

# AVIATION MULTIPURPOSE TRAINING SYSTEM AMTS



**HARDWARE USER'S GUIDE  
JUNE 1998**

# AVIATION MULTIPURPOSE TRAINING SYSTEM (AMTS)

## Hardware User's Guide

### INTRODUCTION

This manual contains information pertaining to the initial setup and use of the Aviation Multipurpose Training System (AMTS), training device number S2H142A. The AMTS is a portable Computer Based Training (CBT) device designed to provide a host platform for individually developed software packages. This manual does not contain instructions on the use of any software programs that may be hosted by the AMTS device.

The AMTS program is managed and controlled by the Naval Air Systems Command (NAVAIRSYSCOM) (PMA205-3). Chief of Naval Operations (CNO) (N889F) is the approving authority and sponsor for AMTS program requirements. Overall life cycle support for the AMTS systems, including all hardware/software maintenance and configuration management, is provided by Naval Air Warfare Center, Weapons Division (NAWCWPNSDIV), Point Mugu, California, as directed by NAVAIRSYSCOM.

### SYSTEM HARDWARE

The AMTS device is configured as a standard desktop computer system consisting of a Central Processing Unit (CPU), keyboard, trackball or mouse pointing device, and a video monitor. The AMTS utilizes commercial, off-the-shelf equipment to form the core of the system. The following are the components and capabilities of the AMTS device:

CPU	- Intel Pentium 266 Mhz in a medium tower case
Memory	- 64 Mb RAM
Cache	- 512 Kb memory cache
"A" Drive	- 1.44 Mb 3 1/2" floppy disk drive
"C" Drive	- 1 Gb SCSI Jaz removable cartridge drive
"L" Drive	- CD-ROM SCSI Plextor UltraPlex 32x
Graphics	- Matrox Millenium II with 4 Mb of WRAM
Sound Card	- Creative Labs Sound Blaster AWE64 audio card
Keyboard	- 104 key enhanced keyboard
Monitor	- 17" or 21" ViewSonic SVGA
Pointing Device	- MicroSpeed serial trackball with three control buttons or Microsoft Mouse
Cassette Deck	- Nakamichi audio cassette deck (included only with AMTS configurations using the ATT package)
Surge Suppressor	- Brooks Power Systems Z6-6(2P) shipboard approved surge suppressor. NSN 6150013627192.

## **OPTIONAL SYSTEM INTERFACE CARD**

Special training programs hosted by the AMTS system operate via installed interface cards. The following is a description of optional interface card supported by the AMTS device:

*Acoustic Tabletop Trainer (ATT)*. The ATT program that was formerly fielded as a separate table top trainer has been incorporated into the AMTS. The ATT interface card provides training capability for acoustic operators by working in conjunction with the C++ Passive Acoustic Analyzer System (CPAAS) software to form a real time acoustic signal processor. A Nakamichi cassette deck is provided with AMTS systems configured with the ATT card. Refer to the CPAAS software manual for information pertaining to the CPAAS program.

## **ASSEMBLY**

Before assembling the AMTS system, users should perform an inventory of included items by referring to the AMTS inventory check list provided in the AMTS passdown file. If an item appears to be missing or damaged, please contact the NAWC Weapons Division representative (refer to the Technical Support section).

**\* CAUTION \***

**To protect the system's motherboard, make sure computer power is OFF before connecting any devices.**

**\* CAUTION \***

**The AMTS system is to be operated vertically. Do not place CPU on it's side as the CD ROM drive will not function properly.**

## COMPONENTS

### CPU

The AMTS front panel features are explained below:



**(1) Power Switch** - Turns the CPU unit on/off.

**(2) Reset Switch** - Depressing this switch provides a momentary signal to the computer motherboard to reset all systems and reboot. This switch performs what is known as a “warm boot” as it reboots the system without performing the power-on self tests associated with depressing the power switch.

**(3) CD-ROM Drive** - Accepts a CD-ROM disc into the CD tray. Panel features include a stereo headphone jack, a volume control, an activity indicator, and a stop/eject button. This drive is designated as drive “L”.

**(4) Jaz Drive** - Accepts a 1.0 Gb removable Jaz cartridge. Panel features include an emergency disk eject hole, drive status light (flashes when drive is busy), and a disk eject button. This drive is designated as drive “C”.

**(5) 3 1/2” Disk Drive** - A 1.44 Mb, high density floppy disk drive. This drive is designated as drive “A”.

**(6) Hard Disk Indicator** - This indicator illuminates when the system is reading data from or writing data to the Jaz disk.

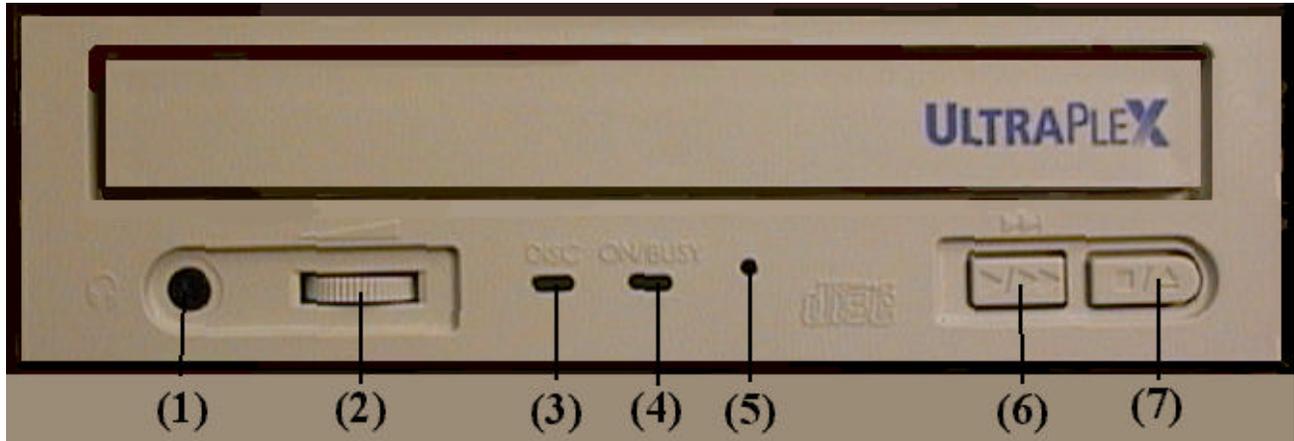
**(7) Power Indicator**- This indicator should be lit when the CPU power is on.

The AMTS back panel features are explained below:



- (1) Power cord connection.
- (2) Keyboard connection. (BLUE).
- (3) Mouse or Trackball connection. (RED).
- (4) Printer connection.
- (5) Graphics card (YELLOW).
- (6) Sound card. (GREEN & BLUE)
- (7) Optional ATT card (when installed).

## CD-ROM Drive

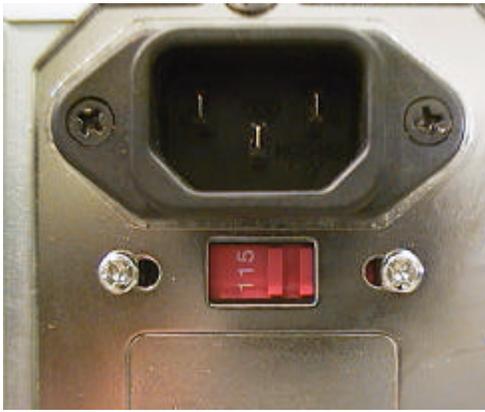


- (1) - Headphone Jack. Stereo mini-jack for headphones and powered speakers.
- (2) - Volume control. Controls volume of headphone jack. This control has no effect on the rear-panel audio outputs.
- (3) - DISC Indicator. Green when power is on and disc is inserted. Off if no disc is inserted.
- (4) - ON/BUSY Indicator. Yellow when power is turned on. Flashing when disc is inserted and being accessed. Off when disc is inserted and not being accessed.
- (5) - Emergency eject hole. Power down the system, then insert a straightened paper clip to manually eject the CD ROM. **FAILURE TO POWER DOWN THE SYSTEM PRIOR TO USING THE EMERGENCY EJECT MAY RESULT IN DAMAGE TO THE CD ROM.**
- (6) - NOT USED with AMTS.
- (7) - Stop/Eject button. Push to eject. During CD play mode, however, push once to stop audio play and twice to eject.

## Jaz 1Gb Drive



- (1) - Jaz cartridge bay.
- (2) - Emergency disk eject hole. If Jaz cartridge fails to eject, ensure power is off and insert a straightened paper clip into this hole to manually eject Jaz cartridge. **DO NOT MANUALLY EJECT CARTRIDGE WHEN POWER IS ON. MANUALLY EJECTING JAZ CARTRIDGE WHEN POWER IS ON CAN DAMAGE THE DRIVE OR CARTRIDGE.**
- (3) - Drive-status light. Flashes when drive is busy.
- (4) - Disk eject button. After you push the eject button, the drive takes a few seconds to spin down and eject the cartridge. **THE JAZ CARTRIDGE WILL NOT EJECT WITHOUT FIRST SHUTTING DOWN THE AMTS WINDOWS 95 OPERATING SYSTEM.**

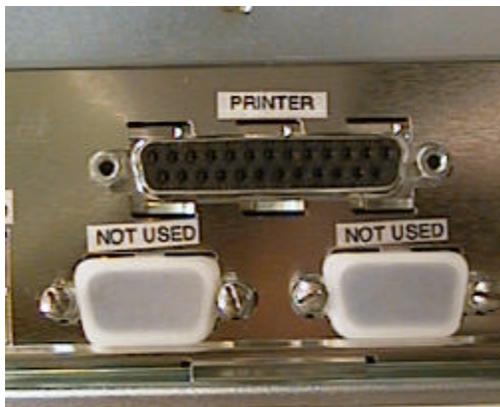


**Power cord connection** - Connect the female end of the 3 pronged power cord to the male AC unit. Connect the 3 pronged male end of the power cord to the AMTS surge suppressor. The 115/230 volt selector switch directly below the power cord connection should be set to 115.

