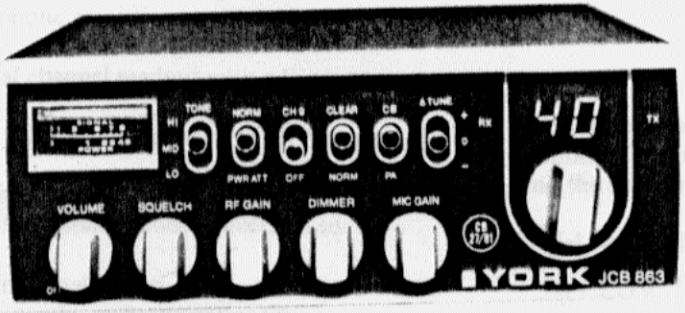
Instruction Manual
York JCB-863
40-Channel FM Mobile
Citizens' Band Transceiver



Your York JCB-863 Citizens' Band transceiver is a quality piece of electronic equipment, skillfully constructed from the finest semiconductors and electronic components. The transceiver is loaded with the state-of-the-art circuitry to give you a highly selective and sensitive receiver combined with an efficient 4-watt FM transmitter.

Your transceiver features an advanced phase-locked-loop (PLL) frequency control system to generate the multiple frequencies neccessary to operate on all 40 channels authorised for use throughout the United Kingdom. The PLL circuit uses only one crystal which assures ultra precise frequency control (as compared to conventional multi-crystal-synthesised transceivers) and results in greater reliability.

Your transceiver features the following:

- – Digital PLL frequency synthesiser employed.
- – Adjustable RF gain to optimize strong local transmissions.
- – Adjustable microphone amplifier sensitivity to suit your voice characteristic.
- – Easy-to-read digital channel readout with a Dimmer control.
- – Delta-tune switch for clearer reception of off-frequency transmissions.
- – Capability for public address.
- – Channel 9 switch for instantaneous conversion to channel 9.
- – Adjustable receiving tonal quality.
- – Supplied with a dynamic, communications type microphone.
- – Reversible ground polarity.
- – Switchable modulation response – clear or normal.

Please note: It is illegal to operate this set without a license.

For your own protection, we urge you to record the serial number of this unit in the space provided below. You will find the serial number located on the back panel of the unit.

Model No. JCB-863 **Serial No.**

Before You Call For Help . . . . .

Our repair centre receives many returned products which actually are **working properly**! Maybe the owner just didn't read the owner's manual or overlooked something, or perhaps the problem they encountered was a blown fuse that the owner could easily have replaced with a new one.
So we recommend you read this manual carefully and be sure that **you** understand all the basic features of your CB unit and special ones too! Before you assume your unit needs repair, refer to the Service and Maintenance section of this manual to see if the problem is due to what you can easily eliminate.

Enjoy your JCB-863!

Specifications

General.
Channels: 40 digital PLL synthesised
Frequency range: See back cover
Operating temperature range: −5 degree C to +45 degree C
Power source: 10.8 to 15.6V DC reversible ground (13.2V nominal)
Current drain: (1) Transmit. 1.5A nominal, (2) Receive. 1.2A nominal.
Dimensions:
Width. 180 mm
Height. 61 mm
Depth. 210 mm

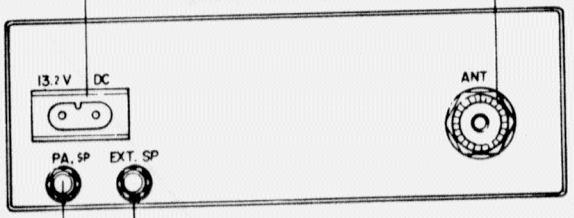
Transmitter.
Emission: 6F3 (FM)
RF power output: 4W
Frequency tolerance: <±1.5 kHz
RF power attenuator:>10 dB
Frequency response: 500 to 2,500 Hz +4/−12 dB
Frequency deviation: >±1.5 kHz @1,250 Hz audio
Adjacent channel power: <10 microwatt
Sprious emission: (1) <50 nW within the following frequency bands
80 MHz – 85 MHz
87.5 MHz – 118 MHz
135 MHz – 136 MHz
174 MHz – 230 MHz
470 MHz – 862 MHz
(2) < 0.25 microwatt at any other frequency.

