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Service Manual

For

25 LTD ST 25 WX ST

Model 25 LTD ST / 25 WX ST

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THEORY OF OPERATIONS CB25 LTD ST / CB 25 WX ST

The COBRA models CB25 LTD ST and CB 25 WX ST are the citizen band AM radio transceivers operated in the frequency range of 26,965 to 27.405 MHz (40 channels). For model CB 25 WX ST, it can also receive the seven channels of 162 MHz weather signal.

1. CB Mode of Operation

1.1 CB Transmitter Section

When in transit mode, TR15 and the crystal oscillator generate a fundamental frequency 10.24 MHz and send it to the Phase-Locked-Loop IC3 25LTD to produce the reference frequencies of 16.725 to 17.165 MHz. The fundamental frequency and the reference frequencies are then mixed up in IC2 TA7310P to produce the RF signal of 26.695 to 27.405 MHz. This signal, after magnified by the RF amplifiers TR8 and TR7, is fed to the antenna for transmitting.

In the meantime, the speech signal picked up by the microphone is amplified by TR13 and IC1 TA7222AP, and then applied to the collectors of TR8 and TR7 for RF amplitude modulation. Thus completes the speech signal modulation and transmitting.

A soundtracker switch controls the speech signal path of the microphone amplifier TR13. When the ST switch is set to ON, it cuts the TR13 output and directs it to a compander chip IC801 TA31101AP for speech signal dynamic range compressing. The output of IC801 is then fed to IC1 TA7222AP for the remaining processing. When the ST switch is set to off, the compander function is turned off.

1.2 CB Receiver Section

When in receive mode, TR15 and the crystal oscillator generate a fundamental frequency 10.24 MHz and send it to the Phase-Locked-Loop IC3 25 LTD to produce the first local oscillator frequencies 16.270 to 16.710 MHz.

In the meantime, the AM RF signal (26.695 to 27.405 MHz) picked up by the antenna is magnified by TR1 and fed to the first mixer FET1. This signal is then mixed with the first local oscillator frequencies 16.270 to 16.710 MHz. That produces the first IF frequency 10.695 MHz. The first IF signal, after passing through the ceramic filter, is fed to the second mixer FET2 for mixing with the second local oscillator frequency 10.24 MHz. That produces the second IF frequency 455 kHz. The second IF signal, after filtered by the ceramic filter and magnified by TR2, TR3, TR4, is demodulated by D6 for speech signal recovery. The recovered speech signal is then magnified by the TA7222 and fed to the speaker. Thus completes the speech signal receiving.

A soundtracker switch controls the recovered speech signal path of the demodulation diode D6. When the ST switch is set to ON, it cuts the D6 output and directs it to a compander chip IC801 TA31101AP for speech signal dynamic range expanding. The output of IC801 is then fed to IC1 TA7222AP for the remaining processing. When the ST switch is set to OFF, the compander function is turned off.

12/08/97

2. PA Mode of Operation

With the CB-PA switch set at PA position, the speech signal picked up by the microphone is fed to TR13 and TA7222 for magnification to a level of about 4 watts, and then via the PA terminal sent to the speaker for speech sound reproduction.

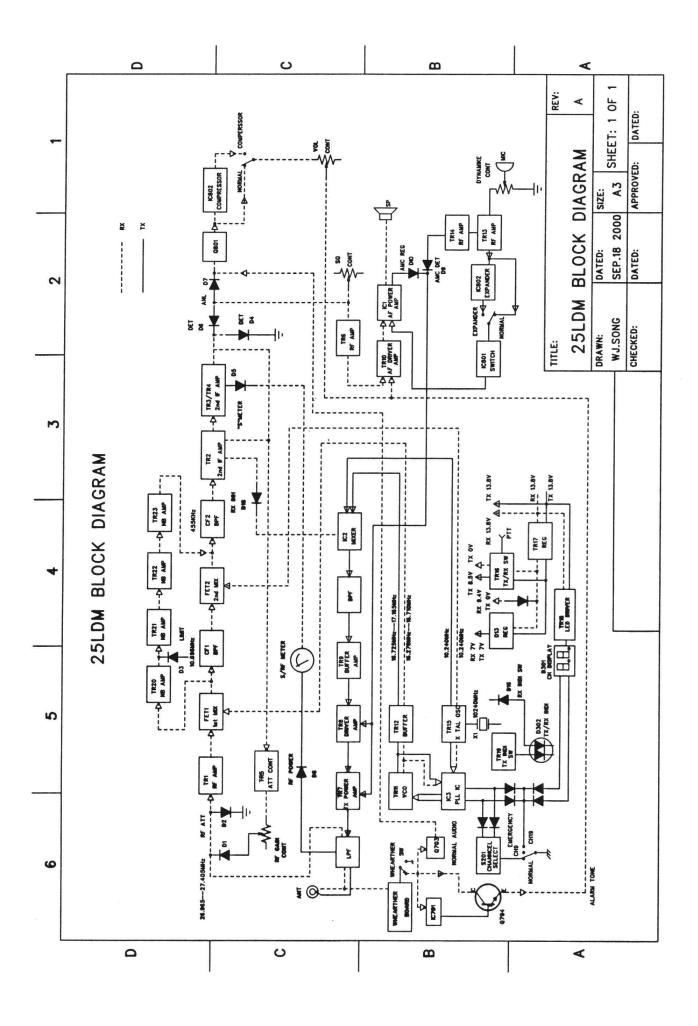
A soundtracker switch controls the speech signal path of the microphone amplifier TR13. When the ST switch is set to ON, it cuts the TR13 output and directs it to a compander chip IC801 TA31101AP for speech signal dynamic range compressing. The output of IC801 is then fed to IC1 TA7222AP for the remaining processing. When the ST switch is set to OFF, the compander function is turned off.

