RT-178 / ARC-27 All schematics

Phone 300Ω 0.5W (2W max.)
Mic 25 Ω Carbon
Antenna (P1405) 50Ω 10W
Meter 1mA / 100Ω (external meter!)

P1403 (insert 24-7)
A 10MHz bit a shaft h
B 10MHz bit b
C 10MHz bit c
D 10MHz bit d
E MOD Ig
F 10MHz bit e
G 10MHz ambiguity
H 27.5V for ADF
I 1MHz bit g shaft j
J MIC input
K 230Vdc for ADF
L ADF time constant
M sens
N +27.5V / 25A

P 1401 (insert 24-5)
A 1MHz bit j
B tone relay
C 1MHz bit i
D guard relay
E T/R switch
F 100kHz bit l, shaft k
G Carrier received
H on/off relay
J audio out Phone
K aux audio out
L 100kHz bit o
M 1MHz bit k
N AVC test
O 1MHz bit h
P 1MHz bit n
Q 100kHz bit m

Frequency coding on next page
**ARC27 Frequency coding**

**10Mc coding**

<table>
<thead>
<tr>
<th>Pin</th>
<th>20</th>
<th>21</th>
<th>22</th>
<th>23</th>
<th>24</th>
<th>25</th>
<th>26</th>
<th>27</th>
<th>28</th>
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<th>32</th>
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<th>34</th>
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<th>37</th>
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<td>X</td>
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<td></td>
</tr>
<tr>
<td>c</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>d</td>
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</tr>
<tr>
<td>f</td>
<td>*</td>
<td>*</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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</tbody>
</table>

An “X” indicates that this line connects to ground in the control panel.
The remaining lines except line f are interconnected in the control panel.

* grounded for 20 and 21, but open for 38 and 39 times 10 Mc.
The open circuit seeking switch in the RT-178/ARC27 has 18 positions and makes 2 cycles. The 16 unused positions of the second cycle are skipped automatically.

**1 Mc coding**

<table>
<thead>
<tr>
<th>Pin</th>
<th>0</th>
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<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
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<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>J (P-1403)</td>
</tr>
<tr>
<td>h</td>
<td>X</td>
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<td></td>
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<td></td>
<td></td>
<td>P (P-1401)</td>
</tr>
<tr>
<td>i</td>
<td>X</td>
<td>X</td>
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<td></td>
<td></td>
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<td></td>
<td>C</td>
</tr>
<tr>
<td>j</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>A</td>
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<tr>
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<td></td>
<td></td>
<td></td>
<td>M</td>
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The meaning of X in the 1 Mc coding depends on the 0.1 Mc selection.
For xxx.0 thru xxx.4, the “X” lines connect to ground in the control panel.
The remaining lines interconnect.
For xxx.5 thru xxx.9, the “X” lines are interconnected in the control panel.
The inverted codes cause the 1 Mc positioner to make a “half” step to tune the 20-30 Mc first IF amplifier which has 500 ke bandwidth.
The RT-178/ARC27 open circuit seeking switch has 14 positions. The 4 unused are skipped automatically.

**0.1 Mc coding**

<table>
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<th>2</th>
<th>.3</th>
<th>.4</th>
<th>.5</th>
<th>.6</th>
<th>.7</th>
<th>.8</th>
<th>.9</th>
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<tbody>
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<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>S</td>
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<tr>
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<td>R</td>
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</tr>
<tr>
<td>o</td>
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<td>X</td>
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<td></td>
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<td>L</td>
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</tr>
</tbody>
</table>

An “X” indicates that the line connects to ground in the control panel.
The remaining lines are interconnected in the control panel.
The RT-178/ARC27 open circuit seeking switch has 14 positions. The 4 unused are skipped automatically.
RT-178 / ARC-27 Main Chassis
19 aug 2011  kb
RT-178 / ARC-27  
Introduced in 1952

**Frequency range** 225 – 399.9 MHz in 1750 steps of 0.1 Mc

**Tunable:** 200 – 399.9

**Transmitter** 10W power into 50 Ω  
Modulation AM, or 1020Hz tone

**Receiver** 1.2uV for 6 dB S/N

**Guard Receiver** 2.5 uV for 6 dB S/N

**Audio output** 2W max, 0.5W at <10% distortion

**Modules**
1. RF receiver amplifier
2. 20-30Mc IF
3. Fixed IF and LF amplifier
4. Spectrum oscillator
5. Spectrum amplifier
6. RF Power Amplifier
7. Modulator
8. Guard Rx
9. Tone, bias and rela

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**Diagram:**
- **V101** 6J4
- **V102** 6J4
- **V103** 6AQ5
- RF receiver amplifier
- 20-30Mc IF
- Fixed IF and LF amplifier
- Spectrum oscillator
- Spectrum amplifier
- RF Power Amplifier
- Modulator
- Guard Rx
- Tone, bias and rela

**Units:**
- 100k
- 1k2
- 100
- 10k
- 0.5
- 225-400 MHz
- 20-30Mc IF
- Spectrum gen
ARC27 20-30 Mc IF Amplifiers
18-3-2011 kb
RT-178/ARC-27 Spectrum generator and amplifier
ARC-27 Guard Receiver
8 aug 2011 kb