LBI-38155B



## MAINTENANCE MANUAL TRANSMITTER B19/CAH-334 L/H

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### DESCRIPTION

## Transmitter board CAH-334L/H for the EDACS™ FMD 800 MHz mobile radio provides 12/30 watts of rf power in the 806 to 825 MHz and 851 to 870 MHz frequency ranges. The board mounts at the bottom rear of the radio frame assembly as shown in Figure 1. The Transmitter board consists of a power amplifier circuit, power control circuit, and antenna switch circuit (Figure 2).

The power amplifier circuit (see Figure 2 and the schematic diagram) consists of an input attenuator circuit connected to P1, pre-driver circuit HC-1 (M57775), Driver circuit HC2 (M57792), PA transistor TR1 (30 W radio only), and a low-pass filter on the output. The output of the PA connects through the antenna switch to the input of the low-pass filter.

The power control circuitry consists of IC1, thermal detector transistor TR5, dc amplifier transistor TR2, Power Control transistor TR3, and filter transistor TR4.

Antenna Switching consists of switching diodes (CD3 thru CD6), quarter-wave, 50-ohm microstrips Z11 and Z12, and associated components.

### CIRCUIT ANALYSIS

### 30-WATT PA

The 30-watt radio uses pre-driver module HC1, driver module HC2, and PA transistor TR1 to provide 30 watts of rf power output. The Driver module (HC1) contains three broadband amplifiers.

The auto-power control circuit supplies voltage to the driver. Continuous 13.6 volts (TX A+) source voltage is applied to transistor TR1 through inductors L4 and L5. The output of the Driver module (HC2) is coupled through a 50-ohm impedance-matching network consisting of capacitors C12 thru C14, and a 50-ohm stripline made up of Z3 and Z4 (printed circuit pattern) to the emitter of Class C final PA amplifier transistor TR1.

The output of TR1 is taken from the collector and coupled to a low-pass filter through a 50-ohm impedance-matching network consisting of capacitors C16 and C17, and 16-ohm stripline Z5. The output of the matching network is coupled to the power detector circuit composed of Z6 thru Z8 and diodes CD1 and CD2. From the power detector, output is coupled to the antenna connector (ZC1) through antenna switch diode CD4 and the low-pass filter consisting of capacitors C22 and C30 thru C38 and Z10.



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### 12-WATT PA

The 12-watt PA circuit is the same as the 30-watt PA circuit with the exception of the PA and thermal detection circuit. The 50-ohm output of HC2 (Driver module) is fed directly to the Power Detector (Z6) through rf coaxial cable (W2).

### **ANTENNA SWITCHING**

The antenna switch circuit is controlled by the TX 8V output of the Receiver board. When TX 8V output goes high,

bias current flows to switching diodes CD4-CD7 through R27, Z6, Z8, and Z9. Antenna switching diode CD4 couples rf output from the power detector through the low-pass filter and to antenna connector ZC1.

### **APC CIRCUITS**

The auto-power control (APC) circuit protects the transmitter PA from damage due to excessive output power, reflected power, or excessive case temperature (30W PA). The POWER ADJ resistor RV1 sets the power control circuit for the desired output power level.

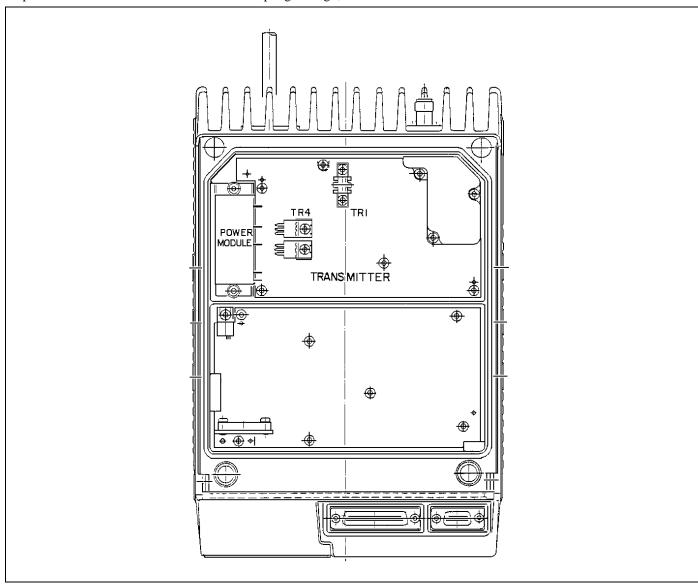


Figure 1 - Transmitter Board Location (Bottom View)

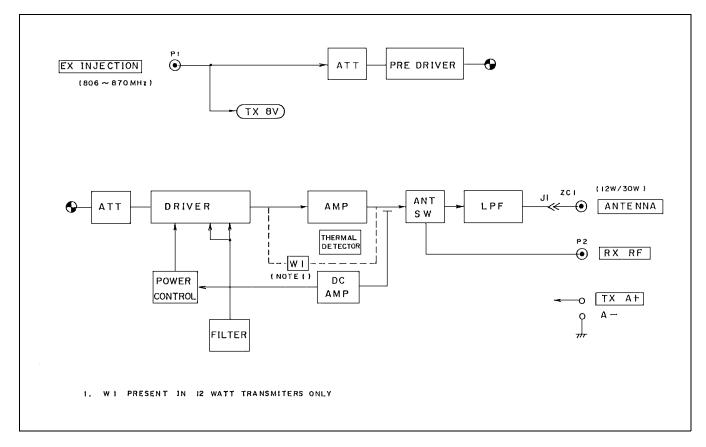


Figure 2 - Transmitter Block Diagram

If output power increases, the detected voltage (forward or reflected) coming from the power detector circuit also increases. This causes the voltage at IC1-2 to increase and the output at IC1-1 to decrease. The resulting decrease in output causes transistor TR2 to conduct less.

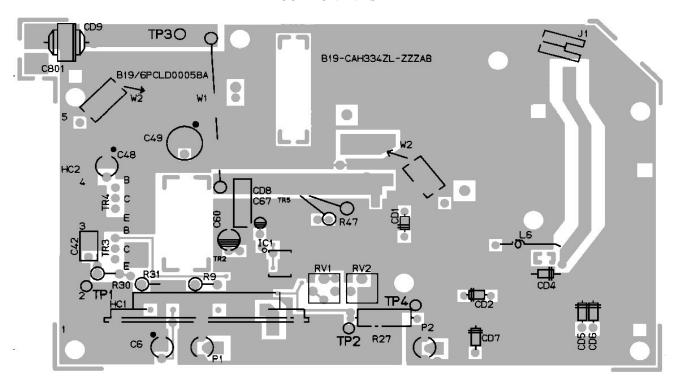
When transistor TR2 conducts less, the base voltage on PNP pass transistor TR3 increases, causing it to conduct less. This results in less voltage being applied to the first amplifier stage in the Driver module (HC2), reducing the power output of the Transmitter in proportion to the increase in output power detected by the circuit.

To protect the PA (30W only) against badly mismatched loads, a reverse power (VSWR) detector circuit is incorporated. The circuit consists of CD2, IC1, TR2, and

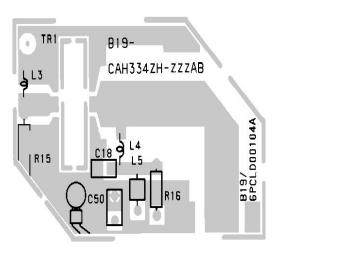
pass transistor TR3. When sufficient power is detected by CD2 to cause IC1 to conduct, the voltage at the output of IC1 decreases, causing the Driver module to lower the output power, protecting the PA. The reverse power level is set by resistor R25 connected in series with diode CD2.

The PA is protected against temperature increases by a thermal detector circuit consisting of R47, TR2, TR3, TR5, and IC1. As case temperature increases, the resistance to ground of thermal detector R47 increases. This causes IC1 to conduct less, causing a decrease in the PA output until the temperature level is reduced. The temperature level is set by resistor R46.

