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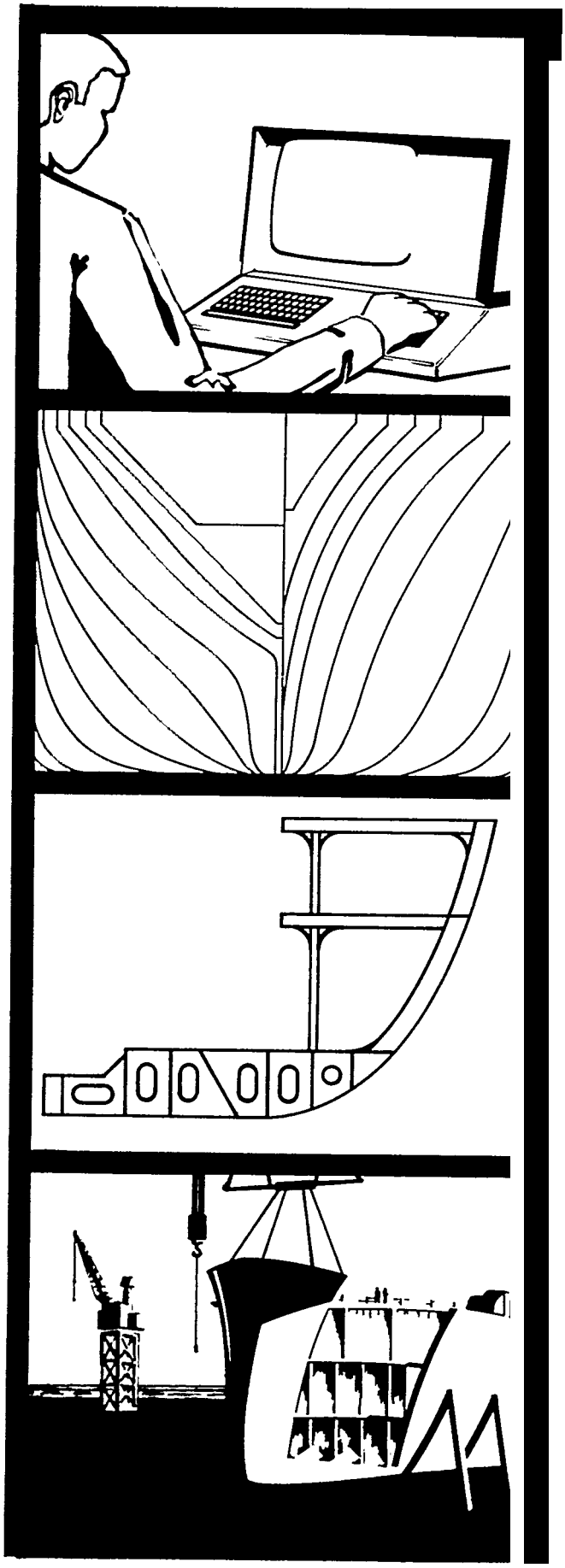

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DETAIL ENGINEERING MODULE (DEMO) AND OTHER SPADES DEVELOPMENTS

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DETAIL ENGINEERING MODULE

When we planned the Detail Engineering Module some time ago, we had set three objectives to be achieved:

1. The verification of the data base loading by means of drawings which can be extracted with a few commands.
2. The development of a powerful program oriented towards engineering needs, which could be utilized in generation of the detail drawings.
3. Expanded data base loading and recalling capabilities for the entire 'SPADES' System beyond the mere wire model, to include details of holes, stiffeners, seams, brackets and internal contours.

Today, I am able to report that the first two objectives have been accomplished. In fact, the Detail Engineering Module is being used already in a production environment at a major shipyard.

In order to show you how the Detail Engineering Module can be utilized, I have worked out a little demonstration with one of the lofting contracts our Company is performing at the present time. The vessel is a Patrol Gunboat of the PGG 511 class, which measures 190 feet in length, and about 26 feet in beam. The lines of the boat have been computer faired

by the 'SPADES' Fairing Module, and loading of the data base has been performed with the HULLOAD Module for the purpose of lofting.

Partially to check out the hulloading job, and partially to find out how much the Detail Engineering Module could produce, I called out a series of side frames with this input deck (Fig. 1). The result is a drawing (like Figs. 2, 3 and 4) for each of the frames. Each of the drawings has its unique identification number, composed of the ship number, program number (DEMO), the input deck number, and a modifier within the input deck and the actual frame number.

The actual detail drawings of this contract show this series of side frames drawn on top of each other, which prompted me to do the same thing with Fig. 5 as a result. This picture looks somewhat confusing at first. But it reveals the value of the program as a data base checking tool. It would be immediately visible if a longitudinal has the wrong location, orientation or size. In fact, we were puzzled by the irregular pattern of the Tee's on the first platform. Another new development of the 'SPADES' System, the Shipfile Verification Report, helped immediately to clear up the mystery. This report lists all longitudinals by characteristics (Fig. 6), and longitudinals L10 and L9 are shown sloping outboard in the frame range in question.

Next, I tried 'DEMO' for three web frames, 26.1, 31 and 35 (Figs. 7 through 10), and Bulkhead 22 (Figs. 11 & 12). The Bulkhead shows an

optional grid that may be called out for the purpose of orientation and reference in detailing.

Now, I would like to show you how 'DEMO' could be used for detailing. Again, I started out by simply calling three webframes, 7, 12 and 17, from the data base (Figs. 13 through 16). It is apparent that Frame 7 is somewhat different from Frames 12 and 17 because of the breast-hooks that land against it in the lower portion. But the webs are still similar, and coding can be identical for all three frames. In the Deck No. 2 (Fig. 17), the internal contours of side web and deck web are coded. I have added some writing through the drafting machine and then terminated Frame 7. The result is Fig. 18. Following the 'LOAD' card for Frame 7 is some coding to complete the detailing of Frames 12 and 17. Some minor calculations precede the definition of four holes, and other calculations are followed by the definition of the five horizontal stiffeners. Figs. 19 and 20 show the results for Frames 12 and 17.

Input Deck 4 (Fig. 21) is a slight modification of Input Deck 2. The Command 'LIMT' has been added in order to cut the drawings just above the Platform. Figs. 22, 23 and 24 show the result. This could be useful if the lower portion of the Web is needed to be drawn at a larger scale for detailing.

Finally, the contract drawings showed two details. One is the cut-out at the shell knuckle in a very large scale. Input Deck 3 (Fig. 25) shows the

coding necessary for that detail (Fig. 26). The other detail is the connection of the deck and side webs. Input Deck 5 (Fig. 27) was generated by a copy from Deck 2, deletion of unnecessary coding like the holes and stiffeners, and addition of the 'LIMT' Command. Fig. 28 shows detail 5B.

The drawings that are generated by 'DEMO' at the shipyard enjoy great popularity and are hard to come by. I was able to get hold of a few, which I would like to show you as samples of application.

Fig. 29: Two partial webframes of a Navy Tanker

Fig. 30: Partial stern frame of a Container Ship

Fig. 31: Midship section of a Tank Barge.

```
         1         2         3         4         5         6         7         8
12345678901234567890123456789012345678901234567890123456789012345678901234567890

INPUT UPDATING           DATE  06/12/78    TIME  01/09/37      RUN NO.    4
JOB PB01  PROG. DEMO                INPUT 0010    REV. NO.    4          PAGE   1

INPS                    N       10                                          7300100008
LIMT                                                X   12     Y    1      7300100012
DRWG TRSV          FWD    F 231      F 251      F 271      F 291            7300100016
                          F 321      F 341      F 381                       7300100020
RMKS SIDE FRMS. STBD LKG FWD PORT SIM & OPP                                 7300100028
STRT                       -4         -10                                   7300100032
LOAD                     F 231      F 381                                   7300100036
                                                                            7300100040M
                                                                            7300100044M
                                                                            7300100048M
                                                                            7300100052M
                                                                            7300100056M
                                                                            7300100060M
INPE                                                                        7300109999
         1         2         3         4         5         6         7         8
12345678901234567890123456789012345678901234567890123456789012345678901234567890

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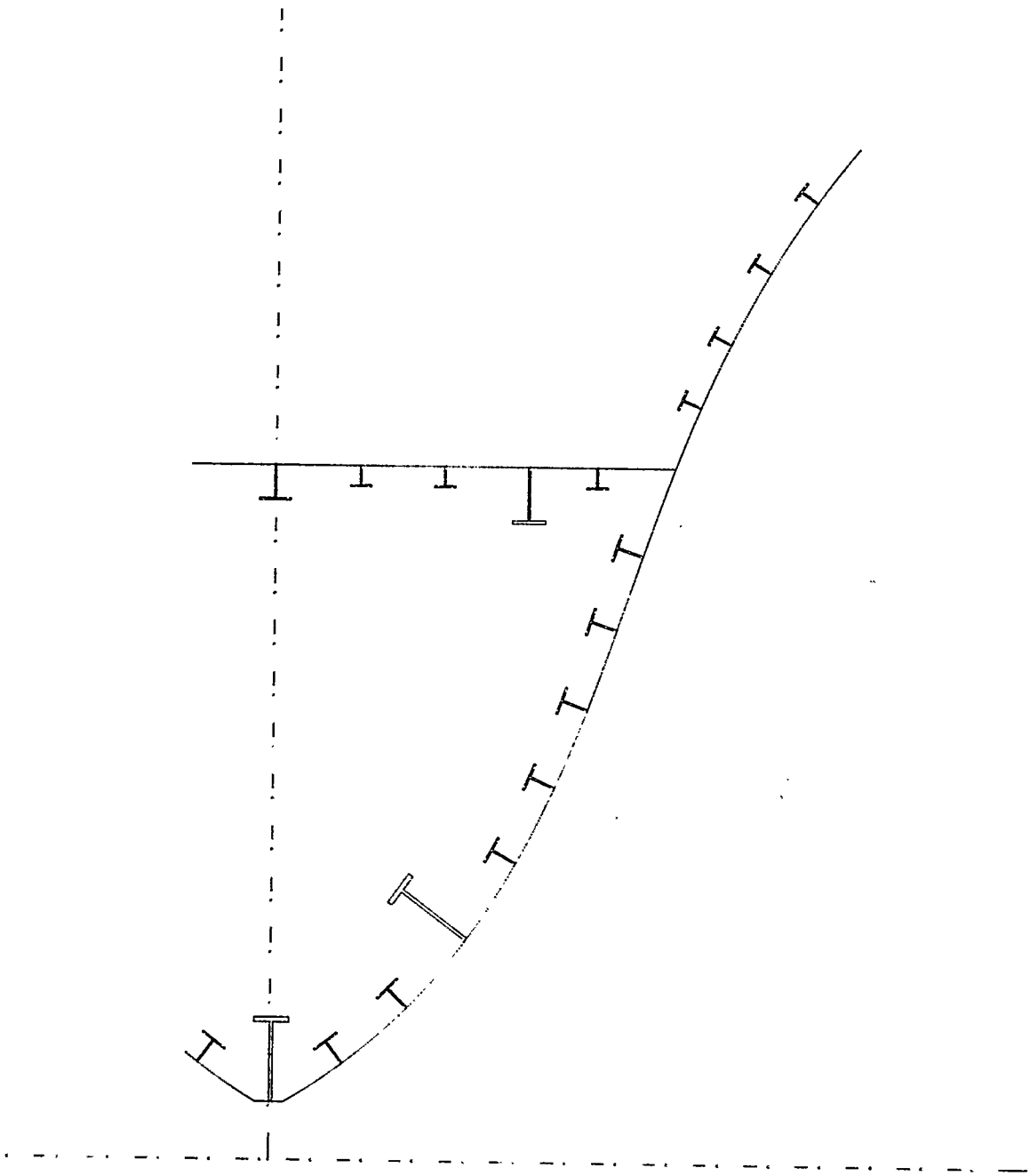
                                 INPUT IS EXECUTABLE
```

