

Technical Overview of On-Site and Remote Captioning at  
Memorial Park Presbyterian Church  
Pittsburgh, Pennsylvania USA

By

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Captioning of the 11 AM Sunday service at Memorial Park Church is performed using technology identical to the procedures employed by television networks. A stenocaptioner listens to the audio of the service and inputs the text into a stenograph machine. Skilled stenocaptioners are capable of transcribing well over 200 words per minute with an error rate under one percent in addition to adding speaker ID's and punctuation. The steno machine's output is fed into a computer with software that translates the cryptic steno data into readable text, formatted to drive a caption encoder. The encoder's output is connected to television screens for viewing by the hearing impaired audience. It is not necessary for the stenocaptioner to be on site, however there is additional equipment and the need for two telephone lines if the stenocaptioner is remote. Details of this will be outlined later in this document. An area should be dedicated for the captioning hardware located on site. Ideally, this should be near the caption display area with the captioner having a visual site line to the service's presentation area. It may be advantageous for the captioner to have access to the program's audio feed via headphones. Memorial park has an assistive listening system with wireless receivers and headsets for those who require it. The captioner, when on site, utilizes this system to provide a disturbance free program audio source. It is easy to be distracted by the sounds of restless children or coughing from those nearby. The stenocaptioner area should be located such as to not block an aisle while allowing access to the associated computer display, keyboard and steno machine.

I have provided a schematic flow chart to assist in the visualization of the captioning process. One half relates to on site captioning, while the remainder describes the remote access process and the telephone line connected devices. Also included are equipment lists as well as suppliers of the specialized hardware

required. Where applicable, manufacture and model number recommendations have been made based on their proven ability to work well at Memorial Park. Locating someone locally with the necessary skills to assist in the installation, configuration and ongoing maintenance of the captioning hardware will determine how smoothly the captioning of services progresses. There will always be little problems that arise from time to time, and having someone who is familiar with the system is key in resolving problems quickly. A switch on the encoder may have been changed by a curious child or a power outage may have reset some configuration in the computer causing a problem. The key to minimizing problems is to educate a few persons as to how the system operates and keep notes of past problems. Something as simple as having a few of the churches phone lines reconfigured can result in panic on Sunday morning when the captioner cannot access the encoder's modem because another modem, internal to the church's phone system is answering too.

## **Equipment required for on-site only captioning:**

- **Computer**, minimum requirements determined by (real-time) captioning software package to be used. **The machine must have available two RS-232 serial ports.** One is for the steno machine's data input, the other for caption data out to the encoder.
- **Real-time, captioning software** and tech support for same if deemed necessary.
- **Caption Encoder or Caption Character Generator.** A Character Generator (**EEG model DE-241 CG**) will suffice if only on-site captioning is planned. To allow remote access to a captioner a Caption Encoder (**EEG model EN-370DTM**) with modem is required. This device connects to the computer for inputting caption data and to the television for display of the captions over the aforementioned video source. The caption encoder Memorial Park utilizes has a built-in modem allowing the captioner remote access to the system. **NOTE: If the captioning system was to be used only as a remote access system, the need for the on site computer and captioning software package goes away.**

This saves considerable expense on site, however it then becomes necessary for the captioner remotely accessing the system to have a computer and captioning software at their location. The initial cost of this hardware (allowing remote access) is higher, it however allows for greater flexibility in scheduling captioners, as they can caption from home. Additionally, if the captioner is unable to get to the church due to bad weather or other situations, the service can still be captioned.

- **Video Source** to display captions over. This is simply the blue screen output of a consumer VHS Video-cassette recorder. The VCR serves a dual purpose as it is available for tape playback for meetings in the room. Ideally, the background video would be a camera trained on the presenter of the service. If the service is already televised the feed from the camera provides the background video.
  
- **Video display device** mounted for comfortable viewing by the audience. Memorial Park has a 32-inch consumer television mounted in a commercial mounting yoke. The TV is suspended from the wall between the sanctuary and a side annex. It is important to carefully position the television so the look angle is not too high to cause neck strain, while allowing for the maximum number of viewers. Reflections and glare from lights and windows need to be considered. The television must be positioned so the lower edges of the cabinet do not pose a problem for people walking through the area. A 32-inch television typically weighs around 100 pounds so I cannot overemphasize the need to ensure the bracket is adequate for the weight and the method of securing the bracket assembly to the building is sound. Threaded rods going completely through a structural wall or long lag bolts into support studs must be employed. It may be necessary to reinforce the area where the television is to be mounted. The cost of this may vary widely depending on the situation. Power and signal cables need to be routed to the television and concealed as necessary. The wiring for the AC power outlet should be performed by a licensed electrician. Taping an extension cord to the wall for an installation such as this may represent a code violation.

