Section 10
AIRCRAFT NAVIGATION EQUIPMENT
Y Series

SECTION 10. AIRCRAFT NAVIGATION EQUIPMENT

INSTRUCTIONS FOR ADJUSTMENT OF THE MONITOR RELAY CIRCUIT OF MODEL YE–1 EQUIPMENTS

The following instructions should be helpful in adjusting the monitor circuit and keying relay K–104 to obtain satisfactory operation over a maximum range of plate and modulation control variations:

(1) Relay K–104 should be adjusted so that the contact gap in both energized and de-energized positions is 0.006 inch. The gap between the armature and magnetic pole piece should be 0.003 inch when the relay is energized. Spring tension should be reduced so that in the de-energized position a pressure of 35 grams applied at a right-angle to the tip of the armature, adjacent to the pole piece, will move the armature. With this adjustment, the relay will pull in at approximately 6.8 volts and drop out at 2.8 volts.

(2) The transmitter should then be operated with full input (750 volts) and 80 percent modulation at the particular frequency desired.

(3) Monitor bias should then be adjusted by rotating bias control R–199 clockwise (increasing bias) slowly to the maximum value at which the monitor relay will follow hand keying of front panel test key S–104.

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LUBRICATION OF THE ANTENNA ARRAY OF MODEL YE SERIES HOMING EQUIPMENTS

The following information regarding the proper lubrication and assembly of the antenna unit of the model YE series homing equipment should be followed by all installation and maintenance activities concerned. Several reports have been received of excessive corrosion and binding in the pillow block bearings. This is due, in some degree, to improper installation. These are two points to watch:

(1) Before closing the pillow block bearing, the needle bearing must be packed with low temperature grease WS–334. This lubrication should last indefinitely.

(2) In placing the lower shield on the pillow block bearing at installation, make sure there is sufficient clearance between it and the bearing supporting pin (part 30 W–305442). It has been found on some installations that the lower weather shield was set close enough to interfere with the supporting pin; a condition which can introduce sufficient friction to bind the drive shaft.

It is recommended that a few drops of light oil be applied weekly to the keying disc surfaces. This should reduce wear on the keying disc cam followers. All excess oil should be wiped off so it does not gum the keying surfaces. Particular emphasis should be placed on the proper lubrication of the keying discs, as it is probable that improper lubrication accounts for the many replacements being made.

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MODEL YE–1 COAXIAL LINE GUARD

"Our YE–1 coaxial line runs vertically up an exposed kingpost and has been damaged twice by boom support cables. Some type of guard was necessary, but as this is a gas-filled line, a removable one was thought advisable. Our guard has proven satisfactory and consists of lengths of U-shaped steel. These are of suitable length and weight for easy handling. Short lengths of steel bar stock are welded to the kingpost and project out vertically a suitable distance as determined by the mounting of the coaxial line. The sides of the U-shaped steel guards and these supporting bars are drilled and tapped for ⅜-inch machine screws, and the guards are mounted in this manner. To remove them, all that is required is to remove the screws and lift off the guards."

—U. S. S. *Chandeleur*

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UNINTENTIONAL OPERATION OF MODEL YE EQUIPMENTS

When the model YE equipment is in use, the operator should make certain that the remote-local switch is thrown to the REMOTE position. If the switch is left in the LOCAL position, or is accidentally thrown to the LOCAL position while the equipment is operating, it will be impossible to shut off the transmitter from the remote control position. Thus it is possible that the equipment will continue to transmit after personnel at the remote station have turned their switches off, thus breaking radio silence.

Operators of the equipment, both at the transmitter and at the remote station, should make certain that the transmitter is secured when its operation is no longer required.

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FAILURE OF TYPE 826 TUBES IN MODEL YE EQUIPMENTS

The Bureau and the contractor for the model YE equipments have received reports of type 826 tubes which failed upon original installation in an equipment. In some cases this was due to defective tubes; in others the reported failure was due to improper interpretation of meter readings.

The contractor's engineering department has compiled a list showing the range of indications which should be obtained on all meters when the transmitter is operating normally. *This list of acceptable ranges does not agree with and supersedes the data in the instruction book;* it was compiled from current production transmitters and tubes, and follows:

Meter designation	*Range*
H.-F. oscillator plate amplifier current	10–25
First amplifier plate current	15–30
Second amplifier plate current	75–115
Third amplifier grid current	10–15
Third amplifier plate current	150–185
Fourth amplifier grid current	38–40
Fourth amplifier plate current	160–220
P. A. grid current	65–80
P. A. plate current total	250
Antenna current No. 1	0.2–0.5
Antenna current No. 2	0.2–0.5
P. A. plate current	165–176
P. A. plate current	165–170
L. F. oscillator screen current	2–3
L. F. oscillator plate current	20–30
Modulator grid current	8–12
Modulator plate current	150–230
Modulator percentage	85
Filament voltage	6.5
Plate voltage	750
Bias voltage	238–262

Equipments whose tubes are known to be good and whose meter readings differ widely from the above limits are in need of repair or readjustment.

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TUNE-UP PROCEDURE FOR THE YE HOMING BEACON EQUIPMENT

(1) Before applying voltages to the equipment:

(*a*) Remove all side covers and thoroughly clean the interior of the cabinet. This can best be done by using dry compressed air at moderate pressure. Particular attention should be given to the p.-a. plate tank circuit. Under normal operating conditions this circuit is 750 volts above ground and any grounding will blow the 1.5 ampere fuse in the m.-g. circuit.

CAUTION.—This tank circuit is "hot" when the high voltage is applied to the transmitter.

(*b*) Check all tube sockets for metal shavings or any other condition that would prevent correct operation.

(*c*) See that the correct tubes are in their respective sockets.

(*d*) Check the input line voltage to the equipment to see that the correct voltage is available.

(*e*) Place the following switches in the designated positions:

1. Transfer Switch (antenna control unit) to OFF. (This will prevent the antenna from rotating.)

2. Main Power Switch (m.-g. magnetic controller box) to ON.

3. Local Start Switch (front of transmitter) to OFF.

4. Plate Switch (front of transmitter) to OFF.

(2) Close main line switch:

This will apply the required input supply voltage. If the switches mentioned above are set correctly nothing will happen when the line switch is closed.

(3) To place the equipment in operation the following things should be done, in the order in which they come:

(*a*) Emergency-Stop Switch placed ON. The following things should occur—

1. The l.-f. oscillator blower motor should start (B101).

2. The following indicator lights should come on—

No. 3 amber—oscillator heater.

No. 4 white—oscillator filament.

NOTE: If the above does not happen check F105 and F106, F107 and F108.

(*b*) Local Start Switch placed ON. The following things should occur—

1. The main blower motor should start (B102).

2. The tube filaments should light.

3. The following indicator lights should come on—

No. 1 clear—filament.

No. 2 blue—master start. M–G set should start.

NOTE: If the above does not happen check F103 and F104, also check F403 if m.-g. set does not start. If fuses are OK, check all interlocks.

(*c*) Turn the high-voltage control (R194) fully counterclockwise. This will keep the p.-a. plate voltage down to a safe limit when the plate switch is closed and prevent damage to the equipment in case the circuits are not tuned to resonance.

(*d*) Plate Switch placed ON. The following things should occur—

1. 250 should be indicated on the bias voltage meter.

2. The following indicator lights should come on—

No. 5 green—bias voltage.

No. 6 red—plate voltage.

NOTE: If the above does not happen check microswitch (S114) mounted over main blower at the rear of the transmitter. Check F301, F302, and F303 located in m.-g. set. Also, check the setting of the time delay relay for closing time. On d.-c. installations this can be set anywhere from 1½ to 12¼ minutes—normally set at 10 minutes; on a.-c. installations it can be set from 15 seconds to 45 seconds—normally set at 45 seconds.

(4) Tuning the transmitter:

(*a*) Adjust plate voltage control (R197) for 450 volts as indicated on plate voltage meter.

