Film-Tech

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Installation and Service Manual

DASA300/DASA400

Digital Recorder/Player Announcing System

SMART

5945 Peachtree Corners East - Norcross, Ga. 30071
1 (800) 45-SMART or (404) 449-6698

Zap!

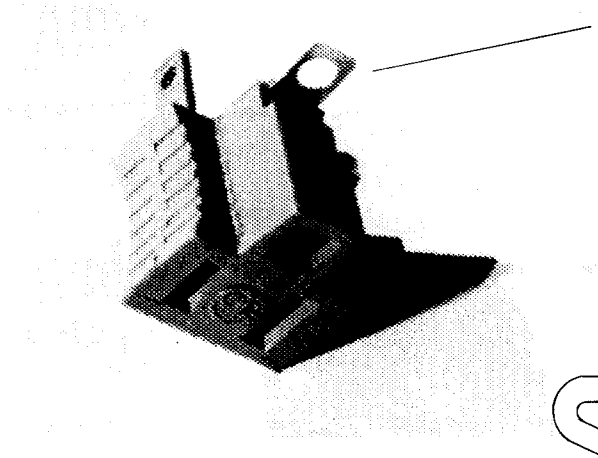
In the winter, when relative humidity is very low inside a heated building, your body can generate a very high voltage potential due to a static electricity buildup. If you touch the metal switches on the DASA300, you may see or feel a spark jump to the switches.

A very high voltage can zap the memory of the DASA300 and clear the stored message. This means you have to re-record the message.

A simple fix for this condition it to ground the case of the DASA300 to a good electrical ground source. This could be a copper water pipe, building ground system, or electrical outlet ground.

The power pack furnished with the DASA300 provides an isolated power source to the digital player. Adding a ground to the metal case will minimize the chance of losing a message due to static electricity discharges.

Grounding adapters are available at most hardware or electrical supply stores. Extend the ground wire with another piece of wire and slip the ground wire under one of the metal screws that secure the DASA300 to the wall. This will carry a ground connection the case of the product. This should end any "Zapping" problems.



Ground Terminal. Connect a wire from here to the case of the DASA300.

SMART

Digital Recorder/Player Announcing System

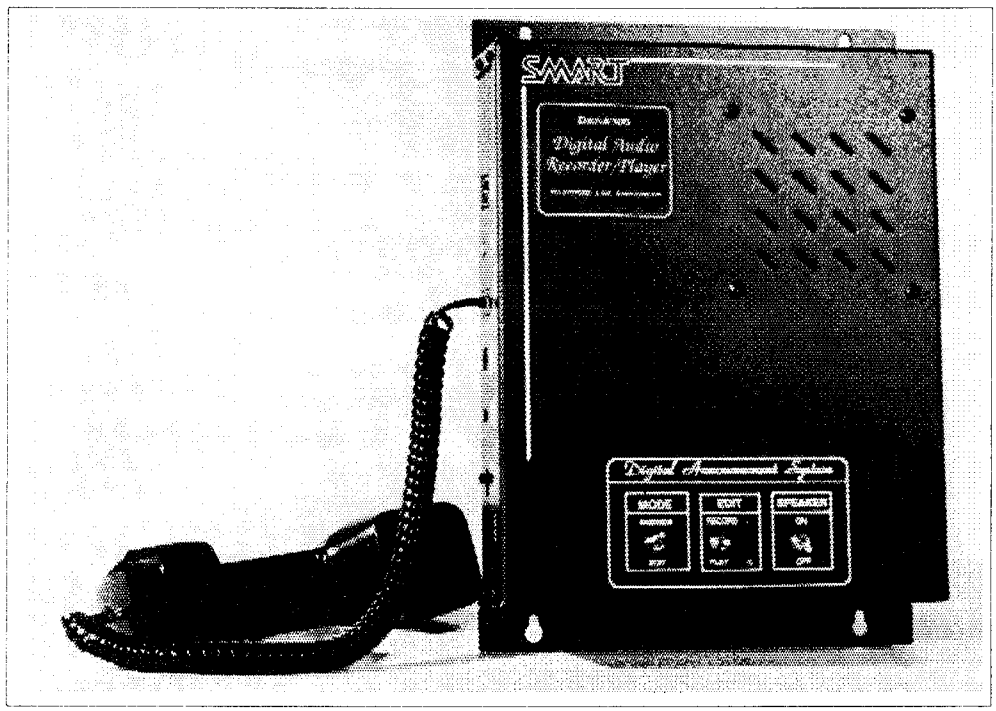
Model DASA300 and DASA400

Description

The DASA300 Digital Recorder/Player Announing System is capable of recording and playing up to a 5 minute 20 second high quality audio message to callers over a standard telephone or PABX ring loop start phone line. Your DASA300 or DASA400 combines advanced digital storage, audio processing and microprocessor technology, and extended frequency response to achieve truly natural sound reproduction and user friendly features.

The DASA300 was designed to provide a digitally stored audio information source to your callers. Your message can be loaded both locally via handset or tape, or remotely via telephone. This machine answers your phone line and may be loaded with a new message locally (at the machine) or remotely with a touch tone phone.

The DASA400 is a variation of the DASA300 but is used in a continuous "loop" mode of operation. It is primarily used for "Message on Hold" applications and is connected to a phone system that has a "music on hold" input that has a tape player or radio as an audio source. The two models look alike, but have slightly different internal circuitry. The DASA400 will not answer the phone line. The TELCO jack has been disabled on the DASA400 model, and the AUDIO OUTPUT jack is enabled. A volume level control on the side of the unit is also active to adjust the proper audio level to the "Music on Telephone Hold" input of your telephone system.



The DASA300 and DASA400 feature easy to use controls, built-in monitor speaker and a rechargeable battery backup system capable of operating the unit for up to 1 hour in the event of a power failure.

PHYSICAL SPECIFICATIONS

MECHANICAL

Height..... 11.5"
Width..... 8.0"
Depth..... 2.25"
Weight..... 2 lbs.
Color..... Black with White Lettering

ENVIRONMENTAL

Ambient Conditions..... 0C to 55C @ 0% to 95% Relative Humidity non-condensing

MOUNTING..... Vertical Wall Mount

POWER

AC Primary Input..... 110 VAC 60Hz to 12 Vdc 300 mA Power Pack UL/CSA Listed
Battery Back-up..... Internal, 7.2 Vdc, NiCad

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

TECHNICAL SPECIFICATIONS

ELECTRICAL

Encoding/Decoding.....ADM (Adaptive Delta Modulation)
Sampling Frequency.....64 Kbits per second (also 34 or 128 Kbits selectable)
Frequency Response...50 Hz to 7 KHz +/- 1.5 dB
Input/Output Filter.....4th order switched capacitor
Signal to Noise Ratio...> 50dB
Distortion.....< 2%THD

MEMORY

Type.....Dynamic RAM
Size..... 2048K Bytes

MESSAGE

Number of Messages...One Variable Length
Maximum Message Times..... 5 min 20 sec.