Fig. 1



TAPE NO. 730010 - 2 F 23100

Fig. 2

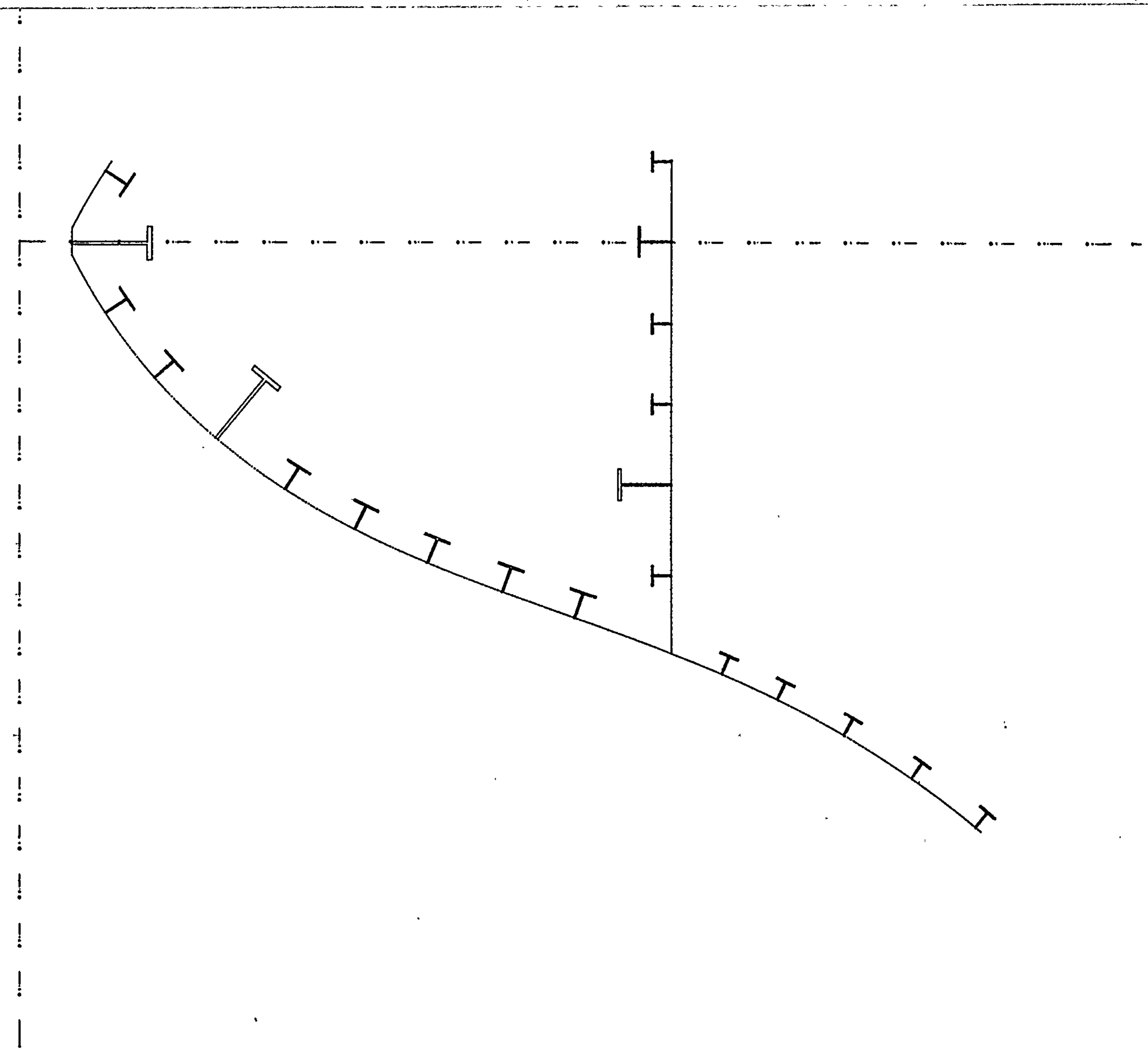


Fig. 3

TAPE NO. 731010 - 2 F 25100

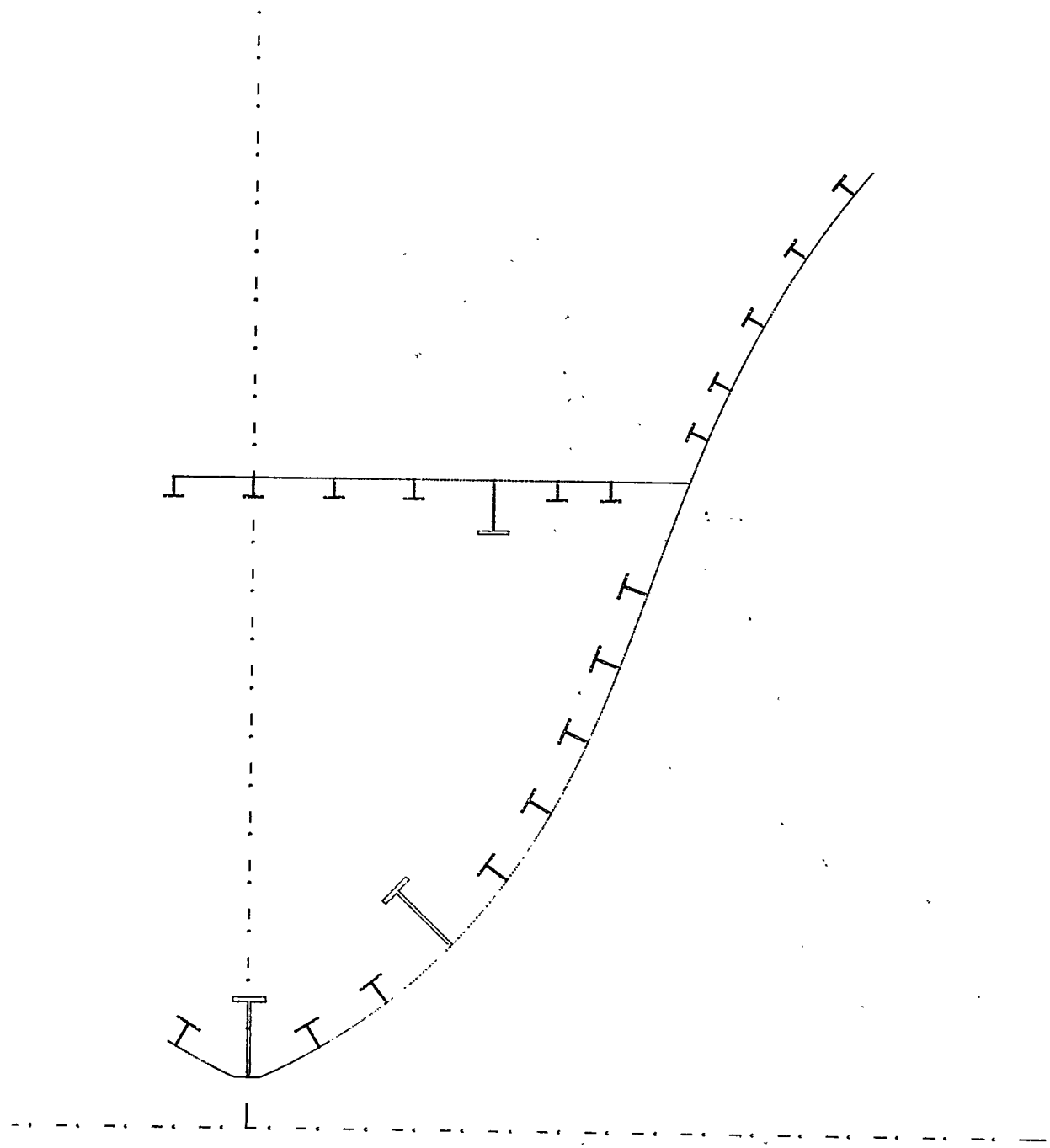
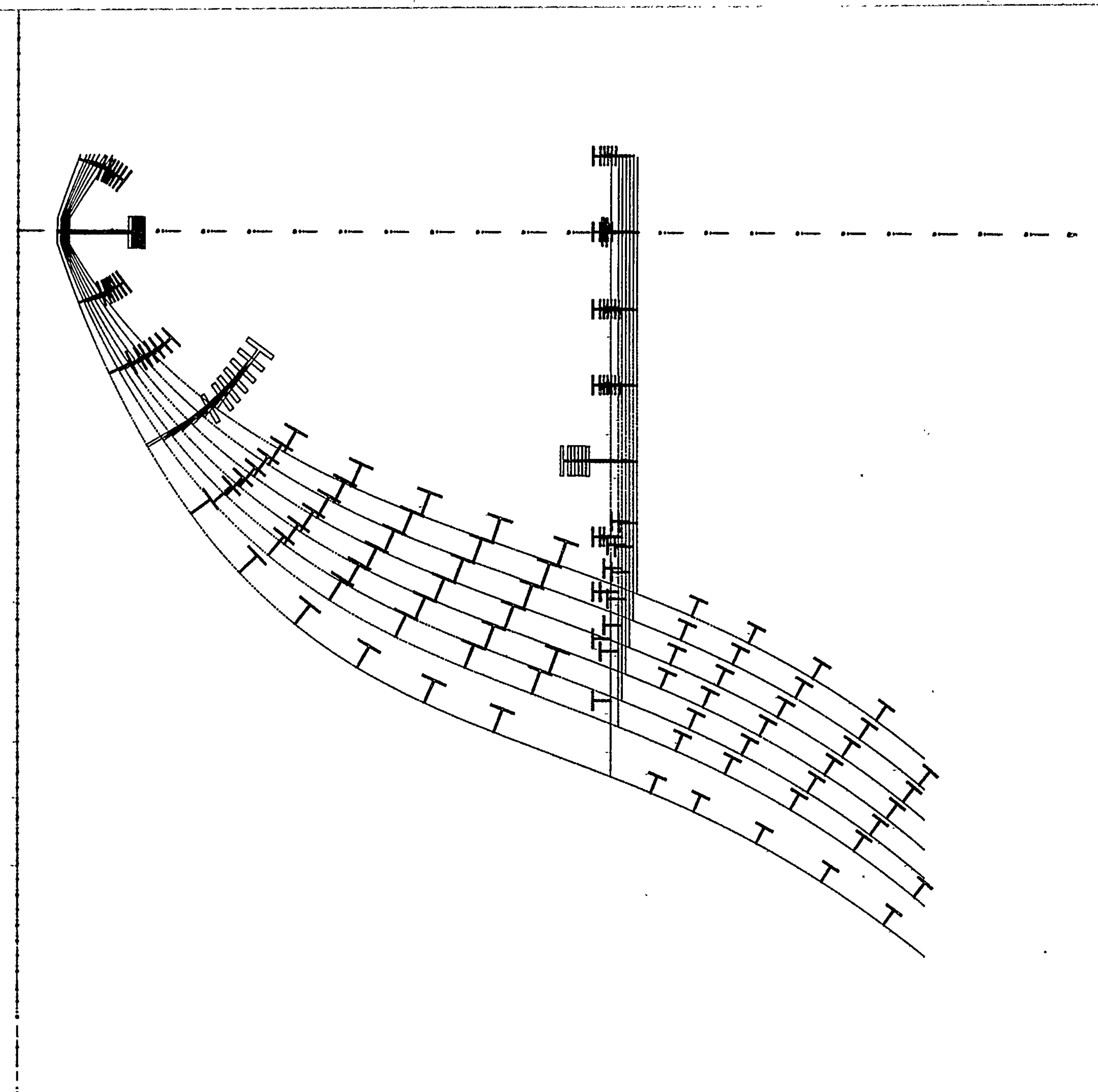


Fig. 4

Fig. 5



TAPE NO. 1736010 - 2 F 38100

S L10	4100 TO	7000	SLPE	Y	0.487	1.003 K	100	903	NORM	180.000
	8100 TO	9100	SLPE	Y	1.249	1.495 K	100	903	NORM	180.000
	10100 TO	12000	SLPE	Y	1.726	1.958 K	100	903	NORM	180.000
	13100 TO	17000	SLPE	Y	2.175	2.825 K	100	903	NORM	180.000
	18100 TO	22000	SLPE	Y	3.051	3.651 K	100	903	NORM	180.000
	23100 TO	27000	SLPE	Y	3.811	4.291 K	100	903	NORM	180.000
	27100 TO	31000	SLPE	Y	4.457	4.996 K	100	903	NORM	180.000
	32100 TO	35100	SLPE	Y	5.166	5.676 K	100	903	NORM	180.000
	36100 TO	39100	SLPE	Y	5.835	6.154	100	903	NORM	180.000
	40000 TO	40000	FIXE	Y	6.514	6.514	-101	903	NORM	180.000
	41050 TO	43100	SLPE	Y	6.526	6.774 K	100	903	NORM	180.000
	46000 TO	47000	SLPE	Y	7.157	7.269 K	100	903	NORM	180.000

