



## MAINTENANCE MANUAL

### SPEAKER/MICROPHONE

**344A4189**

**EARPHONE**

**19B802884P1-P3**

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### DESCRIPTION

The following speaker/microphones and earphone are covered in this manual:

344A4189P1	M-RK , coiled cord, Ericsson GE logo
344A4189P2	M-RK, straight cord, antenna connector, Ericsson GE logo
344A4189P3	M-RK, coiled cord, Ericsson logo
344A4189P4	M-RK, straight cord, antenna connector, Ericsson logo
344A4189P11	M-PA, coiled cord, Ericsson GE logo
344A4189P12	M-PA, straight cord, antenna connector, Ericsson GE logo
344A4189P13	M-PA, coiled cord, Ericsson logo
344A4189P14	M-PA, straight cord, antenna connector, Ericsson logo
344A4189P21	PCS, coiled cord, Ericsson GE logo
344A4189P23	PCS, coiled cord, Ericsson logo
19B802884P1	Earphone complete
19B802884P2	Earphone only
19B802884P3	Eartip, earphone adapter, earloop and cable

The speaker/microphones have a push-to-talk switch which can be activated from any position. A HI/LO/OFF

switch located on the front permits the user to select a high or low volume level or when using an earphone, to mute the speaker in the microphone. A miniature earphone jack located on the bottom of the case permits the use of an external earphone.

The Universal Device Connector (UDC) on the end of the speaker/microphone cable provides the connections to the radio unit UDC.

The speaker/microphones equipped with an antenna connector permits an antenna to be connected and used in place of or in addition to the radio unit antenna.

The following specifications apply:

#### SPEAKER

Impedance	16 ohms
Power Output	0.5 watts
Audio Response	300 to 3000 Hz

#### MICROPHONE

Impedance	2K ohms
Frequency Response	100 to 8000 Hz
Sensitivity	-35 dBv (94 dB sp<)
Supply Voltage	3 Vdc

**EARPHONE**

Impedance	2K ohms
Frequency Response	300 to 3000 Hz

**ENVIRONMENTAL**

Operating	-30°C to +60°C
Storage	-40°C to +85°C

## **MAINTENANCE**

The following procedures should be followed when replacing or repairing any of the major replaceable components such as the back cover, cord, front cover, etc. It is recommended that only major assemblies as identified on the drawings be replaced in order to maintain the dust and waterproof integrity.

### **BACK COVER, ALL VERSIONS**

1. Ensure O-rings are seated against screw heads before installing.
2. Ensure main (large) O-ring is seated in groove in cover before installing.
3. Ensure cover is oriented properly (recess for label on top) before installing.
4. Tighten four (4) screws by hand just until cover is seated. Then tighten each screw in turn to ensure even compression of O-ring.

**CAUTION**

Over tightening will result in a stripped housing and/or broken fastener, either of which will compromise seal.

### **FRONT COVER, ALL VERSIONS**

1. Remove back cover by removing four (4) screws securing housing.
2. Unsolder all printed circuit board (PCB) connections and remove PCB as indicated in paragraph "PCB".
3. Remove and re-install cable assembly as indicated in the paragraph "Cable Assembly".
4. Install PCB as indicated in paragraph "PCB" and resolder all connections.
5. Re-install back cover as indicated previously.

### **CABLE ASSEMBLY, ALL VERSIONS**

1. Remove back cover by removing four (4) screws securing housing.
2. Unsolder connections to PCB as indicated in paragraph "PCB" and remove the PCB.
3. Remove all traces of epoxy from around cable and pull cable out of hole. Remove all traces of epoxy from the inside and around the cross-shaped hole. Discard the used U-shaped clamp(s) and O-ring.
4. Install cable assembly into housing, ensuring that the strain relief crimp tab is up (facing away from the front of the housing) and strain relief is aligned with cross-shaped hole. The strain relief should be flush with inside surface of the housing when correctly installed. If necessary, a small amount (1 drop) of lubricating oil may be applied to O-ring to help seat the cable assembly.
5. Use whatever combination of U-shaped clamps is required to retain assembly.

### **PCB, ALL VERSIONS**

1. Unsolder wires from cable assembly, microphone, speaker and dome switches.
2. Remove four (4) screws securing the PCB to the front housing.
3. Before re-installing the PCB, set rotary switch (HI/LO/OFF) to position 4 (a white line on switch shaft will align with No. 4 on the switch base). Also ensure that HI/LO/OFF knob pointer is in the 3 o'clock position, as viewed from the front.
4. Ensure that leads from microphone assembly are routed through the hole on the PCB and that the rotary switch shaft engages with the HI/LO/OFF knob before securing the PCB with the four (4) screws removed in Step 2.
5. Resolder all connections and replace back cover assembly using the four (4) screws removed in Step 1.

### **EMERGENCY DOME SWITCH, ALL VERSIONS**

1. Remove back cover by removing four (4) screws securing housing.
2. Unsolder switch leads and remove solder from PCB holes.

3. Drop dome switch into slot and then press white shim behind dome switch.
4. Bend switch terminals back and onto the PCB. Solder terminals to PCB.
5. Re-install back cover using the four (4) screws previously removed in Step 1.

### **PTT DOME SWITCH, ALL VERSIONS**

1. Remove back cover by removing four (4) screws securing housing.
2. Unsolder switch leads and remove solder from PCB holes.
3. Drop dome switch into slot and then press gray shim behind dome switch.
4. Bend switch terminals back and onto the PCB. Solder terminals to PCB.

5. Re-install back cover using the four (4) screws previously removed in Step 1.

### **PTT BUTTON, ALL VERSIONS**

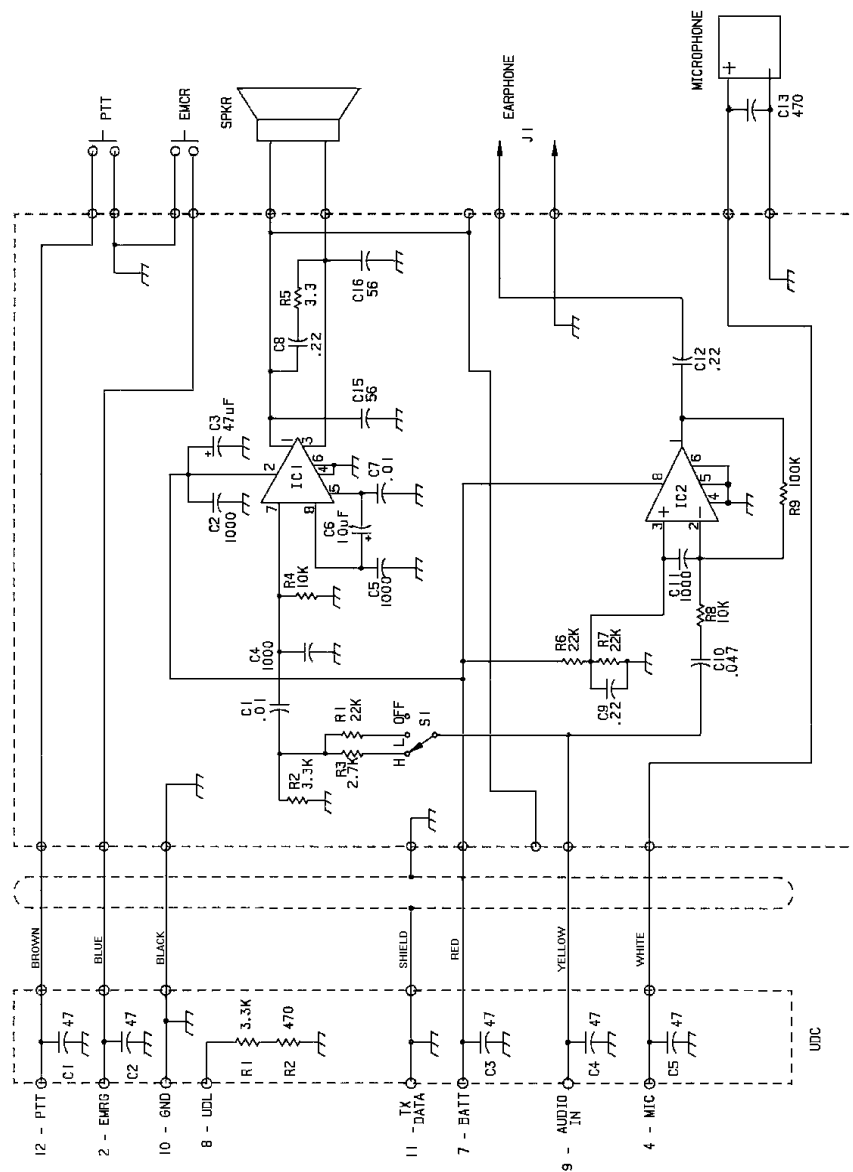
1. Remove old button or if missing, proceed to Step 2.
2. Note that one side of the button has a wall along its edge. With the wall toward the front of the speaker/microphone, press the button through the silicon boot with a twisting motion.
3. Continue to press until the PTT button snaps into place.

