BRB Systems USA Co.

Instruction Manual – WO-101

Wireless Trap/Skeet Overlay Voice Release System

IMPORTANT: Read and understand this manual before assembling, installing or using this system. Improper use of this system can cause serious injury.

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(1) Safety Information

CAUTION:

This system is powered by electricity. To reduce the risk of electric shock, do not tamper with any part of the apparatus. There are no user serviceable parts of this equipment. Refer servicing to BRB Systems USA Co.

Make certain that any person assembling or installing this system has read and fully understood this Instruction Manual. It is your guide to safe and proper operation of this system.

- WO-VB-101 Voice Boxes are powered by Lithium-ion rechargeable batteries. Lithium-ion batteries must be treated with great respect. Do not disassemble the Voice Box or attempt to access the batteries. Refer servicing to BRB Systems USA Co.

- Do not drop, strike or shake a Voice Box severely. If a Voice Box is dropped, especially on a hard surface, contact BRB Systems USA Co. for inspection.

- Do not leave, charge or use a Voice Box in a place where the temperature may exceed 60°C (140°F).

- Disposal of a Voice Box must be in accordance with local codes. Incineration or disposal in a fire, are strictly prohibited, because it may cause rupture and explosion.

- WO-TRX-101 Button Controllers are 6V dc, powered by 4 AA batteries. AA batteries are small, but powerful and must be treated with respect. Never short the ends of the battery together. Never burn the battery, even when you think it is fully discharged.

- RX-201 Receivers sold as 12V, are to be powered with 12V dc power sources only.
  The 12V dc power sources that may be used with the receivers are; 12V lead acid batteries, 12V regulated ac to dc power supplies and 12V dc power directly from the trap.
  12V lead acid batteries (such as car type batteries) contain acid and extreme care must be taken when handing them.

12V car batteries are capable of supplying large amounts of current and care must be taken not to connect the + (red) and – (black) terminals together.

- RX-201 Receivers sold as 120V are to be powered with BRB supplied 120Vac-12Vdc adapters only. Exterior 120V outlets should be GFCI protected for your safety. If the outlet is not GFCI protected then contact a qualified electrician for rectification.

- Protect any power cord from being walked on, pinched or damaged in any way.

- Disconnect this apparatus from its power source during lightning storms.

- Use only the attachment parts/accessories supplied by BRB Systems USA Co.

- Do not allow liquid entry into the system components. System components are water resistant, not waterproof.

- Ensure that the traps are disconnected from their power sources and unloaded before connection of the Receiver, Voice Boxes, or the setup of the Button Controller. Failure to do so could result in the unexpected operation of the trap, causing serious injury.

- Ensure that the trap is disconnected from its power source and unloaded and that it is completely disconnected from the receiver before attempting loading, maintenance or repair of the trap. Failure to do so could result in the unexpected operation of the trap, causing serious injury.

- Extreme caution must be taken when a manually loaded trap is in use. This system is not able to determine whether a loader is ready for a target to be launched. Inadvertent operation of the system may cause serious injury to the loader.

(2) Assembly

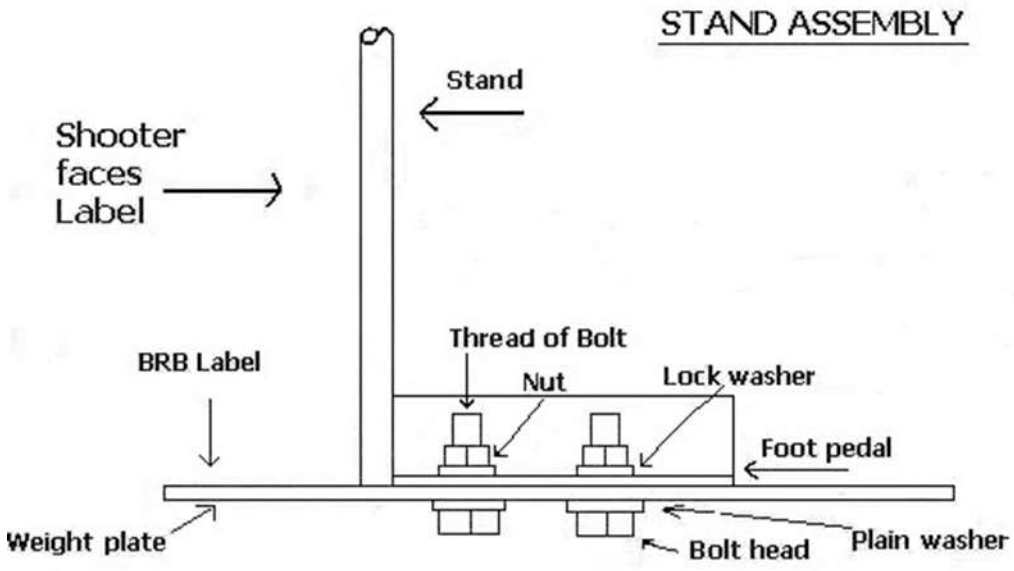
The WO-101 Wireless Overlay Voice Release System is available with 1-8 stands with voice boxes and with 1-5 receivers, depending upon the customer requirements.

A single stand version of a WO-101 Wireless Overlay Voice Release System is supplied with the following components:

1 x Microphone
1 x WO-VB-101 Voice Box
1 x Voice Box Charger
1 x WO-TRX-101 Button Controller
2 or 3 x RX-201 Receiver
1 x Stand
1 x Weight Plate
1 x Button Controller Bracket

Stands

The stand is made to be mounted to the weight plate. Bolt the Stand to the Weight Plate as in the diagram below.



Microphones

The microphone bolts to the top of the stand with the bolt, washers and wing nut supplied.

The microphone should be bolted to the stand so that the foot pedal faces away from the shooter. Set the microphone to an angle that directs the opening toward a shooters head at approximately 3ft away.

If the stand is to be used by a single shooter for practice, then replace the microphone mounting bolt with the supplied button controller bracket.

WO-VB-101 Voice Box

The voice box is mounted to the stand mounting brackets.

Remove the wing nuts, lock washers and flat washers from the voice box studs. Slide the studs through the four holes in the stand mounting brackets. Refit the flat washers, lock washers and wing nuts. Screw hand tight.

Screw the 2 pin plug into the microphone socket. Zip tie the cable to the shaft of the stand in a way that makes a large loose cable bend at the microphone, so that if the microphone is turned downwards it does not pull the plug connection.