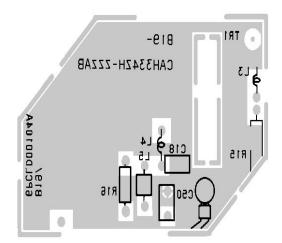
### COMPONENT SIDE



### COMPONENT SIDE

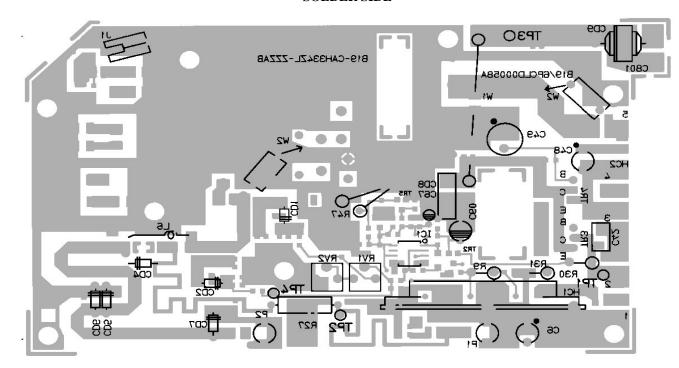


### SOLDER SIDE

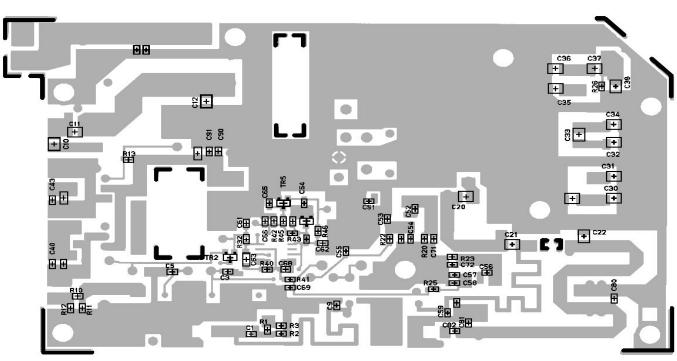


(PCLD000104A, 11-88)

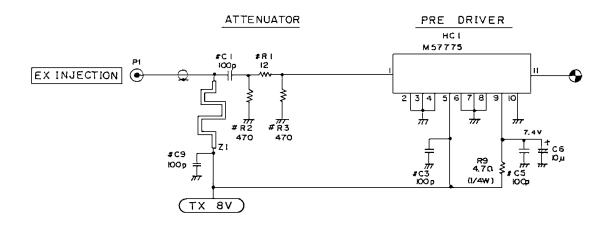
### SOLDER SIDE

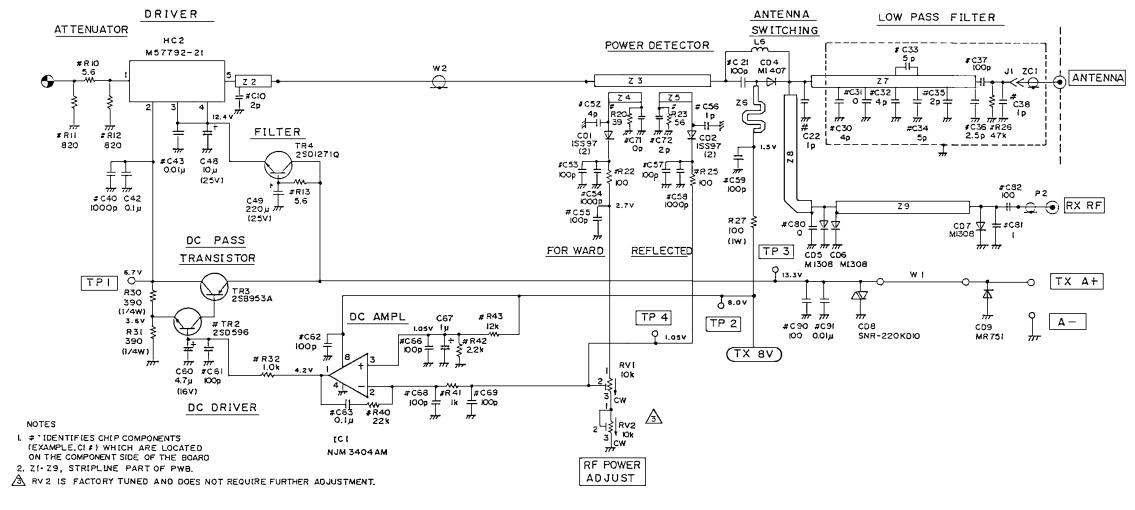


### SOLDER SIDE



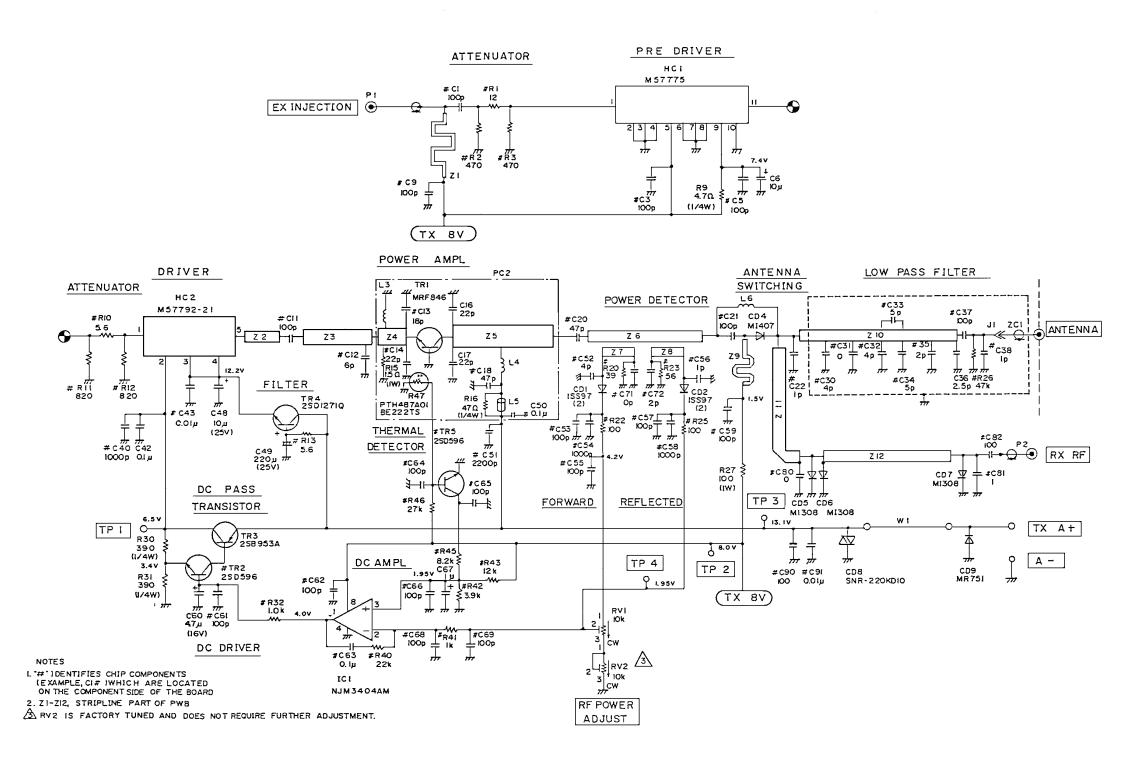
**TRANSMITTER BOARD** (PCL0000588, 11-88)





ALL RESISTORS ARE I/IO WATT UNLESS OTHERWISE SPECIFIED. RESISTOR VALUES IN Q UNLESS FOLLOWED BY MULTIPLIER K OR M. CAPACITOR VALUES IN F UNLESS FOLLOWED BY MULTIPLIER  $\mu$ ,  $\pi$ . INDUCTANCE VALUES IN H UNLESS FOLLOWED BY MULTIPLIER  $\pi$  OR $\mu$ .

**LOW POWER** 



ALL RESISTORS ARE I/IO WATT UNLESS OTHERWISE SPECIFIED. RESISTOR VALUES IN  $\Omega$  UNLESS FOLLOWED BY MULTIPLIER K OR M. CAPACITOR VALUES IN F UNLESS FOLLOWED BY MULTIPLIER  $\mu, \pi.$  INDUCTANCE VALUES IN H UNLESS FOLLOWED BY MULTIPLIER m OR  $\mu.$ 

