STATE OF NEW MEXICO

Judiciary

Court Monitor Users Manual

STATE OF NEW MEXICO JUDICIARY

Court Monitor Manual

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Preface / Instructions

The Supreme Court of New Mexico, through the Board Governing the Recording of Judicial Proceedings, trains and certifies court monitors.

Court monitors are trained by chief monitor trainers working in each district. The chief monitor trainer is appointed by the Chief Judge of each judicial district and is responsible for training and providing guidance through the certification process.

Each court monitor is responsible for following all rules governing the recording of judicial proceedings as well as all local court rules pertaining to court monitor duties.

This revised Court Monitor's Manual is approved by the Supreme Court and published by the Board Governing the Recording of Judicial Proceedings. It is designed to provide an outline and material for training new monitors as well as provide information for existing monitors. The manual also provides samples of court monitor forms and various format suggestions for preparing court monitor documents.

Judicial Districts in New Mexico are using audio recording equipment and digital recording equipment to capture judicial proceedings. This manual covers instructions for both audio recording equipment and digital recording equipment. All certified court monitors are responsible for knowing the contents of this manual as well as all applicable rules and regulations pertaining to court monitors in the State of New Mexico. The New Mexico Rules Governing the Recording of Judicial Proceedings can be found in 22-101 through 22-701. You will find reference to specific rule numbers outside the left margins in this manual. The complete set of Rules Governing the Recording of Judicial Proceedings can be found on the CCR Board website; www.ccrboard.com.

Failure to comply with the Rules Governing the Recording of Judicial Proceedings may result in disciplinary action by the CCR Board.

A special thank you to Roger Proctor, Chief Monitor Trainer for the Second Judicial District Court who tirelessly and without hesitation provided guidance and input whenever needed.

Rule 22-102 & 22-206B

Questions regarding the CCR Board and this manual are to be addressed to:

Linda McGee, CCR Board Administrator
P.O. Box 92648
Albuquerque, NM 87199-2648
Phone: 505-821-1440
Fax: 505-821-2940
Web site: www.ccrboard.com

Chapter 1

Overview of the Court Monitor Position

Rule 22-201C

Who trains court monitors; how are monitors tested and certified; and monitor renewal fees are all topics addressed in this chapter.

Court Monitors employed by the State of New Mexico work as an unclassified employee working for individual District Court judges, or are classified employees working in a monitor pool under the supervision of a managing reporter or other authority.

The current job description, approved by the Administrative Office of the Courts, governs the duties and responsibilities of the court monitor employee working for the judiciary.

Court Monitor Certification

TRAINING AND TESTING FOR COURT MONITORS (Audio)

Following the initial training by the chief trainer, the next steps for temporary/full certification are as follows:

The chief trainer administers the written monitor test based on the type of recording equipment used in their district.

The CCR Board Administrator is responsible for grading the written exam.

See Sample Application pg. A-1

The chief trainer submits the written test and monitor application for certification to the authority responsible for payment of monitor training/testing fees. In some districts, this would be the purchasing department. In other districts, it may be the accounting or fiscal department.

The monitor testing/certification fee is currently set by the CCR Board.

The monitor application, the written test, and the money order, purchase order, or cashier's checks are sent to the CCR Board Administrator for processing and final approval.

The CCR Board will now open a data file and assign a temporary certification number which begins with the letter T.

The CCR Board Administrator will submit correspondence to the monitor granting the temporary number and will include instructions for the next step.

The temporary monitor has five months to submit two tapes and two logs from two separate trials or hearings to the chief monitor trainer for final grading. The temporary license will expire at the end of six months if tapes and logs have not been submitted and graded by the chief monitor trainer.

The chief trainer grades those logs and determines whether the work submitted is acceptable or not acceptable.

If the tapes and logs submitted are not acceptable, the monitor shall submit additional tapes and logs for grading.

When two acceptable tapes and logs are submitted, the chief trainer submits a written letter to the CCR Board Administrator recommending full certification as a certified court monitor.

The final step in this process is a written confirmation letter by the CCR Board Administrator to the newly certified court monitor.

Rule 22-203(C)

MONITOR RENEWAL FEES

Monitor fees are renewed each year by completing the following process:

- A renewal form is mailed to each certified monitor by the CCR Board Administrator in June of each year.
- If a renewal form is not received by June 30, it is the responsibility of the monitor to request one from the Board Administrator.
- The monitor must complete all sections of the application form and submit the form to the CCR Board prior to the deadline.
- The renewal fee must accompany the renewal form.
- Method of paying the renewal fee is cashier's check, money order, personal check or invoice with a purchase order number from the judicial district where the monitor is employed.

- The certified monitor is to keep the CCR Board Administrator apprised of current information such as address, phone number and employment status.

Definitions

Court Monitor: a person who records judicial proceedings by audio or digital recording.

Official Court Monitor: a person who is directly employed by the courts as a judicial employee as a certified court monitor.

Rule 22-101

Freelance court monitor: a person who is not a judicial employee but is a certified court monitor employed as an outside monitor to cover judicial-related hearings, as well as other businesses or agencies.

All judicial proceedings shall be recorded by a trained and certified court monitor on equipment approved by the Administrative Office of the Courts. To ascertain what equipment is approved by the AOC, the chief trainer or court administrator is to contact the AOC prior to purchase. The actual media, either tape or CD, shall serve as the official record unless otherwise ordered by the court.

Note: Rule 201C

If a trial or hearing is recorded by an audio recording device such proceedings shall be recorded by a court monitor who is certified as qualified by the Board Governing the Recording of Judicial Proceedings. In such cases, that recording shall serve as the transcript unless otherwise ordered by the Court.

Chapter

2

Courtroom Procedures and Protocol

This Chapter outlines the procedures and protocols that a Court Monitor should follow. Protocols for Judges are also listed.

This chapter deals with monitor responsibilities that are not clearly defined in the job description. Each district court judge will conduct courtroom proceedings in slightly different ways. The items outlined as the judges responsibility are meant to serve as a guide only and are not meant to cover all aspects of conducting judicial proceedings from the standpoint of making the record. These responsibilities may vary from district to district and are meant to serve as a guide to the duties of a certified court monitor. Court monitors are to follow courtroom procedure and protocol as outlined by the judge.

You are the silent member of the courtroom staff.

Monitor Responsibilities

1. The court monitor is to remain in the hearing room at all times during the recording of judicial proceedings.

2. The court monitor is to wear audio headsets at all times the proceeding is recording to ensure a clear and accurate recording.

3. The court monitor is considered a member of the courtroom "team" and follows the instructions and directives of the judge, hearing officer, special commissioner, pro tem judge, or the individual appointed to preside over the proceedings.

4. Facial expressions, gestures and verbal comments are prohibited during courtroom proceedings.

5. The court monitor is responsible for a clear audio recording.

6. If the audio is not projecting clearly in the headsets, the monitor is to inform the court immediately with the proper log notation showing audio failure at the specific time and place in the proceedings.

7. Should the equipment malfunction at any time, the monitor is to inform the court and make the proper log notation at the specific time and place in the proceedings.

8. If the monitor is unable to hear a response of the party or a witness, the monitor is to notify the court immediately. The court will then instruct the parties to answer appropriately.

9. If attorneys are talking over each other and talking at the same time, the monitor is to inform the Court so that the court can advise the parties to speak one at a time and to speak clearly into the microphone.

10. The court monitor is to remain alert at all times so as to be able to follow the instructions of the court.

11. Permission to go off the record can only be given by the court.

12. The court monitor is to consult with the designated trainer on any and all questions pertaining to the duties of the court monitor within his/her court. Duties and responsibilities may vary from district to district.

13. The court monitor is the only certified court personnel authorized to operate recording equipment both in and out of the courtroom.

14. The court monitor is responsible for all gaps or blank recording spots in the recording.

15. The court monitor is to pay special attention to bench conferences and ensure a good audio record.

Judge Responsibilities

1. The judge is responsible for reciting the caption and cause number of the case at the beginning of each proceeding.

2. The judge is responsible for ensuring that appearances are announced in open court for the record. The parties are to announce their names and the party they are representing at the beginning of each proceeding.

3. The responsibility for maintaining courtroom decorum is the responsibility of the judge, hearing officer, special commissioner, pro tem, etc.

4. The judge is responsible for providing conditions and discipline best suited for making the record and eliminating those factors that impact the recording system's ability to record.

5. If necessary, the judge is to remind the parties that the proceeding is being recorded and that all voices must be loud enough and clear enough to record through the microphones located in the courtroom.

6. The judge is responsible for ensuring that all answers are verbal responses and reminding the parties that the recording device cannot record gestures such as nodding or shaking the head yes or no.

7. The judge is responsible for asking parties to speak one at a time and slowly when recording the proceeding.

8. The judge will decide how recorded depositions will be entered into the record during a proceeding.

9. The judge/managing reporter/leadworker is to supervise the work of the court monitor to ensure that equipment is operated properly; the log sheets are accurately prepared and filed; and that all duties of the court monitor are performed efficiently and timely.

10. The Judge is the only officer of the court permitted to instruct the monitor when and if a proceeding is to be "off the record."

11. Counsel must seek permission of the court to go off the record.

12. The judge is to pay particular attention to bench conferences and discussions held off the record.

Chapter 3

Audio Recording

This section provides guidance and information on recording judicial proceedings using audio equipment.

Many districts throughout the State of New Mexico use various models of recording equipment to record judicial proceedings. This chapter addresses procedures, maintenance, and proper usage of audio recording equipment.

See Lanier User's Guide pg. A-2

A complete User's Guide for the Lanier recording equipment can be found in the appendix of this manual and is available to answer questions and issues not addressed in this manual. New Mexico Judicial Districts currently use Lanier recording equipment and Sony recording equipment. Portions of this Users Manual may not be applicable to some systems. Designated Monitor Trainers shall provide the Monitor with an equipment users manual specific to their system. The Monitor Trainer shall review that manual as part of the certification process.

Recording Procedures for Each Day

Prior to Recording

1. Check the recorder before each day's session to ensure proper functioning of the recording equipment. Monitors are responsible each day for checking the proper function of the PA system as well as checking the audio microphones to ensure clear audio is present. This is done by tapping on each microphone in the courtroom to make sure the PA system is on and the microphones are working. If you receive a low volume or if the volume is not clear and distinct, the monitor shall check the judge's bench and make sure the mute button is not depressed.
2. Check to ensure there is an adequate supply of tapes, labels and office supplies at each monitor station.
3. Reset counter numbers to 000. Ensure the green ready light is on.
4. Check for proper recording of all microphones.

5. Check for operating levels of all input lines.

Duties during Recording of Proceedings Each Day

The monitor shall begin recording immediately before the judge enters the courtroom and recites the caption and cause number of the case. This should always be the beginning entry on the monitor log. The monitor is to create a log which outlines the major parts of the proceedings.

See sample log pg. A-3

The court monitor is to make a log entry at least every fifty counter seconds. A monitor should never go longer than 100 counters without making an entry.

The court monitor is to record taped depositions that are played for the record. A log is to be kept of the playback of the deposition with log entries made throughout the playback. The court will then determine whether or not the tape should be admitted into evidence.

During long periods of silence, the monitor is to make a special entry in the log denoting that there is a long silence taking place.

Maintenance of Recording Equipment

1. If equipment fails, the court monitor is to notify the court immediately.
2. The court will then direct the court monitor on how to proceed.
3. The malfunction is to be documented on the log by the court monitor. The documentation is to include the date, time of the problem, and the resolution of the problem.
4. If the problem persists, the court monitor is to contact the vendor or other appointed authority to report the problem.
5. Court monitors are to store recording equipment in a cool, dry location when not in use.
6. Court monitors are to routinely clean recording heads with tape cleaner and head cleaning tape.
7. When equipment is not in use, both cassette holders should be closed as well as the tape lids down.

Playback Procedures for Audio Equipment

There are two scenarios where the court or counsel may request a playback of recorded information:

Scenario 'A'
When the request is made to play back a portion of the tape that is still being recorded.

Scenario 'B'
When the requested playback is physically located on another tape.

PROCEDURE FOR PLAYBACK UNDER SCENARIO 'A'

After the court has granted permission for the playback,

①stop the recorder. Make the appropriate log entry noting the date and time of the playback request.

②Determine from your log sheet the approximate starting position of the requested playback.

③Rewind the tape to the approximate position and monitor by listening for the exact requested testimony.

④Notify the court that you have located the selected portion.

⑤At the court's directive, play back the requested testimony by ensuring the appropriate audio can be heard in the courtroom.

⑥At the end of the requested portion, stop the playback and fast forward to the original position where the request was made.

⑦Allow enough blank tape so that you do not record over previously recorded testimony.

⑧Notify the court that you are ready to proceed with recording.

⑨Make the appropriate log entry to show that you are back on the record and continue recording.

PROCEDURE FOR PLAYBACK UNDER SCENARIO 'B'

After the court grants permission, stop the recorder.

① Note the exact counter number and time of the request for playback as a log entry.

② Determine from your log sheet the proper tape and find the approximate starting position of the requested play back.

③ Privately monitor the tape until you locate the requested portion.

④Notify the court and with the court's permission, play back the requested testimony.

⑤Stop the playback at the end of the requested portion and rewind the tape to the beginning.

⑥ Notify the court when you are ready to resume recording.

⑦ Make an appropriate log entry to show the playback. It is important to notify the court and counsel that no recording is taking place while the playback is occurring or during the search for the requested portion.

Recorder Malfunction

Should the recording equipment malfunction, the court monitor is to notify the court immediately. A malfunction may include excessive interferences in the recording which causes delays in the recording of the proceedings. In a professional and polite manner, inform the court that the equipment is not properly recording the proceedings. The court will then state for the record that the proceedings will be in recess until the equipment is properly recording. The time and date of the occurrence is to be noted on the monitor log for future reference. The court monitor shall then:

The vendor may be contacted for further trouble-shooting instructions.

1. Check all cables and jacks for proper hook ups.
2. Check every microphone for proper operation.
3. Ensure proper setting for all input volumes.
4. Check that the settings on both indicators are properly set. Reset and clear each tape. The ready light will appear.
5. Recheck the operation of the recording.

If the recorder is now operating properly, inform the court and proceed with the proceedings.

If the recorder is still malfunctioning, a backup recorder will need to be installed while troubleshooting continues after the proceedings.

Special Conditions – Precautions

As the court monitor, special attention is to be given to the recording of judicial proceedings when demonstrative evidence is being presented and referred to in the courtroom. Below are different instances where special attention is required so that the audio is clear and unobstructed by references to exhibits or demonstrative evidence.

Demonstrations at a board or easel create audio difficulties when the speaker keeps his/her back to the microphones.

Demonstrative exhibits create audio recording difficulties when the witness does not verbally define what is being referred to during the proceeding. The attorney or court is to ensure that what is being referred to has a name and is defined verbally for the record.

Excessive pointing or gesturing for the record cannot be reflected in an audio record. It is the attorney's responsibility to define verbally what is being referred to and that gestures are defined verbally by either the witness or the party for the record.

Shuffling papers, exhibits, or books can muffle the audio and can cause delays in recording. The monitor is to listen for sound at all times so that if the voice is obstructed by shuffling papers, the monitor can notify the court and counsel to remedy the situation by asking the witness to repeat the answer.

Witnesses or parties must be careful not to turn their backs to the microphones while speaking in the courtroom. When this happens, a good audio record is not received. Should this occur, the court is to be notified by the monitor.

Individuals who are soft spoken are often difficult to record. Should this occur, the monitor should notify the court so that the court can give instructions to the witness on answering so that the voice can be recorded.

Private conversations between an attorney and his/her client can easily be recorded. The monitor is to notify the attorney when a private conversation is being recorded. The attorney is to be instructed that the privacy button on the equipment should be pressed during these conversations. If the equipment does not have a privacy button, the attorney is to be reminded that he/she is to turn away from the microphone while speaking.

Emotional outbursts will cause an interruption in the recording of testimony and interferes with a good audio recording.

All special conditions are to be noted on the log, and the Court is to be informed if the audio is unintelligible.

Chapter 4

Audio Logging and Filing Procedures

The log is designed to assist the court, attorneys and the parties with locating important events which occur during the proceeding. It is second in importance only to the audio itself.

The log is used as an index for locating important portions of testimony on the tape or CD which can assist the court and counsel with preparation of motions, briefs, opinions, rulings, etc.

The court and counsel can expect a written overview of events, identification of speakers, and notations regarding dialogue and events which occur during the court proceeding.

The log events are to correspond to the recorded portion via counter numbers cited on the log. In other words, the counter number is to match the log entry in terms of what transpired during the proceeding.

These counter numbers correspond to a matching point on the magnetic tape which noted or recorded the event, ruling or testimony.

See Sample Log pg. A-3

The court monitor is to log an entry at least every 50 to 100 counter numbers and keep entries to a short, succinct description of the event. A long narrative as a log entry makes it difficult for the attorney to decipher portions needed and requires additional time to search and locate.

It is better to be inclusive rather than exclusive when deciding whether or not to create an entry for any dialogue taking place in the courtroom. You can always take something out but you cannot put something back in the log.

It is not appropriate to use "ditto" marks or merely write "Continued DEX, etc." When making the notation that direct or cross is continuing, the court monitor is to note the subject matter which is being discussed during the direct or cross.

Avoid direct quotes as a log notation.

New, significant events are to be noted on the monitor log.

The Monitor should note all on and off the record discussions.

When an expert witness is called, log entries should include educational training, background, history, diagnosis, and prognosis.

All interruptions in the proceedings should be noted as a log entry.

All hearings outside the presence of the jury should be noted as a log entry.

Arrivals of all parties are to be noted as a log entry.

Various types of cases are to be recorded and filed separately, e.g., criminal, civil, and sequestered hearings, and grand jury proceedings.

Log Title Sheet

The first page of the log is the title sheet or the top sheet. It is to contain the following information:

- The full and correct caption, the appearances for each party; the cause number; the Judge, hearing officer or commissioner.
- Type of proceeding that is taking place and the time of the proceeding.
- The court monitor's full name.
- The model and serial number of the recording equipment being used.

The Legend

This contains the abbreviations used in the log by the court monitor. It is recommended that the court monitor use the legends as depicted in the abbreviation box as well as include any new legends created by the court monitor during the logging process.

The legend appears on the cover sheet of the log.

The following abbreviations are the more common abbreviations used by court monitors:

Abbreviations Used by Court Monitors	
J	Judge
P	Plaintiff's Attorney
D	Defendant's Attorney
Plf	Plaintiff
Df	Defendant
W	Witness
DEX	Direct Examination
XEX	Cross Examination
DRX	Direct Examination
CRX	Cross Examination
RDEX	Redirect Examination
RXEX	Recross Examination
VD	Voir Dire
RB	Rebuttal Examination

The following are case number prefixes:

Case Number Prefixes Used by Court Monitors	
CR	Criminal
CV	Civil
PB	Probate
GJ	Grand Jury
SA	Adoption
MS	Miscellaneous Civil
JS	Juvenile Misc.
CS	Criminal Misc.
DM	Domestic Matters
DV	Civil Domestic Matters
SW	Search Warrant
JR	Juvenile Delinquency
SQ	Sequestered CV
LR	Criminal Lower Court Appeal
ER	Extradition/Fugitive
JQ	Juvenile Sequestered

It is important to note that when additional legend entries are used by the court monitor, it must appear in the legend box. The court monitor can merely write in the new legend.

Log Entries

This represents a list of generally required log entries for covering motions, merits and jury trials. Trainers are to expand on this list to incorporate other important entries necessary to clarify the record in other types of proceedings.

Court is in Session

- Note time in entry

Court admonitions

- Entry made anytime admonition given to anyone

Court Instructions

Jury Selection

- Show questioning, by counsel, of jurors
- Show jury sworn with the time
- Show all questions asked of jurors during deliberations

Opening Statements

- Name of the attorney presenting

Witnesses called

- Show full name of the witness
- Show that witness has been sworn

Subject matter

- Show all changes of subject matter

Changes of examinations

- Show all direct, cross, redirect, recross
- Note all rebuttal examination
- Note attorneys presenting examinations

All objections by counsel

- Note counsel making the objection
- Note grounds for objection

All rulings by the court

Off the record discussions

Sequestered/Closed Proceedings

Sidebar Conferences/Bench Conferences

- Show beginning/ending times

Exhibits

- Note all references to exhibits; marked, received, withdrawn, admitted
- Note all references to documents discussed on the record

Motions

- Note type of motion being heard
- Ruling on motion by the court

Plaintiff rests his/her case

Defendant rests his/her case

Closing arguments/closing statements

- Name of the attorney presenting

Tape Ending

- Note when tape ends

New Tape

- Show beginning of new tape

Court is in recess

- Note time of recess

Continuation Sheet of the Monitor Log

Sample on pg A-4

When the top sheet is completely filled in as directed, the monitor's log will continue to the second page or a continuation sheet.

Continuation sheets are to be labeled at the top with the words "Continuation Sheet." There is also a line for the date of the hearing and the cause number. The court monitor is to complete both the date line and the cause number for each page of the logged proceeding.

Verification process

All audio taped recordings of any hearings shall be verified before filing with the Court Clerk / Special Services. ① At the conclusion of all hearings using tape recordings, the Monitor shall first rewind the tape to the beginning.

② The monitor shall listen to the audio to verify a good recording was made once; at the very beginning of the tape, once in the area of the mid-point of the tape, and once at the very end of the audio tape recording.

③ The monitor shall rewind the tape completely and fill out the tape label by printing the monitor's name and placing a blue dot on label. This, along with all of the required data, is required by the Court Clerk for verification by the court monitor.

④ That audio is, in fact, present on the tape and ready for filing.

Tape Label

The following information is to be on each tape filed:

Sample Label
pg A-5

- The caption/style of the case.
- The cause number with the case prefix (CR-CV-DR-SQ-JV-MR, etc.)
- The type of proceeding (motion, bench trial, merits, etc.)
- The date of the proceeding.
- The tape number including the total tapes filed in the case; (1 out of 3, two out of 3, etc.)
- The type of equipment used for recording.
- The monitor's name.

Filing Procedures

Filing of Tapes and Logs

The monitor's tapes and logs shall be filed with the District Court Clerk or proper division within the Court.

The Court monitor is to follow the Local Rules for filing tapes and logs. In most districts, the monitor is to file tapes and logs within five working days.

It is the monitor's duty to know the local court rules as they apply to the filing of recording judicial proceedings. Local court rules may vary from district to district.

Each tape filed must have an accurate and complete label prior to filing.

FAQ for Audio

1.) My Lanier is on, everything checked out and all indicators show that I am making a recording, but I can't hear anything.

A.) Make sure your monitor headset is plugged into the correct outlet on the recorder. One is for playback and one is for monitoring the audio during recordings.

2.) My Lanier tape on the first side is ready to change over and the Alert Light comes on, what happened?

A.) A number of things need to be right before the Lanier tape recorder will allow one tape to change sides to the second tape. Check to make sure a blank tape is in both sides correctly. Tape down and label side facing monitor. Make sure counter number has been reset to 000. Make sure tape is not pre-recorded. Make sure tape is not in backwards. Make sure tape is not jammed. Once all of the above is checked, try again to change over to the second side.

3.) During normal recording, my audio alert keeps going off indicating a malfunction. How do I stop this?

A.) The Lanier recorder will automatically sound the alarm in the monitor's headset when ever there are 15 or more seconds of silence on the record. Any noise will activate the recorder again and the audio alert alarm will stop. To prevent this from happening, the monitor can simply cough or simply knock on the monitor's desk and the noise will turn off the alarm.

4.) During normal recording, I sometimes will hear an emergency 911 Dispatcher talking to police or the Fire Department. How does this happen and is it being recorded on the tape?

A.) The Lanier uses long microphone lines to connect to the various microphones in the hearing room. These microphone lines will sometimes act as antennas and will allow the Lanier recorder to pick up local emergency two-way broadcasts and record it on the tape. It is suggested to use the shortest wires possible to connect up the recorder with the microphones.

Glossary of Recording Equipment Terms

Preventive maintenance: A scheduled procedure for regularly lubricating, cleaning and adjusting Lanier equipment to help ensure good working condition and the prevention of future breakdowns.

Ambient noise: Noise produced in the courtroom that is unwanted in the recordings; such as air exchange noise, papers shuffling, persons talking in the background.

Low frequency noise: In the courtroom, this noise is usually produced by the low pitched rumble of air being forced through the air exchange system.

Omni Directional: Refers to the style of microphone. This microphone picks up everything in a complete circle around the head of the microphone.

Low impedance: For use with courtroom equipment the impedance of the microphone must be 250 OHM's or less. A high impedance microphone with cables 20 feet long or more is susceptible to electrical field interferences (outside recordings).

Oxide: The buildup of a film on the heads of recorders, resulting in a decrease of volume.

Pinch Roller: The rubber wheel that pulls the tape through the head assembly.

Capstan: The shaft that the pinch roller squeezes the tape against.

Acoustics: The courtroom's physical structure and the effect it has on the properties of sound.

Unidirectional: This refers to the style of the microphone. This microphone picks up everything in the area to the front of the microphone.

Chapter 5

Digital Recording

Rule 22-303C.

This chapter walks the court monitor through a typical day as a court monitor. Each section will define the next step in the process of digitally recording judicial proceedings from starting up your system, preparing your log, verifying and labeling the CD to shutting down your system at the end of the day.

While most district courts in New Mexico use a digital recording system called FTR (For the Record) there are also other digital systems in the market. The recording procedures contained in this manual are designed to provide specific instruction and guidance in using the FTR system; however, digital recording systems are often very similar and the features vary slightly from system to system. Portions of this Users Manual may not be applicable to some systems. Designated Monitor Trainers shall provide the Monitor with an equipment users manual specific to their system. The Monitor Trainer shall review that manual as part of the certification process.

Digital Testing and Application

1. Monitor trainer for each district trains and tests applicant for initial monitor certification.

2. The monitor trainer administers the initial test. When the applicant passes that test, the monitor trainer prepares a letter requesting Temporary Certification for the applicant. That letter, the completed Court Monitor general application, and a check or purchase order is sent to the CCR Board Administrator.

3. The CCR Board Administrator assigns a temporary number to the applicant and enters information into the database. The temporary number begins with a "T." A letter is then sent to the applicant informing him/her of the temporary number and the requirements for completing full certification. A copy of that letter is also sent to the monitor trainer.

4. The applicant has six months to complete full certification. When the monitor trainer administers the final test and that test is passed, the monitor trainer

prepares a letter requesting full certification for the applicant. That letter is sent to the CCR Board Administrator.

5. Upon receipt of that letter, the CCR Board Administrator prepares the final paperwork for full certification. A letter and certificate are sent to the applicant and the monitor trainer is sent a copy of the letter awarding full certification.

Recording Procedures for Each Day

Prior to Recording

1. Monitors should check their work station for proper supplies each day before the hearings start. Monitors are responsible each day for checking the proper function of the PA system as well as checking the audio microphones to ensure clear audio is present. This is done by tapping on each microphone in the courtroom to make sure the PA system is on and the microphones are working. If you receive a low volume or if the volume is not clear and distinct, the monitor shall check the judge's bench and make sure the moot button is not depressed.

Monitors should follow the General Standard steps to start up the FTR digital system, as follows:

Start Up Steps

1. Turn on computer, press “Enter” before countdown ends.
2. Press Crl + Alt + Delete
3. Enter Password: FTR (all caps) press “Enter”
4. At the prompt, “Program Diskettes” click on Exit
5. Open lower CD drive, insert CD and close drive
6. Click on FTR icon
7. Click on archive button, watch while FTR checks the CD quality.
8. Test recording audio by clicking on red record button, then stop recording
9. At “No Printer Selected” prompt, click OK
10. At “Disk CD Disk Ready” prompt, click OK
11. Click on Corel Word Perfect 8 icon
12. Click on File, C/O New, C/O Continuation Sheet. Fill-in template with appropriate case information to complete cover page information as required.
13. Click on Save or click on the Disk Save icon
14. Enter the hearing date (for example: 12-25-05) then click on Save
15. Follow these same steps to open the log receipt. You will now have three programs open; the log, the receipt for your log and the receipt for exhibits.

You are now ready to log and record.

