

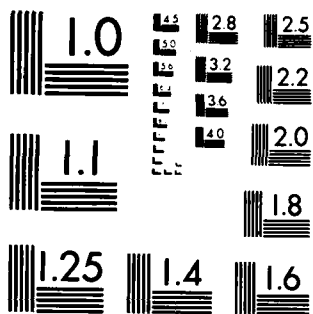
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NASTEK - INTERACTIVE DISPLAY OF
NASTRAN-GENERATED PLOTS

by

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NASTEK - INTERACTIVE DISPLAY OF NASTRAN-GENERATED PLOTS

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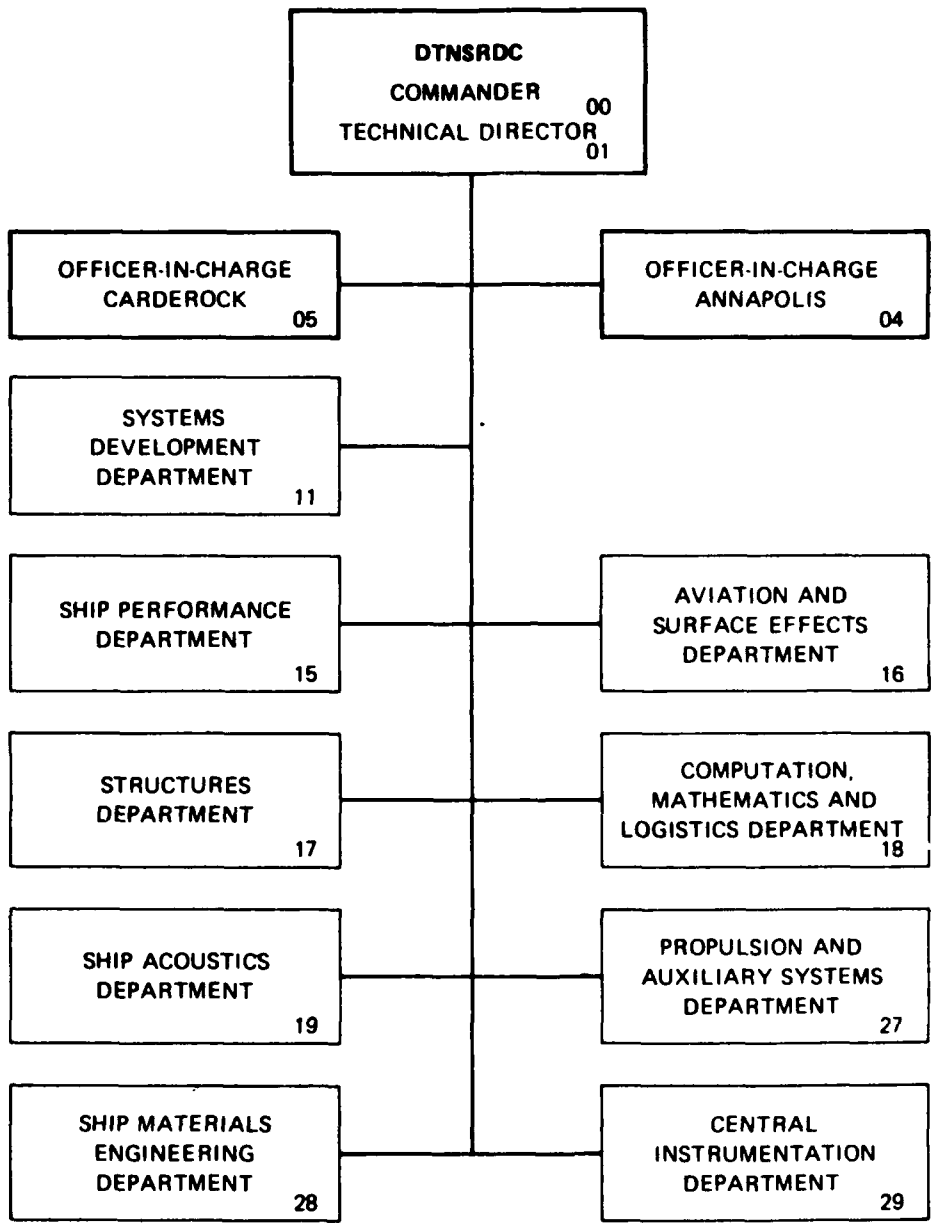


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ABSTRACT

A new postprocessor program, NASTEK, will display NASTRAN-generated plots interactively on a Tektronix 4014, 4015, or 4054 terminal. The output, written by NASTRAN on the PLT2 file, is used for input to NASTEK. The NASTEK program is more convenient to use than plotting NASTRAN plots on the off-line CALCOMP 936 plotter at the David W. Taylor Naval Ship R&D Center, since it integrates the NASTRAN/interactive plotting process. NASTEK can be run at any site with CDC computers and Tektronix terminals.

ADMINISTRATIVE INFORMATION

This work was performed at the David W. Taylor Naval Ship Research and Development Center (DTNSRDC) under the project Interdisciplinary Engineering Analysis System for Ships (IDEAS), Program Element 62766N, FY84 Task Area ZF66412001, and Work Unit 1844-141.

