



## BUSINESS BAND TWO-WAY RADIO



MB400

[midlandusa.com](http://midlandusa.com)

**TABLE OF CONTENTS**

<b>INTRODUCTION</b> .....	3
<b>FEATURES</b> .....	3
<b>FCC NOTICE</b> .....	3
<b>EXPOSURE TO RADIO FREQUENCY ENERGY</b> .....	4
<b>BODY WORN OPERATION</b> .....	4
<b>GETTING TO KNOW YOUR RADIO, QUICK START CONTROLS</b> .....	5
<b>INSTALLING THE ANTENNA</b> .....	6
<b>INSTALLING THE BATTERY</b> .....	6
<b>INSTALLING THE BELT CLIP</b> .....	6
<b>INSTALLING EXTERNAL ACCESSORIES</b> .....	7
<b>CHARGING THE BATTERY PACK</b> .....	7
<b>USE AND CARE</b> .....	8
<b>ABOUT RANGE</b> .....	9
<b>OPERATING YOUR RADIO</b> .....	9
<b>POWER ON/OFF AND VOLUME</b> .....	9
<b>TRANSMITTING AND RECEIVING A CALL</b> .....	9
<b>CHANNEL SELECTION</b> .....	9
<b>EMERGENCY CALL</b> .....	10
<b>PROGRAMMABLE SIDE KEYS</b> .....	10
<b>PROGRAMMING SOFTWARE</b> .....	11
<b>CLONING</b> .....	12
<b>PRIVACY CODES</b> .....	12
<b>TROUBLESHOOTING GUIDE</b> .....	13
<b>SPECIFICATIONS</b> .....	13
<b>DEFAULT FREQUENCIES CHART</b> .....	13
<b>AVAILABLE FREQUENCIES CHART</b> .....	14
<b>CTCSS PRIVACY CODES CHART</b> .....	15
<b>DCS PRIVACY CODE CHART</b> .....	16
<b>LIMITED WARRANTY</b> .....	17
<b>ACCESSORIES</b> .....	18

## INTRODUCTION

For over half a century, Midland Radio has been providing radio communication with superior Quality, Reliability, and Strong Value. With these Core Values in mind, the Midland MB400 provides a communication solution for Manufacturing, Retail, Hospitality, Construction, Warehousing, Maintenance, and other Business uses.

## FEATURES

- IP67 Waterproof
- 4 Watts Transmit Power
- Emergency Call
- 16 Channels
- 142 Privacy Codes
- Repeater Compatible
- VOX
- Monitor
- Scan
- Priority Scan
- Battery Save Mode
- Voice Announcements
- Adjustable Squelch
- Roger Beep
- Hi/Low Power Setting
- Busy Channel Lockout
- Time Out Timer
- Low Battery Alert
- Rapid Charger
- Accessory (Headset) Jack
- PC Programming
- Radio Cloning
- Desktop Charger

## FCC NOTICE

The radio operates on UHF frequencies which require an FCC (Federal Communications Commission) license. You must be licensed prior to operating on these frequencies. Serious penalties could result from unlicensed use of these frequencies, in violation of FCC rules, as stipulated in the Communications Act's Sections 501 and 502 (amended).

You will be issued a call sign by the FCC which should be used for station identification when operating the radio on these channels. You should also cooperate by engaging in permissible transmissions only, avoiding channel interference with other users, and being prudent with the length of your transmission time.

To obtain a license or ask questions about the license application, contact the FCC at 1-888-CALL FCC or go to the FCC's website: <http://www.fcc.gov> and request form 601.

## EXPOSURE TO RADIO FREQUENCY ENERGY

Your Midland radio is designed to comply with the following national and international standards and guidelines regarding exposure of human beings to radio frequency electromagnetic energy:

- United States Federal Communications Commission, Code of Federal Regulations: 47 CFR part 2 sub-part J
- American National Standards Institute (ANSI)/Institute of Electrical & Electronics Engineers (IEEE) C95.1-1992
- Institute of Electrical and Electronics Engineers (IEEE) C95.1-1999 Edition
- National Council on Radiation Protection and Measurements (NCRP) of the United States, Report 86, 1986
- International Commission on Non-Ionizing Radiation Protection (ICNIRP) 1998

To control your exposure and ensure compliance with the general population or uncontrolled environment exposure limits, transmit no more than 50% of the time. The radio generates measurable RF energy exposure only when transmitting.