(*b*) With the exception of the second amplifier grid circuit, there is a meter in each circuit for tuning and operating purposes.

1. *H-F Oscillator Plate Current*—10–25 Control E.—Adjust Control E for minimum plate current as indicated on the H-F Oscillator Plate Current meter (M101).

NOTE: Theoretically the above is correct but, in practice, it is more satisfactory to tune the circuit slightly off resonance. This can be done by noting the action of the meter as the circuit is tuned through resonance. It will be noted that the meter deflects sharply away from the dip as the circuit is tuned away from resonance on one side, and deflects slowly as the circuit is tuned away from resonance on the other side. The correct point will be approximately 2 divisions away from resonance on the side that the deflection is slowest.

2. *First Amplifier Plate Current*—15–30 Control F.—Adjust control F for minimum plate current as indicated on the 1st Amplifier Plate Current meter (M102).

3. *Second Amplifier Grid Current*—Control G.—Adjust this control to peak the first amplifier plate current as indicated on the first Amplifier Plate Current meter (M102). See (*b*) above.

4. *Second Amplifier Plate Current*—75–115 Control H.—Adjust this control for minimum plate current as indicated on the second Amplifier Plate Current meter (M103).

5. *Third Amplifier Grid Current*—10–15 Control J.—Adjust this control for maximum grid current as indicated on the third Amplifier Grid Current meter (M104).

6. *Third Amplifier Plate Current*—150–185 Control K.—Adjust this control for minimum plate current as indicated on the third Amplifier Plate Current meter (M105).

7. *Fourth Amplifier Grid Current*—38–40 Control L.—Adjust this control for maximum grid current as indicated on the fourth Amplifier Grid Current meter (M106).

8. *Fourth Amplifier Plate Current*—160–220 Control M.—Adjust this control for minimum plate current as indicated on the fourth Amplifier Plate Current meter (M107).

9. *PA Grid Current*—65–80 Control N.—Adjust this control for maximum grid current as indicated on the PA Grid Current meter (M108).

10. *PA Plate Current*—250 Control P.—Adjust this control for minimum plate current as indicated on the PA Plate Current Total meter (M109).

At this point it should be possible to increase the plate voltage control (R197) to approximately 600 volts. Swing the p.-a. plate circuit through resonance and note the relationship between the action of the grid current meter and the p.-a. plate current meter. As resonance is approached the two meters should fan toward each other and, as the circuit is tuned away from resonance, they should fan away from each other.

If this condition does not exist it will be necessary to neutralize the p.-a. stage.

(5) Neutralization:

(*a*) Adjust control Q for minimum coupling.

(*b*) Open right-hand access door. This will open the a.-c. circuit thereby stopping the m.-g. set.

CAUTION: Approximately 1 minute should be allowed before attempting to do any work in this compartment. This will give the m.-g. set time to stop.

(*c*) Open neut. link. This link is located at the lower right side panel of this compartment.

(*d*) Close access door and wait until m.-g. set has come up to speed and TD has closed.

(*e*) Increase plate voltage to full 750 volts.

(*f*) Peak grid circuit with control N.

(*g*) Swing the p.-a. plate circuit through resonance at the same time noting the effect this

has on the grid current. If the circuit is badly neutralized the grid current may go way down.

(*h*) Adjust neutralizing capacitors until minimum effect is noted on the grid current meter as the plate circuit is tuned through resonance.

NOTE: A satisfactory method of accomplishing this is to first screw the capacitors in as far as they will go and then back them out exactly 8 turns. Starting at this point, screw them in ½ turn at a time (it is necessary that both capacitors be adjusted each time an equal amount) and note the effect. Continue these adjustments until minimum effect is noted on the grid current meter as the plate circuit is swung through resonance.

Open access door and close neut. link. Close door and when the TD closes adjust plate circuit to resonance.

(*i*) Swing plate circuit through resonance and make slight adjustments to neutralizing capacitors until the grid and plate meters fan to/away correctly.

(6) After the above has been completed adjust controls until 250 mils is indicated on the PA Plate Current Total meter:

For the Essex type carriers this setting should be between 4 and 7.

For Kaiser built CVE's it will be between 6 and 9.

For Bremerton built CVE's it will be between 9 and 11.

After the island has been modified the CVE's will drop to between 2.5 and 6.

These figures are based on the premise that the coaxial line is in good condition and that C150 is spaced approximately ¼ inch.

(7) Rotate antenna by placing Transfer Switch (ant. control unit) in manual position:

Note plate current on Plate Current Total meter for any sudden deflection. It should be noted that there will be some movement in the meter due to the effect of the modulating signal. This can be eliminated by placing the test key in lock position.

Any sudden deflection would be an indication that the rotating joint (ant. drive unit) was not making smooth connection throughout its 360° rotation.

(8) To check the rotating joint for open circuits:

Remove straps from plate tank circuit to double coaxial line and connect an ohmmeter across the lines. Rotate the antenna. Zero resistance should be indicated throughout its 360° rotation.

(9) Poor r.-f. connection along the coaxial line would be indicated by inability to tune and load the final stage correctly:

Bad connections at 88 couplings can be located by touching a screw driver to the outer coaxial line and the 88, at the same time noting the p.-a. plate current. A poor contact along the line would cause the line to be highly reactive and since the transmitter has been tuned to this reactance, when a good contact is made the transmitter will be untuned, causing the plate current to increase. This may cause the overload relays to "kick-out."

(10) Adjusting the Across-the-Bow demodulator circuit:

(*a*) Place the small neon bulb across terminals 20 and 21.

(*b*) With antenna rotating, adjust R199 until the neon bulb remains lighted (this will be a counterclockwise adjustment) and then turn the control clockwise until the light follows the keying.

(11) Synchronizing antenna and antenna control unit:

(*a*) Remove all power from the equipment.

(b) Go up the mast and open the antenna drive unit.

(*c*) Manually rotate the antenna until its beam is dead ahead.

(*d*) Set calibrated dial, at bottom of drive tube, so that zero degrees coincides with the mark on the top of the drive unit.

(*e*) Back antenna off until 345° coincides with the mark on the top of the drive unit.

(*f*) Set Across-Bow slug so that contacts just close. This can be accurately done by connecting an ohmmeter across the contacts.

(*g*) Go below and apply power to the system and rotate antenna by placing the transfer switch in manual position. Note point at which the Across-Bow indicator light comes on. This may occur at any place on the keying disc.

(*h*) Turn ship's course dial until indicator light comes on at the edge of the zero segment.

Note number of degrees correction needed as indicated on the ship's course dial.

(*i*) Remove power from system and return to antenna drive unit.

(*j*) Remove spur gear at top of drive motor, being careful not to disturb motor.

(*k*) After gear has been removed, manually correct the antenna the number of degrees indicated on the ship's course dial. Replace the spur gear and go below and apply power so that the antenna can rotate. If sufficient care has been taken in making the correction, the indicator light should now light as the antenna sweeps across the bow of the ship and the keying disc indicates zero degrees.

(*l*) Place transfer switch in GYRO position and note where the indicator light comes on. Check this position with a compass repeat; it should correspond to the bearing indicated on the repeat. If bearings are 180° out, reverse R11A with R12A. If rotation is reversed, reverse S11A and S13A.

(12) On 230-volt d.-c. installations:

Check to see that the heater circuit in the antenna drive unit has been modified and connected to the ship's supply. This necessitates the connecting of two 115-volt heater strips in series and connecting them across terminals 4A and 1C. Two spare leads in the MHFA cable are used for this modification.—*RCA Service Co., Inc.*

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RECONDITIONING YE ANTENNA AND DRIVE MECHANISM

The following procedure has been originated in the Bremerton Navy Yard for overhaul of YE antennas and drive units. It is suggested that the Bremerton plan outlined below be used as a guide in organizing similar overhaul facilities at other major yards and bases.

