SCR-300 Radio Set:

The Development, Operational Employment, and Details of the Famous “Walkie-Talkie”

By

Mike Roof, SGM, USA (ret.)

Introduction, Purpose and Organization

For many years I had in the back of my mind that I'd like to add an SCR-300 "Walkie-Talkie" to my militaria collection. I had an SCR-536 "Handie-Talkie" for nearly 20 years, but for various reasons adding the larger SCR-300 always seemed like it was in the "too hard to do box." Then, out of the blue, a relative (who has a talent for finding nuggets of gold in really odd places) sent me a near mint CS-128 Battery Box along with the chassis box for the BC-1000 Receiver Transmitter (thank you, Ruthie!). All of a sudden, the hunt was on for the missing components!

Of course, the hunt for any new additions to my collection would involve doing the research to be sure that these were the correct items for completing the radio set. As happens so often, I soon learned that most of the information that I was seeking and the answers to the questions that I had simply wasn't available in some handy single source. As also happens, as I delved deeper and deeper into the subject, much of what I thought I knew turned out to be wrong or incomplete. In fact, it turns out that a number of things that were repeated in collector circles turned out to be the militaria versions of "urban legend." (For instance, the SCR-300 was not the original or first radio set in use by the US Army to be nicknamed "Walkie-Talkie" by the troops. That honorific belongs to the SCR-194 and SCR-195. The SCR-300, which replaced the SCR-195 for the infantry, inherited that nickname from its predecessor.)

As always my research has been conducted, organized and formatted to suit my own needs. Although I hope the information here may be useful and interesting to others, it was done to satisfy my own standards of accuracy and completeness. I didn't set out to "write the book" on the subject, just to get things straight in my own mind for what I needed to support my own collecting efforts. I've leaned on and borrowed heavily from the work that has been done by others, but any mistakes or wrong conclusions and assumptions are entirely my own.

The work here is arranged in three main sections: A Brief History of the Radio Set SCR-300, Its Predecessors, Prototypes, and Wartime Production; its Operational Use (with a concentration on its use by the US Army in WWII); and a Survey of the Details that I found useful in assessing the originality of the radio sets and components that I might consider adding to my own collection. There is some overlap between these areas, and because my interests and needs were somewhat narrowly focused, some areas are less complete than others. I apologize if I didn't cover some particular area in as much detail as you, the reader, might have wished for, but if that's the case, perhaps what is here will provide you with a good head start in finding those answers.

The radio set SCR-300 was not a perfect system. It was heavy. It's range was rather limited, only about 5 miles in nearly perfect conditions. In its initial production examples, it was not nearly as well protected from the weather and environment as it needed to be. However, it also possessed a number of very desirable features. First, it was manufactured and fielded in large numbers (more than 54,000). No other army in the world had anything as good in the hands of its small units in any where near the same numbers.

Let that sink in for a minute. NO OTHER COUNTRY IN THE WORLD issued anything even closely comparable to EVERY INFANTRY COMPANY AND BATTALION in its ENTIRE ARMY. EVERY. SINGLE. INFANTRY. COMPANY. AND. BATTALION. Now consider that every single infantry platoon also had an SCR-536 to talk with the SCR-536 that its parent company was also issued. Sure, by the end of the war, there were a number of other very good tactical radio sets issued in other armies, but NONE of them came even close to providing their own infantry the same radio communication capability that EVERY US Army infantry platoon, company and battalion had by 1944. It is very hard in today's world to appreciate just how remarkable this achievement was. Thompson, in his book "Crystal Clear," likens this achievement (in the context of the ENTIRE US MILITARY – don't forget that it wasn't just the infantry that got quality radios in these quantities) only second in significance to the Manhattan Project. (And in fact, production of crystal radio frequency control oscillators was assigned the second highest manufacturing priority of the war by the US government. Only the Manhattan Project had a higher priority for resources.)

The SCR-300 was one of the first FM voice radios in use in the US military, and its performance over its AM counterparts was excellent. It used only two frequency control oscillator crystals (when many of its contemporaries required as many as two dozen frequency crystals). However, it still offered the user more than 40 different channels (frequencies) to operate with. It was able to do this because its electronic circuitry was designed to automatically fine-tune and match transmission and reception frequencies with another set. (Again, see Thompson, "Crystal Clear," for the WWII history of US frequency control oscillator crystal procurement and production. The savings in frequency crystals was really important.) Finally, the SCR-300 was the first US military radio set equipped with a squelch control. It may not have been perfect, but it was an amazingly advanced system for its time.

I have not included a huge amount of technical information about the SCR-300 Radio Set. The reason for this is that all of the Signal Corps Technical Manuals covering the set are readily available in free .pdf format on the internet. Anyone who wants to know any of this sort of detail only has to spend a few minutes on the web to download the applicable TM and look it up. I've listed these in the reference section at the end.

Finally, I'd like to thank all of my fellow militaria and military radio enthusiast friends who shared information with me and who also acted as my peer reviewers as I posted up bits and pieces of this research on different collecting forums and FaceBook pages. I've also included links to the US Militaria Forum and the G503 Forums in the references. There are quite literally dozens upon dozens of threads on both sites covering different aspects of the SCR-300 radio set, and I encourage you to visit both sites and use their search functions. You don't have to be a member to search and read the threads on either.

A Brief History of the Radio Set SCR-300: Its Predecessors, Prototypes and War-Time Production

In the 1930s the US Army knew that radio communication was the future. Within the army, there was significant pressure and demand from the different branches on the Signal Corps to provide them with radio sets to meet their needs. Particularly strong demands were made by the Air Corps and that new upstart, the Armored Forces. However, the traditional branches, the Infantry, the Artillery and the Cavalry also placed demands on the Signal Corps for sets to meet their needs.

Starting around 1935-36, the Signal Corps began designing portable sets for the infantry and artillery. These sets would become the SCR-194 (artillery) and SCR-195 (infantry). However, limitations on resources meant that these sets would not be fielded until around 1939. As war was looming, this late fielding left no time for further developing these sets to eliminate their unacceptable performance characteristics. However, they were fielded in time for the Army to learn many lessons about the use of tactical radio communication in the series of large-scale maneuvers that took place in the last couple of years leading up to Pearl Harbor.

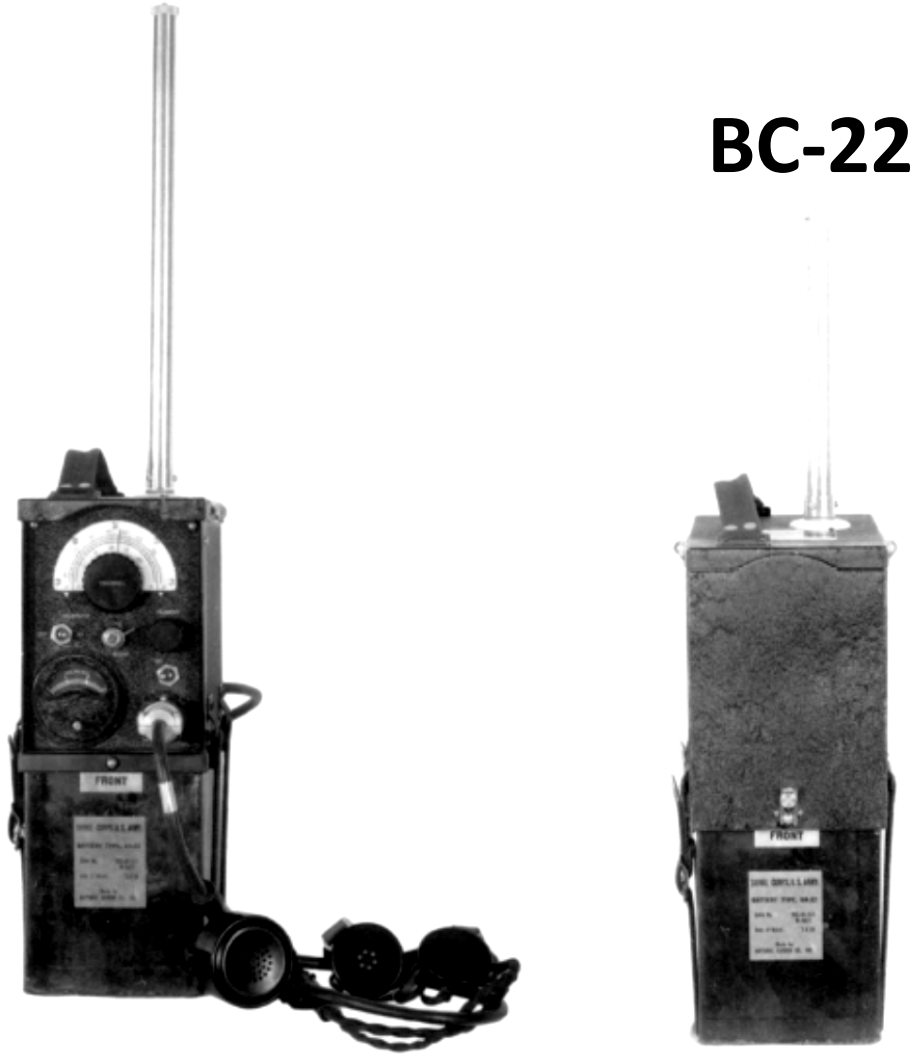
On the plus side, both of these sets were quite advanced and, at the time, no other army in the world was fielding anything comparable at the infantry company and artillery battery levels (nor would they through the end of the war). The SCR-194 and -195 were acceptably lightweight, fairly small, and easily carried. They had good range (up to 5 miles) and could be adapted for vehicle mounting and power. Both had acceptably large frequency bands offering each service sufficient numbers of channels for their operational requirements (62 channels for the Artillery and 33 channels for the Infantry). The sets provided for the first time true, on-the-go, radio communication between dismounted troops.

Unfortunately, both the SCR-194 and -195 suffered from being AM sets. They were both subject to, at times, significant interference from natural and man-made sources (something that advocates for FM continued to point out). Even worse both sets were only capable of effectively netting with just one other radio set on any particular frequency. Even though several sets might be tuned to the same frequency (say all of the companies and battalion HQ or all of the forward observers and their supporting artillery battery), only the two sets closest to one another could communicate clearly. The other sets could possibly hear these two sets, but the sets closest to each other effectively filtered out the signals from the more distant sets. The problem was one inherent in the design of the circuitry and could not be easily changed nor could effective tactical work-arounds be devised.

Thus, neither the SCR-194 nor the SCR-195 were ever completely satisfactory. Soon both the infantry and the artillery demanded that the Signal Corps develop better radios for their use. The SCR-194 and SCR-195 did provide valuable service in learning, developing and incorporating tactical radio communication into the doctrines of both the Infantry and Artillery, but in the end, they were only ever "first generation" sets. The Signal Corps also learned many valuable technical lessons from these early sets to include many lessons on frequency management and assignment.

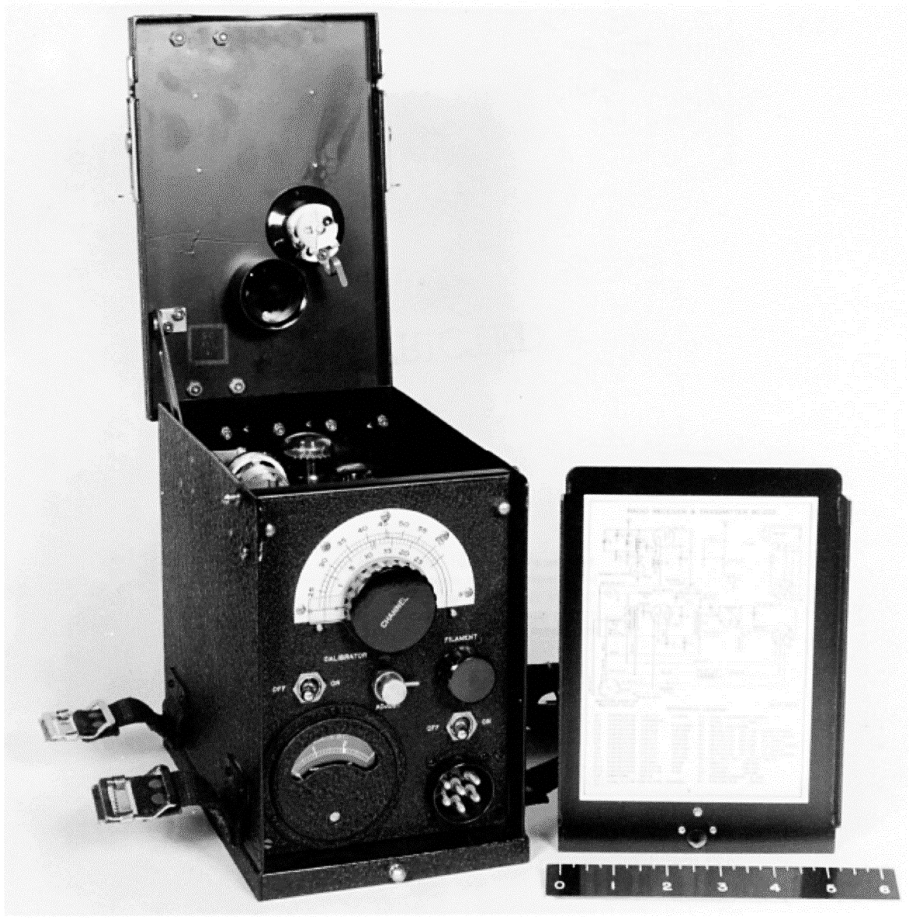
Despite their drawbacks, the artillery and infantry troops were enamored by the sets, their capability (when functioning well), and, in spite of their performance limits, the troops soon gave the SCR-194 and SCR-195 the affectionate moniker, "Walkie-Talkie." Thus, it was these radio sets and not the later SCR-300 that should get credit for this milestone in portable voice radio communication.

SCR-194 with BC-222 Receiver Transmitter



RADIO SET SCR-194
Prepared for Operation (Left) . Carrying Position (Right)

DATE 12-20-41 · SIGNAL CORPS GENERAL DEVELOPMENT LABORATORY · NO. SCGDL-486



RADIO RECEIVER and TRANSMITTER BC-222 . PART OF RADIO SET SCR-194
Front View . Panel Cover Removed

DATE 1-28-42 · SIGNAL CORPS GENERAL DEVELOPMENT LABORATORY · NO. SCGDL- 2793

These were the first sets called “Walkie-Talkie,” a nickname bestowed on them by the troops who used them.

The SCR-194 was the artillery version of this radio set.

These sets were designed in the mid-1930s, but not fielded until 1939. Both were Signal Corps Laboratory Designs.

SCR-195 with BC-322 Receiver Transmitter

The SCR-195 set as used by the infantry.

PRINCIPAL COMPONENTS of RADIO SET SCR-195

DATE 1-30-42 - SIGNAL CORPS GENERAL DEVELOPMENT LABORATORY - NO. SCGDL- 2800

Despite their fairly small size and modest weight, these sets had a very major drawback. They could not be networked together with more than two sets on the same frequency within normal transmitting range. The set(s) farthest away from the other sets could receive their signals, but they could not transmit to the other sets that were closer together.

RADIO RECEIVER and TRANSMITTER BC-322 . PART of RADIO SET SCR-195

Control Panel

DATE 1-1-38 - SIGNAL CORPS GENERAL DEVELOPMENT LABORATORY - NO. SCGDL-78

FIGURE 12.—Bag BG-71.

Both sets were issued with the BG-71 bag in which they could be carried on the operator's back.

What the Technical Manual had to say about this fundamental problem:

"c. <u>Netting more than two stations.</u> … For this reason [the incorporation of a superregenerative detector] it is difficult to operate more than two sets on the same frequency unless the sets are all approximately the same distance apart. …" **TM 11-238, p.23**

Both the SCR-194 and 195 were HF low-power AM radio sets that could transmit up to about 5 miles. Externally they were nearly identical.

However, their circuitry was slightly different. The artillery's SCR-194 could handle a frequency range of 27.7 to 52.2mc, separated every 400kc, into 62 channels. The infantry's SCR-195 was capable of handling a frequency range of 52.8 to 65.8mc, again, separated every 400kc into only 33 channels.

In operation, each set weighted about 25-30lbs depending on how many spare parts or accessories were carried. Each spare Battery BA-32 weighed 12lbs and provided about 20 hours of continuous use (which could be extended by using the radio only intermittently.)

Neither the artillery nor the infantry were happy with the performance of the SCR-194 or 195 and both requested that the Signal Corps develop something better for them. The sets were, "not bad, but not good enough…"

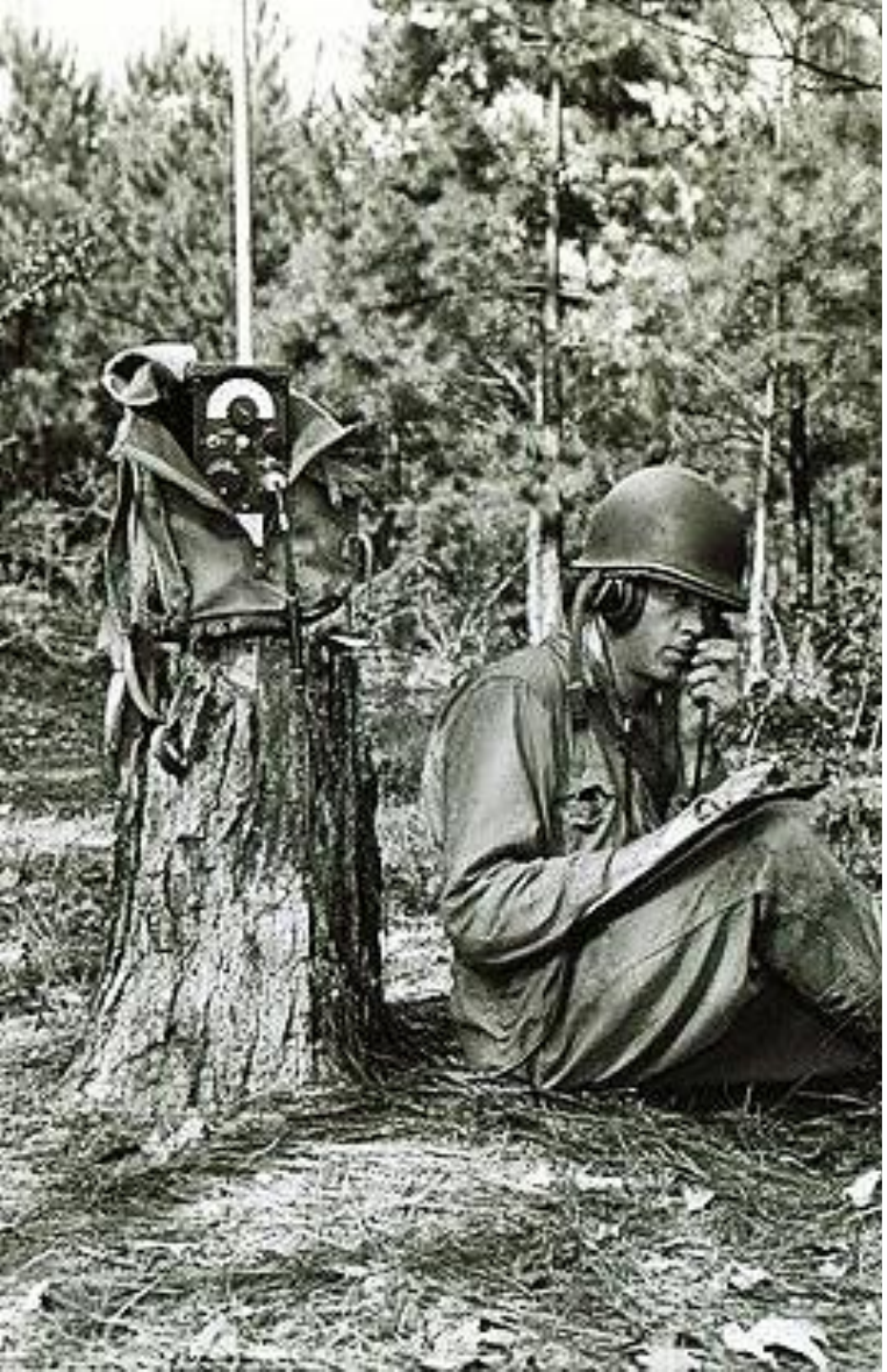
The SCR-194 and SCR-195 in Action

Outwardly, the SCR-194 and SCR-195 were identical. Thus, in most photos it is impossible to tell which set is being used unless the circumstances and context of the photo are known.


X 151


US


US



A Brief Chronology of the Development and Fielding of the SCR-300 Radio Set

In "late" 1940, the Signal Corps began their "Project 10-3 Radio Set SCR-300: Ultra High Frequency Sets for Frontline Service." In it, the specifications for this future radio set(s) which was to replace the Infantry's SCR-195 and the Artillery's SCR-194 were laid out. (The path to the Artillery's eventual replacement set was to take a different direction, however.) In the Project 10-3 specifications, the infantry originally wanted a maximum weight of 25lbs and a minimum range of 7 miles. Early testing with AM sets by the Signal Corps demonstrated that it would not be possible to meets these requirements, and the Infantry was forced to revise its requirements.

Shortly after the US entered the war, in early 1941 and as part of Project 10-3, the Signal Corps let a "Contract to Develop FM Portable Receiver Transmitter" to Galvin Mfg. via Dr. Daniel Nobel. Together Paul Galvin and Dr. Nobel had been successful in convincing the Signal Corps to consider FM for the new infantry set. This advice was based on their then success and experience with the Signal Corps' AF-IV Project which was to produce portable FM sets for the Armored Force. (Galvin Mfg. was heavily involved with both the detail design work and manufacture of the FM sets that were developed for the AF-IV program.)

This initial contract with Galvin apparently contained a single page of required specifications:

- **Single Tuning Control for both Receiving and Transmitting.**
- **Automatic Frequency Control.**
- **Battery Powered.**
- **Use no more than 2 Frequency Control Oscillator Crystals. (This was a critical requirement. See Thompson, "Crystal Clear.")**
- **Maximum weight of 35lbs. (Revised up from the original 10-3 requirements.)**
- **Minimum range of 3 miles. (Also revised down from the original 10-3 requirements.)**
- **Frequency Range Continuously Variable from 40 to 48mc in 400kc Increments. (The 400kc division was cut in half by the production SCR-300 giving the production set a total of 40 channels, double the original requirement of 20.)**

In the end, Galvin's and Dr. Nobel's insistence that FM was the way to go almost achieved the originally desired range, but weight would always a problem with the battery technology of the day. More transmitting power and longer operating duration simply demanded large, heavy dry-cell batteries which, in turn, meant large heavy portable-radios. (The Signal Corps was also going through a steep learning curve at the time trying to develop standards for weather-proofing batteries, the solutions for which were not contributing to any sort of light-weight radio batteries.)

Galvin employees immediately went to work on designing this new set. By the "spring" of 1941, the first two demonstration sets were tested and then operated for the Signal Corps. Affrunti relates an anecdote about the lead up to this testing. As progress was being made and the time for demonstrating the sets to the Signal Corps approached, Magnuski noted that he, being an immigrant, could not get an amateur HAM radio license from the FCC. It would be

A Brief Chronology of the Development and Fielding of the SCR-300 Radio Set (cont.)

Illegal for him to operate the prototype sets, and he was very concerned about running afoul of the law. (It should be noted that at the time, ALL amateur radio activity was being severely restricted over fears of foreign spies and their sympathizers using HAM radios to communicate outside the US.) Affrunti had to then cram to study, take and pass the HAM radio licensing test, and hope for his license to be granted in time to conduct the tests so that they could meet the Signal Corps development benchmarks. He was successful and no legal entanglements were experienced by either of the Galvin men.

Immediately after these initial tests and demonstrations (done by Magnuski and Afffrunti over a distance of 8 miles), the Signal Corps approved continued development and eventually the manufacture of a series of production prototypes. (The SCL-514 set in the following pages is likely one of these "production prototypes.") Work continued on the development of the Galvin prototype SCR-300 for the rest of 1941 and into the spring of 1942. The production prototypes were likely built in the late-spring, early-summer of 1942. It is interesting to note that, unlike the SCR-536 "Handie-Talkie," the development of the SCR-300 took place over more than a year. Although essentially lost to history, the Galvin design also faced some stiff competition. Despite the final outcome in favor of the Galvin SCR-300 design, FM voice radios for the infantry was not a "done deal" at any time during this period. The technology had to be proven first.

In the "summer" of 1942, field trails of the four competing designs were undertaken with the Galvin FM set being declared the clear winner. By this time, Galvin had gained extensive experience with FM voice set design and manufacture by way of its involvement in the Signal Corps AF-IV Project (Armored Force IV) which had resulted in the FM SCR-509 and 510 (eventually adopted by the artillery as the SCR-609 and 610 as replacements for their SCR-194). Galvin was manufacturing both the SCR-509 and SCR-609 at the same time that they were designing and developing their SCR-300 prototype. This experience paid dividends in the SCR-300 competition. The photos of the Hazeltine AM set that follow are the only information to date on the competing designs for the SCR-300. I have found nothing concrete about either the Wilcox-Gay AM set nor the Philco FM set.

A formal report was prepared by the Signal Corps in SEP 42, and full scale production of the SCR-300 began before the end of 1942 with the first production sets fielded for troop trials in early 1943. The US Army had experienced a number of rather significant problems with radio communications in the autumn of 1942 during the Operation Torch landings and subsequent campaign in Tunisia. Based on these experiences, the Signal Corps and the Army were both anxious to field the next generation of tactical radios as quickly as possible. (Note that the Galvin designed SCR-536 "Handie-Talkie" had proven itself extremely useful in North Africa during the Torch landings and into Tunisia. This is another story, though…)

The first combat use of the SCR-300 took place in 1943 when a special shipment of the sets was flown to the Mediterranean for use during the invasion of Italy. By the end of the war, Galvin and the other two manufacturers, Philco and Dictagraph Products, had manufactured more than 54,000 SCR-300 radio sets.

SCL-514 Trials Test Prototype: aka the “Preliminary Model”

SCL-514 – “SCL” refers to the Signal Corps Laboratory, Ft. Monmouth, NJ. This was the Signal Corps facility that was responsible for Project 10-3 and also many other Signal Corps radio designs. However, the SCL-514 was totally a Galvin Mfg. design.

Galvin had been proposing various FM portable sets for use by forward dismounted troops for some time. The Galvin designed SCR-536 (another AM set) was the result of Galvin’s involvement with and concern for their need. It was developed initially for the airborne troops, though, and not specifically for the regular infantry. The regular infantry was to eventually adopt the SCR-536, but the sort-range, single channel “Handie-Talkie” was destined for use at the platoon level.

The infantry’s growing dissatisfaction with the SCR-195 was still pushing them to demand a better company and battalion level set. The artillery was also dissatisfied with their SCR-194. By 1940-41 the Signal Corps Laboratory was in the process of designing what would eventually become the SCR-510/610 to meet the demand under their AF-IV program to develop sets for armored vehicles. (It was this radio that would ultimately be accepted by the artillery who were likely not happy with the slow pace of the Project 10-3 developments.) Galvin Mfg. was deeply involved with the AF-IV Project. However, the focus of the AF-IV Project was on FM sets, so Galvin was also engaged in developing a series of new mobile FM sets at the same time that it was starting its Project 10-3 design. The advantages of FM were becoming clearer and clearer to Galvin who advocated FM for the infantry, too.

The Signal Corps finally issued a single page list of desired Project 10-3 specifications to 4 different manufacturers by December 1940 (the exact date is unknown, but it was sometime between that autumn and before the end of the year). The four companies in the running were: Hazeltine and Wilcox-Gay (with AM set designs) and Philco and Galvin (with FM) sets. It appears that Galvin may have gotten their formal development contract in early 1941 shortly after the US entered the war (with perhaps a draft copy of the forthcoming specs the previous autumn). No information has been discovered about the development timing of the other three companies and their prototypes and preproduction sets. As noted above, though, the Galvin team immediately began work.

The Galvin design team was headed by Dr. Daniel Nobel and its members were: Henry Magnuski, Marion Bond, Bill Vogel, and Andy Affrunti, Sr. The prototype design and fabrication work was mostly done by Magnuski and Affrunti. By early 1941 they had a pair of working prototypes. In describing these, Affrunti says of them: “Our prototypes housed in the two green wooden boxes took on an aire of great importance.” (Affrunti, pg. 74.)

Galvin’s previous experience with portable FM two-way radio sets enabled its team to quickly design and build working prototypes. However, both Nobel and Magnuski were recognized by their contemporaries as extraordinarily talented electronics engineers, especially with regard to FM radio. Galvin was fortunate to have such talent on hand. Upon testing and demonstration in Summer of 1942, the Signal Corps immediately issued Galvin a production contract for the SCR-300.

SCL-514 Trials Test Prototype: aka the “Preliminary Model” (cont.)

The SCL-514 set depicted over the next few pages is the only one of the “preliminary” models known to still be in existence. It is likely that it is one of the original “production prototype” sets that were field trialed in the Summer of 1942.

It is Galvin ser. no. 1005 suggesting that at least 5 Galvin sets were on hand. Compare this with the Hazeltine set shown later which bears Serial No. 8. The total numbers of sets entered into the field trials by the four manufacturers is not known.

The SCL-514 set does illustrate that Galvin was quite clear about what it intended to make in both features and overall layout. There are some changes, of course, in the details between the SCL-514 and the production SCR-300, and many of these are obvious like the production two-part metal chassis and battery boxes. However, the major difference in overall layout was moving the control panel to the top of the set to make it easier to operate. During the Summer 1942 trials tests, the only major complaint recorded about the Galvin set was that it required the operator to lay in the prone to operate it.

The antenna used on this “preliminary” set is likely the AN-29 as taken from the SCR-194 / -195. Interesting, the later AF-IV sets, SCR-509 and SCR-609 both employed versions of this same antenna, the AN-29-C. However, the production Galvin SCR-300 used a pair of completely different antenna designs, the AN-130 and the AN-131. It is also interesting to note that these latter two basic Galvin antenna designs carried on for decades with later man-pack radio sets like the AN/PRC-25 and AN/PRC-77.

(Thanks to Bruce H. WD9GHK for his most generous sharing of photos of this incredible, rare set!)

SCL-514 “Preliminary” Set (Test) of the SCR-300 Radio Set

The SCL-514 was built in a wooden case with metal edge and corner reinforcements. This method of construction jives with Andy Affrunti’s description of the sets that he and Henry Magnuski built in the spring of 1941.

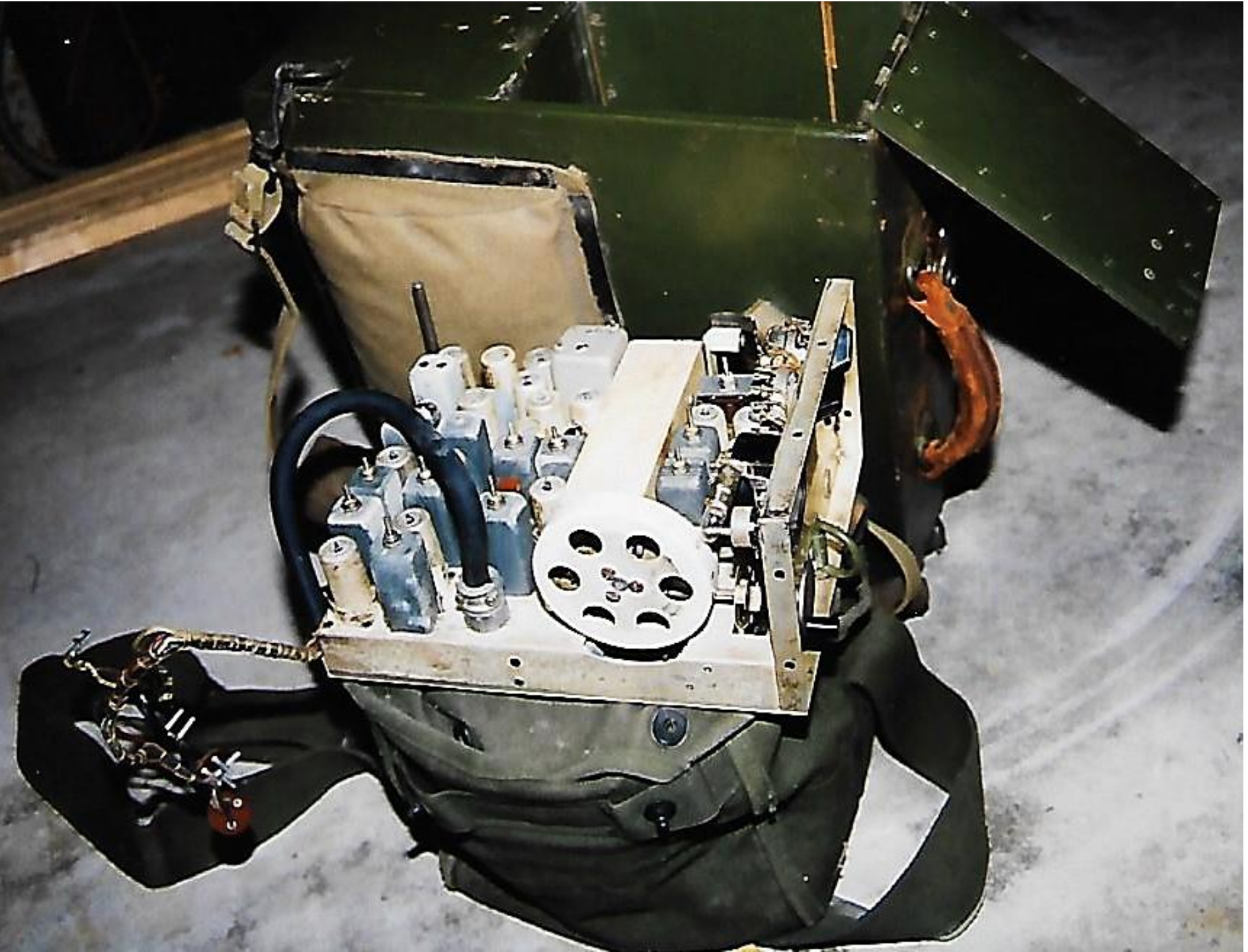
The antenna is probably one from the SCR-194 set. The straps and back pad are probably just “proof of concept” items simply to Illustrate that the set was portable by one soldier.

This particular set is probably one of the sets made in the summer of 1942 to test the overall design under troops trials.

Another view of the wooden case and antenna storage. The leather handle is a standard Signal Corps item.

This set represents a significant and historically important artifact. Its mere existence is quite extraordinary!

Serial No. 1005 and the inscription that the set was designed and built by Galvin.



The radio-transmitter portion of the set removed from the carrying case.

Although difficult for the layperson to see, it is designed very similarly to the production SCR-300 BC-1000 component (also easily removable from its case for repair and maintenance).

The controls of the preliminary set were accessed from the side, whereas the production set had these under a lid on its top.

