

**INSTALLATION MANUAL FOR
DIAGNOSTIC ULTRASOUND SYSTEM
MODEL SSA-370A**

This manual describes the procedures for installing the diagnostic ultrasound system SSA-370A.

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*A	06/98		Mr. Yokoyama		
*B	08/98	Addition of VCR	Mr. Yokoyama		
*C	08/98		Mr. Sato		
*D	05/99		Mr. Tezuka		
*E	06/00	Addition of UZRI-372A	Mr. Tezuka		
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Safety Precautions

1. Meaning of Signal Words

In this installation manual, the signal words **DANGER**, **WARNING**, and **CAUTION** are used regarding safety and other important instructions. The signal words and their meanings are defined as follows. Please understand their meanings clearly before reading this manual.

Signal word	Meaning
DANGER	Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
WARNING	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
CAUTION	Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.
CAUTION	Indicates a potentially hazardous situation which, if not avoided, may result in property damage.

2. Meaning of Safety Symbols

Symbol	Description
	Type-BF applied part
	"Attention" (Refer to the operation manual.)

3. Safety Precautions

To ensure safety, please observe the following precautions when installing this system.

DANGER:
Do not use flammable gases such as anesthetics or flammable liquids such as ethanol near this product, because there is danger of explosion.

WARNING:

1. Connect the power cable and earth terminals correctly as described, to prevent electric shock.
2. Do not connect this system to outlets with the same circuit breakers and fuses that control current to devices such as life-support systems. If this system malfunctions and generates an overcurrent, or when there is an instantaneous current at power ON, the circuit breakers and fuses of the building's supply circuit may be tripped.
3. Do not connect to the system transducers other than those specified by TOSHIBA, to prevent accidents such as fire.
4. Do not subject the transducers to knocks. Use of defective transducers may cause an electric shock.

CAUTION:

1. Malfunctions due to radiowaves
 - (1) Use of radiowave-emitting devices in the proximity of this kind of medical electronic system may interfere with its operation. Do not bring or use devices which generate radio waves, such as cellular telephones, transceivers, and radio controlled toys, in the room where the system is installed.
 - (2) If a user brings a device which generates radio waves near the system, they must be instructed to immediately turn OFF the device. This is necessary to ensure the proper operation of the system.
2. Be sure to install the system on a level floor and lock the casters. If this is not done, the system may move, injuring the service personnel.
3. Move the system forward or backward only. If the system is moved to the left or right, it may fall, causing injury.
4. To prevent electric shock, do not connect the peripheral units (video printer, VCR, etc.) to an external outlet. Peripheral units should be connected to the service outlet of the system or the optional isolation transformer. For the connection procedures, contact your TOSHIBA representative.
5. The service outlet of the main unit is intended solely for recommended peripheral units. Do not connect devices other than recommended peripheral units to the service outlet. Connecting devices other than those recommended may cause the consumption current to exceed the power capacity of the main unit, possibly resulting in malfunction.
6. Do not place any objects on top of the monitor. They may fall, causing injury.
7. Do not allow fluids such as water to contact the system or peripheral devices. Electric shock may result.

CAUTION:

1. Do not install the SSA-370A in a location where it may be exposed to the following adverse conditions:
 - (1) Near a source of heat
 - (2) High ambient humidity
 - (3) Flammable gases
 - (4) A strong electric/magnetic field (for example, near a voltage transformer)
 - (5) A source of high-frequency radio waves
2. The service outlet of the main unit is intended solely for recommended peripheral devices. Do not connect devices other than recommended peripheral devices to the service outlet. Connecting devices other than those recommended may cause the consumption current to exceed the power capacity of the main unit, possibly resulting in malfunction.