(1) Antenna drive unit, antenna drive shaft, antenna, and pillow blocks are removed from the ship to a shop where the job can be completed and checked.

(2) Approximately 0.002 inch is machined from the diameter of the antenna drive shaft for a distance of 1 foot at the bottom of the shaft only. Machine off enough material so that there is a slip fit between the shaft and the antenna drive unit after the shaft has been plated.

(3) Have the antenna drive shaft cadmium plated.

(4) Antenna drive shaft is painted with two coats of zinc chromate.

(5) The pillow block sleeves are reamed sufficiently to fit over the original shaft diameter plus the plating, plus two coats of zinc chromate.

(6) The set screw is removed from the upper end bell of each pillow block, and a hollow type set screw is added to press against the drive shaft. This will allow vertical slippage of the end bell if too much end thrust is applied.

(7) Each pillow bearing is drilled and tapped on line with the set screw, and through to the roller bearing. A Zerk fitting is installed to facilitate greasing the roller bearings.

(8) A copper drain pipe is installed in the bottom of the antenna drive unit. The case is drilled and tapped, and a refrigeration drain fitting installed. The pipe is bent in a small single turn loop to prevent entrance of moisture from below.

(9) The steel ground plane rods of the antenna are either plated or replaced with brass rods.

(10) The shaft is covered with graphite or antiseize compound where it fits into the drive unit, pillow blocks, and antenna.

(11) A new type of packing used in the drive unit water seal consists of six specially constructed rings molded from synthetic rubber.

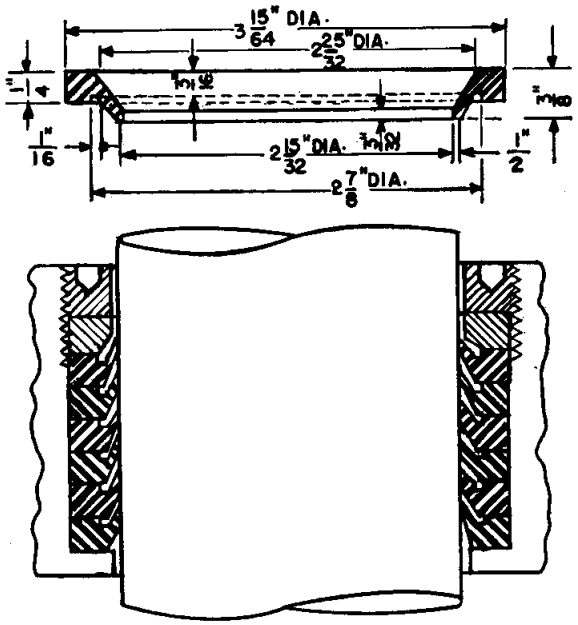

FIGURE 1.—Reconditioning YE antenna and drive mechanism.

The packing gland box is filled with graphite grease. To install these new type rings, it is necessary to cut off the three extensions on the aluminum gland nut, and to cut a bevel on the inner circumference of the fiber ring to allow clearance for the top packing ring. (See Fig. 1.)

(12) Assemble the antenna drive system and apply Navy specification 52C14 joint and thread compound to the bearing indicator dial, the top end bells of the pillow blocks around the circumference of the drive shaft, and to the tops of the hollow rods in the antenna reflector. All units are then coated with zinc chromate, a coating of haze grey, and then a coating of antenna enamel, which is resistant to stack gases.

RCA.

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IMPROPER MONITOR SIGNAL LIGHT OPERATION IN THE YE BEACON TRANSMITTER

The Electronic Field Service Group has reported that in checking a YE transmitter the monitor signal light in the antenna control unit failed to respond as it should. The relay K–104 would cause its contacts to close the first time it was energized and would hold the contacts closed until the transmitter was deenergized. Since the signal light is controlled by these contacts, the only indication it would give was that the antenna was rotating. Readjusted the relay to no avail. Readjusted bias resistor R–199, only causing the relay to lock more securely. The second demodulator stage (V–116) bias was insufficient for any setting of R–199 to deenergize relay K–104 when V–116 was not being driven. Modification of the bias circuit therefore seemed necessary. Obtained a 100-ohm, wire wound, ferrule resistor from YE spares (R–114) and connected it in series with pot R–199. This increased the total biasing effect of R–199 and made possible the reduction of current through V–116 in its undriven condition to the point where K–104 released.

Other possible sources of the failure of K–104 to operate might be:

(1) Defective V–116.

(2) Power supply defect causing low plate voltage on V–116.

(3) Defect or maladjustment of K–104.

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→ YE HOMING EQUIPMENT FIELD CHANGE NO. 1

INSTALLATION OF MATCHING TRANSFORMER TYPE CRV–47194 (NO KIT)

Equipment affected.—All model YE homing equipments.

Purpose.—To make the transmission lines as nearly equal in length as possible in order to balance the input to the transformer and reduce the high standing waves in the line.

Procedure.—The transmission line transformer must be installed as near the trans-

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mitter and with as few ninety-degree (90°) elbows in the line as conditions permit. Refer to the instruction book (for example—I. B. 38147, section 4.10a).

The two parallel concentric transmission lines between the transmitter and the transformer must be as nearly equal in length as it is possible to make them. When the lines are not equal in length, the transformer receives an unbalanced input which may cause high standing waves in the lines.

It has been noted on installations, where the lines were not of equal length, that the transmitter did not load up properly and removal of the rear cover caused severe fluctuation in the meter reading, heating of the transmission line in some cases and high radiation within the radio room. When the parallel lines were made equal in length, these difficulties disappeared.

Installing yards are advised to bend sections of the 7/8″ coaxial line in place of using ninety-degree (90°) coaxial elbows. This is especially important where several bends are required between the transmitter and transformer. Each elbow inserted causes a certain amount of discontinuity. Complete instructions for bending the coaxial lines are given in the instruction books (for example I. B.–38147, section 4.22). Under some conditions, relocating the mounting brackets of the transformer so that the lines are perpendicular to the bulkhead has assisted in keeping the lines equal.

General.—This field change is within the scope of the ship's force.

A record of completion of this change should be made on ship's Radio Equipment Log, NAVSHIPS 900,039. Completion of this change should be reported on the Electronic Equipment Failure Report Form NavShips (NBS) 383 (Rev 3–45). *1/1/46*

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YE HOMING EQUIPMENT FIELD CHANGE NO. 2

MODIFICATION TO ANTENNA ASSEMBLY DRIVE UNIT HEATER CIRCUIT (NO KIT)

Equipments affected.—All model YE homing equipments.

Purpose.—To provide drive unit operation on stand-by.

Procedure.—This modification for all types of YE transmitters consists basically in placing the drive unit strip heater and thermoswitch across the same side of the emergency switch S–101 in the transmitter that supplies voltage to the Dow oscillator heater. With the exception of the 230-volt d-c transmitter, the proper voltage can be obtained from terminals 1C and 4A in the transmitter. Refer to the schematic and wiring diagrams of the instruction books.

When spare terminals cannot be found on the "A" terminal board, the heater wires may be connected under the screw heads (on the protected side) of F–103 and F–104.

Having determined the proper transmitter terminals, use the two spare wires in the MHFA–10 cable running from the transmitter to the "control unit" (keyer) by splicing them to two spares in the MHFA–7 cable between the "control unit" and "drive unit" to complete the heater circuit to the "drive unit" cabinet.