### **HIGH POWER**

### PARTS LIST

FMD TRANSMITTER B19/CAH-334L/H ISSUE 1

SYMBOL	GE PART NO.	DESCRIPTION
		CAPACITORS
Cl	B19/5CAAD00839	Ceramic: 100 pF ±5%, 50 VDCW, temp coef 0 ±30 PPM.
С3	B19/5CAAD00839	Ceramic: 100 pF ±5%, 50 VDCW, temp coef 0 ±30 PPM.
C5	B19/5CAAD00839	Ceramic: 100 pF $\pm$ 5%, 50 VDCW, temp coef 0 $\pm$ 30 ppM.
C6	B19/5CEAA01864	Blectrolytic: 10 uF ±20%, 25 VDCW.
C9	B19/5CAAD00239	Ceramic: 100 pF $\pm$ 5%, 50 VDCW, temp coef 0 $\pm$ 30 ppm.
C10	B19/5CMAB01170	Mica: 2 pF $\pm 0.25$ pF, 500 VDCW, temp coef 0 $\pm 100$ PPM. (Used in CAH-334L).
C11	B19/5CAAA03010	Ceramic: 100 pr $\pm$ 58, 500 VDCW, temp coef 0 $\pm$ 60 pr. (Used in CAH-334H).
C12	819/5CMAB01171	Mica: 6 pF +0.25 pF, 500 VDCW, temp coef 0 +100 PPM. (Used In CAB-334H).
C13	B19/5CMAB01117	Mica: 18 pP +5%, 500 VDCW, temp coef 0 +100 ppm. (Used in CAH-334H).
C14	B19/5CMAB01206	Mica: 22 pF ±5%, 500 VDCW, temp coef 0 ±100 ppm. (Used in CAB-334E).
C16	B19/5CAAH00024	Mica: 22 pF ±58, 100 VDCW. (Used in CAH-334H).
and CI7		
c18 and c20	B19/5CAAA01252	Mica: 47 pF +5%, 500 VDCW, temp coef D $\pm$ 60 PPM. (Used in CAH-334H).
C21	B19/5CAAA03010	Ceramic: 100 pF ±5%, 500 VDCW.
C22	B19/5CMAB01169	Mica: 1 pF $\pm$ 0.25 pF, 500 VDCW, temp coef 0 $\pm$ 100 PPM.
C30	B19/5CMAB0I397	Mica: 4 pF $\pm 0.25$ pF, 500 VDCW, temp coef 0 $\pm 100$ FPM.
C32	819/5CMAB01397	Mica: 4 pF $\pm 0.25$ pF, 500 VDCW, temp coef 0 $\pm 100$ PPM.
C33 and C34	BI9/5CMAB01113	Mica: 5 pF $\pm 0.25$ pF, 500 VDCW, temp coef 0 $\pm 100$ PPM.
C35	B19/5CMAB01170	Mica: 2 pF $\pm$ 0.25 pF, 500 VDCW, temp coef 0 $\pm$ 100 PPM.
C36	B19/5CMAB01473	Mica: 2.5 pF $\pm$ 0.25 pF, 500 VDCW, temp coef 0 $\pm$ 100 PPPM.
C37	B19/5CAAA03010	Ceramic: 100 pf ±5%, 500 VDCW, temp coef 0 ±100 PPM.
C38	B19/5CMAB01169	Mica: 1 pF ±0.25 pF, 500 VDCW, temp coef 0 ±100
C40	B19/5CAAD01154	Ceramic: 100 pF ±5%, 500 VDCW, temp coef 0 ±100 PPM.
C42	B19/5CRAA00617	Metallized plastic: 0.1 uP +5%, 50 VDCW.
C43	B19/5CAAD01115	Ceramic: 0.01 uF $\pm$ 10%, 50 VDCW, temp coeff 0 $\pm$ 100 PPM.
C48	B19/5CEAA01864	Electrolytic: 10 uF $\pm$ 20%, 25 VDCW, temp coef 0 $\pm$ 100 PPM,
C49	B19/5CEAA01786	Electrolytic: 220 uF ±20%, 25 VDCW, temp coef 0 ±100 PPM.
C50	B19/5CBAA00617	Metallized plastic: 0.1 uF ±5%, 50 VDCW. (Used in CAH-334B).
C51	B19/5CAAD00946	Ceramic: 2200 pP +10%, 50 VPCW, temp coef +15%. (Used in CAM-334H).
C52	B19/5CAAD00961	Ceramic: 4 pF ±0.25 pF, 50 VDCW, temp coef 0±30 PPM.
C53	B19/5CAAD00839	Ceramic: 100 pF $\pm$ 5%, 50 VDCW, temp coef 0 $\pm$ 30 PPM.
C54	B19/5CAAD01154	Cetamic: 1000 pF ±10%, 50 VDCW, temp coef +350 -1000 PPM.

C55	819/5CAAD00839	Ceramic: 100 pF ±5%, 50 VDCW, temp coef 0 ±30 PPM.
C56	B19/5CAAD00852	Cetamic: 1 pF +5%, 50 VDCW, temp coef 0 +30 PPM.
C57	B19/5CAAD00839	Ceramic: 100 pf <u>+</u> 5%, 50 VDCW, temp coef 0 <u>+</u> 30 PPM.
C58	B19/5CAAD01154	Ceramic: 1000 pF +10%, 50 VDCW, temp coef +350 -1000 PPM.
C59	B19/5CAAD00839	Ceramic: 100 pF ±5%, 50 VDCW, temp coef 0 ±30 PPM.
C60	B19/5CSAC01409	Tantalum: 4.7 oF <u>+</u> 10%,16 VDCW.
C61 and C62	819/5CAAD00839	Ceramic: 100 pF ±5%, 500 VDCW, temp coef 0 ±30 PPM.
C63	B19/5CAAD01237	Ceramic: 0.01 uF ±10%, 25 VDCW, temp coef ±15%.
C64 and C65	B19/5CAAD00839	Ceramic: 100 pF +5, 50 VDCW, temp coef 0 ±30 PPM, (Used in CAH-334H).
C66	B19/5CAAD00839	Ceramic: 100 pF ±5%, S0 VDCW, temp coef 0 ±30 PPM.
C67	B19/5CSAC00982	Tantalum: 1 uF ±10%, 35 VDCW.
068 and 069	B19/5CAAD00839	Ceramic: 100 pF ±5%, 50 VDCW, temp coef 0 ±30 PPM.
C72	B19/5CAAD00949	Ceramic: 2 pF ±0.25 pF, 50 VDCw, temp coef 0 ±30 ppm.
C81	B19/5CAAD00852	Ceramic: 1 pF ±0.25 pF, 50 VDCW, temp coef 0 ±34
C82	B19/5CAAD00839	Ceramic: 100 pF ±5%, 50 VDCW, temp coef 0 ±30 PPM.
C90	B19/5CAAD00839	Ceramic: 100 pF +5%, 50 VDCW, temp coef 0 +30 PPM.  Ceramic: 0.01 uF +10%, 50 VDCW.
C91	B19/5CAAD01115	Ceramic: 0.01 uF +10%, 50 VDCW.
CD1 and CD2	B19/5TXAA00313	Silicon (Schottky Barrier): sim to NEC 19897(2).
CD4	B19/5TXAR00051	Silicon, fast recovery (RF Switch): sim to MITSUBISHI MI407.
CD5 thru CD7	B19/5TXAR00041	Silicon, fast recovery (RF Switch); sim to MITSUBISHI M(308.
CD8	BT9/5TZAAD0104	Ceramic, varistor: sim to SANKEN SNR-220KD10.
CD9	B19/5TXAM00019	Silicon, fwd current 3A 200 PIV; sim to MOTOROLA MR751.
HCl	B19/50HAA00020	RF Power Amplifier; sim to MITSUBISHI M5775.
HC2	B19/50DAB00273	RF Power Amplifier; sim to MITSUBISHI M57792-21.
ICl	B19/5DAAN00202	Linear, Dual OP AMP; sim to NJRC NJM3404AM.
<b>J</b> 1	B19/5JWFR00004	Connector, RF.
L3 and G4	B19/6LALD00053	Coil, RF. (Used in CAH-334H).
L5	B19/6LALD00043	Coil, RF. (Used in CAH-334H).
ь6	B19/65ALD00055	Coil, RF.
-3	-10/624/	PIN & CABLES
Pl P2	B19/6JJLD00018 B19/6JJLD00011	Co-axial cable. CO-axial cable.
P2 P3	B19/6LALD00081	Pin. (Used in CAH-334H).
	,	
R1	B19/5RDAC02612	

