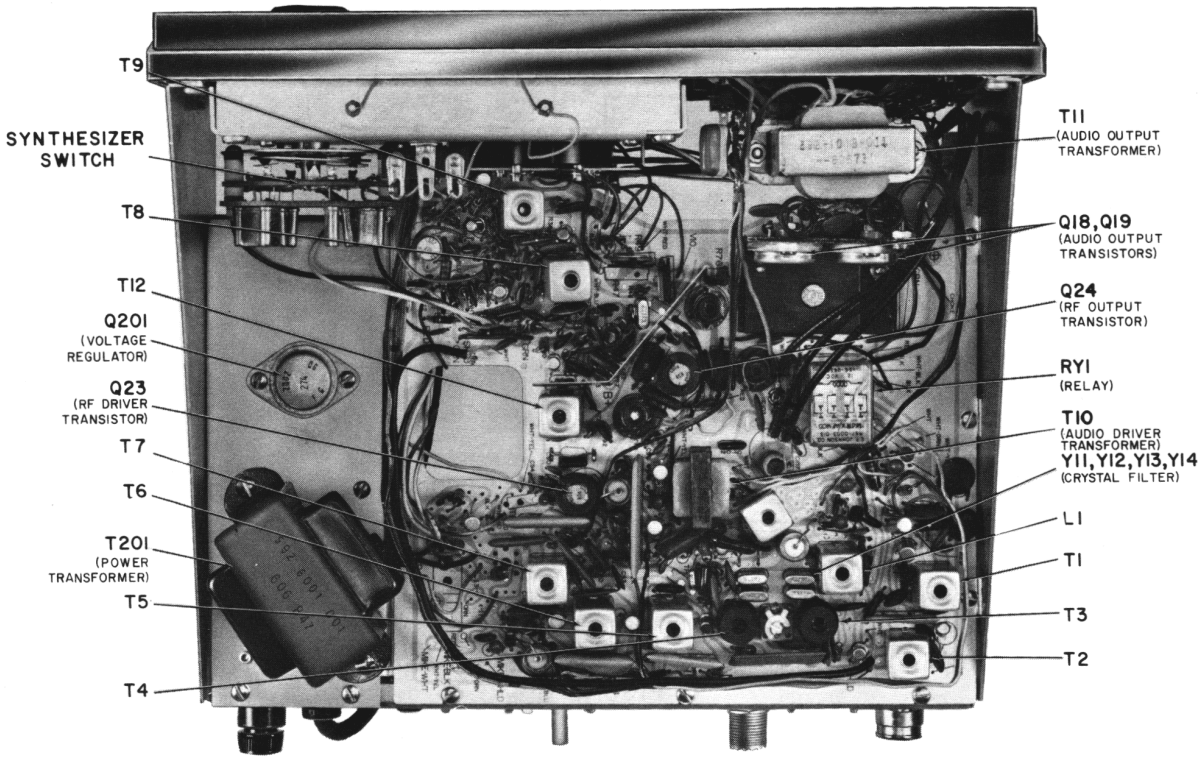
PARTS LIST (cont'd)