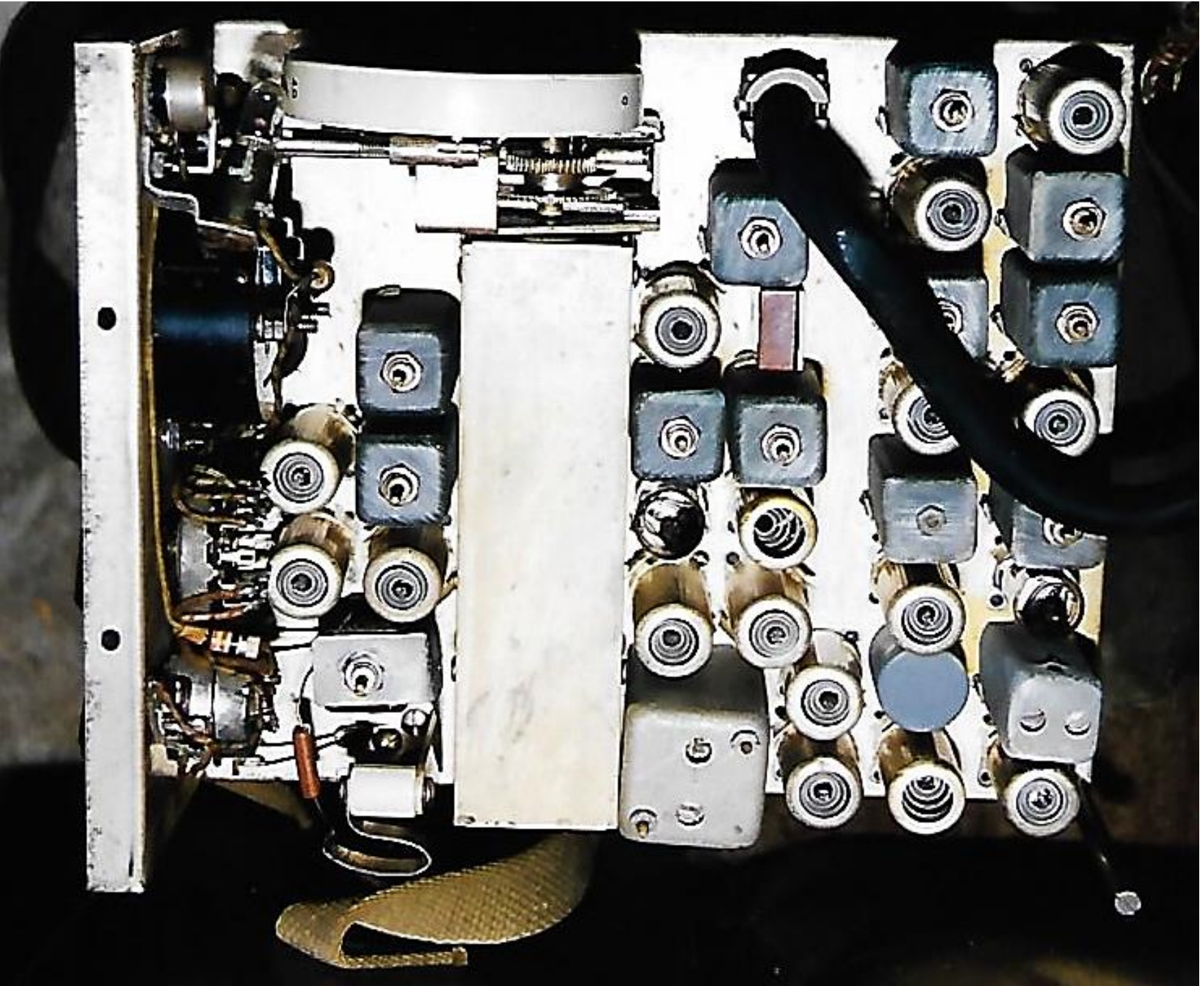
One complaint from the Summer 1942 troops trials was that the operator had to lay down to work the radio if it was sitting on the ground. Galvin rectified this with the production radio by moving the controls to the top.

The battery was contained in another compartment under the receiver transmitter component compartment.

The face of the control panel of the SCL-514 set.

Note that the controls featured here are nearly the same as the ones provided for on the production SCR-300. The layout is different, but the operation would have been nearly identical. The SCR-300 does lack the large calibration dial. The calibration function on the production set was combined with the dial indicator for the channels (frequencies).

Note also the squelch control in the upper right. The SCR-300 was one of the very first production FM or AM radio sets that featured this.

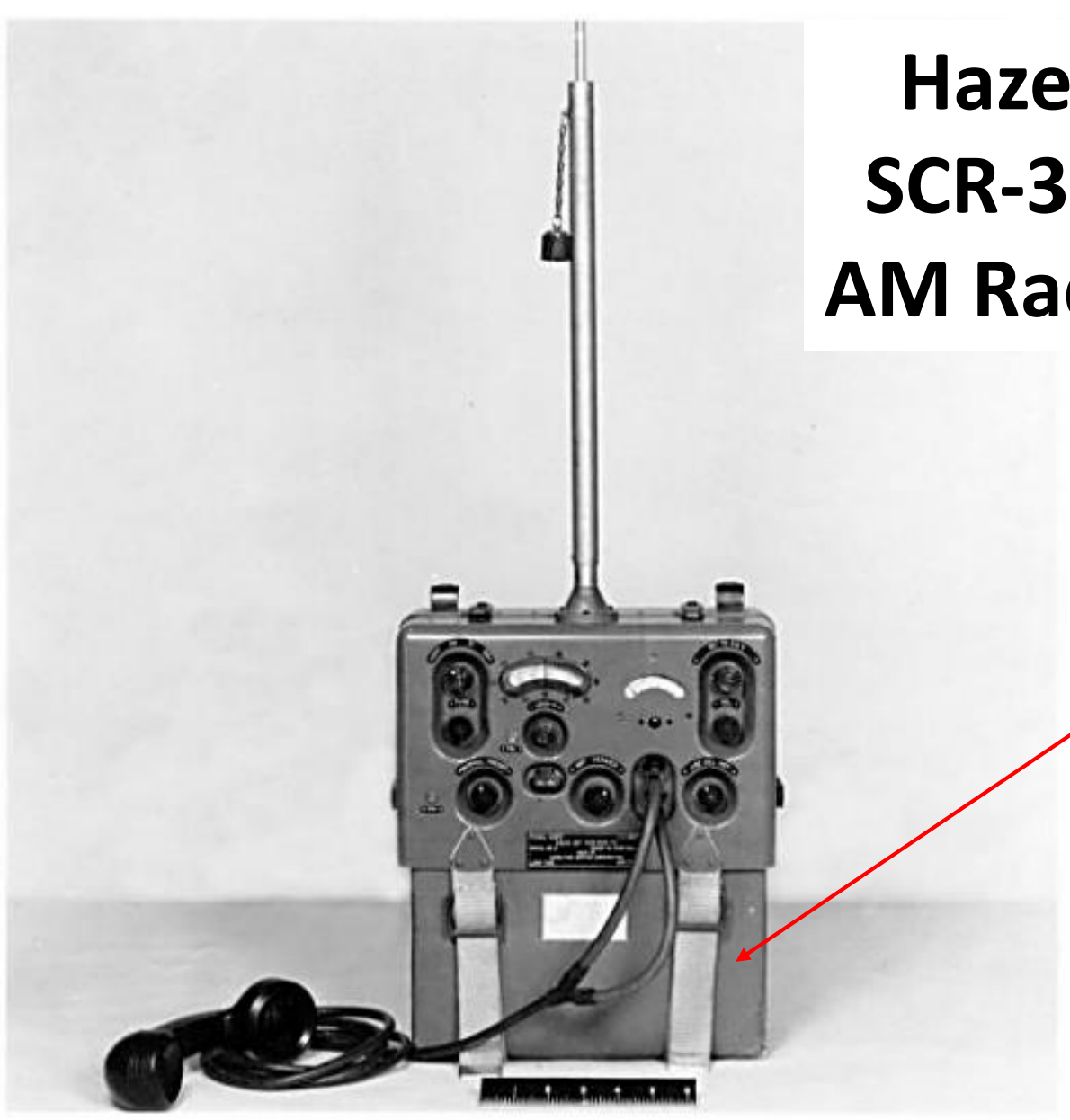


A final view of the interior components of the SCL-514 preliminary set's receiver transmitter unit.

The SCL-514 (and SCR-300) used a class of "small envelope miniature" vacuum tubes that became available in the 1930s.

In 1941, Galvin relied on even smaller "subminiature" tubes developed for the US market ca. 1939-40 by Raytheon (first used for pre-war hearing aides) to develop the hand-held SCR-536, the "Handie-Talkie."

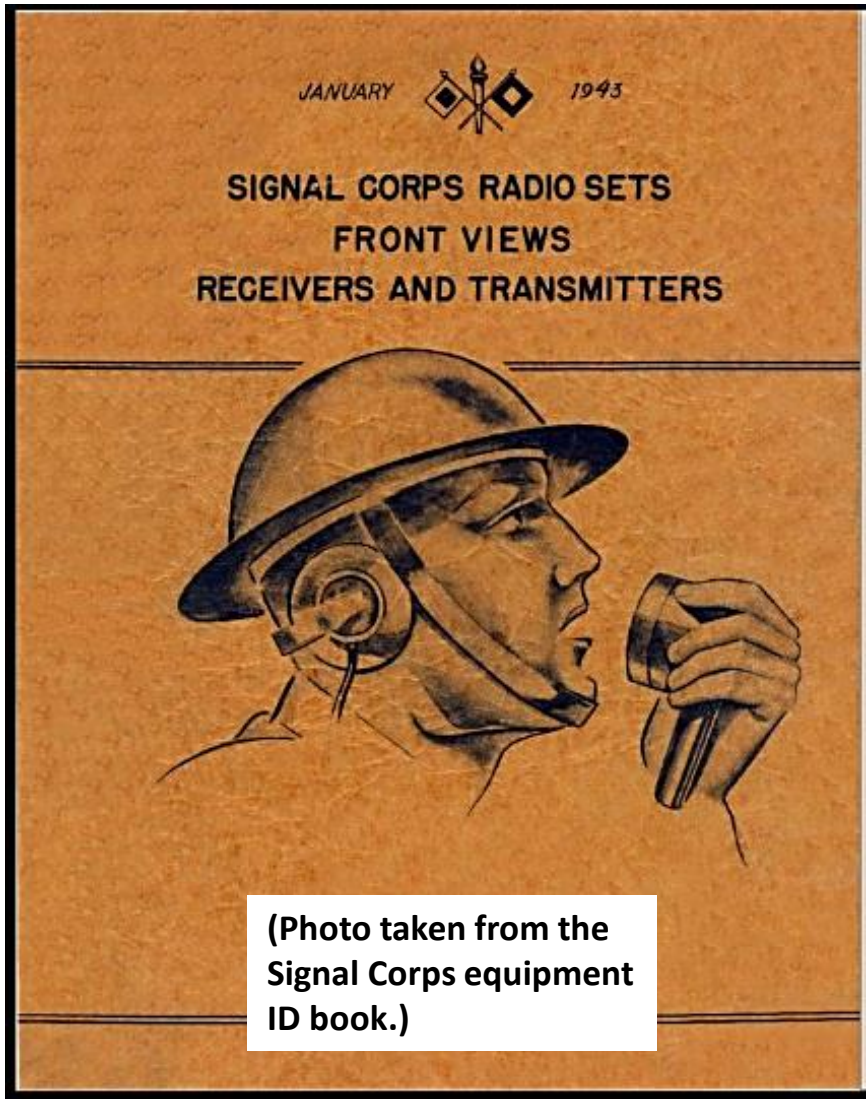
Hazeltine SCR-300-T2 AM Radio Set



RADIO SET SCR-300-T2
Prepared for Operation
DATE 6-30-42 - SIGNAL CORPS LABORATORIES - FORT MONMOUTH - N. J. - NO. SCL 4583

Note the method of suspending the battery using web straps.

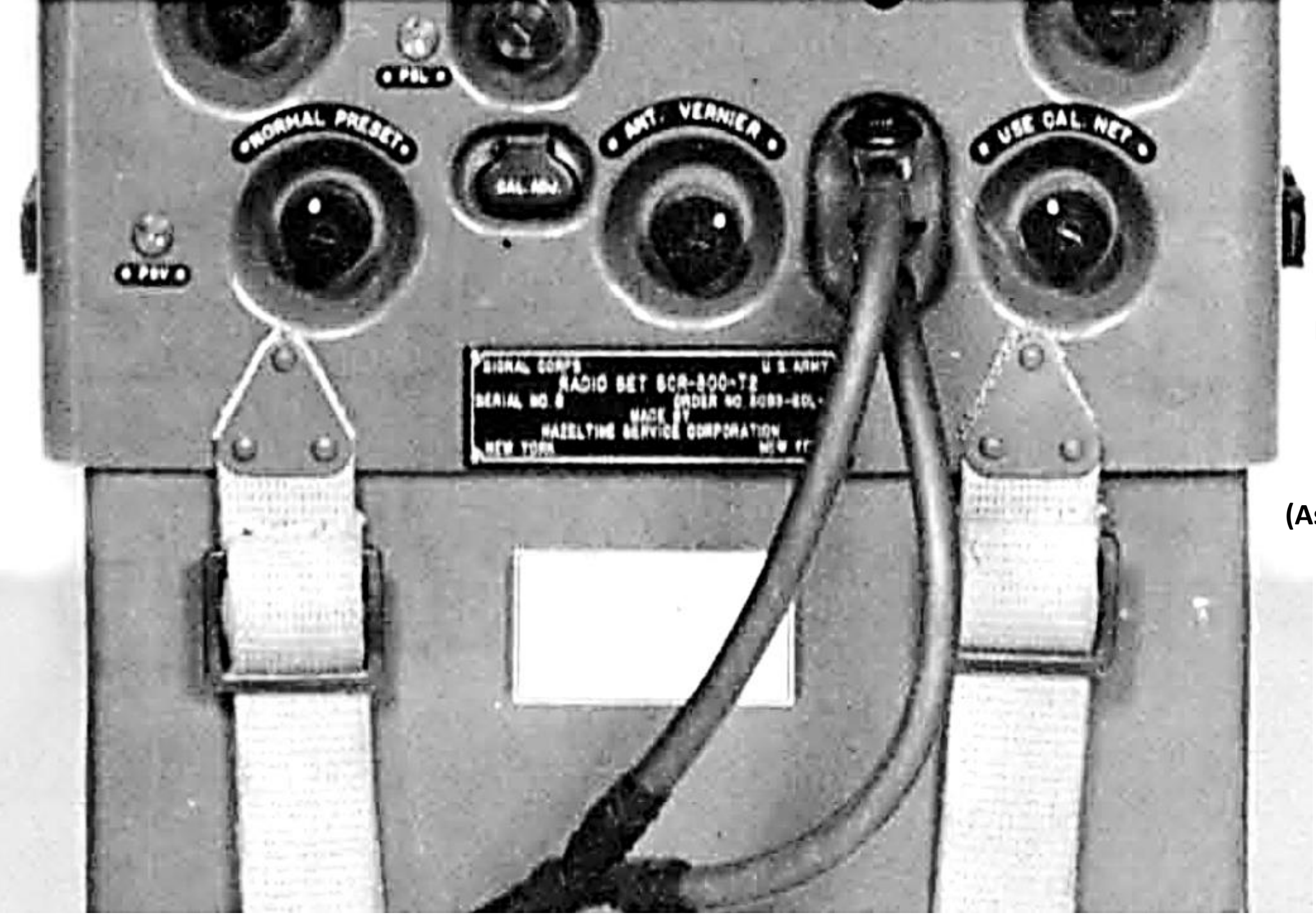
This feature may have been borrowed by Galvin for its production SCR-300.



(Photo taken from the Signal Corps equipment ID book.)

Competing prototype, SCR-300-T2 made by Hazeltine Service Corp., New York, NY. Note the date of the photo, JUN 1942, perhaps taken in conjunction with the Summer troop ‘42 trials.

The Hazeltine set was one of the two AM sets trialed.

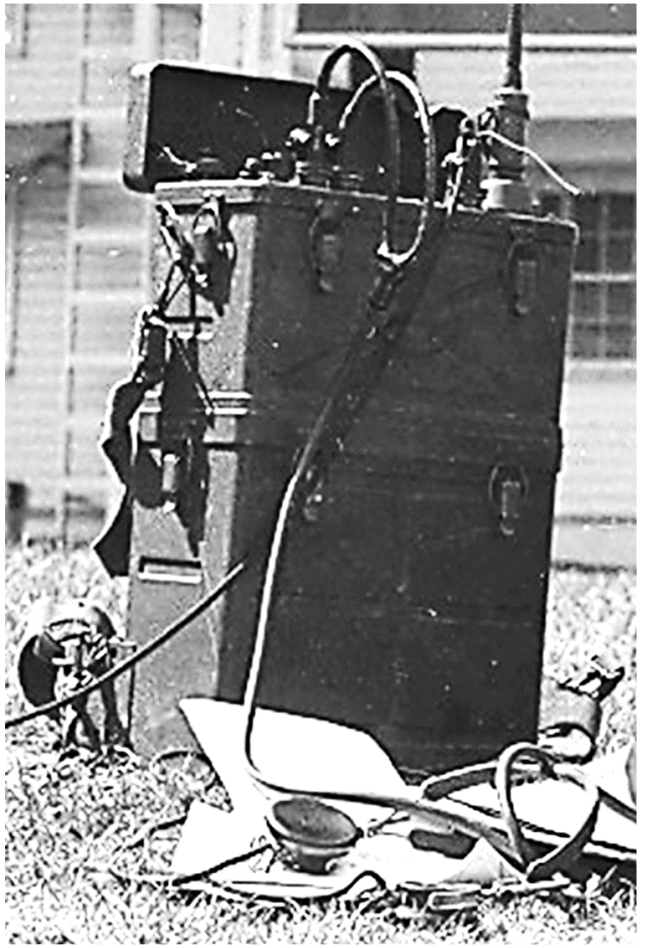


Hazeltine Service Corp.
New York, NY
Founded 1924:
Specialty - Electronics

(As of 2024 owned by BAE.)

SCR-300-T2 AM
prototype
Serial No. 8

Competitor against the
Galvin Mfg. SCR-300
FM version.



SCR-300 “Walkie-Talkie” in its Final, Production Form

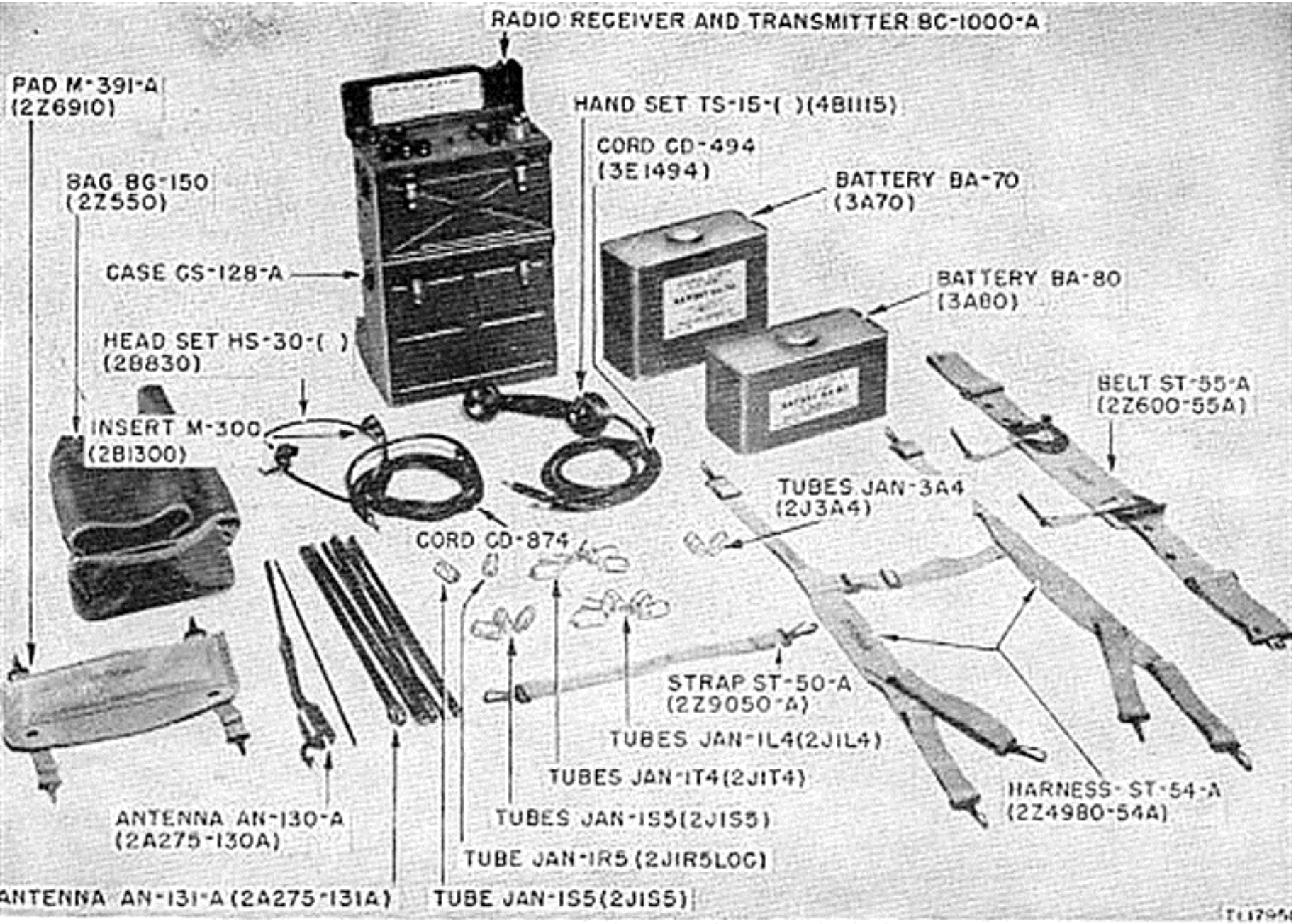


Figure 4. Radio Set SCR-300-A—component parts (Numbers in parentheses are Signal Corps stock numbers).

The correct and official noun nomenclatures and model numbers along with the stock numbers of the various components of the SCR-300.

With the larger BA-70, the set weighed about 38lbs and, depending on the antenna used, had a range of between 3 and 5 miles. The operator had up to 40 different channels (frequencies) from which to select from. The set was also one of the first portable voice transceivers that featured a squelch control to filter out static noise when listening.

A highly desirable feature for the Signal Corps was that the SCR-300 only required two frequency control oscillator crystals. At the beginning of the war, these crystals and their manufacture were both in critically short supply (with some radio sets requiring dozens of them).

The circuitry design of the SCR-300 employed features that automatically fine-tuned and matched the transmitting and receiving frequencies thus saving critical crystals used in other sets for this purpose.

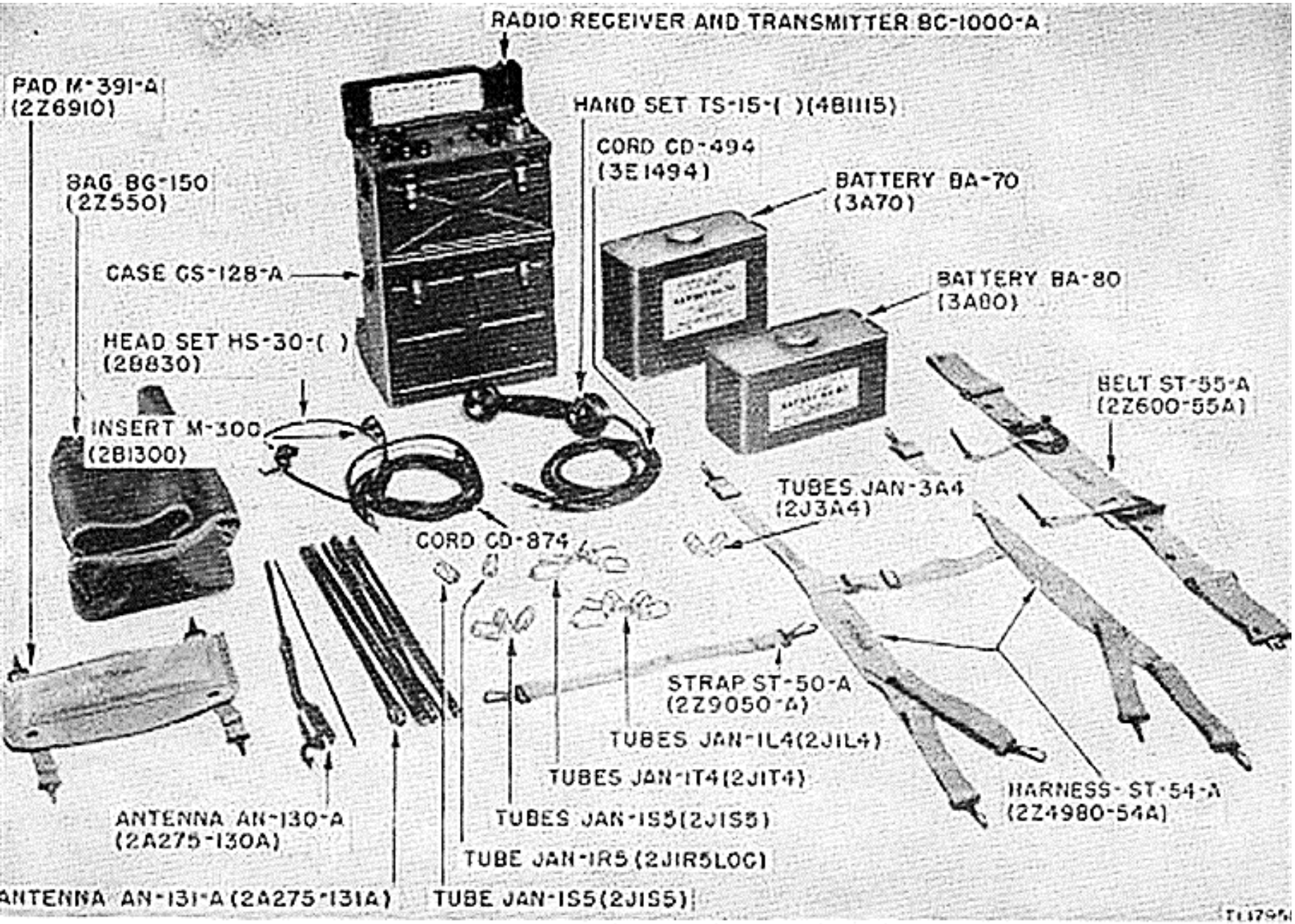


Figure 4. Radio Set SCR-300-A—component parts (Numbers in parentheses are Signal Corps stock numbers).

SCR-300 Set, Complete Radio is composed of many different items which are assembled together to make the complete radio ready for operation:

BC-1000 Basic Component (receiver and transmitter)

CS-128 Case (battery box)

BA-70 Battery (dry-cell designed for the SCR-300)

TS-15 Telephone Set (handset with microphone and receiver)

HS-30 Headset (with two R-30 receivers, M-300 inserts, Cord CD-874 and Plug PL-54)

AN-130 Antenna (which includes an integral base and frequency matching element)

AN-131 Antenna (which includes an integral base)

ST-50 Strap (for hand carrying)

ST-54 Strap (a harness for backpack carrying)

ST-55 Strap (a waist belt used for backpack carrying)

M-391 Miscellaneous (a one-off pad for backpack carrying)

BG-150 Bag (a canvas bag to hold all of the accessories when carrying)

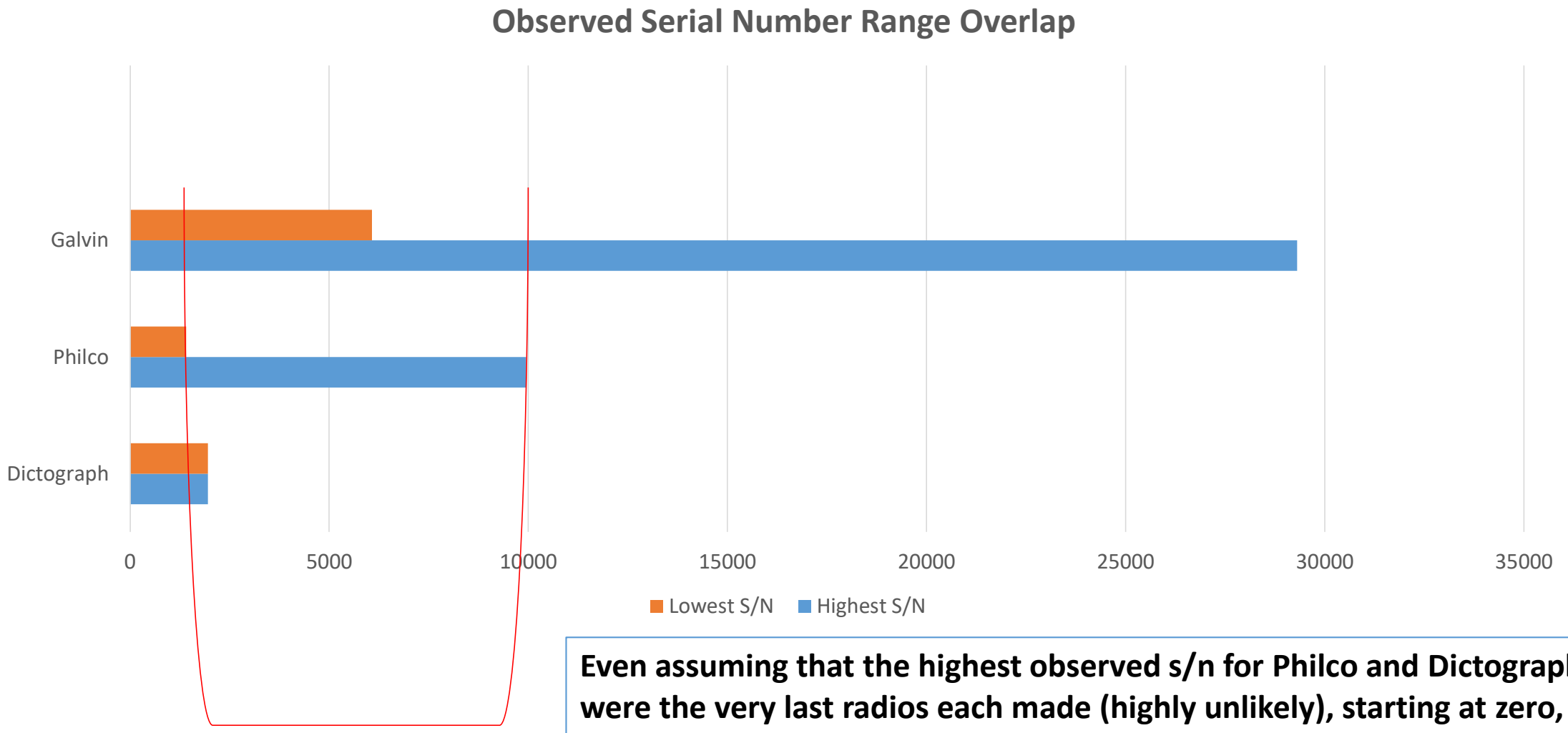
Number of Wartime SCR-300 Radios Produced

Radio Designation	Radio Type	Number built by Galvin	Other contractors	Number built by other contractors	Total number built	Comments
SCR-300 (BC-1000)	FM Portable "Walkie Talkie"	46,911	Philco Radio Corporation Dictograph Products	8,000	**54,911**	Galvin design. 85.4% of all SCR-600s were built by Galvin.

Definitive information on the total number of SCR-300 radio sets made by all manufacturers during the war is not available. The original source of the data above is unknown. The online publisher did not cite his sources for this.

However, the total number built by other manufacturers, shown above, seems too low and does not fit with known serial numbers used by Philco and Dictograph Products. The issue may be that different serial numbers were issued to the various manufacturers in blocks rather than running sequentially by each. Studying known examples of different data plates does not seem to support this "block number" theory. Each manufacturer appears to have run its serials sequentially and independent of the others. Study of data plates further suggests that serial numbers were also coupled to contract numbers.

Number of Wartime SCR-300 Radios Produced



Observed Overlap: S/N 1411 to 9946

Even assuming that the highest observed s/n for Philco and Dictograph were the very last radios each made (highly unlikely), starting at zero, their combined production was at least 11,357 (not 8000). Thus total production was either significantly greater than 54,911 (well over 58,000) or Galvin made significantly fewer than 46,911 (actually fewer than 44,000).

US Wartime Manufacturers and Post-War Depot Refurbishments

At least 3 US wartime manufacturers were at work – Galvin, Dictograph Products, and Philco - with all three making SCR-300, 300-A and 300-B models.

My suspicion is that most wartime radios that remained in US service after the war were refurbished by any one of several different US Signal Corps depots. These refurbished radios received new data plates with new serial numbers issued by the Signal Corps. This re-numbering was likely viewed as necessary for inventory control, an issue that the Signal Corps struggled with throughout the war. (See: Thompson, George Raynor, et. al. *The US Army WWII: The Signal Corps*.)

The SCR-300-C designation was likely assigned to original SCR-300 and -300-A models which were brought up to -300-B standards. Only one "depot tagged" radio has been observed with a SCR-300-A data plate (and with no s/n assigned).

The AN/VRC-3 radios were possibly depot modified original SCR-300s refurbished and reissued with PP-114 power supplies for vehicle installations. No information has been discovered about BC-1000 receiver / transmitters marked by data plates as VRC-3 radios to indicate whether they were depot overhauled sets or if they were newly manufactured as such. In the absence of any information on AN/VRC-3 sets newly manufactured during or after the war, my operative assumption is that all US AN/VRC-3 radios were depot overhauled sets originally manufactured as SCR-300 components. That is, I do not believe that any *NEW US* AN/VRC-3 radio sets were ever made. Certainly there were new US manufactured PP-114 vibrator power supplies, but it is my belief these were assembled into sets with original SCR-300 BC-1000 receiver-transmitters and re-issued as AN/VRC-3 sets (along with the other required components).

No "standard" wartime manufacturer's data plates with the SCR-300-C model have ben observed. The same is true for the AN/VRC-3. All such observed have depot replacement data plates with Signal Corps assigned serial numbers which vary considerably with regards to their format and layout details. This seems to also support the idea that each depot either made or contracted for its own data plates.

Post-war manufacture continued with the French and Japanese license made SCR-300 sets. The British WS-31 Mk 1 and Mk 2 sets, the Australian WS-128 Mk 1 and Mk 2 sets and the Yogoslave RUP-2 and RUP-2B would all appear to have been inspired by the SCR-300. The Italians may have manufactured a copy of the SCR-300 or engaged in depot level refurbishment of US and French sets for their own use.

The French appear to have manufactured new AN/VRC-3 sets with French manufactured PP-114 power supplies. The French also used the AN/VRC-3 as an aircraft radio in addition to its use in ground vehicles. I suspect that Greece and some other countries also used the SCR-300 in post-WWII service. However, (aside from South Korea) I haven't found photographic evidence of such use. This evidence probably exists, I just haven't found it.

The SCR-300 remained in military use with the French army until the 1970s.

Operational Use and Individual Operator Methods of Carry:

US Army, WWII; USMC, WWII; US Army, Korean War and Other Non-US Post-War Users

U.S. Army: WWII

The QM Plywood Packboard being used to carry the SCR-300 radio set.

Here we can see that the radio carrying harness items have been removed and that Quick Release Straps and a Cargo Attachment shelf are in use to secure the set to the packboard.

Quick Release Straps, the Cargo Attachment and the Shoulder Strap Pads are all in use to carry the SCR-300.

Section III. PACKBOARD TRANSPORT

64. Purpose

Discomfort, caused by pressure on certain parts of the body, has been encountered in the manpack transport of Radio Set SCR–300–A under jungle conditions when the set is carried by means of the regularly provided harness. To relieve this discomfort, methods have been devised for carrying the set attached to a QM packboard.

65. Procurement

Packboards are available within the Infantry Division. Three separate items of quartermaster equipment comprise the complete packboard assembly for carrying the radio set:

Item	*QM stock No.*	*Name and description*
1	74–P–27–20	Packboard, plywood.
2 (optional)	74–S–349–80	Strap, quick release, packboard, type 1.
3 (optional)	74–A–33–30	Attachment, packboard, plywood, cargo, pressed steel.

The quick release straps and cargo attachment are not issued as part of the packboard, but have a separate basis of issue, because there are several specialized types ot carrying attachment available for use with the packboard in addition to the regular cargo attachments. Item 3 above is the attachment designed for general cargo carrying purposes. The set may be fastened to the packboard by means of the regular packboard cargo attachments which are issued for use with the packboard, or with a suitable length of rope, if the packboard accessories are not available.

Instructions from TM 11-242 Radio Set SCR-300 on how to use the Plywood Packboard to make carrying the radio Set a bit more comfortable.