R16 B19/5RDAA01946 Metal film: 39 ohms ±58, 100 VDCW, 1/10W. (Undambdade) R22 B19/5RDAC02447 Metal film: 39 ohms ±58, 100 VDCW, 1/10W. Metal film: 100 ohms ±58, 100 VDCW, 1/10W. Metal film: 56 ohms ±58, 100 VDCW, 1/10W. Metal film: 100 ohms ±58, 100 VDCW, 1/10W. R23 B19/5RDAC02447 Metal film: 100 ohms ±58, 100 VDCW, 1/10W. R26 B19/5RDAC02439 Metal film: 100 ohms ±58, 100 VDCW, 1/10W. R27 B19/5RDAC02439 Metal film: 100 ohms ±58, 100 VDCW, 1/10W. R27 B19/5RDAC02430 Metal film: 100 ohms ±58, 350 VCDCW, 1W. R31 film: 100 ohms ±58, 350 VCDCW, 1W. R31 film: 200 ohms ±58, 300 VDCW, 1/10W. R41 film: 22K ohms ±58, 100 VDCW, 1/10W. R42 B19/5RDAC02446 Metal film: 22K ohms ±58, 100 VDCW, 1/10W. R42 B19/5RDAC02446 Metal film: 22K ohms ±58, 100 VDCW, 1/10W. R43 B19/5RDAC02447 Metal film: 22K ohms ±58, 100 VDCW, 1/10W. (Used in CAH-3348). Metal film: 28K ohms ±58, 100 VDCW, 1/10W. (Used in CAH-3348). Metal film: 28K ohms ±58, 100 VDCW, 1/10W. (Used in CAH-3348). Metal film: 28K ohms ±58, 100 VDCW, 1/10W. (Used in CAH-3348). Metal film: 27K ohms ±58, 100 VDCW, 1/10W. (Used in CAH-3348). Metal film: 27K ohms ±58, 100 VDCW, 1/10W. (Used in CAH-3348). Metal film: 27K ohms ±58, 100 VDCW, 1/10W. (Used in CAH-3348). Metal film: 27K ohms ±58, 100 VDCW, 1/10W. (Used in CAH-3348). Metal film: 27K ohms ±58, 100 VDCW, 1/10W. (Used in CAH-3348). Metal film: 27K ohms ±58, 100 VDCW, 1/10W. (Used in CAH-3348). Metal film: 27K ohms ±58, 100 VDCW, 1/10W. (Used in CAH-3348). Metal film: 27K ohms ±58, 100 VDCW, 1/10W. (Used in CAH-3348). Metal film: 27K ohms ±58, 100 VDCW, 1/10W. (Used in CAH-3348). Metal film: 27K ohms ±58, 100 VDCW, 1/10W. (Used in CAH-3348). Metal film: 27K ohms ±58, 100 VDCW, 1/10W. (Used in CAH-3348). Metal film: 27K ohms ±58, 100 VDCW, 1/10W. (Used in CAH-3348). Metal film: 27K ohms ±58, 100 VDCW, 1/10W. (Used in CAH-3348). Metal film: 27K ohms ±58, 100 VDCW, 1/10W. (Used in CAH-3348). Metal film: 27K ohms ±58, 100 VDCW, 1/10W. (Used in CAH-3348). Metal film: 27K ohms ±58, 100 VDCW, 1/10W. (Used in CAH-3348). Metal film: 2	### ### ##############################	SYMBOL	GE PART NO.	DESCRIPTION
### ### ##############################	### B19/5RDAN01550   Metal film: 47 ohms ±54, 300 VDCW, 1/4W.  ### B19/5RDAC02516   Metal film: 5.6 ohms ±54, 100 VDCW, 1/10W.  ### B19/5RDAC02516   Metal film: 920 ohms ±54, 100 VDCW, 1/10W.  ### B19/5RDAC02516   Metal film: 920 ohms ±54, 100 VDCW, 1/10W.  ### B19/5RDAC02516   Metal film: 1.5 ohms ±54, 100 VDCW, 1/10W.  ### B19/5RDAC02517   Metal film: 1.5 ohms ±54, 350 VDCW, 1/W. (Used in CAB-334H).  ### B19/5RDAC02624   Metal film: 100 ohms ±54, 100 VDCW, 1/10W.  ### B19/5RDAC02624   Metal film: 100 ohms ±54, 100 VDCW, 1/10W.  ### B19/5RDAC02624   Metal film: 100 ohms ±54, 100 VDCW, 1/10W.  ### B19/5RDAC02447   Metal film: 100 ohms ±54, 100 VDCW, 1/10W.  ### B19/5RDAC02439   Metal film: 100 ohms ±54, 100 VDCW, 1/10W.  ### B19/5RDAC02439   Metal film: 390 ohms ±54, 300 VDCW, 1/10W.  ### B19/5RDAC02440   Metal film: 390 ohms ±54, 300 VDCW, 1/4W.  ### B19/5RDAC02446   Metal film: 120 ohms ±54, 300 VDCW, 1/4W.  ### B19/5RDAC02446   Metal film: 120 ohms ±54, 100 VDCW, 1/10W.  ### B19/5RDAC02446   Metal film: 120 ohms ±54, 100 VDCW, 1/10W.  ### B19/5RDAC02446   Metal film: 22K ohms ±54, 100 VDCW, 1/10W.  #### B19/5RDAC02447   Metal film: 22K ohms ±54, 100 VDCW, 1/10W.  #### B19/5RDAC02447   Metal film: 22K ohms ±54, 100 VDCW, 1/10W.  ##### B19/5RDAC02447   Metal film: 22K ohms ±54, 100 VDCW, 1/10W.  ##### B19/5RDAC02477   Metal film: 22K ohms ±54, 100 VDCW, 1/10W.  ###################################			
### ### ### ### ### ### ### ### ### ##	### ### ### ### ### ### ### ### ### ##	and	B19/5RDAC02471	Metal film: 470 ohms ±5%, t00 VDCW, I/10W.
### ### ### ### ### ### ### ### ### ##	### ### ### ### ### ### ### ### ### ##	R9	B19/5RDAA01550	Metal film: 47 ohms ±5%, 300 VDCW, 1/4w.
### ### ### ### ### ### ### ### ### ##	### ### ### ### ### ### ### ### ### ##	RlD	B19/5RDAC02616	Metal film: 5.6 ohms ±5%, 100 VDCW, 1/10W.
R13 B19/SRDAC02616 Metal film: 5.6 ohms ±5%, 100 VDCW, 1/10W. R15 B19/SRDAC02677 Metal film: 1.5 ohms ±5%, 350 VDCW, 1W. (Ust in CAH-334H).  R20 B19/SRDAC02624 Metal film: 47 ohms ±5%, 100 VDCW, 1/10W. (Ust in CAH-334H).  R21 B19/SRDAC02447 Metal film: 100 ohms ±5%, 100 VDCW, 1/10W. R22 B19/SRDAC02479 Metal film: 56 ohms ±5%, 100 VDCW, 1/10W. R25 B19/SRDAC02449 Metal film: 100 ohms ±5%, 100 VDCW, 1/10W. R26 B19/SRDAC02449 Metal film: 47% ohms ±5%, 100 VDCW, 1/10W. R27 B19/SRDAC02449 Metal film: 100 ohms ±5%, 100 VDCW, 1/10W. R28 B19/SRDAC02449 Metal film: 100 ohms ±5%, 100 VDCW, 1/10W. R29 B19/SRDAC02449 Metal film: 100 ohms ±5%, 350 VDCW, 1/10W. R27 B19/SRDAC02446 Metal film: 390 ohms ±5%, 350 VDCW, 1/4W. R31 B19/SRDAC02446 Metal film: 1% ohms ±5%, 100 VDCW, 1/10W. R40 B19/SRDAC02446 Metal film: 1% ohms ±5%, 100 VDCW, 1/10W. R41 B19/SRDAC02446 Metal film: 1% ohms ±5%, 100 VDCW, 1/10W. R42 B19/SRDAC02446 Metal film: 1% ohms ±5%, 100 VDCW, 1/10W. R42 B19/SRDAC02447 Metal film: 1% ohms ±5%, 100 VDCW, 1/10W. R42 B19/SRDAC02480 Metal film: 1.2% ohms ±5%, 100 VDCW, 1/10W. R43 B19/SRDAC02480 Metal film: 2.2% ohms ±5%, 100 VDCW, 1/10W. R43 B19/SRDAC02487 Metal film: 2.2% ohms ±5%, 100 VDCW, 1/10W. R45 B19/SRDAC02487 Metal film: 2.2% ohms ±5%, 100 VDCW, 1/10W. R45 B19/SRDAC02487 Metal film: 2.2% ohms ±5%, 100 VDCW, 1/10W. R45 B19/SRDAC02487 Metal film: 2.2% ohms ±5%, 100 VDCW, 1/10W. R46 B19/SRDAC02487 Metal film: 2.2% ohms ±5%, 100 VDCW, 1/10W. R47 B19/SRDAC02487 Metal film: 2.2% ohms ±5%, 100 VDCW, 1/10W. R47 B19/SRDAC02487 Metal film: 2.2% ohms ±5%, 100 VDCW, 1/10W. R47 B19/SRDAC02487 Metal film: 2.2% ohms ±5%, 100 VDCW, 1/10W. R47 B19/SRDAC02487 Metal film: 2.2% ohms ±5%, 100 VDCW, 1/10W. R47 B19/SRDAC02487 Metal film: 2.2% ohms ±5%, 100 VDCW, 1/10W. R48 B19/SRDAC02487 Metal film: 2.2% ohms ±5%, 100 VDCW, 1/10W. R47 B19/SRDAC02487 Metal film: 2.2% ohms ±5%, 100 VDCW, 1/10W. R47 B19/SRDAC02487 Metal film: 2.2% ohms ±5%, 100 VDCW, 1/10W. R47 B19/SRDAC02487 Metal film: 2.2% ohms ±5%, 100 VDCW, 1/10W. R47 B19/SRDAC0248	R13 B19/SRDAC02616 Metal film: 5.6 ohms ±5%, 100 VDCW, 1/10W. (Used in CAB-3348).  