TELCO INTERFACE

Type.....Ring, Loop Start, CO Line or PABX
Connector.....USOC Type Modular RJ11C
Number of Lines.....One

CONTROL

Local.....Front Panel
Remote.....DTMF tones via Telco Line

AUDIO

INPUT/OUTPUT

Handset..... Telephone Handset Modular Jack
Tape Input..... 2 Volt P-P, 3.5mm Jack
Audio Monitor..... Internal Speaker

SOFTWARE CONTROLLED FEATURES

(Factory Options)
Answer..... First (factory setting) or Third Ring

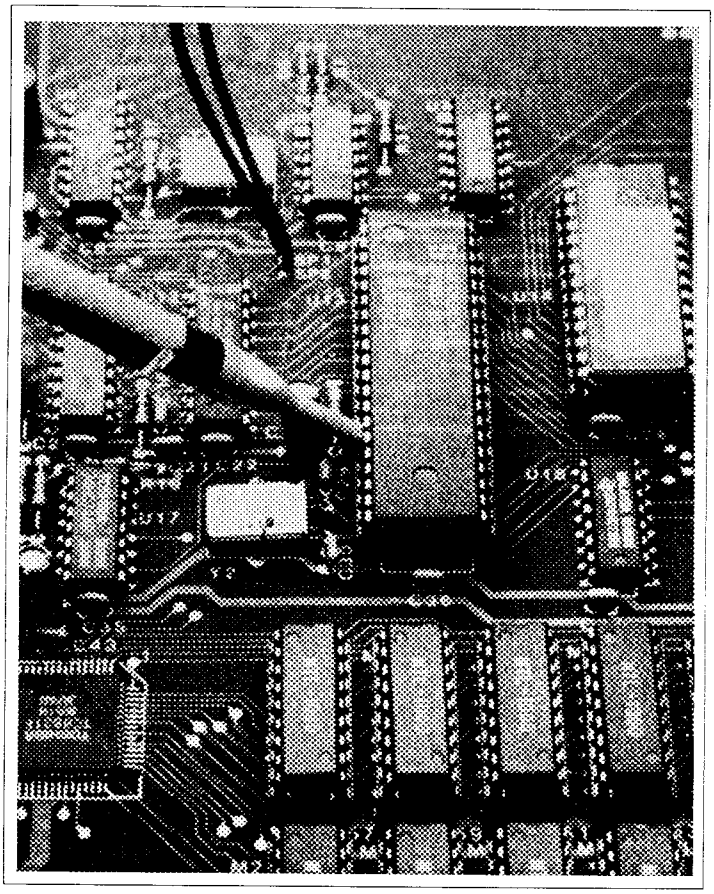
Play Once and Disconnect (factory setting), or Play Continuously until Calling Party Disconnects.
Password.....Four Digit Standard

Continuous looping of message on model DASA400 only.

OPERATION SUMMARY

MODE SWITCH - ANSWER/EDIT

This switch is used to place the unit in either the Edit (local) Mode or Answer(telephone answer) Mode. When placed in Edit Mode, the unit will not answer calls from the telephone line and you may record or play your message using the "Edit" switch with the audio input by either the Telco handset or Tape input. When placed in the Answer Mode, the unit will answer calls from the telephone line and immediately play the recorded message. In



The DASA300 is controlled by a CPU (central processing Unit) just like a computer.

addition, the Answer Mode allows users the ability to record over the telephone line via password access.

EDIT - RECORD/PLAY

This switch is used to start and stop the record or play function while in the Edit Mode. This switch is disabled when in the Answer Mode.

MONITOR SPEAKER - ON/OFF

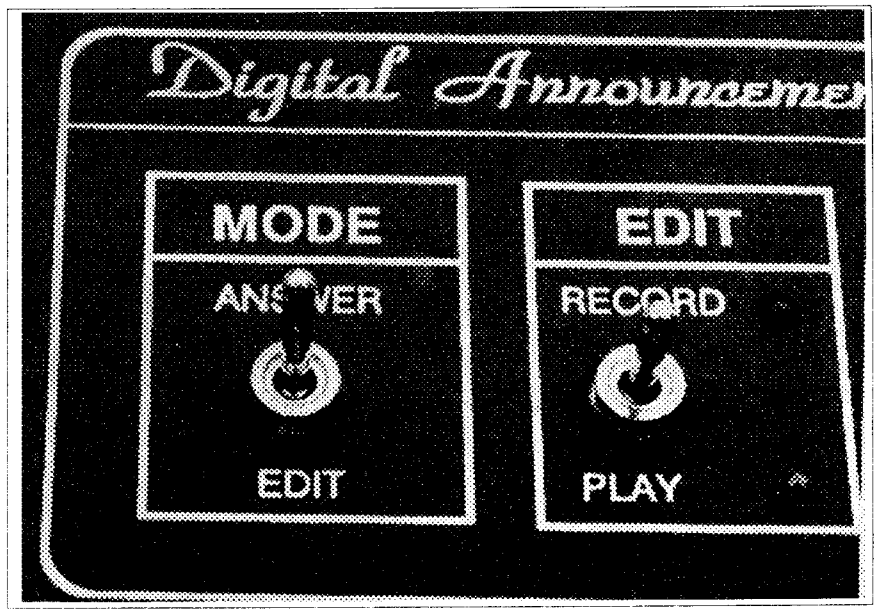
This switch is used to enable or disable the internal monitor speaker.

12 VDC

This connector is used to connect the external DC power pack.

POWER - ON/OFF

This switch is used to select power to the system and to enable the battery backup system.



Record and Playback is controlled by the EDIT RECORD/PLAYBACK switches on the front panel of the DASA300

Note: The battery backup is only active when the Power switch is in the "ON" position. Without battery backup the stored message will be lost.

OUTPUT LEVEL

Used on the DASA300 and DASA400 "Message on hold" model.

AUDIO OUTPUT

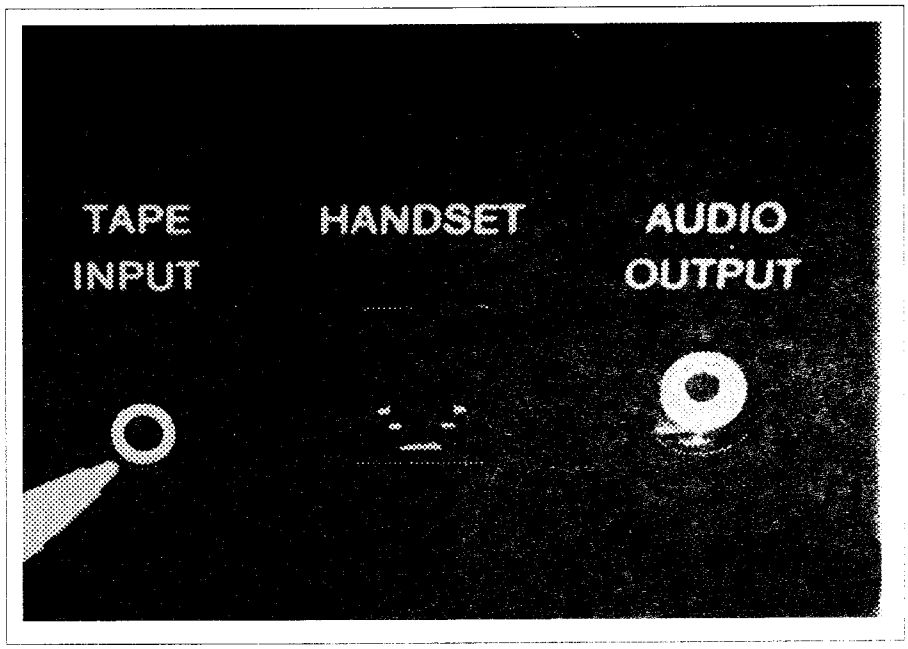
Used to copy messages to another DASA300 Recorder/Player machine and on the DASA400 "Message on hold" model.