Tip:

Create your log receipt and your disk receipt and, if necessary, create your exhibit receipt.

1. The FTR Unit should be checked for proper audio and ensure that the time stamp is functioning properly. Once the FTR is booted up, test for audio by clicking on the start button and listen for audio input. To test the time stamp, place the mouse arrow on the log and depress the macro key (F-6). The time stamp should appear.

2. Following the timestamp, and boot up steps, all required information needed for the cover sheet should be complete.

3. You are ready for court.

Duties during Recording of Proceedings Each Day

Monitors shall monitor audio at all times during any hearing to ensure a proper recording. Monitors shall wear headsets at all times.

Monitors shall be aware of any and all interferences, noise, distractions, and loss of audio during the proceedings.

Monitors shall advise the court immediately of any interruptions.

Maintenance of Digital Recording Equipment

Monitors should find that the FTR units require very little, if any, maintenance. Routine checks of the FTR equipment consist of making a visual check for proper connections and all microphones are functioning properly. Some minor software problems may be encountered from time to time, and monitors are encouraged to become familiar with the software and know how to correct minor errors.

Digital Playback Procedures

When playback requests are made to either the Court or the Monitor, the Monitor will follow the directions of the Court.

FTR playbacks can be performed at the same time while recording. It is not necessary to stop recording during playbacks.

Note:

Your FTR unit must be set up with external speakers in order to play back any recorded portions.

With your mouse, point and click on the reversal icon located to the left end of the upper tool bar.

Illustration of FTR Playback screen pg. A-6

Once the playback screen is presented, click on the file icon to open the audio. Select the date of the hearing you are recording and click on open. This selects the audio portion you are currently recording and the monitor can bracket-select any portion previously recorded and play it back for counsel or court.

When playback screen is completed, the monitor simply clicks on the reversal icon again and the FTR is returned to the recording mode and the monitor should continue creating a log.

Note:

Always enter in the log the fact a playback was conducted.

Equipment Malfunction

Monitors will find that the FTR Units are relatively trouble free. Minor software glitches may be encountered from time to time. Anything other than minor software problems should be referred to your local computer technicians for corrections or call the equipment vendor.

See the FTR Manual pg. A-7

Note:

Monitors are especially encouraged to resolve all FTR problems as soon as possible. It is important to keep the hearing moving along with as little interruption as possible.

Special Conditions – Precautions

As the court monitor, special attention is to be given to the recording of judicial proceedings when demonstrative evidence is being presented and referred to in the courtroom. Below are different instances where special attention is required so that the audio is clear and unobstructed by references to exhibits or demonstrative evidence.

Demonstrations at a board or easel create audio difficulties when the speaker keeps his/her back to the microphones.

Demonstrative exhibits create audio difficulties when the record does not verbally define what is being referred to during the proceeding. The attorney or court are to ensure that what is being referred to has a name and is defined verbally for the record.

Excessive pointing or gesturing for the record cannot be reflected in an audio record. It is the attorney's responsibility to define verbally what is being referred to by either the witness or the party for the record.

Shuffling papers, exhibits, or books can muffle the audio and can cause delays in recording. The monitor is to monitor for sound at all times so that if the voice is obstructed by shuffling papers, the monitor can notify the court and counsel to remedy the situation by asking the witness to repeat the answer.

Witnesses or parties must be careful not to turn their backs to the microphones while speaking in the courtroom. When this happens, a good audio record is not received. Should this occur, the court is to be notified by the monitor.

Individuals who are soft spoken are often difficult to record. Should this occur, the monitor should notify the court so that the court can give instructions to the witness on answering so that the voice can be recorded.

Private conversations between an attorney and his/her client can easily be recorded. The monitor is to notify the attorney when a private conversation is being recorded. The attorney is to be instructed that the privacy button on the equipment should be pressed during these conversations. If the equipment does not have a privacy button, the attorney is to be reminded that he/she is to turn away from the microphone while speaking.

Emotional outbursts will cause an interruption in the recording of testimony and interferes with a good audio recording.

All special conditions are to be noted on the log and the court is to be informed if the audio is unintelligible.

Supplies for Recording Equipment

Monitors should ensure that each recording station is fully supplied with the daily needs.

Supplies Needed

1. Two or more CD disks ready in case of a glitch.
2. Proper CD disk marking Pen for safe labeling of CD.
3. White CD envelopes for protecting the CD.
4. Exhibit stickers needed for marking all exhibits used in the hearings.
5. Monitors/reporters work sheets to track witnesses, exhibits, and general events in the hearing.
6. Filing envelopes for filing of exhibits.
7. Start up sheet.
8. Shut down sheet.

Chapter 6

Digital Logging and Filing Procedures

The log is designed to assist the court, attorneys and the parties with locating important events which occur during the proceeding. It is second in importance only to the audio itself.

The log is used as an index for locating important portions of testimony on the tape or CD which can assist the court and counsel with preparation of motions, briefs, opinions, rulings, etc.

The court and counsel can expect a written overview of events, identification of speakers and notations regarding dialogue and events which occur during the court proceeding.

FTR Recording events and entries are designated by the time stamp which shows the exact hour, minutes, and seconds.

TIP:

Remember to always check the function of the TIME STAMP during your start up procedures. Place the cursor on any line of the monitors log and depress the macro key, set up to provide the time stamp (F-6)

The log events are to correspond to the recorded portions of testimony by use of the time stamp. In other words, the time stamp will indicate, within seconds, the locations in the log where an event or remark transpired.

These time stamps and log entries will enable any one to find an exact location of a spoken word or event on the CD.

The FTR court monitor should create entries as often as necessary to comply with the examples of entries as found in this manual. Entries should be short, succinct descriptions of the events or remarks as they happen.

See sample log pg. A-8

It is better to be inclusive rather than exclusive when deciding whether or not to create an entry for any dialogue taking place in a hearing or court. You can always take something out, but you cannot usually put something back in.

It is never appropriate to use ditto marks, nor is it appropriate to merely write Continue DEX. When making notations that the direct or cross is continuing, the court monitor shall note the subject matter being discussed rather than a repeating of an entry.

Monitors should avoid direct quotes as a log entry.

Each new and significant event shall be logged as an entry.

The monitor shall note all on and off the record discussions.

Whenever expert witnesses are called to testify, the witnesses' education, training, background, history, diagnosis and prognosis should be logged as an entry.

All interruptions in the proceedings should be noted as a log entry.

All hearings outside the presence of the jury should be noted as a log entry.

The monitors log should indicate the arrival time and departure time of all parties in the hearing.

Various types of cases are to be recorded and filed separately, e.g., criminal, civil, and sequestered hearings, and grand jury proceedings.

Log Title Sheet / Cover Sheet

The first page of the log is the title sheet or the top sheet. It is to contain the following information:

See sample log pg. A-8

- The full and correct caption; the appearances for each party, the cause number, the judge, hearing officer or commissioner.
- Type of proceeding that is taking place; time of the proceeding.
- The court monitor's full name.
- The model and serial number of the recording equipment being used.

The Legend

This contains the abbreviations used in the log by the court monitor. It is recommended that the court monitor use the legends as depicted in the abbreviation box as well as include any new legends created by the court monitor during the logging process.

The legend appears on the cover sheet of the Log.

The following abbreviations are the more common abbreviations used by court monitors:

Abbreviations Used by Court Monitors	
J	Judge
P	Plaintiff's Attorney
D	Defendant's Attorney
Plf	Plaintiff
Df	Defendant
W	Witness
DEX	Direct Examination
XEX	Cross Examination
DRX	Direct Examination
CRX	Cross Examination
RDEX	Redirect Examination
RXEX	Recross Examination
VD	Voir Dire
RB	Rebuttal Examination

The following are case number prefixes:

Case Number Prefixes Used by Court Monitors	
CR	Criminal
CV	Civil
PB	Probate
GJ	Grand Jury
SA	Adoption
MS	Miscellaneous Civil
JS	Juvenile Misc.
CS	Criminal Misc.
DM	Domestic Matters
DV	Civil Domestic Matters
SW	Search Warrant
JR	Juvenile Delinquency
SQ	Sequestered CV
LR	Criminal Lower Court Appeal
ER	Extradition/Fugitive
JQ	Juvenile Sequestered

It is important to note that when an additional abbreviation is used by the court monitor, it must appear in the legend box. The court monitor can merely write in the new legend.

Log Entries

This represents a list of generally required log entries for covering motions, merits and jury trials. Trainers are to expand on this list to incorporate other important entries necessary to clarify the record in other types of proceedings.

Court is in Session

- Note time in entry

Court admonitions

- Entry made anytime admonition given to anyone

Court Instructions

Jury Selection

- Show questioning of jurors by counsel
- Show jury sworn with the time
- Show all questions asked of jurors during deliberations

Opening Statements

- Name of the attorney presenting

Witnesses called

- Show full name of the witness
- Show that witness has been sworn

Subject matter

- Show all changes of subject matter

Changes of examinations

- Show all direct, cross, redirect, recross
- Note all rebuttal examination
- Note attorneys presenting examinations

All objections by counsel

- Note counsel making the objection
- Note grounds for objection

All rulings by the court

Off the record discussions

Sequestered/Closed Proceedings

Sidebar Conferences/Bench Conferences

- Show beginning/ending times

Exhibits

- Note all references to exhibits; marked, received, withdrawn, admitted
- Note all references to documents discussed on the record

Motions

- Note type of motion being heard
- Ruling on motion by the court

Plaintiff rests his/her case

Defendant rests his/her case

Closing arguments/closing statements

- Name of the attorney presenting

Court is in recess

- Note time of recess

Sample Continuation Form pg. A-4

Continuation Sheet of the Monitor Log

When the top sheet is completely filled in as directed, the monitor's log will continue to the second page or a continuation sheet.

Continuation sheets are to be labeled at the top with the words "Continuation Sheet." There is also a line for the date of the hearing and the cause number. The court monitor is to complete both the date line and the cause number for each page of the logged proceeding.

Verification process

After burning CD on a digital recorder, the monitor must verify the CD to ensure audio, monitor's log and receipts are properly stored on the CD.

① The monitor shall insert the CD into the proper computer and proceed to open the CD and actually click on the audio file to listen to the audio at the beginning; once at midpoint, and once at the end of the CD to ensure good quality audio was recorded.

② The monitor should then click on the log generated and see that it was properly burned on to the CD.

③ The monitor should then click on the log receipt, and after ensuring that it is complete and correct, print the receipt for filing with the court clerk.

Monitors should be familiar with the local rules governing the filing of CDs and logs. Most judicial districts require that the CDs and log be filed within five (5) working days.

CD Label

Warning

Use special marker designed for CD disks.

The following information is to be on each CD filed:

Sample CD Label pg. A-9

The caption/style of the case.

The cause number with the case prefix (CR-CV-DR-SQ-JV-MR, etc.)

The type of proceeding (motion, bench trial, merits, etc.)

The date of the proceeding.

Judge's name and division.

The monitor's printed name.

The Monitor must print

Signatures are not permitted on the label.

At the end of the day, the court monitor is to shut down the system as follows:

Shut Down Steps

1. Stop FTR recording. Run spell check on your log and Save
2. Click on File, click Save As, click on CD drive, then click on Save
3. Click on File, click on Close, click on Exit
4. Repeat this same procedure to Save and Close the receipts.
5. Monitors must verify FTR Audio and Monitor's Log
   - Right click on Start, left click on Explore
   - Scroll down to CD drive, click on CD drive
   - Verify the FTR audio and WordPerfect files – (See Verification process below)
   - Click on File, click on Close
6. Click on Archive button, click on Yes

7. At "Eject Archive CD" prompt, click on First button – Write Protect This Disk, then Eject." Click on OK and wait.
8. At "FTR Recording Panel" click on 'X' to close, click on Start, click on Shut Down.

> **Note:**
>
> FTR will auto eject disk when shut down process is finished.

Filing Procedures

Filing of CD and Logs

The monitor's CD and logs shall be filed with the District Court Clerk or proper division within the Court.

The court monitor is to follow the time limit set for filing CDs and logs. In most districts, the monitor is to file CDs and logs within five working days.

It is the monitor's duty to know the local court rules as they apply to recording judicial proceedings. Local court rules may vary from district to district.

Each CD filed must have accurate and complete information printed on the face prior to filing.

FAQs for Digital

1.) **How do I know I have a good CD disk?**

A.) When you click on the archive icon a small rotating hash mark begins to rotate. Watch this hash mark to see if it stops. If it stops you will more than likely have a bad spot on your disk. This is a self-test that the FTR searches the sectors of the CD.

2.) **What if I need more than the 30 pages provided in the template?**

> **Tip:**
>
> Remember to manually change each page of the 2nd log to keep the numerical sequence, i.e., 32, 33, 34, 35, etc.

A.) Simply open a new template and enter the basic data on the cover sheet. When you name it, place the letter 'A', or the number 1, after the date, exactly like you did on the first cover sheet. This will give you another 30 pages of log.

3.) Can I use the Playback mode while I am still recording?

Tip:

Your recording never stopped.

A.) Yes. Simply click on the reverse icon at the top of the tool bar and your screen will rotate to the playback mode. Follow the steps to open a sound file and proceed to play back any selected portion. When finished playing back, simply click on the reverse icon again and return to the recording mode.

4.) How do I change the time stamp for an entry?

Tip:

Be sure to use the exact form as the F-6 time stamp; that is; hour, minutes,: seconds AM/PM.

A.) You may go back and delete any time stamp and manually type the corrected time stamp.

5.) My keyboard and mouse are frozen and will not move.

A.) Don't panic! Click on Ctrl + Alt + Delete to call up end task. Note which program is not running or not responding and take appropriate action.

6.) What if I am closing down and the FTR fails to properly close? The FTR fails to burn the log and receipt to the CD?

Tip:

You may need the help of your computer technicians to walk through the re-burn process to re-burn on a new CD.

A.) Stop. Go back and refer to your closing instructions and carefully follow the close down directions. Notify system support if this fails.

7.) I am trying to bold an entry and hit the wrong key on the keyboard and my log disappears; I now have a blank screen, what do I do?

A.) Don't panic If you have accidentally hit the 'N' Key, you have created a new document. Simply point and click on the file icon at the top of the toolbar and click on Delete. Your original log will return and you continue to record.

8.) I forgot to name my log and cover sheet template and I am on page 5 already, what do I do?

Tip:

Always remember to save at the proper step in the Opening Up procedures. This will prevent any loss of your log entries.

A.) The FTR has a built in function that will periodically Save your log entries, but it will not name your file. Simply click on the Picture icon of a disk, located at the top of the toolbar, and the program will take you to a screen to allow you to locate your FTR CD disk. Click on this file and the FTR will allow you to name your log and cover sheet. Name the template with today's date and click on the word Save to the right of your screen.

9.) I keep getting double spaces when I type my entries. How do I prevent this?

Tip:

Hitting the tab key takes you to the next line to continue typing your log entry. The enter key expands the lines on your template and destroys the format.

A.) Do not hit the enter key, this will add double spaces and they must be removed later. Hit the tab key when you want to enter a longer entry and remove all double spaces.

10.) I get an all blue screen and it's filled with computer chatter, what has happened? What do I do?

A.) WARNING!! Turn your FTR unit off immediately! This is a fatal error and will destroy your hard drive, memory, programs, etc. Call your Computer Support Technician as soon as possible.

Glossary of FTR Terms

Preventive maintenance: A scheduled procedure for regularly lubricating, cleaning and adjusting Lanier equipment to help ensure good working condition and the prevention of future breakdowns.

Ambient noise: Noise produced in the courtroom that is unwanted in the recordings; such as air exchange noise, papers shuffling, persons talking in the background.

Low frequency noise: In the courtroom, this noise is usually produced by the low pitched rumble of air being forced through the air exchange system.

Omni Directional: Refers to the style of microphone. This microphone picks up everything in a complete circle around the head of the microphone.

Low impedance: For use with courtroom equipment, the impedance of the microphone must be 250 OHM's or less. A high impedance microphone with cables 20 feet long or more is susceptible to electrical field interferences.

Oxide: The build up of a film on the heads of recorders, resulting in a decrease of volume.

Pinch Roller: The rubber wheel that pulls our tape through the head assembly.

Capstan: The shaft that the pinch roller squeezes the tape against.

Acoustics: The courtroom's physical structure and the affect it has on the properties of sound.

Unidirectional: This refers to the style of the microphone. This microphone picks up everything in the area to the front of the microphone.

Chapter 7

Exhibits

This Chapter outlines the procedures and proper handling of exhibits introduced during judicial proceedings.

Procedures may vary from district to district and court monitors are to follow the procedures and rules specifically adopted by their individual district.

The handling of exhibits, and tracking of exhibits, is an important duty and responsibility of the court monitor. It is very important that monitors carefully document each exhibit marked for identification in the record and for filing purposes.

Sample exhibit receipt pg. A-10

Monitors are responsible for the custody and safekeeping of all exhibits marked and admitted during court proceedings.

Monitors are to ensure exhibits are safe and secure during all breaks, recesses and when court adjourns at the end of the day.

All exhibits are to be filed with the District Court within five working days at the conclusion of the proceeding.

If the proceeding is adjourned on one day, and will reconvene another day -- several days or weeks away, the court monitor is to file exhibits with the District Court.

Local court rules may vary. It is the monitor's responsibility to follow all local court rules that pertain to custody of exhibits.

Monitors are to mark all Plaintiff/Petitioner/State exhibits with the number designation and all Defendant/Respondent/exhibits with the letter designation.

The monitor is to prepare an exhibit receipt and keep an endorsed copy for at least six months.

The monitor is to follow the court's directives with regard to the return of exhibits, the copying of exhibits, or any other instructions given by the court.

If an exhibit is to be returned to counsel, the court is to instruct the monitor, on the record, of that fact. All other instructions regarding exhibits are to be placed on the record by the court with the appropriate log notation by the monitor.

Marking Exhibits

The procedure for marking exhibits will vary from district to district. We have provided generally followed procedures for handling exhibits. The monitor is required to follow rules and procedures established by each individual district.

1. Court monitors are to mark all exhibits and note the same in the monitor log.

2. The Plaintiff/Petitioner is designated by using the number system; the Defendant/Respondent is designated by using the letters of the alphabet.

3. A judge, hearing officer or special commissioner, may give special permission to the attorney to mark exhibits prior to the hearing. Attorneys are then to provide to the monitor a document outlining all marked exhibits and a brief description of the exhibit. The monitor will then track what is offered, admitted, denied, refused, or withdrawn and shall make a specific log entry showing what has been offered, admitted, denied, refused, or withdrawn.

4. With the court's permission, attorneys may also come in prior to the hearing and have the court monitor pre-mark exhibits immediately prior to the hearing. The monitor will prepare a list of marked exhibits and track what is marked, offered, refused, denied and admitted.

See Exhibit Worksheet pg. A-11

5. Court monitors are to track all exhibits by using the Exhibit Form and by writing a brief description of each exhibit.

6. Exhibit labels are to show the case number.

7. Once the exhibit is identified in the hearing on the record, the exhibit is maintained by the court monitor.

8. Exhibits that are marked, identified and then withdrawn or denied, are also filed by the court monitor in Special Services Division. With the court's permission, exhibits may be returned to counsel. If possible, this should be done on the record.

9. Should the court, hearing officer or special commissioner direct that exhibits be returned, for whatever reason, the court monitor is to make a notation on the log and return the exhibits to the appropriate parties. It is best to have the attorney taking the exhibits sign the exhibit log saying that he/she has possession of the particular exhibits.

10. All exhibits are to be filed by the Court monitor in accordance with the Local Rules.

11. Notes made by the judge, hearing officer or special commissioner during a hearing are to be retained by the judge, hearing officer or commissioner. Court monitors are not to file notes.

12. Should the judge, hearing officer or special commissioner wish to retain exhibits, the monitor is to file all exhibits first and then instruct the judge, hearing office or special commissioner that exhibits can then be checked out of Special Services. This ensures a safe and well documented paper trail.

13. If a hearing is continued from one day to a date in the future, exhibits are to be filed and checked back out of Special Services prior to the next hearing date by the monitor assigned to the new date. This information is usually announced from the bench.

14. The monitor is to instruct the Trial Court Assistant or appropriate person that exhibits have been filed and will be needed for the next hearing date, if that information is known. If that information is not known by the court monitor, the court monitor is to file all exhibits and not wait for the continuation hearing.

15. Court monitors are to handle only those exhibits which are to be filed with the court. If an exhibit has not been marked during a proceeding, the attorney is to keep the exhibit until it is marked.

16. When ordered by a judge, hearing officer or special commissioner, to store items (e.g. documents, papers, etc.) not listed on the itemized exhibit receipt, the court monitor will take said items and give them to Special Services Division for storing purposes only. These items shall be stored with the filed exhibits from the court case, but will have no paper trail in FACTS or the Special Services' database.

17. Court monitors are to retain a copy of the exhibit receipt, for a minimum of six months, once exhibits are filed.

18. Court monitors are to read off each exhibit being filed to the Clerk in the Special Services Division. All information on the exhibit receipt must be accurate.

19. If the Court monitor is filing a black binder containing exhibits, the binder is to be marked as an exhibit as well as each document in the binder that is marked as an exhibit.

20. Exhibit receipts must have the name of the judge, hearing officer or special commissioner, date of hearing and monitor's name.

21. A separate procedure has been established for handling, marking and filing the test results of a urinalysis exam.

22. The size of all exhibits must comply with the Local Rule LR2-121.

23. The attorney is responsible for the reduction of exhibits.

24. If there are any questions, by the court monitor, about what is to be filed and what is not to be filed, the judge, hearing officer or special commissioner, will have the final say.

25. When denominations of money are being filed, the court monitor is to denote on the exhibit receipt each type of currency that is being filed; i.e. nickels, quarters, etc.

Sealed Exhibits

RECEIPT FOR FILING EXHIBITS

See sample receipt pg. A-12

The court monitor is to file exhibits within five days, accompanied by the exhibit receipt.

The exhibit receipt is to accurately list all exhibits being filed.

The exhibit receipt is to have a brief description of each exhibit.

Sealed exhibits are to be filed in the exhibit envelope and clearly marked "sealed" by the court monitor. Sealed exhibits are not to be released without approval by the court. Sealed exhibits are to be filed with the Clerk of the Court or designated authority.

Definition of Log Terms

Caption: The heading or introductory part of legal documents or instruments, which names the parties and the Court and the case number.

Appearance: The naming of the counsel of record or the parties pro se, who have formally entered a document filed with the Court stating their name and who they represent.

Opening/Closing Statements: The opening or final (closing) remarks or statements by counsel or pro se parties to the court presenting the nature of the case and summarizing what they intend to prove, or with closing, what they have proven by way of evidence.

Motions: The application or request by counsel or Pro Se parties to the court, asking the court to take some action or make a ruling.

Objections: A statement in opposition or opposing, or adverse to the other party about some matter or proceeding during the course of the hearing. Used to call the court's attention to a specific matter or proceeding.

Sworn / Oath: To place a person under an obligation to tell the truth or suffer legal consequences.

Plaintiff / Respondent Rests: The ending or conclusion of one parties' evidence to the court.

Remarks / Rulings: An administrative or judicial interpretation of a statute, order, regulation or directive put forth by the court.

Admonishment: Any authoritative oral communication or statement by way of advice or caution by the court to another person or persons.

Exhibits: Anything presented for show or display, by way of evidence, and which is marked and identified for use by the court.

Sequestered: To isolate and set aside, set apart from others.

Side-Bar/Bench Conference: A discussion between counsel or Pro Se parties and the court at a position to the side of the court's bench; outside the hearing of the public.

Instructions: To convey information from the court to the parties or counsel to a client, or judge to a jury.

Verdict: A true declaration. The formal decision or finding made by a jury impaneled and sworn for trial.

True Bill: An endorsement made by a grand jury upon a bill of indictment with sufficient truth of the accusation and finding evidence sufficient to warrant a criminal charge against a target.

No Bill: An endorsement made by a grand jury upon a bill of indictment that in the opinion of the grand jury, there was NOT sufficient evidence to warrant a criminal charge against the target.

Chapter 8

Code of Ethics

Information on a very important issue.

Rule 22-505

This section of the manual is to provide a brief overview of a topic that impacts every thread of our lives and most particularly, our professional lives. It is to provide basic information and provide possible ethical scenarios that may arise while performing the duties of a certified court monitor.

When we speak of ethics in a society, or of a person or group as having ethics, we are in effect speaking of that trust we repose in them to act morally, not to intentionally or wrongfully harm the public good. Our trust is that they will act with a sense of decency toward the best interest of our society.

As a court monitor, that trust extends to many areas within the job description of the court monitor:

1. Trust that the monitor will be the full custodian of the record and all exhibits during proceedings.

2. Trust that the monitor will accurately and faithfully record the proceedings to the best of his/her ability.

3. Trust that the monitor will report any special requests of the parties directly to the court in a professional and polite manner.

4. Trust that the monitor will not take "sides" or secretly assist either party or anyone, especially in regard to the court or the judge.

5. As an officer of the court, the court monitor is to be officially neutral.

6. Trust that the court monitor will report timely to the proceedings and be prepared to perform all duties of the court monitor.

7. Trust that the court monitor will speak up about mechanical difficulties he or she is experiencing and professionally work towards the resolution of such difficulties.

8. Trust that the court monitor will be professional at all times.

9. Trust that outside work and outside influences will not interfere with official duties.

10. Trust that all entries captured by the court monitor are truthful and accurate.

Ethical Scenarios

While working as a court monitor, you will come in contact with many types of individuals from many different walks of life. Below is a list of scenarios that could potentially have ethical implications if not handled properly. The rule of thumb to follow is that the court monitor, as an officer of the court, is neutral and impartial when dealing with all individuals they may come in contact with.

Ethical scenarios to avoid

- All appearances of impropriety.
- Providing information to one party and not the other.
- Withholding information from one party and not the other.

- Monitor proceedings involving a close friend or family member.
- Going to lunch or spending time during your break with someone involved in a case where you are the monitor.
- Providing personal information to individuals involved in a case.
- Providing information about closed or sequestered proceedings to anyone.
- Sharing confidential information with others in and out of the court system.
- Giving legal advice.

Appendix

COURT MONITOR GENERAL APPLICATION

(PRINT OR TYPE ONLY)

1. PRINT OR TYPE YOUR FULL NAME: _____
(first, middle, last)

2. RESIDENTIAL ADDRESS: Street _____
City & State: _____ ZIP _____
HOME PHONE: ( ) _____

3. HAVE YOU EVER BEEN KNOWN BY ANOTHER NAME? _____Yes _____No

   (a) If yes, what name, where and when? _____
   _____

4. BIRTH DATE: _____
(Month) (Day) (Year)

5. SOCIAL SECURITY NUMBER: ____-____-____

6. ARE YOU A UNITED STATES CITIZEN: _____Yes _____No

   If no, state your country: _____

7. ARE YOU A HIGH SCHOOL GRADUATE? _____Yes _____No

   (a) If yes, list the name of the school, address, and zip code. _____
   _____
   _____ ZIP _____

   Graduation Date: _____

   (b) If no, do you hold a certificate of high school equivalency? _____Yes _____No

   State the name and address of the institution issuing the certificate. **(Attach a copy of your certificate to this application.)** _____
   _____
   _____ ZIP _____

8. ARE YOU A LICENSED NOTARY PUBLIC IN THE STATE OF NEW MEXICO? _____Yes _____No

   If yes, give expiration date: _____

9. HAVE YOU APPLIED FOR BUT NOT YET BEEN APPOINTED AS NOTARY PUBLIC? _____Yes _____No

   (a) Give application submission date _____

10. ARE YOU A CERTIFIED COURT REPORTER IN THE STATE OF NEW MEXICO? _____Yes _____No

    If yes, list your CCR number _____

11. HAVE YOU TAKEN THE NM MONITOR TEST BEFORE? _____Yes _____No

    (a) If yes, by which trainer? _____
    (b) How many times? _____
    (c) Did you receive full certification? _____Yes _____No

12. LIST ANY PREVIOUS MONITORING WORK EXPERIENCE

    (a) Period of employment _____ to _____

    (b) List employer, firm name, address, ZIP code, and Telephone number. _____
    _____
    _____ZIP_____
    (___)_____

    (c) Period of employment _____ to _____

    (d) List employer, firm name, address, ZIP code, and Telephone number. _____
    _____
    _____ZIP_____
    (___)_____

13. ARE YOU PRESENTLY EMPLOYED? _____Yes _____No

    (a) Do you work for a free-lance (or other) firm, work as an independent contractor, or own a business? List the applicable one _____

    (b) Do you work full- or part-time? _____

(c) List employer, firm name, address and zip code Telephone number and job title. _____

14. ARE YOU APPLYING FOR A COURT POSITION OR ARE YOU EMPLOYED BY THE COURT? _____Yes _____No

(a) If yes, what is (or will be) your job title? _____

(b) Do you work for a free-lance (or other) firm, own a business, or work as an independent contractor? List one. _____

(c) List the court's address _____
ZIP code, _____ZIP_____
Judge's name and district. _____Dist_____
Business telephone number. ( )_____

15. HAVE YOU EVER BEEN CHARGED WITH OR INDICTED FOR ANY FELONY OFFENSE: _____Yes _____No

If yes, please give full details, _____

including the nature of the offense, _____

date, place, and the action taken. _____

Attach extra sheets, if needed. _____

_____

_____

_____

_____

16. HAVE YOU EVER BEEN CHARGED WITH VIOLATION OF RULES GOVERNING TAPE MONITORS IN NEW MEXICO OR ANY OTHER STATE: _____Yes _____No

17. WERE DISCIPLINARY PROCEEDINGS INSTITUTED AGAINST YOU IN NEW MEXICO OR ANY OTHER STATE? _____Yes _____No

If you answered yes to either question 16 or 17, give full details, including the nature of the offense, date, place, and action taken. Attach extra sheets, if needed.

