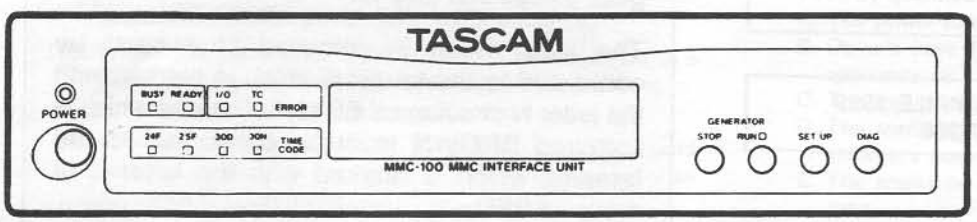
TASCAM

TEAC Professional Division

MMC-100

MMC Interface Unit



OWNER'S MANUAL

5700134300

Important Safety Precautions

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

This appliance has a serial number located on the rear panel. Please record the model number and serial number and retain them for your records.
Model number _____
Serial number _____

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

ADVARSEL!
Lithiumbatteri – Eksplosionsfare ved fejlagtig handtering. Udskiftning må kun ske med batteri af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandøren.

VARNING
Explosionsfara vid felaktigt batteribyte.
Anvand samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren.
Kassera anvant batteri enligt fabrikantens instruktion.

THE APPLIANCE CONFORMS WITH EEC DIRECTIVE 87/308/EEC REGARDING INTERFERENCE SUPPRESSION

CONFORME AL D.M. 13 APRILE 1989
DIRETTIVA CEE/87/308

NOTE FOR U.K. CUSTOMERS

Due to the variety of plugs being used in the U.K., this unit is sold without an AC plug. Please request your dealer to install the correct plug to match the mains power outlet where your unit will be used as per these instructions.

IMPORTANT

The wires in this mains lead are coloured in accordance with the following code:

BLUE:	**NEUTRAL**
BROWN:	**LIVE**

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminal in your plug, proceed as follows:

The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured BLACK. The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L of coloured RED.

SAFETY INSTRUCTIONS

CAUTION:

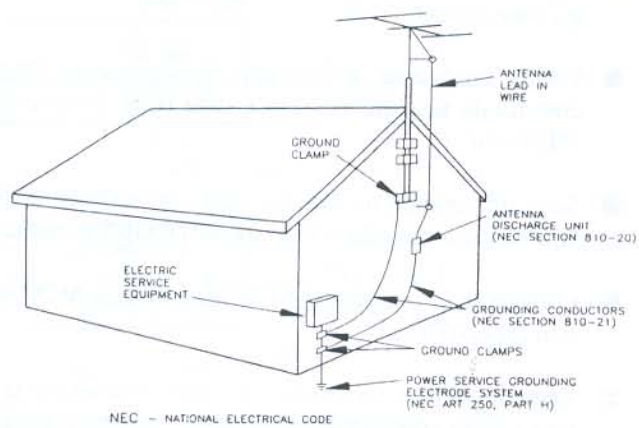
- **Read all of these instructions.**
- **Save these instructions for later use.**
- **Follow all warnings and instructions marked on the audio equipment.**

1. **Read Instructions** – All the safety and operating instructions should be read before the appliance is operated.
2. **Retain Instructions** – The safety and operating instructions should be retained for future reference.
3. **Heed Warnings** – All warnings on the appliance and in the operating instructions should be adhered to.
4. **Follow Instructions** – All operating and use instructions should be followed.
5. **Water and Moisture** – The appliance should not be used near water – for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc.
6. **Carts and Stands** – The appliance should be used only with a cart or stand that is recommended by the manufacturer.

6A. An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.

7. **Wall or Ceiling Mounting** – The appliance should be mounted to a wall or ceiling only as recommended by the manufacturer.
8. **Ventilation** – The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or, placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.
9. **Heat** – The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.
10. **Power Sources** – The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.
11. **Grounding or Polarization** – The precautions that should be taken so that the grounding or polarization means of an appliance is not defeated.
12. **Power-Cord Protection** – Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.
13. **Cleaning** – The appliance should be cleaned only as recommended by the manufacturer.
14. **Power Lines** – An outdoor antenna should be located away from power lines.
15. **Outdoor Antenna Grounding** – If an outside antenna is connected to the receiver, be sure the antenna system is grounded so as to provide some protection against voltage surges and built up static charges. Section 810 of the National Electrical Code, ANSI/NFPA No. 70 – 1984, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See Figure below.

EXAMPLE OF ANTENNA GROUNDING AS PER NATIONAL ELECTRICAL CODE



NEC – NATIONAL ELECTRICAL CODE

16. **Nonuse Periods** – The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.
17. **Object and Liquid Entry** – Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.
18. **Damage Requiring Service** – The appliance should be serviced by qualified service personnel when:
    A. The power-supply cord or the plug has been damaged; or
    B. Objects have fallen, or liquid has been spilled into the appliance; or
    C. The appliance has been exposed to rain; or
    D. The appliance does not appear to operate normally or exhibits a marked change in performance; or
    E. The appliance has been dropped, or the enclosure damaged.
19. **Servicing** – The user should not attempt to service the appliance beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.