SYMBOL NO.	DESCRIPTION	PART NO.
	PLUG	
P1	Plug, microphone	250-0887-001
	TRANSISTORS	
Q1	3008	576-0003-008
Q2	Same as Q1	
Q3	Same as Q1	
Q4	3010	576-0003-010
Q5	Same as Q4	
Q6	Same as Q4	
Q7	Same as Q4	
Q8	3008	576-0003-008
Q9	1002	576-0001-002
Q10	1003	576-0001-003
Q11	6003	576-0006-003
Q12	3008	576-0003-008
Q13	Same as Q12	
Q15	Same as Q12	
Q16	1003	576-0001-003
Q17	1009	576-0001-009
Q18	40051	576-0040-051
Q19	Same as Q18	
Q20	3008	576-0003-008
Q21	Same as Q20	
Q22	4004	576-0004-004
Q23	Same as Q22	
Q24	4005	576-0004-005
Q201	2002	576-0002-002
Q202	2004	576-0002-004
Q203	Same as Q202	
	RESISTORS	
R1	33,000 ohms ±10%, 1/2 watt	569-1004-333
R2	3900 ohms ±10%, 1/4 watt	569-1002-392
R3	6800 ohms ±10%, 1/4 watt	569-1002-682
R4	5600 ohms ±10%, 1/2 watt	569-1004-562
R5	10,000 ohms ±10%, 1/2 watt	569-1004-103
R6	680 ohms ±10%, 1/2 watt	569-1004-681
R7	39,000 ohms ±10%, 1/2 watt	569-1004-393
R8	1,000 ohms ±10%, 1/2 watt	569-1004-102
R9	4,700 ohms ±10%, 1/4 watt	569-1002-472
R10	1,000 ohms ±10%, 1/2 watt	569-1004-102
R11	12,000 ohms ±10%, 1/2 watt	569-1004-123
R12	47 ohms ±10%, 1/2 watt	569-1004-470
R13	3,300 ohms ±10%, 1/2 watt	569-1004-332
R14	47 ohms ±10%, 1/4 watt	569-1002-470
R15	1,000 ohms ±10%, 1/2 watt	569-1004-102
R16	Potentiometer, 5000 ohms ±20%, 1/4 watt, semi-log taper (squelch)	562-0001-012
R17	1,000 ohms ±10%, 1/2 watt	569-1004-102
R18	100,000 ohms ±10%, 1/2 watt	569-1004-104
R19	120 ohms ±10%, 1/2 watt	569-1004-121
R20	47 ohms ±10%, 1/2 watt	569-1004-470
R21	3,300 ohms ±10%, 1/2 watt	569-1004-332
R22	10 ohms ±10%, 1/2 watt	569-1004-100
R23	Potentiometer, 10,000 ohms ±20%, linear (mod, pwr)	562-0007-022
R24	100 ohms ±10%, 1/4 watt	569-1002-101
R25	Potentiometer, 10,000 ohms ±20%, linear (mod, pwr)	562-0007-022
R26	Potentiometer, 100,000 ohms ±20%, 1/4 watt (tone)	562-0007-021
R27	3,300 ohms ±10%, 1/2 watt	569-1004-332
R28	6.8 k ohms ±10%, 1/2 watt	569-1004-682
R31	4,700 ohms ±10%, 1/2 watt	569-1004-472
R32	15,000 ohms ±10%, 1/2 watt	569-1004-153
R33	3,300 ohms ±10%, 1/2 watt	569-1004-332
R34	2,200 ohms ±10%, 1/2 watt	569-1004-222
R35	120 ohms ±10%, 1/2 watt	569-1004-121
R36	120 ohms ±10%, 1/4 watt	569-1002-121
R37	39,000 ohms ±10%, 1/4 watt	569-1002-393
R39	2,200 ohms ±10%, 1/2 watt	569-1004-222
R40	1,200 ohms ±10%, 1/4 watt	569-1002-122
R41	Potentiometer, 20,000 ohms ±20%, tapped 1/4 watt (volume)	562-0001-011
R42	120 ohms ±10%, 1/4 watt	569-1002-121
R43	150 ohms ±5%, 1/2 watt	569-1003-151
R44	Potentiometer, 10,000 ohms ±20%, 1/4 watt, log taper (mic gain)	562-0007-023
R46	220 ohms ±10%, 1/2 watt	569-1004-221
R48	Potentiometer, 100 ohms ±30%, 1/8 watt (S meter zero)	562-0004-101
R49	Potentiometer, 10,000 ohms ±30%, 1/8 watt (S meter sensitivity)	562-0004-103
R51	470 ohms ±10%, 1/2 watt	569-1004-471
R52	2,700 ohms ±10%, 1/4 watt	569-1002-272
R53	120 ohms ±10%, 1/4 watt	569-1002-121
R54	680 ohms ±10%, 1/4 watt	569-1002-681
R55	1,000 ohms ±10%, 1/2 watt	569-1004-102
R56	62 ohms ±5%, 1/2 watt	569-1003-620
R58	4,700 ohms ±10%, 1/4 watt	569-1002-472
R59	470 ohms ±10%, 1/4 watt	569-1002-471
R60	1500 ohms ±10%, 1/2 watt	569-1004-152
R61	1 ohm, ±10%, 1/2 watt	569-2003-109
R62	15,000 ohms ±10%, 1/2 watt	569-1004-153
R63	4,700 ohms ±10%, 1/4 watt	569-1002-472
R64	27 ohms ±5%, 1/2 watt	569-1003-270
R65	680 ohms ±10%, 1/2 watt	569-1004-681
R66	3,300 ohms ±10%, 1/2 watt	569-1004-332
R67	1,000 ohms ±10%, 1/2 watt	569-1004-102
R68	39,000 ohms ±10%, 1/4 watt	569-1002-393
R69	6800 ohms ±10%, 1/4 watt	569-1002-682
R70	2,200 ohms ±10%, 1/2 watt	569-1004-222
R71	470 ohms ±10%, 1/2 watt	569-1004-471
R72	3,300 ohms ±10%, 1/2 watt	569-1004-332
R73	47 ohms ±10%, 1/4 watt	569-1002-470
R74	120 ohms ±10%, 1/4 watt	569-1002-121
R75	2,200 ohms ±10%, 1/2 watt	569-1004-222
R76	68 ohms ±10%, 1/2 watt	569-1004-680
R77	1000 ohms ±10%, 1/4 watt	569-1002-102
R78	5,600 ohms ±10%, 1/4 watt	569-1002-562
R79	47000 ohms ±10%, 1/2 watt	569-1004-473
R120	680 ohms ±10%, 1/2 watt	569-1004-681
R121	470,000 ohms ±10%, 1/4 watt	569-1002-474
R122	4,700 ohms ±10%, 1/4 watt	569-1002-472
R123	8200 ohms ±10%, 1/4 watt	569-1002-822
R124	10,000 ohms ±10%, 1/4 watt	569-1002-103
R125	39,000 ohms ±10%, 1/4 watt	569-1002-393
R126	10,000 ohms ±10%, 1/2 watt	569-1004-103
R201	820,000 ohms ±10%, 1/2 watt	569-1004-824
R202	2,200 ohms ±10%, 1/2 watt	569-1004-222
R204	2,200 ohms ±10%, 1/2 watt	569-1004-222
R205	200 ohms ±5%, 1/2 watt	569-1003-201
R206	470 ohms ±10%, 1/2 watt	569-1004-471
R207	5.6 ohms ±5%, WW, 2 watt	569-2012-569

