The above listed RF-301 SSB Transceivers have been modified to provide an external keyline output signal (ground in transmit) and a external operate mode (+12 vdc for all operate modes of the RF-301) signal. The modification consists of the addition of a terminal board to the rear panel of the unit, above REMOTE connector J3, an added capacitor, and interconnecting wiring. The diagram below shows the modification schematically.

<table>
<thead>
<tr>
<th>Publication No.: PM—0700</th>
<th>Date of Issue: 20 September 1968</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model: RF-301</td>
<td>Changes Effective: 2694-2723 only</td>
</tr>
</tbody>
</table>

---

**Diagram:**

- K3 +12 VDC
- C70
- 11 (Ground Added)
- 7 (Added)
- 1000pF RF P/N C-0152 (Added)
- 1 (Added)
- 2 (Added)
- + 12 VDC Output All Operate Modes
- Ground in Transmit
- I (Added)
- TB (Added)

---

RF Communications, Inc. - Rochester, New York, U.S.A.
The following changes have been made to the RF 301, RF 301A and RF 301E SSB Transceivers. Change your instruction manuals as follows:

Change Parts List as follows:

Page 7-5. Divider/Spectrum Generator---Add C48, Capacitor, dipped mica, 510 uF, 500 VDCW, 5%; RF P/N C-0145

Page 7-8. Translator---Add C31, Capacitor, tantalum, 15 uF, 20 VDCW; RF P/N C-5832

Change Circuit Diagrams as follows:

Page 8-5/8-6, Figure 8.4---Show added capacitor C48, 510 uF, connected between Q13 collector (positive) and ground

Page 8-11/8-12, Figure 8.10---Show added capacitor C31, 15 uF, connected between the tie point of R17, CR16, and T1 (positive) and ground.
INSTRUCTION MANUAL ADDENDUM

Publication No.: PM—0590 (E)  Date of Issue: 10 July 1968

Model: RF-301/A/P  Changes Effective:

Inductor L2 on the 162-1000 board, Megacycle Oscillator Assembly, has been changed to 1000 uH. Make the following corrections to your instruction manual.

Change Megacycle Oscillator Parts Lists as follows:

For RF-301 (PM-0301C) and RF-301A (PM-0348C)

Page 7-11—— L2 is now 1000 uH; RF P/N L-0050

For RF-301P (PM-0540)

Page 7-9—— L2 is now 1000 uH; RF P/N L-0050

Change Circuit Diagrams as follows:

For RF-301 (PM-0301C) and RF-301A (PM-0348C)

Page 8-19/8-20, figure 8.18—— L2 is now 1000 uH

For RF-301P (PM-0540)

Page 8-19/8-20, figure 8.9—— L2 is now 1000 uH

RF COMMUNICATIONS, INC. - ROCHESTER, NEW YORK, U.S.A.
Effectivity: On all 162-0300 assemblies manufactured after 6-21-68 and as required to correct assemblies in test.

The following changes have been made to the 162-0300 Divider/Spectrum Generator assembly manufactured after 21 June 1968. Transistors Q5 and Q9 have been changed from type 2N1301 (RF P/N Q-0109) to type 2N3638A (RF P/N Q-0319). The change to the 2N3638A transistor was made to reduce variations in the 100 Kc and 10 Kc pulse widths due to variations in individual transistors. Make the following changes in your instruction manual.

A. FOR RF-301 (PM-0301E) AND RF-301A (PM-0348E)

Change text as follows:

Page 6-20, figure 6.12--Change pulse width to 0.9 ±0.15 u sec measured at the 90% amplitude point.

Page 6-21, figure 6.16--Change pulse width to 8.5 ±1.5 u sec measured at the 90% amplitude point.

Page 6-22, figure 6.20--Change pulse width to 38 ±6 u sec measured at the 90% amplitude point.

Change Parts Lists as follows:

Page 7-5--Q5 is now type 2N3638A; RF P/N Q-0319.
Q9 is now type 2N3638A; RF P/N Q-0319.