## BODY WORN OPERATION

If you wear the radio on your body when transmitting always use Midland supplied or approved belt clip, holster, case, or body harness for this product. Use of any accessories not supplied or approved by Midland may exceed FCC/ Health Canada RF exposure guidelines. If you do not use accessories supplied or approved by Midland, **ensure the radio and its antenna are at least 1 inch (2.5cm) from your body when transmitting.**

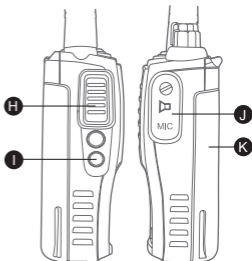
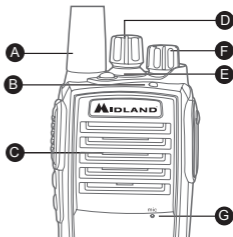
**IMPORTANT:** Changes or modifications to this unit not expressly approved by MIDLAND RADIO CORP. could void your right to operate this unit. Your radio is set up to transmit a regulated signal on an assigned frequency. It is against the law to alter or adjust the settings inside the COMMUNICATOR to exceed those limitations. Any adjustment to your radio must be made by qualified technicians.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device does not cause harmful interference, and (2) this radio must accept any interference that may cause undesired operation.

To maintain compliance with FCC's RF exposure guidelines, for body-worn operation, this radio has been tested and meets the FCC RF exposure guidelines when used with Midland Radio Corp. accessories supplied or designated for this product. Use of other accessories may not ensure compliance with FCC RF exposure guidelines.

## GETTING TO KNOW YOUR RADIO, QUICK START CONTROLS

- A. Antenna  
Install the antenna per instructions below before operating the radio.
- B. LED Indicator  
The LED is Green when receiving signals.  
Red when transmitting.  
Flashing red when the battery is low.
- C. Speaker
- D. Channel Selection  
Rotate to the desired channel setting.
- E. Emergency Call  
Press to send an Emergency alert to other MB400's on the same channel frequency.
- F. Power/Volume  
Turn clockwise to turn the power on and increase the volume level.  
Turn counter-clockwise to decrease the volume level and turn the power off.
- G. Microphone
- H. PTT (Push To Talk)  
Press and hold to transmit voice communication.
- I. Programmable Side Keys  
Set function using the Programming Software.
- J. Accessory Speaker/Mic Jack
- K. Rechargeable Battery Pack



## INSTALLING THE ANTENNA

Align the antenna with the threaded connector located on the top of the radio. Holding the antenna at the base, rotate the antenna clockwise until secure.



- Be careful not to over tighten to avoid damaging the antenna mount.
- Do not operate the radio without the antenna installed as it may cause damage to the radio.

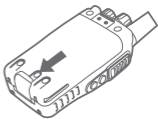
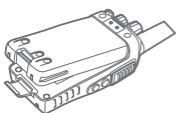


## INSTALLING THE BATTERY

Your radio operates with a Lithium-Ion battery. Care should be taken when installing or removing the battery as not to short circuit the battery contacts causing damage to the battery pack.

### To install the battery:

With the back of the radio facing you, match the top of the battery pack to the corresponding grooves on the radio. Push the battery into the bottom of the radio and lock into place using the battery latch.



### To remove the battery:

Release the battery latch and slide the battery down and away from the radio.

## INSTALLING THE BELT CLIP

With the back of the radio facing you, align the BELT CLIP with the screw holes on the radio. Attach the BELT CLIP with the Phillips-Head screws that came with the belt clip.



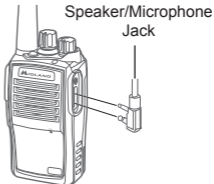
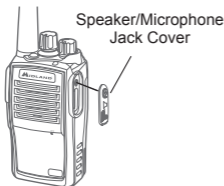
- Be careful not to over tighten screws to avoid damaging radio chassis.

