The Manufacturing Measurements Report is a graphic report generated monthly for GE Neutron Devices (GENO) management. Labor utilization, schedule performance, and material are measured and summarized for unit and subsection levels of management. The report is utilized by the managers in each production area as a tool to give them an overall assessment of production performance and progress.

The data for this report are generated on Honeywell, IBM, and Hewlett-Packard systems and are loaded onto a VAX system cluster to allow data manipulation and graphics output. All graphs are stored in a SAS graphics library, and all templates are stored in a SAS template catalog. This presentation shows how SAS graphics, both GPLOT and GCHART, and SAS templates are used to produce information (by section and subsection) and how ANNOTATE is used to show actual value and cost.

CREATING TEMPLATES

Templates are created in Full Screen Editor. The template function is activated using PROC GREPLAY. A library name must be referenced and a template catalog must be named. A directory for this catalog appears with all templates in that catalog listed. Indicate on the command line which template to edit or the name of a new one to create. This brings the SAS/Graph Template Design screen. The boxes are designed using the coordinates of the four corners of each box. The total screen is 100 x 100. To see a display of your coordinates at any time, press F2 (DISPLAY). When you are satisfied with the template, F5 will save it to your catalog.

The template catalog (shown below) contains three designs. Two template designs are used for subsection level reporting; one has seven panels (six graphs and title) and one has four panels (three graphs and title). One template with six panels (five graphs and title) is used for section level reporting.

<table>
<thead>
<tr>
<th>Template Name</th>
<th>Description</th>
<th>Updated</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEW TEMPLATE</td>
<td>NEW TEMPLATE</td>
<td>19SEP88</td>
</tr>
<tr>
<td>NEW TEMPLATE</td>
<td>NEW TEMPLATE</td>
<td>19SEP88</td>
</tr>
<tr>
<td>NEW TEMPLATE</td>
<td>NEW TEMPLATE</td>
<td>17AUG88</td>
</tr>
</tbody>
</table>

Samples of the three template designs and output are shown on the following pages.
The annotate function creates a SAS data set (annodat) which tells SAS what size, style, position, and when to print the value of the variable X on the graph. The ANNOTATE=ANNODAT in the plot statement adds this value to the graph.

**DATA ANNODAT:**
LENGTH position XSYS YSYS HSYS $1
TEXT $6;
FUNCTION COLOR STYLE $8;
retain XSYS '2' YSYS '2' HSYS '4'
COLOR 'BLUE'
FUNCTION 'LABEL'
WHEN 'b'
STYLE 'SIMPLEX';
set one;
X=x; Y=y; POSITION='2'; TEXT=LEFT(x); OUTPUT;
keep xsys ysys hsys text position function color style
when x y unit;
proc sort data:annodat;
by unit;
proc gplot data:annodat;
plot srp • noannotate::annodat;
by unit;

**PROC FORMAT:**
VALUE DATFMT 28 = 'JAN'
29 = 'FEB'
30 = 'MAR'
31 = 'APR'
32 = 'MAY'
33 = 'JUN'
34 = 'JUL'
35 = 'AUG'
36 = 'SEP'
37 = 'OCT'
38 = 'NOV'
39 = 'DEC'
40 = 'JAN';

**FORMAT NO DATFMT:**

**DATA:**

863 APR 17 31
863 MAY 84 32
863 JAN 45 28
863 FEB 5 29
863 MAR 15 30
863 JUN 26 33
863 JUL 55 34
863 AUG 92 35
863 SEP 36 36
863 OCT 19 37
863 NOV 10 38
863 DEC 35 39
863 JAN 22 40

**PROC G PLOT:**
plot Ol*no/ haxis=28 to 40 by i;
by unit;

**GRAPHICS**

The months for this report are required to be three character abbreviations (JAN, FEB, etc.). There is no data format resident in SAS to give month only, so each month is assigned a consecutive number in the data. A format statement is used to display the month instead of the number.

**Format:**

**SCRAP UNIT=ZID**

**OIL CHANGES**
RUNNING THE SAS PROGRAMS

First Program:

This program is run in batch mode using the PROC GGRAPH, PROC CCHART, ANNOTATE, PROC GSLIDE, and IGOUT statements. This program creates all graphs and stores them in your graphics library. After this program is run, the IGOUT list is reviewed using interactive SAS and any changes to the second program, that are necessary, are made at this time (position of the graphs on the template).

```
proc gplot data=three graphs=report.measure;
   plot wgb = no annotate=report measure;\nby unit;
   title b=2 c=blue f=triplex 'WGB';\nsymbol c=red v=*;
   data three;
   input unit $ 5.1.;\n   run;
DATA ANNOAT;
```

This program creates all graphs and stores them in your graphics library.

After this program is run, the IGOUT list is reviewed using interactive SAS and any changes to the second program, that are necessary, are made at this time (position of the graphs on the template).

Second Program:

This program uses the stored templates and the stored graphs to create the output. Using the TREPLAY statement, the appropriate graphs are placed in the windows of the template. The GSF statement directs the output to GSF files, which are sent to the laser printer for graphing.

```
options hpos=100 vpos=40 nodisplay;
Data annodat;
label sube:at .. by uni t;
Input 01.
1   by uni t no;
DATA ANNODAT;
```

```
TITLE b=2 c=blue f=triplex 'REPT I SAFE' PRODOCT A';
GOPTIONS HPOS:100 VPGS=40;
Proc Report;
  Title v=8I,.UE H=1.3 F=TRAPlEX t.I:(39.S,39) 'UNIT PRODUC T A';
  TrePLAY 1:6 2:15 3:9 4:33 5:32 6:12 7:30; "REPT I SAFE";
  TrePLAY 1:1 2:18 3:20 4:30; "REPT I SAFE";
  TrePLAY 1:6 2:3; "REPT I SAFE";
  TrePLAY 1:8 2:9 3:10 4:11 5:12 6:13 7:30; "REPT I SAFE";
  TrePLAY 1:1 2:18 3:20 4:30; "REPT I SAFE";
  TrePLAY 1:6 2:3; "REPT I SAFE"
Run;
```

```