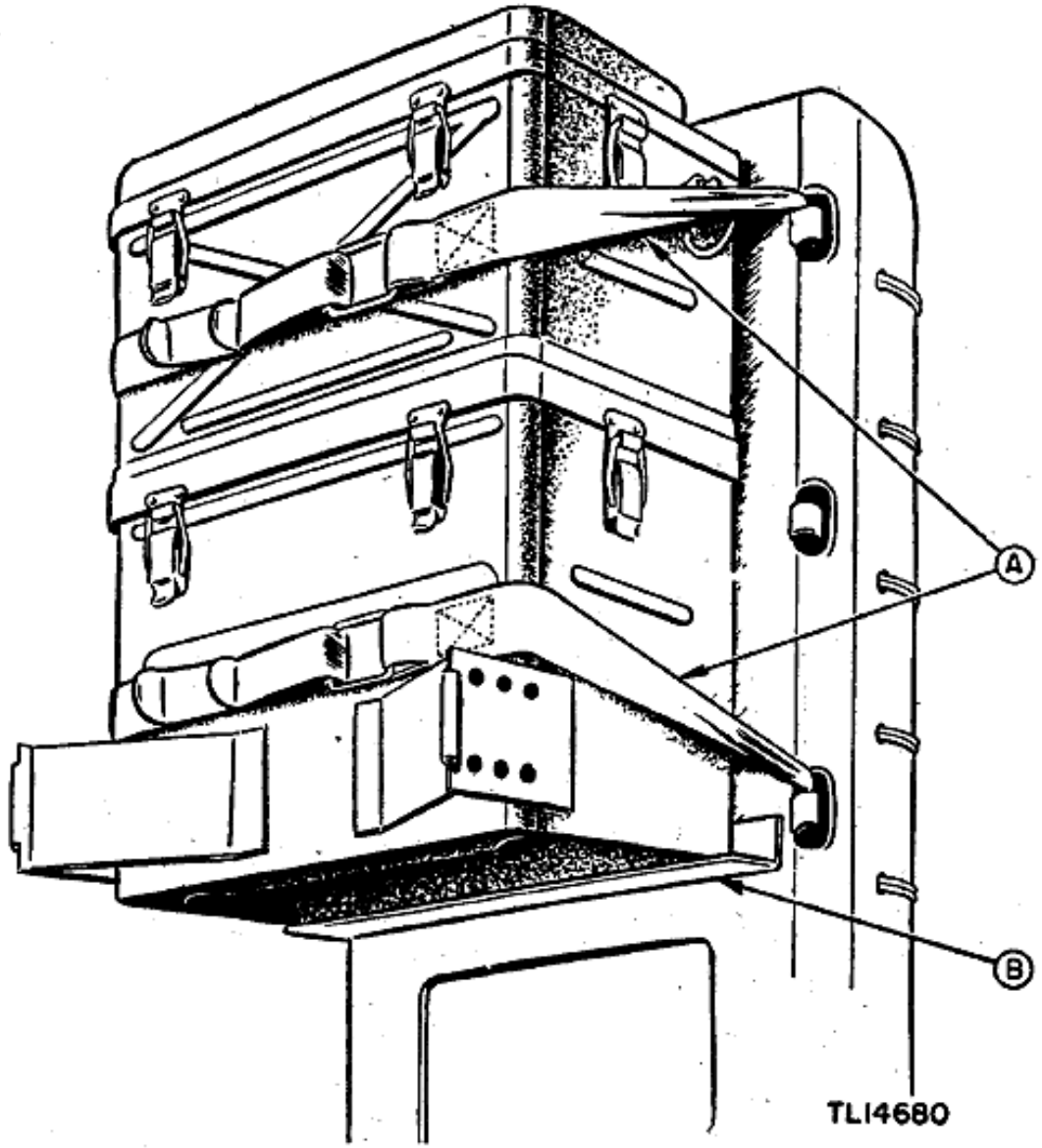


Figure 38. Complete Radio Set SCR-300-A, mounted to standard QM packboard, using quick release straps and cargo attachment.

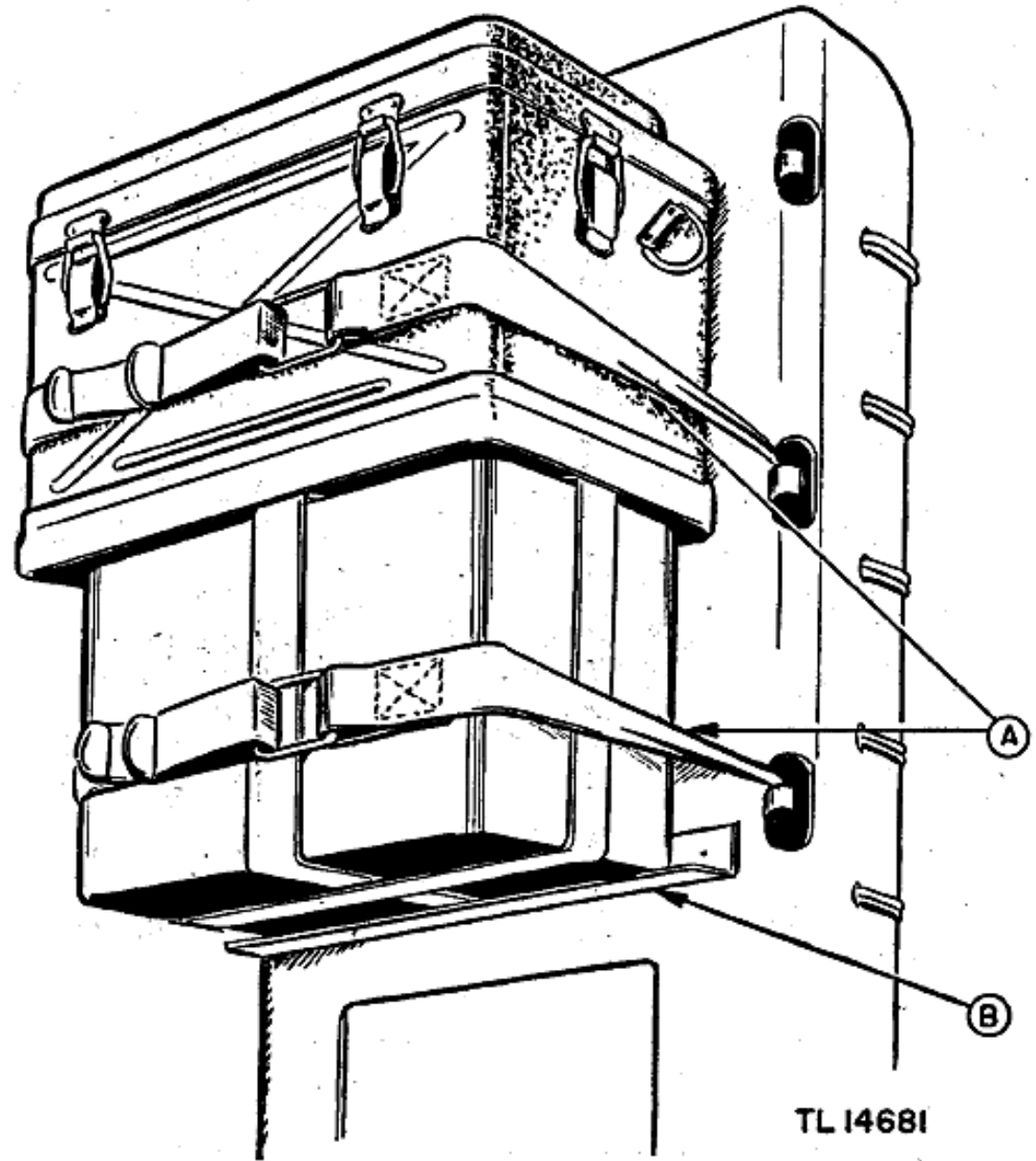


Figure 39. Radio Set SCR-300-A, with Battery BA-80 mounted to standard QM packboard, using quick release straps and cargo attachment.

*Case CS-128-( ) is reversed when attached to radio receiver and transmitter BC-1000-A, when set is to be secured to packboard.

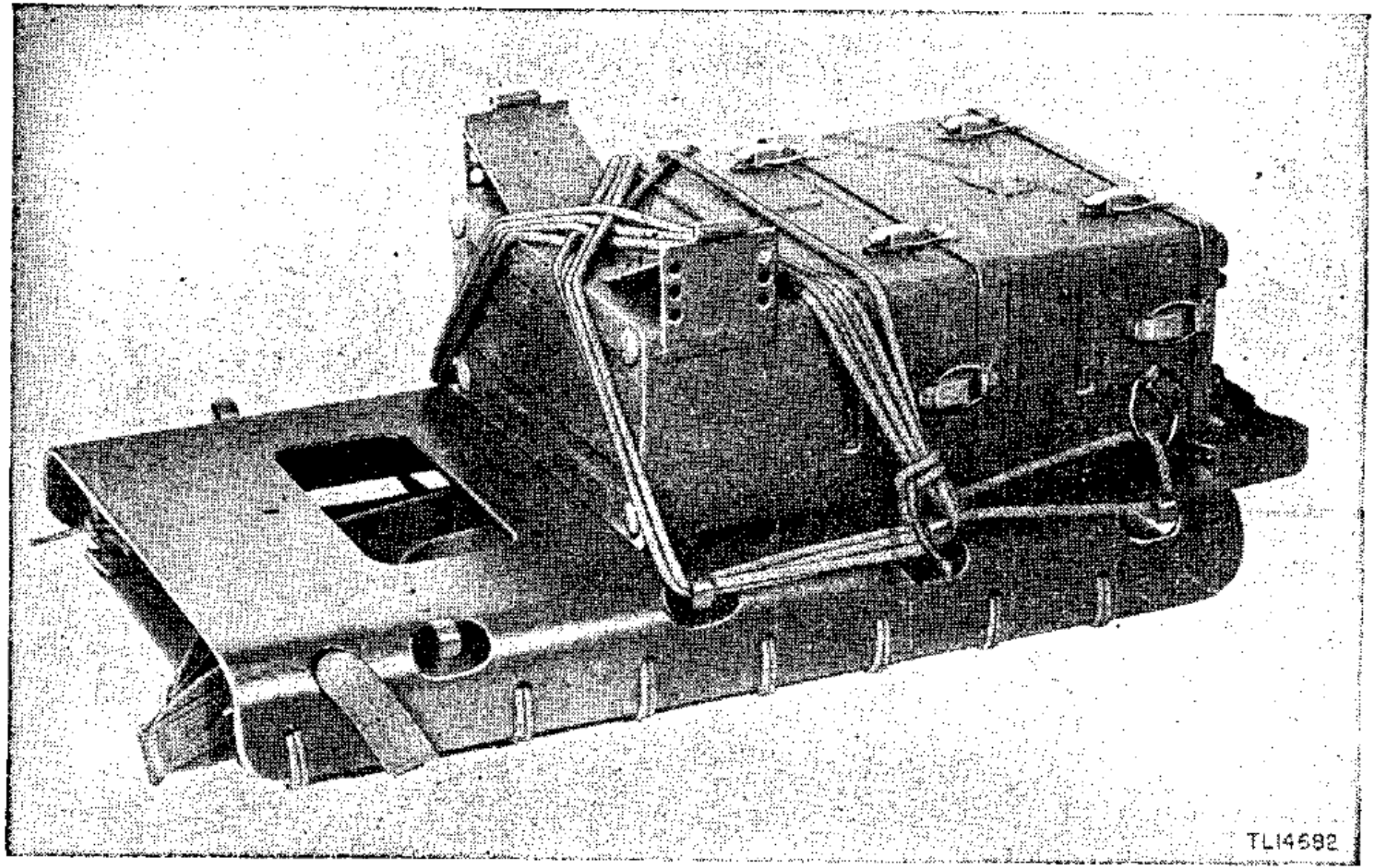


Figure 40. Radio Set SCR-300-A, showing method of fastening to standard QM packboard using rope.

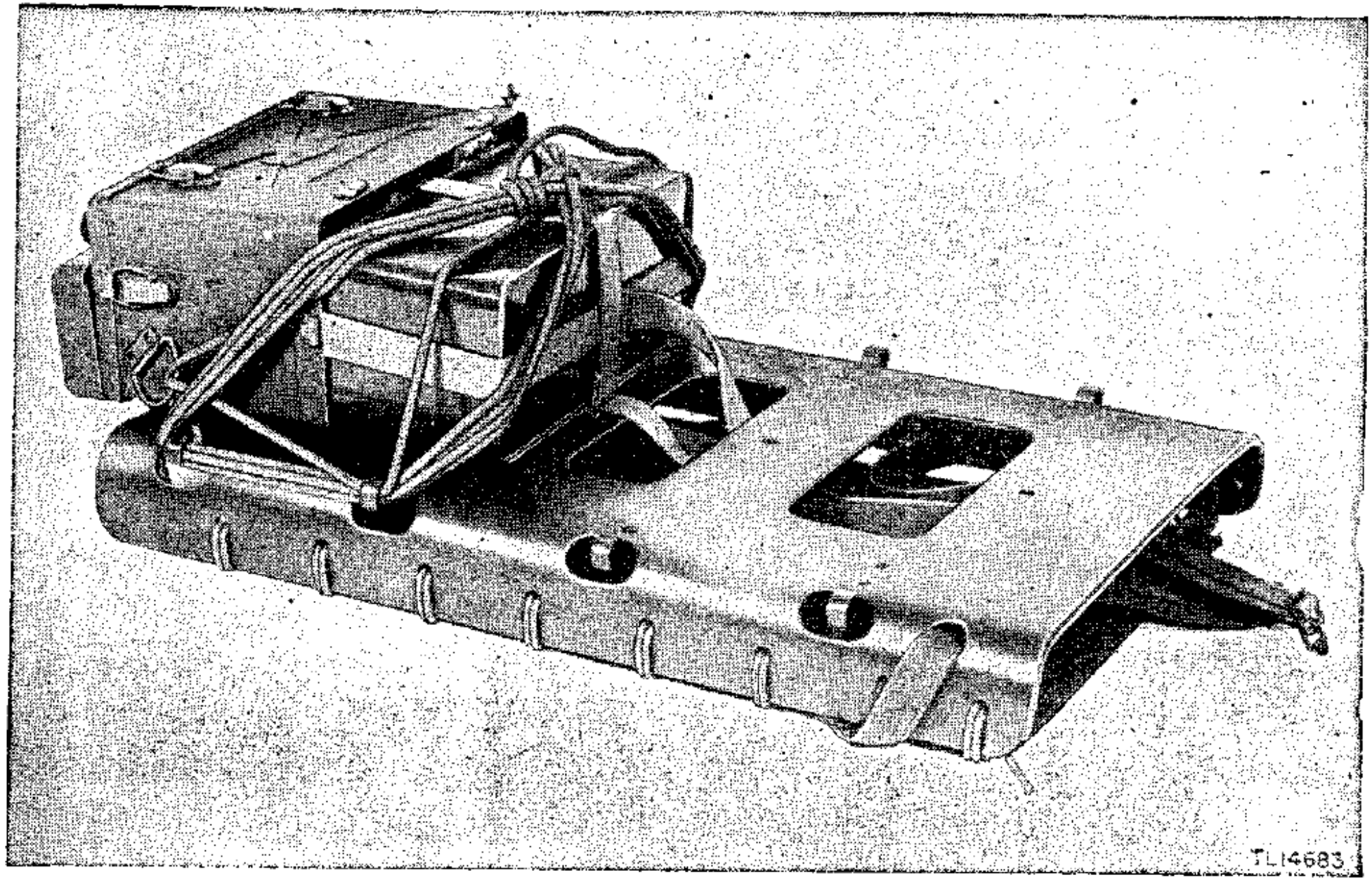


Figure 41. Radio Set SCR–300–A, with Battery BA–80, showing method of fastening to standard QM packboard using rope.

From TM 11-242 for the SCR-300 Radio set. The BG-187 bag was used to hold all of the large antenna RC-291 components.

The RC-291 was erected and connected to the SCR-300 by a coax cable to improve the set's performance in jungles and other heavily forested terrain.

The RC-291 weighed about 30 lbs. to which would be added the weight of the packboard for a total weight of about 34-35 lbs.

Note the buckles designed to hook directly onto the Plywood Packboard.

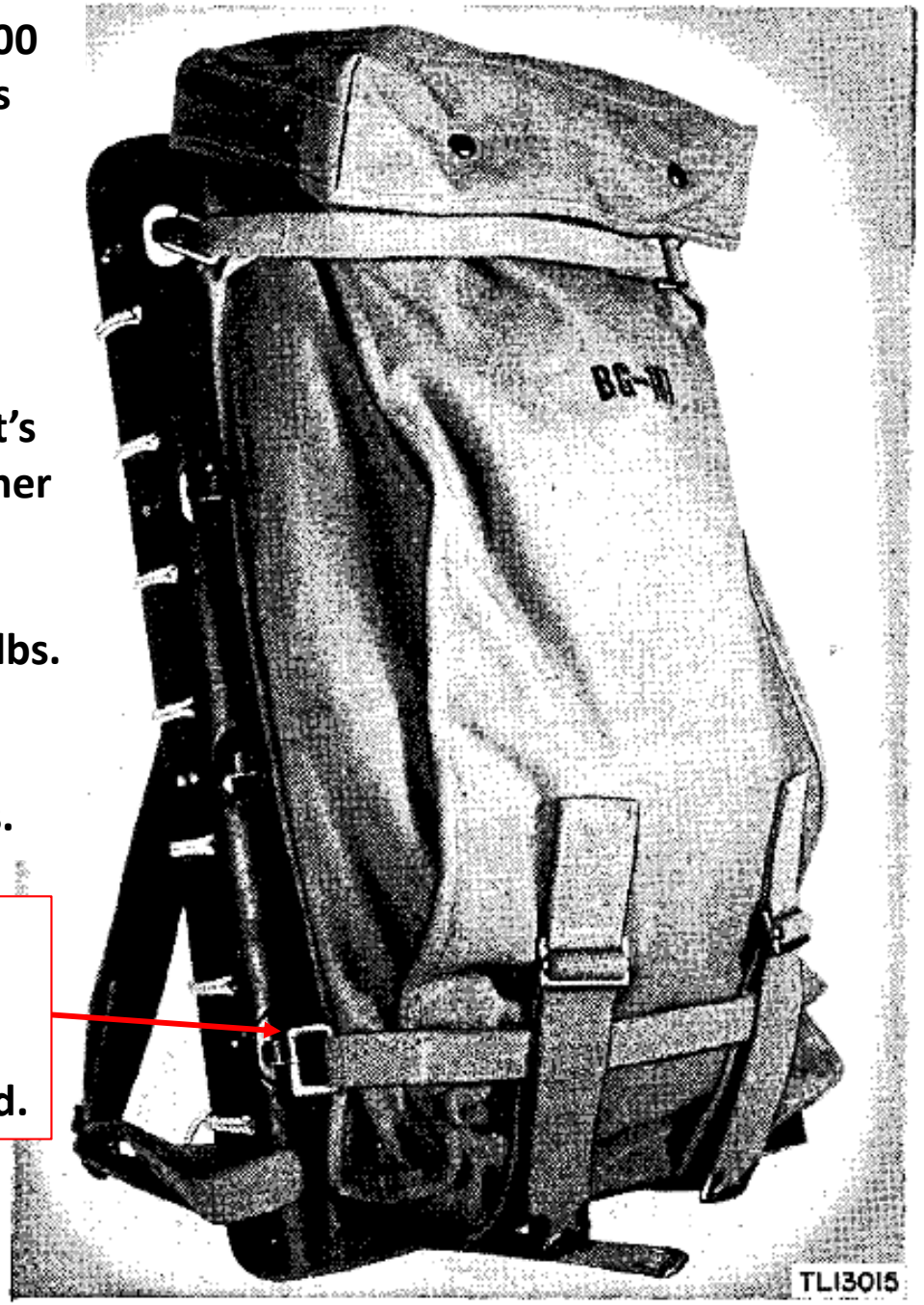
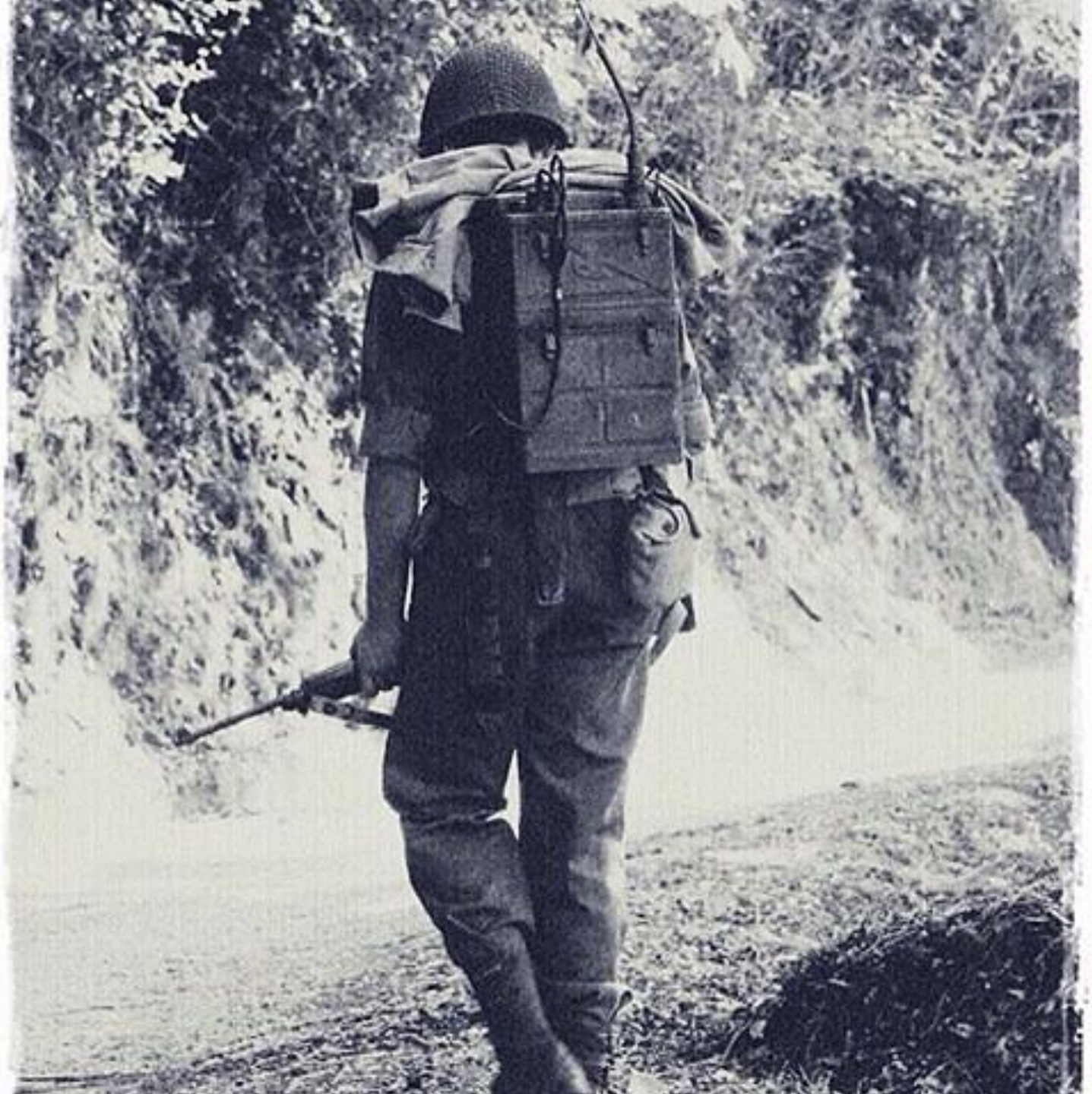
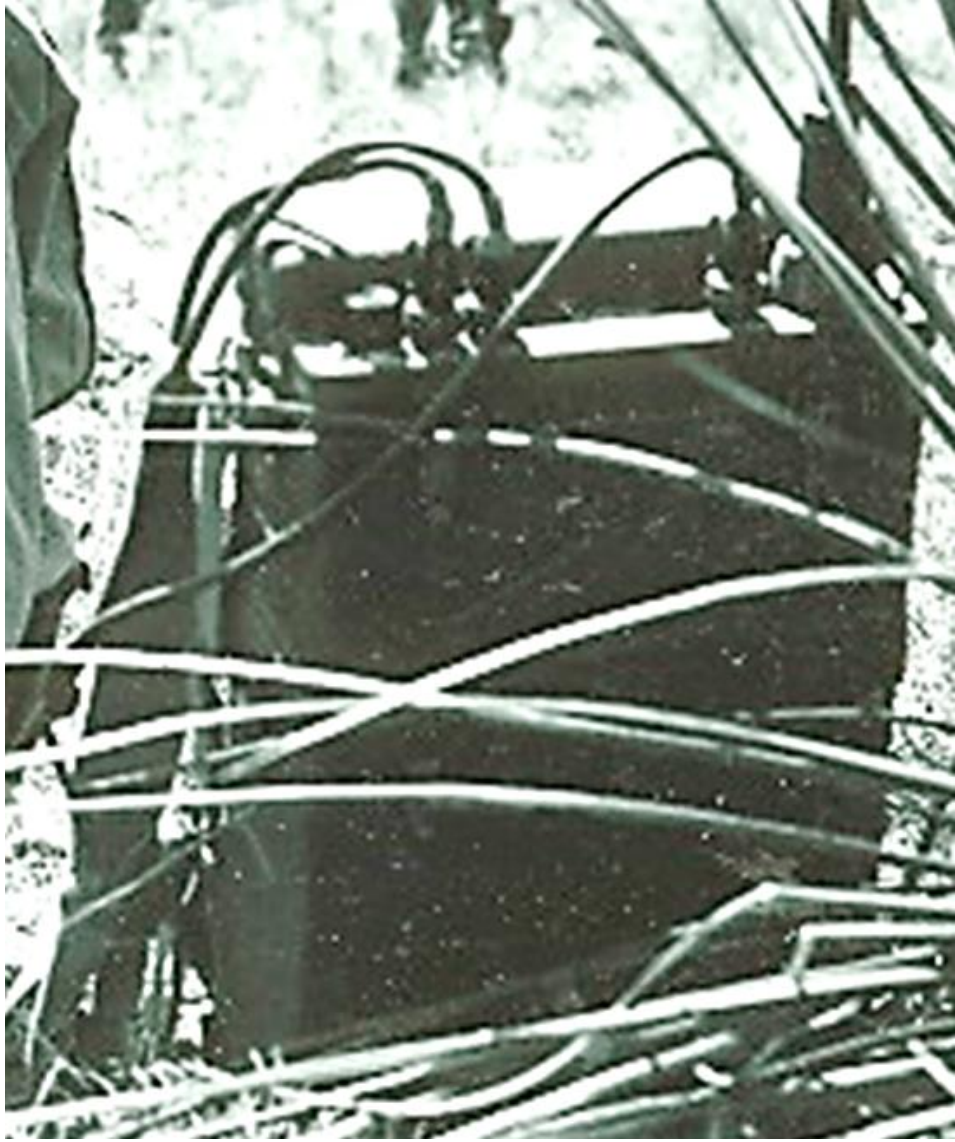
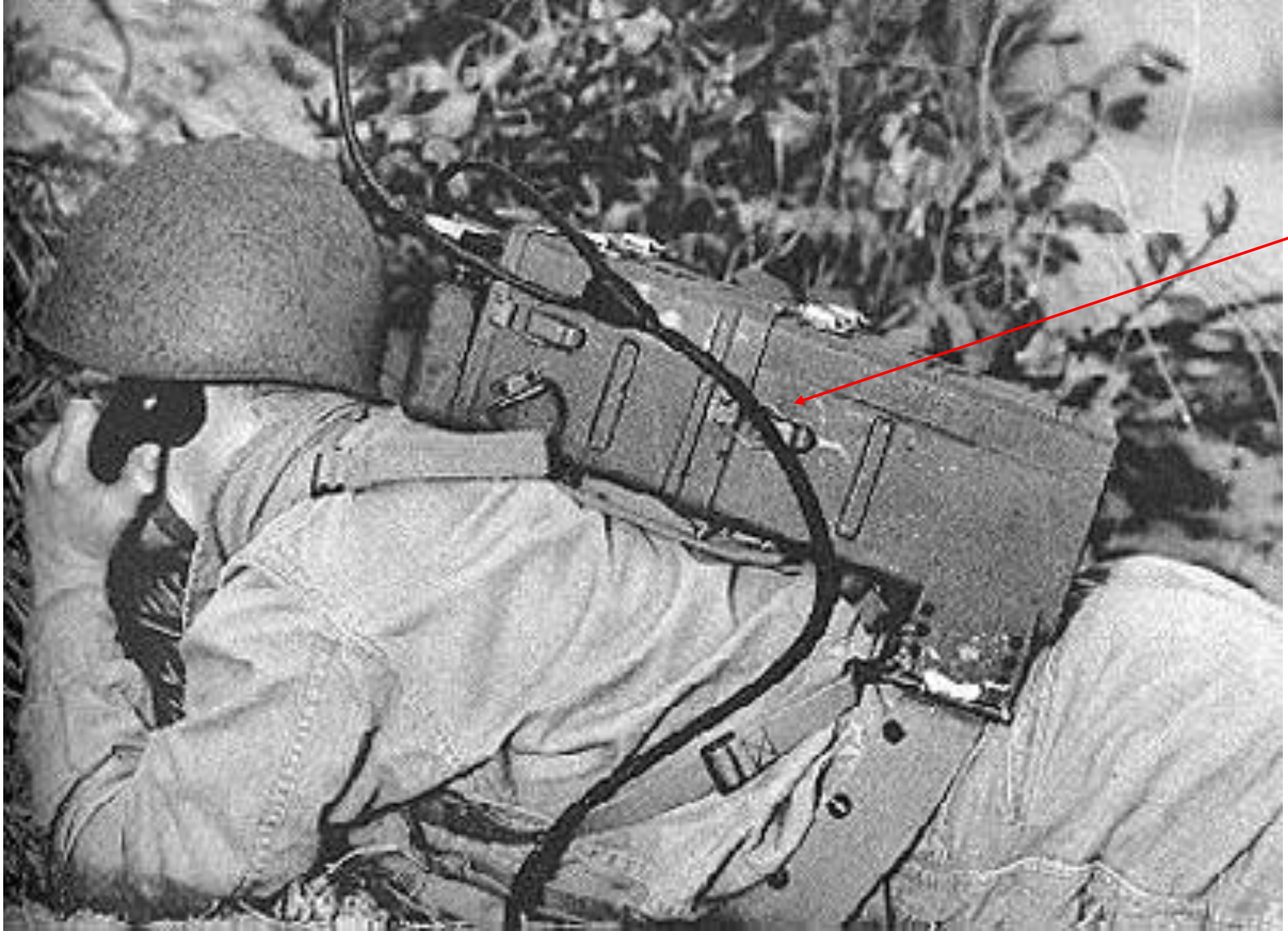


Figure 33. Bag BG-187, with components mounted on QM packboard.



Hexagonal
Thin-Wire Loop
Catches





A Good View of the Hexagonal Thin-Wire Loop Catch


gettyimages
Photo 12


gettyimages
HUM Images


Vettweiß


175659695


iStock
by Getty Images
468877066


468877066

U.S. Army – Airborne: WWII

A German POW in Normandy
Carries an SCR-300 for His Captors

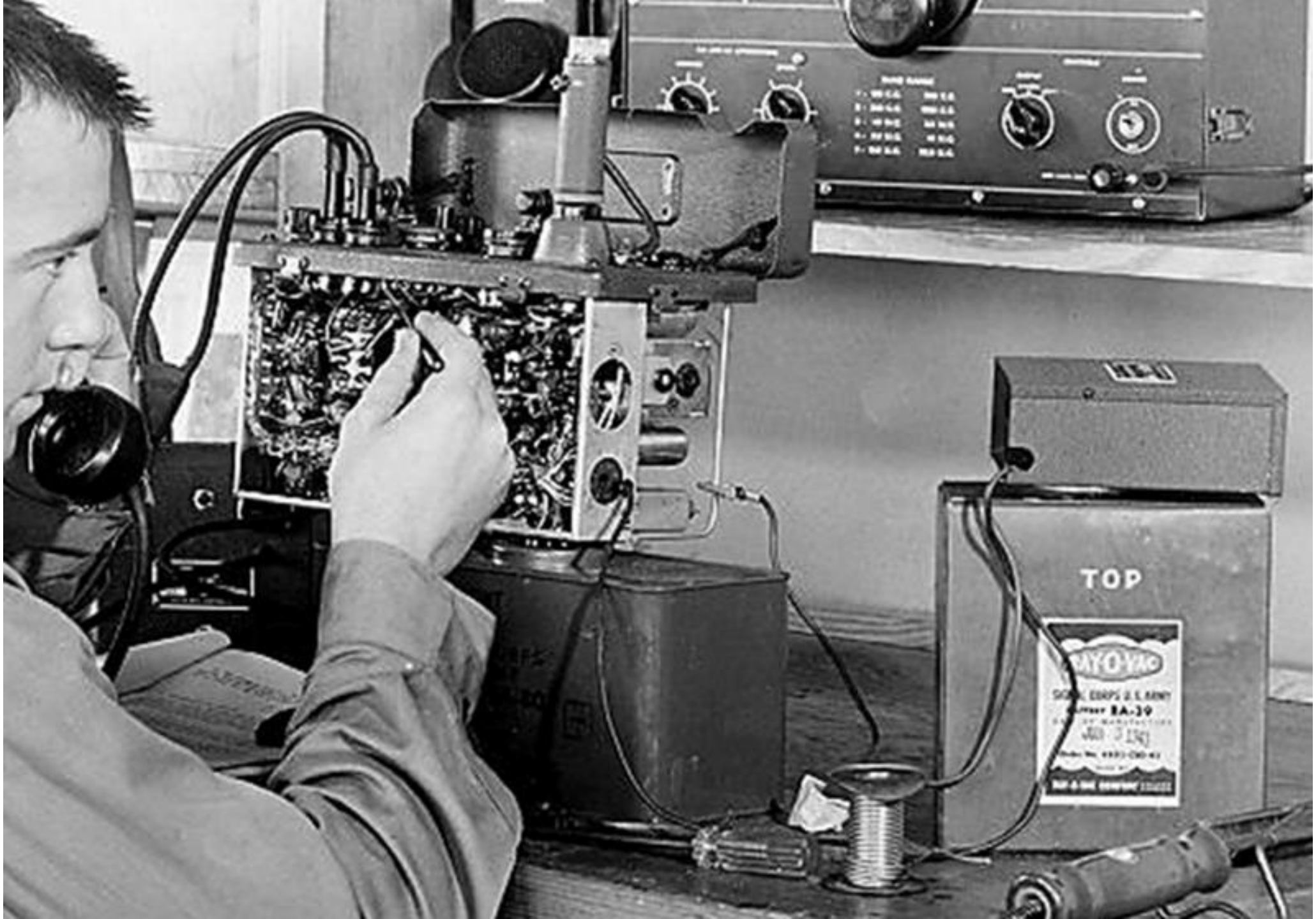

REGTL HQ CO


WL-254693


WL-254693

SIG. C., U.S. ARMY

168-L-44-1780


TOP


ARMY
D STAGE
168-1-44-1782

USMC: WWII

For reasons beyond the scope of this work, the USMC entered the war using few radio sets below the battalion and regimental levels. The radios they did use were all USN designs, contracted by the Navy through channels separate from the US Army Signal Corps.

The competition between the US Army Signal Corps and the USN for radio design and production resources was never completely resolved before the National Security Act of 1947. The USMC entered the war with what the USN was willing and able to develop and have produced for it, and to a great extent, the availability of sets (or lack thereof) drove USMC thinking and doctrine on how radio communication should be used at the small unit, tactical level. The USMC never benefited from similar pre-war large maneuver experiences that the Army infantry and artillery had with their SCR-194 and SCR-195 sets.

(To a lesser extent the US Army Air Corps was also competing with the Signal Corps with its own "bootleg" radio development efforts, also not fully resolved until the National Security Act of 1947. This problem of who had overall responsibility for radios and radio production was not just between the Army and the Navy.)

Suffice it to say for the purposes of this work that the USMC did start to use the SCR-300 and SCR-536 by the end of 1943, and by 1944 the use of these sets by the Corps was extensive (although never completely replacing their USN sets).

U.S. Army: Korean War

The US Army forces that fought in Korea were largely supplied with "legacy" equipment and weapons. The war in Korea was essentially an extension of the European Cold War, and defending Europe was the priority mission (after defending the US homeland).