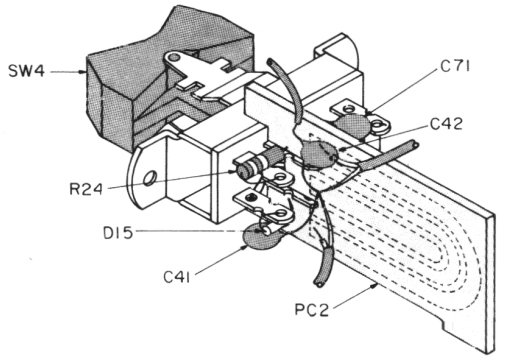
PARTS LIST (cont'd)

SYMBOL NO.	DESCRIPTION	PART NO.
	RELAY	
RY1	Relay	567-0003-013
	SHIELDS	
SH1	Shield, fuseholder	016-1821-001
SH2	Shield, top	017-0577-001
	SWITCHES	
SW2	Switch, SPST 3 amp at 125 V, power (on volume control)	
SW3	Switch, (2) SPST 3 amp at 125 V, PA (on squelch control)	
SW4	Switch, rocker, DPTT 3 amp at 125 V (MOD-SWR-PWR)	583-3004-104
SW5	Switch, rocker, SPDT 3 amp at 125 V (noise limiter)	583-3004-102
SW6	Switch SPDT (PTT on microphone)	
	TRANSFORMERS	
T1	Input	592-5016-001
T2	RF	592-5016-002
T3	Filter input	592-9002-010
T4	Filter output	592-9002-015
T5	Mixer	592-5016-005
T6	IF	592-5016-006
T7	IF	592-5016-007
T8	Mixer	592-5008-001
T9	Oscillator	592-5010-001
T10	Audio driver	592-1007-004
T11	Audio output	592-1013-004
T12	Mixer	592-5008-002
T13	RF amp	592-5021-001
T14	Driver	592-5014-002
T201	Power	592-3001-001
	TERMINAL STRIPS	
TS1	Terminal strip, 3	586-1001-020
TS2	Same as TS1	
TS3	Terminal strip, 7	586-1001-029
TS4	Terminal strip, 2	586-1001-019
TS5	Terminal strip, 2	586-1001-019
	WIRE	
	Line cord set, type SV, 117 VAC	597-1001-001
	CRYSTALS	
Y1	10.180	519-0006-014
Y2	10.170	519-0006-013
Y3	10.160	519-0006-012
Y4	10.140	519-0006-011
Y5	32.845	519-0005-011
Y6	32.895	519-0005-012
Y7	32.945	519-0005-013
Y8	32.995	519-0005-014
Y9	33.045	519-0005-015
Y10	33.095	519-0005-016
Y11, 12, 13, 14	Crystal filter set, 4.2947 and 4.3010 MHz	519-0007-001
Y16	4.300 MHz	519-0008-001
	PEC	
Z1	Network, PEC, first mixer	544-0002-001
Z2	Network, PEC, second mixer	544-0002-002
Z3	Network, PEC, first IF	544-0002-003
Z4	Network, 2,700 ohm resistor-thermistor assembly	023-2042-003
Z5	Network, PEC, second IF	544-0002-004
Z6	Network, PEC, noise limiter	544-0002-015
Z7	Network, 10,000 ohm resistor-thermistor assembly	023-2042-001
Z8	Network, PEC, audio amplifier	544-0002-006
Z9	Network, 560 Ω resistor-thermistor assembly	023-2042-006
	MOBILE MOUNTING KIT	
	Mobile mounting and cable kit includes:	251-0403-001
BKT1	Bracket, dash mounting	017-1331-001
BKT2	Bracket, firewall mounting	017-1113-001
CH1	Backing plate	016-0101-004
HW	Tie bolt, 10-32 x 11 3/4 truss head CPS	575-9710-376
HW	Wing nut, 10-32 NPS	012-0172-003
HW	Flatwasher, 17/64 ID x 5/8 O.D. x 1/16 thick CPS	029-0054-001
MP	Holder, microphone	537-9004-002
MP	Connector, tap assembly	023-2209-001
MP	Tab, receptacle	586-3003-002
W	Cable, 13.8 VDC battery Includes:	023-1652-001
	Fuse holder, 1/4"dia.. 1 1/4"	534-1004-005
	Fuse, 2 amp	534-0003-024
	Quick-disconnect lead assembly	023-2558-001
	Wire, #18, stranded, red	071-0912-042
	Instructions, installation	004-0084-001
	ACCESSORY PACKAGE ITEMS	
	Accessory package includes:	023-2790-001
	Operating manual	002-0103-001
	Reduced schematic diagram, Messenger 124	564-3001-124
	Identification card, FCC form 452-C	564-1001-001
	Copy, Part 95, FCC rules	022-1635-001
	Set, FCC form 505, application for license	022-1636-001
	Warranty Card (attached to outside)	041-0419-017