### **THUMBSCREW, ALL VERSIONS**

Thread the new thumbscrew into the cable UDC connector.



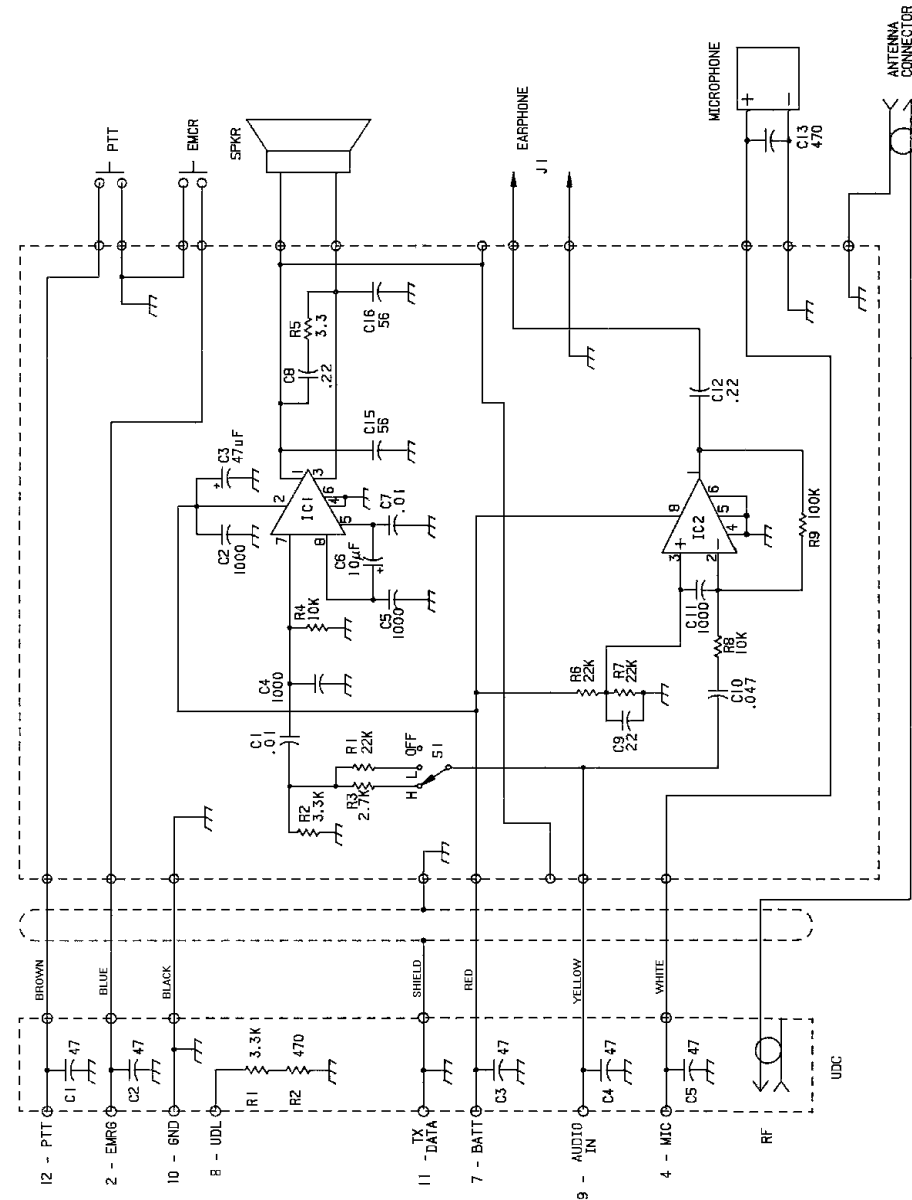
**Ericsson GE Mobile Communications Inc.**  
Mountain View Road • Lynchburg Virginia 24502



- NOTES:
1. UNLESS OTHERWISE INDICATED, RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN PICO FARADS, INDUCTOR VALUES ARE IN MICROHENRYS.
  2. NON POLARIZED CAPACITORS ARE CHIP TYPE UNLESS OTHERWISE INDICATED.
  3. POLARIZED CAPACITORS ARE SURFACE MOUNT ALUMINUM ELECTROLYTIC UNLESS OTHERWISE INDICATED.

## M-RK SPEAKER/MIC 344A4189P1 & P3

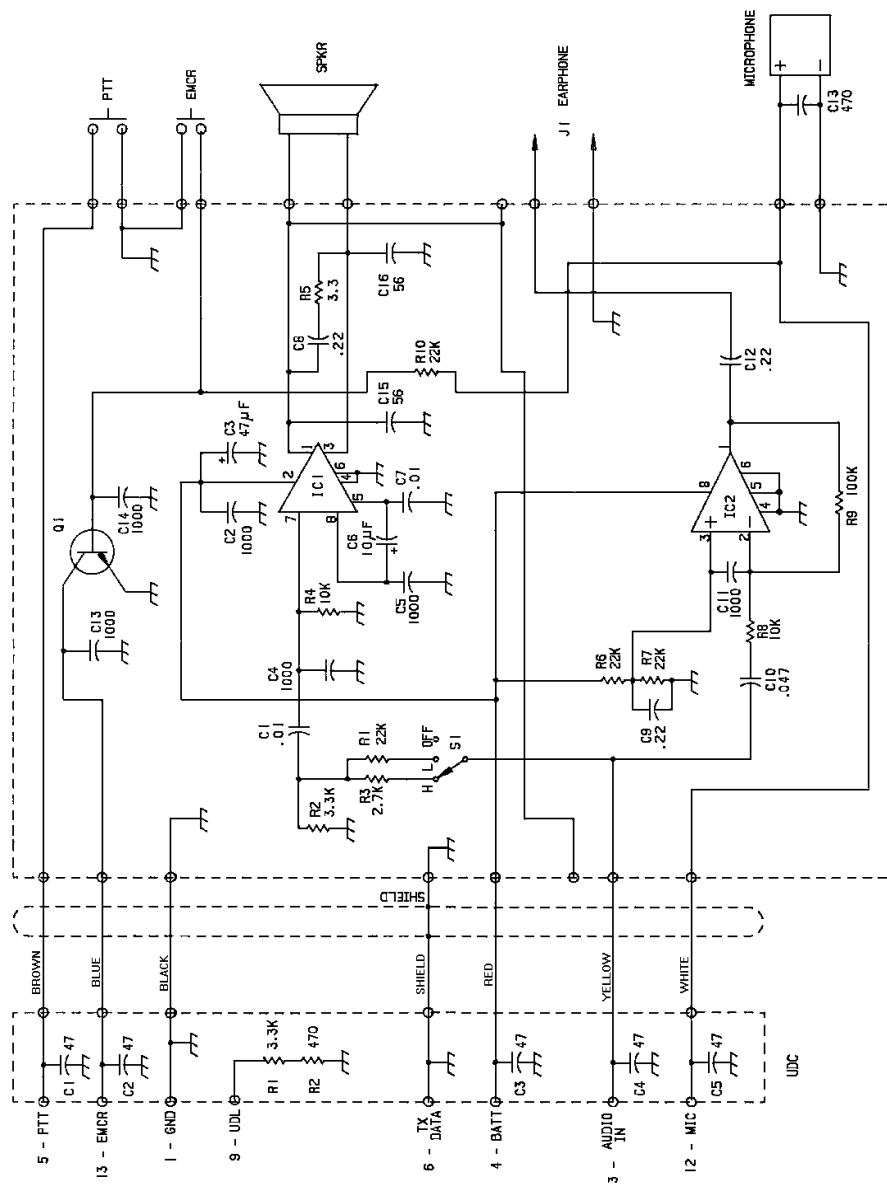
(818002, Rev. D)