(3) Installation

Using the cabling as supplied, an RX-201 receiver should be mounted vertically and within 10ft of the power and release connections of the trap. To lengthen the power/release cabling use a connector that is rated for outdoor use and meets current electrical standards. Ideally the receiver antenna should have an unobstructed line of sight to the Button Controller and Voice Box antennae.

To make the receiver connections at your trap, use the appropriate plug for the trap.

When using a receiver to control Skeet ISSF lights, connect the lights to the normally-open relay contacts 'Trap release connections' shown below.

Receiver Connections

Select your number, power type and use of receivers from the options below.

(3.1) Trap Receivers

12Vdc Power From Trap
10ft 4 core cable = Receiver power and trap release connections
Power + = Red
Power — = Black
White and Green = Trap release connections
Orientation of the white and green wires is not important

120Vac Wall Outlet Power
120Vac – 12Vdc adapter = Receiver power
Plug into GFCI protected 120V outlet.
10ft 2 core cable = Trap release connections
Orientation of the wires is not important.

(3.2) Skeet Receivers

12Vdc Power From Trap – 2 x Receivers (1 x HI + 1 x LO house)
10ft 4 core cable = Receiver power and trap release connections
Power + = Red
Power — = Black
White and Green = Trap release connections
Orientation of the white and green wires is not important

120Vac Wall Outlet Power – 2 x Receivers (1 x HI + 1 x LO house)
120Vac – 12Vdc adapter = Receiver power
Plug into GFCI protected 120V outlet
10ft 2 core cable = Trap release connections
Wire color orientation is not important

12Vdc Power From Trap – 1 x 2 Relay Receiver (HI & LO houses)
10ft 2 core cable = Receiver power
Power + = Red
Power — = Black
10ft 4 core cable = Trap release connections
Red and Black = Relay 1 trap release connections
White and Green = Relay 2 trap release connections
Wire color orientation is not important

120Vac Wall Outlet Power – 1 x 2 Relay Receiver (HI & LO houses)
120Vac – 12Vdc adapter = Receiver power
Plug into GFCI protected 120V outlet
10ft 4 core cable = Trap release connections
Red and Black = Relay 1 trap release connections
White and Green = Relay 2 trap release connections
Wire color orientation is not important

(4) User Options, Set Up & Description

This equipment has been designed for ultimate versatility, which is achieved by offering a large number of user options. User options are set with the equipment dipswitches. Unless specified otherwise when ordered, each piece of this equipment will be preset to factory settings before shipping. For many customers no changes will be necessary. The user option descriptions and how to change them are listed below. If no setting changes are required go to Operation on page 20.

FACTORY SETTINGS
Settings Common to Trap & Skeet
Radio frequency (CHN) = Club unique
Radio encoding (CODE) = Club unique
Delay before target release (DELAY) = None
Must use with counter (CTR) = No
Equipment use type (RX FUNC) = Wireless Overlay Voice Release System
Inactivity power down (SLEEP) = 10 minutes
Unwanted noise rejection (NOISE REJECT) = Minimum
Microphone sensitivity (MIC) = Center of range

Settings for Trap Only

Trap Singles or Trap Doubles (GAME) = Trap Singles
Receiver relay closed time (REL1 PRIME CLOSE & REL2 SEC. CLOSE) = 0.25 sec.

Settings For Skeet Only

Voice Release LED mode (LISTEN VOICE) = On
Rounds LED mode (LISTEN ROUNDS) = On
Button Operation mode (OP MODE) = NSSA
Skeet Rounds advance type (SRB) = Button advance
Discipline used in Rounds (SRT) = NSSA Skeet
Receiver relay closed time (REL1 PRIME CLOSE & REL2 SEC. CLOSE) = 0.25 sec.
Station Number Indication (BEEP) = On

If you require settings any different than the factory settings, these can be changed by following the instructions found in the tables and descriptions that follow.

(4.1) WO-TRX-101 Button Controller Set Up

Button Controller Dipswitch Settings

Switch numbers are printed on the body of the dipswitch.

UPPER

1	2	3	4	5	6	7	8	
OFF	**CHN**	**CHN**	**CHN**	**CHN**	**CHN**	**CHN**	**CHN**	CHN sets receiver ID frequency - TRX, RX & VB must all match

MIDDLE

1	2	3	4	5	6	7	8	
CODE	**CODE**	**CODE**	**CODE**	**LISTEN VOICE**	**LISTEN ROUND**	**DELAY**	**DELAY**	CODE sets receiver ID encoding – TRX, RX & VB must all match LISTEN sets real time TRX target status, LED's ON or OFF, in Skeet DELAY sets the target release delay time

LOWER

1	2	3	4	5	6	7	8	
OFF	**OP MODE**	**OP MODE**	**CTR**	**SRB**	**GAME**	**SRT**	**SRT**	OP MODE sets the Button Controller operation CTR switch same as Upper switch 4 = Use without counter SRB sets auto. or semi-auto. station advance - for use in Skeet Rounds GAME sets Trap Singles or Trap Doubles SRT sets the Skeet discipline - for use in Rounds

(4.2) RX-201 Receiver Set Up

Receiver Dipswitch Settings

Switch numbers are printed on the body of the dipswitch.

SW1

1	2	3	4	5	6	7	8	
OFF	**CHN**	**CHN**	**CHN**	**CHN**	**CHN**	**CHN**	**CHN**	CHN sets receiver ID frequency - TRX, RX & VB must all match

SW2

1	2	3	4	5	6	7	8	
OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	All switches OFF

SW3

1	2	3	4	5	6	7	8	
CODE	**CODE**	**CODE**	**CODE**	**REL1 FUNC**	**REL1 FUNC**	**REL2 FUNC**	**REL2 FUNC**	CODE sets receiver ID encoding – TRX, RX & VB must all match REL FUNC sets each relay for Singles or Doubles in a Trap receiver, or HI-house, LO-house or ISSF lights in a Skeet receiver

SW4

1	2	3	4	5	6	7	8	
REL1 PRIME CLOSE	**REL2 SEC. CLOSE**	OFF	OFF	OFF	OFF	**RX FUNC**	**RX FUNC**	REL1 CLOSE and REL2 CLOSE set relay contact closed times RX FUNC sets which equipment model a receiver is used with – Wireless Trap, Wireless Skeet or TX-101

(4.3) WT-VB-101 Voice Box Set Up

Voice Box Dipswitch Settings

Power off the Voice Box to change dipswitch settings, or the changes will not be recognized by the equipment.

