

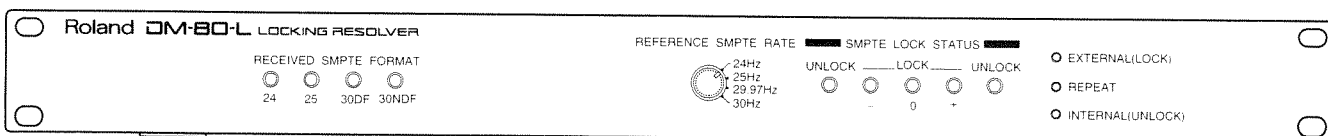


Roland

LOCKING RESOLVER

DM-80-L

OWNER'S MANUAL



For Germany

Bescheinigung des Herstellers / Importeurs

Hiermit wird bescheinigt, daß der/die/das
Roland LOCKING RESOLVER DM-80-L
.....
(Gerät, Typ Bezeichnung)

in Übereinstimmung mit den Bestimmungen der
Amtsbl. Vfg 1046 / 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.

Roland Corporation Osaka / Japan
.....

Name des Herstellers/Importeurs

For the USA

RADIO AND TELEVISION INTERFERENCE

WARNING- This equipment has been verified to comply with the limits for a Class B computing device, pursuant to Subpart J, of Part 15, of FCC rules. Operation with non-certified or non-verified equipment is likely to result in interference to radio and TV reception.

The equipment described in this manual generates and uses radio frequency energy. If it is not installed and used properly, that is, in strict accordance with our instructions, it may cause interference with radio and television reception. This equipment has been tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J, of Part 15, of FCC Rules.

These rules are designed to provide reasonable protection against such a interference in a residential installation. However, there is no guarantee that the interference will not occur in a particular installation.

If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment on and off, the user is encouraged to try to correct the interference by the following measure:

- Disconnect other devices and their input/output cables one at a time. If the interference stops, it is caused by either the other device or its I/O cable. These devices usually require Roland designated shielded I/O cables. For Roland devices, you can obtain the proper shielded cable from your dealer. For non Roland devices, contact the manufacturer or dealer for assistance.
- If your equipment does cause interference to radio or television reception, you can try to correct the interference by using one or more of the following measures.
- Turn the TV or radio antenna until the interference stops.
- Move the equipment to one side or the other of the TV or radio.
- Move the equipment farther away from the TV or radio.
- Plug the equipment into an outlet that is on a different circuit than the TV or radio. (That is, make certain the equipment and the radio or television set are on circuits controlled by different circuit breakers or fuses.)
- Consider installing a rooftop television antenna with coaxial cable lead-in between the antenna and TV. If necessary, you should consult your dealer or an experienced radio/television technician for additional suggestions. You may find helpful the following booklet prepared by the Federal Communications Commission :

"How to Identify and Resolve Radio - TV Interference Problems"

This booklet is available from the U.S. Government Printing Office, Washington, D.C., 20402, Stock No.004-000-00345-4.

For Canada

CLASS B

NOTICE

This digital apparatus does not exceed the Class B limits for radio noise emissions set out in the Radio Interference Regulations of the Canadian Department of Communications.

CLASSE B

AVIS

Cet appareil numérique ne dépasse pas les limites de la classe B au niveau des émissions de bruits radioélectriques fixés dans le Règlement des signaux parasites par le ministère canadien des Communications.

Roland DM-80-L LOCKING RESOLVER

OWNER'S MANUAL

INTRODUCTION

Thank you, and congratulations on your choice of the Roland DM-80-L Locking Resolver. The DM-80-L was specially developed to be used in tandem with the DM-80 Hard Disk Recording System. The unit's design and quality of manufacture provide further proof of Roland's leading-edge technological expertise. Before starting out, please take the time to read through this manual.

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FEATURES

- The unit allows you to synchronize with the DM-80 System while employing a master device such as a SMPTE device outputting SMPTE Time Code.
- Synchronization can be achieved even when using devices that cannot output SMPTE Time Code, since tape can be used to record/playback SMPTE Time Code.
- A set of indicators provide for easy confirmation of the SMPTE Time Code's format.
- By using the indicators to determine the speed of the SMPTE Time Code being used, and adjusting the tape recorder's playback speed, perfect synchronization can be achieved.

IMPORTANT NOTES

[Power Supply]

- The DM-80-L is supplied power over the DM buss from the DM-80-8/4. For this reason, it can only be used when it is connected to the DM-80-8/4. Additionally, the DM-80-L is turned ON/OFF automatically by means of signals it receives from the DM-80-8/4.

[Placement]

- Do not subject the unit to temperature extremes (e.g. direct sunlight in an enclosed vehicle). Avoid using or storing the unit in dusty or humid areas or areas that are subject to high vibration levels.
- This unit may interfere with radio and television reception. Do not use this unit in the vicinity of such receivers.