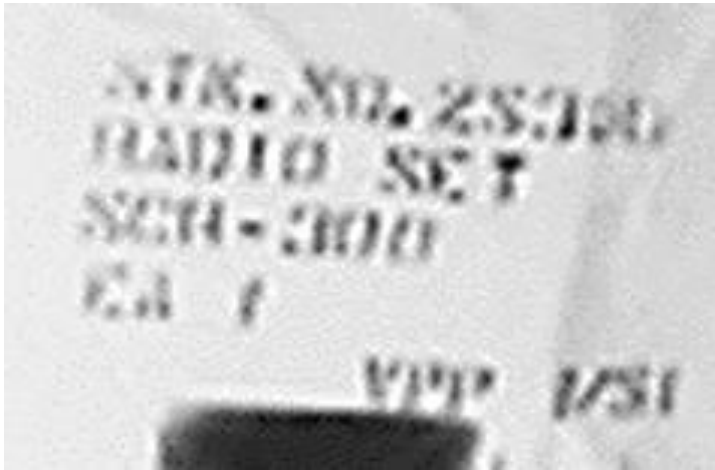
The AN/PRC-10 (and its derivatives) was the planned and developed successor to the SCR-300, and its production and initial fielding began in 1951, shortly after the war in Korea started. However, as with so many other newer items (such as the M47 Patton tank, also fielded starting in 1951), the initial AN/PRC-10 radio sets were destined for USAEUR and not Korea. The threat from the Soviet Union demanded that the forces in Europe must be the best equipped possible if only to pose a deterrence.

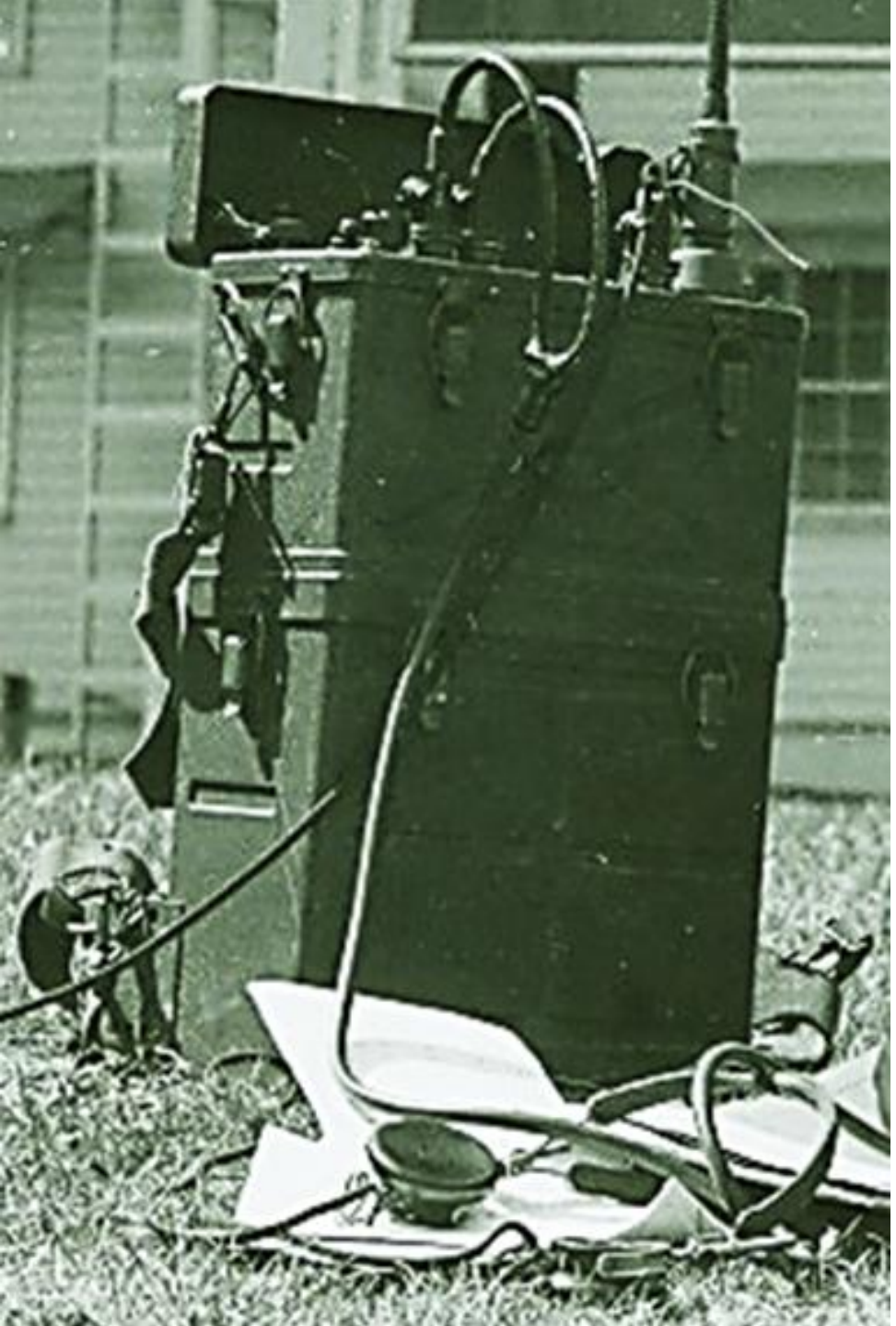
So, although the AN/PRC-10 eventually made its way to Korea, the US Army forces largely fought the North Koreans with the WWII SCR-300 at the infantry company and battalion levels with supporting armor using the somewhat expedient AN/VRC-3 sets.

The radio is not visible, but the BA-70 battery is a sure sign that somewhere near is an SCR-300.

Again, the radio is only just visible, but the BA-70 gives it away.

South Korean workers in a US Army depot repack SCR-300 sets.





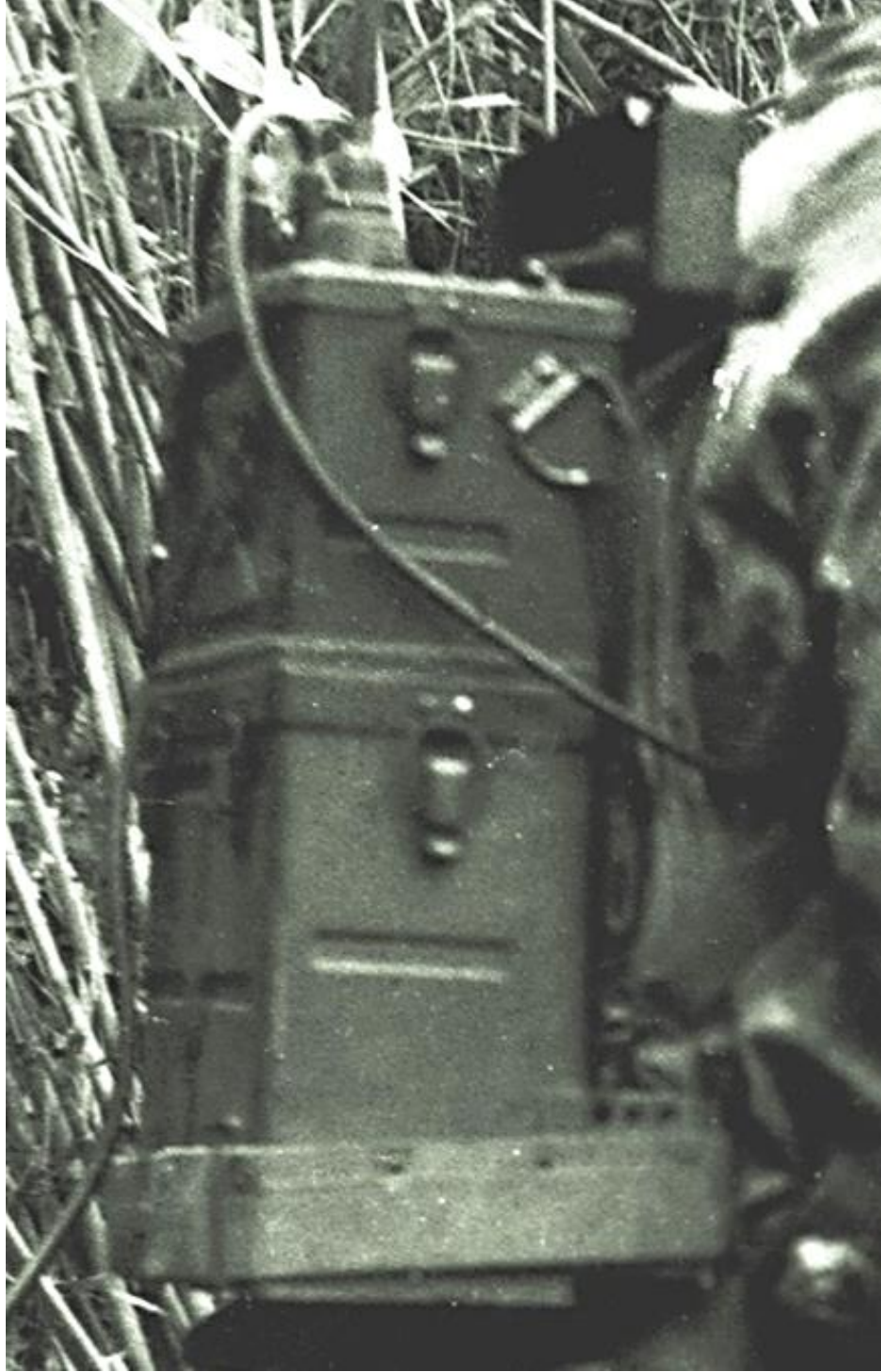
Difficult to precisely date, but the USAF rank insignia indicates that this is a post-war photo. The location is likely Ft. Gordon, GA.

French Use of the SCR-300

Next to the US military in WWII and Korea, the French military employed the SCR-300 (both US and French manufactured) during the late ‘40s and through the 1950s and 1960’s.

Their major combat use was in Indochina, but the set was also used in the Suez and during the Algerian War.

Another uniquely French use of the SCR-300 (AN/VRC-3) was as an aircraft set in both light fixed-wing and rotary wing applications.



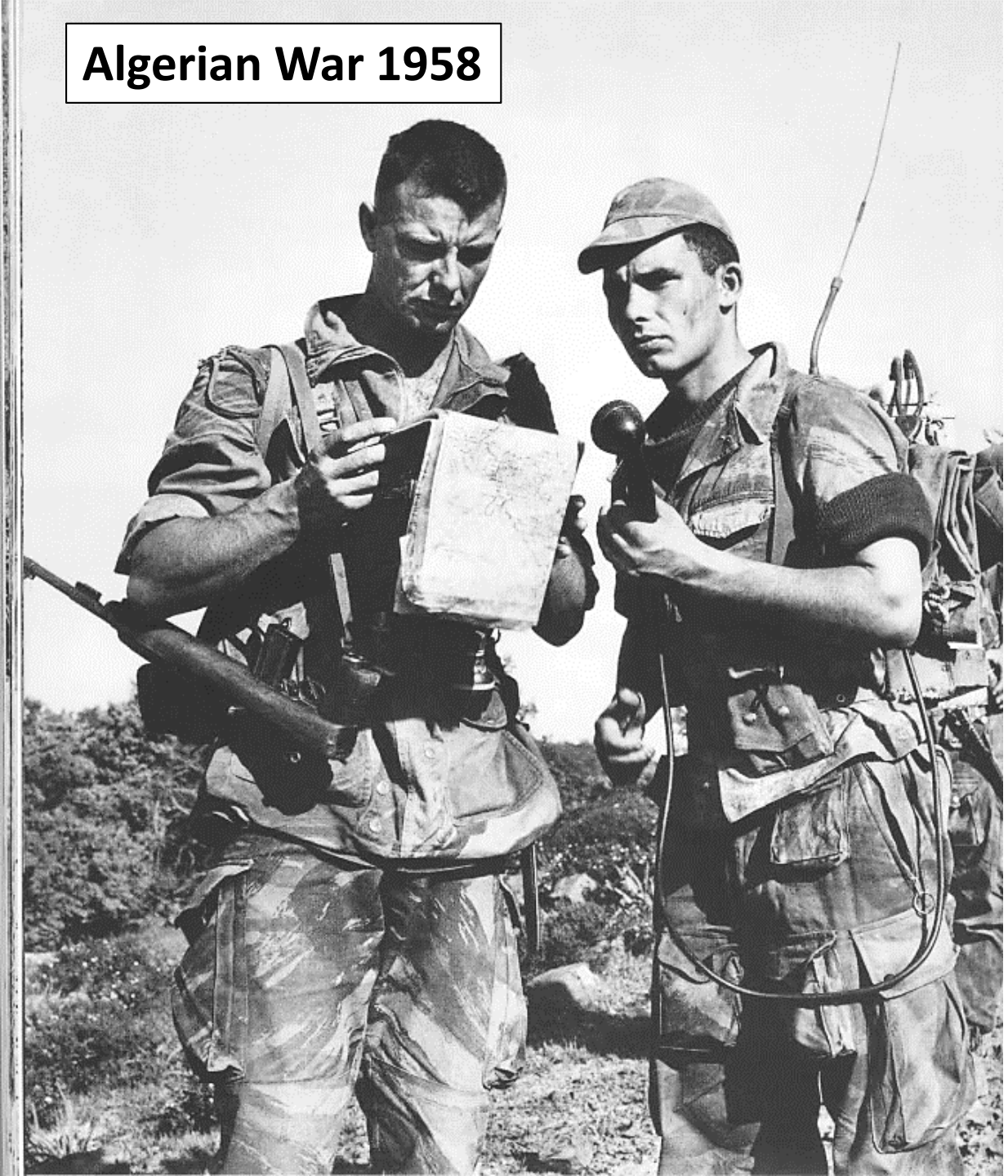

gettyimages
Bettmann
514953648

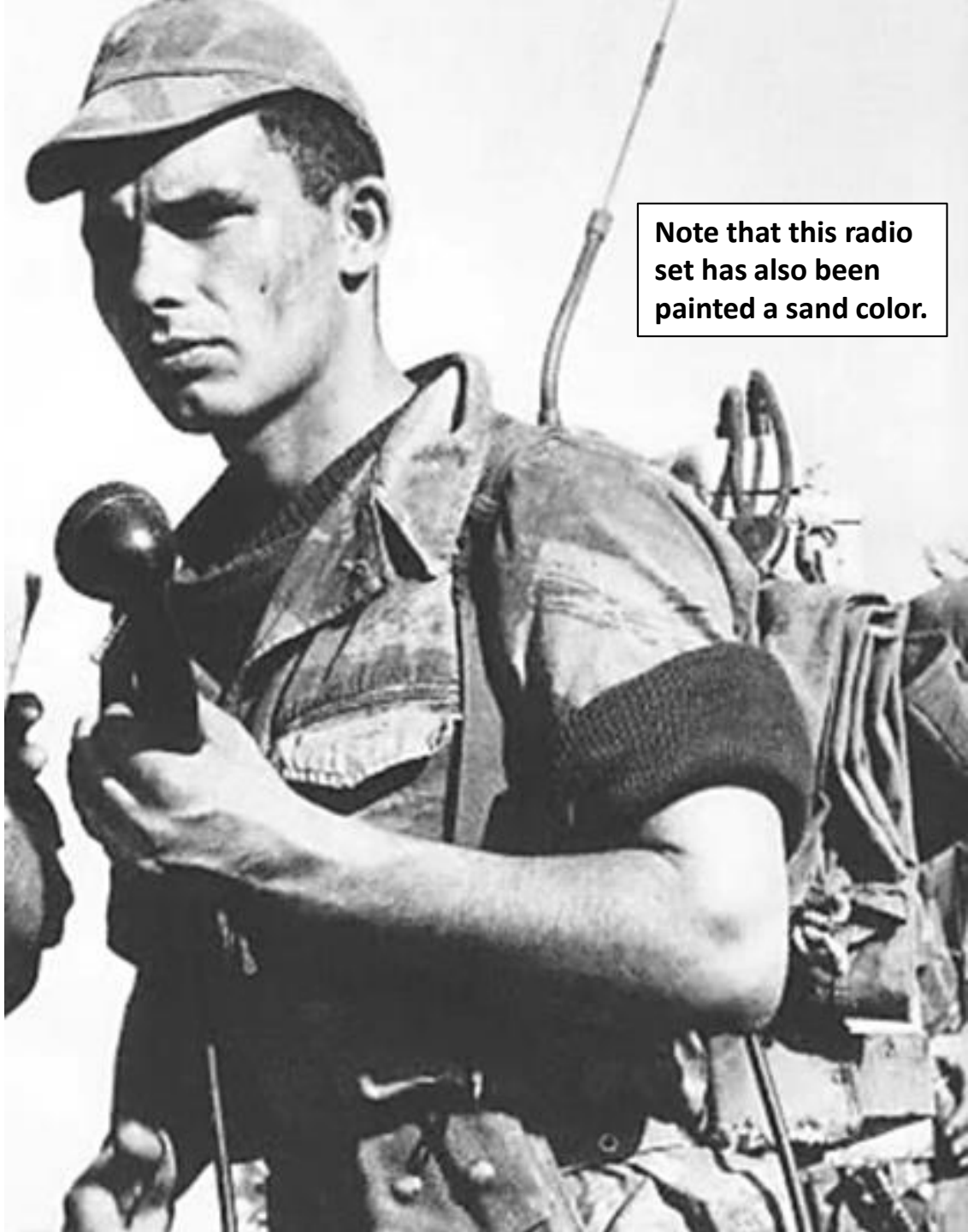
Suez “Crisis” 1956

Note that this radio set has been painted a sand color.

Algerian War 1958

Algerian War 1958



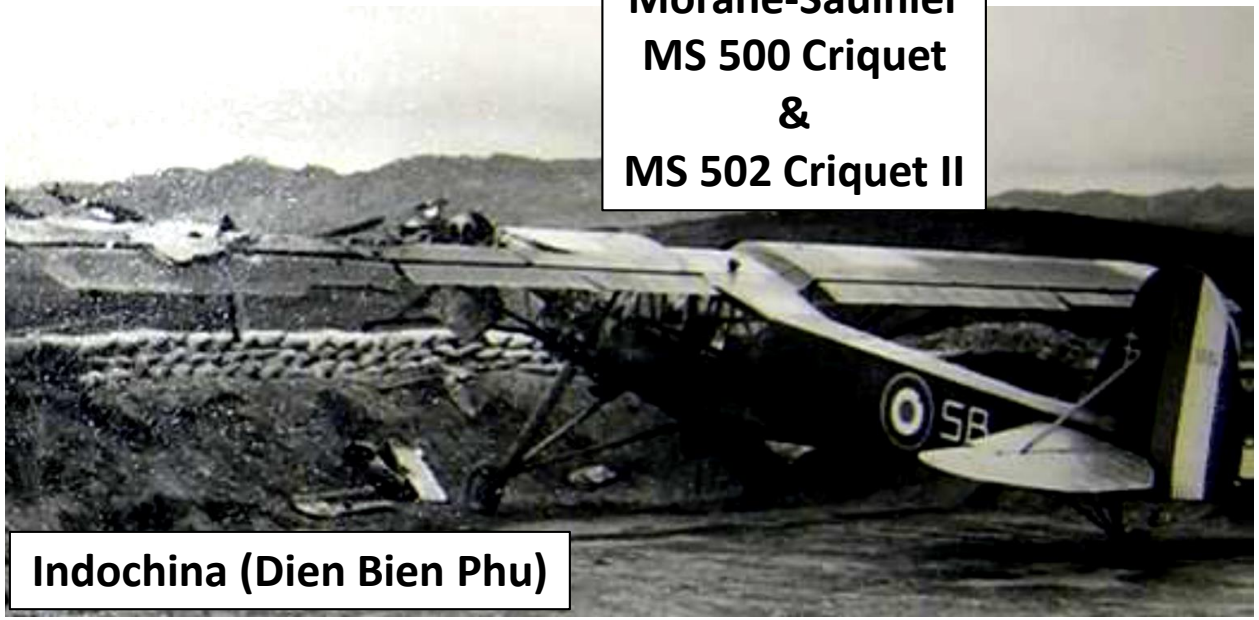


Note that this radio set has also been painted a sand color.

Morane-Saulnier MS 733 Alcyon

Algeria

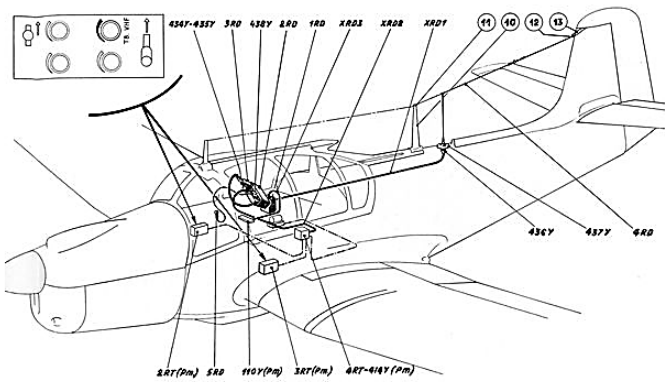
Morane-Saulnier MS 500 Criquet & MS 502 Criquet II

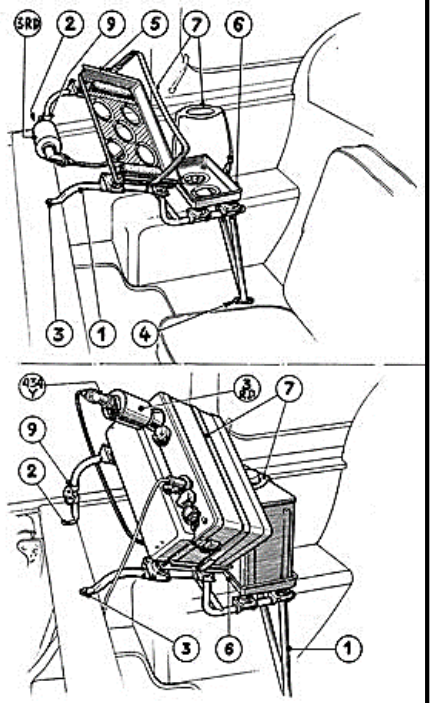


Indochina (Dien Bien Phu)

Montage SCR 300

Repère	Désignation	Référence	Class'
1 RD	Boitier pile SCR 300	CS 128	A
	pour pile	BA 70 FR ou BA 80 FR	A
	ou vibreur	AA 3	
2 RD	Boitier poste SCR 300	BS 1000	A
3 RD	Adaptateur d'impédance	JARDILLIER TM 217	B
XRD 1	Feeder d'antenne équipé de :	M.S. 161.041	B
434 Y	un raccord coudé coaxial	OTTAWA M. 359	B
435 Y 436 Y	Deux embouts coaxiaux	OTTAWA PL. 259	B
437 Y	Sortie de coque	ULMER 116	B
4 RD	Antenne filaire 44 Mcs 50 Ω.....	M.S. 161.040	B
XRD 2	Cordon de raccord' écoute équipé..	M.S. 161.042	B
438 Y	d une prise	JARDILLIER PL. 55 FR	B
5 RD	Micro	T. 17 ou T. 45	A
XRD 3	Câble	M.S. 159.983	





SCR-300 Installation Instructions for the MS 733 Alcyon

The French installed the SCR-300 into a number of aircraft both fixed-wing and rotary. These were used in combat both in Algeria and Indochina as well as normal service.

The MS 733 Alcyon was employed as a ground attack aircraft, and the MS 500 / 502 Criquet was used as an artillery spotter and for other liaison and logistics functions (such as medevac).

The employment of the SCR-300 as an aircraft radio is, however, a topic for someone else with more interest in aviation history and technology to explore.

South Korean / Republic of Korea (ROK) Army Use of the SCR-300

The ROK army used the SCR-300 supplied by US military aid during the Korean War.

I suspect strongly that this use was continued for some number of years after the “end” of the war. However, detailed information about the early ROK army is difficult to find.

ROK Army: Korean War

A Survey of Details and Variations

Is it an original WWII set?

Mystery "Automatic Relay Equipment" Jack

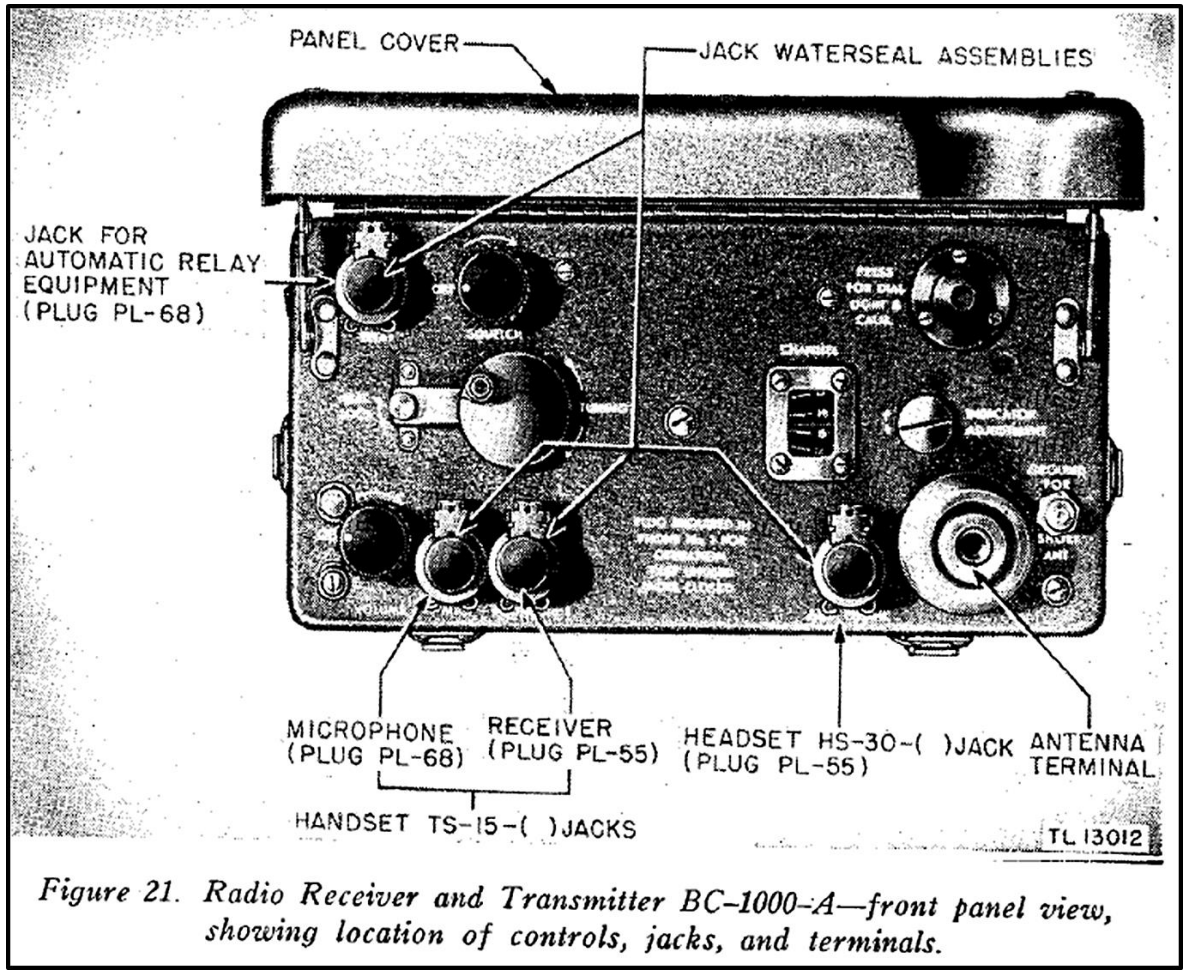
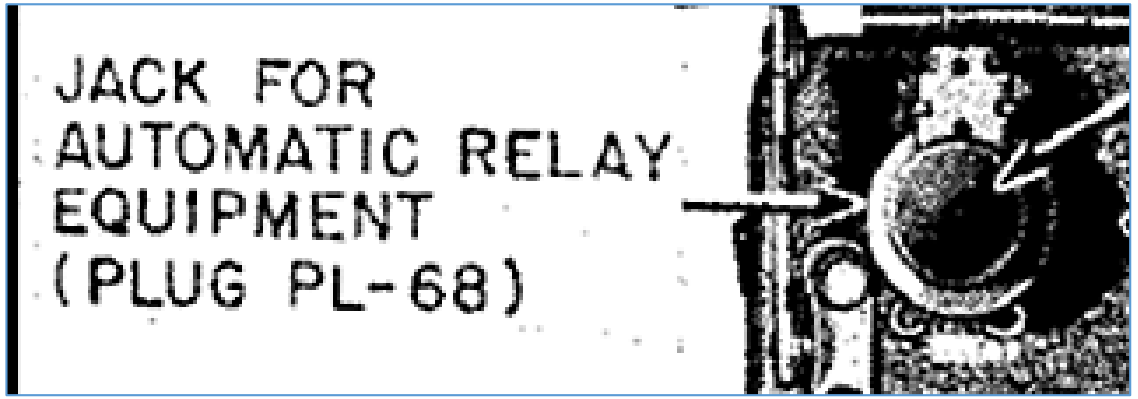


Figure 21. Radio Receiver and Transmitter BC-1000-A—front panel view, showing location of controls, jacks, and terminals.



Thus far, I have found no information on any US Signal Corps automatic radio relay equipment that used any such radio connection. Both the RM-29 and the RC-261 Remote Control Units plugged into the normal phone and mic sockets on any radio they were connected to. Neither unit is "automatic" in any sense with both requiring a operator with the radio to manually switch the equipment.

i. RELAY JACK. The RELAY jack connects the set to other equipment for the reception and retransmission of signals from a remote point.

US Wartime Manufacturers and Post-War Depot Refurbishments: A Recap

At least 3 US wartime manufacturers – Galvin Mfg. (CGG), Dictograph Products (CDC), and Philco Corp. (CPR).

The three letter codes were used on the original manufacturer's data plates to indicate who made the equipment. The absence of these codes and their accompanying contract numbers indicates that the data plate being examined is a replacement Signal Corps Depot plate.

I suspect that most wartime radios were eventually refurbished by any one of several different US Signal Corps depots. Refurbished radios received new data plates and new serial numbers.

The BC-1000-C designation was possibly assigned to original BC-1000 and -1000-A models brought up to -1000-B standards. Only one "depot tagged" radio has been observed with a BC-1000-A data plate (with no s/n assigned).

AN/VRC-3 radios were possibly depot modified original SCR-300s refurbished and reissued with PP-114 power supplies for vehicle installations. No info thus far on any BC-1000 receiver/transmitters marked by data plates as VRC-3 radios overhauled or newly manufactured as such. (The French manufactured VRC-3 sets for their own use.)

No "standard" manufacturer's data plates with the BC-1000-C model have ben observed. That is, I have not observed any BC-1000-C data plates with a manufacturer's three-letter ID code and contract on it. The same is true for the AN-VRC-3. I have not observed any with manufacturer's codes and contracts (excepting new made French sets). All BC-1000-C and AN/VRC-3 radios observed have depot replacement data plates with Signal Corps assigned serial numbers.

Serial Numbers, Data Plates and Manufacturers

Galvin Mfg. Co. = CGG: 6077
Contract: 8558 PHILA 44

Galvin Mfg. Co. = CGG: 16236
Contract: 8558 PHILA 44

Galvin Mfg. Co. = CGG: 29310
Contract: 29310-PHILA-44-01

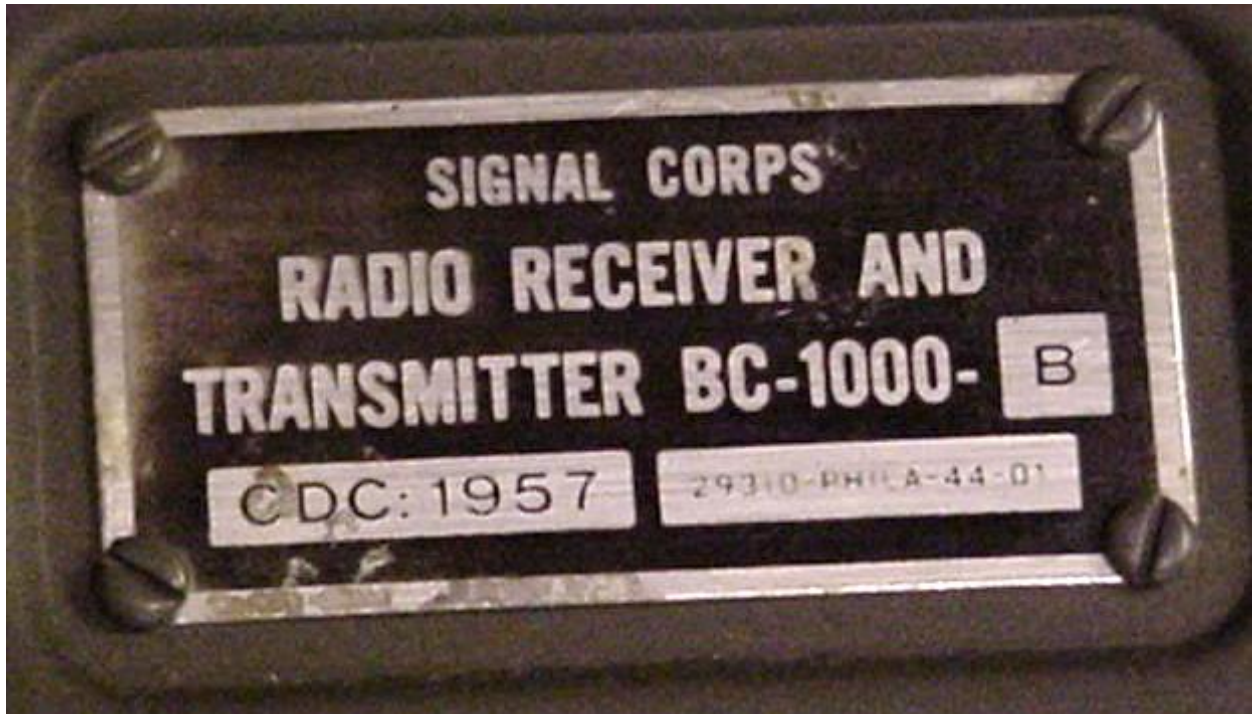
Note that Galvin data plates use a fine Font when compared to the Dictagraph data plates.

Galvin Mfg. Co. = CGG: 6577
Contract: 29310-PHILA-44-01

Screws almost certainly indicate that this radio has been refinished by a collector.

Galvin Mfg. Co. = CGG: 11746
Contract: 29310-PHILA-44-01

Galvin Mfg. Co. = CGG: 21722
Contract: 29310-PHILA-44-01



Dictograph Products Co. = CDC: 1957
Contract: 29310-PHILA-44-01

**Possible Repro Data Plate (note screws).
However, may also just have been removed
and replaced during a re-paint.**

Note that the Dictograph data plates use a heavier font compared to the Galvin data plates.

Dictograph Products Co. = CDC: 1957
Contract: 29310-PHILA-44-01

(Note serial number over-stamp 1005)

Note that both of these radios have the same s/n. The one on the right is believed to be original. It is known NOT to be the same as the one on the left. However, the owner of the radio on the left stated that he refurbished it with new paint and says that the data plate is the one that was originally on the radio.

Possible Repro / Forgery Dictagraph Products Data Plate Detail

Believed Original Dictagraph Products Data Plate Detail

Philco Corp. – CPR: 5732
Contract: 29316-PHILA-44-01

Philco Corp. – CPR: 8395
Contract: 29316-PHILA-44-01

Note that Philco Data Plates
have no outside border – all black.
Also, s/n and contract boxes are black-filled
with silver borders.

Philco Corp. – CPR: 1411
Contract: 10185-PHILA-44

Philco Corp. – CPR: 5732
Contract: 29316-PHILA-44-01

Likely Philco Corp.

Note no border around all black data plate with black-filled s/n and contract boxes.

Philco Corp. CPR: s/n ukw Contract: 10239 PHILA 44

Removed from radio and sold on eBay. S/N obscured by seller.

The originality of this data plate is somewhat suspect. Note the square cut corners. All other Philco Corp. data plates observed have rounded corners.

Philco Corp. CPR 9946(?)
Contract: 10185 PHILA 44

Internal stenciling also indicates PHILCO as the manufacturer.

Depot Overhauled SCR-300 Radio Sets

Data plates that do not have any manufacturer's codes or contract information suggest that the radio has been overhauled and the original data plate replaced.

Some of these "depot data plates" are attached by screws vice rivets and many have hand-written serial numbers and model designation letters, further suggesting depot overhaul work.