SW1

1	2	3	4	5	6	7	8	
OFF	**CHN**	**CHN**	**CHN**	**CHN**	**CHN**	**CHN**	**CHN**	CHN sets receiver ID frequency - TRX, RX & VB must all match

SW2

1	2	3	4	5	6	7	8	
CODE	**CODE**	**CODE**	**CODE**	**MIC**	**MIC**	**MIC**	**MIC**	CODE sets receiver ID encoding – TRX, RX & VB must all match MIC sets the microphone sensitivity

SW3

1	2	3	4	5	6	7	8	
SLEEP	**SLEEP**	**SLEEP**	**NOISE REJECT**	**NOISE REJECT**	**NO BC**	**BEEP**	OFF	SLEEP sets the time until power down after inactivity NOISE REJECT sets the level of noise rejection NO BC without a Button Controller – sets counter/non-counter mode BEEP sets station indication in Rounds

(4.4) Settings – Common to Trap & Skeet - Explained

CHN Signal Frequency – Set in Button Controller, Receiver & Voice Box

The seven CHN dipswitches (switches 2-8 on the Upper dipswitch) are the primary method of system identification. These dipswitches must match on the Receiver, Button Controller and Voice Box for the system to operate. They set the frequency of the transmission signal and give 128 possible frequency variations. Using these settings for identification eliminates cross calls between adjacent fields because each field can have a different working frequency.

CODE Signal Encoding – Set in Button Controller, Receiver & Voice Box

The four CODE dipswitches (1-4 MIDDLE for the Button Controller, 1-4 SW3 for the Receiver and 1-4 SW2 for a Voice Box) are the secondary method of system identification. These dipswitches must match on the Receiver, Button Controller and Voice Box for the system to operate. They set the signal encoding, do not affect the transmission frequency and expand the possible number of individual system identities to 2048.

DELAY Target Release Delay Time – Set in Button Controller

The two DELAY dipswitches (7 & 8 on the Middle dipswitch) are used to set any required delay between the shooters call and the target release.

The possible Delay dipswitch settings are:

MIDDLE

7	**8**	Delay Type
OFF	OFF	No delay
OFF	**ON**	1/6th second delay
ON	OFF	Random 0-1.25 seconds delay
ON	**ON**	Random 0-3 seconds delay

CTR Counter Use – Set in Button Controller

The CTR dipswitch (4 on the Lower dipswitch of a Button Controller) allows the club to use the equipment with or without a counter.

To use the equipment without a counter, switch 4 of the lower dipswitch must match switch 4 of the upper dipswitch. If not set the same, the equipment will only operate with a counter. This allows the customer to switch between counter and non-counter use by changing only one dipswitch in the Button Controller.

RX FUNC Equipment Use Type – Set in Receiver

The two RX FUNC dipswitches (7 & 8 on SW4) of a receiver, set the model of BRB equipment the receiver is to be used with.

The possible dipswitch settings are:

SW4

7	8	Equipment Model
OFF	OFF	TX-101 Wireless Button Release
ON	OFF	Wireless Trap VRS
ON	**ON**	Wireless Skeet VRS

SLEEP Inactivity Power Off Time – Set in each Voice Box

The three SLEEP dipswitches (1, 2 & 3 on SW3) are used to set the time to automatically power off a Voice Box, after the last shooters call is heard.

The possible dipswitch settings are:

SW3

1	2	3	Minutes
OFF	OFF	OFF	10
OFF	OFF	**ON**	15
OFF	**ON**	OFF	20
OFF	**ON**	**ON**	30
ON	OFF	OFF	45
ON	OFF	**ON**	60
ON	**ON**	OFF	90
ON	**ON**	**ON**	120

NOISE REJECT Noise Rejection Dipswitches – Set in each Voice Box

The two NOISE REJECT dipswitches (4 & 5 on SW3) are used to set the four possible noise rejection settings. These settings are used when problems such as gun closing, echo or gun shots from adjacent fields cause unwanted release of targets. The recommended noise rejection setting is the lowest that can be set to remove a noise problem.

The possible dipswitch settings are:

SW3

4	5	Noise Rejection Level
OFF	OFF	Level 1 - Minimum noise rejection
OFF	**ON**	Level 2
ON	OFF	Level 3
ON	**ON**	Level 4 - Maximum noise rejection

MIC Microphone Sensitivity Dipswitches – Set in each Voice Box

The four MIC dipswitches (5, 6, 7 & 8 on SW2) are used to set the microphone sensitivity. The sensitivity can be changed up or down using the sixteen possible settings in the chart below. The range of possible sensitivity adjustment is high enough that it may be possible to use microphones that were previously discarded as 'deaf' with this equipment.

The possible dipswitch settings are:

SW2

5	6	7	8	Sensitivity
OFF	OFF	OFF	OFF	Least sensitive
OFF	OFF	OFF	**ON**	
OFF	OFF	**ON**	OFF	
OFF	OFF	**ON**	**ON**	
OFF	**ON**	OFF	OFF	
OFF	**ON**	OFF	**ON**	
OFF	**ON**	**ON**	OFF	
OFF	**ON**	**ON**	**ON**	Standard preset sensitivity
ON	OFF	OFF	OFF	
ON	OFF	OFF	**ON**	
ON	OFF	**ON**	OFF	
ON	OFF	**ON**	**ON**	
ON	**ON**	OFF	OFF	
ON	**ON**	OFF	**ON**	
ON	**ON**	**ON**	OFF	
ON	**ON**	**ON**	**ON**	Most sensitive

(4.5) Settings - Trap Only - Explained

GAME Trap Singles or Trap Doubles Dipswitch – Set in Button Controller

The GAME dipswitch (6 on the Lower Button Controller dipswitches) sets the equipment for use as Trap Singles or Trap Doubles. This dipswitch allows changing from one game to the other without unplugging one and plugging in another trap or receiver.

The possible dipswitch settings are:

LOWER

6	Game
OFF	Trap Singles
ON	Trap Doubles

REL1 FUNC & REL2 FUNC Set Game For Each Receiver Relay – Set in Receiver
Setting the four dipswitches, REL1 FUNC (5 & 6 on SW3) & REL2 FUNC (7 & 8 on SW3) of a receiver, allow a user to change game from Trap Singles to Trap Doubles using only the Button Controller. Each relay in the RX-201 Receiver needs to be set to operate in both Singles-and-Doubles or Doubles-only. If not set correctly when changed from Singles to Doubles the correct targets will not be released.

A standard Receiver is supplied with only Relay1 fitted. Relay2 is not fitted unless requested by the customer when ordering.

If using a single relay receiver, or if using only one relay of a two relay receiver, the dipswitches for the unused relay must be the same as for the used relay.

