

## **CHAPTER 4 REPRODUCTION**

### **4.1 GENERAL**

Reproduction of charts in these series shall be by lithography. The final copy shall conform to the best lithographic standards with respect to clearness of copy, conformance to colors specified, and accuracy of registration.

Individual chart features required on each color separation plate are indicated in [3.4](#) - Color Separation.

### **4.2 FILES**

Files furnished shall be final color-separated and prescreened binary TIFF (1 Bit), suitable for Computer to Plate, plate making.

Files shall be prepared with uniform screen angles in order to reduce moire effect to a minimum.

Files shall be appropriately identified by chart name, effective date, and color. A Negative Identification List shall be supplied as a guide for plate identity and screening requirements.

Color blocks, when used, shall be outside the trim line.

### **4.3 PAPER REQUIREMENTS**

Charts shall be printed on Paper Tyger paper (27 lbs. - Super White - Paper Tyger Paper - Map Lithograph Finish).

#### 4.4 PRINTING SCREENS AND COLORS

##### 4.4.1 Screens

All screen angles are measured in degrees, starting with zero at 3 o'clock and progressing counter-clockwise.

##### 4.4.2 Files, Screens and Colors

**Table 4.1 Files, Screens and Colors**

| <b>FILES</b>   | <b>TONE</b>      | <b>COLOR</b> | <b>PMS</b> |
|--|------------------|--------------|------------|
| Banner   | 35%/75°/150L     | Magenta      | 259U       |
| Boundary   | 45%/75°/120L     | Magenta      | 259U       |
| Aero Type  | Solid            | Magenta      | 259U       |
| Nondirectional Beacons (NDBs)  | Solid            | Magenta      | 259U       |
| Airways (LF/MF)  | 22%/30°/120L     | Magenta      | 259U       |
| Aero Vignette  | Solid            | Magenta      | 259U       |
| Isogonic Lines   | Solid            | Magenta      | 259U       |
| Class C, National Security Area                                      | 45%/45°/200L     | Magenta      | 259U       |
| SUA, Mode C  | Solid            | Magenta      | 259U       |
| TAC Outline Boxes  | 30%/30°/120L     | Magenta      | 259U       |
| Sporting Event Temporary Flight Restriction Sites                    | Solid            | Magenta      | 259U       |
| National Defense Airspace TFR  | Solid            | Magenta      | 259U       |
| Banner   | 30%/15°/150L     | Blue         | 307U       |
| Drainage, Glacier  | Solid            | Blue         | 307U       |
| Drainage Type, Swamp   | 45%/Biangle/200L | Blue         | 307U       |
| MSL Lines  | 60%/30°/120L     | Blue         | 307U       |
| Aero Type  | Solid            | Blue         | 307U       |
| Class B Aero Type (within FRZ)                                       | 45%/45°/200L     | Blue         | 307U       |
| Airways (VHF/UHF)  | 22%/30°/120L     | Blue         | 307U       |
| Aero Vignette  | Solid            | Blue         | 307U       |
| Class B  | 45%/45°/200L     | Blue         | 307U       |
| Class B (within FRZ)   | 25%/45°/200L     | Blue         | 307U       |
| MEF, Banner  | Solid            | Blue         | 307U       |
| Arrival/Departure Routes   | 45%/15°/120L     | Blue         | 307U       |
| SFRA, National Security SFRA and National Security TFR               | 60%/30°/120L     | Blue         | 307U       |
| Special Security Notice Permanent Continuous Flight Restriction Area | Solid            | Blue         | 307U       |
| Space Operations Area  | 10%/15°/120L     | Blue         | 307U       |