Introduction

The MMC-100 is an interface unit which permits various types of communications between MIDI units and TASCAM machines having the ACCESSORY 2 15-pin I/O port.
The MMC-100 conforms to unified standard specifications called MMC, the *M*IDI *M*achine *C*ontrol, and it provides access to the automation and unification of your audio system which may be set up for music production, broadcast program production, sound reinforcement for public presentations, or others. By interfacing the MMC-100 to an MTC (*M*IDI *T*ime *C*ode)-based sequencer/ sequence software having a tempo map, synchronization between the master tape transport and MIDI slave units is a task of "plain sailing".

More specifically you can :

- Get your system under SMPTE/EBU timecode-based accurate control.
- Let the connected ATR behave in response to MMC commands fed into the MMC-100 from an external MIDI unit.
- Send information on the operating status of the ATR, tape location and others from the MIDI OUT terminal.
- Convert time code from ATR not only into MTC but into DTL/DTLe.
- Keep up with the exact tape locations whether the tape runs at play speed or at high speeds ; when the MMC-100 cannot read time code as in cases where the tape fast-winds, it reads tach pulses instead (even if these are coming from a cassette deck and are non-linear).
- Let the built-in time generator generate any types of time code : 24, 25, DF, and NDF.

The MMC-100 supports the following TASCAM products.

- Cassette deck : 238, 644, 688
- Reel-to-reel deck : TSR-8, MSR-16(S), MSR-24(S)
- CD controller : RC-701, RC-601
- Parallel interface unit : IF-500

Use of Capital Letters in the Manual : In general, we use all upper case type to designate a particular switch, control, jack name or label (like GENERATOR RUN). All upper case type is also used to express the function, procedure or mode a specific key activates (like SET UP as in "repeating the SET UP").

TABLE OF CONTENTS

Bescheinigung des Herstellers/Importeurs

Hiermit wird bescheinigt, daß der/die/das

MMC-SCHNITTSTELLEN-EINHEIT TASCAM MMC-100

(Gerät, Typ, Bezeichnung)

in Übereinstimmung mit den Bestimmungen der

AMTSBLATT 163/1984, VFG 1045/1984

(Amtsblattverfügung)

funk-entstört ist.

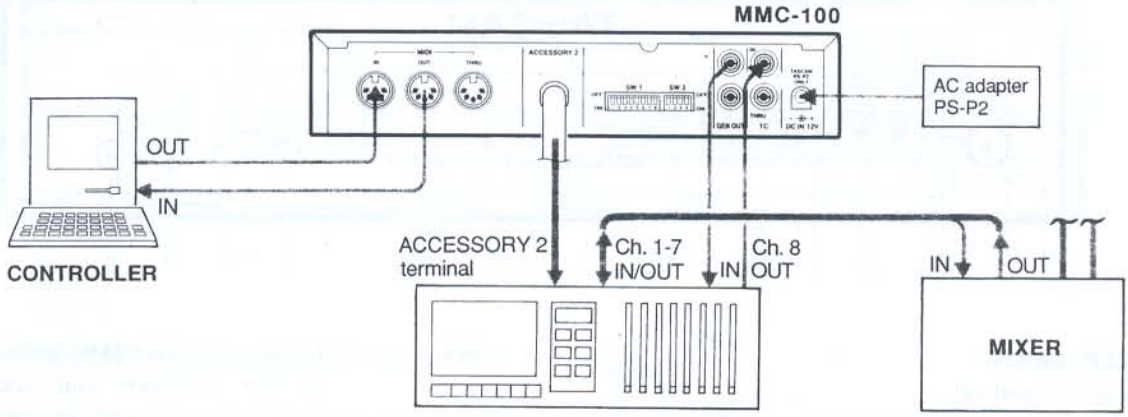
Der Deutschen Bundespost wurde das Inverkehrbringen dieses Gerätes angezeigt und die Berechtigung zur Überprüfung der Serie auf Einhaltung der Bestimmungen eingeräumt.