[Maintenance]

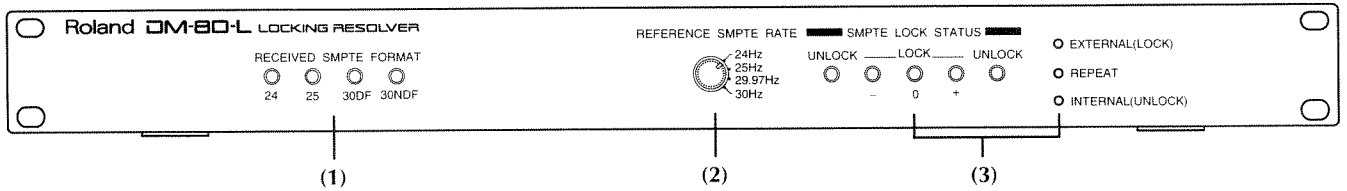
- For everyday cleaning wipe the unit with a soft, dry cloth (or one that has been slightly dampened with water). To remove stubborn dirt, use a mild neutral detergent. Afterwards, be sure to wipe the unit thoroughly with a soft, dry cloth.
- Never use benzine, thinners, alcohol or solvents of any kind, to avoid the risk of discoloration and/or deformation.

[Additional Precautions]

- Protect the unit from strong impact.
- Do not allow objects or liquids of any kind to penetrate the unit. In the event of such an occurrence, discontinue use immediately. Contact qualified service personnel as soon as possible.
- A small amount of heat will radiate from the unit, and thus should be considered normal.
- Should a malfunction occur (or if you suspect there is a problem) discontinue use immediately. Contact qualified service personnel as soon as possible.

1. PANEL DESCRIPTIONS

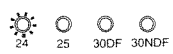


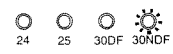
FRONT PANEL



(1) RECEIVED SMPTE FORMAT Indicators

These indicators display the format of the SMPTE Time Code that has arrived at the SMPTE LTC IN jacks. The DM-80-L is capable of automatically analyzing the time code, and displaying this result.

The RECEIVED SMPTE FORMAT indicators do not necessarily indicate the frame rate (number of frames per second) of the SMPTE Time Code.

<p>24</p> 	<p>This format is the one most often used by American movies that employ the media of film. The frame rate is 24 Hz.</p>
<p>25</p> 	<p>This is the format used for PAL/SECAM video, which is prevalent in Europe. The frame rate is 25 Hz.</p>
<p>30DF (30 Drop Frame)</p> 	<p>This format provides for the planned dropping of frames for correctional purposes, to alleviate discrepancies between the SMPTE Time Code and the actual time. It is used predominantly for programs to be broadcast on television. The frame rate is 29.97 Hz.</p>
<p>30NDF (30 Non Drop Frame)</p> 	<p>This is the format most commonly used for NTSC video, which is prevalent in America and Japan. This format does not drop frames like 30DF does. A frame rate of either 30 or 29.97 Hz is employed.</p>

(2) REFERENCE SMPTE RATE Knob

This knob should be adjusted to match the frame rate of the SMPTE Time Code that is input to the SMPTE LTC IN jack.

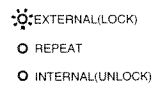


(3) SMPTE LOCK STATUS Indicators

The 5 horizontally-aligned indicators provide a reading for the speed of the SMPTE Time Code being input, relative to the DM-80-L's reference rate. They indicate the amount by which it is faster or slower.

The 3 vertically-aligned indicators show the operating status of

• When the EXTERNAL (LOCK) Indicator is Lighted

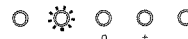


When in this status, the DM-80 is synchronized to the SMPTE Time Code input to it by an external device. At this time, the DM-80-L outputs the necessary synchronization signals (which are synchronized to the SMPTE Time Code input to it) from its FOR DM-80 SYNC OUT.

The -, 0, or + indicators light to show the rate, and the frame rate of the input SMPTE LTC signal is indicated as being either faster or slower than the reference rate.

The DM-80-L can also be used to record SMPTE Time Code onto a tape recorder. Then that can be played back to synchronize with the DM-80 System. When doing this, you will need to adjust the playback speed of the tape recorder until you get the "0" indicator on the DM-80-L to light.

When the "-" Indicator is Lighted



The SMPTE LTC signals being input are slightly slower than the reference rate.

When the "0" Indicator is Lighted



The SMPTE LTC signals being input are at a rate which is nearly identical to the reference rate.

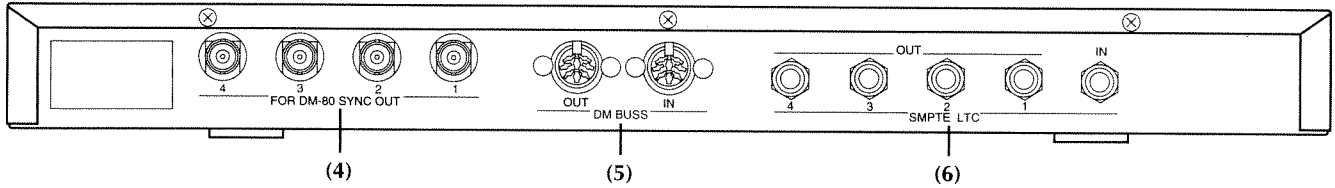
When the "+" Indicator is Lighted



The SMPTE LTC signals being input are slightly faster than the DM-80-L's reference rate.

If you use a tape recorder which provides a playback rate adjustment, SMPTE Time Code can be recorded onto it. Then the tape can be played back to synchronize the DM-80 System. When doing this, you will need to adjust the playback speed of the tape recorder until you get the "0" indicator on the DM-80-L to light.

REAR PANEL



the DM-80-L. The unit needs to be set to "LOCK" if the DM-80 System is to be synchronized to the SMPTE Time Code output by an external device. While viewing all the indicators, adjust the playback rate on the external device, and the DM-80-L's REFERENCE SMPTE RATE knob until the "LOCK" LED lights.

