1. LICENSE SEAL
   The "RUG RATS" is the trade mark and
   the copyright of Nihon Bussan Co., Ltd.
   (Nichibutsu)

   The license seal can be displayed
   on the game machine as FIGURE 1.
   It is essential for the license seal
   to be visible but use caution not to
   be peeled away and lose the identity
   of the board. Nichibutsu issued only
   one license seal per each board sold
   and no duplicates will ever be made.
   Put the seal on the back of the little window provided on
   our marquee or on the back of any clear glass or plastic
   overlay that you might be using.

2. POWER REQUIREMENTS
   The P.C.Board requires a power supply of
   +5V 2A (+5%) for game logics,
   +12V 1A (+10%) for audio IC only.

3. CONTROL PANEL SECTION
   A 4-way joystick and a shoot button are required.
   RUG RATS will not work properly with a 8-way
   joystick.

4. COIN SELECTOR WIRING
   A coin selector switch may be connected
   to either pin 32 (coin 1) or pin 31(coin
   2)
5. HARNESS

RUG RATS KIT comes with one connector plug for your convenience when converting it on other game machines.

1) Cut the connector-plug as needed, so that it can plug into your game machine connector.

2) Insert the connector-plug into your own game connector and using a pencil to mark "R", "L", "+5", etc..... according to signal at the pin on the connector.

3) Connect the connector-plug and 44-pin connector of RUG RATS with wires. (FIGURE 2)

Pin Marked "L" will be connected to pin #15 of RUG RATS' connector.

" " " " " " " to pin #16 " " " etc...... (See wiring diagram)

WARNING:

Wiring of the harness that supplys the power (+5V, +12V) to the P.C.BOard must be connected as specified, or elese,damage may occur.

Before inserting a RUG RATS P.C.B. into the connector, check the voltage of these pins carefully.

Pin #1,2,3,4,41,42,43,44 = GND (0V)
Pin #5,6,7,8,37,38,39,40 = +5V
Pin #8,9 = +12V
A color signal plate is provided
to connect R.J.3. and SYNC
signals from R.J.4. component
located at right corner of
the lower P.C. Board to the
harness or to the TV Monitor
directly

<table>
<thead>
<tr>
<th>Pin No</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>RED</td>
</tr>
<tr>
<td>2.</td>
<td>BLUE</td>
</tr>
<tr>
<td>3.</td>
<td>GREEN</td>
</tr>
<tr>
<td>4.</td>
<td>SYNC</td>
</tr>
<tr>
<td>5.</td>
<td>GND</td>
</tr>
<tr>
<td>6.</td>
<td>N.C.</td>
</tr>
</tbody>
</table>

TV monitor has to be equipped
with TTL input level.
TV monitor must be placed vertical.
RUG RATS P.C. Board is designed
to be used with "1-SYNC" signal
monitor.

However, if your TV monitor is
a "2-SYNC" signals one, please
connect as dash line in FIGURE 3.
Then, pin #4 = V SYNC
pin #6 = H SYNC

On some kinds of monitors, it is
necessary:

* To add 2 resistors to fit
  the input impedance of the
  monitor (FIGURE 4)
* To turn the picture tube
  180 degrees if the screen is
displayed up-side-down.

7. THE KITS INCLUDE:
A. Instruction 1pc
B. License Seal 1pc
C. Marquee 1pc
D. "How to play" card 2pcs
E. Z-Bracket 4pcs
F. Color Signal Cable 1pc
G. 44-pin Connector 1pc
H. Connector Plug 1pc
### 8P DIP SWITCH

<table>
<thead>
<tr>
<th>OPTION</th>
<th>DIP SWITCH NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>FREE PLAY</td>
<td>OFF OFF OFF</td>
</tr>
<tr>
<td>1 coin/1 credit</td>
<td>ON OFF OFF</td>
</tr>
<tr>
<td>1 coin/2 credits</td>
<td>OFF ON OFF</td>
</tr>
<tr>
<td>1 coin/3 credits</td>
<td>ON ON OFF</td>
</tr>
<tr>
<td>1 coin/4 credits</td>
<td>OFF OFF ON</td>
</tr>
<tr>
<td>1 coin/5 credits</td>
<td>ON OFF ON</td>
</tr>
<tr>
<td>1 coin/6 credits</td>
<td>OFF ON ON</td>
</tr>
<tr>
<td>1 coin/7 credits</td>
<td>ON ON ON</td>
</tr>
<tr>
<td>1 coin /1 credit</td>
<td>OFF OFF</td>
</tr>
<tr>
<td>2 coins/1 credit</td>
<td>OFF ON</td>
</tr>
<tr>
<td>3 coins/1 credit</td>
<td>OFF ON</td>
</tr>
<tr>
<td>4 coins/1 credit</td>
<td>ON OFF</td>
</tr>
<tr>
<td>5 coins/1 credit</td>
<td>ON OFF</td>
</tr>
<tr>
<td>6 coins/1 credit</td>
<td>ON ON</td>
</tr>
<tr>
<td>7 coins/1 credit</td>
<td>ON ON</td>
</tr>
<tr>
<td>NUMBER of CLEANERS</td>
<td>OFF OFF</td>
</tr>
<tr>
<td>2 cleaners</td>
<td>OFF ON</td>
</tr>
<tr>
<td>3 cleaners</td>
<td>ON OFF</td>
</tr>
<tr>
<td>4 cleaners</td>
<td>ON ON</td>
</tr>
<tr>
<td>5 cleaners</td>
<td>ON ON</td>
</tr>
</tbody>
</table>

**V.R.I.**

V.R. for the adjustment of sound volume. It will become smaller in turning it to arrow mark.