INTRODUCTION

Previously, at DTNSRDC, the off-line CALCOMP 936 plotter was the only plotter available to display NASTRAN-generated plots. Using the CALCOMP 936 involves post-processing the PLT2 file from NASTRAN with the program PLTTRN936, delivering the output from PLTTRN936 on tape to the dispatch office, filling out a plot request card, waiting (sometimes overnight) for the plots to be drawn, and returning to the dispatch office to pick up the completed plots.

The NASTEK program provides a one-step automated method of displaying NASTRAN-generated plots that is fast, convenient, and less costly than using the CALCOMP 936 plotter. NASTEK has the capability of plotting any individual plot or automatically plotting all of the plots with a hardcopy made of each plot, shrinking or enlarging the plots, and drawing with solid, dotted or dashed lines. Using NASTEK will save 30-50% in computer costs compared with PLTTRN936 and CALCOMP in addition to the time saved. However, plots drawn by NASTEK are smaller than on the CALCOMP 936 plotter and lines drawn with NASTEK are thicker than lines drawn on the CALCOMP 936 plotter.

The NASTEK program can also be used at sites other than DTNSRDC. They must have available to them a Tektronix 4014, 4015, or 4054 terminal and run NASTEK on either the DTNSRDC CDC Cyber computers or their own CDC Cyber computer.

BEFORE RUNNING NASTEK

In order for the NASTRAN PLT2 file to be written on disk rather than on tape, PLT2 should be listed after the FILES parameter of the NASTRAN card which precedes the ID card. For example:

```
NASTRAN CONFIG=15, FILES=(PLT2)
```

Since Tektronix terminals are not supported directly by NASTRAN, the "plotter" specified by the user is NASTPLT, the general purpose plotting package. Therefore, the PLOTTER card in the plot request packet of the NASTRAN Case Control Deck is:

```
PLOTTER NASTPLT, MODEL T, Ø
```

NASTEK can draw with dotted or dashed lines only if the PEN option is used on the PLOT execution card in the plot request packet of the NASTRAN Case Control Deck. For example:

```
PLOT, PEN i, SET 1
```

where

- i = 1, draw with a solid line (default)
- = 2, draw with a dotted line
- = 3, draw with a dash-dot line
- = 4, draw with a short-dashed line
- = 5, draw with a long-dashed line

The additions to the CDC job control cards are as follows:

1. Prior to the NASTRAN execution card, insert

```
REQUEST,PLT2,*PF.
```

if the PLT2 file is to be cataloged as a permanent file, or

```
MSACCES,your password.
```

if the PLT2 is to be stored on the Mass Storage System (MSS).

2. After the NASTRAN execution card, insert

```
CATALOG,PLT2,pfn,ID=your id.
```

if the PLT2 file is to be cataloged as a permanent file with the name pfn, or

```
MSSTORE,PLT2,pfn.
```

if the PLT2 file is to be stored on the MSS.

RUNNING NASTEK

The following procedure illustrates how NASTEK can be run on any CDC Cyber computer at DTNSRDC. To start NASTEK, login at a Tektronix terminal and enter the following commands:

```
MSACCES,your password  
ATTACH,PLT2,pfn,ID=your id  
MSFETCH,NASTEK,ID=CARL  
NASTEK
```

where pfn is the permanent file name of the PLT2 file. If the PLT2 file is on MSS, use MSFETCH instead of ATTACH. All responses to questions asked by NASTEK are numeric.

After typing NASTEK, the program will clear the screen and ask the following two questions, one at a time.

```
<NASTEK>
```

```
DO YOU WANT TO ...
```

```
1 - PLOT ANY FRAME OF YOUR CHOICE OR
```

```
2 - PLOT AUTOMATICALLY, ALL FRAMES SEQUENTIALLY WITH HARDCOPY
```

```
?
```

ENTER SCALE FACTOR (SCALE>0)

=1 NORMAL

>1 ENLARGE ALL FRAMES

<1 SHRINK ALL FRAMES

?

If the response to the first question is 1, the following note is printed after the question:

NOTE - WHEN ASKED "PLOT FRAME NUMBER ?" ENTER
A FRAME NUMBER TO PLOT ANY FRAME OR
Ø TO PLOT THE NEXT FRAME OR
-1 TO RESTART NASTEK OR
-2 TO END NASTEK

After responding to "PLOT FRAME NUMBER ?" with an appropriate frame number or zero, the screen will clear and the frame will be plotted. The question "PLOT FRAME NUMBER ?" will be asked again. If the frame with the largest frame number has just been plotted and a zero is entered, then the first frame will be plotted.

If the response to the first question is 2, the following note is printed after that question:

NOTE - AFTER ALL FRAMES ARE PLOTTED THE PROGRAM
WILL ASK "RESTART NASTEK Y/N ?"

When NASTEK is restarted the same two previous questions are asked.

A scale factor of 0.5 will shrink the plots by 50%. A scale factor of 1.5 will enlarge the plots by 50%. The first frame that is always plotted is never scaled. This frame contains only the information on the NASTRAN PLOTID card. Characters cannot be drawn smaller if the scale factor is less than 1. The current frame number and scale factor are printed in the lower right-hand corner of each frame.

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