- NOTES:
1. UNLESS OTHERWISE INDICATED, RESISTOR VALUES ARE IN OHMS. CAPACITOR VALUES ARE IN PICOFARADS. INDICATOR VALUES ARE IN MICROHENRYS.
  2. NON POLARIZED CAPACITORS ARE CHIP TYPE UNLESS OTHERWISE INDICATED.
  3. POLARIZED CAPACITORS ARE SURFACE MOUNT ALUMINUM ELECTROLYTIC UNLESS OTHERWISE INDICATED.

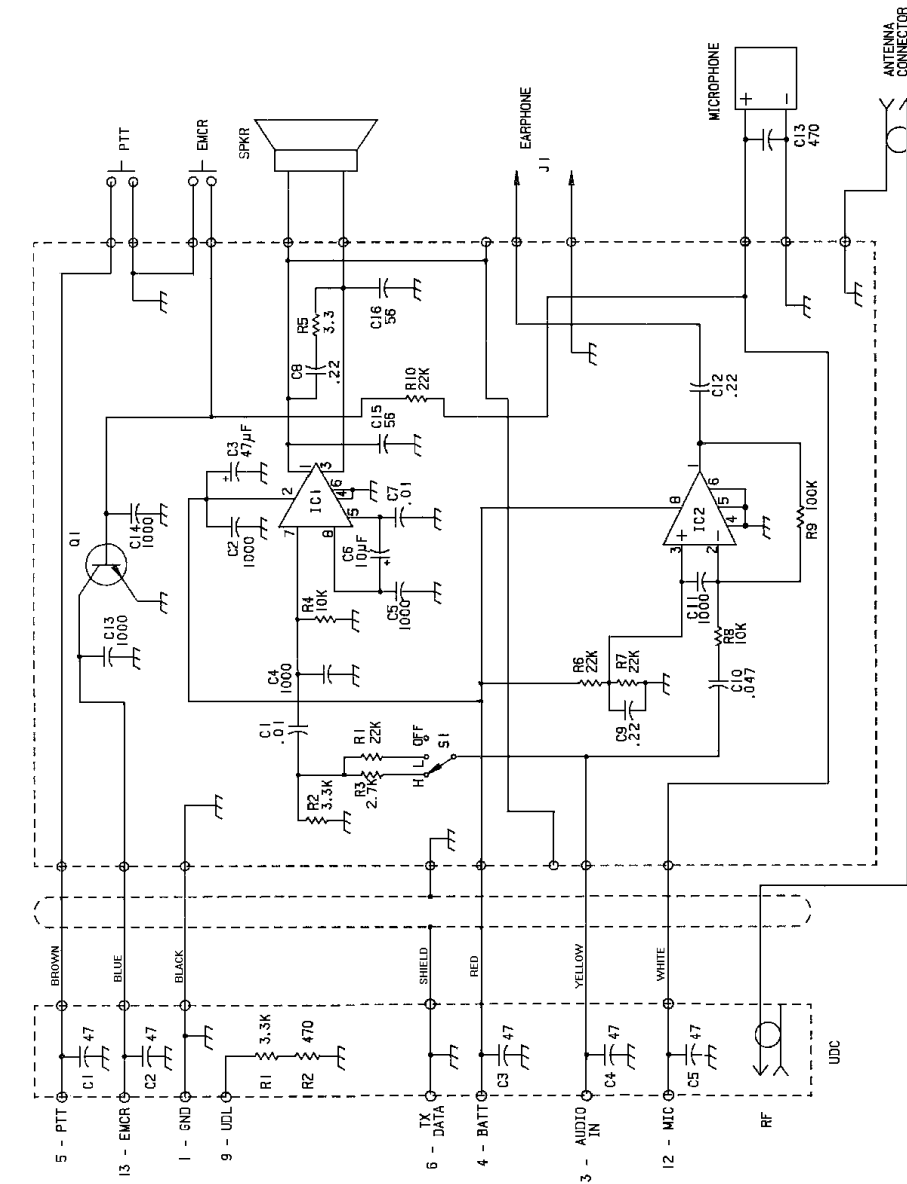
## M-RK SPEAKER/MIC/ANTENNA 344A4189P2 & P4

(818003, Rev. D)



- NOTES:
1. UNLESS OTHERWISE INDICATED, RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN PICOFARADS, INDUCTOR VALUES ARE IN MICROHENRYS.
  2. NON POLARIZED CAPACITORS ARE CHIP TYPE UNLESS OTHERWISE INDICATED.
  3. POLARIZED CAPACITORS ARE SURFACE MOUNT ALUMINUM ELECTROLYTIC UNLESS OTHERWISE INDICATED.

