



communications

# DATAFILE BULLETIN

FILE UNDER: Receivers  
ER-41-C

BULLETIN NO: 1094-1

DATE: April 1968

Equipment: 132—174 MHz MASTR Progress Line 5-watt receivers

Symptom: AUDIO PA TRANSISTORS FAIL PREMATURELY

Cause: Voltage transients from power line or vehicular electrical system.

Factory	<u>Model Number</u>	<u>Revision</u>
Solution:	19E500872-G1 and -G2 Receiver Chassis	C

This revision added a thyrector between J443-11 (+12 volt supply lead) and J443-13 (system negative) to protect the receiver from voltage transients.

Field Solution: If the receiver power transistors fail prematurely, add the thyrector between J443-11 and -13. Be sure that the lead on the side of the thyrector marked "+" is connected to J443-11. Use female pin connectors on the thyrector leads and dress the leads to prevent shorts. Stamp the receiver chassis "Rev. C".

## NOTE

Also modify the power supply as described in Bulletin 0059-7 for mobile power supply EP-37-A, B, C or D or in Bulletin 0060-7 for station power supply EP-38-A or EP-39-A.

Ordering	<u>Qty.</u>	<u>GE Part No.</u>	<u>Description</u>
Info:	1	19A116062-P2	Thyrector, selenium: 20 volts.
	2	19A115793-P1	Connector, pin: female.



# DATAFILE BULLETIN

FILE UNDER:            Receivers  
                             ER-41-C & E  
  
BULLETIN NO:            1094-2  
  
DATE:                    April 1969

**Equipment:**    Early models of High Band MASTR Professional Receivers  
                             (ER-41-C & E) with 5-watt audio 19D413129-G1 (no Revision)

**Purpose:**

TO OFFER A FIELD MODIFICATION TO REPLACE THE AUDIO OUTPUT TRANSISTORS FROM 19A115948-P1 (no longer available) to 19A116203-P2

**Field Change:**

The 19A116203-P2 transistor can be used in place of the 19A115948-P1 but the following changes have to be made: (Refer to Figure 1, 2, & 3)

1. Change R64 from 18 ohms to 12 ohms.
2. Change C40 from 0.22  $\mu$ F to 0.47  $\mu$ F.
3. Add C53 and C54 (2.2  $\mu$ F) in series. Solder the can (Neg.) sides together. Connect the positive side of C53 to J13 pad and the positive side of C54 to system negative near T1.
4. Unsolder and carefully remove C28 (0.68  $\mu$ F). Solder the positive (+) side of C28 in the pad that connects to C43 & R64.
5. Solder one side of R101 (16 ohms) to the pad connecting J13. Solder the other side of R101 to the negative (-) side of C28.
6. Replace the two audio output transistors with 19A116203-P2. (see Fig. 3) Mount each transistor with a 19A116023-P2 insulator plate and a 19A116022-P1 bushing. Use silicon grease on both sides of the insulator plate.

NOTE

The lead connections are different from the 19A115948-P1 transistor.

7. TEST PROCEDURE CHANGE: Turn the squelch control fully counterclockwise. Connect a milliammeter in series with the +12 volt lead at P443-11. With no signal in, adjust the PA bias adjust (R43) for a reading of approximately 20 milliamps.

(over)

Ordering  
Info:

FEB Kit 581 A &amp; B contain the following parts:

Qty.	Symbol	GE Part Number	Description
1	C40	5496267-P28	Capacitor, Tantalum: 0.47 $\mu$ F $\pm$ 20%, 35 VDCW; Sim to Sprague type 150D.
1	C53	5496267-P213	Capacitor, Tantalum: 2.2 $\mu$ F $\pm$ 10%, 20 VDCW; Sim to Sprague type 150D.
1	C54	5496267-P213	Same as above
2	Q301/Q302 Q341/Q342 Q410/Q411	19A116203-P2*	Transistor, Silicon; NPN
2		19A116023-P2*	Insulator Plate
2		19A116022-P1*	Bushing
1	R64	C3R77-P120J	Resistor, Composition: 12 ohms $\pm$ 5%, 1/2 watt
1	R101	C3R77-P160J	Resistor, Composition: 16 ohms $\pm$ 5%, 1/2 watt