Receiver.
Conversion system: Dual conversion superheterodyne
IF: 10.695 MHz 1st and 455 kHz 2nd
Channel display: Digital 7 segment LED's
Audio output power: >1.5W into 8 Ohm
Sensitivity: <1 microvolt @ 20 dB S/N
Adjacent channel rejection: >50 dB
Spurious emission: <20 nW
Squelch sensitivity: 1 to 100 microvolt

Front Controls and Rear Connections

13.2V DC Power Socket
Connect the plug from DC power cable set for connection to a source of 12 Volt DC positive or negative ground battery. The **red** wire with the in-line fuse at the other end must be connected to the plus (+) side and the **black** wire to the minus (–) side of the battery

Aerial Connector
Connect your CB aerial to this SO-239 coaxial connector which mates with PL-259 plug.



PA Speaker Jack
To use the public address function of your transceiver, you must connect an external speaker designed for the purpose into this jack. Use 1/8", 2-conductor plug.

External Speaker Jack
If you want to use an external speaker for an extra sound source, connect it into this jack. Use 1/8", 2-conductor plug.

S/RF Meter
Indicates relative strength of incoming signal or RF power output.

RF Attenuator Switch
If your aerial is mounted at a height exceeding 7 m, you must set this switch to **PWR ATT** position to reduce the transmitter power.

Modulation Switch
In the **Normal** position, the modulation is flat and normal. Place in the **Clear** position when you are operating from a congested area.

Delta-Tune Switch
When receiving unclear signals that may be slightly off-frequency set this switch to + or – to obtain the clearest reception.

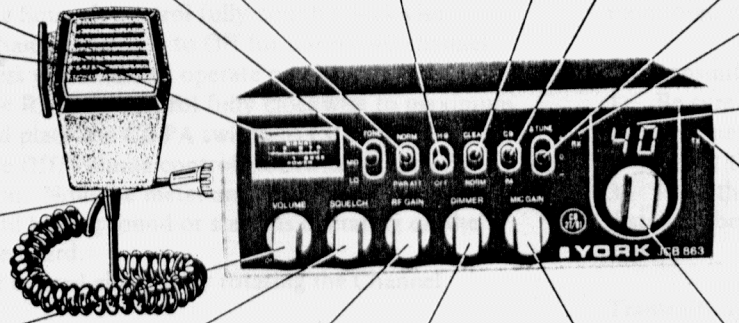
Tone Switch
Set this switch to the position that provides the most pleasing sound in reception.

Channel 9 Switch
Set to **CH 9** position and the unit will jump to channel 9. When returned to **Off** position, you will be on the previously selected channel.

CB/PA Switch
Selects CB or PA operation.

RX Indicator
Lights up during reception.

Microphone
Dynamic type, specifically designed for communications use. Press pushswitch for CB transmitting or paging (PA).



Channel Indicator
Shows the selected channel in a large easy-to-read 7-segment LED display.

Microphone Jack
Accepts plug from the dynamic microphone supplied.

TX Indicator
Lights up during transmitting.

Squelch Control
Permits you to cut out annoying background noise in between messages.

Dimmer Control
Changes the brightness of the digital channel readout. Turn counterclockwise during night time driving.

Off/Volume Control
Turn clockwise to turn unit on and adjust for desired loudness.

RF Gain Control
Adjust to get optimum reception based on the incoming signal strength.

Mic Gain Control
Rotating this control counterclockwise reduces the sensitivity of the microphone amplifier and requires 'close-talking' into the microphone.

Channel Selector
Selects one of the forty channels as indicated in the channel display.

Using Your Transceiver

Do not transmit without a suitable aerial or load connected to the aerial connector. To ensure proper installation, review the Installation section.

To Receive

1 Rotate the **Squelch** control fully counterclockwise.

2 Set the **Channel 9** switch to Off for normal 40 channel operation unless you desire to operate on channel 9.

3 Rotate the **RF Gain** control fully clockwise to maximum sensitivity, and place the **CB-PA** switch to **CB**.

4 Rotate the **Off/Volume** control clockwise to about 9 o'clock position. Now the meter and the channel display should light and hissing sound or stations operating on the channel will be heard.

