

YAMAHA

MUSIC LABORATORY SYSTEM TEACHING CONSOLE

MUSIKLABORSYSTEM LEHRKONSOLE

SYSTEME DE LABORATOIRE MUSICAL CONSOLE D'ENSEIGNEMENT

SISTEMA DE LABORATORIO MUSICAL CONSOLA DE ENSEÑANZA

MLC-16

Operating Manual

Table of Contents

1. FEATURES OF THE MLC-16 TEACHING CONSOLE	2
2. OPERATION GUIDE	3/4
3. AUXILIARY JACKS	5
4. HOW TO SET UP THE SYSTEM	6
5. SETTING UP THE CLASS	7
6. SPECIFICATIONS	7

Bedienungsanleitung

Inhaltsverzeichnis

1. AUSSTATTUNGSMERKMALE DER LEHRKONSOLE MLC-16	8
2. BEDIENUNGSFÜHRER	9/10
3. ANSCHLUSSBUCHSEN	11
4. SYSTEMAUFBAU	12
5. KLASSENAUFBAU	13
6. TECHNISCHE DATEN	13

Mode d'emploi

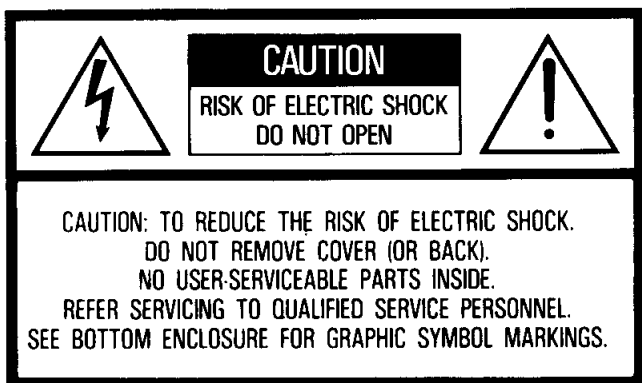
Table des matières

1. CARACTERISTIQUES DE LA CONSOLE D'ENSEIGNEMENT MLC-16 ...	14
2. GUIDE DE FONCTIONNEMENT	15/16
3. PRISES AUXILIAIRES	17
4. COMMENT MONTER LE SYSTEME	18
5. REPARTITION DE LA CLASSE	19
6. CARACTERISTIQUES TECHNIQUES	19

Manual De Operaciones

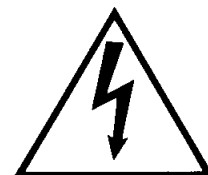
Indice

1. CARACTERISTICAS DE LA CONSOLA DE ENSEÑANZA MLC-16	20
2. GUIA DE OPERACION	21/22
3. TOMAS AUXILIARES	23
4. AJUSTE DEL SISTEMA	24
5. FORMACION DE LA CLASE	25
6. ESPECIFICACIONES	25



Explanation of Graphical Symbols

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 product.



IMPORTANT SAFETY AND INSTALLATION INSTRUCTIONS

INFORMATION RELATING TO POSSIBLE PERSONAL INJURY, ELECTRIC SHOCK, AND FIRE HAZARD POSSIBILITIES HAS BEEN INCLUDED IN THIS LIST.

WARNING—When using electronic products, basic precautions should always be followed, including the following:

1. Read all Safety and Installation Instructions, Explanation of Graphical Symbols, and assembly instructions (where applicable) **BEFORE** using your Yamaha electronic product. Check unit weight specifications before you attempt to move this instrument!

2. Main Power Supply Verification: Your Yamaha electronic product has been manufactured specifically for the main supply voltage used in your area. If you should move, or if any doubt exists, please contact your dealer for instructions. The main supply voltage required by your electronic product is printed on the name plate on the bottom of the unit.

3. This product may be equipped with a polarized line plug (one blade wider than the other). If you are unable to insert the plug into the outlet, contact an electrician to have your obsolete outlet replaced. Do NOT defeat the safety purpose of the plug. Yamaha products not having polarized plugs incorporate construction methods and designs that do not require line plug polarization.

