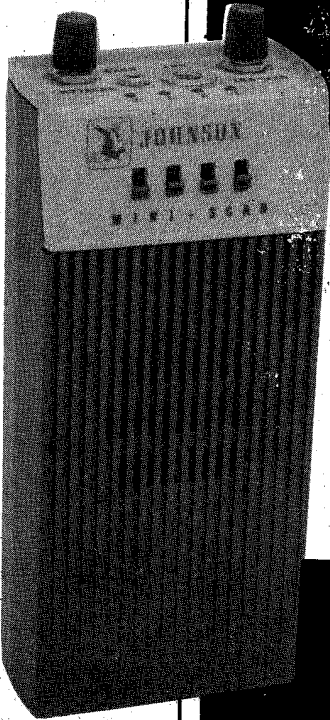




JOHNSON
MINI-SCAN™
MONITOR RECEIVER

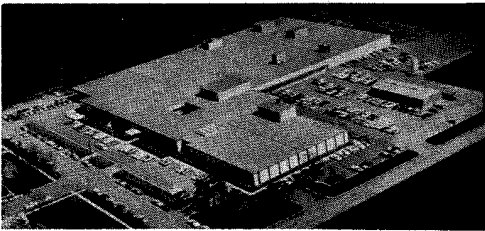
PART NO.
241-035 X



**OPERATING
MANUAL**

**THE JOHNSON
ONE YEAR
GUARANTEE**

WITHIN ONE YEAR OF PURCHASE THE
E. F. JOHNSON COMPANY WILL PRO-
VIDE THE PARTS AND LABOR TO REPAIR YOUR JOHNSON EQUIPMENT
IF IT IS DEFECTIVE IN MATERIAL OR
WORKMANSHIP. JUST RETURN THE
UNIT TO ANY AUTHORIZED JOHNSON
SERVICE CENTER IN THE UNITED
STATES.



E. F. JOHNSON COMPANY
299 10th Avenue S. W.
Waseca, Minnesota 56093

507-835-6222

The E. F. Johnson Company and its subsidiary, Comco, manufacture communications equipment to serve more markets than any other firm in America. In addition to two-way radio equipment for business and industrial users and for government, aeronautical, marine, public safety and personal communications, Johnson produces FM radio paging systems and electronic components.

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GENERAL INFORMATION

Description

The Johnson Mini-Scan™ Monitor Receiver is a compact, self-contained very high frequency (VHF) FM Monitor Receiver. A unique channel scanning circuit allows simultaneous monitoring of up to four desired channels in the frequency range of 150 to 170 MHz.

Features

- Designed for reliable and quality performance
- A compact and lightweight receiver assembly
- Four channels, crystal controlled
- Built-in antenna and speaker
- External speaker jack for remote monitoring
- Full audio output with less than 10% distortion
- External battery recharge jack
- Two ceramic filters for outstanding selectivity and adjacent channel rejection
- Double conversion receiver for excellent spurious signal rejection

Inspection

Carefully inspect your receiver for possible shipping damage. Report any damage immediately to the distributor or transportation service--not the E. F. Johnson Company.

Save the carton and packaging for future use, such as receiver storage or service return.

Warranty Registration

Fill the warranty registration card out completely on both sides and return it to the E. F. Johnson Company as soon as possible.

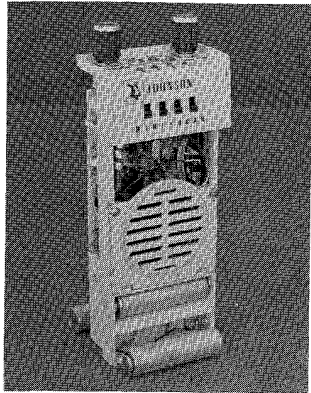
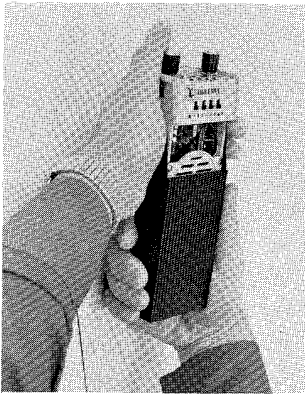
Refer to the inside front cover for information concerning the famous Johnson one year guarantee program.