\*These parts are not supplied with FEB Kit 581 B

## IF-AUDIO &amp; SQUELCH BOARD

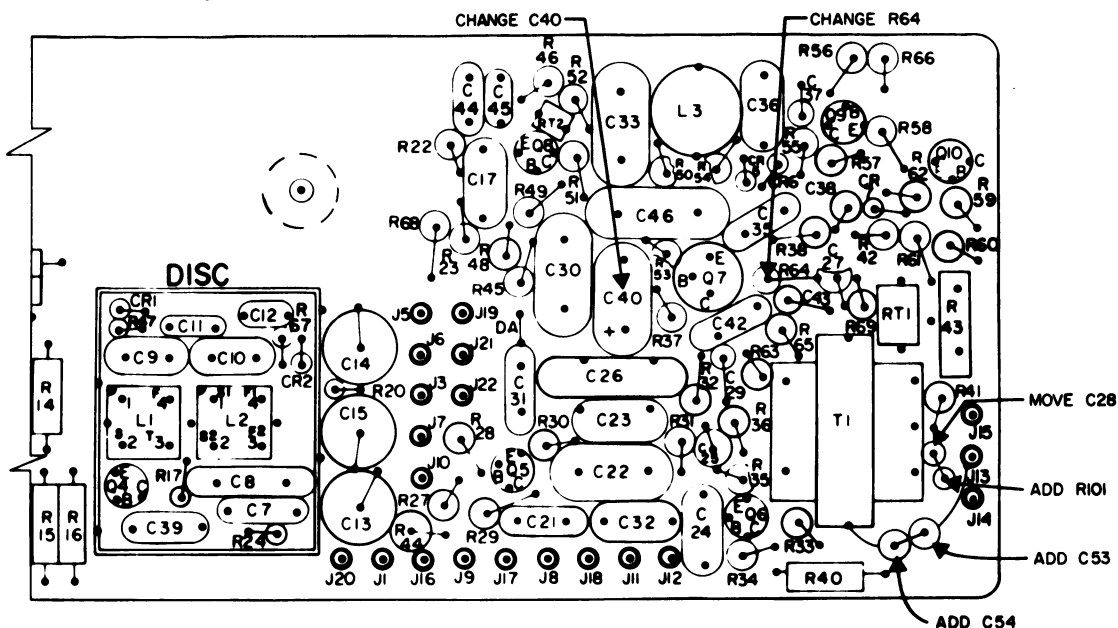
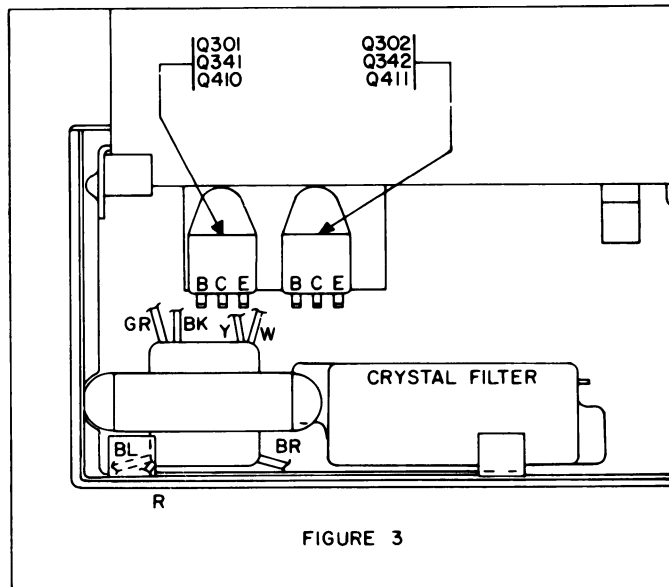
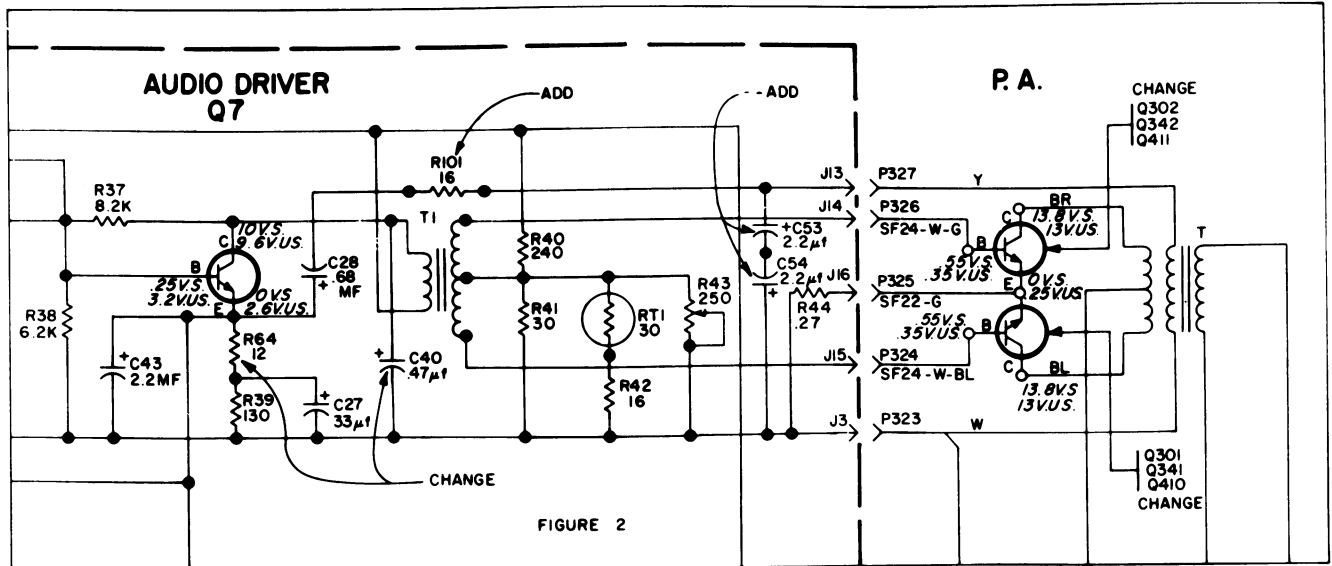