The wiring in the "drive unit" may be rearranged as shown in Figure 1, with the two ter-

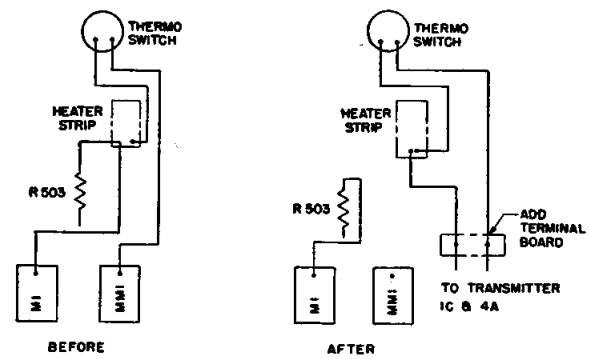

FIGURE 1.—Rearrangement of wiring in the drive unit.

minal boards added to complete the separate power supply to the heater strip as follows:

(1) Take cable lead off the left terminal of the heater and connect to rear terminal of resistor R–503.

(2) Take jumper off the rear terminal of R–503 and connect to one side of added terminal block.

(3) Remove lead from MM1 which connects it to the thermo switch and place on other terminal of the added terminal block.

On 230-volt d-c installations, the change can be made only when a 200-watt, 230-volt heater strip is provided or when an additional dropping resistor is installed in series with the present heater strip.

General.—Using the present wiring system, the heater in the drive unit is not energized until the drive motor is started. This change will make it possible to maintain temperature control as long as the transmitter is in "standby" position, that is, with the emergency switch S–101 ON.

This change using available material is within the scope of the ship's force. A record of completion of this change should be made on the ship's Radio Equipment Log NAVSHIPS 900,-039. Completion of this change should be reported on Electronic Equipment Failure Report Form NavShips (NBS) 383 (Rev–3–45).

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YE HOMING EQUIPMENT FIELD CHANGE NO. 3

ADDITION OF CAPACITORS TO GYRO SELSYN SYSTEM (NO KIT)

Equipments affected.—All model YE homing equipments.

Purpose.—To prevent an overload on ship's gyro selsyn system when operating in GYRO position.

Procedure.—The Navy mark III type 9C synchro capacitor should be mounted externally to the antenna control unit.

The capacitor is connected to terminals S1B, S2B and S3B of the main terminal board of the control unit as shown in Figure 1. Note that the capacitor is not connected across the ship's selsyn stator bus leads which are connected to terminals CRS1, CRS2, and CRS3. The proper connection places the capacitor bank directly across the differential generator stator leads instead of the ship's stator bus leads and will disconnect the capacitor bank from ship's bus when operated in any position other than GYRO. Otherwise an overload indication would be given for all positions other than GYRO.

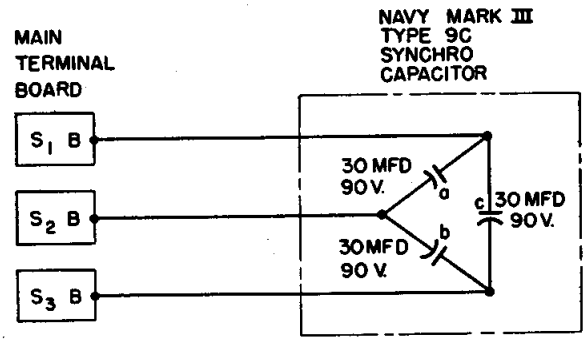

FIGURE 1.—Addition of capacitors to gyro selsyn system.

Where conditions permit, the substitution of MHFA–10 cable for the present MHFA–7 cable providing gyro to the antenna control unit will allow additional leads for this change. Otherwise an additional cable will be necessary to bring the capacitor leads into the control unit.

General.—Tests have shown that the excitation current required from the 78-volt transformer, when operating in MANUAL position, is reduced from 1.6 amperes to 0.6 amperes by the use of these capacitors. This is an additional advantage.

Vessels are requested to contact an Electronics Officer at the next availability for the installation of this synchro capacitor.

A record of completion of this change should be made on the ship's Radio Equipment Log, NAVSHIPS 900,039. Completion of this change should be reported on the Electronic Equipment Failure Report Form NavShips (NBS) 383 (Rev. 3–45). *1/1/46*

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YE HOMING EQUIPMENT FIELD CHANGE NO. 4

SHORTING OF INTERLOCK SWITCH S–114 (NO KIT)

Equipments affected.—All YE series equipments.

Purpose.—To allow interlock switch S–114 to be shorted out in order to insure reliable operation of the equipment.

Procedure.—(1) Facing the front of the transmitter, remove the left side top panel.

(2) Locate terminal board "R" which is a 2-terminal board mounted directly behind the percentage modulation meter M–119.

(3) Connect a jumper between terminals 1 and 2 on terminal board "R."

General.—Obtain the ship's instruction book and note the change on the schematic diagrams W305240 (230-volt D C) W305241 (440-volt A C) W305242 (220-volt A C) and W305645 (115-volt A C). Indicate a jumper between 1R and 2R to the left of B106 blower motor, shown at the center of the schematic.

A record of completion of this change should be made on the ship's Radio Equipment Log, NAVSHIPS 900,039. Completion of this change should be reported on the Electronic Equipment Failure Report Form, NavShips (NBS)383 (Rev. 3–45). *1/1/46.*

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YE HOMING EQUIPMENT FIELD CHANGE NO. 5

CHANGE IN VALUE OF SPARK ABSORBING RESISTOR R–503 (NO KIT)

Equipments affected.—All YE series equipments.

Purpose.—To prevent the antenna from overdriving and from driving while the brake is on.

Procedure.—In the antenna drive unit, locate resistor R–503 and replace it with a 400-ohm resistor.

General.—When 150 ohms is used in the spark suppressor circuit, the antenna tends to overdrive, especially when the antenna system turns freely. A low resistor in this position allows sufficient current to be fed through the motor windings to turn it, even with the power contacts open. This also results in abnormal wear on the solenoid brake shoe, as the antenna tends to drive while the brake is on.

The schematic diagrams and parts lists of the instruction books should be changed accordingly.

This change, using available material, is within the scope of the ship's force. A record of completion of this change should be made on ship's Radio Equipment Log, NAVSHIPS 900,039. Completion of this change should be reported on the Electronic Equipment Failure Report Form, NavShips (NBS) 383 (Rev. 3–45). *1/1/46.*

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YE HOMING EQUIPMENT FIELD CHANGE NO. 6

ELIMINATION OF INTERFERENCE IN RADIO AND RADAR EQUIPMENTS (NO KIT)

Equipments affected.—All YE series equipments.

Purpose.—To eliminate interference in radio and radar equipments produced by YE homing equipment.

Procedure.—(1) In the antenna drive unit, connect a flexible wire pigtail from the friction brake shoe to the metal frame of the drive unit.

(2) Using two 0.5-mfd. 600-volt paper capacitors, connect one across the follow-up contacts K–4 and K–6 and the other across contacts K–5 and K–6 in the antenna drive unit.

General.—Change the schematic diagrams and wiring diagrams accordingly.

This change, using available material, is within the scope of the ship's force. A record of completion of this change should be made on ship's Radio Equipment Log, NAVSHIPS 900,039. Completion of this change should be reported on the Electronic Equipment Failure Report Form, NavShips (NBS) 383 (Rev. 3–45). *1/1/46.* ←

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MODEL YE SERIES TROUBLE SHOOTING NOTES

