

RESTRICTED

PRELIMINARY

INSTRUCTION BOOK

FOR

NAVY MODEL TDT

VHF TRANSMITTING EQUIPMENT

SERIAL # 351 BOOK # 2

OUTPUT

35 Watts

EMISSION

A-2 and A-3

FREQUENCY RANGE

115 to 156 mc

MANUFACTURED FOR

U.S. NAVY DEPARTMENT

BUREAU OF SHIPS

BY

AIRCRAFT ACCESSORIES CORPORATION

KANSAS CITY, KANSAS, U.S.A.

CONTRACT NXss-30269

DATE OF CONTRACT MAY 27, 1943

WARNING

OPERATION OF THIS EQUIPMENT INVOLVES THE USE OF HIGH VOLTAGES WHICH ARE DANGEROUS TO LIFE. OPERATING PERSONNEL MUST AT ALL TIMES OBSERVE ALL SAFETY REGULATIONS. DO NOT CHANGE TUBES OR MAKE ADJUSTMENTS INSIDE EQUIPMENT WITH HIGH VOLTAGE SUPPLY ON. UNDER CERTAIN CONDITIONS DANGEROUS POTENTIALS MAY EXIST IN CIRCUITS WITH POWER CONTROLS IN THE OFF POSITION DUE TO CHARGES RETAINED BY CAPACITORS, ETC. TO AVOID CASUALTIES ALWAYS REMOVE POWER, DISCHARGE AND GROUND CIRCUITS PRIOR TO TOUCHING THEM.

FIRST AID

PERSONNEL ENGAGED IN THE INSTALLATION, OPERATION AND MAINTENANCE OF THIS EQUIPMENT OR SIMILAR EQUIPMENT ARE URGED TO BECOME FAMILIAR WITH THE FOLLOWING RULES, BOTH IN THEORY AND IN THE PRACTICAL APPLICATION THEREOF. IT IS THE DUTY OF EVERY RADIOMAN TO BE PREPARED TO GIVE ADEQUATE FIRST AID AND THEREBY PREVENT AVOIDABLE LOSS OF LIFE.. YOUR OWN LIFE MAY DEPEND ON THIS.

Do These Three Things First in Any Emergency Requiring First Aid:

1. Send for a doctor or carry the victim to a doctor.
2. Keep victim warm and quiet and flat on his back.
3. If breathing has stopped, apply artificial respiration.

Stop all serious bleeding.

When, from any cause whatever, breathing has stopped, apply artificial respiration immediately and continue WITHOUT STOPPING until normal breathing returns, or a doctor pronounces the victim dead. SPEED IN BEGINNING ARTIFICIAL RESPIRATION IS ESSENTIAL.

The Prone Pressure Method of Artificial Respiration:

If Due to Electric Shock

1. PROTECT YOURSELF with DRY insulating material.
2. BREAK THE CIRCUIT BY OPENING the power switch or pulling the the victim free of the live conductor. DON'T TOUCH THE VICTIM WITH YOUR BARE HANDS UNTIL THE CIRCUIT IS BROKEN.

3. SPREAD DRY BLANKET ON THE GROUND, and roll victim to center of the blanket with his arms extended over his head, so that he lies FACE DOWN on blanket.
4. BEND ONE OF THE VICTIM'S ARMS at the elbow and rest the victim's cheek on the back of his hand.
5. REMOVE FALSE TEETH, gum, candy, tobacco, food, etc., from victim's mouth.
6. LOOSEN ALL TIGHT CLOTHING, as belts or collars.
7. COVER VICTIM LOOSELY by wrapping the ends of the blanket around him.
8. STRADDLE VICTIM across thighs.
9. PLACE THE PALMS OF YOUR HANDS ON VICTIM'S BACK so that the little fingers of each hand just touch the victim's lowest ribs.
10. KEEP YOUR ARMS STIFF AND STRAIGHT and swing your body forward, allowing your weight to bear down on the victim.
11. DO NOT PUSH OR USE FORCE.
12. SWING BACK AT ONCE TO RELIEVE PRESSURE.
13. REPEAT Number 10.
14. REPEAT Number 12.
15. CONTINUE as above, maintaining a steady rhythm until victim regains consciousness or is pronounced dead by a doctor.
16. CONTINUE ARTIFICIAL RESPIRATION even after victim begins to breathe, and until he becomes conscious.
17. IF BREATHING STOPS AGAIN, continue artificial respiration at once.

18. DO NOT GIVE UP HOPE of reviving the victim. Four hours or more of continuous application of artificial respiration may be required before consciousness returns.
19. NEVER TRY TO FORCE LIQUIDS down an unconscious person's throat. He will drown.
20. ALWAYS WAIT UNTIL CONSCIOUSNESS RETURNS before administering liquid stimulants.
21. RECOMMENDED STIMULANTS ARE: Hot, black coffee. Strong hot tea. Aromatic spirits of ammonia, one teaspoonful to a glass of water.
22. GIVE ONLY ONE STIMULANT, which should be sipped slowly.
23. ALCOHOLIC DRINKS are not recommended, unless absolutely nothing else is available.
24. WHEN VICTIM HAS RETURNED TO CONSCIOUSNESS, allow him to lie quietly where he is for at least one hour, taking care that he is well covered and free from worry.
25. IF POSSIBLE, CARRY, OR HAVE HIM CARRIED TO A DOCTOR.

WOUNDS

Neglected wounds can have serious consequences. Any break in the skin is a wound. Paint small cuts and scratches immediately with TINCTURE OF IODINE. Deep cuts and wounds should be KEPT CLEAN but DO NOT USE TINCTURE OF IODINE on them. Washing AROUND and AWAY FROM the wound with ordinary soap and water, if no other antiseptic is available, is recommended. Other antiseptics for use on deep wounds are: Violet Gentian, Potassium Permanganate, Tincture of Merthiolate,

or ordinary baking soda and water. Cover the wound with a sterile gauze dressing and hold in place with adhesive tape or a strip of gauze.

In cases of serious bleeding, when an artery has been cut, firm pressure is necessary to stop the flow of blood. Arterial bleeding is BRIGHT RED and comes from the wound in SPURTS, with each beat of the heart. Bleeding from a vein is DARK RED and flows steadily. Pressure is not often needed for venous bleeding.

Pressure is applied ABOVE the wound, or between the WOUND AND THE HEART, to stop ARTERIAL BLEEDING. Pressure is applied BELOW the wound, or AWAY FROM THE HEART, to stop VENOUS BLEEDING.

Pressure is best applied and maintained by means of a TOURNIQUET. A TOURNIQUET IS A STRIP OF CLOTH, bandage, or other material, tied ABOVE the wound. Tie a simple, double knot in the cloth and place a strong stick or other rigid member in the loop thus made, then tighten the knot by pulling the ends of the cloth.

With the rigid member thus held firmly in place, twist it, until the bleeding stops.

DO NOT maintain such pressure longer than 15 minutes at a time. IF BLEEDING CONTINUES after loosening tourniquet, allow the blood to flow for about 30 to 60 seconds and then re-apply pressure. Continue until bleeding stops.

AFTER BLEEDING HAS STOPPED, the wound should be carefully covered with a sterile dressing. DO NOT TOUCH WOUND OR DRESSING WITH DIRTY HANDS:

Keep the victim LYING FLAT ON HIS BACK AND WELL COVERED. DO NOT LET HIM SEE HIS WOUND. Give't his thoughts from himself.

Obtain the services of a DOCTOR AS SOON AS POSSIBLE.

BURNS

Burns, whether caused by contact with high voltage electrical equipment, fire, or friction, require immediate attention.

1. APPLY AT ONCE any of the following:
 - a. Tannic acid jelly.
 - b. Butesin picrate.
 - c. Paste made with baking soda and water.
 - d. Very strong, cool tea.
2. Applications should be LIBERAL and the burned area covered with STERILE GAUZE.
3. If clothing sticks to the burned areas, DO NOT ATTEMPT TO REMOVE IT. Treat burn as above.
4. Keep the victim WELL COVERED AND LYING FLAT ON HIS BACK. Soothe and reassure him.
5. Obtain the services of a DOCTOR AS SOON AS POSSIBLE.

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SERIAL NO. _____

PRELIMINARY

INSTRUCTION BOOK

FOR

NAVY MODEL TDT

VHF TRANSMITTING EQUIPMENT

OUTPUT	EMISSION	FREQUENCY RANGE
35 Watts	A-2 and A-3	115 to 156 mc

This document contains information affecting the Nation Defense of the United States within the meaning of the Espionage ACT (U.S.C. 50: 31, 32). The dissemination of this document, or the revelation of its contents in any manner to any unauthorized person is prohibited.

This Instruction Book is furnished for the information of commissioned, warranted, enlisted and civilian personnel of the Navy and persons authorized by the Bureau of Ships whose duties involve design, manufacture, instruction, operation, and installation of radio, radar, or underwater sound equipment. The word "Restricted" as applied to this instruction book signifies that it is to be read only by the above personnel, and that its contents should not be made known to unauthorized persons not connected with the Navy.

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KANSAS CITY, KANSAS, U.S.A.

CONTRACT NXss-30269

DATE OF CONTRACT, MAY 27, 1943

WARNING

- (a) Since the use of high voltages which are dangerous to human life is necessary to the successful operation of the equipment covered by these instructions, certain reasonable precautionary measures must be carefully observed by the operating personnel during the adjustment and operation of the equipment.
- (b) While every practicable safety precaution has been incorporated in this equipment, the following rules must be strictly observed:
- (c) KEEP AWAY FROM LIVE CIRCUITS. Under no circumstances should any person be permitted to reach within or in any manner gain access to the enclosure; or to approach or handle any portion of the equipment which is supplied with power, or to connect any apparatus external to the enclosure to circuits within the equipment; or to apply voltages to the equipment for testing purposes. Wherever feasible in testing circuits, check for continuity and resistance rather than directly checking voltage at various points.
- (d) DO NOT SERVICE OR ADJUST ALONE. Under no circumstances should any person reach within or enter the enclosure for the purpose of servicing or adjusting the equipment without the immediate presence or assistance of another person capable of rendering aid.

THE ATTENTION OF OFFICERS AND OPERATING PERSONNEL IS DIRECTED TO BUREAU OF SHIPS MANUAL OF ENGINEERING INSTRUCTIONS, CHAPTER 31 (MEMEOGRAPHED FORM) OR COMNAVSTA 161.10'S PARAGRAPH 6 THE SUBJECT OF "RADIO-SAFETY PRECAUTIONS TO BE OBSERVED."

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GUARANTEE

GUARANTEE. The contractor warrants that the time of delivery thereof the articles provided for under this contract will conform to the specifications herein and will be free from any defects in material or workmanship. Notice of any such defect or nonconformance shall be given by the Government to the Contractor within one year after delivery. If required by the Government, the Contractor shall, with all possible speed and diligence, correct or replace any articles or parts thereof which are defective in material or workmanship or which otherwise are not in conformity with the specification requirements. Where such correction or replacement requires return of the article to the Contractor's plant, shipping costs, if any, to the plant from the delivery point provided for in the contract and back from the plant to such delivery point shall be paid for by the Contractor; all other shipping costs shall be paid for by the Government. This warranty shall then continue as to corrected or replaced articles until one year after the redelivery. When for any reason the Government does not require correction or replacement of an article which is defective or not in conformity with the specifications, it may pay for such article at such reduced price as shall be fair and equitable under the circumstances or it may exercise any other remedy available to it by law.

REPORT OF FAILURE

Report of failure of any part of this equipment, during its service life, shall be made to the Bureau of Ships in accordance with current instructions. The report shall cover all details of the failure and give the date of installation of the equipment. For procedure in reporting failures see Chapter 31 (mimeographed form) of the Manual of Engineering Instructions, or Bureau of Ships Radio and Sound Bulletin Number 7, dated July 1, 1942, or superseding instructions.

(a) Contract No. NXss-20269 Date of Contract May 27, 1943
Serial Number of equipment 351
Date of acceptance by the Navy 4-20-44
Date of delivery to contract designation _____
Date of completion of installation _____
Date placed in service _____

(b) Blank spaces in this book shall be filled in at time of installation. Operating personnel shall also mark the "date placed in service" on the date plate located below the model nameplate on the equipment, using suitable methods and care to avoid damaging the equipment.

REPLACEMENT MATERIAL

All requests or requisitions for replacement material should include complete descriptive data covering the part desired, in the following form:

1. Name of part desired.
2. Navy Type number (if assigned) (including prefix and suffix as applicable).
3. Model designation (including suffix) of equipment in which used.
4. Navy Type designation (including prefix and suffix where applicable) of major unit in which part is used.
5. Symbol designation of part.
6. (a) Navy Drawing Number.
(b) Manufacturer's Drawing Number.
7. Rating or other descriptive data.
8. Commercial designation.

SECTION I. DESCRIPTION OF EQUIPMENT

1. Summary of Characteristics.--

a. Electrical Characteristics.--

Frequency Range	115-156 mc
Power Output	35 wetts
Output Impedance	50 ohms, unbalanced
Modulation	Tone, 1000 cycles or 500 cycles. Speech range 100%.
Power Consumption	750 watts, approx.
Line Voltage	110-120 volts, 60/50 cycles.
Audio Response	± 2 db from 1000 cycles over range 200 to 4000 cycles.

b. Mechanical Characteristics.--

(1) Transmitter.--

Overall Dimensions	32 7/16" wide, 26 3/8" high, 23 3/4" deep.
Net Weight	450 lbs.
Shipping Weight	470 lbs.

(2) Antenna.--

Maximum Vertical Dimension	28 3/8"
Maximum Horizontal Dimension	49 1/2"
Net Weight, including 100' of cable	16 1/2 lbs.
Shipping Weight	45 lbs.

(3) Spare Parts---

Overall Dimensions of Crate	15" wide, 23" high, 30 1/2" deep.
Net Weight	90 lbs.
Shipping Weight	125 lbs.

c. Vacuum Tube Complement---

<u>FUNCTION</u>	<u>QUANTITY</u>	<u>COMMERCIAL DESIGNATION</u>	<u>NAVY TYPE DESIGNATION</u>
Crystal-Oscillator Doubler	1	807	807
First Doubler	1	807	807
Second Douhler	1	807	807
Tripler	1	829	829
Final Amplifier	1	829	829
Tone Generator	1	6J5-GT/G	6J5-GT/G
Buffer Amplifier	1	6J5-GT/G	6J5-GT/G
Voltage Amplifier	1	6J5-GT/G	6J5-GT/G
Modulator Drivers	2	6J5-GT/G	6J5-GV/G
Modulators	2	807	807
Voltage Regulators	2	VR150-30	38250
Rectifiers	4	5U4-G	5U4-G

2. Mechanical Arrangement---

a. Transmitter--- The Navy Model TDT VHF Transmitting Equipment consists of a transmitter, antenna system, and microphone. The telegraph key is not furnished as part of the equipment.

The complete transmitter consists of three chassis housed in a framework of welded angle steel covered with sheet steel panels. The unit is divided by a shelf which houses the radio frequency chassis next to the

front panel and the audio frequency chassis directly behind it. The lower section of the framework houses the complete power chassis. The r-f chassis is 29 1/2" long, 12 15/16" wide, and 2 1/2" deep. The layout for the r-f chassis is shown on Drawing W-40410. The modulator chassis is 29 1/2" long, 6" wide, and 2 1/2" deep. The layout for this chassis is shown on Drawing W-40413. Drawing W-40419 shows the power chassis which is 20 7/8" long, 18 1/3" wide, and 1 1/2" deep.

Note that all steel members of the transmitter's construction are copper plated, zinc chromated, and then given a black wrinkle finish. The complete equipment is floated on six shock mounts and the bars tying down these shock mounts are its only fixed anchor point.

All controls necessary to operate the transmitter are brought out on the front panel as can be seen on Drawing W-40448. The only times that it is necessary to get inside the transmitter is for changing crystals, changing tone frequency, tube replacement, and general maintenance.

Access to the interior of the transmitter is gained by the removal of any side, rear, or top panels which are held in place by captive thumb screws.

Chassis can easily be removed from the transmitter by disconnecting all cable plugs, shaft couplings, and then removing the four bolts located in each corner of the chassis. The r-f and modulator chassis can then be slid out from either side. The power chassis can only be removed from the right side of the transmitter.

A motor driven blower is incorporated in the transmitter for cooling of the tripler and final amplifier tubes. The motor and blower assembly is supported from the framework in the upper left hand corner, when viewing

the transmitter from the front panel, and its air duct is also suspended from the framework.

The antenna output cable is connected to the top panel by means of a cable connector. It can be removed by unscrewing the connector from the inside of the unit after the top panel is unscrewed and raised.

The power line input, remote microphone connector, and remote key connector are located on the left side of the rear panel, when facing the back of the transmitter, near the center as shown on Drawing W-40451.

The high frequency tuning assemblies consist of "U" shaped or "hairpin" type tanks with a sliding bar driven by a lead screw gear arrangement.

b. Antenna.--- The antenna designed for use with the Model TDT Transmitter is shown on Drawing W-40438. The radiating system is a quarter-wave vertical antenna, and its ground planes consist of four rods 90° apart. The quarter-wave vertical section is adjustable for various frequency ranges.