Battery Removal and Replacement

1. Loosen the two captive screws located on the bottom side of receiver case and slide the assembly out of the case top.
2. Remove the four batteries as shown and replace defective batteries as necessary.

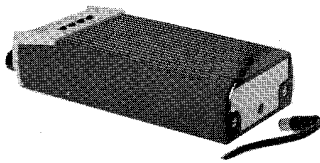
NOTE

Be sure to observe proper battery polarity.



Battery Recharge

If Nicad batteries, Part No. 503-0002-002 are used, the batteries can be recharged using the Inline Battery Charger, Part No. 239-0206-001.



To recharge Nicad batteries, simply connect the battery charger plug to the battery charger jack, located on the receiver bottom side, and connect the battery charger plug into an AC outlet. Then turn the radio off and recharge the batteries 1 1/2 times length of time the radio was in operation.

NOTE

The radio can be used for transmission monitoring while charging the batteries if so desired. (However, battery recharge will take longer.)

SUMMARY OF OPERATION

When New

- Install four fully charged batteries.
- Insert the desired crystals.

To Automatically Scan Channels:

- Rotate the OFF-VOL control clockwise past the click position, and set for a comfortable message volume level.
- Rotate the SQUELCH control to the point just where background noise is silenced with no signal present.
- Set the appropriate channel lockout switches to the "down" position. The receiver will then scan until a signal is received on one of the channels. It remains on this channel until the end of transmission and then resumes scanning channels.
- To lock out a channel when scanning, set the appropriate channel lockout switch to the "up" position. To resume monitoring this channel, set the channel lockout switch to the "down" position.

To Manually Select Channels:

- Set the corresponding channel lockout switch for the desired channel to the "down" position.
- Set the remaining channel lockout switches to the "up" position. (Only one desired channel is then scanned for transmissions.)

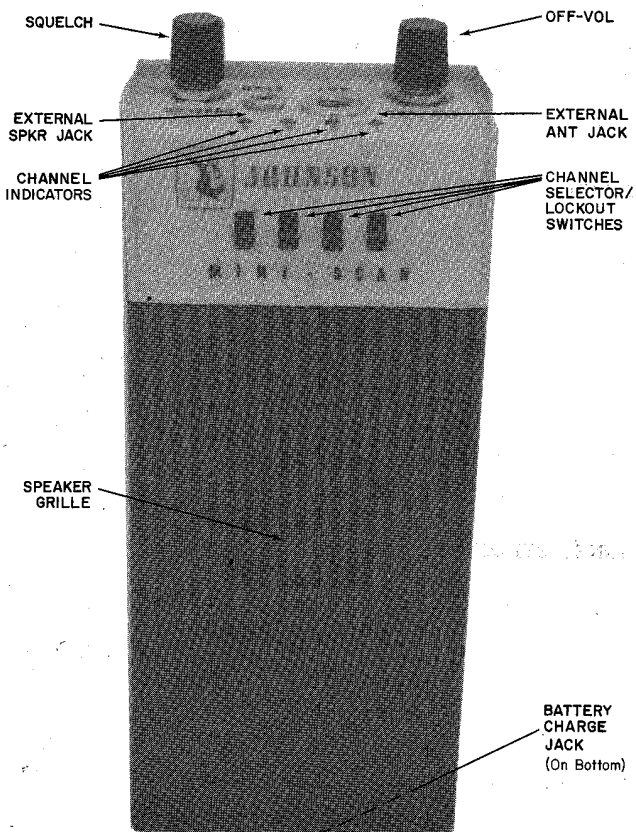
Extended Range Operation:

- Connect a whip antenna, outside base station antenna, or mobile antenna. (See your radio dealer for antenna requirement details.)
- Rotate the SQUELCH control counterclockwise from the normal setting, allowing reception of some background noise, to hear extremely weak signals.

NOTE

Using an external antenna, allowing some background noise to be heard or both procedures will increase your listening range as required.

The receiver will not automatically scan channels with the squelch control set to permit reception of background noise.



OPERATING CONTROLS
AND FEATURES

CONTROLS AND FEATURES

CONTROLS AND FEATURES

OFF-VOL - This control turns the receiver on when rotated clockwise past the click and adjusts the volume of the received signal.

The OFF-VOL control setting does not affect the battery current drain during squelched receive conditions. However, if the unit is operated unsquelched to receive weak signals, the control should be rotated counterclockwise to reduce battery current drain.