Change Circuit Diagrams as follows:

Page 8-5/8-6, figure 8.4--Q5 and Q9 are now type 2N3638A. Add note 2 as follows--"2. Q5 and Q9 should be replaced only by type 2N3638A."
Add "NOTE 2" to Q5 and Q9.
### B. FOR RF-301P (PM-0540)

Change text as follows:

- **Page 6-21, figure 6.10**—Change pulse width to 0.9 ±0.15 used measured at the 90% amplitude point.

- **Page 6-22, figure 6.14**—Change pulse width of 8.5 ±1.5 usec measured at the 90% amplitude point.

- **Page 6-23, figure 6.18**—Add pulse width of 38 ±6 usec measured at the 90% amplitude point.

Change Parts List as follows:

- **Page 7-1, Divider/Spectrum Generator**—Q5 is now type 2N3638A; RF P/N Q-0319. Q9 is now type 2N3638A; RF P/N Q-0319.

Change Circuit Diagrams as follows:

- **Page 8-5/8-6, figure 8.2**—Q5 and Q9 are now type 2N3638A. Add note 2 as follows—"2. Q5 and Q9 should be replaced only by type 2N3638A." Add "NOTE 2" to Q5 and Q9.
Capacitor C2 on ACC assembly, 162-1600, has been removed from the emitter circuit of Q2 and reconnected between ground and the collector of Q2. The value of C2 is now 15 μF at 20 volts. Make the following changes in your instruction manual.

Change Parts List as follows:

Page 7-13 (ACC Circuit)—C2 is now 15 μF, 20 VDCW, RF P/N C-5832.

Change Circuit Diagrams as follows:

Figure 8.28—Show C2 removed from the emitter of Q2 and reconnected between ground, negative lead, and the collector of Q2, positive lead. Change the value of C2 to 15 μF, 20 v.
INSTRUCTION MANUAL ADDENDUM

Make the following corrections to instruction manual PM-0301E or to PM-0348E.

Change parts list as follows:

Page 7-3: Add CR4; diode, silicon, 1N4001, RF P/N CR-0043

Change circuit diagrams as follows:

Page 8-3: Change diode CR3, connected between terminals 13 and 14 of relay K1 to CR4.

RF COMMUNICATIONS, INC. - ROCHESTER, NEW YORK, U.S.A.
Transformer T7 on the 162-0800 assembly has been changed. Make the following corrections to the parts list in your instruction manual.

**RF 301/RF 301A**

Page 7-11--T7 is now 162-0166 ✓

**RF-301P**

Page 7-8--T7 is now 162-0166
Per SDN No. 8-108-1 effective on serial numbers: 1670-1674, 1817, 2020-2029, 2038-2069 and 2380 and above.

Capacitor C60, located on the RF Amplifier and connected between terminal 7 and ground on relay K1, has been changed to 82 pF. Make the following corrections in your instruction manual to show the new value.

Change Parts List as follows:

Page 7-3---C60 is now 82 pF; RF P/N C-0124 ✓

Change Circuit Diagrams as follows:

Figure 8.2---C60 is now 82 pF. ✓
Serial number _______________________

On the RF-301 SSB Transceiver with the above listed serial number the following changes have been made to the main frame circuitry. In the high voltage section of the power supply a 100 ohm, 5 watt resistor, R17, has been added in parallel with choke L4-B. Capacitor C10, located in the +12 vdc filter, has been increased to 580 uF.

Change your instruction manual as outlined below to show the added resistor and changed capacitor.

Change Parts List as follows:

Page 7-1--Change C10 to--Capacitor, electrolytic, 580 uF, 15 VDCW; 
RF P/N C-4162

Page 7-2--Add R17, Resistor, wirewound, 100 ohms, 5 watts, ±10%; 
RF P/N R-3814

Change Circuit Diagrams as follows:

Page 8-33/8-34--Figure 8.31--Show added resistor, R17, 100 ohms, 
5 watts, connected across L4-B. Show capacitor C10 as 580 uF, 15 V.
Serial No.