Operating Requirements

- (1) Line voltage
 - (a) 100 VAC -10% to 127 VAC +10%
 - (b) 220 VAC -10% to 240 VAC +10%
- (2) Line frequency
50/60 Hz ±1 Hz
- (3) Power capacity
1.5 kVA or less (for the standard configuration of the SSA-370A)
- (4) Grounding requirements
The grounding wire of a three-conductor power cord must be used to ground the SSA-370A.
* Grounding must be provided in accordance with all applicable legal requirements for medically used electrical equipment.
- (5) Ambient conditions
Temperature : 10°C to 35°C
Relative humidity : 30% to 85% (no condensation)
Atmospheric pressure : 700 hPa to 1060 hPa
- (6) Storage and transport conditions
Temperature : -10°C to 60°C
Relative humidity : 30% to 85% (no condensation)
Atmospheric pressure : 700 hPa to 1060 hPa

Composition

After unpacking the SSA-370A, confirm that the equipment and materials listed below are enclosed in the packing boxes.

- (1) Main unit SSA-370A : 1
- (2) Transducer : 1
- (3) Accessories : 1 set
 - (a) Acoustic gel : (1)
 - (b) Fuse 2 A (for TV monitor unit) : (1)
 - (c) Cable arm : (1)
 - (d) Manual : (1)

Manpower and Tools

- (1) Manpower : 2 persons
- (2) Tools : Phillips screwdriver (large and small)
Allen wrench (M4, M6, M8)

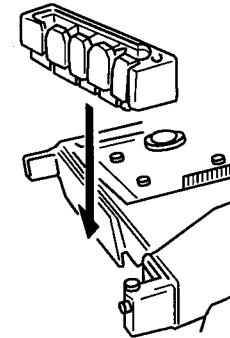
Symbols

This system uses the following symbols.

Symbol	Description
	Functional grounding
	Equipotentiality
	Main power OFF (The AC power is turned OFF.)
	Main power ON (The AC power is turned ON.)
	Sub-power OFF (The power to electronic circuits is turned OFF.)
	Sub-power ON (The power to electronic circuits is turned ON.)
	Footswitch
	Transducer connector A
	Transducer connector B
	Transducer connector C
	Pencil transducer connector
	Alternating current

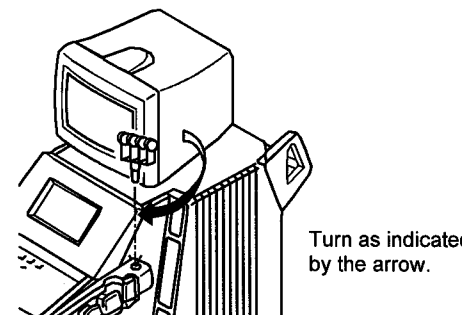
Mounting the Transducer Holder

Mount the transducer holder on the side of the main panel by inserting the holder as shown in the figure below.



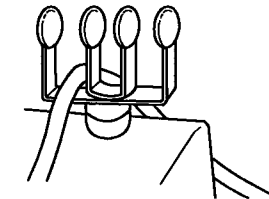
Mounting the Cable Arm

Orientate the tip of the cable arm toward the right of the main unit, insert it into the arm mounting hole on the transducer holder, and turn the tip of the arm toward the front of the main unit by 90° to mount the cable arm.

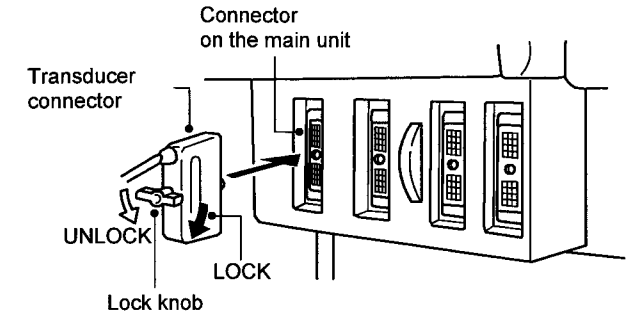


Mounting the Transducer

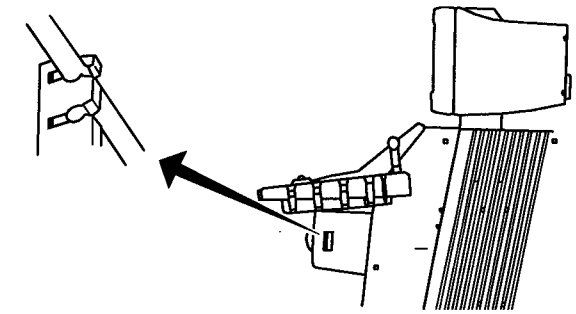
(1) Hang the transducer cable on the hook of the cable arm to prevent it from being caught by the casters.



