KENWOOD

SB-988

SERVICE BULLETIN Amateur Radio Division

SUBJECT	DATE
TS-940S MRF-485 Driver Transistor Notes	January 16, 1992

Some MRF-485 transistors are being supplied by Motorola with a Green or Blue color ranking. If these transistors are installed without modifiying the driver bias circuit there is a very strong possiblity that they will fail within a very short time frame.

These high gain transistors cause the circuit to become unstable which can cause the circuit to break into self oscillation, and therefore self-destruct.

Recommendations:

Use of Red, Orange, or Yellow hfe color rankings is recommend. These lower gain transistors work just fine and do not suffer from the circuit instability problem. If you are only able to obtain the higer gain transistors you will need to modify the varistor/temperature compensation circuit on the final unit (X45-1400-00) by changing R16 from 1.2K to 2.2K ohms.

During its production the TS-940S used two different varistor values. The original part was an STV3H (O). It was changed in mid-production to an SV-03YS. R15 was changed from an 820 ohm resistor to a 1K ohm resistor at the same time. Therefore the countermeasure differs depending upon the serial number of the radio.

Serial number lot	Varistor D2	R15	R16	MRF485 Green or higher rank
106XXXX or earlier	STV3H(O)	820	1.2K	See "Caution below"
107XXXX or later	SV-03YS	1K	2.2K	Change R16 from 1.2K to 2.2 K

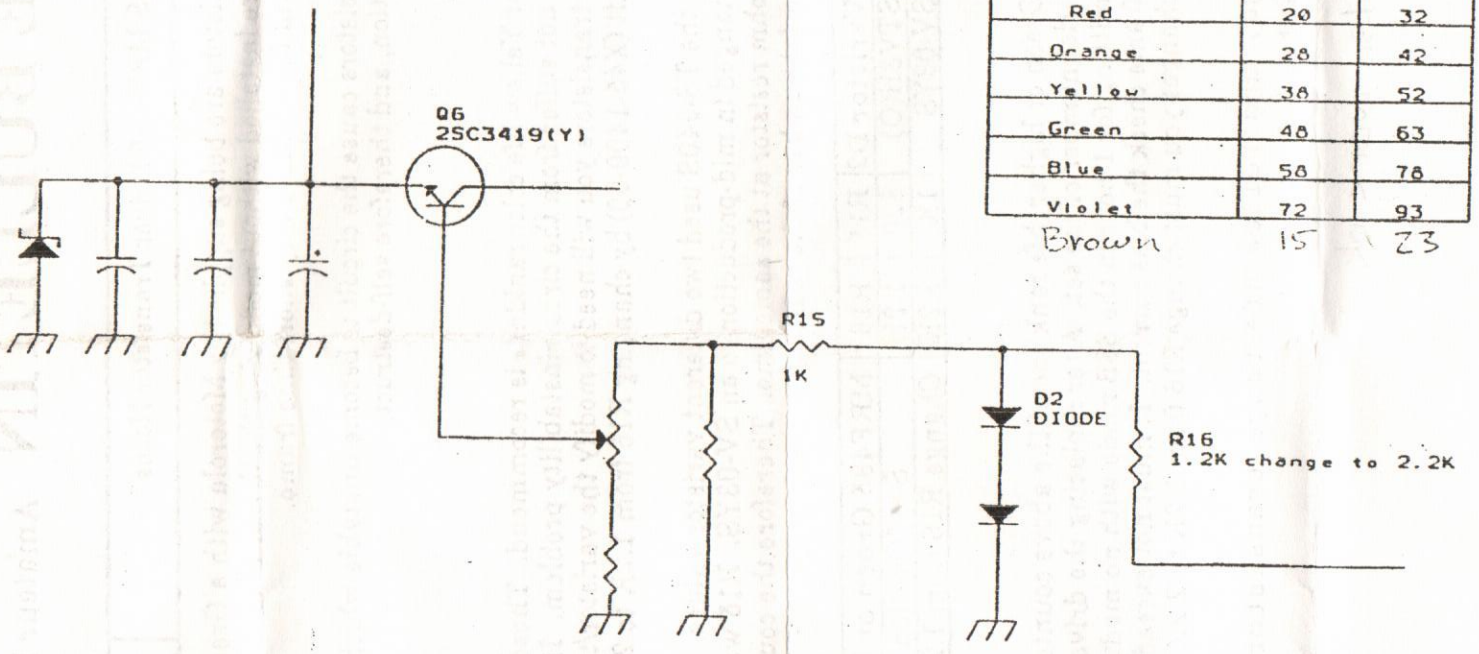
Caution: If using a Green or higher hfe rank one of the above countermeasures must be taken depending upon the serial number of the set. After replacing the drivers check the bias current. We recommend transmitting for 1 hour in the SSB mode with no modulation into a dummy load. After this time frame check the bias current. It must not exceed 800 mA on the original radio. If the current changes you must change R16 from 1.2K to 2.2K.

Red, Orange, and Yellow hfe range transistors available from RF Parts Co.

Brown also work ok.

Communications & Test Equipment Group

KENWOOD U.S.A. CORPORATION
Communications & Test Equipment Group
2201 E. Dominguez Street
Long Beach, California 90810
Phone: (310) 639-7140
FAX: (310) 631-3913



MRF485 hfe Color Codes

Color range	Limits MIN	MAX
Red	20	32
Orange	28	42
Yellow	38	52
Green	48	63
Blue	58	78
Violet	72	93
Brown	15	23

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