SQUELCH - Proper use of the SQUELCH control prevents reception of distracting noise and prolongs battery life between charges. The SQUELCH control is normally set to the position which just eliminates background noise in the absence of a signal. The receiver must be "squelched" in the absence of a signal to permit automatic channel scanning.

You may occasionally find it advantageous to rotate the SQUELCH control counterclockwise from the normal setting, allowing reception of some background noise to hear extremely weak signals. However, battery life is directly proportional to the amount of sound coming from the speaker.

CHANNEL SELECTOR/LOCKOUT SWITCHES - These four switches, located on the top front, permit selection of the desired channel during manual monitor operation and lockout of channels not desired during channel scan.

For channel scan operation, slide all the CHANNEL SELECTOR/LOCKOUT SWITCHES to the "down" position. The channel indicator will flash just as the channel is monitored. The SQUELCH control must be rotated clockwise, quieting background noise to permit automatic channel scan operation.

For manual monitor operation, slide the CHANNEL SELECTOR/LOCKOUT SWITCH for the channel you want to monitor continuously to the "down" position and the remaining switches to the "up" position. The channel indicator above the switch will flash, indicating channel monitoring.

Your Johnson scanning receiver permits you to monitor both sides of two-way communications conducted on separate receiver and transmit frequencies. Previous non-scanning receivers would permit you to hear only one side of these communications. Now, you can simply install a crystal for each frequency and scan the two frequencies. You can lock out all other channels to ensure that you hear both sides of the communications without having the receiver switch to some other strong signal channel when that becomes active.

Note that the receiver scanning logic will switch to another channel only at the end of the transmission previously monitored. This can prevent you from hearing a transmission you might want to monitor. If you find that you are missing transmissions you really want to hear because less desired transmissions stop the scanning process, lock the less desired channels out until you are finished monitoring the important channel.

NOTE

A scan-delay period at the end of each transmission has been incorporated to minimize rapid channel switching.

SPKR JACK - This jack permits the use of an external speaker for remote monitoring capabilities.

ANT JACK - Either the whip antenna or other external antenna can be connected to this jack. Your radio dealer will supply antenna requirement details upon request.

NOTE

Your built-in antenna is sufficient for most monitoring requirements.

BATTERY CHARGE JACK - This jack permits the use of an inline battery charger for recharging nicad batteries.



OPERATING PROCEDURES

Multi-Channel Operation

Your receiver is capable of operating on any four channels within a selected frequency band. However, for best performance, crystal selections must be in the frequency range of your selected band. The receiver will still operate with crystal selections outside this band, but with reduced sensitivity. If desired, the Johnson Service Center can modify your receiver to provide full performance with crystals outside of your selected band.

"TEN SIGNALS"

The "Ten Signals" are used in many professional communication systems to save time, increase efficiency, and provide some measure of security. Following is a list established for police departments by the Associated Public Safety Communications Officers, Incorporated (APCO). You will find that many departments modify this list, but it will provide you with a starting point for learning the signals used by the system in which you are interested. The systems which you monitor might supply you with a list of their ten signals, upon request.

