ROAMER STAR

Knight-Kit
HOW TO CARE FOR YOUR SOLDERING IRON

The book uses some symbols to give the value of components. "Ω" means one thousand ohms, "μ" means one million ohms.

The pool uses a clean cloth, a good iron, and a clean cloth.

When the iron becomes coated with a dull oxide film, wipe it with a clean cloth.

From the tip of the iron, remove excess solder with a cotton ball. Do not remove excess solder.

A WIRE AND HOW TO MOUNT

Before you start to solder, carefully clean the tip of your soldering iron.

CONSTRUCTION HINTS

Specifications

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Tube Complement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headphone Output</td>
<td>1-5A (audio output)</td>
</tr>
<tr>
<td>Power Requirement</td>
<td>1-12AX7 (audio amplifier)</td>
</tr>
<tr>
<td>Speaker Size</td>
<td>1-6T6 (HF amplifier)</td>
</tr>
<tr>
<td>Power Supply</td>
<td>1-755 (cascaded)</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Amplifier</th>
<th>Input Power</th>
<th>Output Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>600 ohms</td>
<td>10 to 120, 5 oz.</td>
<td>10 to 120, 5 oz.</td>
</tr>
</tbody>
</table>

 SWING: 10 to 120, 5 oz. 100 ohms

<table>
<thead>
<tr>
<th>Frequency Response</th>
<th>Sensitivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>600 ohms</td>
<td>10 to 120, 5 oz. 100 ohms</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Bandwidth</th>
<th>Sensitivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>600 ohms</td>
<td>10 to 120, 5 oz. 100 ohms</td>
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<table>
<thead>
<tr>
<th>Frequency Range</th>
<th>Sensitivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>600 ohms</td>
<td>10 to 120, 5 oz. 100 ohms</td>
</tr>
</tbody>
</table>
TAKE A LONGER TIME TO HEAT.

Remember, larger metal surfaces require a few extra seconds with a hotter iron. Thicker metals also require more heat and more soldering (or enough heat) is just not enough. Remember, not enough heat at the connection will result in a cold joint.

You have not used enough heat! If your end face is shiny, you have not used enough heat. Heat the connection to the proper temperature and pressure for the right amount of time.

The connection should be well-melted.

If the connection is not shiny and bright and all wires in the connection are melted, the connection is not correct. Following the shape of the surface is essential. Be careful not to overheat all surfaces to be connected. Do not burn the tip over any socket when necessary. Make sure the tip is clean.

Keep the iron on the socket but do not move it.

Do not move the iron until the socket has cooled. The wires in the connection should be re-melted. Remove the iron while the iron is still warm. Keep the iron on the socket. Re-melt it as necessary.

1. Join bare metal to bare metal. Insulation must be removed. Make sure the socket is not stressed. Apply the soldering tool to the socket. Put enough solder on the socket to cover the connection.

2. Cost the tip of a hot iron with solder. Then while you hold the iron, push the metal or the tip against the parts to be soldered together. Keep the iron there for a few seconds. Apply the soldering tool to the socket. Put enough solder on the socket to cover the connection.

3. Apply the solder between the metal to be connected. The parts to be soldered should be pushed together and the iron tip should be used only on the metal. Be sure the metal is not stressed.

4. Compress your soldering with the pictures on your iron and naked eyes. Apply your iron and naked eyes. You accidentally move the wires as the solder is melted. If you move the iron, it will not move fast enough. Use the iron to make a good solder connection. You must keep the iron on the socket. Use the correct amount of pressure. The metal must be clean.

A soldering iron in the hand with an iron is acceptable. A soldering iron in the hand with a clean.

A soldering iron in the hand with a clean.

Use the Right Soldering Tool.

Soldering is a very important skill. Tools and techniques must be used. Tools and techniques must be used. The iron must be used. Tools and techniques must be used. The iron must be used. Tools and techniques must be used.
Mounting the Chassis

1. Remove the washers and nuts from the No. 4-40 screws, lock washers, and the switch bracket.
2. Position the chassis so that the position of the switch is visible.
3. Insert the switch bracket in place.
4. Secure the switch bracket with the No. 4-40 screws.
5. Secure the switch bracket with the No. 6-32 screws.

NOTE: The 6-32 screws should be placed at the front of the chassis.
Coil Bracket Assembly

See Figures 9 and 10.