- * VIDEO SYNC is sometimes referred to as HOUSE SYNC.
- * SMPTE: Society of Motion Picture and Television Engineers.
- * LTC: Longitudinal Time Code

• When the INTERNAL (UNLOCK) Indicator is Lighted

- EXTERNAL(LOCK)
- REPEAT
- ⊙ INTERNAL(UNLOCK)

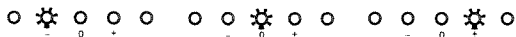
This indicates that the unit is in a state whereby it is not reliably locked into synchronization (UNLOCKed). While in this condition, synchronization with other devices cannot be achieved.

When none of the 5 horizontally-aligned indicators are lighted:



This means that the DM-80-L is not recognizing the SMPTE Time Code. Synchronization signals (produced by the DM-80-L's reference clock) are output from FOR DM-80 SYNC OUT, however.

When any of the green indicators are lighted:



This means that the DM-80-L is in the process of getting into sync with the SMPTE Time Code that is being input. Once the unit gets a fix on the sync code, the INTERNAL (UNLOCK) indicator goes out, and the EXTERNAL (LOCK) indicator lights instead.

When either of the red indicators (UNLOCK at either left or right) is lighted:



This means that the DM-80-L is receiving the SMPTE signals, but the signals are either too slow (UNLOCK at left), or too fast (UNLOCK at right) to achieve sync for the DM-80 System.

You will need to adjust the REFERENCE SMPTE RATE knob (2) until you have the appropriate frame rate. Additionally, you may need to alter the playback speed on your tape recorder until you get the "0" indicator on the DM-80-L to light.

• When the REPEAT Indicator is Lighted

- EXTERNAL(LOCK)
- ⊙ REPEAT
- INTERNAL(UNLOCK)

The DM-80-L is receiving SMPTE LTC signals that direct that the same single frame be repeated (REPEAT status). In other words, it is in the freeze-frame condition.

During this time as well, the synchronization signals (produced by the DM-80-L's reference clock) are output from FOR DM-80 SYNC OUT. Throughout this period, playback on the DM-80 System (the slave) will be stopped. As soon as the SMPTE Time Code leaves the REPEAT state, and goes into playback, the DM-80 System will begin playback while synchronized with the time code.

(4) FOR DM-80 SYNC OUT Terminals

Provide output of the clock which is used to create the sample rate for the DM-80-8/4. Make sure you connect a cable so it runs from one of these terminals to the VIDEO SYNC terminal on the DM-80-8/4. You also will need to set the "Sampling clock source" parameter on the DM-80 to "Video sync." Since four FOR DM-80 SYNC OUT jacks are provided, four DM-80-8/4s can be operated simultaneously.

(5) DM BUSS (OUT, IN) Connectors

These connectors provide for interfacing with the specialized DM-80 System data buss. Depending on your specific system configuration, you would connect a DM-80-8/4 (Multi-Track Disk Recorder), a DM-80-R (Remote Controller), or DM-80-F (Fader Unit).

(6) SMPTE LTC (OUT, IN) Jacks

These jacks accept the input, and provide output of SMPTE Time Code (Longitudinal Time Code). Since four output jacks are provided, four DM-80-8/4s can be controlled simultaneously.

2. INSTRUCTIONS/PRECAUTIONS FOR SETTING UP

* All connections should be made only after you have made sure that the power is turned off on all units.

* Should the DM BUSS cable be disconnected while the DM-80 System is operating, the system will go into a halt. In order to restart the system, you will need to turn the power to the DM-80-8/4 off then on again. You should always try to be careful, since if the above situation occurs, you will lose all data that was not yet saved.

[1] Connections to Make When Syncing with an Analog Tape Recorder or SMPTE Device

The following explains how to make the connections when you wish to have either an analog tape recorder capable of playback SMPTE Time Code, or a SMPTE device act as the master while the DM-80 System is made the slave and placed in sync.

SMPTE Time Code should be recorded beforehand onto the analog tape recorder. The playback of this code should then be fed into the DM-80-L. With a SMPTE device that is equipped with a SMPTE Time Code generator (such as the Roland SBX-1000), connect the SMPTE Time Code output to the input on the DM-80-L.

* MTR: Multi-Track Recorder

* SMPTE: Society of Motion Picture and Television Engineers.

* LTC: Longitudinal Time Code

• Making the Connections for the Synchronization Signals (SMPTE and SYNC Signals)

SMPTE Signal Connection

Connect a cable so the SMPTE LTC signals produced by the tape recorder during playback are input to the SMPTE LTC IN jack on the DM-80-L.

If the SMPTE device being used directly provides output of SMPTE LTC signals, run a cable between its SMPTE LTC output jack and the SMPTE LTC IN jack on the DM-80-L.

Additionally, connect a cable between any one of the four SMPTE LTC OUT jacks on the DM-80-L and the SMPTE LTC IN jack on the DM-80-8/4.

SYNC Signal Connection

Use the supplied SYNC connecting cable to make the connection between any one of the four FOR DM-80 SYNC OUT jacks on the DM-80-L and the VIDEO SYNC jack on the DM-80-8/4.