## INSTALLING EXTERNAL ACCESSORIES

Remove the accessory jack cover using a flat blade screwdriver or a coin. Save the cover and screw for re-assembly.



- The MB400 will no longer be IP67 waterproof when the accessory jack cover is removed.
- Insert the accessory plug into the speaker/ mic jack, making sure it is securely in place.



## CHARGING THE BATTERY PACK

Your radio is equipped with a Lithium-Ion battery pack which can be recharged by inserting the radio or battery into the desktop charger (as described below). You should charge the battery pack when the Charge Battery Alert comes on, and remove the radio from the charger when the charging is finished.

To charge using the Desktop Charger:

1. Plug the DC barrel plug on the adaptor cord into the connector on the back of the charging base.
2. Plug the AC adaptor into a 120V AC wall outlet, making sure the AC outlet has power.
  - The charger's LED's turns green when power is present.
3. Make sure the battery contacts and charge terminals are clean and in good condition.
4. Slide the radio with installed battery, or a spare battery without radio, into the charger being careful to align the slots on the battery with the tabs inside the charger base.
5. The charger LED's will turn red and begin charging the battery.
6. Charging time depends on the charge level of the battery.
7. After charging is complete the LED will turn Green.
8. Remove the radio from the charger.

**NOTE:** The charger stand can charge the radio with a battery, or a separate battery. You may charge one at a time, but not at the same time.

To charge using the MGC400 Multi Unit Charger accessory:

The (optional) Multi-Unit Charger (MUC) allows the drop-in charging of 6 radios or 6 batteries from a single AC outlet.

1. Plug the barrel plug on the adaptor cord into the connector on the back of the charging base.
2. Plug the AC adaptor into a 120V AC wall outlet. Make sure the AC outlet has power.
3. The charger's LED's turns green when power is present.
4. Make sure the battery contacts and charge terminals are clean and in good condition.
5. Slide the radio with installed battery, or a spare battery without radio, into the charger being careful to align the slots on the battery with the tabs inside the charger opening.
6. The charger LED's will turn red and begin charging the unit.
7. Charging time depends on the charge level of the battery.
8. After charging is complete the LED will turn Green.

It is recommended that the battery pack be charged with the radio turned off to insure it fully charges.



- Only use the Midland Lithium-Ion battery pack.
- Do not attempt to charge any battery packs other than the one indicated in the manual.
- This may cause leakage and damage to the radio or charger and void your warranty.
- For long term storage of the radio, turn the radio OFF and remove the batteries from the radio.

## **USE AND CARE**

- Use only a soft, damp, cloth to clean the radio.
- Do not use alcohol or cleaning solutions to clean the radio.
- Do not immerse the radio in water with the accessory cover removed.
- Dry the radio with a dry lint-free cloth should it get wet.
- Turn off the radio and remove the batteries during long-term Storage



## ABOUT RANGE

Your MB400 radio is designed to give you maximum range under optimum conditions.

Industrial	Multi-Level
<b>Inside Steel-Concrete Building</b>	<b>Inside a Multi-level Building</b>
Up to 350,000 sq. ft.	Up to 30 floors

Optimum Conditions are:

- Open warehouse floor plan or area.
- Open rural areas without obstructions.
- Flat areas where you can see the other person to ensure you get maximum range.
- You are using fully charged batteries - a low battery will cause low power conditions.
- Your radio is set to use its highest transmit power level.

## OPERATING YOUR RADIO

### POWER ON/OFF AND VOLUME

1. Rotate the POWER/VOLUME knob clockwise to turn the radio on and increase the volume level.
2. Rotate the control counter-clockwise to reduce the volume level and to turn the radio off.
3. During Power On, the radio will announce the channel it is set to.

### TRANSMITTING AND RECEIVING A CALL

For maximum clarity, hold the radio at least 1 inch (2.5 cm) from your mouth.

1. Press and hold the PTT button and speak in a normal voice into the Microphone. The RX/TX LED will glow RED while transmitting.
2. To receive a call, release the PTT button. The RX/TX LED will glow GREEN when your radio is receiving a transmission.

