ELECTRONIC RHYTHM INSTRUMENT

RHYTHM ACE
model FR-2L

SERVICE NOTE

ACE ELECTRONIC INDUSTRIES INC.
MAIN FEATURES

Rhythm patterns (Rhythm selectors) 16
- Waltz
- Dixieland
- Western
- Rock 'n Roll
- Slow Rock
- Bossanova
- Foxtrot
- Swing
- Tango
- Beguine
- Rhumba
- Samba
- Mambo
- Cha-Cha
- Shuffle
- March

Percussive Sounds 10
- Bass Drum
- Low Conga
- High Conga
- High Bongo
- Cow Bell
- Claves
- Snare Drum
- Cymbal
- Maracas
- Wirebrush

Cancel Button Switch 3
- Cymbal
- Claves
- Snare Drum

Volume Control Knob with Switch 1
Tempo Control Knob 1
Start Push Button Switch 1

Transistor
- 2SB171B 25
- 2SB175B 5
- 2SC538 8

Diode
- SM150SS 107

Power Source
- 110/117 volts or 220-240 volts 50/60 cycles

Dimension
- $600 \times 300 \times 83$ mm

Weight
- 6 kg
General Description

The Selector Switch is consisted of 16 push-button switches. All of these switches are rhythm selectors. When any rhythm selector button is depressed, the Rhythm Ace plays the corresponding rhythm. This switch also allows the musician to depress two or more buttons simultaneously to create truly unique rhythms. When the start switch is depressed, the Rhythm Ace is turned on.

The Tempo Control Knob is used to control tempo of the selected rhythm. Tempo is variable from 22 to 75 measures per minute.

The FR-2L itself is consisted of three major sections and power supply. The first major section is the Control Section, which consists of the Rhythm Generator and Selection system. The second major section is the Audio Preamplifier. (Refer: Figure 1.)

How to adjust semi-fixed resistors on print circuit boards (P.C.B.) and lug terminal

*Tempo Speed:

Speed is variable by adjusting VR1 and VR3.

A: Set the tempo speed control knob at 4th marking from Slow side and adjust VR1 so that tempo light brightens 30 times per minute.

B: Set the same knob at 2nd marking from Fast side, and adjust VR3 until light brightens 60 times per minutes.

Repeat same procedures until tempo speed synchronizes with number of measures at 22, 24, 27, 30, 35, 40, 50, 60, 75, times per minute. (Ref: Fig. 5.6)

*Decay Time:

If the duration of each sound is not satisfactory, the decay time (length of duration) can be adjusted by the following
resistors.

  | Bass Drum | VR4  |
  | Low Conga | VR5  |
  | High Conga | VR6  |
  | High Bongo | VR7  |
  | Cow Bell  | VR8.9|
  | Claves    | VR10 |

When the sound of Snare Drum, Cymbal, Maracas and Wirebrush is too loud or too small, adjust VR11.

If the sounds of Bass Drum, Low Conga, High Conga, High Bongo, Cow Bell and Claves are louder than the same of Snare Drum, Cymbal, Maracas and Wirebrush or vice versa, slight adjustment is possible by VR138. (Ref. Fig. 2, 3 & 4)

The brightness of tempo lamp is adjustable by VR199 on the lug terminal located near metal cover for power supply. (Ref. Fig. 2 & 6)

**Note:**

The manufacturer holds the right of changing such component parts as resistors, condensers and coils for improvement with or without previous notice.
Fig 1  RHYTHM ACE FR-2L
Detailed Block Dia.
RHYTHM ACE FR-2L
Instrument Generator Assembly (P.C.B.FR-IB)  Fig 3
Elements Location Dia.
INSTRUMENT GENERATOR
Rhythm Element Dia.

PREAMPLIFIER
Schematic Dia.
RHYTHM ACE FR-2L
Commutator and Logic Assembly (P.C.B.FR-IA)
Elements Location Dia.
Fig 6

RHYTHM ACE FR-2L
48-Count Binary Counter
Power Supply
Tempo Lamp
Schematic Dia.
RHYTHM ACE FR-2L

MAIN LOGIC

Schematic Dia.
### LOGIC OUTPUT TIMING CHART

Figure 9 shows the logic outputs according to their numerical coding (1 ~ 35). Output logic is shown as positive pulses occurring at the times indicated. These times are the 48-Count Binary counter cycle time.
Fig 10
Fig 11

RHVTNM ACE FR-2L

AUDIO PREAMPLIFIER    Elements Location Dia.
Fig 12
OUTPUT TIME
REFERENCE CHART