HANDSET

This connector is used to connect a telephone type handset which can be used to record and listen to your message locally. The handset jack is not active on the DASA400 "Message on Hold" version of the product.

TAPE INPUT

This jack is used to connect the output of a tape recorder or other external audio source for recording locally. You may wish to load the memory of the DASA300 machine with a prerecorded tape with your message that may have a musical background.



The Tape Input jack receives a 3.5mm mini phone jack. This input may be used to feed music and messages into the DASA300.

TELCO

This connector is used to connect the telephone line which the unit will answer and play your recorded message. This Telephone Line Connector is designed to use a standard loop start telephone line. Not used on DASA400 "Message on hold" model.

INSTALLATION

Your SMART DASA300, should be located in close proximity to your telephone system control unit or (KSU) Key Service Unit, and within 6' of a 110 VAC outlet. The DASA300 has been designed to mount on a vertical surface with four mounting screws. When mounting, be sure to leave clearance room on the left side of the unit for connection accessibility. Next, connect the DC power pack supplied with the system to the 12 VDC power connection on the left side of the unit and plug the power pack into a 110 VAC outlet. Be certain that the connecting cable between the power pack and the DASA300 is secure from inadvertent disconnection. Next connect a standard loop telephone line to the Telephone Connector. This will complete the DASA300 installation.

Note: Allow 6-8 hours after applying power to the DASA300 for the internal NiCad backup battery to fully charge.

OPERATION

EDIT OPERATION

Recording Your Message

The DASA300 allows for two types of audio input sources for recording in the Edit Mode: a telephone handset plugged directly into the DASA300, or a cassette tape player plugged into the TAPE INPUT jack.

Note: The red "Record" LED will automatically extinguish when you have exceeded the maximum memory time for your unit.

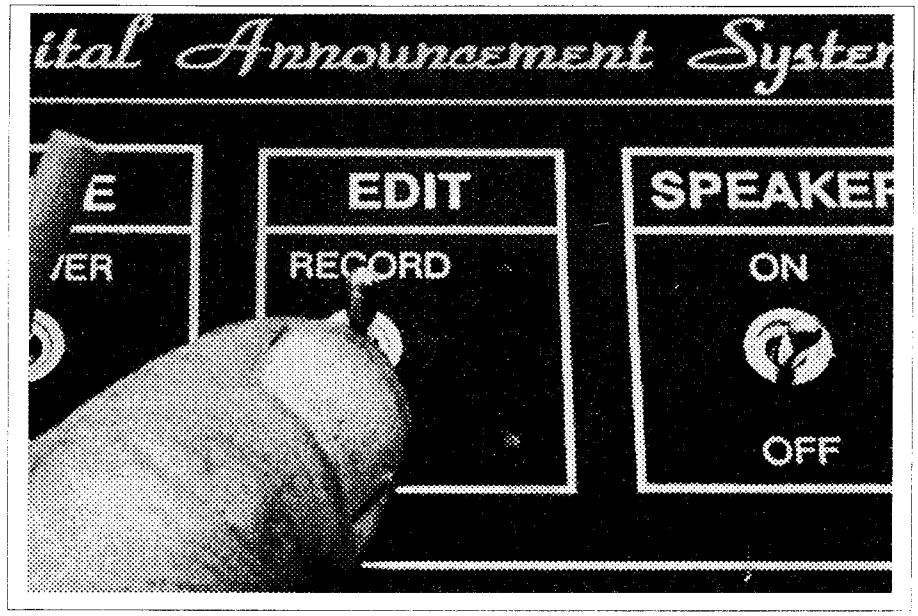
Note: Any time you place the DASA300/DASA400 in the record mode, it will automatically erase any previously recorded message.

Handset Recording - To use the handset input, connect your handset to the modular jack on the side of the unit. Place the MODE switch in the "Edit" position. When you are ready to record, momentarily press the EDIT switch to "Record". The red "Record" LED will light indication recording. Record your message. When you have finished your recording once again press the EDIT switch to "Record". The red "Record" LED will extinguish indicating that the record process has completed.

Note: When using the handset to record, you may want to turn off the monitor speaker as it could cause audio feedback in some cases.

Tape Recording - This input is used with DASA400 "Music and Announcements on Hold" model of this product line. The DASA400 will "loop" the recorded message over and over for this application. If you have one of these machines, you may load the audio from a pre-recorded tape into the tape input jack. The input jack is also active on the DASA300 model when you wish to feed a prerecorded tape into the unit instead of the handest.

To use the tape input to record your message, connect the output of your tape recorder to the tape input jack on the left side of the unit. Place the MODE switch into the "Edit" position and turn the monitor "Speaker" to the "On" position. Next momen-



Pushing the spring loaded RECORD switch UP will start the recording. Pushing the RECORD switch again will stop the process.

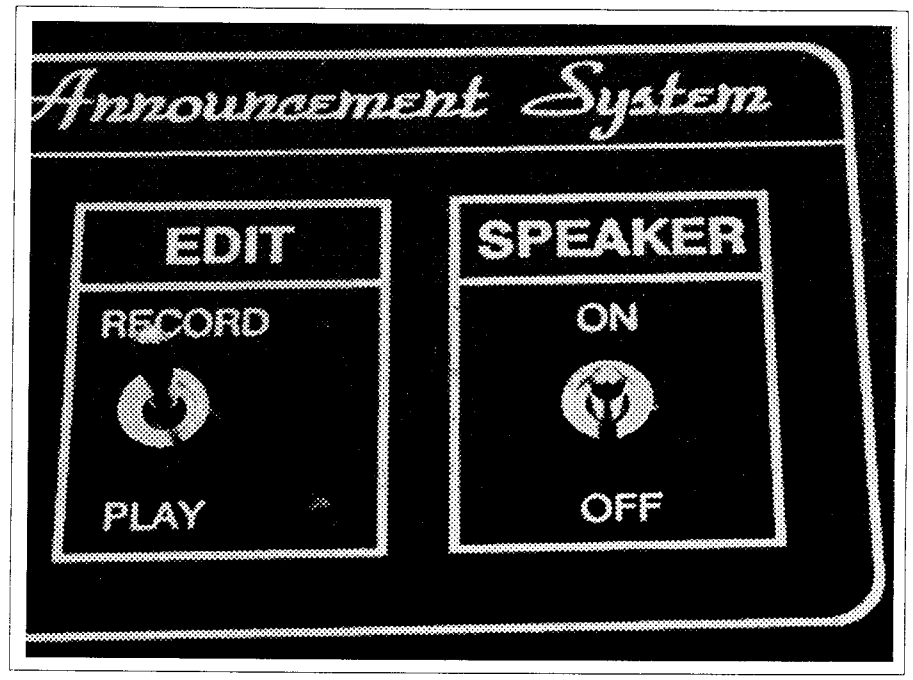
tarily press the EDIT switch to "Record" and start your tape. Adjust the output level of your tape recorder until your message sounds clear through the Monitor Speaker. After setting the level, stop the recording by moving the EDIT switch to "Record". Rewind your tape player to the beginning of your message. Place the DASA400 into the record mode once again by momentarily pressing the EDIT switch to "Record" and start your tape recorder. When your message has been played out, stop the DASA400 by momentarily moving the EDIT switch to the "Record" position. The red "Record" LED will extinguish indicating that the record process has stopped.