* The signals output from the DM-80-L's FOR DM-80 SYNC OUT jacks are completely different from ordinary video signals. Never connect the FOR DM-80 SYNC OUT jacks to anything other than the VIDEO SYNC jack on the DM-80-8/4.

• Connecting to the DM-BUSS

Connecting with the DM-80-8/4

Use the supplied DM BUSS connecting cable to make the connection between the DM BUSS OUT jack on the DM-80-L and the DM BUSS IN jack on the DM-80-8/4.

Connecting with the DM-80-R/DM-80-F

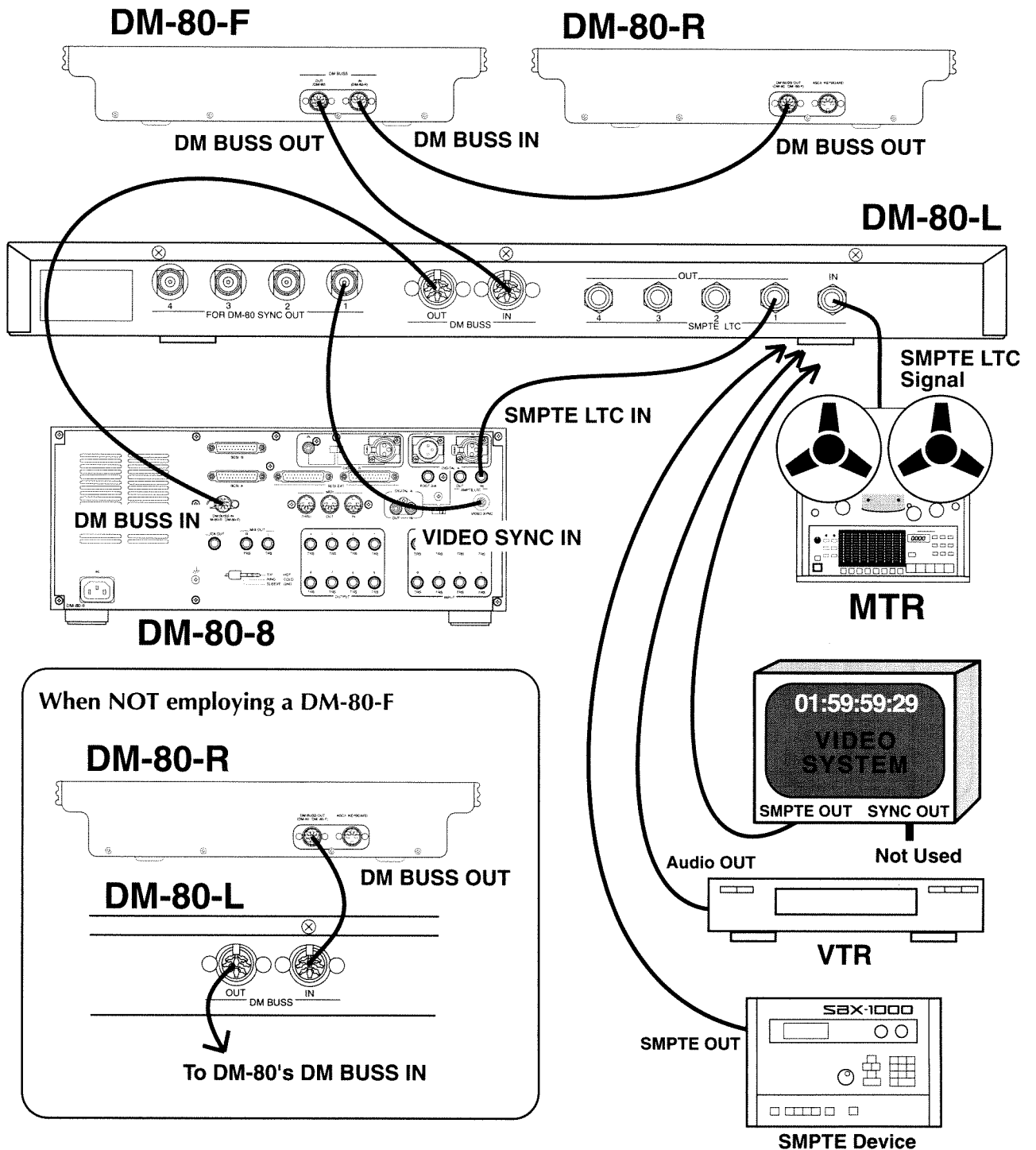
When employing a DM-80-F

Run the cable between the DM BUSS IN jack on the DM-80-L and the DM BUSS OUT jack on the DM-80-F. Additionally, connect a cable between the DM BUSS IN jack on the DM-80-F and the DM BUSS OUT jack on the DM-80-R.

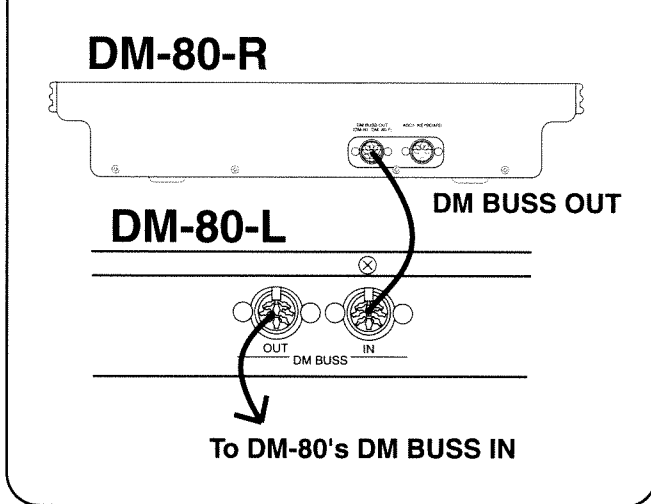
When NOT employing a DM-80-F

Run the cable between the DM BUSS IN jack on the DM-80-L and the DM BUSS OUT jack on the DM-80-R.

