

2 JUNE 1966

SUPERSEDING
Amendment 6
5 June 1964

MILITARY SPECIFICATION

RECEIVER, RADIO (RADIO RECEIVER R-390()/URR)

This amendment forms a part of Military Specification MIL-R-13947B(SigC)
dated 26 October 1960

1. Page 1, paragraph 2.1: Under SPECIFICATIONS, FEDERAL, add:

PPP-T-76	Tape, Pressure-Sensitive Adhesive, Paper Water Resistant.
PPP-F-320	Fiberboard.

Delete:

C-F-202	Felt, Hair
PPP-T-60	Tape; Pressure Sensitive Adhesive, Waterproof for Packaging and Sealing.
UU-T-116	Tape, Paper, Gummed, Water-Resistant.

2. Page 2, paragraph 2.1: Under SPECIFICATIONS, MILITARY, delete:

MIL-I-11748	Interference Reduction for Electrical & Electronic Equipment.
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3. Page 2, paragraph 2.1: SPECIFICATIONS, MILITARY, add:

MIL-C-11693	Capacitors, Feed thru Interference Reduction Paper Dielectric, AC & DC (Herm. Sealed in Metallic Cases).
MIL-P-116	
MIL-B-117	
MIL-E-55301	Electromagnetic Compatibility
MIL-P-11268	Parts, Materials and Processes used in Electronic Communication Equipment

4. Page 6, paragraph 3.12.3: Delete last sentence and replace with: "The current rating shall be "E" in accordance with Table I of Specification MIL-C-11693."

FSC 5820

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5. Page 7, paragraph 3.13.5, under "AM, delete "10 uv" in second line.
6. Page 8, paragraph 3.13.16, line 3: Insert "1.5" between "0.910" and "2.727".
7. Page 8, paragraph 3.13.19: Delete.
8. Page 9, paragraph 3.13.19.1: Delete.
9. Page 10, paragraph 3.13.32:
 - a. Replace with the following:

"3.13.32 Overall Selectivity.-- Overall selectivity for each position shall be as shown below at an ambient temperature of $77^{\circ} \pm 5^{\circ}\text{F}$, however, the peak-to-valley ratio shall be not more than 2 db maximum for the 2, 4, and 8 kc bandwidth and not more than 2 db maximum over the range of ± 6.0 kc from 455 kc for the 16 kc bandwidth. For measurements to be made in the temperature range from -40°F to $+149^{\circ}\text{F}$ (see 4.33) a change of ± 5 percent from the specified ambient room temperature bandwidth limits is permitted along with a peak-to-valley ratio of 3 db maximum."
 - b. In column of tabulated data under 16 kc change "25.5" to read "27.5."
 - c. Delete the last 2 lines of the paragraph.
10. Page 11, paragraph 3.13.33, last line, delete "180" and "220" and replace with "170" and "230".
11. Page 11, paragraph 3.13.37, last line, delete "560" and replace with "450".
12. Page 11, paragraph 3.13.39: Change " ± 1 db to 300 cps" to read " ± 1 db -1.5 db to 300 cps".
13. Page 12, paragraph 3.13.45, add "AM. sensitivity, gain and audio power output shall be measured and shall comply with the requirements of paragraphs 3.13.5 (balanced), 3.13.6 and 3.13.38."
14. Page 12, paragraph 3.13.48: Delete.

15. Page 12, paragraph 3.14: Add the following:

"Where specific tests to be performed during each service condition test are listed, satisfactory completion of such tests shall be considered as compliance with the service condition requirement."

16. Page 13, paragraph 3.14.2, replace with:

"3.14.2 Temperature (see 4.55).-

a. Operating: Ambient temperature in the range of 149°F to -40°F (The 149°F temperature includes effect of sun-load). Exposure at the high and low temperature extreme shall be 24 hrs min. At steps 3 and 8, the power shall be applied and receiver remain energized for 24 hrs min. Gain, power output and selectivity shall then be measured and recorded and shall meet the requirements of 3.13.6, 3.13.32 and 3.13.38.

b. Non-Operating: Exposure at the high (160°F and low -80°F) temperature extreme shall be 72[±] 4 hrs."