4. **WARNING**—Do NOT place objects on your electronic product's power cord or place the unit in a position where anyone could trip over, walk over, or roll anything over cords of any kind. Do NOT allow your electronic product or its bench to rest on or be installed over cords of any type. Improper installations of this type create the possibility of a fire hazard and/or personal injury.

5. Environment: Your electronic product should be installed away from heat sources such as a radiator, heat registers and/or other products that produce heat. Additionally, the unit should not be located in a position that exposes the cabinet to direct sunlight, or air currents having high humidity or heat levels.

6. Your Yamaha electronic product should be placed so that its location or position does not interfere with its proper ventilation.

7. Some Yamaha electronic products may have benches that are either a part of the product or supplied as an optional accessory. Some of these benches are designed to be dealer assembled. Please make sure that the bench is stable before using it. The bench supplied by Yamaha was designed for seating only. No other uses are recommended.

8. Some Yamaha electronic products can be made to operate with or without the side panels or other components that constitute a stand. These products should be used only with the components supplied or a cart or stand that is recommended by the manufacturer.

9. Do not operate for a long period of time at a high volume level or at a level that is uncomfortable. If you experience any hearing loss or ringing in the ears, you should consult an audiologist.

10. Do not use your Yamaha electronic product near water or in wet environments. For example, near a swimming pool, spa, or in a wet basement.

11. Care should be taken so that objects do not fall, and liquids are not spilled, into the enclosure through openings.

12. Your Yamaha electronic product should be serviced by a qualified service person when:

- a. The power-supply cord or plug has been damaged: or
- b. Objects have fallen, or liquid has been spilled into the product: or
- c. The product has been exposed to rain: or
- d. The product does not operate, exhibits a marked change in performance: or
- e. The product has been dropped, or the enclosure of the product has been damaged.

13. When not in use, always turn your Yamaha electronic product "OFF". The power-supply cord of the product should be unplugged from the outlet when it is to be left unused for a long period of time. Notes: In this case, some units may lose some user programmed data. Factory programmed memories will not be affected.

14. Do not attempt to service the product beyond that described in the user-maintenance instructions. All other servicing should be referred to qualified service personnel.

**PLEASE KEEP THIS MANUAL
FOR FUTURE REFERENCE!**

1. FEATURES OF THE MLC-16 TEACHING CONSOLE

The music laboratory is a system which enhances classroom music teaching by allowing the teacher an expanded range of functions and the more effective structuring of available teaching time.

The Yamaha MLC-16 Teaching Console is the most up-to-date equipment of its kind and offers the

greatest range of functions for effective group keyboard teaching.

Both Individual and Group Study are possible using the MLC-16 Teaching Console. The teacher can form students into small groups at will in pairs, threes, fours or any other desired combinations. Through the headphone/microphone sets, the

teacher is able to monitor and communicate with any individual student, any group or the whole class.

In a typical lesson, for example, the teacher may start by giving each student a part to practice individually, then proceed to practicing parts in small groups before bringing the class together as a class ensemble.

INDIVIDUAL STUDY

Using the SOLO function, the system allows each student to practice exercises and performances undisturbed by the work of other students. It also allows the teacher to monitor each student's work and to instruct each student verbally and with demonstration.

Recorded music can also be played into the system and directed to individual students as required.

With these techniques, the student is able to focus directly on what is to be heard.

The major teaching benefit of the SOLO function is that it helps to overcome the problem of the individual differences within the class which are highlighted when:

- student A can play a part easily while student B has to practice the part several times.
- students are asked to make their own variations on a simple theme.
- students are asked to find a chord with which to harmonize a given melody.

The SOLO function allows the assignment of work appropriate to each student's particular needs.

GROUP STUDY

The MLC-16 allows the teacher to divide the class into as many as four study groups.

Group study is particularly useful when students need to practice parts in ensemble or to study the relationship between chords and melody.

Small group study also encourages students to establish independence through the discussion and criticism of each other's performances.

When grouped, students can communicate with all other members of the group by playing or speaking.