TEAC CORPORATION

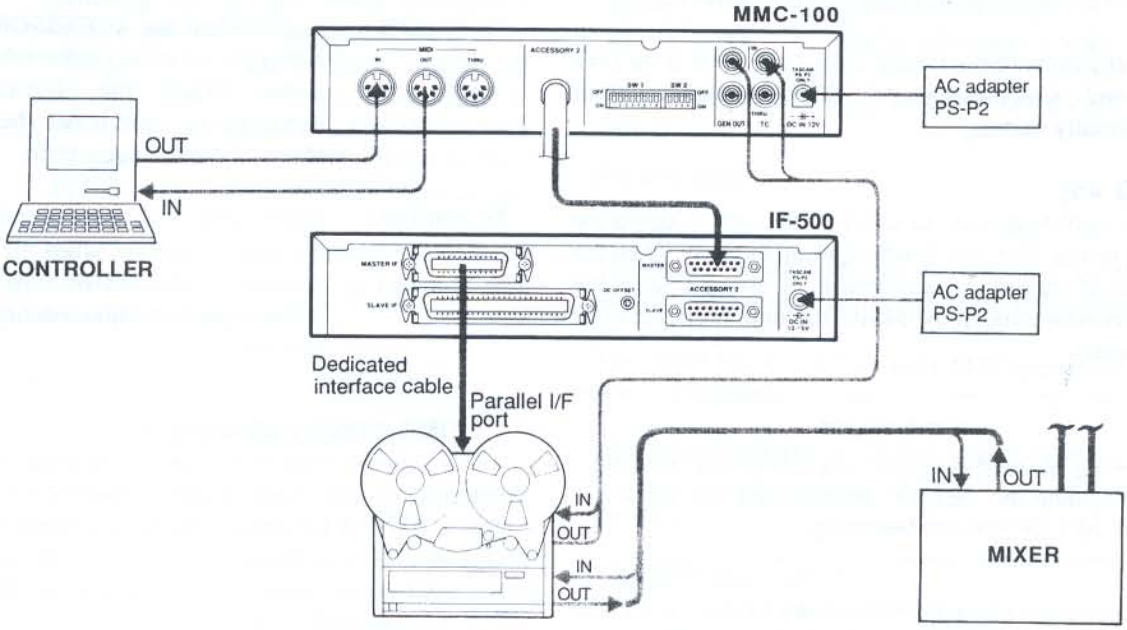
Name des Herstellers/Importeurs

Hookup Examples

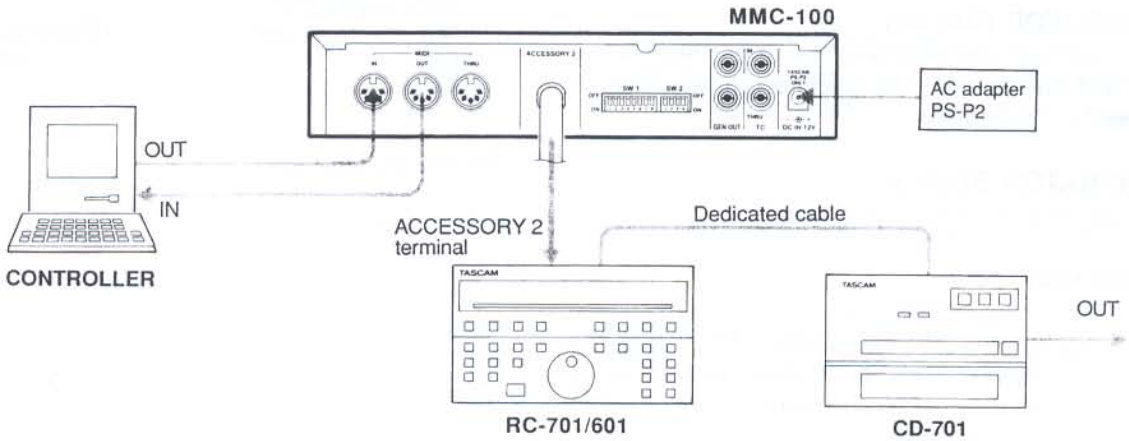
Using a TASCAM Transport with ACCESSORY 2



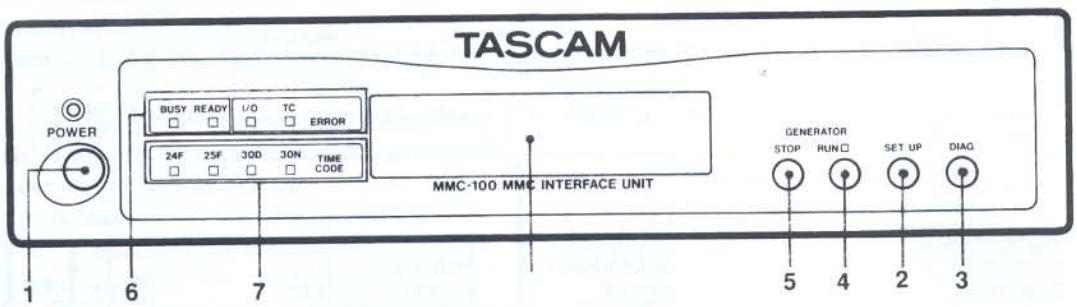
Using the IF-500 Parallel Interface Unit



Using the RC-701/601 CD Controller



Front panel



1. POWER switch
Turns the unit on and off.

2. SET UP key
Lets the unit "learn" the transport characteristics and others of the ATR connected prior to the start of operation.

■ This key cannot be activated unless you press it for over 3 seconds, thus preventing the SET UP procedure from accidentally starting,

3. DIAG key
Used for "self-diagnosis" to check if the unit is operating normally or not. Use this function when and only when the operation of connected equipment is strange (and the interface control through the MMC-100 does not seem to be in good order).

IMPORTANT

Performing the self-diagnosis erases all that the unit learned during the SET UP process and you have to redo the SET UP from the beginning.

■ This key cannot be activated unless you press it for over 3 seconds, thus preventing the DIAG operation from accidentally starting.

4. GENERATOR RUN key
Lets the time code generator run. This key is blocked out while in SET UP. Running the generator disables the time code reader.

5. GENERATOR STOP key
Used to stop the generation of time code.

6. Status indicators

READY : Lights when the MMC-100 is ready to receive MMC commands ; the unit is not available to receive them for as long as this indicator is off.

BUSY : Lights when the MMC-100 is not working as the interface unit such as during SET UP ; the unit is not available to receive commands from the exterior for as long as this indicator lights.

I/O ERROR : Lights when the ACCESSORY 2 cable is disconnected or any other cables are not in order. When this indicator lights, immediately switch off the power, and check for correct connection.