_____
_____
_____
_____
_____
_____

I HEREBY CERTIFY THAT THIS APPLICATION IS TRUE AND CORRECT.

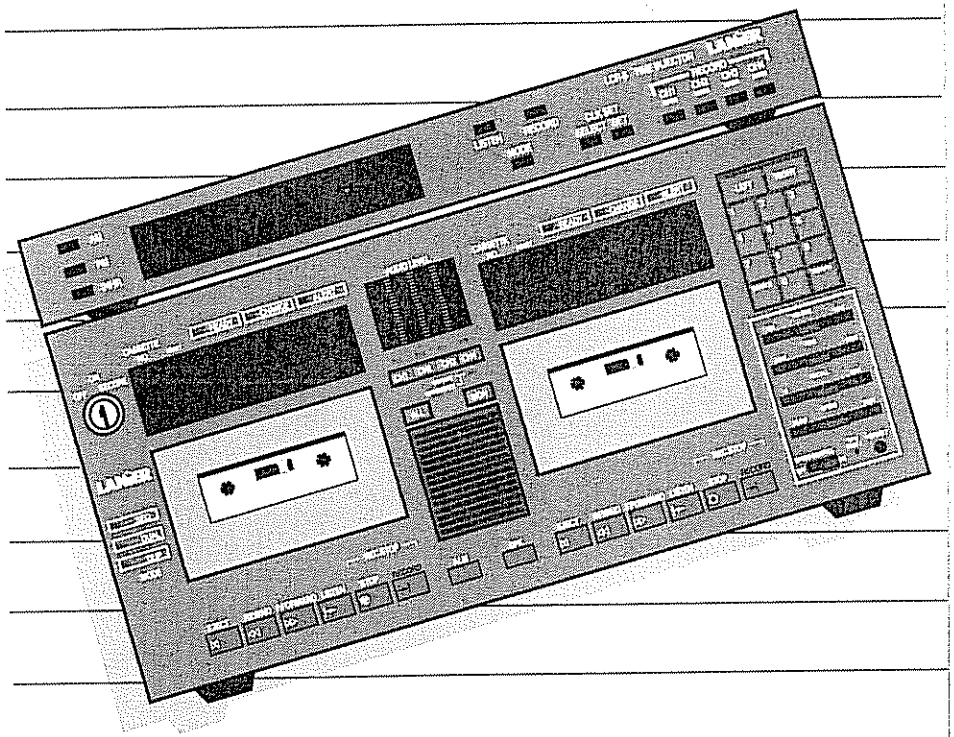
_____ _____
Date Signature

monitor\appnew gen

LANIER

User Guide

Advocate V



A HARRIS COMPANY — HARRIS

To order supplies or to request service, you will need to provide the model and serial number of your unit.Please take a moment to enter your model and serial numbers here.

MODEL NUMBER: RCR5

SERIAL NUMBER: 210088

To order supplies, call: ( )

To request service, call: ( )

Customer Vision -
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complete satisfaction

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Printed in Japan

THE ADVOCATE V

Hilde Knight

USER GUIDE

FCC Information

This equipment has been tested and found to comply with the limits for a Class A Digital Device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Changes or modifications not expressly approved by Lanier Worldwide, Inc. will be cause to void the user's authority to operate this equipment.

Canadian Information

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Réglement sur le matériel brouilleur du Canada.

CE This equipment complies with the requirements of directive 89/336/EEC as amended by 93/68/EEC and directive 73/23/EEC.

For information, contact:
Lanier Worldwide, Inc.
Worldwide Strategic Marketing
Im Taubental 6
D-41468 Neuss, Germany.

THE ADVOCATE V

OVERVIEW

The Advocate V is a four-channel recorder that provides up to three hours of continuous recording of either conferences or telephone conversations. Utilizing standard cassettes as the recording media, the Advocate V allows voice separation during playback. The unit may be used as a recorder, transcriber, or both simultaneously.

Since the Advocate records on four channels, it is actually recording on the front and back of a cassette tape at the same time. Think of the cassette as being one continuous side; therefore, you do not have to turn tapes over – you will be using the whole tape at once. So, how does that give you up to three hours of uninterrupted recording time?

Both cassettes are 90-minute tapes. The Advocate V records at either 1/2 speed or 1/4 speed (we recommend 1/2 speed to keep sound quality higher). When recording four tracks at 1/2 speed, you get the full 90 minutes per tape. This gives you a total of three hours recording time if you have set up your Advocate V to record on one tape then switch to the other automatically to continue recording (Sequential Mode). When set at 1/4 speed, you get six hours of recording time in Sequential Mode.

You may choose to record in Sequential Mode as described above, or Dual Mode. Dual Mode records on both cassettes simultaneously. Duplicate Mode may be used if you occasionally wish to duplicate a cassette.

If you always wish to duplicate cassettes, use an optional high speed duplicator to save time.

The Advocate V features Automatic Gain Control. Gain controls the sensitivity of the microphones. While it is preset, you may adjust it to accommodate differences in room acoustics if needed. This adjustment would normally be done during installation and should not require further adjustment.

Another feature is the PA outlet that allows you to play microphone input over a PA system so that an audience may hear the proceedings if you wish. Eight microphone jacks are available to accommodate unidirectional and omnidirectional microphones.

When used as a conference recorder, an optional display unit may be attached for remote display of the current cassette number and tape counter. When used as a call monitor, a VOR/Time Injector unit is attached to provide Voice Operated Recording (VOR) and a time and date stamp. VOR automatically starts and stops recording to provide maximum recording time per tape. The time and date is automatically recorded on any available channel while the Advocate V is recording.

THE ADVOCATE V

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ADVOCATE V

CHAPTER 1 – GETTING STARTED

This user guide contains setup and operational procedures that should be followed to ensure successful operation. This section provides a brief overview of what you will find in the guide so that you will know where to look for answers to any questions you might have. It is recommended that a user guide be stored near the Advocate V for easy access by users.

1.1 - Layout of the Manual

CHAPTER 2 – SETUP AND USE gives instructions on setting up the Advocate V for use and operational procedures for all available functions.

CHAPTER 3 – REMOTE DISPLAY gives instructions for setting up the remote display unit.

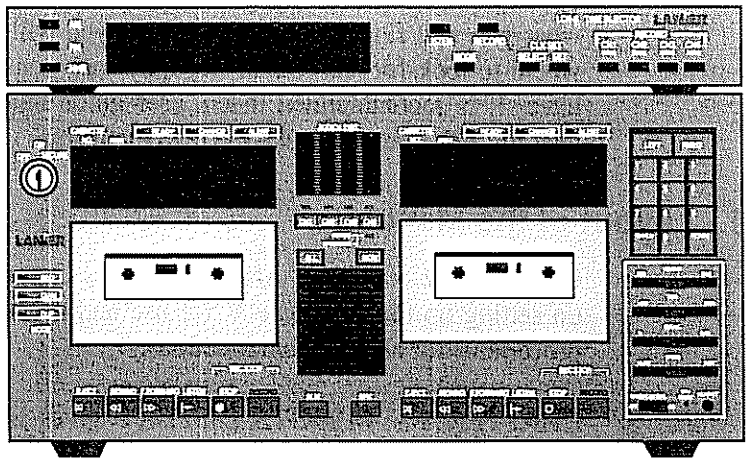
CHAPTER 4 – VOR/TIME INJECTOR gives instructions for setting up the voice-operated recording/time injector. Illustrations for the VOR/Time Injector are displayed in this chapter.

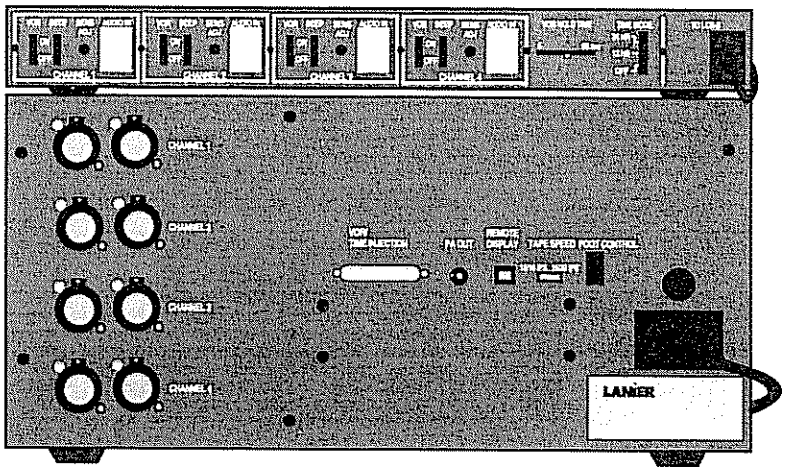
CHAPTER 5 – TRANSCRIBING WITH THE ADVOCATE V gives instructions for using the Advocate V for transcription. The Advocate V can be used for transcription only when in sequential mode and no recording is taking place.

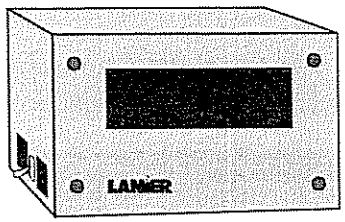
CHAPTER 6 – THE ADVOCATE TRANSCRIBER gives instructions for transcribing with the optional Advocate transcribe unit. Illustrations for the Advocate Transcriber are displayed in this chapter.

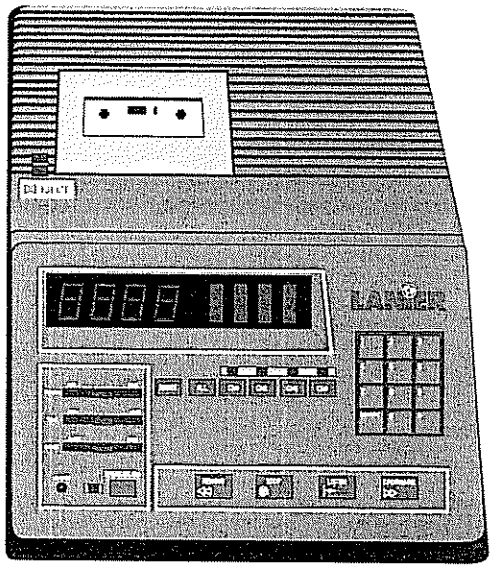
1.2 - Illustrations

The following illustrations show the controls and functions of the Advocate V. Refer to these illustrations, if needed, to determine the location of a particular function control described in this user guide.









THE ADVOCATE V

CHAPTER 2 – SETUP AND USE

Before beginning operation, you must set up the Advocate V as directed below. Operational use is also described in this section.

2.1 – RECORDER SET UP

To set up the Advocate V for recording, follow the steps below.

1. Plug the power cord into an appropriate power outlet.

2. Insert the microphone cables into the microphone jacks on the back of the unit. There are two microphone inputs for each channel. See 2.2 – MICROPHONE POSITIONING for information on placement of the microphones.

   NOTE: To remove a microphone cable, you must push in the knob above each jack. This lock option prevents microphone cables from being disconnected by mistake.

3. Insert the key into the key lock on the front of the unit and rotate the key lock to the ON position. The tape counter is displayed and other indicators are activated.

   NOTE: When you have begun operation of the recorder, you may place the key lock in the SECURE position and remove the key. In the SECURE position, no function other than the one you left engaged (record, for example) may be activated. This is a safety

feature to prevent accidentally turning off the unit during recording.

4. Open the cassette compartments by pressing the EJECT control for each side. Insert two rewound and erased Lanier C-90 standard cassettes into the compartments with the exposed tape facing down. Press the compartment doors closed.

5. Select the recording mode – sequential, dual, or duplicate.

   Sequential mode allows the Advocate V to automatically switch from one cassette to the next for continuous recording. At 1/2 speed, this mode allows up to three hours of continuous recording. At 1/4 speed, this mode allows up to six hours of continuous recording.

   Dual mode records on both cassettes simultaneously so that you have two copies.

   Duplicate mode allows you to take a recorded cassette you wish to have a copy of and duplicate it. The cassette to be duplicated should be placed in the left cassette compartment; the new tape should be placed in the right cassette compartment.

   To make a change to the mode, insert an object (such as the end of a paper clip) into the MODE control on the front of the unit. Each time you press the control, the mode changes as indicated above the MODE control. Select the desired mode.

   NOTE: The MODE cannot be changed while the recorder is engaged in a selected function or while the key lock is in the SECURE position.

6. Reset the counters. This rewinds the cassette(s) if needed and resets the counter(s) and number(s) to zero.

The READY indicators should light green.

For sequential mode, press the RESET controls on each deck individually or simultaneously. Hold down the RESET control(s) for approximately 2 seconds.

For dual mode, press the RESET controls on each deck simultaneously. Hold down the RESET controls for approximately 2 seconds.

For duplicate mode, press the RESET controls individually or simultaneously to rewind the cassettes to the beginning. Since you are just duplicating a cassette in duplicate mode, the reset function is used to make sure you are at the beginning of each tape. The counter does not really matter in this case.

7. You are now ready to begin recording. Press the RECORD button for whichever cassette you wish to begin with and the Advocate V will begin recording. The AUDIO LEVEL indicators should now be flickering in response to sound being recorded. The tape counters will increment.

   If in sequential mode, the first cassette being recorded on will display 1 as the CASSETTE NUMBER; when changeover to the next cassette occurs, that CASSETTE NUMBER display will change to 2 and so on. See section 2.6 for more information on Automatic Changeover for sequential mode.

   If in dual mode, both cassette numbers will be 1. When you change cassettes in dual mode, press only one RESET control so that the CASSETTE NUMBER advances to the next number in the sequence. (Pressing both reset controls simultaneously would start over with cassette number 1.)

   If in duplicate mode the CASSETTE NUMBER

display is blank. You are just copying a cassette so the cassette number does not really matter in this case.

8. To stop recording, press the STOP button and the RECORD button simultaneously.

   See 2.3 – MONITORING CAPABILITIES for information on checking the recording.

2.2 – MICROPHONE POSITIONING

The proper selection and placement of the microphones are very important. There are two types of microphones – omnidirectional and unidirectional. The unidirectional microphone records sound from one general direction. The omnidirectional microphone records sound from a 360-degree radius; it is more sensitive and will pick up more background noise than the unidirectional microphone.

1. Position the microphones where needed according to the type of recording desired – unidirectional or omnidirectional.

2. Press RECORD. To ensure proper recording, monitor the recording through the headset jack on the front of the unit. See 2.3.

3. While in record, look at the AUDIO LEVEL indicators for each channel. A flickering light indicates that sound is being picked up by that microphone.

4. Notice that the green READY indicator for the cassette being recorded on will go out when recording begins. If in sequential mode, the READY indicator to the other cassette will remain READY if the cassette is properly loaded and the RESET button has been pressed as directed.

2.3 – MONITORING CAPABILITIES

Use of a headset connected to the HEADSET jack on the front of the unit is recommended to ensure that the proceeding is being recorded on the tape. If your unit is in a location away from the proceedings, you may monitor the recording through the speaker on the front of the unit by pressing the SPK button. When the SPK indicator is lighted, audio will be played through the speaker.

1. Plug the headset into the HEADSET jack to listen through the headset, or turn the SPK control on to listen through the speaker on the front of the unit (described above).

2. Adjust the VOLUME and TONE to your preference.

3. Press the MON (monitor) button ON to listen to the recording on the tape.

   NOTE: Monitoring an entire meeting is optional. This recommendation is just to check that the recording is proceeding faithfully. Notice that the sound you hear when listening to the tape lags the actual spoken word by a short interval, producing an echo effect. This is normal since you are actually listening to the tape and what has just been recorded.

4. If you place the MON button in the OFF position, you are listening to the spoken word in real time as it is being picked up by the microphone.

2.4 – AUDIO ALARM

The audio alarm may be used while recording for audio alert that something is wrong. The alarm will always be heard through the monitor headset regardless of the position of the ALM (alarm) button. You may

choose to have the alarm play though the speaker on the front of the unit. To do so, press the ALM button. When the ALM indicator is lighted, the alarm will sound through the speaker.

2.5 – INDICATORS

The indicators on the front panel in addition to the alarm, help to provide failsafe operation of the Advocate V. When the ALM switch is on, any malfunctions will alert the operator by an audible alarm along with an ALERT indicator. Some indicators, of course, only show function. The indicators function as follows:

INDICATOR	COLOR	MEANING
READY	green	Cassette is ready for recording.
CHANGE	red	The cassette is full and should now be changed. During automatic changeover, either one or both of the CHANGE indicators will be illuminated.
CH1 - 4	orange	Indicates which channels you are listening to during monitoring.
MON	orange	When lighted, you are monitoring the tape recording. When not lighted you are monitoring the microphone input (the source).
ALM	orange	When lighted, the audible alarm will sound through the speaker on the front of the unit. When not lighted, the audible alarm will sound through the headset.
SPK	orange	When lighted, proceedings will be played through the speaker on the front of the unit for monitoring. When not lighted, play occurs only through the headset.
RECORD	red	When lighted, the unit is in record mode. If the dual mode is set, both RECORD indicators will light when either one is pressed to start recording.
MODE	orange	The lighted indicator shows the current mode of the Advocate V. SEQ (sequential) means that the recorder will switch from one cassette to the next for continuous recording. DUAL means that both cassettes will be recorded on simultaneously. DUP (duplicate) means that you wish to make a copy of a recorded cassette on the other cassette deck.
ALERT	yellow	Indicates an error. See next page for more information.

The yellow, flashing ALERT indicator is activated in the following situations:

1. You are attempting to record on a cassette with something already on it or on a cassette with tabs removed. For sequential mode, the RECORD function will automatically change to the other cassette if it is in the READY state. If the other cassette is not in the ready state the alarm will sound for that cassette. Insert the proper cassette and begin your function again. For dual and duplicate modes, insert the proper cassette and begin your function again.

2. The idle cassette is not ready for changeover, i.e., there is no cassette in the compartment; the cassette or tape is broken; or the cassette is not erased.

3. The Advocate V has detected approximately 12 seconds of silence, i.e., the gain control should be set higher; a microphone has been disconnected; there is silence in the recording area.

4. You are advancing into unused tape. This will cause the ALERT indicator to flash intermittently.

2.6 - AUTOMATIC CHANGEOVER

The Advocate V will automatically change recording from one cassette to the other when operating in sequential mode. This allows you up to three hours of uninterrupted continuous recording at 1/2 speed and up to six hours at 1/4 speed. With a few minutes of recording time left on the currently recording cassette, the idle cassette will automatically be activated to ensure that none of the proceedings are lost. When the first cassette reaches the end, it will stop and the CHANGE indicator will light to notify you that the cassette should be changed for more continuous

recording. To change cassettes in a sequence, follow the steps below.

1. The CHANGE indicator lights to indicate that the cassette is full and needs changing. You may change the cassette now or wait until the other cassette is almost full.

2. The CHANGE indicator remains lighted until the cassette is ejected and replaced with a new cassette and the RESET button for that cassette is activated.

3. Remove the cassette, label it, and store it in a safe place. Remember that it is part of a sequence, so make sure to note the correct CASSETTE NUMBER on the display and mark it on the cassette.

4. Insert a rewound and erased cassette into the compartment and close the door. Hold down the RESET button for that cassette for approximately 2 seconds so the counter knows you are inserting the next sequential cassette.

5. When the other cassette is full, recording will begin on this new one and the CASSETTE NUMBER display will advance to the next number in the sequence.

2.7 - PLAYBACK DURING RECORD

The Advocate V was designed to provide simultaneous record and playback. The operator can listen to one tape while recording on the other. Follow the steps below to operate this function.

1. While one cassette deck is recording, you can use the other for playback. Insert the cassette you wish to listen to in the other cassette compartment.

2. You may listen to the cassette through the headset or through the speaker on the front of the unit. To listen through the speaker, the SPK indicator must be lighted. If you are not listening to a cassette, the current recording will play for monitoring.

3. Press LISTEN for the cassette you wish to hear.

4. Adjust the VOLUME and TONE as you desire.

5. To hear all four channels, all CH buttons should be on as shown by the lighted indicators above them. Press the ALL button to turn all channels on at once or use the separate CH buttons to turn them on individually. If all channels are playing at the same time, press CH buttons so that the indicators are not lighted to turn specific channels off. The AUDIO LEVEL indicators flicker to indicate that sound is recorded on the individual channels.

2.8 – SEARCH

The Search function allows you to enter any tape counter number and go to that location in the selected cassette. You may also return to the end of the recording after your search. The Search function will not work for the cassette currently being recorded on; it will only work for the idle cassette. Search is initiated from the keypad on the front of the unit.

To search to a specific location, select LEFT or RIGHT to indicate the cassette you wish to search. Enter the tape position desired (any value less than the display count) and press SEARCH. The Advocate V will search and stop at the desired location or slightly before it. Press the LISTEN button to hear the desired portion of the cassette.

To return to the end of the recording, select LEFT or RIGHT to indicate the cassette and press RETURN. The cassette advances to the end of recording.

NOTE: A search may still be performed on a cassette if it has been ejected from the recorder and the display has been cleared. Make sure you rewind the cassette to the beginning so that the counter will be accurate.

You cannot use the RETURN function since the unit will not know where the end of recording is because the tape was previously ejected and its counter cleared.

2.9 – CONTINUE WITH A PARTIALLY-USED TAPE

Many times an active cassette(s) may be removed from the recorder to make the recorder available for others to use. When the original proceedings resume, you may wish to continue with the partially-used tape(s) at the place left off and reset the counters to continue the sequence. Follow the steps below to return the counters to their original settings.

1. Before removing the active cassette(s), make a note of the cassette and counter numbers.

NOTE: Remember that you should not rewind the active cassette(s) before removing it. You want it to remain in the current location for future use.

2. Before reinserting the active cassette(s), press the LEFT button on the keypad. The left tape counter flashes zero in sequential and duplicate modes. Both counters flash zero in dual mode.

NOTE: When in Dual mode, you may use either the right or left keypad button. It will change both cassette displays simultaneously.

3. Enter the desired tape counter position through the keypad. Press SEARCH to confirm your entry or LEFT to start again. When you have confirmed your entry, it is displayed and then the cassette number display flashes zero (unless in duplicate mode - cassette number does not matter in this mode).

4. Enter the desired cassette number and press SEARCH to confirm or LEFT to start again. When the entry is confirmed, the display stops flashing and shows your entries.

5. You may now insert your active cassette(s) and begin recording at the place left off by pressing the RECORD button.

NOTE: This procedure also works for the right cassette compartment by pressing the RIGHT keypad button.

2.10 – CPU RESET

The CPU RESET control on the front of the unit is used when the unit locks up because of power fluctuations. If you notice erratic behavior or functions will not work, reset the CPU by inserting a small object (such as the end of a paper clip) into the CPU RESET control.

NOTE: Resetting the CPU does not erase the counters and cassette numbers.

THE ADVOCATE V

CHAPTER 3 – REMOTE DISPLAY

This section gives instructions for setting up the remote display for operation. The remote display may be located in a position for viewing by members of the proceedings. It can be used to make notations on any cassette position someone may wish to review at a later time. The remote display shows the cassette number currently being recorded on and the tape counter. When a member of the proceedings hears something he may wish to review later, the person may make a note of the cassette number and the tape counter position for easy access of the desired information at a later time.

3.1 – SET UP REMOTE DISPLAY

To set up the Remote Display, follow the instructions below.

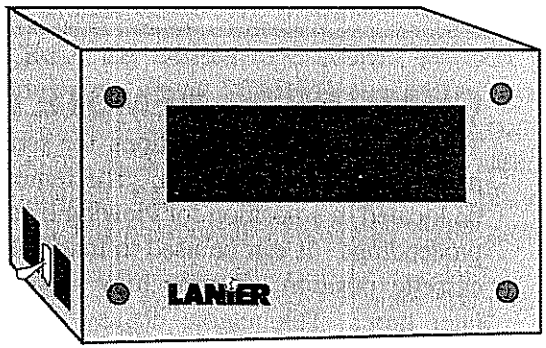
1. Place the Remote Display in the desired location. Plug the power cord into an appropriate power outlet.

2. Plug the remote interface cable into the REMOTE DISPLAY jack on the back of the Advocate V.

3. Run the interface cable to the location of the Remote Display. Plug the cable into the FROM LCR jack on the side of the Remote Display.

4. Turn the Remote Display's POWER switch ON. The display is activated and shows the cassette number and counter position of the latest cassette in the current sequence.

The Remote Display



THE ADVOCATE V

CHAPTER 4 – VOR/TIME INJECTOR

The VOR/Time Injector is used in voice logging situations to record the time and date for conversations from telephone lines or 2-way radio. The time and date are recorded inaudibly on the cassette. During playback of a cassette, the VOR/Time Injector displays the time and date of the recording.

The VOR/Time Injector can be used for voice operated recording (VOR). In this mode, the Advocate V will only record when voice is detected on the channel. VOR mode saves tape space. Illustrations of the VOR/Time Injector are on page 23.

4.1 – SET UP THE UNIT

The VOR/Time Injector may be connected to either the Advocate V or the Advocate Transcriber. It will be connected to the Advocate V for recording. It may be connected to the Advocate V or to the Advocate Transcriber for playback.

Your VOR/Time Injector will be set up by the Lanier representative. The following information is for your knowledge.

The Lanier representative will connect the VOR/Time Injector to the Advocate V recorder and connect the telephone lines or 2-way radio to the VOR/Time Injector.

The options on the back of the VOR/Time Injector have the following functions:

VOR controls (on/off) – The VOR controls must be on if you wish recording for a particular channel to be voice activated.

BEEP controls (on/off) – If on, the Beep option indicates to the outside party that the conversation is being recorded. If it is off, the beep does not sound.

SENS ADJ (Sensitivity Adjustments) – Sensitivity works with VOR (voice operated recording). Each channel has a different audio level; sensitivity should be increased or decreased according to the audio level of the channel. Sensitivity adjusts how much sound must be detected before the Advocate V will start recording.

VOR HOLD TIME (0 - 60 seconds) – Hold time is the amount of time in seconds that the Advocate V will continue to record when no sound is detected on the line. After this amount of time has expired, the Advocate V will stop recording.

4.2 – SET CLOCK

To set the date and time on the VOR/Time Injector, follow the steps below:

1. Before setting the clock, you should choose a 12-hour or a 24-hour time format. Use the TIME MODE control on the back of the unit to make this selection.

2. To enter clock set mode, hold down the SET button on the front of the unit and press SELECT. The hours digit on the display will begin to flash.

2. Press the SET button to make changes to the hour field.

   NOTE: If you are using the 12-hour format, make sure the correct AM/PM indicator is lighted when you change the time.