FIGURE 1



**GENERAL  ELECTRIC**

MOBILE RADIO DEPARTMENT LYNCHBURG, VIRGINIA 24502 CABLE GEOMPROD  
(In Canada, Canadian General Electric Company, Ltd., 100 Wingold Ave., Toronto 19, Ontario)





# DATAFILE BULLETIN

FILE UNDER:           **Receivers**  
  
                          **ER-41-C & E**  
  
BULLETIN NO:           **1094-3**  
  
DATE:                   **May 1969**

Equipment:   High Band MASTR Professional Receivers with Channel Guard  
                  4ER41C16-21, 40-45 and 4ER41E16, 17, 20, 21, 40, 41, 44, 45

Symptom:      EXCESSIVE SQUELCH OPENING THUMP

Cause:         Ringing in the tone reject filter

Factory	<u>Model Number</u>	<u>Revision</u>
Solution:	19E500872-G1,2(chassis & RF assembly)	F

This revision removed a ground loop in the receiver wiring harness.

Field Solution:   Make this revision in the field if the above symptom occurs and the units are not to the revision listed above:

1.   Unsolder and remove #24 white-orange wire between J443-13 and TB2-1.
2.   Add a length of #24 stranded wire between TB2-1 and P312 (connected to J17 on IF Audio & Squelch Board). Dress wire into harness.
3.   Use a 4039840-P3 Electrical Contact to terminate the two wires on P312.