Table 4.1 Files, Screens and Colors

| FILES                                   | STONE             | COLOR  | PMS                    |
|---|-------------------|--------|------------------------|
| SUA, Compass Roses                      | Solid             | Blue   | 307U                   |
| Open Water                              | 10%/60°/120L      | Blue   | 307U                   |
| Inland Water                            | 25%/60°/120L      | Blue   | 307U                   |
| Below Sea Level                         | 15%/60°/120L      | Blue   | 307U                   |
| Green 1 (0 -1000')                      | 10%/60°/120L      | Blue   | 307U                   |
| Green 2 (1 - 2000')                     | 15%/60°/120L      | Blue   | 307U                   |
| Brown 6 (Over 12,000')                  | 12%/60°/120L      | Blue   | 307U                   |
| Water Vignette                          | Solid             | Blue   | 307U                   |
| Banner                                  | 50%/45°/150L      | Black  | Pantone Black          |
| Projection                              | Solid             | Black  | Pantone Black          |
| Culture                                 | Solid             | Black  | Pantone Black          |
| Type                                    | Solid             | Black  | Pantone Black          |
| Roads                                   | 45%/Biangle/200L  | Black  | Pantone Black          |
| Contours                                | 17%/Triangle/120L | Black  | Pantone Black          |
| Contour Values, Topo Type               | 45%/Biangle/200L  | Black  | Pantone Black          |
| Transmission Lines                      | Solid             | Black  | Pantone Black          |
| Ice Pack                                | 10%/30°/120L      | Black  | Pantone Black          |
| Shadient                                | Solid             | Black  | Pantone Black          |
| Polar and Shelf Ice                     | 5%/90°/120L       | Black  | Pantone Black          |
| Military Training Routes (MTRs)         | 25%/15°/120L      | Black  | Pantone Black          |
| Surface Area                            | 10%/30°/120L      | Black  | Pantone Black          |
| Glacier Area, High Density Traffic Area | 10%/30°/120L      | Black  | Pantone Black          |
| Escarpments                             | Solid             | Black  | Pantone Black          |
| Special Military Activity Routes        | 45%/Biangle/200L  | Black  | Pantone Black          |
| TRSA                                    | 45%/45°/200L      | Black  | Pantone Black          |
| City Tint                               | Solid             | Yellow | Pantone Process Yellow |
| City Tint (Restricted)                  | 20%/15°/120L      | Yellow | Pantone Process Yellow |
| Below Sea Level                         | 20%/15°/120L      | Yellow | Pantone Process Yellow |
| Green 1 (0 -1000')                      | 20%/15°/120L      | Yellow | Pantone Process Yellow |
| Green 2 (1 - 2000')                     | 25%/15°/120L      | Yellow | Pantone Process Yellow |
| Buff 1 (2 - 3000')                      | 10%/15°/120L      | Yellow | Pantone Process Yellow |
| Buff 2 (3 - 5000')                      | 25%/15°/120L      | Yellow | Pantone Process Yellow |
| Brown 3 (5 - 7000')                     | 25%/15°/120L      | Yellow | Pantone Process Yellow |
| Buff 1 (2 - 3000')                      | 5%/30°/120L       | Brown  | 1385U                  |
| Buff 2 (3 - 5000')                      | 15%/30°/120L      | Brown  | 1385U                  |

Table 4.1 Files, Screens and Colors

| FILES                     | TONE         | COLOR | PMS   |
|---------------------------|--------------|-------|-------|
| Brown 3 (5 - 7000')       | 35%/30°/120L | Brown | 1385U |
| Brown 4 (5 - 9000')       | 60%/30°/120L | Brown | 1385U |
| Brown 5 (9000' and above) | Solid        | Brown | 1385U |
| City Tint (Flyway)        | 10%/60°/120L | Brown | 1385U |
| City Outline (Flyway)     | Solid        | Brown | 1385U |

#### 4.4.2.1 Digitally Prepared Halftone Terrain Portrayals

Digitally prepared halftone terrain portrayals which meet the following criteria:

Shaded slopes contain gradation so that the top 1/3 of the slope contains a tonal value no more than 70%, the intermediate 1/3 of the slope contains an average tonal value of 40%, and the lower 1/3 of the slope tapers to a tonal value of 2-5% in level valley floors. The tonal value of valley floors and other nearly level areas with grades less than 3% are "dropped out" and do not print.

Printed copy shall retain the tonal values of the original digital halftone to the maximum extent practicable.

## 4.5 BINDERY INSTRUCTIONS

### 4.5.1 Trimming

Chart, when trimmed, shall measure 20 5/8" x 55" or 20 5/8" x 59" max. An exact bleed trimming of the south and east margins on the face side is required in accordance with trim marks. The south trim of the face chart must register along the trimmed edge with the north margin of the back chart.

### 4.5.2 Folding

Charts shall be folded in 11 vertical panels and one horizontal fold, with the legends on the outside panels. Folded size shall be approximately 5" x 10 5/16".