3. Electrical Description.---

a. General.--- This transmitter is of the crystal-oscillator, frequency multiplier, power amplifier type. It is plate modulated in the power amplifier stage and has an output of 35 watts. It can be voice modulated or keyed with a 1000 cycle tone. The output impedance is 50 ohms, unbalanced. The transmitter is designed to operate into Aircraft Accessories Corporation antenna, Type 704A, Navy Type Designation CKV66091, matching a 50-ohm single coaxial cable. Navy Type CASSF-50-1.

A power supply requiring 110 to 120 volts, 50 to 60 cycles input is used. Incorporated in this transmitter are local (front panel) controls for push-to-talk microphone and MCW key connections. These controls are

also brought out at the rear of the unit, for remote control over five wires, by means of a 5-prong plug. For detailed information refer to the schematic diagram shown on Drawing M-30823.

All stages deemed necessary to be measured are metered by the "meter shunt selector switch" method with the exception of the final amplifier stage which is metered continuously by M1 located on the right hand side of the front panel. Meter selector switch SW6, located on the front panel, is marked with five positions, "A" to "E" inclusive. Readings selected by this switch are read on meter M2 located on the left hand side of the front panel. Meter M2 has a 0 to 1 volt movement, and internal resistance of 62 ohms per volt, and has a 0 to 10 scale. Readings for the various positions are multiplied in accordance with the following information:

<u>Position of SW6</u>	<u>Multiply by</u>	<u>Full Scale Equals</u>	<u>Stage Measured</u>
A	25	250 ma	Modulator
B	25	250 ma	Tripler
C	15	150 ma	Second Frequency Doubler
D	10	100 ma	First Frequency Doubler
E	10	100 ma	Crystal-Oscillator Doubler

b. R-F Section.-- The radio frequency section of this transmitter consists of an 807 crystal-oscillator frequency doubler with a fundamental crystal frequency range of 4791.56 to 6500 kc. The output circuit of this stage is tuned to twice the crystal frequency or 9583.22 to 13000 kc. This stage is coupled to another 807 frequency doubler which has its output

circuit tuned to four times the crystal frequency or 19166.64 to 26000 kc. This output circuit is tuned to eight times the crystal frequency or 38333.28 to 52000 kc. This stage is capacity coupled to the 829 tripler stage and its output circuit is tuned to twentyfour times the crystal frequency or in other words the output frequency is 115 to 156 mc. This stage is capacity coupled to the final amplifier (modulated stage) and of course its output circuit is tuned to the same frequency of 115 to 156 mc. The output circuit is inductively coupled to the final amplifier and it is adjusted for proper loading by the tuning of capacitor C18 in conjunction with inductor L13 which may be moved toward or away from the final tank L12.

c. Modulator Section.--The audio frequency section of this transmitter consists of a tone generator, voltage amplifiers, and modulator stages. The tone generator is a transformer type oscillator incorporating a 6J5-GT/G tube as an oscillator and a 6J5-GT/G as a buffer stage, these two tubes are shielded. The tone generator has incorporated in it a system by which two frequencies, 1000 cycles or 500 cycles, may be selected. R31 is the 500 cycle control and is set at the factor for distortion free output. R33 is the 1000 cycle control and is set at the factory in a like manner. The tone frequency is adjusted at the factory by capacitors C20, C40, and C42.

The output is controlled or set to the proper level (set for 95% modulation at the factory) by the buffer input control R29. This buffer stage is capacity coupled to a 6J5-GT/G voltage amplifier and at this stage the microphone input is obtained. The voltage amplifier output or input to the next stage is controlled by R25. For voice it is factory set for 100% modulation. R25 is set for 100% voice modulation before control R29 is set for 95% tone

modulation. The following stage consists of a pair of 6J5-GT/G tubes operating in parallel as drivers for the Class AB₂ stage. The modulators are a pair of 807 tubes in push-pull, Class AB₂.

d. Power Supply Section.-- The power supply section of this transmitter consists of a combination plate supply using four 5U4-G tubes and two voltage regulator tubes Type VR150-30 (Navy Type 38250). The power to operate the S.R.R. slow release relay and the K.R. keying relay is furnished by the bias supply making use of a selenium rectifier. All 807 (except crystal-oscillator) and 829 tubes are protected by fixed bias. It should be noted that the bias supply comes on with the filaments and is fused by F2. One section of the combination plate supply uses one 5U4-G tube. This portion of the combination supply furnishes power to the 6J5-GT/G tubes and screen grids of all 807 tubes as well as plates of the r-f 807's. The audio 807 screens and all 6J5-GT/G plate supplies are voltage regulated by two VR150-30 tubes, also the r-f 807's are regulated by taking their supply from the mid-point or between the two VR150-30 regulator tubes. This transmitter cannot be operated without the two voltage regulator tubes. The microphone voltage source is obtained from this portion of the supply through a voltage divider system. The other portion of this combination power supply uses three 5U4-G tubes in parallel and this supplies the plate and screen voltages to the Type 829 tubes as well as the plates of the 807 modulator tubes. This combination plate and filament supply is fused by F1. The line pilot lamp only indicates power in the line and the switch SW1 is in the "ON" position. It does not indicate that the combination plate and filament transformer is receiving power, that is, it does not

indicate that fuse F1 is good.

The motor driven blower for cooling the tripler and final amplifier stages comes on when the filaments are turned on by switch SW1, labelled "LINE" on the front panel. Note that the filaments and blower can only be turned on and off by switch SW1. If this switch is left in the "ON" position the power line input may be controlled by an external line-switch. The motor for the blower is fused by F3. Never operate the transmitter unless the blower is in operation.

The operation of the push-to-talk system and the keying (MCW) system is brought about by a magnetically dampened relay, S.R.R. Note that there is approximately a half-second delay in carrier dropping off after the push-to-talk button, or hand key is released. Also note that the carrier comes up immediately upon pressing the push-to-talk button or closing the key. It should be noted that there is approximately 50 volts output from the main power supply at all times; when the main switch is on, this is brought about by spark suppressor resistors R37 and R38.

SECTION II. INSTALLATION OF EQUIPMENT

1. Transmitter.--

The transmitting equipment is shipped in three boxes. Box No. 1 contains the complete transmitter and instruction books, Box No. 2 the antenna equipment, and Box No. 3 contains the spare parts and tubes for the transmitter.

Carefully inspect each piece of equipment for shipping damage as soon as it is unpacked. If damage is discovered report it at once to the proper authorities in accordance with information given on Page 13.

Open Box No. 1 using the proper tools. Steel strapping can be broken by prying up the band slightly with a claw hammer and then cutting it with tin snips. Remove nails with a nail puller, or claw hammer and wrecking bar. To remove the transmitter from its box it may be necessary to open at least two sides of the box.

Place the transmitter in its desired location on a table or bench which is at least 31" long and 23" wide. Allow at least two feet of space to the rear of the transmitter for removal of the back panel and to have access to the line and remote connectors. Allow at least two feet of space to the left of the transmitter, when facing the front panel. The space to the right of the transmitter should be at least three feet in order that the three chassis may be easily removed from the frame when necessary.

The two bars on which the transmitter is floated with the aid of six shock mounts contain mounting holes at each end for fastening the transmitter to the table or bench on which it is located. The mounting screws are not furnished with the equipment as each installation may require a different size or type. After the transmitter is fastened in place remove the side, rear, and top panels. In removing the top panel unscrew the connecting cable between the antenna output on the top panel and the output circuit in the transmitter.

Remove all packing material from the various components of the transmitter. Operate the relays by hand to be positive that the armatures moves freely. With the exception of vacuum tubes the transmitter is completely assembled at the factory. From Box No. 3 remove the tubes and install them in the transmitter according to the diagram attached to the sockets.

Install the top panel in place and re-connect the connecting cable between the antenna output on top panel and the output circuit of the transmitter. Remove the co-axial cable from Box No. 2 and attach one end to the antenna output on the top panel by means of the connector (Navy Type CPH 49195) already attached to the cable. Run the other end of the cable to the antenna location.

Install the rear and side panels in place. IN SUCH AS NO INTERLOCK SWITCHES ARE UTILIZED NEVER OPERATE THE TRANSMITTER WITH ANY OF THE PANELS REMOVED. Install the power plug into the receptacle located in the rear of the transmitter, see Drawing W-40451. The transformers are wired in the transmitter for 115-volt operation. If the line voltage used differs from this value taps can be easily changed in accordance with information given in Section III. Paragraph 3.

If the transmitter is to be operated from a remote position the key and microphone lines may be plugged into the remote connectors in the rear of the panel, adjacent to the power line connector, at this time.

2. Antenna.---

From Box No. 2 remove the parts comprising the antenna. Fasten the flange at the desired antenna location with bolts (not furnished with equipment) through the four mounting holes. Make sure that at least a one-inch diameter hole is made through the base on which the flange is mounted for entrance of the connector fastened to the transmission line. The centerlines of the hole and flange should coincide. Fasten the shell on the flange with a wrench. Install the four ground plane rods into the shell. Before screwing on the vertical assembly connect the co-axial cable to the

connector in the bottom. After the vertical assembly is installed set the adjustable rod for the frequency range desired in accordance with Section III, Paragraph 2. Tighten all screwed joints with proper wrenches.

SECTION III. ADJUSTMENT AND OPERATION

1. Warning.--

OPERATION OF THIS EQUIPMENT INVOLVES THE USE OF HIGH VOLTAGES WHICH ARE DANGEROUS TO LIFE. OPERATING PERSONNEL MUST AT ALL TIMES OBSERVE ALL SAFETY REGULATIONS; SEE PAGES 8 AND 9. DO NOT CHANGE TUBES OR MAKE ADJUSTMENTS INSIDE EQUIPMENT WITH HIGH VOLTAGE SUPPLY ON. ALWAYS SHUT DOWN POWER EQUIPMENT AND OPEN THE MAIN SWITCH IN THE SUPPLY LINE TO EQUIPMENT.

2. Antenna Adjustment.--

The antenna designed for use with this transmitter is pictured on Drawing W-40438. The quarter-wave vertical rod has three grooves machined in its top adjustable section. The first groove, as viewed from the end opposite the four ground plane rods, denotes the 156 mc position. Upon loosening the lock nut at the end of the stationary portion of the quarter-wave vertical rod, slide the moveable section in the stationary section until a snap is felt at the first groove. Tighten the lock nut if operation is desired at 156 mc. The middle groove denotes the 135 mc position. The third groove denotes the 115 mc position. The antenna is now at its maximum extended position. The antenna will operate satisfactorily over the entire frequency range of 115 to 156 mc with only the above three settings, if however, the utmost efficiency is desired the operator may use these grooves as guides for settings at any other frequency. The antenna may be

set at its lowest frequency and operated over the entire band with good results. The following table summarizes the antenna settings for the various frequencies:

First Groove (Minimum extended position)	156 mc.
Second Groove (Middle position)	135 mc.
Third Groove (Maximum extended position)	115 mc.

3. Input Voltage.--

This transmitter has its transformers set at the factory for 115-volt operation. If the line voltage differs from this value the taps may easily be changed on transformers T4 (main power transformer) and T2 (bias supply transformer) to the nearest actual voltage input. The transformers are tapped for 110, 115, and 120-volt operation. On transformers T2 and T4 terminals No. 1 are the common a-c side. Terminals No. 2 are for 110 volts, No. 3 for 115 volts, and No. 4 for 120 volts.

4. Tuning Procedure.--

After the antenna has been adjusted for the proper frequency, tubes have been inserted, a crystal is plugged into its socket, all panels have been installed, the power supply is connected, and a key or microphone plugged into the correct jack, the transmitter is ready for tuning.

Turn switch SW1, labeled "LINE" to the "ON" position. This will turn on the filaments, blower, and the "LINE" indicator lamp. Allow the filaments to heat up for one minute. Turn "CIRCUIT SELECTOR" switch SW6 to position "E" which will meter the crystal-oscillator doubler stage. Push the push-to-talk button on the microphone. Follow through the following steps to tune the transmitter:

- a. Tune the "OSCILLATOR" dial until minimum current is indicated on the "CIRCUIT SELECTOR M.A." meter M2.
- b. Switch "CIRCUIT SELECTOR" switch to position "D" and tune "FIRST DOUBLER" dial until meter M2 indicates minimum current.
- c. Turn the selector switch to position "C" and tune the "SEC. DOUBLER" dial for minimum current.
- d. With the selector switch in position "B" turn the "TRIPLER" crank handle until minimum current is shown on the "CIRCUIT SELECTOR M.A." meter or maximum current on the "FINAL AMPLIFIER" meter M1.
- e. If the crystal frequency is closer to 6500 kc set the "ANTENNA LOADING" dial at 100; if the crystal frequency is in the low range of the fundamental set the dial at "0".
- f. Tune the "FINAL AMPLIFIER" until minimum plate current is indicated on the "FINAL AMPLIFIER" meter M1.
- g. Tune the "ANTENNA LOADING" dial until the "FINAL AMPLIFIER" meter reads approximately two-thirds full scale. If upon this stage more than two-thirds full scale meter deflection is obtained, move the antenna pickup coil L13 away from the final tank coil L12 until the above outlined conditions are obtained.

After all of the above tuning procedure has been accomplished it is suggested that all stages be checked, stage by stage, starting with the "OSCILLATOR" dial, and following the above outlined procedure.

Note that when the two crank handle tuning controls read high numbers the frequency is high and when the numbers are low the frequency is low. When the counter dials read "10" the frequency is approximately 115 mc.

Do not attempt to crank these controls if the crank handle does not move freely as this means that you have run up to one end of the tuning assembly. If upon turning the crank in one direction a stop is felt, reverse cranking as it is possible to damage components of these tuning assemblies if cranking is continued after a stop is felt. On the "TRIPLER" tuning the maximum range is from "10" to approximately "75" on the counter dial. On the "FINAL AMPLIFIER" the range is from "10" to approximately "148".

It is recommended that the above tune-up procedure be accomplished by using the microphone push-to-talk button and the microphone baffled against sound entering it. This may be done by cupping the hand over the speech input side of the microphone. With "CIRCUIT SELECTOR M.A." switch in position "A" modulator current may be read and should increase about 50 per cent on voice or keying.

Dial numbers with respect to frequency or capacity are as follows:

<u>DIAL NAME</u>	<u>DIAL READING</u>	<u>INDICATION</u>
Oscillator	0	Minimum capacity or high frequency.
First Doubler	0	Minimum capacity or high frequency.
Second Doubler	0	Minimum capacity or high frequency.
Tripler	10	Low frequency.
Final Amplifier	10	Low frequency.
Antenna Loading	0	Minimum capacity or high frequency.

SECTION IV. MAINTENANCE

1. Lubrication.--

- a. Blower Motor.--The blower motor should be oiled at least every two months with a light oil, such as Standard Oil Co.'s "FINOIL". The oil cups are located on both sides of the motor. Access to the oil cups gained by raising the top panel.
- b. Lead Screw Gear and Bearings.--The lead screw gear arrangements that drive the sliding bars in the tripler and final amplifier tuning assemblies should be lubricated when deemed necessary by the operator or maintenance personnel. Use a lubricant such as "LUBRIPLATE" manufactured by Fiske Brothers Refining Co., of New York, New York, or white "VASELINE". The final tank assembly is readily accessible. To lubricate the lead screw gear on the tripler tank assembly it is necessary to remove the sub-chassis assembly which mounts the final tank assembly. To accomplish this unplug the cable connector and unsolder the leads on the ceramic capacitors C12 and C13. Remove all screws fastening the sub-chassis and lift out the assembly.
- c. Universal Couplings.--When necessary oil the universal couplings located on the shafts between the high assemblies and the crank handles. Use the same oil that is used for the blower motor.

2. High Frequency Tuning Assemblies.--

SPECIAL NOTICE: The U-shaped tanks and sliding bars are silver plated. After ageing they will become tarnished. This appearance does not impair the efficiency or operation of the units, therefore do not polish them. They may be cleaned with carbon tetrachloride on a soft cloth or brush.

The dark tarnish is silver oxide which is as good an electrical conductor as the original silver. The above information also applies to the antenna and its associated cable connectors, the output coupling components, and all tank coils. The coils referred to above are L8, L9, L10, L11, L12, and L13 on the schematic diagram, Drawing W-30823.

3. Relays.---

The contacts on the slow release relay S.R.R. and the keying relay K.R. may be cleaned with crocus cloth and then washed with carbon tetrachloride when intermittent operation occurs. No definite schedule can be set up on this procedure as only the operators will know when intermittent operation occurs.

4. Air filter.--

At frequent intervals, depending upon operating conditions, location, etc., the air filter in the rear of the transmitter should be cleaned. This filter is composed of very lightly packed glass wool between metallic screens and may be cleaned by washing in carbon tetrachloride. To remove the filter take off the rear panel from the transmitter and unfasten the bolts holding the frame around the filter. It is absolutely essential that this filter be cleaned for efficient operation of the blower system as tube life depends upon the efficiency of the blower system. This is a dry type filter. DO NOT OIL after cleaning.

5. Service Hints.--

If undue arcing of contacts occurs on relay S.R.R. the spark suppressor combination of resistor R15 and capacitor C34 should be investigated. This arcing may be due to either resistor or capacitor being open.

If the carrier cannot be keyed, or if it refuses to drop out, capacitor C34 may be shorted internally or the contacts of keying relay K.R. may be frozen.