### CHANNEL SELECTION

1. Rotate the channel section knob to the desired setting.
2. The radio will announce the channel numbers as you rotate the knob.



- Make sure you are using the same channel/frequencies as others in your communications group or you will not be able to hear or talk to them.

## EMERGENCY CALL

You can send an Emergency Call alert tone to other MB400 radios that are on the same channel/frequency and privacy code.

1. Press the Orange Emergency Call alert button on the top of the radio to activate the alert.
2. A loud siren will be heard on your radio and all other MB400 radios on the same channel/frequency and privacy code.
3. Press the Emergency Call button again to turn off the alert.



- The alert tone will only be received by MB400 radio's that are on the exact same channel/frequency and privacy code at time of activation.
- MB400's not on the same channel/frequency and privacy code, or other radios without the Emergency Call feature will not receive the Emergency Call alert tone.

## PROGRAMMABLE SIDE KEYS

The two Programmable Side Keys can be customized by using the programming software to select which of the following functions you would like to have quick access to. The keys are dual function, pressing once for the priority function, and press and hold for 3+ seconds to select the secondary function.

1. None
2. Monitor on/off  
Monitor is used to check for channel traffic before you transmit.
3. Scan on/off  
The radio will rapidly scan through all available channels stopping briefly on a channel in use to hear the conversation. You may join the conversation by pressing your PTT button and using the radio normally. The radio will return to scan mode after 5 seconds of inactivity.
4. Priority Scan on/off  
The radio will only scan the channels you have set as a Priority using the programming software.
5. Power Hi/Low selection  
Select High power when range is important, or Low power to conserve battery life.
6. Talk Around on/off  
Used when on a Repeater. Allows you to communicate directly with other radios without going through the repeater.

- ! • Be sure to turn the VOX feature off on the radio if you are using a headset accessory with a separate VOX switch as it may cause improper operation.

## PROGRAMMING SOFTWARE

Your MB400 radio is pre programmed with 16 commonly assigned frequencies, and you can program your authorized frequency or frequencies into any of the available 16 channels with the free software available on the Support page at the [www.midlandusa.com](http://www.midlandusa.com) website.

The MPC400 programming cable is required to program your radio. It is listed in the back of this manual and available on the [www.midlandusa.com](http://www.midlandusa.com) website.

The software will allow you to program the following functions of the radio.

1. Frequency by Channel
2. Privacy Code by Channel
3. Bandwidth by Channel
4. TX Power by Channel
5. VOX Sensitivity Level
6. Squelch Sensitivity Level
7. Button Beeps on/off
8. Voice Announcement on/off
9. Time out Timer Duration
10. Busy Channel Lockout
11. Emergency Call on/off
12. Battery Save Mode on/off
13. Low Battery Warning on/off
14. Set the Channel Scan list
15. Set the Priority Scan list

## CLONING

The programmed settings from a MB400 radio can be directly transferred to another MB400 radio bypassing the need to individually program radios. The MCC400 cloning cable is required and is listed in the back of this manual and available on the [www.midlandusa.com](http://www.midlandusa.com) website.

1. Connect the programmed (Host) radio to the radio to be programmed (Clone) using the MCC400 Cloning cable.
2. Turn on the radio to be cloned.
3. Press and hold Side Key 2 to turn on the Host radio.
4. The LED will flash orange twice to confirm the Host radio is in clone mode and ready to transfer the data.
5. Press the PTT of the Host radio to send the data to the clone radio.
6. The LED on the Host radio will blink red, and the LED on the radio to be cloned will blink green during the data transfer.
7. When the data transfer is complete, the cloned radio will automatically restart.
8. You may clone another radio by disconnecting the cloned radio and connecting another radio to the Host and following the steps above.
9. Or you may disconnect both radios and turn them off, and back on to return to the normal operation.

## PRIVACY CODES

CTCSS (Continuous Tone Coded Squelch) and DCS (Digitally Coded Squelch) allow several users to share the same channel frequency without disturbing each other. With CTCSS or DCS enabled, the channel is muted to all incoming signals unless they carry the same CTCSS or DCS tone. When a transmission with the same tone is received, the channel un-mutes and the voice audio can be heard. When the transmission ends the channel becomes muted again. Transmissions that do not have the same tone will not be heard.