Playing Your Message:

To play your message, momentarily press the EDIT switch to "Play". Your message will play out and the green "Play" LED will light. At the end of the message the "Play" LED will automatically extinguish. The message audio information will play at both the handset and, if turned on, the internal monitor "Speaker" as well.

Answer Operation:

The DASA300 unit is primarily intended for answering a telephone line and playing the recorded message to the caller. In addition, provisions have also been made to allow the user to record the message over a telephone line. Thus, the DASA300 has two operational modes when operating in the Answer Mode:



The monitor speaker switch should be turned OFF during recording when using a handset to minimize acoustic feadback.

Caller Operation and User Operation.

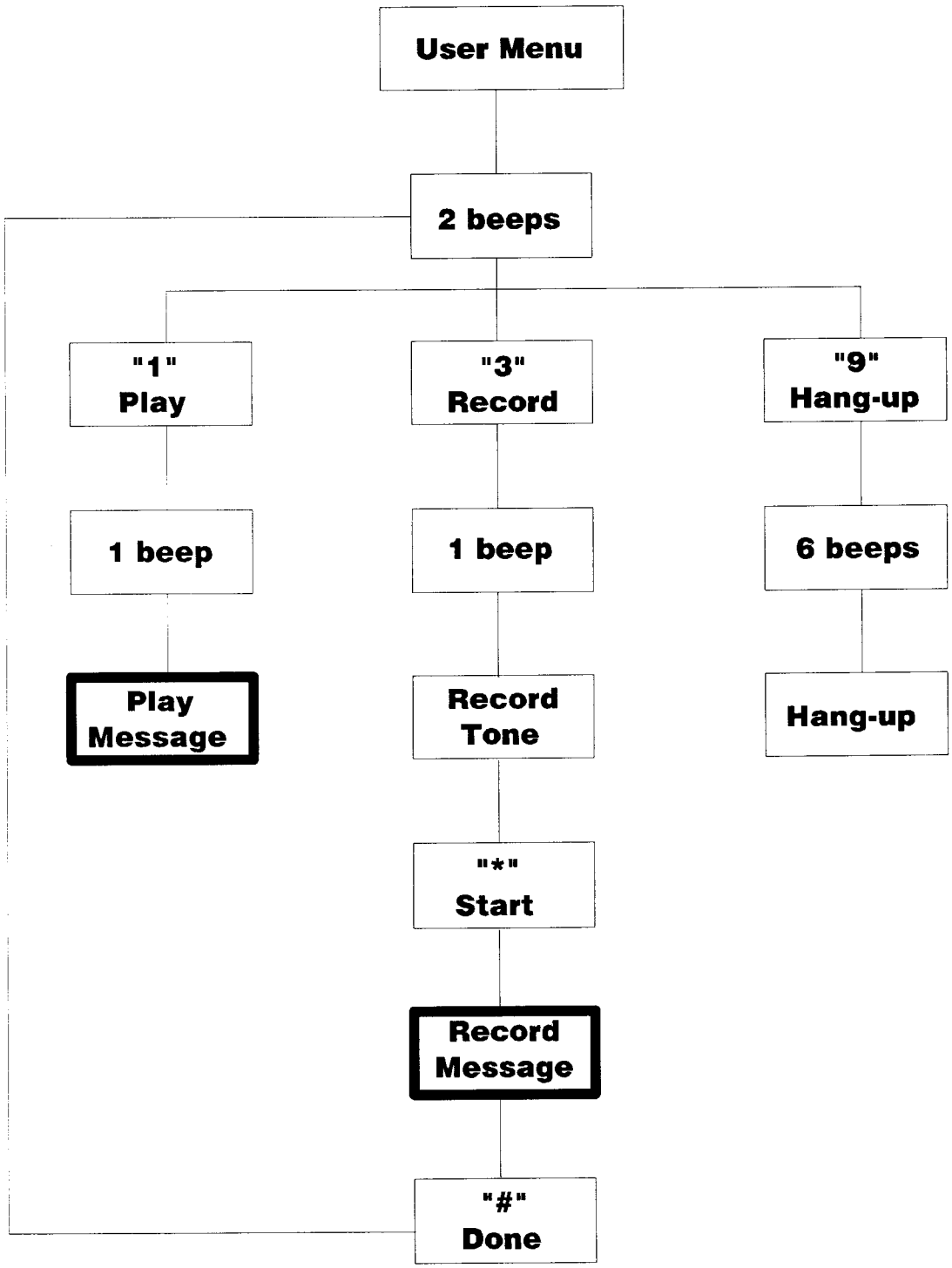
REMOTE PROGRAMMING OF THE DASA300 ANNOUNCER

User Operation

User operation allows for the remote access to recording and playing of a message from any tone generating telephone. To gain access to the DASA300 unit from a telephone line, the unit must be placed in the "Answer" Mode. The user dials the telephone number for the DASA300 and listens for the unit to answer and begin playing. Once the user hears the unit answer, he has up to 20 seconds to press the "*" key on his DTMF (touch tone) telephone. Pressing the "*" key causes the DASA300 to immediately stop playing the message and respond to the user by sending a beep tone. Upon hearing the beep tone, the user must enter their 4 digit password. After entering a valid password, the caller is at the User Menu. The User Menu interacts with the user via a series of beeps. The user presses keys on their DTMF telephone to instruct the unit to perform different functions. Those functions include message playing and message recording. The structure of the User's menu is shown in Figure 1.

Programming Menu

Figure 1



Playing a Message:

The user may play the recorded message over the telephone by pressing "I" at the main menu. The DASA300 immediately begins playing the recorded message and lights the green "Play" LED. The user may pause, stop or resume playing the message by using the "*" and "#" keys on a touch tone telephone. Once the message is playing, pressing the "#" causes the message to pause. Once paused, the unit beeps at the user informing him that the unit is in pause mode. Pressing "*" results in the unit resuming the play of the message from the point at which it was paused. Pressing "#" again once the unit has paused results in canceling the message play and returning the user to the main menu as signified by two beeps.

Recording a Message:

From the main menu, the user may record a message remotely using the telephone. The record mode is entered by pressing "3". Upon entering the record mode the DASA300 presents the user with a continuous record tone. To break the record tone and begin actual recording the user must press the "*" key. The unit immediately begins to record all audio information received from the telephone line and lights the red "Record" LED. To terminate the recording, the user must press the "#" key. Upon pressing the "#" key the unit returns to the main menu as signified by two beeps.

Hang-up:

The user terminates the session by pressing "9". Upon receiving the "9" the DASA300 presents the user with six beeps and disconnects.

Caller Operation:

The DASA300 unit is placed into normal operation by moving the MODE switch into the "Answer" position. In this position, the unit will answer the incoming call upon receiving a predetermined number of rings set by the factory. The number of rings is normally set to one, unless specifically changed by the factory at the user's request. Upon answering, the unit immediately begins playing the recorded message. While playing, the green "Play" LED is lit. Based upon the "number of plays" option (installed by the factory) the unit will repeat the message again

until either reaches the maximum number of plays or caller disconnects. After hang-up, the unit is ready to answer another incoming call.