3. If you do not wish to make a change to a particular field, press SELECT to move to the next field.

   Or, press SELECT to move to the next field after making changes in one.

4. The date display appears after you move through the hour:minutes:seconds display. Again, use the SET button to make any changes.

5. After you have either made changes or moved through all of the fields, clock set mode is automatically exited.

6. Whenever you wish to view the date, press the SELECT control to toggle the display between the time and date.

4.3 – TURN CHANNELS ON

The Lanier representative will set up your VOR/Time Injector to work as you wish. However, you must make sure that the channels you wish to record on are engaged.

To do so, hold down each channel button (CH1 - 4) on the VOR/Time Injector you wish to engage until the channel indicator begins to flash (hold down approximately 2 seconds). If a channel is not "on", audio will not be recorded by the Advocate V.

The flashing indicator means that the Advocate V will begin recording for this channel when voice is detected if in VOR mode or when the RECORD control on the

Advocate V is pressed twice to start continuous recording. See the next section for more information on starting to record.

4.4 – SET MODE

The MODE control on the front of the unit selects either LISTEN or RECORD. Set the MODE control to RECORD when you wish to record. Set the MODE control to LISTEN when you wish to play back a cassette. In LISTEN mode, the display shows the time and date of the recording on the cassette you are playing.

4.5 – STARTING TO RECORD

VOR mode:
In VOR mode, to begin recording you will press RECORD once on the Advocate V. The record indicator light will begin to flash, meaning that VOR mode is enabled and recording will begin whenever voice is detected on the channel. **NOTE:** You must have the VOR controls on the back of the VOR/Time Injector set to VOR for each channel you have engaged.

Continuous record:
For continuous recording, press RECORD twice and the Advocate V will begin recording immediately and continue to do so until you stop the recording process or the end of the tape is reached.

The VOR/Time Injector

NOTES:

THE ADVOCATE V

CHAPTER 5 – TRANSCRIBING WITH THE ADVOCATE V

The Advocate V can be used as a transcribe unit after recording. Follow the steps below to set up and use the Advocate V for transcription. You must be in sequential mode and not in the recording process for this function to work. Transcription can only occur from the right cassette compartment.

5.1 – SET UP FOR TRANSCRIPTION

1. Connect a Foot Pedal to the FOOT CONTROL plug on the back of the unit.

2. Connect a headset to the HEADSET jack on the front of the unit. Make sure the SPK button is off to listen through the headset only.

3. Insert the cassette to be transcribed into the right cassette compartment.

4. Position the RECALL control as desired. Recall is the amount of rewind that will occur each time you remove your foot to disengage the foot pedal.

5. Turn ON the SPEED CONTROL if you wish to adjust the speed of playback. Use the SPEED control to adjust speed faster or slower.

6. Rewind the cassette to be transcribed to the beginning and reset the tape counter by pressing the RESET button for approximately two seconds.

7. Adjust VOLUME and TONE to your preference and begin transcribing by pressing the LISTEN control on the foot pedal.

8. The CH 1 - 4 controls allow you to select among the channels individually or all at the same time to make sure you are transcribing all voice activity.

5.2 – CONTINUING WITH A PARTIALLY-TRANSCRIBED CASSETTE

Occasionally a partially transcribed cassette may be removed from the recorder to make the recorder available for others to use. When you wish to continue transcribing the cassette at the place left off, you may reset the counters to the correct display.

1. Before removing the cassette(s), make a note of the cassette and counter numbers.

NOTE: Remember that you should not rewind the cassette(s) before removing it so that it remains in the current location for future use.

2. Before reinserting the cassette, press the RIGHT button on the keypad. The right tape counter flashes zero.

3. Enter the desired tape counter position through the keypad. Press SEARCH to confirm your entry or RIGHT to start again. When you have confirmed your entry, it is displayed and then the cassette number display flashes zero.

4. Enter the desired cassette number and press SEARCH to confirm or RIGHT to start again. The display stops flashing and shows your entries.

5. You may now insert your active cassette(s) and begin transcription.

THE ADVOCATE V

CHAPTER 6 - THE ADVOCATE TRANSCRIBER

The Advocate Transcriber, a separate unit from the Advocate V, may be used for transcription. Follow the instructions below to set up and operate the unit for transcription. Illustrations for the Advocate Transcriber are on page 31.

6.1 – TRANSCRIBER SETUP

To set up the transcriber, follow the steps below.

1. Plug the transcriber into an appropriate AC outlet.

2. Connect the foot control to the FOOT CONTROL jack on the left side of the unit.

3. Connect the headset to the HEADSET jack on the front of the unit.

NOTE: You may listen through the speaker or through the headset. Turn the SPEAKER button off when listening through the headset. The indicator to the left of the SPEAKER button is lighted when sound is being played through the speaker.

4. Press the EJECT button to open the cassette compartment and insert the cassette to be transcribed, exposed tape facing the front of the unit. Close the compartment door.

5. Press and hold down the RESET button for approximately two seconds to rewind the cassette to the beginning and reset the tape counter. Begin transcription.

6.2 – TRANSCRIPTION PROCEDURES

To listen to the recording through the headset, turn the SPEAKER button off. To listen through the speaker, turn the SPEAKER button on. Press LISTEN either on the front of the unit or on the foot control to listen to the cassette.

The tape counter display increments as the tape advances. You may stop, rewind, or fast forward at any time during transcription. See the information below for further details on transcription options.

CHANNELS:
The CH 1 - 4 controls allow you to select among the channels individually or all at the same time to make sure you are transcribing all voice activity. The CH controls are engaged when the light above each channel control is on. The audio level indicators above the channel indicators show which channels contain voice activity. You may use the ALL control to turn all channels on or off at once or press each CH control individually to select among the channels.

TAPE SPEED:
Make sure the TAPE SPEED control on the left side of the unit is set for the speed at which the cassette was recorded. The recommended setting is 1/2 speed (or 15/16 IPS).

VOLUME and TONE:
Adjust the VOLUME and TONE on the front of the unit as desired. Slide the controls to the right to increase or to the left to decrease.

SPEED OF PLAYBACK:
Use the SPEED control on the front of the unit to adjust the speed of playback. Slide the control right to increase speed of playback or to the left to decrease speed of playback.

RECALL:
Position the RECALL control on the left side of the unit as desired. Recall is the amount of rewind that will occur each time you lift your foot to disengage the foot control.

SEARCH:
The SEARCH function allows you to enter any tape counter number and go to that location on the cassette. Search is initiated from the keypad on the front of the unit.

To search to a specific location, enter the tape location desired and press SEARCH. The Advocate Transcriber will search and stop at the desired location. Press the LISTEN button to hear the desired portion of the cassette. You may search either forward or backward. If you enter an incorrect number, press CLEAR on the keypad to erase the entry and begin again.

6.3 – CPU RESET

The CPU RESET control on the back of the unit is used when the unit locks up because of power fluctuations. If you notice erratic behavior or functions will not work, reset the CPU by inserting a small object (such as the end of a paper clip) into the CPU RESET control.

6.4 – CONTINUING WITH A PARTIALLY-TRANSCRIBED CASSETTE

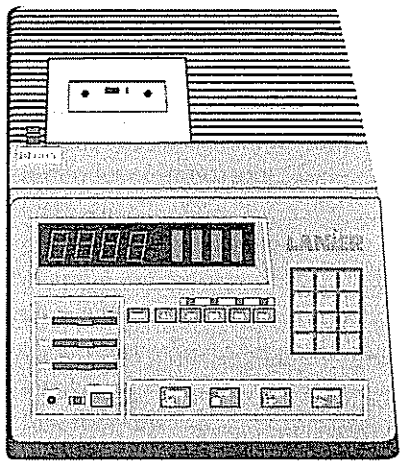
Occasionally you may begin transcription with a partially transcribed cassette. If you wish or if it is important, you may reset the counter to display the correct tape location information before inserting the cassette for transcription.

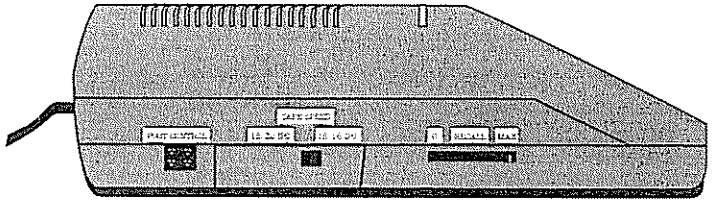
1. The cassette is at the location for transcription to begin. Either you have made a note of it previously, or someone has given you the correct counter information.

2. Enter the desired tape counter position through the keypad. Press SEARCH to confirm your entry or CLEAR to start again. When you have confirmed your entry, it is displayed.

3. Insert your cassette and begin transcription.

The Advocate Transcriber





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New Machine Warranty and Limitation of Liability

Warranty — 90 days

Lanier warrants that its equipment and accessories will be free from defective parts and workmanship for a period of ninety (90) days from the date of first installation by Lanier's Authorized Dealer. Customers must notify a Lanier servicing dealer or Lanier of a warranty claim within the warranty period. For a listing of authorized Lanier servicing dealers or to notify Lanier of a warranty claim, write to Lanier Worldwide, Inc., 2300 Parklake Drive, N.E., Atlanta, Georgia 30345-2979.

Warranty Exclusions

THE FOREGOING EXPRESS WARRANTY IS MADE IN LIEU OF ALL OTHER PRODUCT WARRANTIES, EXPRESS OR IMPLIED, INCLUDING MERCHANTABILITY AND FITNESS AND THOSE ARISING FROM A COURSE OF DEALING OF USAGE OF TRADE. The Express Warranty will not apply to problems caused by damage incurred in transportation, or due to accident; neglect; misuse such as use of harmful or unapproved supplies; alterations; operator error; power surges; failure to properly install, clean, maintain, or repair; improper operating environment; or failure to provide proper utilities. The Express Warranty also will not apply to used or refurbished Lanier equipment unless Lanier expressly authorizes resale with its original equipment warranty.

Limitation of Liability

Fulfillment of Lanier's warranty obligation shall be the Customer's exclusive remedy and Lanier's and the Lanier Dealer's limit of liability for any breach of warranty or otherwise. In no event will Lanier or Lanier's Dealers be responsible or liable for special, incidental or consequential losses or damages.

STATE OF NEW MEXICO
COUNTY OF BERNALILLO
SECOND JUDICIAL DISTRICT

CAUSE NO: Case Number of the FIRST CASE

JUDGE: Full Name of Judge

DATE: Current Date

John W. Doe

Petitioner

VS.

Jane W. Smith

Respondent

TYPE OF PROCEEDING: Motion / Hearing / Merits / MH / CSED

ATTORNEY FOR PLAINTIFF: Full Name or Pro Se

ATTORNEY FOR DEFENDANT: Full Name or Pro Se

REPORTER/MONITOR: ROGER KENT PROCTOR

MACHINE ID# AND TYPE: LANIER RECORDER

LEGEND*:Comm-Commissioner add-addresses CC-Court Clinic RO-Restraining Order
DRX/DEX - Direct Examination EOP-extended order of protection NC-Neutral Corner
CRX/XEX - Cross-Examination DV-domestic violence CS-child support payment
Pet-Petitioner Resp-Respondent P-Pet's Atty. R-Resp's Atty. TS-time share

Cass. Log #	Comments
001	CRT IN SESSION AT (TIME) a.m./p.m.
004	**CRT CALLS (Enter the full Caption / Style of Case**
	Use two lines, if needed, for the Caption)
017	Appearances (Lawyers / Counsel of Record and/or Parties)

CONTINUATION SHEET

CAUSE NO: ___ DATE: _

Disc 1

Cass. Log #	Comments

Disc 1

STYLE

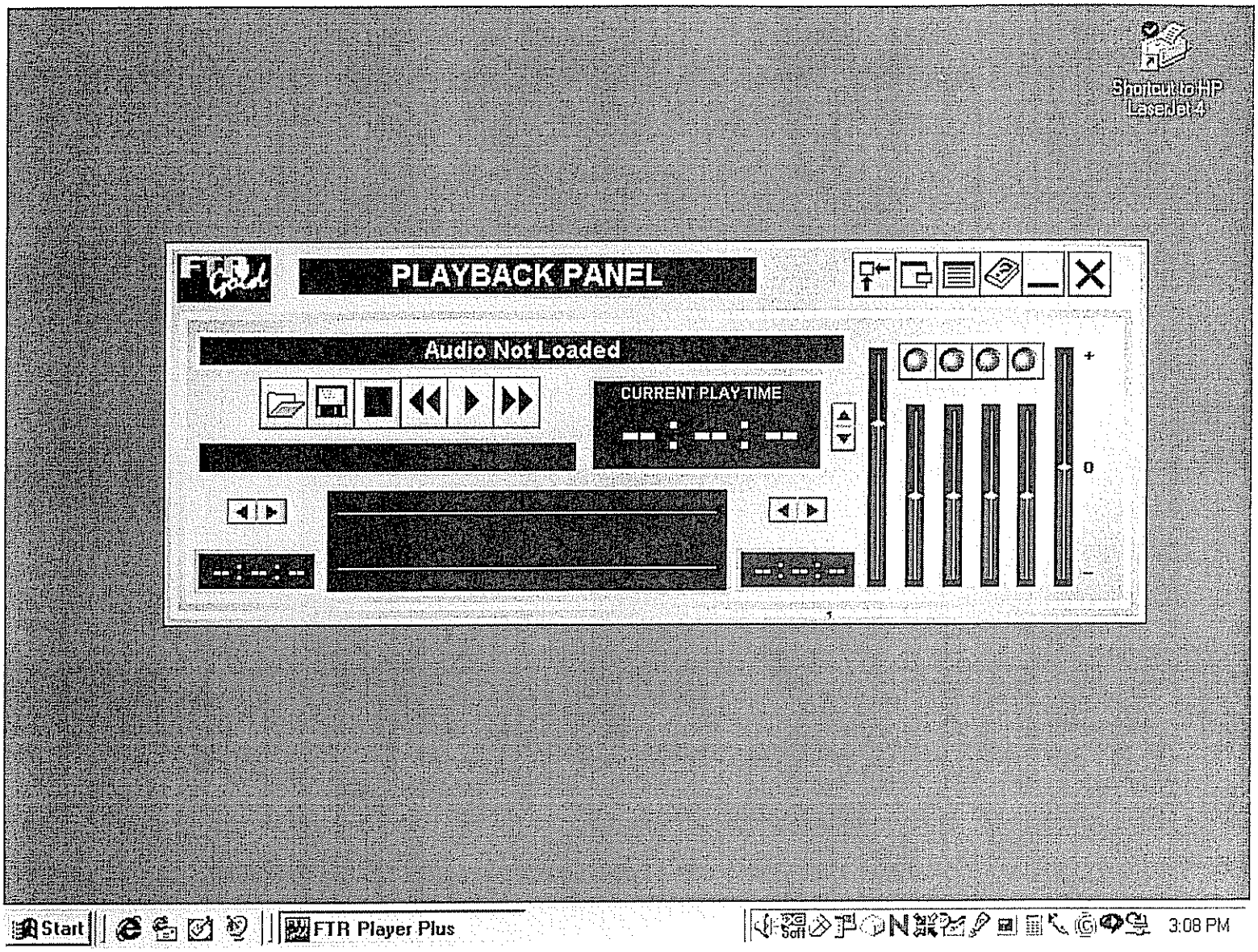
CASE # PROC DATE

EQUIP TAPE #

☐ ORIG
☐ COPY

RECORD THIS SIDE ONLY

MONITOR SIGNATURE


Shortcut to HP LaserJet 4
FTR Gold
PLAYBACK PANEL
Audio Not Loaded
CURRENT PLAY TIME
Start
FTR Player Plus
3:08 PM

FTR Reporter™

End User Training Guide

End User Training Guide, Version 2, For FTR Reporter 1.3, September 15, 2000 edition

This document has been created to aid FTR Resellers in their training and support of end users of the FTR Reporter Version 1.3 application. It is not intended to be used with any other versions of FTR Reporter except version 1.3. This document is not a supported product of FTR Limited but is provided purely as an aid for training of end users. Vendors are given permission to copy and disseminate this document as needed. Electronic copies can be obtained through the support area of FTR's website at www.ftrgold.com <http://www.ftrgold.com>.

FTR Reporter™

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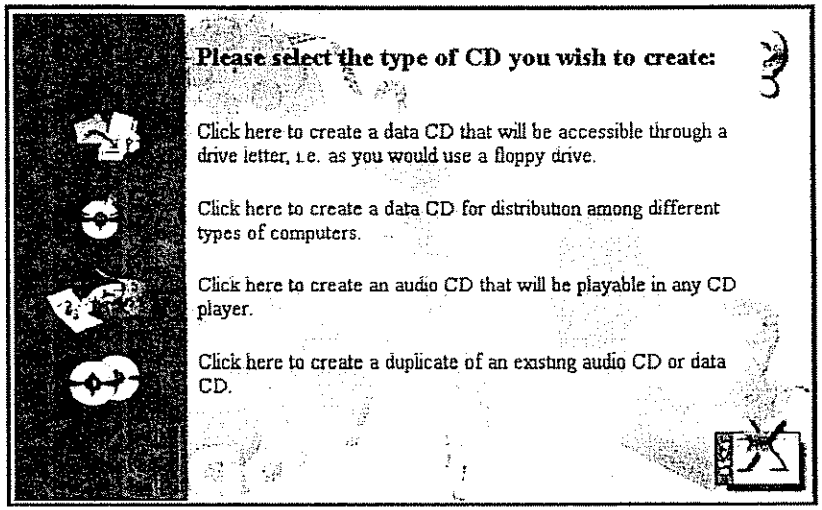
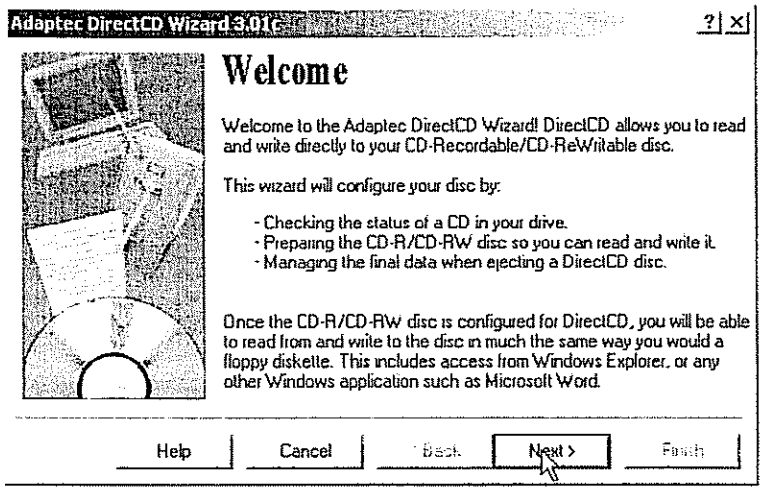
This guide is a step-by-step instruction to the routine operation of FTR Reporter™. FTR Reporter uses two applications. They are FTR Reporter and Adaptec's DirectCD

Using Adaptec's DirectCD

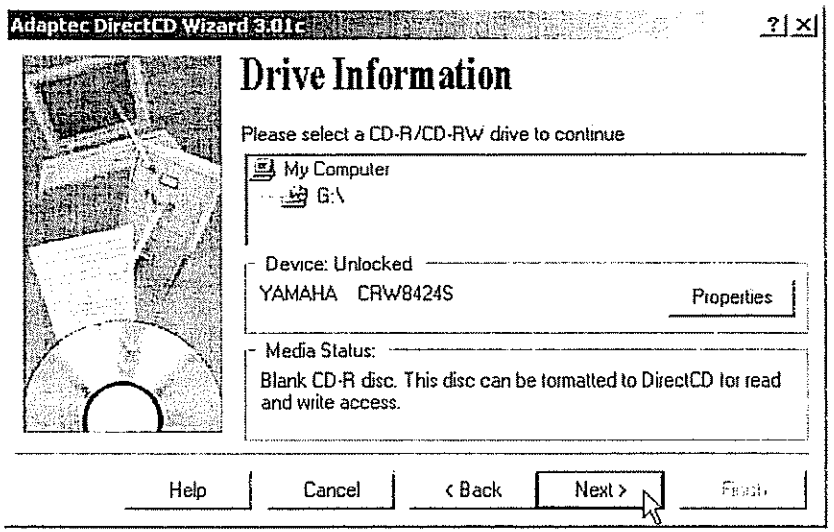
You begin your recording day by labeling a blank CD-R disc and placing it into the CD recorder. After placing it into recorder, you should see the following Adaptec screen appear on your monitor Click on the first option, which states, "Click here to create a data CD that will be accessible through a drive letter i.e. as you would use a floppy drive." This will start the Adaptec DirectCD Wizard.



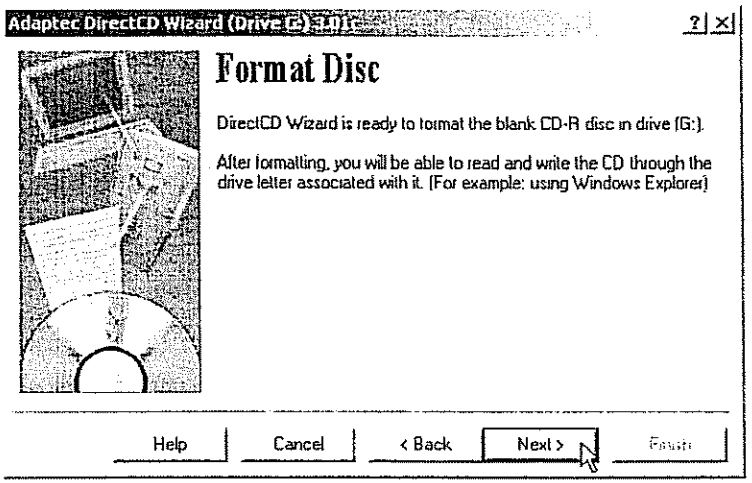
Next you will see the **Welcome** page for the DirectCD Wizard. This screen is describing the functions the DirectCD Wizard is about to perform. Simply push the Next > button.



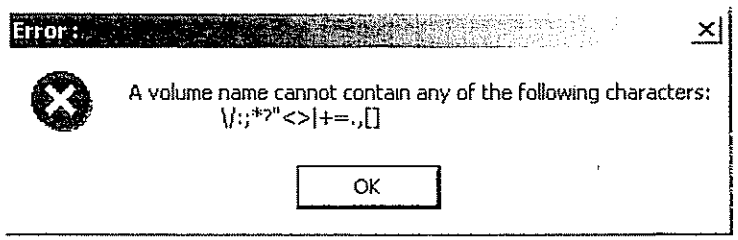
Then the **Drive Information** page of the DirectCD Wizard will appear. This page is telling you the drive letter that has been identified as the one containing your blank CD. It also identifies the brand and model CD-Writer you are using. The software finds this information **automatically**. You only need to push the Next > button.

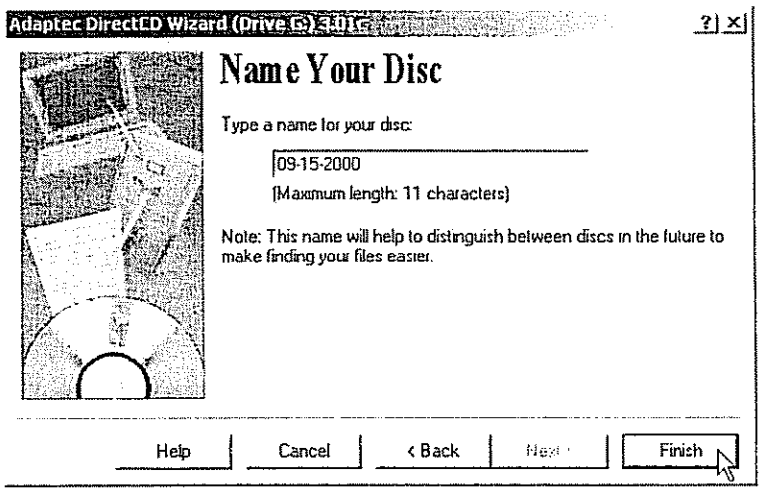


Next, the **Format Disc** page of the DirectCD Wizard appears. It is informing you that it is about to organize the blank disc so that it can have data written to it. Again, you need only to push the Next > button.



The **Name Your Disc** page will next appear. You can type in the name you would like to be associated with this disc. You are limited to 11 characters including spaces. You can use any characters except for the following:

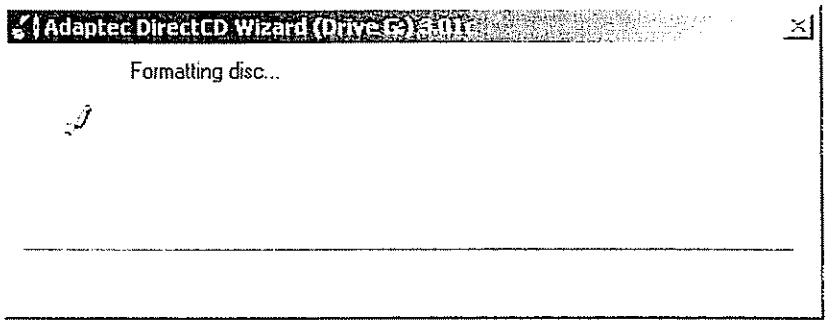




Note: You may leave the **Name Your Disc** field blank if you choose. A suggestion is to label the disc with the location (e.g.

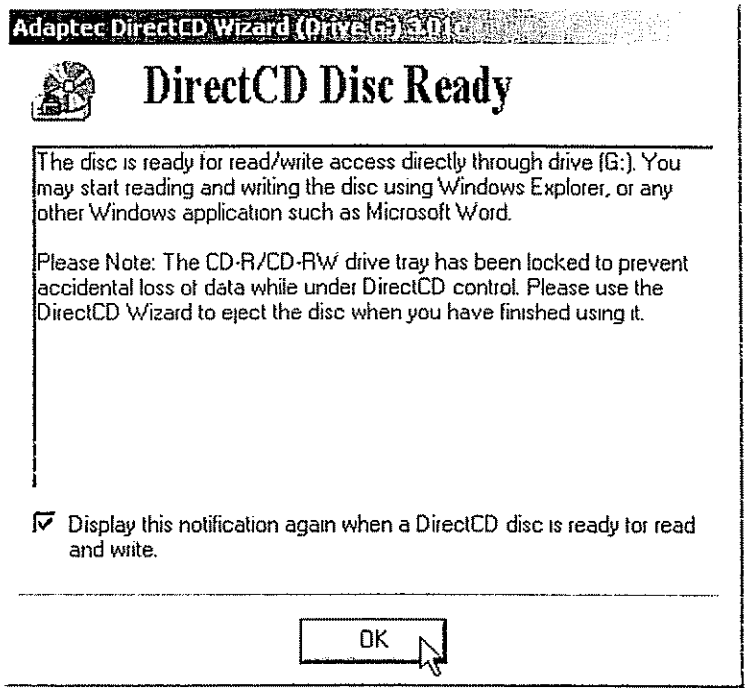
Court #5) or Judge's name. Push the [Finish] button

The "Formatting Disc' screen will now appear for approximately 15 seconds to a minute, depending on the speed of your CD-Writer.



Next, the "Direct CD Disc Ready" will appear.

Congratulations! You have prepared a CD to use with FTR Reporter and are now ready to begin archiving FTR recordings to this CD when needed. Push the OK button to acknowledge this message and we will proceed to FTR Reporter.



Operating the FTR Reporter Recording Panel

Start FTR Reporter by either clicking on the shortcut (or icon) on your desktop or by finding FTR Gold through your Start Menu.


FTR Gold

← The FTR Reporter shortcut

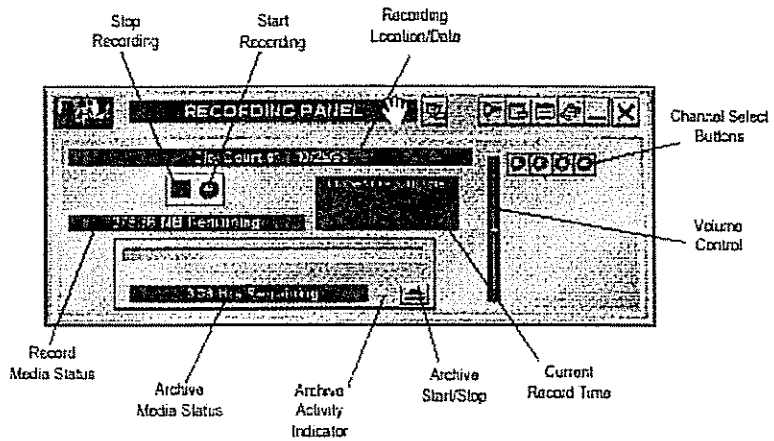
Recording Panel Controls

When starting FTR Reporter you will see the display on the right.