Selective grouping also allows the teacher to turn individual differences to advantage.

PAIR STUDY

PAIR study is useful in the study of two contrasting elements such as:

- melody and counter melody
- voice parts (e.g. soprano and alto)
- melody and bass, melody and chord etc.

A range of contrasting elements can be studied by different pairs at the same time.

The advantages of PAIR study are:

- A less capable student can be helped to learn a part by a more advanced student.
- The pair can practice the *same part* and confirm it.
- The pair can put together *two different parts*.
- The pair can practice *two different parts in ensemble* and confirm them.

TEACHER COMMUNICATION

The teacher can communicate at any time, either verbally or by demonstration with:

- individual students (singly or in any combination)
- pairs
- groups
- the whole class

The system allows the teacher to communicate either over the sounds within the system or to suppress the sounds so that only the teacher can be heard.

DEMONSTRATION

Performances of either teacher or student(s) can be demonstrated either as examples, accompaniments or for ensemble playing.

INPUT FROM EXTERNAL SOURCES

The MLC-16 has two external input facilities — TAPE PLAY and AUX IN. This allows the introduction to the system of sounds from synthesizers and other musical instruments in addition to recorded sounds.

TAPE RECORDING AND PLAYBACK

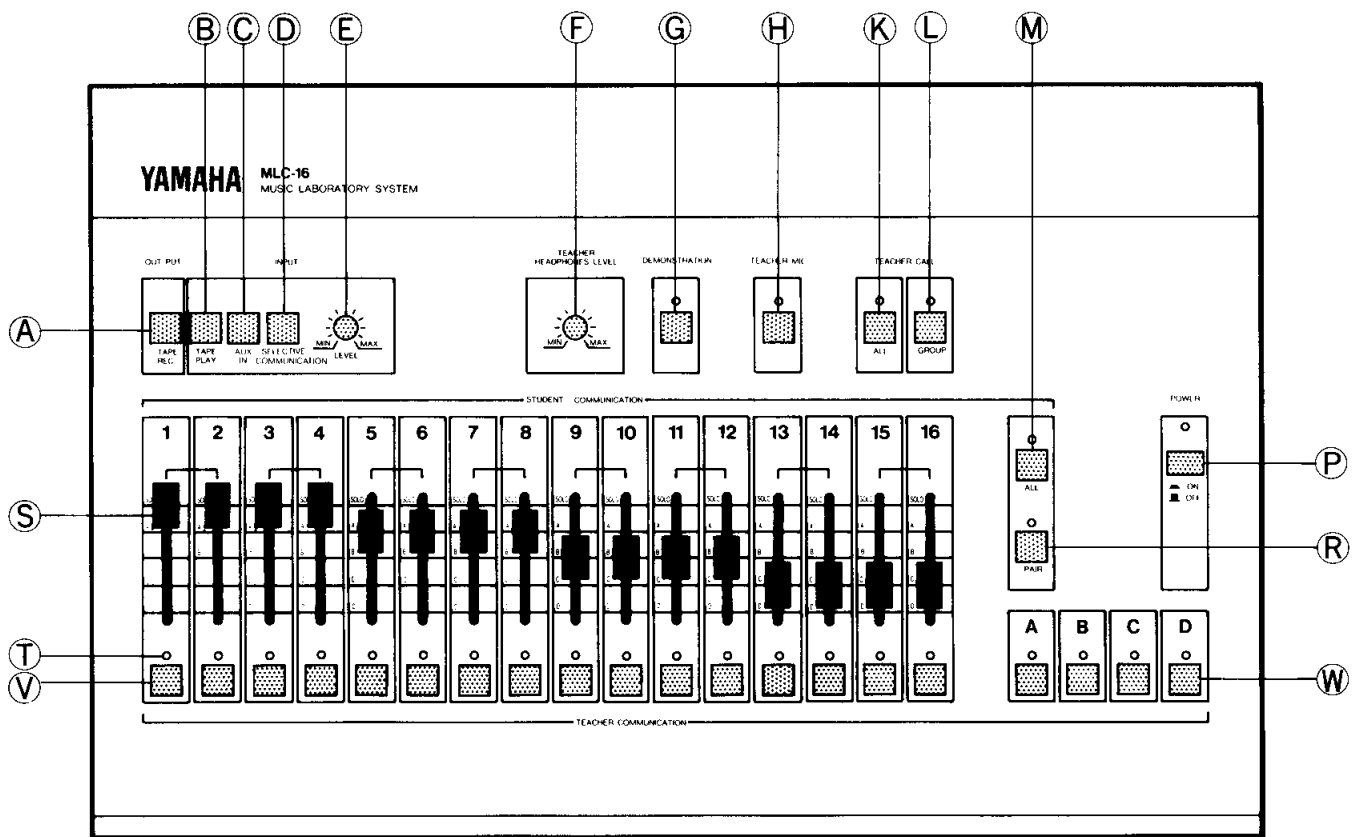
Used with a tape recorder this facility allows the recording and playback of sounds within the system. It is a useful facility for assembling ensemble parts and for reviewing work.