R16 B19/SRDAC02567 Metal film: 1.5 ohms ±5%, 350 VDCW, 1W. (Used in CAB-3348).  R20 B19/SRDAC026247 Metal film: 39 ohms ±5%, 100 VDCW, 1/10W. (Used in CAB-3348).  R22 B19/SRDAC02579 Metal film: 100 ohms ±5%, 100 VDCW, 1/10W. (Used in CAB-3348).  R23 B19/SRDAC02447 Metal film: 100 ohms ±5%, 100 VDCW, 1/10W. (R26 B19/SRDAC02439 Metal film: 100 ohms ±5%, 100 VDCW, 1/10W. (R27 B19/SRDAC02439 Metal film: 100 ohms ±5%, 100 VDCW, 1/10W. (R27 B19/SRDAC02439 Metal film: 100 ohms ±5%, 100 VDCW, 1/10W. (R27 B19/SRDAC02439 Metal film: 100 ohms ±5%, 100 VDCW, 1/10W. (R27 B19/SRDAC02439 Metal film: 100 ohms ±5%, 300 VDCW, 1/10W. (R27 B19/SRDAC02454 Metal film: 100 ohms ±5%, 100 VDCW, 1/10W. (R33 B19/SRDAC02454 Metal film: 1% ohms ±5%, 100 VDCW, 1/10W. (R41 B19/SRDAC02454 Metal film: 1% ohms ±5%, 100 VDCW, 1/10W. (Used in CAM-334K). (Used in CAM-334K).  R42 B19/SRDAC02451 (Metal film: 22% ohms ±5%, 200 VDCW, 1/10W. (Used in CAM-334K).	and	B19/5RDAC02542	Metal film: 820 ohms <u>+</u> 5%, 100 VDCW, 1/10W.
R16 B19/SRDAO1046 Metal film: 39 ohns ±58, 100 VDCW, 1/10W. (Undam 5) Metal film: 39 ohns ±58, 100 VDCW, 1/10W. (Undam 5) Metal film: 39 ohns ±58, 100 VDCW, 1/10W. (Undam 5) Metal film: 100 ohns ±58, 100 VDCW, 1/10W. (Undam 5) Metal film: 100 ohns ±58, 100 VDCW, 1/10W. (Undam 5) Metal film: 100 ohns ±58, 100 VDCW, 1/10W. (Undam 5) Metal film: 100 ohns ±58, 100 VDCW, 1/10W. (Undam 5) Metal film: 100 ohns ±58, 100 VDCW, 1/10W. (Undam 5) Metal film: 100 ohns ±58, 100 VDCW, 1/10W. (Undam 5) Metal film: 100 ohns ±58, 350 VDCW, 1/10W. (Undam 5) Metal film: 100 ohns ±58, 350 VDCW, 1/10W. (Undam 5) Metal film: 100 ohns ±58, 350 VDCW, 1/10W. (Undam 5) Metal film: 100 ohns ±58, 350 VDCW, 1/10W. (Undam 5) Metal film: 100 ohns ±58, 350 VDCW, 1/10W. (Undam 5) Metal film: 100 ohns ±58, 350 VDCW, 1/10W. (Undam 6) Metal film: 100 ohns ±58, 350 VDCW, 1/10W. (Undam 6) Metal film: 100 ohns ±58, 350 VDCW, 1/10W. (Undam 6) Metal film: 100 ohns ±58, 350 VDCW, 1/10W. (Undam 6) Metal film: 100 ohns ±58, 350 VDCW, 1/10W. (Undam 6) Metal film: 100 ohns ±58, 350 VDCW, 1/10W. (Undam 6) Metal film: 100 ohns ±58, 350 VDCW, 1/10W. (Undam 6) Metal film: 100 ohns ±58, 350 VDCW, 1/10W. (Undam 6) Metal film: 100 ohns ±58, 350 VDCW, 1/10W. (Undam 6) Metal film: 100 ohns ±58, 350 VDCW, 1/10W. (Undam 6) Metal film: 100 ohns ±58, 350 VDCW, 1/10W. (Undam 6) Metal film: 100 ohns ±58, 350 VDCW, 1/10W. (Undam 6) Metal film: 200 ohns ±58, 350 VDCW, 1/10W. (Undam 6) Metal film: 200 ohns ±58, 350 VDCW, 1/10W. (Undam 6) Metal film: 8,200 ohns ±58, 350 VDCW, 1/10W. (Undam 6) Metal film: 8,200 ohns ±58, 350 VDCW, 1/10W. (Undam 6) Metal film: 8,200 ohns ±58, 350 VDCW, 1/10W. (Undam 6) Metal film: 8,200 ohns ±58, 350 VDCW, 1/10W. (Undam 6) Metal film: 8,200 ohns ±58, 350 VDCW, 1/10W. (Undam 6) Metal film: 8,200 ohns ±58, 350 VDCW, 1/10W. (Undam 6) Metal film: 8,200 ohns ±58, 350 VDCW, 1/10W. (Undam 6) Metal film: 8,200 ohns ±58, 350 VDCW, 1/10W. (Undam 6) Metal film: 8,200 ohns ±58, 350 VDCW, 1/10W. (Undam 6) Metal film: 100 ohns ±58, 350 VDCW, 1/10W. (Undam 6)	### ### #### #########################	R13	B19/5RDAC02616	Metal film: 5.6 ohms ±5%, 100 VDCW, 1/10W.
R20 B19/SRDAC02447 Metal film: 39 ohms ±5%, 100 VDCW, 1/10W. R23 B19/SRDAC02447 Metal film: 100 ohms ±5%, 100 VDCW, 1/10W. R25 B19/SRDAC02447 Metal film: 56 ohms ±5%, 100 VDCW, 1/10W. R26 B19/SRDAC02439 Metal film: 100 ohms ±5%, 100 VDCW, 1/10W. R27 B19/SRDAC02439 Metal film: 100 ohms ±5%, 100 VDCW, 1/10W. R28 B19/SRDAC02430 Metal film: 100 ohms ±5%, 100 VDCW, 1/10W. R30 B19/SRDAC02430 Metal film: 100 ohms ±5%, 50 VCCCW, 1%. R41 B19/SRDAC02446 Metal film: 390 ohms ±5%, 300 VDCW, 1/10W. R42 B19/SRDAC02446 Metal film: 1K ohms ±5%, 100 VDCW, 1/10W. R42 B19/SRDAC02445 Metal film: 1K ohms ±5%, 100 VDCW, 1/10W. R42 B19/SRDAC02445 Metal film: 1K ohms ±5%, 100 VDCW, 1/10W. R43 B19/SRDAC02447 Metal film: 1X ohms ±5%, 100 VDCW, 1/10W. R44 B19/SRDAC02477 Metal film: 1X ohms ±5%, 100 VDCW, 1/10W. R45 B19/SRDAC02479 Metal film: 1X ohms ±5%, 100 VDCW, 1/10W. R46 B19/SRDAC02479 Metal film: 2X ohms ±5%, 100 VDCW, 1/10W. R47 B19/SRDAC02457 Metal film: 2X ohms ±5%, 100 VDCW, 1/10W. R48 B19/SRDAC02499 Metal film: 2X ohms ±5%, 100 VDCW, 1/10W. R49 B19/SRDAC02497 Metal film: 2X ohms ±5%, 100 VDCW, 1/10W. R40 B19/SRDAC02497 Metal film: 2X ohms ±5%, 100 VDCW, 1/10W. R41 B19/SRDAC02497 Metal film: 2X ohms ±5%, 100 VDCW, 1/10W. R42 B19/SRDAC02497 Metal film: 2X ohms ±5%, 100 VDCW, 1/10W. R43 B19/SRDAC02499 Metal film: 2X ohms ±5%, 100 VDCW, 1/10W. R44 B19/SRDAC02497 Metal film: 2X ohms ±5%, 100 VDCW, 1/10W. R45 B19/SRDAC02497 Metal film: 2X ohms ±5%, 100 VDCW, 1/10W. R46 B19/SRDAC02497 Metal film: 0X ohms ±30%, 01W. R47 B19/SRDAC0028 S11icon, NPN: sim to MEC 2SD596-T2 DV3. R48 B19/STDAB00055 S11icon, NPN: sim to MATGUSHITA 2SB953AG. S11icon, NPN: sim to MATGUSHITA 2SB953AG. S11icon, NPN: sim to MATGUSHITA 2SB95AG. S11icon, NPN: sim to MATGUSHITA 2SB95AG.	### ### #### #########################	R15	B19/5REAG02567	Metal film: 1.5 ohms +5%, 350 VDCW, lw. (Used in CAH-334H).