Note, If the heading (words on the top of the application) you see says "PLAYBACK PANEL" instead of "RECORDING PANEL", then click on the  *button to the right of the title bar. This will 'switch' you back to the Recording Panel.*

Please take a moment to become familiar with the parts of this display.

Normal View



To begin Recording and Archiving using FTR Reporter:

1. FTR recommends that you click the Archive Start/Stop button to begin archiving prior to the start of recording. This will allow files to be archived (copied to the CD) whenever they are produced throughout the day.

 **Archive Start/Stop** button

2. Click the **Start Recording** button to begin recording.

 **Start Recording** button

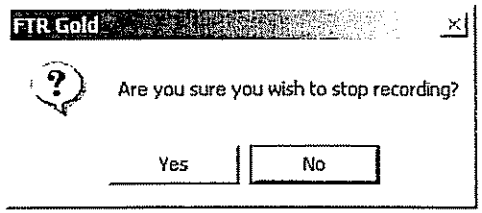
   Note: These two actions will cause FTR to write its recording to both the hard drive and archive media.

To Stop Recording:

Press the **Stop Recording** button to stop recording court proceedings. Confirm that you want to stop recording by answering, "Yes".

Note: Press the Stop Recording button before stopping the archive process to ensure that all recordings will be archived (copied) to the CD.


Stop Recording button



To Stop Archiving:

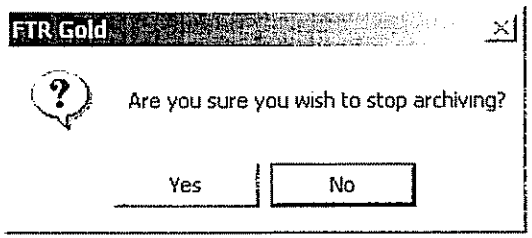
After you push the Stop Recording button, wait until you see the archive activity indicator turn from red to green. This indicates that the all of the files have been archived (copied to the CD).


Archive Start/Stop button & **Archive Activity Indicator**

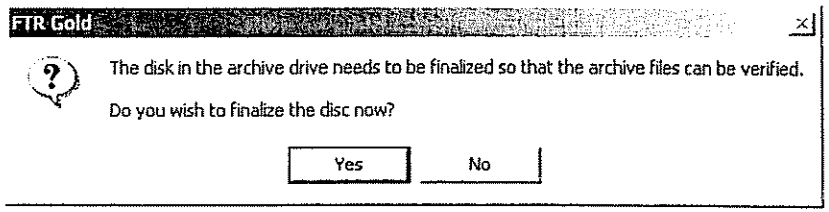
Green = Archiving completed
Red = Still archiving

The following dialog box will now appear asking you whether or not you are sure that you want to stop archiving.

Confirm that you do by answering, "Yes".



Finalizing the Archive CD



The following prompt will appear asking if you want to "finalize" the CD disc. Answer "Yes". CAREFUL !*

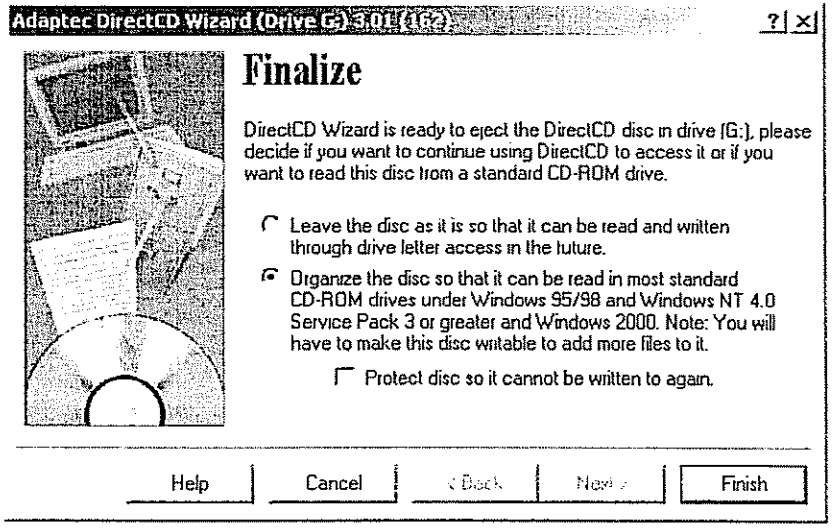
Note: 'Finalizing' your CD is the process that allows the CD disc to be read in other CD-ROM, drives.

This finalizing prompt should* appear and will give you an **important choice.** You will want to select your response based on the following two options:

Choose the first option if you plan to use the same CD to record additional proceedings later that day. Choosing this first option sets the CD to be ready to be written to again. It does not allow the CD to be read by other computers.

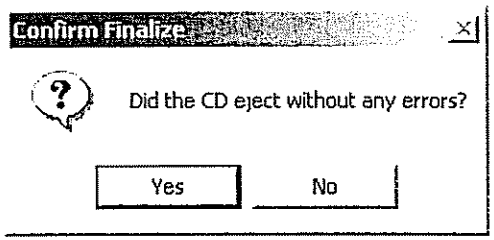
Choose the second option if you are done recording to this CD. You would normally choose this option at the end of the recording day. This will 'finalize' or put the finishing touches on the CD that will allow it to be used on any standard CD-ROM drive under Windows 95, 98, NT or 2000. *

Note: Checking the "protect disc" box at the bottom will protect the disc from ever being written to again

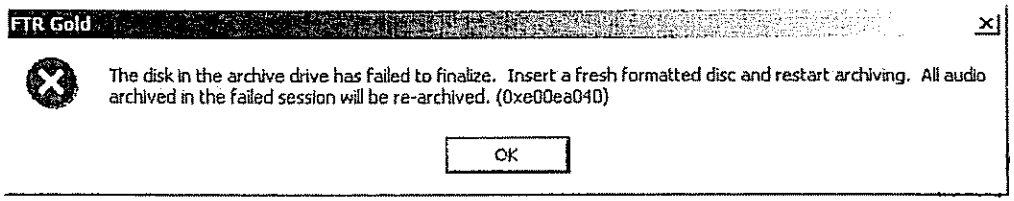


Make your choice and then select the "**Finish**" button. The CD disc will be automatically ejected upon completion.

Answer the, "Did the CD eject without any errors?" prompt. If "Yes" is answered to this prompt, FTR will know that the finalization was successful and not to archive those files again.



If "No" is answered to this prompt, FTR knows there was a problem with the finalization procedure and will ask you to insert a new disc and format it. Upon completion of formatting, press the archive button within FTR Reporter and the same audio will be written to the new disc.



The light next to the archve button will remain red while files are written to the disc. When the light turn green, finalization can be attempted again.

Congratulations!!

You have just used the **FTR Reporter** application to record and archive your court's proceedings.

Common questions and answers asked about using FTR Reporter:

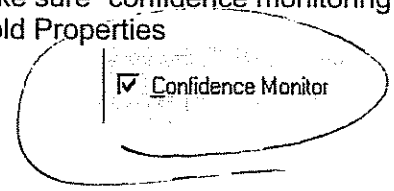
Q What is the best way to stop recording during breaks?

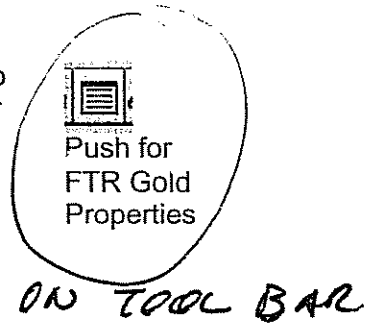
A. Stop the recording but do not stop the archiving process. To do this, follow these steps:

1. Push the Stop Recording button →→ 
2. Confirm that you wish to Stop Recording
3. Push the Start Recording button to resume

Q Q. How do I hear what is being recorded?

A. Make sure your headphone are connected to the headphone jack in the back of the computer and make sure "confidence monitoring" is on in FTR Gold Properties





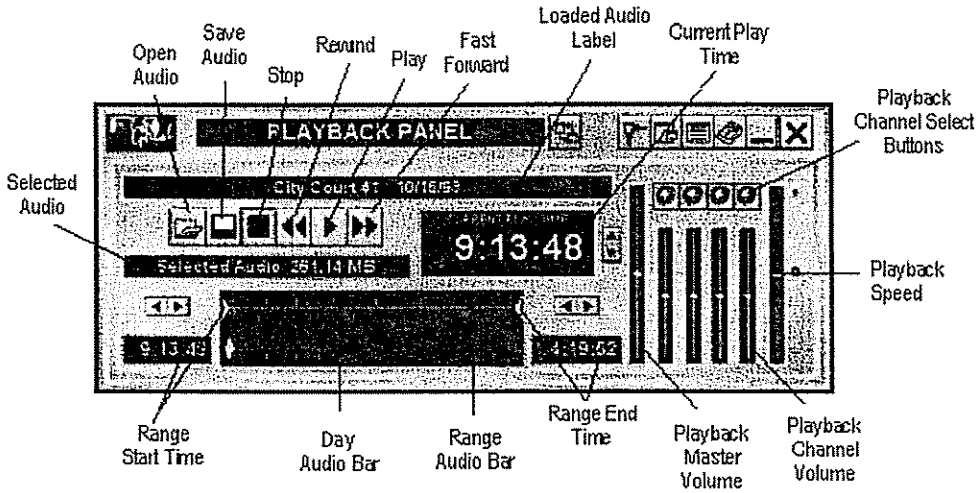
Using FTR Playback Panel

Now you have finished recording, you have files both on your hard drive and on your archive CD. FTR allows for playback using the Playback Panel. Here's how you do it.

Playback Panel Controls

When starting FTR Reporter you will see the following display. If the title bar says "RECORDING PANEL" rather than "PLAYBACK PANEL", then click on the  button to the right of the title bar.

Take a moment to become familiar with the parts of this display.



Opening an Audio Recording:

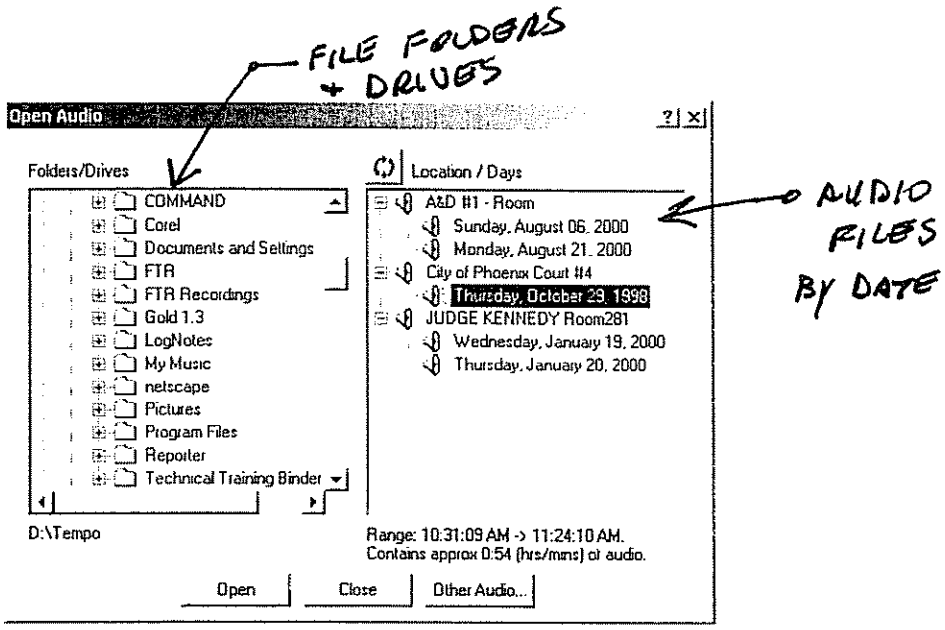
Follow these steps. In order to play an audio recording that is stored on either the hard drive or on the archive CD

Click on the yellow file folder 

The following box will appear on you screen.

Notice that on the left hand panel is used to display computer's folder and drive information while the panel on the right displays the audio files available by date.

To open a recording, simply highlight the date of your choosing and press Open



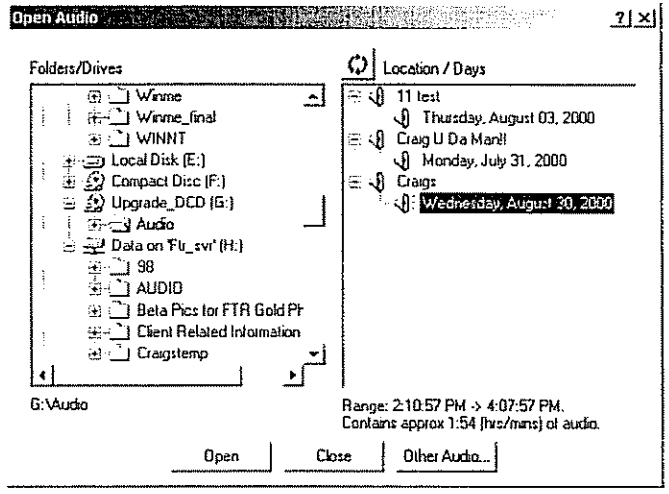
* **Important note:** FTR will always open to the folder on your hard drive that contains your most recent recordings. If the recordings you want to play are on the archive or another drive, then follow these additional steps below.

Opening Files that are on CD

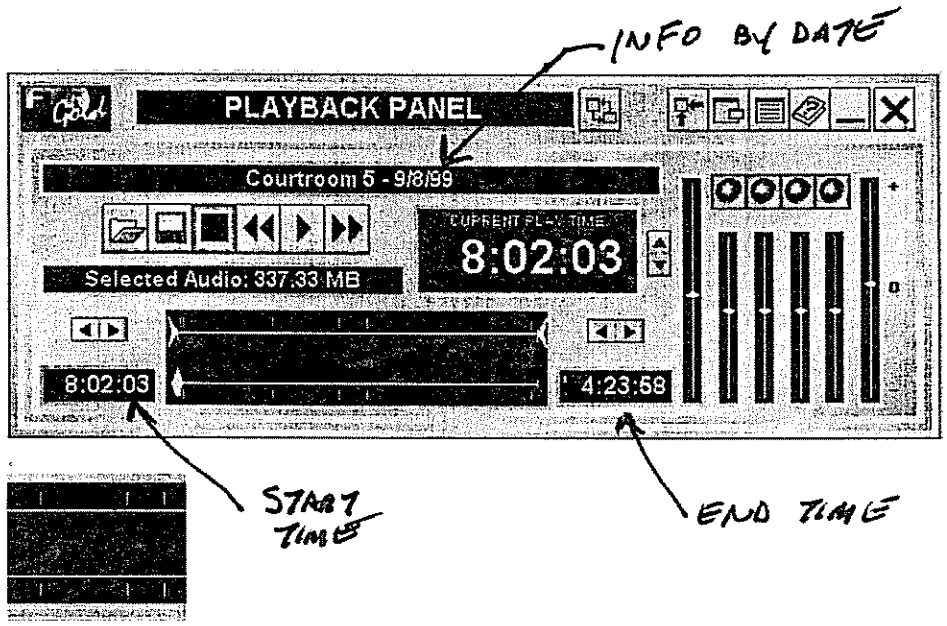
To find a recording that is on a cd-rom drive follow these additional steps;

A. Scroll to the cd-rom drive ( ) that contains the "Audio" folder
B. Click on the (+) sign to the left of the cd-rom drive. This action will reveal an "Audio" sub-folder.

C. Click on the Audio folder.
D. Click on the date of the recording you want to select in the Location/Days Panel.
E. Press Open



The "Playback Panel" will appear ready to play.



To playback, simply push the button.

To hear audio that was recorded at a specific time, simply click & hold the diamond button and "drag" it to the time point you wish to hear.

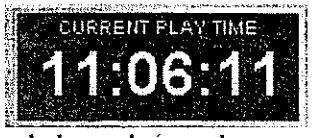
*TO SELECT PORTION

The hash marks on the range bar are indicators that the recording was stopped and then started again as in a recess or lunch break. →→

Beginning time 8:02:03

End time 4:23:58

The "Current Play Time" display indicates the exact time the currently selected was recorded.



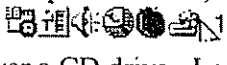
Playback Panel allows the user to turn on and off selected channels in order to provide enhanced audio isolation. To turn off the playback of a particular channel, click the button. The button will turn red. Click it again to turn the channel on again.

Important Information: "Hot Keys" are available for most FTR Reporter functions. Check the Quick Reference sheet in front of the your user manual for key listings.

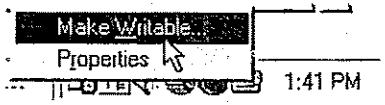
Troubleshooting

Item # 1: FTR reports No Disc in Drive, even though there is

Upon occasion a CD-R will be inserted into the CD-RW drive that is either full, closed, has not been formatted or has not been made writable again. This will be communicated by the message you see indicated on the right. The appropriate response to each contingency is listed below

1. Next to your computer's clock, right-click on the Direct CD icon. 

. It looks like a gold CD over a CD drive. Look for one of the following

2. 

If you see the "Make Writable" message, then you need to choose that option and proceed through the Make Writable Wizard.

3. 

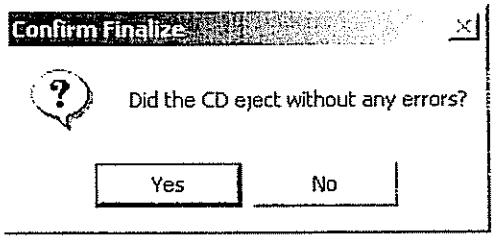
If you see the "Format" message appear, then you have not yet formatted your disc. You need to choose Format and proceed through the Format Wizard.

4. 

If you see only the Properties option listed, the CD-RW drive is empty, the CD-R is faulty, the CD is full and/or the CD has been closed from further use.

Item # 2: My CD-R is filling up to fast or I keep archiving the same recordings even though I have finalized

Both problems indicated above are due to the same key operation. FTR Reporter depends on the answer of this prompt, "Did the CD eject without any errors?" In order to mark the files as either having been archived or still needing to be archived.



Answering:
"Yes" means that the recordings have been successfully copied to the CD-R or other archive media.

"No" means that the recordings failed to be archived successfully and will need to be archived again next time a CD-R is inserted

Important Note: When a CD-R appears to fill too quickly, it is typically due to a "No" response that was given during the previous finalization session. This will result in the previous day(s) recordings being archived in addition to the current day's recordings.

STATE OF NEW MEXICO
COUNTY OF BERNALILLO
SECOND JUDICIAL DISTRICT

CAUSE NO: Case Number of FIRST CASE

JUDGE: Full Name of Judge

DATE: Current Date

John W. Doe

Petitioner

VS.

Jane W. Smith

Respondent

TYPE OF PROCEEDING: Motion / Hearing / Merits / MH / CSED

ATTORNEY FOR PLAINTIFF: Full Name or Pro Se

ATTORNEY FOR DEFENDANT: Full Name Or Pro Se

REPORTER/MONITOR: ROGER KENT PROCTOR

MACHINE ID# AND TYPE: FTR GOLD DELL

LEGEND*:Comm-Commissioner add-addresses CC-Court Clinic RO-Restraining Order
DRX/DEX - Direct Examination EOP-extended order of protection NC-Neutral Corner
CRX/XEX - Cross-Examination DV-domestic violence CS-child support payment
Pet-Petitioner Resp-Respondent P-Pet's Atty. R-Resp's Atty. TS-time share

Cass. Log #	Comments
09:28:09 AM	CRT IN SESSION AT
09:28:24 AM	**CRT CALLS (Give the full Caption / Style of Case**
	(Use two lines if needed for Caption)
09:29:15 AM	Appearances (Lawyers / Counsel of Record And / Or Parties

CONTINUATION SHEET

CAUSE NO: CASE NUMBER DATE: Current Date

Disc 1

Cass. Log #	Comments
	REMEMBER after every Obj. And every Motion you will or
	Should have a RULING by Court (Be Ready for it)
09:32:45 AM	Remarks by Court (Re: (IN RE: (Note: Summarize what is
	Being stated by Court (Use parentheses to set off subject)
09:33:53 AM	CRX by Counsel (Name) Q & A By Opposing Side
	Indent for various subjects or Issues by Counsel
	Indent to show the various subjects or issues talked about
09:34:02 AM	You Can use more Time Stamps for a long Q & A period
	Or change of Subject matter Or change of issues
09:34:55 AM	Motion by Counsel (Can use name) (Use parentheses to show
	Your summary of the Motion)
09:35:31 AM	Resp. By Counsel (Use Name) Be ready for a response by
	Opposing Counsel or perhaps the Court
09:36:08 AM	Remarks by Court (Re: Subject matter) (Summarize)
09:36:34 AM	Response by Counsel (Marking Exhibits now or later)
09:36:58 AM	Ruling (Re: Mark as you need them or as you use them)
09:37:17 AM	**Pet. Exh. #1 Marked (Re: Title to Vech. / Copy)**
09:37:57 AM	Remarks by Resp. Counsel (Use Name)

Disc 1

CONTINUATION SHEET

CAUSE NO: CASE NUMBER DATE: Current Date

Disc 1

Cass. Log #	Comments
09:38:29 AM	Pet. Calls Jane W. Doe
	(JANE W. DOE) (Sworn)
09:39:29 AM	DRX by Counsel (Background Info)
	Relationship to Resp.
09:40:05 AM	Wit. Handed **Pet. Exh. #1 (Identified by Wit.)**
09:41:29 AM	**Counsel Moves Admis of PX #1 (Title / Copy)**
09:41:53 AM	Remarks by Counsel (No Obj.)
09:42:06 AM	Ruling **(Re: Pet. Exh. #1 Admitted / Admt. / admtd.)**
09:42:45 AM	CRX by Resp. (Re: Creation of PX #1)
	Registered Vech. With MVD
09:43:28 AM	Obj. By Counsel (Re: Relevancy)
09:43:40 AM	Ruling (Overruled)
09:43:50 AM	Cont'd CRX by Resp.
	May have more testimony
09:44:36 AM	**Resp. Exhibit # A (Marked / Title Reg. To Vech)**
09:45:17 AM	Obj. By Counsel (Re: Failed to Disclose Prior to Hrng.)

Disc 1

CONTINUATION SHEET

CAUSE NO: _CASE #

DATE: Current Date

Disc 1

Cass. Log #	Comments
09:45:56 AM	Resp. by Resp. (Re: Just discovered)
09:46:28 AM	Resp by Pet. (Re: Relevancy)
09:46:44 AM	Ruling (Re: Any number of ways to Rule)
09:47:06 AM	Court Admonishes Counsel (Re: Overlapping)
	Always note in your Log any time the Crt warns any one)
	Very Important for many reasons.
09:48:12 AM	Motion by Resp. (Re: Invoke the Rule)
	Note: Counsel will advise Witness to leave the court room and
	NOT to discuss the case with ANY ONE Until called to stand)
09:49:14 AM	Ruling (Re: Rule Invoked by Counsel)
	Watch for people coming into the Hrng. Room or Court room
	You are the eyes and ears of the Court / Part of the Team to
	Help the Court Make a Good Record)
09:50:47 AM	Remarks by Court (Re Recess)
	(NOTE: always mark down the start time and end time
	On your Receipt / Ready for next Hrng.)

Disc 1

CONTINUATION SHEET

CAUSE NO: **NEW** CASE # DATE: Current Date

Disc 1

Cass. Log #	Comments
01:48:47 PM	Court in Session
01:48:54 PM	**Court calls DM 03-12345 Mary Jones Vs John Doe**
01:49:25 PM	Appearances List Names of Counsel
	List names of Parties
	Note if a party is Pro Se
01:50:04 PM	Remarks by Pet. (Marking exhibits)
01:50:46 PM	Resp. By Court
01:51:00 PM	Motion by Resp. Counsel (name) Objection and Motions to
	Continue Hrng.
	Argument by Resp. (Name) Failure to Notify
	Objection by Resp. (Re: Failure to Disclose)
01:52:41 PM	Remarks by Pet. Counsel
01:52:50 PM	Ruling (Re: Granted / Admonishes Counsel / Costs of Hrng.)
01:53:19 PM	Court in Recess

Disc 1

CONTINUATION SHEET

CAUSE NO: NEW CASE # DATE: Current Date

Disc 1

(CSED)

Cass. Log #	Comments
01:53:52 PM	Court in Session
01:53:57 PM	**Comm. Calls DM 04-09753 Molly Smith Vs**
	Michael Anthony Richardson
01:55:06 PM	Appearances by Counsel / Parties
01:55:29 PM	Remarks by Comm. (Re: Different Work sheets A / B used)
01:55:53 PM	Remarks by Pet. (Re: Worksheet A)
01:56:15 PM	Remarks by Reps. (Re: Used Worksheet for both parties / B)
01:56:36 PM	Remarks by Comm. (Re: Discussion by all)
	Counsel Overlapping each other
01:57:11 PM	Remark by Comm. (Off the Record)
01:57:26 PM	Court in Recess (Complete proper Worksheet / Tax Returns)
02:00:07 PM	Court in Session
02:00:11 PM	Remarks by Comm. (Calling Crt. Clinic On Call)
	Need for visit with parties / Report back
02:00:58 PM	Counsel Agree
02:01:02 PM	Court in Recess (Mark the times on the Receipt)
	(Receipt will indicate Start / Stop And Start / Stop)

Disc 1

CONTINUATION SHEET

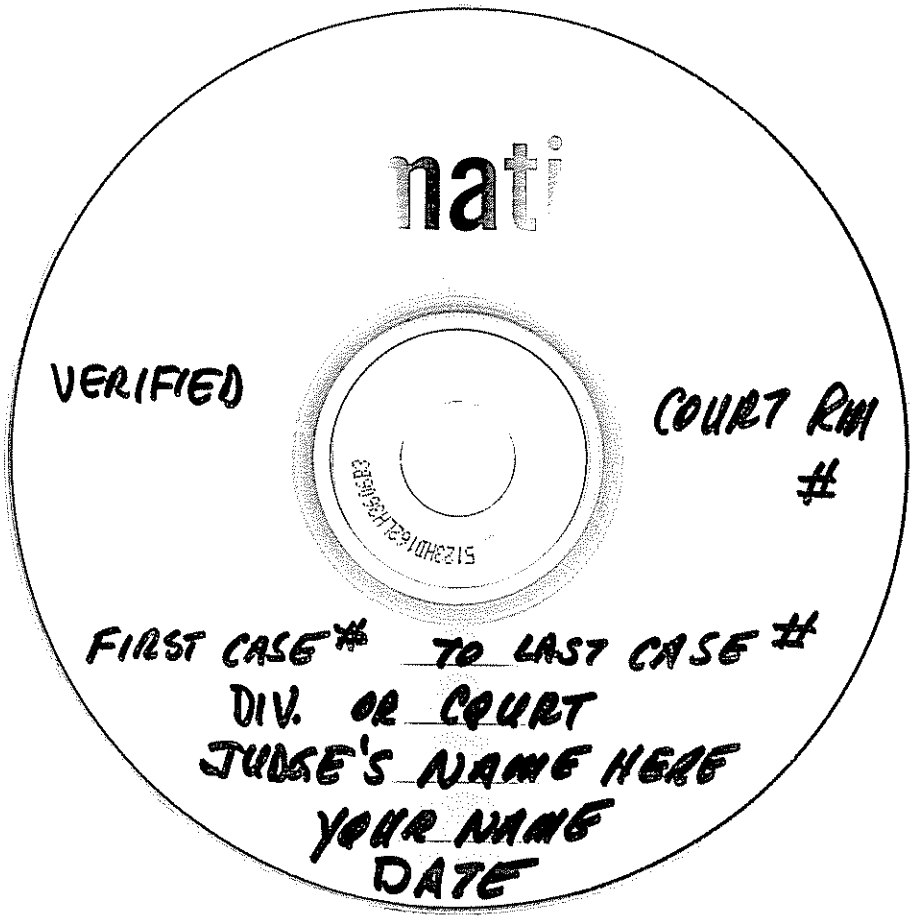
CAUSE NO: _NEW CASE #

DATE: Current Date

Disc 1

Cass Log #	Comments
02:03:21 PM	Court in session
02:03:27 PM	Comm. Calls DM 05-97543 Michael Douglas Vs. Mary Serna
02:03:58 PM	Appearances by Parties (Pro Se X 2)
02:04:29 PM	Remarks by Comm. (Report Back)
	Made last month payment to to Resp. On time
	Balance due $ 1,200.00)
02:05:18 PM	Remarks by Comm (Next date to Report Back)
02:05:40 PM	Resp. By Pet. (Re: Pay two months ahead)
02:06:03 PM	Resp. by Comm. (Re: Each Month payment)
02:06:19 PM	Court in Recess
	(ADJOURNED)
	NO FURTHER RECORD TAKEN
	Stop Recording / Spell Check / Save / Burn Log to CD
	Complete Receipt / Burn Recpt. To CD
	Close FTR Shut Down File

Disc 1


nati
VERIFIED
COURT RM
#
FIRST CASE # TO LAST CASE #
DIV. OR COURT
JUDGE'S NAME HERE
YOUR NAME
DATE

STATE OF NEW MEXICO
COUNTY OF BERNALILLO
SECOND JUDICIAL DISTRICT COURT

NO. **Case # of First Case**

Plaintiff's Name (1st Case) Petitioner

vs.