**M-PA SPEAKER/MIC**  
**344A4189P11 & P13**

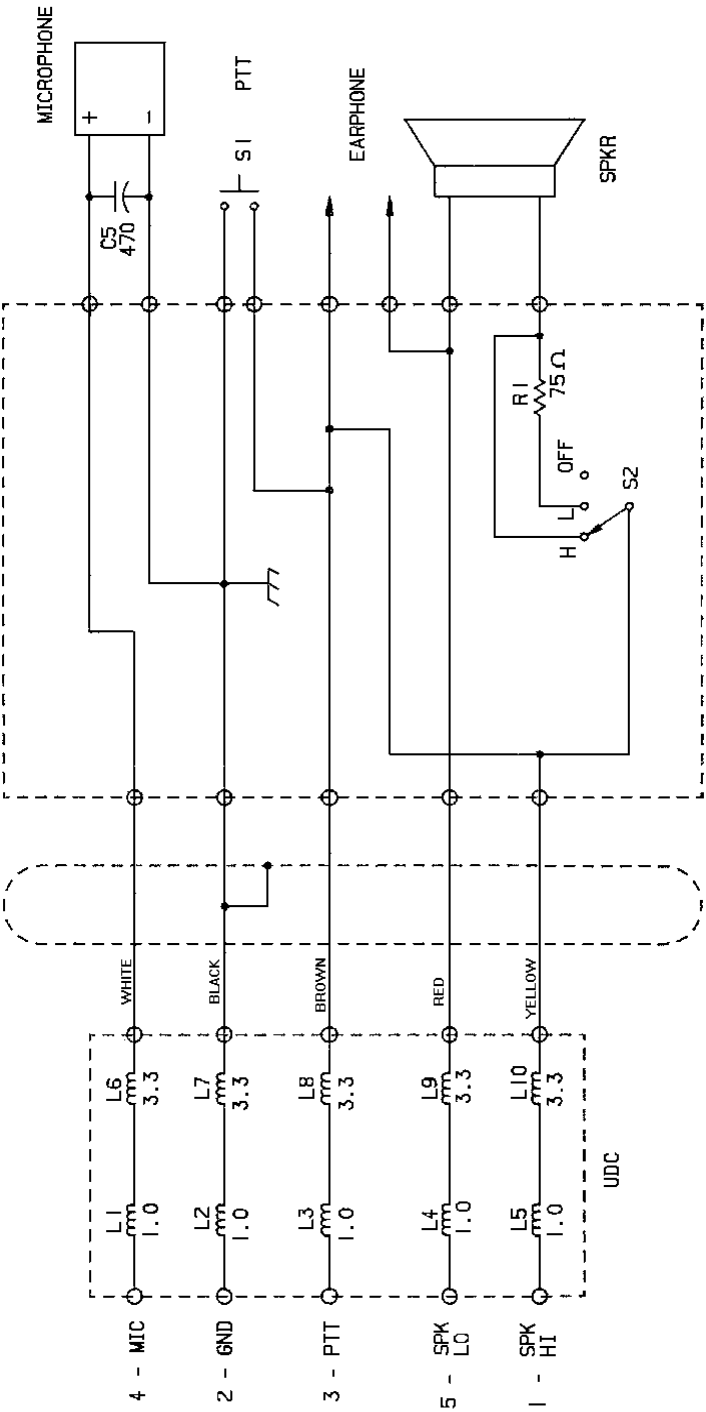


## NOTES:

1. UNLESS OTHERWISE INDICATED, RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN PICOFARADS, INDUCTOR VALUES ARE IN MICROHENRYS.
2. NON POLARIZED CAPACITORS ARE INDICATED.
3. POLARIZED CAPACITORS ARE SURFACE MOUNT ALUMINUM ELECTROLYTIC UNLESS OTHERWISE INDICATED.

# M-PA SPEAKER/MIC/ANTENNA

## 344A4189P12 & P14

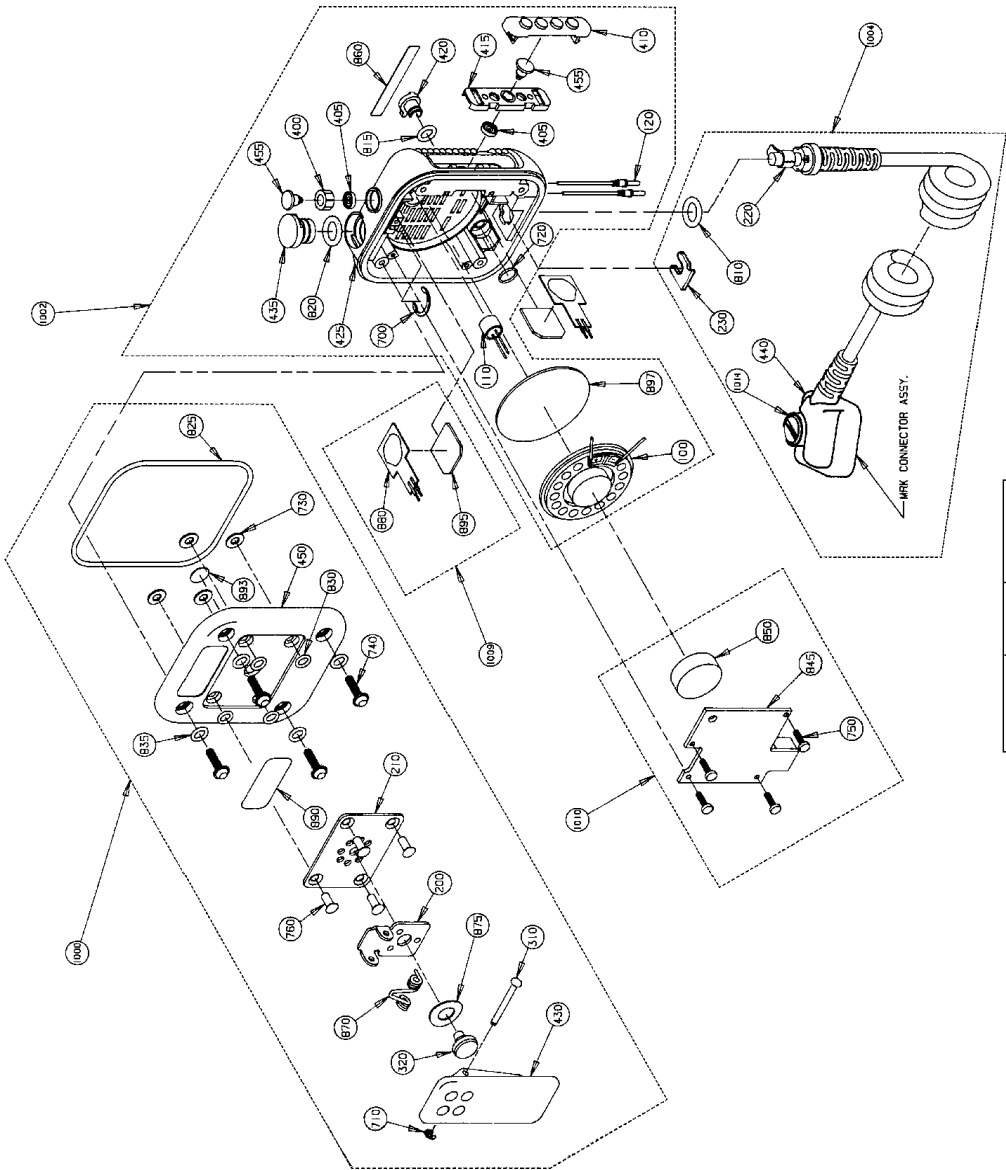


- NOTES:**
1. UNLESS OTHERWISE INDICATED, RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN PICOFARADS, INDUCTOR VALUES ARE IN MICROHENRYS.
  2. NON POLARIZED CAPACITORS ARE CHIP TYPE UNLESS OTHERWISE INDICATED.
  3. POLARIZED CAPACITORS ARE SURFACE MOUNT ALUMINUM ELECTROLYTIC UNLESS OTHERWISE INDICATED.

PCS SPEAKER/MIC  
344A4189P21 & P23

REPLACEMENT KITS			
ITEM	PART NAME	P/N	DESCRIPTIONS
1000	BACK COVER ASSY	C100635	ALL SPKR MIC VERSIONS
1002	FRONTING-ANTI-MRK/MFPA	C100637	
1004	CABLE ASSY, MRK/NO-ANTI	C100639	
1008	DOME SWITCH PLATES	C100644	
1010	PCB MRK	C100645	
1014	MRK THUMSCREW	C100649	

ITEM	PART NAME	DESCRIPTIONS	QTY
100	SPEAKER		1
110	MICROPHONE ASSY		1
120	EARPHONE PIN ASSY		2
200	SWIVEL CLIP		1
210	SWIVEL PLATE		1
220	CRIMP MAIN CABLE		1
230	CABLE CLAMP		2
310	PIVOT PIN		1
320	CLIP RIVET		1
400	RETAINER		2
405	BOOT		1
410	BUTTON PTT		1
415	RETAINER, PTT		1
420	KNOB, VOLUME		1
425	HOUSING, FRONT		1
430	CLIP		1
435	ANTENNA PLUG		1
440	MRK UDC ASSY		1
450	HOUSING, REAR		1
455	EMERGENCY BUTTON		2
700	SNAP RING	5103-37 WALDES	1
710	SNAP RING	A0900-0021 ANDERTON	1
720	SNAP RING	5133-9 WALDES	1
730	WASHER, CLIP ASSY		4
740	SCREW	LGTH=12mm BLACK	4
750	SCREW	LGTH=5mm BLACK	4
760	RIVET		4
810	"0" RING	.375 X .062	1
815	"0" RING	.217 X .049	1
820	"0" RING	.323 X .059	1
825	"0" RING	2.739 X .070	1
830	"0" RING	1.25 X .062	4
835	"0" RING	.114 X .036	4
845	PC BOARD ASSY		1
850	SPACER, FOAM		1
860	LABEL	SEE CHART	1
870	TORSION SPRING		1
875	CURVED WASHER SPG		1
880	DOME SWITCH ASSY		2
890	I.D. LABEL	GE PIN SEE CHART	1
893	VENT DISC		1
895	PLATE, DOME		2
897	SPEAKER COVER		1