For the above listed serial number RF-301 SSB Transceiver change Instruction Manual PM-0301D as follows:

Parts List

Page 7-13--ALC Circuit Assembly---C2 is 20% RF P/N C-2350

RF COMMUNICATIONS, INC. - ROCHESTER, NEW YORK, U.S.A.
The gain of V1 has been changed to reduce the plate dissipation and increase the gain. Make the following changes in your instruction manual PM-0301F or PM-0348E.

NOTE

For PM-0348E make the changes outlined below for page 7-3 on page 7-4.

Page 7-3, Parts List, RF Amplifier Assembly....

R10 is now--82 ohms, 5W, 5%  RF P/N R-3231
R11 is now--8.2 K, 5W, 5%  RF P/N R-3232
R12 is now--4.7K, 2W, 5%  RF P/N R-3233
R13 is now--4.7K, 2W, 5%  RF P/N R-3233

Page 8-3/8-4, Circuit Diagram, Figure 8.2.....

Change:  R10 to 82 ohms at 5W
         R11 to 8.2K
         R12 to 4.7K
         R13 to 4.7K at 2W
<table>
<thead>
<tr>
<th>Addendum No.</th>
<th>PM-0957</th>
<th>Applicable To:</th>
<th>RF-301/A (162-1500 Assembly)</th>
</tr>
</thead>
</table>

Make the following changes in your Instruction Manual PM-0301F, PM-0301G, or PM-0348E, PM-0348G.

Pg. 7-12, Parts List, 162-1500.....

Delete: R4
Change: R3 to 18K RF P/N R-0039

Pg. 8-27/6-28, Figure 8.26, Schematic Diagram 162-1500.....

Delete: R4
Change: R3 to 18K
Make the following changes in your Instruction Manual PM-0301G or PM-0348G.

Pg. 7-10, Parts List, 162-0800....
Change: R47 to 33 ohms ±5%; 1W RF P/N R-1613.

Pg. 8/15/8-16, Schematic Diagram, 162-0800....
Change: R47 to 33 ohms.
Make the following changes to your Instruction Manual PM-0301F, PM-0301G, or PM-0348E, PM-0348G.

Pg. 7-6, Parts List, 162-0500.....

Add: C38, Capacitor; .005uF;500Vdcw RF P/N C-0002.

Pg. 8-9/8-10, Schematic Diagram, 162-0500.....

Add: C38 .005uF
Show C38 added at the junction of R12 and R30 as shown below:
Make the following changes in your Instruction Manual PM-0301G or PM-0348G.

Page 7-6, Patrs List, 162-0500....

Change: FL3-C4 RF P/N to C-0108.
The following changes have been made in the Main Frame Assembly of the RF-301 SSB Transceiver. Make the corrections below to your Instruction Manual PM-0301G or PM-0348G.

Pg. 7-1, Parts List, Main Frame.....

Change: C31 RF P/N to C-0616.

CR12 to type UZ8709, RF P/N CR-0352.

Pg. 8-33/8-34, Schematic Diagram, Main Frame.....

Change: CR12 to UZ8709.
Addendum No. PM-0965A  
Applicable to: RF-301/A  
Applicable SDN No.(s) LPES-59&66  
(Applicable DCN No.(s))

Make the following changes in your Instruction Manual PM-0301G or PM-0348G.

Pg. 7-5/7-6, Parts List, 162-0400....

Change:  
C7 to 68 pF  RF P/N C-0122.  
C32 to 100 pF  RF P/N C-0126.  
Q1 through Q4 and Q6 through Q9 to type 2N4916, RF P/N Q-0360.  
R21 to 2.2K  RF P/N R-0028.

Pg. 8-7/8-8, Figure 8.6, Schematic Diagram, 162-0400....

Change:  
C7 to 68 pF.  
C32 to 100 pF.  
Q1 through Q4 and Q6 through Q9 to type 2N4916.  
R21 to 2.2K.
Make the following changes in your Instruction Manual PM-0301G or PM-0348G.

