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TELEVISION GRAPHICS FOR BROADCAST JOURNALISTS

(BROADCASTING)
GENERAL

The Television Graphics subcourse, part of the Broadcast Journalist 71R Skill Level I and 2 Subcourse, is designed to introduce the Army broadcaster to an entry-level understanding of Television Graphics. This subcourse is presented in one lesson.

ADMINISTRATIVE INSTRUCTIONS

SUBCOURSE CONTENT

This subcourse contains one lesson, related to the basic tasks of the entry-level broadcaster. This lesson will provide a general knowledge and understanding of television graphics.

Supplemental Requirements:
This lesson may be taken without any prerequisites.

Material Needed:
You will need paper and a pencil to complete this subcourse. No other materials are needed.

Reference Material:
No supplementary references are needed for this subcourse.
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*** IMPORTANT NOTICE ***

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PLEASE DISREGARD ALL REFERENCES TO THE 75% REQUIREMENT
TELEVISION GRAPHICS
for
BROADCAST JOURNALISTS

INTRODUCTION

The television broadcaster must be able to think visually in order to make the most of the television medium. Visuals can, in some cases, tell the entire story by themselves and should be an integral part of a production instead of an afterthought. You may have heard the cliche "one picture is worth a thousand words." Well it's true, and effective visuals will help you tell the story clearer. A viewer's imagination can actually provide the "soundtrack," sometimes enhanced by narration (used sparingly) and television dialogue.

The term "visuals" may be categorized into three separate areas:

1. Graphics (maps, charts, diagrams, illustrations, printed IDs, outlines and summaries, plus character-generator information).

2. Photographic techniques (films, slides, filmstrips, and still photos).

3. Television backdrops, props, scenery and subject/talent visual information not included in the first two categories.

TECHNICAL REQUIREMENTS

Before you even plan or use any type of television graphic, you must be aware of the technical limitations and guidelines involved. Even if you do, or do not actually design or prepare the graphics, you'll need to be able to guide your artist and understand the limitations of the medium.

Therefore, it's important to understand how visuals must be tailored for television before producing or selecting them. The novice broadcaster, who doesn't understand these basic principles, may see a random visual he likes and try to use. The veteran will not rely on first impressions, but base his decision on more scientific guidelines and experience.

Any producer of television programs learns quickly that he needs a "working knowledge" of many contributory fields.
One of these is graphic art. All television shows use graphic materials--title cards, photographs, illustrations, charts and maps, just to name a few. Graphic materials greatly enhance news and feature productions, spot announcements, and virtually all types of TV programs. Keep in mind that, in television, it is important to present information visually as often as possible. Without visuals, you lose the force of this effective television medium and might as well be on radio. People tend to think visually. Generally, people remember visual information longer than just the spoken word.

**Important Characteristics**

Whether written, pictorial, diagrammatic, or sheer design, graphics have a place in almost every television production. In preparing graphics for TV, you should pay close attention to the aspect ratio, size, area limitations, type of graphics, preparation techniques, methods of presentation, storing and cataloging of the visuals.

**Aspect Ratio**

The aspect ratio of any television screen, regardless of physical size, is 3 x 4. This means that the TV screen is divided into three units high and four units wide. The visual elements themselves should be kept in a format size that will complement either 6 x 8 or 9 x 12. These aspect ratios will help you keep the materials and objects within the 3 x 4 aspect ratio format (Figure 1-1). All graphics should be prepared within this aspect ratio. This allows all of the information to be seen on the TV screen, not just a portion of the information. For example: A vertical picture without the proper aspect ratio will lose a major portion of its information from either the top, bottom or both and/or its sides and look poor on a TV screen.
The total area that the camera "sees" is called the "scanning area." This entire image is fully transmitted, but the outer edges and the corners usually don't appear on the home television set due to the shape of the picture tube. A properly aligned TV receiver will display all scanned information at the top and bottom center of the picture, but will crop corners due to the non-square corners of the picture tubes. Older picture tubes cropped even more at the corners and on the sides. A common mistake made by many new broadcasters is to allow too much headroom at the top of the picture. Remember, the home receiver sees everything at the top center, so don't overcompensate the same way you do for edge and corner cropping.