## Additional on site requirements for remote access:

- **Two telephone lines:** The lines used for the captioning access must be standard phone lines. The digital phone systems utilized for office systems with multiple extensions will not work with the audio coupler or modem used for captioning. Many digital phone systems offer optional interfaces allowing the emulation of a conventional phone circuit. Memorial park utilizes line sharing for the caption lines with one being a counseling line and the other a modem or fax line from an office. The lines are only in use during the actual captioning of the service, however there are some procedures that must be adhered to prior to the service to insure the captioning equipment has access to the lines.
- **Telephone Audio Coupler:** In order for the captioner to hear the service remotely the church's public address feed is coupled into a device that puts the service's audio on the line. Radio and television stations use these devices for remote broadcasts and the unit specified is called an Auto-Coupler. It will automatically connect the PA into the phone when its associated phone line rings. Upon disconnection or hang-up the Auto-Coupler resets awaiting the next call.
- **Procedure Guidelines:** With a captioner remotely accessing the equipment each Sunday there is still the need for someone at the church to ensure the television and VCR are turned on in addition to the encoder and associated phone line auto coupler. The captioner can quickly tell if the auto coupler is working by dialing into it 15 to 20 minutes prior to the service. The encoder's modem also relays a confirmation signal back to the remote captioner that it is connected and accepting data. A checklist was made for Memorial Park that is located by the captioning computer in the event of a question or problem. **A copy of it is included in this document.**

## Hardware cost analysis:

Keep in mind that this information is based on estimates and will vary depending on your situation. The required computer hardware is pretty standard and may be on site already. To my knowledge all of the commercially available captioning software runs on a DOS or a Windows-based operating system. It's recommended that the computer to be used for captioning be dedicated to that task. The potential for problems is greatly reduced if there are no other programs running on the system. The computer and associated monitor/keyboard will require some sort of desk unit and a place to reside. These factors should be considered in the overall cost analysis. (N.B. – these figures may not be current.)

**Computer System:** Monitor, keyboard, CD-ROM for loading software. Software purchased will dictate memory requirements.  
Estimate budget:       \$ 1,000.00

**Real-time Captioning Software:** Typically in the \$ 3,000.00 range.

**VHS Video Cassette Recorder:** For generating video source to overlay captions onto. \$ 100.00.

**Caption Encoder or Caption Character Generator:** If all captioning is to be on site the Character Generator, EEG model DE-352 CD, is less expensive costing around \$ 1,200.00. To allow remote access to the system a Caption Encoder, EEG model EN-370DTM is required. This is equipped with an internal modem and costs around \$3,000.00. Keep in mind that if remote only captioning is performed, the local (on site) computer and captioning software are not needed. The computer is in this situation provided remotely by your stenocaptioner. If your contracted stenocaptioner does not have captioning software it will need to be purchased.

**Display Device, Television:** This must be sufficiently large to allow good viewing by the audience and have a composite video input. In some situations more than one screen may be required. The addition of multiple screens may require a video distribution amplifier. The mounting system for the televisions must also be considered. A commercial quality bracket to support the television can cost upwards of three hundred dollars. Television costs can vary widely as well as the quality of the image. Televisions with the flat face screen typically have lower glare from incident light sources. I recommend that a name brand set be purchased. Estimate \$ 400.00 to \$ 700.00.

**Telephone Auto Coupler:** The phone line must be available for dedicated use during the service and typically for a few minutes prior. **Gentner's model Auto Coupler** is well suited for the task. The audio quality is excellent, it's FCC certified and takes up little space. Cost is around \$ 350.00. A telephone line is required to be routed to this devices location. Typically this device in the vicinity of the PA system's cabinet.

The most critical part of the equation is locating a skilled steno captioner. The hardware is easy to locate and install. There is a critical shortage of people with real-time captioning skills.

Once a captioner is located their ability to prepare for a service by adding any odd proper names into their caption dictionary as well as pre-scripting of hymns will greatly increase the accuracy of the captioned service. The weekly church bulletin is faxed or E-mailed to the captioner prior to the service. When possible the text of the sermon and choir music is also provided.

If the Stenocaptioner is located remotely their requirements will include a **minimum of three phone circuits**, a computer and external modem, steno machine, and telephone audio coupler with associated audio amplifier. One of the phone circuits can be a cell phone and a fax machine is also helpful for obtaining preparation information. Any Stenocaptioner currently engaged in contract work for captioning companies should have the required remote setup configuration. The external modem is preferred allowing the captioner a means of monitoring the connection status of the caption data line.

## Additional resources:

### **Hardware Manufacturers and Distributors:**

EEG Enterprises, Inc.: Manufacture of caption encoders and character generators. Sells direct to end user.

EEG Enterprises, Inc.  
586 Main Street  
Farmingdale, NY 11735  
516/293-7472 voice  
516/293-7417 fax  
[www.eegent.com](http://www.eegent.com)

GENTNER: Manufacture of telephone audio interfaces. Sells only through distributors. Their web site has information on contacting a dealer. It pays to call more than one as some will provide discounts from the suggested list price.

[www.gentner.com](http://www.gentner.com)

TecNec Catalog: Supplier of television mounts and a broad range of broadcast audio and video supplies. Catalog provides an excellent reference resource on available hardware for various audio/video needs.

Griffiths Broadcast Company  
45 Barnum Road  
Danbury, CT 06811  
203/746-3231

Software Resources: I am not in a position to recommend software at this time. Your Stenographer should specify the software they are comfortable with and verify if it will interface with the on site hardware. The Closed Caption Web provides links to all major suppliers of software.

Web Sites: The CAPTIONING WEB, represents the best source I have found to research any aspect of closed captioning. From technology to legislation. There are dozens, possibly hundreds of links to any captioning resource you may need. All of the hardware suppliers mentioned are accessible through this site with detailed information on the products mentioned.

**[www.captions.org](http://www.captions.org)**

I hope this information has answered the majority of your questions regarding the captioning of church services. If I can be of any further assistance please call me at 412/486-1702, or e-mail to [epayne3804@aol.com](mailto:epayne3804@aol.com). Please include a reference to captioning in your e-mail header if I do not have your e-mail address on file, as I sometimes delete e-mail from unknown origins.

Thank you and good luck in your endeavor,

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