1. Insert the coil bracket plate for later mounting.
2. Wire/plug wire, solder one end to terminal 1 of L-8. The other end will be connected later.
3. Cut wire. Solder one end to terminal 2 of L-1. The other end will be through terminal 3 of L-6 and solder the other end to terminal 2 wire. Then the wire will be connected later.
4. Through terminal 3 of L-6 and solder it to terminal 1 of L-10 (2 wires).
5. Bare wire. Connect one end to the solder lug 2 through the wire. Push the wire through terminal 1 of L-10. Connect the other end to terminal 2 of L-7.
6. Mount a solder lug in the mounting hole in the bracket.
7. Blue dot coil. Mount in the remaining hole in the bracket.
8. Mount the coil in the remaining hole in the top row.
9. Mount coil in the center hole of the position row. Again markers the location of the mounting hole.
10. Mount coil in the remaining hole of the top row.
11. Insert the mounting hole into the hole until the locking spring in the head of the coil snaps into the hole. Then mount the coil in the remaining position row by pressing firmly on the coil. Then mount coil in the remaining hole of the top row.
12. Mount coil and coil L-6 through L-10. Then the bracket plate before you.
See Figure 11 (continued)
**WIRING THE CHASSIS**

*Figure 16. C-2 Wiring Detail*

---

1. Wire/Red wire, solder to terminal 2 of M-1.
2. Yellow wire, solder to terminal 1 of M-1.
3. 1/4”-20 screw, secure the wires.
4. 3/4”-16 screw, secure the wires.
5. Solder wire, solder to terminal 1 of S-1.
6. Solder wire, connect to terminal 1 of S-1.
7. Solder wire, connect to terminal 1 of S-1.
8. Solder wire, connect to terminal 1 of S-1.
9. Solder wire, connect to terminal 1 of S-1.
10. Solder wire, connect to terminal 1 of S-1.
11. Solder wire, connect to terminal 1 of S-1.
12. Solder wire, connect to terminal 1 of S-1.
13. Solder wire, connect to terminal 1 of S-1.
14. Solder wire, connect to terminal 1 of S-1.
15. Solder wire, connect to terminal 1 of S-1.
16. Solder wire, connect to terminal 1 of S-1.
17. Solder wire, connect to terminal 1 of S-1.
18. Solder wire, connect to terminal 1 of S-1.
19. Solder wire, connect to terminal 1 of S-1.
20. Solder wire, connect to terminal 1 of S-1.

---

*NOTE:* When connecting the leads of the sockets, the leads may be confused. Reversing the leads of the sockets and ensuring the connections are correct is recommended. See Figure 12.
FIGURE 19. LINE CORD MOUNTING

6. Wire connections from components:
   - Red wire: Connect to Terminal 2 of T-1.
   - Yellow wire: Connect to Terminal 2 of T-1.
   - Black wire: Connect to Terminal 2 of T-1.

7. Mounting C-25:
   - Connect one end of Terminal 2 of each wire to Terminal 2 of T-1.
   - Connect the other end to Terminal 2 of T-1.

8. Repeat the previous steps for each wire.

See Figure 20.
DIAL POINTER. Turn the TUNING wheel until the point of C-2 are in the position of the pointer directly behind the hole edge of the dial cavity.

1. Position the string through the slot in the rim of the reflector plate and make a 1/4 turn over the edge of the outer pulley at the end of the string.

2. Position the string through the slot in the rim of the reflector plate and make a 1/4 turn over the edge of the outer pulley at the end of the string.

3. From the bottom, wrap 3/4 turn around the string pulley of the tuning capacitor at a clockwise direction for 3 1/2 turns.

4. Turn the string to one end of the string. The other end of the string should pass through the slot in the reflector plate. See Figure 21.

5. Position the string to the projection on the face of the drive pulley. Then pass the string through the slot in the rim of the reflector plate. Wrap the string around the string pulley of the tuning capacitor at a clockwise direction for 3 1/2 turns.

6. Cut a 1/2 turn of the string from the reflector plate and make a 1/4 turn of the string from the pointer plate.
ALIGNMENT INSTRUCTIONS

Final Assembly

Alignment without test equipment.
ALIGNMENT CHART

**NOTES**

1. The alignment chart is used to adjust the receiver to the specified frequency.
2. The alignment test procedure is to turn the radio on and adjust the band and frequency as specified.
3. The alignment is performed with the receiver set to normal and the antenna connected.
4. The alignment test procedure includes adjusting the receiver's Band Selector and Antenna.

**CONTROL SETTINGS FOR ALIGNMENT**

1. Set the Band Selector to the desired band.
2. Set the Antenna to the desired antenna.
3. Set the Frequency to the specified frequency.