**Keyboard connection** - Carefully insert the PS/2 keyboard (BLUE) cable connector into the CPU's round, 6-pin keyboard device port. Ensure the pins are lined up with the port as the connector is inserted.



**Trackball/Mouse connection** - Carefully insert the PS/2 trackball or PS/2 mouse (RED) cable connector into the CPU's round, 6-pin pointing device port. Ensure the pins are lined up with the port as the connector is inserted.

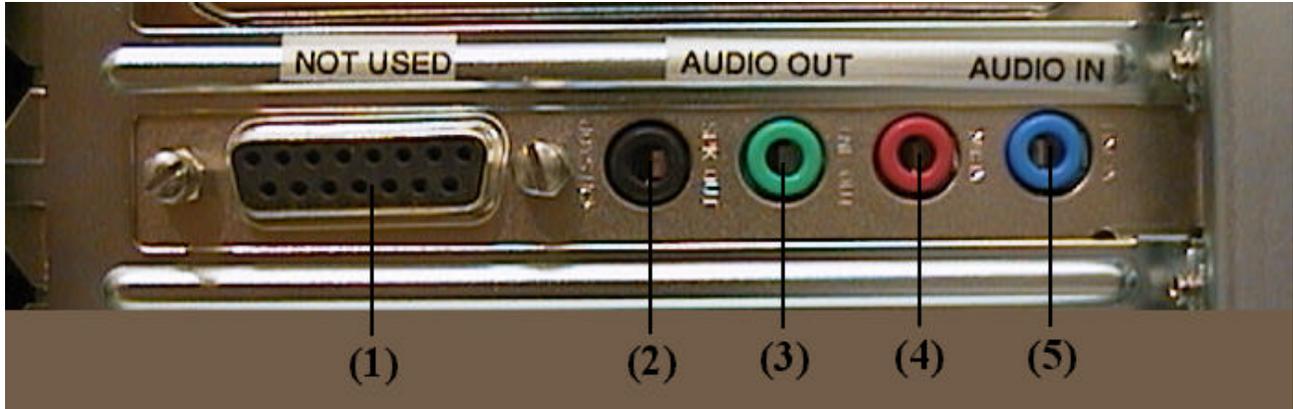


**Printer connection** - 25 pin connection for printer. Even though a printer is not provided with the AMTS trainer any printer may be connected to print. The default printer is the HP III.

**Monitor connection** - Connect the video cable from the monitor (YELLOW) to the CPU's 15 pin female receptacle. Ensure the pins are lined up with the port as the cable connector is inserted. Secure the connection with the two screws on the connector.



## Sound card connections



- (1) - **NOT USED with AMTS.** Joystick/MIDI connector for connecting a joystick or a MIDI device.
- (2) - **SPEAKER OUT (BLACK)** - Jack connects audio output from the card's built-in amplifier. Acoustic Electronic Data Package (EDP) users use this connection for output of audio files into any ATT card input for acoustic processing of data. Users may also connect the headphone plug to this connection.
- (3) - **LINE OUT (Labeled AUDIO OUT (GREEN))** - Jack connects audio output to powered speakers or external amplifiers. AMTS users should insert the (GREEN) speaker plug to this connector.
- (4) - **NOT USED with AMTS.** Jack connects an external microphone.
- (5) - **LINE IN (Labeled AUDIO IN (BLUE))** - Users can connect the output from a DPU, Honeywell 5600 or Nakamichi cassette player into the audio in for aural audio replay of acoustic data.

## Pointing Devices

There are two different pointing devices provided for AMTS systems depending upon the system configuration requirements. Most AMTS systems will be provided with a trackball. Due to software applications requirements, some AMTS systems will be provided with a mouse.



**Mouse** - Carefully insert the PS/2 mouse (RED) cable connector into the CPU's round, 6-pin pointing device port as shown on back of CPU. Ensure the pins are lined up with the port as the connector is inserted.



**Trackball** - Carefully insert the PS/2 trackball (RED) cable connector into the CPU's round, 6-pin pointing device port as shown on back of CPU. Ensure the pins are lined up with the port as the connector is inserted.

**Keyboard** - Carefully insert the PS/2 keyboard (BLUE) cable connector into the CPU's round, 6-pin keyboard device port in the back of the CPU. Ensure the pins are lined up with the port as the connector is inserted.



## Monitors

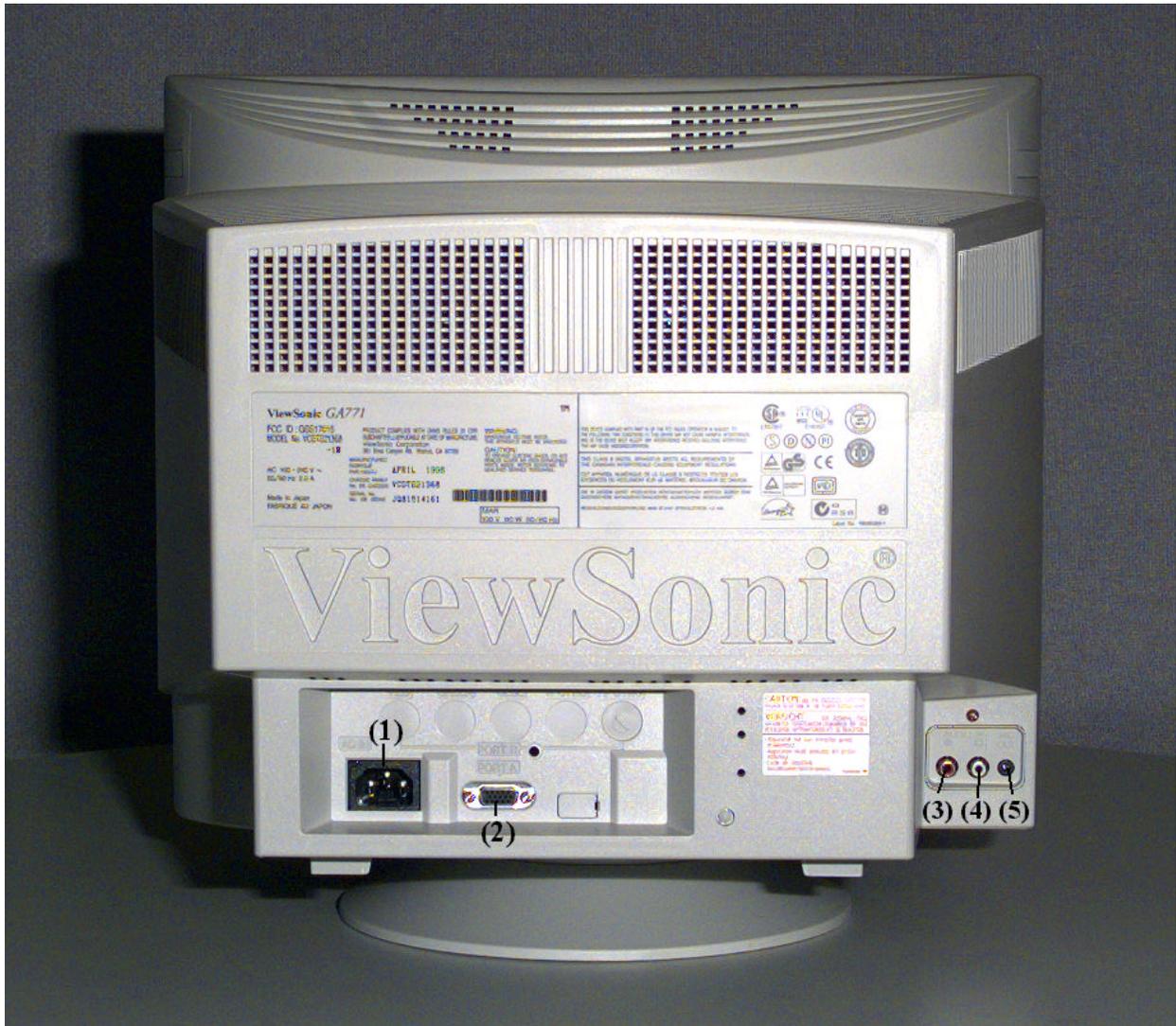
There are two different monitors provided for AMTS systems depending upon the system configuration requirements. Each type of monitor will be described in detail. Most AMTS systems will be provided with a 17 inch monitor. Due to higher resolution software applications requirements, some AMTS systems will be provided with a larger 21 inch monitor.