17. Page 13, paragraph 3.14.7, replace with:

"3.14.7 Vibration.- Except for resonance of specified parts and subassemblies, the equipment shall have no mechanical resonance below 55 cycles per second. (See 4.51)"

18. Page 13, paragraph 3.14.7.1: Delete.

19. Page 14, paragraph 3.16, replace with: "The contractor shall furnish two (2) preproduction samples of equipment on order for approval, if required by the invitation for bids and contract. (4.3)."

20. Page 15, paragraph 4.1: Replace with:

"4.1 Responsibility for inspection.- Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified, the supplier may utilize his own facilities or any commercial laboratory acceptable to the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure that supplies and services conform to prescribed requirements."

21. Page 15, paragraph 4.3:

a. In line 7 delete "and (5) immersion".

b. Add the following to Table II, Preproduction Inspection:

"Turning Knob Torque Test" (under inspection), "3.12.2" (under Requirement Paragraph), "4.54" (under Test Paragraph).

c. Delete the following from Table II, Preproduction Inspection:

Operating and storage temperature	3.14	4.55
Moisture resistance test	3.14	4.57
Mobile frequency stability	3.13.25	4.50

22. Page 16, paragraph 4.4, under "item" and "where required," add:

"Filter, radio interference 3.12.3"

23. Page 16, paragraph 4.5.1: In Table III, under "Visual and Mechanical" delete the first seven lines and replace with:

"R. F. and Crystal-Osc. Sub-chassis	3.13	4.8	4.0 dphu	15.0 dphu
I. F. Sub-chassis			1.5 dphu	6.5 dphu
VFO Sub-chassis			1.0 dphu	4.0 dphu
A. F. Sub-chassis			2.5 dphu	10.0 dphu
Power Supply Sub-chassis			1.0 dphu	4.0 dphu
Completed Receiver R-390()/URR			1.5 dphu	6.5 dphu"

24. Page 17, Table III, after overall selectivity add: "Room ambient only."

25. Page 18, Table IV, delete: "Electro-mechanical filters".

26. Page 18, Table IV - Group B inspection, in "Test Paragraph" column; add: "and 4.61.1" to "4.61."

27. Page 18, paragraph 4.5.3.1 Sampling procedures for Group C Inspection.- Replace with the following:

"One receiver for each sub-group in Table IV shall be selected from the first units of production, without regard to quality, by the Government Inspector. Thereafter, one receiver for sub-groups, 1, 2, and 3 shall be selected for each 200, or portion thereof, produced; one receiver for sub-group 4 from each 500 units, or portion thereof".

28. Page 19, Table V - Group C Inspection. Replace paragraph number "4.61.1" with "4.66" after "Interchangeability, electrical" in "inspection paragraph" column.
29. Page 19, Table V - Group C Inspection, under Sub-group 1, delete first two lines.
30. Page 19, Table V - Group C Inspection, add in Sub-group 1:
- | | | |
|-----------------------------------|---------|------|
| Overall Selectivity | 3.13.32 | 4.33 |
| Operating and storage temperature | 3.14 | 4.55 |
| Moisture resistance test | 3.14 | 4.57 |
| Mobile frequency stability | 3.13.25 | 4.50 |
31. Page 19, Table V - Group C Inspection: in Sub-group 2, delete "Turning knob shaft torque test" and corresponding paragraphs from table.
32. Page 26, Paragraph 4.23: Add the following:
- "Tests shall cover entire range of Radio Receiver R-390()/URR with BFO on during search. The BFO shall be turned off to measure diode load voltage at internal signal frequency."
33. Page 26, paragraphs 4.23.1 and 4.23.2: Delete.
34. Page 26, paragraph 4.26: Delete.
35. Page 26, paragraph 4.26.1: Delete.
36. Page 27, paragraph 4.28: last line, insert "ink-taped" before "recorded."
37. Page 27, paragraph 4.33: In second to last line from bottom of page change "diode lead" to read "diode load".
38. Page 28, paragraph 4.33.2, insert word "Government" between "the" and "inspector".
39. Page 29, paragraph 4.39: Replace the last sentence with the following:
- "The test frequencies shall be 300, 400, 500, 600, 700, 800, 900, 1,000, 2,000, 2,500, and 3,000 cps".