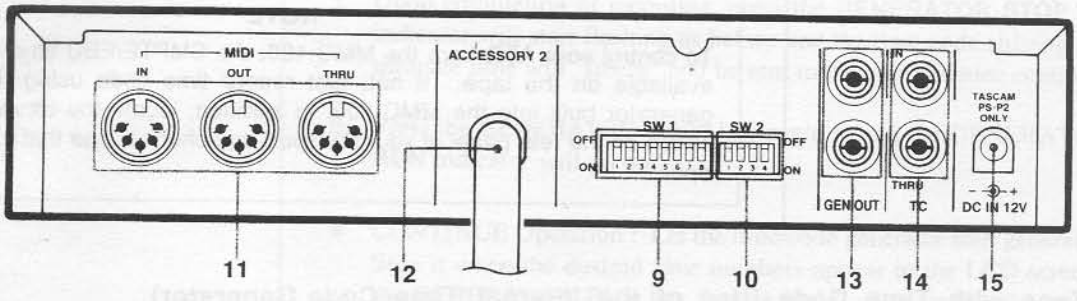
TC ERROR : Lights when time code is not available on the playing tape, or when the unit receives a frame mode/rate of time code which differs from that learned during the SET UP process.

7. TIME CODE indicators
These show in what time code frame mode the MMC-100 currently is. The frame mode is selected 1) automatically during the SET UP process in pursuant to the time code on tape in use, 2) as directed by the controller, or 3) as set by the SW2 select switch. The last selected frame mode is valid, defeating all previous settings.

24F : 24 frames/sec (FILM)
25F : 25 frames/sec (EBU)
30D : 29.97 frames/sec (SMPTE drop frame)
30N : 29.97 or 30 frames/sec (SMPTE non-drop frame)

See also page 10.

Rear panel



9. Select switches SW1 (down = "0"; up = "1")

Bits 1 to 7 : Used to set the ID number of the MMC-100. The MMC standard specifies that a controller may have the capability of handling up to 127 MMC-compatible units ; and for the controller to identify them, each unit has to have its own ID number. This is expressed in 7 bits (00H to 7EH) from bit 1 to bit 7. The MMC-100's ID number defaults to 00H (all bits to "0" : all SW1-1 to 7 switches to Down position).

Bit 8 : Switches the "software through" on and off at MIDI OUT. Defaults to Down ("software through" disabled).

Up	Enable
Down	Disable

10. Select switches SW2 (down = "0"; up = "1")

Bits 1 and 2 (Time code conversion format) : Determine into what format the MMC-100 will convert time code to send it from MIDI OUT upon request for MTC output from an external controller. These bits default to "MTC format".

Bits		
1	2	Format
Down	Down	NOP (not output)
Up	Down	Output in MTC
Down	Up	Output in DTL
Up	Up	Output in DTLe

Bits 3 and 4 (Frame Mode) : Sets in what frame mode the MMC-100 will operate.

Bits			
3	4	Frame Mode	LED
Down	Down	24F (FILM)	24F
Up	Down	25F (EBU)	25F
Down	Up	29.97F (SMPTE DF)	30D
Up	Up	29.97 or 30F (SMPTE NDF)	30N

The EUR/UK model defaults to 25F, and the USA model to 30N.

See also page 10.

11. MIDI jacks

The MIDI IN jack accepts the output of an MTC-based sequencer/controller. Any input here will be "echoed" out the THRU jack.
The MIDI OUT jack transmits MTC-converted times and other information.

12. ACCESSORY 2 serial interface port

This is for connecting to TASCAM recorders with a serial interface.

13. GEN OUT jacks

These transmit SMPTE/EBU time code from the internal time code generator and are for connecting to the "sync" track of your multi-track tapes for striping these with time code.

14. TC IN and THRU jacks

The TC IN jack accepts time code from tape machines. The time code fed into the TC IN jack will be "echoed" out the TC THRU jack.

15. DC IN 12V jack

This accepts the supplied PS-P2 AC adapter.

CAUTION

Don't connect here any other AC-DC adapters. Doing so will damage the MMC-100.

NOTE

To control your ATR from the MMC-100, the SMPTE/EBU time code must be available on the tape. If not, first record time code using the time code generator built into the MMC-100. In addition, locate the bit rate select dip-switch on the rear panel of your transport and check to see that it is set to 9600 bps.

Striping Tape with Time Code (Use of the Internal Time Code Generator)

When you control tape machines (with IF-500 or without) from the MMC-100 interface, you have to record time code on the tape before anything else. For the frame mode setting, refer to the relevant section of this manual.

Prior to recording time code, note the following.

- Use the outmost track to record time code. If your machine has a "sync" dedicated track, use it.
- Set off the noise reduction system for the track for use in recording time code. If it is on, time code read errors may occur.
- Record time code for the full length of the tape.
- Dirt on the heads may cause dropout (missing time code). Keep the heads and capstan clean.

To record time code using the generator in the MMC-100, there are following two methods.

1) Controlling the start time from the MMC-100

- The generator starts from 00:00:59:30.00.
- The CONTINUE function is available.

1. Confirm that the machine is connected correctly. Check also the IF-500 connection if this is used. Load a tape and let it run for few seconds or more to get past the leader tape.
2. Press the **GENERATOR RUN** key. Its indicator will flash, showing the generator is sending a "frozen" time code address of 59 minutes 30 seconds. Use it to adjust the machine's input level.
3. Start the machine for recording.
4. Press the **GENERATOR RUN** key again. Its indicator will turn on solid and the time code numbers will scroll on the LCD screen starting from 59 minutes 30 seconds.

5. Upon completion of recording, press the **GENERATOR STOP** key. The **RUN** indicator will start flashing as before and the time code striping will stop. The ultimate time will "freeze" and be sent to the tape machine continuously.