### Front of 17" AMTS Monitor



Viewsonic 17" (16.0" diagonal viewable), 0.27mm dot pitch, high resolution non-interlaced monitor. Has flat square screen, tilt base allowing 180 degrees rotation in the horizontal and 17 degrees in the vertical for user comfort. Power management circuit conforming to VESA and DPMS standards controls energy consumption when monitor is not in use. Automatic tracking of horizontal frequencies from 30 to 69kHz and vertical frequencies from 50 to 160 Hz. Bezel integrated speakers produce 5.6 (peak) watts of focused sound. Compatible with VGA, SVGA, VESA and high resolution video modes up to 1280 x 1024.

## Back of 17" AMTS Monitor



### AMTS 17" Monitor Connections

(1) Connect the female end of the 3 pronged power cord to the male AC unit. Connect the 3 pronged male end of the power cord to the AMTS surge suppressor.

(2) Connect the video cable to the monitor's (YELLOW) 15 pin female receptacle. Ensure the pins are lined up with the port as the cable connector is inserted. Secure the connection with the two screws on the connector. Then connect the video cable from the monitor (YELLOW) to the CPU's 15 pin video connector on graphics card. Ensure the pins are lined up with the port as the connector is inserted. Secure the connection with the two screws on the connector.

(3) & (4) Connect the (RED) RCA stereo plug to (RED) RCA jack and the (WHITE) RCA stereo plug to (WHITE) RCA jack. The other end of this 3 pronged cable is the 1/8" (GREEN) plug and should be inserted into the sound card's AUDIO OUT on the back of the CPU which is also green coded.

(5) NOT USED with AMTS.

## 17" Monitor Headphone Jack



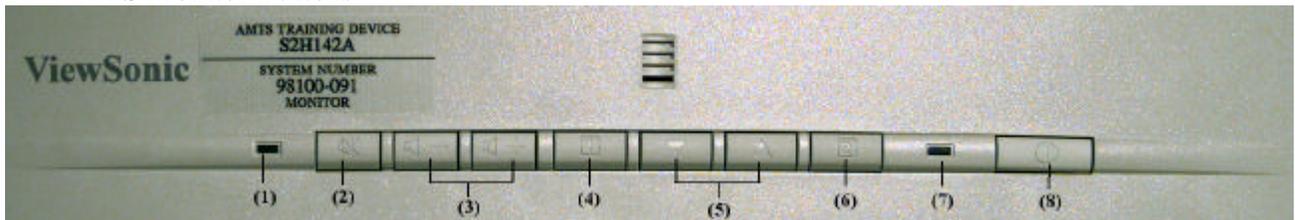
- (1) - **Headphone jack** - The headphone jack is located on the right side of the monitor. Insert a stereo mini plug into the headphone jack to listen via headphones.
- (2) - **NOT USED with AMTS.**

## 17" Monitor Speaker Cable



- (1) - **RCA stereo plug (WHITE)** - Plugs into #4 jack on the back of the 17" monitor (WHITE) RCA connection.
- (2) - **RCA stereo plug (RED)** - Plugs into the #3 jack on the back of the 17" monitor (RED) RCA connection.
- (3) - **1/8" plug - (GREEN)** - Plugs into the sound card (GREEN) 1/8" AUDIO OUT connection.

## 17" AMTS Monitor Buttons



- (1) - Mute LED.
- (2) - Speaker and Headphone Mute.
- (3) - Speaker and Headphone Volume Control.
- (4) - Displays Main Menu and Exits Menus.
- (5) - Scrolls through Menu Adjusts Level of Selected Item.
- (6) - Selects Menu Items.
- (7) - Power LED.
- (8) - On/Off Switch.

## NOTE

**SEE AMTS ON-LINE HELP FOR OPTIONS OF EACH BUTTON**

**Back of 17" AMTS Monitor System Completely Connected.**



**Front of 21" AMTS Monitor**



Viewsonic 21" (20.0" diagonal viewable), 0.25mm dot pitch, high resolution non-interlaced monitor. Has flat square screen, tilt base allowing 180 degrees rotation in the horizontal and 17 degrees in the vertical for user comfort. Power management circuit conforming to VESA and DPMS standards controls energy consumption when monitor is not in use. Automatic tracking of horizontal frequencies from 30 to 95kHz and vertical frequencies from 50 to 160 Hz. Compatible with VGA, SVGA, VESA and high resolution video modes up to 1600 x 1280.

## Back of 21" AMTS Monitor

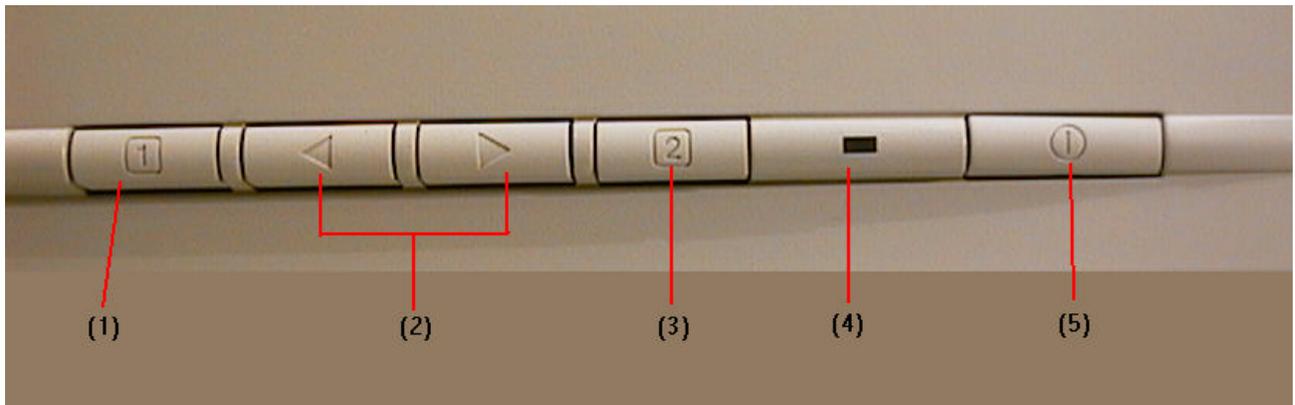


### Monitor Connections

(1) Connect the female end of the 3 pronged power cord to the male AC unit. Connect the 3 pronged male end of the power cord to the AMTS surge suppressor.

(2) Connect the video cable from the monitor (YELLOW) to the CPU's 15 pin video port on graphics card. Ensure the pins are lined up with the port as the connector is inserted. Secure the connection with the two screws on the connector. Either end of the video cable may be plugged into the monitor or graphics board.

### 21" AMTS Monitor Buttons



- (1) - Displays Main Menu and Exits Menus.
- (2) - Scrolls through Menu Adjusts Level of Selected Item.
- (3) - Selects Menu Items.
- (4) - Power LED.
- (5) - On/Off Switch.

## NOTE

### SEE AMTS ON-LINE HELP FOR OPTIONS OF EACH BUTTON

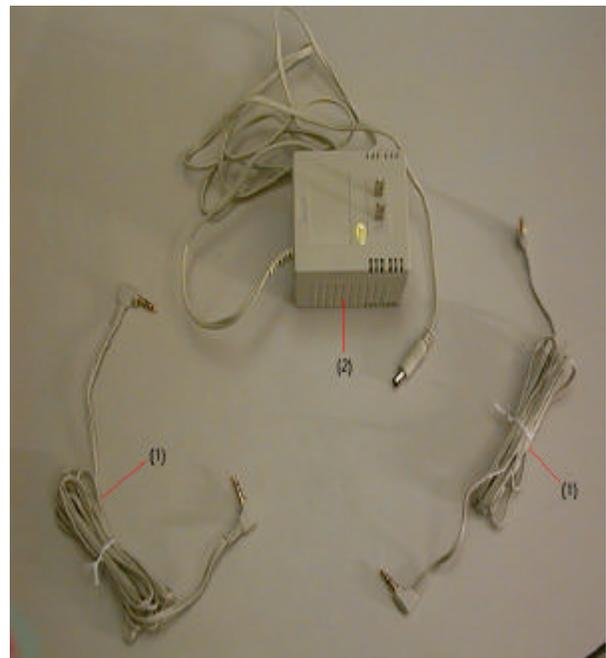
**External Speakers.** External speakers are provided with 21" AMTS Monitor systems only. The 17" AMTS Monitor systems have speakers internal to the monitor. The external speaker system has 5 parts which are (2) two speakers, (2) two 3.5mm stereo cables and (1) one AC/DC adapter (120V AC to 15V DC).