The possible dipswitch settings for REL1 are:

SW3

5	6	Relay used in Doubles-only or Singles-and Doubles	
OFF	OFF	Relay 1 operates in Trap Singles and Trap Doubles	(Primary relay)
ON	**ON**	Relay 1 only operates in Trap Doubles	(Secondary relay)

The possible dipswitch settings for REL2 (if fitted) are:

SW3

7	8	Relay used in Doubles-only or Singles-and Doubles	
OFF	OFF	Relay 2 operates in Trap Singles and Trap Doubles	(Primary relay)
ON	**ON**	Relay 2 only operates in Trap Doubles	(Secondary relay)

For Trap Doubles it may be possible to connect two individual traps to REL1. To ensure that doing so does not cause trap damage, confirm if this is possible with your trap manufacturer before attempting.

REL PRIME CLOSE & REL SEC. CLOSE Relay Closed Time – Set in Receiver
The REL PRIME CLOSE (1 on SW4) & REL SEC. CLOSE (2 on SW4) dipswitches set the time that a receiver relay stays closed. Some traps require a longer receiver relay closed time than others. If set too short the trap may start to move, but not release a target. If set too long a fast re-cocking trap may release more than one target for one relay closure.

To set each relay closed time, decide if each relay is a 'primary relay' or a 'secondary relay' by using the description in the previous section (REL1 FUNC & REL2 FUNC).

The possible dipswitch settings for REL1 CLOSE are:

SW4

1	Primary Relay Closed Time
OFF	Sets a Primary relay closed time to 0.25 sec.
ON	Sets a Primary relay closed time to 0.80 sec.

The possible dipswitch settings for REL2 CLOSE are:

SW4

2	Secondary Relay Closed Time
OFF	Sets a Secondary relay closed time to 0.25 sec.
ON	Sets a Secondary relay closed time to 0.80 sec.

NO BC No Button Controller Counter Mode – Set in each Voice Box
Each Voice Box can be operated with or without a Button Controller (see WT-VB-101 Voice Box Operation for instructions). The NO BC dipswitch (6 on SW3 of a Voice Box) is used to set a Voice Box for Counter or Non-Counter use, when using without a Button Controller. The possible dipswitch settings are:

SW3

6	No Button Controller mode
OFF	When using without a Button Controller – release targets without a Counter
ON	When using without a Button Controller – release targets only with a Counter

(4.6) Settings - Skeet Only – Explained

LISTEN LED Operation – Set in Button Controller
The two LISTEN dipswitches (5 & 6 on the Middle dipswitch) set the two types of Listen mode.

- LISTEN VOICE – sets Listen in Voice Target Release
- LISTEN ROUNDS – sets Listen in Rounds Target Release

With Listen on, the Button Controller LED's will display the next target to be released and the target after next to be released, in real time. As a target is released the LED's will update to always show the next two targets of a station.

With Listen off, when the target selections are made, the Button Controller LED's will light to show the next two targets to be released for a few seconds only before extinguishing.

Listen mode requires the Button Controller to eavesdrop on the system radio traffic, which uses a significant amount of Button Controller battery power.
With Listen mode off, the Button Controller battery life is over 1,000,000 button presses.
With Listen mode on, the battery life is reduced to approx. 50,000 button presses in Voice Release, or 50 hours in Rounds.

The possible Listen dipswitch settings are:

MIDDLE

5	Button Controller Voice Release LED Mode
OFF	Button Controller Listen Voice Release mode OFF
ON	Button Controller Listen Voice Release mode ON

MIDDLE

6	Button Controller Rounds LED Mode
OFF	Button Controller Listen Rounds mode OFF
ON	Button Controller Listen Rounds mode ON

SRT Skeet Rounds Type – Set in Button Controller

The two SRT dipswitches (7 & 8 on the Lower dipswitches) set the Skeet discipline when the equipment is used in Rounds mode.

Rounds mode allows the equipment to voice release an entire sequence of targets in a round, without the shooter needing to button select the targets.

Having Rounds mode set up does not force the user to use Rounds. Normal selection of Single targets, Doubles, HI-LO or LO-HI sequences is also possible.

The possible SRT dipswitch settings are:

LOWER

7	8	Skeet Rounds Type
OFF	OFF	NONE – Do not allow Skeet Rounds
OFF	**ON**	ISSF – International Skeet
ON	OFF	NSSA – American Skeet
ON	**ON**	CPSA – English Skeet

OP MODE Button Operation Type – Set in button Controller

The two OP MODE dipswitches (2 & 3 on the Lower dipswitch) are used to set the operation of the target selection push buttons.

The ISSF setting requires a button press to select each required target, for a single, HI-LO or LO-HI sequence. This allows the selection of a single target as an option bird, or a single target to be continuously repeated when practicing.

The NSSA setting eliminates the need to press the HI and LO buttons to select a HI-LO sequence. A HI-LO sequence is selected by pressing only the HI button. In NSSA it is not possible to select a single HI target.

The CPSA setting eliminates the need to press the HI and LO buttons to select a HI-LO sequence, or the need to press the LO and HI buttons to select a LO-HI sequence. A HI-LO sequence is selected by pressing only the HI button.
A LO-HI sequence is selected by pressing only the LO button.
In CPSA it is not possible to select a single HI or single LO target.

The possible Button Operation Type dipswitch settings are:

LOWER

2	3	Delay Type
OFF	OFF	ISSF - Press button for every target selection
ON	**OFF**	NSSA - HI button selects HI/LO targets
ON	**ON**	CPSA – HI selects HI/LO targets and LO selects LO/HI targets

SRB Skeet Rounds Button – Set in Button Controller

The SRB dipswitch (5 on the Lower dipswitch) sets the type of advancement between stations when using Rounds mode.

Voice Release Rounds sequencing has two choices of advancement between stations.

The two choices are:

- SRB off – For single shooter use.
  No button press is necessary to advance station. Set this way the equipment automatically advances to the next station target sequence upon completion of the last and opens the microphone.
- SRB on – For single or multiple shooter use.
  A button press is needed to advance station. After a call is heard, the equipment advances to the next station target sequence and opens the microphone when the red 'advance' button is pressed.

The possible SRB dipswitch settings are:

LOWER

5	Skeet Rounds Button
OFF	Skeet Round Button OFF – Automatic station advancement
ON	Skeet Round Button ON – Button press station advancement

REL1 PRIME CLOSE & REL2 SEC. CLOSE Relay Closed Time – Set in Receiver

The two dipswitches, REL1 CLOSE (1 on SW4) & REL2 CLOSE (2 on SW4) are used to set the relay closed times of each of the two receiver relays.