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40. Page 30, paragraph 4.46: Delete.

41. Page 30, paragraph 4.49, line 2, replace: "45 inches square" with "48 inches square." Line 6, replace "MT-1179A/U" with "Barry MT-7235-GE or Robinson Nr. RED-4861 or equal".

42. Page 30, paragraph 4.50:

a. Replace the last sentence with the following:

"Copy shall be secure for last 15 minutes in each direction of Bounce Test."

b. Add the following note:

"NOTE: Perfect copy of teletype may not be received from commercial stations due to fading; therefore simulated tests may be used".

43. Page 31, paragraph 4.51.1, replace with:

"4.51.1 Vibration test.-- The equipment shall be tested for resonant frequencies below 55 cycles per second, as follows:

a. The equipment shall be fastened in its normal mounting position on a vibration table that can be controlled within 10% of the specified amplitude. Equipment shock mounts, if any, shall be blocked.

b. The vibration table shall provide approximate sinusoidal vibration. The equipment shall be vibrated successively in three mutual perpendicular directions that are respectively parallel to the edges of the equipment. In the frequency range from 10 to 55 cps, any frequency shall be used only long enough to determine whether a resonance exists. The frequency range from 10 to 55 shall be manually controlled and set in 1 cycle per second increments with a constant total excursion of the table of .030".

c. Resonances of components, structure, and subassemblies may be detected visually, by means of a Strobotac, as made by the General Radio Corporation, Cambridge, Massachusetts, or equal, and by energizing the equipment or detecting mechanical vibration through electrical output indications.

d. If because of compactness or inaccessibility, it is not possible to determine the resonances completed by the above means, the equipment shall be broken down into logical subassemblies for this test. These subassemblies shall be secured to the vibration table in the same fashion that they are secured in the actual equipment."

- 44. Page 33, paragraph 4.55.1: Replace "a minimum of 72 hours" with "72 \pm 4 hours."
- 45. Page 33, paragraph 4.55.2: Replace "72" with "24" (two places).
- 46. Page 33, paragraph 4.55.3: Replace "a minimum of 72 hours" with "72 \pm 4 hours."
- 47. Page 35, paragraph 4.63, replace with:

"4.63 Interference suppression test.- Inspection for suppression shall be performed in accordance with Specification MIL-E-55301."

- 48. Page 36, paragraph 4.64.2.2: Delete.
- 49. Page 36: Add paragraph 4.66 Interchangeability, electrical, subchassis interchange, as follows:

"4.66 Interchangeability, electrical, sub-chassis interchange.- Interchange the following sub-chassis, one at a time, with one selected at random from production, leaving the sub-chassis previously tested intact. The order of testing may be changed if it proves to be more expedient. The receiver shall be subjected to and meet the requirements of the following electrical tests after each sub-chassis change to determine electrical interchangeability, except that the 20 hour frequency stability test shall be performed only after all sub-chassis have been interchanged.

<u>SUB-CHASSIS</u>	<u>TEST</u>
R.F. and Crystal Osc. Sub-chassis	3.13.5, 3.13.6, 3.13.38, 3.13.22
I.F. Sub-chassis	3.13.5, 3.13.6, 3.13.38, 3.13.32, 3.13.8, 3.13.9, 3.13.27
VFO Sub-chassis	3.13.5, 3.13.6, 3.13.24, 3.13.8
A.F. Sub-chassis	3.13.5, 3.13.6, 3.13.38
Power Supply Sub-chassis	3.13.5, 3.13.6, 3.13.38, 3.13.44, 3.13.10

50. Page 37, 38 and 39: Delete, and replace with:

5. PREPARATION FOR DELIVERY

5.1 Preservation and packaging.-

5.1.1 Level A.- Each Radio Receiver R-390()/URR shall be packaged in accordance with Items 1 through 9, Figure 1 and Table I.