Difficulty Encountered	Cause and Remedy
YE–1.—Erratic operation of the antenna due to chattering of friction brake in antenna drive unit.	Remove the 150-ohm resistor R–503 from across contacts K5 and K6 of the brake solenoid armature and substitute for same a 400- to 600-ohm 50-watt resistor.
YE–1.—Inner conductor of coaxial line broken near transformer.	Replaced conductor and shock-mounted transformer CRV–47194 against heavy vibration and shock of gunfire.—*Manufacturer*
YE–1.—Water found in radiator matching section.	Replace paper gasket with rubber or similar material. The outer asbestos gasket may be replaced with a new one.
YE–1.—Steel antenna elements rusted.	Replace with brass, or clean and paint with rustproof paint.
YE–1.—Unequal lengths of coaxial line connected to transmission line matching section.	Rotate the matching section 90° axially so that both coaxial conductors remain parallel and of the same length.
YE–1.—Bearing, identification or transfer contacts not keying properly in control box.	Usually caused by warping of bakelite mount. Readjust contacts. Also make sure that nearby wires do not bind any contacts.
YE–1.—Transmitter does not neutralize.	The neutralizing condensers may have bent plates which require straightening.
YE–1.—Thermostat not operating.	Switch S–113 in modulator may be making contact with glass instead of with the contact ring of the thermostat. Bend contactor to make contact with the metal ring.
YE–1.—Time delay relay inoperative.	Relay K–105, time delay, may have a stuck plunger. If so, polish it.
YE–1.—Faulty monitor indications.	Relay K–104 is often out of adjustment. To adjust, see page YE:1.
YE–1.—Failure of blower motor protective linkage to turn on.	This linkage sometimes requires more pressure on the operating disc. Microswitch S–114 and the linkage should be adjusted. The disc may be replaced with one of 2″ diameter. If the linkage cannot be made to operate, then the blower motor connections should be checked for reliability and the microswitch may then be shorted out. The short should be removed and the linkage repaired as soon as practicable.
Ye–1.—Intermittent output.	Coil 128 occasionally undergoes mechanical stress resulting in intermittent connections. Check the soldering on the connection straps and if the hinge joint is too tight, widen the hinge joint seat.
YE–1.—Weak output, or none at all.	The 826 and 829 tubes should be tested. They are often reported gassy.
YE–2.—Across the bow indicator light would not key at any setting of bias control. Light would burn steadily throughout the thirty degree sector.	Monitor relay K–104 was found to be sluggish. Increasing tension of relay spring and readjustment of bias control corrected operation.

YE-2.—Transmitter would not operate at normal supply voltage due to moist air in the transmission line.	The dehydrating unit was checked and found saturated with moisture. Moist air was bled from the line and transmitter loaded up very satisfactorily. Instructions were given crew to dry out both dehydrating units (spare unit was also found saturated) before again pressurizing the line.
YE-2.—K-111 relay contacts welded.	Due to maladjustment of relay K-111 the armature continually hit the pole piece, where, in spite of the return spring tension, residual magnetism held it. This trouble was eliminated by properly adjusting K-111 and by installing a five-ohm resistor in series with capacitor C-180.—*RCA Service Eng., Terminal Island, Calif.*
YE-2.—Arcing in the second amplifier stage.	Arcing was traced to the lug on C-125 being too close to L-155. This arcing can be corrected by bending back the lug on C-125, thus increasing the spacing between C-125 and L-155.—U. S. S. *Makin Island*
YE-1.—Intermittent and erratic operation of the transmitter.	This was caused by loose contact members of RCA 826 tube sockets. The earlier production of 826's had pins of approximately .062 inches in diameter while in later production the pin diameter is approximately .050 inches. This variation introduced spring contact trouble. This was corrected by re-tensioning the contacts. —*RCA*
YE-1.—Low modulation (10-20% maximum) and inability to raise to normal by use of modulation control R-192 in the transmitter.	The trouble was traced to an open ground strap between the modulator chassis and the frame, which are otherwise not grounded. After extensive service, the five grounding straps on the shock-insulated r-f unit should be inspected for normal connections. —*RCA*
YE-1.—Transmitter plate voltage did not come up to normal value after all interlocks, etc., were properly closed. Occasionally, the plate voltage would drop off without the overload relay operating.	The trouble was located in the air-actuated microswitch located in the blower normally operating. The trouble lay in the air-actuated plunger. The shaft of the plunger stuck and dragged while in operation. The plunger was removed and the shaft was polished longitudinally with crocus cloth.—*RCA*
YE.—Loss of drive of the second amplifier-tripler stage of the transmitter.	The line, in the ¼" coaxial interstage link circuit, was found to be shorted by metal particles and filings. The end-fittings were also grounding the inner conductor.—*RCA*
YE.—Impossible and erratic tuning of the third and fourth stages of the transmitter.	The small flexible center-tap connecting leads shorted the adjacent turns of the inductances. Inspection and dressing of the leads corrected this condition.—*RCA*
YE.—Improper operation of the fourth amplifier-tripler stage of the transmitter.	Caused by incorrect coupling of L-109 to L-120. This circuit was adjusted by "peaking" (adjusting for optimum coupling) by using an insulated rod to move coil positions while also retuning these circuits for maximum grid drive. (*Caution:* Do not force coil positions if tight, without first freeing locking nuts on the pivots. Plate power should be removed when making coil adjustments.) —*RCA*
YE.—Arcing between motor brushes and commutator when starting and overload relay K-407 opening frequently when motor-generator set first started.	Found relay K-406 in the magnetic controller to be closing too soon, resulting in excessive starting current. The motor-generator's commutators were pitted and burned. After repairing K-406, the set operated normally. The K-406 relay was adjusted so as to close after the motor approached full speed.—U. S. S. *Petrof Bay*

YE.—Evidence of 20% modulation without any keying, maximum of 60% modulation with test key depressed, and evidence of overheating in the Dow oscillator oven. This overheating had caused the pitch to run out of several of the fixed capacitors.	It was found that the mercury switch S–113 was the cause of the overheating inasmuch as the mercury column in the tube had separated and would not complete the circuit to the control relay K–111. The thermal switch S–112 had taken over the operation of the heater, upon failure of switch S–113, but it had gone so long unnoticed that the overheating had resulted. Replaced capacitor C–174 and S–113. Normal operation resulted.—H. M. S. *Patroller*
YE–20.—High-voltage fuse in motor-generator unit blew when plate voltage was applied.	This was caused by a grounded final tank housing. Several nuts, bolts and terminal lugs worked their way down through the opening around the coaxial stubs on top of the transmitter. Several hours work was required in order to remove them, and thereby clear the short. A cover is now being used over these openings on present and all future equipments installed here.—Navy Yard, Boston
YE–3.—No plate voltage or bias voltage obtained from generator.	Found that direction of rotation was incorrect. Reversing motor rotation corrected trouble.
YE–2.—Heater circuit not always keeping antenna drive unit at temperature set on regulator.	Modified heater circuit using two spare leads in drive box to antenna control unit; picked up spare leads there and wired to two spares to transmitter; picked up spares there and hooked up to AC in Radio II. This will keep antenna drive unit at temperature set on regulator even when gear is not being used. Circuit draws 1.65 amps. and takes 1½ hours to come up to temperature.—U. S. S. *Makassar Strait* (CVE–91)
YE–2.—Moisture accumulated in drive box.	Found that drive shaft was corroded, moisture having entered unit down along drive shaft going into drive unit, between drive shaft and bearing indicator dial. Tapped drive shaft down to top of bearing indicator dial and applied Glyptol. This unit was checked for moisture while in port.—U. S. S. *Makassar Strait* (CVE–91)
YE–2.—Antenna would not rotate.	Checked control unit, everything was normal. Checked antenna drive unit and found antenna jammed. This was due to a broken tooth from antenna drive tube gear, that pressed itself into gear driving it. Also four other teeth were in such a state that they could be removed by pulling on them with one's fingers. Drive tube gear was resting on surface of dual gear driving it. It seems from marks that the teeth of the drive tube gear dug in at a point where the teeth end and the surface of the lower gear starts. To cause this casualty the drive tube gear had to be at an angle causing tooth to bite into solid metal and breaking. This casualty happened during heavy seas, probably due to vibration. Removed broken tooth and metal from loose teeth and greased gears, but could not lift gear driving it. The clearance is such that a slight mark is left in surface of dual gear driving it. We are using this equipment as it is because it is vital to operations. Gears in drive unit box run smoothly even with this condition.—U. S. S. *Makassar Strait* (CVE–91)