Deft's Name (1st Case) Respondent

RECEIPT FOR EXHIBITS

Received of ROGER K. PROCTOR, Official Court Monitor for Judge / Comm. _____, Division_____, the following exhibits introduced into evidence on DATE OF HRNG, in the above styled and numbered cause.

PLAINTIFF'S EXHIBITS
COUNSEL: **FILL IN**

DEFENDANT'S EXHIBITS
COUNSEL: **FILL IN**

1) Contract dated 7-15-04	A) Check # 1234
2) Contract dated 8-20-05	B) Car Keys
3)	C)
4) **DELETE EXTRA ROWS IF**	D)
5) **NOT NEEDED**	E)
6)	F)
7)	G)
8)	H)
9)	I)
10)	J)

JUANITA DURAN
CLERK OF THE DISTRICT COURT

_____
Exhibit Clerk

STATE OF NEW MEXICO
SECOND JUDICIAL DISTRICT

CASE NO: _____ JUDGE: _____ DATE: _____

(PLAINTIFF (S) (ATTORNEYS)

VS.

(DEFENDANT (S) (ATTORNEYS)

(EXHIBITS)

ITEM (PLAINTIFF)	REP	O	A	Rf	Wd	ITEM (DEFENDANT)	REP	O	A	Rf	Wd

Form # 135 W Revised 7/1/91

Page_____of_____

STATE OF NEW MEXICO
COUNTY OF BERNALILLO
SECOND JUDICIAL DISTRICT COURT

IN THE MATTER OF __DV - TRO Hrngs

HEARING DATE: 06-06-05

RECEIPT FOR DISK AND LOG

Received from ROGER KENT PROCTOR, Official Court Monitor for Comm. Reed Sheppard,

-1- Original Disk, and -1- log(s) consisting of -15- pages, stored on CD.

CASE NO.	STYLE/CAPTION	TIME STARTED	TIME FINISHED
DV 05-12345	John Doe vs. Mary Smith SEQUESTERED Hrng	09:00:00 am 09:35:00am	09:30:50am 09:45:00am
DV 04-04321	Ron Jones vs. Jane Doe SEALED HRNG	09:50:00am 10:20:00am	10:15:00am 10:35:00am

THIS DISK HAS BEEN VISUALLY INSPECTED BY: _____ AT THE TIME OF FILING AND IS FREE OF ANY AND ALL PHYSICAL DEFECTS.

JUANITA DURAN
Clerk of the District Court

By: _____
DEPUTY

CONTINUATION SHEET

CAUSE NO: DM 2005-01234 DATE: 06-06-05

Disc 1

Cass. Log #	Comments
09:30:00am	Court in Recess
09:45:00am	Court in Session
09:45:50am	Remarks by Court (In Camera Hearing)
	(THE FOLLOWING MATTERS ARE SEALED)
09:46:00AM	Court Calls Robbie Jones / Daughter of Resp.
09:46:55am	Robbie Jones Sworn
	ROBBIE JONES **(10 Years Old)**
09:48:00am	Examination by Court
09:55:00am	Witness excused from Open Court
	(THE FOLLOWING MATTERS HELD IN OPEN COURT)

Disc 1

Computer Workstations

eTool Home
Good Working Positions
Workstation Components
Checklist
Work Process
Workstation Environment

Millions of people work with computers every day. This eTool* illustrates simple, inexpensive principles that will help you create a safe and comfortable computer workstation. There is no single "correct" posture or arrangement of components that will fit everyone. However, there are basic design goals, some of which are shown in the accompanying figure, to consider when setting up a computer workstation or performing computer-related tasks.

Consider your workstation as you read through each section and see if you can identify areas for improvement in posture, component placement, or work environment. This eTool provides suggestions to minimize or eliminate identified problems, and allows you to create your own "custom-fit" computer workstation.

Use a Checklist!

Use the evaluation checklist to analyze existing workstations. Use the purchasing guide checklist to evaluate new purchases.

Quick Tips

Look for quick tip boxes to provide basic solutions for common hazards. A more in-depth look at computer workstation hazards and solutions can be found further down the page of each section.

**eTools are web-based products that provide guidance information for developing a comprehensive safety and health program. They include recommendations for good industry practice that often go beyond specific OSHA mandates. As indicated in the disclaimer, eTools do not create new OSHA requirements. Public Test Version for comments through May 2004.*

Computer Workstations

eTool Home
Good Working Positions
Workstation Components
Checklist
Work Process
Workstation Environment

Good Working Positions

To understand the best way to set up a computer workstation, it is helpful to understand the concept of neutral body positioning. This is a comfortable working posture in which your joints are naturally aligned. Working with the body in a neutral position reduces stress and strain on the muscles, tendons, and skeletal system and reduces your risk of developing a musculoskeletal disorder (MSD). The following are important considerations when attempting to maintain neutral body postures while working at the computer workstation:

- **Hands**, **wrists**, and **forearms** are straight, in-line and roughly parallel to the floor.
- **Head** is level, or bent slightly forward, forward facing, and balanced. Generally it is in-line with the **torso**.
- **Shoulders** are relaxed and **upper arms** hang normally at the side of the body.
- **Elbows** stay in close to the body and are bent between 90 and 120 degrees.
- **Feet** are fully supported by floor or footrest.
- **Back** is fully supported with appropriate lumbar support when sitting vertical or leaning back slightly.
- **Thighs** and **hips** are supported by a well-padded seat and generally parallel to the floor.
- **Knees** are about the same height as the hips with the **feet** slightly forward.

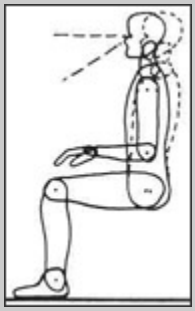
Regardless of how good your working posture is, working in the same posture or sitting still for prolonged periods is not healthy. You should change your working position frequently throughout the day in the following ways:

- Make small adjustments to your chair or backrest.
- Stretch your fingers, hands, arms, and torso.
- Stand up and walk around for a few minutes periodically.

These four **reference postures** are examples of body posture changes that all provide neutral positioning for the body.

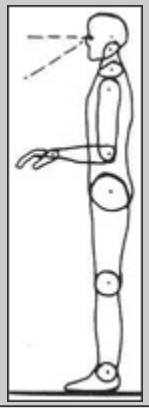
Upright Sitting

Upright sitting posture. The user's torso and neck are approximately vertical and in-line, the thighs are approximately horizontal, and the lower legs are vertical.



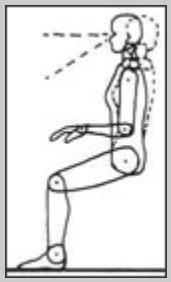
Standing

Standing posture. The user's legs, torso, neck, and head are approximately in-line and vertical. The user may also elevate one foot on a rest while in this posture.



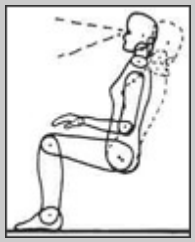
Declined Sitting

Declined sitting posture. The user's thighs are inclined with the buttocks higher than the knee and the angle between the thighs and the torso is greater than 90 degrees. The torso is vertical or slightly reclined and the legs are vertical.



Reclined Sitting

Reclined sitting posture. The user's torso and neck are straight and recline between 105 and 120 degrees from the thighs.



Computer Workstations

Selecting and arranging your workstation components

Appropriate placement of the components and accessories for the desktop computer workstation will allow you to work in neutral body positions, help you perform more efficiently, and work more comfortably and safe.

A laptop workstation creates special challenges due to its computer design, size, and the variety of areas in which it is used. While many aspects of this eTool will be applicable to laptops, special considerations may be necessary when working with laptop units.

The following sections explain how to select and arrange specific workstation components.


Monitors


Keyboards

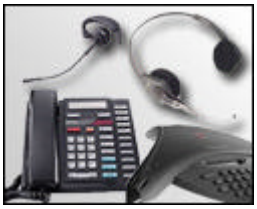

Pointer/Mouse


Wrist/Palm Supports


Document Holders


Desks


Chairs


Telephones

Computer Workstations

eTool Home
Good Working Positions
Workstation Components
Checklist
Work Process
Workstation Environment

Monitors

Choosing a suitable monitor and placing it in an appropriate position helps reduce exposure to forceful exertions, awkward postures, and overhead glare. This helps prevent possible health effects such as excessive fatigue, eye strain, and neck and back pain.

Consider the following issues to help improve your computer workstation:

- Viewing distance
- Viewing angle (height and side-to-side)
- Viewing time
- Viewing clarity

You should choose a monitor and consider its placement in conjunction with other components of the computer workstation, including the keyboard, desk, and chair.

Monitor Quick Tips

- Put monitor directly in front of you and at least 20 inches away.
- Place monitor so top line of screen is at or below eye level.
- Place monitor perpendicular to window.

Viewing Distance

TOP

Potential Hazards

- Monitors placed too close or too far away may cause you to assume awkward body positions that can lead to eyestrain.
  - Viewing distances that are **too long** can cause you to lean forward and strain to see small text. This can fatigue the eyes and place stress on the torso because the backrest is no longer providing support.
  - Viewing distances that are **too short** may cause your eyes to work harder to focus (convergence problems) and may require you to sit in awkward postures. For instance, you may tilt your head backward or push your chair away from the screen, causing you to type with outstretched arms.

Possible Solutions

Figure 1
Preferred viewing distance is 20 to 40 inches

- Sit at a comfortable distance from the monitor where you can easily read all text with your head and torso in an upright posture and your back supported by your chair. Generally, the preferred viewing distance is between 20 and 40 inches (50 and 100 cm) from the eye to the front surface of the computer screen (Figure 1). **Note:** text size may need to be increased smaller monitors.

- Provide adequate desk space between the user and the monitor (table depth). If there is not enough desk space, consider doing the following:

  - Make more room for the back of the monitor by pulling the desk away from the wall or divider; or

  - Provide a flat-panel display, which is not as deep as a conventional monitor and requires less desk space (Figure 2); or

Figure 2
Flat-panel displays take up less room than conventional monitors

  - Move back and install an adjustable keyboard tray to create a deeper working surface.

Viewing Angle–Height and Side-to-Side

Potential Hazard

- Working with your head and neck turned to the side for a prolonged period loads neck muscles unevenly and increases fatigue and pain.

Figure 3
Place monitors directly in front of the user

Possible Solutions

- Position your computer monitor directly in front of you (Figure 3), so your head, neck and torso face forward when viewing the screen. Monitors should not be farther than 35 degrees to the left or right.

- If you work primarily from printed material, place the monitor slightly to the side and keep the printed material directly in front. Keep printed materials and monitors as close as possible to each other.

Potential Hazard

Figure 4
Display screen is too high

- A display screen that is too high (Figure 4) or low will cause you to work with your head, neck, shoulders, and even your back in awkward postures. When the monitor is too high, for example, you have to work with your head and neck tilted back. Working in these awkward postures for a prolonged period fatigues the muscles that support the head.

Possible Solutions

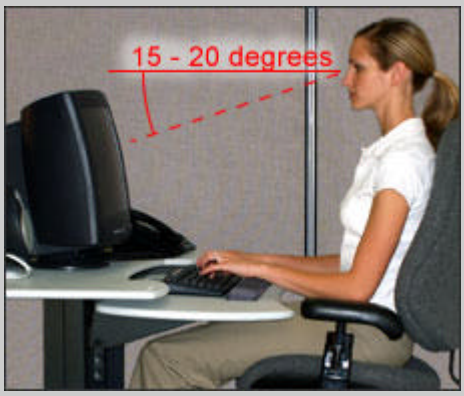


Figure 5
Comfortable viewing angle

- The top of the monitor should be at or slightly below eye level. The center of the computer monitor should normally be located 15 to 20 degrees below horizontal eye level (Figure 5).

- The entire visual area of the display screen should be located so the downward viewing angle is never greater than 60 degrees when you are in any of the four reference postures. In the reclining posture the straight forward line of sight will not be parallel with the floor, which may increase the downward viewing angle. Using very large monitors also may increase the angle.

- Remove some or all of the equipment (CPU, surge protector, etc.) on which the monitor may be placed. Generally, placing the monitor on top of the CPU will raise it too high for all but the tallest users.

- Elevate your line of site by raising your chair. Be sure that you have adequate space for your thighs under the desk and that your feet are supported.

Potential Hazard

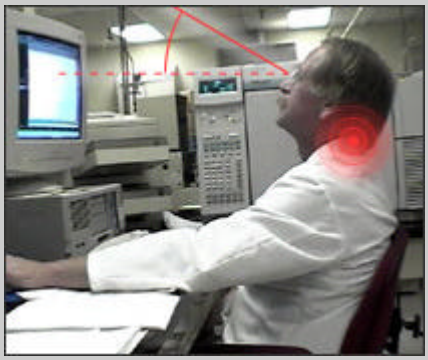


Figure 6
Stresses because of bifocal lenses

- Bifocal users typically view the monitor through the bottom portion of their lenses. This causes them to tilt the head backward to see a monitor that may otherwise be appropriately placed. As with a monitor that is too high, this can fatigue muscles that support the head.

Possible Solutions

- Lower the monitor (below recommendations for non-bifocal users) so you can maintain appropriate neck postures. You may need to tilt the monitor screen up toward you.

- Raise the chair height until you can view the monitor without tilting your head back. You may have to raise the keyboard and use a foot rest.

- Use a pair of single-vision lenses with a focal length designed for computer work. This will eliminate the need to look through the bottom portion of the lens.

Viewing Time

TOP

Potential Hazard

- Viewing the monitor for long periods of time can cause eye fatigue and dryness. Users often blink less while viewing the monitor.

Possible Solutions

- Rest your eyes periodically by focusing on objects that are farther away (for example, a clock on a wall 20 feet away).
- Stop, look away, and blink at regular intervals to moisten the eyes.
- Alternate duties with other non-computer tasks such as filing, phone work, or customer interaction to provide periods of rest for the eyes.

Viewing Clarity

TOP

Potential Hazard

- Monitors that are tilted significantly either toward or away from the operator may distort objects on the screen, making them difficult to read. Also, when the monitor is tilted back, overhead lights may create glare on the screen. This can result in eyestrain and sitting in awkward postures to avoid eye glare.

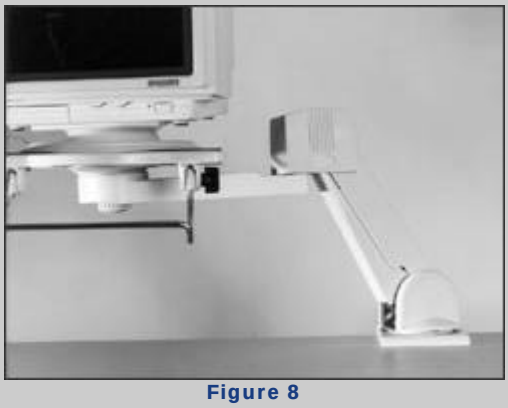


Figure 8
A monitor support that adjusts the height and angle of the monitor

Possible Solutions

- Tilt the monitor so it is perpendicular to your line of sight, usually by tilting the screen no more than 10 to 20 degrees. This is most easily done if the monitor has a riser/swivel stand. A temporary solution involves tilting the monitor back slightly by placing a book under the front edge. **Note:** Tilting the monitor back may create glare on the screen from ceiling lighting and a glare screen may be needed.
- Monitor support surfaces should allow the user to modify viewing distances and tilt and rotation angles.

Potential Hazards

- Factors that reduce image quality make viewing more difficult and may lead to eye strain. These factors include
  - electromagnetic fields caused by other electrical equipment located near computer workstations, which can result in display quality distortions; and
  - dust accumulation, which is accelerated by magnetic fields associated with computer monitors and can reduce contrast and degrade viewing conditions.

Possible Solutions

- Computer workstations should be isolated from other equipment that may have electrostatic potentials in excess of +/- 500 volts.
- Computer monitors should be periodically cleaned and dusted.

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Keyboards

Proper selection and arrangement of the computer keyboard helps reduce exposure to awkward postures, repetition, and contact stress.

Consider the following factors when evaluating your computer workstation.

- Keyboard Placement - Height
- Keyboard Placement - Distance
- Design and Use

You should choose a keyboard and consider its placement in conjunction with other components of the computer workstation, including the pointer/mouse and wrist/palm rests.

Keyboard Quick Tips

- Put the keyboard directly in front of you.
- Your shoulders should be relaxed and your elbows close to your body.
- Your wrists should be straight and in-line with your forearms.

Keyboard Placement – Height

TOP

Potential Hazard

- Keyboards, pointing devices, or working surfaces that are too high or too low can lead to awkward wrist, arm, and shoulder postures. For example, when keyboards are too low you may type with your wrists bent up, and when keyboards are too high, you may need to raise your shoulders to elevate your arms. Performing keying tasks in awkward postures such as these can result in hand, wrist, and shoulder discomfort.

Possible Solutions

- Adjust the chair height and work surface height to maintain a neutral body posture. Elbows should be about the same height as

the keyboard and hang comfortably to the side of the body. Shoulders should be relaxed, and wrists should not bend up or down or to either side during keyboard use.

- Remove central pencil drawers from traditional desks if you can't raise your chair high enough because of contact between the drawer and the top of the thighs. The work surface should generally be no more than 2 inches thick.

- A keyboard tray (Figure 1) may be needed if the work surface or chair cannot be properly adjusted. The keyboard tray should

  - Be adjustable in height and tilt,

  - Provide adequate leg and foot clearance, and

  - Have adequate space for multiple input devices (for example, a keyboard and pointer/mouse).

- The keyboard's vertical position should be maintained within the recommended range shown in Figure 2. The tilt of the keyboard may need to be raised or lowered using the keyboard feet to maintain straight, neutral wrist postures while accommodating changes in arm angles.

Figure 1
Keyboard tray

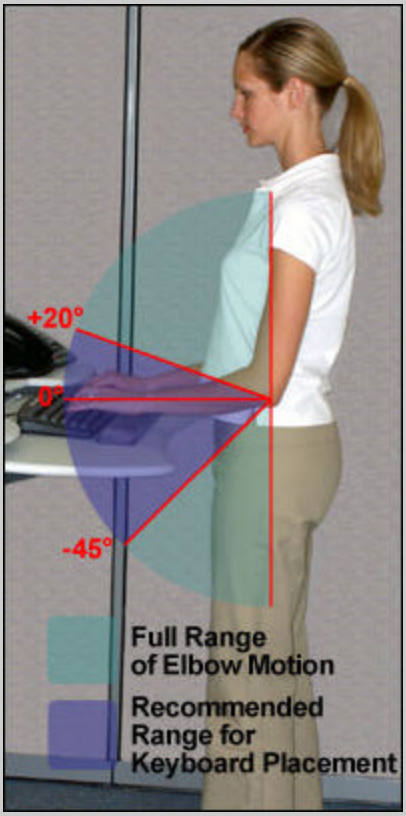

Figure 2
Side view illustration showing the recommended range for keyboard placement

Keyboard Placement – Distance

Potential Hazard

- A keyboard or pointer/mouse that is too close or too far away may cause you to assume awkward postures such as reaching with the arms, leaning forward with the torso (Figure 3), and extreme elbow angles (Figure 4). These awkward postures may lead to musculoskeletal disorders of the elbows, shoulders, hands, and wrists.

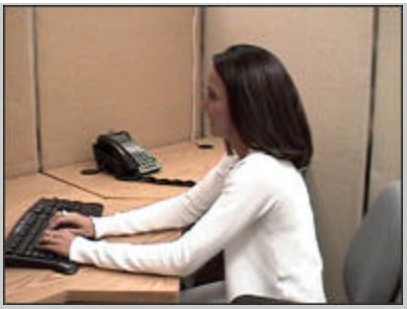

Figure 3
Keyboard that is too far away

Figure 4
Keyboard that is too close

Possible Solutions

- Place the keyboard directly in front of you at a distance that allows your elbows to stay close to your body with your forearms approximately parallel with the floor.
- A keyboard tray may be useful if you have limited desk space or if your chair has armrests that interfere with adequate positioning.

Design and Use

TOP

Potential Hazard

- A traditional keyboard may cause you to bend your wrists sideways (Figure 5) to reach all the keys. Keyboard tilt, caused by extending the legs on the back of the keyboard or by a steep design angle, may cause the wrist to bend upward (Figure 6). Smaller keyboards, such as those found on laptops, may also contribute to stressful postures. These awkward wrist postures can create contact stress to the tendon sheath and tendons that must move within the wrist during repetitive keying.

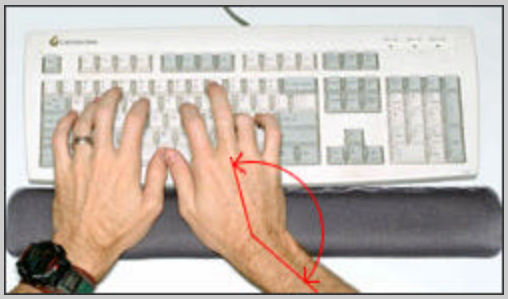

Figure 5
Side bending of the wrist

Figure 6
Upward bending of the wrist

Possible Solutions

- Reduce awkward wrist angles by lowering or raising the keyboard or chair to achieve a neutral wrist posture.
- Elevate the back or front of keyboards to achieve a neutral wrist posture. For example, if the operator sits lower in relation to the keyboard, slightly elevating the back of the keyboard may help maintain a neutral wrist. Similarly, raising the front of the keyboard may help maintain neutral wrist postures for users who type with the keyboard in a lower position. Do not use keyboard feet if they increase bending of the wrist.

- Consider alternative keyboards (Figures 8 and 9) to promote neutral wrist postures. Alternative keyboards may be provided on a case-by-case basis. Users may need time to become accustomed to these devices. **Note:** alternative keyboards help maintain neutral wrist postures, but available research does not provide conclusive evidence that using these keyboards prevents discomfort and injury.

- Keyboards should be of appropriate size and key-spacing to accommodate most users. Generally, the horizontal spacing between the centers of two keys should be 0.71-0.75 inches (18-19 mm) and the vertical spacing should be between 0.71-0.82 inches (18-21 mm) (Figure 7).

Figure 7
Keyboard spacing

Figure 8
Split keyboard design

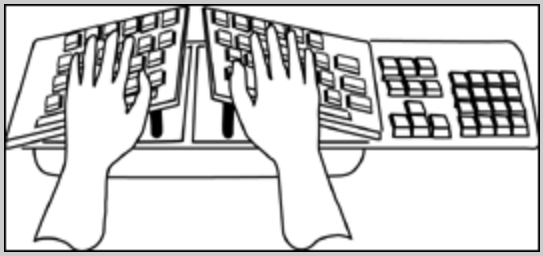

Figure 9
Tented and raised keyboard design

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Pointer / Mouse

Pointing devices such as a mouse now come in many sizes, shapes, and configurations. In addition to the conventional mouse, there are trackballs, touch pads, finger tip joysticks, and pucks, to name a few. Selection and placement of a pointer/mouse is an important factor in creating a safe computer workstation.

Consider the following factors when evaluating your computer workstation.

- Pointer Placement
- Pointer Size, Shape, and Settings

Pointer / Mouse Quick Tips

- Keep the pointer/mouse close to the keyboard.
- Alternate hands with which you operate the pointer/mouse.
- Use keyboard short cuts to reduce extended use.

Pointer Placement

TOP

Potential Hazard

- If the pointer/mouse is not near the keyboard (Figure 1) you may be exposed to awkward postures, contact stress, or forceful hand exertions while using the device. Working in this position (Figure 2) for prolonged periods places stress on the shoulder and arm and increases the likelihood that you will assume awkward wrist and shoulder postures, which may lead to musculoskeletal disorders.

Figure 1
Mouse placement that is too far away because of a small keyboard tray

Figure 2
Mouse placed too far from the user and not in the same plane as the keyboard

Possible Solutions

- Position the pointer/mouse to allow you to maintain a straight, neutral wrist posture. This may involve adjustments in your chair, desk, keyboard tray, etc.
- If the keyboard tray/surface is not large enough to accommodate both the keyboard and mouse, try one of the following to limit reaching:
  - Use a mouse platform positioned over the keyboard. This design allows the mouse to be used above the 10-key pad.
  - Install a mouse tray next to the keyboard tray (Figure 4).
- Use a keyboard that has a pointing device, such as a touchpad, incorporated into it (Figure 5).
- Use a keyboard without a ten-key pad, which leaves more room for the pointer/mouse.
- Install keyboard trays that are large enough to hold both the keyboard and mouse.
- Use a mouse pad with a wrist/palm rest to promote neutral wrist posture (Figure 6).
- Substitute keystrokes for mousing tasks, such as Ctrl+S to save, and Ctrl+P to print.

Figure 3
Appropriate mouse placement

Figure 4
Mouse platform

Figure 5
Keyboard with a built-in touchpad

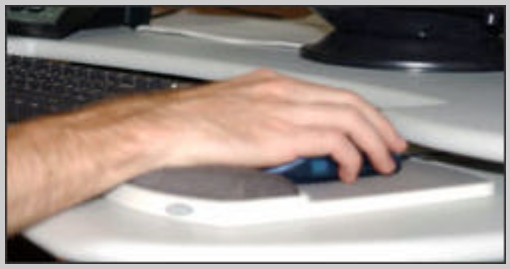

Figure 6
Mouse wrist rest

Pointer Size, Shape, and Settings

Potential Hazard

- Inappropriate size and shape of pointers can increase stress, cause awkward postures, and lead to overexertion. For example, using a pointing device that is too big or too small may cause you to increase finger force and bend your wrist into awkward positions. Using the left hand to operate a device that is designed for right-hand use can also create force and postures issues and may create contact stress to the soft tissue areas in the palm of the hand. Contact stress can create irritation and inflammation.

Possible Solutions

- Select a pointing device designed to fit the hand that will normally operate it. Many devices are available in right hand/left hand models and also come in sizes to fit large and small hands. A device that is designed for either hand use may be desirable, since changing from right- to left-hand operation provides periods of rest for one hand. You should test a device prior to purchase and long term use to ensure proper fit and feel.

Figure 7
Puck device

- Select pointing devices that are appropriately sized and that require minimal force to generate movement. For example, a puck device (Figure 7) must be small enough for single-handed operation (generally, 1.5 to 2.5 inches wide, 2.5 to 4.5 inches long, and 1 to 1.5 inches high).

Figure 8
Fingertip joystick for a notebook computer

- Reduce the strain on hands by reducing pointing device use. Using keyboard functions, such as page down, may reduce mouse use and provide rest for hand and arm muscles.