Essential Area

The part of the picture that reaches the viewer must include all of the important information and this is known as the "essential picture area." All visuals have a scanning area and an essential area. The scanning area is the entire picture from top to bottom and from side to side. The essential area is the main information within that picture area, the meat of that picture (Fig. 1-2).

![Figure 1-2](image)

**Figure 1-2**
Scanning and Essential Area

In the case of program titles or credits, for example, the essential area includes all of the title or other lettering. Every visual has a scanning area and an essential area. However, there is another area which can be as important -- the "Border Area."

Border Area

Graphic artwork should have a "border" around the scanning area for several reasons:
1. It helps keep the picture from being damaged if dropped.

2. It helps protect artwork from fingerprints and smudges.

3. The border area may prevent your audience from seeing past the card to some behind-the-scenes activity if the cameraman did not have time to frame the shot properly.

4. It serves as a "bleed-off" area for overscanned sets. The excess border contains no essential information.

Size

There is no specific size of studio title cards for all television artwork or graphics. However, a generally accepted standard size for most cards is 11 x 14 inches. It's best to make all graphics the same size for storage purposes. The 11 x 14-inch size fits well in a standard file cabinet. The cards should be numbered with a piece of marking tape on the edge. Stagger these tabs for easy access. This 11 x 14-inch size has several advantages:

1. It allows an ample 2-inch handling border on which fingerprints and smudges will not damage the primary information.

2. It leaves a 9 x 12-inch working area for both the cameraman and artist.

3. It also agrees with the aspect ratio requirements of 3 x 4, but in addition this physical size incorporates a safety measure.

It's also wise to mark off an additional 10 or 15 percent inside this 9 x 12-inch area. This allows for the area that is lost due to cropping on the home television receiver (transmission loss). Thus you will wind up with a copy area of about 7 1/2 x 10-inches. This protects against
information loss at the edges of the picture (Figure 1-3).

![Figure 1-3](image)

**Figure 1-3**
Transmission Loss

Figure 1-4 shows the application of the same principles for a 2 x 2-inch photo slide. A small television camera (located in the film chain room) focuses on the scanned area, which measures 27/32 x 11/18-inches. Approximately 1/16-inch on each side of the picture is lost due to transmission over the airwaves. The essential area is reduced to about 5/8 x 7/8-inch. These 2 x 2-inch slides may be made with any 35mm camera, but it is best to use a single-lens reflex camera (SLR) in order to more accurately place essential material in the center of the frame.

![Figures 1-4](image)

**Figures 1-4**
2 x 2-inch slide

Remember to use the scanning area, because on some television sets the total scanning area is visible, while on others there is a 10-percent loss. Therefore, keep all pertinent information within the essential, or "safe," area. This is especially critical for words.
TYPES OF GRAPHICS

The types and uses of graphics are limited only by your imagination. Graphics come in various forms, each having a name that makes it easily identifiable to production and artwork personnel. The major types of television graphics include:

1. Studio card
2. Plain title card
3. Combination title card
4. Super or key card
5. Chroma key card
6. Slide
7. Maps and charts
8. Character generator

**Studio Card**

The studio card shows illustration or pictorial-type information. The picture may be a mounted photo or an illustration. The studio card sits on an easel and may be a plain card (words only) or may have an illustration or picture with words. Combining words and illustrations requires the coordination of two video sources during a production, i.e. character generation and art.

Wallpaper "samples" are an excellent background source for studio cards. Color slides and other transparencies are usually made from studio cards. This allows for easier storage.

**Plain Title Card**

The plain title card has printed lettering (such as the title of the show, the name of performers, producer, etc.), with no pictorial background. Rich, deep color backgrounds with light lettering make reading easy.
The combination title card has lettering against pictorial information for the background. The picture may be either artwork or photography. The lettering may be either on the card itself or on an overlay.

**Super or Key Card**

Normally you should avoid white lettering on a black background, because the contrast is too great between the two. But when making a super or key card, the lettering must be white and the background black.