(2) Connect the connector of the transducer to the connector on the main unit. When connecting the transducer, insert the transducer connector into the connector on the main unit and turn the lock handle clockwise ("LOCK" direction) to secure the connector.



(3) Clamp the transducer cable to the rubber clamp on the transducer-connector side of the main unit.



Mounting a Peripherals Rack and Peripheral Devices

To store a camera unit, printer, VCR, and/or other optional units into the SSA-370A, a rack for peripherals is required. Refer to the following manuals to install the peripherals rack and peripheral devices.

- UZRI-370A: 2C708-194E
- UZRI-371A: 2C708-195E
- UZRI-372A: 2C708-392E

Connecting and Setting the VCR

(1) Connect the VCR control cable, the two signal cables for the VCR, and the four audio connectors for the VCR, to the corresponding connectors located on the rear panel of the SSA-370A.

If the main unit is provided with a magneto-optical disk filing unit (internal type: UIMO-370A), connect the VCR to any of RS-232C IFs 2 to 4. If the magneto-optical disk filing unit is not provided, connect the VCR to any of RS-232C IFs 1 to 4.

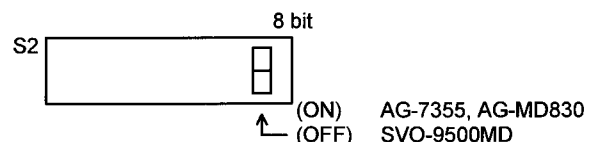
(Hereinafter, the communication ports corresponding to RS-232C IF1 to IF4 are referred to as COM1 to COM4, respectively.)

* Use the VHS or S-VHS terminal to connect the signal cables.

* For the S-VHS signal cable, be sure to mount the accompanying ferrite core to the connection terminal at the SSA-370A end (TMSE only).

(2) Setting the DIP SW on the TV-PROC PWB

Set the DIP SW on the TV-PROC PWB as shown below according to the VCR to be used.



(3) Set VCR TYPE on page 1 of CONFIGURATION SERVICEMAN PRESET MENU to VHS or S-VHS. Then set each item for COM1 to COM4 on preset page 3 according to the VCR to be connected by referring to the table below.

Setting items related to COM1 to COM4

PROTOCOL	VCR SONY	VCR Pana	VCR OTHER
BPS	9600	9600	Don't Care
PARAM	8, STP1, NON	8, STP1, NON	Don't Care
STX	NONE	STX	Don't Care
ETX	NONE	ETX	Don't Care
CHECK SUM	OFF	OFF	Don't Care
TERM CHAR	NONE	ETX	Don't Care
COMMUNIC	DISP, ON	DISP, ON	Don't Care

* For VCR OTHER, any setting is acceptable.

CAUTION:

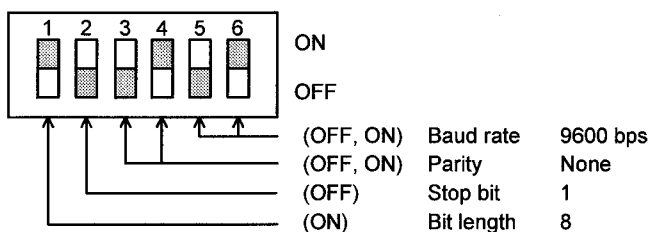
The service outlet of the main unit is intended solely for recommended peripheral devices. Do not connect devices other than the recommended VCRs (SVO-9500MD, AG-7355, and AG-MD830) to the service outlet. Connecting devices other than those recommended may cause the consumption current to exceed the power capacity of the main unit, possibly resulting in malfunction.