- Use another type of device that fits the hand better or doesn't require bending the wrist while gripping. A fingertip joystick (Figure 8), touchpad, or trackball (Figure 9) may be less fatiguing for certain tasks. Always try out any new product prior to selection and long term use.

Potential Hazard

- When the sensitivity for the input device is not appropriately set, you may

need to use excessive force and awkward hand postures to control the device. For example, a mouse that is too sensitive may require excessive and prolonged finger force to provide adequate control. A mouse that has insufficient sensitivity may require large deviation of the wrist to move the pointer around the screen. Exerting prolonged force or repeatedly bending the wrist can fatigue the muscles of the hand and arm and increase the risk of musculoskeletal injuries.

Possible Solutions

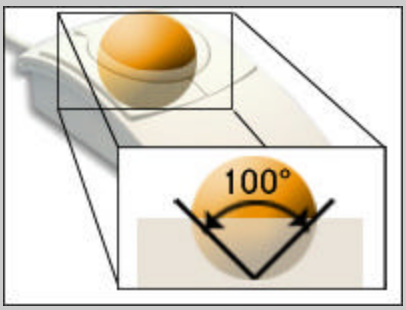

Figure 9
Trackball device

- Sensitivity and speed (how fast the pointer moves on the screen when the pointing device is moved by the hand) should feel comfortable and be adjustable. The pointer should be able to cover the full screen while the wrist is maintained in a straight, neutral posture.
- Sensitivity should be set so you can control the pointing device with a light touch. Most current devices have sensitivity settings that can be adjusted through the computer control panel.
- Avoid tightly gripping the mouse or pointing device to maintain control.
- A trackball's exposed surface area should be at least 100 degrees (Figure 9). It should feel comfortable and rotate in all directions to generate any combination of movement.

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Wrist/Palm Supports

Proper arrangement of the keyboard and mouse help create a comfortable and productive workstation. Wrist or palm rests can also increase your comfort.

Although opinions vary regarding the use of wrist/palm supports, proper use has been shown to reduce muscle activity and to facilitate neutral wrist angles.

- Design and Use

Wrist Rest Quick Tips

- Use a wrist rest to maintain straight wrist postures and to minimize contact stress during typing and mousing tasks.

Design and Use

TOP

Potential Hazards

- Performing keying tasks without a wrist rest may increase the angle to which users' wrists are bent (Figure 1). Increasing the angle of bend increases the contact stress and irritation on tendons and tendon sheathes. This is especially true with high repetition or prolonged keying tasks. Keying without a wrist rest can also increase contact stress between the users wrist and hard or sharp workstation components.

Figure 1
Bending the wrist upward.

- Resting the wrist/palm on a support while typing may inhibit motion of the wrist and could increase awkward wrist posture.

Possible Solutions

- Your hands should move freely

and be elevated above the wrist/palm rest while typing. When resting, the pad should contact the **heel or palm** of your hand, not your **wrist**.

Figure 2
Wrist/palm rests encourage neutral wrist postures.

- If used, wrist/palm rests should be part of an ergonomically-coordinated computer workstation.

- Reduce bending of the wrists by adjusting other workstation components (chair, desk, keyboard) so the wrist can maintain an in-line, neutral posture.

- Match the wrist support to the width, height, and slope of the front edge of the keyboard (keeping in mind that the goal is to keep wrist postures as straight as possible).

- Provide wrist/palm supports that are fairly soft and rounded to minimize pressure on the wrist. The support should be at least 1.5 inches (3.8 cm) deep.

Figure 3
Diagram of wrist support.

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Document Holders

Document holders keep printed materials needed during computer tasks close to the user and the monitor. Proper positioning of document holders depends on the task performed and the type of document being used. Appropriate placement of the holder may reduce or eliminate risk factors such as awkward head and neck postures, fatigue, headaches, and eye strain.

- Source Document Position

The position of the document holder is also related to the placement of the monitor, keyboard, and a well-adjusted chair.

Document Holder Quick Tips

- Documents should be at the same height and distance as the monitor.

Source Document Position

Potential Hazard

- Documents positioned too far from the monitor may require awkward head postures or frequent movements of the head and neck to look from the monitor to a document. Those awkward postures can lead to muscle fatigue and discomfort of the head, neck, and shoulders.

Possible Solutions

- Document holders should
  - Allow you to place documents at or about the same height and distance as the monitor screen (Figure 1), and
  - Be stable when loaded with heavier documents such as a textbook (Figure 2).

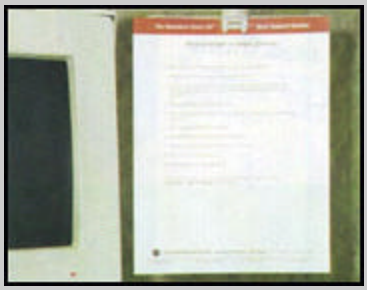

Figure 1
Screen and document holder are close together and same distance from the eye

- A document holder can be positioned directly beneath the monitor (Figure 2). This provides a sturdy writing surface, if written entries are necessary, and reduces frequent movement of the head, neck, or back.
- Task lighting on the document should not cause glare on the monitor.

Figure 2
Example of in-line document holder

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Desks

A well-designed and appropriately-adjusted desk will provide adequate clearance for your legs, allow proper placement of computer components and accessories, and minimize awkward postures and exertions. The installation, setup, and configuration of comfortable and productive workstations involves the following considerations:

- Desk or work surface areas
- Areas under the desk or work surface

Desk Quick Tips

- Desk surface should allow you to place the monitor directly in front of you, at least 20 inches away.
- Avoid storing items, such as a CPU, under desks.
- Desks should be able to accommodate a variety of working postures.

Desk or Work Surface Areas

Potential Hazards

- Limited space on the work surface may cause users to place components and devices in undesirable positions. This placement may lead to awkward postures as you reach for a pointer/mouse or look at a monitor that is placed to the side.

Figure 1
Poor mouse and keyboard placement because of desktop clutter

Possible Solutions

- Work surface depth should allow you to:
  - View the monitor at a distance of **at least** 20 inches (50 cm), and
  - Position the monitor to achieve the appropriate viewing angle, which is generally directly in front of you.
- The location of frequently-used devices (keyboard, phone, and mouse) should remain within the repetitive access (primary work zone) (Figure 2).

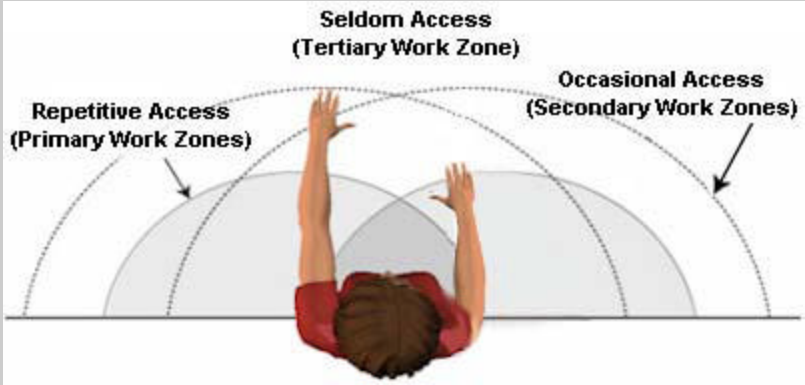


Figure 2
Recommended zones for workplace components

Potential Hazard

- Some desks and computer equipment have hard, angled leading edges that come in contact with a user's arm or wrist (Figure 3). This can create contact stress, affecting nerves and blood vessels, possibly causing tingling and sore fingers.

Possible Solutions

To minimize contact stress,

- Pad table edges with inexpensive materials such as pipe insulation,
- Use a wrist rest, and
- Buy furniture with rounded desktop edges.

Figure 3
Contact stress from the table edge

Areas Under the Desk or Work Surface

TOP

Potential Hazard

- Inadequate clearance under the work surface may result in discomfort and performance inefficiencies, such as the following:
  - Shoulder, back, and neck pain due to users sitting too far away from computer components, causing them to reach to perform computer

tasks; and

- Generalized fatigue, circulation restrictions, and contact stress due to constriction of movement and inability to frequently change postures.

Possible Solutions

- Provide, to the extent possible, adequate clearance space for users to frequently change working postures (see recommended dimensions). This space should remain free of items such as files, CPUs, books, and storage (Figure 4).

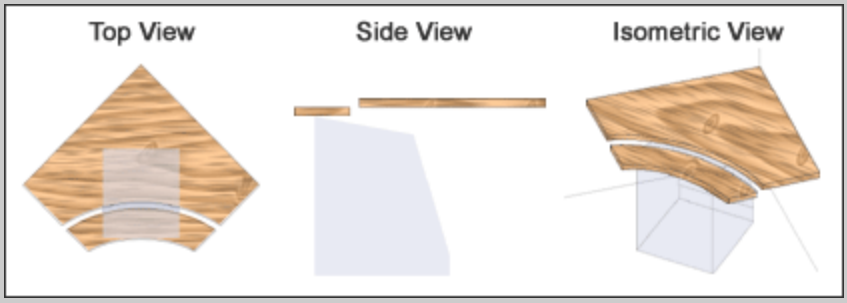


Figure 4
Diagram of clearance area under a work surface

- Be sure clearance spaces under all working surfaces accommodates at least two of the three seated reference working postures, one of which must be the upright seated posture.

Potential Hazard

- Desk surfaces that are too high or too low may lead to awkward postures, such as extended arms to reach the keyboard, and raised shoulders.

Possible Solutions

- Raise work surfaces by inserting stable risers such as boards or concrete blocks under the desk legs if necessary.
- Remove center drawers of conventional desks to create additional thigh clearance if necessary.
- Lower work surfaces by cutting off desk legs if necessary. If the work surface cannot be lowered, raise the chair to accommodate the user. If needed, provide a footrest to support the user's feet (Figure 5).

Figure 5
Footrest

- Provide height-adjustable desks. Desk should generally be between 20-28 inches (50-72 cm) high.

Work Space

The clearance space under the work surface should provide adequate room for the users legs when in the upright seated posture and at least one other of the seated reference postures. This can be accomplished by using Method 1 or Method 2.

Method 1 - Upright and Reclined Seated Postures

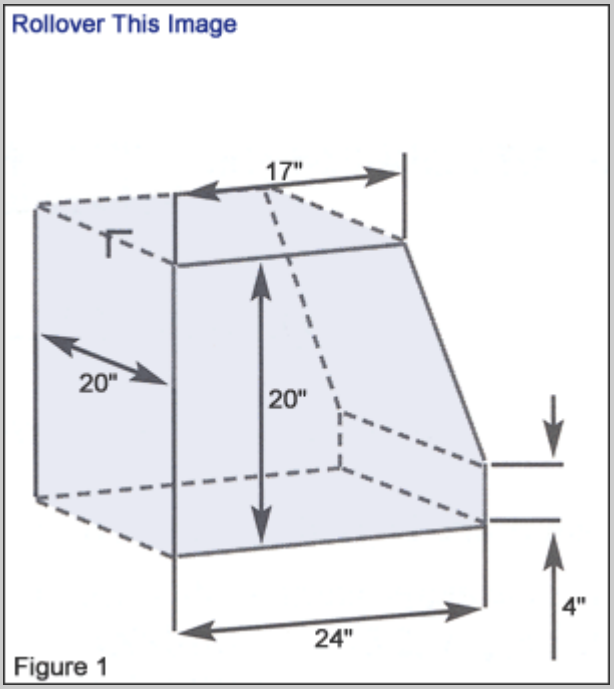
The following dimensions represent clearances that accommodate the majority of users (5th percentile female to 95th percentile male) when in a seated posture where the top of the legs are about parallel with the floor.

Minimum dimensions (Figure 1)

- 20 inches (52 cm) wide.
- 17 inches (44 cm) deep at knee level.
- 24 inches (60 cm) deep at foot level.
- 4 inches (10 cm) high at the foot.

Variable dimensions ("rollover" the image)

- Height is adjustable between 20 and 27 inches (50 and 69 cm) near the user. (Figs. 1 and 2)



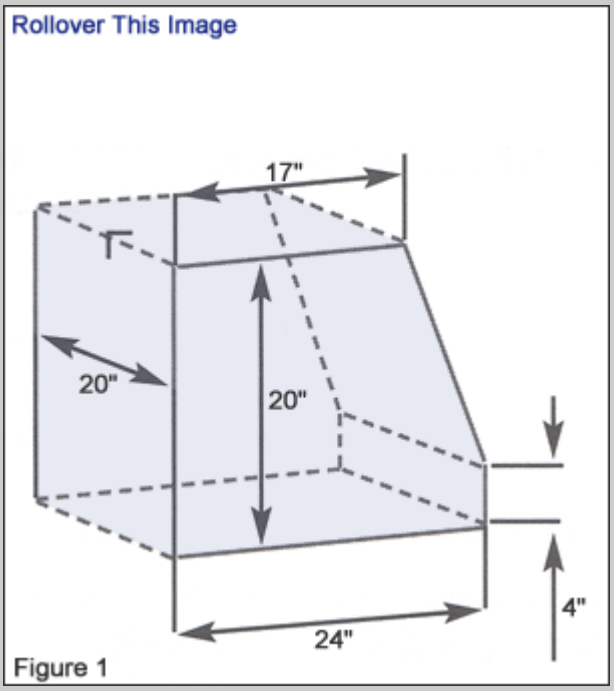
Figures 1 & 2
Minimum Clearance Areas

Method 2 - Upright, Reclined, and Declined Seated Postures

The following dimensions accommodate the largest operator clearance spaces (5th percentile female to 95th percentile male). Thus, specifications conforming with Method 2 will meet Method 1 requirements. This method also includes postures where the knee is slightly lower than the buttocks (declined-seated).

Minimum dimensions (see above)
Variable dimensions ("rollover" the images)

- Adjustable between 20 and 28 inches (50 and 72 cm) high at the hip. (Figs. 1 and 3)
- Adjustable between 20 and 25 inches (50 and 64 cm) high near the user's knee. (Figs. 1 and 3)



Figures 1 & 3
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Chairs

A chair that is well-designed and appropriately adjusted is an essential element of a safe and productive computer workstation. A good chair provides necessary support to the back, legs, buttocks, and arms, while reducing exposures to awkward postures, contact stress, and forceful exertions.

Increased adjustability ensures a better fit for the user, provides adequate support in a variety of sitting postures, and allows variability of sitting positions throughout the workday. This is particularly important if the chair has multiple users.

To ensure that the chair will provide adequate support, it is important that you try out different chairs before purchasing one.

The following parts of the chair are important elements to consider in creating a safe and productive workstation:

- Backrest
- Seat
- Armrest
- Base

Chair Quick Tips

- The backrest should conform to the natural curvature of your spine, and provide adequate lumbar support.
- The seat should be comfortable and allow your feet to rest flat on the floor or footrest.
- Armrests, if provided, should be soft, allow your shoulders to relax and your elbows to stay close to your body.
- The chair should have a five-leg base with casters that allow easy movement along the floor.

You should adjust your chair along with appropriately placing your monitor, keyboard, and desk.

Backrests

TOP

Potential Hazard

- Poor back support and inappropriate postures may result from inadequate backrest size, material, positioning, or use. Working in these postures may lead to back pain and fatigue. For example, a chair without a suitable or adjustable backrest will not provide adequate lumbar support or help maintain the natural S-shape curvature of the spine.

Possible Solutions

Figure 1
Adjustable chair and backrest

- If your current chair does not have a lumbar support, use a rolled up towel or a removable back support cushion to temporarily provide support and maintain the natural curve of the spine.
- Use a chair with a backrest that is easily adjustable and able to support the back in a variety of seated postures. A backrest should have the following:
  - A lumbar support that is height adjustable so it can be appropriately placed to fit the lower back. The outward curve of the backrest should fit into the small of the back.
  - An adjustment that allows the user to recline at least 15 degrees from the vertical. The backrest should lock in place or be tension adjustable to provide adequate resistance to lower back movement.
  - A device enabling it to move forward and backward. This will allow shorter users to sit with their backs against the backrest without the front edge of the seat pan contacting their knees. Taller users will be able to sit with their backs against the backrest while still having their buttocks and thighs fully supported. **Note:** some chair designs provide this adjustability by adjusting the position of the seat pan.

Seat

Potential Hazard

- Using a chair with a seat that is too high may force you to work with your feet unsupported or encourage you to move forward in the chair to a point where your back is unsupported making it more difficult to maintain the S-shape of the spine (Figure 2). These awkward postures can lead to fatigue, restricted circulation, swelling, numbness, and pain.

Figure 2
Natural S-curvature of the spine

Possible Solutions

- If the seat cannot be lowered (for example, it would make the keyboard or monitor too high), use a footrest to provide stable support for the feet (Figure 3).
- Provide a chair with a seat pan that is adjustable and large enough to provide

support in a variety of seated postures. It is recommended that the seat should be

- Height adjustable, especially when shared by a number of users. The chair height is appropriate when the entire sole of the foot can rest on the floor with the back of the knee slightly higher than the seat of the chair (Figure 4).
- Padded and have a rounded, "waterfall" edge (Figure 5).
- Wide enough to accommodate the majority of hip sizes. Chairs with oversize seat pans should be provided for larger users.

Figure 3
Footrest

Figure 4
Knee slightly higher than the seat of the chair

Potential Hazard

- An inappropriately sized seat pan can be uncomfortable, provide inadequate support to the legs, and restrict movement. One that is too short can place excess pressure on the buttocks of taller users, one that is too long can place excess pressure on the knee area of shorter users and minimize back support. One that is too small can restrict movement and provide inadequate support. Prolonged use can restrict blood flow to the legs and create irritation and pain.

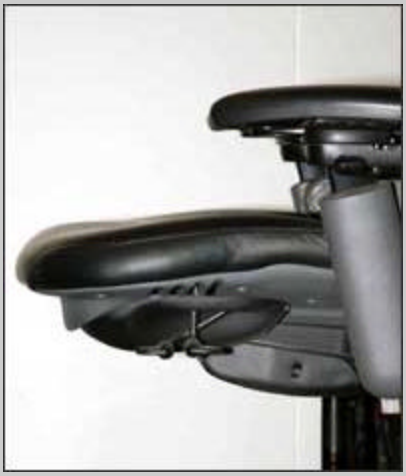

Figure 5
Seat pan with a rounded, "waterfall" edge

Possible Solutions

- Seat pan should be "depth" adjustable to adequately support taller users while allowing shorter users to sit with their back fully supported. The seat pan should provide support for most of the thigh without contact between the back of the user's knee and the front edge of the seat pan.
- Provide a footrest, which may elevate the knee slightly to relieve pressure on the back of the leg.
- Provide a chair that is sized to fit small or large users. **Note:** this is especially important if the chair is to be shared by several users.

Armrest

Note: using an armrest is up to you and the system integrators. Consider factors such as the amount of time during the workday that the user performs computer work, whether the user is experiencing or has experienced a musculoskeletal disorder (MSD) or symptoms, and user preference.

Potential Hazards

Figure 6
Shoulders in various positions

- Armrests that are not adjustable, or those that have not been properly adjusted, may expose you to awkward postures or fail to provide adequate support. For example armrests that are
  - T**oo low** may cause you to lean over to the side to rest one forearm. This can result in uneven and awkward postures, fatiguing the neck, shoulders, and back.
  - **Too high** may cause you to maintain raised shoulders (Figure 6), which can result in muscle tension and fatigue in the neck and shoulders.
  - **Too wide** (Figure 6) cause you to reach with the elbow and bend forward for support. Reaching pulls the arm from the body and can result in muscle fatigue in the shoulders and neck.
  - **Too close** can restrict movement in and out of the chair.
  - **Too large** or inappropriately placed may interfere with the positioning of the chair. If the chair cannot be placed close enough to the keyboard, you may need to reach and lean forward in your chair. This can fatigue and strain the lower back, arm, and shoulder.
- Armrests that are made of hard materials or that have sharp corners can irritate the nerves and blood vessels located in the forearm. This irritation can create pain or tingling in the fingers, hand, and arm.

Possible Solutions

Figure 7
Office chair with adjustable armrests

- If your armrests cannot be properly adjusted, or if they interfere with your workstation, remove them, or stop using them.
- Position adjustable armrests so they support your lower arm and allow your upper arm to remain close to the torso. Properly adjusted armrests will be
  - Wide enough to allow easy entrance and exit from the chair,
  - Close enough to provide support for your lower arms while keeping your upper arms close to the body,
  - Low enough so your shoulders are relaxed during use (Figure 6) (Adjust your armrests so they just make contact with your lower arms

when positioned comfortably at your sides.), and

- High enough to provide support for your lower arms when positioned comfortably at your sides. You may be able to add padding to the top of your armrests if they are too low and not adjustable.

- Armrests should be large enough to support most of your lower arm but small enough so they do not interfere with chair positioning.

- Armrests should be made of a soft material and have rounded edges.

Chair Base

Potential Hazard

- Chairs with four or fewer legs may provide inadequate support and are prone to tipping.

- Inappropriate choice of casters, or a chair without casters, can make positioning the chair in relation to the desk difficult. This increases reaching and bending to access computer components, which can lead to muscle strain, and fatigue.

Figure 8
Chair caster

Possible Solutions

- Chairs should have a strong, five-legged base.

- Ensure that chairs have casters that are appropriate for the type of flooring at the workstation.

Figure 9
Chair with five-leg base

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Telephones

Many office tasks today are centered around telephones and computers as key workstation components. For example, employees making reservations may take information from customers and transfer it into the computer. They may also receive information from the computer and relay it to customers by telephone.

Telephones add to the convenience of a workstation; however, telephones have cords that can get tangled up, and can cause the user to assume awkward postures. Consider the following to help prevent musculoskeletal disorders.

- Placement and Use

Telephone Quick Tips

- Use a speaker phone or head set for long conversations.
- Keep it close enough to avoid repeated reaching.

Placement and Use

TOP

Potential Hazard

- Placing the telephone too far away can cause you to repeatedly reach, resulting in strain on the shoulder, arm, and neck.

Possible Solutions

- Place the telephone in the primary or secondary work zone, depending on usage patterns. This will minimize repeated reaching, reducing the possibility of injury.
- Keep the telephone cord out of working areas so it does not create a tripping hazard.

Figure 1
Awkward posture during telephone use

Potential Hazard

- Prolonged conversations with the phone pinched between your shoulder and head (Figure 1) may cause stress and neck pain.

Possible Solution:

- Use a "hands-free" head set (Figure 2) if you plan to spend a lot of time on the phone. Speaker phone options may also be appropriate, provided the volume of this feature does not annoy your co-workers.

Figure 2
Conventional headset

Computer Workstations

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Checklist

View / Print the Evaluation Checklist PDF

This checklist can help you create a safe and comfortable computer workstation. You can also use it in conjunction with the purchasing guide checklist. A "no" response indicates that a problem may exist. Refer to the appropriate section of the eTool for assistance and ideas about how to analyze and control the problem.

WORKING POSTURES–The workstation is designed or arranged for doing computer tasks so it allows your	**Y**	**N**
1. Head and **neck** to be upright, or in-line with the torso (not bent down/back). If "no" refer to Monitors, Chairs and Work Surfaces.		
2. Head, neck, and **trunk to** face forward (not twisted). If "no" refer to Monitors or Chairs.		
3. Trunk to be perpendicular to floor (may lean back into backrest but not forward). If "no" refer to Chairs or Monitors.		
4. Shoulders and **upper arms** to be in-line with the torso, generally about perpendicular to the floor and relaxed (not elevated or stretched forward). If "no" refer to Chairs.		
5. Upper arms and **elbows** to be close to the body (not extended outward). If "no" refer to Chairs, Work Surfaces, Keyboards, and Pointers.		
6. Forearms, wrists, and **hands** to be straight and in-line (forearm at about 90 degrees to the upper arm). If "no" refer to Chairs, Keyboards, Pointers.		
7. Wrists and **hands** to be straight (not bent up/down or sideways toward the little finger). If "no" refer to Keyboards, or Pointers		
8. Thighs to be parallel to the floor and the **lower legs** to be perpendicular to floor (thighs may be slightly elevated above knees). If "no" refer to Chairs or Work Surfaces.		
9. Feet rest flat on the floor or are supported by a stable footrest. If "no" refer to Chairs, Work Surfaces.		
SEATING–Consider these points when evaluating the chair:	**Y**	**N**
10. Backrest provides support for your lower back (lumbar area).		
11. Seat width and **depth** accommodate the specific user (seat pan not too big/small).		

12. Seat front does not press against the back of your knees and lower legs (seat pan not too long).		
13. Seat has cushioning and is rounded with a "waterfall" front (no sharp edge).		
14. Armrests, if used, support both forearms while you perform computer tasks and they do not interfere with movement.		
"No" answers to any of these questions should prompt a review of Chairs.		
KEYBOARD/INPUT DEVICE–Consider these points when evaluating the keyboard or pointing device. The keyboard/input device is designed or arranged for doing computer tasks so the	**Y**	**N**
15. Keyboard/input device platform(s) is stable and large enough to hold a keyboard and an input device.		
16. Input device (mouse or trackball) is located right next to your keyboard so it can be operated without reaching.		
17. Input device is easy to activate and the shape/size fits your hand (not too big/small).		
18. Wrists and **hands** do not rest on sharp or hard edges.		
"No" answers to any of these questions should prompt a review of Keyboards, Pointers, or Wrist Rests.		
MONITOR–Consider these points when evaluating the monitor. The monitor is designed or arranged for computer tasks so the	**Y**	**N**
19. Top of the screen is at or below eye level so you can read it without bending your head or neck down/back.		
20. User with bifocals/trifocals can read the screen without bending the head or neck backward.		
21. Monitor distance allows you to read the screen without leaning your head, neck or trunk forward/backward.		
22. Monitor position is directly in front of you so you don't have to twist your head or neck.		
23. Glare (for example, from windows, lights) is not reflected on your screen which can cause you to assume an awkward posture to clearly see information on your screen.		
"No" answers to any of these questions should prompt a review of Monitors or Lighting/Glare.		
WORK AREA–Consider these points when evaluating the desk and workstation. The work area is designed or arranged for doing computer tasks so the	**Y**	**N**
24. Thighs have sufficient clearance space between the top of the thighs and your computer table/keyboard platform (thighs are not trapped).		
25. Legs and **feet** have sufficient clearance space under the work surface so you are able to get close enough to the keyboard/input device.		
ACCESSORIES–Check to see if the	**Y**	**N**
26. Document holder, if provided, is stable and large enough to hold documents.		
27. Document holder, if provided, is placed at about the same height and distance as the monitor screen so there is little head movement, or need to re-focus, when you look from the document to the screen.		
28. Wrist/palm rest, if provided, is padded and free of sharp or square edges that push on your wrists.		
29. Wrist/palm rest, if provided, allows you to keep your forearms, wrists,		

and hands straight and in-line when using the keyboard/input device.		
30. Telephone can be used with your head upright (not bent) and your shoulders relaxed (not elevated) if you do computer tasks at the same time.		
"No" answers to any of these questions should prompt a review of Work Surfaces, Document Holders, Wrist Rests or Telephones.		
GENERAL	**Y**	**N**
31. Workstation and equipment have sufficient adjustability so you are in a safe working posture and can make occasional changes in posture while performing computer tasks.		
32. Computer workstation, components and accessories are maintained in serviceable condition and function properly.		
33. Computer tasks are organized in a way that allows you to vary tasks with other work activities, or to take micro-breaks or recovery pauses while at the computer workstation.		
"No" answers to any of these questions should prompt a review of Chairs, Work Surfaces, or Work Processes.		

Checklist Purchasing Guide

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Monitors	✓
1. Make sure the screen is large enough for adequate visibility. Usually a 15 to 20-inch monitor is sufficient. Smaller units will make it difficult to read characters and larger units may require excessive space.	
2. The angle and tilt should be easily adjustable.	
3. Flat panel displays take less room on the desk and may be more suitable for locations with limited space.	
Keyboards	✓
1. Split keyboard designs will allow you to maintain neutral wrist postures.	
2. Keyboards with adjustable feet will accommodate a wider range of keyboard positions and angles. Adjustable feet on the front as well as the back will further aid adjustments. Increased adjustability will facilitate neutral wrist postures.	
3. The cord that plugs into the CPU should be long enough to allow the user to place the keyboard and the CPU in a variety of positions. At least six feet of cord length is desirable.	
4. Consider a keyboard without a 10-key keypad if the task does not require one. If the task does require one occasionally, a keyboard with a separate 10-key keypad may be appropriate. Keyboards without keypads allow the user to place the mouse closer to the keyboard.	
5. Consider the shape and size of the keyboard if a keyboard tray is used. The keyboard should fit comfortably on the tray.	