YE–2.—Antenna rotating with low-frequency hunting and electromagnetic brake chattering severely. Antenna not following ship's gyro smoothly.	Drive unit checked for dry bearings and found to be well lubricated. Upon holding magnetic brake so it could not operate, chattering was eliminated, but hunting continued. A voltage measurement was taken across the terminals of the brake solenoid and readings upwards of 1,000 volts were obtained as a result of make and break in the relay circuit, indicating trouble in this circuit. Unit was removed from the housing and the set screw in the mechanism located in the top of the selsyn housing which controls the damping action of the magnetic brake contacts was found to be loose, allowing the breaker points to vibrate which caused a rapid variation in current flow through the solenoid, setting up abnormally high voltages across the solenoid and causing erratic operation of the antenna assembly. Tightening this set screw and realigning the antenna with the ship's gyro restored the equipment to normal operation.—U. S. S. *Antietam* (CVE–36)
YE–3.—Spur gear on the shaft of the antenna drive motor B–501 failed.	The pinion had been lubricated with graphite instead of grease as called for in the instruction book. The teeth on the pinion wore completely away and finally failed to drive the antenna. Drive motor B–501 was not damaged. A new pinion is being manufactured aboard ship.—U. S. S. *Midway.* *7/1/49*
→ YE–3—CG–1 monitor on deck gave no indication even though the YE–3 transmitter appeared to be putting out properly.	Investigation showed a short in the transmission line coupling just below the antenna drive unit. The short was caused by the packing used in the coupling. This packing is made of rubber and has a brass spring imbedded in it. The brass spring was broken and was shorting to the center conductor of the coaxial line. Also, many chips of rust were found inside the coaxial line. The transmission line was cleaned out and a new transmission line coupling was installed. A final check with the YG–1 Monitor on deck indicated satisfactory operation. *10/1/50* ←

DISASSEMBLY OF THE MODEL YG EQUIPMENTS TRANSMISSION LINE ROTARY COUPLING

A step-by-step method of disassembling the YG transmission line rotary coupling has been well presented by a drawing prepared by the Naval Air Technical Training Center, Gainesville, Georgia, and is reproduced here as Figure 1.

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ANTENNA CONTROL DIFFICULTIES IN MODEL YG RADIO BEACONS

A recent case of trouble in YG equipment caused peculiar behavior resulting in a pilot reporting that signals were sent out 180 degrees from the correct bearing. Upon inspecting the antenna control unit, it was found that the keying disc was running backward, causing the letter "Dog" to be transmitted as the letter "Uncle", which happened to be two letters in opposite sectors.

The synchronizing system consists of two sets of contacts, one in coding unit S405, the other in antenna base S502 wired in parallel to the code disc motor. These contacts are actuated by cams. The keying unit sets are normally closed while the antenna contacts are open. For a period of a few seconds, the positions of the contacts are reversed. If for some reason the antenna unit contacts do not close while the keying unit is open, the keying disc motor will stop for one revolution of the antenna.

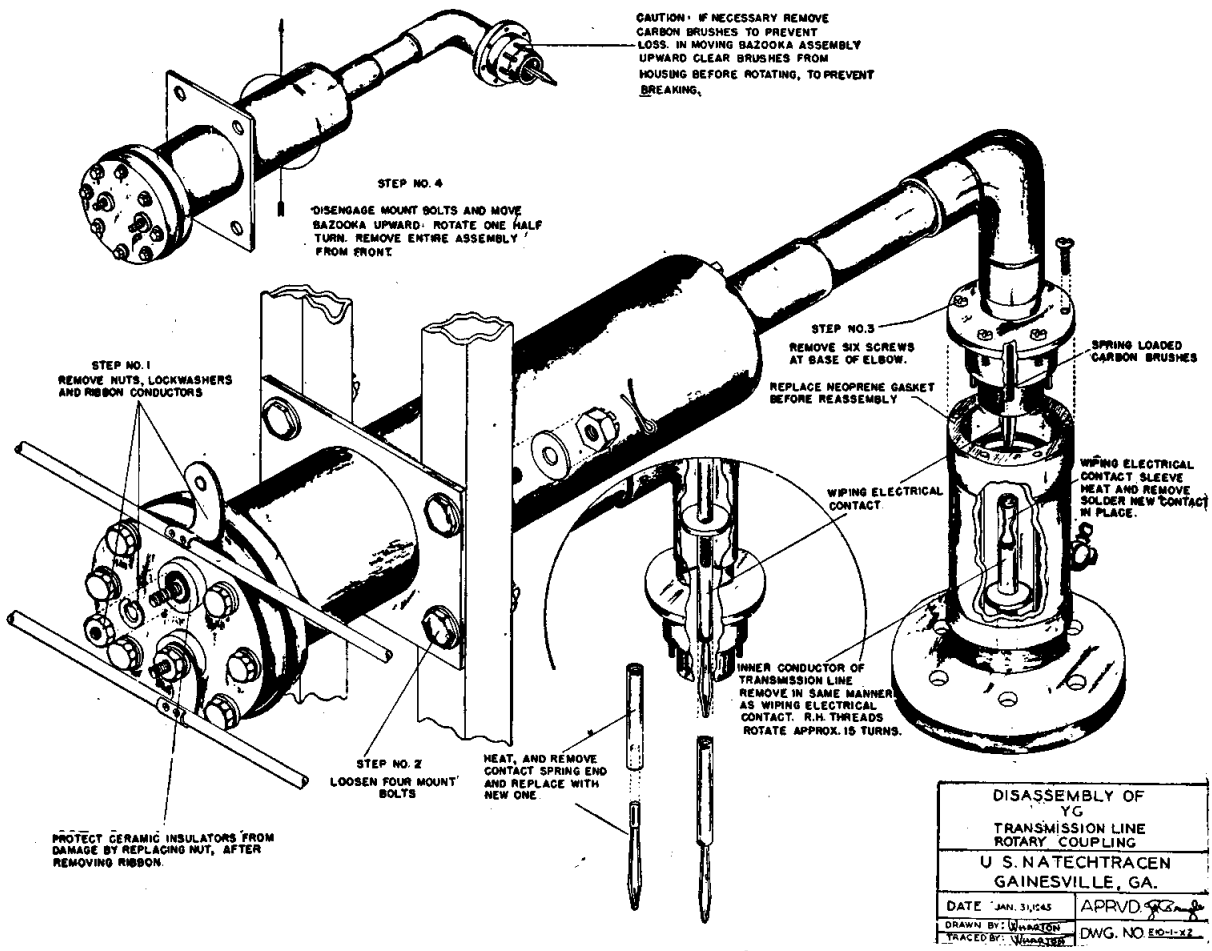

FIGURE 1.—Disassembly of YG transmission line.

While being watched, the antenna control unit stopped (due to the synchronizing mechanism), but when it started, the disc started sometimes correctly and sometimes backwards. It was found that the connections to terminal "9" of the terminal strip in the control unit were loose. After the connections were secured, the unit started in the correct direction every time.

The control unit continued to stop for 30 seconds every few cycles with the modulator being keyed for a complete revolution of the antenna until the motor control synchronizing contacts operated. Inspection disclosed that the synchronizing contacts in the antenna pedestal were set for too much clearance.

Paragraphs 4.9 and 4.21 of the YG and YG–1 instruction books give detailed information as to the required contact clearances for proper operation. Contacts should be checked periodically in accordance with Section VI of the instruction book and careful adjustment made when required. The outer edges of the motor control cam and code letter inserts should be lightly lubricated so as to prevent undue wear on cams and followers.

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CAUTIONS WITH MODEL YG EQUIPMENTS

When making a preliminary tune-up of the YG transmitter, the right-hand side shield panel is removed to facilitate rapid adjustments. However, on the later and final adjustments, the panel must be replaced, using at least two screws, with one through the shield to the shelf supporting the inductance lines and the other through a lower edge hole. This procedure is necessary to effectively eliminate a "body-capacity" effect of the shield near the inductances. Allowances must be made for this effect when making the initial adjustments.