It is unknown if the serial numbers assigned reflect the original manufacturer's serials or if the new numbers (perhaps assigned in blocks to the different "Repair and Reissue" shops) were different. The latter seems most likely as part of the Signal Corps efforts to rectify its accounting and inventory of serviceable radio sets on hand (either in depot storage or reissued to units).

(At the start of the war, the Signal Corps had not completely thought out the way its entire procurement and inventory control accounting procedures should be integrated. Numbers of radios to procure were ultimately based on how large the overall force was and the TO&E for each unit. As the force grew, so did the number of radios needed. Also feeding into this system were numbers issued, numbers lost, and numbers of unserviceable sets exchanged for working sets, of which some percentage could be repaired and returned to the inventory and some other percentage would be struck from the books as loses. It took until late in the war for the Signal Corps to merge the procurement side with the maintenance side so that the inventory of ALL sets on hand at any give time was actually known. Once the war ended, as the massive draw-down of forces was taking place and thousands of radio sets were being returned to the inventory, these accounts had to be rectified. Issuing new serial numbers to sets that had been depot over-hauled to the latest technical standards may have been part of this process.)

Additionally, it would seem that some earlier sets were assigned later model designation letters depending on the latest manufacturing standards as reflected by the Modification Work Orders (MWO) listed as performed during the overhaul. Thus older BC-1000, -1000-A and perhaps -1000-B sets that had been over-hauled to perform ALL previous authorized MWOs may have been designated BC-1000-C (along with getting new serial numbers).

It is also likely that many radios were overhauled and tested prior to transfer from the US Army to Military Assistance Program countries at which time they also received new data plates and serial numbers (again, possibly as an inventory control measure).

Finally, it would not seem that any new US manufactured BC-1000-C or VRC-3 radios were ever made. Any such radios are most likely earlier ones that were depot overhauled and brought up the required standards through the application of the latest MWO in effect.

US Depot Overhauled (?) Radio

Note s/n prefix 8900- and also that there is no sub-model suffix (-A, -B or –C) and the phrase "assembled by."

This may be an example of an early type of "Depot Overhaul Data Plate."

US Depot Serviced / Overhauled

There is no data field for a serial number or model on this replacement data plate.

Note the hand-written "A" model designation. Possibly another very early variation of the "Depot Overhaul Data Plate."

Unknown: 1234
Possible Reproduction Depot Tag

Screws may be possible with US depot refurbished radios, however, this radio may have been refinished by collector. Note the absence of the usual depressed area for the data plate suggesting that this was originally a post-war French manufactured set that has been refinished.

Unknown: 3555
Postwar Depot Tag?

Possible Ex-Belgian Army from location of seller(?)

Note that all of these "depot" data plates use slightly different fonts and text spacing.

Unknown: 13301
Postwar Depot Tag?

Data plate appears to be the same type as for set s/n 3555 and original to the radio or a careful depot level replacement.

Note that all of these "depot" data plates use slightly different fonts and text spacing.

Unknown Mfg.

Possible Post War Depot Rebuild to "C" Standard?

4-digit serial numbers are suggestive that these radios were re-serialized by the depots since accounts state that wartime production equaled more than 50,000 total US made sets.

Production Changes and Modification Work Orders (MWO)

BC-1000-A

MWO SIG 11-242-1 & C1…….. Modified Antenna Insulator Assembly

MWO SIG 11-242-2 & C1 & C2 & C3..Replacement of Clip Latches*

MWO SIG 11-242-3 & C1 & C2…….Modified Squelch Circuit

BC-1000-B – **MWO SIG 11-4024-1 & C1 (All of the above MWO SIG 11-242 changes would have been made during manufacture, and the set would have been delivered as a BC-1000-B. The final MWO SIG 11-4024-1 & C1 was issued after BC-1000-B production started, thus, the "dash B" would have needed these upgrades, too, to bring it up to the final specs.)**

BC-1000-C – **BC-1000, -1000-A or -1000-B with all applicable MWO that has undergone a Depot level overhaul at a Signal Corps R&R Shop, receiving a new data plate with a new Signal Corps assigned S/N (?)**

***"Catch, Hold Down Clip" (aka "clip latches") – More on this topic follows.**

Those “Unsightly” Paired Coil-Spring Latches

Collectors, reenactors and other enthusiasts have long speculated that the paired coil-spring latches seen on a lot of surplus US radio equipment was a sure sign of post-war modification or manufacture. The evidence does seem to support this to a great degree which is why everyone wants a set with the “wartime” wire-loop catches.

However, it should be understood that the actual orders for changes in production and MWO issued to end users pre-dates the end of the war. That is, the problem with the original looped spring-wire catches was recognized and the solution determined and implemented (at least partially) before the war ended. MWO SIG 11-242-2 was originally published in NOV 44 and authorized the first effort to resolve the problem with heavier wire-loop catches. This MWO remained in-effect though when in JAN 45 the paired coil-spring catches were introduced (because the heavier wire-loop catches were still not strong enough).

With regard to the SCR-300, I have not found any primary source documentation that states the problem that was to be solved. That it was a problem, though, can be seen in the following photos. As will also be seen, the improvement in latch design was incremental or evolutionary, so the paired coil-spring latches were not the first improved latches to appear.

The NOV 52 Change 2 (C2) to the 1943 edition of TM 11-605 Radio Sets SCR-509 and SCR-510 does state that the change of the clips on that equipment was to “eliminate breakage of draw-pull catches and distortion of cases.” The “breakage” is pretty self-explanatory, but the “distortion of cases” issues concerned making the radio set, power supply and battery box weather and water tight. A complaint from the field was that water could bypass the neoprene gaskets and get into the equipment when exposed to heavy rain or when immersed (during amphibious landings or river crossings). Stronger and better catches were requested, and stronger and better catches were delivered. These same reasons likely applied to the SCR-300.

Change 2, NOV 52 to TM 11-605, NOV 43

(7) Modification work under MWO SIG 11–605–8 covers modification of the SCR–509–(*) and the SCR–510–(*). Its purpose is to eliminate breakage of draw-pull catches and distortion of cases, by installing new draw-pull catches of increased mechanical strength.

Those “Unsightly” Paired Coil-Spring Latches (cont.)

With regard to the SCR-300, the initial “Catch, Hold Down Clip” (aka “clip latches”) had thin wire loops and were Galvin part no. (P/N) 55A41977. These apparently came in two slightly different types: ones with oval wire loops and ones with a slightly hexagonal shape. It’s most likely that Galvin (as well as Philco and Dictograph Products) purchased these latches from sub-contractors. If this is correct, then slight variation in shapes (oval vice hexagonal) may just be supplier variations. This might also mean that both types were used contemporaneously on the assembly line and both types might show up in use at the same time. It may also be possible that the different SCR-300 manufacturers (Galvin, Philco, and Dictograph Products) may have had different suppliers for these parts. Thus the difference in shape may be more reflective of which primary manufacturer used which style that its particular subcontractor supplied and nothing else.

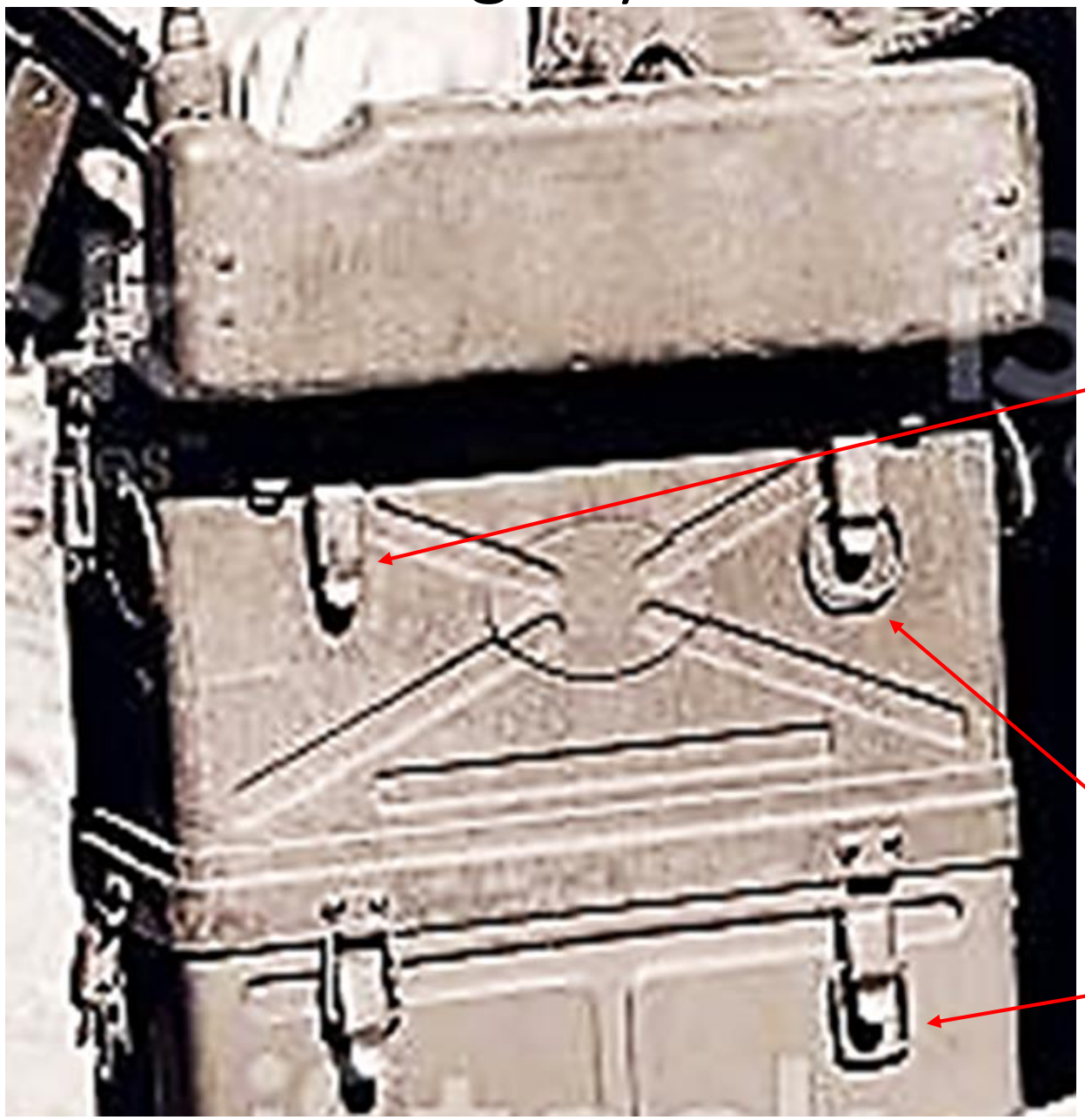
On the other hand, IF Galvin manufactured these clips in house, then they may have recognized the problem with the strength of the latches and attempted to solve it with the change in shape. At the present, though, it’s simply not possible to say for certainty why there were two slightly different shaped thin-wire clips.

MWO SIG 11-242-2 was originally published in NOV 44 and authorized the thin wire loop latches to be replaced, when broken, by Galvin P/N 55K34338, latches with thicker wire loops (but same overall design). Again, it’s not clear who actually manufactured the improved, thicker wire-loop latches. Probably subcontractors, but the MWO specifies the Galvin P/N.

In JAN 45 latch clips were authorized to be replaced by a change to the same MWO with clips made by American Cabinet Co. P/N 258-5480, 358-4602, or WX-6956 or WX-6252. All of the American Cabinet Co. latches were apparently a design that used twin coil springs to provide tension rather than the original Galvin part number wire loop types. Thus, the SCR-300 radio set can be found with any of four variations of clip latches: thin wire loops (oval and hexagonal); thick wire loops (oval); or with paired coil spring tensioners. (Mixes of any or all of these different latches can also be observed.)

I have yet to find any photos of any SCR-300 / BC-1000 *in US service* with the American Cabinet Co. paired coil spring tensioner type clips. Clearly these paired coil-spring clips were used on the SCR-300 in post-war service with other countries.

Those “Unsightly ” Paired Coil-Spring Latches (cont.)



The Problem with the wire-loop catches…
This set says it all.

Broken and Missing

Bent and Misshapen

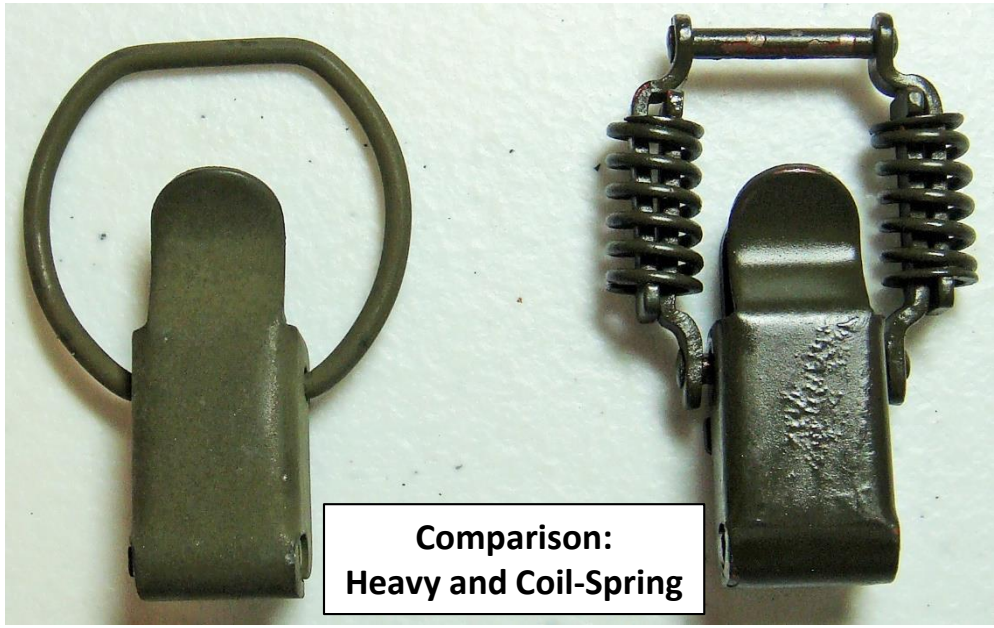
Those “Unsightly” Paired Coil-Spring Latches (cont.)

Thin-Wire Loop
Catch (Oval)
Galvin P/N 55A41977

Heavy-Wire Loop
Catch
Galvin P/N 55K34338

Thin-Wire Loop
Catch (Hex)
Galvin P/N 55A41977

Paired Coil-Spring
Catch
American Cabinet Co.
P/N 258-5480, 358-4602,
or WX-6956 or WX-6252



MWO SIG 11-242-1.C1
MWO SIG 11-242-2.C3
MWO SIG 11-242-3.C1.C2
MWO SIG 11-4024-1.C1

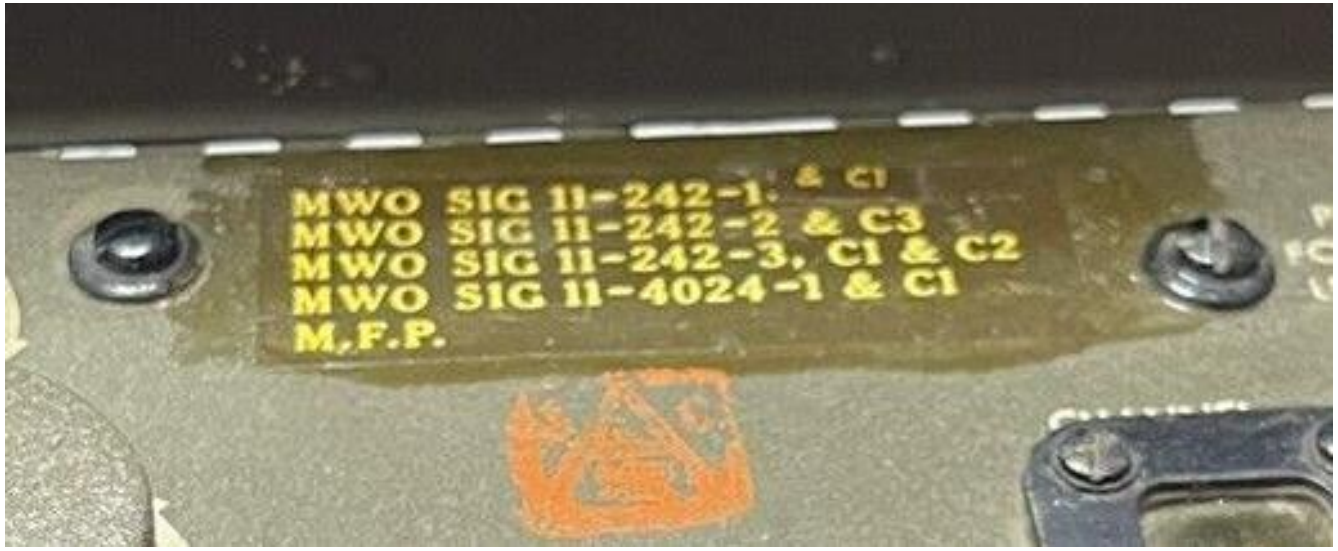
US Depot Overhauled (?) Radio
S/N 0266
Note BC-1000-A Designation

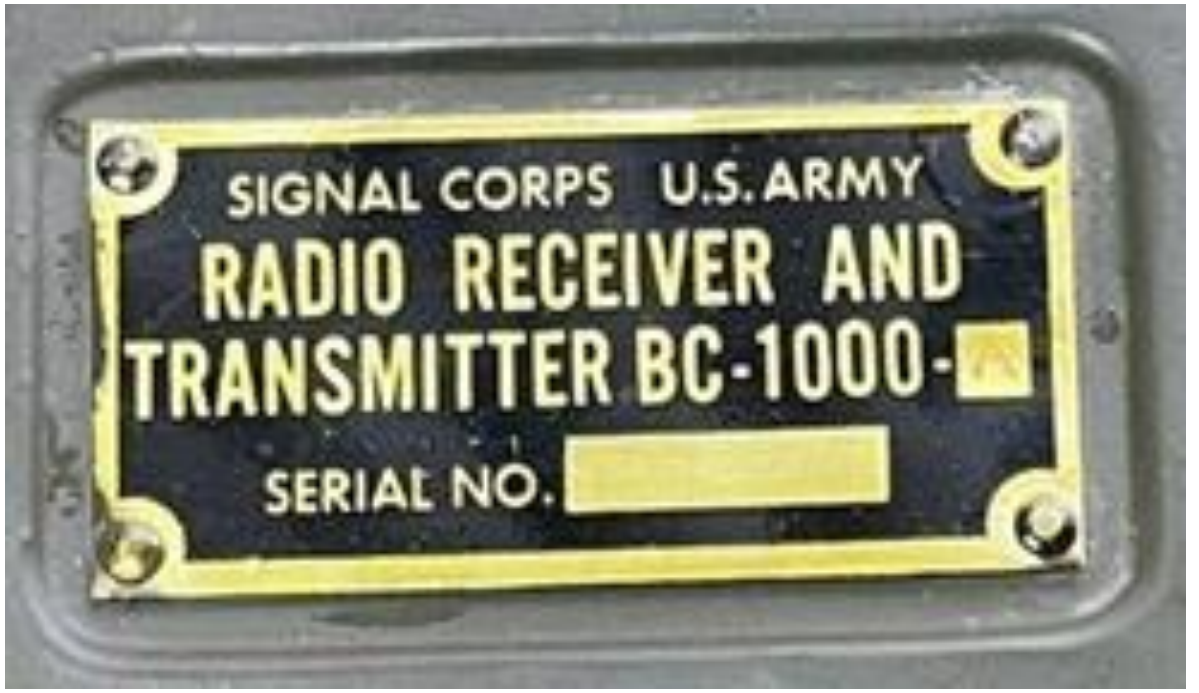
Note the absence of a manufacturer code or contract info. The MWO list appears to be stenciled over a fresh layer of paint.

This suggests that the radio was originally made as a "dash A" model and was overhauled soon thereafter.

Later MWO were performed, but the model designation was never changed to reflect these improvements.

Observe the TM-217 Antenna Impedance Matching Unit required when using a coax cable to connect the BC-1000 to a vehicle antenna or to connect the SCR-300 to the RC-291 antenna system.





(BC-1000-A as sold attached to a Vibrator Power Supply PP-114A)

Depot Overhaul Data Plate BC-1000-A Designation Stamped S/N Not Discernable

Note that the complete series of MWO has been performed and are noted on a pre-printed label adhered to a patch of gloss OD paint located under the lid.

MWO SIG 11-242-1
MWO SIG 11-242-2 & C1 & C2
MWO SIG 11-242-3 & C1 & C2
MWO SIG 11-4024-1 & C1

US Depot Overhauled (?) Radio
S/N 17736
Note BC-1000-B Designation

Again, note that there is no manufacturer's code or contract number on the data plate. The absence of this information along with the hand-written serial number strongly suggests that this radio was initially made a BC-1000-A which was then overhauled and brought up to, in this case, the "dash B" standard.

MWO SIG 11-4024-1
MWO SIG 11-242-2
MWO SIG 11-242-3*

US Depot Overhauled (?) Radio
S/N 3779
Note BC-1000-C Designation

***This MWO was added to production orders very early in the BC-1000-A model wartime production starting with order number 29316-Phila-44-1, s/n 9945 and production order 26925-Phila-44-1, s/n 5353. As such, the ordered modification (dealing with resistor specifications) would have already been included in the specifications for any new production –C model radios. In other words, there would be no reason to perform any of these MWOs on a newly produced –C model radio. My conclusion is that the BC-1000-C model was actually an earlier –A model overhauled at the depot level and brought up to the -B manufacturing contract standards and assigned the –C suffix. Thus, there were no new production –C models, only depot overhauled radios brought up to the –C (-B standards). However, this is speculative in the absence of any documentation.**

AN/VRC-3 and PP-114 Vibrator Power Supply

In 1944 the US Army developed a formal fielding plan to properly install the SCR-300 set into vehicles (mostly the M4 medium and M5 / M24 light tanks). This was in response to the many field expedient efforts to use the infantry set in tanks to liaise with the supported infantry units.

The initial SCR-300 sets installed in the M4 Medium Tank (the Sherman tank) were installed in the turrets using FT-317 mounts welded on the interior wall on the loader's side. The FT-317 was originally fielded for the PE-120 power supply for the SCR-510/610 radios installed in vehicles with insufficient space for those radios stacked with their power supplies onto the standard FT-250 mounts. Thus, the FT-317 with the SCR-300 was an expedient installation.

The result was a re-designation of the set to AN/VRC-3. The new prefix was specified by the new Joint Army-Navy System (JANS). Later, in 1957, the system was changed to JETDS (Joint Electronics Type Designation System) and is still in use today. JANS was the beginning of the efforts by the Army and Navy to come to some formal agreement and process for new radio and electronic equipment design, development and fielding. The "AN" stood for Army-Navy, and "VRC" stood for Vehicle Radio Communication (system).

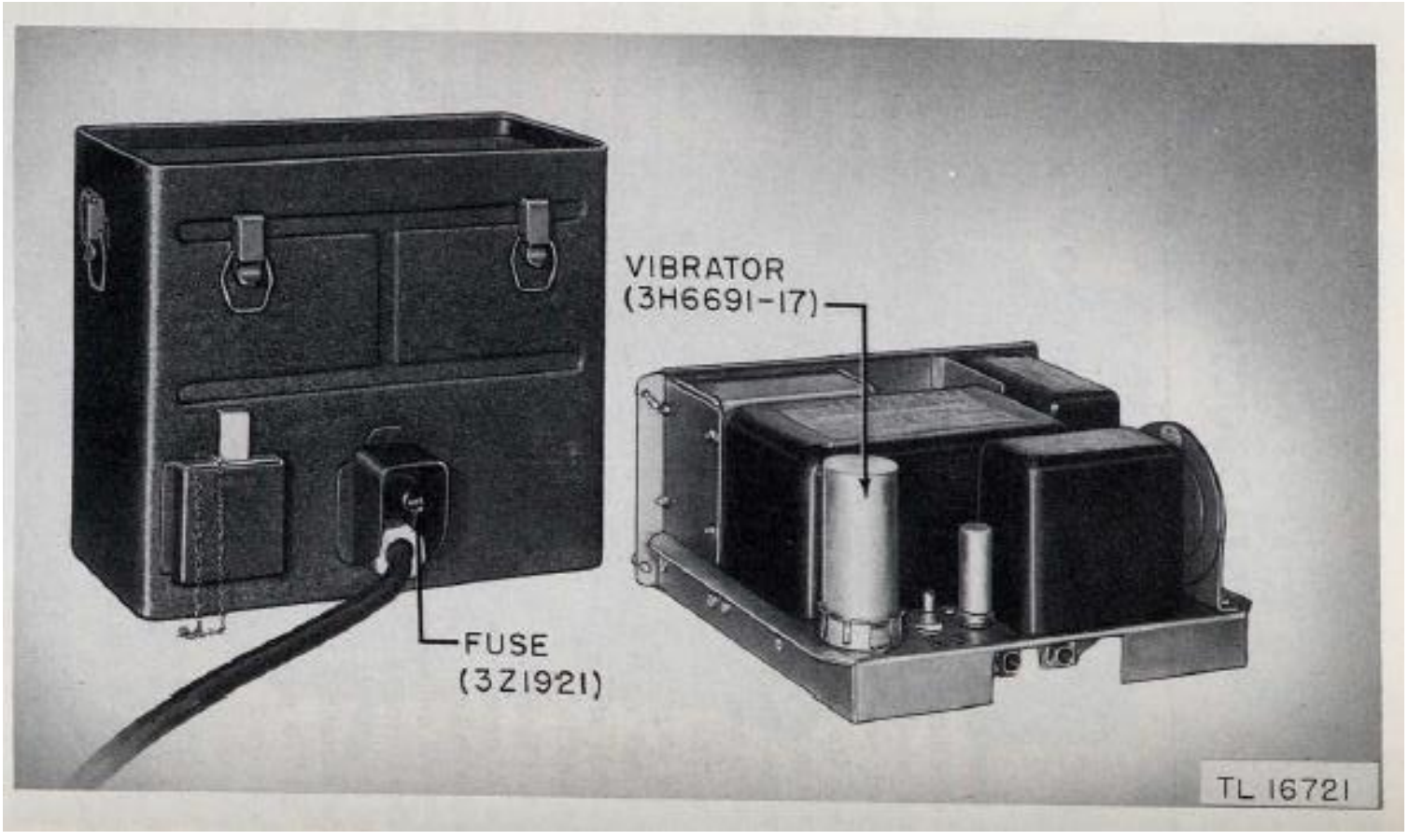
TM 11-637 Radio Set AN/VRC-3 was initially published 16 October, 1944 and mentions the forthcoming PP-114 power supply but does not illustrate it.

Fielding of the vehicle power supply, the PP-114 was slower than provision of the vehicle mounts (FT-317 for the M4 and two modifications of the FT-250 for the M5 and M24). TM 11-983 Vibrator Power Supply PP-114/VRC-3 was published separately on 27 February, 1945.

Initial AN/VRC-3 TM instructions describe using the standard CS-128 battery box or the CS-139 Battery Case. The latter CS-139 was filled with 21, BA-30 (D-cell) and 100, BA-42 (C-cell) batteries and weighed in at 18 pounds when fully loaded*.

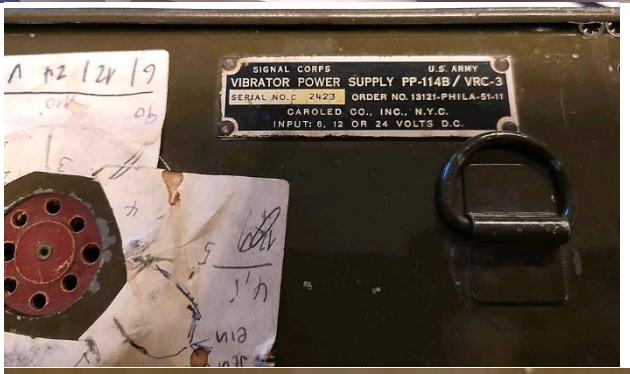
*** I have not observed any CS-139 Battery Cases outside of the illustrations in TM-637.**

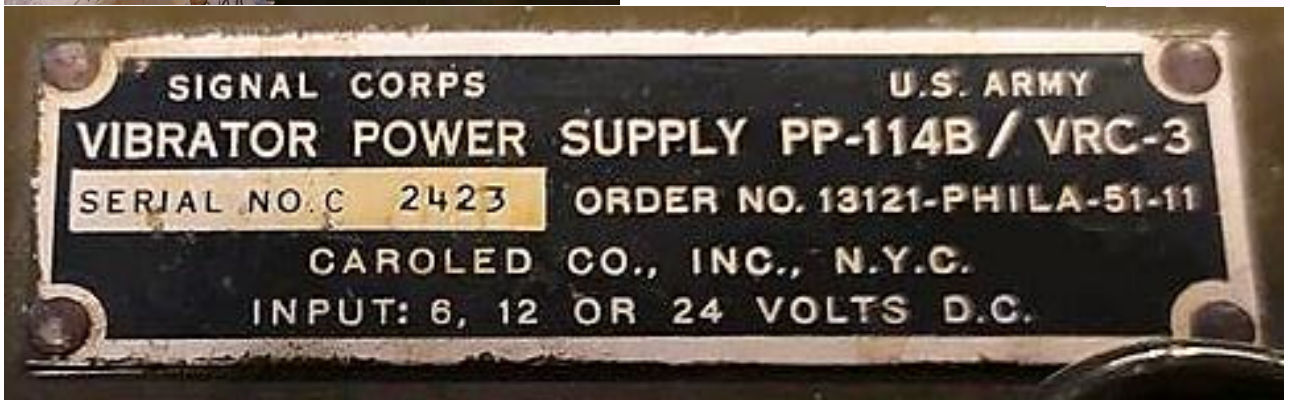
Overview of the PP-114 Vibrator Power Supply Used in Place of the CS-128 Battery Case



The size of the PP-114 was identical to the CS-128 Battery Case and in use was simply substituted for it. The PP-114 latched onto the bottom of the BC-1000 and used the same internal power plug.

VRC-3 Power Supply
PP114A/VRC-3
S/N 1528
Contract date: 1950





VRC-3 Power Supply
PP114B/VRC-3
S/N C 2423
Contract date: 1951

Note US Mfg. data plate with French external instruction stenciling.

VRC-3 Power Supply
PP114B/VRC-3

(BC-1000-A observed attached to PP-114B shown to left)

Unknown Mfg. S/N 638
Possible Depot Rebuild to
VRC-3BG Standard (Germany?)

Data plate appears to be glued to the top of the BC-1000 unit.

Note the absence of any manufacturer's code or contract information.

No information has been discovered about the "BG" suffix. The letter "G" suggests that this set was used by Germany, but that's speculative.

French Manufactured
VRC-3 Power Supply
PP-114 Type

(Shown removed from the outer box.)

Mfg. Thomson Houston
S/N 89

TM-217 Antenna Impedance Matching Unit

This is used with the VRC-3 / SCR-300 when the set is connected to an external antenna via a coax cable (usually with vehicle mounts but also when employing the RC-291 antenna system).

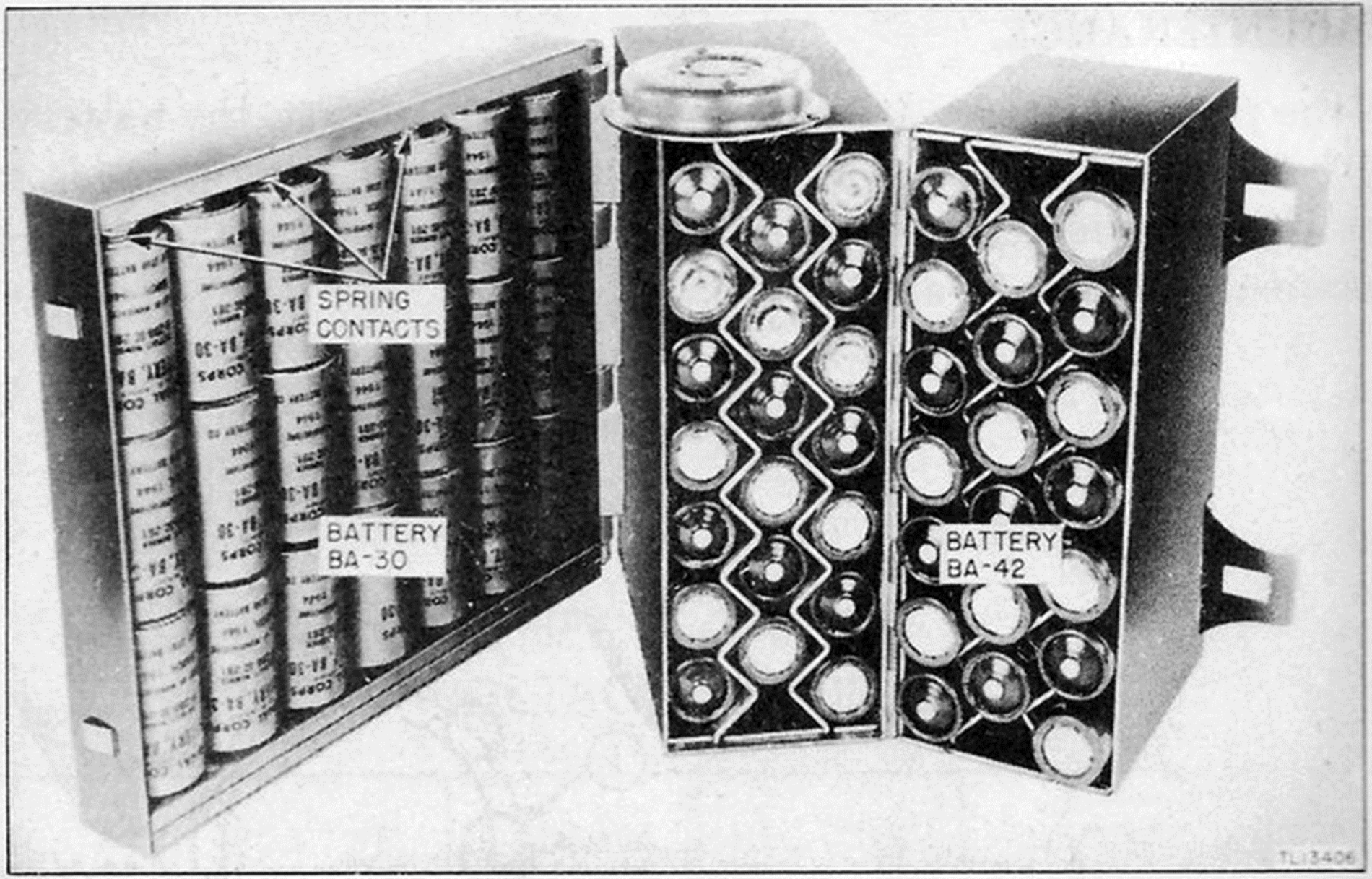


Figure 28 Battery Case CS-139, interior view, showing case loaded and ready for closing.

In the absence of the planned PP-114 Power supply, the initial AN/VRC-3 sets were issued with the Battery Case CS-139 which was loaded with a combination of 21, BA-30 ("D-cell") and 100, BA-42 ("C-cell") batteries with a filled weight of 18lbs.

Presumably this was necessary because the normal BA-70 or BA-80 batteries used with the SCR-300 were considered in short supply or that they were not in the normal supply chain for the medium or light tank company or battalion.

Mounting FT-317

The Mounting FT-317 was originally designed and intended for use with the SCR-510 Radio Set, an armored force set usually installed in vehicles. (It was also compatible with the artillery's SCR-610 version of the same basic radio set.)

Some installations were found to have insufficient space for the complete SCR-510 with its PE-97 Vibrator Power Supply stacked on the Mounting FT-250. The FT-317 allowed the PE-97 to be mounted in the vehicle separated from the BC-620 Receiver Transmitter (which was installed on the FT-250).

By serendipitous circumstance, the FT-317 could also be used to hold the SCR-300 with its normal CS-130 Battery Box (using either the BA-70 or -80 batteries). This normally required the use of a spacer board made from a piece of plywood.

For this use, the FT-317 could be welded to the interior turret wall of the M4 Medium Tank on the loader's side. The second antenna mounting boss (normally used by the British for one of their WS No.19 aerials) could be used to mount the AN/AB-15 antenna base with the SCR-300 connected to it using a coax cable and the TM-217 Antenna Impedance Matching Unit.