6. Press the **GENERATOR STOP** key again to exit the GENERATOR mode. The **RUN** indicator will go out.

- CONTINUE Operation : Let the time code generator start generating time code. Stop it when the desired time numbers appear in the LCD screen. Then press the **GENERATOR RUN** key further again. This causes the generator to start generating time code from the time at which you have stopped the generator.

2) Controlling the start time from an external controller

- The start time can be set as required.
- The CONTINUE function is not available.

- Operate the tape transport the same as in 1) above.
- Pressing the **GENERATOR RUN** key lets the generator start generating time code from 59 minutes 30 seconds, or from a specific time as directed by the controller.
- Press the **GENERATOR STOP** key to exit the GENERATOR mode.

Time Code Frame Mode/Rate

In what time code frame mode the MMC-100 will operate depends on the following three :

1) The setting of the SW2 select switch on the MMC-100

2) The SET UP operation

3) The setting on the external controller

The frame modes determined by these three defeat each other ; the last selection is valid.

■ Don't mix different frame modes. Use the same mode throughout the system.

Applicable MMC command nnn	Frame rate of generator time code (Refer to chart of select switch, p.7)			
	24	25	30D	30N
000 (standard)	24	25	29.97	30
010 (Drop A)	24	25	29.97	29.97

The default state is "Drop A".

About the Non-Drop Frame

Setting SW2-3 and 4 to their "Up" positions selects the Non-Drop Frame mode, but the frame rate is set to 29.97F (and not to 30F). To select the 30F rate, adjust your controller for "000" (Standard)—see table above.

SET UP Procedure

The SET UP procedure is to let the MMC-100 "learn" and remember the operation characteristics of the connected transport, including the ID number, the non-linear tach pulses (in the case of a cassette deck), the characteristics of the brake mechanism (in the case of an open deck), the type of time code on tape in use, etc.

Unless the SET UP is properly done, the MMC-100 does not operate correctly. You have to go through the SET UP procedure in the following cases.

■ Before using the MMC-100 for the first time.

■ When with what transport the last SET UP was done is unknown to you.

■ After performing the DIAG operation.

- After repatching an another transport (there is no need to repeat the SET UP as long as you use the same transport).
- When a newly loaded tape carries a different type of time code from that with which the previous tape was recorded.
- When you loaded a different tape on a cassette recorder (TASCAM 238, 644 or 688).
- When the current cassette tape location differs from the point where you were when you turned the MMC-100 off the last time
- After changing the tape speed setting on the transport (in this case, the time code need first be recorded again at the new speed).

Proceed as follows :

1. Check to see that your transport (or CD controller) is correctly connected.
2. If you are using a tape machine, load a tape carrying a time code and cue up the beginning of the time cord recording.
3. Press the **SET UP** key for over 3 seconds.

   ATR : The SET UP process is now taking place. Don't interrupt the process. If you do accidentally, go through the procedure from the beginning. The transport will automatically stop when the SET UP is complete, the **BUSY** indicator going out and the **READY** indicator turning on instead.

   RC-701 : The MMC-100 learns only its ID number and the SET UP is instantaneous.

   Once the SET UP process starts, the MMC-100 sends an MMC message, "WAIT", and is not available to receive whatever message is fed into it. Upon completion of SET UP, the MMC-100 sends a "RESUME" message and is again available to receive messages from the exterior.

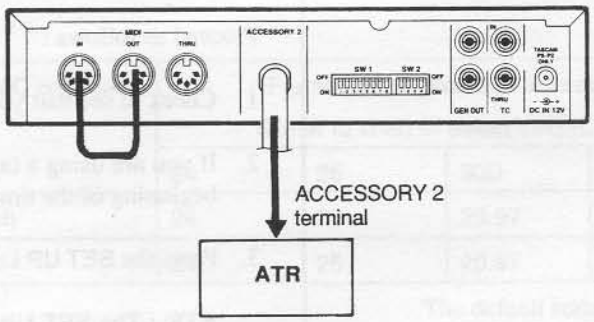
- All that the MMC-100 learned during the SET UP process is held in memory and this memory is not erased by turning the unit off.
- It is not necessary to repeat the SET UP when power is switched on again as long as you continue to use the same reel-to-reel transport.
- Loading different tapes on the reel-to-reel deck does not entail the necessity of repeating the SET UP if the frame mode of the time code on them is the same. EXCEPTION : tapes different in reel diameter or in weight proportionally affect the machine's brake characteristics ; Go through the SET UP procedure from the start again if the tape overshoots the expected location too much or it slows down prematurely or too sharply.

DIAG Procedure

NOTE

Performing the DIAG procedure erases the SET UP memory as well as whatever modes the MMC-100 has assumed upon request of MIDI commands. Once DIAG performed, switch the power off, and switch it on again, then perform the SET UP procedure all over again.

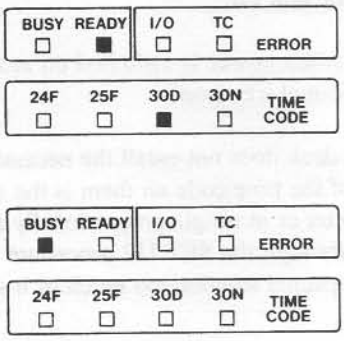
This function is used to let the MMC-100 check itself ("self- diagnosis") when the system operation is strange and the interface control through the MMC-100 seems to be its cause.