If the carrier will not come up, that is, the transmitter cannot be put on the air, the indication is that the two relays S.R.R. and K.R., are not receiving power and fuses F2 should be investigated. This condition can also be brought about by dirty relay contacts or open relay coils.

6. Transformers.--

This transmitter is furnished with Sola or Thordarson transformers. Although the terminal arrangement is not the same on both types of transformers the terminal numbers correspond with each other. Therefore, if a Sola transformer is replaced by a Thordarson transformer, or vice versa, it is only necessary to transfer the terminal leads from the old transformer to the corresponding numbers on the new one.

SECTION V

PARTS LIST BY SYMBOL DESIGNATION
FOR MODEL TDT TRANSMITTING EQUIPMENT

Symbol Desig.	Function	Description	Mfg. Mfg.	Desig.	ACC Part No.
Rectifier					
A1	Bias Supply Rectifier	Selenium 150 v ma full wave	BLC	2B7CM1	A-63300-3
Capacitors					
C1	Osc. Feedback Capaci- tor	Mica 50 uuf 1200 v	SA	Type A2	L-61014-1
C2	Osc. Feedback Capaci- tor	Mica .001 mfd 1200 v	SA	Type A2	L-61014-13
C3	Osc. Screen Bypass Capacitor	Mica 500 uuf 1200 v	SA	Type A2	L-61014-11
C4	Osc. Screen Bypass Capacitor	Same as C2			
C5	1st Dblr. Screen Bypass Capacitor	Same as C2			
C6	1st Dblr. Plate Bypass Capacitor	Same as C2			
C7	2nd Dblr. Screen Bypass Capacitor	Same as C2			
C8	2nd Dblr. Plate Bypass Capacitor	Same as C2			

Symbol Desig.	Function	Description	Mfg.	Mfg. Desig.	ACC Part No.
C9	Coupling Osc. to 1st Dblr. Capacitor	Mica 50 uuf 2500 v	SA	Type A2	L-61030-8
C10	Coupling 1st Dblr. to 2nd Dblr. Capacitor	Mica 100 uuf 2500 v	SA	Type A2	L-61030-11
C11	Coupling 2nd Dblr. to Tripler Capacitor	Same as C10			
C12	Coupling Tripler to final Capacitor	Ceramic Capacitor 20 uuf $\pm 3\frac{1}{2}\%$ Zero temp. coefficient.	CRL	#680	A-61044-15
C13	Coupling Tripler to final Capacitor	Same as C12			
C14	Final Amp. Cathode Bypass Capacitor	Mica 250 uuf 1000 v	SA	Type C	L-61009-12
C15	Tripler Plate By- pass Capacitor	Same as C3			
C16	Tripler Cathode By- pass Capacitor	Same as C14			
C17	Final Amp. Plate By- pass Capacitor	Same as C10			
C18	Output Loading Cap- acitor	35 uuf per section, split stator	EFJ	35HD15	A-61227-1
C19	Audio Decoupling Capacitor	2 mfd, bathtub type	SS	2545-S	L-61013-20
C20	Audio Osc. Tuning Capacitor	Mica .001 mfd 300 v	SA	Type C	L-61009-16
C21	Audio Coupling Cap- acitor	1000 v wkg. .05 mfd	SS	PX24B	L-61058-429

Symbol Desig.	Function	Description	Mfg.	Mfg. Desig.	ACC Part No.
C22	2nd Dblr. Cathode By- pass Capacitor	Same as C14			
C24	Filter Capacitor	10 mfd, 600 v oil	IX	609	L-61005-9
C25	1st Dblr. Cathode By- pass Capacitor	Same as C14			
C26	Filter Capacitor	8 mfd, 600 v oil	IX	609	L-61005-8
C27	Filter Capacitor	Same as C26			
C28	Filter Capacitor	4 mfd, 600 v oil	IX	609	L-61005-5
C29	Filter Capacitor	Same as C28			
C30	Osc. Tuning Capaci- tor	150 uuf variable	EFJ	150F20	L-61210-5
C31	1st Dblr. Tuning Capacitor	100 uuf variable	EFJ	100F20	L-61210-4
C32	2nd Dblr. Tuning Capacitor	100 uuf per section, split stator	EFJ	100HD15	A-61227-4
C33	Osc. Cathode By- pass Capacitor	Same as C14			
C34	Spark Suppressor Capacitor	Same as C21			
C35	Final Amp. Grid By- pass Capacitor	Same as C10			
C36	Tripler Balancing Capacitor	Special (Factory Set)	AAC	A-13213- 501	A-13213-501

Symbol Desig.	Function	Description	Mfg.	Mfg. Desig.	A.C Part No.
C37	Filter Capacitor	Same as C28			(On Audio Chassis)
C39	Audio Osc. Coupling Capacitor	Same as C21			
C41	Audio Osc. Tuning Capacitor	Mica .01 mfd, 300 v	SI.	Type C	L-61009-26
C42	Audio Osc. Tuning Capacitor	Dual Trimmer 200-600 uuf	FWS	1000A	A-12864-1
C43	Audio Coupling Capacitor	Same as C21			
C44	Osc. Plate Bypass Capacitor	.01 mfd Mica	SI.	Type L2	L-61030-28
C45	Meter Bypass Capaci- tor	Same as C2			
C46	Meter Bypass Capaci- tor	Same as C45			
C47	Cathode By-pass Capacitor	1.0 mfd 600 v Fuses	AX	Type N11	L-61013-19
F1	Fuse for T4	Fusetron 6.25 amp. 250 v	BUSS	#4062	L-65304-9
F2	Fuse for T2	Fusetron .2 amp. 250 v	BUSS	#4002	L-65304-53
F3	Motor Fuse	Fusetron 1.6 amp. 250 v	BUSS	#4016	L-65304-3

Relays

KR	Keying Relay	S.P.D.T. 1300-ohm Coil	AE	R118	A-62234-1
SRR	Carrier Control Relay	S.P.S.T. 1000-ohm Coil	AE		A-62233-1

Symbol Desig.	Function	Description	Mfg.	Mfg. Desig.	ACC Part No.
R-F Chokes & Inductors					
L1	Osc. Cathode Choke	RFC 2.5 mh 125 ma	NC	R100U	A-63201-1
L2	Osc. Screen Choke	RFC 2.5 mh 300 ma	NC	R300U	A-63201-3
L3	2nd Dblr. Plate Choke	Same as L1			
L4	Tripler Choke	Special UHF Choke	NC		A-63422-1
L6	Final Amp. Grid Choke	Same as L4			
L7	Final Amp. Grid Choke	Same as L4			
L8	Osc. Tank Coil Inductor	Special	AAC	A-13190-1	A-13190-1
L9	1st Dblr. Tank Coil Inductor	Special	AAC	A-13190-3	A-13190-3
L10	2nd Dblr. Tank Coil Inductor	Special	AAC	A-13190-2	A-13190-2
L11	Tripler Tank Coil Inductor	Special U Type Coil	AAC	A-13137-2	A-13137-2
L12	Final Amp. Tank Coil Inductor	Special U Type Coil	AAC	A-13137-1	A-13137-1
L13	Output Coupling Inductor	Special U Type Coil	AAC	A-13137-3	A013137-3
Meters					
M1	Final Amp. Meter	250 ma DC Navy Type Case	WN	Type 301	L-61425-115
M2	Circuit Selector Meter	0-1 v DC 62 ohms 0-10 scales Navy Type	WN	Type 301	A-61426-1

Symbol Desig.	Function	Description	Mfg.	Mfg. Desig.	ACC Part No.
Resistors					
R1	Osc. Grid Resistor	100,000 ohms 2 watt	OCC	PFA	L-61337-168
R2	Osc. Suppressor Resistor	2-50-ohm 3 watt resistors in parallel	AB	Type F	A-12638-1
R3	1st Dblr. Grid Resistor	10 watt 35,000 ohms	OCC	BCS-1	L-61376-66
R4	1st Dblr. Suppressor Resistor	Same as R2			
R5	2nd Dblr. Grid Resistor	Same as R3			
R7	Tripler Grid Resis- tor	10 watt 10,000 ohms	OCC	BCS-1	L-61376-252
R8	Tripler Screen Resistor	10 watt 20,000 ohms	OCC	BCS-1	L-61376-62
R10	Final Amp. Screen Resistor	8000 ohms, 24 watt	OCC		A-61302-40
R11	Bleeder, Power Supply Resistor	10,000 ohms, 28 watt	OCC		A-61385-41
R12	Bleeder, Bias Supply Resistor	10 watt, 5000 ohms	OCC	BCS-1	L-61376-46
R13	Bleeder, Power Supply Resistor	10,000 ohms 60 watt	OCC		A-61387-41
R14	Modulator, Meter Shunt Resistor	4.3 ohms	IRC	WW3	L-61351-252
R15	Spark Suppressor Resistor	10 watt, 300 ohms	OCC	BCS-1	L-61376-23

Req. No.	Function	Description	Mfg.	Mfg. Desig.	ACC Part No.
R16	Bleeder, Bias Supply	10 watt, 1500 ohms	OCC	BCS-1	L-61376-37
R17	Tripler, Meter Shunt Resistor	Same as R14			
R18	2nd Dblr. Meter Shunt Resistor	7.5 ohms	IRC	WW3	L-61351-253
R19	1st Dblr. Meter Shunt Resistor	12 ohms	IRC	WW3	L-61351-256
R20	Audio Plate Decoupling Resistor	50,000 ohms 2 watt	OCC	PFA	L-61337-160
R21	Audio Plate Load Resistor	Same as R20			
R22	Audio Cathode Resistor	2000 ohms 2 watt	OCC	PFA	L-61337-115
R23	Audio Cathode Resistor	Same as R22			
R24	Osc. Meter Shunt Resistor	Same as R19			
R25	Audio Gain Control Resistor	250,000 ohms Pot.	AB	Type J	A-61379-8
R26	Voltage Regulator Dropping Resistor	1000 ohms 24 watt	OCC		A-61383-31
R27	Bleeder, Mic. Supply	500 ohms, 10 watt	OCC	BCS-1	L-61376-227
R28	Audio Buffer Cathode Resistor	1000 ohms, 2 watt	OCC	PFA	L-61336-108
R29	Audio Buffer Gain Control Resistor	Same as R25			

Symbol Desig	Function	Description	Mfg.	Mfg. Desi Desig.	AAC Part No.
R30	Audio Osc. Decoupling Resistor	30,000 ohms 1 watt	OCC		L-61334-154
R31	500 Cycle Adjustment Control Resistor	25,000 ohm Potentiometer	LB	Type J	L-61379-11
R32	Audio Decoupling Resistor	Same as R30			
R33	1000 cycle adjustment Control Resistor	Same as R 31			
R34	Audio Osc. Plate Load Resistor	Same as R20			
R35	Audio Buffer Plate Resistor	Same as R34			
R36	Audio Grid Resistor	150,000 ohms 1 watt	OCC		L-61334-172
R37	Spark Suppressor Resistor	Same as R8			
R38	Spark Suppressor Resistor	Same as R8			
R39		Same as R8			

Switches

SW1	Main Line Switch	D.P.D.T. 15 amp.	CH	8690	A-62009-1
SW2	500/1000 cycle Tone Switch	D.P.D.T. 3 amp.	AHH	8373	L-62018-217
SW6	Meter Selector Switch	11 point silver self- cleaning wafer switch	SMC	536 Emery	A-62035-1

Symbol Desig.	Function	Description	Mfg. Mfg.	Desig.	AAC Part No.
Transformers					
T1	Modulation Transformer	Pri.: 3200 Ohms C.T. 250 ma, Sec.: 2500 ohms 250 ma, 2U7 case-60 watt audio	SO or TH	714-003 T48314	L-21168-1 L-21168-1
T2	Bias Transformer	Pri.: 110-115-120 v 50/60 cy- cle Sec.: 75-90-105-150 at 150 ma, 3R5 Case	SO or TH	721-012 T48315	L-21171-1 L-21171-1
T4	Power Transformer	See Schematic #30823, 2U12 Case	SO or TH	722-005 T48316	L-21172-1 L-21172-1
T5	Audio Osc. Trans- former	Pri.: 500 ohms Sec.: 500 ohms 3R3 Case	SO or TH	713-010 T48313	L-21166-1 L-21166-1
T7	Audio Input Trans- former	Pri.: 500 ohms taps at 250 and 125 ohms Sec.: 53,000 ohms 3R3 Case	SO or TH	711-004 T48311	L-21169-1 L-21169-1
T8	Modulation Driver Transformer	Pri.: 15,000 ohms 25 ma, Sec.: 700 ohms each half 3R3 Case	SO or TH	713-011 T48309	L-21170-1 L-21170-1

Chokes

X1	Smoothing Choke	15 henries at 225 ma, DC 2U7 Case	SO or TH	742-015 T48308	L-21174-1 L-21174-1
X2	Smoothing Choke	Same as X1			
X3	Bias Choke	10 henries at 150 ma, DC 3R5 Case	SO or TH	742-014 T48310	L-21173-1 L-21173-1

Symbol Desig.	Function	Description	Mfg.	Mfg. Desig.	AAC Part No.
X4	Smoothing Choke	15 henries at 600 ma, DC 2U11 Case	SO	742-016	L-21175-1
			or TH	T48312	L-21175-1

Miscellaneous

Micro- phone	Push-to-talk type	Single Button Carbon	MAG	CMX51004C	L-63528-1
Pilot Lamp	Line Pilot	6 watt 115 v	GE	6S6	A-65101-1
Tube Socket	829 Tube Sockets	Built in R-F Bypasses	RCA	RCAUT107	A-65232-2
Tube Socket	6J5 Tube Sockets	Octal Bakelite	AP	S8	A-65200-504
Tube Socket	5U4G Tube Sockets	Octal Ceramic	AP	SS8	A65200-503
Tube Socket	807 Tube Sockets	5 Prong Isolantite	AP	SS5	L-65209-12
Crystal	Chassis Mounted Cry- stal	4791.6 to 6500 kc	AAC	CR-1	M-67013-1
Co-ax Male	Connector Plug	CPH 49195	AP	83-1SP	A-62414-1
Co-ax Female	Connector Chassis Receptacle	CPH 49194	AP	83-1R	A-12345-2
Remote Control	Chassis Receptacle	5 Prong Socket	AP	AN 3102- 18-11-S	A-62419-1
Remote Control	Plug; (into Chassis)	5 Prong Plug	AP	AN 3106- 18-11-P	A-62419-4

Symbol Desig.	Function	Description	Mfg.	Mfg. Desig.	AAC Part No.
Remote Control	Conduit Fitting		AP	AN 3057-10	A-66117-1
Motor	Motor Driven Blower	1/80 H.P. 1500 R.P.M. 115 v 50/60 cycle	WAG *	Type TM Frame 43R	A-64006-1
Line Plug	115 v Locking Plug	Cat. #7101 20 amp.	HUB	#7101	A-64417-2
Line Socket	115 v Locking Socket	Cat. #8808 20 amp.	HUB	#8808	A-64417-1
Counter	VHF Tuning Indicator		VR	SK 63874A	A-64325-1
Univer- sal Joint	VHF Tuning Assembly		BGW	C642B	A-62140-22
Shock Mounts	Support Transmitter	45 lbs. Support	LO	153RH	A-60603-1
Co-ax Cable	Antenna Feeder	50-ohm flexible cable	AP	CASST50-1	A-13310-502
Antenna	Complete System	1/4 wave vertical ground plane antenna Navy Model #CKV66091	AAC	704A	W-40438-502
Flexible Coupling	Shaft Coupling		EFJ	#250	A-60680-1
Universal Joint	Antenna Coupling		MI	#39005	A-60654-1
Solid Coupling	Antenna Coupling		EFJ	#252	A-60682-1
Blower	Case	#3 Plastic Case	LR	#3	A-64205-2
Blower	Turbo Wheel	Wheel for #3 Case	LR	#3	A-64205-3

Symbol Desig.	Function	Description	Mfg. Mfg.	Desig.	AAC Part No.
Micro- phone Jack	Front Panel Mike Input		CTS	J301	A-62513-1
Key Jack	Front Panel Key Input		MY	701	A-62507-1
Key Plug	Front Panel Key Input		MY	75	A-62520-1
X 5	Reactor		WAG		L-21360

* Motor #A64006-1 must be used with L-21360

SECTION VI

EQUIPMENT SPARE PARTS LIST

FOR MODEL TDT TRANSMITTING EQUIPMENT

Component	Characteristics	Quantity	Mfr.		AAC
			Mfr. Part No.	Part No.	Part No.
Resistor	8000 ohms 24 watt	1	OCC		A-61302-40
Resistor	10,000 ohms 28 watt	1	OCC		A-61385-41
Resistor	10,000 ohms 60 watt	1	OCC		A-61387-41
Resistor	1,000 ohms 24 watt	1	OCC		A-61383-31
Resistor	100,000 ohms 2 watt	1	OCC	PFA	L-61337-168
Resistor	2-50 ohms 3 watt in parallel	2	AB	Type F	A-12638-1
Resistor	35,000 ohms 10 watt	2	OCC	BCS-1	L-61376-66
Resistor	10,000 ohms 10 watt	1	OCC	BCS-1	L-61376-25
Resistor	20,000 ohms 10 watt	1	OCC	BCS-1	L-61376-62
Resistor	5,000 ohms 10 watt	1	OCC	BCS-1	L-61376-46
Resistor	4.3 ohms	2	IRC	WW3	L-61351-252
Resistor	300 ohms 10 watt	1	OCC	BCS-1	L-61376-23
Resistor	1500 ohms 10 watt	1	OCC	BCS-1	L-61376-37
Resistor	7.5 ohms	1	IRC	WW3	L-61351-253
Resistor	12 ohms	2	IRC	WW3	L-61351-256
Resistor	50,000 ohms 2 watt	4	OCC	PFA	L-61337-160