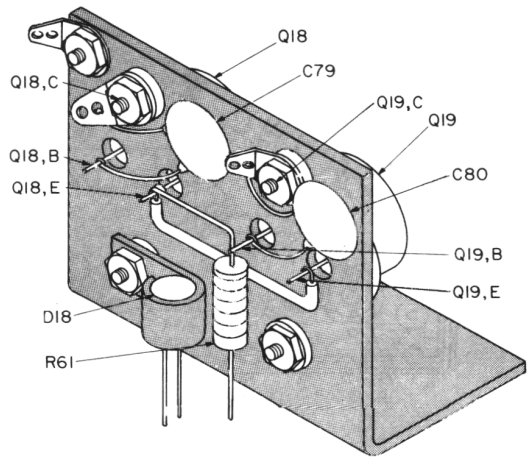
SECTION 8
PARTS LOCATIONS ILLUSTRATIONS



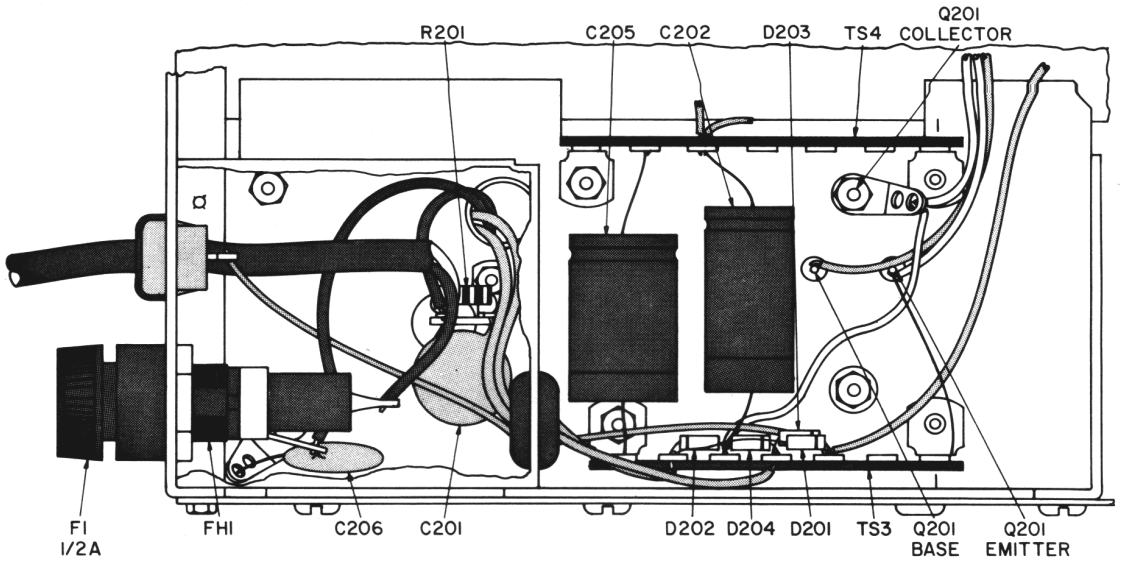
TOP VIEW
PARTS NOT ON TRANSPARENCY
FIGURE 8-1



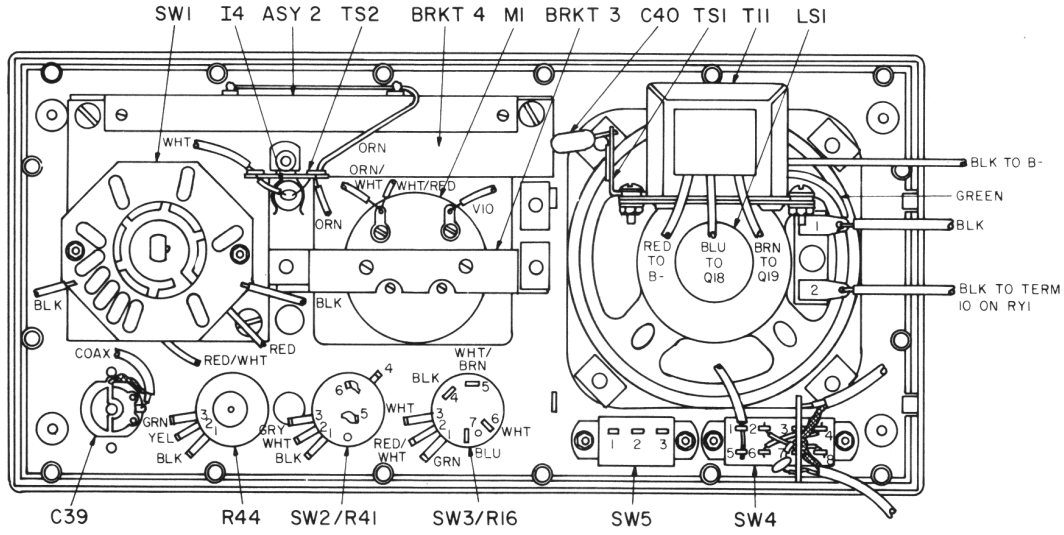
DIRECTIONAL COUPLER
FIGURE 8-2



AUDIO OUTPUT MODULE
FIGURE 8-3



117 VAC POWER SUPPLY CIRCUITRY
FIGURE 8-4



FRONT PANEL COMPONENTS
FIGURE 8-5

MESSENGER 124
ENGINEERING CHANGES

REVISION A

The first production run Messenger 124's were labeled "A" models. The following running changes were made to "A" models:

Components Changed, Added	From	To	New Part No.	Reason for Change
J2		Added	515-4101-001	Terminal tab
R124	1/2 W	1/4 W	569-1002-103	Improve component spacing
C128	Deleted			1st unit
DZ201	20% regulation	5% regulation	523-2003-100	Better regulation