TEN SIGNALS

- | | | | |
|-------|---|-------|---|
| 10-1 | Unable to copy—change location | 10-47 | Emergency road repairs needed |
| 10-2 | Signals good | 10-48 | Traffic standard needs repairs |
| 10-3 | Stop transmitting | 10-49 | Traffic light out |
| 10-4 | Acknowledgment | 10-50 | Accident—F, Pl, PD |
| 10-5 | Relay | 10-51 | Wrecker needed |
| 10-6 | Busy—Stand by unless urgent | 10-52 | Ambulance needed |
| 10-7 | Out of service (Give location or telephone number) | 10-53 | Road blocked |
| 10-8 | In service | 10-54 | Livestock on highway |
| 10-9 | Repeat | 10-55 | Intoxicated driver |
| 10-10 | Fight in progress | 10-56 | Intoxicated pedestrian |
| 10-11 | Dog case | 10-57 | Hit and run—F, Pl, PD |
| 10-12 | Stand by | 10-58 | Direct traffic |
| 10-13 | Weather and road report | 10-59 | Convoy or escort |
| 10-14 | Report of prowler | 10-60 | Squad in vicinity |
| 10-15 | Civil disturbance | 10-61 | Personnel in area |
| 10-16 | Domestic trouble | 10-62 | Reply to message |
| 10-17 | Meet complainant | 10-63 | Prepare to make written copy |
| 10-18 | Complete assignment quickly | 10-64 | Message for local delivery |
| 10-19 | Return to _____ | 10-65 | Net message assignment |
| 10-20 | Location _____ | 10-66 | Message cancellation |
| 10-21 | Call _____ by telephone | 10-67 | Clear to read net message |
| 10-22 | Disregard | 10-68 | Dispatch information |
| 10-23 | Arrived at scene | 10-69 | Message received |
| 10-24 | Assignment completed | 10-70 | Fire alarm |
| 10-25 | Report in person to _____ | 10-71 | Advise nature of fire (size, type and contents of building) |
| 10-26 | Detaining subject, expedite | 10-72 | Report progress on fire |
| 10-27 | Drivers license information | 10-73 | Smoke report |
| 10-28 | Vehicle registration information | 10-74 | Negative |
| 10-29 | Check records for wanted | 10-75 | In contact with |
| 10-30 | Illegal use of radio | 10-76 | En route |
| 10-31 | Crime in progress | 10-77 | ETA (Estimated Time of Arrival) |
| 10-32 | Man with gun | 10-78 | Need assistance |
| 10-33 | EMERGENCY | 10-79 | Notify coroner |
| 10-34 | Riot | 10-82 | Reserve lodging |
| 10-35 | Major crime alert | 10-84 | Are you going to meet _____ |
| 10-36 | Correct time | | If so, advise ETA |
| 10-37 | Investigate suspicious vehicle | 10-85 | Will be late |
| 10-38 | Stopping suspicious vehicle (give station complete description before stopping) | 10-87 | Pick up checks for distribution |
| 10-39 | Urgent—Use light and siren | 10-88 | Advise telephone no. to contact |
| 10-40 | Silent run—No light or siren | 10-90 | Bank alarm |
| 10-41 | Beginning tour of duty | 10-91 | Unnecessary use of radio |
| 10-42 | Ending tour of duty | 10-93 | Blockade |
| 10-43 | Information | 10-94 | Drag racing |
| 10-44 | Request permission to leave patrol for _____ | 10-96 | Mental subject |
| 10-45 | Animal carcass in _____ lane at _____ | 10-98 | Prison or jail break |
| 10-46 | Assist motorist | 10-99 | Records indicate wanted or stolen |

ACCESSORIES AND OPTIONS

Crystal Information

To add or change crystals in your receiver:

- Loosen the two captive mounting screws on the receiver bottom side.
- Carefully slide the assembly out of the case top.
- Insert the crystal(s) to be added in the position(s) you prefer. (Channels 1 through 4 are inserted in the crystal block from left to right respectively.)

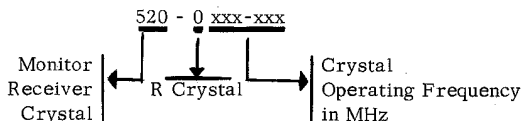


- Do not tamper with any internal adjustments.
- Carefully reinstall the receiver in the case and tighten the two mounting screws.
- Check receiver operation to be sure you have installed the crystals properly.

To ensure best performance, use only Johnson approved crystals which meet rigid quality specifications as well as all FCC requirements.

We recommend using only crystals manufactured by CTS Knight, Sandwich, Illinois 60548 or M-Tron Industries, Inc., Yankton, South Dakota 57078.

Use the following information when ordering crystals:



For Example: A crystal with an operating frequency of 151.625 MHz will have a part number of 520-0151-625

Accessories

Flexible Antenna	137-0822-002
Nicad Batteries (4 required)	250-0826-002
Inline Battery Charger	239-0206-001
Earphone	250-0881-001
Leather Carrying Case	251-0846-001

SERVICE INFORMATION

If your receiver does not appear to function properly, consult the classified section of your telephone directory under Radio Communications Equipment, or consult your E. F. Johnson dealer or distributor, for the nearest Warranty Service Center. Do not return the equipment to the factory for repair without written permission.



→ 1 155.370
 → 2 155.430
 3 154.680 155.685
 4 154.310 155.760

152.00 MIN
 156.500 2000 ft level Center 215
 162.00 MAX

HC 18/4