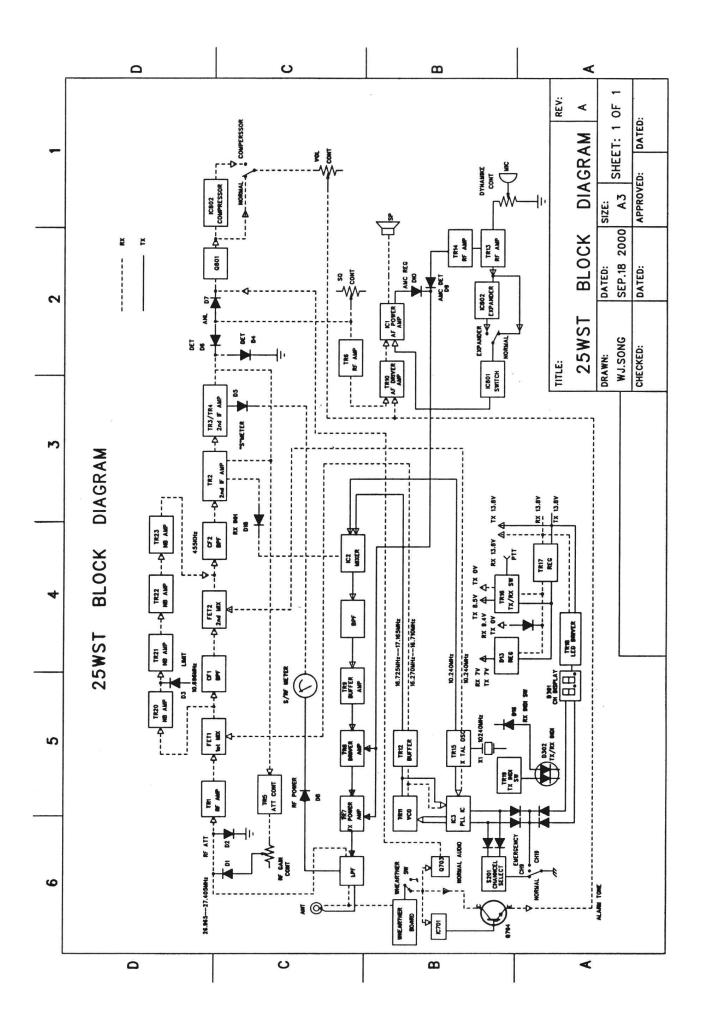
3. WX Mode of Operation (162 MHz Weather receiving) - for CB 25 WX ST only

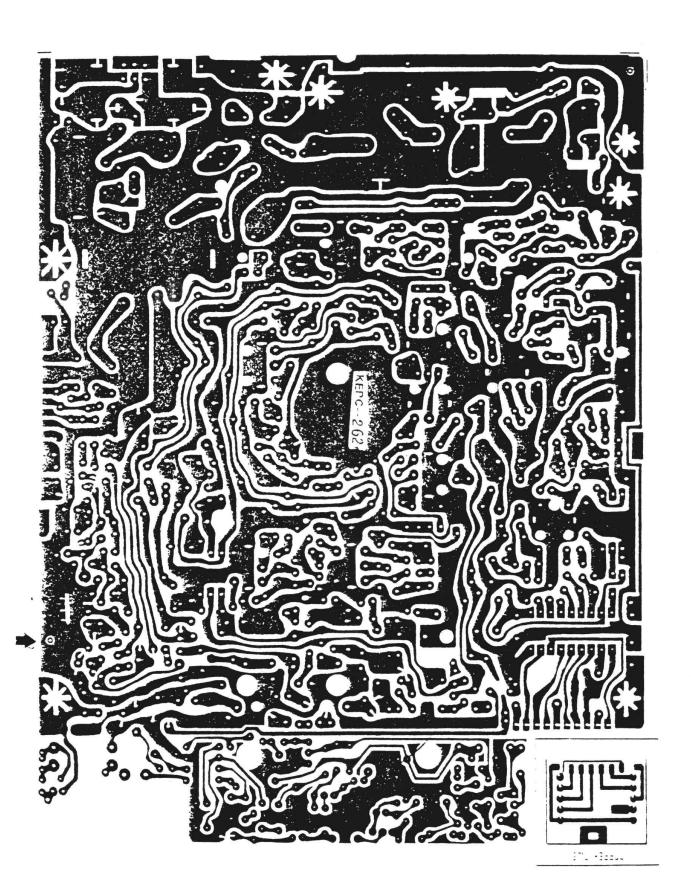
3.1 With the CB-WX switch set at WX position, the 162 MHz weather signal (frequency modulated) picked up by the antenna is magnified by Q601 and fed to the mixer Q606. In the meantime, Q602 and crystal oscillator generate a local oscillation frequency in the range of 162 MHz, also fed to Q606 for mixing. That produces the IF frequency 455 kHz. The IF signal, after magnified by Q603, Q604, Q605, is frequency discriminated by D605, D606 for audio signal recovery. The recovered WX signal is then magnified by Q703, Q801, IC TA7222 and fed to the speaker for WX signal reproduction.