GE P/N	LABEL	LABEL P/N
344A4189P1	GE	800988
344A4189P3	ERICSSON	800980

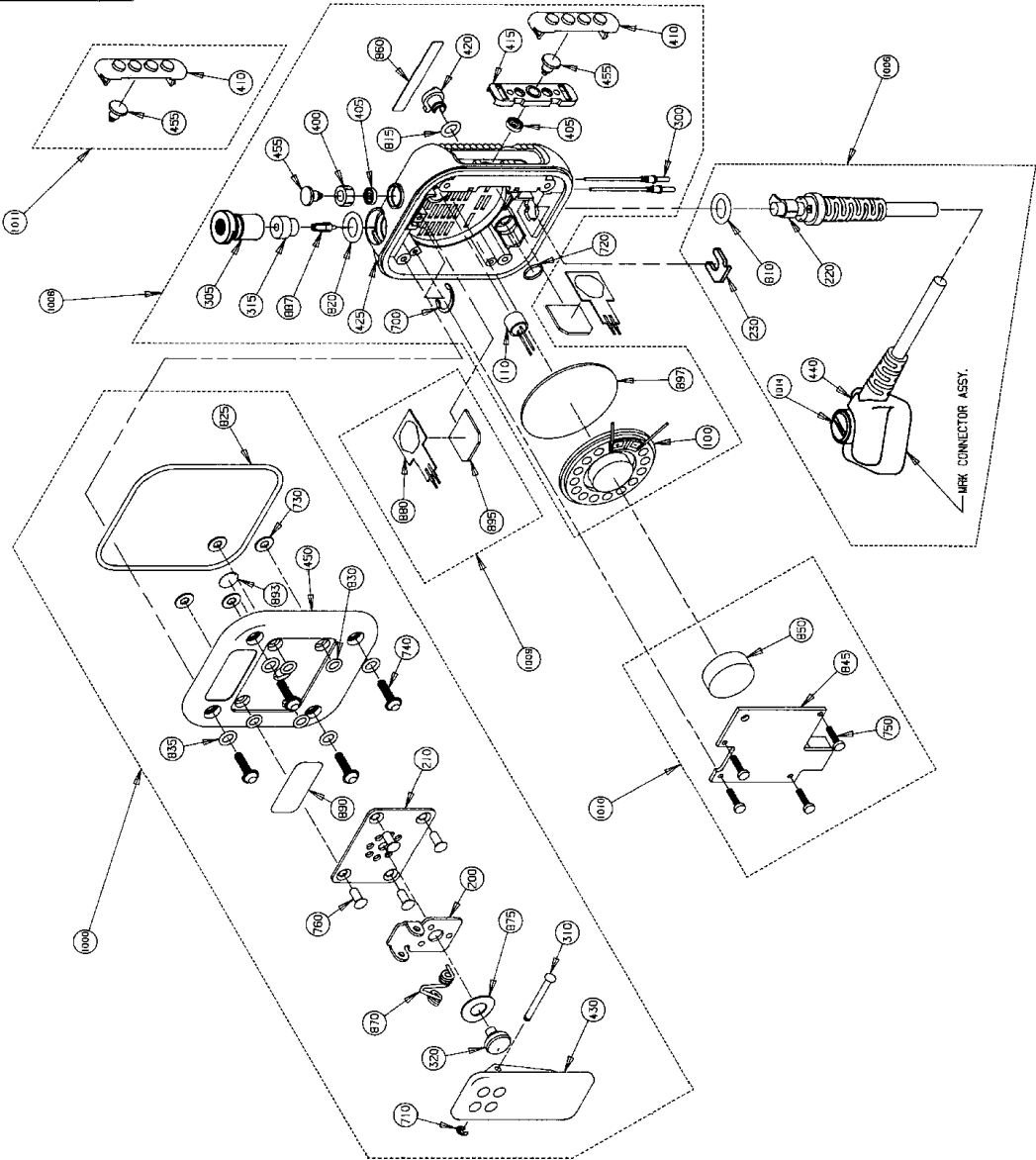
△ ASSY'S INSTALLED & RETAINED WITH RTV.  
△ INSTALLED WITH EPOXY.  
△ USE AS REQUIRED.

M-RK SPEAKER/MIC  
344A4189P1 & P3

REPLACEMENT KITS			
ITEM	PART NAME	P/N	DESCRIPTIONS
1000	BACK COVER ASSY	C100635	ALL SPKR MIC VERSIONS
1006	CABLE ASSY, MRK	C100641	COAXIAL CABLE
1008	FRONT, MPAMRK ANT.	C100643	
1009	PCB, SWITCH PLATES	C100644	
1010	PCB, MRK	C100645	
1011	PCB, ACTUATOR BUTTON	C100646	
1014	MRK THINSREW	C100649	

ITEM	PART NAME	DESCRIPTIONS	QTY
100	SPEAKER ASSY.		1
110	MICROPHONE PIN ASSY		2
200	SWIVEL CLIP		1
210	SWIVEL PLATE		1
220	CRIMP, MAIN CABLE		1
230	CABLE CLAMP		2
300	EARPHONE PIN ASSY		2
305	ANTENNA CONN.		1
310	PIVOT PIN		1
315	ANTENNA CONN.		1
320	CLIP RIVET		1
400	RETAINER		1
405	BOOT		2
410	BUTTON PTT		1
415	RETAINER, PTT		1
420	KNOB, VOLUME		1
425	HOUSING, FRONT		1
430	CLIP		1
440	MRK LDC ASSY		1
450	HOUSING, REAR		1
455	EMERGENCY BUTTON		2
700	SNAP RING	5103-37 WALDES	1
710	SNAP RING	A0900-0021 ANDERSON	1
720	SNAP RING	5133-9 WALDES	1
730	WASHER, CLIP ASSY.		4
740	SCREW	LGTH=12mm, BLACK	4
750	SCREW	LGTH=5mm, BLACK	4
760	RIVET		4
810	"0" RING	.375 X .062	1
815	"0" RING	.217 X .049	1
820	"0" RING	.323 X .069	1
825	"0" RING	2.739 X X .070	4
830	"0" RING	.114 X .036	4
835	PC BOARD ASSY.		1
845	SPACER, FOAM		1
850	LABEL	SEE CHART	1
860	TORSION SPRING		1
870	CURVED WASHER SPG		1
880	DOME SWITCH ASSY.		2
887	ANT. CONTACT		1
890	ID. LABEL	GE PIN SEE CHART	1
893	VENT DISC		1
895	PLATE, DOME		2
897	SPEAKER COVER		1

- △ ASSY'S INSTALLED & RETAINED WITH RTV.
- △ INSTALLED WITH EPOXY.
- △ INTERIOR COATED WITH CONDUCTIVE MATERIAL.
- △ USE AS REQUIRED.