Component	Characteristics	Quantity	Mfr.	Mfr. Part No.	AAC Part No.
Resistor	2,000 ohms 2 watt	2	OCC	PFA	L-61337-113
Resistor	250,000 ohms Pot.	2	AB	Type J	A-61379-8
Resistor	500 ohms 10 watt	1	OCC	BGS-1	L-61376-227
Resistor	1,000 ohms 2 watt	1	OCC	PFA	L-61336-103
Resistor	30,000 ohms 1 watt	2	OCC		L-61334-154
Resistor	25,000 ohms Pot.	2	AB	Type J	L-61379-11
Resistor	150,000 ohms 1 watt	1	OCC		L-61334-172
Capacitor	2 mfd, 600 v Bathtub Oil	1	SS	2545-S	L-61013-20
Capacitor	.05 mfd, 1000 v Tubular Oil	2	SS	PX24B	L-61058-4 ₃₉
Capacitor	10 mfd, 600 v Oil	1	AX	609	L-61005-9
Capacitor	8 mfd, 600 v Oil	1	AX	609	L-61005-8
Capacitor	4 mfd, 600 v Oil	1	AX	609	L-61005-5
Capacitor	50 mmf, 1200 v LST	1	SA	Type A2	L-61014-1
Capacitor	.001 mfd, 1200 v LST	2	SL	Type A2	L-61014-13
Capacitor	500 mmf, 1200 v LST	1	SA	Type A2	L-61014-11
Capacitor	50 mmf, 2500 v LST	1	SA	Type A2	L-61030-8
Capacitor	100 mmf, 2500 v	1	SA	Type A2	L-61030-11
Capacitor	20 mmf, $\pm 2\frac{1}{2}\%$, zero temp. coefficient	2	CRL	#680	A-61044-15
Capacitor	.01 mfd, 2500 v	1	SA	Type A2	L-61030-28
Capacitor	1.0 mfd, 2500 v	1	AX	Type N11	L-61013-19

Component	Characteristics	Quantity	Mfr.	Mfr. Part No.	MAC Part No.
Capacitor	250 mmf, 1000 v LST	1	SA	Type C	L-61009-12
Capacitor	.001 mfd, 300 v	1	SA	Type C	L-61009-16
Capacitor	.01 mfd, 300 v	1	SA	Type C	L-61009-26
Choke	RFC 2.5 mh, 125 ma	1	NC	R100U	A-63201-1
Choke	RFC 2.5 mh, 300 ma	1	NC	R300U	A-63201-3
Choke	Special UHF, RFC	1	NC		A-63422-1
Fuse	Fusetron 6.25 amp. 250 v	10	BUSS	#4062	L-65304-9
Fuse	Fusetron .2 amp. 250 v	10	BUSS	#4002	L-65304-53
Fuse	Fusetron 1.6 amp. 250 v	10	BUSS	#4016	L-65304-3
K.R. Coil	Keying Relay Coil, 1300 ohms	1	AE		A-62234-2
K.R. Contacts	Keying Relay Contacts	1	AE		A-62234-3
S.R.R. Coil	Carrier Control Relay Coil 1000 ohms	1	AE		A-62233-2
S/R.R. Contacts	Carrier Control Relay Contacts	1	AE		A-62233-3
Meter	Navy Type Case 250 ma DC	1	WN	Type 301	L-61425-115
Meter	Navy Type Case 0-1 v DC 62 ohms 0-10 scale	1	WN	Type 301	A-61426-1
Tube Connector and Lead	For 829 Tubes	4	HK		A-62405-502
Pilot Light Assembly	110 v Assembly Red Jewel	1	DI	100D	A-65501-1
Pilot Light Blub	6 watt 115-volt	1	GE	6S6	A-65101-1

Component	Characteristics	Quantity	Mfr.	Mfr. Part No.	M.C. Part No.
Switch	Main Line D.P.D.T. 15 amp.	1	CH	8690	A-62009-1
Switch	D.P.D.T. 3 amp. 500/1000 cycle Tone Switch	1	AHH	8373	L-62018-217
Transformer	Pri.: 500 ohms taps at 250 and 125 ohms, Sec.: 53,000 ohms 3R3 Case	1	SO or TH	711-004 T48311	L-21169-1 L-21169-1
Transformer	Pri.: 500 ohms 6 terminals Sec.: 500 ohms, 6 terminals 3R3 Case	1	SO or TH	813-010 T48313	L-21166-1 L-21166-1
Transformer	Pri.: 15,000 ohms 25 ma Sec.: 700 ohms each half, 3R3 Case	1	SO or TH	713-011 T48309	L-21170-1 L-21170-1
Transformer	Pri.: 110-115-120 v 50/60 cycle Sec.: 60-75-90-105 at 120 ma 3R3 Case	1	SO or TH	721-012 T48315	L-21171-1 L-21171-1
Bias Choke	10 henries at 150 ma, 250 ohms DC 3R5 Case	1	SO or TH	742-014 T4831C	L-21173-1 L-21173-1
Shock Mount		1	LC	153PH	A-60603-1
Motor	1/80 H.P. 1500 R.P.M. 115 v 50/60 cycles	1	WAG	Type TM Frame 43R	A-64006-1
Allen Head Wrench	#8	1			
Tube	Type 807	10	RCA		A-69105-1
Tube*	Type 829	4	RCA		A-69117-1
Tube	Type 6J5GT-G	10	RCA		A-69212-3

Component	Characteristics	Quantity	Mfr.	Part No.	AAC Part No.
Tube	Type VR150-30	4	RCA		A-69305-1
Tube	Type 5U4G	8	RCA		A-69231-1
REACTOR			DAE		L-21850-1

* Do not replace with Type 829 as indicated only.

SECTION VII

LIST OF MANUFACTURES

Symbol	Name	Street Address	City & State
AAC	Aircraft Accessories Corp.	Fairfax & Fuston Roads	Kansas City, Kansas
AB	Allen-Bradley Company	118 W. Greenfield Avenue	Milwaukee, Wisconsin
AE	American Automatic Electric Co.	1033 W. Van Buren	Chicago, Illinois
AHH	Arrow-Hart & Hegeman	Hart & Hegeman Div.	Hartford, Connecticut
AP	American Phenolic Corporation	1830 S. 54th Avenue	Cicero P. O. Chicago, Illinois
AX	Aerovox Corporation		New Bedford, Massachusetts
BGW	Boston Gear Works	Hancock & Hayward	North Quincy, Massachusetts
BLC	Benwood Linze Company	1311 Locust Street	St. Louis, Missouri
BUSS	Bussman Manufacturing Co.	2538 W. University Street	St. Louis, Missouri
CH	Cutler-Hammer Corporation	604 North 12th Street	Milwaukee, Wisconsin
CRL	Centralab	900 East Keefe Avenue	Milwaukee, Wisconsin
CTS	Chicago Telephone Supply Co.		Elkhart, Indiana
DI	Dial Light Corp. of America	90 West Street	New York, New York
EFJ	E. F. Johnson Company		Waseca, Minnesota
FWS	F. W. Sickels		Springfield, Massachusetts
GE	General Electric Company		Schenectady, New York

Symbol	Name	Street Address	City & State
HUB	Harvey Hubbell, Inc.		Bridgeport, Connecticut
IRC	International Resistance Corp.	401 N. Broad Street	Philadelphia, Pennsylvania
LO	Lord Manufacturing Company		Erie, Pennsylvania
LR	I-R Manufacturing Company		Torrington, Connecticut
MAG	Magnovex Company		Ft. Wayne, Indiana
MI	James Miller Manufacturing Co.	150 Exchange Street	Malden, Massachusetts
MY	F. R. Mallory & Company	3029 E. Washington Avenue	Indianapolis, Indiana
NC	National Company, Inc.	61 Sherman Street	Malden, Massachusetts
OCC	Chio Carbon Company	12508 Berea Road	Cleveland, Ohio
RCA	Radio Corporation of America	30 Rockefeller Plaza	New York, New York
SA	Sangamo Electric Company		Springfield, Illinois
SMC	Shallcross Manufacturing Co.	10 Jackson Avenue	Collingdale, Pennsylvania
SS	Sprague Specialty Company		North Adams, Massachusetts
SO	Sola Electric Manufacturing Co.	2525 Clybourn Avenue	Chicago, Illinois
TH	Thordarson Elec. Manufacturing Co.	500 W. Huron Street	Chicago, Illinois
VR	Veeder Root Company		Hartford, Connecticut
WAG	Wagner Electric Company	6410 Plymouth Avenue	St. Louis, Missouri
WN	Weston Electrical Instrument Company	619 Frelinghuysen Avenue	Newark, New Jersey

DRAWING LIST

DRAWING TITLE				SHEET		FIRST MADE FOR					
V.H.F. MODULATOR ASSEMBLY				1 OF 4 SHEETS		A-13180					
COMP. BY P. Foley											
P. BY <i>W. K. Kibben</i>											
AP. BY <i>Frank</i>											
PT. NO.	REFERENCE	PART OR Q. NO.	FIN.	DESCRIPTION	501	506	511	516	521	526	
1	W-40413	1	0	Assembly	X						
2	W-40427	1	0	Chassis Modulator	1						
3	L-21156	1	0	Dust Pan Modulator Chassis	1						
4	L-62519	50	0	Socket - Jones	1						
5	L-62519	57	0	Socket - Jones	1						
6	L-21168	1	0	Transformer - Modulator	1						
7	L-21170	1	0	Transformer - Modulator Driver	1						
8	L-21169	1	0	Transformer - Audio Input	1						
9	L-21166	1	0	Transformer - Audio Osc.	1						
10	L-66010	35	0	Grommet	1						
11	L-61351	252	0	Resistor	1						
12	L-61337	115	0	Resistor	2						
13	L-61334	140	0	Resistor	2						
14	L-61334	172	0	Resistor	1						
15	L-61336	108	0	Resistor	1						
16	L-61337	160	0	Resistor	4						
17	L-61336	108	0	Resistor	1						
18	A-69212	3	0	Tube 6J5GT	X						
19	A-69105	1	0	Tube 807	X						
20	A-65200	504	0	Octal Socket	5						
21	L-65209	12	0	Socket	2						

(1) 8-3-43 Pt. 17 was L-61336-94;
ECN 2857; *79. E. 8-1-43*

AIRCRAFT ACCESSORIES KANSAS CITY, KANSAS

DRAWING LISTS

DRAWING TITLE					A-13180					
V.H.F. MODULATOR ASSEMBLY										
COMP. BY P. Falor		SHEET 2 OF 4 SHEETS			FIRST MADE FOR					
INSP. BY <i>W. Rabson</i>					501	506	511	516	521	526
AP. BY										
PT. NO.	REFERENCE	PART OR G. NO.	FIN.	DESCRIPTION						
22	L-61013	20	0	Condenser	1					
23	L-61005	5	0	Condenser	1					
24	L-61009	16	0	Condenser	2					
					Second condenser to be installed by electrical inspection if necessary.					
25	L-61009	26	0	Condenser	1					
26	L-61058	429	0	Condenser	4					
27	A-12664	1	0	Condenser	1					
28	M-66005	3	0	Terminal Board Assembly	6					
29	M-66005	42	0	Terminal Board Assembly	1					
30	M-66005	4	0	Terminal Board Assembly	2					
31	M-66005	16	0	Terminal Board Assembly	1					
32	M-66005	1	0	Terminal Board Assembly	5					
33	L-62018	217	0	Switch	1					
34	A-62234	1	0	Relay Keying (quick acting)	1					
35	L-66000	14	45	Terminal Lug #6	15					
36	L-61379	11	0	Potentiometer	2					
37	L-61379	7	0	Potentiometer	2					
38	A-66108	52	See Note	Clamp - Cable See Note Page 4	2					
39	A-66114	1	0	Clamp - Tube	2					
40	L-60009	116	45	Spacer 1 lg.	2					
41	A-66101	2	45	Grid and Plate Grips	2					
42	A-66102	51	See Note	Clamp Cable (See Note Page 4)	1					
(1)	8-6-43	Pt. 26 was L-61057; ECN 2884;			12-4-43	Pt. 35 qty. was 15; ECN 3457				
(2)	10-8-43	Pt. 37 was L-61379-8; ECN 3217; <i>M.E.D. EWE</i>			(6) 1-19-44	Pt. 26 was L-61058-474; ECN 3673; <i>W. Rabson</i>				
(3)	11-4-43	Pt. 24 qty was 1 and note added; Pt. 32 qty. was 5; ECN 3329; <i>M.E.D. Transport</i>								
(4)	11-26-43	Pt. 28 qty. was 4; ECN 3406; <i>M.E.D.</i>								

AIRCRAFT ACCESSORIES KANSAS CITY, KANSAS

DRAWING LISTS

DRAWING TITLE V.H.F. MODULATOR ASSEMBLY					A-13180					
COMP. BY P. Faler		SHEET 3 OF 4 SHEETS			FIRST MADE FOR					
P. BY <i>H.B. Rabson</i>					801	806	811	816	821	826
AP. BY										
PT. NO.	REFERENCE	PART OR G. NO.	FIN.	DESCRIPTION						
43	A-86116	2	0	Clamp - Tube	5					
44	A-62233	1	0	Relay - Carrier Control (Slow Rel)	1					
45	L-60000	72	45	Lockwasher #10	2					
46	A-60007	44	0	Washer - Fiber #6	(4) 4					
47	L-64502	1	45	Shaft Lock	4					
48	L-60004	34	45	Washer - Flat #6	(20) 20					
49	L-60004	6	45	Washer - Flat #8	4					
50	L-60000	18	45	Lockwasher - split #6	(49) 49					
51	L-60000	24	45	Lockwasher - Split #8	4					
52	A-60003	9	45	Lockwasher S.P.S.T.	4					
53	A-60140	16	45	Mach. Scr. R.H. #6-32 1 lg.	1					
54	A-60140	6	45	Mach. Scr. R.H. #6-32 3/8 lg.	(45) 45					
55	A-60140	24	45	Mach. Scr. R.H. #6-32 1 1/8 lg.	2					
56	A-60140	14	45	Mach. Scr. R.H. #6-32 7/8 lg.	1					
57	A-60143	4	45	Mach. Scr. B.H. #6-32 1/4 lg.	18					
58	A-60150	6	45	Mach. Scr. R.H. #8-32 3/8 lg.	4					
59	A-60021	10	45	Hex Nut #8-32	52					
60	L-60034	40	45	Hex Nut #3/8-32	4					
61	A-60021	25	45	Hex Nut #10-32	2					
62	A-13330	1	0	Wire Material List	1					
63	M-30823	1	0	Schematic	X					
(1)	11-4-43	ECN 3329		Frank						
(2)	12-1-43	Pt. 50 qty. was 47; Pt. 54 qty. was 43; Pt. 59 qty. was 49; ECN 3457; m.e.d. <i>E.W.</i>								
(3)	3-7-44	Pt. 59 was 60021-11; ECN 3811								
(3)	3-7-44	Pt. 48 qty. was 17; ECN 3809								

AIRCRAFT ACCESSORIES KANSAS CITY, KANSAS

DRAWING LISTS

DRAWING TITLE				A-13180			
V.H.F. MODULATOR ASSEMBLY							
COMP. BY P. Galer		SHEET 4 OF 4 SHEETS		FIRST MADE FOR			
NSP. BY <i>H. Rabson</i>				501	506	511	516
AP. BY				521	526		
PT. NO.	REFERENCE	PART OR G. NO.	FIN.	DESCRIPTION			
64	W-40433	1	0	Wiring Diagram	X		
65				Solder	1 set		
66	W-40439	1	0	Stencil	X		
67	W-40439	2	0	Stencil	X		
68	L-61376	62		Resistor, 20,000 ohms 10 watt	1		
69	L-61376	62		Resistor, 20,000 ohms 10 watt	1		
70	A-60631	1		Tube Shields	2		
71	L-60004	4	45	Washer Flat #6	7		
72	A-66023	80		Sherman & 26 Lug	2		
73	A-68051	6		Extruded Tubing 24"	1		
74	A-68051	9		Extruded Tubing 24"	1		
75	A-68051	13		Extruded Tubing 12"	1		
76	W-40439	3		Stencil	X		
77	L-61013	19		Condenser 1.0 mfd.	1		

Note: Pts. 38 and 42 to be finished #26 and 110 then 221.