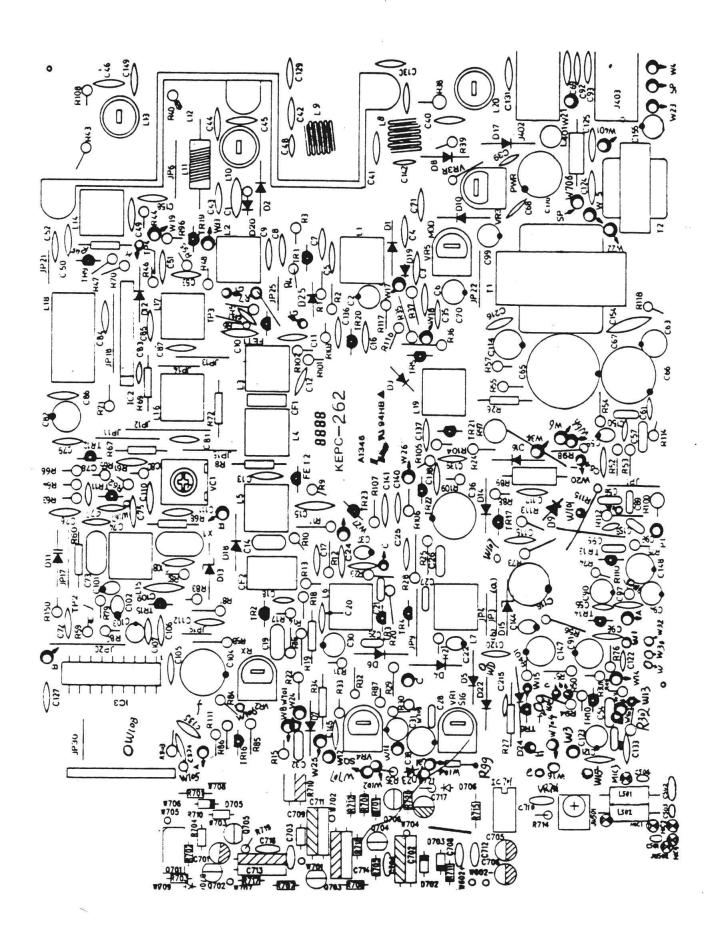
A soundtracker switch controls the recovered WX signal path of Q801. When the ST switch is set to ON, it cuts the Q801 output and directs it to a compander chip IC801 TA31101AP for speech signal dynamic range expanding. The output of IC801 is then fed to IC1 TA7222AP for the remaining processing. When the ST switch is set to OFF, the compander function is turned off.

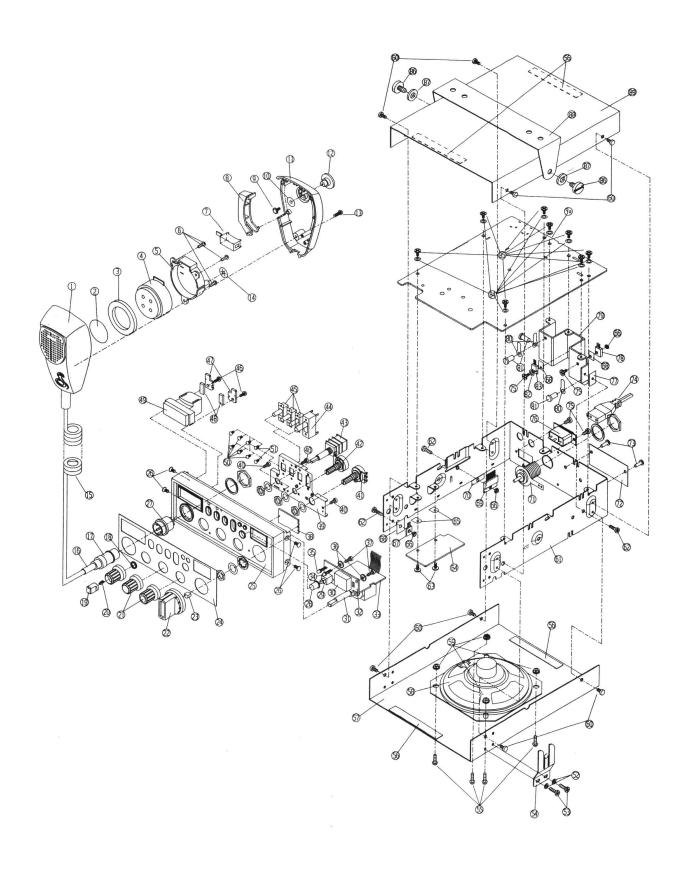
3.2 Before the weather messages broadcasted, there will be a 10-second alert tone (at 1050Hz) sending out from the weather station. When received the 1050 Hz alert tone signal, the tone decoder IC701 NJM567D sends out a control signal that turns on the power supply for the CB transceiver. It also turns on Q704 and sends the 1050 Hz signal to IC1 for amplification and to be produced at the speaker output for alerting.