In this configuration, the loader could operate the SCR-300 or it could be wired into the tank's interphone system enabling communication with the accompanying or supported infantry units.

g. Mounting FT-317-(*).

MOUNTING FT-317-(*)

This shock mounting is used in installations that require mounting of Plate Supply Unit PE-97-(*) separately from Radio Receiver and Transmitter BC-620-(*). Holes are provided in the mounting so that it may be mounted to the vehicle with suitable screws or bolts. (Issued only with Radio Sets SCR-510-A and SCR-510-B.)

h. Plate Supply Unit PE-97-(*).

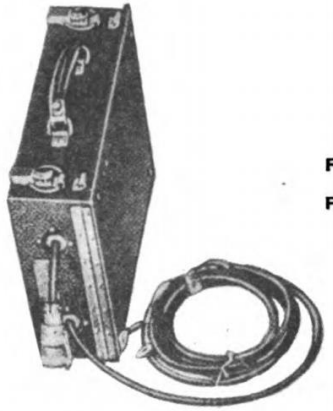
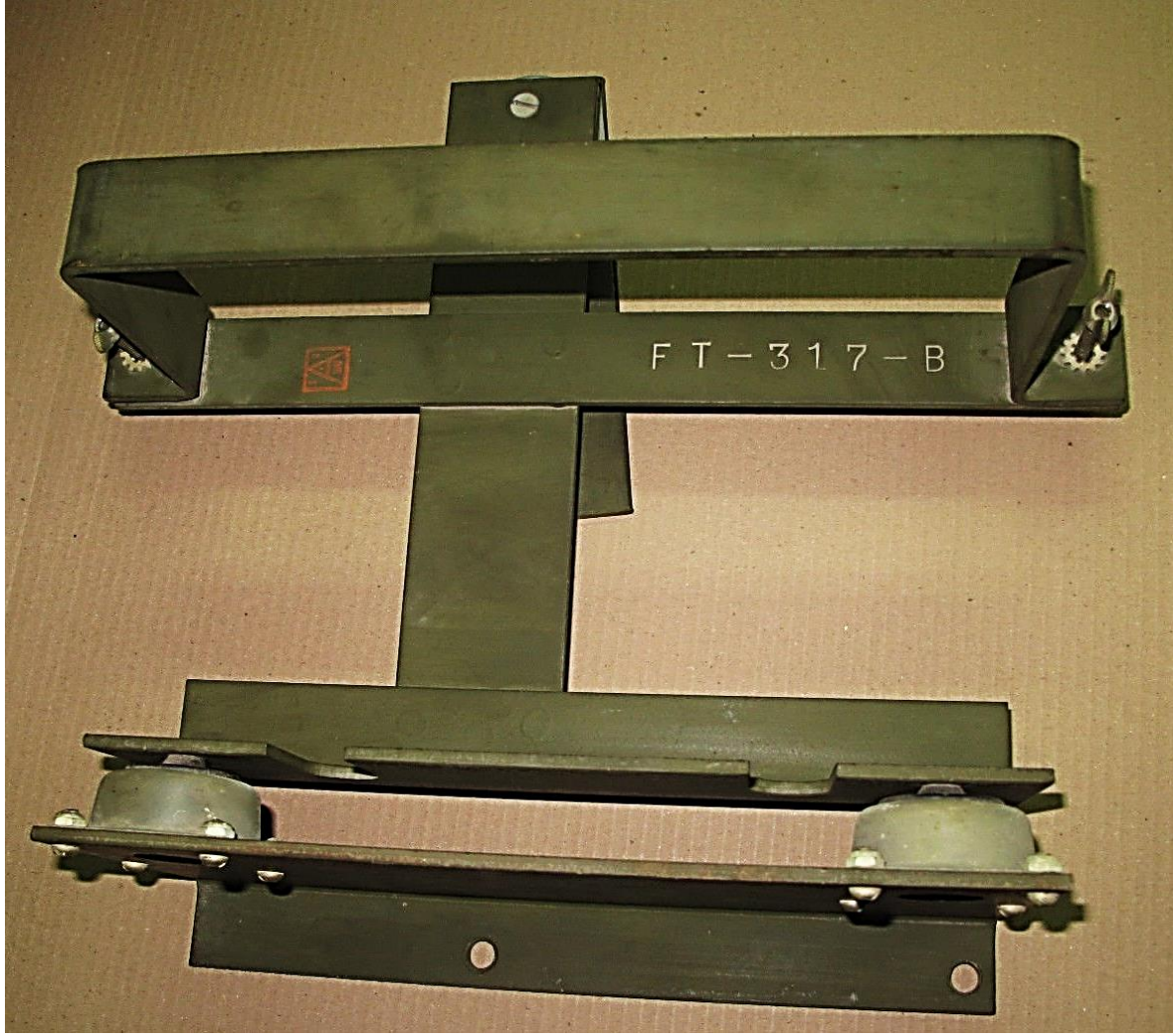


PLATE SUPPLY
PE-97-(*)

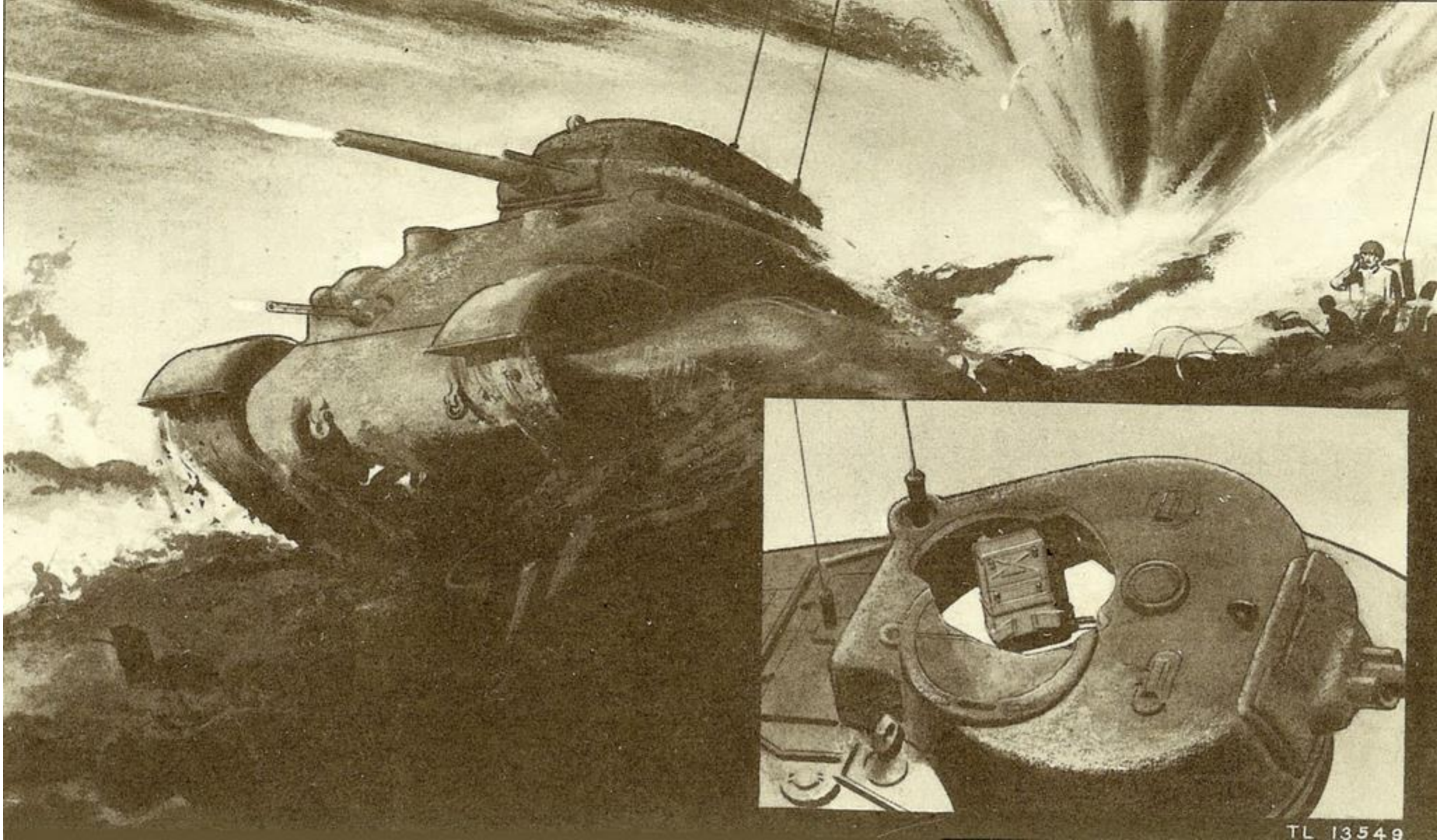
This is a vibrator type power supply and is designed for connection to either a 6-volt or 12-volt vehicular battery. Hooks and catch clips are provided for mounting the radio receiver and transmitter on top of, and secured to, Plate Supply Unit PE-97-(*), and the entire assembly may in turn be fastened to Shock Mounting FT-250-(*). This mounting is shown in Figure 2. This unit may also be mounted separately by using Mounting FT-317-(*). The plate



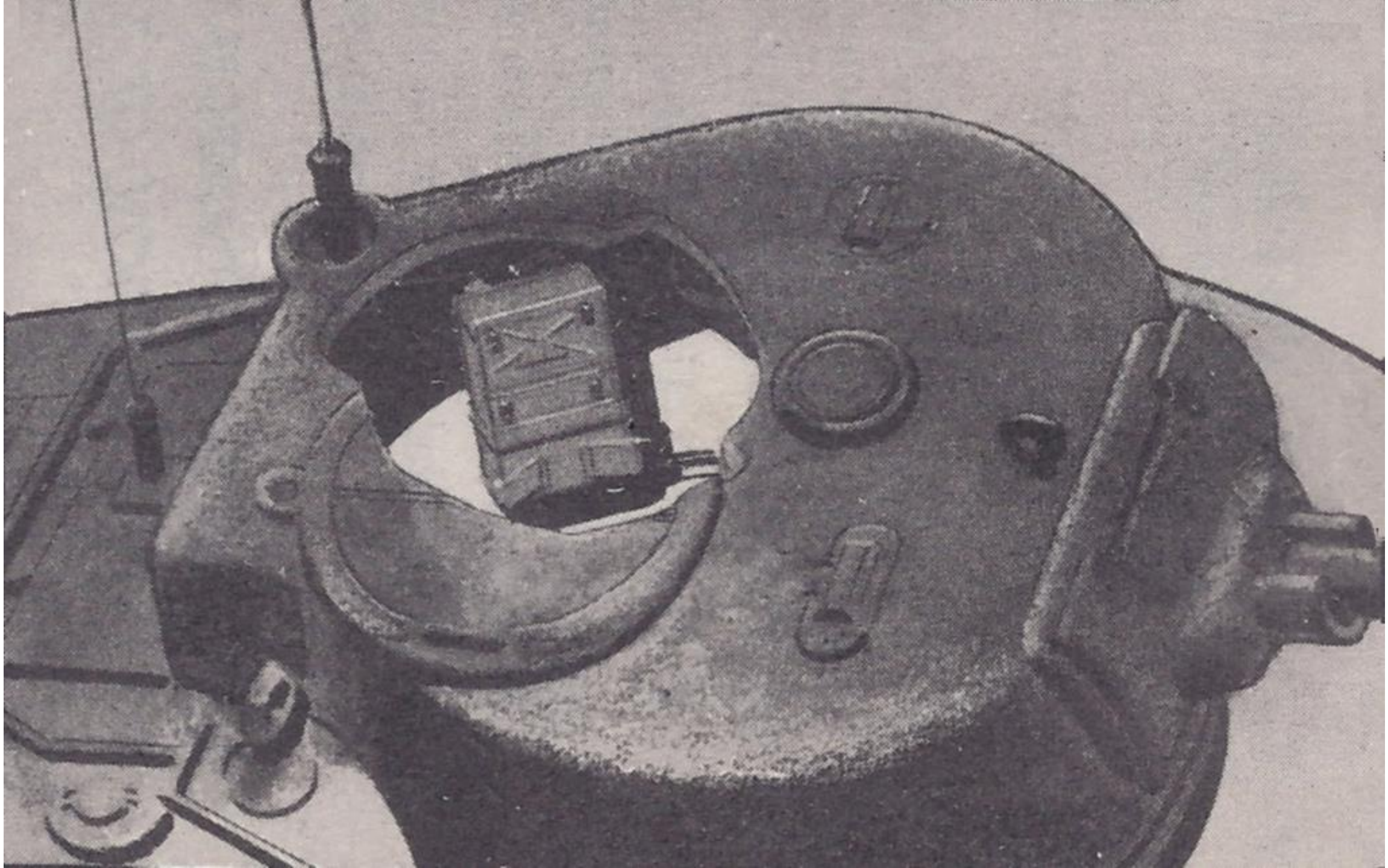
Excerpt from TM 11-605
Radio Set SCR-510

An example of an FT-317 showing how the PP-114 Power Supply for the AN/VRC-3 fits into it. (Here the weather cover has been clamped in place on the PP-114.) In use, the BC-1000 Receiver Transmitter from the SCR-300 – AN/VRC-3 would be clamped on top of the PP-114. The FT-317 would be welded in place inside the tank turret by way of its top and bottom brackets.

The FT-317 mount with the AN/VRC-3 (using the PP-114) would continue in use into the Korean War and with USARNG armored units for as long as the M4 Medium Tank remained in service.



TL 13549



CONFIDENTIAL

HEADQUARTERS TWELFTH ARMY GROUP
Armored Section
APO 655

19 October 1944

Memorandum for Colonel Wright.

Subject: Information obtained from Lt. Colonel Cox, Armored Section, First Army.

1. Installation of telephones is proceeding faster. Units which have used them in battle say they are fine.

2. Installation of AN/VRC-3 is progressing slowly. Units report it is difficult to hear when the tank is moving. They also report this is not the answer to tank-infantry communication. The infantry are not carrying the SCR 300 forward because the Germans have been locating them and bring down mortar and artillery fire. Consequently, messages must be relayed.

3. The project to exchange turrets on M4A3E2s with those on 105mm tanks has been dropped; apparently the units had not considered the ammunition stowage problem.

4. Everyone wants M4A3E2s. The 2nd Division tried to get them away from the separate battalions. First Army is going to request fifteen (15) additional to replace those which will be transferred with XIX Corps. They have been used in action but the only information available was that one turned three bazooka projectiles which "would have penetrated" a standard tank.

5. Apparently two difficulties have arisen with the end connectors. In going up a narrow road, one tank threw a track three times in a hundred yards. When going over stones the end connectors bend.

JOHN B. ROUTH
Lt. Colonel, FA
Asst. Armored Officer

CONFIDENTIAL

This memorandum is instructive on several accounts. First is the date, 19 OCT 44. The memo states that installation of the AN/VRC-3 is already underway and provides a credible contemporary source to confirm this fielding.

The observations about the opinions of the armored troops regarding the radio set should probably be taken in the context of issues with fielding any new item of equipment. Later installation instructions for the AN/VRC-3 provide for connecting it to the tank's interphone system which would make it equally easy to listen to inside the tank as the other radio sets.

Note that the AN/VRC-3 continued in service through the Korean War and early Cold War until replaced by the AN/GRC-3 through -8 series of radio sets. Later medium tanks, like the M26, M46 and M47 came with factory installed radio racks compatible with the AN/VRC-3.

19 October 1944

"2. Installation of the AN/VRC-3 is progressing slowly. Units report it is difficult to hear when the tank is moving. They also report this is not the answer to tank-infantry communication. The infantry are not carrying the SCR 300 forward because the Germans have been locating them and bringing down mortar and artillery fire. Consequently, messages must be relayed."

Mounting FT-250
and
Mounting Per SC-D-7398

Mounts to Carry the VRC-3 / SCR-300 Radios:
M5 and M24 Light Tanks and any Other Vehicle that Could Accommodate the FT-250 Mount

Method 1: Reversible; TM 11-2720

Method detailed in TM 11-2720 Radio Installation in M5 Light Tank.

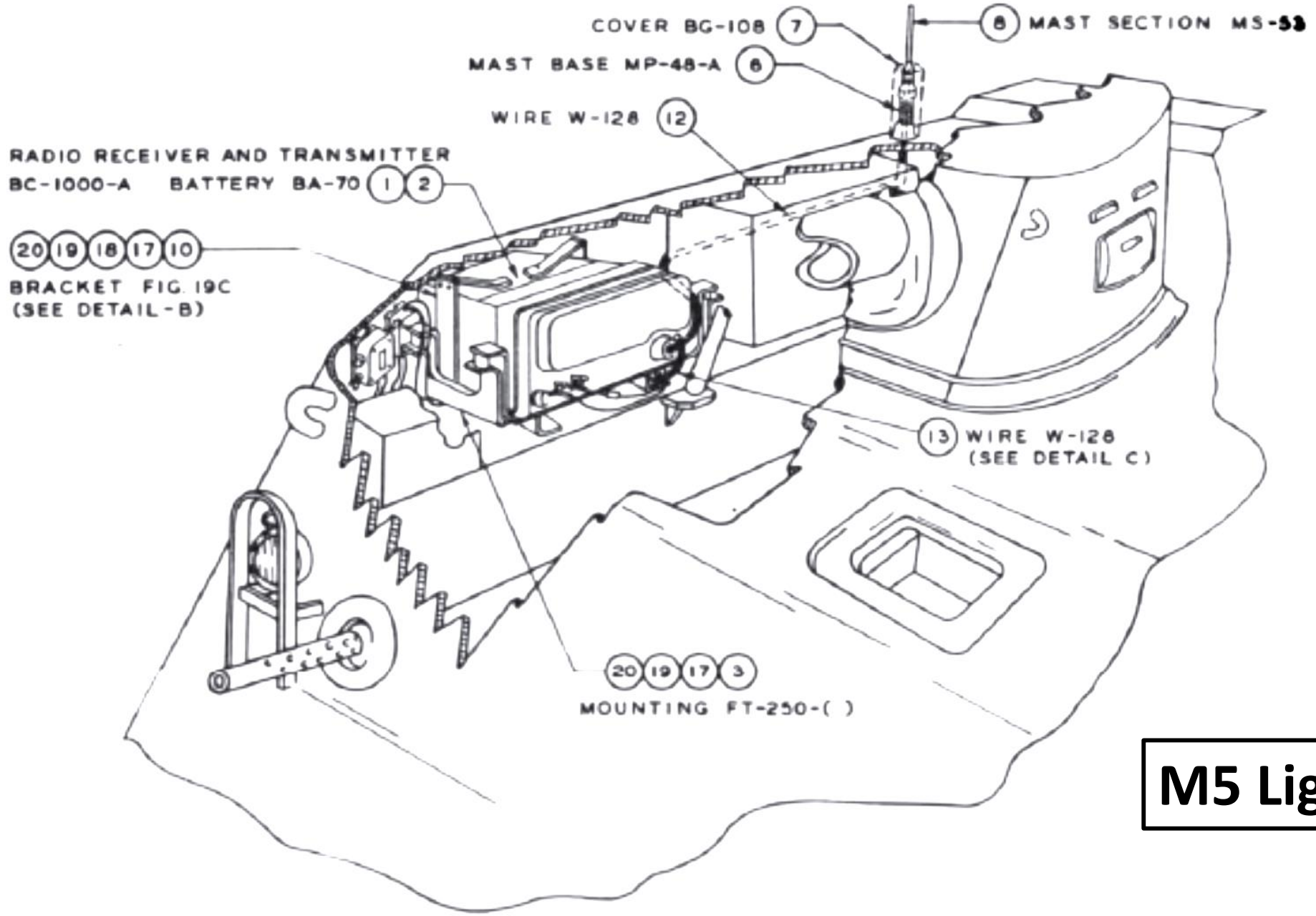
Method is totally reversible. The only major modification to the FT-250 is drilling six holes to accommodate small bolts to hold the radio brackets. This allows the mount to be used later for any other standard installation (ex. SCR-510 or SCR-610).

Requires fabrication of three brackets to hold the radio into the FT-250 mount.

All brackets are made from 14 ga steel. Patterns and dimensions illustrated below.

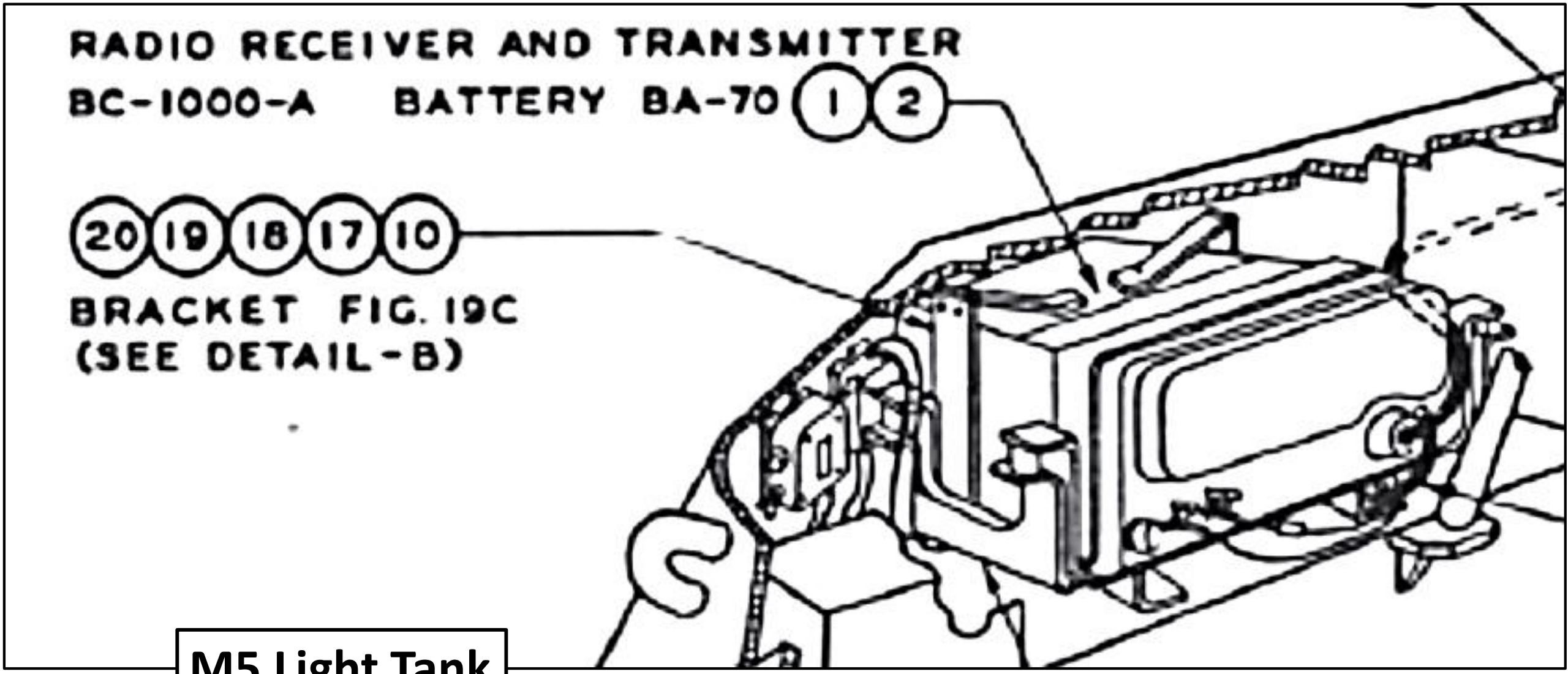
This method is suitable for any vehicle that has sufficient horizontal and vertical space for the FT-250 mount with the SCR-300 lying horizontally on it. In this orientation, the SCR-300 – AN/VRC-3 radio is actually lower than the stacked SCR-510 or SCR-610.

Note that this method is NOT suitable if the PP-114 power supply is to be used with the radio set. This method relies on a pair of brackets bolted to the Battery Box CS-128 on the angled brackets that are manufactured on it which hold the Waist Belt ST-55. The PP-114 Power Supply lacks these belt mounting brackets.

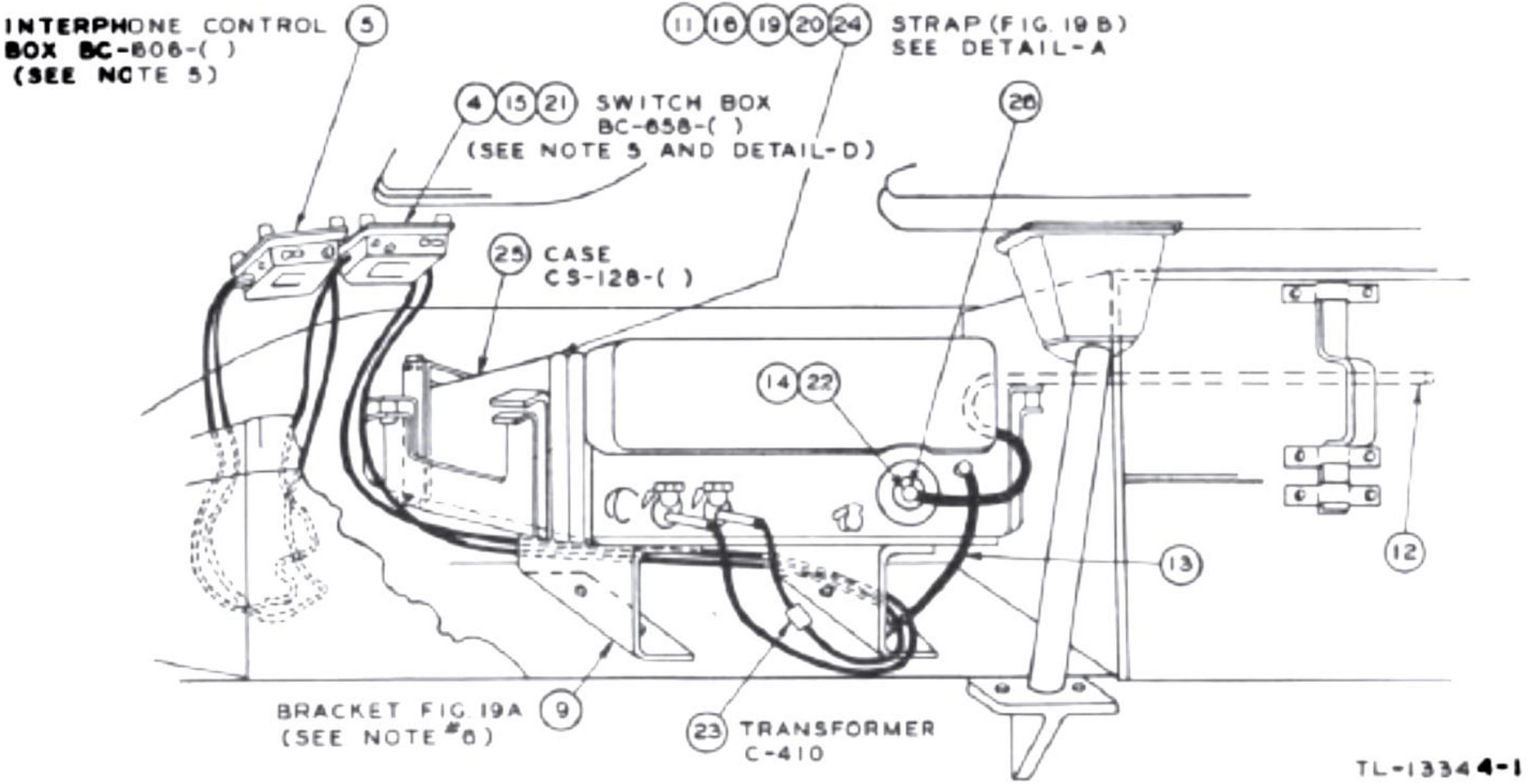


VIEW OF RIGHT FRONT PORTION OF VEHICLE

M5 Light Tank



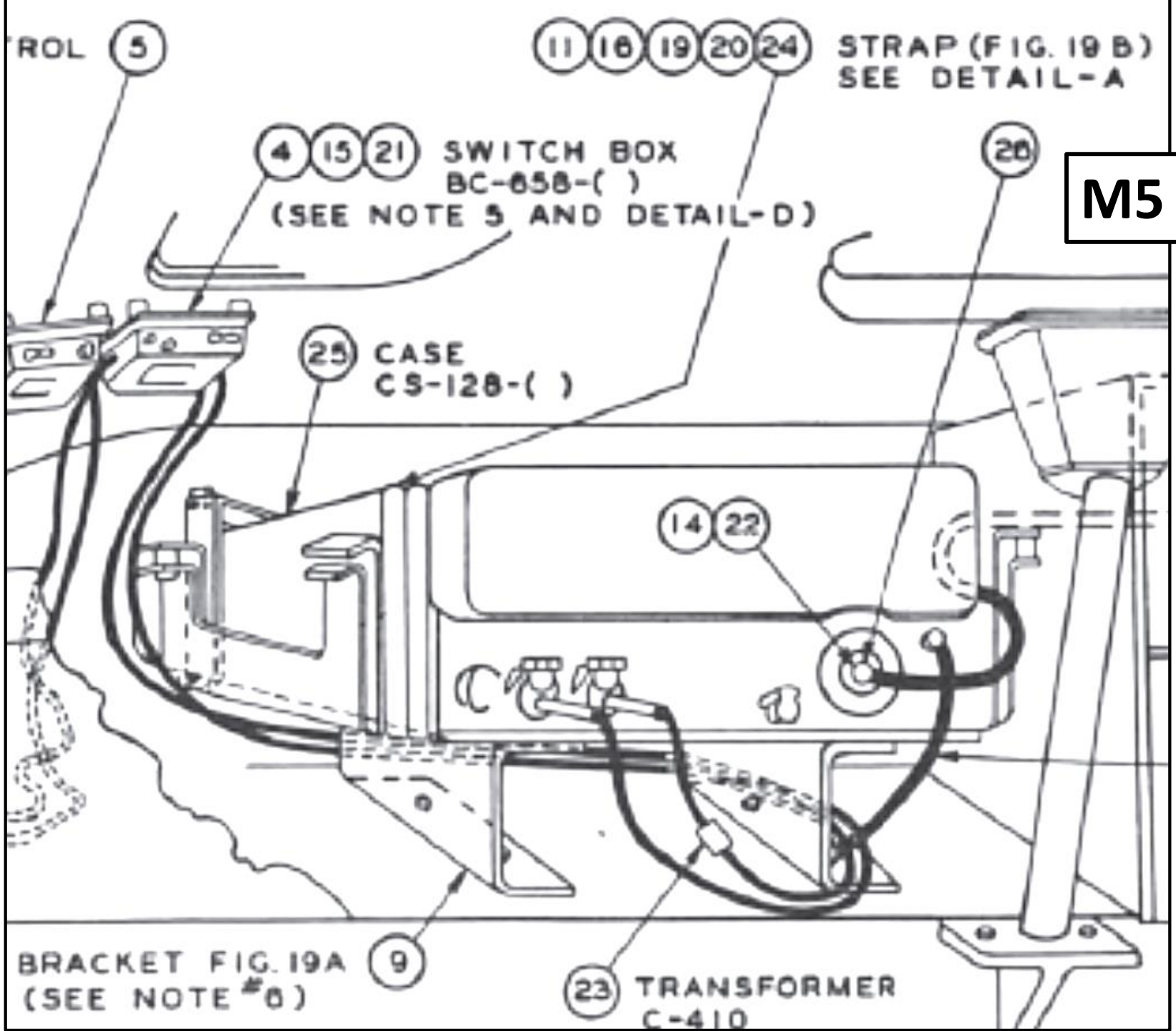
M5 Light Tank



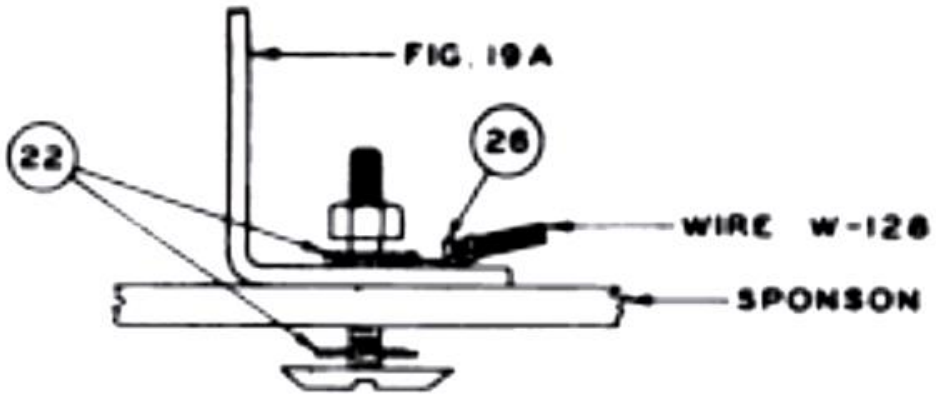
VIEW OF RIGHT FRONT SPONSON

M5 Light Tank

Figure 18. Installation of Radio Set AN/VRC-3-( )

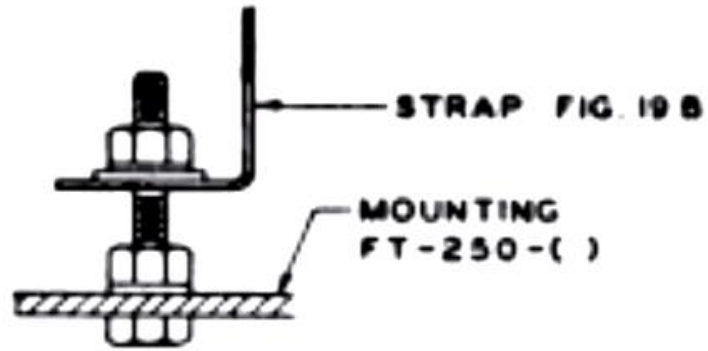


M5 Light Tank



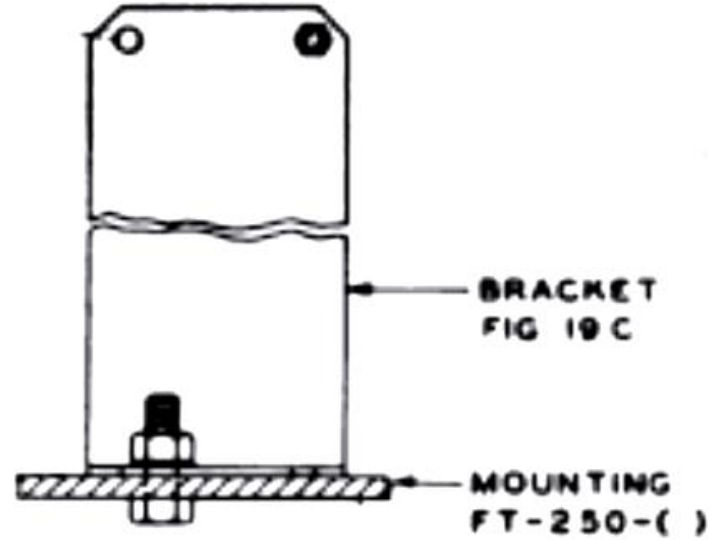
DETAIL C

APPLICATION OF SHAKEPROOF WASHER FOR SECURING GROUND WIRE TO MOUNTING BRACKET



DETAIL A

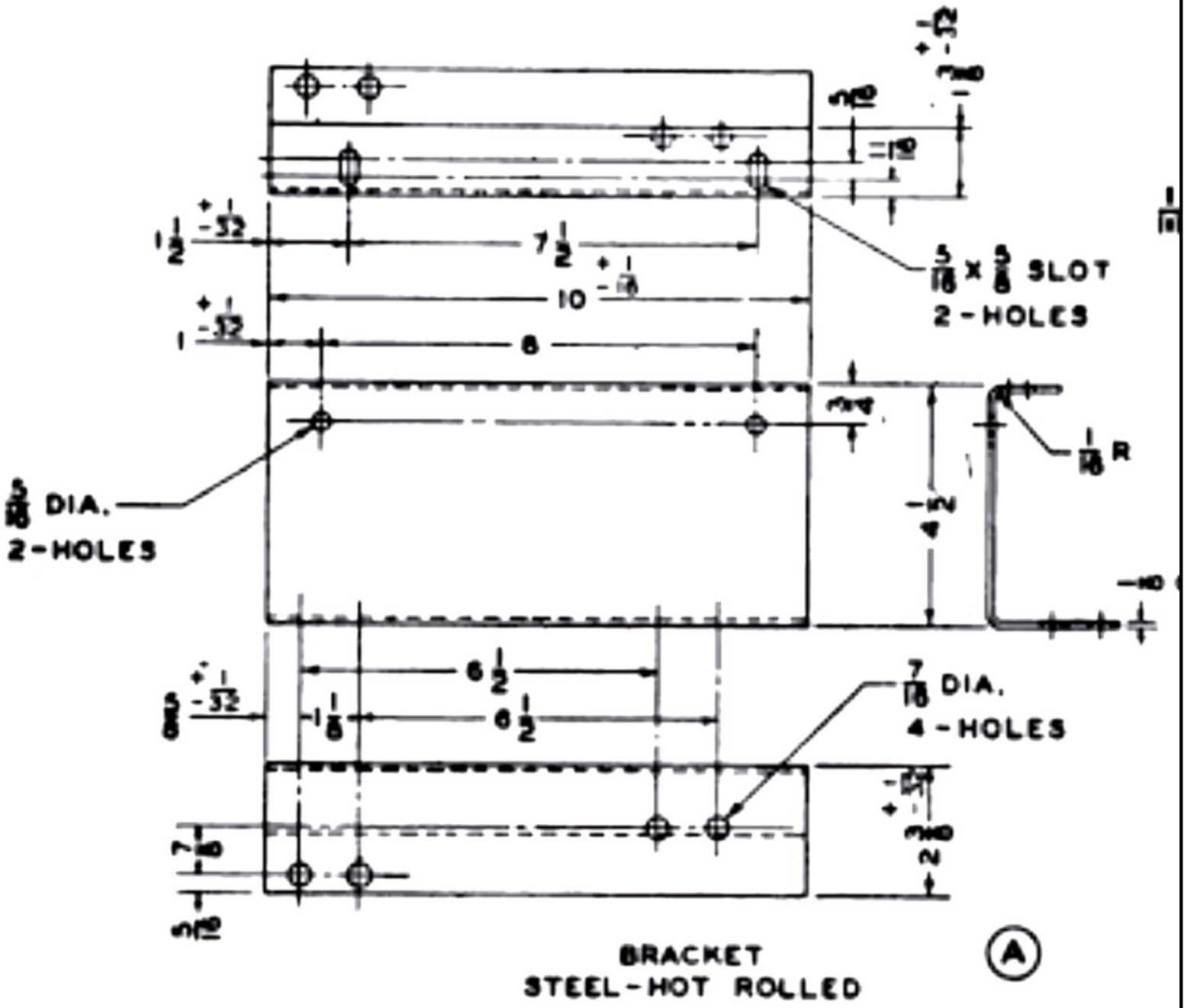
METHOD FOR SECURING STRAP FIG 19B TO MOUNTING FT-250-( )