- (1) 8-4-43 Added pts. 66 & 67, ECN 2873; *780. 8-4-43*
- (2) 11-4-43 Added pts. 68 & 69; ECN 3329; *m.e. B.*
- Pt. 70 added; *Frank ECN 3327*
- (3) 11-17-43 Pt. 76 added; ECN 3372; *11/17/43*
- (4) 12-4-43 Pt. 77 added; ECN 3457; *12-4-43*
- PT. 71 WAS L-60004-47;

AIRCRAFT ACCESSORIES KANSAS CITY, KANSAS

DRAWING TITLE R.F. UNIT BOTTOM CHASSIS ASSEMBLY

A-13215

COMP. BY	SHEET 1 OF 5 SHEETS	FIRST MADE FOR					
INSP. BY F.B. Robson			501	506	511	516	521 526
BY Frankart							

PT. NO.	REFERENCE	PART OR G. NO.	FIN.	DESCRIPTION					
1	W-40430		0	Assembly	X				
2	W-40420	1	0	R.F. Chassis	1				
3	A-13117	501	0	Tube Shield	1				
4	L-65209	12	0	Tube Socket, 5 Prong	5				
5	A-65232	1	0	Tube Socket	1				
6	A-66114	1	0	Tube Clamp	3				
7	A-60551	2	0	Condenser Bracket	8				
8	A-13213	501	0	Balancing Cond.	1				
9	M-30821	501	0	Tuning Unit Assembly	1				
10	A-65621	2	0	Post Type Insulator	10				
11	A-65610	23	0	Round Post Insulator	10				
12	A-65609	27	0	Round Post Insulator	1				
13	A-65612	3	0	Feed Thru Insulator	6				
14	A-65610	32	0	Round Post Insulator	2				
15	L-61210	5	0	Variable Condenser	1				
16	L-61210	4	0	Variable Condenser	1				
17	A-61227	4	0	Variable Condenser	1				
18	A-13190	1	0	Coil	1				
19	A-13190	3	0	Coil	1				
20	A-13195	501	0	Coil	1				
21	L-61014	13	0	Con denser .001 mfd.	6				

(8) 1-20-44 Retyped; Pt. 7 qty. was 9;

ECN 3675; m.e.r. *W.C. 1/19/44*(9) 2-28-44 Pt. 12 qty. was 3; ECN 3791; *over 2-28-44*

DRAWING TITLE R. F. Unit Bottom Chassis Assembly

A-13215

COMP. BY

SHEET 2 OF 6 SHEETS

FIRST MADE FOR

INSP. BY *W.B. Robson*

501 506 511 516 521 526

AP. BY *Frankfort*

PT. NO.	REFERENCE	PART OR G. NO.	FIN.	DESCRIPTION						
22	L-61014	1	0	Condenser		1				
23	L-61030	11	0	Condenser .0001 MFD		3				
24	L-61014	11	0	Condenser		2				
25	L-61030	8	0	Condenser		1				
26	L-61009	12	0	Condenser		4				
27	L-61337	168	0	Resistor		1				
28	L-61376	45	0	Resistor		2				
29	L-61376	62	0	Resistor		1				
30	L-61376	252	0	Resistor		1				
31	L-61302	40	0	Resistor, 8000 ohms 24 watt		1				
32	A-12638	501	0	Resistor		2				
33	L-61351	256	0	Resistor		2				
34	L-61351	253	0	Resistor		1				
35	L-61351	252	0	Resistor		1				
36	A-63422	501	9	R. F. Choke		1				
37	A-63201	3	0	R. F. Choke-		1				
38	A-63201	5	0	R. F. Choke		1				
39	A-63201	1	0	R. F. Choke		1				
40	L-62519	30	0	Jones Socket		2				
41	A-66010	33	0	Grommet		4				
42	L-62440	508	0	Connector Assembly		1				

- (1) 8-1-43 Changed total no. pgs. from 4 to 5; ECN 2859; *W.B.R. 8-2-43*
- 2) 11-4-43 Pt. 31 was L-61383-42, Resistor; ECN 3329; *M.E.D. Frankfort*

AIRCRAFT ACCESSORIES

DRAWING LISTS

DRAWING TITLE				R. F. Unit Bottom Chassis Assembly		A-13215					
COMP BY				SHEET 3 OF 5 SHEETS		FIRST MADE FOR					
AP BY <i>H. Rabson</i>						501	506	511	516	521	526
PT. NO.	REFERENCE	PART OR G. NO.	FIN	DESCRIPTION							
43	L-62440	510	0	Connector Assembly		1					
44	A-60007	46	0	Vellutex Washer - Round		60					
45	A-60007	71	0	Vellutex Washer - Round		5					
46	A-60017	23	0	Vellutex Washer - Round		12					
47	A-60017	13	0	Vellutex Washer - Round		12					
48	A-60018	3	0	Vellutex Washer - Square		10					
49	A-60018	5	0	Vellutex Washer - Square		2					
50	L-66112	504	0	Clip Assembly		2					
51	A-66023	3	38	Terminal Lug		51					
52	A-13332	501	0	Wire Material List		1					
53	M-30833	1	0	Wiring Diagram		X					
54	L-60004	34	45	Washer #6		13					
55	L-60004	8	45	Washer #8		20					
56	L-60000	45	45	Lockwasher - Split #6		120					
57	L-60000	24	45	Lockwasher - Split #8		45					
58	L-60000	72	45	Lockwasher Split #10		6					
59	L-60140	4	45	R.H.M.S. #6-32 1/4 lg.		56					
60	A-60140	6	45	R.H.M.S. #6-32 3/8 lg.		52					
61	A-60140	18	45	R.H.M.S. #6-32 1 1/8 lg.		3					
62	A-60150	6	45	R.H.M.S. #8-32 3/8 lg.		18					
63	A-60150	8	45	R.H.M.S. #8-32 1/2 lg.		8					

- (1) 8-1-43 Changed total no. pgs. from 4 to 5; ECN 2859; *78R. 8-2-93 Frankfort*
- (2) 4-4-43 *ECN 3329 Frankfort*
- (3) 3-7-44 Pt. 46 was 60017-32; ECN *3812; Frankfort*

AIRCRAFT ACCESSORIES KANSAS CITY, KANSAS

DRAWING LISTS

DRAWING TITLE				R. F. Unit Bottom Chassis Assembly		A-13215					
COMP. BY				SHEET 4 OF 8 SHEETS		FIRST MADE FOR					
P. BY <i>F.B. Rabson</i>						501	506	511	516	521	526
AP. BY <i>Frankart</i>											
PT. NO.	REFERENCE	PART OR G. No	FIN.	DESCRIPTION							
64	A-60160	6	45	R.H.M.S. #10-32 3/8 lg.							
65	A-60227	16	45	Threaded Rod #8-32 2 1/4 lg.							
66	A-60021	1	45	Hex Nut #6-32							
67	A-60021	15	45	Hex Nut #8-32							
68	A-60140	12	45	R.H.M.S. #6-32 3/4 lg.							
69	M-30803	1	0	Dust Pan							
70	A-69105	1	0	Tube 807							
71	A-69117	1	0	Tube 829							
72	A-60021	25	45	Hex Nut #10-32							
73	A-66023	8	38	Lug							
74	L-62440	509	0	Connector Assembly							
75	A-60140	16	45	R.H.M.S. #6-32 1 lg.							
76	A-60021	8	45	Hex Nut #4-40							
77	L-60000	9	45	Lockwasher #4							
78	A-66102	51	0	See Note Clamp, Cable See Note Page 4							
79	A-66102	52	0	See Note Clamp, Cable See Note Page 4							
80	A-13250	501	0	Clamp Assembly							
81				Solder							
82	A-66119	1	0	Clip & Lead							
83	M-30846	1	0	Stencil - Top Side							

NOTE: Pts. 78 & 79 to be finished #26 and 110 then 221.

(1) 8-1-43 Changed total pgs. from 4 to 5; Added pts. 82 & 83; ECN 2859;

(2) 11-4-43 ECN 3329 *Frankart*

(3) 12-18-43 Pt. 66 was A-60021-19. Pt. 78 qty. was 2. ECN 3522 *12-16-43*

AIRCRAFT ACCESSORIES KANSAS CITY, KANSAS

DRAWING LISTS

DRAWING TITLE				R. F. Unit Bottom Chassis Assembly				A-13215					
COMP. BY				SHEET 5 OF 6 SHEETS				FIRST MADE FOR					
INSP. BY								501	506	511	516	521	526
AP. BY													
PT. NO.	REFERENCE	PART OR Q. NO.	FIN.	DESCRIPTION									
84	M-30845	1	0	Stencil - Bottom Side				X					
85	A-60143	4N	45	6-32 1/2 Lg Binder Head				20					
86	A-60004	4N	45	Flat Washer #6				9					
87	M-30845	3		Stencils				X					
88	L-81030	28		Condenser .01				1					
89	A-60551	3	0	Bracket, Mounting				1					

AIRCRAFT ACCESSORIES LIMITED, WASHINGTON, D.C.

(1) 11-4-43 ECN 3329 *Handwritten*

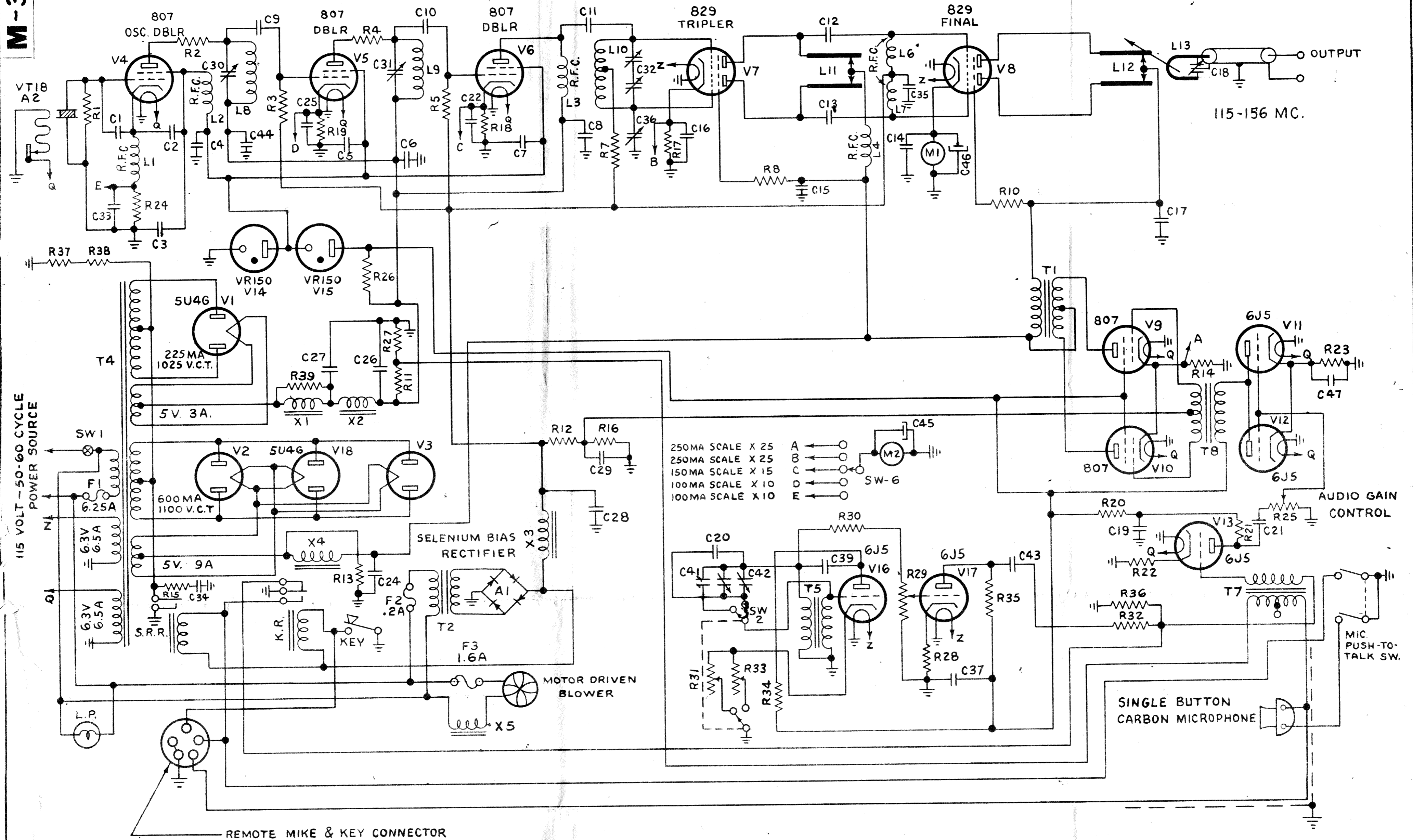
(2) 11-17-45 Pt. 87 added; ECN 3372; *Handwritten*

11-26-45 Pt. 88 added; ECN 3426; *Handwritten*

(4) 1-4-44 Pt. 85 was A-60133-4; ECN 3577; *Handwritten*

(5) 1-20-44 Pt. 89 added; ECN 3675; *Handwritten*

W.E. Davis Jan 19, 44



AP. BY Frankart
 ENG. REL 784
 REVISED 8-30-43
 FCN-3017
 Frankart
 ADDED R37 AND R38
 11-1-43 FCN 3324
 Frankart
 ADDED PT. C 47
 J.M. Cupp 11-30-43
 ADDED R39 & CHGO.
 WIRING ON R13.
 12-1-43 FCN 3457
 J.M. Cupp 12-1-43
 ADDED X5
 J.M. Cupp 12-30-43

VARIATIONS ON FINISHED DIMENSIONS UNLESS OTHERWISE SPECIFIED		
BASIC DIMENSIONS	FRACTIONAL DIMENSIONS	DECIMAL DIMENSIONS
UP TO 1/4	± 1/32	± .005
ABOVE 1/4 TO 6	± 1/64	± .005
ABOVE 6 TO 24	± 1/32	± .010
ABOVE 24	± 1/16	± .015

SEE PURCH. SPEC. FOR STOCK TOLERANCES

SCHEMATIC 35 WATT V.H.F. TRANSMITTER

FIRST MADE FOR 32158

USED ON

DRAWN *Joe M. Cupp June 24, 1943* ENGINEER *Frankart 6-22-43*

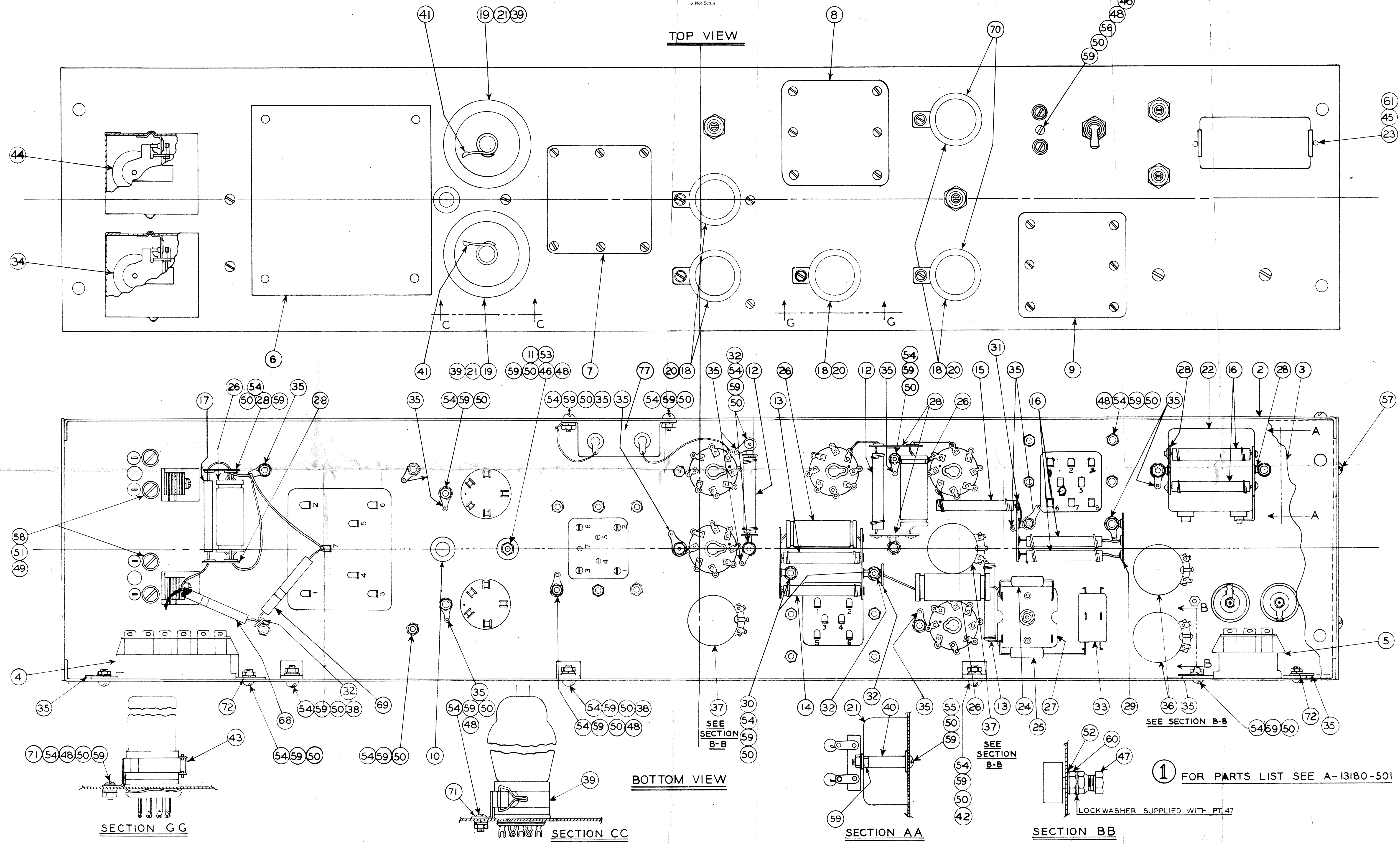
CHECKED *W. Little 6-22-43* APPROVED *Frankart 6-22-43*

AIRCRAFT ACCESSORIES CORP. **M-30823**

KANSAS CITY, KANSAS, U.S.A.