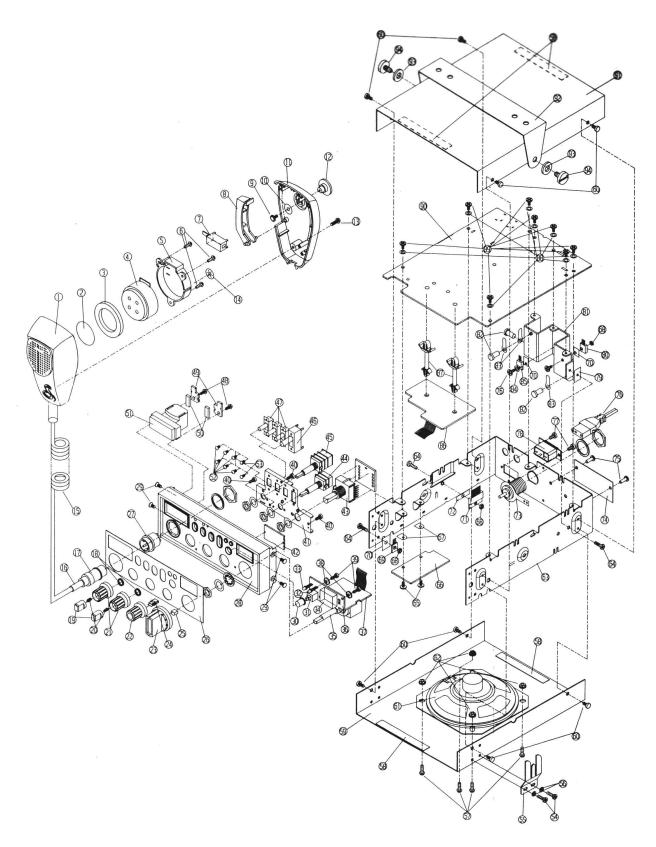




MODEL: 25LTD ST

EE NO	PART NO.	PART NAME	DESCRIPTION	
1		FRONT CABINET	ABS 94HB/Cr-PLATED	
	KEM-0T7001A	FELT DIA. 2.8	FELT	
3		SPONGY 38 ODX26IDX5 THK	SPONGY	
4		MIC. DYNAMIC	31 0140 1	
5	KEM-P7003A	MIC. BRACKET	ABS 94HB	
6	KEM-TS2608BIN	TAPPING SCREW B/HD T2.6X8	NI-PLATED	
7	KESW-079	PUSH-BUTTON SWITCH 4P2T	NI-FLATED	
		PTT SWITCH KNOB	ABS 94HB	
8	KEM-P7103D	TAPPING SCREW B/HD T2.6X6	NI-PLATED	
9	KEM-TS2606BIN	M2.8 PLAIN WASHER 103J-1	NI-PLATED	
10			ARC 04UD	
11	KEM-P7002A	REAR CABINET	ABS 94HB	
12	KEM-P7107B	HANGING KNOB	ABS 94HB	
13	KEM-TS3010PIB	TAPPING SCREW P/HD T3X10		
14	KEM-WI1003903X	SELF LOCKING WASHER DIA.4		
15	KEIC-036-1	CURL CORD 4 CORES	D) (C	
16	KEM-OT9005	P.V.C. SLEEVE - CURL CORD	PVC	
17	KEJ-163	MIC PLUG 4 PIN FOR COBRA		
18	KEM-M8407	LOCK SPRING	A DO ON IDIO DI ATED	
19	KEM-P8407	INNER KNOB	ABS 94HB/Cr-PLATED	
20	KEM-M8403	INSERT 1	STAINLESS STEEL	
21	KEM-P8408	VR KNOB	ABS 94HB/Cr-PLATED	
22	KEM-P0708B	BAND SELECT KNOB	ABS 94HB/Cr-PLATED	
23	KEM-M0610-01	INSERT KNOB	BRASS	
24	KEM-M8602A-01	TRIM PLATE	AL. SHEET	
25	KEM-P8601C	FRONT PANEL	ABS 94HB/Cr-PLATED	
26	KEM-MS3006C2N	SCREW MACHINE F/H M3X6MM	NI-PLATED	
27	KEJ-032-1	MIC SOCKET 4PIN PLT-164-R	4PIN	
28	KEM-P8405B	PUSH COVER	ABS 94HB/Cr-PLATED	
29	KESW-064	PUSH BUTTON SWITCH 2C2P W/LOCK	2P2T	
30	KED-LC402NDGC-1			
	KEOE-OT295	A-402NDGC COVER		
31	KESW-047	CHANNEL SELECTOR GPS-0736 40CH		
32	KEPC-261-B	PCB LED 54X25X1.6MM S.S 94HB	54X25X1.6 mm PHENOLIC	
33	KEPC-260	PCB CHANNEL SW 46X55X1.6MM S.S	46X55X1.6 mm PHENOLIC	
34	KED-L204R	DIODE LED EL204HD RED		
35	KED-L64GR	DIODE LED LT0362-25-D63 RED-GREEN	,	
36	KEM-WF0703308X	FIBRE WASHER 7.00DX3.3IDX0.8THK	N. D. ATED	
37	KEM-TS2306B2N	TAPPING SCREW B/HD T2.3X6	NI-PLATED	
38	KEM-P9003B	FILTER DISPLAY	PMMA	
39	KEM-M8601B	BRACKET-MIC BODY	SPCC ZINC-PLATED	
40	KEM-TS2605B2N	TAPPING SCREW B/HD T2.6X5	NI-PLATED	
41	KER-102P11	POT. 1KB RV160-10-20K-B13-3020		
42	KER-502P10	POT. 5KA RV160-10-20K-A53-3020		
43	KER-D503B503A-7	VR DUAL SHAFT 50KBO /50KAI W/SW	2P3T	
44	KESW-027-2	SLIDE SW 2P3T SS2324BAT11	2P3T	
45	KESW-028-2	SLIDE SW 2P2T SS2249BAT11	NI-PLATED	
46	KEM-TS2605B2N	TAPPING SCREW B/HD T2.6X5	SPCC/ZINC-PLATED	
47	KEM-M8603	METER CLAMP CLAMP CUSHION	PE FORM	
48	KEM-OT0608		PETORIVI	
49	KEOE-OT123	METER ANALOG H-319-8828 SCREW-MACHINE B/HD DIA M2.0X5MM	NI-PLATED	
50	KEM-MS2005B2N KEM-MS2604P2N	M2.6X4 P/HD SCREW	NI-PLATED	
51 52	KEM-WI0643304N	INNER TOOTHED LOCK WASHER DIA3	THE COLUMN TO TH	