6. Consider keyboards without built-in wrist rest, because separate wrist rests are usually better.	
7. Keyboards should be detached from the display screen if they are used for a long duration keying task. Laptop keyboards are generally not suitable for prolonged typing tasks.	
Keyboard Trays	✓
1. Keyboard trays should be wide enough and deep enough to accommodate the keyboard and any peripheral devices, such as a mouse.	
2. If a keyboard tray is used, the minimum vertical adjustment range (for a sitting position) should be 22 inches to 28 inches from the floor.	
3. Keyboard trays should have adjustment mechanisms that lock into position without turning knobs. These are frequently over tightened, which can lead to stripped threads, or they may be difficult for some users to loosen.	
Desks and Work Surfaces	✓
1. The desk area should be deep enough to accommodate a monitor placed at least 20 inches away from your eyes.	
2. Ideally, your desk should have a work surface large enough to accommodate a monitor and a keyboard. Usually about 30 inches is deep enough to accommodate these items.	
3. Desk height should be adjustable between 20 inches and 28 inches for seated tasks. The desk surface should be at about elbow height when the user is seated with feet flat on the floor. Adjustability between seated and standing heights is desirable.	
4. You should have sufficient space to place the items you use most often, such as keyboard, mouse, and monitor directly in front of you.	
5. There should be sufficient space underneath for your legs while sitting in a variety of positions. The minimum under-desk clearance depth should be 15 inches for your knees and 24 inches for your feet. Clearance width should be at least 20 inches.	
6. Purchasing a fixed-height desk may require the use of a keyboard tray to provide adequate height adjustment to fit a variety of users.	
7. Desktops should have a matte finish to minimize glare. Avoid glass tops.	
8. Avoid sharp leading edges where your arms come in contact with work surfaces. Rounded or sloping surfaces are preferable.	
9. The leading edge of the work surface should be wide enough to accommodate the arms of your chair, usually about 24 inches to 27 inches. Spaces narrower than this will interfere with armrests and restrict your movement. This is especially important in four-corner work units.	
Chairs	✓
1. The chair should be easily adjustable.	
2. The chair should have a sturdy five-legged base with good chair casters that roll easily over the floor or carpet.	
3. The chair should swivel 360 degrees so it is easier to access items around your workstation without twisting.	
4. Minimum range for seat height should be about 16 inches.	
5. Seat pan length should be 15 inches to 17 inches.	
6. Seat pan width should be at least as wide as the user's thighs. A minimum width of about 18 inches is recommended.	

7. Chair edges should be padded and contoured for support.	
8. Seat pan tilt should have a minimum adjustable range of about 5 degrees forward and backward.	
9. Avoid severely contoured seats as these limit seated postures and are uncomfortable for many users.	
10. Front edge of the seat pan should be rounded in a waterfall fashion.	
11. Material for the seat pan and back should be firm, breathable, and resilient.	
12. The seat pan depth should be adjustable. Some chairs have seat pans that slide forward and backward and have a fixed back. On others the seat pan position is fixed and the backrest moves horizontally forward and backward so the effective depth of the seat pan can be adjusted. **Beware** of chairs where the back only tilts forward and backward. These do not provide adequate adjustment for a wide range of users.	
13. The backrest should be at least 15 inches high and 12 inches wide and should provide lumbar support that matches the curve of your lower back.	
14. The backrest should widen at its base and curve in from the sides to conform to your body and minimize interference with your arms.	
15. The backrest should allow you to recline at least 15 degrees and should lock into place for firm support.	
16. The backrest should extend high enough to support your upper trunk and neck/shoulder area. If the backrest reclines more than about 30 degrees from vertical, a headrest should be provided.	
17. Armrests should be removable and the distance between them should be adjustable. They should be at least 16 inches apart.	
18. Armrest height should be adjustable between 7 inches and 10.5 inches from the seat pan. Fixed height armrests are not desirable, especially for chairs that have more than one user.	
19. Armrests should be large enough (in length and width) to support your forearm without interfering with the work surface.	
20. Armrests should be padded and soft.	
21. Most chairs are designed for weights under 275 pounds. If the user weighs more than 275 pounds, the chair must be designed to support the extra weight.	
Document Holders	☑
1. The document holder needs to be stable but easy to adjust for height, position, distance, and viewing angle.	
2. If the monitor screen is your primary focus, purchase a document holder that will sit next to the monitor at the same height and distance.	
3. If the task requires frequent access to the document (such as writing on the document) a holder that sits between the keyboard and monitor may be more appropriate.	
Wrist Rests	☑
1. Wrist rest should match the front edge of the keyboard in width, height, slope, and contour.	
2. Pad should be soft but firm. Gel type materials are recommended.	
3. Wrist rest should be at least 1.5 inches deep (depth away from the keyboard) to minimize contact pressure on the wrists and forearm.	
Mouse/Pointing Devices	

	☑
1. Choose a mouse/pointer based on the requirements of your task and your physical limitations. There really is no difference, other than preference, among a mouse, trackball, or other device.	
2. A mouse should match the contour of your hand and have sufficient cord length to allow its placement next to the keyboard.	
3. If you choose a trackball, avoid ones that require the thumb to roll the ball--thay may cause discomfort and possible injury to the area around your thumb.	
4. A smaller mouse may be more appropriate especially if you have small hands. Caution should be taken if a mouse is used by more than one person.	
5. A mouse that has sensitivity adjustments and can be used with either hand is desirable.	
Telephones	☑
1. If task requirements mandate extended periods of use or other manual tasks such as typing while using the phone, use a telephone with a "hands-free" headset.	
2. The telephone should have a speaker feature for "hands-free" usage.	
3. "Hands-free" headsets should have volume adjustments and volume limits.	
Desk Lighting	☑
1. Good desk lighting depends on the task you're performing. Use bright lights with a large lighted area when working with printed materials. Limit and focus light for computer tasks.	
2. The location and angle of the light sources, as well as their intensity levels, should be fully adjustable.	
3. The light should have a hood or filter to direct or diffuse the light.	
4. The base should be large enough to allow a range of positions or extensions.	

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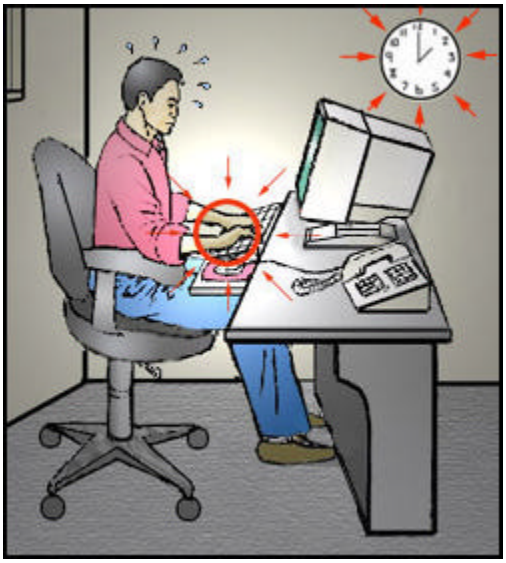
Work Process and Recognition

Even when the design of the workstations is correct and environmental factors are at their best, users can face risks from task organization which can intensify the impact of other risk factors, such as repetition. Additionally, failing to recognize early warning signs could allow small problems to develop into serious injuries. Addressing task organization factors and medical awareness can help minimize the risk of developing musculoskeletal disorders (MSDs) and stop the progression to injury.



- Prolonged Periods of Activity
- Medical Awareness and Training

Prolonged Periods of Activity

Potential Hazard

- Computer work, whether it's for a job or for fun, may appear to be a low effort activity when viewed from a total body perspective, but maintaining postures or performing highly repetitive tasks for extended periods can lead to problems in localized areas of the body. For example, using a mouse for a few minutes should not be a problem for most users, but performing this task for several uninterrupted hours can expose the small muscles and tendons of the hand to hundreds or even thousands of activations (repetitions). There may not be adequate time between activations for rest and recuperation, which can lead to localized fatigue, wear and tear, and injury. Likewise, maintaining static postures, such as viewing the monitor, for a prolonged period of time without taking a break can fatigue the muscles of the neck and shoulder that support the head.

Possible Solutions

- Provide variation in tasks and workstations so there is time to recover from the effects of activity. There are several ways to provide recovery time for overused muscles.

- Utilize an adjustable workstation so users can easily change their working postures. The use of easily adjustable furniture, for example, allows you to frequently change seated postures, which allows different muscle groups to provide support while others rest.

- Ensure that there is enough work space so you can use each hand alternately to perform mouse tasks. This allows the tendons and muscles of the free hand to rest.

- Substitute keystrokes for mousing tasks, such as Ctrl+S to save, Ctrl+P to print. Especially if your job is highly mouse intensive

- High repetition tasks or jobs that require long periods of static posture may require several, short rest breaks (**micro breaks or rest pauses**). During these breaks users should be encouraged to stand, stretch, and move around. This provides rest and allows the muscles enough time to recover.

- Alternate tasks whenever possible, mixing non-computer-related tasks into the workday. This encourages body movement and the use of different muscle groups.

Medical Awareness and Training

Potential Hazard

- Employees who have not been adequately trained to recognize hazards or understand effective work practices designed to reduce these hazards are at a greater risk of harm. Without proper medical awareness, MSD signs and symptoms may go unnoticed and un-addressed. For example, users who do not understand the risk of bad body postures or techniques do not have the knowledge to actively participate in their own protection. Detection and reporting delays can result in more severe injury.

Possible Solutions

- Computer users should take the time to obtain general ergonomics awareness training on the following issues:

  - Factors related to specific computer components that may increase discomfort or risk of injury,

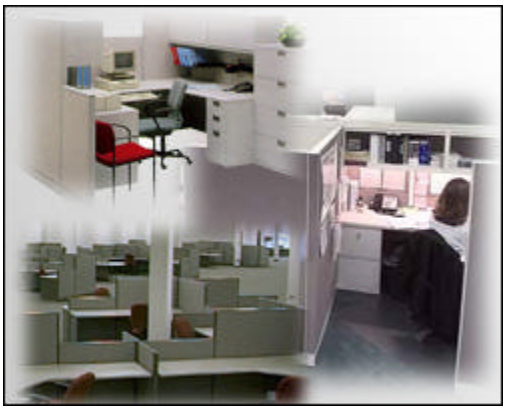
  - Being aware of discomfort (signs and symptoms), and

  - How to correctly use and adjust components and environmental factors.

Computer Workstations

Workstation Environment

Appropriately placing lighting and selecting the right level of illumination can enhance your ability to see monitor images. For example, if lighting is excessive or causes glare on the monitor screen, you may develop eyestrain or headaches, and may have to work in awkward postures to view the screen. Ventilation and humidity levels in office work environments may affect user comfort and productivity.



- Lighting
- Glare
- Ventilation

Environment Quick Tips

- Arrange your office to minimize glare from overhead lights, desk lamps, and windows.
- Maintain appropriate air circulation.
- Avoid sitting directly under air conditioning vents that "dump" air right on top of you.

Lighting

TOP

Potential Hazard

- Bright lights shining on the display screen "wash out" images, making it difficult to clearly see your work. Straining to view objects on the screen can lead to eye fatigue.

Possible Solutions

- Place rows of lights parallel to your line of sight (Figure 1).
- Provide light diffusers so that desk tasks (writing, reading papers) can be performed while limiting direct brightness on the

computer screen.

- Remove the middle bulbs of 4-bulb fluorescent light fixtures to reduce the brightness of the light to levels more compatible with computer tasks if diffusers or alternative light sources are not available. **Note:** a standard florescent light fixture on a nine-foot ceiling with four, 40-watt bulbs will produce approximately 50 foot-candles of light at the desktop level.

- Provide supplemental task/desk lighting to adequately illuminate writing and reading tasks while limiting brightness around monitors.
  - Generally, for paper tasks and offices with CRT displays, office lighting should range between 20 to 50 foot-candles. If LCD monitors are in use, higher levels of light are usually needed for the same viewing tasks (up to 73 foot-candles).

Figure 1
Blinds are on the windows and the monitor is placed at an angle (perpendicular)

Potential Hazard

- Bright light sources behind the display screen can create contrast problems, making it difficult to clearly see your work (Figure 2).

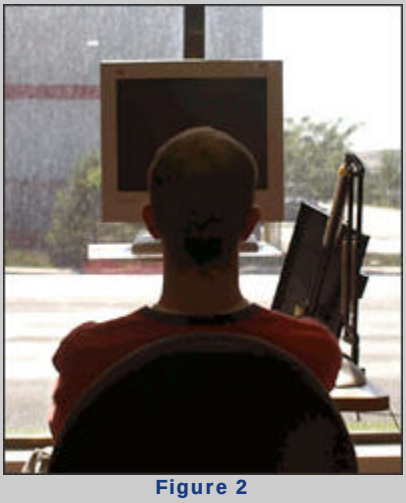


Figure 2
Bright light entering from a window

Possible Solutions

- Use blinds or drapes on windows to eliminate bright light. Blinds and furniture placement should be adjusted to allow light into the room, but not directly into your field of view (Figure 1). **Note:** vertical blinds work best for East/West facing windows and horizontal blinds for North/South facing windows.

- Use indirect or shielded lighting where possible and avoid intense or uneven lighting in your field of vision. Ensure that lamps have glare shields or shades to direct light away from your line of sight.

- Reorient the workstation so bright lights from open windows are at right angles with the computer screen (Figure 1).

Potential Hazard

- High contrast between light and dark areas of the computer screen, horizontal work surface, and surrounding areas can cause eye fatigue and headaches.

Possible Solution

- For computer work, use well-distributed diffuse light. The advantage of diffuse lighting is that
  - There are fewer hot spots (or glare surfaces) in the visual field, and
  - The contrasts created by the shape of objects tend to be softer.

- Use light, matte colors and finishes on walls and ceilings to better reflect indirect lighting and reduce dark shadows and contrast.

Glare

Potential Hazard

- Direct light sources (for example, windows, overhead lights) that cause reflected light to show up on the monitor (Figure 3) make images more difficult to see, resulting in eye strain and fatigue.

Figure 3
Glare from overhead light source

Possible Solutions

- Place the face of the display screen at right angles to windows and light sources. Position task lighting (for example, a desk lamp) so the light does not reflect on the screen (Figure 1).
- Clean the monitor frequently. A layer of dust can contribute to glare.
- Use blinds or drapes on windows to help reduce glare (Figure 1). **Note:** vertical blinds work best for East/West facing windows and horizontal blinds for North/South facing windows.
- Use glare filters that attach directly to the surface of the monitor to reduce glare (Figure 4). Glare filters, when used, should not significantly decrease screen visibility. Install louvers, or "egg crates", in overhead lights to re-direct lighting.
- Use barriers or light diffusers on fixtures to reduce glare from overhead lighting.

Figure 4
Monitor with a glare screen

Note

Generally, a large number of low powered lamps rather than a small number of high powered lamps will result in less glare.

Potential Hazard

- Reflected light from polished surfaces, such as a keyboards, may cause annoyance, discomfort, or loss in visual performance and visibility.

Possible Solutions

- To limit reflection from walls and work surfaces around the screen, paint them with a medium colored, non-reflective paint. Arrange workstations and lighting to avoid reflected glare on the display screen or surrounding surfaces.
- Tilt down the monitor slightly to prevent it from reflecting overhead light.
- Set the computer monitor for dark characters on a light background; they are less affected by reflections than are light characters on a dark background.

Ventilation

Potential Hazards

- Users may experience discomfort from poorly designed or malfunctioning ventilation systems, for example, air conditioners or heaters that directly "dump" air on users.
- Dry air can dry the eyes (especially if the user wears contact lenses).
- Poor air circulation can result in stuffy or stagnant conditions.
- Temperatures above or below standard comfort levels can affect comfort and productivity.

Possible Solutions

- Do not place desks, chairs, and other office furniture directly under air conditioning vents unless the vents are designed to redirect the air flow away from these areas.
- Use diffusers or blocks to redirect and mix air flows from ventilation systems (Figure 4).
  - Keep air flow rates within three and six inches per second (7.5 and 15 centimeters per second). These air flow rates are barely noticeable or not noticeable at all.
- Keep relative humidity of the air between 30% and 60%.
- The recommended ambient indoor temperatures range between 68° and 74° F (20° and 23.5° C) during heating season and between 73° and 78° F (23° and 26° C) during the cooling season.

Figure 3
Air circulation

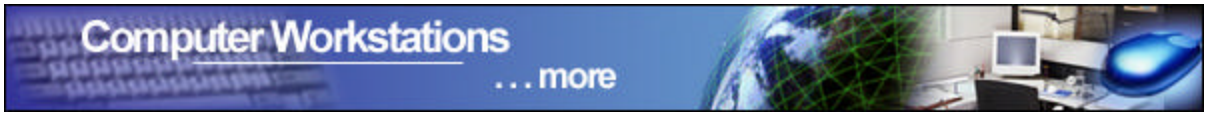
Figure 4
Air ventilation diffuser

Potential Hazard

- Exposure to chemicals, volatile organic compounds (VOCs), ozone, and particles from computers and their peripherals (for example, laser printers) may cause discomfort or health problems.

Possible Solutions

- Enquire about the potential for a computer or its components to emit pollutants. Those that do should be placed in well-ventilated areas.
- Maintain proper ventilation to ensure that there is an adequate supply of fresh air.
- Allow new equipment to "air out" in a well-ventilated area prior to installing.



Awkward Postures

Maintaining good postures, such as straight wrists, elbows close to the body and head straight and in-line with the torso is often difficult because of a misalignment between the user and the computer components and accessories.

For Example:

- A monitor positioned too high can cause you to tilt your head back, which fatigues the neck and shoulder muscles.
- A keyboard tray that is too small can cause you to move the mouse to a position of the desk that requires you to reach to perform mouse tasks. This pulls the elbow away from the body and can cause you to support your arm in an elevated position for an extended period of time.
- A keyboard that is too low causes you to bend your wrists at extreme angles, which can cause the finger tendons and tendon sheaths to bend around the bones of the wrist.

Working in awkward postures can irritate or strain the bone-tendon-muscle connections.

- Muscles can be stretched or compressed causing them to be inefficient and resulting in possible fatigue and overexertion.
- Non-neutral postures can pull and stretch tendons, blood vessels, and nerves over ligaments or bone where they can become pinched and restricted.
- Tendons and their sheaths can rub on bone and ligaments, which can lead to irritation and fraying. This can lead to swelling within confined areas such as the carpal tunnel, which then restricts nerves and blood vessels.
- Tingling and numbness of the fingers and hands as well as pain from tendinitis and tenosynovitis (inflammation of a tendon sheath) can result.

A properly adjusted workstation can help minimize awkward postures. Place the monitor in front of you at a height where you can look straight ahead and not tilt your head forward or backward. Place frequently used items, such as keyboards and pointing devices where you can reach them easily. Adjust and arrange keyboard trays and chairs so you don't have to bend your wrists up, down, or to the side. Adjust your chair so your feet and back are well supported. Proper neutral postures allow you to work with minimal stress on the musculoskeletal system.

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Contact Stress

Contact stress can occur either internally or externally. Internal stress occurs when a tendon, nerve, or blood vessel is stretched or bent around a bone or tendon. External contact stress occurs when part of your body rubs against a component of the workstation,

such as the chair seat pan or edge of the desk. Nerves may be irritated or blood vessels constricted as a result.

- You can experience contact stress to your forearms when you rest them on the leading edges of work tables or, if the nerves in the forearm are affected, your fingers and hands may tingle and feel numb, similar to the feeling when you hit your "funny bone".
- You may experience pain and numbness in your legs if blood circulation is cut off by contact with the leading edge of a chair.
- Your forearms and wrists can be affected if wrist rests have sharp, hard leading edges.
- Tendons can be damaged when repetitive finger motion tasks are performed with a bent wrist.

To help solve these problems carefully select wrist rests, chairs, and desk surfaces and take frequent rest and stretch breaks to minimize the amount of contact stress that you may experience. Adjust your workstation to maintain neutral wrist postures.

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Force

Force is usually thought of as a strenuous physical exertion, such as when lifting a heavy weight or pushing a heavy load. Computer work seldom requires this type of strenuous exertion, but there are tasks that require consentrated force that can affect smaller, localized muscle groups.

What are some examples?

- Your finger and forearm muscles may become sore if you use a pointing device at a setting that is so sensitive that it is hard to control. Hand and arm muscles must work continually to keep the device steady.
- Your shoulder and neck muscles are continually being used to lift the arm away from your body if the mouse is placed too far away.
- The muscles of the back can become strained if you must tilt your head back to view a monitor that is too high.

Although the muscle is usually the first point of pain when these injuries occur, the tendon, which attaches the muscle to bone, can also be affected. Localized pain, stiffness, and tenderness can signal that the muscle or tendon has been exerted beyond its capacity.

To help avoid these problems, properly arrange computer components on the work surface to maintain neutral postures and provide adjustable furniture to minimize the amount of time spent in one posture.

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General Controls

The arrangement of work components and the purchase of new equipment should

encourage the following body postures:

- Keep your head and neck vertical and in-line with the spine, not bent or twisted.
- Keep your torso straight, not twisted, especially when lifting or bending.
- Generally, whether standing or sitting, keep your torso vertical or within 20 to 30 degrees of vertical.
- Keep your elbows close to your body by avoiding frequent reaching to your side, in front, or above your head.
- Keep your forearms approximately parallel to the floor.
- Maintain a neutral forearm posture whenever possible, by not rotating your forearm repeatedly, especially when your wrist is bent.
- Keep your wrists straight and in-line with your forearms, not bent up or down or to either side.
- Keep your thighs approximately parallel to the floor or your hips slightly higher than your knees.
- Keep your feet firmly on the floor and your legs approximately perpendicular to the floor.
- Place your keyboard and mouse close together at about the same height to reduce reaching.
- Use a fully adjustable chair so your body is fully supported and you can change your body postures frequently.
- Use adjustable height work surfaces so all users can sit with their feet firmly on the floor. If the work surface is not fully adjustable, use an adjustable foot rest.
- Place all frequently used components such as monitor, keyboard, and mouse in front of you so you don't have to turn your head from side to side.
- Place your monitor low enough so its top is not above your horizontal line of sight. This will limit the need for you to tilt your head backward to see the screen.
- If laptops are to be used as primary work computers where intensive keyboard use is necessary, provide auxiliary, full-sized, keyboards and monitors.

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Repetition

Many computer workstation tasks are highly repetitive. You may perform the same motions repeatedly at a fast pace and with little variation. When motions are isolated and repeated frequently for prolonged periods, there may be inadequate time for your muscles and tendons to recover. Combining repetitive tasks with factors such as awkward postures and force may increase the risk of injury.

- Computers require little task variation. Old typing activities, such as adding paper or

mechanically advancing pages, have been reduced or eliminated. Users can stay in their chairs and type or perform mouse work for an almost unlimited amount of time. Under these conditions, a proficient typist can easily perform more than 18,000 keystrokes per hour. These repetitive motions can lead to tendon and tendon sheath injuries, especially if the wrist is bent during the activity.

- Similar repetitions occur when using a pointing device such as a mouse. Here, the hazard may be greater because the motions are often concentrated in only a few fingers of one hand.

- A computer operator may remain in essentially the same posture for an entire shift. This forces a few isolated muscles to repeatedly activate to accomplish a task such as holding the head up or focusing on a computer screen.

- A poorly designed workstation may cause you to repeatedly reach to use a mouse or answer the phone. This can fatigue the muscles of the shoulder and irritate the tendons.

You can reduce repetition by properly arranging the workstation and its components. For example, a mouse that is placed close to the keyboard should minimize repetitive reaching. However, even the best designed workstation can not eliminate all highly repetitive motions, especially for data input. For this reason, it is extremely important to maintain good posture by providing adequate adjustability at the workstation. You should perform all hand tasks with the wrist in a straight, neutral posture to allow the tendons to slide easily without interference.

The following work process suggestions may also help reduce repetition.

- Task Rotation or Job Enlargement - If you must perform a variety of tasks, when possible, intersperse them throughout the work day. Minimize long blocks of uninterrupted computer time by doing other non-computer tasks such as photocopying, phone work, cleanup, etc.

- Micro Breaks or Rest Pauses - Build short micro pauses into computer use sessions. Frequent short breaks are desirable. Every hour, take a five-minute break from computer tasks. Look away, stretch, get up, or walk. These brief pauses provide time for muscles and tendons to recover.

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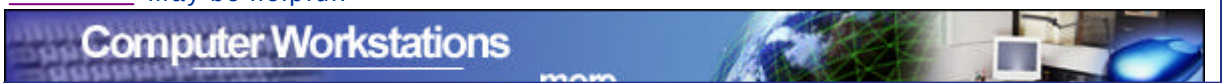
MSD Signs and Symptoms

It is important to report signs and symptoms as early as possible to prevent serious injury or permanent damage. Users at risk for MSDs associated with computer use may experience some of the following signs or symptoms:

- Numbness or a burning sensation in the hand
- Reduced grip strength in the hand
- Swelling or stiffness in the joints
- Pain in wrists, forearms, elbows, neck, or back
- Reduced range of motion in the shoulder, neck, or back
- Dry, itchy, or sore eyes
- Blurred or double vision
- Aching or tingling
- Cramping
- Loss of color in affected regions
- Weakness

Although these symptoms may not necessarily lead to an MSD, if experienced, the user should make an evaluation of their working positions and their workstation layout. The checklists may be helpful.



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Additional References

The Following references were used for development of the eTool and may provide additional information on the subject. New materials are continually being developed, therefore, this should not be considered as an all-inclusive reference list.

- Alternative Keyboards. DHHS (NIOSH) Publication No. 97-148 (1997), 471 KB PDF, 17 pages. The purpose of alternative keyboards. What the difference is between alternative and regular keyboards. Information on whether alternative keyboards prevent injuries. What to do if you want to use an alternative keyboard. Ideas for preventing musculoskeletal injuries.
- Musculoskeletal Disorders and Workplace Factors. DHHS (NIOSH) Publication No. 97-141 (1997), 2.8 MB PDF, 590 pages. This is a critical review of epidemiologic evidence for work-related musculoskeletal disorders of the neck, upper extremely, and low back.
- Ergonomics, American Federation of Government Employees (AFGE). This site has material on ergonomic hazards and simple steps you can take to avoid injury.
- Office Ergonomics. Canadian Centre for Occupational Health and Safety. This site covers topics from identifying ergonomic hazards to purchasing and adjusting VDT workstation equipment.
- Cornell University Ergonomics. Guidelines for arranging safe computer workstations, a checklist for evaluating VDT workstations and several internet links.
- Ergonomic tips for the office. American Society of Safety Engineers (Sept. 2000). To increase safety in the workplace, ASSE recommends everyone do a workplace safety audit in an effort to reduce accidents and injuries, whether it be in a company office building or a home office.
- Ergonomics Program for Employers with VDT Operators. California Department of Industrial Relations (March 6, 1998). This site contains a 4-step online ergonomics program for employers with VDT operators includes a downloadable VDT checklist.
- Strategic Rests Breaks Reduce VDT Discomforts Without Impairing Productivity. (May, 2000). A NIOSH study reporting that short, strategically-spaced rest breaks can reduce eyestrain and musculoskeletal discomfort for VDT operators without decreasing productivity. These findings were published in the May 2000 issue of the scientific journal Ergonomics.
- The Keys to Healthy Computing. American Federation of State, County and Municipal Employees (AFSCME) Safety and health handbook. The Keys to Healthy Computing includes information on solutions to health problems associated with VDT use.
- Office Ergonomic Resources. University of Minnesota. This site has information on how to reduce specific ergonomic computer hazards and contains an extensive product database.

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Ergonomic Technical Support:

- Human Factors and Ergonomics Society; ANSI/HFES 100 Committee.
- Rich Sesek, Ph.D., MPH, CSP, University of Utah

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