Note: The DASA300 will not answer telephone calls unless the MODE switch is placed into the "Answer" position. Callers will hear a ring, but the DASA300 will not answer if the MODE switch has been left in the "Edit" mode.

REMOTE START CONTROL

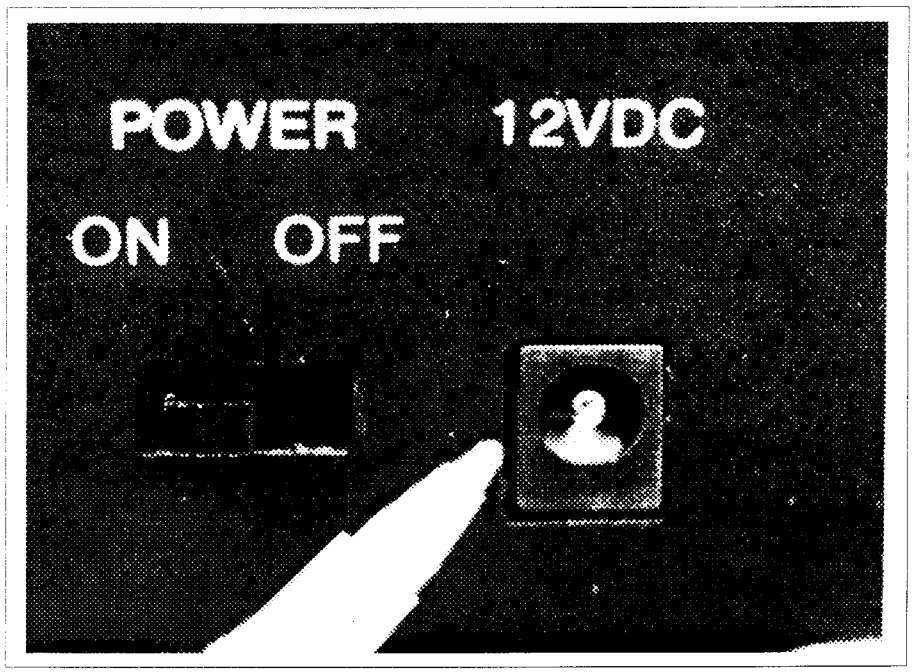
Later models of the DASA300 and DASA400 have remote start capability. A mini-phone jack is located on the control panel side that allows the machine to be started with a remote contact closure. *Be sure there is no voltage on the line that feeds the remote start jack.*

When there is no jack inserted into the remote start, the DASA300 perform normally. If a jack is inserted, the machine can only be started by a short on the wires that are connected to the jack. This feature is valuable when the DASA300 is used in P.A. systems or mated to the CTR-2000 8-line telephone concentrator product.

The CTR-2000 will start the message when a line rings. The message will start from the beginning. All other callers will join the message in progress, until each caller hears a complete message. This is called "Barge-In" calling.

The secret access code programmed into the DASA300 machine is 2-4-6-8. You must have a touch-tone type phone to control the remote record capability of the machine. In countries that do not have this type of local telephone service, you may wish to purchase a handheld touch-tone device that acoustically couples to the microphone portion of the telephone handset. This will give you full control of the features of the DASA300.

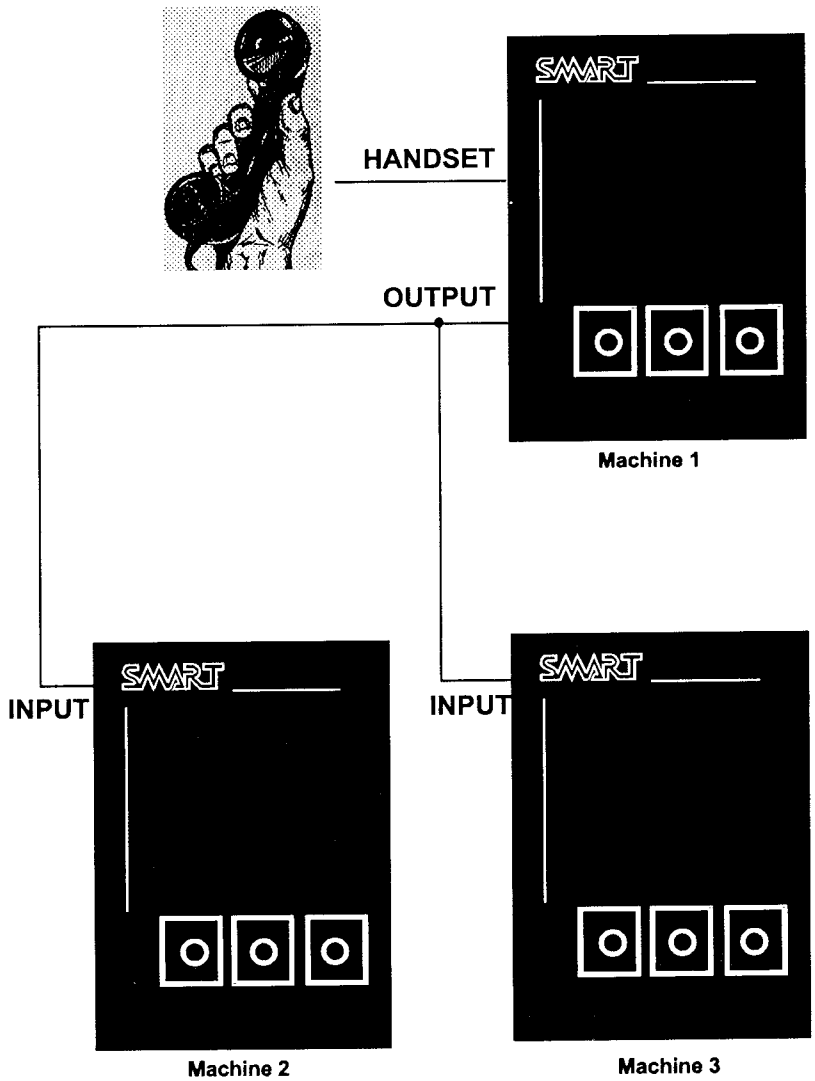
The secret access code is programmed into the EPROM inside the DASA300 digital announcing machine. If, for some reason, you want to change the code, the EPROM must be reprogrammed at the factory. Please call SMART for details. There is a small service charge to reprogram the chip on an individual basis.