Fig. 6

```
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INPUT UPDATING           DATE  05/31/78    TIME  23/16/40      RUN NO.    3
JOB PB01  PROG. DEMO                INPUT 0011    REV. NO.   2          PAGE   1

INPS                     N       11                                      7300110008
LIMT                                                      Y    2         7300110012
DRWG TRSV          FWD    F 261      F 31       F 351                    7300110016
RMKS WEB FRMS                                                           7300110020
STRT                       -3        -13                                7300110024
WRIT3                      -2 3         0     A -90           3          7300110028R
WRIT3WEB FRAME           STBD LOKG FWD PORT SIM & OPP             *     7300110032R
                                                                        7300110036D
LOAD                       F 261      F 351                             7300110040
INPE                                                                    7300119999
         1         2         3         4         5         6         7         8
12345678901234567890123456789012345678901234567890123456789012345678901234567890

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                                 INPUT IS EXECUTABLE
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Fig. 7

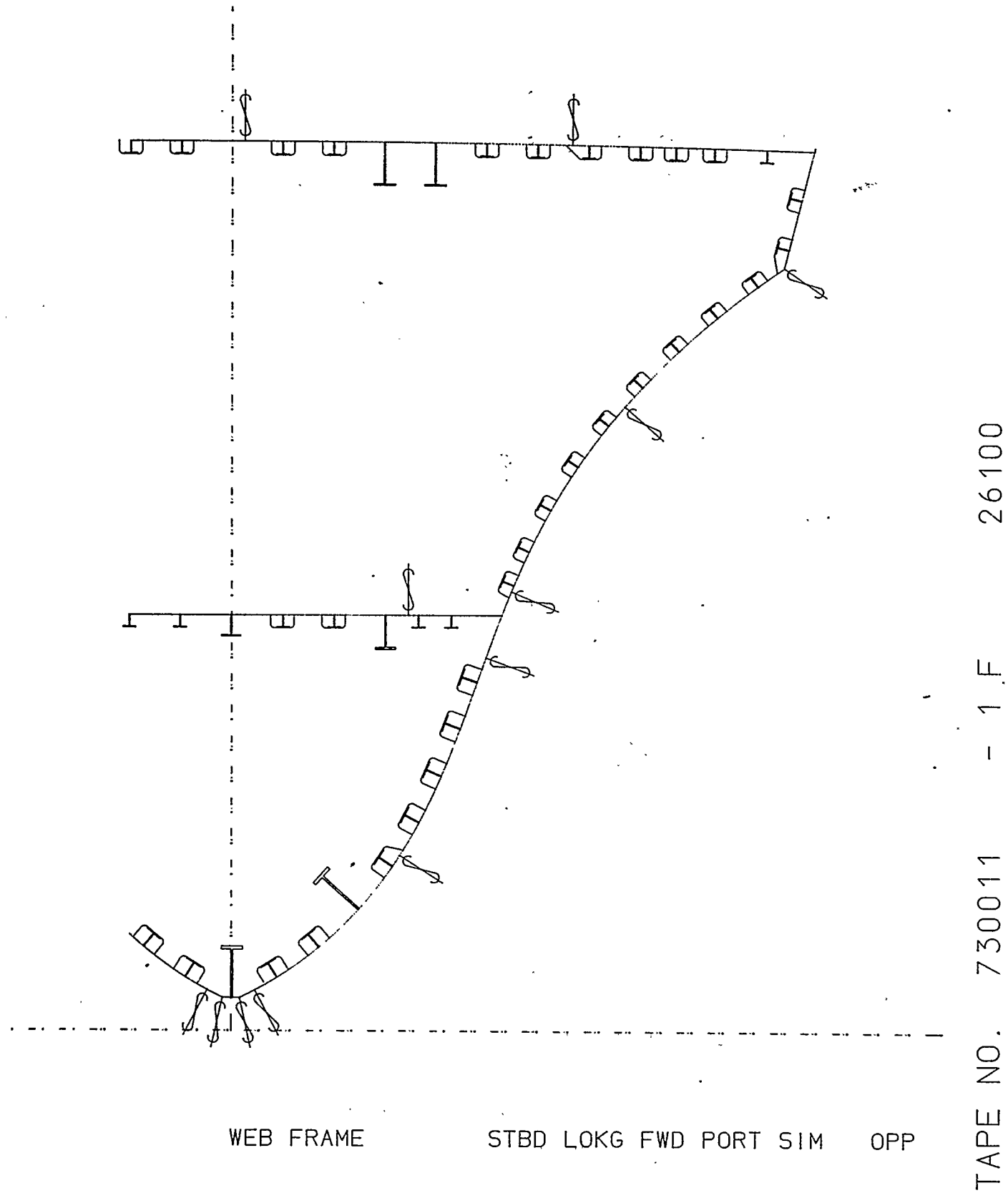

Fig. 8

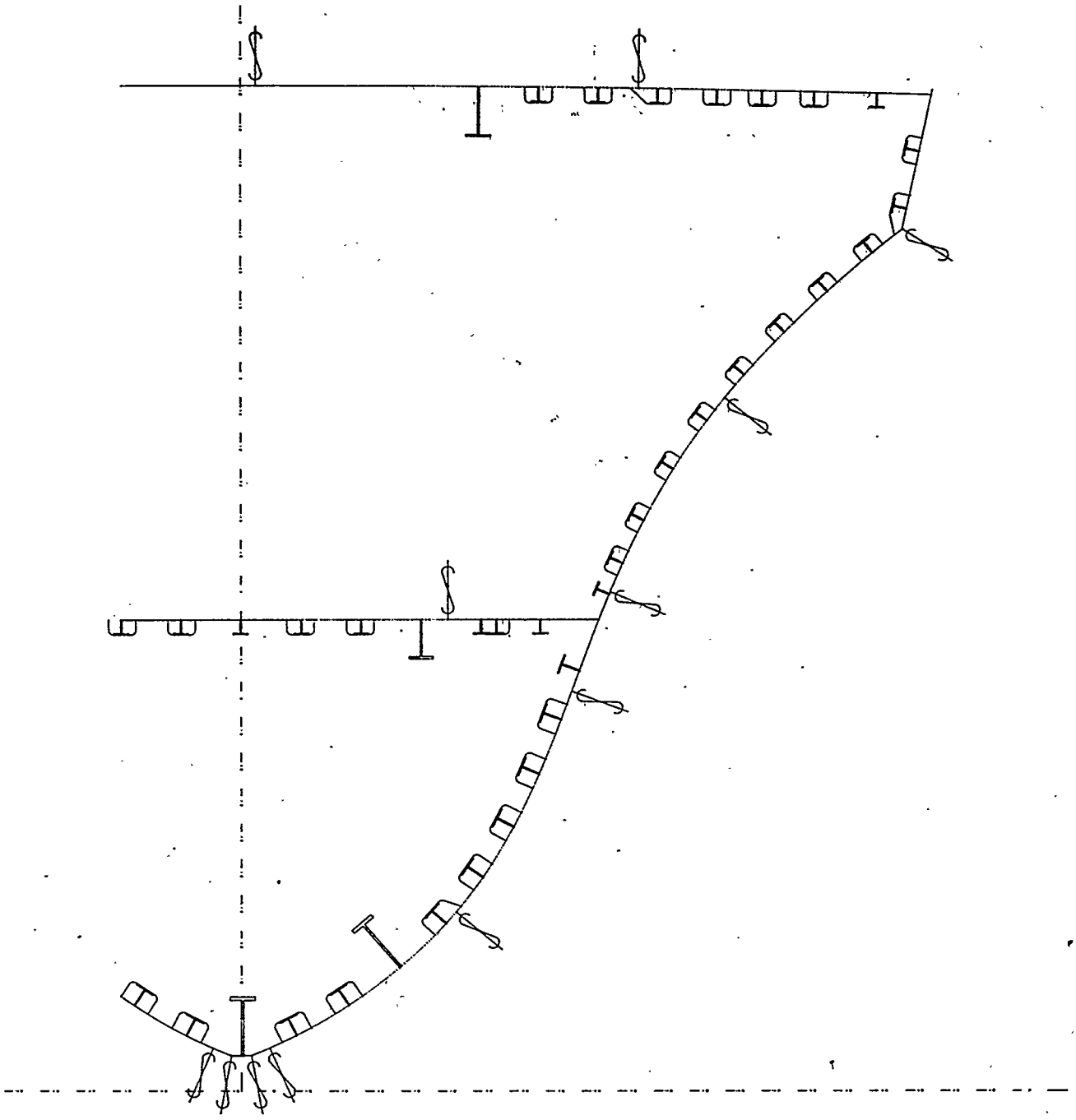

Fig. 9

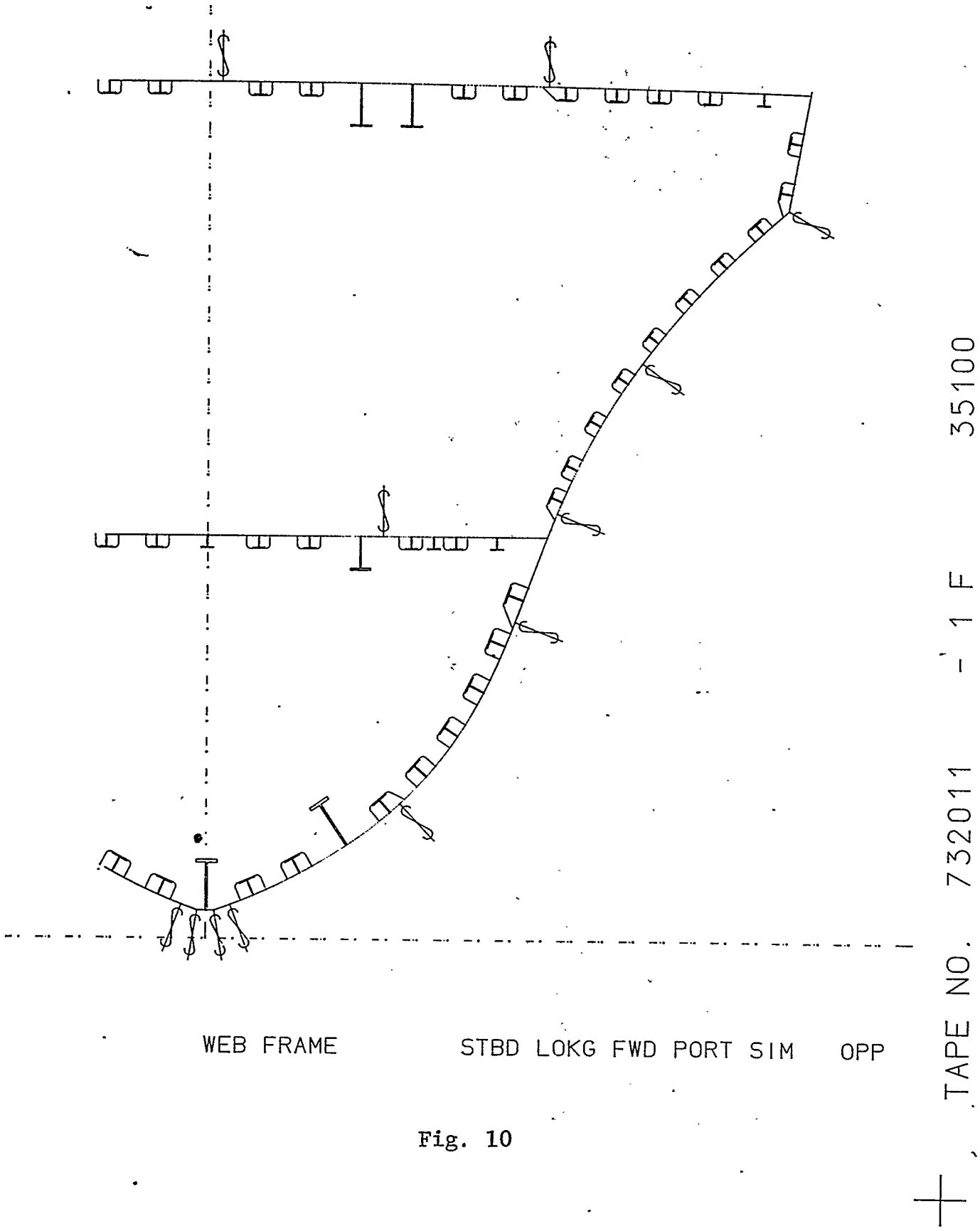

Fig. 10

```
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12345678901234567890123456789012345678901234567890123456789012345678901234567890

INPUT RELOAD'G           DATE  05/31/78    TIME  23/17/58      RUN NU.    2
JOB PB01  PROG. DEMO                INPUT 0012    REV. NO.   1         PAGE   1

INPS                     N       12                                      7300120012
DRWG TRSV          FWD   F 22                                            7300120016
RMKS BHD 22                                                              7300120020
STRT                      -2       -14                                   7300120024
WRIT3                     -1 6       2     A -90           3             7300120028
WRIT3 WT BHD 22 - LKG FWD                                  *             7300120032
LOAD                      F 22     F 22                                  7300120036
INPE                                                                     7300129999
         1         2         3         4         5         6         7         8
12345678901234567890123456789012345678901234567890123456789012345678901234567890

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                                INPUT IS EXECUTABLE
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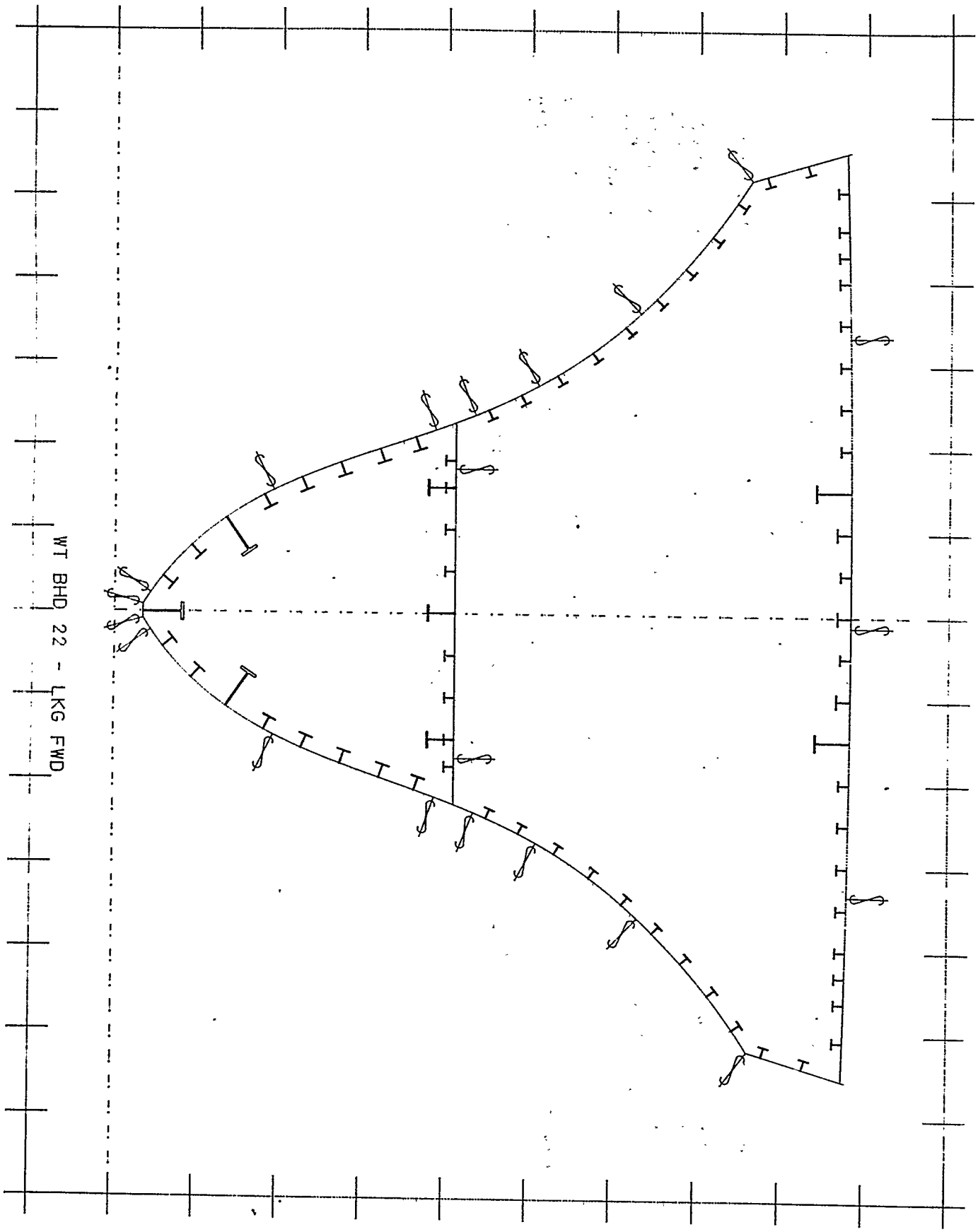
Fig. 11