During the showing of a super, or key, the card lettering is superimposed (electronically placed) over another background (or over another picture) from either another camera or from a film chain camera. This technique is an accepted form for placing the name of the subject on the air while the subject is talking. Use simple, bold letters only, and try to restrict the amount of information on the super/key card. Be careful in planning the card, you must consider how two camera shots will look in one picture. Lettering should be placed in the lower third and centered on the picture so as not to obstruct the background and/or the main action. The super is the only time you should ever use two divergent shades, i.e. off-white and/or off-black.

**Chroma Key Card**

The chrome key card is similar to the super card, except that the background for the lettering is usually blue instead of black, and the letters are imprinted on the card. The background of the card may be any color. However most TV production houses/TV stations use a chroma-blue background color because it makes skin tones appear natural and suppresses picture distortion.

Through electronic means, the chroma-blue background becomes totally transparent during the matting process, only showing the lettering (usually white or yellow). The camera picture from the second camera shows through without interfering with the foreground image. The chrome key matting process appears to the viewer as a rear screen projection, i.e. the picture is keyed (shown) behind an announcer or is a boxed support graphic inserted alongside the announcer. The video source may be a film chain, VTR or a live TV camera shooting a studio card.
Slides

Slides are televised from a remotely controlled projector directly into a small television camera connected to the projector. The slide is then inserted on to the screen and becomes part of the set with an announcer speaking over the slide, or it's used as still photo. Slides are most often used and preferred over studio cards since they do not tie up a studio camera and may be easily changed.

When using slides, it's important to keep all pertinent information within the essential area. The projected picture area of the slide must conform to the standard 3 x 4 television format. In other words, use only horizontal slides, not vertical slides. Ideally, all TV cards should be made into slides. This cuts down on storage space and keeps cards from becoming dog-eared through handling. However, detailed and complete artwork such as maps, logos, insignias or graphics covering common subjects should be saved for future use.

Maps/Charts

Maps and charts are also important visual aids for television programs, especially newscasts. Using simplified drawings, details should be limited to the essential areas. For example, to emphasize a whole area, such as the state of Colorado on a map of the United States, retrace the borders and then darken the state area with green or blue tints. Charts should have as little written copy as possible. Maximum clarity with minimum essentials must be your chief objective.

Character Generator

When you have a lot of printed information to get across such as names of individuals, sports scores or closing credits, the best and easiest way to do it is with a "character generator." The character generator is an electronic "graphic" system that has been used extensively in closed circuit and broadcast television for several years. The special-effects device creates letters and numbers in a variety of sizes and "fonts," or letter styles. The layout of the solid-state keyboard is similar to a typewriter or computer with the addition of several functions and operating controls. Information may be entered into the character generator from a keyboard and stored on a floppy disk or tape. Since the letters may be placed anywhere on the screen. A "cursor" (electronic location indicator) allows you to move the information anywhere on the screen (Figure 1-5).
Some of the more advanced character generators feature 14 to 16 lines of 32 characters within the full-screen scan area, line-by-line memory recall, automatic centering, word flash, word or line underline, stand alone titling, titling over video, and two-speed roll, or crawl, through all or part of the memory. Through a colorizer, the letters may be programmed in various color arrangements. Optional features permit mass storage on floppy disk of character displays, for easiest recall at any time for a key or matte key insert. You may find the character generator to be a lifesaver as a quick means to display information, i.e., sports scores, title credits, departure times, weather information. However, it should not rule out the use of other graphic support materials available.

**Computer Graphics**

Computer graphics are the newest part of the technology that's available today for the television industry. Basically, the system works like this: An electronic picture is recorded on tape from a television camera, slide projector, videotape, magazine, still photo, or a studio camera. The artwork is then converted and stored in a digital code format. The computer system then converts them into electronic pictures. The computer can recall any graphic stored on the disk within seconds by random access. The graphic artist then paints/draws a picture, using an electronic pen (brush) and palette, and may add material, delete information or change the colors of the picture or letters at will and while "on-the-air". The more advanced computer graphic systems have more colors and can produce more animation.
Before this, and as stated earlier, the artwork had to be transferred into photographic slides that were filed for possible future use. Valuable time is lost changing the artwork on these slides and just trying to locate them may be a big problem in a large television station that uses many graphics (Figure 1-6).