	T ====================================	DED VIEW PART LIST MODEL: CB 25			
REF. NO.	PART NO.	PART NAME	DESCRIPTION		
53	KEM-MS3506P5N	TAPPING SCREW T3.5X6MM P/H	NI-PLATED		
54	KEM-M9014	BRACKET-MIC BODY	SPCC/NI-PLATED		
55	KEM-MS3008B2N	M3X8 B/HD SCREW	NI-PLATED		
56	KEM-OT0706	FELT STRIP 75X10MM	FELT PAPER		
57	KEM-M8605A	BOTTOM COVER	NI-PLATED		
58	KESP-056	SPEAKER OHM 5W			
59	KEM-NF0553040Z	FLANGE NUT M3.0	ZINC-PLATED		
60	KEM-TS5010P3N	TAPPING SCREW P/H T5X10	NI-PLATED		
61	KEM-M8406	FRAME	SPCC/ZINC-PLATED		
62	KEM-MS3008P2PN	PLASTIC SCREW P/H 3X8MM (NYLON)	NYLON		
63	KEM-TS3006B5Z	TAPTITE SCREW B/H S M3X6	ZINC-PLATED		
64	KEPC-264-B	COMPANDER PCB 31X61X1.6MM 94HB	31X61X1.6mm PHENOLIC		
65	KEM-OT8601	INSULATION SHEET	PE SHEET		
66	KEM-NH0553022G	HEX NUT M3.0X0.5X2.2T (3504-1)	NI-PLATED		
67	KET-2SC1957Q	TRANSISTOR NPIV 2SC1957-Q			
68	KEOE-OT125-1	MICA SHEET FOR 2SC1957Q03.0MM			
69	KEIC-TA7222AP	IC TA7222AP POWER AMP			
70	KEOE-OT124	MICA SHEET FOR TA7222P			
71	KEJ-010	ANTENNA RECEPTACLE 89713-0013			
72	KEM-M0608-02	NAME PLATE	AL. SHEET		
73	KEM-OT9002	BLIND RIVET DIA 3.2X6	7.1. 0.1.2.		
74	KEOE-OT026	DC CORD			
75	KEM-MS3006B2N	M3X6 B/HD SCREW	NI-PLATED		
76	KEJ-060	JACK DC POWER 2S-I0813 #01	IN- BAILB		
77	KEOE-OT127	MICA SHEET FOR HEAT SINK INSULATION			
78	KET-2SC195Q	TRANSISTOR NPN 25C1957-Q			
79	KEM-M0708A	HEAT SINK	AL.		
80		M3.0 ANT TERMINAL (10014-6) NI BRASS	NI BRASS		
81	KEM-OT9002	BLIND RIVET DIA 3.2X6	NI BRASS		
82	KEOE-OT128	BUSHING FOR 2SC207S			
83	KET-C2078E	The same and the same of the same and the sa			
84	KEM-WI0643304N	TRANSISTOR NPN 2SC2078 (E)	AU DI ATED		
		INNER TOOTHED LOCK WASHER DIA.3	NI-PLATED		
85	KEM-MS3006B2N	M3X6 B/HD SCREW	NI-PLATED		
86	KEM-M0702	MOUNTING PLATE SCREW	COPPER/NI-PLATED		
87	KEM-OT0704	RUBBER RING 150DX7IDX2 THK	RUBBER		
88	KEM-M0601	MOUNTING PLATE	SPCC/ZINC-PLATED		
89	KEM-M8604A	TOP COVER	VINYL CLAD STEEL		
90	KEPC-262-B	PCB MAIN 187X150X1.6MM SS 94HB	187X150X1.6mm PHENOLI		