#### **External Speakers (BACK VIEW)**

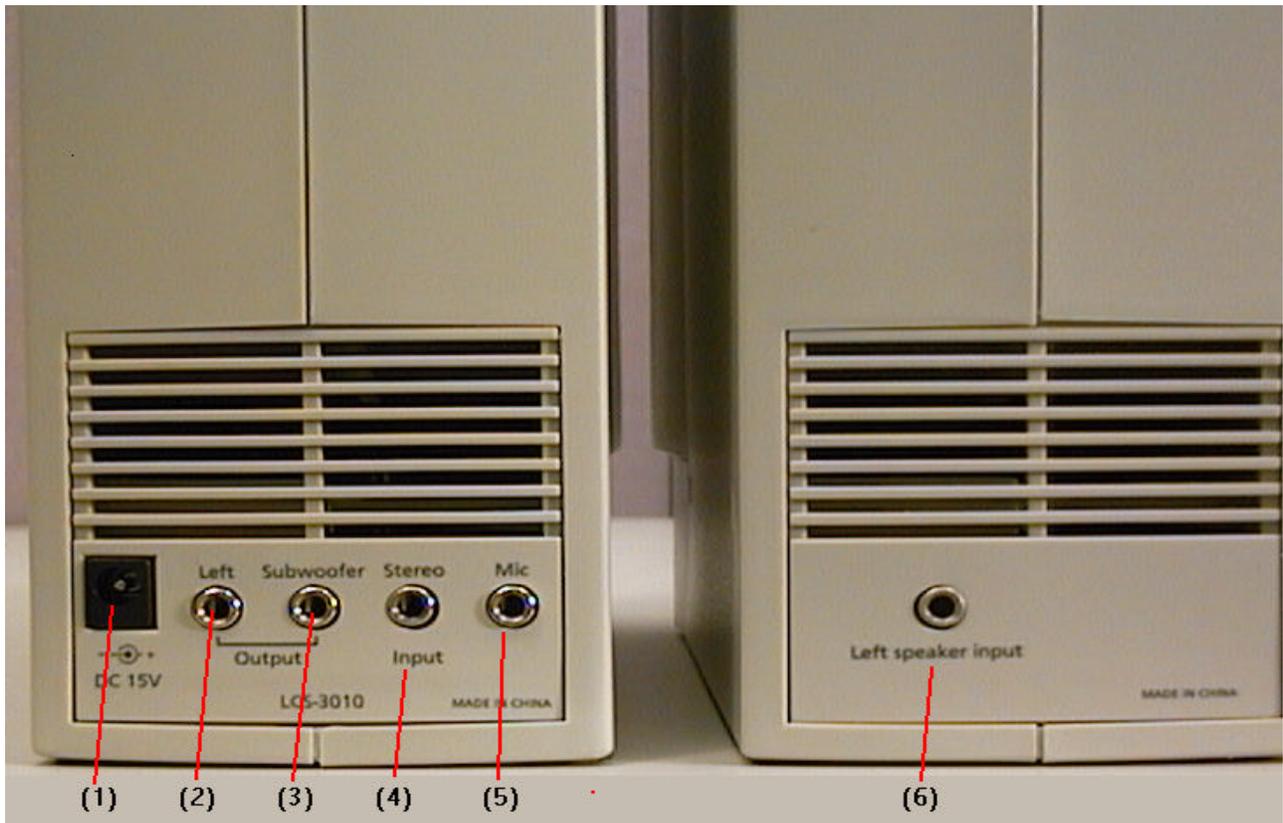
- (1) - Right Speaker
- (2) - Left Speaker

#### **Back of External Speakers**



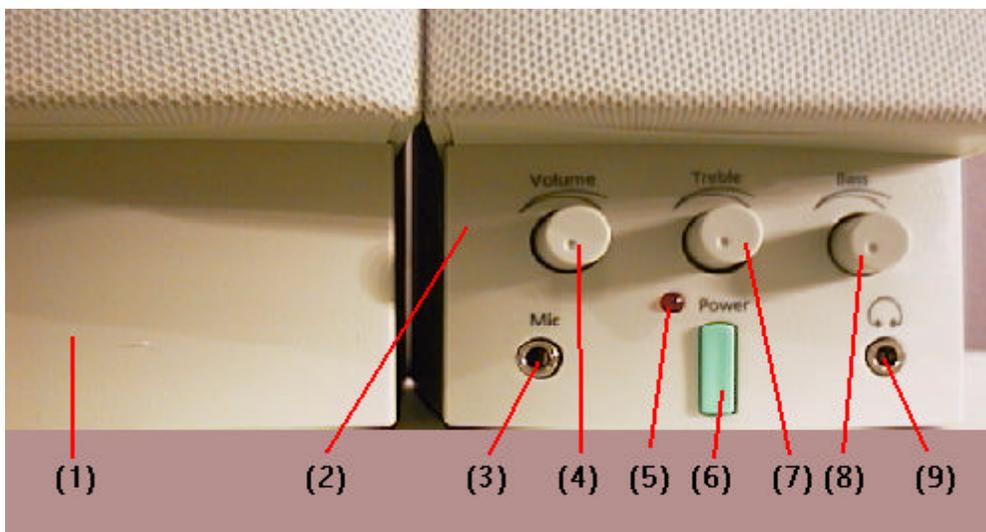
#### **External Speakers cables & AC Adapter**

- (1) - 3.5mm Stereo Cable
- (2) - AC/DC adapter (120V AC to 15V DC)



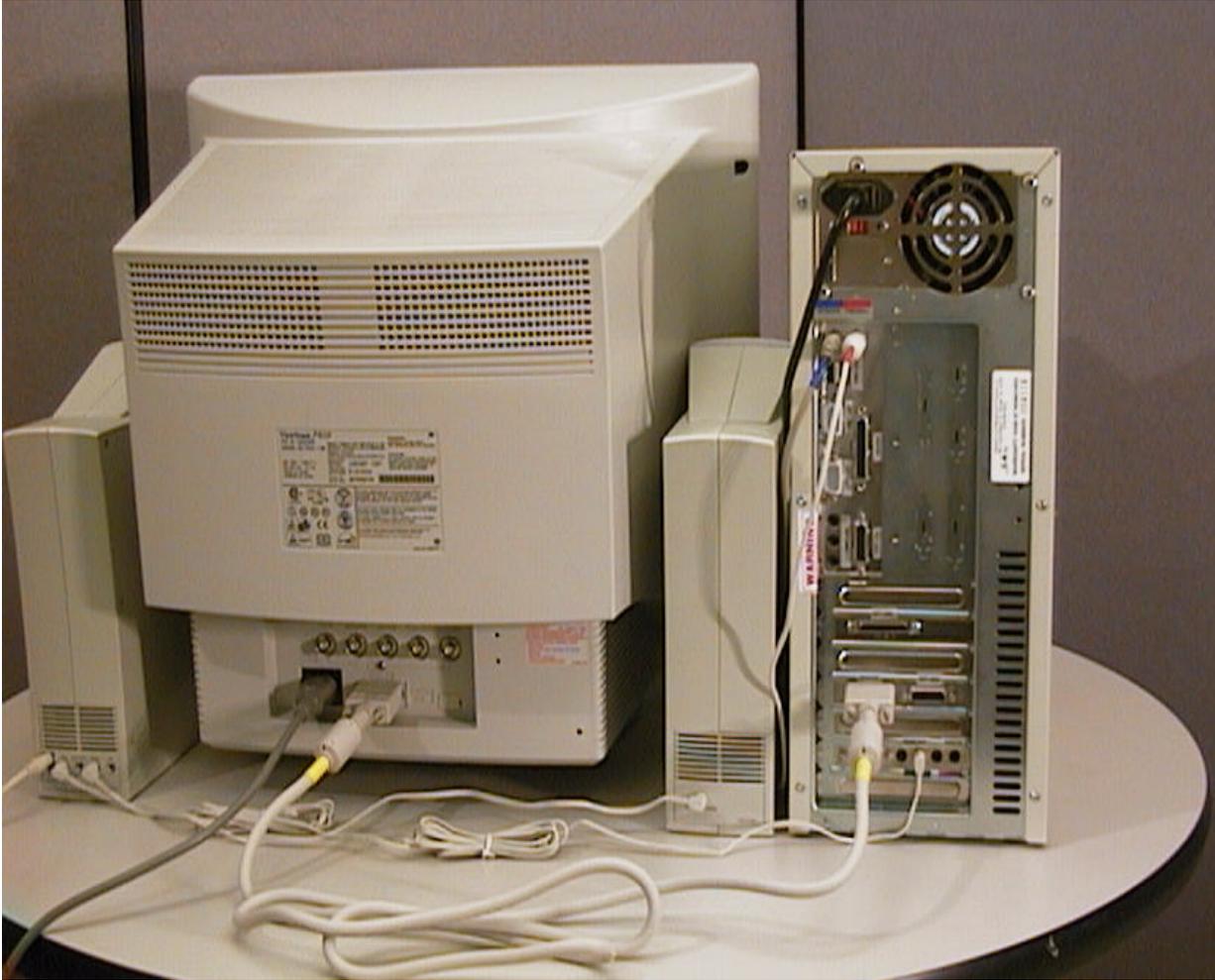
- (1) - **DC 15V connection.** Plug in AC/DC adapter (120V AC to 15V DC) and plug in the other end into the AMTS surge suppressor.
- (2) - **Left Output.** Plug in the 3.5mm stereo plug into this connection and the other end of the 3.5mm stereo plug into #6 left speaker input.
- (3) - **NOT USED with AMTS.** Subwoofer output.
- (4) - **Stereo Input.** Plug in the 3.5mm stereo plug into this connection and the other end of the 3.5mm stereo plug into the sound card (GREEN) audio out connection.
- (5) - **NOT USED with AMTS.** Microphone.
- (6) - **Left Speaker Input.** Plug in the 3.5mm stereo plug into this connection and the other end of the 3.5mm stereo plug into #2 left output connection.