R22 B19/SRDAC02447 Metal film: 100 ohms ±5%, 100 VDCW, 1/10W. R23 B19/SRDAC02497 Metal film: 56 ohms ±5%, 100 VDCW, 1/10W. R25 B19/SRDAC02447 Metal film: 100 ohms ±5%, 100 VDCW, 1/10W. R26 B19/SRDAC02439 Metal film: 47% ohms ±5%, 100 VDCW, 1/10W. R27 B19/SRDAG02230 Metal film: 100 ohms ±5%, 100 VDCW, 1/10W. R28 B19/SRDAA01625 Metal film: 100 ohms ±5%, 300 VDCW, 1/4W. R30 B19/SRDAC02446 Metal film: 100 ohms ±5%, 300 VDCW, 1/4W. R40 B19/SRDAC02446 Metal film: 12% ohms ±5%, 100 VDCW, 1/10W. R41 B19/SRDAC02446 Metal film: 22% ohms ±5%, 100 VDCW, 1/10W. R42 B19/SRDAC02446 Metal film: 22% ohms ±5%, 100 VDCW, 1/10W. R43 B19/SRDAC02447 Metal film: 22% ohms ±5%, 100 VDCW, 1/10W. R44 B19/SRDAC02477 Metal film: 22% ohms ±5%, 100 VDCW, 1/10W. R45 B19/SRDAC02479 Metal film: 22% ohms ±5%, 100 VDCW, 1/10W. (Used in CAH-3348). R46 B19/SRDAC02457 Metal film: 22% ohms ±5%, 100 VDCW, 1/10W. (Used in CAH-3348). R47 B19/SRDAC02499 Metal film: 8.2% ohms ±5%, 100 VDCW, 1/10W. (Used in CAH-3348).  R47 B19/SRDAC02499 Metal film: 22% ohms ±5%, 100 VDCW, 1/10W. (Used in CAH-3348).  R48 B19/SRDAC02457 Metal film: 0.2% ohms ±5%, 100 VDCW, 1/10W. (Used in CAH-3348).  R49 B19/SRDAC02457 Metal film: 0.2% ohms ±5%, 100 VDCW, 1/10W. (Used in CAH-3348).  R40 B19/SRDAC02457 Metal film: 0.2% ohms ±3%, 100 VDCW, 1/10W. (Used in CAH-3348).  R51 B19/SRDAC02457 Metal film: 0.2% ohms ±3%, 100 VDCW, 1/10W. (Used in CAH-3348).  R52 B19/SRDAC02457 Metal film: 0.2% ohms ±3%, 00 VDCW, 1/10W. (Used in CAH-3348).  R53 B19/SRDAC02457 Metal film: 0.2% ohms ±3%, 00 VDCW, 1/10W. (Used in CAH-3348).  R54 B19/SRDAC02457 Metal film: 0.2% ohms ±3%, 00 VDCW, 1/10W. (Used in CAH-3348).  R54 B19/SRDAC02457 Metal film: 0.2% ohms ±3%, 00 VDCW, 1/10W. (Used in CAH-3348).  R54 B19/SRDAC02457 Metal film: 0.2% ohms ±5%, 100 VDCW, 1/10W. (Used in CAH-3348).  R55 B19/SRDAC02457 Metal film: 0.2% ohms ±5%, 100 VDCW, 1/10W. (Used in CAH-3348).  R65 B19/SRDAC02457 Metal film: 0.2% ohms ±5%, 100 VDCW, 1/10W. (Used in CAH-3348).  R67 B19/SRDAC02457 Metal film: 0.2% ohms ±5%, 100 VDCW	### R22 Bi9/SRDAC02447 Metal film: 100 ohmm ±58, 100 VDCW, 1/10W. #### ### ### ### ### ### ### ### ### #	R16	B19/5RDAA01946	Metal Film: 47 ohms ±5, 200 VDCW, 1/10W. (Used in CAB-334H).
R23 B19/5RDAC02579 Metal film: 56 ohma ±5%, 100 VDCW, 1/10W. R25 B19/5RDAC02447 Metal film: 100 ohma ±5%, 100 VDCW, 1/10W. R27 B19/5RDAC02439 Metal film: 47% ohma ±5%, 100 VDCW, 1/10W. R27 B19/5RDAC02430 Metal film: 100 ohma ±5%, 350 VCDCW, 1W. R30 B19/5RDAA01625 Metal film: 100 ohma ±5%, 350 VCDCW, 1W. R31 B19/5RDAC02446 Metal film: 1% ohma ±5%, 100 VDCW, 1/10W. R40 B19/5RDAC02446 Metal film: 1% ohma ±5%, 100 VDCW, 1/10W. R41 B19/5RDAC02446 Metal film: 22% ohma ±5%, 100 VDCW, 1/10W. R42 B19/5RDAC02446 Metal film: 22% ohma ±5%, 100 VDCW, 1/10W. R43 B19/5RDAC02477 Metal film: 2.2% ohma ±5%, 100 VDCW, 1/10W. (Used in CAH-3348). R45 B19/5RDAC02479 Metal film: 1.9% ohma ±5%, 100 VDCW, 1/10W. (Used in CAH-3348). R46 B19/5RDAC02479 Metal film: 2.2% ohma ±5%, 100 VDCW, 1/10W. (Used in CAH-3348). R47 B19/5RDAC02497 Metal film: 2.2% ohma ±5%, 100 VDCW, 1/10W. (Used in CAH-3348). R47 B19/5RDAC02497 Metal film: 2.2% ohma ±5%, 100 VDCW, 1/10W. (Used in CAH-3348). R47 B19/5RDAC02497 Metal film: 2.2% ohma ±5%, 100 VDCW, 1/10W. (Used in CAH-3348). R48 B19/5RDAC02497 Metal film: 2.2% ohma ±5%, 100 VDCW, 1/10W. (Used in CAH-3348). R49 B19/5RDAC02497 Metal film: 2.2% ohma ±5%, 100 VDCW, 1/10W. (Used in CAH-3348). R40 B19/5RDAC02497 Metal film: 2.2% ohma ±5%, 100 VDCW, 1/10W. (Used in CAH-3348). R51 S19/5RDAC02497 Metal film: 2.2% ohma ±5%, 100 VDCW, 1/10W. (Used in CAH-3348). R51 S19/5RDAC02497 Metal film: 2.2% ohma ±5%, 100 VDCW, 1/10W. (Used in CAH-3348). R51 S19/5RDAC02497 Metal film: 2.2% ohma ±5%, 100 VDCW, 1/10W. (Used in CAH-3348). R52 S19/5RDAC02497 Metal film: 2.2% ohma ±5%, 100 VDCW, 1/10W. (Used in CAH-3348). R53 S19/5RDAC02497 Metal film: 2.2% ohma ±5%, 100 VDCW, 1/10W. (Used in CAH-3348). R53 S19/5RDAR00012 S11icon, NPN: sin to NBC 280596-72 DV3.	### ### ### ### ### ### ### ### ### ##	R20	B19/5RDAC02624	Metal film: 39 ohms ±5%, 100 VDCW, 1/10W.
R25 B19/SRDAC02447 R26 B19/SRDAC02439 R27 B19/SRDAC02439 R27 B19/SRDAC02439 R28 B19/SRDAC02439 R29 B19/SRDAC02430 R20 B19/SRDAA01625 R30 B19/SRDAA01625 R31 B19/SRDAC02446 R40 B19/SRDAC02446 R40 B19/SRDAC02445 R41 B19/SRDAC02445 R42 B19/SRDAC02445 R42 B19/SRDAC02445 R43 B19/SRDAC02445 R44 B19/SRDAC02445 R45 B19/SRDAC02451 R46 B19/SRDAC02451 R47 B19/SRDAC02477 R48 B19/SRDAC02477 R49 B19/SRDAC02477 R40 B19/SRDAC02479 R41 B19/SRDAC02479 R42 B19/SRDAC02479 R43 B19/SRDAC02479 R44 B19/SRDAC02499 R45 B19/SRDAC02499 R46 B19/SRDAC02499 R47 B19/SRDAC02497 R48 B19/SRDAC02497 R49 B19/SRDAC02497 R40 B19/SRDAC02497 R41 B19/SRDAC02497 R41 B19/SRDAC02497 R42 B19/SRDAC02497 R43 B19/SRDAC02497 R44 B19/SRDAC02497 R45 B19/SRDAC02497 R46 B19/SRDAC02497 R47 B19/SRDAC02497 R48 B19/SRDAC02497 R49 B19/SRDAC02497 R40 B19/SRDAC02497 R41 B19/SRDAC02497 R41 B19/SRDAC02497 R42 B19/SRDAC02497 R43 B19/SRDAC02497 R44 B19/SRDAC02497 R54 B19/SRDAC02497 R64 B19/SRDAC02497 R64 B19/SRDAC02497 R64 B19/SRDAC02497 R64 B19/SRDAC02497 R65 B19/SRDAC02497 R66 B19/SRDAC02497 R67 B19/SRDAC02497 R67 B19/SRDAC02497 R67 B19/SRDAC02497 R68 B19/SRDAC02497 R69 B19/SRDAC02497 R69 B19/SRDAC02497 R69 B19/SRDAC02497 R60 B19/SRDAC02497 R60 B19/SRDAC02497 R60 B19/SRDAC02497 R60 B19/SRDAC02497 R61 B19/SRDAC02497 R61 B19/SRDAC02497 R62 B19/SRDAC02497 R63 B19/SRDAC02497 R64 B19/SRDAC02497 R65 B19/SRDAC02497 R65 B19/SRDAC02497 R66 B19/SRDAC02497 R67 B19/SRDAC	### ### ### ### ### ### ### ### ### ##	R22	B19/5RDAC02447	Metal film: 100 ohms ±5%, 100 VDCW, 1/10W.