BE	P/N	LABEL	P/N
344A4189P2	BE	80098H	
344A4189P4	ERICSSON	80098D	

M-RK SPEAKER/MIC/ANTENNA

344A4189P2 & P4

REPLACEMENT KITS				
ITEM	PART NAME	P/N	DESCRIPTIONS	QTY
1000	BACK COVER ASSY.	C100635	ALL SPKR MIC VERSIONS	1
1002	FRONT-NG-ANT-ARK/MPA	C100637		1
1005	CABLE ASSY-MPA-NO-ANT	C100640		1
1009	DOVE SWITCH/PLATES	C100644		2
1011	PIT ACTUATOR/BUTTON	C100646		1
1012	PCB, MPA	C100647		1
1015	MPA THUMBSCREW	C100661	LOW PROFILE	1
1016	MPA THUMBSCREW	C100662	TALL PROFILE	1

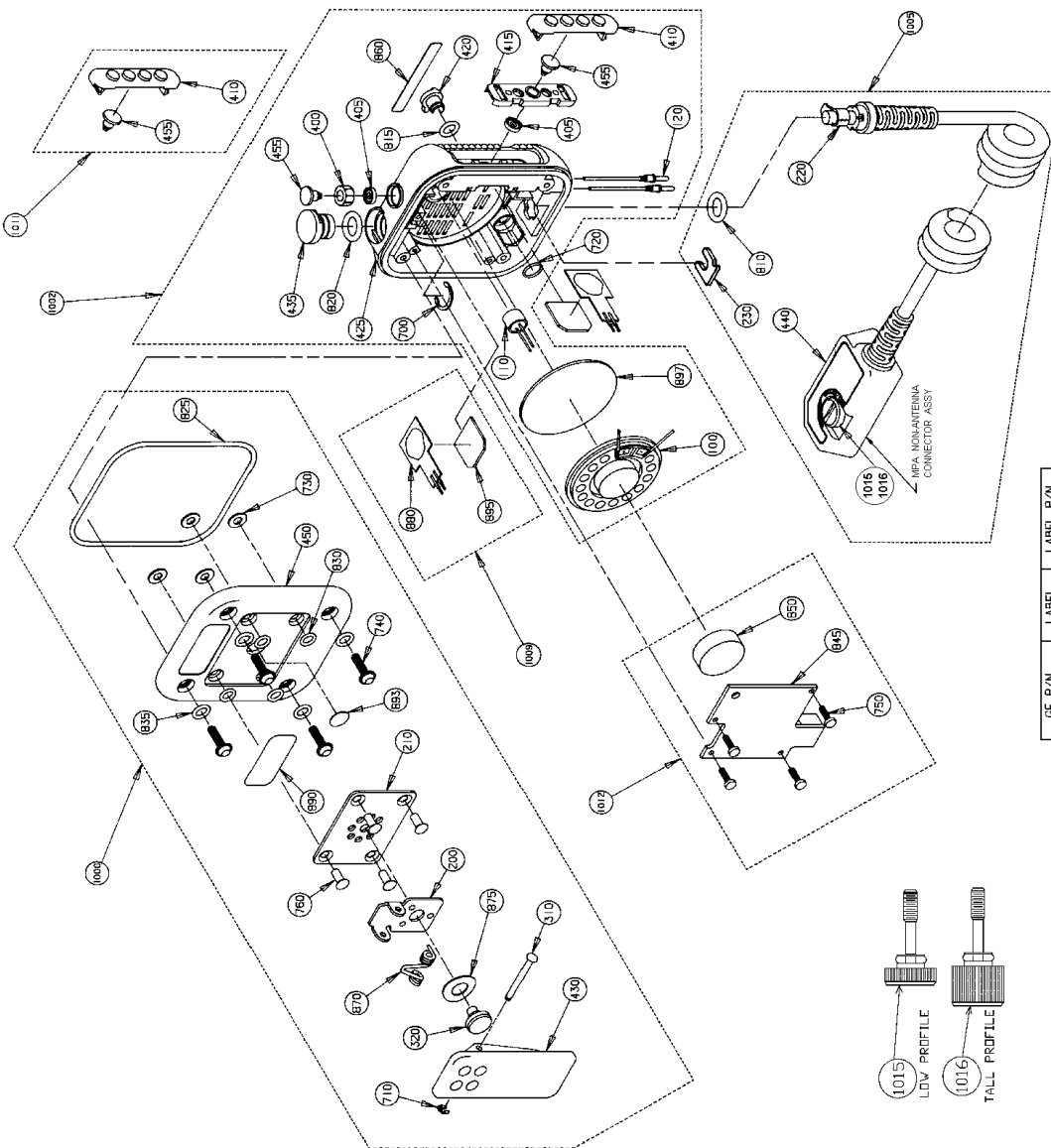
  

ITEM	PART NAME	DESCRIPTIONS	QTY
100	SPEAKER ASSY.		1
110	MICROPHONE PIN ASSY.		1
120	MICROPHONE PIN ASSY.		2
200	SWIVEL CLIP		1
210	SWIVEL PLATE		1
220	CRIMP, MAIN CABLE		2
230	CABLE CLAMP		1
310	PIVOT PIN		1
320	CLIP RIVET		1
400	RETAINER		1
405	BOOT		2
410	BUTTON, PTT		1
415	RETAINER, PTT		1
420	KNOB, VOLUME		1
425	HOUSING, FRONT		1
430	CLIP		1
435	ANTENNA PLUG		1
440	MPA UDC ASSY		1
450	HOUSING, REAR		1
455	EMERGENCY BUTTON		2
700	SNAP RING	5103-37 WALDES	1
710	SNAP RING	A0890-0021 ANDERTON	1
720	SNAP RING	5135-9 WALDES	1
730	WASHER, CLIP ASSY.		4
740	SCREW	L6TH-12mm, BLACK	4
750	SCREW	L6TH-5mm, BLACK	4
810	"0" RING	.375 X .062	1
815	"0" RING	.049 X .217	1
820	"0" RING	.323 X .059	1
825	"0" RING	2.739 X .070	1
830	"0" RING	.125 X .062	4
835	"0" RING	.114 X .036	4
845	PC BOARD ASSY.		1
850	SPACER, FOAM		1
860	LABEL	SEE CHART	1
870	TORSION SPRING		1
875	CURVED WASHER SPG		1
880	DOVE SWITCH ASSY.		2
890	I.D. LABEL	GE P/N SEE CHART	1
893	VENT DISC		1
895	PLATE, DOVE		2
897	SPEAKER COVER		1