W-40413

DIMENSIONS IN INCHES
For Not Scale



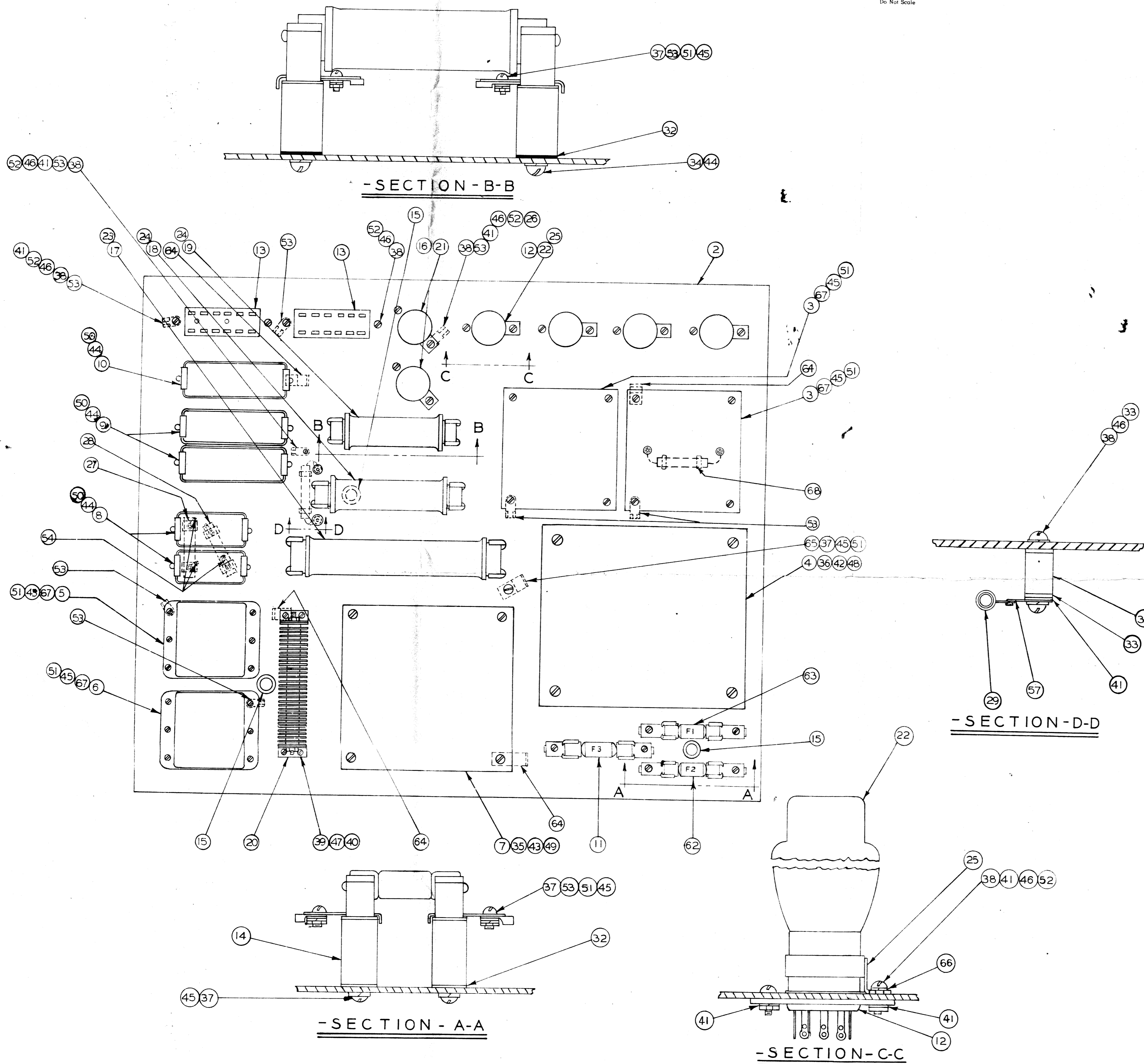
① FOR PARTS LIST SEE A-13180-501

VARIATIONS ON FINISHED DIMENSIONS UNLESS OTHERWISE SPECIFIED			V.H.F. MODULATOR ASSEMBLY	
BASIC DIMENSIONS	FRACTIONAL DIMENSIONS	DECIMAL DIMENSIONS	FIRST MADE FOR	REVISED FOR
UP TO 1/4	± .005	± .005	32158	Z-50084
ABOVE 1/4 TO 6	± .010	± .005	DRAWN S. C. Aug 6 '43	ENGINEER <i>O. W. White 8-6-43</i>
ABOVE 6 TO 24	± .015	± .010	CHECKED <i>S. C. Aug 6 '43</i>	APPROVER <i>Frank 8-6-43</i>
ABOVE 24	± .020	± .015		
SEE PURCH. SPEC. FOR STOCK TOLERANCES			AIRCRAFT ACCESSORIES CORP. KANSAS CITY, KANSAS, U.S.A.	

AP *Frank*
 REL. NO. 68869
 ADD. PARTS 68869
 REVISED ECH 3-27-43
 ADD. PART 77
 ADD. PART 35 X
 ADD. PART 38 X
 ADD. PART 48 X
 ADD. PART 50 X
 ADD. PART 54 X
 ADD. PART 59 X
 AS PER ECH # 3493
 ADD. PART 71
 ADD. PART 72
 ADD. PART 77

W-40419

DIMENSIONS IN INCHES
Do Not Scale



QTY.		REF.	PART NO.	QTY.	DESCRIPTION	REMARKS
X	1			0	ASSEMBLY	
	1	2	W-40425	1	POWER CHASSIS	
	2	3	L-21174	1	CHOKE	
	1	4	L-21172	1	POWER TRANSFORMER	
	1	5	L-21173	1	CHOKE	
	1	6	L-21171	1	TRANSFORMER	
	1	7	L-21175	1	CHOKE	
	2	8	L-61005	5	CAPACITOR $\frac{1}{2} \times 25$	
	2	9	L-61005	8	CAPACITOR $\frac{1}{2} \times 25$	
	1	10	L-61005	9	CAPACITOR $\frac{1}{2} \times 24$	
	1	11	L-65304	3	FUSETRON - 1.6 AMPS.	
	4	12	A-65200	501	TUBE SOCKET	
	2	13	L-62519	30	SOCKET	
	6	14	L-66112	508	FUSE-CLIP ASSEMBLY	
	3	15	L-66010	58	GROMMET	
	2	16	A-65200	502	TUBE SOCKET	
	1	17	L-61387	41	RESISTOR 60W 10,000 OHMS	
	1	18	L-61385	41	RESISTOR 28W 10,000 OHMS	
	1	19	L-61383	31	RESISTOR 24W 10,000 OHMS	
	1	20	L-63300	3	RECTIFIER-SELENIUM	
X	1	21	A-69305	1	TUBE VR. -150/30	
X	1	22	A-69231	1	TUBE 5U4G	
	2	23	L-66112	510	FUSE CLIP ASSEMBLY	
	4	24	L-66112	509	FUSE CLIP ASSEMBLY	
	4	25	A-66114	1	CLAMP-TUBE	
	2	26	A-66116	3	CLAMP-TUBE	
	1	27	L-61376	37	RESISTOR 1500 OHMS 10W	
	1	28	L-61376	46	RESISTOR 5000 OHMS 10W	
	1	29	L-61376	227	RESISTOR 500 OHMS 10W	
	2	30	A-65610	44	INSULATOR POST	
	4	31	A-66102	51	CABLE CLAMP	
	12	32	A-60018	8	WASHER	
	4	33	L-60007	71	WASHER	
	6	34	A-60170	6	MACH. SCR *10-24 R.H.D. $\frac{3}{8}$ L.	
	4	35	A-60180	8	MACH. SCR *12-24 R.H.D. $\frac{1}{2}$ L.	
	4	36	A-60190	8	MACH. SCR *4-20 R.H.D. $\frac{1}{2}$ L.	
	3	37	A-60150	6	MACH. SCR *8-32 R.H.D. $\frac{3}{8}$ L.	
	2	38	A-60140	8	MACH. SCR *6-32 R.H.D. $\frac{1}{2}$ L.	
	4	39	A-60130	8	MACH. SCR *4-40 R.H.D. $\frac{1}{2}$ L.	
	4	40	A-60021	8	NUT, HEX *4-40	
	18	41	L-60004	34	WASHER - FLAT *6	
	4	42	L-60000	49	LOCKWASHER * $\frac{1}{4}$	
	4	43	L-60000	48	LOCKWASHER *12	
	16	44	L-60000	72	LOCKWASHER *10	
	3	45	L-60000	24	LOCKWASHER *8	
	2	46	L-60000	45	LOCKWASHER *6	
	4	47	L-60000	10	LOCKWASHER *4	
	4	48	A-60021	36	NUT, HEX * $\frac{1}{4}$ -20	
	4	49	A-60021	28	NUT, HEX *12-24	
	10	50	A-60021	25	NUT, HEX *10-32	
	33	51	A-60021	17	NUT, HEX *8-32	
	17	52	A-60021	12	NUT, HEX *6-32	
	18	53	L-66023	8	TERMINAL LUG	
	3	54	L-66000	19	TERMINAL LUG *10	
SER	55			0	SOLDER	
SER	56			0	GLYPTAL	
	2	57	A-66000	44	TERMINAL LUG	
	1	58	A-13331	501	WIRE MATRIX LIST	
X	1	59	W-40436	1	WIRING DIAGRAM	
X	1	60	M-30842	1	STENCIL - TOP SIDE	
X	1	61	M-30843	1	STENCIL - BOTTOM SIDE	
	1	62	L-65304	53	FUSETRON .2 AMP	
	1	63	L-65304	9	FUSETRON 6.25 AMP	
	1	64	A-66102	52	CABLE CLAMP	
	1	65	A-66102	53	CABLE CLAMP	
	8	66	A-60004	35	WASHER, FLAT #6	
	20	67	A-60150	8	MACH. SCR. 8-32 LG. R.D.	
	1	68	L-61376	62	RESISTOR 20,000 OH. 10W.	

BASIC DIMENSIONS		FRACTIONAL DIMENSIONS		DECIMAL DIMENSIONS	
UP TO 1/4	$\pm \frac{1}{64}$	$\pm \frac{1}{32}$	$\pm .005$		
1/4 TO 1/2	$\pm \frac{1}{32}$	$\pm \frac{1}{16}$	$\pm .005$		
1/2 TO 1	$\pm \frac{1}{16}$	$\pm \frac{1}{8}$	$\pm .010$		
1 TO 2	$\pm \frac{1}{8}$	$\pm \frac{1}{4}$	$\pm .015$		

POWER CHASSIS ASSEMBLY

APPROVED: *[Signature]* DATE: 8-10-63

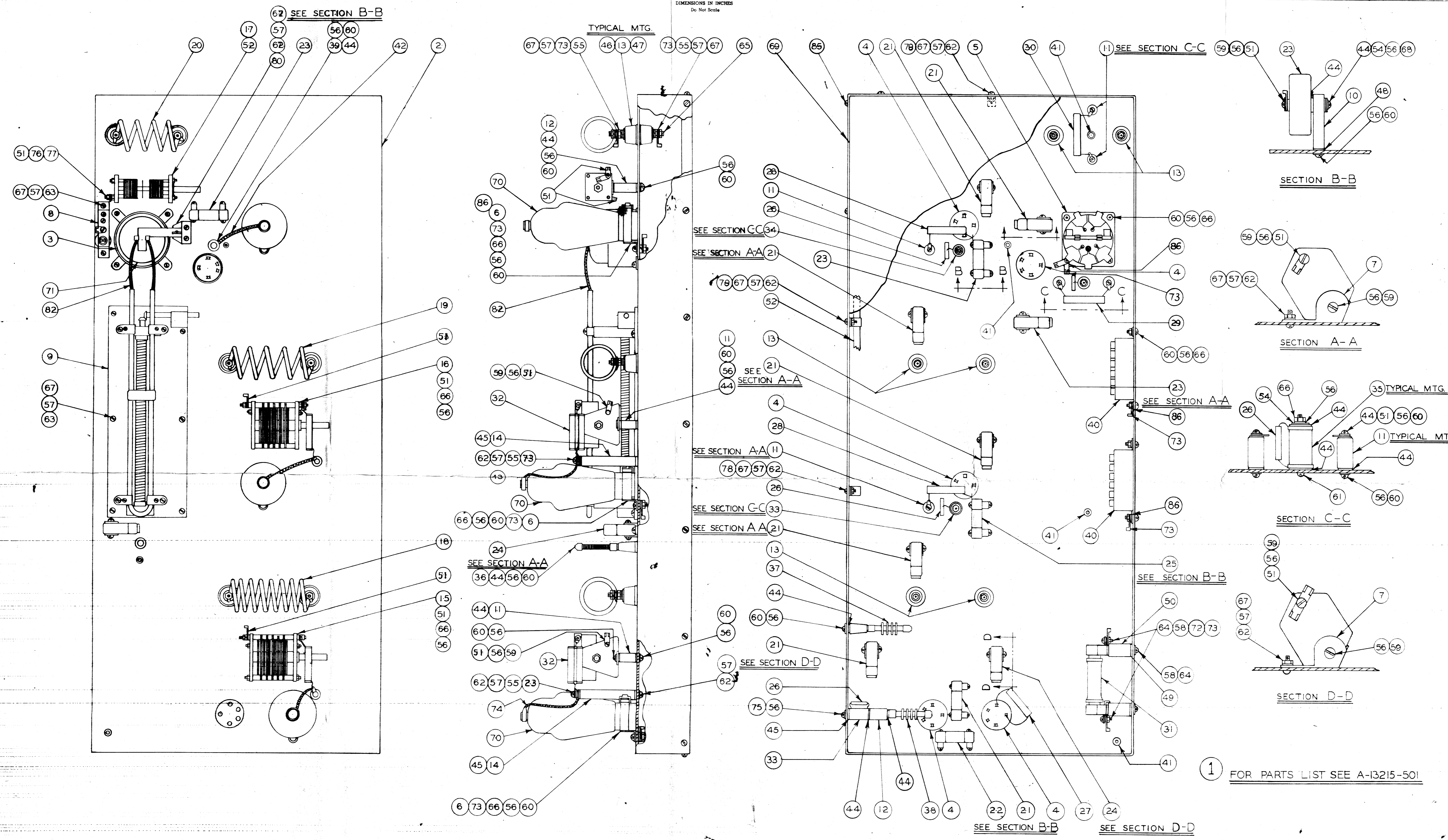
APPROVED: *[Signature]* DATE: 8-10-63

AIRCRAFT ACCESSORIES CORP. W-40419

REVISED: ESN 3329
 ADD'D PART 68
 M. C. [Signature]

W-40430

DIMENSIONS IN INCHES
Do Not Scale



W-40430
REV. 11-10-43

VARIATIONS ON FINISHED DIMENSIONS UNLESS OTHERWISE SPECIFIED		
BASIC DIMENSIONS	FRACTIONAL DIMENSIONS	DECIMAL DIMENSIONS
UP TO 1/4	± 1/64	± .005
ABOVE 1/4 TO 6	± 1/32	± .005
ABOVE 6 TO 24	± 1/16	± .010
ABOVE 24	± 1/8	± .015

R.F. CHASSIS ASSEMBLY
 FIRST MADE 11-32-43
 DRAWN *Joseph Carl Aug 20, 1943* ENGINEER *Fredrick S. de 43*
 CHECKED *Orville S. 5-26-43* APPROVED *Frank R. 8-26-43*
AIRCRAFT ACCESSORIES CORP.
 KANSAS CITY - KANSAS, U.S.A. **W-40430**