R26 B19/SRDAC02439 Metal film: 47K chms ±5%, 100 VDCW, 1/10W.  R27 B19/SRDAC02430 Metal film: 100 chms ±5%, 350 VCDCW, 1W.  R30 B19/SRDAC02446 Metal film: 390 chms ±5%, 300 VDCW, 1/4W.  R40 B19/SRDAC02444 Metal film: 1K chms ±5%, 100 VDCW, 1/10W.  R41 B19/SRDAC02445 Metal film: 22K chms ±5%, 100 VDCW, 1/10W.  R42 B19/SRDAC02451 Metal film: 1K chms ±5%, 100 VDCW, 1/10W.  R42 B19/SRDAC02451 Metal film: 22K chms ±5%, 200 VDCW, 1/10W.  R43 B19/SRDAC02477 Metal film: 22K chms ±5%, 100 VDCW, 1/10W.  R44 B19/SRDAC02477 Metal film: 3.9K chms ±5%, 100 VDCW, 1/10W.  R45 B19/SRDAC02479 Metal film: 12K chms ±5%, 100 VDCW, 1/10W.  R46 B19/SRDAC02479 Metal film: 8,2K chms ±5%, 100 VDCW, 1/10W.  R47 B19/SRDAC02479 Metal film: 8,2K chms ±5%, 100 VDCW, 1/10W.  (Used in CAH-334H).  R47 B19/SRDAC02457 Metal film: 8,2K chms ±5%, 100 VDCW, 1/10W.  (Used in CAH-334H).  R47 B19/SRDAR00028 Posistor: 2.2K chms. (Used in CAH-334H).  R78 B19/SRDAR00019 S1licon, NPN, Power Amplifier: sim to MOTORON NRF 846. (Used in CAH-334H).  R78 B19/STDAB00055 S1licon, NPN: sim to MATSUSHITA 258953AG.  B19/STDAB00055 S1licon, NPN; sim to MATSUSHITA 258953AG.  S1licon, NPN; sim to MATSUSHITA 258953AG.  S1licon, NPN; sim to MATSUSHITA 258955AG.  S1licon, NPN; sim to MATSUSHITA 258953AG.  S1licon, NPN; sim to MATSUSHITA 258953AG.  S1licon, NPN; sim to MATSUSHITA 25895AG.	R26 B19/5RDAC02439 Metal film: 47K ohms ±5%, 100 VDCW, 1/10W.  R27 B19/5REAG02230 Metal film: 100 ohms ±5%, 350 VCDCW, lW.  R30 B19/5RDAC02445 Metal film: 390 ohms ±5%, 300 VDCW, 1/4W.  R31 B19/5RDAC02445 Metal film: 1R ohms ±5%, 100 VDCW, 1/10W.  R40 B19/5RDAC02445 Metal film: 22K ohms ±5%, 100 VDCW, 1/10W.  R41 B19/5RDAC02445 Metal film: 22K ohms ±5%, 100 VDCW, 1/10W.  R42 B19/5RDAC02445 Metal film: 22K ohms ±5%, 100 VDCW, 1/10W.  R43 B19/5RDAC02447 Metal film: 22K ohms ±5%, 100 VDCW, 1/10W.  R44 B19/5RDAC02477 Metal film: 32K ohms ±5%, 100 VDCW, 1/10W.  R43 B19/5RDAC02477 Metal film: 32K ohms ±5%, 100 VDCW, 1/10W.  R44 B19/5RDAC02479 Metal film: 6.2K ohms ±5%, 100 VDCW, 1/10W.  R45 B19/5RDAC02479 Metal film: 6.2K ohms ±5%, 100 VDCW, 1/10W.  R46 B19/5RDAC02479 Metal film: 6.2K ohms ±5%, 100 VDCW, 1/10W.  R47 B19/5RDAC02479 Metal film: 6.2K ohms ±5%, 100 VDCW, 1/10W.  R48 B19/5RDAC02479 Metal film: 6.2K ohms ±5%, 100 VDCW, 1/10W.  R49 B19/5RDAC02479 Metal film: 6.2K ohms ±5%, 100 VDCW, 1/10W.  R40 B19/5RDAC02479 Metal film: 6.2K ohms ±5%, 100 VDCW, 1/10W.  R41 B19/5RDAC02479 Metal film: 6.2K ohms ±5%, 100 VDCW, 1/10W.  R42 B19/5RDAC02479 Metal film: 6.2K ohms ±5%, 100 VDCW, 1/10W.  R43 B19/5RDAC02479 Metal film: 6.2K ohms ±5%, 100 VDCW, 1/10W.  R44 B19/5RDAC02479 Metal film: 6.2K ohms ±5%, 100 VDCW, 1/10W.  R45 B19/5RDAC02479 Metal film: 7.2K ohms ±5%, 100 VDCW, 1/10W.  R47 B19/5RDAC02479 Metal film: 7.2K ohms ±5%, 100 VDCW, 1/10W.  R48 B19/5RDAC02479 Metal film: 7.2K ohms ±5%, 100 VDCW, 1/10W.  R47 B19/5RDAC02479 Metal film: 7.2K ohms ±5%, 100 VDCW, 1/10W.  R48 B19/5RDAC02479 Metal film: 7.2K ohms ±5%, 100 VDCW, 1/10W.  R49 B19/5RDAC02479 Metal film: 7.2K ohms ±5%, 100 VDCW, 1/10W.  R40 B19/5RDAC02479 Metal film: 7.2K ohms ±5%, 100 VDCW, 1/10W.  R41 B19/5RDAC02479 Metal film: 7.2K ohms ±5%, 100 VDCW, 1/10W.  R42 B19/5RDAC02479 Metal film: 7.2K ohms ±5%, 100 VDCW, 1/10W.  R43 B19/5RDAC02479 Metal film: 7.2K ohms ±5%, 100 VDCW, 1/10W.  R44 B19/5RDAC02479 Metal film: 7.2K ohms ±5%, 100 VDCW, 1/10W.  R45 B19/5RDA	R23	B19/5RDAC02579	Metal film: 56 ohms ±5%, 100 VDCW, 1/10W.
### ### ### ### ### ### ### ### ### ##	### R27	R25	B19/5RDAC02447	Metal film: 100 ohms ±5%, 100 VDCW, 1/10W,
### ### #### #########################	### ### ##############################	R26	B19/5RDAC02439	Metal film: 47K ohms ±5%, 100 VDCW, 1/10W.
### B19/SRDAC02446  ##################################	### B19/SRDAC02446  ##################################	R27	B19/5REAG02230	Metal film: 100 ohms ±5%, 350 VCDCW, lW.
### ### ### ### ### ### ### ### ### ##	### ### ### ### ### ### ### ### ### ##	and	B19/5RDAA01625	Metal film: 390 ohms <u>+</u> 5%, 300 VDCW, 1/4W.
### ##################################	### ### ##############################		B19/5RDAC02446	Metal film: 1K ohms ±5%, 100 VDCW, 1/10W.
R42   B19/5RDAC02451   Metal film: 22K ohms ±54, 200 VDCW, 1/10W. (Used in CAH-334E).	R42   B19/5RDAC02451   Metal film: 22K ohms ±5%, 200 VDCW, 1/10W. (Used in CAH-334E),   R42   B19/5RDAC02477   Metal film: 3.9K ohms ±5%, 100 VDCW, 1/10W. (Used in CAH-334E),   R43   B19/5RDAC02480   Metal film: 12K ohms ±5%, 100 VDCW, 1/10W. (Used in CAH-334E),   R45   B19/5RDAC02479   Metal film: 0.2K ohms ±5%, 100 VDCW, 1/10W. (Used in CAH-334E),   R46   B19/5RDAC02457   Metal film: 27K ohms ±5%, 100 VDCW, 1/10W. (Used in CAH-334E),   R47   B19/5RDAC02457   Posistor: 2.2K ohms ±5%, 100 VDCW, 1/10W. (Used in CAH-334E),   Variable: 10K ohms ±30%, 0.1W.   R47   B19/5RVAB00399   Variable: 10K ohms ±30%, 0.1W.   R48   R48   (Used in CAH-334E),   R48   R48   (Used in CAH-334E),   R48   R48   (Used in CAH-334E),   R48   R48   R48   (Used in CAH-334E),   R48	R40	B19/5RDAC02454	