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MODEL: 25WX ST

REF. NO.	PART NO.	PART NAME	DESCRIPTION	
1	KEM-P7001A	FRONT CABINET	ABS 94HB/Cr-PLATED	
2	KEM-OT7001	FELT DIA. 2.8	FELT	
3	KEM-OT0702	SPONGY 38 ODX26IDX5 THK	SPONGY	
4	KESP-016	MIC. DYNAMIC		
5	KEM-P7003A	MIC. BRACKET	ABS 94HB	
6	KEM-TS2608BIN	TAPPING SCREW B/HD T2.6X8	NI-PLATED	
7	KESW-079	PUSH-BUTTON SWITCH 4P2T		
8	KEM-P7103D	PTT SWITCH KNOB	ABS 94HB	
9	KEM-TS2606BIN	TAPPING SCREW B/HD T2.6X6	NI-PLATED	
10	KEM-WP0952805N	M2.8 PLAIN WASHER 103J-1		
11	KEM-P7002A	REAR CABINET	ABS 94HB	
12	KEM-P7107B	HANGING KNOB	ABS 94HB	
13	KEM-TS3010PIB	TAPPING SCREW P/HD T3X10		
14	KEM-WI1003903X	SELF LOCKING WASHER DIA.4		
15	KEIC-036-1	CURL CORD 4 CORES		
16	KEM-OT9005	P.V.C. SLEEVE - CURL CORD	PVC	
17	KEJ-163	MIC PLUG 4 PIN FOR COBRA		
18	KEM-M8407	LOCK SPRING		
19	KEM-P8407	INNER KNOB	ABS 94HB/Cr-PLATED	
20	KEM-M8403	INSERT 1	STAINLESS STEEL	
21	KEM-P8406	OUTER KNOB	ABS 94HB/Cr-PLATED	
22	KEM-P8501C	WS. KNOB	ABS 94HB/Cr-PLATED	
23	KEM-P0708B	BAND SELECT KNOB	ABS 94HB/Cr-PLATED	
24	KEM-M8501	INSERT	STAINLESS STEEL	
25	KEM-M0610-01	INSERT KNOB	BRASS	
26	KEM-M8602A-02	TRIM PLATE	AL. SHEET	
27	KEJ-032-1	MIC SOCKET 4PIN PLT-164-R	4PIN	
28	KEM-P8601C	FRONT PANEL	ABS 94HB/Cr-PLATED	
29	KEM-MS3006C2N	SCREW MACHINE F/H M3X6MM	NI-PLATED	
30	KEM-P8405B	PUSH COVER	ABS 94HB/Cr-PLATED	
31	KESW-064	PUSH BUTTON SWITCH 2C2P W/LOCK	2P2T	
32	KED-L204R	DIODE LED EL204HD RED		
33	KED-L64GR	DIODE LED LT0362-25-D63 RED-GREEN		
34	KED-LC402NDGC-1			
	KEOE-OT295	A-402NDGC COVER		
35	KESW-047	CHANNEL SELECTOR GPS-0736 40CH		
36	KEPC-261-B	PCB LED 54X25X1.6MM S.S 94HB	54X25X1.6 mm PHENOLIC	
37	KEPC-260	PCB CHANNEL SW 46X55X1.6MM S.S	46X55X1.6 mm PHENOLIC	
38	KEM-WF0703308X	FIBRE WASHER 7.00DX3.3IDX0.8THK	400000011011111111111111111111111111111	
39	KEM-TS2306B2N	TAPPING SCREW B/HD T2.3X6	NI-PLATED	
-		TAPPING SCREW B/HD T2.3X5	NI-PLATED	
40	KEM-TS2605B2N			
41	KEM-M8601B-01	BRACKET	SPCC ZINC-PLATED	
42	KEM-P9003B	FILTER DISPLAY	PMMA	
43	KESW-063	CHAN SELECTOR SRB18-F002-11		
44	KER-DIO2B502A-C			
45	KER-DSO3B503A-7			
46	KESW-027-2	SLIDE SW 2P3T SS2324BAT11	2P3T	
47	KESW-028-2	SLIDE SW 2P2T SS2249BAT11	2P2T	
48	KEM-TS2605B2N	TAPPING SCREW B/HD T2.6X5	NI-PLATED	
49	KEM-M8603	METER CLAMP	SPCC/ZINC-PLATED	
50	KEM-OT0608	CLAMP CUSHION	PE FORM	
51	KEOE-OT123	METER ANALOG H-319-8828		
52	KEM-MS2005B2N	SCREW-MACHINE B/HD DIA M2.0X5MM	NI-PLATED	