Pg. 7-6, Parts List, 162-0500.....

Change: Q6 from 2N4916 to 2N2084 RF P/N Q-0105.

Pg. 8-9/8-10, Schematic Diagram, 162-0500.....

Change: Q6 to 2N2084
Make the following changes in your Instruction Manual PM-0301G or PM-0348G.

Page 7-6, Parts List.....
Change: CR9 to type UZ709, RF P/N CR-0048.

Page 7-7, Parts List.....
Change: R40 to 56 ohms, RF P/N R-0209.

Page 8-9/8-10, Circuit Diagrams.....
Change: CR9 to UZ709 and R40 to 56 ohms.
Make the following changes in your Instruction Manual PM-0301G or PM-0348G.

Pg. 7-11, Parts List.....

Add: Z1 Ferrite Bead, RF P/N E-0652.

Pg. 8-23/8-24, Schematic Diagram.....

Add: Z1 Ferrite Bead
      Show Z1 added to base lead of Q1 as shown below:
Make the following changes in your Instruction Manual PM-0301G or PM-0348G.

Page 8-11/8-12, Schematic Diagram, 162-0600.....

Change Resistors R7 and R20 to 560 ohms 1/4 W.
Make the following changes in your Instruction Manual PM-0301G or PM-0348G.

Page 7-5, Parts List, 162-0400.....

Change: C25 to 43 pF ± 2% RF P/N C-2469
C9 to 110 pF RF P/N C-0127
CR1, CR2, CR3, and CR4 to Diode Type 1N4454
RF P/N CR-0705.

Page 8-7/8-8, Figure 8.6 Schematic Diagram, 162-0400.....

Change: C9 to 110 pF
C25 to 43 pF
CR1, CR2, CR3, and CR4 to 1N4454
Make the following changes in your Instruction Manual PM-0301G or PM-0348G.

Page 7-2, Parts List, Main Frame.....

Change the RF Part Number of P7, P8, P12, P13, P16, P17, P24, P33, P34, P35, P42, and P43, to P-0043.
Make the following changes in your RF-301 Instruction Manual, PM-0301G or PM-0348G.

Parts List, page 7-6, 162-0500 Assembly

Change R40 to 68 ohms, RF P/N R-0210

Circuit Diagrams, page 8-9/8-10, figure 8.8

Change R40 to 68
A 0.1 uF capacitor has been added to the 162-1800 Assembly. Make the following additions to your RF-301 Instruction Manual (PM-0301G or PM-0348G) or to the RF-303/RF-304 Instruction Sheet PM-0709B.

Parts List, page 7-13, RF-304 Assembly
Add: Capacitor, ceramic, 0.1 uF, 75 VDCW; RF P/N C-0063

Circuit Diagrams, page 8-37/8-38, figure 8.33
Show added capacitor (0.1 uF) connected between collector of Q1 and terminal 2 of T1.
Make the following changes in your Instruction Manual PM-0301G or PM-0348G.

Pg. 7-10, Parts List, 162-0901.....

Change: Q1 through Q4 to Transistor, type 2N4916
RF P/N Q-0360.

Pg. 8-17/8-18, Schematic Diagram, 162-0900.....

Change: Q1 through Q4 to 2N4916.
Make the following changes in your Instruction Manual PM-0301G or PM-0348G.

Pg. 7-12, Parts List, 162-1600 Assembly.....

Change: Q2 to Transistor, type 2N3565 RF P/N Q-0311,
R6 RF P/N to R-3361.

Pg. 8-29/8-30, figure 8.28, Schematic Diagram, 162-1600....

Change: Q2 to 2N3565,
Make the following changes in your Instruction Manual PM-0301G or PM-0348G.

Page 7-1 and 7-2, Parts List, Main Frame Assembly.....

Change: C3 to Capacitor, Electrolytic, two section (C3-A) 5 uF; 300 Vdcw and (C3-B) 200 uF; 300 Vdcw RF P/N C-4958.

R58 to Resistor, Wire Wound; 440 ohms ±5%; 3W RF P/N R-3234.