### External Speakers Front



- (1) - Left speaker
- (2) - Right speaker
- (3) - **NOT USED with AMTS.** Microphone
- (4) - Volume control
- (5) - Power LED
- (6) - Power button
- (7) - Treble control
- (8) - Bass control
- (9) - 3.5mm stereo headphone jack

**Back of 21" AMTS Monitor System Completely Connected.**



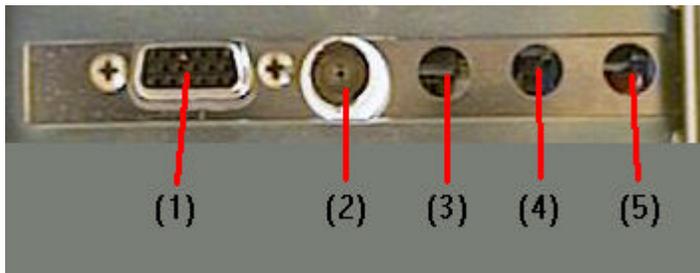
**AMTS Surge Suppressor**



**Optional Acoustic Tabletop Trainer (ATT).** The ATT card was developed by NSWC. The ATT card allows users to process raw live analog data from any type of analog medium i.e. DAT, cassette, MILSTD 1610 1” tape through the ATT card and process the data through the AMTS trainer in a display that is very similar to aircraft acoustic processors.

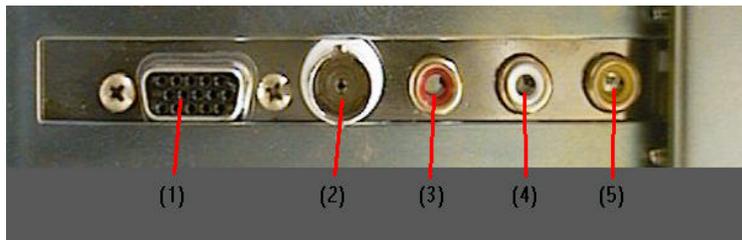
There are four (4) different types of ATT Cards that can be installed in an AMTS depending upon the system. Each type of ATT card will be described in detail below:

### **ATT TYPE 2 CARD (1 Acoustic Analog Channel Input)**



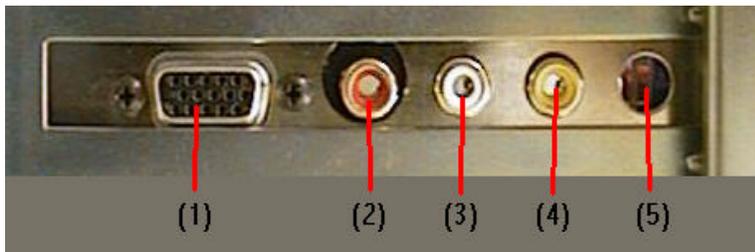
- (1) - NOT USED with AMTS. 15 Pin high density adapter.
- (2) - **BNC Jack Audio/Data Input.** Users should connect the output from a DPU, Honeywell 5600 or Nakamichi cassette player into the BNC jack audio/data input for replay of 1 channel (PIC/BUOY) using the appropriate cabling and connections.
- (3) - NOT USED with AMTS. Hole.
- (4) - NOT USED with AMTS. Hole.
- (5) - NOT USED with AMTS. Hole.

### **ATT TYPE 3 CARD (1 Acoustic Analog Channel Input)**



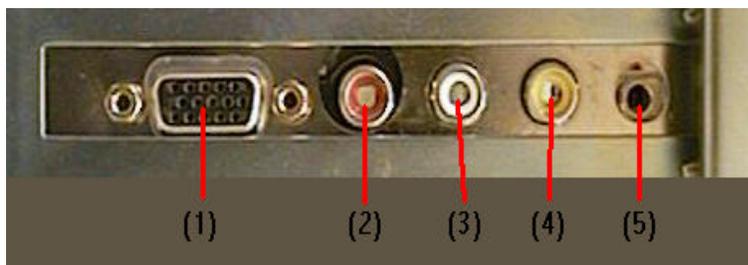
- (1) - NOT USED with AMTS. 15 pin high density adapter.
- (2) - **BNC Jack Audio/Data Input.** Users should connect the output from a DPU, Honeywell 5600 or Nakamichi cassette player into the BNC jack audio/data input for replay of 1 channel (PIC/BUOY) using the appropriate cabling and connections.
- (3) - NOT USED with AMTS. RCA Jack, (RED) Audio Out.
- (4) - NOT USED with AMTS. RCA Jack, (WHITE).
- (5) - NOT USED with AMTS. RCA Jack, (YELLOW).

### ATT TYPE 4 CARD (1 or 2 Acoustic Analog Channel Input)



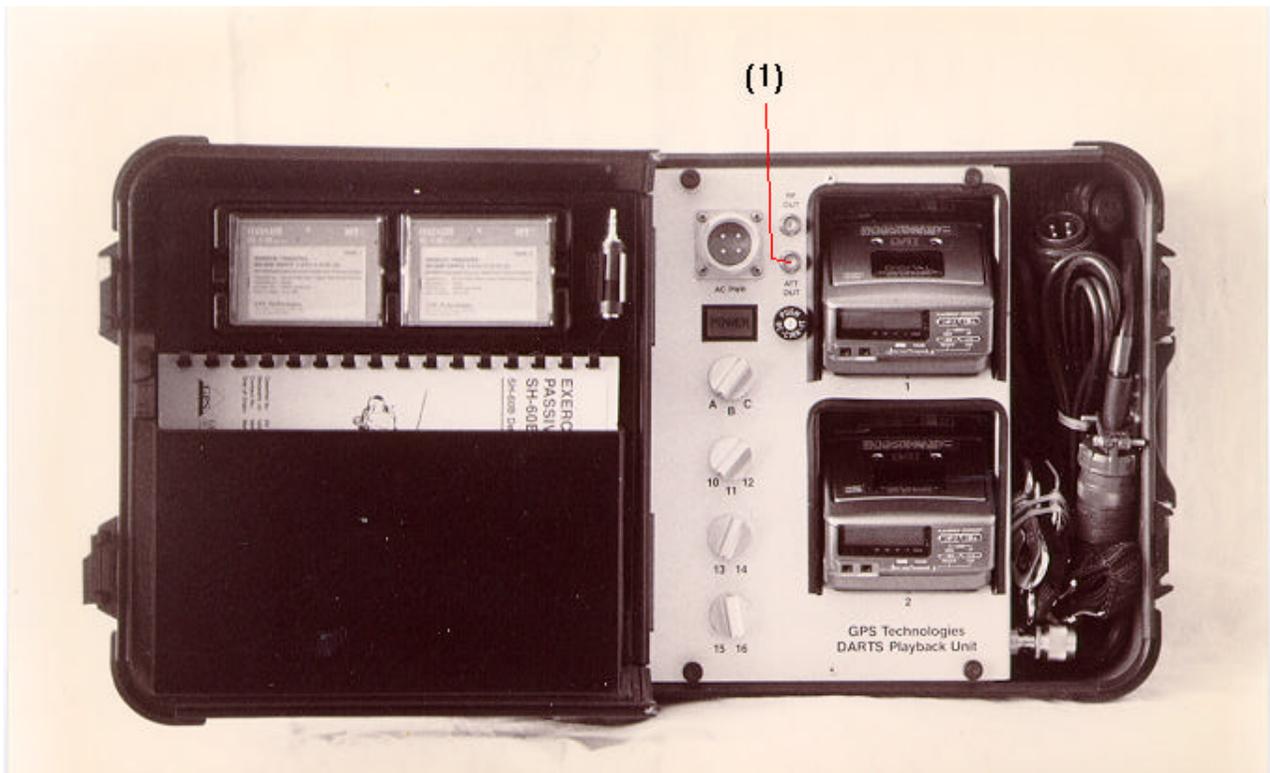
- (1) - NOT USED with AMTS. 15 pin high density adapter.
- (2) - **RCA Jack Channel 1 Input (RED)**. Users should connect the output from a DPU, Honeywell 5600 or Nakamichi cassette player into the RCA jack audio/data input for replay of 1 channel (PIC/BUOY) using the appropriate cabling and connections.
- (3) - **RCA Jack Channel 2 Input (WHITE)**. Users should connect the output from a DPU, Honeywell 5600 or Nakamichi cassette player into the RCA jack audio/data input for replay of 1 channel (PIC/BUOY) using the appropriate wiring and connections. User may also use a T-connector from the output source and process the same target in two completely different resolutions or modes.
- (4) - NOT USED with AMTS. (YELLOW) RCA jack, audio output channel 1.
- (5) - NOT USED with AMTS. Hole.

### ATT TYPE 5 CARD (1 or 2 Acoustic Analog Channel Input)



- (1) - NOT USED with AMTS. 15 pin high density adapter.
- (2) - **RCA Jack Channel 1 Input (RED)**. Users should connect the output from a DPU, Honeywell 5600 or Nakamichi cassette player into the RCA jack audio/data input for replay of 1 channel (PIC/BUOY) using the appropriate cabling and connections.
- (3) - **RCA Jack Channel 2 Input (WHITE)**. Users should connect the output from a DPU, Honeywell 5600 or Nakamichi cassette player into the RCA jack audio/data input for replay of 1 channel (PIC/BUOY) using the appropriate wiring and connections. User may also use a T-connector from the output source and process the same target in two completely different resolutions or modes.
- (4) - NOT USED with AMTS. (YELLOW) RCA jack, audio output channel 1.
- (5) - NOT USED With AMTS. 1/8" jack, audio output channel 2.