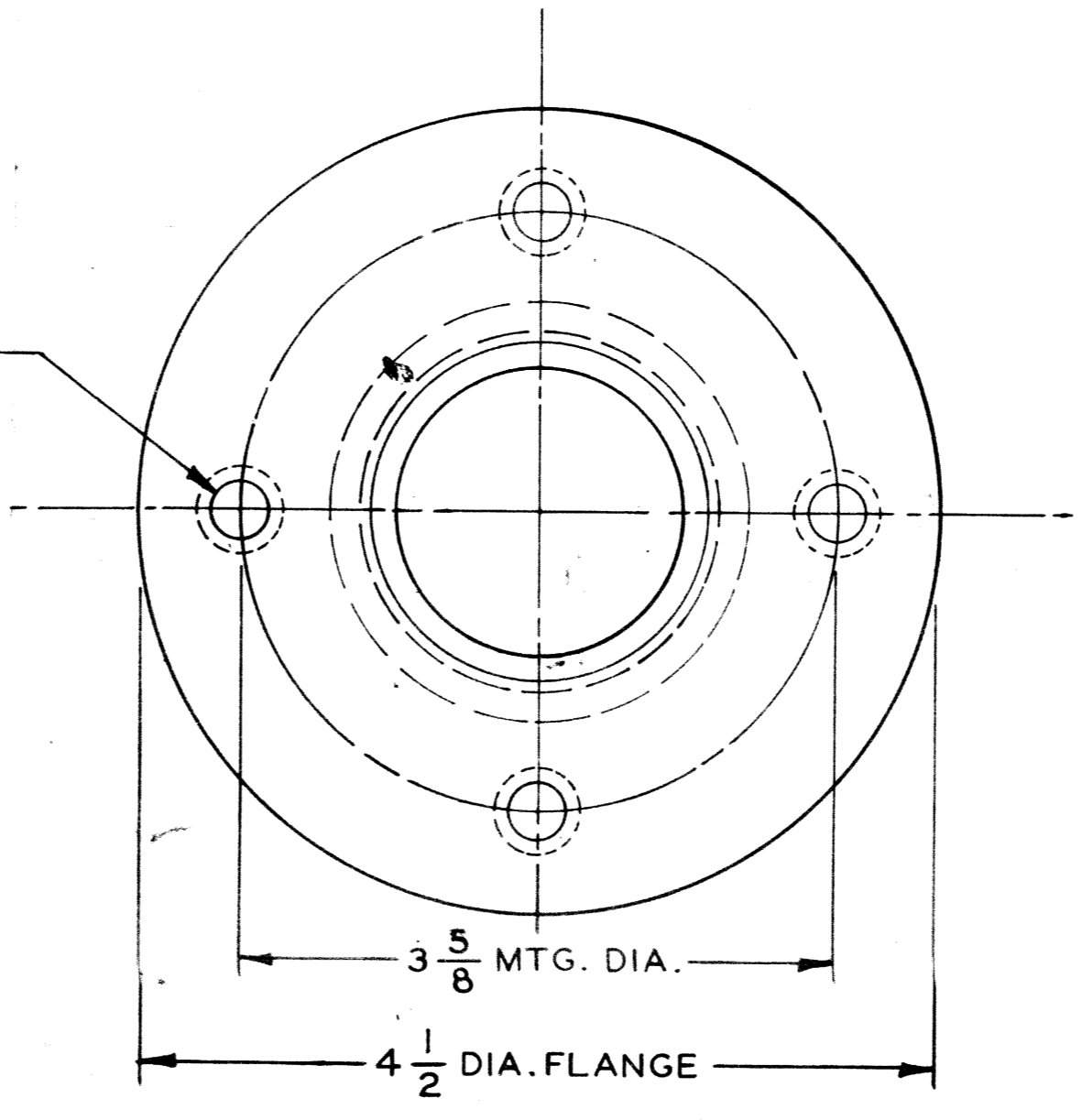
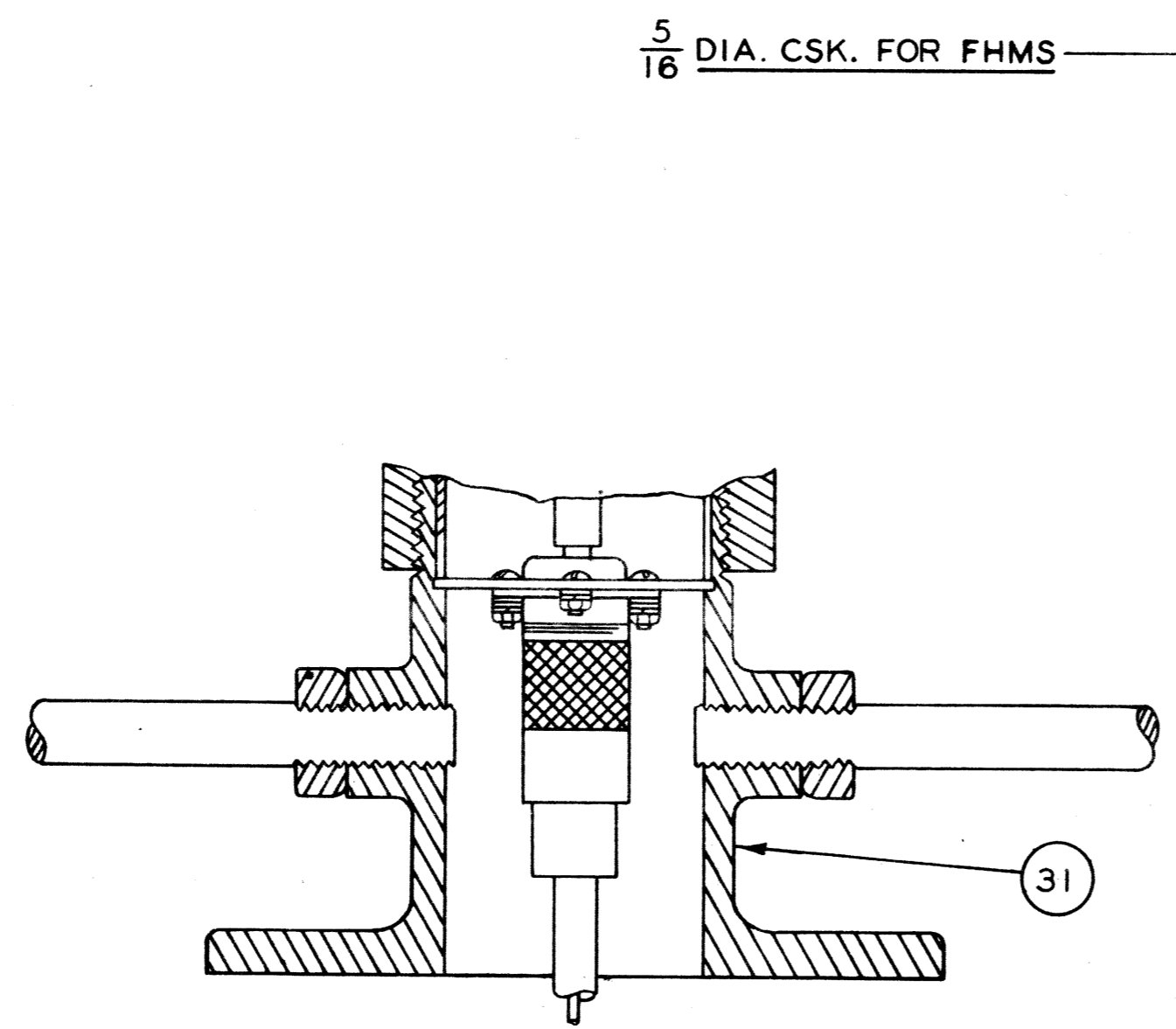
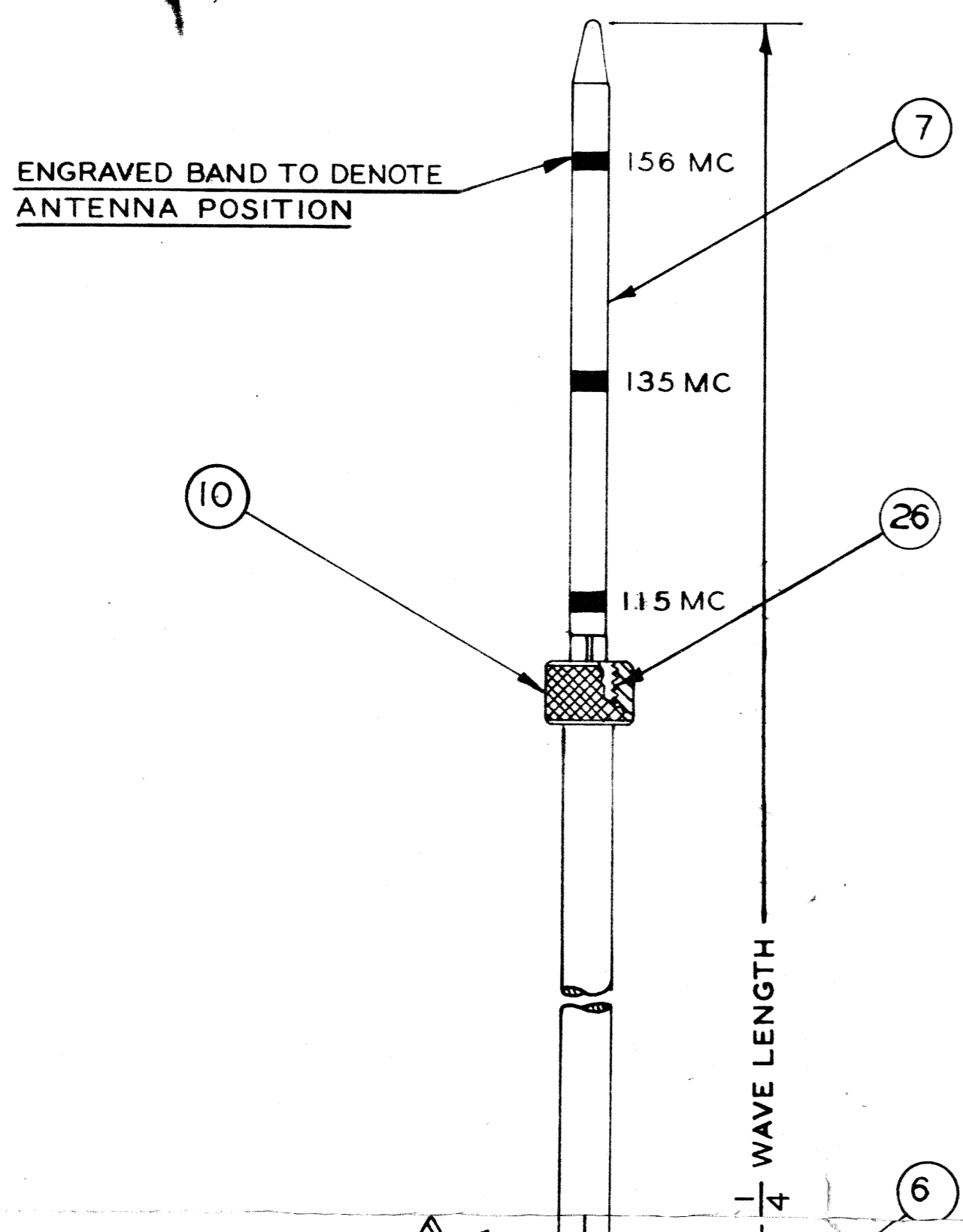
W-40438

DIMENSIONS IN INCHES
Do Not Scale

V.H.F. ANTENNA I15-I56 M.C. **W-40438**

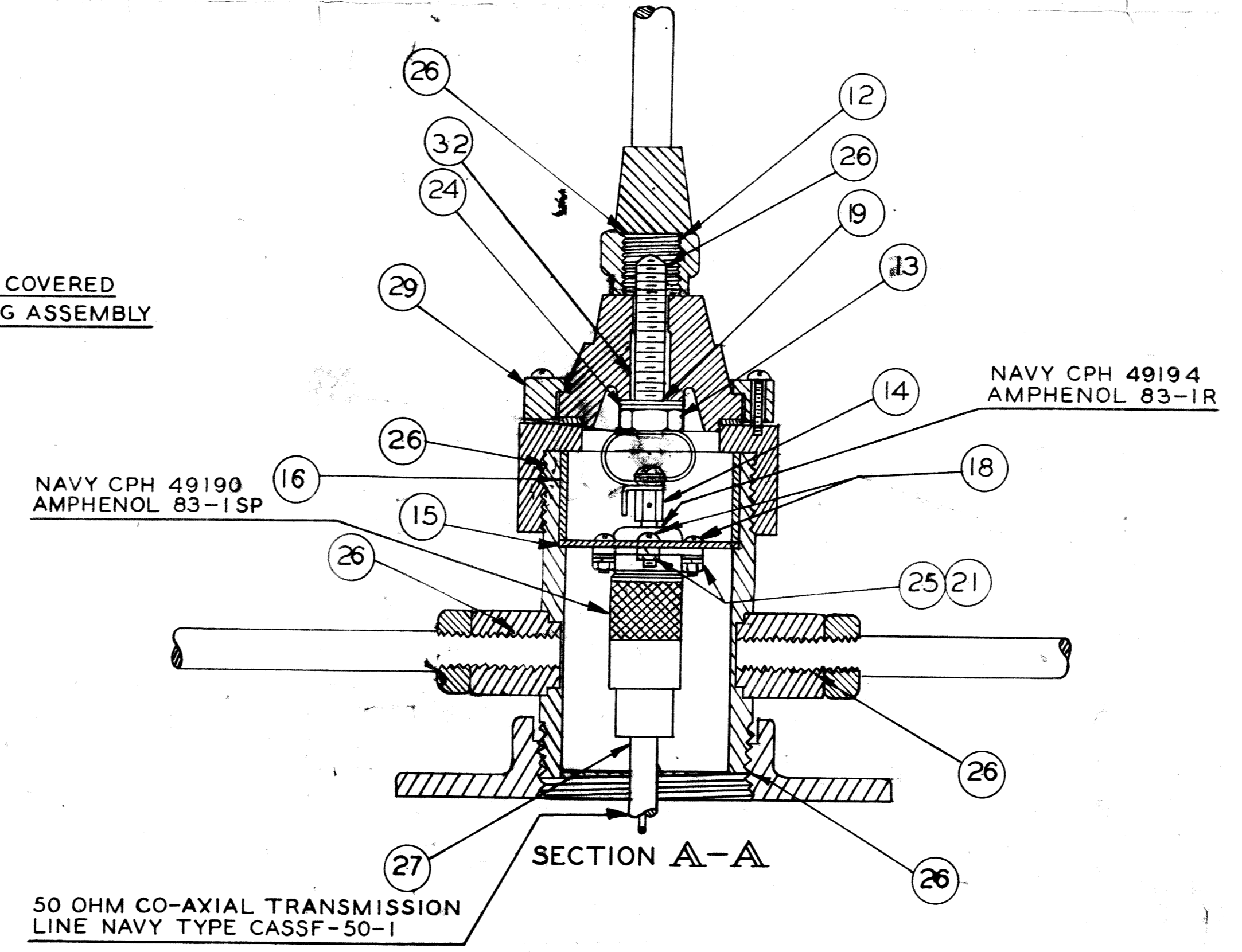
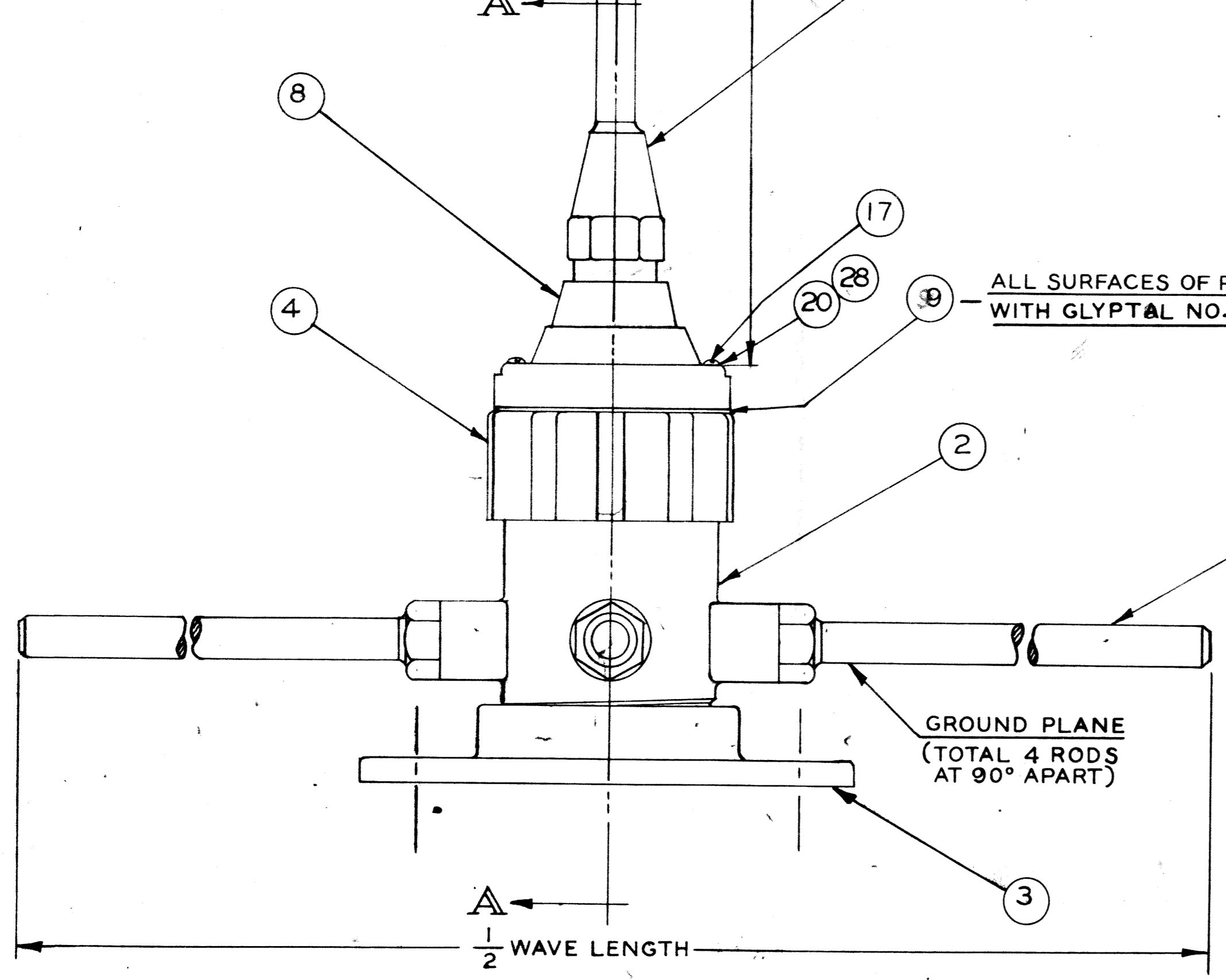
MATERIAL LIST FOR ONE UNIT