When employing a DM-80-F



When NOT employing a DM-80-F



[Settings for the DM-80 Parameters]

Set the DM-80's "Sampling clock source" parameter to "Video sync."

Set the DM-80's "Time base" parameter to "SMPTE."

Set the DM-80's "SMPTE Rate/Format" parameter to the format displayed by the DM-80-L's RECEIVED SMPTE FORMAT indicator.

[2] Connections to Make When Syncing with Video Equipment

With video equipment that can output SMPTE Time Code

When the video equipment you are using is capable of outputting SMPTE Time Code (is equipped with a SMPTE generator), the connections can be made as explained on the previous page (p. 7). In such a configuration, the video signals output by the video device are not used for synchronization purposes.

[Settings for the DM-80 Parameters]

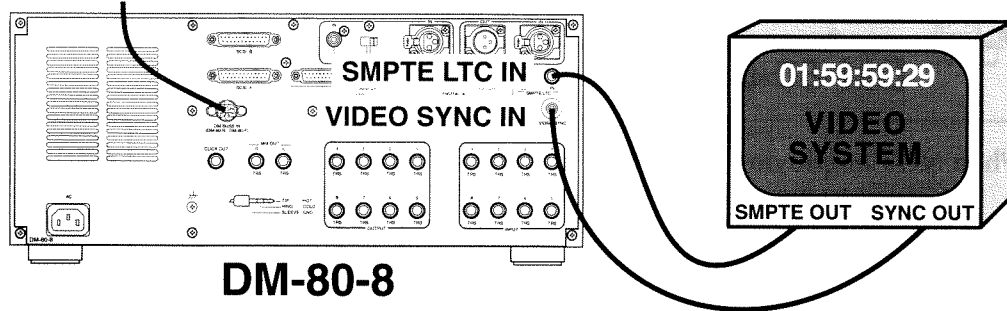
Set the DM-80's "Sampling clock source" parameter to "Video sync."

Set the DM-80's "Time base" parameter to "SMPTE."

Set the DM-80's "SMPTE Rate/Format" parameter to the format displayed by the DM-80-L's RECEIVED SMPTE FORMAT indicator.

* When needing to sync a video system capable of outputting SMPTE Time Code with the DM-80, use of the DM-80-L is not essential. In such cases, you can achieve sync by inputting the video signal from the video system to the DM-80's VIDEO SYNC.

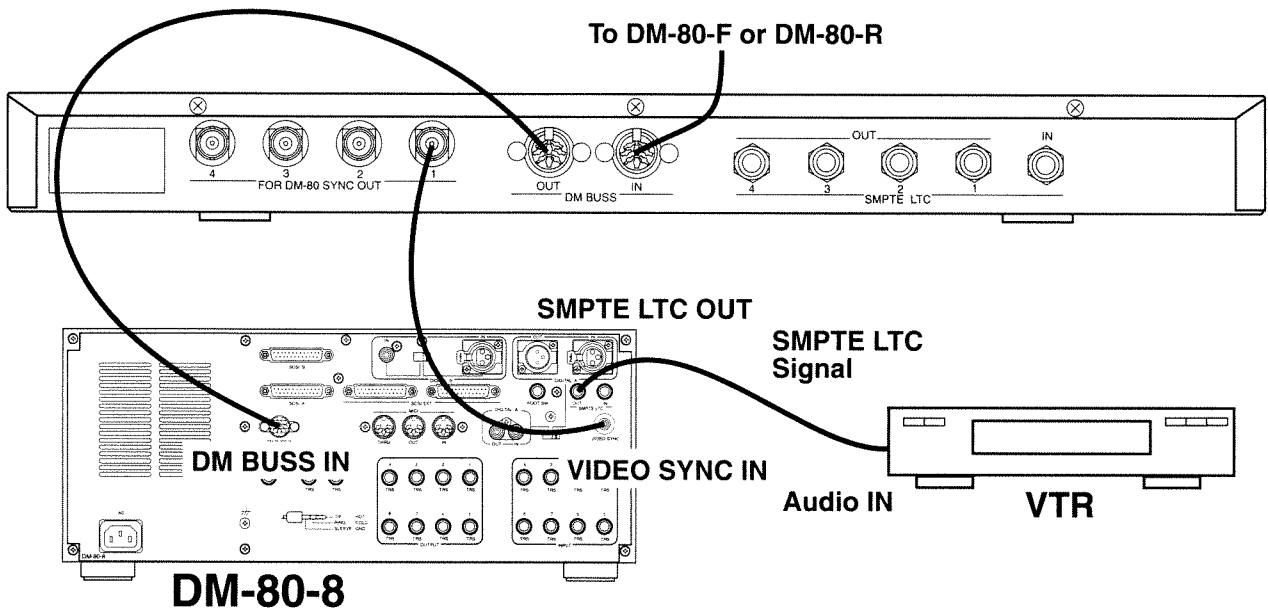
To DM-80-F or DM-80-R



With video equipment that cannot output SMPTE Time Code

To sync an ordinary consumer-use video tape recorder (VTR not capable of outputting SMPTE Time Code) with the DM-80, carry out the following:

(1) Record onto the video tape's audio track the SMPTE LTC signals (time code signals) from the DM-80-8/4. In this case, the DM-80 is used as the master of a SMPTE Time Code.