TAPE NO. 730012 - 2 F 22000 **Fig. 12**

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INPUT UPDATING           DATE  06/07/78    TIME  08/02/49     RUN NO.   29
JOB PB01  PROG. DEMO                INPUT 0001    REV. NO.  31         PAGE   1

INPS                    N       1                                          7300010008
DRWG TRSV         FWD   F  7      F 12      F 17                           7300010016
RMKS WEBIFRMS. 7,12,17                                                     7300010020
STRT                              -14                                      7300010021
WRIT3                        -2 3              A -90          3            7300010022
WRIT3 WEB FRM.          LKG. FWD                                    *      7300010023
LOAD                     F  7      F 17                                    7300010049
INPE                                                                       7300019999
         1         2         3         4         5         6         7         8
12345678901234567890123456789012345678901234567890123456789012345678901234567890

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                                INPUT IS EXECUTABLE
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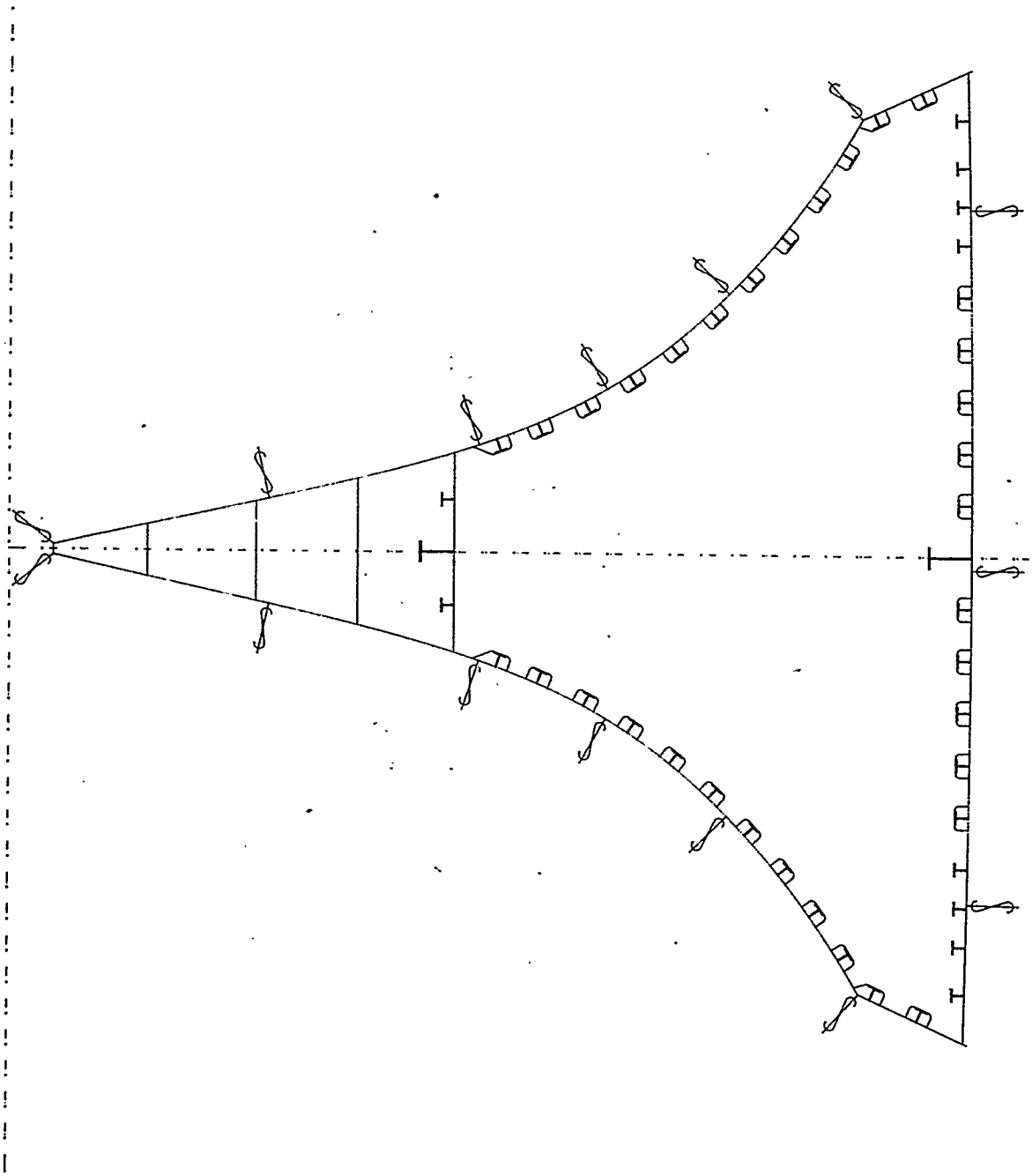
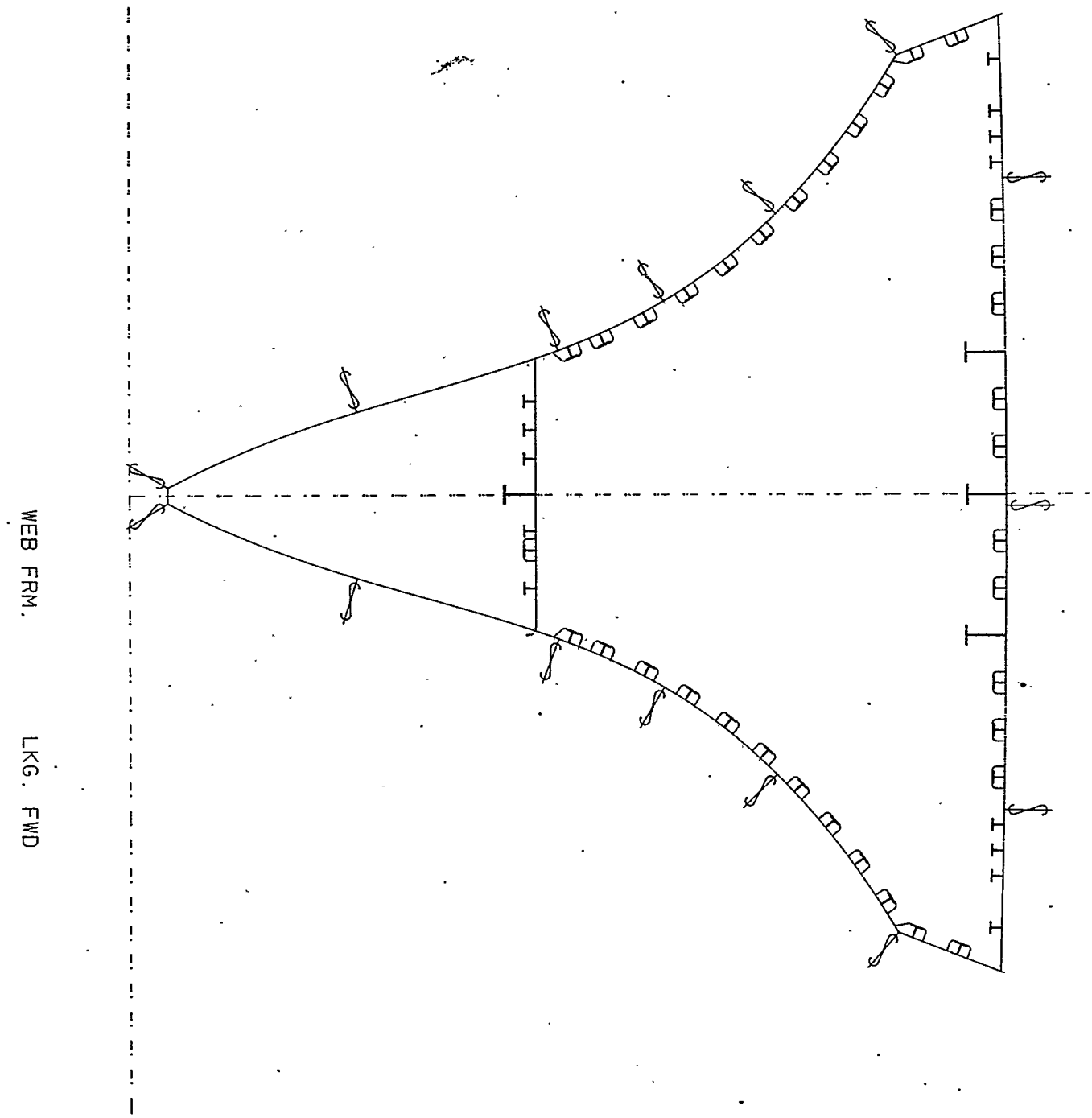
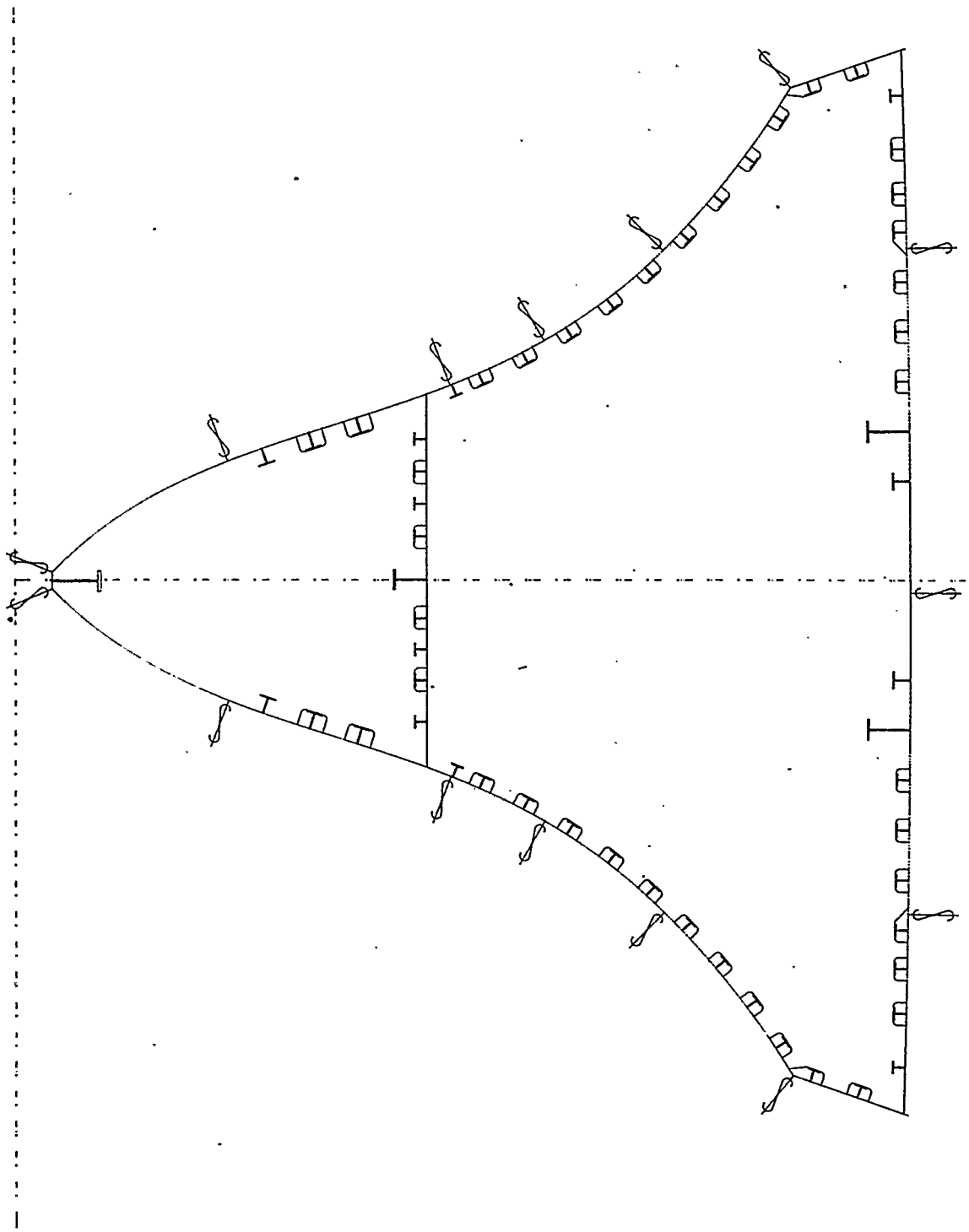
Fig. 13



TAPE NO. 730001 -18 F 7000 Fig. 14



TAPE NO. 731001 -17 F 12000 Fig. 15



TAPE NO. 732001 -11 F 17000 **Fig. 16**

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INPUT UPDATING          DATE  06/09/78    TIME  12/58/35      RUN NO.    9
JOB PB01  PROG. DEMO              INPUT 0002    REV. NO.  11         PAGE   1