Your MB400 radio has 142 Privacy Codes, which can be used on any channel. The selected Privacy Code may be different for each channel, but must be the same for a channel on all radios you wish to talk to. Programming a new Privacy Code overwrites any previous code programmed.

Privacy Codes can be set using the FREE programming software that can be downloaded from the [www.midlandusa.com](http://www.midlandusa.com) website.



- You will not be able to hear or talk to other radios that do not match your frequency and Privacy Code by channel and frequency.

## TROUBLESHOOTING GUIDE

Problem	Solution
No Power	<ol style="list-style-type: none"> <li>1. Make sure the battery is fully charged and correctly installed.</li> <li>2. Check the On/Off Volume control to make sure the radio is turned on.</li> </ol>
Can't Receive Messages	<ol style="list-style-type: none"> <li>1. Confirm the radios are set to the same channel frequency and privacy code setting.</li> <li>2. Make sure you are within range of the other radio (see About Range).</li> <li>3. Make sure there are not any major obstructions between you and the other radio (see About Range).</li> </ol>
Charger Not Functioning	<ol style="list-style-type: none"> <li>1. Make sure the contacts on the bottom of the radio are clean, nothing in the way of making connection with the charger contacts.</li> <li>2. Make sure the charger is plugged in and the outlet has power.</li> <li>3. Make sure the battery pack is installed properly.</li> </ol>

For further assistance, contact the Midland Customer Service Team at (816) 241-8500. Most problems can be remedied over the phone without returning the radio for service.

## SPECIFICATIONS

Channels: 16

Privacy Codes: 142

Operating Frequency: UHF Band, 450~470MHz

Power Source: 7.4VDC Li-ion Battery Pack

## DEFAULT FREQUENCIES CHART

CH No.	Freq. (MHz)	Code	CH No.	Freq. (MHz)	Code
1	464 .5500	1	9	464 .5500	29
2	467 .9250	1	10	467 .9250	29
3	467 .8500	1	11	467 .8500	29
4	467 .8750	1	12	467 .8750	29
5	464 .5500	6	13	464 .5500	-
6	467 .9250	6	14	467 .9250	-
7	467 .8500	6	15	467 .8500	-
8	467 .8750	6	16	467 .8750	-

**AVAILABLE FREQUENCIES CHART**

Code	Freq. (MHz)	Code	Freq. (MHz)	Code	Freq. (MHz)	Code	Freq. (MHz)
1	464.5000	26	462.8375	51	467.8875	76	452.7625
2	464.5500	27	462.8625	52	467.9125	77	452.8625
3	467.7625	28	462.8875	53	469.4875	78	456.1875
4	467.8125	29	462.9125	54	469.5125	79	456.2375
5	467.8500	30	464.4875	55	469.5375	80	456.2875
6	467.8750	31	464.5125	56	469.5625	81	468.2125
7	467.9000	32	464.5375	57	462.1875	82	468.2625
8	467.9250	33	464.5625	58	462.4625	83	468.3125
9	461.0375	34	466.0375	59	462.4875	84	468.3625
10	461.0625	35	466.0625	60	462.5125	85	468.4125
11	461.0875	36	466.0875	61	467.1875	86	468.4625
12	461.1125	37	466.1125	62	467.4625	87	468.5125
13	461.1375	38	466.1375	63	467.4875	88	468.5625
14	461.1625	39	466.1625	64	467.5125	89	468.6125
15	461.1875	40	466.1875	65	451.1875	90	468.6625
16	461.2125	41	466.2125	66	451.2375	91	456.3375
17	461.2375	42	466.2375	67	451.2875	92	456.4375
18	461.2625	43	466.2625	68	451.3375	93	456.5375
19	461.2875	44	466.2875	69	451.4375	94	456.6375
20	461.3125	45	466.3125	70	451.5375	95	457.3125
21	461.3375	46	466.3375	71	451.6375	96	457.4125
22	461.3625	47	466.3625	72	452.3125	97	457.5125
23	462.7625	48	467.7875	73	452.5375	98	457.7625
24	462.7875	49	467.8375	74	452.4125	99	457.8625
25	462.8125	50	467.8625	75	452.5125		