REVISION B

Components Changed, Added	From	To	New Part No.	Reason for Change
Z9		Added	023-2042-006	Reduce S meter zero drift with
R46		Deleted		temperature changes
L5	1.5 μH	1.8 μH	542-1014-002	Improve tuning range
D201, 202, 203, 204	1 Amp	1.5 Amp	523-0013-201	Improve reliability
J6	Gold anodized	Nickle plated	515-1003-001	Cost reduction
Q10	1003	3017	576-0003-017	Cost reduction

REVISION C

Components Changed	From	To	New Part No.	Reason for Change
Q10	3017	1003	576-0001-003	Improved temperature stability

REVISION D

Components Changed	From	To	New Part No.	Reason for Change
C10	Variable, 1.4-7.3 pF	5.1 pF	510-0004-519	Adjustment is no longer necessary

MESSENGER 124-M CITIZENS RADIO
SERVICE MANUAL ADDITION

GENERAL

This service manual addition is intended to serve as a guide to alignment and service of the Johnson Messenger 124-M, when used with the Johnson Messenger 124 Service Manual, part no. 001-0103-001. This addition outlines differences between the 124 and 124-M circuitry and includes alignment and servicing sections. Also included is a complete Messenger 124-M parts list and schematic diagram.

The Description section is more complete than you ordinarily find in Johnson service manuals because the Messenger 124-M is a departure in some respects from what the technician might expect.

DESCRIPTION

The Messenger 124-M, part no. 242-0134-001, is essentially a Messenger 124, modified to permit monitoring the operator's choice of any two CB channels (one at a time) while operating on another channel. For example, he can be operating on his system channel and monitor for emergency traffic on channel 9, or monitor his club calling channel.

The monitor function is provided by the addition of a separate two channel monitor receiver, mounted behind the front panel lamp bracket assembly. The monitor and primary receivers are connected in parallel to the transceiver antenna jack. With the monitor switch in the A or B position and the mode switch to auto, relay K301, mounted on the monitor board, selects the detected audio from one of the two receivers to be applied to the transceiver audio amplifier. When the signal level to the monitor receiver is less than the threshold level established by the setting of the M-squelch control, the primary receiver is selected by K301 and is heard in the speaker. When the M-squelch threshold is less than the monitor receiver level, K301 selects the monitor receiver to be heard in the speaker.

The rear panel mode switch permits the operator to select automatic switching to the monitor receiver, as outlined above, or a light alert mode, which turns on the channel monitor light only, without changeover to the monitor receiver, when the received signal is higher than the M-squelch threshold. The operator can use the light alert mode when he wants to be alerted to activity on the monitored channel but does not want his unit to switch to the monitor receiver. This can happen when he is actually communicating on the primary channel, when skip interference on the monitored channel is severe, etc.

The Messenger 124-M has two separate receiver sections. The receivers have, by design, different AGC systems and different sensitivity ratings, causing somewhat different audio output levels at equal input voltage levels. This condition is sometimes noticeable if the operator switches the primary receiver to the same channel as the monitor receiver and makes "A-B" comparisons.

The monitor sensitivity is factory set at 3 μV to the antenna. This relatively low sensitivity helps prevent the reception of weak monitored signals which ordinarily would not be of interest to the operator. The monitor receiver cannot be made significantly more sensitive without reducing the sensitivity of the primary receiver. The M-squelch threshold at tight squelch is about 180 μV at the antenna to help ensure that the operator can squelch off undesired signals.

The monitor receiver AGC response is designed to be less flat than that of primary receiver (±6 dB for 50-250,000 μV versus ±4 dB for 5-500,000 μV). The resultant change in audio output helps the operator tell at once if the monitored signal is local or distant. This instant identification of local signals is particularly important when monitoring for emergency traffic.

SPECIFICATIONS

Electrical specifications are nominal unless otherwise stated.

GENERAL

Frequency Range	26.965-27.255 MHz
Channels	23 (primary transceiver, 2 (monitor receiver)
Overall Dimensions	5.5" h, 11" w, 10" d (14 cm h, 28 cm w, 25.4 cm d)
Unit Weight	Approximately 10 lb. (4.5 kg)
Shipping Weight	Approximately 14 lb. (6.4 kg)
Microphone	High impedance ceramic element, push-to-talk switch.
Power Requirements	13.8 VDC negative ground input Receive: Squelched, 0.53 amp Monitor on, no signal, 0.7 amp Transmit: 1.3 amp 117 VAC, 60 Hz input Receive: Squelched, 23 watts Monitor on, no signal, 31 watts Transmit: 53 watts
Circuit Protection	13.8 VDC, 2 amp AGC fuse 117 VAC, 0.5 amp MDL fuse
Circuitry	31 transistors, 21 diodes and 5 thermistors
Antenna Impedance	50 ohm
Compliance	FCC type accepted, Part 95
Frequency Control	±0.005% crystal from -22°F to +140°F (-30° to +60°C), transmit and receive

RECEIVER

All microvolts are at the antenna terminal and numbers are 1/2 the values into a 50 ohm 6 dB pad.