INPS                    N         2                                          7300020008
DRWG TRSV         FWD   F  7        F 12        F 17                        7300020016C
RMKS WEBTERMS. 7,12,17                                                       7300020020
STRT                                -14                                      7300020021
WRIT3                        -2 S                 A -90            3        7300020022
WRIT3 WEB FRM.            LKG. FWD                                    *      7300020023
MION                       N                                                 7300020100
CNTR DOWNOUTP                                                                7300020104
SHEL2                      M             J B         D MDK                   7300020108
SHFT                            12                   ANY-                    7300020112
                                12                   ANY-                    7300020116
TRIM                     X D PFF                                             7300020120
TRIM2                    X D MDK                                             7300020124
CTRE      INNL             M         P                                        7300020128
CNTR DOWNOUTP                                                                7300020132
SHEL2                      M             J B      S  D MDK   S              7300020136
SHFT                            12                   ANY+                    7300020140
                                12                   ANY+                    7300020144
TRIM                     X D PFF                                             7300020148
TRIM2                    X D MDK                                             7300020152
CTRE      INNL             M         S                                        7300020156
CNTR DOWNOUTP                                                                7300020160
DECK2                      D MDK       P ENL   S  P END   P                  7300020164
SHFT                             6                ANX-                    7300020168
                                 6                ANX-                    7300020172
TRIM                     Y S L22   S                                         7300020176
TRIM2                    Y S L22   P                                         7300020180
CTRE      INNL             D MDK                                            7300020184
WRIT3                      D MDK   S             A -90            2        7300020188
WRIT3    MAIN DECK                                                   *      7300020192
WRIT3                      D PFF   S             A -90            2        7300020196
WRIT3    PLATE. REF. 5                                               *      7300020200
LOAD                       F  7        F  7                                 7300020202
ADDP                       S CVK   C                    20          1       7300020204
                         P         1                    12          2       7300020208
                         P         2                    12          3       7300020212
                         P         3                     6          4       7300020216
                         P         4                     6          5       7300020220
                         P         5                     6          6       7300020224
                         P         6                     6          7       7300020228
                         P         7                     6          8       7300020232
                         P         8                     6          9       7300020236
HOLE DOAN                P         2             A    0                     7300020240
                                 18          15                             7300020244
HOLE                     P         4                                        7300020248
                                   6                                        7300020252
HOLE                     P         6                                        7300020256
                                   6                                        7300020260
HOLE                     P         8                                        7300020264
                                   6                                        7300020266
CNTR      CALC                                                               7300020272
        1         2         3         4         5         6         7         8
12345678901234567890123456789012345678901234567890123456789012345678901234567890
```

Fig. 17A

```
         1         2         3         4         5         6         7         8
12345678901234567890123456789012345678901234567890123456789012345678901234567890

INPUT UPDATING           DATE  06/09/78    TIME  12/58/35      RUN NO.    9
JOB P801  PROG. DEMO                INPUT 0002    REV. NO.  11          PAGE   2

SHEL              P+     M                                                 7300020276
SLPE2                   XX        1                                     1 7300020280
    2                   XX        3                                     3 7300020284
    2                   XX        5                                     5 7300020288
    2                   XX        7                                     7 7300020292
    2                   XX        9                                     9 7300020296
CTRE      NOCT            M                                             7300020300
PNCH3                    P        1             X        1-Y        1     7300020304
PNCH3                    P        3             X        3-Y        3     7300020308
PNCH3                    P        5             X        5-Y        5     7300020312
PNCH3                    P        7             X        7-Y        7     7300020316
PNCH3                    P        9             X        9-Y        9     7300020320
LOAD                      F 12       F 17                                 7300020400
INPE                                                                      7300029999
         1         2         3         4         5         6         7         8
12345678901234567890123456789012345678901234567890123456789012345678901234567890

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                                INPUT IS EXECUTABLE
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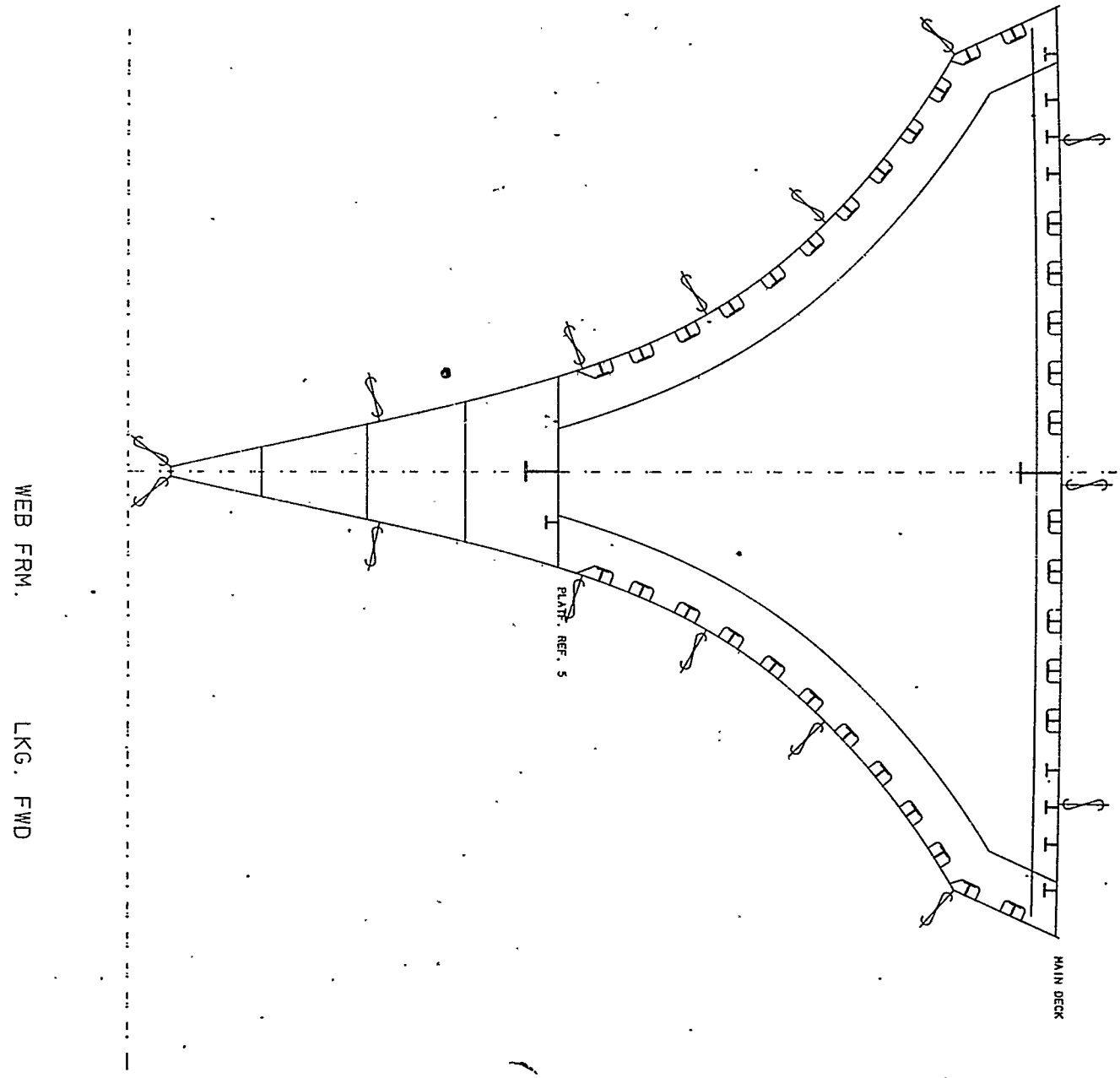
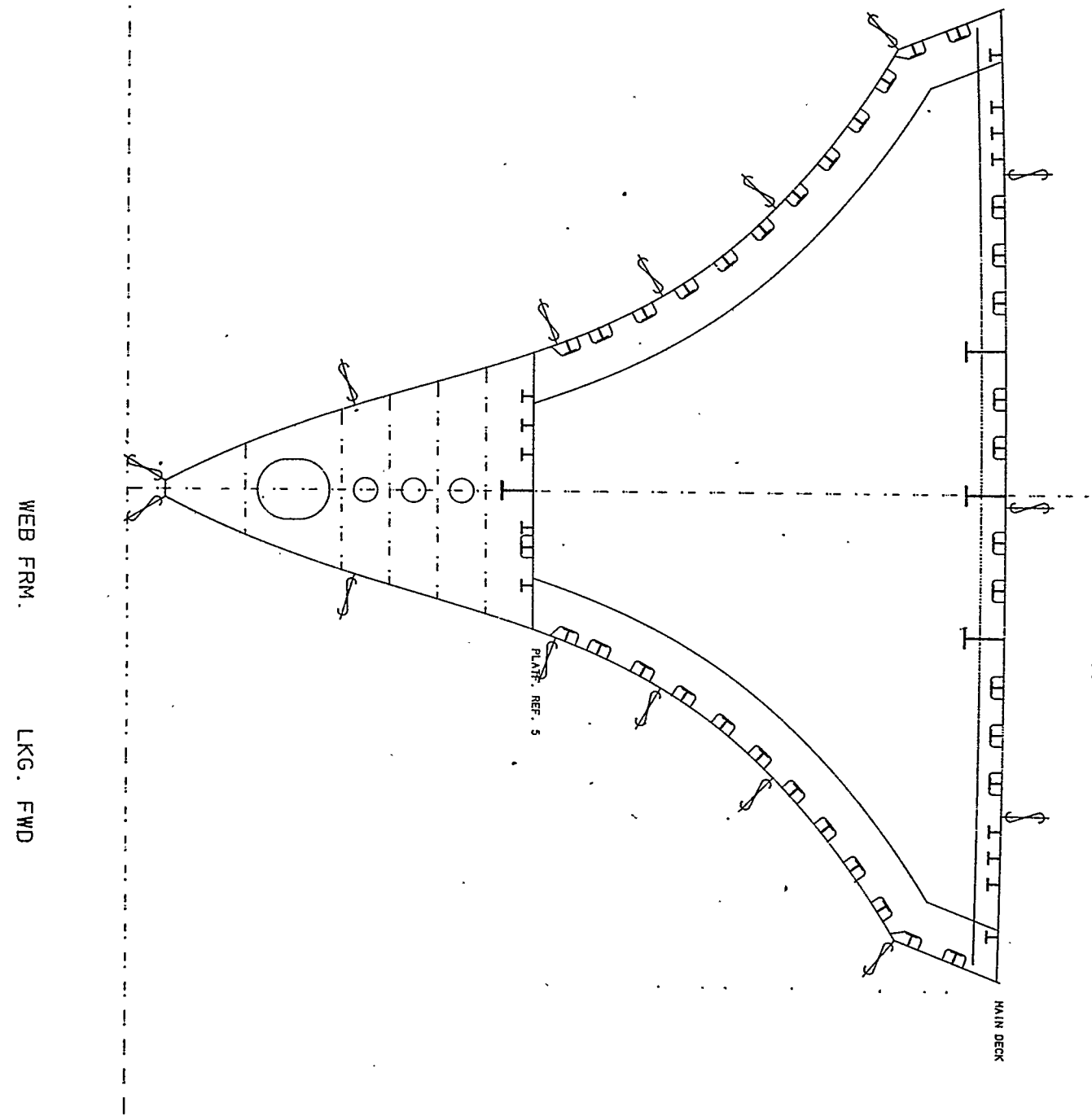
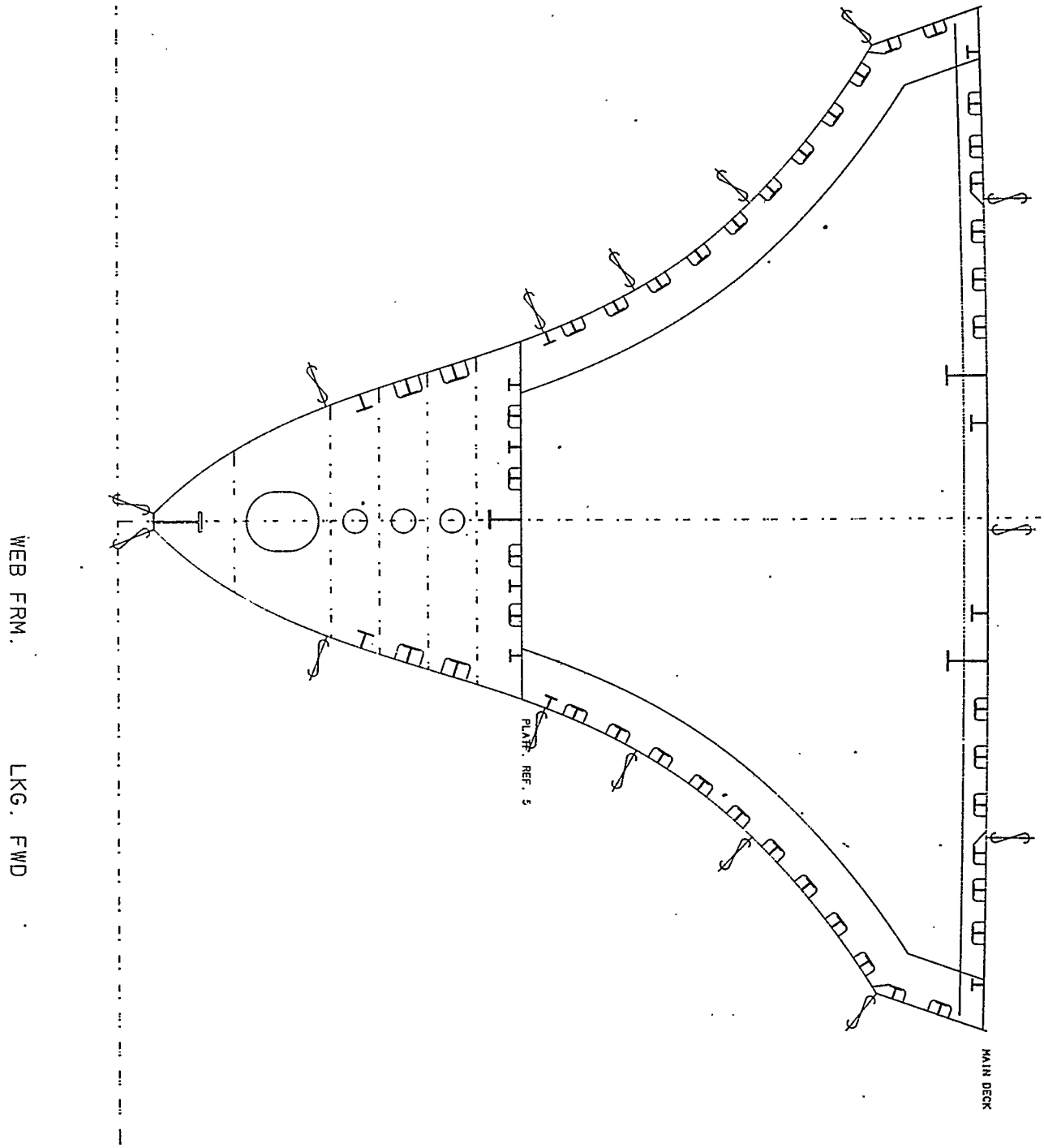
Fig. 17b