[Using the DM-80 as the Master in a SMPTE Configuration]

Since the DM-80-L assures the production of SMPTE Time Code which is precise and reliable, with almost no divergence from the actual time, the DM-80-L makes it possible for the DM-80 to be used as the master in a SMPTE configuration.

The DM-80 relies on the playback rate (sample rate) of its audio digital data as the basis for its SMPTE Time Code. (When the "Time Base" is at "Internal.") However, the frequency of the oscillator (which provides the point of reference for the DM-80's sample rate) can shift by minuscule amounts as a result of changes in the temperature of the surroundings. For this reason, a certain amount of divergence from the actual time can occur when time code is produced over an extended period of time. For example, you might be able to observe that after, say, two hours of SMPTE Time Code production, that the 2nd hour as indicated by the code had occurred either slightly earlier or later than the actual time would indicate.

By using the DM-80-L, such divergence from the actual time will be almost nil. Make the connections as shown above. Also, make sure to set the DM-80's "Sampling clock source" parameter to "Video sync."

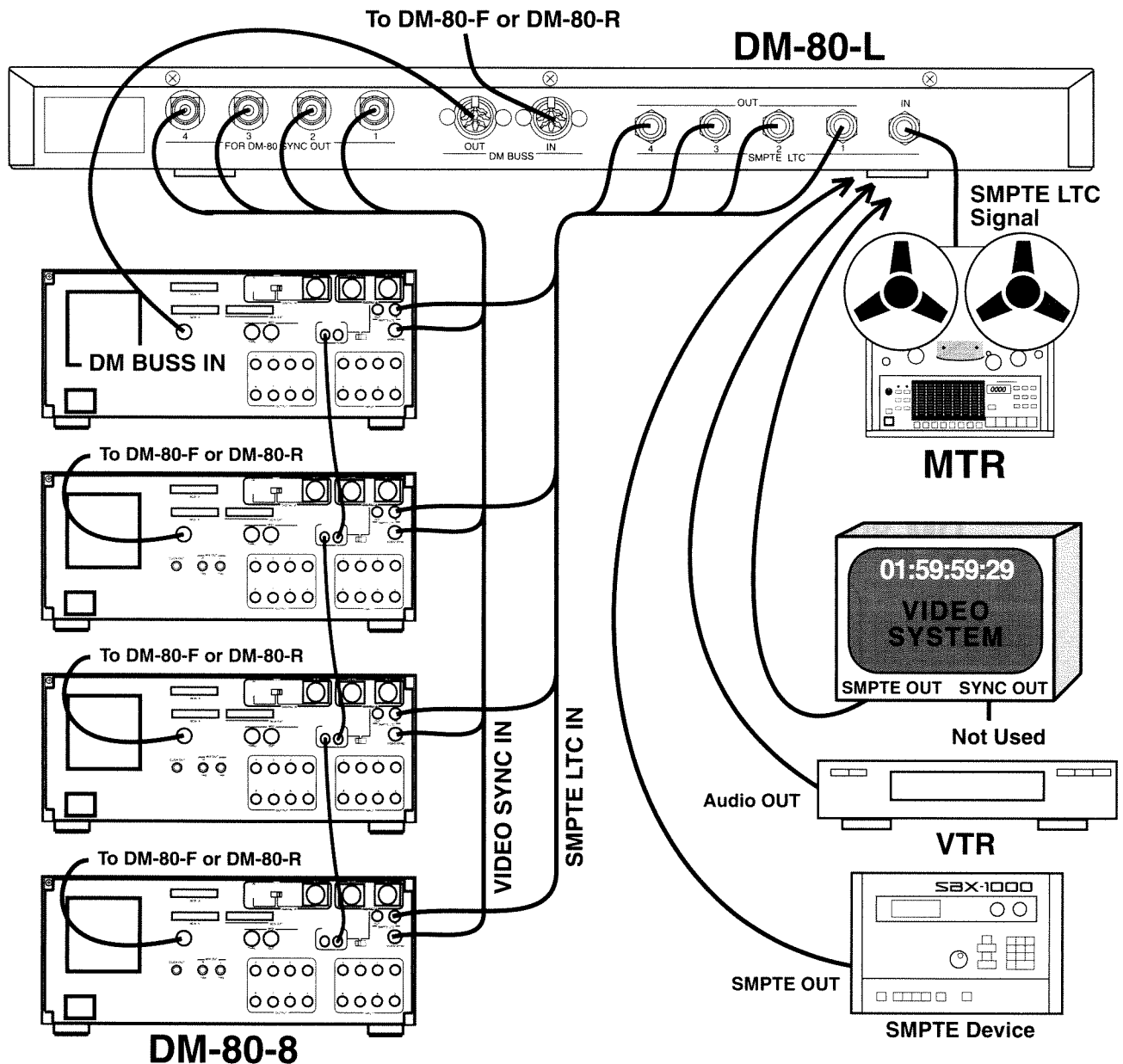
(2) Input the playback of these SMPTE LTC signals to the DM-80-L's SMPTE LTC IN jack to sync with the DM-80 System. The connections should be made as explained previously (p. 7).