REF. NO.	PART NO.	PART NAME	DESCRIPTION
53	KEM-MS2604P2N	M2.6X4 P/HD SCREW	NI-PLATED
54	KEM-MS3506P5N	TAPPING SCREW T3.5X6MM P/H	NI-PLATED
55	KEM-M9014	BRACKET-MIC BODY	SPCC/NI-PLATED
56	KEM-WE1005306N	OUTER TOOTHED LOCK WASHER DI.5	
57	KEM-MS3008B2N	M3X8 B/HD SCREW	NI-PLATED
58	KEM-OT0706	FELT STRIP 75X10MM	FELT PAPER
59	KEM-M8605A	BOTTOM COVER	VINYL CLAD STEEL
60	KEM-TS5010P3N	TAPPING SCREW P/H T5X10	NI-PLATED
61	KESP-056	SPEAKER OHM 5W	ZINC-PLATED
62	KEM-NF0553040Z	FLANGE NUT M3.0	
63	KEM-M8606	FRAME	SPCC/ZINC-PLATED
64	KEM-MS3008P2PN	PLASTIC SCREW P/H 3X8MM (NYLON)	NYLON
65		TAPTITE SCREW B/H S M3X6	ZINC-PLATED
66	KEPC-264-B	COMPANDER PCB 31X61X1.6MM 94HB	31X61X1.6mm PHENOL
67	KEM-OT8601	INSULATION SHEET	PE SHEET
68	KEM-NH0553022G	HEX NUT M3.0X0.5X2.2T (3504-1)	
69	KET-2SC1957Q	TRANSISTOR NPIV 2SC1957-Q	
70	KEOE-OT125-1	MICA SHEET FOR 2SC1957Q03.0MM	
71	KEIC-TA7222AP	IC TA7222AP POWER AMP	
72	KEOE-OT124	MICA SHEET FOR TA7222P	
73	KEJ-010	ANTENNA RECEPTACLE 89713-0013	
74	KEM-M0608-03	NAME PLATE	AL. SHEET
75	KEM-OT9002	BLIND RIVET DIA 3.2X6	
76	KEOE-OT026	DC CORD	
77	KEM-MS3006B2N	M3X6 B/HD SCREW	NI-PLATED
78	KEJ-060	JACK DC POWER 2S-I0813 #01	
79	KEOE-OT127	MICA SHEET FOR HEAT SINK INSULATION	
80	KET-2SC195Q	TRANSISTOR NPN 25C1957-Q	
81	KEM-M0708A	HEAT SINK	AL.
82	KEM-OT9002	BLIND RIVET DIA 3.2X6	
83		M3.0 ANT TERMINAL (10014-6) NI BRASS	NI BRASS
84	KEOE-OT128	BUSHING FOR 2SC207S	
85	KET-C2078E	TRANSISTOR NPN 2SC2078 (E)	
86	KEPC-145-D	PCB WX BOARD 74X50X1.6MM S.S	74X50X1.6mm PHENOL
87	KEM-OT8501	PC SUPPORT	PE
88	KEM-WI0643304N	INNER TOOTHED LOCK WASHER DIA.3	NI-PLATED
89	KEM-MS3006B2N	M3X6 B/HD SCREW	NI-PLATED 187X150X1.6mm PHEN
90	KEPC-262-B	PCB MAIN 187X150X1.6MM SS 94HB	VINYL CLAD STEEL
91	KEM-M8604A	TOP COVER MOUNTING PLATE	SPCC/ZINC-PLATED
92	KEM-M0601 KEM-OT0704	RUBBER RING 150DX7IDX2 THK	RUBBER
93	KEM-M0702	MOUNTING PLATE SCREW	COPPER/NI-PLATED
34	INCIN-INIO7 02	WOONTING I BYTE GONEY	

Voltages with alignment points

Part No. TX Voltages (V)				RX Voltages (V)			
c b			l e c				
TR1	0	0	0	8.8	1.9	e 1.2	
TR2	0	0	0	8.3	1.6	0.9	
TR3	0	0	0	1.7	0.7	0.5	
TR4	0	0	0	12	1.7	1.0	
TR5	0	0	0	0	0.7	0	
TR6	0	0	0	1.0(SQ off)	0(SQ off)	0	
1110	•		ľ	0(SQ on)	0.6(SQ on)	0	
TR7	13	0	0	0	0	0	
TR8	11	0	0	0	0	0	
TR9	12	1.2	1.4	0	0	0	
TR10	0	0	0	10.5	0(SQ on)	0(SQ on)	
				10.5	1.0(SQ off)	0.4(SQ off)	
TR11	6.6	3.6	3.0	6.6	3.6	3.4	
TR12	2.9	2.2	1.6	2.9	2.2	1.6	
TR13	3.0	1.3	0.7	0	0	1.7	
TR14	0	0	0	0	0	0	
TR15	7.9	6.7	6.0	7.9	6.7	0	
TR16	9.0	0	9.0	9.0	0	6.0	
TR17	12.4	9.6	9.0	12.4	9.6	9.0	
TR18	13	7.8	7.1	13.0	7.8	7.1	
TR19	1.7	0.7	0	0	0.7	0	
*TR20	0	0	0	12.3	3.0	2.4	
*TR21	0	0	0	6.4	0.6	0	
*TR22	0	0	0	0	12.3	12.3	
*TR23	0	0	0	0	0	0	
** FET1	0	0	0	7.8	0.7	0	
**FET2.	0	0	0	12.0	1.1	0	
Q801	5.3	3.1	2.4	5.3	3.1	2.4	
IC1-1	12.8		12.8				
IC2-8	4.7		0				
IC3-1	8.0		8.1				
IC801-13	8.3		8.3				
IC802-14	8.3		8.3				
TP2	3.5 <u>+</u> 0.2		3.5±0.2				
TP3(Vpp)					>0.35		
TP4(Vpp)		>1.2					

MARKER:

- 1. Marker "*" ----- the voltages of TR20,TR21,TR22,TR23 is measured in NB ON.
- 2. Marker "**"-----the "c" means "D",the "b"means "G", the "e" means "S".