Primary Receiver

Sensitivity	8 dB (S+N)/N ratio with 0.5 μV (30% modulated, 1000 Hz)
Selectivity	7 kHz bandwidth at -6 dB 18 kHz bandwidth at -60 dB (EIA two signal generator method)
Spurious Rejection	50 dB
Audio Output Power	3 watts at 10% distortion
Speaker Impedance	3.2 ohm
Squelch Range	0.3 to 20 μV
Squelch Sensitivity	1 dB or less signal change for 40 dB of quieting at 1 μV
Intermediate Frequencies	4.3 MHz (crystal filter), 455 kHz
AGC Characteristics	Flat within ±4 dB from 5 to 500,000 μV with 14 dB rolloff from 5 to 0.5 μV
Noise Limiting	Series-type, automatic threshold adjustment and IF clipping

MONITOR RECEIVER

Sensitivity	3 μV to actuate monitor, 8 dB (S+N)/N ratio, adjustable from 3 to 180 μV
Selectivity	6 kHz bandwidth at -6 dB 30 kHz bandwidth at -60 dB (EIA two signal general method)
Spurious Rejection	50 dB (except image of 10 dB)
Noise Limiting	Series-type, automatic threshold adjustment and IF clipping
Intermediate Frequency	455 kHz
AGC Characteristics	Flat within ±6 dB from 50 to 250,000 microvolts with 20 dB rolloff from 50 to 3 microvolts
Desensitization (Similar Systems)	A signal at ±20 kHz from the desired signal must be 70 dB stronger than the desired signal to deactivate the monitor.

TRANSMITTER

Emission	6A3
RF Power Output	4 watts maximum
RF Spurious and Harmonic Attenuation	Better than FCC and DOC requirements
Audio Input Impedance	200,000 ohms
Audio Frequency Response	±4 dB, 400 - 3000 Hz
Modulation	High level AM, class B modulator, speech compression, clipping and audio filtering

The E. F. Johnson Company reserves the right to change specifications without notice and without incurring obligation.

ALIGNMENT

Refer to the Messenger 124 Service Manual, Part No. 001-0103-001 for transceiver alignment procedure. (Minimum 124-M primary receiver (S+N)/N ratio is 7 dB at 0.5 μV.) After aligning the basic transceiver (with monitor switch in the off position), proceed as follows for monitor receiver section alignment and performance testing.

Monitor Receiver Alignment

a. Set monitor switch SW301 to A position, M-squelch fully counter-clockwise and mode switch SW302 to auto position.

b. Adjust oscillator transformer T303 for proper crystal starting operation.

1. Connect an RF voltmeter to the emitter of Q302 and adjust T303 for a peak meter reading.

2. Adjust the transformer core 1/4 turn beyond the peak meter reading (for stability) and check for proper crystal starting. Readjust T303 as required for proper crystal starting.

c. Adjust RF and IF transformers T301, T302, T304 and T305 for maximum audio output with minimum RF signal generator input.

1. Connect RF signal generator to antenna connector and audio meter across speaker.

2. For optimum performance on CB channels 1 through 23, the monitor receiver is normally aligned on channel 11. If a CAP frequency or other special frequency is to be monitored, a modified alignment procedure will be necessary.

NOTE

Ceramic filter Z301 does not normally require realignment. However, if the receiver response curve indicates that ceramic filter alignment is necessary, do so with a sweep generator while monitoring the receiver response curve.

Monitor Receiver Performance Test

a. S+N/N Test

1. Set the RF signal generator to the channel frequency and the output level to 0.5 μV at the antenna connector, modulated 30% at 1 kHz.

2. Adjust the receiver volume control for a 0 dB audio voltmeter indication, then turn the RF signal generator off. The meter indication should drop 8 dB or more.

b. Tight M-squelch Test

1. Adjust the M-squelch control to maximum squelch setting.

2. Set RF signal generator to the channel frequency, modulated 30% at 1 kHz. The M-squelch should open with a signal level of between 180 μV and 500 μV.

c. Threshold M-squelch Test

1. Adjust the M-squelch control to threshold (turn control CW just until monitor light goes out) with no signal input.

2. Set RF signal generator to the channel frequency, modulated 30% at 1 kHz. With a 3 μV input signal level, the relay should switch in the monitor channel.

3. Set the mode switch SW302 to the alert position, and adjust the M-squelch control to threshold with no signal input.

4. With a 3 μV input signal level, the monitor light should turn on with the relay remaining de-energized.

SERVICING

Operational Status

The relative operating condition of the transceiver, monitor receiver and switching circuits can be quickly checked by measuring current drain.

Connect a current meter to read total current drain, connect the transceiver to a 13.8 VDC power source and proceed as follows:

a. Turn the transceiver to the on position and set the volume and squelch control for minimum.
A typical current drain of 600 mA should be indicated.

b. Turn the monitor switch to A or B position.
A typical current drain of 665 mA should be indicated.