Some traps require a longer receiver relay closed time than others. If set too short the trap may start to move, but not release a target. If set too long a fast re-cocking trap may release more than one target for one relay closure.

The possible dipswitch settings for REL1 CLOSE are:

SW4

1	LO-house Relay Closed Times
OFF	Sets LO-house relay closed time to 0.25 sec.
ON	Sets LO-house relay closed time to 0.80 sec.

The possible dipswitch settings for REL2 CLOSE are:

SW4

2	HI-house Relay Closed Times
OFF	Sets HI-house relay closed time to 0.25 sec.
ON	Sets HI-house relay closed time to 0.80 sec.

REL1 FUNC & REL2 FUNC Relay Function – Set in Receiver

The four dipswitches, REL1 FUNC (5 & 6 on SW3) & REL2 FUNC (7 & 8 on SW3) are used to set which trap (or light – ISSF) each of the two receiver relays operates.

A standard Receiver is supplied with only Relay1 fitted. Relay2 is not fitted unless requested by the customer when ordering. Unless fitted, no setting is required for Relay 2.

If using a single relay receiver, or if using only 1 relay of a 2 relay receiver, the dipswitches for the unused relay must be the same as for the used relay.

The possible dipswitch settings for REL1 are:

SW3

5	6	Relay 1 Function
OFF	OFF	LO-house trap release
ON	OFF	HI-house trap release
OFF	**ON**	LO-house light control -ISSF
ON	**ON**	HI-house light control - ISSF

The possible dipswitch settings for REL2 are:

SW3

7	8	Relay 2 Function
OFF	OFF	LO-house trap release
ON	OFF	HI-house trap release
OFF	**ON**	LO-house light control - ISSF
ON	**ON**	HI-house light control - ISSF

BEEP Station Number Indication Dipswitch – Set in Voice Box
The BEEP dipswitch (7 on SW3) sets if a Voice Box beeps to indicate station number when in Rounds.
When Rounds mode is entered, if a shooter wants to begin shooting at a station other than Station 1, pressing the red button, the appropriate number of times for the mode of operation, will advance the station. To aid knowing which station the equipment is set to, BEEP mode will sound the corresponding number of notes, that rise in pitch, for each station.
Station 2 = 2 notes, Station 3 = 3 notes etc.

The possible BEEP dipswitch settings are:

SW3

7	Stand Number Indication
OFF	Station number beeps = OFF
ON	Station number beeps = ON

(5) Operation

When set to Trap or Skeet the WO-101 Wireless Trap/Skeet Overlay System operation is the same as for the separate Wireless Trap or Skeet systems.

When set, the system will remain in that discipline even after being powered off, making it unnecessary to reselect a discipline each time it is used.

To identify what discipline the equipment is set to, either:

- Power on a Voice Box and listen to the sound made. Skeet and Trap make different sounds.
- With the Voice Boxes powered on, select the required discipline with the Button Controller, as described below. If already set to the required discipline the Voice Boxes will make no sound and a single 'Beep' will be heard from the Button Controller. If a Voice Box was not set correctly it will change to the correct setting.

Setting To Trap From Skeet
Power on one Voice Box at a time.
Press and hold the red GAME button then press the HI/MIC ON button. The Voice Box will make the Trap power on sounds and be ready to use.
Repeat for each Voice Box.

Setting To Skeet From Trap
Power on as many Voice Boxes as required for Skeet.
Press and hold the red GAME button then press the LO/MIC OFF button. The Voice Box will make the Skeet power on sounds and be ready to use.

The Button Controller and Voice Boxes must be set to the same discipline for the system to operate. If set differently, when the Button Controller is used an alternating tone alarm will sound and the button selection will be ignored. Set the Button Controller and Voice Boxes to the same discipline in the same way as if changing between disciplines described above.

(5.1) Operation – Trap

(5.1.1) RX-201 Receiver Operation - Trap

When connected to its power source, the green 'PWR' LED will light on the receiver and will stay lit as long as a good power level is maintained.

If the power supply voltage drops below 10.0V the 'PWR' LED will flash continuously to signify low power.

When the receiver relay closes the corresponding relay LED will light for the time that the relay is closed. When the relay opens, the LED will flash rapidly during the trap reload time.

Radio Signal Strength Indication (RSSI)
Optimum location of the Receiver can be ensured with the help of the RSSI feature of this equipment. When a message is received from a WT-VB-101 Voice Box or from the WT-TRX-101 Button controller, one of the five 'SIG' LED's will light to show the strength of signal received. The LED will remain lit until a new message is received.

Signal strength 1 = Red LED - weakest signal that can release a target
Signal strength 2 = Yellow LED
Signal strength 3 = Green LED
Signal strength 4 = Orange LED
Signal strength 5 = Blue LED - strongest signal

Note – If a strong signal is received, but its message is corrupted (by radio frequency interference etc.) no LED's will light.

(5.1.2) WO-VB-101 Voice Box Operation – Trap

Before using a Voice Box for the first time, it must be fully charged.
Failure to fully charge before first use will drastically reduce the battery lifespan and void the equipment warranty.

There are 2 ways to power on a Voice Box, depending upon whether you want to use the equipment with or without the Button Controller.
Note – The sound made when powering on a Voice Box set to Trap is different than when set to Skeet.

Mic Closed Mode - With Button Controller
To power on a Voice Box, press and release the power button on the top of the unit. When the power button is pressed, an indicator LED will illuminate around the power on button and a series of rising notes will sound. The LED will flash to show that the unit is powered on and that the microphone is closed. When the Voice Box has been powered on and the referee has opened the microphone (by pressing the MIC ON button), the Voice Box LED will light continuously. A target can now be released by the shooters call.

Mic Open Mode -Without Button Controller
To power on a Voice Box, press and hold the power button on the top of the unit for three seconds. When the power button is pressed, an indicator LED will illuminate around the power on button and a series of rising notes will sound. After 3 seconds two additional short notes will sound and the Voice Box LED will light continuously to show that the microphone is open. A target can now be released by the shooters call.

Charge Level Indication
When powered on, the color of the LED indicates the unit battery charge level.

- Green = Full charge – 25% charge.
- Amber = 25% - 5% charge.
- Rapid Flashing Amber = Less than 5% charge. The Voice Box enters Battery Protection Mode. This starts an automatic 10 minute shutoff timer. After 10 minutes the LED will extinguish, an audible 'beep' will sound and the unit will power off.

