N
    000012            DO 80 K=1,N
                C
                C     LOCATE MAXIMUM ELEMENT IN REMAINING (N-K)X(N-K) MATRIX
                C
    000013            NK=NK+N
    000014            L(K)=K
    000016            M(K)=K
    000017            KK=NK+K
    000020            BIGA=A(KK)
    000022            KM1=K+1
    000024            DO 20 J=K,N
    000025            IJ=N*(J-1)+KM1
    000031            DO 20 I=K,N
    000033            IJ=IJ+1
    000035       10   IF(ABS(BIGA)-ABS(A(IJ)))15,20,20
    000042       15   BIGA=A(IJ)
    000044            L(K)=I
    000046            M(K)=J
    000050       20   CONTINUE
                C
                C     CHECK FOR SINGULARITY
                C
    000055            IF(BIGA) 22,21,22
    000056       21   D=0.0
    000057            RETURN
    000057       22   RBIGA=1.0/BIGA
                C
                C     INTERCHANGE ROWS
                C
    000061            J=L(K)
    000063            IF(J-K)35,35,25
    000065       25   KI=K-N
    000067            DO 30 I=1,N
    000070            KI=KI+N
    000071             HOLD=-A(KI)
    000073            JI=KI-K+J
    000075             A(KI)=A(JI)
    000100       30   A(JI)=HOLD
    000105       35   I=M(K)
                C
                C     COLUMN INTERCHANGE
                C
    000107            IF(I-K) 48,48,38
    000111       38   JP=N*(I-1)
    000114             DO 40 J=1,N
    000116             JK=NK+J
    000117            JI=JP+J
    000121            HOLD=-A(JK)
    000123            A(JK)=A(JI)
```

```
000126    40    A(JI)=HOLD
                C
                C     DIVIDE COLUMN BY MINUS PIVOT (VALUE OF PIVOT ELEMENT IS STORED
                C     IN BIGA)
                C
000133    48    DO55I=1,N
000135          IF(I-K)50,55,50
000137    50    IK=NK+I
000141          A(IK)=-A(IK)*RBIGA
000144    55    CONTINUE
                C
                C     REDUCE MATRIX
                C
000147          DO 66 I=1,N
000150          IF(I-K) 60,66,60
000152    60    IK=NK+I
000154          HOLD=A(IK)
000156          IJ=I-N
000160          DO 65 J=1,N
000161          IJ=IJ+N
000163    62    KJ=IJ-I+K
000165          A(IJ)=HOLD*A(KJ)+A(IJ)
000172    65    CONTINUE
000175          A(IK)=HOLD
000177    66    CONTINUE
                C
                C     DIVIDE ROW BY PIVOT
                C
000202          KJ=K-N
000203          DO75J=1,N
000205          KJ=KJ+N
000206          IF(J-K)70,75,70
000210    70    A(KJ)=A(KJ)*RBIGA
000213    75    CONTINUE
                C
                C     REPLACE PIVOT BY RECIPROCAL
                C
000216          D=D*BIGA
000217          A(KK)=RBIGA
000221    80    CONTINUE
                C
                C     FINAL ROW AND COLUMN INTERCHANGE
                C
000224          K=N
000224    100   K=K-1
000226          IF(K)150,150,105
000227    105   I=L(K)
000231          IF(I-K)120,120,108
000233    108   JQ=N*(K-1)
000236          JR=N*(I-1)
000242          DO 110 J=1,N
000243          JK=JQ+J
000244          HOLD=A(JK)
000246          JI=JR+J
000250          A(JK)=-A(JI)
000253    110   A(JI)=HOLD
000257    120   J=M(K)
000261          IF(J-K)100,100,125
```

```
000263    125   KI=K*N
000265          DO 130 I=1,N
000266          KI=KI+N
000267          HOLD=A(KI)
000271          JI=KI+K+J
000273          A(KI)=A(JI)
000276    130   A(JI)=HOLD
000303          GOTO 100
000303    150   RETURN
000304          END
```

RUN VERSION 2,3 - CDC LEVEL 26 - NYU LEVEL 11

MINV

SUBPROGRAM LENGTH
000344

FUNCTION ASSIGNMENTS

STATEMENT ASSIGNMENTS

10	=	000035	15	=	000042	20	=	000050	21	=	000056
22	=	000057	25	=	000065	35	=	000105	38	=	000111
48	=	000133	50	=	000137	55	=	000144	60	=	000152
62	=	000163	66	=	000177	70	=	000210	75	=	000213
100	=	000224	105	=	000227	108	=	000233	120	=	000257
125	=	000263	150	=	000303						

BLOCK NAMES AND LENGTHS

VARIABLE ASSIGNMENTS

BIGA	=	000325	HOLD	=	000334	I	=	000331	IJ	=	000330
IK	=	000340	J	=	000327	JI	=	000335	JK	=	000337
JP	=	000336	JQ	=	000342	JR	=	000343	K	=	000323
KI	=	000333	KJ	=	000341	KK	=	000324	KM1	=	000326
NK	=	000322	RBIGA	=	000332						

START OF CONSTANTS
000306

START OF TEMPORARIES
000310

START OF INDIRECTS
000316

UNUSED COMPILER SPACE
002200

```
CORE MAP  19,57,28,  NORMAL                    CONTROL
          ---TIME---LOAD MODE --L1--L2-----TYPE----------------USER-------CALL-
          FWA LOADER  033771  FWA TABLES  032174
          -PROGRAM----ADDRESS-                          --LABELED---COMMON--
          TEST          000100
          INV           006717
          MINV          007004
          SYSTEM        007350                                  SCOPE2       007350
          GETBA         010454
          INPUTC        010473
          KODER         010623
          KRAKER        012146
          OUTPTC        013266
          SIO$          013360
          ----UNSATISFIED EXTERNALS-----                                    REFERENCE

     THIS IS A SQUARE MATRIX OF DIMENSION      2
       -4,2500000E+00    1,0000000E+00    1,0000000E+00    -4,0000000E+00
```