ALIGNMENT PROCEDURE

MODLE: 25WX ST

Cobra Electronics

25WST ALIGMENT PROCEDURE

Alignment of P.L.L. Portion.

1: Test Equipment Required.

a: Oscilloscope (0 - 50MHz).

b: DC Volt Meter (10 Volts Max. 100k ohm/Volt).

2: Alignment Procedure.

Step	Preset to	Connections	Adjustment	Procedure
1	TX mode.	Connect the DC	L15	Adjust L15
	No modulation.	Volt meter to the R59's		to obtain
	Channel: 40	lead side of R60.(TP2)		approx.3.5V
				reading.
2	TX mode.	Connect the	L16	Adjust L16
	No modulation.	Oscillo-scope to R6's		for the Max.
	Channel: 1	lead side of JP14.(TP3)		indication on the
				Oscilloscope.

Alignment of Transmitter Portion

1: Equipment Required.

- a: VTVM (Full scale: 1V DC with RF Probe).
- b: RF Output Power Meter.
- c: Tuoable Field Intensity Meter (Wave Meter).
- d: Frequency Counter (0 30MHz).
- e: DC Power Supply (13.8V, 2Amp.).
- f: 50 ohm load and Attenuator.
- g: Oscilloscope (0 30MHz).
- h: AF Oscillator.

2: Alignment Procedure.

~		C 111 Demands				
Step		Conditions	Alignment			
1	TX Mode	RF Output Power	L17, L18	•		
	No Modulation	Meter to ANT. Jack		indication on VTVM		
	Channel 19	J401 VTVM to TP4				
2	same as step 1.	RF Output Power	L10,13,14	Adjust for a maximum		
		Meter to ANT JACK		indication on RF Output		
		J401		Power Meter		
3	same as step 1.	same as step 2.	L10	Adjust to obtain		
				Nominal 3.8W of RF		
				Output Power		
4	same as step 1.	2nd Harmonics Meter	L20	Adjust for a minimum 2nd		
		to Ant. Jack J401		Harmonics Output		
		through a suitable lond				
		and attenuator				
5	Repeat the abov	e adjustments,in order	to confirm i	f the adjustments		
	were made corre			,		
6	TX Mode	Audio Generator to	VR5	Adjust for 95% Modulation		
	Ch19	Microphone Jack				
	1KHz 100mV	J501. Oscilloscope to				
	Applied to Mic		1			
	1	through a suitable load				
	ST: OFF	and attenuator				
7	Same as step 1.	RF Output Power	VR3	Check that RF Output Power		
		Meter to Ant. Jack J401		Meter reads 3.8W then adjust		
				VR3 so that the Meter		
				pointer of the transceiver just		
				approaches 3 to 4 mark		
8	Same as step 1.	Frquency Counter to	VC1	Adjust VC1 to obtain		
		Ant. Jack J401 through		27.185MHz indication and		
		a suitable load and		check Frequency of all		
		attenuator		channels.		
	i	i		L		

Alignment of Receiver Portion.

1: Equipment Required.

- a: Signal Generator (27MHz Band, 1000Hz, 30% AM modulation & Output Impedance 50 ohm).
- b: Audio VTVM.
- c: Oscilloscope.
- d: Dummy Load (8 ohm, 5Watts, Resistive.).
- e: DC Power Supply (13.8V, 2Amp.).

2: Alignment Procedure.

Step	SG Connection	Preset to	Audio VTVM	Adjustments	Remarke
	Frequency				
1	To Ant.Connector	Vol:max	TO EXT. SPK	L1.2.3.4.5.6.	Adjust for a max. Audio
	for J401	SQL:Min	JACK403	7.	Output
	Channel:19	NB:OFF			
	Freq.27.185MHz	ST:OFF			
2	Same as step 1.	Same as	Same as step 1.	VR2	Adjust the VR2 to obtain
		step 1.			2V reading on AF VTVM
					with the SG output level of
					0.4uV
3	Same as step 1.	Vol:max	Same as step 1.	VR4	Set the level of SG to
		SQL:max		(Squelch)	1000uV
		NB:OFF			Then adjust VR4 to 2V
		ST:OFF			reading on AF VTVM.
4	Same as step 1.	Same as	Same as step 1.	VR1	Set the level of SG to
		step 1.			100uV. Adjust for a reading
					of S-9 on the S-meter of the
					Transceiver.
5	Same as step 1.	SQL:Min	Same as step 1.		Set the level of SG to
		NB:OFF			1000uV. Tun the AF Vol.
		ST:ON			to 2V Audio output.
					Then remove Mod. from SG.
					The lever of Audio must
					drop by 50dB or more