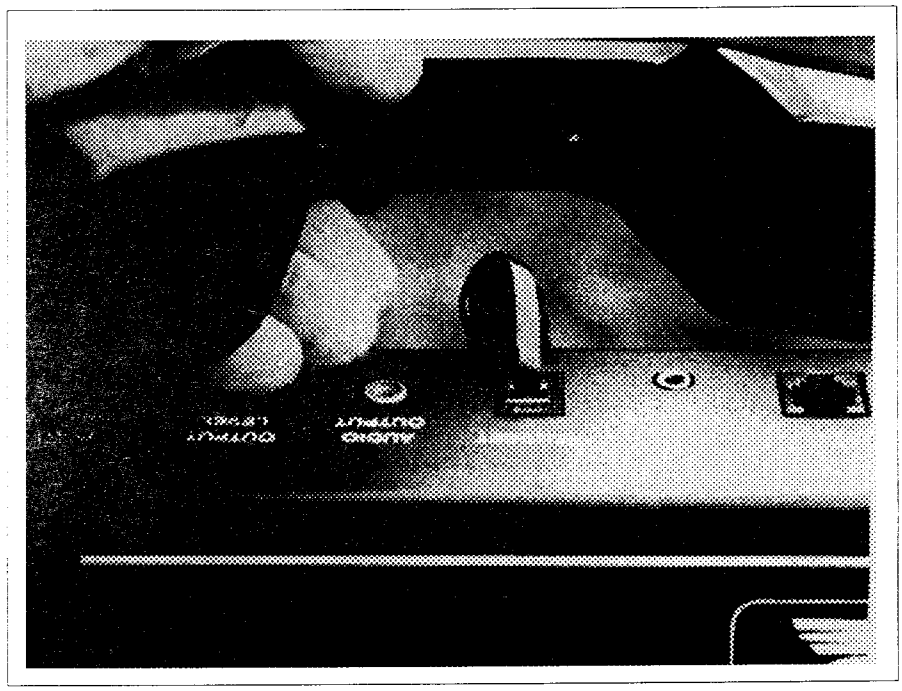
The Power Input plug on the side of the product accepts the UL listed DC power pack. In countries that do not use the NEMA type plugs (U.S.A.), you may substitute a power pack that is common to your region. The requirements of the power pack are 12 volts DC output at 300 milliamps.

COPYING FROM ONE MACHINE TO ANOTHER

When using several DASA300 machines on "rollover" phone lines, it is not necessary to record the message for each machine. A simple harness connecting the first machine to the others may be made locally or ordered as an option from the factory. Simply record your new message on the first machine ONLY. Push the RECORD buttons similtaneously on the other machines while pushing the PLAY button on the first. The message will be transfered to the other machines in one easy operation.



The output level of the first machine must be adjusted during installation to provide the proper level to the other machines to avoid "overdrive" distortion, or too low an input level. Remember to put all machines in the "Answer" mode after you finish recording a new message.



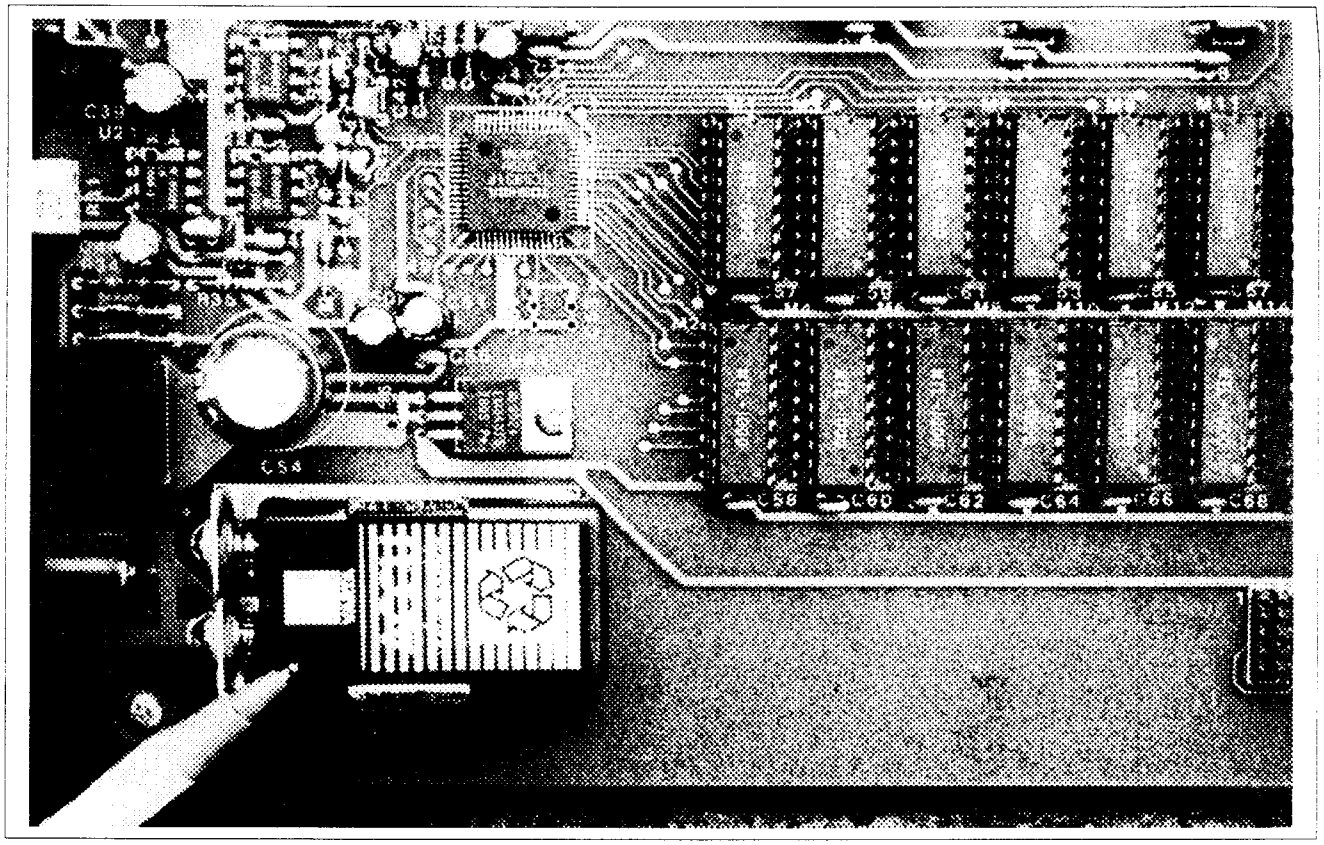
OPTIONAL HANDSET

We highly recommend the optional Walker model W3-K-M-00 Electret microphone handset because the recording and playback quality of the DASA300 machine is far better than an ordinary carbon microphone can deliver. This handest is available through Walker (division of Plantronics Inc.) distributors or from SMART.

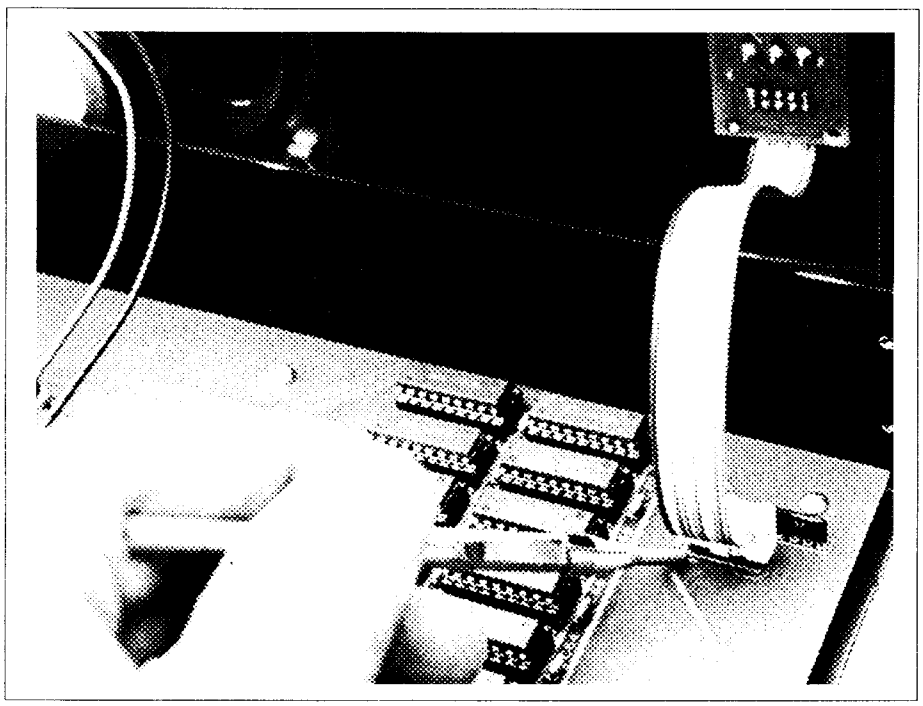
SERVICE

The SMART DASA300 and DASA400 carries a limited warranty of 5 years for parts and labor. Overnight replacement is offered through your theatre equipment dealer during the warranty peroid. Because these products contain sophisticated microprocessor components that are subject to damage by improper handling, we suggest the units should not be serviced in the field. Special test equipment is required to service these components. However, the NiCad battery may need replacing, in time. The battery may be easily replaced in the field.