QTY	BY	REF.	PART ORG.	FIN. NO.	DESCRIPTION	REMARKS
X	1			0	ASSEMBLY	
1	2	A-13365	501	0	SHELL ASSEMBLY	
1	3	A-13363	1	0	BASE, ANTENNA MTG.	
1	4	A-13360	1	0	CAP	
4	4	A-13366	501	0	GROUND ROD ASSEMBLY	
1	6	A-13368	501	0	LOWER TUBE ASSEMBLY	
1	7	A-13355	1	0	ADJUSTABLE ROD	
1	8	A-65604	5	0	INSULATOR	
1	9	A-60017	87	0	WASHER, VELLUTEX	
1	10	A-13373	1	0	LOCKNUT	
1	11	A-60017	68	0	WASHER, VELLUTEX	
1	12	A-13356	1	0	MOUNTING STUD	
1	13	A-13527	1	0	CONNECTOR POST	
1	14	A-13529	501	0	SOCKET ASSEMBLY	
1	15	A-13369	1	0	MOUNTING PLATE	
1	16	A-13455	1	0	LOCK RING	
3	17	A-60143	10	45	MACH. SCREW BI. HD. #6-32	5/8 LG.
4	18	A-60130	4	45	MACH. SCREW RD. HD. #4-40	1/4 LG.
1	19	A-60007	68	0	WASHER, VELLUTEX #1/4	
3	20	A-60017	51	0	WASHER, VELLUTEX #6	
4	21	L-60000	10	45	LOCKWASHER, SPLIT #4	
X	X	22		0	GLYPTAL	
1	23	A-60021	38	45	HEX NUT #1/4-20	
1	24	L-60004	41	45	WASHER, FLAT #1/4	
4	25	A-60021	38	45	HEX NUT #4-40	
X	X	26		0	LUBRIPLATE	
1	27	A-13310	502	0	CO-AXIAL TRANSMISSION LINE	E.P.R. 782 100 FT. LONG
3	28	L-60004	4	45	WASHER, FLAT #6	
1	29	A-13442	1	0	RETAINER RING	
X	X	30		0	ASSEMBLY	
1	31	M-30882	1	0	BASE	
1	32	L-60010	48	62	BUSHING	



BOTTOM VIEW

SECTION A-A (30) OTHERWISE SAME AS PART 1



1 GLYPTAL FIX PTS. 9, 11, 13, 17, 19, 20, 21, 23, 24, 25 & 28.

WEIGHT COMPLETE WITH 100 FT. OF CO-AX CABLE = 16.5 LBS.

AP W-40438-1
REV. NO. 1
Revised 9-27-43
Frankfort #1
PT. 13 WAS A-13356-1
PT. 14 WAS A-13357-501
NOTE: DIM. 3 5/8 WAS 3 7/8
WAS CHANGED.
ECN 3126
9-27-43
OF LEAD WASHER
AT TOP OF INDIAN
PTS. OF ITEM 19 WERE
2 ADDED ITEM 28 EQUIP
WAS ADDED
8-20-43
8-20-43

VARIATIONS ON PUBLISHED DIMENSIONS UNLESS OTHERWISE SPECIFIED

BASIC DIMENSIONS	FRACTIONAL DIMENSIONS	DECIMAL DIMENSIONS
UP TO 1/16	± 1/32	± .005
ABOVE 1/16 TO 1/8	± 1/64	± .003
ABOVE 1/8 TO 1/4	± 1/128	± .010
ABOVE 1/4	± 1/64	± .015

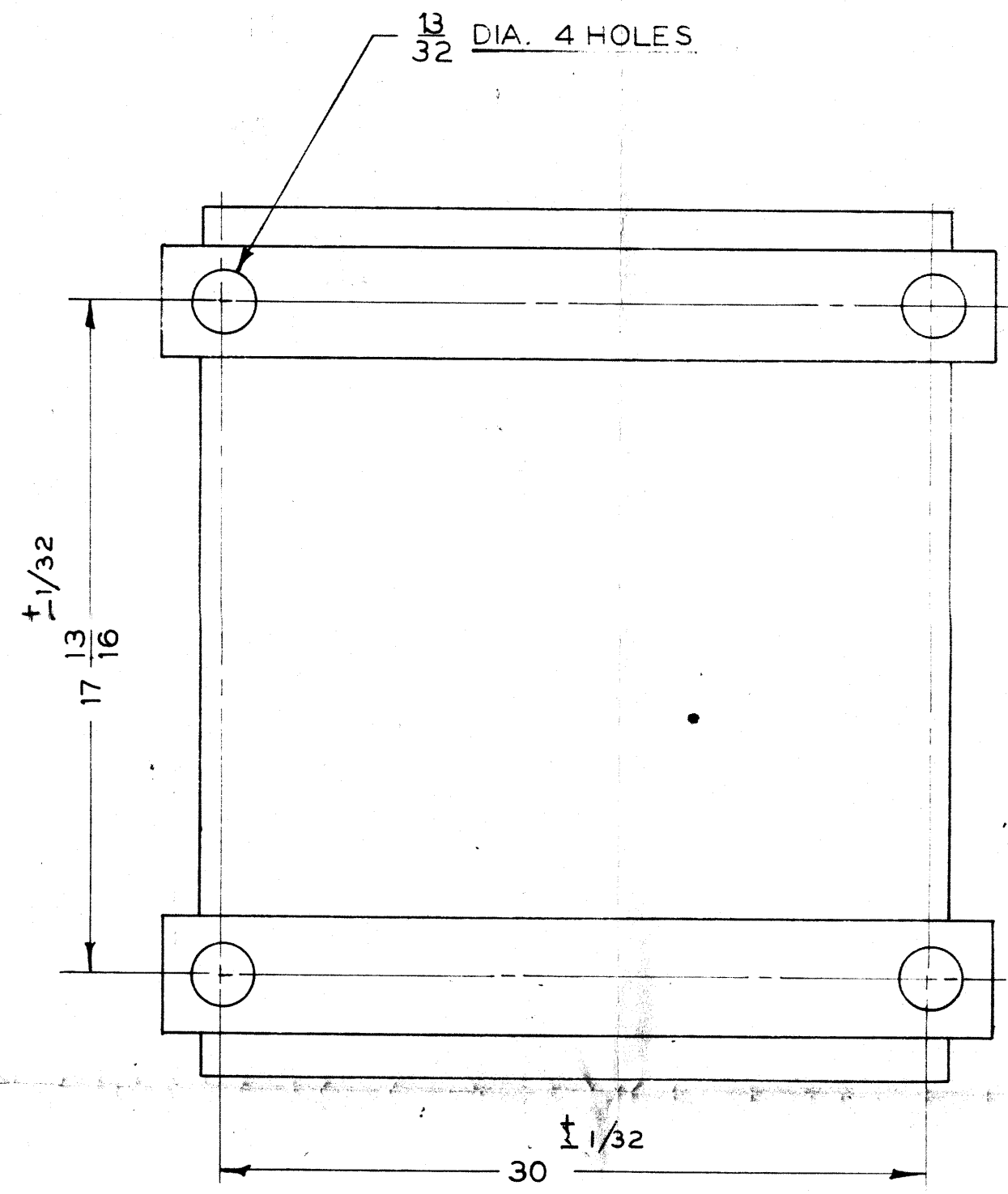
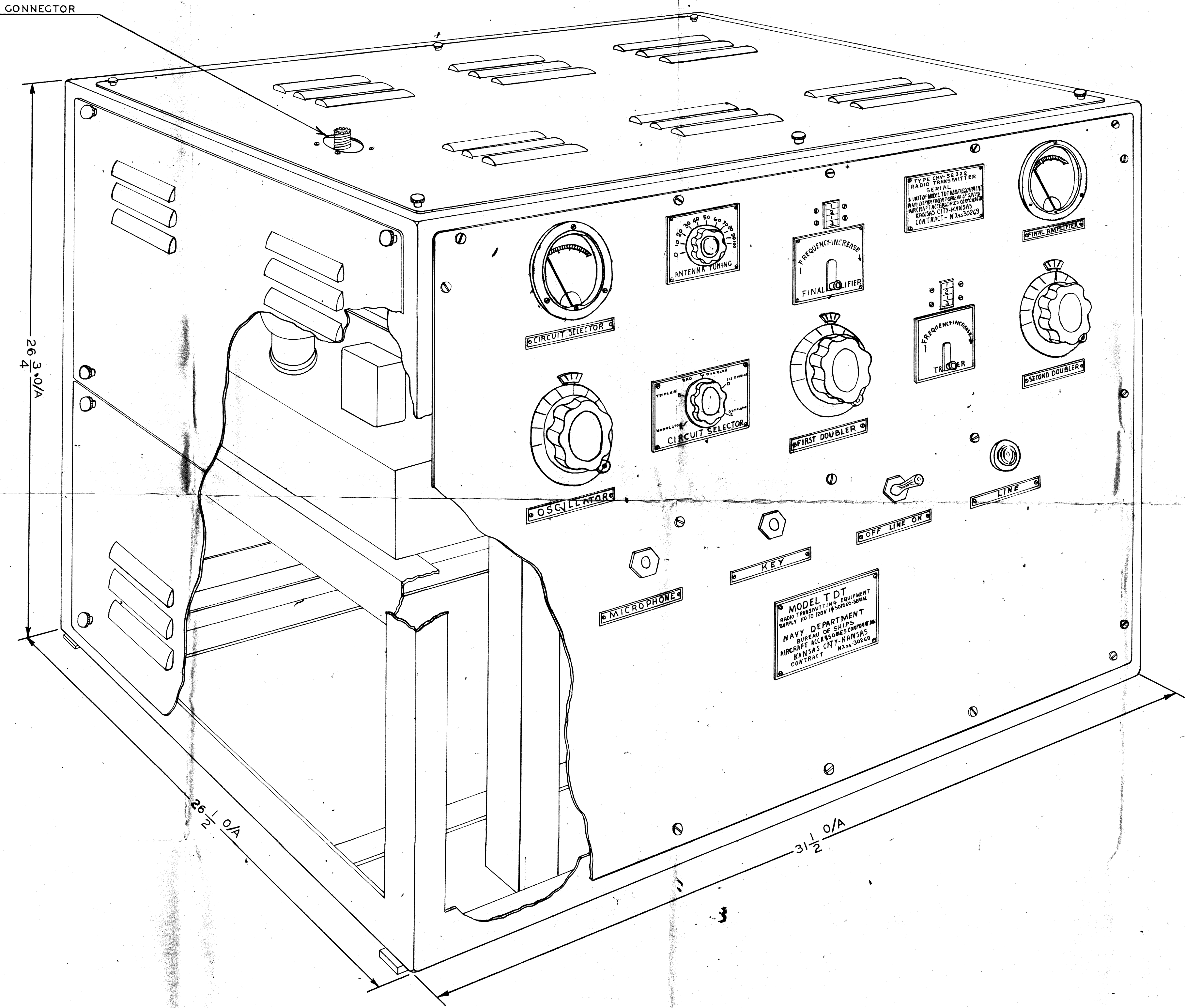
SEE FIGURE SPEC. FOR STOCK TOLERANCES

V.H.F. ANTENNA I15-I56 M.C.
FIRST MADE FOR 32158
USED ON
ENGINEER *W. J. ...* Aug 30, 1943
CHECKED *W. J. ...* Aug 30, 1943
APPROVED *Frankfort 8-30-43*
AIRCRAFT ACCESSORIES CORP.
KANSAS CITY, KANSAS, U.S.A.
W-40438

W-40448

DIMENSIONS IN INCHES
Do Not Scale

ANTENNA OUTPUT CONNECTOR

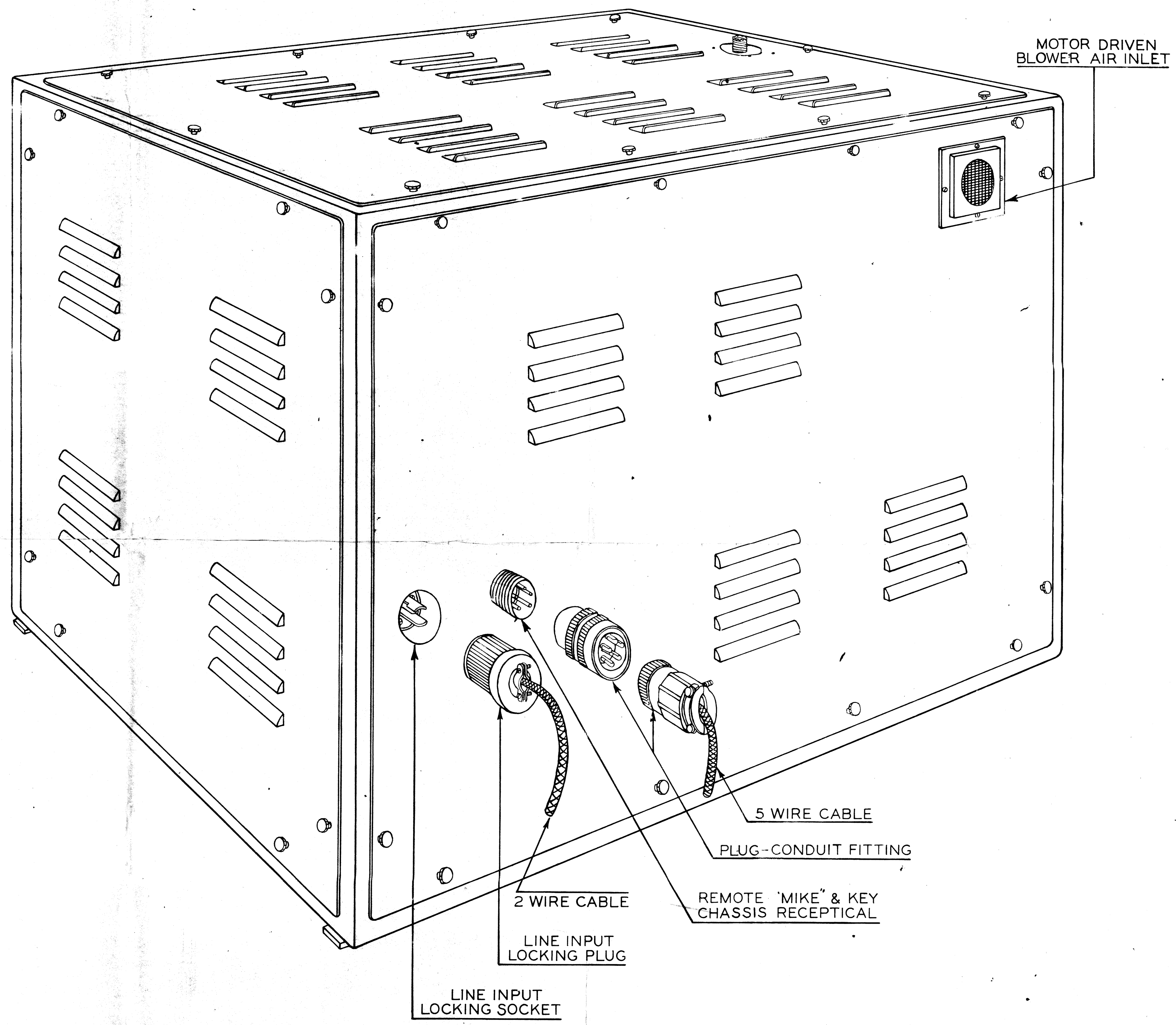


BOTTOM VIEW
SHOWING MTG. DIMENSIONS

AP 11/11/43
 REL. NO. 11/11/43
 BOTTOM VIEW 5375
 W-40448-1-1-43

VARIATIONS ON FINISHED DIMENSIONS UNLESS OTHERWISE SPECIFIED			VHF RADIO TRANSMITTER CKV 52322 MODEL TDT	
BASIC DIMENSIONS	FRACTIONAL DIMENSIONS	DECIMAL DIMENSIONS	FIRST MADE FOR 32158	USED ON
UP TO 1/4	± 1/32	± .005	DRAWN <i>Phillips</i> 8-5-43	ENGINEER <i>Frank</i> 8-4-43
ABOVE 1/4 TO 6	± 1/64	± .005	CHECKED <i>W. J. 8-5-43</i>	APPROVED <i>W. J. 8-4-43</i>
ABOVE 6 TO 24	± 1/32	± .010	AIRCRAFT ACCESSORIES CORP. KANSAS CITY, KANSAS, U.S.A.	
ABOVE 24	± 1/16	± .015		

W-40448



REAR VIEW - NAVY TDT TRANSMITTER

FIRST MADE FOR 32158	USED ON
DRAWN <i>Geo M. Camp Aug 19 1943</i>	ENGINEER <i>Frank Austin 1943</i>
CHECKED <i>OW Little B-19-43</i>	APPROVED <i>Frank R-5-43</i>

AIRCRAFT ACCESSORIES CORP. **W-40451**
KANSAS CITY, KANSAS, U.S.A.