**ALIGNMENT WITH TEST EQUIPMENT**

**MAXIMUM-SWEEP READER**

- **SWEEP LEVEL**
  - 10 to 20 MC
  - 10 to 50 MC
  - 10 to 100 MC

- **SWEEP FREQUENCY**
  - 10 to 200 MC
  - 10 to 500 MC
  - 10 to 1000 MC

**MAXIMUM-POWER READER**

- **POWER LEVEL**
  - 10 to 200 MC
  - 10 to 500 MC
  - 10 to 1000 MC

- **POWER FREQUENCY**
  - 10 to 200 MC
  - 10 to 500 MC
  - 10 to 1000 MC

**ADJUST**

- Turn the ATTUNE knob to adjust the receiver's sensitivity.
- Turn the DIAL to adjust the receiver's frequency.
- Turn the TONE control to adjust the receiver's sensitivity.
- Turn the ATTUNE knob to adjust the receiver's sensitivity.

**CALIBRATION**

After adjusting the receiver's frequency, perform the following steps:

1. Connect the receiver to the test equipment.
2. Adjust the receiver's sensitivity to the specified value.
3. Measure the frequency and compare it to the specified value.
4. If necessary, adjust the receiver's frequency until it matches the specified value.

**ADJUSTMENT PROCEDURE**

Follow the test equipment manufacturer's instructions for adjusting the receiver's frequency.
OPERATING INSTRUCTIONS

LOW FREQUENCY OR SHORTWAVE

Set to the NORMAL position.

ADJUST FOR STRONGER SIGNAL.

Turn high frequency knob clockwise.

The BANDSPREAD control is not used for short-wave

MORE SENSITIVE.

Set to 0 or 2 depending on the amount of

SET TO ON.

AVC switch

DISTORTION.

STANDARD BROADCAST RECEPTION

SET TO ON.

POWER switch

INSTALLATION INSTRUCTIONS

Before the picture tube, and connectors used as a temporary cover.

Set the BANDSPREAD to the BAND or LOW FREQUENCY position for standard broadcast reception.

Set to 0 or 2 for low frequency reception or to

the desired station.

The BANDSPREAD may then be varied to

be heard a frequency just below (to the left of)

or a frequency just above (to the right of)

the band.

The BANDSPREAD control may be varied in two

bands to 0 or 2 for short-wave reception.

Set to band 1 for low frequency reception or to

SHORT WAVE RECEPTION

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REAR PANEL CONTROLS

The rear panel of the receiver is located in the back panel. The panel is divided into two sections: the left side contains the common controls, while the right side contains the antenna controls and jacks.

1. **Ground Receptacle:** This is used to connect the receiver to the ground to prevent electrical shocks.
2. **Antenna Jacks:** These jacks are used to connect the receiver to the antenna system.
3. **Power Jack:** This jack is used to connect the power source to the receiver.
4. **Antenna Switch:** This switch is used to select the antenna system.
5. **Antenna Selector:** This selector is used to choose the antenna from the available options.
6. **Volume Control:** This control is used to adjust the volume of the receiver.
7. **Tone Control:** This control is used to adjust the tone of the receiver.
8. **Equalizer:** This control is used to adjust the equalization of the receiver.
9. **Treble Control:** This control is used to adjust the treble of the receiver.
10. **Bass Control:** This control is used to adjust the bass of the receiver.

**How to Set Up Your Receiver:**

1. Connect the antenna to the antenna jack.
2. Connect the power source to the power jack.
3. Select the antenna system using the antenna switch.
4. Adjust the volume using the volume control.
5. Adjust the tone using the tone control.
6. Adjust the equalization using the equalizer.
7. Adjust the treble using the treble control.
8. Adjust the bass using the bass control.
9. Enjoy your music!
The antenna may be best in an "L" or "T" shape to take advantage of obstructions such as houses, trees, and power lines.

For best performance on all bands, a good earth connection should be used. The star boarder should be used, and the earth connection should be made as near as possible to the antenna. By making the antenna as high and as long as possible, a good antenna is the most essential accessory you will need for your

**Figure 22. Typical Antenna Installation**
When to listen.

The 7 mc band—late afternoon and evening for Europe; early and late morning for America. The 5 mc band—afternoon and evening for Europe; late afternoon and early morning for America.

Under normal atmospheric conditions, with patience and practice, it is possible to hear stations from all over the world in a single evening—21
## Service Hints

**SERVICE HINTS**

### Troubleshooting Procedure

1. **Power Outlet**: Ensure the power outlet is operational and providing sufficient power.

2. **Receiver Tuned**: Verify the receiver is tuned correctly for the channel you are trying to watch.

3. **Analog Antenna**: Check the performance of the analog antenna. If performance is poor, consider upgrading to a digital antenna.

4. **Digital Antenna**: If using a digital antenna, ensure it is properly installed and oriented for optimal signal reception.