△ ASSY'S INSTALLED & RETAINED WITH RTV

△ INSTALLED WITH EPOXY

△ USE AS REQUIRED

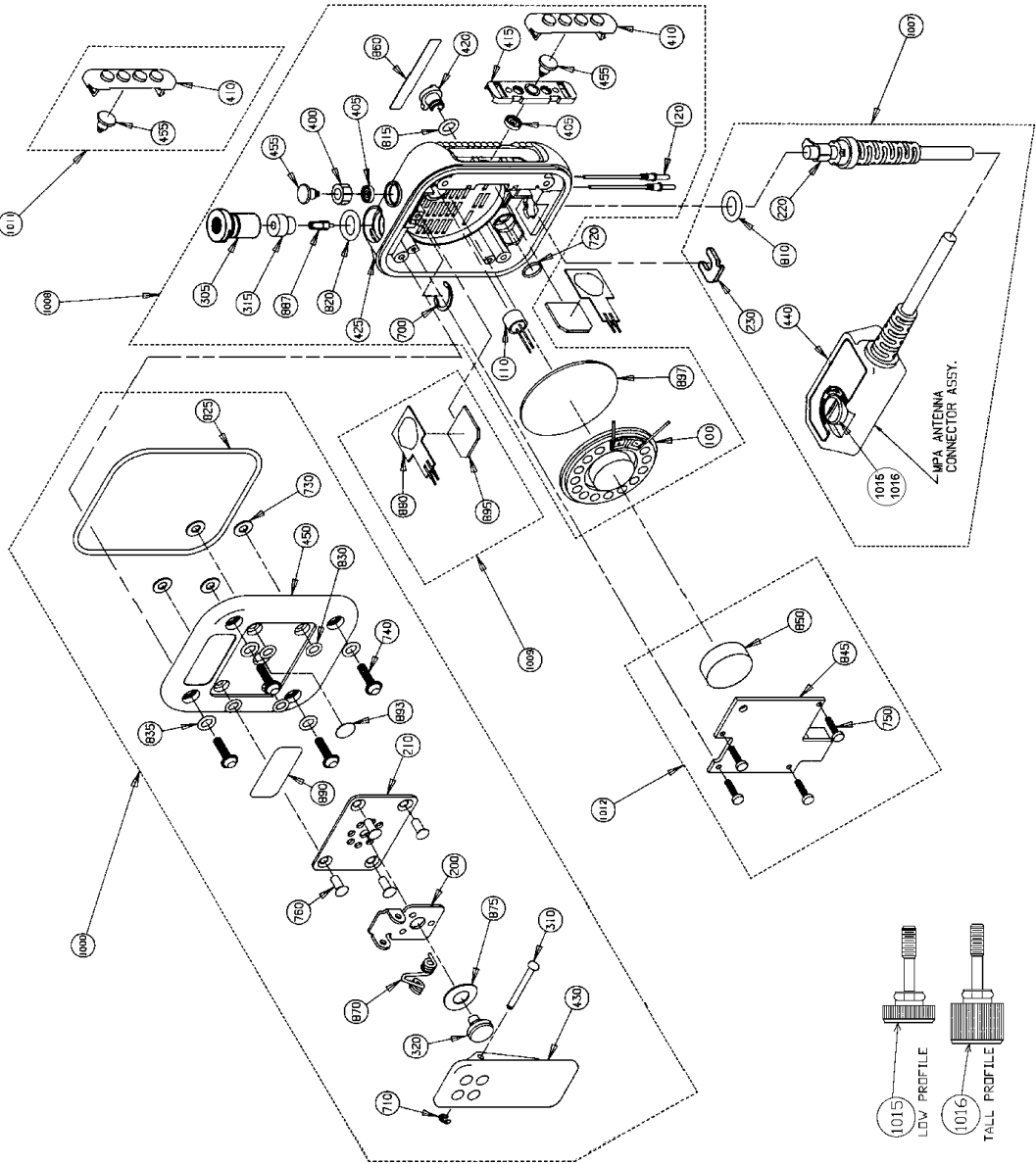


## M-PA SPEAKER/MIC 344A4189P11 & P13

REPLACEMENT KITS				
ITEM	PART NAME	P/N	DESCRIPTIONS	QTY
1000	BACK COVER ASSY.	C100635	ALL SPKR MIC VERSIONS	1
1007	CABLE ASSY. MPA ANT.	C100642	COAXIAL CABLE	1
1008	FRONT MPAMRK ANT.	C100643		1
1009	DOMIE SWITCH/PLATES	C100644		2
1011	PTT ACTUATOR/BUTTON	C100646		1
1012	PCB. MPA	C100647	LOW PROFILE	1
1015	MPA THUMBSCREW	C100661	TALL PROFILE	1
1016	MPA THUMBSCREW	C100662	TALL PROFILE	1

ITEM	PART NAME	DESCRIPTIONS	QTY
100	SPEAKER		1
110	MICROPHONE ASSY.		1
120	EARPHONE PIN ASSY.		2
200	SWIVEL CLIP		1
210	SWIVEL PLATE		1
220	CRIMP MAIN CABLE		1
230	CABLE CLAMP		2
305	ANTENNA CONNL.		1
310	PIVOT PIN		1
315	ANTENNA INS.		1
320	CLIP RIVET		1
400	RETAINER		1
405	BOOT		2
410	BUTTON PTT		1
415	RETAINER PTT		1
420	KNOB VOLUME		1
425	HOUSING, FRONT		1
430	CLIP		1
435	ANTENNA PLUG		1
440	MPA LDC ASSY		1
450	HOUSING, REAR		1
455	EMERGENCY BUTTON		2
700	SNAP RING	5103-37 WALDES	1
710	SNAP RING	A0900-0021 ANDERTON	1
720	SNAP RING	5133-9 WALDES	1
730	WASHER, CLIP ASSY.		4
740	SCREW	LGTH=12mm BLACK	4
750	SCREW	LGTH=6mm, BLACK	4
760	RIVET		4
810	"O" RING	.375 X .062	1
815	"O" RING	.217 X .049	1
820	"O" RING	.323 X .069	1
825	"O" RING	2.739 X .070	1
830	"O" RING	.125 X .062	4
835	"O" RING	.114 X .036	1
845	P.C BOARD ASSY.		1
850	SPACER, FOAM		1
860	LABEL	SEE CHART	1
870	TORSION SPRING		1
875	CURVED WASHER SPG		1
880	DOMIE SWITCH ASSY.		2
887	ANT. CONTACT		1
890	I.D. LABEL	GE PIN SEE CHART	1
893	VENT DISC		1
895	PLATE, DOME		2
897	SPEAKER COVER		1

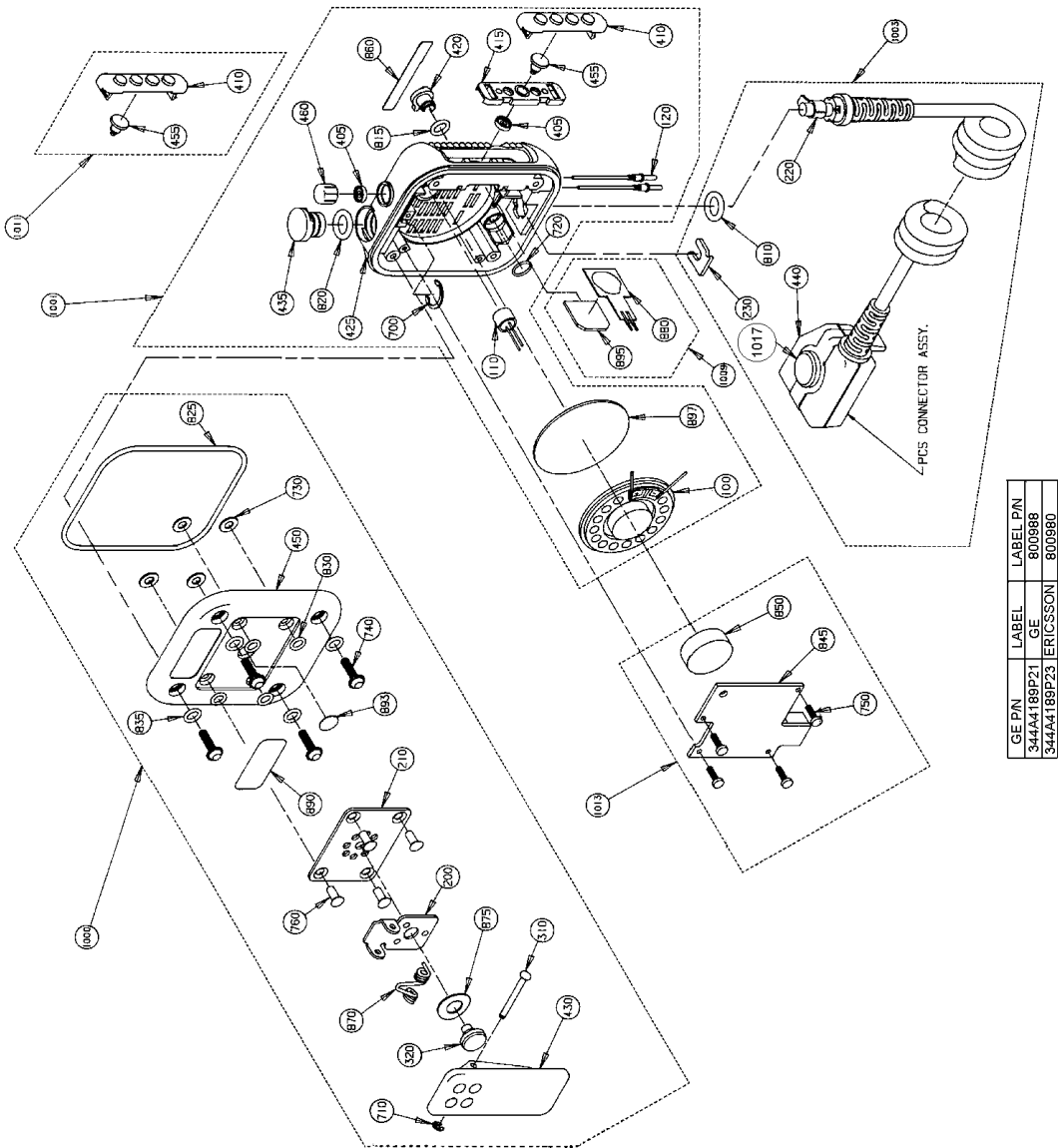
- △ ASSYS INSTALLED & RETAINED WITH RTV.
- △ INSTALLED WITH EPOXY.
- △ INTERIOR COATED WITH CONDUCTIVE MATERIAL
- △ USE AS REQUIRED.