TAPE NO. 730002 - 9 F 7000 Fig. 18



TAPE NO. 731002 - 3 F 12000P **Fig. 19**



TAPE NO. 732002 - 3 F 17000P **Fig. 20**

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INPUT UPDATING          DATE  06/07/76    TIME  08/02/54      RUN NO.    2
JOB PB01  PROG. DEMO              INPUT 0004    REV. NO.  2         PAGE   1

INPS                    N       4                                          7300040008
DRWG TRSV         FWD   F  7      F 12       F 17                          7300040016
RMKS WEBTFRMS. 7,12,17                                                     7300040020
STRT                              -14                                      7300040021
WRIT3                      -2 3             A -90            3             7300040022
WRIT3 WEB FRM.          LKG. FWD                                    *      7300040023
MION                     M                                                 7300040100
ADDP                     D PFF  S               1                  11     7300040102
LIMI                                         XX       11                   7300040103
CNTR DOWNOUTP                                                              7300040104
SHEL2                    M          J 8        D MDK                       7300040108
SHFT                         12               ANY-                         7300040112
                             12               ANY-                         7300040116
TRIM                   X D PFF                                             7300040120
TRIM2                  X D MDK                                             7300040124
CTRE      INNL           M       P                                        7300040128
CNTR DOWNOUTP                                                              7300040132
SHEL2                    M         J 8     S  D MDK  S                     7300040136
SHFT                         12               ANY+                         7300040140
                             12               ANY+                         7300040144
TRIM                   X D PFF                                             7300040148
TRIM2                  X D MDK                                             7300040152
CTRE      INNL           M       S                                        7300040156
CNTR DOWNOUTP                                                              7300040160
DECK2                    D MDK      P END  S  P END  P                     7300040164
SHFT                           6              ANX-                         7300040168
                               6              ANX-                         7300040172
TRIM                   Y S L22  S                                          7300040176
TRIM2                  Y S L22  P                                          7300040180
CTRE      INNL           D MDK                                            7300040184
                                                                           73000401880
                                                                           73000401920
WRIT3                    D PFF  S             A -90            2           7300040196
WRIT3   PLATF. REF. 5                                               *      7300040200
LOAD                     F  7       F  7                                   7300040202
ADDP                     S CVK  C                  20              1      7300040204
                       P        1                 12              2      7300040208
                       P        2                 12              3      7300040212
                       P        3                  6              4      7300040216
                       P        4                  6              5      7300040220
                       P        5                  6              6      7300040224
                       P        6                  6              7      7300040228
                       P        7                  6              8      7300040232
                       P        8                  6              9      7300040236
HOLE DOWN              P        2            A    0                       7300040240
                             16         15                                7300040244
HOLE                   P        4                                         7300040248
                             6                                           7300040252
HOLE                   P        6                                         7300040256
                             6                                           7300040260
HOLE                   P        8                                         7300040264
        1         2         3         4         5         6         7         8
12345678901234567890123456789012345678901234567890123456789012345678901234567890
```

Fig. 21a

```
         1         2         3         4         5         6         7         8
12345678901234567890123456789012345678901234567890123456789012345678901234567890

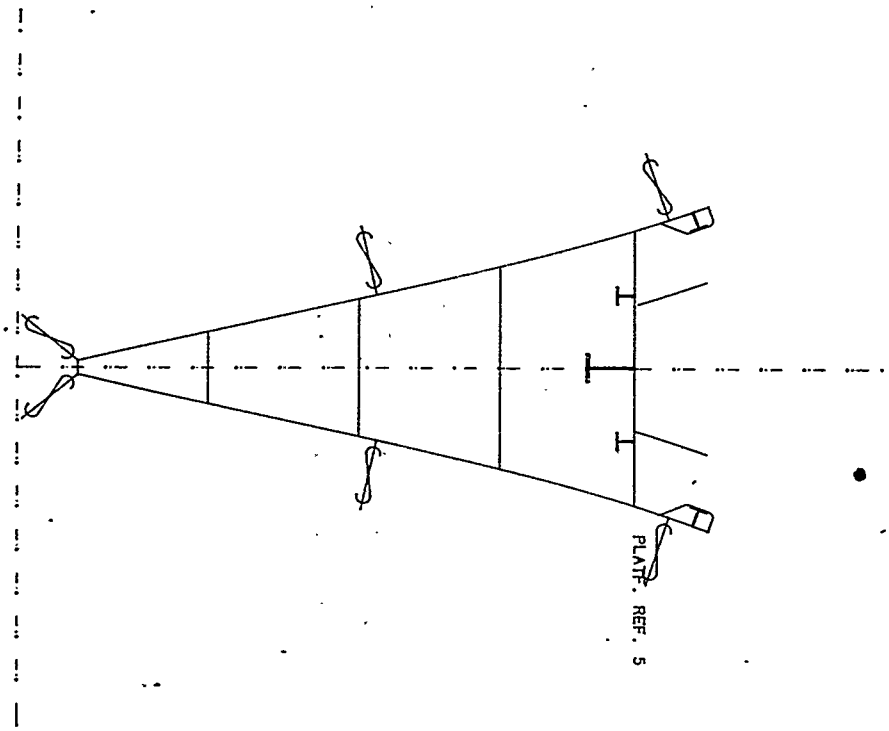
INPUT UPDATING           DATE  06/07/78    TIME  08/02/54      RUN NO.    2
JOB PB01  PROG. DEMO                 INPUT 0004    REV. NO.   2          PAGE   2

                                    6                                          7300040268
CNTR      CALC                                                                 7300040272
SHEL                P+     M                                                   7300040276
SLPE2                    XX        1                                        1  7300040280
    2                    XX        3                                        3  7300040284
    2                    XX        5                                        5  7300040288
    2                    XX        7                                        7  7300040292
    2                    XX        9                                        9  7300040296
CTRE      NOCT            M                                                  7300040300
PNCH3                     P        1              X        1-Y        1        7300040304
PNCH3                     P        3              X        3-Y        3        7300040308
PNCH3                     P        5              X        5-Y        5        7300040312
PNCH3                     P        7              X        7-Y        7        7300040316
PNCH3                     P        9              X        9-Y        9        7300040320
LOAD                       F 12       F 17                                    7300040400
INPE                                                                         7300049999
         1         2         3         4         5         6         7         8
12345678901234567890123456789012345678901234567890123456789012345678901234567890

                SEVERITY = 0     INPUT IS STORED WITH REV. =   3

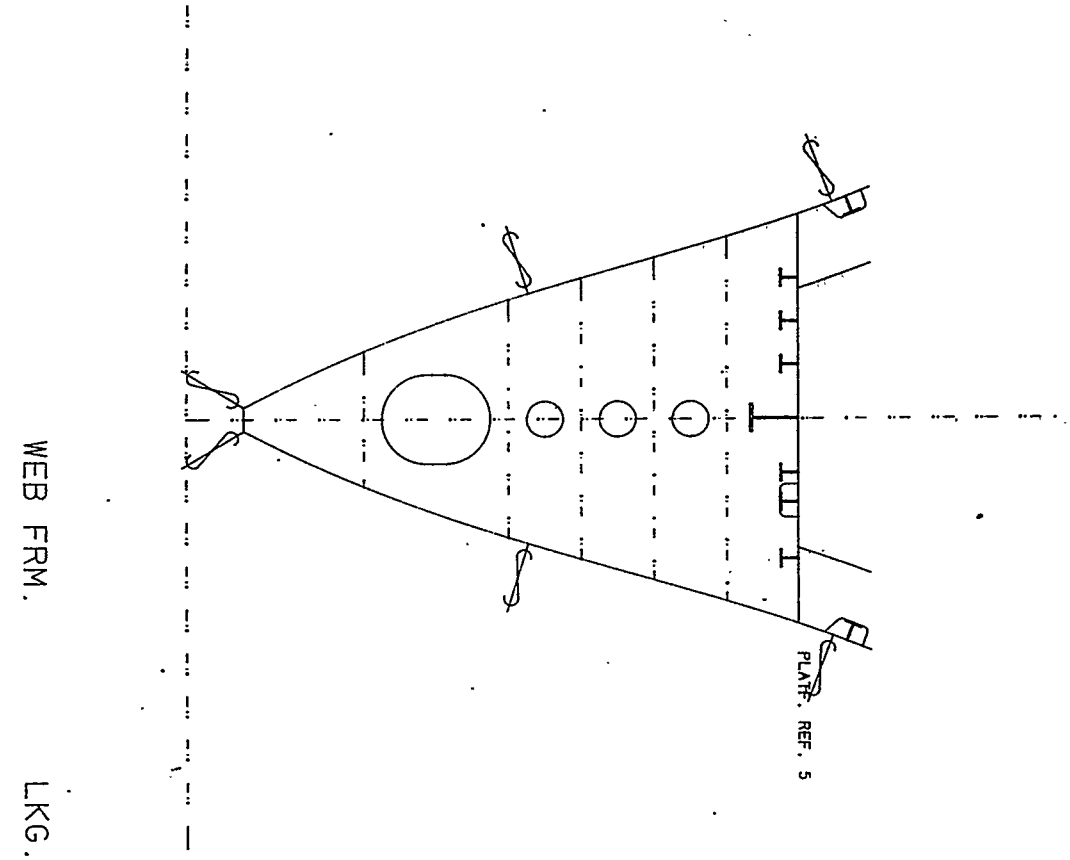
                                 INPUT IS EXECUTABLE
```

Fig. 21b



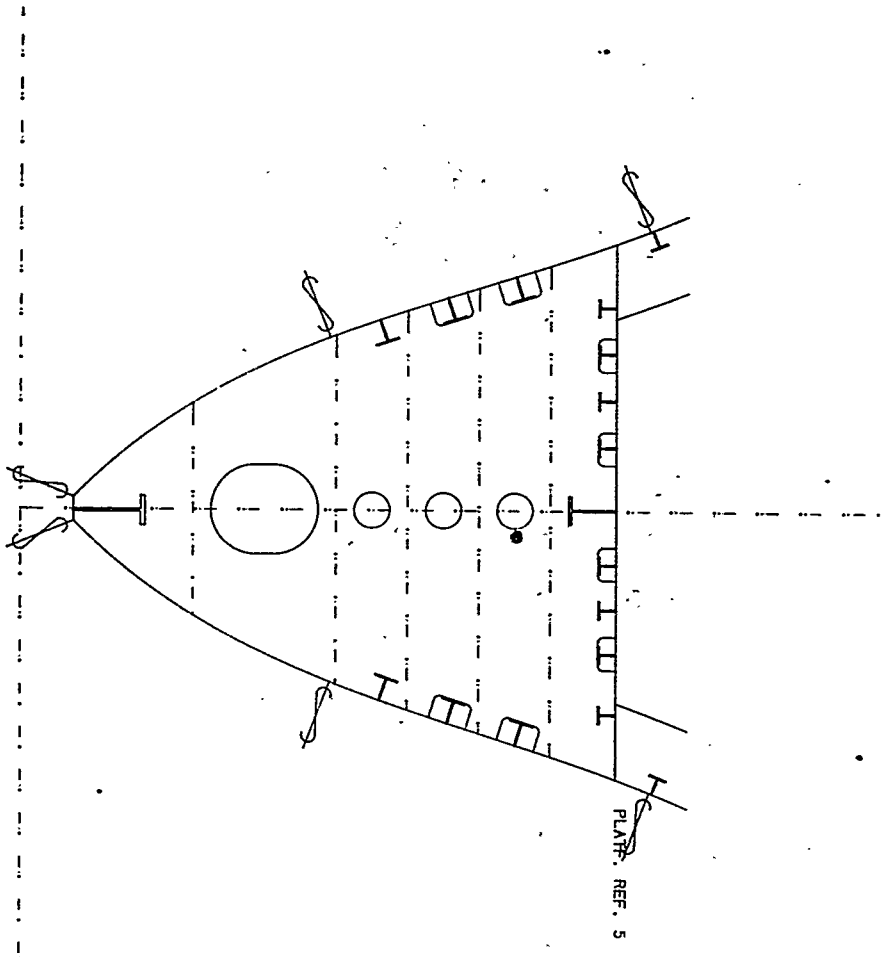
TAPE NO. 730004 - 1 F 7000

Fig. 22



TAPE NO. 731004 - 1 F 12000P

Fig. 23



TAPE NO. 732004 - 1 F 17000P

Fig. 24

```
         1         2         3         4         5         6         7         8
12345678901234567890123456789012345678901234567890123456789012345678901234567890

INPUT UPDATING           DATE  06/13/78    TIME  22/41/25      RUN NO.    9
JOB PB01  PROG. DEMO                INPUT 0003    REV. NO.   9          PAGE   1