Three amphenol coaxial cable connectors are used on each equipment—one to connect the flexible coaxial line to the end-seal connection of the 7/8" line, and the other two on the frequency meter interconnecting cable. When tightening the ends of these fittings, loosen the setscrew in the body of the connectors, and, while holding the smooth sleeve on the tip end of the coupling with long-nosed pliers, tighten the body. If the tip is tightened against the body, the square hole in the end insulator will twist the center conductor, causing line failure.—*RCA*

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ERRATA IN MODEL YG FINAL INSTRUCTION BOOK

The following is to be inserted in the final instruction book for the model YG equipment on page 41, Section VI MAINTENANCE, paragraph 6.3 (this supersedes errata M):

(e) Lightly oil all cam surfaces of the bearing and station identification segments.

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LOSS OF SYNCHRONISM CAUSES MOMENTARY INOPERATION OF MODEL YG TRANSMITTERS

Personnel operating AN/ARR–2 equipment have occasionally expressed surprise when a YG transmitter goes off the air for one turn of the antenna. This is a normal occurance, as explained in the YG instruction book on page 17, and may be caused by wind pressure on the revolving antenna.

For proper operation of the YG, the motor which drives the antenna must turn in exact synchronism with the keying motor. Whenever this synchronism is disturbed by some external torque upon the antenna, the YG is thrown off the air and sends no signals for one complete turn of the antenna, at which point synchronism is again established.

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→ YG HOMING EQUIPMENT FIELD CHANGE NO. 1

CHANGE IN OVER-THE-BOW KEYING CIRCUIT (NO KIT)

Equipments affected.—Contract NXs–820—All YG's; Contract NXs–19219—YG–1 serial nos. 1 to 759.

Purpose.—To key the light in accordance with the over-the-bow identification letter.

Procedure.—(1) In the antenna control unit Navy type 23271 remove the present lead be-

tween the lamp socket X–401 and the arm of switch S–402 as shown in Figure 1.

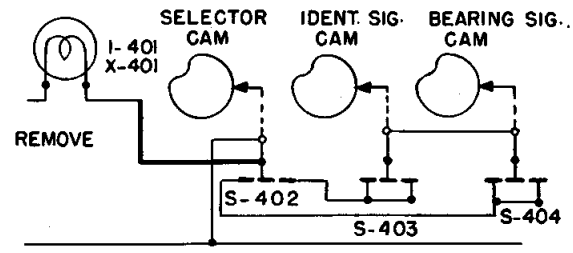

FIGURE 1.—Change in over-the-bow keying circuit.

(2) Install a new lead between the lamp socket X–401 and the arm of switch S–403 as shown in Figure 2.

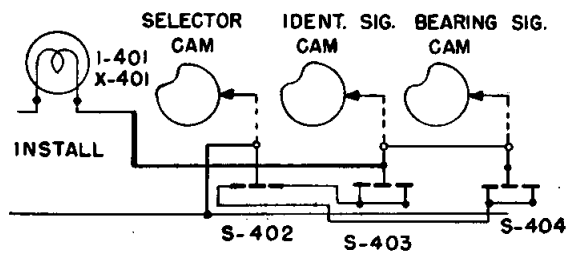

FIGURE 2.—Completed change in over-the-bow keying circuit.

General.—This change using available material is well within the scope of the ship's force.

A record of completion of this change should be made on the ship's Radio Equipment Log, NAVSHIPS 900,039. Completion of this change should be reported on Electronic Equipment Failure Report Form NavShips (NBS) 383 (Rev. 3–45). *1/1/46*

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YG HOMING EQUIPMENT FIELD CHANGE NO. 2

HOOD FOR BARCO JOINT

Equipments affected.—Contract NXs–820—All YG equipments.

Purpose.—To strengthen the transmission line below the Barco joint to prevent fatigue breakage.

General.—Instructions for the installation of the hood are included in the kit. These instructions should be kept with the instruction book for the equipment to which the change is made.

Vessels are requested to contact an Electronics Officer at the earliest availability for the hood for the Barco joint.

A record of completion of this change should be made on ship's Radio Equipment Log, NAVSHIPS 900,039. Completion of this change should be reported on Electronic Equipment Failure Report Form NavShips (NBS) 383 (Rev. 3–45). *1/1/46*

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YG HOMING EQUIPMENT FIELD CHANGE NO. 3

INSTALLATION OF IMPROVED CONTACTS FOR RELAY K–101 (NO KIT)

General.—This change has been superseded by "YG Homing Equipment—Field Change No. 4—Elimination of Keying Relay K–101 (no kit)." *1/1/46*

●

YG HOMING EQUIPMENT FIELD CHANGE NO. 4

ELIMINATION OF KEYING RELAY K–101 (NO KIT)

Equipment affected.—All YG series equipments.

Purpose.—To eliminate interference in communication receivers by removing the keying relay K–101 and keying directly from the keying contacts in the control unit.

Procedure.—The necessary changes should be made in accordance with the circuit diagram of Figure 1. The broken lines indicate wires which are to be added and an X through a solid wire indicates that the circuit should be broken.

(1) Refer to S–402 in type 23271 control unit: (a) Remove the two inter-unit connections from terminal block of switch S–402.

(b) Bolt together the two leads removed in (a), insulate (tape) for 110 volts AC and lace to associated cable.

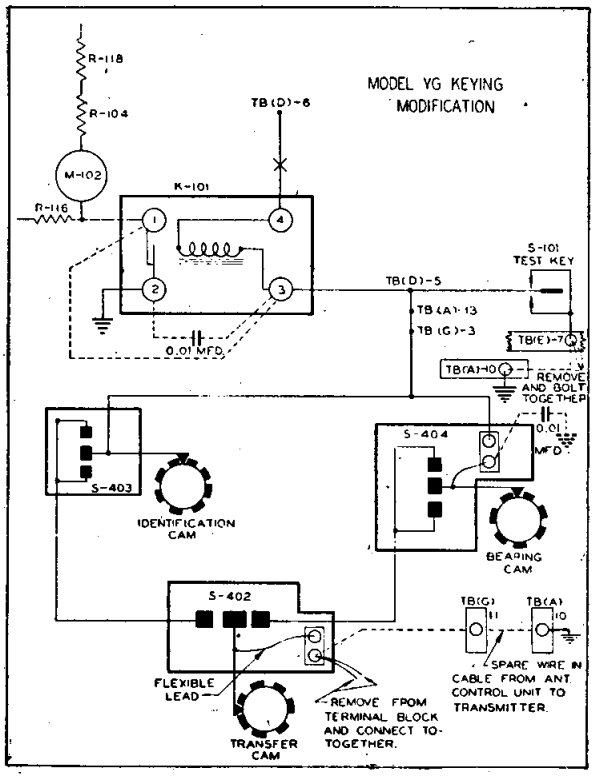

FIGURE 1.—Keying modification to eliminate interference.

(c) Do not remove flexible lead from the terminal block to arm of transfer cam.

(d) Add a lead from the terminal block of switch S–402 where the two leads were removed in (a) to terminal "11" on terminal board "G", in the control unit.

(e) Take one of the spare conductors in the cable between antenna control unit and transmitter. Connect one end of the spare conductor to terminal "11" on the terminal board "G" in the control unit and the other end of the same spare conductor to terminal "10" of terminal board "A" in the transmitter.

(2) Refer to S–404 in type 23271 control unit: (a) Add a 0.01-mfd. condenser Navy type 481499–20 (supplied in model YG spare parts) from center contact arm of switch S–404 to ground.

(3) Refer to S–101 in type 52244 transmitter unit: (a) Remove the two wires on terminal "7" of terminal board "E" located in the transmitter.

(b) Bolt together the two leads removed in (a) and insulate by taping.

(c) Connect terminal "7" of terminal board "E" to terminal "10" of terminal board "A" in the transmitter.

(d) Remove keying relay K–101 from the circuit by opening the lead from terminal "4" of relay to terminal "6" of terminal board "D" (marked (X) on the circuit diagram). Do not remove any other wires from the terminals on the relay base.