Ordering	<u>Qty.</u>	<u>Symbol</u>	<u>GE Part Number</u>	<u>Description</u>
Info:	1	P312	4029840-P3	Contact, electrical Sim to Amp 4827-2

# DATAFILE BULLETIN

FILE UNDER: RECEIVERS  
ER-41-C & E  
BULLETIN NO: 1094-4  
DATE: NOVEMBER 1971

EQUIPMENT: Noise Blankers 19C317166G1 & G2 used with High Band MASTR Professional Receivers 4ER41C22-33 & 4ER41E22-33

SYMPTON: NOISE BLANKER OSCILLATING

CAUSE: The Q of T3/T4 was too high.

FACTORY  
SOLUTION: 

<u>Model Number</u>	<u>Revision</u>
19C317166G1 & G2	A

This revision added R36 (47K ohms) across the primary terminals of T3/T4 which lowered the Q of T3/T4.

FIELD  
SOLUTION: Make this revision in the field if the above symptom is apparent.

1. Solder R36 (47K ohms) across terminals 1 & 2 of T3/T4 on the noise blanker board A323/A324.
2. Stamp or mark the unit with the revision letter listed above.

ORDERING  
INFOR: 

<u>Symbol No.</u>	<u>GE Part No.</u>	<u>Description</u>
R36	3R152P473K	Resistor, Carbon Composition 47K ohms $\pm 10\%$ , 1/4 watt.

# DATAFILE BULLETIN

FILE UNDER:

RECEIVERS

ER-41-C, D &amp; E

BULLETIN NO:

1094-5

DATE:

February 1972

EQUIPMENT: High Band MASTR Professional Receivers Models 4ER41C10-21,  
4ER41D10-15 & 4ER41E10-45

SYMPTOM:

SQUELCH OPENS AT LOW TEMPERATURE WHEN PSLM OR SLM IS USED

CAUSE: Excessive  $H_{fe}$  fall-off of Q10 at low temperature.

FACTORY  
SOLUTION:

Model NumberRevision19D413129G1, 4 (IF Audio and Squelch  
board)

H

This revision changed Q10 from a 19A115123P1 to a  
19A116774P1.

FIELD  
SOLUTION:

Make this revision in the field if the above symptom is  
apparent.

1. Change Q10 on the IF Audio and Squelch board.
2. Stamp or mark the unit with the revision letter listed  
above.

ORDERING  
INFO:

Symbol No.GE Part No.Description

Q10

19A116774P1

Silicon Transistor,  
NPN.



# DATAFILE BULLETIN

FILE UNDER:

RECEIVERS

ER-41-C, D&amp;E

BULLETIN NO:

1094-6

DATE:

March, 1972

EQUIPMENT: High Band MASTR Professional Receivers models  
4ER41C10-45 and 4ER41E10-45.

SYMPTOM:

HIGH LIMITER READING WITH NO SIGNAL INPUT
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CAUSE: Hi IF Amplifier Q1 oscillating.

FACTORY  
SOLUTION:

<u>Model Number</u>	<u>Revision</u>
19E500872G1 (Chassis and RF circuit)	K
19E500872G2 (Chassis and RF circuit)	L
19E500872G3 (Chassis and RF circuit)	E
19E500872G4 (Chassis and RF circuit)	F

This revision added a ferrite bead on the base lead of Q1 between the sleeving and C2 on the A315 Hi IF amplifier 19B216109G1 to stop the oscillation.

FIELD

SOLUTION: Make this revision in the field if the above symptom is apparent.

1. Install a 19A116632P1 ferrite bead on the base lead of Q1 between the sleeving and C2 on the A315 Hi IF Amplifier board 19B216109G1.
2. Stamp or mark the unit with the appropriate revision letter listed above.

ORDERING  
INFO:

<u>Qty</u>	<u>GE Part No.</u>	<u>Description</u>
1	19A116632P1	Ferrite bead

# DATAFILE BULLETIN

FILE UNDER:

Receivers

ER-41-C, D&amp;E

BULLETIN NO:

1094-7

DATE:

May 1974

EQUIPMENT: 132-174 MHz MASTR Professional Receiver Models 4ER41C10-45

SUBJECT: TWEET FREQUENCIES

A tweet frequency is a receiver operating frequency at which a spurious signal generated by the receiver oscillators falls near or within the passband of the receiver.