It also allows the teacher to build up a library of appropriate recordings for future use.

SELECTIVE COMMUNICATION

The Selective Communication function allows the teacher to communicate by voice with individual students or groups while accompaniment, auto rhythm, Clavinova ROM Music Book sound or music from an external source is sent to the entire class.

2. OPERATION GUIDE



A TAPE REC.

Used to record from the system using a tape recorder. Select individual or group performances by using Individual Student Selectors **V**, Group Selectors **W** or ALL button **M**. The teacher's performance may be recorded also.

B TAPE PLAY

Press when feeding recorded music into the system.

C AUX IN

Used when using sound sources from outside the system — such as signals from synthesizers, other musical instruments or recorded sounds.

D SELECTIVE COMMUNICATION

If the SELECTIVE COMMUNICATION button is pressed while none of the individual Student Selectors or Group Selectors are pressed, the following are sent to all students:

- 1) Output from the teacher's instrument (including auto rhythm, Clavinova ROM Music Book, Disk Orchestra Collection, etc.).
- 2) The sound from a source connected to the AUX IN jacks when the AUX IN button is pressed.
- 3) The sound from a tape player connected to the TAPE PB jacks when the TAPE PLAY button is pressed.
- 4) The teacher's voice if the TEACHER MIC button is pressed.

If any of the Individual Student Selectors or Group Selectors are pressed and the SELECTIVE COMMUNICATION button is turned ON, 1), 2), and 3) listed above are sent to all students, while 4), the teacher's voice, is sent only to the selected student or group allowing individual instruction. The teacher's voice will once again be sent to all students as soon as the selected student or group button is disengaged.

★ If two MLC units are used, pressing the SELECTIVE COMMUNICATION buttons on both units allows this function to be used as described above.

★ If the DEMONSTRATION button is pressed, all sources listed above except the teacher's voice are turned off and the demonstration mode becomes active.

E LEVEL

Used to control input level.

F TEACHER HEADPHONES LEVEL

G DEMONSTRATION

Used to direct student(s) demonstration to the class. Demonstrating students are chosen by pressing DEMONSTRATION button **G** with Individual Student Selectors **V** or Group Selectors **W**.

H TEACHER MIC

Used to give instruction and advice to students when monitoring student(s) work using Individual Student Selectors **V** or Group Selectors **W**.

K TEACHER CALL

These controls give priority to the teacher's voice by blanketing all other sounds within the system. The GROUP button **L** is used with Group Selectors **W**.

M ALL button

Teacher and all students can communicate.

P POWER ON/OFF

Power On will be shown by the indicator lamp.

R PAIR button

When this button is pressed, all student stations are paired — Student 1 is paired with student 2, 3 with 4, 5 with 6 and so on. Paired students are able to converse and to hear each other's performances. In PAIR mode, the teacher communicates with a pair of students by pressing the two Individual Student Selectors.

- ⑤ Student Selector slider switches (SOLO Position) With sliders in this position, students are working on their own and are able to hear only their own performance without interruption from other students.