![Figure 1-8 Computer graphics](image)

**PREPARATION TECHNIQUES**

Regardless of the format or purpose of your graphic, there are a few musts, or fundamental aesthetic considerations to be made while planning. Simplicity, contrast, balance and composition are the keys to a good graphic layout.

**Simplicity**

The old adage "KISS" or "Keep It Short and Simple," is best when making or creating graphics. Your graphic should be easily recognizable and uncomplicated. Don't make the viewer work too hard to understand what he's seeing. People normally will ignore a visual with too much lettering. Use bold lines and lettering, and keep colors to a minimum, preferably white or yellow.

All copy or lettering must be readable. Fancy lettering may look good on paper, but might not permit the viewer to understand what you are trying to convey. After all, we don't use lettering unless it is necessary, and if it is necessary, the audience should be able to read the information. Example: Don't use Gothic fonts when reporting about Miami. However, Gothic lettering may be appropriate for a story on old Europe.
Sizing of the subject in the picture also is important. Keep the primary subject somewhat large within the picture that you are framing. Don't make the viewer have to strain to read or see the subject. A good type size may be about a half-inch in height on a 19-inch monitor.

Contrast

High definition, or contrast quality, is important for reproduction over a television system. Contrast in visuals should be sharp but not excessive. Avoid large areas of white, because such high intensity light will cause the pickup tube(s) in the camera to transmit glitter and flair, especially during camera movement, and may introduce audio noise into the video picture.

The human eye can identify about 100 different shades of gray. The TV camera clearly identifies only about ten shades. Since the brightest area can be no more than 20 times as bright as the darkest area, you'll have to be careful about using pictures and graphics that have high contrast. It should be noted that "TV white" is not really white at all. Pure white will reflect 100% of the light shone on it. TV white has a reflectance value of only about 60%. TV black is actually dark gray, reflecting about 3% of the light.

You also need to consider how color will appear on a black and white (monochrome) TV set. Color material will appear as shades of gray on a monochrome TV set, and must be used according to its gray scale value. The best way to test colors is to check them with a color TV camera and color television (monitor) that is correctly set up. You'll find that brown, purple, dark blue and black appear black on a monochrome TV; red, medium blue, and medium green appear dark gray; light blue, chartreuse, gold and orange appear light gray; pastels, bright yellow, light gray and tan appear almost white.

Even a color television system acts as a filter—it only sees a portion of the hue (color itself) and saturation (color strength) that the human eye can see. Most color cameras have trouble with the colors red and orange. Saturated colors cause excessive video noise or color stretching over the whole screen. Stripes or color banding may also show up as color vibrations, disrupting the picture. Stay with basic, solid colors, primarily blues and greens, and avoid supersaturated reds and oranges.

Studies have noted that color may influence our judgments of size, weight and temperature, and even affect our psychological state of mind. Colors are viewed as "high energy" or "low energy." Cool colors are considered low
energy; warm colors are termed "high energy". Make sure that you avoid using two colors that have the same value on the gray scale.

Balance and Composition

When designing, balance and composition are also important points to remember. For full screen graphics, make sure the design is balanced and aesthetically pleasing to the viewer. Note that certain lines and shapes have different effects on the mind. Visualize the final, on-air picture. Will it be well composed and balanced (Figure 1-7)?

![Balance and Composition](image)

Figure 1-7
Balance and Composition

When designing chroma or mono (black and white) key graphics, be aware of the technical requirements of color, intensity and final composition. Is the position correct for the over-the-shoulder key? Seldom if ever would you use an over-the-shoulder-key. Will the name or information be superimposed over the announcer's or guest's face? When using maps or charts for weather reports or special programs, keep the detail to a minimum. The viewer doesn't need to see the small towns or roads to get the message. (By the same token, some productions overdo and overuse graphics...going from one map to the next before the viewer can comprehend the information.)

Lettering

When letters are made too small or too thin, they will not be seen. A general rule of thumb is not to offer letters smaller than 15 to 20-percent of the essential area. If the visual is too "busy," or includes too much material, it will probably be distracting to the viewers. Five or six lines
of 15 to 20 characters is considered to be the most a viewer can handle at one time. This permits the use of a lettering size that is easily legible. Boldness of type also is important. Large letters are especially important for color television since the limited resolution (seeing) power of a color distribution system will not reproduce detailed artwork or small print work well. Thin lines may not appear clearly on the television screen. Irregularity of lines in a drawing are intensified when the camera shows a close-up. This also points up the need for simple fonts.