All tweet frequencies involve two (or more) oscillators. Some harmonic of one oscillator mixes with some harmonic of the other to produce the spurious signal. It may be on or near the operating frequency, the high intermediate frequency or the low intermediate frequency.

Depending upon the tweet level and where it falls in relation to the passband, its effect can range from saturation of the receiver to giving only the symptoms of desensitization. It may capture the receiver from a weak desired signal or it may heterodyne with the desired signal if they are at approximately the same level. Squelch operation may or may not be affected. Limiter and discriminator readings will be steady.

The solution depends upon the receiver involved. For single frequency receivers operating at a tweet frequency, the second oscillator crystal is changed as indicated on the following page. For tweets in multi-frequency units, consult the factory for the proper solution to the problem.

- over -

The following are known tweet frequencies in MASTR Pro High Band Receivers, ER-41-C, which use the Standard Second Oscillator crystal 19A110192P3 (4845 kHz). For operation at any of these frequencies this crystal must be replaced with the Alternate Second Oscillator crystal 19A110192P4 (5755 kHz).

138.200 MHz	152.150 MHz
149.235	152.180
151.985	152.200
152.030	155.820
152.060	155.865*
152.090	158.520
152.120	158.670
*Added since last revision	159.960

The following are known tweet frequencies in receivers using the Alternate Second Oscillator crystal 19A110192P4 (5755 kHz). For operation at this frequency this crystal must be replaced with the Standard Second Oscillator crystal 19A110192P3 (4845 kHz).

156.600 MHz	156.700 MHz
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156.800 MHz is a tweet frequency with both the Standard and Alternate Second Oscillator crystals. Consult the factory for proper crystals to use at this frequency.

If the second oscillator crystal is changed to the alternate, fill out the appropriate information the the NP 257777 self adhesive tab shown below and stick this tab on a conspicuous place on the receiver. This NP 257777 self adhesive tab can be ordered from Service Parts.

<b>GENERAL ELECTRIC</b>	
<b>SPECIAL CRYSTAL FORMULA</b>	
<input type="checkbox"/> OPERATING FREQUENCY	_____
<input type="checkbox"/> SPECIAL 1st OSC CRYSTAL FREQUENCY	_____
<input type="checkbox"/> SPECIAL HIGH IF FREQUENCY	_____
<input type="checkbox"/> SPECIAL 2nd OSC CRYSTAL FREQUENCY	_____
	N.P. 257777

MOBILE RADIO DEPARTMENT  
GENERAL ELECTRIC COMPANY • LYNCHBURG, VIRGINIA 24502

**GENERAL**  **ELECTRIC**

# DATAFILE BULLETIN

FILE UNDER: Receivers  
ER-41-C, D&E  
BULLETIN NO: 1094-8  
DATE: October, 1973

EQUIPMENT: High Band MASTR Professional Receivers Models  
4ER41C10-21, 34-45; 4ER41E10-21, 34-45

SYMPTOM:

SUDDEN LOSS OF RECEIVER SENSITIVITY

CAUSE: Static discharge on antenna system damages FET in UHS  
PRE AMP.

FACTORY  
SOLUTION:

Model Number

Revision

19A127479G1(RF PRE AMP)

B

This revision added a 1000 Ohm resistor across the input  
coaxial cable (W2) into the RF Preamplifier board (A321).

FIELD  
SOLUTION:

Make this revision in the field if the above symptom is  
apparent:

1. Solder a 1000 ohm resistor across the coaxial input  
cable (W2) to the RF PRE AMP board (A321) at H1 and  
H2.
2. Stamp or mark the unit with the revision letter listed  
above.

ORDERING  
INFO:

Qty.

G E Part Number

Description

1

3R152P102J

Resistor, Carbon com-  
position 1000 ohms,  $\pm 5\%$   
1/4 watt.