The teacher may speak to individual students by means of the TEACHER MIC ⊕ and Individual Student Selectors ⊕.

In the illustration, student controls 1, 2, 3 & 4 are in the SOLO position. (GROUP Position) When the slider switches are in position A, B, C or D, students are grouped and can communicate within the group.

In the illustration, students are grouped as follows:

Students:

- 5, 6, 7 & 8 in group A
- 9, 10, 11 & 12 in group B
- 13, 14, 15 & 16 in group C

- ⑥ Student Call light

When a student presses the call button, the light will flash in the appropriate position.

The lamp will remain ON whenever the teacher presses an Individual Student Selector ⊕ until the teacher cancels the call by pressing the button again.

- ⑦ Individual Student Selectors

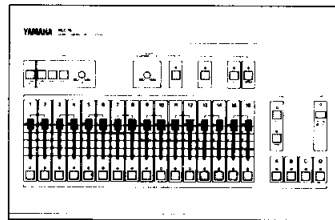
Used for the purposes described above and for the monitoring of individual student performances by the teacher.

- ⑧ Group Selectors

Used for the same functions as the Individual Student Selectors ⊕, but for groups A, B, C or D.

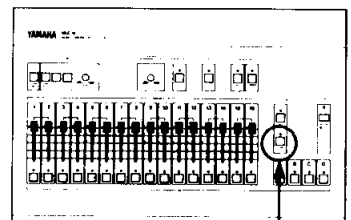
STUDENT COMMUNICATION

SOLO



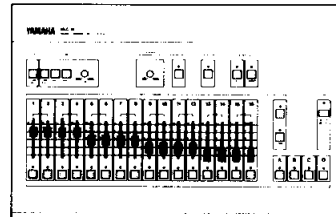
Set slider switches to the SOLO position

PAIR



Press the PAIR button

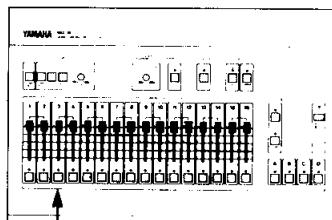
GROUP



Set slider switches in position A, B, C or D as required

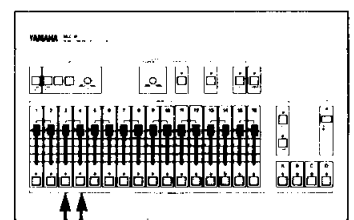
TEACHER COMMUNICATION

with Individual Student



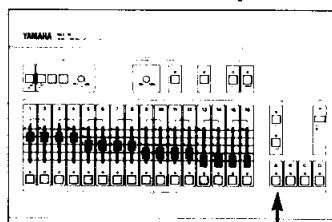
Press individual student button

with Pair



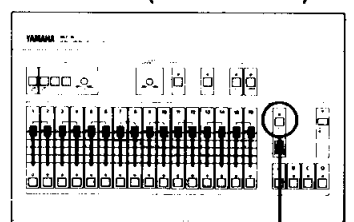
Press the two individual buttons concerned

with Group



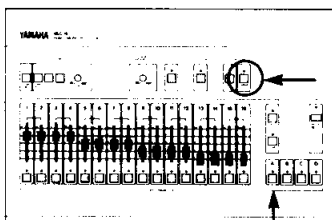
Press Group selector concerned

with All (Total Class)