R42   B19/5RDAC02477   Metal film: 3.9% ohms ±5%, 100 VDCW, 1/10W. (Used in CAM=334H).   Metal film: 12% ohms ±5%, 100 VDCW, 1/10W.   R45   B19/5RDAC02479   Metal film: 8.2% ohms ±5%, 100 VDCW, 1/10W.   Metal film: 27% ohms ±5%, 100 VDCW, 1/10W.   Metal film: 27% ohms ±5%, 100 VDCW, 1/10W.   Metal film: 27% ohms ±3%, 100 VDCW, 1/10W.   Metal film: 27% ohms ±3%, 100 VDCW, 1/10W.   Metal film: 25% ohms. (Used in CAM=334H).   Variable: 10% ohms ±30%, 0.1W.   Variable: 10% ohms ±30%, 0.1W.   Metal film: 25% ohms. (Used in CAM=334H).   Silicon, NPN: sin to Metal Silicon Metal Silicon, NPN: sin to Metal Silic	R42   B19/SRDAC02477   Netal film: 3.9K ohms ±5%, 100 VDCW, 1/10W.	R41	B19/5RDAC02446	Metal film: 1K ohms <u>+</u> 5%, 100 VDCW, 1/10W.
R43   B19/SRDACO2480   Metal film: 12K ohms ±58, 100 VDCW, 1/10W.	### ### ##############################	R42	B19/5RDAC02451	Metal film: 22K ohms ±5%, 200 VDCW, 1/10W. (Used in CAH-334L),
### R45 B19/5RDAC02479  ###################################	### R45 ### B19/5RDAC02479 ### Retal film: 8.2% ohms ±5%, 100 VDCW, 1/10W. (Used in CAH-334E).  #### B19/5RDAC02457 ### Retal film: 2% ohms ±5%, 100 VDCW, 1/10W. (Used in CAH-334E).  #### B19/5RXAB00028 ### Positor: 2.2% ohms. (Used in CAH-334E).  #### B19/5RVAB00399 ### Variable: 10K ohms ±30%, 0.1W.  #### B19/5RVAB00399 Variable: 10K ohms ±30%, 0.1W.  ##################################	R42	B19/5RDAC02477	Metal film: 3.9K ohms ±5%, 100 VDCW, 1/10W. (Used in CAH-334H).
	R45   B19/5RDAC02457   Motal film 27K obms +54, 100 Vocw, 1/10w. (Used in CAH-334H).     R47	-	B19/5RDAC02480	
(Used in CAH-334H).     R47	(Used in CAH-334H).  RM7  RM7  RM7  RM8  B19/5RVAB00029  Variable: 10K ohms +30t, 0.1W.  TR1  B19/5TZAR00014  S11icon, NPN, Power Amplifier: sim to MOTOROLA MRF 846. (Used in CAH-334H).  TR2  B19/5TDAB00055  S11icon, NPN: sim to NEC 2SD596-T2 DV3.  TR3  B19/5TDAR00012  S11icon, NPN: sim to MATSUSKITA 258953AG.  S11icon, NPN: sim to MATSUSKITA 2581217Q.  S11icon, NPN: sim to MATSUSKITA 2501217Q.  S11icon, NPN: sim to MATSUSKITA 2501217Q.  W1 B19/6LALD00045  W1 B19/6LALD00045  W1 B19/6LALD00045  W1 B19/6JJD00006  C0-axial cable. (Used in CAH-334L).	R45	B19/5RDAC02479	Metal film: 8.2K ohms ±5%, 100 VDCw, 1/10w. (Used in CAH-334H).
RV1 and RV2   Variable: 10K ohms ±30%, 0,1%,   Variable: 10K ohm	RV1 and RV2   R19/5RVAB00399   Variable: 10K ohms ±30k, 0.1W.	R46		Metal film: 27K ohms ±5%, 100 VOCW, 1/10W. (Used in CAH-334H).
### ##################################	### ##################################	R4 7	B19/5RXAE00028	Posistor: 2.2K ohms. (Used in CAH-334H).
### ##################################	### ### ##############################	and	B19/5RVAB00399	Variable: 10K ohms <u>+</u> 30%, 0,1W.
TR2 B19/5TDAB00055 Silicon, PNP: sim to NEC 25D596-T2 DV3. SILICON, PNP: sim to NATSUSHITA 258951AG. SILICON, PNP: sim to MATSUSHITA 258951AG. SILICON, PNP: sim to MATSUSHITA 258951AG. SILICON, PNP: sim to MATSUSHITA 25012170. SILICON, NPN: sim to NEC 25D596-T2 DV3. (Use in CAH-324H).	NRP 846. (Used in CAB-334H).   Silicon, NPN: sin to NEC 250596-T2 DV3.			
TR3 B19/5TBAR00002 Silicon, PNP: sim to MATSUSHITA 288953AG. TR4 B19/5TDAR00012 Silicon, NPN: sim to MATSUSHITA 2801217Q. TR5 B19/5TDAB00055 Silicon, NPN: sim to NEC 280596-T2 DV3. (Use in CAH-334H).	TR3 B19/5TBAR00002 Silicon, PNP: sim to MATSUSHITA 288953AG.  TR4 B19/5TDAR00012 Silicon, NPN: sim to MATSUSHITA 2801217Q.  TR5 B19/5TDAB00055 Silicon, NPN: sim to NEC 28D596-T2 DV3. (Used in CAH-334H).  N1 B19/6LALD00045 Wire.  N2 B19/6JJL000006 Co-axial cable. (Used in CAH-334L).	TRI	B19/5TZAR00014	Silicon, NPN, Power Amplifier: sim to MOTOROLA MRF 846. (Used in CAH-334H).
TR4 819/5TDAR00012 Silicon, NPN: sim to MATSUSHITA 28012170. TR5 819/5TDAB00055 Silicon, NPN: sim to NEC 280596-T2 DV3. (Use in CAH-334H).	TR4 B19/5TDAR00012 Silicon, NPN: sim to MATSUSHITA 2501217Q.  TR5 B19/5TDAB00055 Silicon, NPN: sim to NEC 25D596-T2 DV3. (Used in CAH-334H).	TR2	B19/5TDAB00055	Silicon, NPN: sim to NEC 2SD596-T2 DV3.
TR5 B19/5TDAB00055 Silicon, MPN: sim to NEC 2SD596-T2 DV3. {Use in CAH-334H},	TR5 B19/5TDAB00055 Silicon, NPN; sim to NEC 2SD596-T2 DV3. (Used in CAH-334H).	TR3	B19/5TBAR00002	Silicon, PNP: sim to MATSUSHITA 258953AG.
	W1 819/6LALD00045 Wire. N2 819/6JJLD00006 Co-axial cable. (Used in CAH-334L).	TR4	B19/5TDAR00012	Silicon, NPN: sim to MATSUSHITA 25D1217Q.
WIRE & CABLES	W1 B19/6LALD00045 Wire. N2 B19/6JJL000006 Co-axial cable. (Used in CAH-334L).	TR5	B19/5TDAB00055	Silicon, NPN: sim to NEC 2SD596-T2 DV3. (Used in CAH-334H).
	N2 B19/6JJLD00006 Co-axial cable. (Used in CAH-334L).			WIRE & CABLES
Wl B19/6LALD00045 Wire.		Wl	B19/6LALD00045	wire.
	8C1 B19/68CLD00047 Co-axial cable.	W2		Co-axial cable. (Used in CAM-3346).
SCI B19/68CLD00047 Co-axial cable.		SCI	B19/6%CLD00047	Co-axial cable.

PRODUCTION CHANGES

Changes in the equipment to improve performance or to simplify circuits are identified by a "Revision Letter", which is stamped after the model number of the unit. The revision stamped on the unit includes all previous revisions. Refer to the Paris List for the descriptions of parts affected by these revisions.

REV A - TRANSMITTER BOARD B19/CAH-334
To improve reliability, changed printed wire boards.