If low battery charge level has caused a Voice Box to automatically power off, it can be powered by its charger for as long as is necessary.

Calling For a Target
With the microphone installed approximately 3ft from the shooter, the shooter should be able to call for a target in the same way as if the trap was being released by a person. There is no need to turn and call toward the microphone or call excessively loudly.

When a call is detected, the indicator LED will extinguish for two seconds and a target will be released.

Once a call is detected the Voice Box will not operate again until two seconds after the target has been released, in order to allow the trap time to reload. When ready to accept another call the indicator LED will light.

Powering Off a Voice Box
A Voice Box can be powered off by pressing the power button. The indicator LED will extinguish and a series of falling notes will sound.
Note – The sound made when powering on a Voice Box set to Skeet is different than when set to Trap.
If any Voice Box in the system does not detect a call for the duration of the set Sleep Inactivity Power Off Time, it will automatically power off.

(5.1.3) WO-TRX-101 Button Controller Operation - Trap

The WO-TRX-101 has no power on switch. Simply press any button and the unit will react immediately.

Manual Target Release
A target can be released manually by pressing the 'Trap' button. When 'Trap' is pressed, the WO-TRX-101 sends the instruction directly to the RX-201 Receiver and a target is immediately released.

Voice Target Release
With the Voice Boxes powered on, the referee can open and close the microphones by pressing the 'Mic On' and 'Mic Off' buttons.

Before a target can be released by voice, the microphones must be opened by pressing the 'Mic On' button, or by powering on the Voice Box in Mic Open mode.

Low Battery
If a low battery voltage is detected, the red 'Low Batt' LED lights for 10 seconds each time a button is pressed.

(5.2) Operation – Skeet

(5.2.1) RX-201 Receiver Operation- Skeet

When connected to its power source, the green 'PWR' LED will light on the receiver and will stay lit as long as a good power level is maintained.

If the power supply voltage drops below 10.0V the 'PWR' LED will flash continuously to signify low power.

When the receiver relay closes the corresponding relay LED will light for the time that the relay is closed. When the relay opens, the LED will flash rapidly during the trap reload time.

Radio Signal Strength Indication (RSSI)
Optimum location of the Receiver can be ensured with the help of the RSSI feature of this equipment. When a message is received from a WT-VB-101 Voice Box or from the WT-TRX-101 Button controller, one of the five 'SIG' LED's will light to show the strength of signal received. The LED will remain lit until a new message is received.

Signal strength 1 = Red LED - weakest signal that can release a target
Signal strength 2 = Yellow LED
Signal strength 3 = Green LED
Signal strength 4 = Orange LED
Signal strength 5 = Blue LED - strongest signal

Note – If a strong signal is received, but its message is corrupted (by radio frequency interference etc.) no LED's will light.

(5.2.2) WO-VB-101 Voice Box Operation - Skeet

There are 2 ways to power on a Voice Box, depending upon whether you want to release a target selection once (non-repeat), or continuously release a target selection (repeat).

Non-Repeat of a Target or Sequence
When a Voice Box is powered on in Non-Repeat mode, it will release a target or sequence once only. When that target or sequence is released another button selection must be made to release another target.

To power on a Voice Box, press and release the power button on the top of the unit. When the power button is pressed, an indicator LED will illuminate around the power on button and a series of rising notes will sound. The LED will flash to show that the unit is powered on and that the microphone is closed.
Note – The sound made when powering on a Voice Box set to Skeet is different than when set to Trap.

When the Voice Box has been powered on, the referee can select a target. When a target has been selected the microphone will open. When the microphone opens, the Voice Box LED will light continuously. A target can now be released by the shooters call.

Repeat a Target or Sequence – For single or multiple shooters.
When a Voice Box is powered on in Repeat mode, any selected HI, LO, DOUBLE or target sequence will be repeated indefinitely until a new instruction is given. Put a Voice Box into Repeat if a single shooter wants to repeat targets at a station, or for multiple shooters so that they do not need to button select the same targets for each shooter.

To power on a Voice Box in Repeat, press and hold the power button for three seconds. When the power button is pressed, an indicator LED will illuminate around the power button and a series of rising notes will sound. After three seconds another note will sound and power LED will flash to show that the microphone is closed.

When the Voice Box has been powered on, the referee can select a target. When a target has been selected the microphone will open. When the microphone opens the Voice Box LED will fade on and off to show that repeat is set. A target can now be released by the shooters call.

Charge Level Indication

When powered on, the color of the LED indicates the unit battery charge level.

- Green = Full charge - 25%.
- Amber = 25% - 5% charge.
- Rapid Flashing Amber = Less than 5% charge. The Voice Box enters Battery Protection Mode. This starts an automatic 10 minute shutoff timer. After 10 minutes the LED will extinguish, an audible 'beep' will sound and the unit will power off.

If low battery charge level has caused a Voice Box to automatically power off, it can be powered with its charger for as long as is necessary.

Calling For a Target

With the microphone installed approximately 3ft from the shooter, the shooter should be able to call for a target in the same way as if the trap was being released by a person. There is no need to turn and call toward the microphone or call excessively loudly.

When a call has been detected, the microphone will close and the indicator LED will change from lit continuously to flashing, to show that it has closed. The LED will flash until the microphone is opened again, either by a new target selection being made, or because Repeat mode is being used, or automatically as part of a sequence. When ready to accept another call the indicator LED will light continuously.

Powering Off a Voice Box

A Voice Box can be powered off by pressing the power button. The indicator LED will extinguish and a series of falling notes will sound.

Note – The sound made when powering on a Voice Box set to Skeet is different than when set to Trap.

If any Voice Box in the system does not detect a call for the duration of the set Sleep Inactivity Power Off Time it will automatically power off.

When multiple Voice Boxes are being used, do not power off the Voice Box on the station that has just been completed. Powering-on a new Voice Box will automatically power-off the last and transfer any required system status data to the new station.

(5.2.3) WO-TRX-101 Button Controller Operation - Skeet

The Button Controller sets the type of targets to be released. It has no power on switch. Simply press any button and the unit will react immediately.

Targets can be released in three ways:

- Manual Release
- Voice Release
- Rounds

All three target release methods are available to the shooter without changing dipswitches.

Manual Target Release

HI, LO or DOUBLE targets can be released using the Button Controller without need for a shooters call. To release a target manually it is not necessary to have a Voice Box powered on.