1. Hook up equipment as shown.
2. Press the **DIAG** key for over 3 seconds.

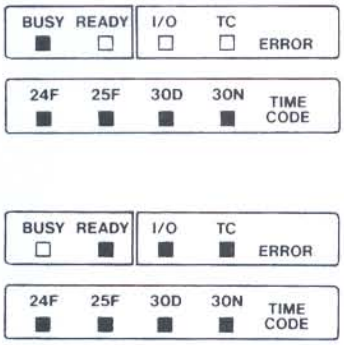
   The "self-diagnosis" is now taking place. Don't interrupt the process until it is fully over.
3. To exit the DIAG mode, switch the power off.

DIAG (self-diagnosis) indicators



Shows the initial state when the power is switched on. The frame mode is assumed to be set to 30DF.

When the DIAG key is pressed, the BUSY indicator will light, indicating that the "self-diagnosis" has started.

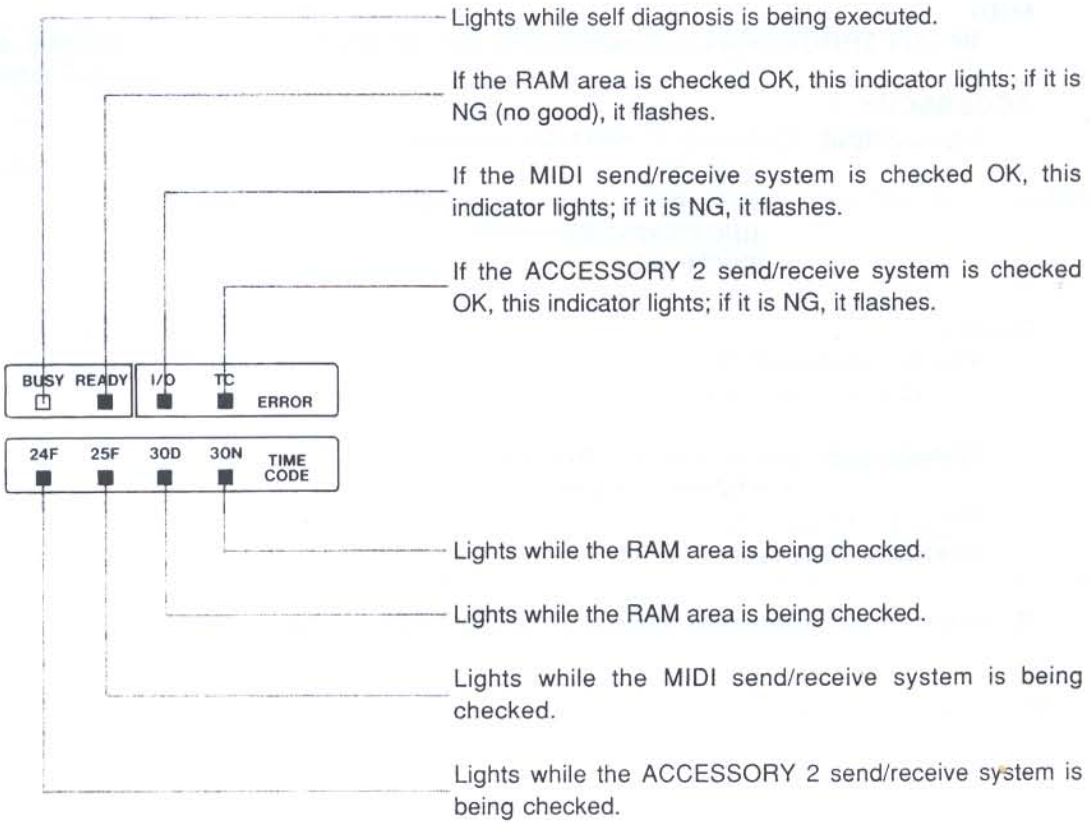


The time code frame mode LED indicators will light in sequence as the "self-diagnosis" program is executed.

If the MMC-100 has no problem in it, the LED indicators will finally light as shown on the left.

When the power is switched off, the DIAG mode is released.

- Before returning to your normal work, be sure to go through the SET UP procedure from the beginning.



Specifications

Communications

MIDI interface send/receive processing:
31.25 Kbps, asynchronous, full-duplex, IN/OUT/THRU one channel each

TASCAM ACCESSORY 2 send/receive processing:
9.6 Kbps, asynchronous, half-duplex

Input

Time code (IN & THRU)

Input connection : RCA jack
Input impedance: 10k ohms or higher, unbalanced
Input level range: 0.15 Vp-p to 3 Vp-p
Speed range: 1/2 to approx. 5X the play speed

Output

Time code

Output connection : RCA jack
Output impedance: 2 k ohms or lesser, unbalanced
Nominal output level: 0.6 Vp-p
Output waveform : SMPTE standard

MIDI

IN/OUT/THRU: DIN 5 pins, each

ACCESSORY 2

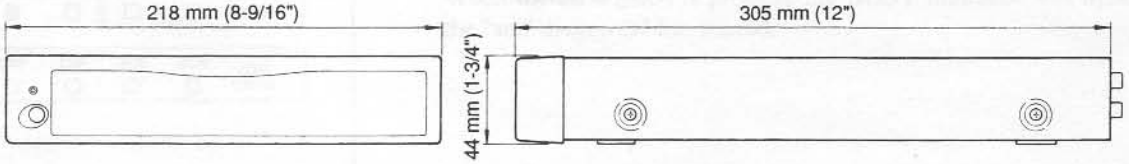
Input/output: Cable with 15-pin D-sub connector
TxD: #2
RxD: #4
DIRECTION: #5
TACH: #6

Others

Power requirements :
12 to 15 V DC via the supplied PS-P2 AC-DC adapter

Dimensions: 218(W) x 44(H) x 305(D) mm
(8-9/16" x 1-3/4" x 12")
Weight: 2.6 kg (5-12/16 lbs.)
Standard accessory: PS-P2

■ Changes in specifications and features may be made without notice or obligation.