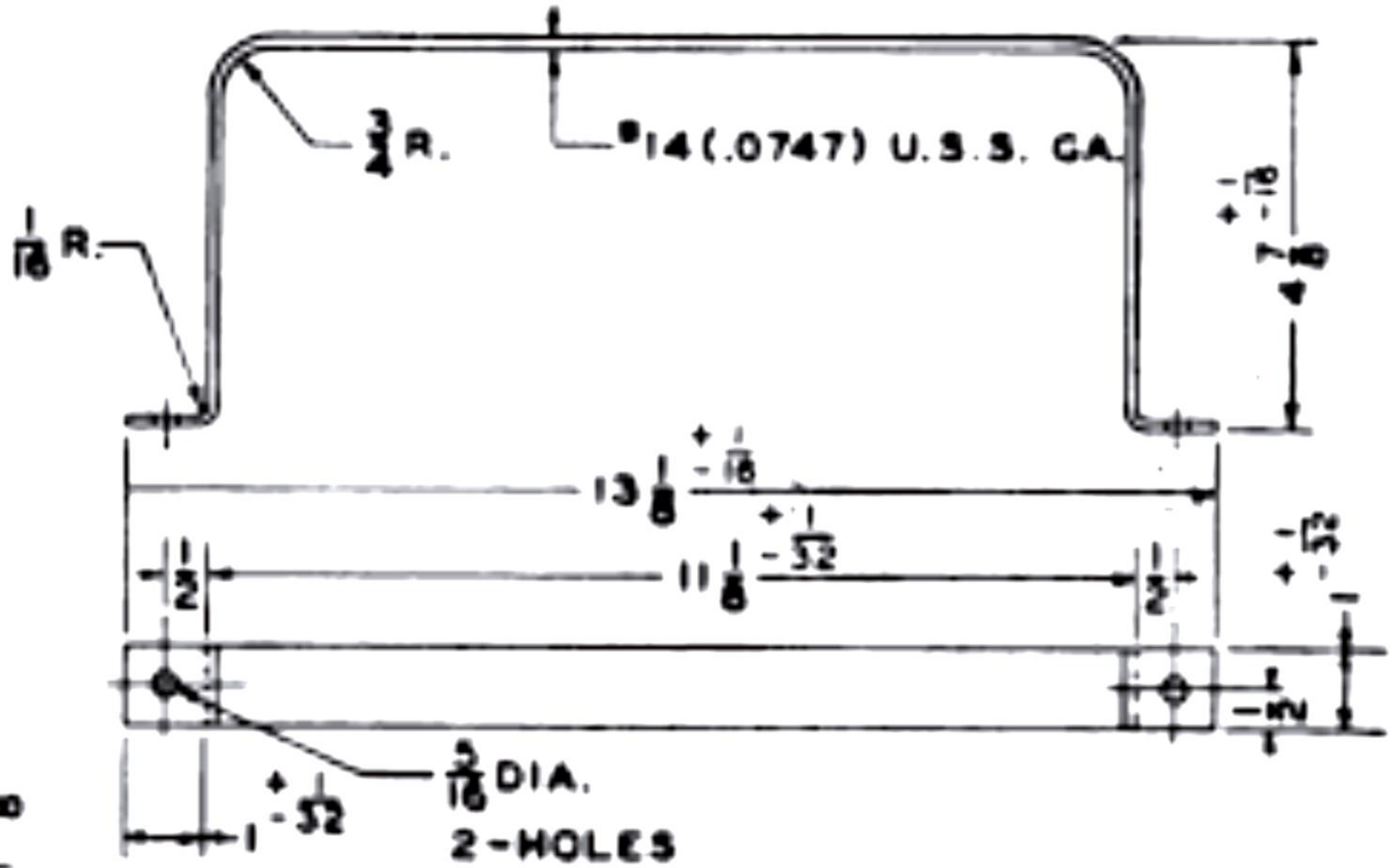
DETAIL B

METHOD FOR SECURING BRACKET FIG. 19C TO MOUNTING FT-250-( )

ITEM NO	NAME OF ITEM	QUAN. REQ.
1	RADIO RECEIVER AND TRANSMITTER BC-1000-A	1
2	BATTERY BA-70	1
3	MOUNTING FT-250-( ) SEE NOTE 6	1
4	SWITCH BOX BC-658-( ) SEE NOTE 1	1
5	INTERPHONE CONTROL BOX BC-606-( ) SEE NOTE4	1
6	MAST BASE MP-48-A SEE NOTE 8	1
7	COVER BG-108	1
8	MAST SECTION MS-53	1
9	BRACKET FIG 19 A	2
10	BRACKET FIG 19 C	2
11	STRAP FIG 19 B	1
12	WIRE W-128 75 IN. LG. SEE NOTE 2 AND 9	1
13	WIRE W-128 14 IN. LG. SEE NOTE 2	1
14	HEX. HD. MACH. SCREW 3/8"-24 X 1/2" LG.	1
15	RD. HD. MACH SCREW #8-32 X 3/8" LG.	3
16	HEX. HD. MACH. SCREW 1/4"-20 X 1 1/2" LG.	2
17	HEX. HD. MACH. SCREW 1/4"-20 X 3/4" LG.	6
18	HEX. HD. MACH. SCREW 1/4"-20 X 1/2" LG	2
19	HEX. NUT 1/4"-20 ST'D.	12
20	LOCKWASHER S.A.E. REG. FOR 1/4" SCREW	12
21	LOCKWASHER ST'D. FOR #8 SCREW	3
22	SHAKEPROOF WASHER SEE NOTE 7 (ST'D. FOR 3/8" SCREW)	3
23	TRANSFORMER C-410 SEE DETAIL-D (ST'D. FOR 3/8" SCREW)	1
24	FLATWASHER ST'D FOR 1/4" SCREW	2
25	CASE CS-128-( )	1
26	TERMINAL FIG. 30	2
27	TERMINAL TM-163	4



This bracket, A, only needed for raising the FT-250 above the sponson inside the M5 Light Tank. It is not needed for standard FT-250 mounting in Jeep.



BRACKET
STEEL-HOT ROLLED

DEVELOPED LENGTH-22

(B)

This bracket, B, simply bolts down across the VRC-3 / SCR-300 radio chassis.

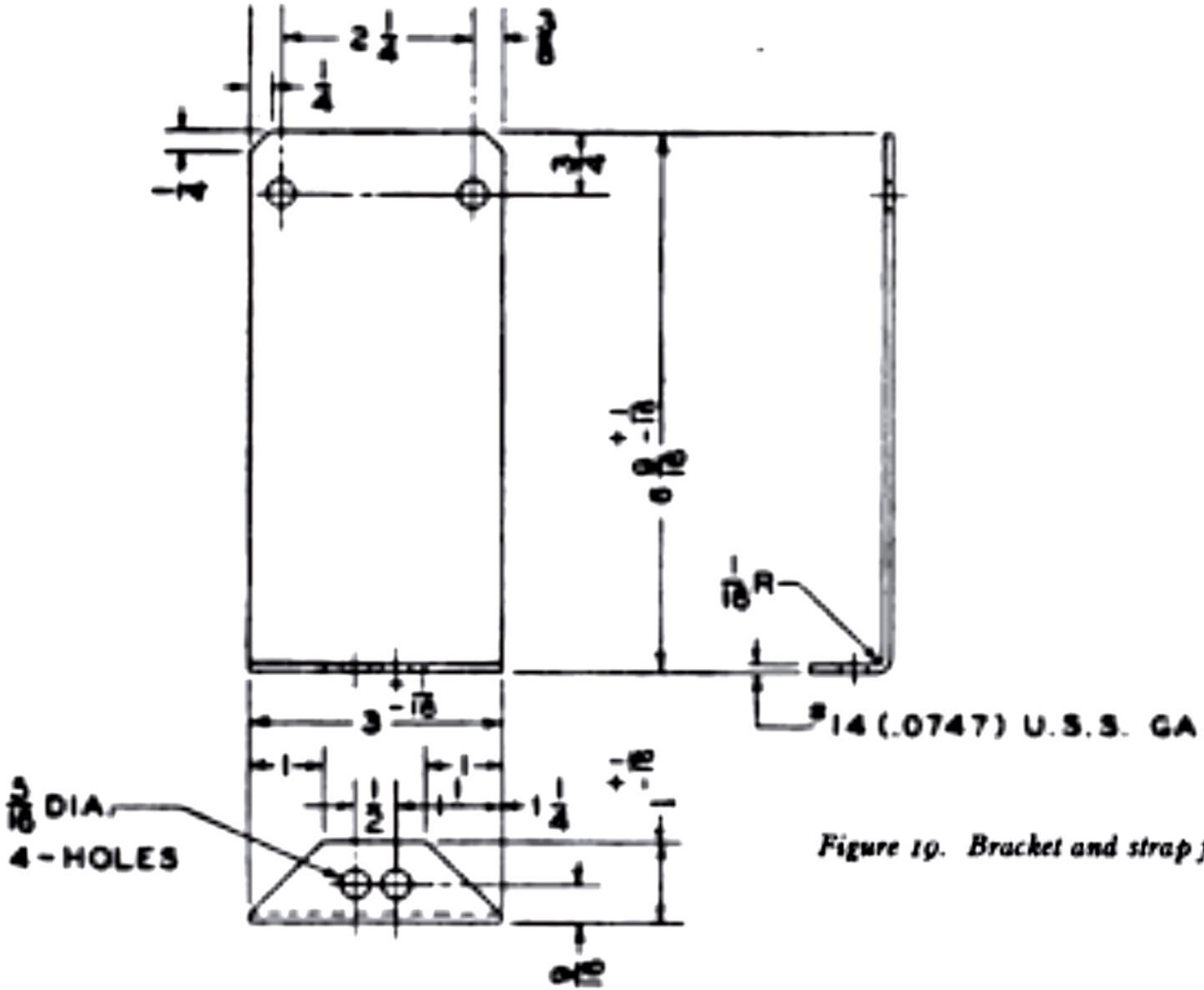
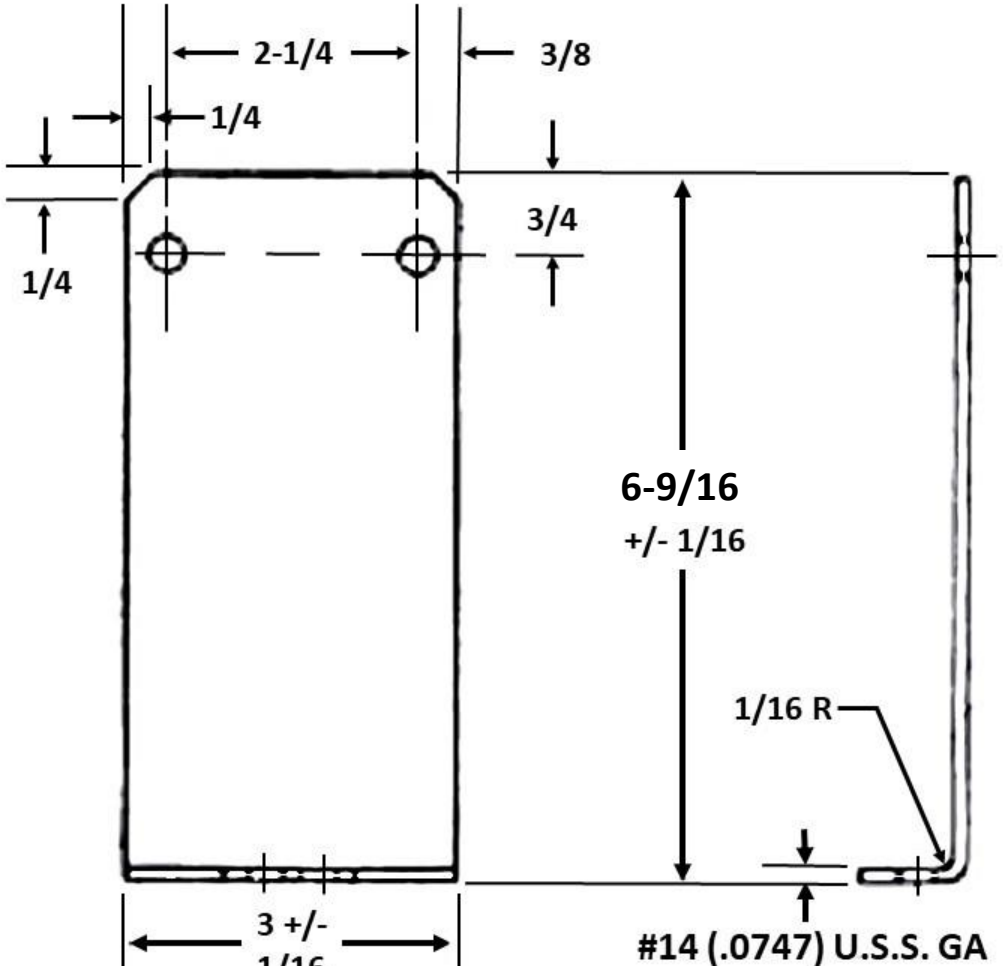
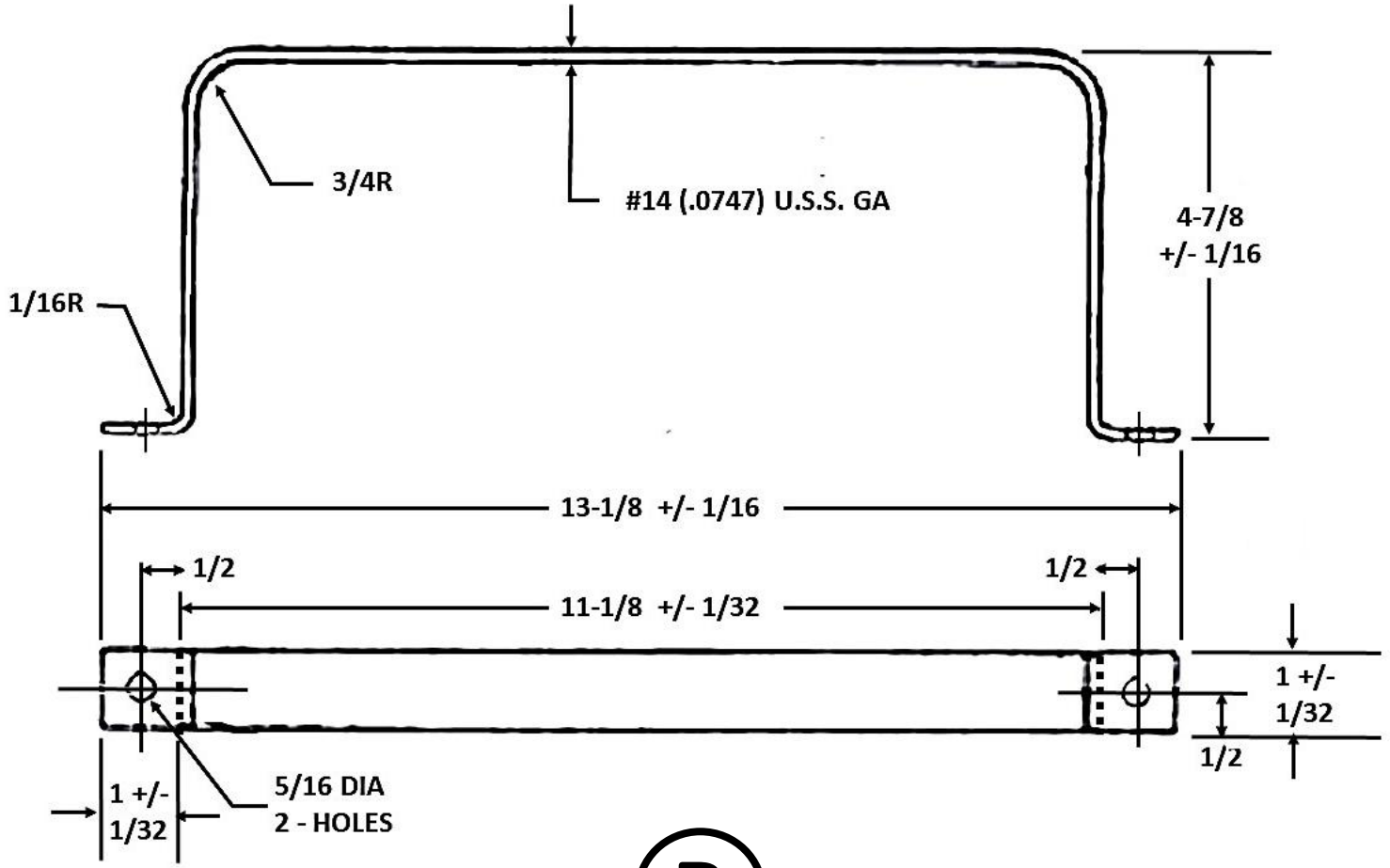


Figure 19. Bracket and strap for installation of radio equipment in Light Tank M5 or M5A1.

These two brackets, C, are bolted to the Case CS-128-A (radio BA-70 “battery box”) using the brackets on the CS-128 normally used to attach the waist belt for dismounted carry.



C



B

Modified FT-250 Mounting Bracket Parts

Note: #14 U.S.S. GA = 1/8” thick

14. Required Parts

Items necessary for installation of Radio Set AN/VRC-3-( ) in Light Tank M5 series are listed below.

Quantity	Stock Number	Item
1	2A275	Antenna AN-130-A.
1	3A70	Battery BA-70.
2		Bracket. (See fig. 19(C).)
2		Bracket. (See fig. 19(A).)
1		Bracket. (See fig. 19(B).)
1	6F428	Case CS-128-( ).
1	2C5395	Radio Receiver and Transmitter BC-1000-A.
*1	2Z9940-410-1	Transformer C-410, to be attached to Switchbox BC-658-( ).
1	2Z3400-108	Cover BG-108, for Mast Base MP-48-A.
1 set		Hardware.
1	4B1115	Handset TS-15-( ), with Cord CD-494.
1	2A2088-48	Mast Base MP-48-A or MP-48.
2	2A2353	Mast Section MS-53, includes one spare.
1	2Z6721-250	Mounting FT-250-( ).
1	2Z9050	Strap ST-50.
1	2C7978	Switch Box BC-658-( ).
2	6D13059	TM 11-637, for Radio Set AN/VRC-3-( ).
8 ft.	1B128	Wire W-128.

*Transformer C-410 may be obtained from Cord CD-604 or CD-605, if it is not available separately.

Mounting FT–250–( ), and brackets shown in figures 19A and 19C.

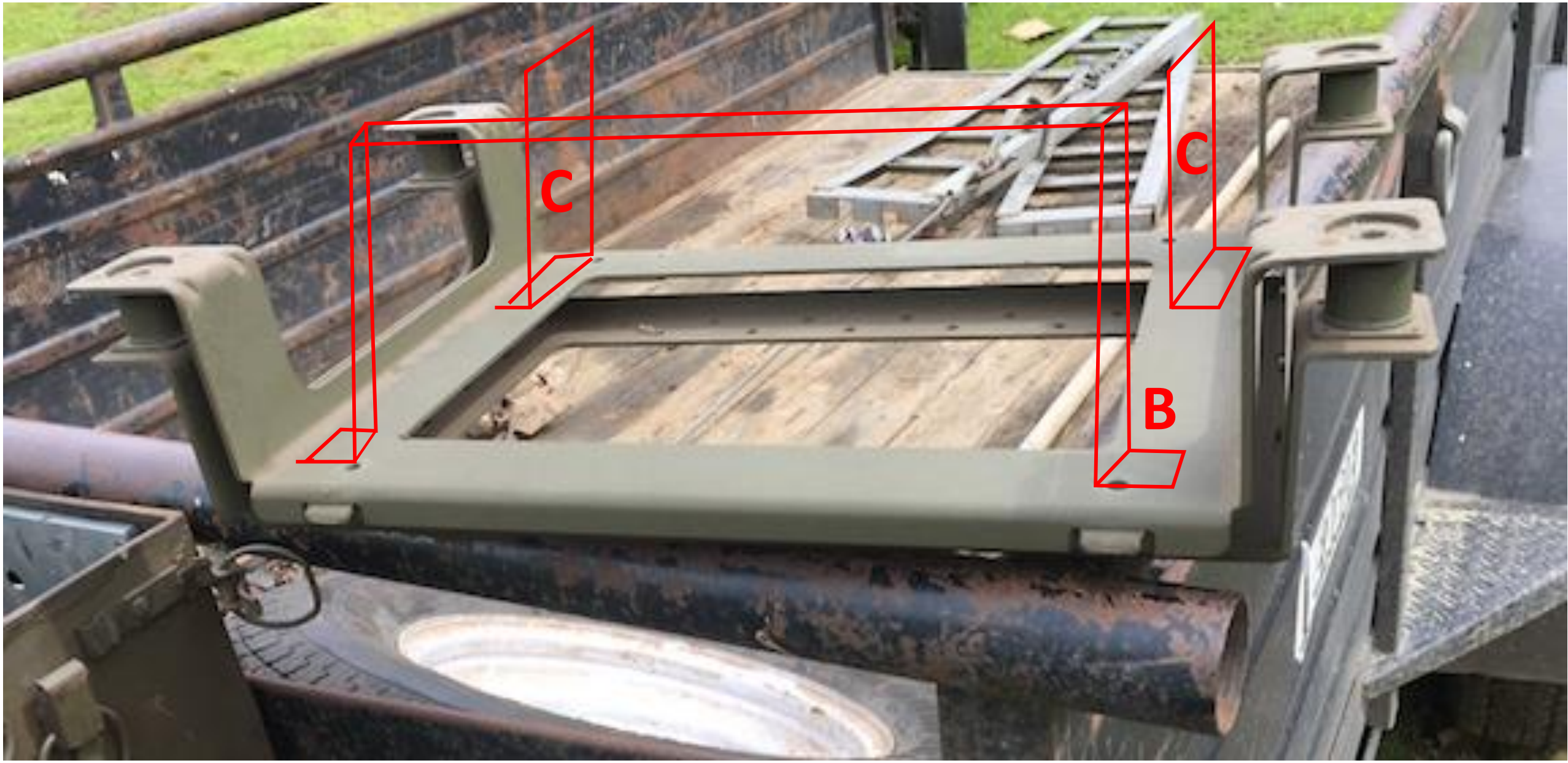
Brackets, A, only needed if the FT-250 Mount must be raised above the mounting surface, like in the M5 Light Tank sponson.

Secure brackets (fig. 19(C)) to Mounting FT–250–( ) with two hex. head machine screws, nuts, and lockwashers, as shown in figure 18. Secure brackets (fig. 19(A)) to bottom of Mounting FT–250–( ), using 4 hex. head machine screws, ¼"–20 x ¾" with hex. nuts and lockwashers. Insert two hex. head machine screws upward through holes in Mounting FT–250–( ), and secure with nuts and washers as shown in detail *A*, figure 18. Place Mounting FT–250–( ) in position on right sponson, in place of the .30 caliber ammunition rack, and secure to sponson by means of screws and nuts removed from ammunition rack, placing the screws upward through the sponson, as shown in detail *C*, figure 18.

Radio Receiver and Transmitter BC–1000–A and Battery BA–70.

Install Battery BA–70 in Case CS–128–( ) of Radio Receiver and Transmitter BC–1000–A. Place Radio Receiver and Transmitter BC–1000–A on Mounting FT–250–( ) and secure to brackets (fig. 19(C)) with two hex. head machine screws, ¼"–20 x ½", nuts, and lockwashers, as shown in figure 18. Place bracket (fig. 19(B)) over receiver-transmitter, and secure to Mounting FT–250–( ) as shown in detail *A*, figure 18.

Brackets, C, are bolted to the CS-128 case using the brackets for the waist belt.



A rough sketch of the orientation of the B and C brackets on the FT-250 Mount.

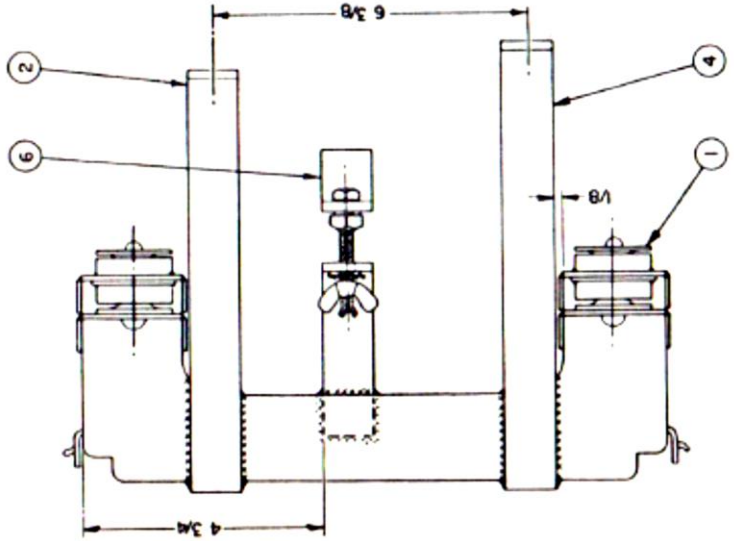
Method 2: Permanent Modification to FT-250, TM 11-2754

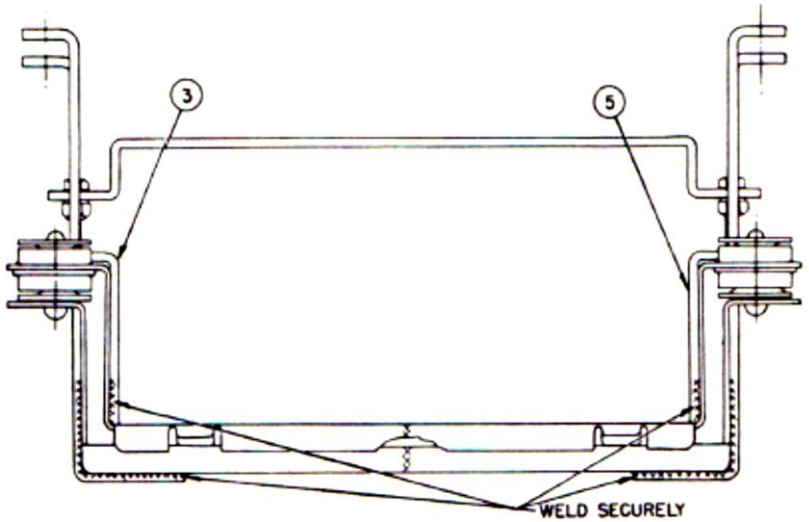
This method makes a permanent modification to the FT-250 mount by cutting it in half, removing a small section, then re-welding the mount back together.

Additionally, there is a fabricated bracket for the radio that is also welded to the modified FT-250.

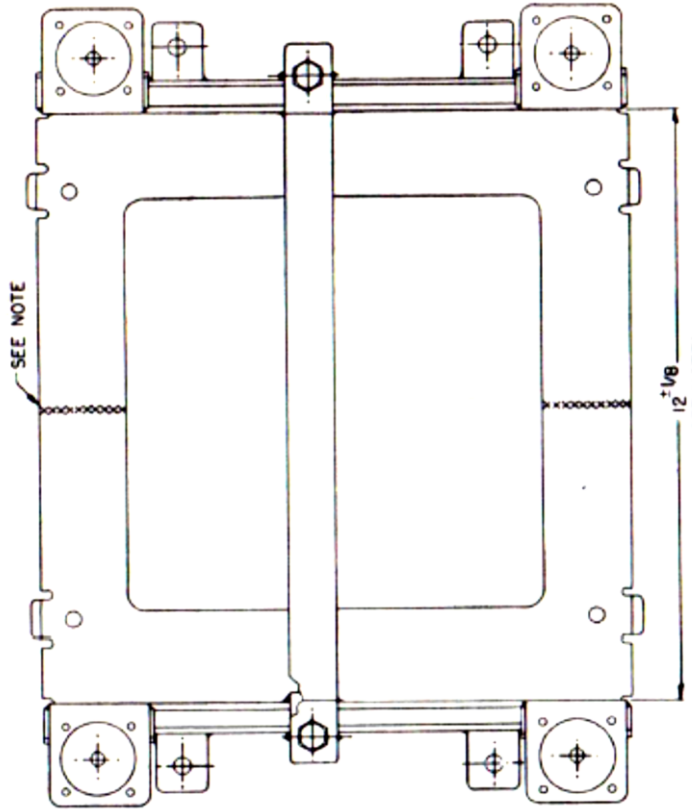
The major advantage to this method is that it creates a very snug and secure mount for the SCR-300 / VRC-3 radio set. Another advantage is that the PP-114 Power Supply can be used with the radio set and secured into this modified mounting. Note that the radio may also be used in this modified mount with the CS-128 Battery Box.

However, once so modified, the FT-250 is only suitable for mounting the AN/VRC-3 – SCR-300 Radio Set. Reversing the modifications would be very difficult (if not practically impossible).





No dimensions are given for bracket 3, bracket 5 or clamp 6. The TM states that the mounting is ordered and stocked pre-modified with the required brackets per SC-D-7398-B. The instructions in the TM strongly suggest that the FT-250 modification could be performed at the depot or field level.

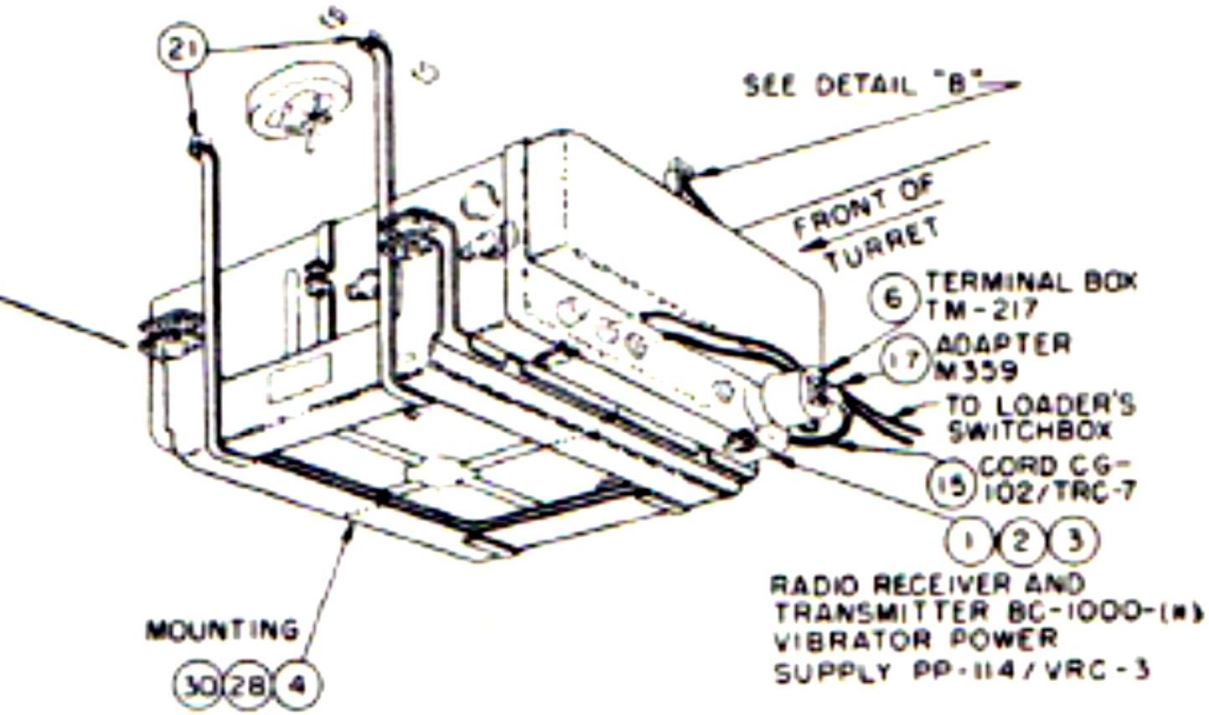


12" +/- 1/8"

NOTES:
① SHALL BE MOUNTING FT-250 CUT AND SECURELY WELDED TO DIMENSION SHOWN, AND GROUND OFF SMOOTH.
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES.
WELDED ITEMS SHALL BE GIVEN ONE SPRAY COAT OF METAL PRIMER AND ONE SPRAY COAT OF SEMI-GLOSS OLIVE DRAB AIR DRYING ENAMEL. ALL PAINTS AND METHODS OF APPLICATION SHALL BE IN ACCORDANCE WITH SPECIFICATION NO. 72-53.