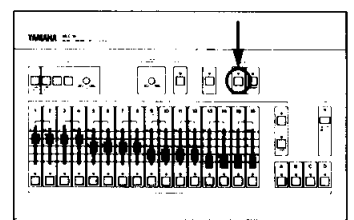


Press ALL button

TEACHER CALL

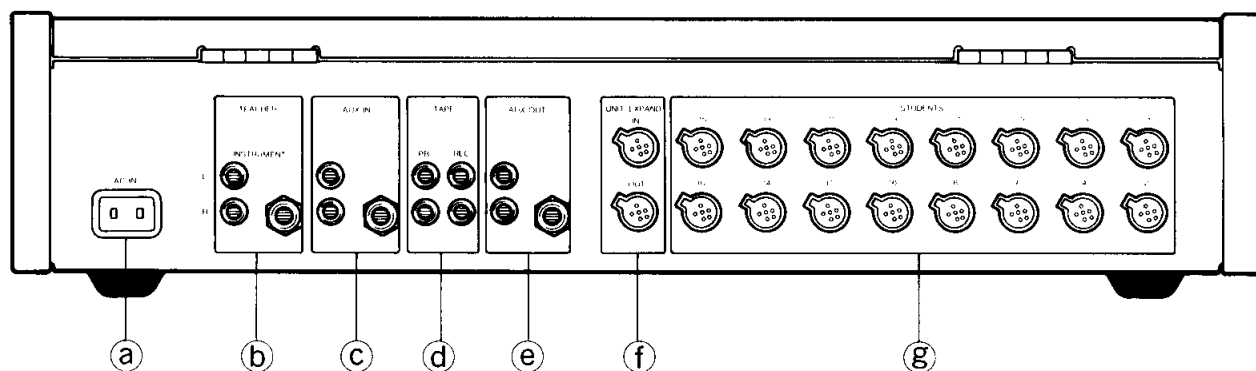


Press GROUP button and Group selector concerned (A, B, C or D).



Press ALL button (This ALL button over-rides all sounds within the system.)

3. AUXILIARY JACKS



a AC IN Jack

The AC power cable must first be connected here, and then to a convenient AC mains outlet.

b TEACHER INSTRUMENT Jacks

Select the jack which matches the plug on the output cable from the teacher's instrument. The sound from the teacher's instrument will always be available at the MLC-16 console.

CAUTION: Do not make connections to both the phone jack and RCA pin jacks.

c AUX IN Jacks

These jacks can be used to receive the output from synthesizers or other musical instruments.

CAUTION: Do not make connections to both the phone jack and RCA pin jacks.

d TAPE PB & REC Jacks

When a cassette recorder is used to record and playback the teacher's/student's performance, these jacks should be connected to the appropriate input and output (record and playback) jacks on the cassette recorder.

e AUX OUT Jacks

These jacks permit sending the MLC-16 sound to a stereo system. Use a standard connection cable.
CAUTION: Do not make connections to both the phone jack and RCA pin jacks.

NOTE: The MLC-16 cannot be directly connected to speakers. Use either powered speakers, or a separate power amplifier and speaker system.

★ By using the TAPE REC jack it is possible to record the teacher's and student's performance. It is not possible, however, to simultaneously record synthesizers, other instruments or tape playback.

★ In order to directly record a mix of student/teacher instrument performance and synthesizers or other musical instruments, or playback from tape, the cassette recorder's REC (INPUT) jack should be connected to the AUX OUT jack **e** which matches the size of the plug on the connecting cable.

f. UNIT EXPAND IN & OUT Terminals

These terminals are used to connect two or more MLC-16 units. For example, if the MLC-16 units to be connected are called (I), (II), (III) ... (n), the UNIT EXPAND OUT terminal of unit (I) is connected to the UNIT EXPAND IN terminal of (II), the UNIT EXPAND OUT terminal of (II) is connected to the UNIT EXPAND IN terminal of (III), and so on until the last unit (n) is reached. These connections should be made using NB-16A or NB-16B connection cables. This makes it possible for a single teacher to work with virtually any number of students. For group lessons, however, each unit will function as a separate group even if (I), (II), and (III), for example, are assigned as group A.