SIGNATURE

SIGNATURE Transmitted from the MMC-100

The SIGNATURE showing a 2-bit map array of all Commands and all Responses/Information Fields the MMC-100 supports is as follows :

```
01  00  00  00
14
7F  67  00  00  00  00  00  00  00  00
1F  78  3F  00  00  00  00  00  00  09
14
42  7F  03  00  00  42  7F  03  00  00
7F  63  3F  42  0F  33  00  00  00  09
```

List of Commands According to Models

RC-601/701 : PLAY, STOP (READY in fact)
IF-500: PLAY, STOP, F.F., RWD, REC, REH
Models other than the above: Refer to the SIGNATURE chart on page 17 as well as to the following.

Commands, Responses/Information Fields and Difference in Response between Tape Transports

STOP (01H)

Operation :
The cassette recorders enter PAUSE mode unless they receive the STOP command while in Record mode (REC/PLAY).

GLOBAL MONITOR (50H)

Definition :
Selects either playback monitor or input monitor for all tracks.

00 = Playback (SYNC) mode
01 = Input mode
02 = Playback (REPRO) mode

Operation :
01—The reel-to-reel transports enter the ALL INPUT mode. The cassette recorders do not respond.

02—The TASCAM machines specified on p.4 have not a separate Repro head and they enter SYNC Repro mode the same as in response to "00".

RECORD MONITOR (51H)

Definition :
Selects when the output at the tape transports is fed with tape or input (while in SYNC mode).

00 = While in Record only (default state)
01 = While in Record as well as in any other modes except PLAY
02 = While in Record as well as in Ready

Operation :
00—The 644 does not respond.

01—The cassette transports do not respond.

FIXED SPEED (56H)

Operation :
Models 238, 644, 688 and TSR-8 do not respond.

Notes on the operation of the MMC-100 in relation to cassette decks (238, 644, 688)

The MMC-100 replies with "RECORD STATUS" to the controller when a REC FUNCTION switch or switches are pressed and additionally the transport is in Record mode (RECORD and PLAY both pressed). So, even if the transport is in Record mode, when the REC FUNCTION switch is off for all audio tracks and therefore none of the tracks is specified (written) on the "TRACK REC READY" information field (4FH):

The MMC-100 does not reply with "RECORD STATUS" because the cassette recorders issue the record tally only when a track or tracks actually enter Record mode (they issue the play tally while in Ready).

- Upon receipt of the record tally from the cassette recorders the MMC-100 replies with "RECORD STATUS" and issues "REC STROBE" (06H) to the controller.

Bit Map Array of Commands

Byte	Bit 7	Bit 6(40H)	Bit 5(20H)	Bit 4(10H)	Bit 3(08H)	Bit 2(04H)	Bit 1(02H)	Bit 0(01H)
c0	- 0	(06) RECORD STROBE	(05) REWIND	(04) FAST FORWARD	(03) DEFERRED PLAY	(02) PLAY	(01) STOP	(00) reserved
c1	- 0	(0D) MMC RESET	(0C) COMMAND ERROR RESET	(0B) CHASE	(0A) EJECT	(09) PAUSE	(08) RECORD PAUSE	(07) RECORD EXIT
c2	- 0	(14)	(13)	(12)	(11)	(10)	(0F)	(0E)
c3	- 0	(1B)	(1A)	(19)	(18)	(17)	(16)	(15)
c4	- 0	- 0	- 0	- 0	(1F)	(1E)	(1D)	(1C)
c5	- 0	(26)	(25)	(24)	(23)	(22)	(21)	(20)
c6	- 0	(2D)	(2C)	(2B)	(2A)	(29)	(28)	(27)
c7	- 0	(34)	(33)	(32)	(31)	(30)	(2F)	(2E)
c8	- 0	(3B)	(3A)	(39)	(38)	(37)	(36)	(35)
c9	- 0	- 0	- 0	- 0	(3F)	(3E)	(3D)	(3C)
c10	- 0	(46) SEARCH	(45) VARIABLE PLAY	(44) LOCATE	(43) UPDATE	(42) READ	(41) MASKED WRITE	(40) WRITE
c11	- 0	(4D) ADD	(4C) MOVE	(4B) MTC COMMAND	(4A) GENERATOR COMMAND	(49) ASSIGN SYS.MAS	(48) STEP	(47) SHUTTLE
c12	- 0	(54) DEFERRED VARI.PLAY	(53) COMMAND SEGMENT	(52) GROUP	(51) EVENT	(50) PROCE-DURE	(4F) DROP FR. ADJUST	(4E) SUBTRACT
c13	- 0	(5B)	(5A)	(59)	(58)	(57)	(56)	(55) REC STROBE VARIABLE
c14	- 0	- 0	- 0	- 0	(5F)	(5E)	(5D)	(5C)
c15	- 0	(66)	(65)	(64)	(63)	(62)	(61)	(60)
c16	- 0	(6D)	(6C)	(6B)	(6A)	(69)	(68)	(67)
c17	- 0	(74)	(73)	(72)	(71)	(70)	(6F)	(6E)
c18	- 0	(7B)	(7A)	(79)	(78)	(77)	(76)	(75)
c19	- 0	- 0	- 0	- 0	(7F) RESUME	(7E)	(7D)	(7C) WAIT