## Optional Deployable Acoustic Readiness Training System (DARTS) Playback Unit (DPU)



- (1) ATT OUT. This connection should be connected with the cable provided by NSWC to the optional ATT card channel (1) or channel (2) input. You may also use a T-connector and plug the single channel ATT OUT from the DPU to channel (1) and channel (2) on the optional ATT card to view the same target in two different resolutions, bands or verniers.

## CASSETTE DECKS

There are two (2) different types of cassette decks provided for an AMTS depending upon the system. Each type of cassette deck will be described in detail below:

**Optional Nakamichi DR-2 Cassette Deck.** Features include 4 tracks/2-channel stereo. Frequency response 20-21,000 Hz +/- 3dB.

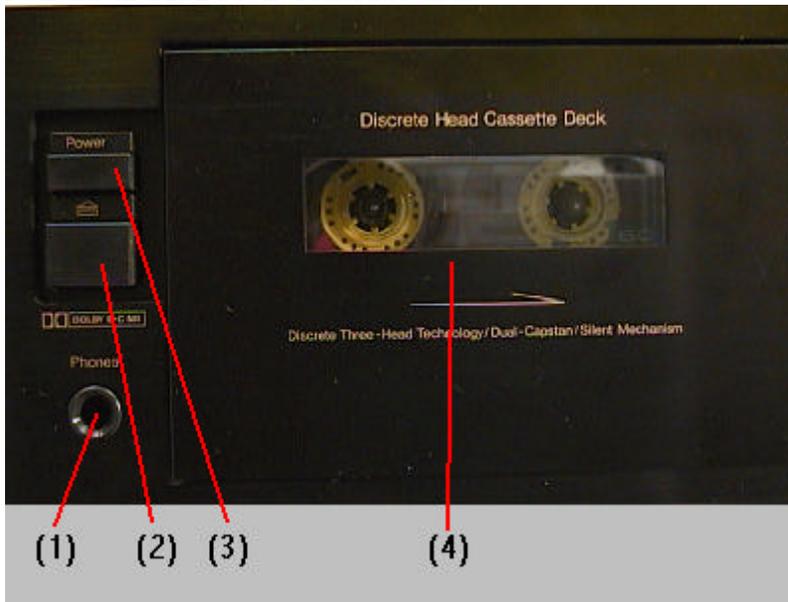


Nakamichi DR-2 Front View



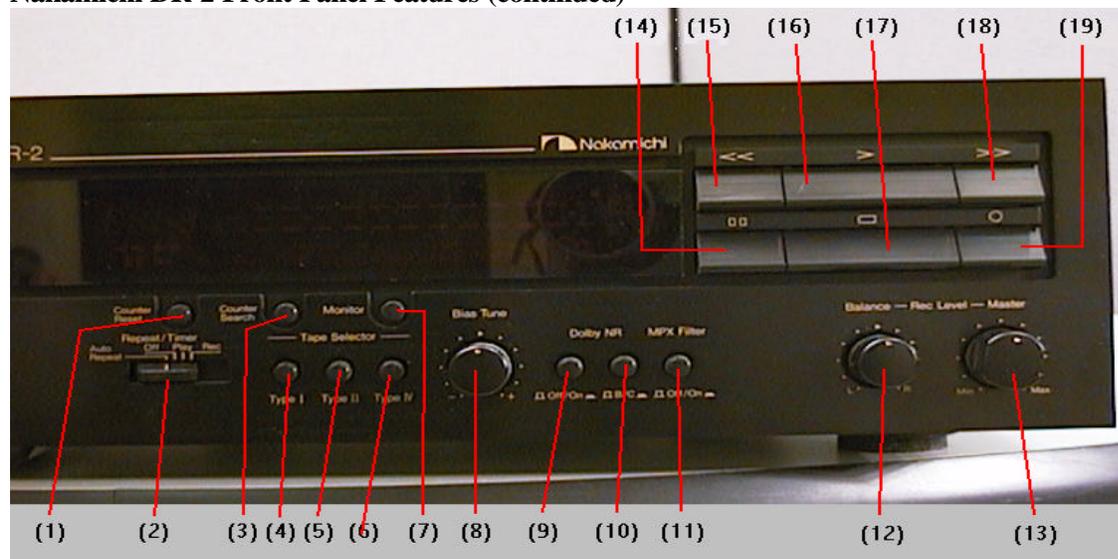
Nakamichi DR-2 Back View

### Nakamichi DR-2 Front Panel Features



- (1) - Headphone jack.
- (2) - Eject button.
- (3) - Power button.
- (4) - Cassette holder.

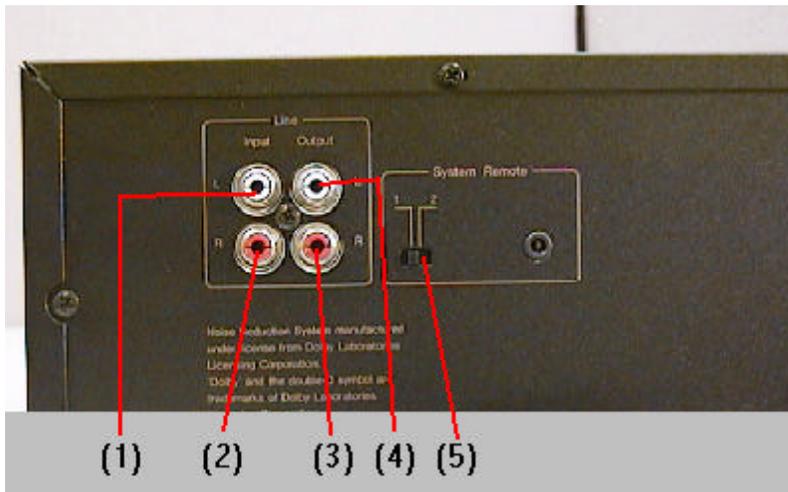
## Nakamichi DR-2 Front Panel Features (continued)



- (1) - Counter Reset Button. When the button is pressed, the tape counter will be reset to "0000".
- (2) - Repeat Timer Selection. Should be set to Off for acoustic replay.
- (3) - Counter Search Button. In the playback, stop or pause mode, pressing this button automatically locates the position of the tape corresponding to a tape counter indication of "0000". When the "0000" point is reached, the mode that was active before the search is reentered.
- (4) - Type I Tape Selector Button. Should be depressed for normal tapes.
- (5) - Type II Tape Selector Button. Should be depressed for high bias or chrome tapes.
- (6) - Type IV Tape Selector Button. Should be depressed for metal tapes.
- (7) - Monitor Button. NOT USED.
- (8) - Bias Tune control knob. Bias requirements differ for various tape formulations. To obtain the best sound quality, it is advisable to always adjust bias before recording with this control.
- (9) - Dolby NR On/Off Switch.
- (10) - Dolby NR B/C Switch. The Dolby B-Type NR is designed to reduce tape hiss and increase dynamic range in the upper frequency range. Set to the B position when playing back a tape recorded with Dolby B-NR, and C position when playing back a tape recorded with Dolby C-NR. Dolby noise reduction will not be effective if it is set to the wrong position.
- (11) - NOT USED.
- (12) - Record Level Balance Control.
- (13) - Record Level Master Control. Use this control to adjust the recording level of the left and right channels simultaneously. Adjust the balance between the left and right channels using the Rec Level Balance control.
- (14) - Pause Button. When the pause button is pressed during playback, the deck enters the pause mode. To resume playback, press the > button.
- (15) - Rewind Button. Press once for rewind. When the << is pressed twice, the deck enters the rewind mode for five seconds then enters the playback mode for five seconds, this process continues until Play (>) or Stop [] is pressed.
- (16) - Play Button.
- (17) - Stop Button.
- (18) - Fast Forward Button. Press once for fast forward. When the >> is pressed twice, the deck enters the fast forward mode for five seconds then enters the playback mode for five seconds, this process continues until Play (>) or Stop [] is pressed.

(19) - Record Button. When the record button is pressed, the deck enters the Rec-Pause mode. To leave a silent portion during recording, hold the record button depressed. The silent recording portion will be left as long as the record button is pressed. Releasing the Record button resumes audio recording.

**Nakamichi DR-2 Rear Panel Features**



- (1) - Left Line Input RCA connection. Not used for acoustic replay.
- (2) - Right Line Input RCA connection. Not used for acoustic replay.
- (3) - Left Line Output RCA connection. Should be connected with appropriate cabling to the optional ATT channel (1) or channel (2) input.
- (4) - Right Line Output RCA connection. Should be connected with appropriate cabling to the optional ATT channel (1) or channel (2) input.

(5) - NOT USED.

**Optional Nakamichi MR-1 Cassette Deck.** Features include 4 tracks/2-channel stereo. Frequency response 20-20,000 Hz +/- 3dB.