**CTCSS PRIVACY CODES CHART**

Code No.	Freq. (Hz)	Code No.	Freq. (Hz)
1	67.0	20	131.8
2	71.9	21	136.5
3	74.4	22	141.3
4	77.0	23	146.2
5	79.7	24	151.4
6	82.5	25	156.7
7	85.4	26	162.2
8	88.5	27	167.9
9	91.5	28	173.8
10	94.8	29	179.9
11	97.4	30	186.2
12	100.0	31	192.4
13	103.5	32	203.5
14	107.2	33	210.7
15	110.9	34	218.1
16	114.8	35	225.7
17	118.8	36	233.6
18	123.0	37	241.8
19	127.3	38	250.3

## DCS PRIVACY CODE CHART

No.	CODE	No.	CODE	No.	CODE	No.	CODE
1	23	27	165	53	413	79	731
2	25	28	172	54	423	80	732
3	26	29	174	55	431	81	734
4	31	30	205	56	432	82	743
5	32	31	223	57	445	83	754
6	43	32	226	58	464	84	36
7	47	33	243	59	465	85	53
8	51	34	244	60	466	86	122
9	54	35	245	61	503	87	145
10	65	36	251	62	506	88	212
11	71	37	261	63	516	89	225
12	72	38	263	64	532	90	246
13	73	39	265	65	546	91	252
14	74	40	271	66	565	92	255
15	114	41	306	67	606	93	266
16	115	42	311	68	612	94	274
17	116	43	315	69	624	95	325
18	125	44	331	70	627	96	332
19	131	45	343	71	631	97	356
20	132	46	346	72	632	98	446
21	134	47	351	73	654	99	452
22	143	48	364	74	662	100	454
23	152	49	365	75	664	101	455
24	155	50	371	76	703	102	462
25	156	51	411	77	712	103	523
26	162	52	412	78	723	104	526



## LIMITED WARRANTY

Midland Radio Corporation will repair or replace, at its option without charge, any Midland UHF transceiver which fails due to a defect in material or workmanship within One Year following the initial consumer purchase.

This warranty does not apply to water damage, battery leak or abuse. Accessories have a 90 day warranty from date of purchase, including any antennas, batteries, chargers, or headsets/earphones.

This warranty does not include the cost of labor for removal or re-installation of the product in a vehicle or other mounting.

For Product Purchased in the USA:

Performance of any obligation under this warranty may be obtained by returning the warranted product, prepaid freight, along with proof of purchase to:

Midland Radio Corporation  
Warranty Service Department  
5900 Parretta Drive  
Kansas City, MO 64120

This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state.

Note: The above warranty applies only to merchandise purchased in the United States of America or any of the territories or possessions thereof, or from a U.S. Military exchange.

For Product Purchased in Canada:

Performance of any obligation under this warranty may be obtained by returning the warranted product, along with proof of purchase, to your dealer in Canada.

This warranty gives you specified legal rights. Additional warranty rights may be provided by law in some areas.

Note: Features & Specifications are subject to change without notice, MIDLAND is not responsible for unintentional errors or omissions on its packaging or owner's manual.

## ACCESSORIES

Accessories can be purchased from your local dealer or at [www.midlandusa.com](http://www.midlandusa.com)

### MGC400



Multi-Unit  
Charger

### MA1



Over the Ear  
Headset

### MA2



Concealed  
Headset

### MA3



Speaker  
Microphone

### MA4



D-Ring Headset

### MRB400



Li-Ion Spare Battery

### MPC400



Programming  
Cable for MB400

### MCC400



Cloning Cable for  
MB400



**5900 Parretta Drive  
Kansas City, MO 64120  
Call 816.241.8500**

We'd love to hear from you! Let us know what you think of your new Midland product at



or by visiting us at

**midlandusa.com**

**Note: Features & Specifications are subject to change without notice. MIDLAND is not responsible for unintentional errors or omissions on its packaging.**