Bit Map Array of Responses/Information Fields

Byte	Bit7	Bit6 (40H)	Bit5 (20H)	Bit4 (10H)	Bit3 (08H)	Bit2 (04H)	Bit1 (02H)	Bit0 (01H)
r0	- 0	(06) GENERATOR TIME CODE	(05) LOCK DEVIATION	(04) ACTUAL ON OFFSET	(03) REQUESTED OFFSET	(02) SELECTED MASTER CODE	(01) SELECTED TIME CODE	(00) reserved
r1	- 0	(0D) GP5	(0C) GP4	(0B) GP3	(0A) GP2	(09) GP1	(08) GP0/LOCATE. POINT	(07) MTC INPUT
r2	- 0	(14)	(13)	(12)	(11)	(10)	(0F) GP7	(0E) GP6
r3	- 0	(1B)	(1A)	(19)	(18)	(17)	(16)	(15)
r4	- 0	- 0	- 0	- 0	(1F)	(1E)	(1D)	(1C)
r5	- 0	(26) Short GENTOR TIME CODE	(25) Sh'T LOCK DEVIATION	(24) Sh't ACTUAL OFFSET	(23) Sh'T REQ'D OFFSET	(22) Short SEL'D MASTER CODE	(21) Short SEL'D TIME CODE	(20) reserved
r6	- 0	(2D) Short GP5	(2C) Short GP4	(2B) Short GP3	(2A) Short GP2	(29) Short GP1	(28) Short GP0 LOCATE POINT	(27) Short MTC INPUT
r7	- 0	(34)	(33)	(32)	(31)	(30)	(2F) Short GP7	(2E) Short GP6
r8	- 0	(3B)	(3A)	(39)	(38)	(37)	(36)	(35)
r9	- 0	- 0	- 0	- 0	(3F)	(3E)	(3D)	(3C)
r10	- 0	(46) SEL'D TC SOURCE	(45) TIME STANDARD	(44) CMD ERROR LEVEL	(43) COMMAND ERROR	(42) RESPONSE ERROR	(41) UPDATE RATE	(40) SIG'TURE
r11	- 0	(4D) RECORD STATUS	(4C) RECORD MODE	(4B) FAST MODE	(4A) STOP MODE	(49) VELOCITY TALLY	(48) MOTION CTL TALLY	(47) SEL'D TC USERBITS
r12	- 0	(54) STEP LENGTH	(53) TRACK INP MONITOR	(52) TRACK SYNC MONITOR	(51) RECORD MONITOR	(50) GLOBAL MONITOR	(4F) TRACK REC READY	(4E) TRACK REC STATUS
r13	- 0	(5B) GENERATOR CMD TALLY	(5A) CHASE MODE	(59) RESOLVED PLAY MODE	(58) CONTROL DISABL	(57) LIFTER DEFEAT	(56) FIXED SPEED	(55) PLAY SPEED REFERENCE
r14	- 0	- 0	- 0	- 0	(5F) MTC SETUP	(5E) MTC CMD TALLY	(5D) GENERATOR USERBITS	(5C) GENERATOR SETUP
r15	- 0	(66)	(65) FAILURE	(64) RESPONSE SEGMENT	(63) VITC INSERT ENABLE	(62) TRACK MUTE	(61) EVENT RESPONSE	(60) PROCEDURE RESPONSE
r16	- 0	(6D)	(6C)	(6B)	(6A)	(69)	(68)	(67)
r17	- 0	(74)	(73)	(72)	(71)	(70)	(6F)	(6E)
r18	- 0	(7B)	(7A)	(79)	(78)	(77)	(76)	(75)
r19	- 0	- 0	- 0	- 0	(7F) RESUME	(7E)	(7D)	(7C) WAIT

MMC Interface Unit
Model MMC-100

MIDI Implementation Chart

Date: Feb.,
Version:

Function...		Transmitted	Recognized	Remarks
Basic Channel	Default	×	×	
	Changed	×	×	
Mode	Default	×	×	
	Messages	×	×	
	Altered	* * * * * * * * * * * * * * *	×	
Note Number:		×	×	
	True voice	* * * * * * * * * * * * * * *	×	
Velocity	Note ON	×	×	
	Note OFF	×	×	
After Touch	Key's	×	×	
	Ch's	×	×	
Pitch Bend		×	×	
Control Change		×	×	
Prog Change:		×	×	
	True #	* * * * * * * * * * * * * * *	×	
System Exclusive		○	○	*1 *2
Common	: Song Pos	×	×	
	: Song Sel	×	×	
	: Tune	×	×	
System Real Time	: Clock	○	×	*2
	: Commands	×	×	
Aux Messages	: Local ON/OFF	×	×	
	: All Notes OFF	×	×	
	: Active Sense	×	○	
	: Reset	×	○	
Notes		*1 MMC RP Ver 1.00 (T, R), MTC Full Message (T) Identity Request (R), Identity Reply (T) *2 DTL, DTLe MTC Quarter Frame Message (T)		
	(T) : Transmitted			
	(R) : Recognized			

Mode 1: OMNI ON. POLY Mode 2 : OMNI ON. MONO ○ :

Mode 3: OMNI OFF. POLY Mode 4 : OMNI OFF, MONO × :

TASCAM

TEAC Professional Division

MMC-100

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