[3] Connections to Make When Syncing Multiple DM-80-8/4s (Max. of four)

* The DM BUSS should be connected to any one of the multiple DM-80-8/4s.

The Multiple DM-80 System is made the slave to SMPTE Time Code and placed in sync.

Connect a cable so the SMPTE signals output by an analog tape recorder, or a SMPTE device (SMPTE generator) are input to the SMPTE LTC IN jack on the DM-80-L. Then, connect cables between each of the four SMPTE LTC OUT jacks on the DM-80-L and the SMPTE LTC IN jacks on each of the DM-80-8/4s. Additionally, make the connections between each of the four FOR DM-80 SYNC OUT jacks on the DM-80-L and the VIDEO SYNC jacks on each DM-80-8/4.



[Settings for the DM-80 Parameters]

Set the DM-80's "Sampling clock source" parameter to "Video sync."

Set the DM-80's "Time base" parameter to "SMPTE."

Set the DM-80's "SMPTE Rate/Format" parameter to the format displayed by the DM-80-L's RECEIVED SMPTE FORMAT indicator.

[4] Connections to Make When Using DM-80-S (Multitrack Manager Software)

The DM-80 System is made the slave to SMPTE Time Code and placed in sync. Then the DM-80 System is controlled by using DM-80-S.

• Making the Connections for the Synchronization Signals (SMPTE and SYNC Signals)

The DM-80-S (Multitrack Manager Software) is an application for personal computers which emulates on the computer's screen all the functions of the DM-80-R (Remote Controller). Refer to the previous pages for information on how to make the connections for the various devices (MTR, VTR, SMPTE generators) that can be synced with, and make the appropriate connections.

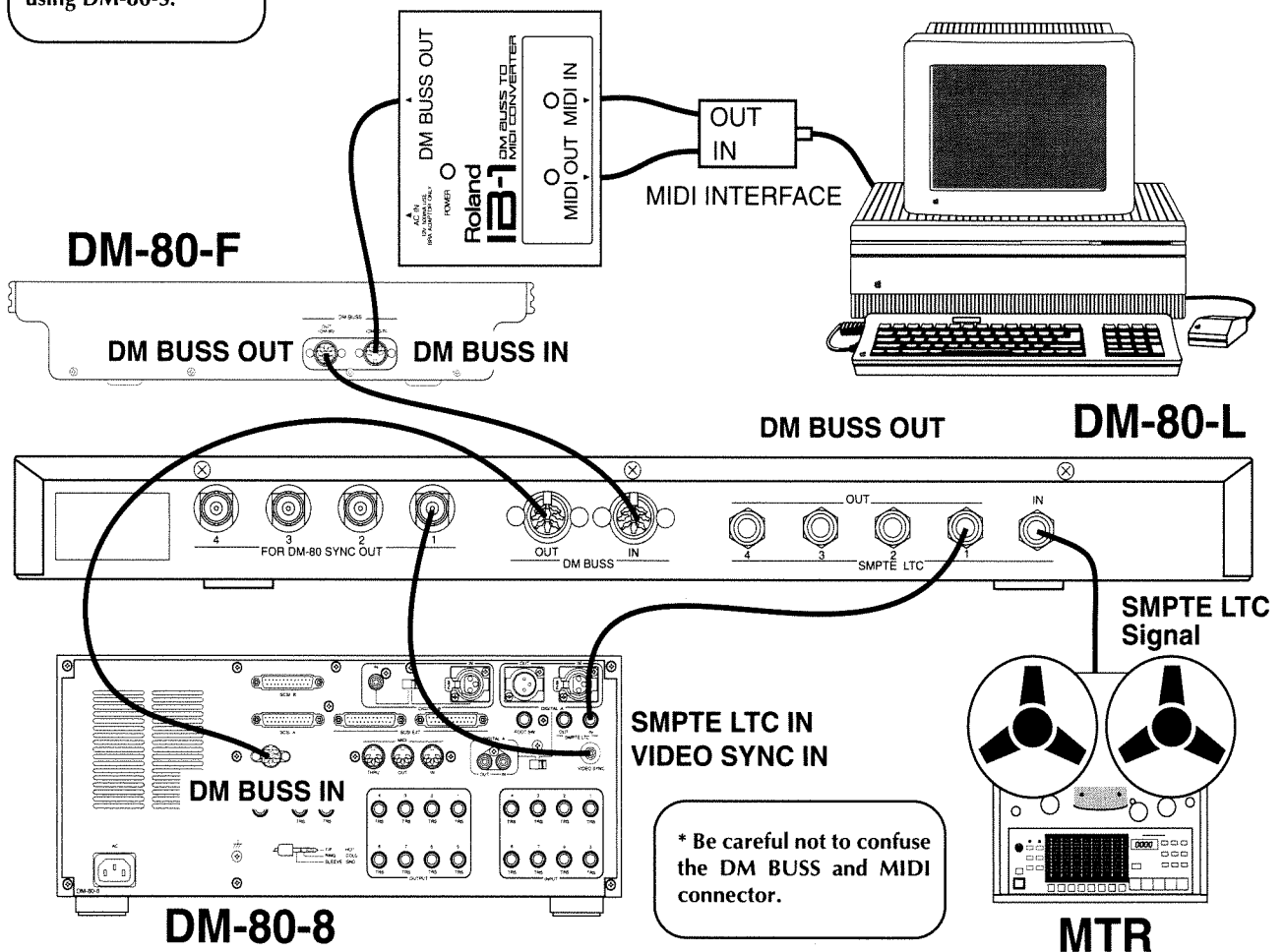
• Connecting to the DM-BUSS

* IB-1(DM BUSS To MIDI Converter) is an interface box designed to allow control of the DM-80 system when using DM-80-S.