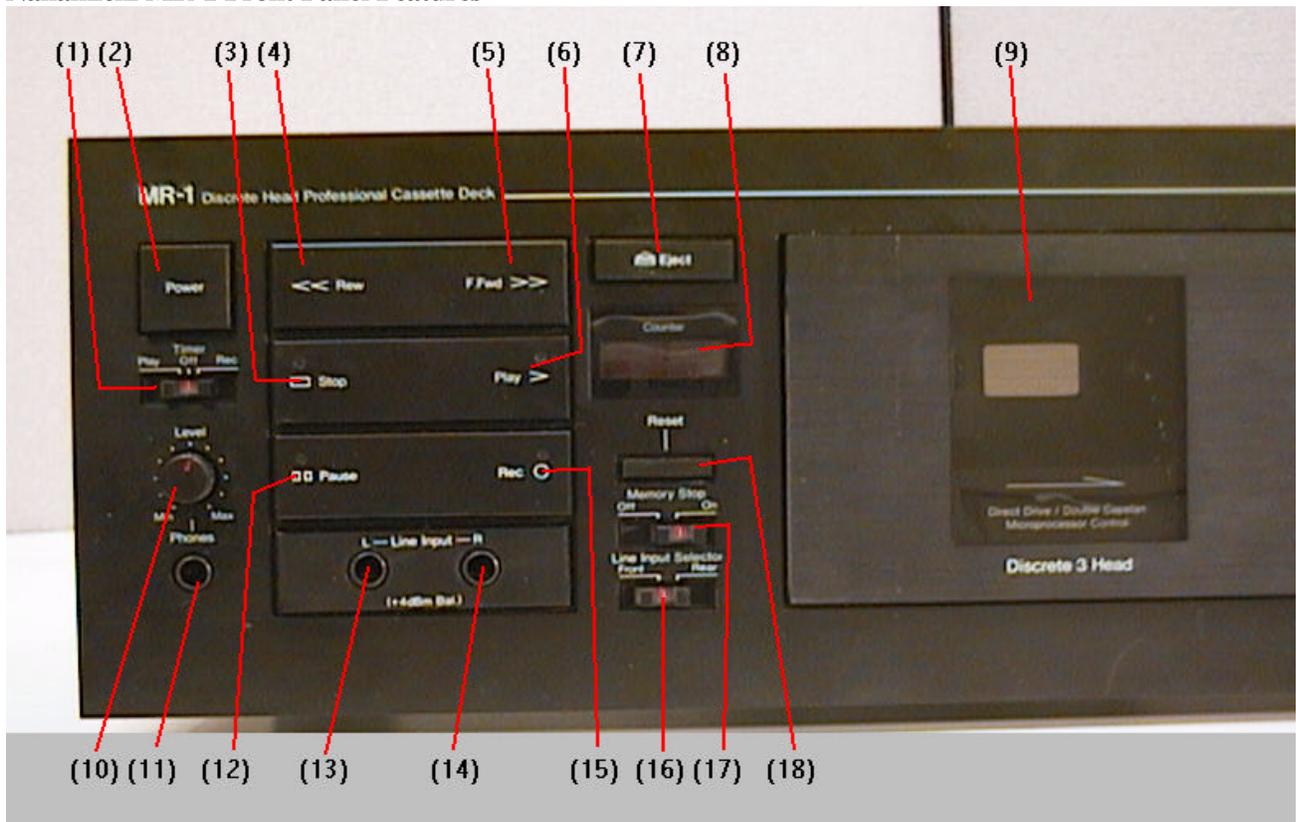


Nakamichi MR-1 Front View



Nakamichi MR-1 Back View

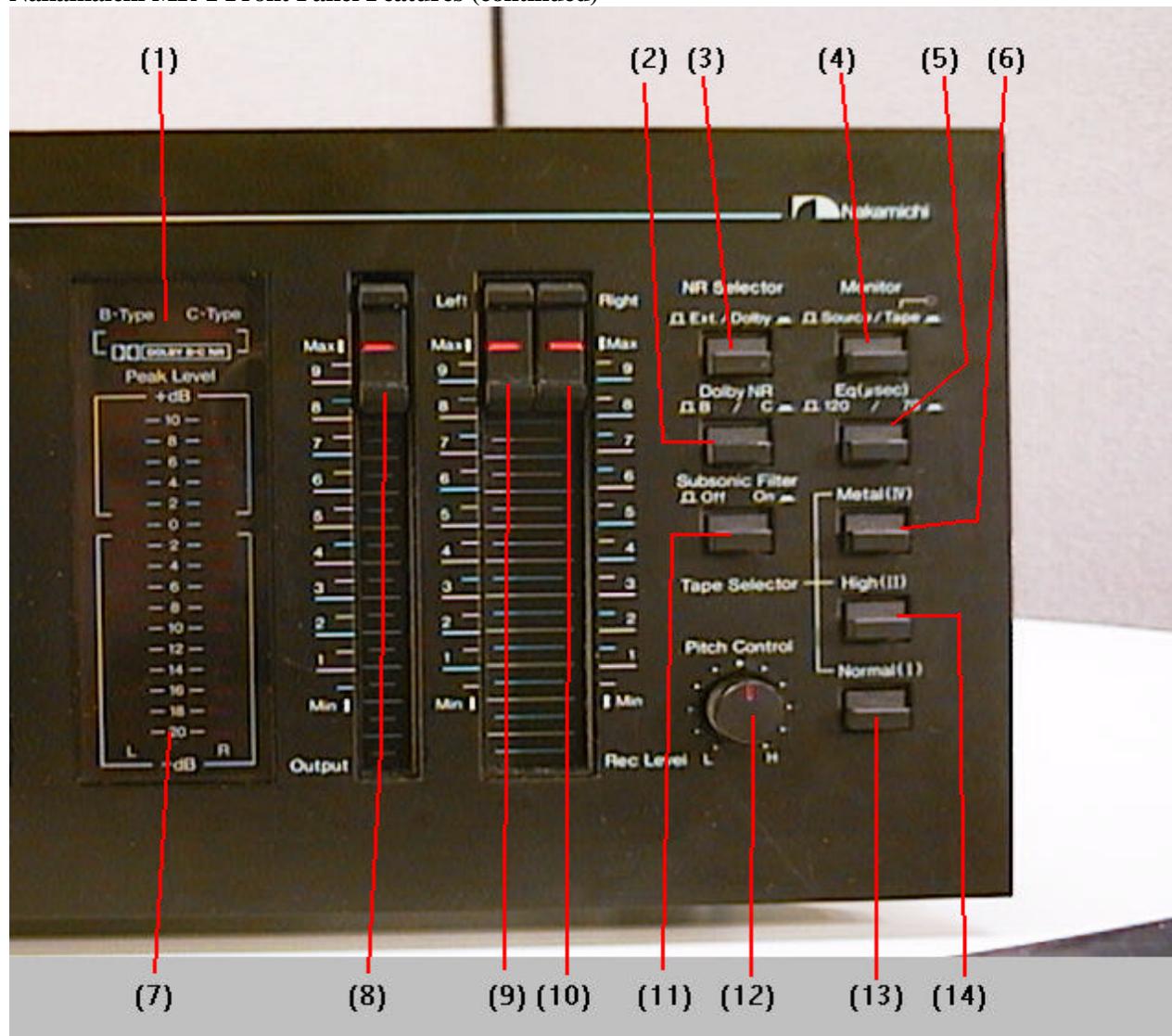
## Nakamichi MR-1 Front Panel Features



- (1) - Timer Switch. Used for timer-activated recording or playback. For acoustic playback, set to OFF.
- (2) - Power Switch.
- (3) - Stop Button. Press to completely stop the tape transport from any mode. The indicator lights up.
- (4) - Rewind Button. Press to rewind.
- (5) - Fast Forward Button. Press to fast forward.
- (6) - Play Button. Starts playback or to start recording from the record-standby mode. During operation, the indicator lights up.
- (7) - Eject Button.
- (8) - Tape Counter. Starting from "0000", tape travel is indicated in the range from "9999 to -999". To reset the counter indication to "0000", press the Counter Reset Button.
- (9) - Cassette Holder.
- (10) - Headphone Level Control. Permits adjustment of headphone listening level, independent from the line output level.
- (11) - Headphone Jack.
- (12) - Pause Button. Temporarily interrupts tape travel during recording or playback. During operation, the indicator lights up. To start the tape again, press the Play button.
- (13) - 1/4" Left Line Input Jack. The nominal input level of this jack is +4dBm.
- (14) - 1/4" Right Line Input Jack. The nominal input level of this jack is +4dBm.
- (15) - Record Button. By pressing this button the deck enters the record-standby mode (record/pause) and the recording indicator lights up. When the button is pressed once more during recording, the Rec Mute function is activated for as long as the button is kept depressed.

- (16) - Line Input Selector Switch. This switch serves to select either the front or rear panel inputs of the deck.
- (17) - Memory Switch. With the switch set to “On”, the tape stops automatically when the counter indication “0000” is reached during rewind or fast-forward.
- (18) - Counter Reset Button. Push to reset counter to “0000”.