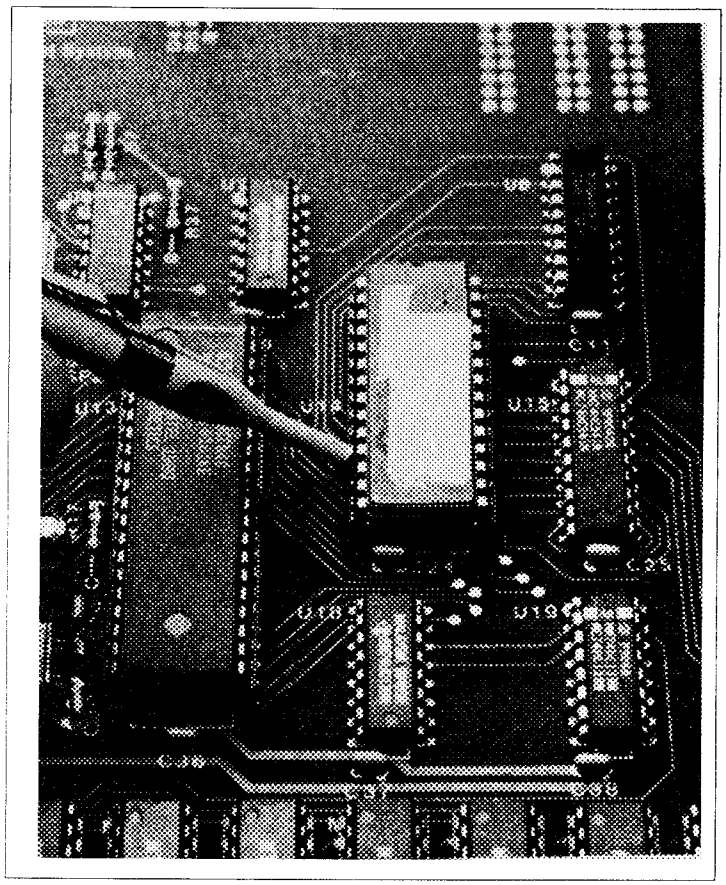
To replace the battery, remove the cabinet screws on the outside edges of the cabinet. Carefully lift the cover and look for the cable that connects the front cover switches to the main PC board. The cable may be disconnected from the board, and then reconnected before closing the unit. Replace the battery observing the correct polarity.



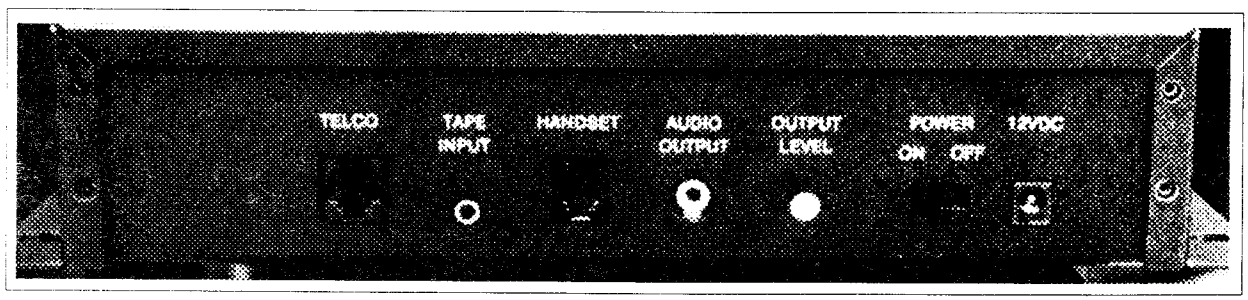
The NiCad battery inside the DASA300 will hold the message for up to one hour after a power failure.



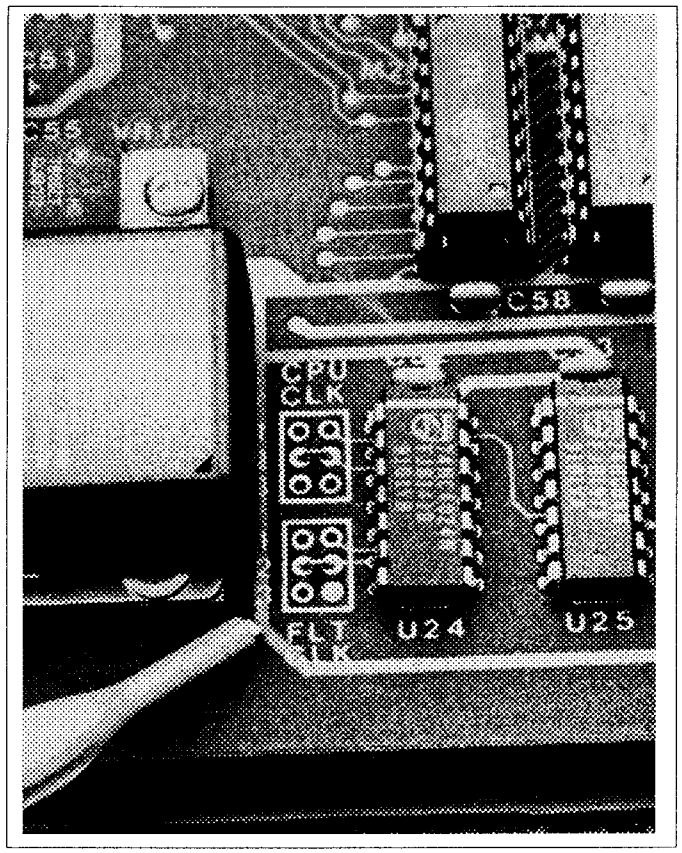
Carefully lift the front cover after removing the outside screws. A ribbon connector connects the front panel switches and LEDs to the main PC board. The cover may be gently set to the side.