When employing a DM-80-F, connect a cable between the DM BUSS IN jack on the DM-80-L and the DM BUSS OUT jack on the DM-80-F.

Additionally, connect a cable between the DM BUSS IN jack on the DM-80-F and the DM BUSS OUT jack on the IB-1.

When NOT employing a DM-80-F, connect a cable between the DM BUSS IN jack on the DM-80-L and the DM BUSS OUT jack on the IB-1.



[DM-80 Parameter Settings]

Set the DM-80's "Sampling clock source" parameter to "Video sync."

Set the DM-80's "Time base" parameter to "SMPTE."

Set the DM-80's "SMPTE Rate/Format" parameter to the format displayed by the DM-80-L's RECEIVED SMPTE FORMAT indicator.

SPECIFICATIONS

- **FRONT PANEL**

INDICATORS
RECEIVED SMPTE FORMAT: 24, 25, 30DF, 30NDF
SMPTE LOCK STATUS: UNLOCK, -, 0, +, UNLOCK, EXTERNAL (LOCK), REPEAT, INTERNAL (UNLOCK)

CONTROLS
REFERENCE SMPTE RATE: 24 Hz, 25 Hz, 29.97 Hz, 30 Hz

- **REAR PANEL**

SMPTE LTC IN
SMPTE LTC OUT x 4
DM BUSS IN
DM BUSS OUT
FOR DM-80 SYNC OUT x 4

- **SMPTE LTC**

Synchronizable
SMPTE LTC Frame Rate: +/- 0.2%
Input Level: 0.5 V p-p to 5 V p-p
Input Impedance: 29 K ohm
Output Level: 0.75 V p-p

- **FOR DM-80 SYNC OUT**

OUTPUT LEVEL/WAVEFORM: 5 V p-p/square wave

- **DIMENSIONS:** 482 (W) x 169 (D) x 45 (H) mm
19 (W) x 6-11/6 (D) x 1-13/16 (H) inches
- **WEIGHT:** 2.0 kg
4 lbs 7 oz

- **SUPPLIED ACCESSORIES**

Manual
DM BUSS Connecting Cable
SYNC Connecting Cable

* The specifications for this product are subject to change without prior notice.

INFORMATION

When you need repair service, call your local Roland Service Station or the authorized Roland distributor in your country as shown below.

U. S. A.

Roland Corporation US
7200 Dominion Circle Los Angeles, CA. 90040-3647, U. S. A.
TEL: (213) 685-5141

CANADA

Roland Canada Music Ltd.
(Head Office)
5480 Parkwood Way
Richmond B. C., V6V 2M4
CANADA
TEL: (604) 270-6626

Roland Canada Music Ltd.

(Montreal Office)
9425 Transcanadienne
Service Rd. N., St Laurent,
Quebec H4S 1V3, CANADA
TEL: (514) 335-2009

Roland Canada Music Ltd.

(Tronto Office)
346 Watline Avenue,
Mississauga, Ontario L4Z
1X2, CANADA
TEL: (416) 890-6488

AUSTRALIA

Roland Corporation (Australia) Pty. Ltd. (Head Office)
38 Campbell Avenue Dee Why West. NSW 2099
AUSTRALIA
TEL: (02) 982-8266

Roland Corporation (Australia) Pty. Ltd. (Melbourne Office)

50 Garden Street, South Yarra, Victoria 3141
AUSTRALIA
TEL: (03) 241-1254

UNITED KINGDOM

Roland (U.K.) Ltd.
Rye Close Ancells Business Park Fleet, Hampshire GU13 8UY, UNITED KINGDOM
TEL: 0252-816181

Roland (U.K.) Ltd., Swansea Office

Atlantic Close, Swansea Enterprise Park, Swansea, West Glamorgan SA79FJ, UNITED KINGDOM
TEL: (0792) 700-139

ITALY

Roland Italy S. p. A.
Viale delle Industrie 8 20020 ARESE MILANO ITALY
TEL: 02-93581311

SPAIN

Roland Electronics de España, S. A.
Calle Bolivia 239 08020 Barcelona, SPAIN
TEL: 93-308-1000

GERMANY

Roland Elektronische Musikinstrumente HmbH Handelsgesellschaft mbh.
Oststrasse 96, 2000 Norderstedt, GERMANY
TEL: 040/52 60 090

FRANCE

Musikengro
102 Avenue Jean-Jaures 69007 Lyon Cedex 07
FRANCE
TEL: (7) 858-54 60

Musikengro (Paris Office)

Centre Region Parisienne 41 rue Charles-Fourier, 94400 Vitry SUR/SEINE FRANCE
TEL: (1) 4680 86 62

BELGIUM/HOLLAND/LUXEMBOURG

Roland Benelux N. V.
Houtstraat 1 B-2260 Oevel-Westerlo BELGIUM
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