Do not use glossy inks or prints except for special effects. A glossy black, while appearing black to the eye, may pick up light reflection and transmit through the television system as a white, or near white. The television camera is sensitive to light reflections, and a smooth hard surface will reflect more light than a rough, dull surface. Another point to remember is to use only matte photographs whenever possible. The glossy prints, while appealing to the eye, usually cause problems for the camera.

There are many shortcuts for television lettering, such as the Leroy lettering pen, acetate templates, spaghetti (menu board), or paper and plastic letters that the artist may lay out and rub, or glue, onto the artwork. Transfer letters are available in hundreds of typefaces, many of which are used effectively on television. Some typewriters have oversized type, called bulletin board type, used for small visuals. Flat artwork and hand lettering may be done with opaque paint or, in some cases, with professional felt-tip pens. Almost any form of lettering device can produce a good television visual if proper contrast and layout are observed. Large colored areas generally are illustrated with colored paper or overlays. Make sure that you use a matt surface to prevent glare.

Background materials for slides may be selected from pictures in books, magazines, calendars, postcards, greeting cards, and wallpaper samples (but, be careful of copyrighted material). By printing your information on acetate (clear plastic, such as document protectors), you can then place the plastic overlay on top of the background material, and photograph both together.

When you prepare artwork for supers, or key effect, use black letters on a white card. The photographic process reverses the polarity of the artwork and allows you to use the film negative with the black background and the white letters for-your "super" slides.

Handmade letters may be made from a lettering book by making a paper copy (enlarged if necessary) and tracing the letters on the back of bright colored paper, and then cutting them out and placing them on a background. This allows more variety in color and letter styles.
METHODS OF PRESENTATION

There are many ways to present visual information in television productions, several of which we have already discussed. Other methods include:

Still Pictures

The flat or still picture was extensively used in early TV productions. They were any size according to production needs. Maps on walls or large "poster type" drawings are considered to be stills, the same as the smaller 11 x 14-inch cards. Stills were shot "live" in the studio with a TV camera using the 3 x 4 aspect ratio. Today, most stills are stored on slides, videotape or in a computer graphic system.

There are several instant cameras that use 3 1/4 x 4-inch in size, using color or black and white instant film, print and negative combinations, and transparencies. This method in the past was a popular means of acquiring fast visuals for television. Some of the instant cameras offer plastic frames for mounting transparencies. These work well on rear screen projectors, light boxes, and on flip cards that may be used during productions. Pictures may be taken of an event and shown immediately in lieu of videotape or as a support graphic, although best overall reliability is still the 35mm slide, videotape, or artwork. In addition, rear screen projection enables a variety of background settings in other types of productions.

The 8 x 10-inch transparency may is useful in small studio facilities that do not have videotape available. The 8 x 10-inch transparency can be made through a photo lab or graphic aid shop. The transparencies are shown in a device called a "light box," which needs only a low-wattage bulb and a good piece of frosted plastic or glass to diffuse the light. This same kind of transparency may be used on an overhead projector for either a frontal or rear projection screen. Either way will work for television. However, with the advent of more advanced graphic systems, these formats (rear screen projection and light box) are not used that much in television anymore, and are only mentioned here to let you know that they exist and may be used.

Drop cards

You'll find that the character generator, in large facilities, is predominantly used to support a substantial amount of lettered or numbered information. However, drop cards or flip cards are often
used as a main means of graphic support. The principle is the same as that of loose-leaf binders, except that the ring binders are mounted horizontally on a board or easel. The ring perforations are made through the bottom edge of each drop-out card, and at the top of each drop-in card. Drop-in cards seem to fall "into" the camera shot and appears on the screen. Drop-out cards appear to fall "out" of camera range, and they seem to disappear from the screen (Figure 1-8).

![Figure 1-8](image)

Drop cards

When you place cards on the stand or easel, make sure they are parallel to the camera. Otherwise, the information will look as if it is running uphill or downhill on the screen. Shooting off-axis produces "keystone" distortions, e.g. when the viewpoint is too high or shot from the side. If the lettering runs uphill (high on the right), rotate the easel clockwise.