5 Select the desired channel by rotating the Channel selector.

6 Adjust the **Squelch** control to cut out annoying background noise when no signals are present (or wait until signals cease on the channel).

To adjust the Squelch control: Slowly rotate the **Squelch** control clockwise to the point where the background noise just stops. When a signal comes in, it will overcome the squelch action and be heard without interference disturbance on the channel in between signals.

Do not set the **Squelch** control too far clockwise, or weak signals will not be able to open the squelch circuit. To receive very weak signals or to disable the squelch circuit, simply set the **Squelch** control fully counterclockwise position.

7 Adjust the **Volume** control and **Tone** switch for a suitable loudness and tonal quality.

Channel 9 Switch

To switch to channel 9 instantly, simply flip the **Channel 9** switch to up **(CH 9)** position. To return to previously monitored channel, flip back to **Off** position.

To Transmit

1 Be sure the microphone is firmly connected to the microphone jack at the side of the unit.

2 Select the desired channel to transmit.

3 Press the microphone's pushswitch and hold it at a distance about 10 cm from your mouth. Speak in a normal voice.

Transmitting on Channel 9

To transmit on channel 9, flip the **Channel 9** switch to up **(CH 9)** position, or manually select channel 9 on the channel selector with the Channel 9 switch remain off.
In either way, when you press the microphone's pushswitch, you will be transmitting on channel 9.

4 To receive, release the microphone's pushswitch.

Using the Public Address

Your transceiver may be operated as a 1.5-watt public address amplifier. To use the public address amplifier you must first connect an 8-ohm speaker specifically designed for the purpose to the **PA** speaker jack on the unit.

1 Connect the PA speaker to the **PA** speaker jack on the unit.
2 Set the **CB-PA** switch to **PA** position.
3 Rotate the **Volume** control clockwise to turn power on.
4 Press the microphone's pushswitch and talk into it in a normal voice.
5 Adjust the **Mic Gain** control for desired loudness.
6 To return to normal CB operation, set the **CB-PA** switch to **CB** position.
To turn off the unit, rotate the **Volume** control fully counterclockwise to **Off** position.

Modulation Control Switch
This switch affects the modulation response of your transmitting signal. place the switch in the **Clear** position when you are operating from a congested area. Your voice will be transmitted with the low frequency levels suppressed, thus improving the readability of your transmission. In the **Normal** position, the modulation level is flat.