The LED beside the red M/VRS button shows if the Button Controller is in Manual or Voice Release:
LED off = Voice Release
LED on = Manual Release

The default state for a Button Controller is Voice Release mode. To alternate between Voice Release and Manual Release, press the red M/VRS button for 2.5 seconds until a 'beep' is heard and the LED changes state.

When the Button Controller has been set to Manual from Voice Release the M/VRS LED will light to show that the unit is in Manual. Targets can now be released manually by pressing the HI, LO or DOUBLE buttons.

If no target is selected for five minutes the unit will exit Manual and sleep.

Voice Target Release

With the Voice Box powered on and the Button Controller in VRS mode, the referee can select the targets to be voice released.

The HI, LO and DOUBLE buttons select the target(s) to be released. When the target buttons are pressed their corresponding LED's will light and the Voice Box microphone will open to listen for the shooters call.

Flashing LED = Next target to be released
Continuous LED = Target after next to be released.

Release of SINGLES or DOUBLES

When the HI, LO or DOUBLE buttons are pressed the corresponding Button Controller LED will flash and the Voice Box microphone opens. A target can now be released by the shooters call.

If a target selection is made but not wanted, simply press the red CANCEL button. Alternatively, making a new selection will override an unwanted selection. If a new selection is made to override an unwanted single HI or single LO target, a small amount of time must be left to ensure that the new selection is not seen as the 2nd target of a sequence.

With a Voice Box in Repeat mode, when the target is shot at, the microphone will reopen ready for the next call. The next call will release the same target as the last. This will repeat until a different target is selected or the red M/VRS CANCEL button is pressed.

If a target is released by call but no shot is taken, for reasons such as a broken target or gun malfunction, the next call will repeat the prior call as if the prior call had not happened.

HI-LO & LO-HI SEQUENCES

When a HI-LO or LO-HI target sequence is selected the corresponding Button Controller LED's will show the target sequence and the Voice Box microphone will open. The first target can now be released by the shooters call. When a call has released the 1st target and a shot is taken, the microphone will automatically reopen for the release call of the 2nd target.

If a target selection is made but not wanted, simply press the red CANCEL button or make a new selection which will override it.

With a Voice Box in Repeat mode, when the HI-LO or LO-HI sequence is completed the microphone will reopen. The next call will release the same target sequence as the last. This will repeat until a different single target or sequence is selected, or the CANCEL button is pressed.

If no call is detected within 30 seconds of the microphone opening, the target sequence is cancelled and the unit resets ready for another selection to be made.

If a target is released by call but no shot is taken, for reasons such as a broken target or gun malfunction, the next call will repeat the prior target selection as if the prior selection had not happened. Therefore a sequence will not advance until a gun report is heard.

ROUNDS

Shooting in Rounds allows a partial or entire Skeet round to be shot without need to select any targets. The system is preprogrammed to know which target sequence to release at each station.

Rounds type choices are:

- NSSA
- CPSA
- ISSF
- No Rounds allowed

Rounds station advancement choices are:

- Skeet Rounds Button (SRB)– On
- Skeet Rounds Button (SRB) – Off

The Rounds type and advancement type are both dipswitch selected during equipment Set Up.

Entering & Exiting Rounds

To enter Rounds mode, power on the Voice Box.
Press and hold the red M/VRS CANCEL and then press the DOUBLE button. The four green LED's will revolve in a counter clockwise direction and six 'Beep's will sound, to show that you are entering Rounds.
If no Voice Box is powered on, the Button Controller will not react when the Rounds entry buttons are pressed.

To exit Rounds at any time, press and hold the red M/VRS CANCEL button and then press the DOUBLE button. The four green LED's will alternate between the two halves of an 'X' and six 'Beep's will sound to show that you are exiting.

Shooting in Rounds with SRB On – Semi-automatic Station Advance

For use by a single or multiple shooters.

Using the target sequence for NSSA as an example, starting at Station 1 (HI, LO, DOUBLE), the system operation is as follows:

Entering Rounds the microphone is closed.
Pressing the red M/VRS CANCEL button opens the microphone ready for the shooters call.
The shooter calls for the HI target and the target is released.
The HI target is shot at.
The shooter calls for the LO target and the target is released.
The LO target is shot at.
The shooter reloads, calls for the DOUBLE and the targets are released.

The DOUBLE targets are shot at.
The microphone is closed.
The shooters move to Station 2.
Pressing the red M/VRS CANCEL button opens the microphone ready for the shooters call.

Multiple shooters – Power on the Voice Box in Repeat mode. When a shooter has completed the target sequence the microphone will reopen for the next shooter. The next call will begin the same target sequence as the last. This will repeat until the red M/VRS CANCEL button is pressed which closes the microphone and advances the system to the next station. When ready to shoot at the next station, press the M/VRS CANCEL button to re-open the microphone.

At Station 8, when the HI and LO targets have been released and shot at, the programmed round is complete. The microphone will close, the four green LED's will alternate between the two halves of an 'X' and six 'Beep's will sound to show that you are exiting. Pressing the red M/VRS CANCEL button will have no effect. If a shooter has not missed any shots through Station 8, the 25th shot can be selected in the same way as any other option shot, by pressing the HI or LO target of choice.

To begin another round, re-enter Rounds by pressing and holding the red M/VRS Cancel and then pressing the DOUBLE button.

Advancement to the next station can be done at any time, without the previous station being shot. This allows a shooter to shoot at the stations he wants and miss those he does not. Advancement from station to station is made by pressing the red M/VRS CANCEL button twice per station.

- Button press 1 = advance to next station.
- Button press 2 = open microphone.

Using this method a shooter can start at any station in a round.

<u>Shooting in Rounds with SRB Off</u> – Automatic Station Advance
For use by a single shooter only.

Using the target sequence for NSSA as an example, starting at Station 1 (HI, LO, DOUBLE), the system operation is as follows:

Entering Rounds opens the microphone ready for the shooters call.
The shooter calls for the HI target and the target is released.
The HI target is shot at.
The shooter calls for the LO target and the target is released.
The LO target is shot at.
The shooter reloads, calls for the DOUBLE and the targets are released.

The DOUBLE targets are shot at.
The system advances to Station 2 and opens the microphone ready for the shooters call.

Advancement to the next station can be done at any time, without the previous station being shot. This allows a shooter to shoot at the stations he wants and ignore those he does not. Advancement from station to station is made by pressing the red M/VRS CANCEL button once per station.

- Button press = advance to next station and open microphone.

Using this method a shooter can start at any station in a round.