Always read the connection precautions in the installation manual for each optional unit. Some recommended VCRs must not draw power from the main unit when certain other peripheral devices are connected. Connecting such VCRs when these other peripheral devices are connected may cause the consumption current to exceed the power capacity of the main unit, possibly resulting in malfunction. For details, refer to the installation manual for each optional unit.

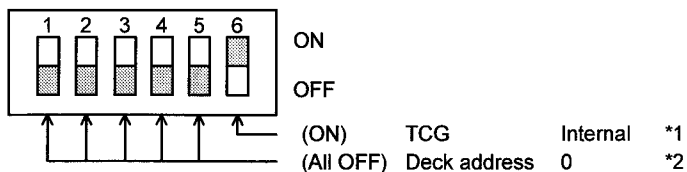
(4) Settings of the DIP SWs on the VCR

(a) Panasonic AG-7355

• DIP SW1



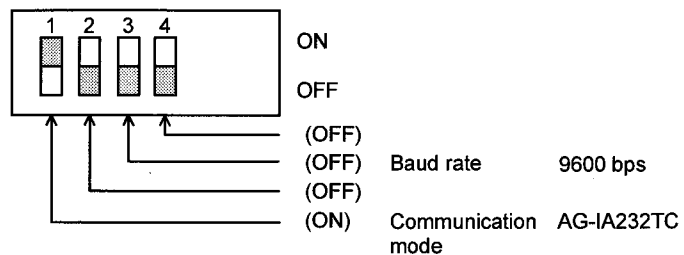
• DIP SW2



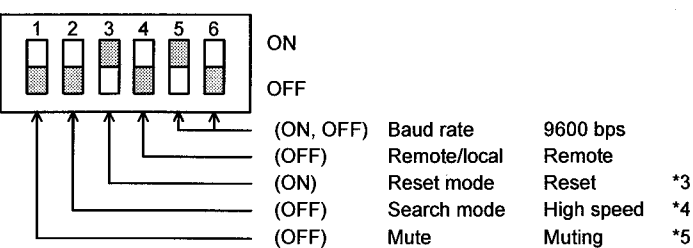
*1 The TCG in the VCR is used.
*2 Set to "0" because only one VCR is used.

(b) Panasonic AG-MD830

• DIP SW1



(c) SONY SVO-9500MD



*3 The counter is reset at the time of EJECT.
*4 High-speed search is performed in FF, REW mode.
*5 Video and audio output undergo muting during search.

Connecting Other Optional Devices

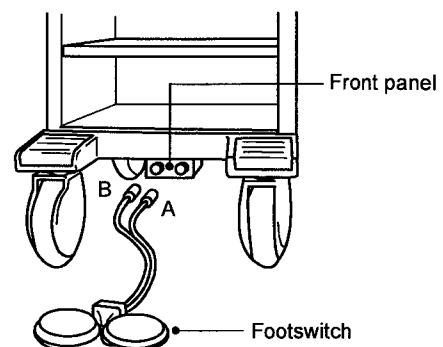
CAUTION:

The service outlet of the main unit is intended solely for recommended peripheral devices. Do not connect devices other than recommended peripheral devices to the service outlet. Connecting devices other than those recommended may cause the consumption current to exceed the power capacity of the main unit, possibly resulting in malfunction.

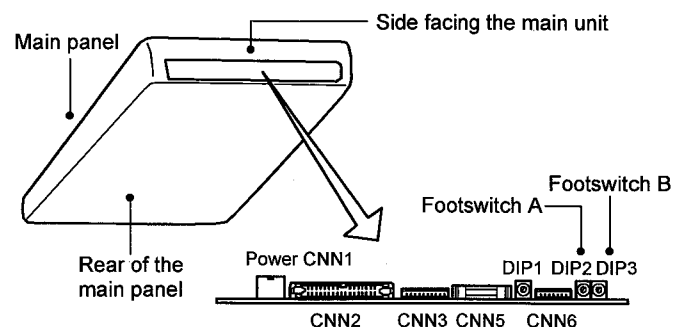
Always read the connection precautions in the installation manual for each optional unit. Some recommended peripheral devices must not draw power from the main unit when certain other peripheral devices are connected. Connecting such devices when these other peripheral devices are connected may cause the consumption current to exceed the power capacity of the main unit, possibly resulting in malfunction. For details, refer to the installation manual for each optional unit.