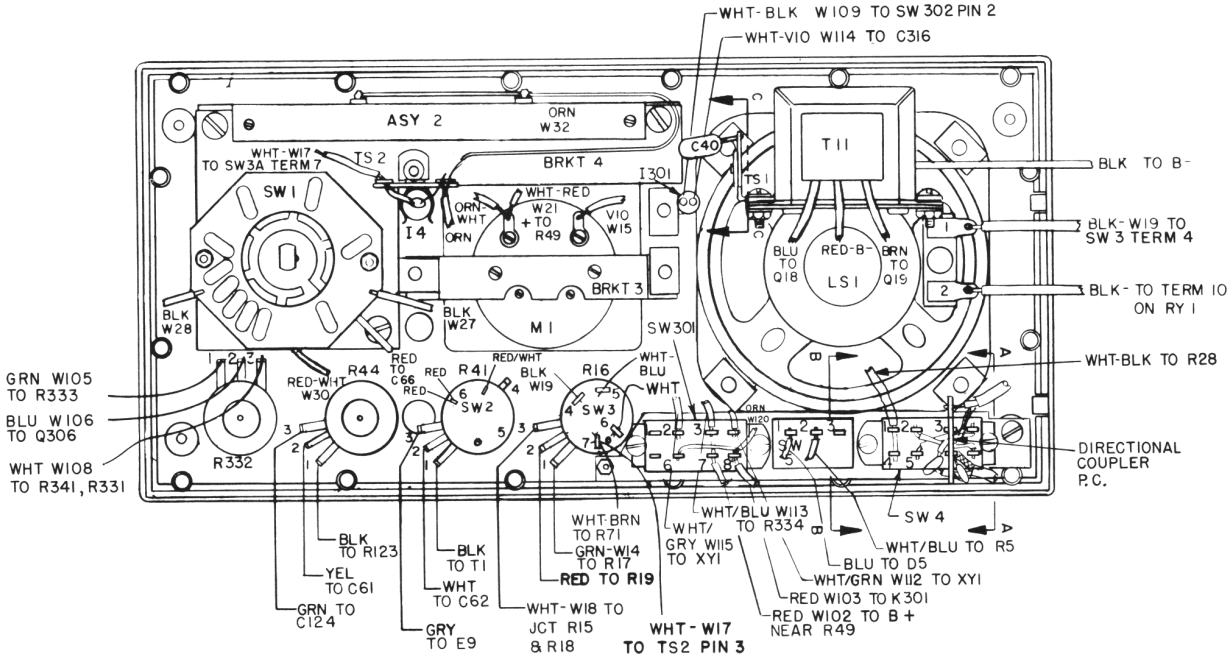
c. Turn the mode switch to Alert position and set the M-squelch control maximum CCW (monitor light turns on).
A typical current drain of 700 mA should be indicated.

d. Turn the mode switch to Auto position (monitor light turns on and relay energizes).
A typical current drain of 800 mA should be indicated.

e. Key the transmitter into a dummy load with no modulation.
A typical current drain of 1.3 amperes should be indicated.

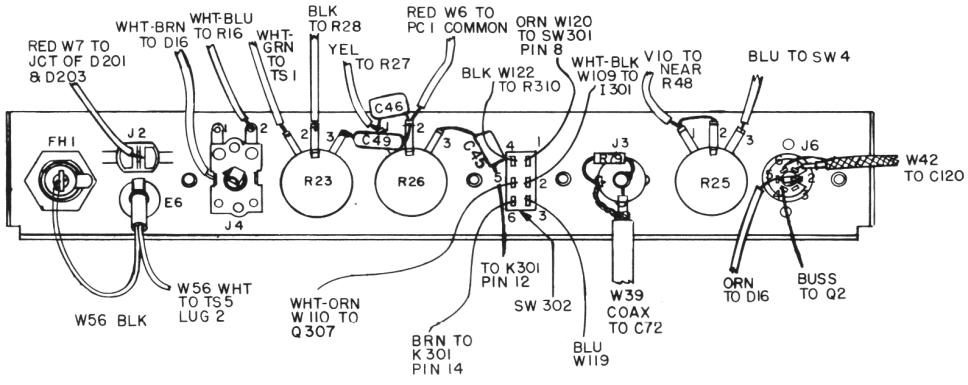
Transceiver

Refer to the service manual and the component layout diagrams included in this addition for transceiver service information.



FRONT PANEL DETAILS

(INSIDE VIEW)



REAR PANEL DETAILS

(INSIDE VIEW)