Option Birds

During a round, a single HI, single LO or DOUBLE can be released at any time simply by pressing the desired target button on the Button Controller. Any combination of HI, LO or DOUBLE can be released, in any order, as many times as required. When no more option buttons are pressed, the round will continue as if no option target(s) was released.

All Rounds Types

If no call is detected within 10 minutes of the microphone opening, the target sequence is cancelled and the unit resets ready for another selection to be made.

If a target is released by call but no shot is taken, for reasons such as a broken target or gun malfunction, the next call will repeat the prior call as if it had not happened. Therefore a sequence in a Round will not advance until a gun report is heard.

If an option target selection is made but not wanted, make a new selection which will override it. Do not press the red M/VRS CANCEL button because this will advance the station.

If a low battery voltage is detected in the Button Controller, the red 'Low Batt' LED lights for 10 seconds each time a button is pressed.

(6) Charging & Storage

WARNING - Do not leave, charge or use a Voice Box in a place where the temperature may exceed 60°C (140°F).

Storage

A voice Box can be stored at very low temperatures, but will not charge.

Store Voice Boxes at room temperature - approx. 20°C (68°F).

Do not store a Voice Box at temperatures higher than 45°C (113°F) for extended periods of time – this can damage the battery and shorten its lifespan.

Keep away from open flames, hot surfaces and sources of ignition.
Do not puncture, crush or incinerate a Voice Box.

Charging

Only charge a Voice Box with the charger supplied by BRB Systems USA Co. Use of any unauthorized chargers may damage the equipment or cause the batteries to explode. Use of unauthorized chargers will invalidate your warranty.

The simplest way to ensure that a Voice Box unit does not shut off, due to low battery charge level, is to keep each unit fully charged. **When shooting is finished plug each Voice Box into its charger.**

To charge a Voice box the temperature must be between 3°C (37°F) and 45°C (113°F). If the temperature is out of range when a charger is plugged in, or goes out of range during charging, an alarm will sound, the power button LED will alternate quickly between amber and green to alert the user and charging will cease. When the temperature returns to the normal working range the unit will automatically resume charging.

When a charger is connected to a Voice Box that is within temperature range, two tones with rising pitch will sound, the on/off button LED will indicate the battery charge level and charging will begin. The charge level indication will change as the battery charges.

The charge level indication is as follows:

- **Mostly amber** - Battery is deeply discharged

- **Half amber/ half green** - Normal 'bulk' charging is in process
- **Mostly green** - Battery is mostly charged; 'topping' is in process
- **Short green flashes** - Widely spaced: battery is fully charged and in 'maintenance' mode

If a charger is plugged in, or the on/off button is pressed, of a Voice Box with a battery that has exceeded its lifespan a series of fast beeps will sound for 4 seconds and the Voice Box will become unresponsive.

When a charger is disconnected from a Voice Box, two tones with falling pitch will sound and the on/off button LED will extinguish.

The Voice Box circuitry acts as both a battery charger and maintainer. **The Voice Box cannot be overcharged. To prolong battery lifespan it is recommended that each Voice Box be continuously connected to its charger when not in use.** The maximum time between Voice Box charges should never be longer than 4 weeks. Any longer period between charges will reduce the battery capacity and lifespan.

A deeply discharged Voice Box should recharge in approximately 4-5 hours.

(7) Maintenance

The rugged manufacturing of this Wireless Voice Release System should ensure many years of trouble free use if it is not abused and given simple maintenance.

- Do not allow any component to be immersed in water.
- Keep the Voice Boxes fully charged.
- Do not leave the equipment outside, in the weather, for indefinite periods of time. Store in a cool dry place.
- Regularly inspect the equipment for wear or damage. If any wear or damage is found seek service from BRB Systems USA Co.

Should difficulty be found with the system operation, do not dismantle any part of the system. This will void the warranty and may result in an electric shock or fire.

Refer servicing to BRB Systems USA Co.

(8) BRB Systems USA Co. - Limited Warranty

This BRB Systems USA Co. product, supplied in the original packaging to the original purchaser, is warranted against manufacturing defects in materials and workmanship for a limited warranty period of:

One (1) Year Parts and Labor.

This limited warranty begins on the original date of purchase and is valid only on products purchased and used in the USA.
This warranty will terminate automatically prior to its stated expiration if the original purchaser sells or transfers the product to any other party.

BRB Systems USA Co. will repair or replace this product, at our option and at no charge as stipulated herein, with new or reconditioned parts or products if found to be defective during the limited warranty period specified above.
All replaced parts and products become the property of BRB Systems USA Co. and must be returned to BRB Systems USA Co.
Replacement parts and products assume the remaining original warranty or ninety (90) days, whichever is longer.

This limited warranty covers defects in materials and workmanship encountered in normal use of this product and shall not apply to defects or injuries caused by the following, including, but not limited to: damage which occurs in shipment; delivery and installation; applications and uses for which this product was not intended; product alterations not authorized by BRB Systems USA Co.; cosmetic damage or exterior finish; accidents; neglect; fire; water damage; vermin or insect infestation; lightning or other acts of nature; use of products, equipment systems, utilities, services, supplies, accessories, applications, installations, repairs, external wiring or connectors not supplied or authorized by BRB Systems USA Co. which damage this product or result in service problems; incorrect electrical line voltage; fluctuations and surges; customer adjustments and failure to follow operating instructions, cleaning, maintenance and environmental instructions that are covered and prescribed in the Instruction Manual.
BRB Systems USA Co. does not warrant uninterrupted or error-free operation of the product.

BRB Systems USA Co. shall not be liable for loss of revenue or profits, failure to realize savings or other benefits, or any other special, incidental or consequential damages caused by the use, misuse or inability to use this product, regardless of the legal theory on which the claim is based, even if BRB Systems USA Co. has been advised of the possibility of such damages. Nor shall recovery of any kind against BRB Systems USA Co. be greater in amount than the purchase price of the product sold by BRB Systems USA Co. Without limiting the foregoing, the purchaser assumes all risk and liability for loss, damage or injury to purchaser and purchaser's property and to others and their property arising out of the use, misuse or inability to use this product sold by BRB Systems USA Co. not caused directly by the negligence of BRB Systems USA Co.

To receive warranty service contact BRB Systems USA Co. for problem determination and service procedure. If it is determined that the product requires warranty service, ship the product, in its original packaging or its equivalent, together with proof of purchase, prepaid insured to BRB Systems USA Co.

Products repaired or replaced under warranty will be returned to you, within a reasonable time, freight prepaid.

To obtain warranty service contact BRB Systems USA Co. at:

service@brbsystemsusa.com or call: 412 773-2128