INPS                      N       3                                          7300030008
DRNG TRSV          FWD    F  7                                              7300030012
RMKS DETAIL 14 D                                                            7300030016
MION                      M                                                 7300030020
ADDP                      J F     S                  12          06     1    7300030024
                          J F     S                 -12          24     2    7300030028
                          J F     S                 -12         -12     3    7300030030
LIMT                     XX       3YY        3XX         1YY         1       7300030032
STRT                      P       3                                          7300030034
WRIT3                     P       2            A -90           012           7300030036
WRIT3DETAIL 14D  SCALE3IN = 1FT                                    *        7300030040
LOAD                      F  7       F  7                                    7300030044
INPE                                                                        7300039999
         1         2         3         4         5         6         7         8
12345678901234567890123456789012345678901234567890123456789012345678901234567890

                SEVERITY = 0     INPUT IS STORED WITH REV. =  10

                                 INPUT IS EXECUTABLE
```

Fig. 25

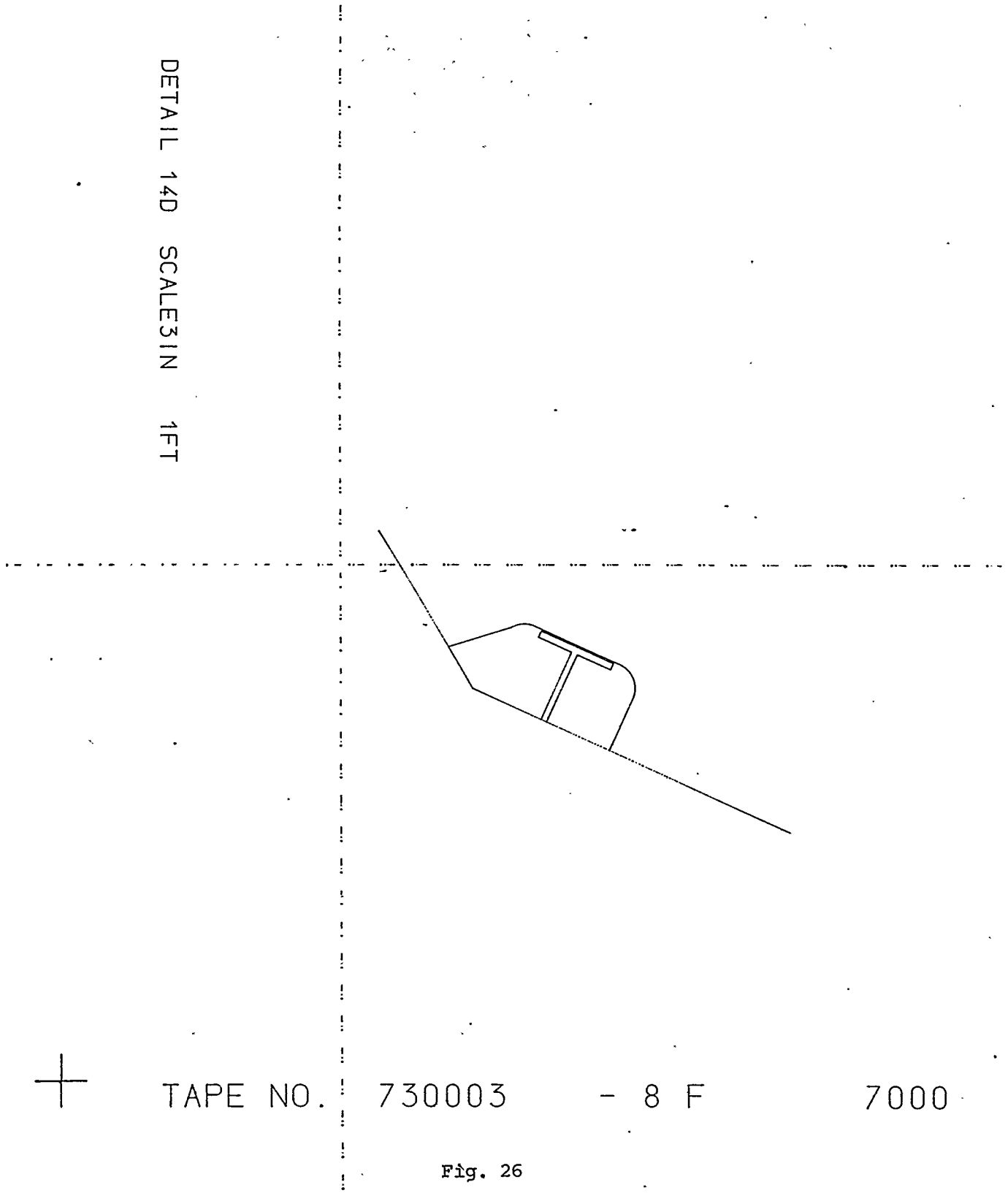


Fig. 26

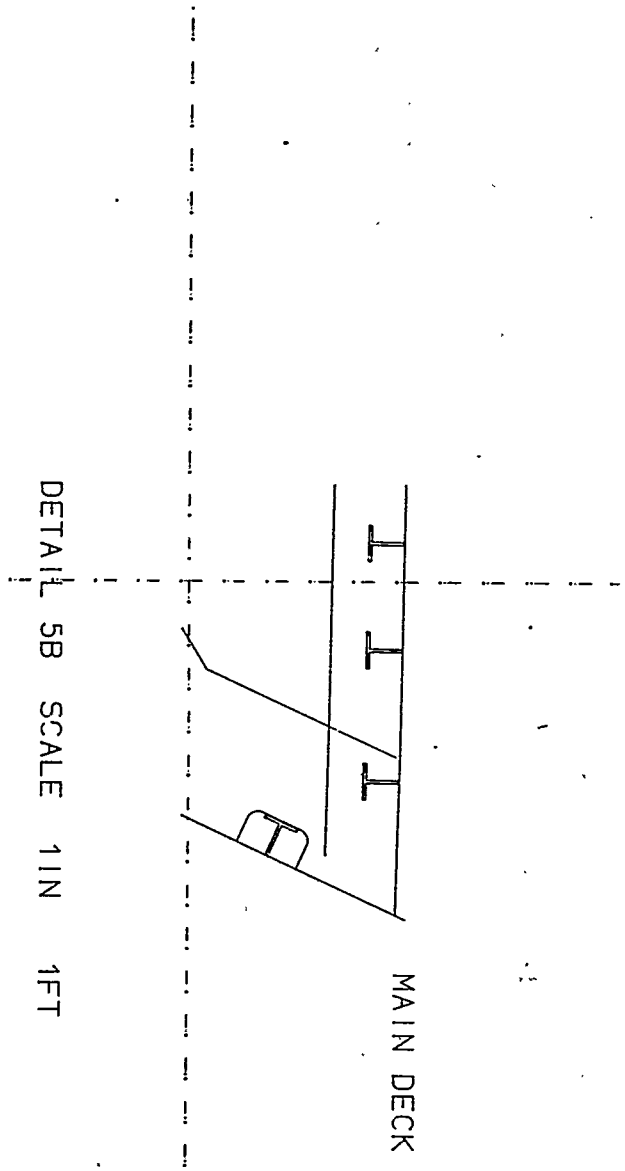
```
         1         2         3         4         5         6         7         8
12345678901234567890123456789012345678901234567890123456789012345678901234567890

INPUT UPDATING           DATE  06/09/78    TIME  08/26/06      RUN NO.    6
JOB PB01  PROG. DEMO                 INPUT 0005    REV. NO.    6          PAGE   1

INPS                      N        5                                          7300050008
DRWG TRSV          FWD    F  7                                               7300050016
RMKS WEBTFRMS. 7,12,17                                                       7300050020
MIDN                      M                                                  7300050100
ADDP                      D MDK  S                -18        3       1       7300050104
ADDP                      D MDK  S                 1        -3       3       7300050105C
LIMT                   XX        1YY       3XX        3YY        1          7300050106
STRT                    X        1 Y       3                               7300050108
ADDP                    P        1                -12                2     7300050112
WRIT3                   P        2             A -90            2           7300050116
WRIT3DETAIL 5B  SCALE  1IN = 1FT                                    *        7300050120
CNTR DOWNOUTP                                                                7300050132
SHEL2                     M           J B     S  D MDK  S                    7300050136
SHFT                         12               ANY+                           7300050140
                             12               ANY+                           7300050144
TRIM                   X D PFF                                               7300050148
TRIM2                  X D MDK                                               7300050152
CTRE     INNL             M        S                                         7300050156
CNTR DOWNOUTP                                                                7300050160
DECK2                     D MDK      P END  S  P END  P                      7300050164
SHFT                         6                ANX-                           7300050168
                             6                ANX-                           7300050172
TRIM                   Y S L22  S                                            7300050176
TRIM2                  Y S L22  P                                            7300050180
CTRE     INNL             D MDK                                             7300050184
WRIT3                     D MDK  S             A -90            2           7300050188
WRIT3   MAIN DECK                                                   *        7300050192
LOAD                      F  7       F  7                                    7300050202
INPE                                                                         7300059999
         1         2         3         4         5         6         7         8
12345678901234567890123456789012345678901234567890123456789012345678901234567890

                SEVERITY = 0     INPUT IS STORED WITH REV. =   7


                                 INPUT IS EXECUTABLE
```



TAPE NO. 730005 - 4 F 7000

Fig. 28

```
         1         2         3         4         5         6         7
1234567890123456789012345678901234567890123456789012345678901234567890

INPUT UPDATING           DATE  06/09/78    TIME  16/36/56      RUN NO.    7
JOB OILR  PROG. DEMO                 INPUT 0018    REV. NO.  11          PAGE   1

INPS          16TH      N    0018                                          7300130003
RMKS BAUER TEST DEMO                                                       7300190020
LIMT                   X   -1     YF -  C1  X   50     Y   45             7300180112
STRT                       0          -1                                   7300180113
DRWG TRSV          FWD    F 30       F 31                                  7300180116
ADDP                      20       D   310 9                      3       7300180123
LINE FAST                P         3                                       7300190129
CNTR DOWNOUTP                                                              7300180132
DECK                P+     D MDK                                           7300180136
SHFT                         2 9               A 180                       7300180142
                             2 9               ANX-                        7300180144
SAVE                                                             1         7300190148
LINK      NEW                                                              7300190152
SHEL                P-     M                                               7300180156
SHFT                         4 2               ANY-                        7300180160
                             4 2               ANX+                        7300180164
SAVE                                                             2         7300180168
LINK      NEW                                                              7300190172
MANU                       P         3                                     7300180176
LINE                     100       Y         3                            7300190180
ENDM                                                                       7300180184
LINK      RND                4 014                                         7300190188
CALL                                                             1         7300180192
LINK      RND                4 014                                         7300180200
CALL                                                             2         7300190204
LINK      RND                4 614                                         7300190208
MANU                       -20       Y         3                          7300180212
LINE                     P         3                                       7300190216
ENDM                                                                       7300180220
CTRE      HOLD              H 101                                          7300180224
LOAD                        F 30       F 31                               7300180257
INPE      STOR                                                             7300199999
         1         2         3         4         5         6         7         8
1234567890123456789012345678901234567890123456789012345678901234567890