5.1.2 Level C.- Each Radio Receiver R-390()/URR shall be packaged as in 5.1.1.

5.1.3 Package Performance.- Package Testing shall be performed in accordance with the requirements of MIL-P-116. The rough handling test or the cyclic exposure test will be performed only when invoked by the bid request or contract (see 6.2(d)).

5.2 Packing.-

5.2.1 Level A.- Each Radio Receiver R-390()/URR shall be packed in accordance with Items 10 and 11 of Figure 1 and Table I. Box closure shall be as specified in the appendix of the applicable box specification.

5.2.2 Level B.- Each Radio Receiver R-390()/URR shall be packed in accordance with Item 10 of Figure 1 and Table I, except nailed wood box shall be class 1, Style 4, or cleated plywood box, Style A, Type IV, class 1.

5.2.3 Level C.- Each Radio Receiver R-390()/URR shall be packed in shipping containers of the type, size and kind commonly used for the purpose, in a manner that will insure acceptance by common carrier and safe delivery at destination. Shipping containers shall comply with the rules or regulations of the common carrier, applicable to the mode of transportation.

5.3 Marking.- Interior packages and exterior shipping containers shall be marked in accordance with Military Standard MIL-STD-129.

51. Page 40, paragraph 6.2(c): Replace with:

6.2(c) Levels of preservation, packaging and packing required.

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52. Page 40, paragraph 6.2(d): Replace with:

6.2(d) If rough handling test or cyclic exposure test is required,
so state.

53. Page 40, paragraph 6.2(e)(1): Delete.

54. Page 40, paragraph 6.2(e)(2)b: Replace "kinc" with "kind".

Custodian:
Army - EL

Preparing Activity:
Army - EL

Project No. 5820-A 346

BILL OF MATERIAL
TABLE I

REF No	ITEM Nomenclature	No Req'd	Method MIL-P-116	SIZE - INCHES			REQUIREMENT							
				L	W	D	Spec No	T	G	C	S	PS1		
1	Tech. Literature	2	IC-6											
2	Bag, barrier Radio Receiver R-390()/URR	1	IC-5	14	12	16-1/2	MIL-R-117	II			d			
3	Fiberboard Sleeve I.D.	1		17-3/4	19-1/4	15-1/2	PPP-F-320	CF	W5c			Variety	SW	
4	Cells, Fiberboard	4		15-1/2	4-1/2	1-5/8	PPP-F-320	CF	W5c			Variety	SW	
5	Filler, Fiberboard	1		15-7/8	9	2	PPP-F-320	CF	W5c			Variety	SW	
6	Plywood Panel	1		21-1/8	12-1/4	1/4	NN-P-530							
7	Cell, Fiberboard	1		21-1/8	12-1/4	1	PPP-F-320	CF	W5c			Variety	SW	
8	Spare Parts													
	Carton containing packaged spares in Paperboard Boxes	11		15-3/8	4	1-7/16	PPP-B-566							
	Kraft bags	5		3	1-1/4	1-1/4	PPP-B-566							
9	Carton, Fiberboard	1		4	4									
	Tape: Pres. Sensitive	2		21-1/4	13-3/4	19-1/8	PPP-B-636	1	5	2	RSC	B		
	Tape: Pres. Sensitive	4		28	3		PPP-T-76							
	Tape: Pres. Sensitive	1		20	3		PPP-T-76							
10	Wood Fox	1		19	3		PPP-T-76							
11	Metal Strapping	2		21-3/4	14-1/4	20-3/8	PPP-B-621				2	4		
				80	3/8	.02	QQ-S-781	1			B			
PACKED WEIGHT		-		110 Lbs			T-Type	LEGEND			S-Style			
PACKED VOLUME		-		4.8 cu. ft			G-Grade				C-Class			