(e) Tape the lead removed from terminal "4" of relay.

(f) Connect a jumper between terminals "1" and "3" on the relay base.

(g) Connect a 0.01-mfd. capacitor, Navy type 481499–20 (supplied in model YG spare parts) between terminals "2" and "3" on the relay base.

General.—This change, using available material, is within the scope of the ship's force.

A record of completion of this change should be made on ship's Radio Equipment Log NAVSHIPS 900,039. Completion of this change should be reported on the Electronic Equipment Failure Report Form NavShips (NBS) 383 (Rev 3–45). *1/1/46*

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YG HOMING EQUIPMENT FIELD CHANGE NO. 5

ADDITION OF TRUE BEARING CONTROL UNIT TYPE CAIH–23408

Equipment affected.—All YG and YG–1 equipments.

Purpose.—To provide a mechanical drive for the ship's course compensation dial on the model YG antenna control unit.

General.—Instructions for the installation and operation of this unit are included in the kit. These instructions (I B–38258–P3) should be kept with the instruction book for the equipment modified.

Vessels are requested to contact an Electronics Officer at the earliest availability for the installation of this unit.

A record of completion of this change should be made on ship's Radio Equipment Log,

NAVSHIP'S 900,039. Completion of this change should be reported on the Electronic Equipment Failure Report Form, NavShips (NBS) 383 (Rev. 3–45). *1/1/46*

●

YG HOMING EQUIPMENT FIELD CHANGE No. 6

IMPROVED INSULATION FOR RESISTORS R–109 TO R–112 (NO KIT)

Equipments affected.—YG equipments no. 1 to no. 30.

Purpose.—To prevent voltage breakdown, especially under conditions of high temperature or humidity.

Procedure.—This modification consists of the addition of small washers, preferably fiber, between the resistor connecting links and the bakelite panel in the upper left-hand portion of the YG transmitter.

The fiber washers should be at least $\frac{1}{16}''$ thick, with the outer diameter not greater than $\frac{5}{16}''$. If these are not available, no. 6 standard metal washers, $\frac{1}{32}''$ thick, with $\frac{5}{32}''$ and $\frac{5}{16}''$ diameters may be used. Two washers are used at each of the following points: Lower terminals of R–109, R–110, R–111, and R–112 and upper terminals of R–102, R–104, and R–118.

General.—This change using available material is within the scope of the ship's force.

A record of completion of this change should be made in ship's Radio Equipment Log NAVSHIPS 900,039. Completion of this change should be reported on the Electronic Equipment Failure Report Form, NavShips (NBS) 383 (Rev. 3–45). *1/1/46*

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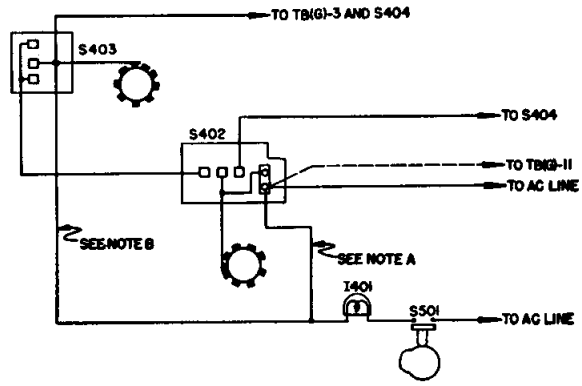
→ YG HOMING EQUIPMENT ADDENDUM TO FIELD CHANGE No. 4

The following sketch and associated instructions are intended to clarify Field Change No. 4:



Note (A).—Provided field change No. 1 has not been accomplished remove this lead and the lead to the a-c line from S–402. Connect these two leads together, insulate (tape) for 110 volts a-c and lace to associated cable.

Note (B).—Provided field change No. 1 has been accomplished, disconnect this lead from S–403 and remove the a-c line lead from S–402. Connect these two leads, insulate (tape) for 110 volts a-c and lace to associated cable. *10/1/46* ←

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MODEL YG SERIES TROUBLE SHOOTING NOTES

Difficulty Encountered	Cause and Remedy
Signal strength decreased sharply and rotation of antenna caused severe interference in local receivers on all frequencies.	The trouble was located in the antenna matching unit. The electrical contact for the center conductor was found to be improperly inserted, causing the wiping fingers to make intermittent contact with the inner conductor. The antenna matching device was disassembled, a new wiping contact constructed and properly installed. The cap insulator in the antenna matching unit was cracked. This was probably caused by the clamping bolts being too tight. A temporary repair of the defective insulator was made by constructing an insulator of Plexiglass, for use until a replacement insulator was obtained.
The beacon stopped keying and jumped out of synchronization.	After an inspection of the synchronization circuit in the antenna array unit, it was discovered that the synchronization cam (cam support for shaft 0508 synchronization switch did not close when the antenna array was rotated through the zero heading. This cam support is designated in the "Parts List" as symbol A–506. The cause was found to be due to continuous wear on the raised portion of the cam. This prevented the cam follower, at maximum adjustment, from closing. The array synchronization switch in the antenna control unit was also open. This open circuit, in turn, caused the motor in the antenna control unit to shut down and stop.—*NAAF, Aye, Mass.*
YG.—Modulator oscillator inoperative.	Removed dirt from plates of modulation oscillator trimmer, C–117.—RCA Field Engineer, NYNOR.
→YG.—The antenna failed to rotate.	Investigation at the pedestal disclosed that the worm gear reduction unit had moved and disengaged the coupling between the drive motor and the shaft of the worm gear reduction unit. The antenna was removed and lowered to the deck by a floating crane. The inspection cover was removed from the bottom and it was found that all the bolts (⅜" cap screws) that secured the worm gear reduction unit housing to the antenna pedestal base had fallen out after being shaken loose by vibration. The bolts were replaced and tightened down with lockwashers. Then marked for a small hole through which a retaining wire was run. The antenna was realigned and the gear housing shaft coupling was meshed with the motor. Operation was resumed and the equipment checked out correctly with the carrier and planes.—U. S. S. *Goodrich* (DD–831) ←

→ FAILURE OF AUDIO TRANSFORMER, T–401

Several failures of the audio transformer, T–401, used in the model YR radio telephone beacon have been reported by the field. To date nearly all of the failures have occurred in equipments installed on the civil airways by the civil aeronautics authority. These have been replaced under emergency arrangement in which a new replacement transformer was shipped directly from the factory.

Failure has been attributed to insulation breakdown between the core and the inner primary circuit winding. Usually, the winding between terminals 3 and 4 has been found open. Upon investigation it was found that the core liner, on which the wire is wound had been partially cut through by the center leg of the E core lamination during assembly.

The component manufacturer has accepted responsibility for this fault and the contractor has taken steps to procure a quantity of transformers for replacement of the defective unit. In an emergency a new transformer can be shipped immediately to any activity upon telephone or telegraph request addressed to the naval inspector in charge, care of Washington Institute of Technology, College Park, Md.

10/1/46←

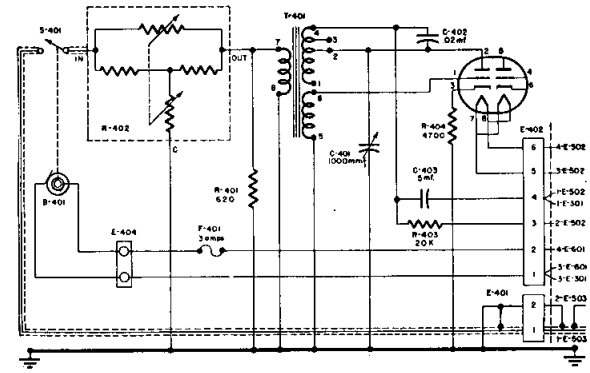

FIGURE 1.—Schematic wiring diagram of YR keyer audio oscillator.