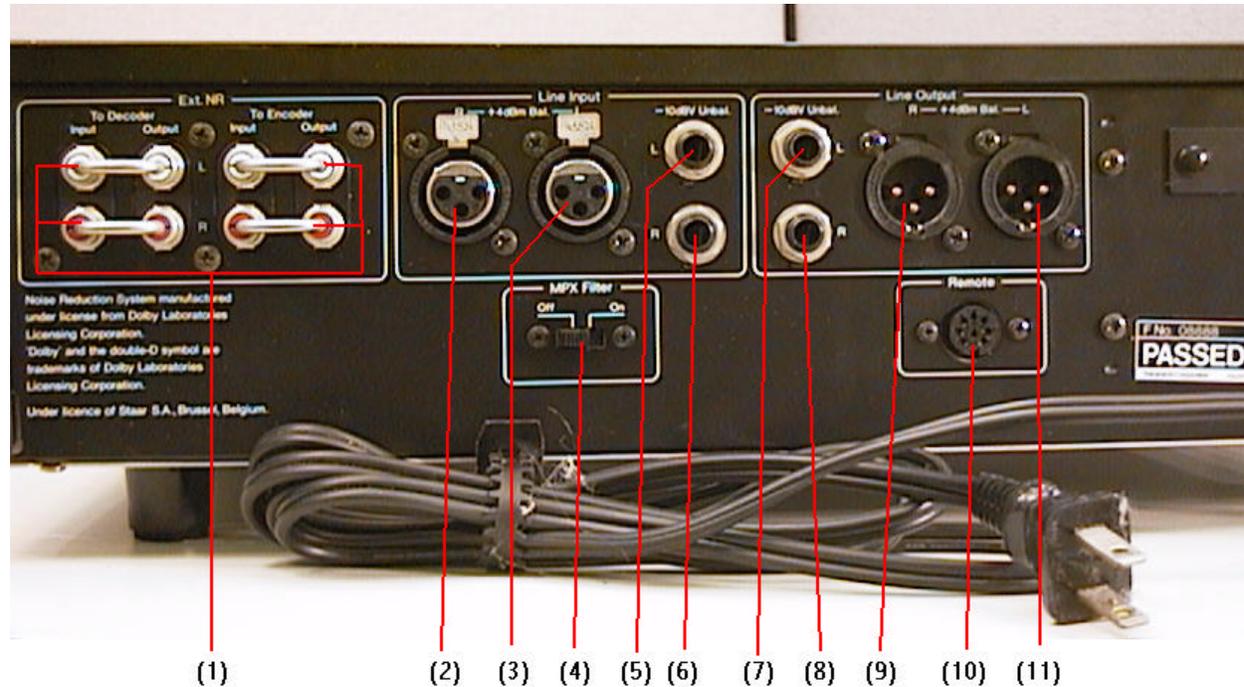
**Nakamaichi MR-1 Front Panel Features (continued)**



- (1) - Dolby NR Indicators
- (2) - Dolby B/C NR Selector Switch. This switch serves to select either the B-type or C-type NR system when the built-in Dolby noise reduction is used. The respective indicator lights up.
- (3) - NR Selector Switch. To use the built-in Dolby B/C NR system, this switch must be set to “Dolby”. When an externally connected NR unit or no noise reduction is to be used, the switch must be set to Ext.
- (4) - Monitor Switch. For playback of a tape and for off-the-tape monitoring during recording, this switch must be set to “Tape” (indicator lit). For record level setting etc., the switch must be set to “Source”.
- (5) - Equalizer Switch. Serves to select correct equalization in recording and playback for the tape in use.
- (6) - Metal Tape Selector Switch. Used when recording on metal tapes.
- (7) - Peak Level Meters. Provide exact indication of peak levels in the range of -20 to +10 dB.
- (8) - Line Output Level Control. Serves to adjust the line output level.

- (9) - Left Input Level Control. Serves to adjust the recording level.
- (10) - Right Input Level Control. Serves to adjust the recording level.
- (11) - Subsonic Filter Switch. Used to cut off low-frequency noise. Usually set to “Off”.
- (12) - Pitch Control. Serves to alter tape speed during playback over a range of approximately +/- 6%.
- (13) - Normal Tape Selector Switch. Used when recording on normal cassette tapes.
- (14) - High Tape Selector Switch. Used when recording on high bias or chrome tapes.

### Nakamichi MR-1 Rear Panel Features



- (1) - Ext. NR Jacks. An external noise reduction unit can be connected to these terminals. If no external unit is to be used, **DO NOT REMOVE THE JUMPER PLUGS FROM THESE JACKS, OTHERWISE RECORDING OR PLAYBACK CANNOT BE CARRIED OUT WHEN THE NR SELECTOR SWITCH IS SET TO “EXT”.**
- (2) - XLR (3-31) Left Line Input Jack (Balanced). The nominal input level is +4dBm.
- (3) - XLR (3-31) Right Line Input Jack (Balanced). The nominal input level is +4dBm.
- (4) - MPX Filter Switch. Used to suppress the 19kHz multiplex carrier signal, which could interfere with proper Dolby NR operation when recording. **NORMALLY SET TO “Off”.**
- (5) - 1/4” Left Line Input Jack (Unbalanced). The nominal input level is -10dBV.
- (6) - 1/4” Right Line Input Jack (Unbalanced). The nominal input level is -10dBV.
- (7) - 1/4” Left Line Output Jack (Unbalanced). The nominal output level is -10dBV. Should be connected with appropriate wiring to the optional ATT Channel (1) or Channel (2) Input.
- (8) - 1/4” Right Line Output Jack (Unbalanced). The nominal output level is -10dBV. Should be connected with appropriate wiring to the optional ATT Channel (1) or Channel (2) Input.
- (9) - XLR (3-32) Right Line Output Jack (Balanced). The nominal output level is +4dBm.
- (10) - Remote Terminal. **NOT USED.**
- (11) - XLR (3-32) Left Line Output Jack (Balanced). The nominal output level is +4dBm.

## **STARTUP**

To start the AMTS system, turn on the power at the surge suppressor, the monitor and the CPU unit. Insert the Jaz cartridge into the Jaz drive. The AMTS system will not boot without a Jaz cartridge in the drive. Training software can be accessed after the boot sequences are completed by moving the cursor over the AMTS symbol in the lower left corner using the trackball or mouse. The AMTS symbol is adjacent to the “Click here to begin” message.

### **Inserting Jaz cartridges**

Carefully insert a Jaz cartridge into the Jaz drive with a light forward pressure with the label side visible. The Jaz cartridge will only go into the Jaz drive with the drive hub on the bottom side. Do not force a Jaz cartridge into a drive if there is any resistance. The cartridge will be flush with the Jaz drive face when fully inserted.

### **Removing Jaz cartridges**

The Jaz cartridge can not be removed without performing a SHUT DOWN procedure as described below. After the shut down procedure is completed, the Jaz cartridge can be removed from the drive by pressing the button on the Jaz drive to the right of the drive status light. The drive status light will flash while the cartridge spins down and then the Jaz cartridge will be ejected.

## **CAUTION**

In the event of a power failure or condition where the Jaz cartridge can not be removed with normal procedures, the Jaz cartridge can be removed manually by inserting a straightened paper clip into the hole to the right of the activity light. Do not attempt manual ejection with power applied as Jaz drive can be damaged.

### **Inserting CD ROMs**

Press the stop/eject button on the CD ROM drive and the CD tray will slide out to receive the CD ROM. Place the disk onto the tray with the labeled side up and visible. Press the stop/eject and the CD tray will close.

## **SHUT DOWN**

To shut down the AMTS system, exit training programs and return to the main menu. Use the trackball or mouse pointing device to select the AMTS menu and then select the SHUT DOWN option. The software will then close out all Windows program functions and enable the AMTS system to shut down. Follow the instructions on the monitor screen to remove Jaz cartridge and any CD ROMs and then power can be shut down.

## **SECURITY FEATURES**

The AMTS device employs a restricted access security system that denies user access to the operating software. This system is designed to protect the operating software from unauthorized alteration and modification and to prevent installation of unauthorized software.

#### **SHIPMENT OF HARDWARE**

After contacting technical support, if it becomes necessary to return the AMTS HARDWARE for repair, the AMTS should be shipped to the following address:

NAWC Weapons Division  
Code 342010E  
Building 71  
Point Mugu, CA 93042-5001

Attn: Ray Roth, 805-989-7918

#### **SHIPMENT OF CLASSIFIED JAZ CARTRIDGE OR SOFTWARE**

After contacting technical support, if it becomes necessary to return the AMTS Jaz cartridge for repair or any other classified software, the classified software should be shipped to the following address:

Commander  
NAWC Weapons Division  
521 9th Street  
Point Mugu, CA 93042-5001  
Attn: Code 342010E

#### **TECHNICAL SUPPORT**

AMTS Project Engineer  
Mr. Ray Roth  
NAWC Weapons Division  
Code 342010E  
Point Mugu, CA 93042-5001  
DSN: 351-7918, COMM: 805-989-7918  
FAX: 7917  
EMAIL: rothr2@mugu.navy.mil

AMTS Aircrew CBT Support Representative and Primary Acoustic POC  
Mr. Jim Nelson  
NAWC Weapons Division  
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FAX: 7917  
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AMTS Aircrew CBT Support Representative  
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