M-PA SPEAKER/MIC/ANTENNA  
344A4189P12 & P14

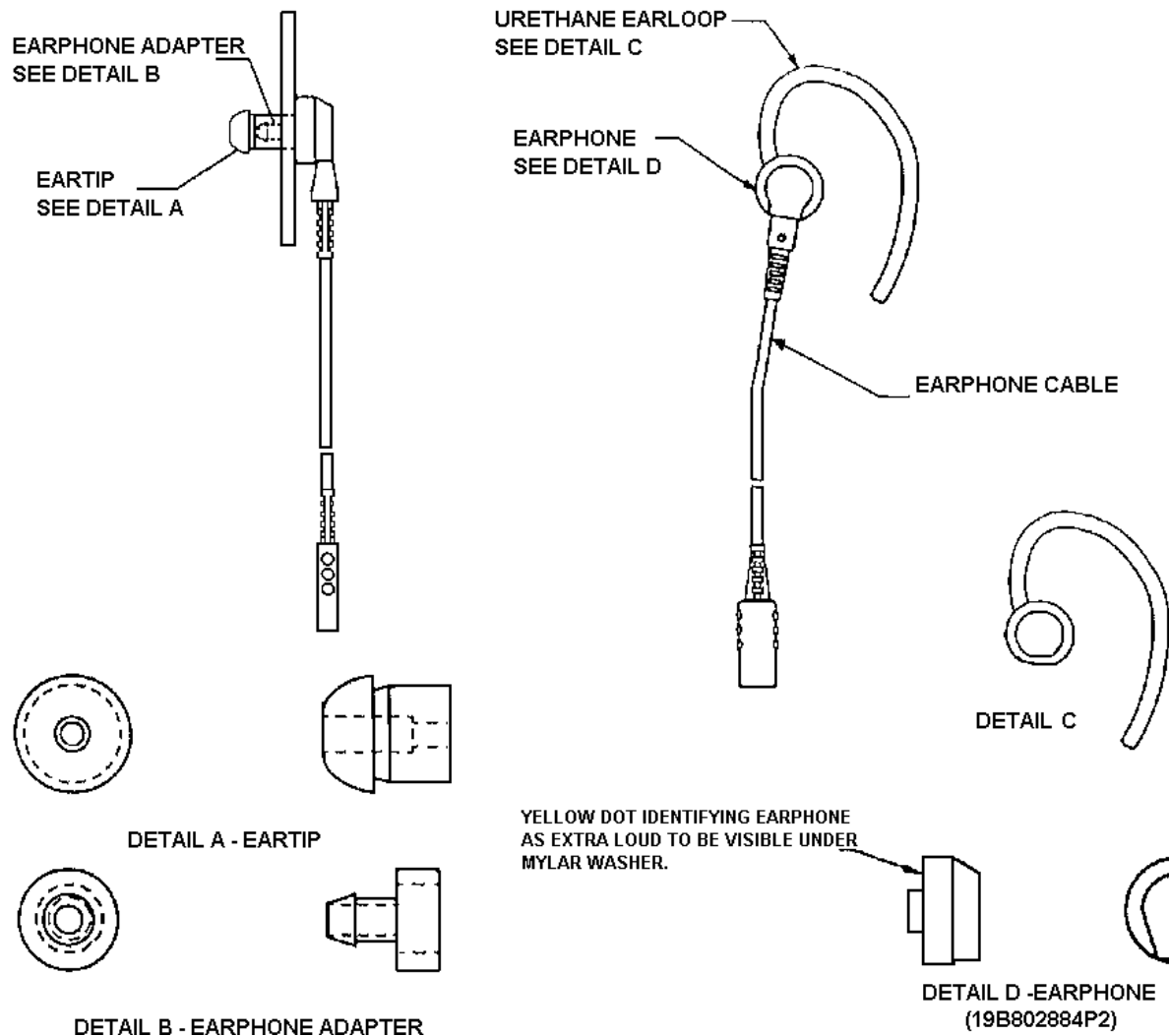
REPLACEMENT KITS			
ITEM	PART NAME	P/N	DESCRIPTIONS
1000	BACK COVER ASSY	C100636	ALL SPKR MIC VERSIONS
1001	FRONT PCS	C100636	
1003	CABLE ASSY, PCS	C100638	
1009	DOME SWITCH PLATES	C100644	
1011	PTT ACTUATOR/BUTTON	C100646	
1013	PCB, PCS	C100648	
1017	PCS THUMBSREW	C100652	

ITEM	PART NAME	DESCRIPTIONS	QTY
100	SPEAKER		1
110	MICROPHONE ASSY.		1
120	EARPHONE PIN ASSY.		2
200	SWIVEL CLIP		1
210	SWIVEL PLATE		1
220	CRIMP MAIN CABLE		2
230	CABLE CLAMP		1
310	PIVOT PIN		1
320	CLIP/RIVET		1
405	BOOT		2
410	BUTTON PTT		1
415	RETAINER PTT		1
420	KNOB, VOLUME		1
425	HOUSING, FRONT		1
430	CLIP		1
435	ANTENNA PLUG		1
440	PCS JDC ASSY.		1
450	HOUSING, REAR		1
455	EMERGENCY BUTTON		1
460	PLUG		1
700	SNAP RING	5103-37 WALDES	1
710	SNAP RING	A0900-0021 ANDERTON	1
720	SNAP RING	5133-9 WALDES	1
730	WASHER, CLIP ASSY.		4
740	SCREW	LGTH=12mm BLACK	4
750	SCREW	LGTH=6mm BLACK	4
760	RIVET		4
810	"0" RING	.375 X .062	1
815	"0" RING	.217 X .049	1
820	"0" RING	.323 X .069	1
825	"0" RING	2.739 X .070	1
830	"0" RING	.126 X .062	4
835	"0" RING	.114 X .036	4
845	PC BOARD ASSY.		1
850	SPACER, FOAM		1
860	LABEL	SEE CHART	1
870	TORSION SPRING		1
875	CURVED WASHER SPG		1
880	DOME SWITCH ASSY.		1
890	ID LABEL	GE PIN SEE CHART	1
893	VENT DISC		1
895	PLATE, DOME		1
897	SPEAKER COVER		1



GE P/N	LABEL	LABEL P/N
34444189P21	GE	800988
34444189P23	ERICSSON	800980

PCS SPEAKER/MIC  
344A4189P21 & P23



## EARPHONE 19B802884P1-3

(19B802884, Sh. 1-3., Rev. 1)