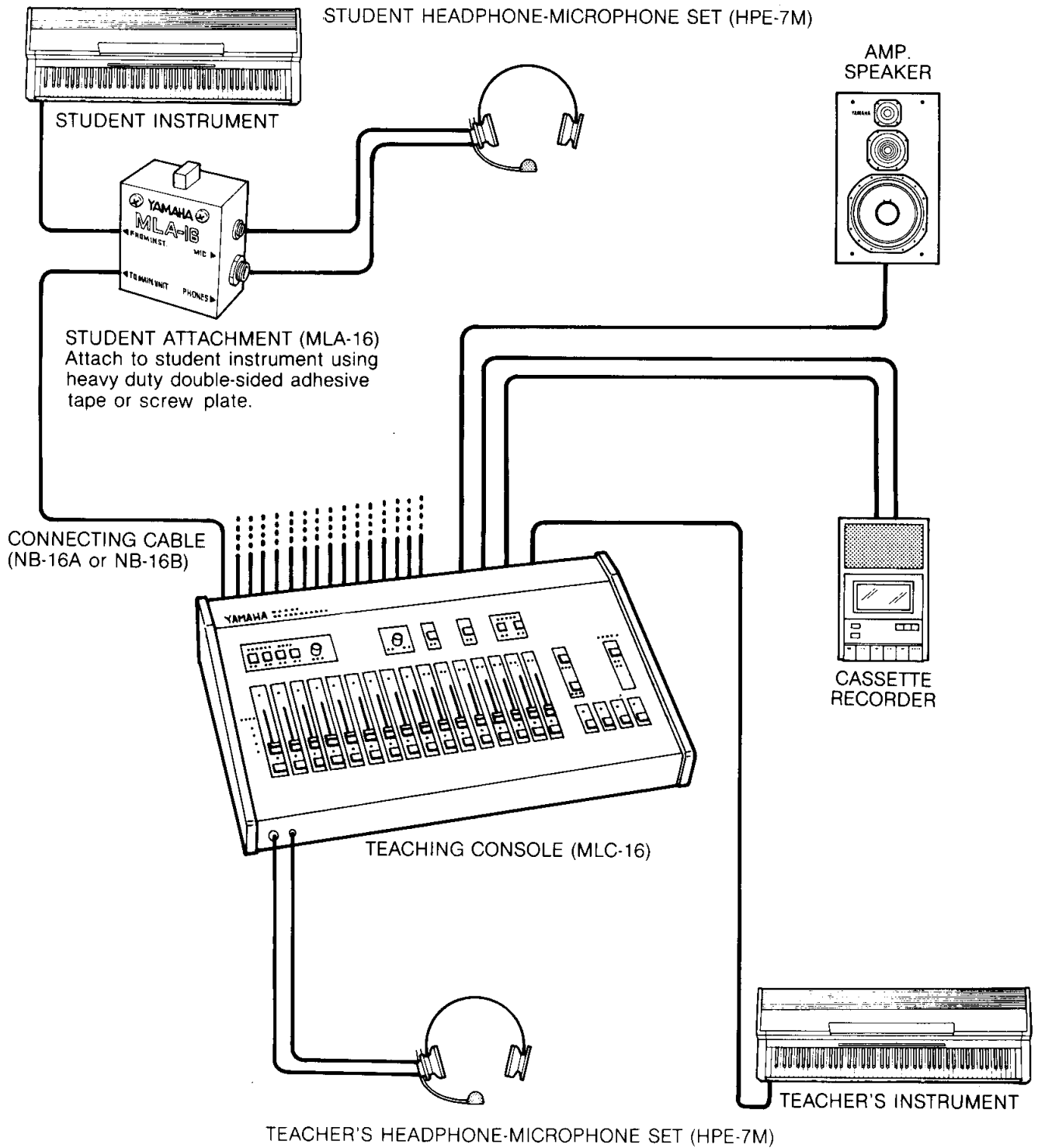
g. STUDENT'S INSTRUMENT Terminals

These are connected to the MLC-16 units used by each student

NOTE: The AUX IN, TAPE PB and TAPE REC jacks described above correspond to the control panel input selectors shown on page 3 as follows:

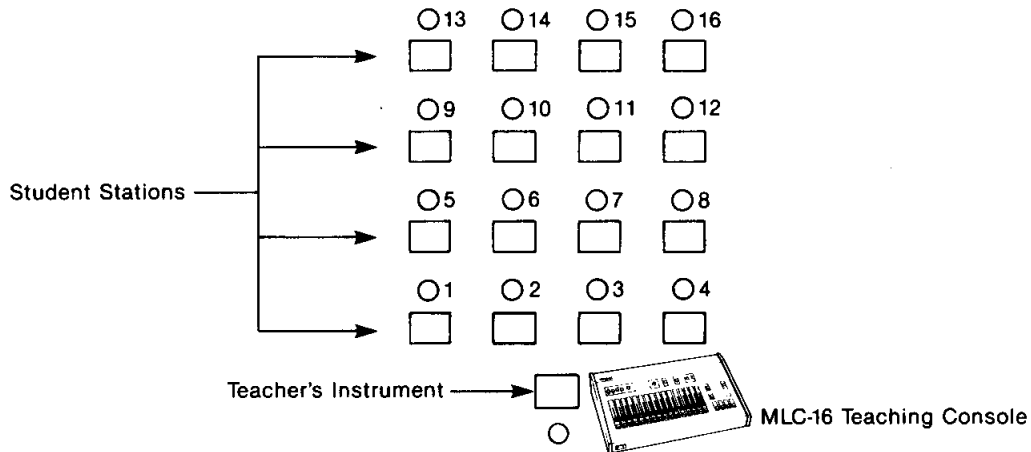
JACK	SELECTOR
c AUX IN	→ C AUX IN
d TAPE PB	→ B TAPE PLAY
L TAPE REC	→ A TAPE REC

4. HOW TO SET UP THE SYSTEM



5. SETTING UP THE CLASS

The MLC-16 Teaching Console caters for any number of student stations up to 16. Additional student stations in excess of 16 can be accommodated by using an additional MLC-16 Console.



STUDENT INSTRUMENTS

Selected from various models. A number of touch-sensitive instruments may be included in the group if desired.

Each student instrument is supplied with an Attachment MLA-16 which has a cable and plug for connection to the instrument through the headphone jack. The MLA-16 also has sockets for plugging in the headphone-microphone set and for the cable which leads to the Console MLC-16. The attachment MLA-16 also incorporates the STUDENT CALL button.

TEACHER'S INSTRUMENT

Selected from various models. The teacher's instrument usually has a broader range of voices and features to allow the teacher to add color and interest to demonstrations and class ensembles. The teacher may use two instruments by connecting them to the TEACHER INSTRUMENT and AUX IN jacks.

CAUTION: Do not make connections to both the phone jack and RCA pin jacks.

Cables used to connect student instruments with MLA-16 Attachment to the MLC-16 Console are in 5 meter length (NB-16A) or 10 meter length (NB-16B).

The school should ensure adequate provision of power points for the instruments and should make provision for protection of cables for safety and convenience.

6. SPECIFICATIONS

AUX IN :	-20dBm, 20kΩ Min.
TAPE PB :	-20dBm, 20kΩ Min.
TAPE REC :	-10dBm, 105kΩ Min.
AUX OUT :	-10dBm, 105kΩ Min.
Dimensions :	490 (W) × 300 (D) × 110 (H) mm (19-2/8" × 11-6/8" × 4-3/8")
Weight :	5.0 kg (11.02 lbs.)

Specifications subject to change without notice.

IMPORTANT NOTICE FOR THE UNITED KINGDOM

Connecting the Plug and Cord

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 terminals 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 or coloured RED.

Making sure that neither core is connected to the earth terminal of the three pin plug.

• This applies only to products distributed by Yamaha-Kemble Music (U.K.) Ltd.

YAMAHA

Dette apparat overholder det gældende EF-direktiv vedrørende radiostøj.

Cet appareil est conforme aux prescriptions de la directive communautaire 87/308/CEE.

Diese Geräte entsprechen der EG-Richtlinie 82/499/EWG und/oder 87/308/EWG.

This product complies with the radio frequency interference requirements of the Council Directive 82/499/EEC and/or 87/308/EEC.

Questo apparecchio è conforme al D.M.13 aprile 1989 (Direttiva CEE/87/308) sulla soppressione dei radiodisturbi.

Este producto está de acuerdo con los requisitos sobre interferencias de radio frecuencia fijados por el Consejo Directivo 87/308/CEE.

YAMAHA CORPORATION