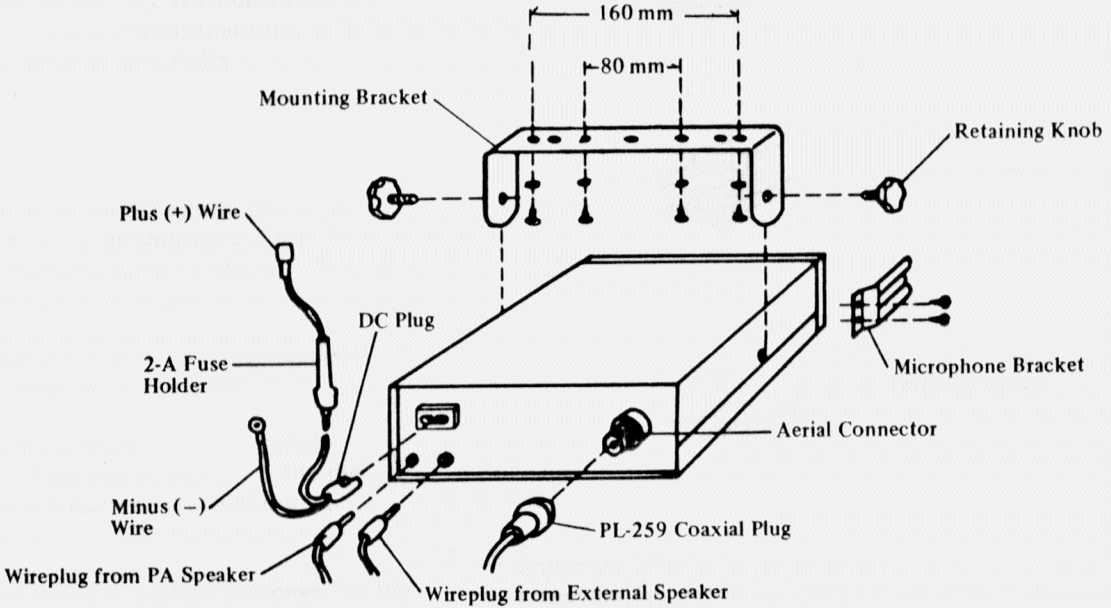
Installation

Safety and convenience are the primary factors in deciding exactly where to locate your transceiver. The transceiver is designed for ease in control accessibility. Be sure that the unit is located so that it does not interfere with the driver or impair access to any controls. Connecting cables must be routed and secured in such a manner as to not interfere with the operation of the brake, accelerator or other controls. Interference from either the unit or connecting cables may contribute to the loss of control of the vehicle.

The transceiver is designed for use with either negative or positive ground electrical system. See diagram on next page and proceed as follows:

Step 1: **With negative ground system,** connect the red wire (one with in-line fuse holder) to either the (a) fuse block, (b) cigarette lighter, or (c) directly to the positive post on the battery. Usually, the fuse block is the most convenient connecting point. It is also possible to connect to the **Accessory** terminal on the fuse block or ignition switch, so that your CB unit automatically goes off, preventing accidental battery drainage. Then tightly connect the black wire directly to the vehicle's metal frame.
Step 2: **With positive ground system,** reverse the wires, connecting the red/fuse-holder wire to the frame, the black wire to your DC power source. A light or meter can be a good aid in locating a suitable power source and ground. In either case, a good, direct metal-to-metal ground is essential for optimum performance.

Connect your aerial system to the aerial connector. If you are using an external speaker or a PA speaker, connect it to the appropriate jack on the unit rear panel.



Caution.
The 2-A fuse included with this transceiver is an important safety feature which must not be circumvented. The use of a fuse greater than 2-A may result in overloading and/or fire and consequential damage to the transceiver or vehicle.

CB Aerials

For best reception and transmission, your transceiver should use an aerial especially designed for a frequency of 27 MHz. Aerials are purchased separately and supplied with assembly and installation instructions, mounting hardware, and a coaxial aerial cable fitted with a fully assembled standard connector for quick connection to your transceiver. CB aerials are available in many sizes and styles.

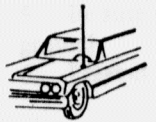
The aerial's mounted location on the vehicle affects the operation of the transceiver. Transmission and reception characteristics vary for different aerial locations. Three most popular aerial mountings are shown right:

Roof mount – The aerial mounted on roof represents a transmission/reception range closest to ideal.

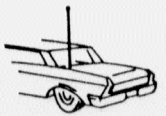
Front wing mount – The radiation pattern is slightly greater in the direction of the rear bumper opposite the side on which the aerial is mounted. Provides ease in aerial mounting.

Rear wing mount – The radiation pattern is strongest in the direction of the front bumper opposite the side on which the aerial is mounted.

Roof Mount



Front Wing Mount



Rear Wing Mount

Important Notice. If your aerial is mounted at a height exceeding 7 m, the Home Office requires a reduction in transmitter power of 10 dB.
When above is applicable to you, you must set the **RF Attenuator** switch located on the unit front panel to **PWR ATT** position to accomplish reduction of the transmitter power output.

About SWR. Aerial performance may be peaked by slightly adjusting its length (1/8" to 1/4") using an SWR (standing wave ratio) meter. This meter is purchased separately. Most aerials are factory-tuned, but this adjustment may improve aerial efficiency. An SWR reading below 3:1 is desired, as this indicates that over 75% of the transmit power is broadcast into the air. The rest is 'reflected' back into your transceiver and dissipated as barmless heat. See chart below. An SWR of 2:1 or below is good, 2.5 or even 3 is usually not user noticeable or significant.

Operating transceiver without attaching the correct CB aerial, or with a broken aerial cable, will result in low and possible no power output and may even damage the set, thus invalidating the warranty.