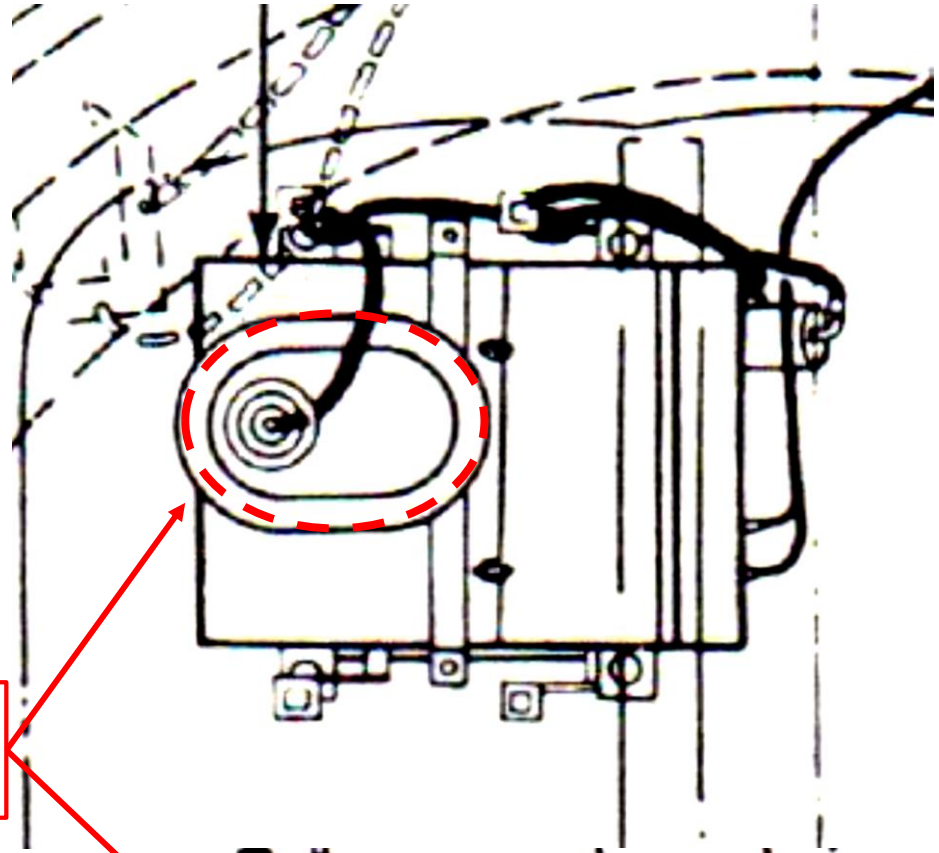
ITEM NO	NAME OF ITEM		QUAN. REQ.
1	MOUNTING	SEE NOTE	1
2	SUPPORT		2
3	BRACKET		1
4	SUPPORT		2
5	BRACKET		1
6	CLAMP		1

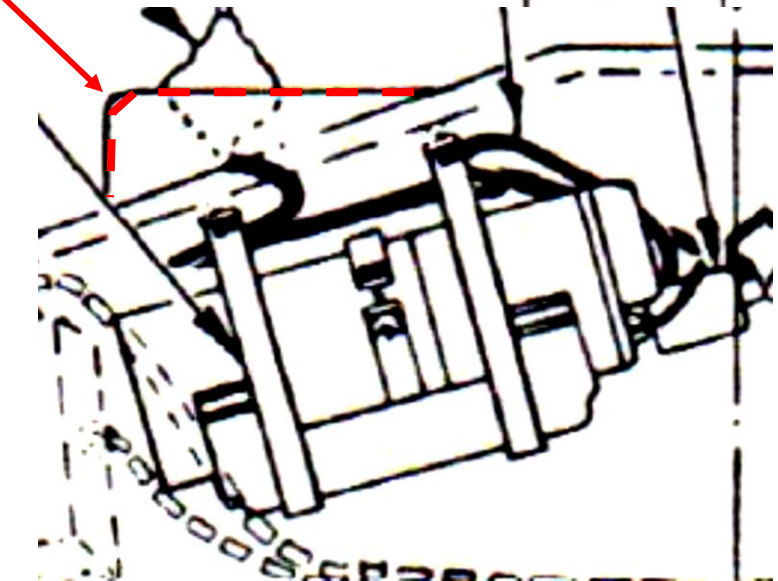
Figure 24. Mounting for Radio Set AN/VRC-3 in Tank, Light, M24.

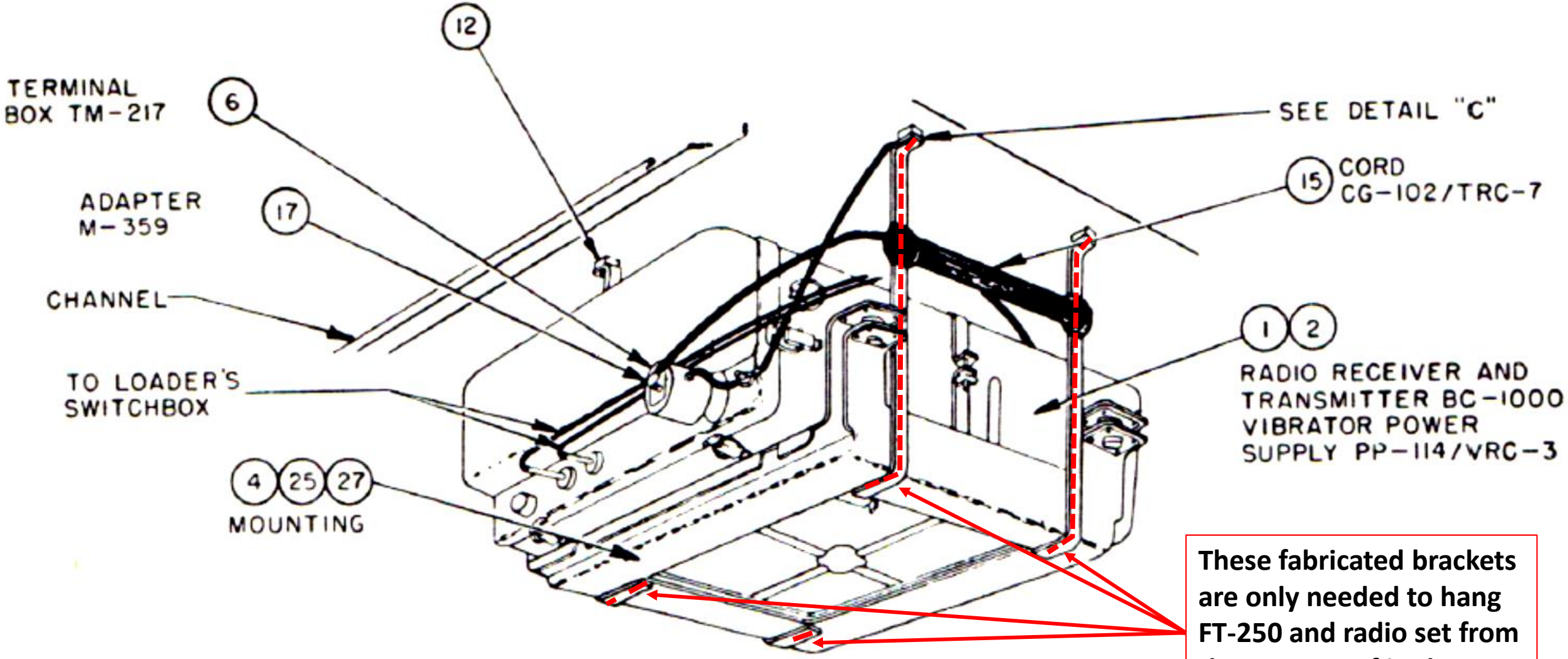


ENLARGED VIEW OF MOUNTING FOR RADIO SET AN/VRC-3
DETAIL "A"

External Antenna Mounting.







ENLARGED VIEW OF MOUNTING
FOR RADIO SET AN/VRC-3
DETAIL "A"

These fabricated brackets are only needed to hang FT-250 and radio set from the turret roof in the M24 Light tank.

The SC-D-7398-B Radio Mounting

It appears that sometime in the early 1950s, the Signal Corps contracted for VRC-3 vehicle mounts to be purpose manufactured.

The designation was based on the Signal Corps contract specification "SC-D-7398-B" (Signal Corps drawing number?).

The mount, itself, looks like a factory new made version of the M24 Light Tank modified FT-250. This particular mount does not have the hooks along its edges that are used on the FT-250 to attach the SCR-610, etc. radio sets.

This Modification Work Order description is the only other documentation outside of TM 11-2754 that I could find:

MWO		
11-637-2	Modification of mounting per SC-D-7398-B used with radio set AN/VRC-3 to replace existing shock mounts with improved shock mounts.	22 Jul 52

The data plate for the SC-D-7398-B VRC-3 mount. The manufacturer might have been F.B.F Tool & Instrument Inc. (still in existence). This mount appears to be new made and not a modified FT-250.

The SC-D-7398-B mount appears to have been manufactured new resulting in mounts that were then stocked that units could requisition / order vice performing the modification themselves.

However, the TM strongly implies that the modification could be performed on the standard FT-250 at the depot or field levels.

Note the parts list, paragraph b, page 36, TM 11-2754:

Quantity	Signal Corps stock No.	Item
1	2Z6721–250/2	Mounting (per SC–D–7398).

Non-US Post-War Manufacture

British manufactured WS31 Mk. 1 and Mk.2 radios in both backpack and vehicle mounted versions. It is believed that these were licensed copies despite their external differences. They operate on the same frequencies as the SCR-300.

French manufactured licensed direct copies of the SCR-300 radios. Reports state (but are confirmed) that many of the early French made sets incorporated US manufactured parts. It appears that France also manufactured new AN/VRC-3 along with PP-114 vehicle power supplies.

Japanese manufactured SCR-300 radios. One source states that very few of these were made.

Yugoslavian RUP-2B "copy" of the SCR-300. Two versions made starting in 1958. These sets appear to be "inspired by" rather than copied directly from the SCR-300.

Italian marked SCR-300 radios may have been all Italian depot overhauls of sets originally made in the US or France. No information has come to light to confirm Italian new-manufactured sets.

Australia manufactured indigenous sets WS128 Mk. 1 and MK.2 starting in 1946. These sets were AM (vice FM) and Morse Code (CW) capable. Given these significant functional differences, the WS128 sets should probably be considered "inspired by" rather than direct copies of the SCR-300.

British Post-War Manufacture

British WS31 Mk2 Post War Manufacture
MUR: 21491

British WS31 Mk2 Post War Manufacture
MUR: s/n unknown


Test bc 1000 serial 239
WIRELESS SET No.31. A.F.V.
Z1/ZA 39058
SERIAL No. MR 4824
M.R. LTD.
PRESS FOR CALIB.
CHANNEL
TUNING
1:20 / 7:58

British WS31 Mk2 Post War Manufacture

MUR: s/n ukw

British WS31 MkI AFV Post War Manufacture M.R. LTD (Murphy Radio Ltd.): MR3894

“AFV” version lacks the hinged top cover and Uses a vehicle power supply (similar to the VRC-3).

French Post-War Manufacture

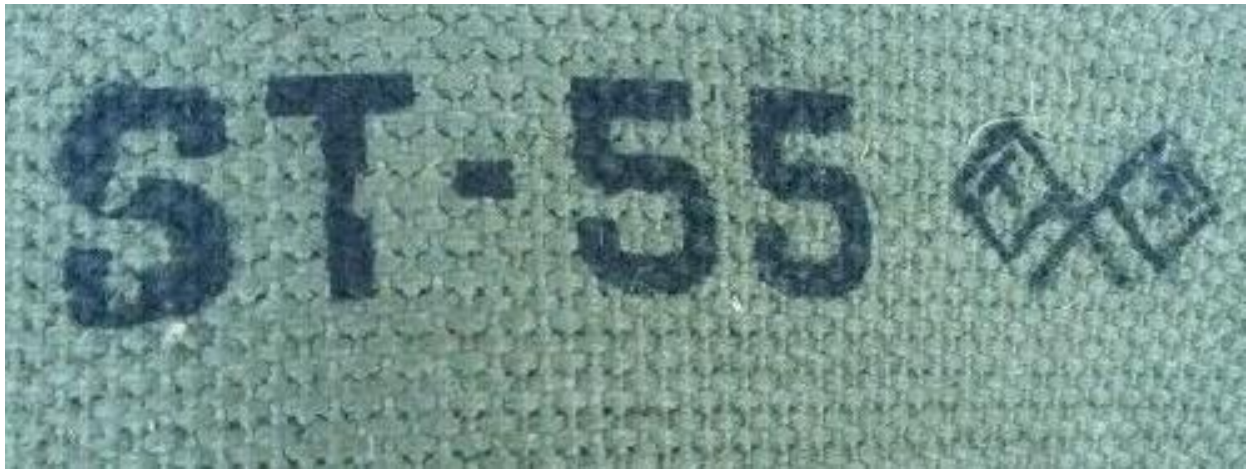
French Post War Manufacture
Thomson-Houston: 180

French Post War Manufacture

French Post War Manufacture

Mfg. LGT - Saint Cloud

Another *definitive characteristic* of French made SCR-300 radio sets is that *they do not have the recessed area in the top cover for the data plate*. Some sources state that early French made sets used spare US parts, to include US manufactured top covers with the recessed data plate area. If so, it may be possible to find a French made set with French data plate mounted in a recessed top cover but not the reverse (a US data plate on a flat top cover).



French Post War Manufactured
ST-55 Belt for SCR-300

Note the French "Service des Transmissions" crossed semaphore flags with the letter "T."

This marking is seen on examples of all French Harness ST-54, Belt ST-55, Back Pad M-391, Carry Strap ST-50, and accessory Bag BG-150.

Additionally, many French BG-150 have a Leather (horse hide?) lining in the top flap.

Japanese Post-War Manufacture

Japanese Manufactured SCR-300
(Unfortunately missing the data plate)

In addition to the top plate stenciling in Japanese, note what appears to be a coax cable (BNC type?) connector in place of the usual headphone jack and the (indistinct) frequency data card located inside the right end of the lid / cover.

Additional Views of the Japanese Manufactured SCR-300

Final View of the Japanese Manufactured SCR-300

The Belt ST-55 appears to be a French made example. It's not possible to identify the source(s) of the other webbing items.

This set was offered for sale on eBay as shown.

Yugoslav Post-War Manufacture

Yugoslav RUP-2B Post War Manufacture

Data plate mounted inside hinged top Cover.

Italian Army Depot Overhaul (?)

The radio top cover is not recessed for the data plate, so this example may originally be French manufactured.

Note that data plate has no serial number and that the radio top control stenciling has been marked in Italian. Also note that the top plate shows no signs of being refinished and may be in original, as-made condition.

Italian Army Depot Overhaul / Post-War Manufacture*

***It may be possible that the Italian military received sets were made specifically by French manufactures for the Italians.**

Italian Army Depot Overhaul (?)

The radio top cover is recessed for the data plate, so this example may originally be US manufactured.

No s/n and controls again marked in Italian.

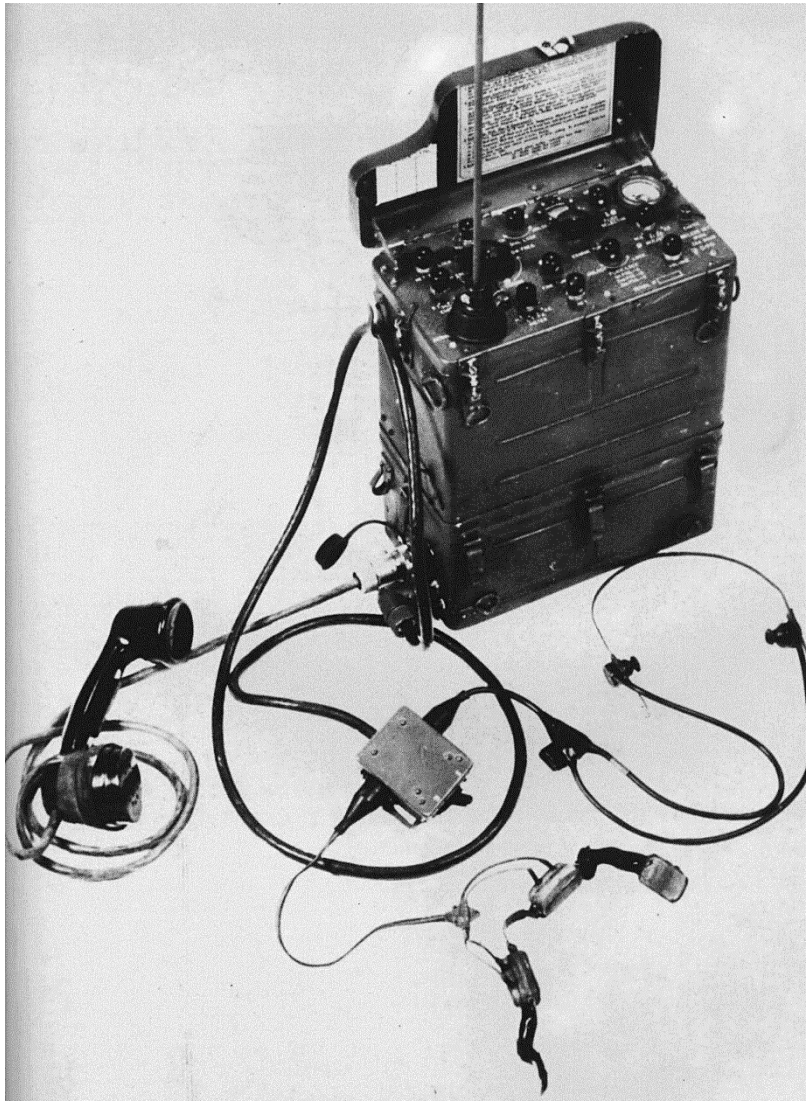
Australian Post-War Manufacture

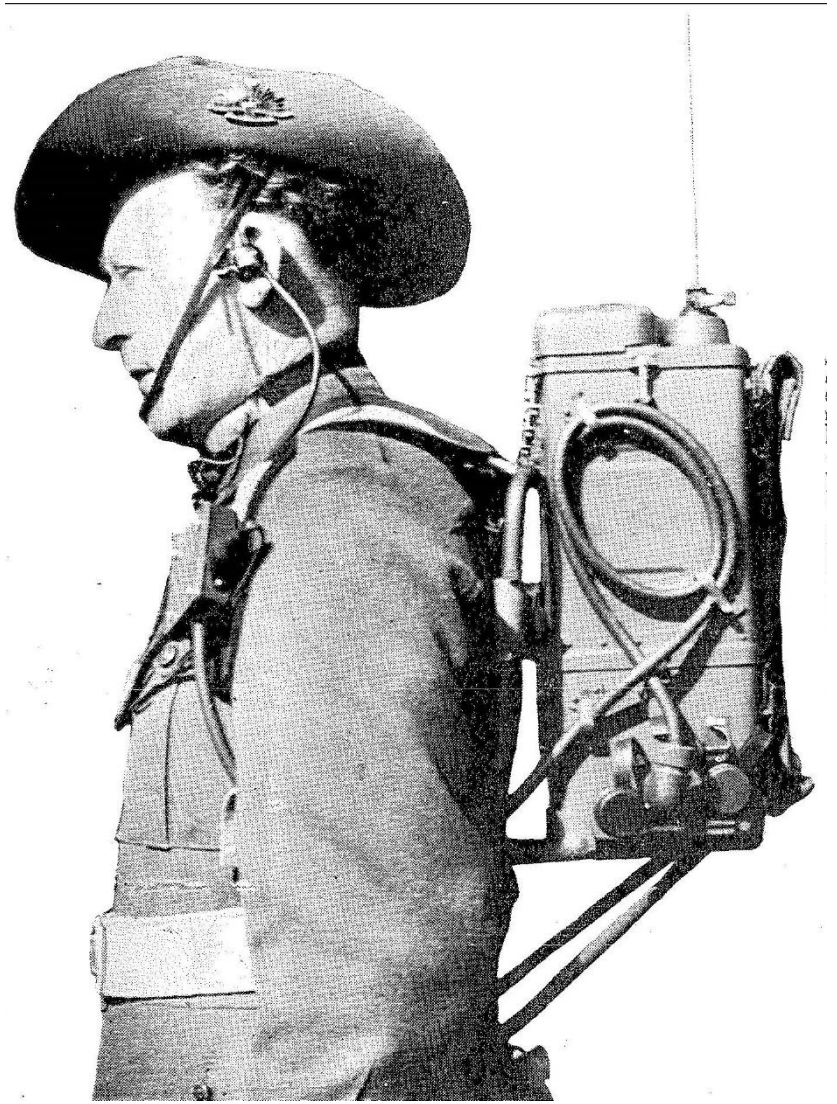
Wireless Set WS128 Mark 1 and Mark 2

Manufacture started in 1946. Both versions were used by Australian forces in Korea, but these sets were replaced in service starting in 1952. The WS128 was an AM vice FM set that was capable of CW-Morse Code as well as voice.

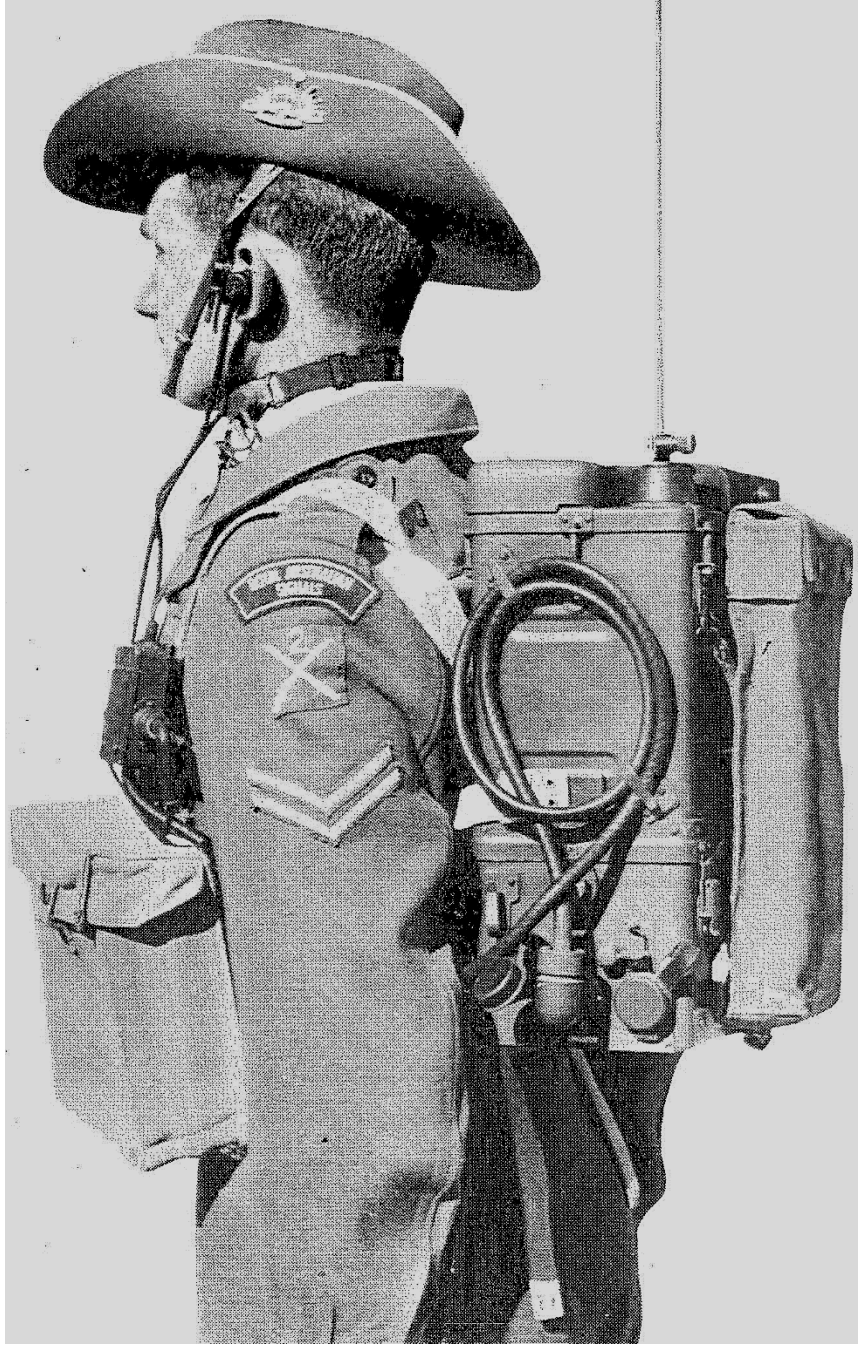
Australian WS128 Mk. 1

Australian WS128 Mk. 2





Australian WS128: Note the full-width top cover and the cable connectors for the radio set accessories on the lower sides. On the right is the WS 128 Mk. 1. Observe the metal carry frame and the high, above the shoulders carry position.



Australian WS128 Mk. 2. Note the canvas carry harness and the lower, shoulder-high carry position of the Mk. 2 set.

The WS128 was only loosely based on the SCR-300 and was considerably different in function and operation. It is noticeably thicker than the SCR-300 and the full-cover top and side cable connectors are obvious differences.

Still, the influence of the SCR-300 cannot be over-looked.

Reproduction Data Plates: Collectors Beware!

SCR-300 is highly sought after by many collectors and reenactors. When the demand is high enough, it's worth the money to fabricate high-quality reproduction components or to counterfeit the radio sets.

Numerous MSA / MAP depot overhauled sets are restored with new paint, repro data plates and equipped with, quite often, French accessories. Counterfeit or reproduction depends on the seller's and buyer's points of view. Pay attention to the details to be sure you're getting what you believe you're paying for.

Numerous original French manufactured SCR-300 (and VRC-3) radios are also "restored" with new paint, repro data plates, and new face plate control markings / stencils to replicate US WWII radios. Again, counterfeit or repro depends on the point of view of the people involved.

Available repro parts include: data plates, decals for antennas (both long and short), decals and stencils for face plate markings, repro clear lenses for channel dials. French made harnesses, straps, belts, antennas, and handsets are commonly found and substituted for original US items.

Original manufacturer's data plates seem to have always been secured using rivets. However, it's possible that some original depot data plates may have been secured on with screws. Hand-written serial numbers may be original to US depot overhauled sets.

Some known reproduction data plates have been observed secured using rivets. Thus, rivets are not 100% proof of originality, and screws may not all be proof of reproductions.

Reproduction Decal on Reverse of Original French Data Plate

Installed using rivets on refurbished French BC-1000 top cover.

Original Galvin Data Plate

Known Reproduction Galvin Data Plate

Note rivets used to mount plate and font and text spacing compared to original.

Known Reproduction Depot Data Plate

Un-serialized / ready for collector.

Believed Original Depot Data Plate

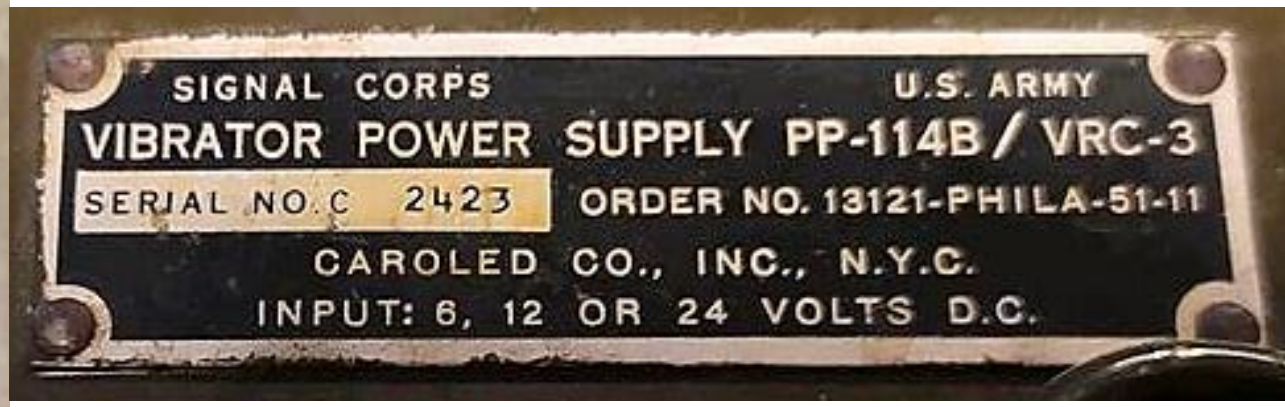
Reproduction Data Plate Sold on eBay

Reproduction Data Plate Sold by Jeep Parts Vendor

Reproduction Data Plate Sold by Jeep Parts Vendor

Reproduction Data Plate Sold by Jeep Parts Vendor

Reproduction PP-114B/VRC-3
Data Plate Sold by Jeep Parts Vendor



Original PP-114B/VRC-3
Data Plate

Reproduction Data Plate for Fictitious FT-317 Mounting

This mounting is fabricated by a vendor in Italy and is based loosely on the FT-317 mounting used to install the SCR-300 / VRC-3 on the interior turret wall of the M4 medium and M5 light tanks. This newly fabricated mounting is made to hold the SCR-300 / VRC-3 in a vertical orientation on the fender of a Jeep.

Fictitious Jeep Fender Mount "FT-317"

Original Tank, Vertical Wall Mounting FT-317

Background on the US Signal Corps Overhaul Depots ("Shops")

At the beginning of the war, there were five "Repair and Reissue" shops operating within the "Maintenance Division" under the Office, Chief Signal Corps Officer (OCSigO).

The "Shops Branch" was formally stood up in August, 1943 and was placed under the control of the Distribution Division, part of the overall "Production and Distribution Division" (P&D) under the OCSigO.

The Maintenance Division was subordinated under the Distribution Division with the intention to simplify tracking total numbers of critical items on-hand for issue. Before this, P&D was not able to track items repaired and available for reissue which affected contracting, procurement and stocking levels.

The US Signal Corps "Shops Branch" was responsible for the repair and overhaul of equipment returned from service and then its transfer to the Distribution Division for reissue (avoiding the new manufacture of unnecessary equipment).

Once the Shops Branch was established, the number of Repair and Reissue Shops was increased from five to nine (with several subdivided "branch" shops).

and so on. The Maintenance Division repaired all sorts of signal equipment returned from training areas in the United States, or from overseas. At times it also fabricated signal items.[6]

ganizational change near the end of the fiscal year brought staff supervision of fifth echelon repair shops back to the P&D Service and its newly activated Shops Branch. Other repair installations

nical mechanics; fifth echelon maintenance: maintenance of equipment by personnel of maintenance and supply units located at fixed installations in the rear areas, including the reclamation or complete reconditioning of matériel, the limited manufacture of parts and equipment, and the supplying of equipment to lower echelons.

Excerpts from the official Signal Corps WWII history

ments. Repair and reissue of signal equipment remained an area of great potential supply value that was largely unexploited until the activation of the Shops Branch in the Distribution Division of OCSigO in August 1943.[121]

At that time the five shops in existence at the beginning of the war had increased to nine. They were located at the Atlanta, San Antonio, and Utah General Depot Signal Sections, and at the Chicago, Philadelphia, Lexington, and Dayton Signal Depots, the last having two branches—one in Wichita, and one in Buffalo. In December the Utah shop was closed and its equipment and personnel transferred to the newly activated Sacramento Signal Depot. Early in 1944 new shops were set up at the Los Angeles and Holabird Signal Depots.[122] The AAF took over the Dayton and Los

“Odds and Sods”: Miscellaneous Information

My own collecting plans have adding an AN/VRC-3 and maybe (one day) an RC-291 antenna. These notes are for myself, though, so no garantees.

For this possibility, I’ve done a little research on the type of coax cable used with the SCR-300 set for remote antennas (RC-291 or vehicle mount with AB-15).

What follows is the basic info that I came up with at the time I assembled this research monograph. More study needs to be done, but perhaps what I have here will give someone else a leg-up if they’re looking for the same kind of data.

Also included is a copy of the SCR-300 frequency and channel chart from the TM.

IF430-102	CABLE ASSEMBLY, RF: Army-Navy CORD CG-102/TRC-7; coaxial; flexible; characteristic impedance 50 ohms; 37 ft 6" lg; single No. 16AWG solid copper conductor; Grade A polyethylene dielectric; Sig C dwg No. SC-D-16851.
2Z7226-258	CONNECTOR, female contact: Plug PL-258; single cont; fits Plug PL-259; Sig C dwg SC-D-5887-B.

For SCR-300 / RC-291
Antenna TM-217
Use CG-67 coax cable.

RG58 Coaxial Cable is a lightweight coaxial cable with a 50-ohm characteristic impedance. The central conductor is 20 American Wire Gauge (AWG) pure annealed copper, although some versions may use a stranded tinned copper conductor.

Actual cable used in both modern military CG-102 and CG-67 appears to be RG58 (although modern AWG core standard is 20 vice 16).

LMR-240 (LL-240) is another 50 ohm coax with a 16 AWG core. Recommendation: USE RG-8 cable with Amphenol PL-259 connectors.

(2) Cord CG–67/MRQ–2 consists of 9 feet of coaxial cable with a connector Plug PL–259 on each end. Cord CD–1297 consists of 9 feet of coaxial cable with a plug AN–3106–14–3ST on one end and a Plug PL–259 on the other.

Caution: Do not cut the cord furnished to another length. The tap settings shown on the inside of the cover of the terminal box are determined for a 9-foot coaxial cable and are not the proper settings for a cable of any other length.

For SCR-509 / SCR-510
Use CG-67 coax cable.

For fabricating a new coax cable to use with the SCR-300 or AN/VRC-3:

RG-11 may be used. It is .4” diameter, but modern RG-11 cable is 75 ohm vice 50 ohm.

May be that this is suitable only for vehicular installations. A longer coax with the RC-291 may have problems.

PL-259 (Amphenol RF 83-1SP-1050) fits RG-8 50 ohm coax .405” OD: USE THIS COMBINATION

SCR-300 Channels and Frequencies Chart taken from TM 11-242

CHANNEL dial marking	Frequency (mc)	CHANNEL dial marking	Frequency (mc)
0	40.0	21	44.2
1	40.2	22	44.4
2	40.4	23	44.6
3	40.6	24	44.8
4	40.8	25	45.0
5	41.0	26	45.2
6	41.2	27	45.4
7	41.4	28	45.6
8	41.6	29	45.8
9	41.8	30	46.0
10	42.0	31	46.2
11	42.2	32	46.4
12	42.4	33	46.6
13	42.6	34	46.8
14	42.8	35	47.0
15–C	43.0	36	47.2
16	43.2	C	47.3
17	43.4	37	47.4
18	43.6	38	47.6
19	43.8	39	47.8
20	44.0	40	48.0

Note that the modern abbreviation used is MHz. or "megahertz" vice mc. "mega-cycles." The actual frequencies are the same. Also note that the channels marked "C" are the ones selected when the radio operator is checking and fine-tuning the frequency dial calibration. (Procedures are listed in the TM.) The 0perator selects his transmitting and receiving channels by the channel number and not by the frequency.

Primary References

Petrakis, Harry Mark. *The Founder's Touch: The Life of Paul Galvin of Motorola.* McGraw-Hill, NY. 1965.

Affrunti, Andy, Sr. *A Personal Journal: 50 Years at Motorola*. Privately published. 1985.

Thompson, George Raynor; Dixie R. Harris; Pauline M. Oakes; Dulany Terrett. *United States Army in World War II - The Signal Corps, 3 Volume Set: The Emergency, The Test, The Outcome.* Office of the Chief of Military History, Department of the Army, Washington, D. C., 1957.

Thompson, Richard J., Jr. *Crystal Clear: The Struggle for Reliable Communications Technology in World War II*. Institute of Electrical and Electronics Engineers Press, Piscataway, NJ. 2012.

Technical Manual TM 11-238 Radio Sets SCR-194 and SCR-195. War Department, Washington DC. 1942.

Technical Manual TM 11-242 Radio Set SCR-300-A (with changes). War Department, Washington DC. 1943.

Technical Manual TM 11-637 Radio Set AN/VRC-3. War Department, Washington DC. 1944.

Technical Manual TM 11-983 Vibrator Power Supply PP-114. War Department, Washington DC. 1945.

Radio Nerds. https://radionerds.com/index.php/Main_Page (Your one-stop-shop for all things related to US military radios, including links to many TM and FM.)

US Militaria Forum (USMF). https://www.usmilitariaforum.com/forums/

G503 Military Vehicle Message Forums. https://forums.g503.com/ (In particular many thanks to Gee members: Bruce H., WD9GHK and Yves, YLG80 for information that both have so generously shared!)

A simple Google Search using the terms "SCR-300" and / or "BC-1000" will uncover numerous websites and internet articles about this equipment. The "living historian" or "reenactor" communities have published numerous articles – some quite good, others… well, not so good. The HAM radio community is another group that has collectively done a lot of good work researching and publishing the history of military radio sets.

Note on secondary references: One problem with any historical research effort is that the complete story is something of a moving target. That is, new information is constantly being discovered which often results in previously published secondary work becoming obsolete, in part of in whole. This is just the nature of the beast. Even this work will not stand the test of time as someone else is surely (hopefully!) to engage in a more in-depth and comprehensive study of the subject. I, for one, will look forward to the day when I get a chance to read that future work and have the opportunity to learn something new!