If the lettering runs downhill (high on the left), rotate the easel counterclockwise (Figure 1-9).

![Figure 1-9](image)

Shooting graphics
Storing or cataloging visuals

It is important to be able to prepare graphic material; but equally important, you must be able to find it promptly and keep it in usable condition. You need to provide adequate storage and care for them, and you should know where they are at all times. As stated earlier, standard-size studio cards and the slightly smaller 8 x 10-inch transparencies fit well in legal-sized file folders/cabinets. Larger items will require special shelves and bins to allow them to stand upright. If the dividers of the bins are only about 6-inches square, the chance that the cards will get that "bent" look is reduced.

Regardless of your duty location, all production aids that you receive--station identification (ID) slides, weekly news service slides provided by a commercial vendor, and 8 x 10-inch prints, just to mention a few--are not accountable items. They should be retained however and filed for as long as they are serviceable. Color slides should be stored in special trays and cabinets designed for them.

No matter where your graphics are stored, keep an up-to-date index of the items. A type of cross-indexing is suggested. Slides should be filed by subject numerically, and caption index cards (also cross-referenced) should be filed alphabetically.
Graphic supports

There are several types of graphic supports. They are (Figure 1-10):

1. The caption stand (tiltable shelf, adjustable height) suitable for title cards.
2. The card pulls (tabs) are attached to edges of cards to make removal easier.
3. The title card box is used when you want to reveal the next title by pulling a card out of the box.
4. The strapeasel is used for larger graphics. Weighted webbing straps adjust to all sizes.
5. Flat displays use various graphics of different sizes.

Types of graphs

A graphical presentation enables information to be assimilated and compared rapidly. Several formats are available, having greater visual interest than a routine line-graph (Figure 1-11):

1. Multisurface or strata graph
2. Column graph
3. Combined column graph
4. Bar graph
5. Sector, pie or circle chart
6. Volume chart, height chart, area chart
7. Pictogram pictorial chart
8. Pictorial symbols
9. Flow chart

Figure 1-11
Graph charts

Animated graphic-flips: (Figure 1-12)

1. Title cards in ring binders, flip into shot (drop-in); or bottom hinged flip-out (drop-out). Margin finger-grip tabs aid operation.

2. Flip-over--double-faced title-card horizontally pivoted.

3. Flip-round.

4. Rotating flip.

Figure 1-12
Flip-cards
Pull-outs (reveals): (Figure 1-13)

1. Top card is slid aside to reveal the next.

2. Black slide-out section in black card, reveals titling underneath.

3. As each black card is pulled, titling on the clear sheet beneath is revealed.

4. Slide provides push-over wipe effect.

5. Shutter slide aside to reveal new information below.

6. Breakaway, where the top graphic splits (slides apart or hinges) to reveal another.

![Figure 1-13]

Reveal graphics

Animated graphics-rotates: (Figure 1-14)

1. Turntable

2. Flop-over or vertical slide

3. Rotating box
4. Rotating strips

Figure 1-14
Rotating graphics

Animated detail: (Figure 1-15)
1. Rotating and sliding sections
2. Hinged or pivoted sections
3. Pull-out reveals
4. Rear illumination

Figure 1-15
Animated graphics
INSTRUCTIONS:

Review the material in this lesson. Answer all the questions below by circling the "T" or "F" next to each question. Compare your answers with the answer key on the next page.

T  F  1. Visuals or graphics for television are categorized into two specific areas.

T  F  2. The standard size for studio cards is 11 x 14-inch.

T  F  3. The character generator is a type of graphic system.

T  F  4. Studio cards are preferred over slides.

T  F  5. In lettering, "looking good" is the most important consideration.

T  F  6. The television camera sees less than the eye.

T  F  7. Gloss inks and prints are acceptable for special effects.

T  F  8. Drop-in cards seem to disappear from the television screen.

T  F  9. Caption index cards should be filled numerically.

T  F  10. Slides should be filled alpha-numerically.
# ANSWER KEY

## PRACTICE EXERCISE

### LESSON #1

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