MESSENGER 124M

PARTS LIST

SYMBOL NO.	DESCRIPTION	PART NO.
	PRIMARY TRANSCEIVER	
	ASSEMBLIES	
ASY1	Crystal switch assembly	583-2009-103
ASY2	Lamp bracket assembly	013-2571-001
ASY3	Cabinet assembly	023-2568-007
	Includes:	
	Cabinet foot	574-1004-001
ASY4	Clip and bracket assembly	023-2764-001
ASY5	Heat sink assembly, audio	023-2213-001
	Includes:	
	Heat sink, audio	017-1463-001
	Diode clamp, for 018	017-1288-001
D18	Diode, 1N2326	523-1002-326
R61	Resistor, 2.2Ω, ±10%, 1/2 W	569-2003-229
C79	Capacitor, 0.022μF	510-3002-223
C80	Same as C79	
Q18	Transistor, 2002	576-0002-002
Q19	Same as Q18	
ASY12	Chassis assembly	023-2798-002
ASY13	CB channel monitor assembly	023-2967-001
	Includes:	
	(Refer to listing at end of parts list)	
	BRACKETS	
BKT3	Meter mounting	017-0669-001
BKT4	Switch mounting	017-0670-001
BKT5	Monitor board front	017-1661-001
BKT6	Monitor board side	017-1662-001
BKT7	Rocker switch mounting	017-1663-001
	CAPACITORS	
C1	100 pF ±5%, N150, 200V, ceramic disc	510-3016-101
C2	0.01μF +80/-20%, Y5U, 50 VDC, ceramic disc	510-3002-103
C3	Same as C2	
C4	Same as C2	
C5	100 pF ±5%, N150, 200V	510-3016-101
C6	100 pF ±5%, NPO, 200V	510-3013-101
C7	0.01μF +80/-20%, Y5U, 50 VDC	510-3002-103
C8	10 pF ±5%, NPO, 200V	510-3013-100
C9	68 pF ±5%, N150, 200V	510-3016-680
C10	5.1 pF ±5%, 500V, dipped mica	510-0004-519
C11	68 pF ±5%, 200V, N150	510-3016-680
C12	270 pF ±5%, 100V, dipped mica	510-0001-271
C13	Same as C12	
C14	210 pF ±5%, N080, 200V	510-3015-211
C15	Same as C14	
C16	0.01 μF +80/-20%, Y5S, 16 VDC	510-3010-103
C17	6.8μF ±20%, 35 VDC, tantalum	510-2045-689
C18	150 pF ±5%, NPO, 200V	510-3013-151
C19	190 pF ±5%, N080, 200V	510-3015-191
C20	0.1μF +80/-20%, Y5S, 16 VDC	510-3010-104
C21	190 pF ±5%, N080, 200V	510-3015-191
C22	0.022μF ±10%, 250V, flat foil	510-1003-223
C23	1μF ±20%, 35 VDC, tantalum	510-2045-109
C24	0.047μF +80/-20%, Y5S, 16 VDC	510-3010-473
C25	0.01μF +80/-20%, Y5U, 50 VDC	510-3002-103
C26	0.01μF +80/-20%, Y5S, 16 VDC	510-3010-103
C27	Same as C26	
C28	22 pF ±5%, 200V	510-3013-220
C29	0.01μF +80/-20%, Y5U, 50 VDC	510-3002-103
C30	330 pF ±5%, 100V, dipped mica	510-0001-331
C31	150 pF ±5%, 100V, dipped mica	510-0001-151
C32	0.01μF +80/-20%, Y5U, 50 VDC	510-3002-103
C33	0.01μF +80/-20%, Y5S, 16 VDC	510-3010-103
C34	0.01μF +80/-20%, Y5U, 50 VDC	510-3002-103
C35	150μF +100/-10%, 25 VDC, electrolytic	510-3002-103
C36	0.01μF +80/-20%, Y5S, 16 VDC	510-3010-103
C37	470μF +100/-10%, 4 VDC, electrolytic	510-4001-006
C38	1200 pF ±5%, 500V, dipped mica	510-0012-122
C40	0.22μF ±20%, 250V, flat foil	510-1004-224
C41	0.0022μF ±20%, Y5S, 1000V	510-3061-222
C42	Same as C41	
C43	0.01μF +80/-20%, Y5U, 50 VDC	510-3002-103
C44	0.001μF +80/-20%, 500V, ceramic feedthru	510-3151-102
C45	0.1μF ±10%, 250V, flat foil	510-1003-104
C46	0.022μF ±10%, 250V, flat foil	510-1003-223
C47	0.0047μF ±20%, Y5U, 50V	510-3002-472
C49	0.22μF ±20%, 250V, flat foil	510-1004-224
C50	220 pF ±5%, 100 VDC, dipped mica	510-0001-221
C51	5 pF ±5%, NPO 200V	510-3013-519
C52	0.01μF +80/-20%, Y5S, 16 VDC	510-3010-103
C53	15 pF ±5%, NPO, 200V	510-3013-150
C54	120 pF ±5%, N750, 200V	510-3020-121
C55	0.01μF +80/-20%, Y5U, 50 VDC	510-3002-103
C56	82 pF ±5%, 200V, N150	510-3016-820
C57	100 pF ±5%, N150, 200V	510-3016-101
C59	0.01μF +80/-20%, Y5S, 16 VDC	510-3010-103
C60	Same as C59	
C61	6.8μF ±20%, 35 VDC, tantalum	510-2045-689
C62	Same as C61	
C64	6.8 pF ±5%, N750, 200V	510-3020-689
C65	18 pF ±5%, N750, 200V	510-3020-180
C66	22 pF ±5%, N750, 200V	510-3020-220
C67	0.01μF +80/-20%, Y5S, 16 VDC	510-3010-103
C68	0.01μF +80/-20%, Y5U, 50 VDC	510-3002-103
C69	Same as C68	
C70	1000μF +100/-10%, 16 VDC, electrolytic	510-4006-005
C71	0.0022μF ±20%, Y5S, 1000V	510-3061-222
C72	0.0047μF ±20%, 125 VAC or 1.4k VDC	510-3001-472
C73	22μF ±20%, 15 VDC, tantalum	510-2003-220
C74	150μF +100/-10%, 25 VDC, electrolytic	510-4006-006
C75	6.8μF ±20%, 35 VDC, tantalum	510-2045-689
C76	1μF ±20%, 35 VDC, tantalum	510-2045-109
C77	56μF ±20%, 6 VDC, tantalum	510-2001-560
C78	0.22μF ±20%, 250V, flat foil	510-1004-224
C79	0.022μF ±20%, Y5U, 50V	510-3002-223
C80	Same as C79	
C81	330 pF ±5%, 100 VDC, dipped mica	510-0001-331
C82	82 pF ±5%, N150, 200V	510-3016-820
C83	10 pF ±5%, NPO, 200V	510-3013-100
C84	0.01μF +80/-20%, Y5S, 16 VDC	510-3010-103
C85	0.01μF +80/-20%, Y5U, 50 VDC	510-3002-103
C86	Same as C85	