                SEVERITY = 0    INPUT IS STORED WITH REV. =  12
```

Fig. 29a

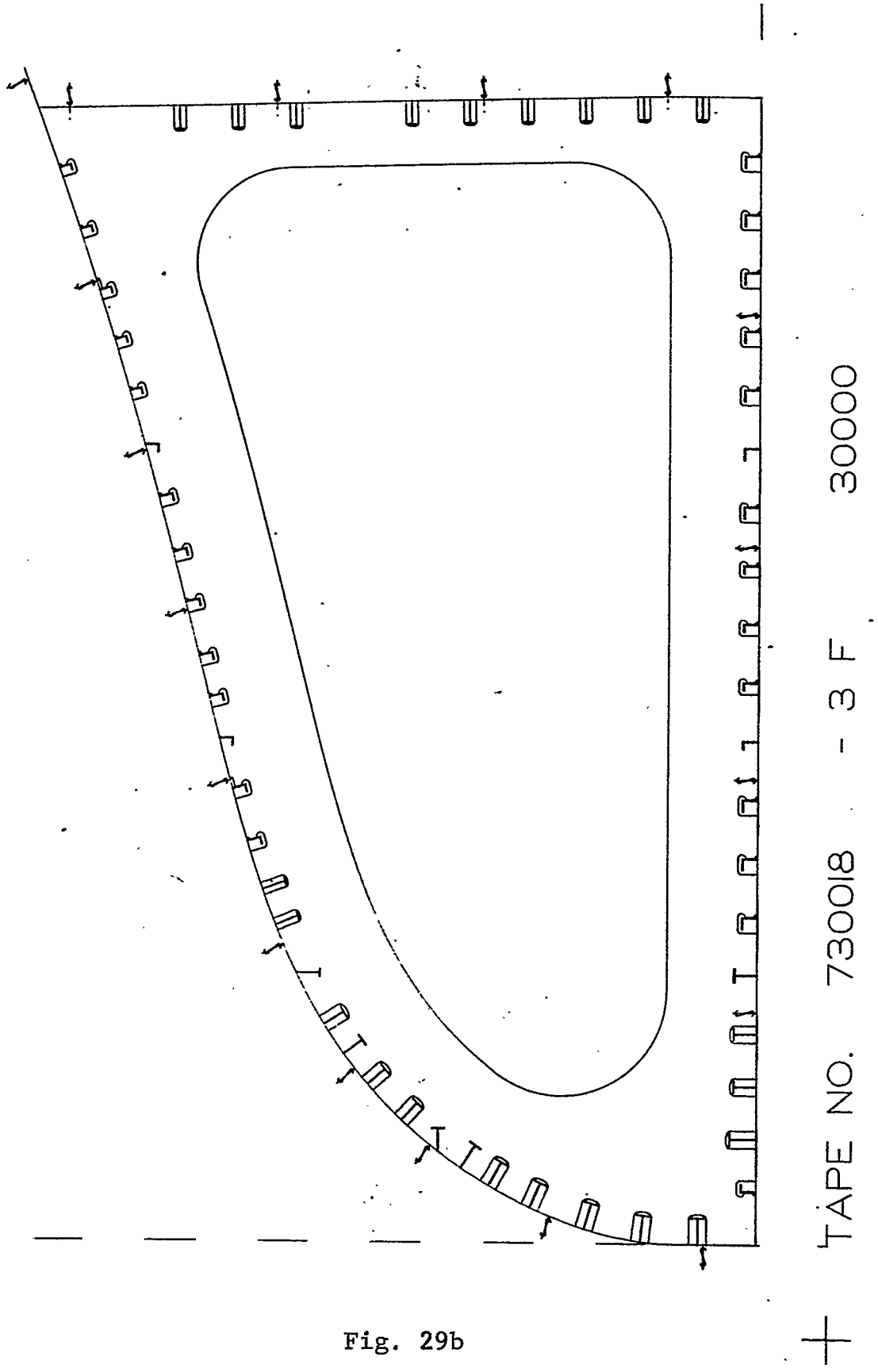
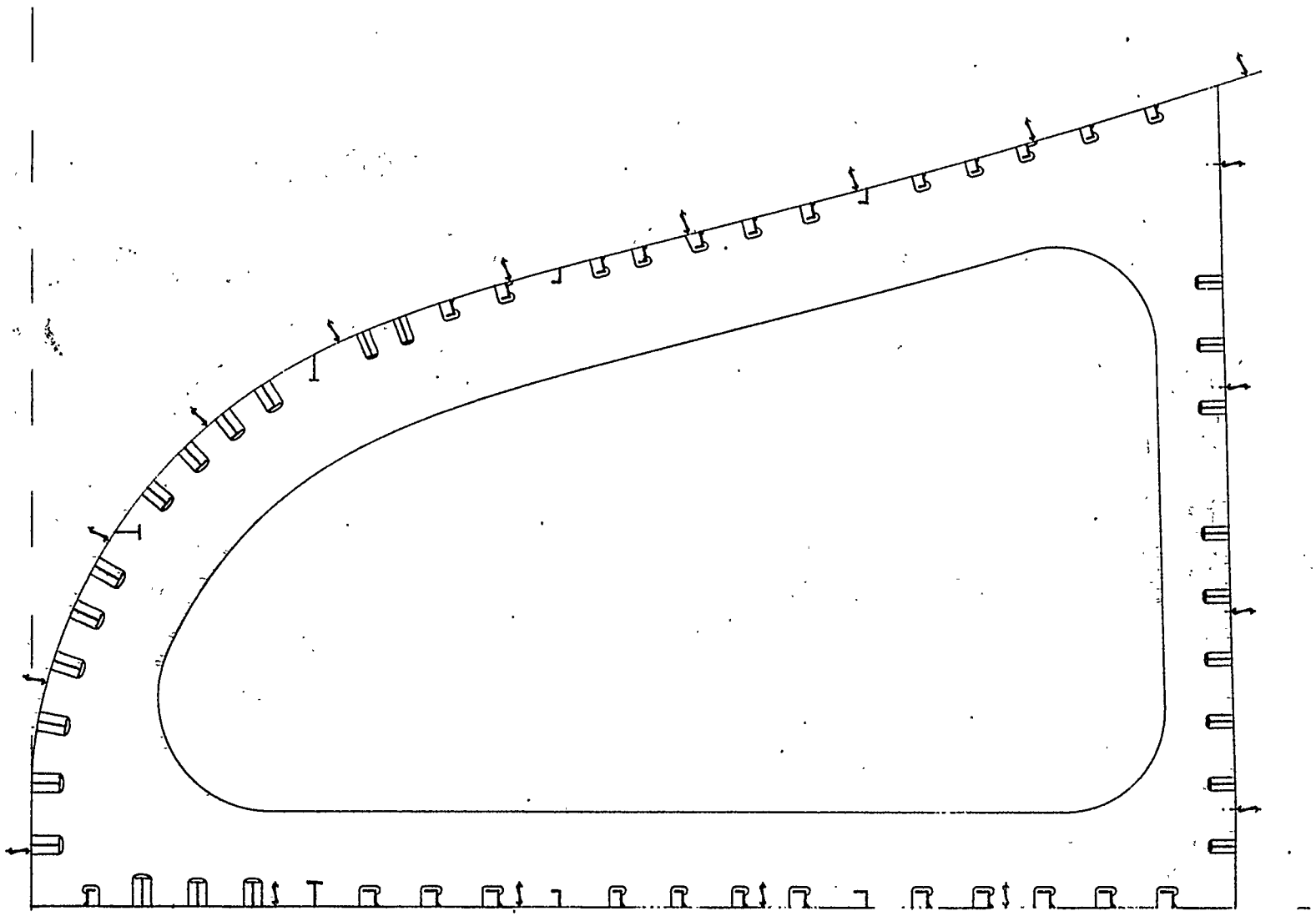


Fig. 29b



TAPE NO. 731018 - 1 F 31000

Fig. 29c

```
          1         2         3         4         5         6
12345678901234567890123456789012345678901234567890123456789012345678

INPUT UPDATING            DATE  06/14/78    TIME  16/36/22      RUN N
JOB WATR  PROG. DEMO                 INPUT 0001    REV. NO.  20

INPS WATR                  N    0001
LIMT                     X   -1     Y  -11     X   25     Y   55
DRWG TRSV          FWD    F 96
STRT                        0        -12
RMKS BAUER TEST DEMO
HOLE                       14 3       -9 6    A   0
                            7           15
                           13 3       12 6    A   0
                            7           15
                           13 6       18 6    A   0
                            5           15
                           14 3       21 6    A   0
                            5           15
                            3          1 8    A   0
                             23         15
MIDN                       M
STPT                       S  4                                    10
                           S  5                                    11
                           S  7                                    12
                           S  8                                    13
                           S 10                                    14
PNCH3                       20         11      P       10
    3                       20         14      P       11
    3                       20         20      P       12
    3                       20         23      P       13
    3                       20         29      P       14
LOAD                       F 96       F 96
INPE      STOR
          1         2         3         4         5         6
12345678901234567890123456789012345678901234567890123456789012345678

                SEVERITY = 0     INPUT IS STORED WITH REV. =  21

                                 INPUT IS EXECUTABLE
```

Fig. 30a

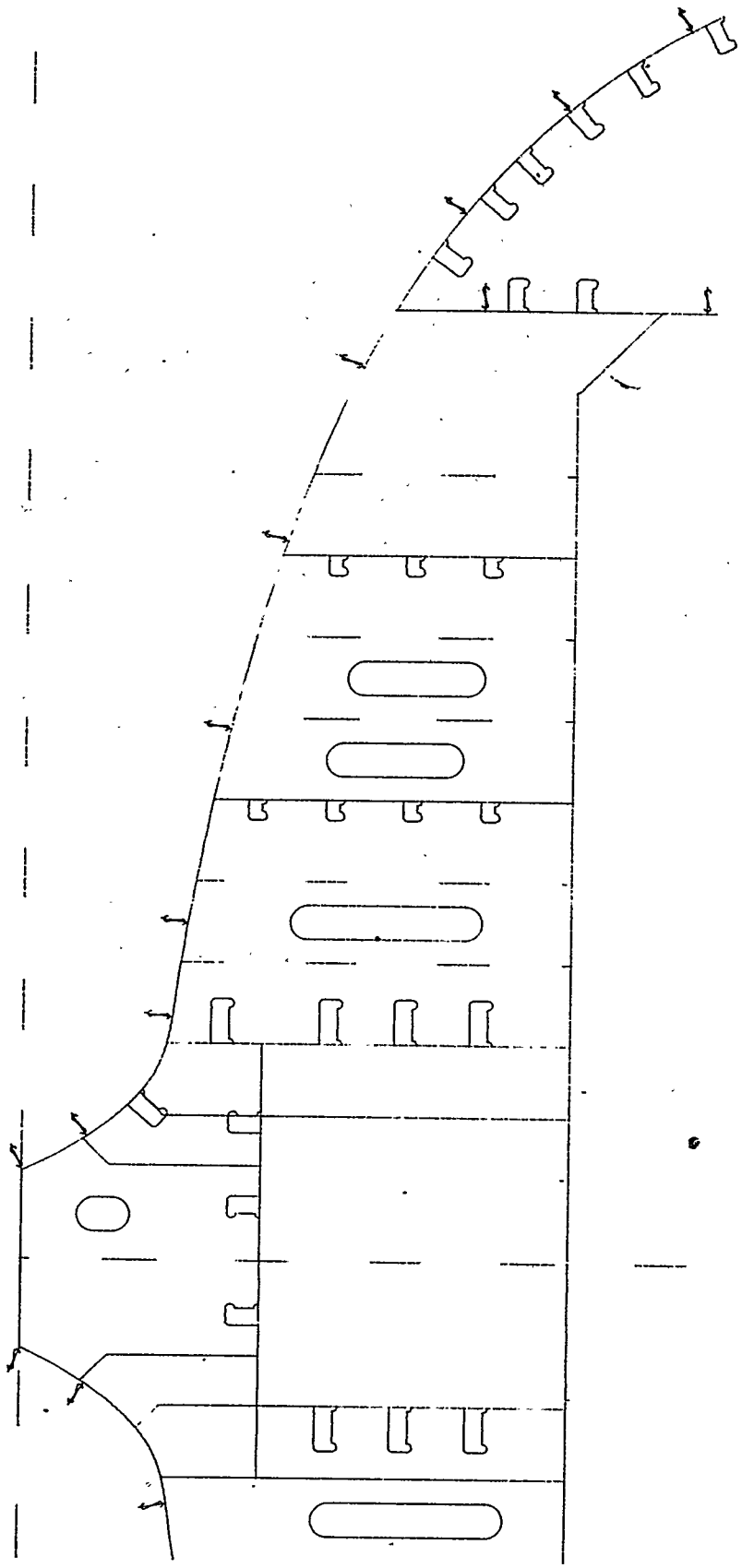
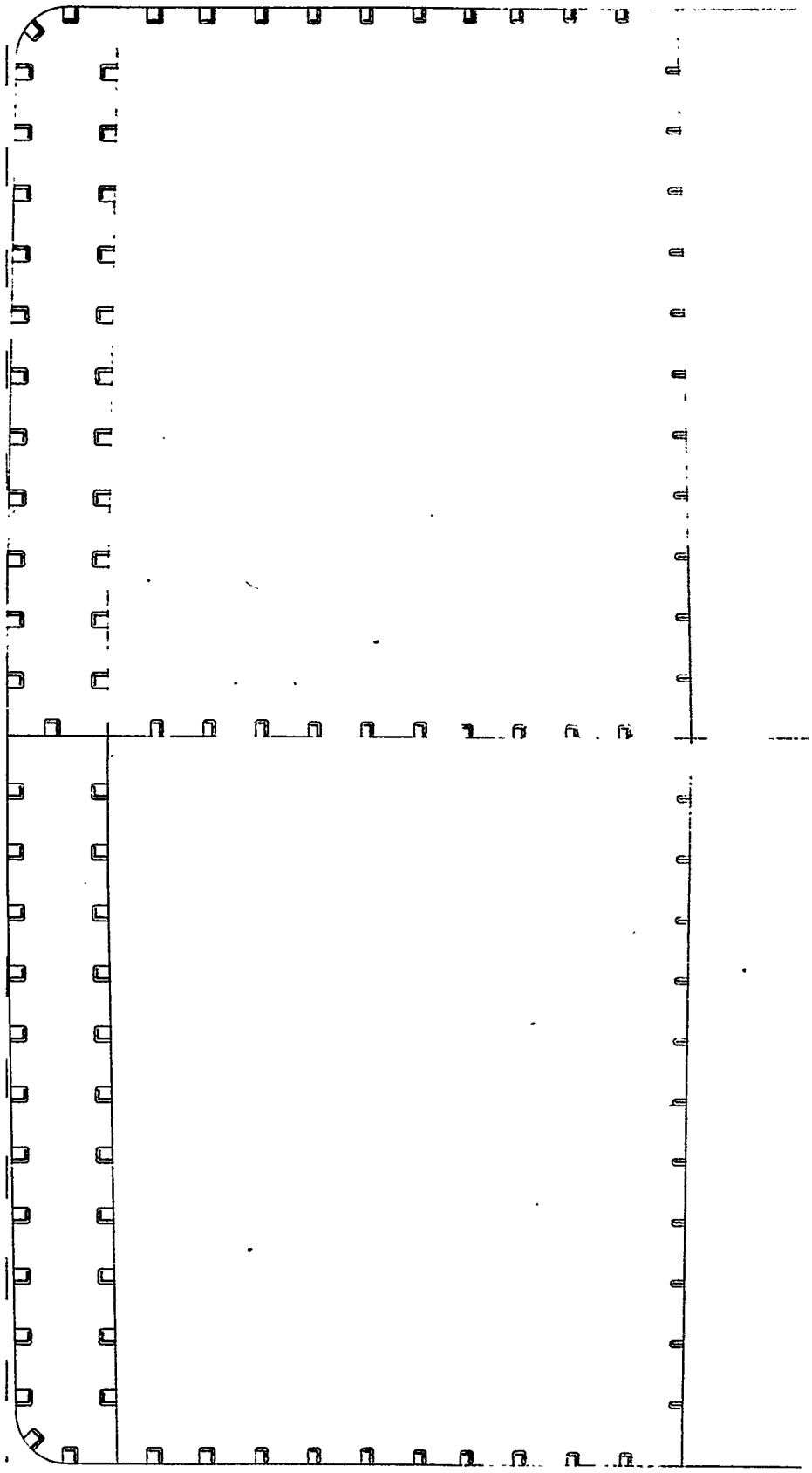


Fig. 30b

TAPE NO. 830001 -10 F 96000



TAPE NO. 113100I - 3 F 14000 Fig. 31