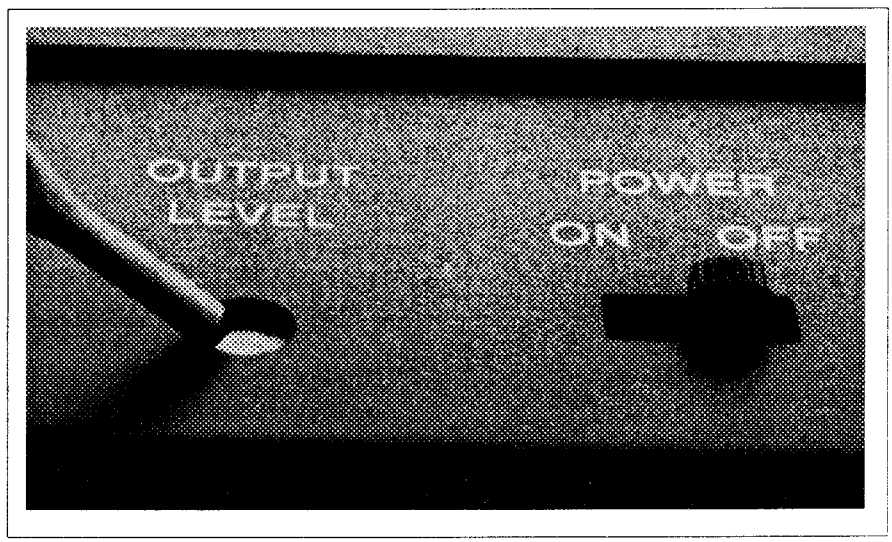
To convert the DASA300 Digital Recorder/Player Announcer to the DASA400 "Message-on-hold" machine, the EPROM must be removed and replaced with a different version. The new EPROM contains the computer code to tell the machine to continue to play the message over and over. The DASA400 may be used on regular business line, through your phone system's music-on-hold input to promote the business' activities. Music and messages may be up to 5 minutes 20 seconds. The handset input is not active with this version. A cassette player or other tape device is required to load the machine through the TAPE INPUT jack. The EPROM may be changed in the field. Be very careful when handling the IC chips because they are static sensitive and can be damaged easily.



Side View of cabinet shows all inputs, outputs and controls.



Jumpers on the main PC board control the clock speed of the CPU and the digital filters. Moving the jumpers will double the recording time (but decrease the audio quality), or increase the audio quality while decreasing the recording time. Please contact the factory before you move the jumpers.



The audio level at the OUTPUT pin jack may be adjusted with a tuning wand. The output jack is used to feed the inputs of additional machines when you wish to copy the message from the first machine. It is also used on the DASA400 "Message-on-hold" version to feed the music input of phone systems that have on-hold inputs.

Never turn the power switch OFF if there is a message stored in the DASA300. The product will "forget" the stored message.

LIMITED WARRANTY

SMART Devices, Inc. warrants that all equipment sold is free from defects in material and workmanship at the time of purchase. The warranty extends 5 years from the date of original purchase and covers parts and labor. Buyer must notify SMART within the warranty period of any defective part or conditions. If the defect is not the result of improper use, service, maintenance or installation, and if the equipment has not been otherwise damaged or modified after shipment, SMART or its authorized dealer shall either replace or repair the defective equipment at SMART's option. Equipment returned to SMART must be shipped freight prepaid. Also, equipment returned under warranty must be returned freight prepaid. No credit shall be allowed for work performed by the buyer. Out-of-warranty repairs will be invoiced at the current SMART hourly rate plus the cost of parts and shipping.

All implied warranties, if any, terminate five years from date of original purchase. SMART is not responsible for damage to other equipment or property or any other consequential incidental damage of any kind, whether based upon contract, negligence or strict liability. Maximum liability shall not, in any case, exceed the purchase price of the equipment.

The foregoing constitutes SMART's entire obligation with respect to this product. The original purchaser and user or owner shall have no other remedy and no claim for incidental or consequential damages. Some states do not allow limitations of how long an implied warranty lasts or do not allow the exclusion of incidental or consequential damages, therefore, the above limitations and exclusions may not apply to you.

This warranty gives specific legal rights. You may also have other rights which vary from state to state.

This warranty does not include the replaceable NiCad battery shipped with the DASA300. 9 volt NiCad batteries are commonly available at local electronic stores.

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

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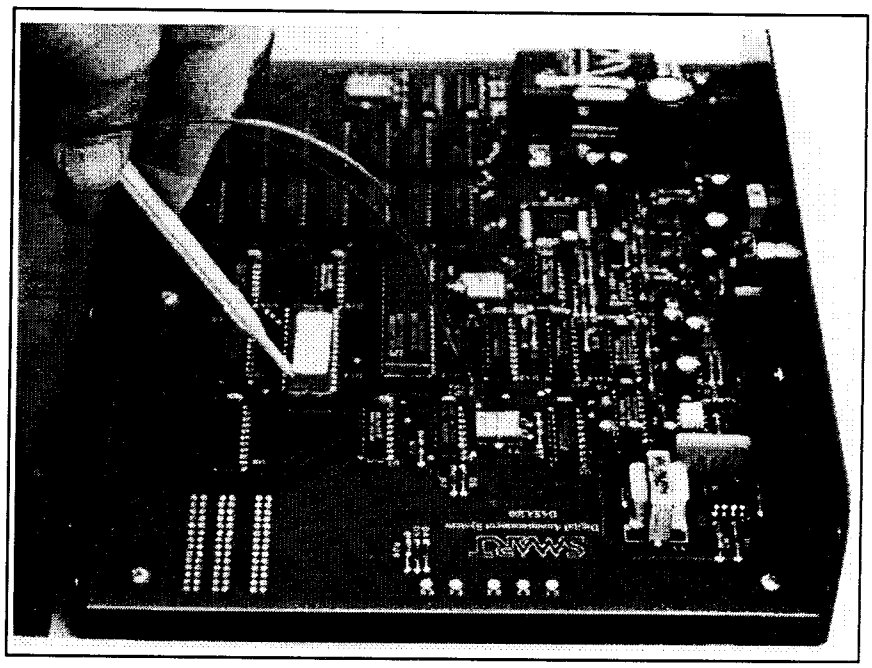
Norcross, GA. 30071-1337
(800) 45-SMART

Changing EPROMS in the DASA300 Digital Recorder/Player

The standard DASA300 digital recorder/player is a "Stand Alone" product that can directly answer a phone line, disconnect when the message is over (or the party hangs up), and can be remotely programmed with new messages. The computer code that instructs the microcontroller in the machine is permanently stored in a non-volatile EPROM (**E**raseable-**P**rogrammable-**R**ead-**O**nly-**M**emory).

When the DASA300 is mated with the CTR-2000 8-line telephone concentrator, the DASA300 becomes an audio source to the Concentrator must be operated in a "looping message" mode. This is commonly called "barge-in" because each caller barges into the message in progress. Changing the computer instructions to the machine is as simple as changing the EPROM program.

Here's How to change EPROMS.



1. Disconnect the power supply plug from the DASA300.

2. Remove the 8 phillips head screws that hold the front cover to the chassis of the DASA300.

3. Carefully lift the top cover without disconnecting the cables that run from the PC board to the front cover.

4. Locate the EPROM. It is shown in the picture to the right.

5. Pry the EPROM out of the socket by placing a small screwdriver between the chip and the IC socket. Start at the front of the chip and pry the chip partly out of the socket. Go to the back of the chip and pry the back up. Repeat this procedure until the chip is free.

6. Align the new EPROM with the notch at the top of the chip with the notch of the IC socket.

7. Carefully insert the EPROM into the socket being very careful that ALL pins are aligned with the socket. Push the EPROM into the socket. Look to see that all pins are engaged. It is very easy to bend a pin under the body of the chip when inserting the new EPROM. This will cause a failure.

8. Carefully re-install the front cover and replace the screws.

9. Power the unit and test the record/play functions.

10. Return the old EPROM to SMART for full credit.

SMART