SWR Reading	Output Power Transmitted
1 :1	100 %
1.3:1	98.3%
1.5:1	96.0%
1.7:1	93.3%
2 :1	89.0%
3 :1	75.0%
4 :1	64.0%
5 :1	58.0%
6 :1	49.0%
10 :1	33.0%

General rules for best mobile aerial performance

1 Mount aerial on vehicle as high as possible.

2 The higher percentage of the aerial length mounted above rooftop, the better performance.

3 Centre aerial in middle of selected location (i.e., boot, gutter or roof).

4 Install aerial cable line away from noise sources (ignition system, gauges, etc.).

5 Be sure to mount aerial with a good metal-to-metal ground.

6 Prevent aerial cable damage.

Noise

Some noise is to be expected and is normal. There will be a higher level of background noise when used as a mobile CB transceiver and the car is running. If this noise becomes objectionable (which is caused by the vehicle's alternator, generator, spark plugs, windshield washer and other electrical systems), a noise suppression kit may need to be installed. Noise from the alternator or generator will create a whining higher-pitched sound and will vary with engine speed. Spark plugs and ignition noise will show up as a popping sound and can also vary with engine speed.
To tell the difference between noise created by the ignition system and noise created by the generator, start the vehicle and race the engine – now, turn the engine off, and if the noise stops immediately, you have determined the ignition system is at fault. Noise which stops a few seconds after the ignition is turned off, is caused by the alternator or generator. Noise can be caused by electrical interference from spark plugs and ignition cables. Most late model vehicles have resistance high tension ignition cable and resistive spark plugs supplied as standard equipment. This eliminates the need for spark plugs suppression. If not supplied, kits are available from automotive supply dealers.

Service and Maintenance

Your transceiver has been built in accordance with York's exacting quality control standards. However, the transceiver should be treated with reasonable cares normally accorded to any electronic equipment.

If you encounter difficulty in operating the transceiver, please check the following:

Symptom	**Possible Cause** (and Remedy)
Unit dead, no indicator lights.	(1) Blown fuse (Replace). (2) Power wire disconnected (Review installation instructions).
Unit will not send or receive, indicator lamps on.	(1) Unit's CB-PA switch set to PA (Reset). (2) Aerial disconnected or shortened.
Unit will not receive, no background noise.	(1) Squelch set too high (Readjust).
Unit will receive but not transmit.	(1) Loose microphone connection. (2) Aerial problem (Check). (3) Microphone defective (Substitute another mic).
Reception garbled with loud whining background noises. Symptom comes and goes, or persists for days.	(1) Atmospheric disturbances. Worsens during peak sunspot activity.

In the event of any query regarding service to this product please contact your supplier or in case of doubt contact **Sulkin (U.K.) Limited, 124/7, Station Passage, Queens Road, Peckham, London, SE15 2JR**.

Operating Frequencies

Your transceiver provides for transmission and reception of frequency modulated emissions on the following frequencies:

Channel 1	27.60125 MHz	Channel 21	27.80125 MHz
Channel 2	27.61125 MHz	Channel 22	27.81125 MHz
Channel 3	27.62125 MHz	Channel 23	27.82125 MHz
Channel 4	27.63125 MHz	Channel 24	27.83125 MHz
Channel 5	27.64125 MHz	Channel 25	27.84125 MHz
Channel 6	27.65125 MHz	Channel 26	27.85125 MHz
Channel 7	27.66125 MHz	Channel 27	27.86125 MHz
Channel 8	27.67125 MHz	Channel 28	27.87125 MHz
Channel 9	27.68125 MHz	Channel 29	27.88125 MHz
Channel 10	27.69125 MHz	Channel 30	27.89125 MHz
Channel 11	27.70125 MHz	Channel 31	27.90125 MHz
Channel 12	27.71125 MHz	Channel 32	27.91125 MHz
Channel 13	27.72125 MHz	Channel 33	27.92125 MHz
Channel 14	27.73125 MHz	Channel 34	27.93125 MHz
Channel 15	27.74125 MHz	Channel 35	27.94125 MHz
Channel 16	27.75125 MHz	Channel 36	27.95125 MHz
Channel 17	27.76125 MHz	Channel 37	27.96125 MHz
Channel 18	27.77125 MHz	Channel 38	27.97125 MHz
Channel 19	27.78125 MHz	Channel 39	27.98125 MHz
Channel 20	27.79125 MHz	Channel 40	27.99125 MHz

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