5. **Cable Connection**: Inspect all cable connections for looseness or damage.

6. **Receiver Settings**: Adjust the receiver settings as necessary to improve signal quality.

7. **Antenna Direction**: Experiment with different antenna orientations to enhance signal strength.

8. **Signal Strength**: Use a signal strength meter to assess the strength of the received signal.

9. **Repeater Use**: Consider using a signal booster or repeater to improve signal reception.

10. **Service Provider**: Contact your service provider for additional troubleshooting advice.

### Possible Case

- **No Signal**: Check the antenna and cable connections for loose or damaged components.
- **Weak Signal**: Increase the antenna gain or adjust its position.
- **Interference**: Identify and mitigate potential sources of interference.
- **Receiver Fault**: Check for any software or hardware malfunctions in the receiver.

### Service Procedure

1. **Power Outlet Test**: Unplug and plug the receiver to see if the issue resolves.

2. **Receiver Reset**: Cycle the power to reset the receiver.

3. **Antenna Reorient**: Adjust the antenna's position for better reception.

4. **Cable Check**: Inspect all cables for damage or loose connections.

5. **Channel Switch**: Try different channels to verify the issue is not specific to one channel.

6. **Signal Strength Test**: Use a signal strength meter to diagnose issues with signal strength.

7. **Contact Support**: Reach out to the manufacturer's support for troubleshooting guidance.

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### Table: Receiver Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Frequency Range</th>
<th>Power Output</th>
<th>HDMI Support</th>
<th>USB Connections</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type A</td>
<td>500-1200 MHz</td>
<td>15 W</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Type B</td>
<td>1200-1800 MHz</td>
<td>20 W</td>
<td>Yes</td>
<td>No</td>
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</tbody>
</table>

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### Table: Troubleshooting Guide

<table>
<thead>
<tr>
<th>Issue</th>
<th>Possible Cause</th>
<th>Possible Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Signal Received</td>
<td>Poor antenna installation</td>
<td>Reorient antenna.</td>
</tr>
<tr>
<td>Weak Signal Strength</td>
<td>Obstruction</td>
<td>Increase antenna height.</td>
</tr>
<tr>
<td>Interference</td>
<td>Nearby electronic devices</td>
<td>Move receiver away.</td>
</tr>
<tr>
<td>Receiver Malfunction</td>
<td>Software error</td>
<td>Factory reset.</td>
</tr>
</tbody>
</table>

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**NOTE**: For additional troubleshooting tips, consult the manufacturer's support documentation or contact their customer service for advice specific to your model.
<table>
<thead>
<tr>
<th>CHARACTER</th>
<th>CODE</th>
<th>PHONETIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>.-</td>
<td>A/Morse</td>
</tr>
<tr>
<td>B</td>
<td>.---</td>
<td>B/Morse</td>
</tr>
<tr>
<td>C</td>
<td>.-.</td>
<td>C/Morse</td>
</tr>
<tr>
<td>D</td>
<td>-.</td>
<td>D/Morse</td>
</tr>
<tr>
<td>E</td>
<td>-</td>
<td>E/Morse</td>
</tr>
<tr>
<td>F</td>
<td>..-.</td>
<td>F/Morse</td>
</tr>
<tr>
<td>G</td>
<td>--.</td>
<td>G/Morse</td>
</tr>
<tr>
<td>H</td>
<td>....</td>
<td>H/Morse</td>
</tr>
<tr>
<td>I</td>
<td>.....</td>
<td>I/Morse</td>
</tr>
<tr>
<td>J</td>
<td>..-.</td>
<td>J/Morse</td>
</tr>
<tr>
<td>K</td>
<td>-.</td>
<td>K/Morse</td>
</tr>
<tr>
<td>L</td>
<td>.-..</td>
<td>L/Morse</td>
</tr>
<tr>
<td>M</td>
<td>--</td>
<td>M/Morse</td>
</tr>
<tr>
<td>N</td>
<td>-.</td>
<td>N/Morse</td>
</tr>
<tr>
<td>O</td>
<td>---</td>
<td>O/Morse</td>
</tr>
<tr>
<td>P</td>
<td>.--</td>
<td>P/Morse</td>
</tr>
<tr>
<td>Q</td>
<td>--.-</td>
<td>Q/Morse</td>
</tr>
<tr>
<td>R</td>
<td>.-.</td>
<td>R/Morse</td>
</tr>
<tr>
<td>S</td>
<td>...</td>
<td>S/Morse</td>
</tr>
<tr>
<td>T</td>
<td>-</td>
<td>T/Morse</td>
</tr>
<tr>
<td>U</td>
<td>..</td>
<td>U/Morse</td>
</tr>
<tr>
<td>V</td>
<td>...-</td>
<td>V/Morse</td>
</tr>
<tr>
<td>W</td>
<td>.--.</td>
<td>W/Morse</td>
</tr>
<tr>
<td>X</td>
<td>-.−−</td>
<td>X/Morse</td>
</tr>
<tr>
<td>Y</td>
<td>-.−−</td>
<td>Y/Morse</td>
</tr>
<tr>
<td>Z</td>
<td>−−−−</td>
<td>Z/Morse</td>
</tr>
</tbody>
</table>