Connecting the Footswitches

(1) Connect the footswitches to the FOOT SWITCH connectors within the front panel of the SSA-370A power supply.



(2) The footswitch can be switched by changing the setting of the rotary switch in the connector section on top of the panel. To change the setting of this rotary switch, it is necessary to remove the panel fixed to the main unit. (Be extremely careful not to damage the cable connected to the main unit when removing the panel.)



<<Setting of DIP SW2,3>>

- | | |
|-------------|------------------|
| 0: Not used | 5: PRINT C |
| 1: M/D+B | 6: VCR |
| 2: M/D FULL | 7: FREEZE |
| 3: PRINT A | 8: MODE U.F. SW1 |
| 4: PRINT B | 9: MODE U.F. SW2 |

Installing the Hard Disk

The hard disk is already installed at the time of shipment from the factory. If a message containing the string below is displayed, it may be due to malfunction of the hard disk. If this occurs, refer to subsection 4.3 "Installation" in the service manual (2D730-142E).

- INTERNAL ERROR
- FILE WRITE ERROR
- FILE OPEN ERROR
- FILE SEEK ERROR
- FILE READ ERROR
- FILE CLOSE ERROR
- zload ERROR
- CANNOT LOAD 'INIT.PRG' FROM HDD0

NOTE:

Such a message does not always indicate a malfunction of the hard disk. Another abnormality also may cause this kind of message to be displayed.

Maintenance Setting

<<System power ON time>>

To carry out an effective maintenance of the diagnostic ultrasound system, the system power ON time must be managed. At power OFF, the system power ON time is recorded in the system. When a certain amount of cumulative power ON time is reached, a maintenance request message is displayed.

• Setting the system power ON time

Set MESSAGE in the CONFIG. PRESET service to (ON). This permits a maintenance request message to be displayed after a certain amount of cumulative power ON time is reached. Set this item to (OFF) in order not to display this maintenance request message. With this setting, a maintenance request message is not displayed but the timer for cumulative power ON time still functions.

• At power ON after a cumulative power ON time of 600 hours or more (The message lights.)

THE SERVICE OPERATING TIME REACHED 600HOURS
CONTACT TOSHIBA SERVICE REPRESENTATIVE.
SERVICE COMPANY NAME
PHONE NUMBER
PLEASE HIT NEW PATIENT KEY!!

• At power ON after a cumulative power ON time of 1000 hours or more (The message blinks.)

THE SERVICE OPERATING TIME REACHED 1000HOURS
CONTACT TOSHIBA SERVICE REPRESENTATIVE QUICKLY!!
SERVICE COMPANY NAME
PHONE NUMBER
PLEASE HIT NEW PATIENT KEY!!

Register the service company name and the phone number displayed in the maintenance request message. Press TIME DISP in the TCS service menu and enter selection number 2 (SERVICE CALL REGISTRATION) on the monitor using the keyboard. When an entry screen is displayed on the monitor, enter the service company name and the phone number using the keyboard. To complete registration, press [ENTER] → [Y] → [ENTER].

Set SERVICE DEMO in the CONFIG. PRESET service to (ON) (for demonstration to display a maintenance request message at power ON) and reset or turn ON the system again. When a maintenance request message is displayed, check the registered information. After the registered information has been checked, set CONFIG. PRESET service to (OFF); otherwise, the maintenance request message will be displayed each time the system is started up.

When the installation of the system is completed, set as follows to clear the power ON time. Press TIME DISP in the TCS service menu and enter selection number 9 (INSTALLATION CLEAR (ST&TT)) on the monitor using the keyboard. When a confirmation message for clearing the power ON time is displayed, enter [Y] to clear ST&TT.