Delete: C11, C56, C58, L4, and R17

Add: C84 Capacitor, Electrolytic; 5600uF; 20Vdcw RF P/N C-4959.

C85 Capacitor, Electrolytic; 5600uF; 20Vdcw RF P/N C-4959

R59 Resistor, Wirewound; 1 ohm ±5%; 3W RF P/N R-3221.

Page 8-33/8-34, Schematic Diagram, Main Frame Assembly.....

Change: C3-C to C84 (5600uF; 20V) and C3-D to C85 (5600uF 20V). See diagram.

Delete: C2, C11, C56, C58, and R17

L4-A, L4-B, and L4-C and show R58 removed from transformer T1 (terminal 16 and ground) and reconnected in place of L4-C (positive terminal of C3-A to positive terminal of C3-B). Change value of R58 to 440 ohms 3W.
Add: Resistor R59 (1 ohm; 3W) as shown in diagram below:
The value of capacitor C15 on the 455 kHz Error Mixer Assembly (162-0500) is being selected during final test. One of the following sizes will be used:

<table>
<thead>
<tr>
<th>Size</th>
<th>RF P/N</th>
</tr>
</thead>
<tbody>
<tr>
<td>5pF</td>
<td>C-0103</td>
</tr>
<tr>
<td>10pF</td>
<td>C-0104</td>
</tr>
<tr>
<td>12pF</td>
<td>C-0105</td>
</tr>
<tr>
<td>15pF</td>
<td>C-0106</td>
</tr>
<tr>
<td>20pF</td>
<td>C-0108</td>
</tr>
<tr>
<td>24pF</td>
<td>C-0110</td>
</tr>
</tbody>
</table>

Change the parts list in your instruction manual PM-0301G or PM-0348G (page 7-6) to reflect the value of the capacitor that is installed in your unit. Refer to figure 8.7 for location of C15 on the assembly.
Make the following changes in your Instruction Manual PM-0301G or PM-0348G.

Page 7-8, Parts List, 162-0700.....

Change: Q4, Q5, Q7, and Q8 to Transistor, type 2N4916 RF P/N Q-0360.

R19, R27, and R42 to Resistor, 1K+10%;1/4W RF P/N R-0024.

R45 to Resistor; 390 ohms+10%;1/4W RF P/N R-0019.

Page 8-13/8-14, Schematic Diagram, 162-0700.....

Change: Q4, Q5, Q7, Q8, to 2N4916

R19, R27, and R42 to 1K

R45 to 390 ohms.
Make the following changes in your Instruction Manual PM-0301G or PM-0348G.

Page 7-5, Parts List, 162-0400.....

Change:  
C25 to 43 pF ± 2% RF P/N C-2469  
C9 to 110 pF RF P/N C-0127  
CR1, CR2, CR3, and CR4 to Diode Type 1N4454  
RF P/N CR-0705.

Page 8-7/8-8, Figure 8.6 Schematic Diagram, 162-0400.....

Change:  
C9 to 110 pF  
C25 to 43 pF  
CR1, CR2, CR3, and CR4 to 1N4454
Capacitor C24 has been removed from ground and reconnected across resistor R18 (B+ to emitter of Q2). Make the following changes in your instruction manual PM-0301G or PM-0348G.

Page 8-9/8-10, Circuit Diagram, 162-0500.....

Show C24 disconnected from ground and reconnected across R18.
Make the following changes in your Instruction Manual PM-0301G, PM-0348G, or PM-0540A.

Page 7-9, Parts List, 162-0800 Assy. . . . .

Change C59 to 91 pF, RF P/N C-2478

Page 8-15/8-16, Schematic Diagram, 162-0800 Assy. . . . .

Change C59 to 91 pF.
Make the following changes in your Instruction Manual PM-0301G or PM-0348G.

Page 8-33/8-34, Main Frame Assembly Schematic Diagram.

Add Ferrite Bead L-0184 in series from the wire connecting C56 (positive terminal) to pin 14 of K3.