The International Morse Code

The important thing when beginning to study code is to think of it as a language of dots and dashes. It is time and a little effort to recognize each of them without any hesitation whatsoever. Concentrate on any difficult letters. Learning the code is not hard—it merely requires practice each of them without any hesitation whatsoever. Concentrate on any difficult letters. Learning the code is not hard—it merely requires practice.
ANCILARIES

The purpose of the auxiliary circuits is to provide a means for the operator to control the sensitivity of the receiver. The sensitivity is controlled by the voltages applied to the control grid of the amplifier in the receiver. The voltages are controlled by the operator through the knobs on the receiver front panel. These voltages are then applied to the control grid of the amplifier, which adjusts the gain of the amplifier to match the desired sensitivity. The sensitivity can be adjusted to any level, from very low to very high, allowing the operator to tune in weak signals or powerful transmitters as needed. The auxiliary circuits also include provisions for adjusting the frequency of the receiver, allowing the operator to tune to different frequency bands as needed.
### Wire, Soldier, and Tuning

<table>
<thead>
<tr>
<th>Part No</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>100010</td>
<td>J-1.1 terminal strip</td>
</tr>
<tr>
<td>100020</td>
<td>J-2.1 terminal strip</td>
</tr>
<tr>
<td>100030</td>
<td>J-3.1 terminal strip</td>
</tr>
<tr>
<td>100040</td>
<td>J-4.1 terminal strip</td>
</tr>
<tr>
<td>100050</td>
<td>J-5.1 terminal strip</td>
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<tr>
<td>100060</td>
<td>J-6.1 terminal strip</td>
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<tr>
<td>100070</td>
<td>J-7.1 terminal strip</td>
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<tr>
<td>100080</td>
<td>J-8.1 terminal strip</td>
</tr>
<tr>
<td>100090</td>
<td>J-9.1 terminal strip</td>
</tr>
</tbody>
</table>

### Jacks and Terminal Strips

<table>
<thead>
<tr>
<th>Part No</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>100010</td>
<td>1.1 speaker 7-pin terminal block</td>
</tr>
<tr>
<td>100020</td>
<td>1.2 speaker 7-pin terminal block</td>
</tr>
<tr>
<td>100030</td>
<td>1.3 speaker 7-pin terminal block</td>
</tr>
<tr>
<td>100040</td>
<td>1.4 speaker 7-pin terminal block</td>
</tr>
<tr>
<td>100050</td>
<td>1.5 speaker 7-pin terminal block</td>
</tr>
<tr>
<td>100060</td>
<td>1.6 speaker 7-pin terminal block</td>
</tr>
<tr>
<td>100070</td>
<td>1.7 speaker 7-pin terminal block</td>
</tr>
<tr>
<td>100080</td>
<td>1.8 speaker 7-pin terminal block</td>
</tr>
<tr>
<td>100090</td>
<td>1.9 speaker 7-pin terminal block</td>
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</tbody>
</table>

### Miscellaneous

<table>
<thead>
<tr>
<th>Part No</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>100010</td>
<td>2.1 fuse holder case</td>
</tr>
<tr>
<td>100020</td>
<td>2.2 fuse holder case</td>
</tr>
<tr>
<td>100030</td>
<td>2.3 fuse holder case</td>
</tr>
<tr>
<td>100040</td>
<td>2.4 fuse holder case</td>
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<td>100050</td>
<td>2.5 fuse holder case</td>
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<tr>
<td>100070</td>
<td>2.7 fuse holder case</td>
</tr>
<tr>
<td>100080</td>
<td>2.8 fuse holder case</td>
</tr>
<tr>
<td>100090</td>
<td>2.9 fuse holder case</td>
</tr>
</tbody>
</table>

### Parts List

- **WIRE**: Soldier and Tuning (Cont.)
- **RESISTORS**: Symbol No. Description Part No.
- **CAPACITORS**: Symbol No. Description Part No.
- **TRANSFORMERS**: Symbol No. Description Part No.
- **SWITCHES**: Symbol No. Description Part No.
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