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RADIO RECEIVER
R-390 ()URR

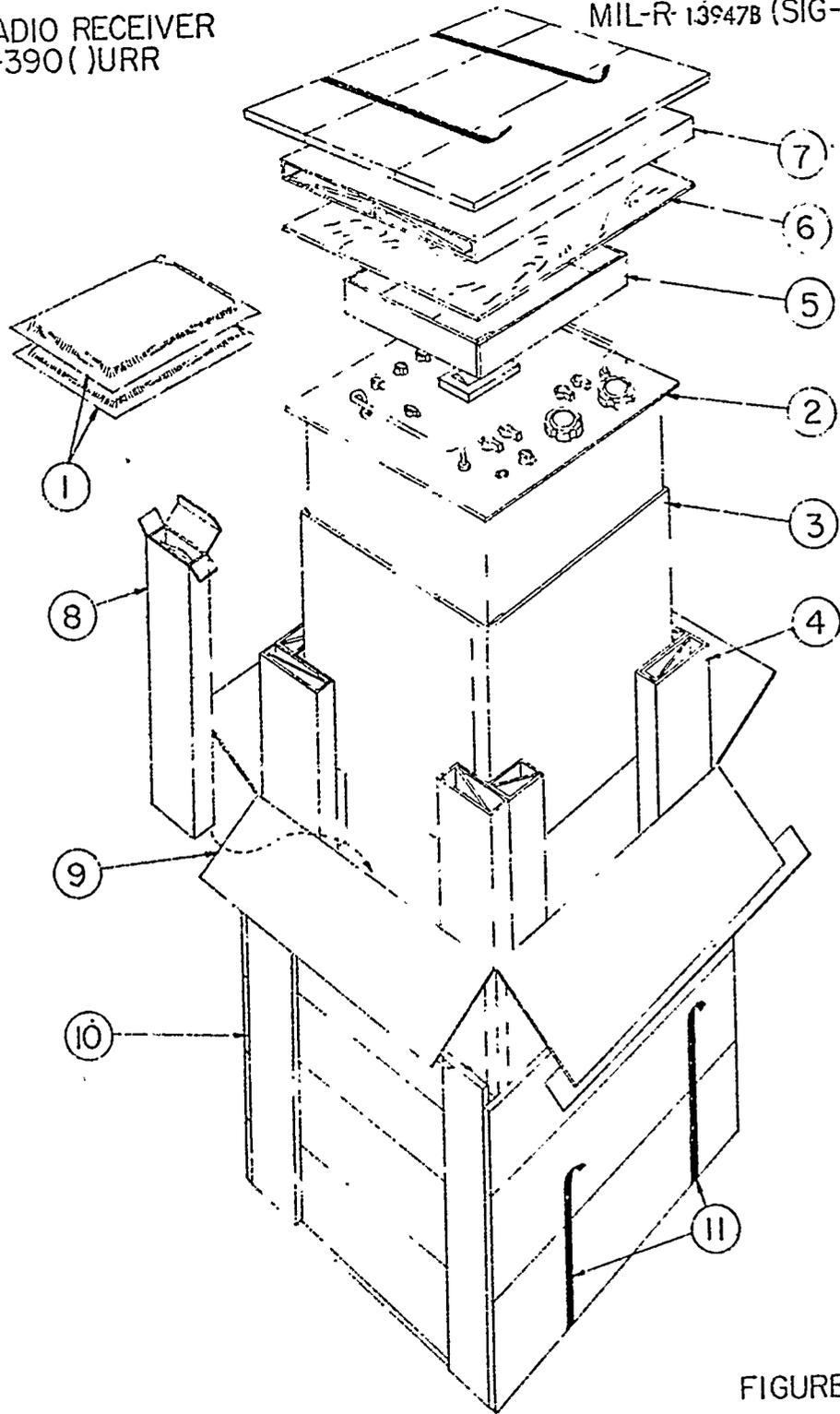


FIGURE 1

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