INSTRUCTION MANUAL

For the

Canterbury Skeet Unit - Voice Release System

US Version

List of Contents

1) Introduction

Congratulations on your purchase of this Canterbury Voice Release unit. We are sure that like many other clubs and individuals worldwide, you will enjoy the freedom and consistency that operating this system will provide your members. Use of this equipment has been proven to:

- increase competitor's performance
- save costs, with less clay targets wasted
- eliminate the requirement for a paid or voluntary 'puller'
- provide consistent timed release of the clay for more fairness
- increase participant enjoyment in this exacting sport.

The Canterbury Voice Release range of products has been developed in New Zealand in response to the needs of international, national and local clay target sports-people. This system provides a consistent release of a clay target on the call of the shooter and eliminates the requirement for a manual 'puller' in clay target shooting.

The system has been designed to almost completely eliminate background noises which might be expected to trigger false target release - talking, dogs barking, traffic, airplanes, etc, as well as the usual sport noises of gunshots, gun-breaking, empty cartridge cases falling, referee's calls, loudspeaker system noise, etc. Extensive testing of this system has been carried out in all types of conditions that are generally encountered with this sport - heat, wind, rain, snow, etc

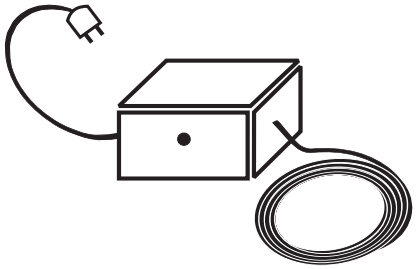
In addition, with the unique synchronized arrangement of microphones, calls from adjacent traps do not affect the performance of this system. Some shooters may experience an occasional non-release of a target if their voice projection is not sufficiently sharp or audible. This may require some slight alteration to their call, in order for them to experience 100% pulls.

The system works equally well with left and right-handed shooters. The design of stands is such that there is no requirement to alter the position of the microphones in order for the system to function efficiently for either left or right handed competitors.

Graham Callander, who has had a distinguished career in electronic research and development in New Zealand, completed development of the Canterbury Voice Release system in 1998. Since that time, Canterbury Voice Release systems have been used worldwide in such events as the 1999 & 2000 New Zealand, Australian, World, and USA Championship's and the 1999 & 2000 Australian National Skeet Championships. This was directly as a result of competitors' demands for a fairer, more consistent clay target release.

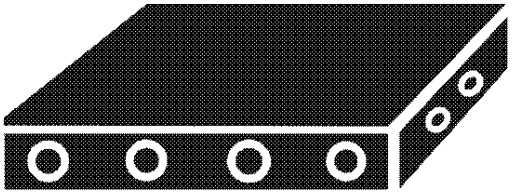
Once used in competition, competitors are reluctant to return to manual target release.

2) Equipment components



RELAY UNIT - with two-pin plug for connection to mains power and bare flex for connecting to trap. Bare flex wires are: Green wire – Common, Brown wire – Hi House, Blue wire – Lo House. Screw in connector for main power lead.

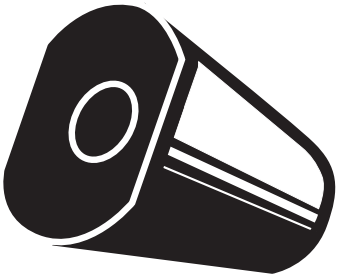
MAIN POWER CABLE - connects the relay unit to the electronic control box, with connectors at either end.



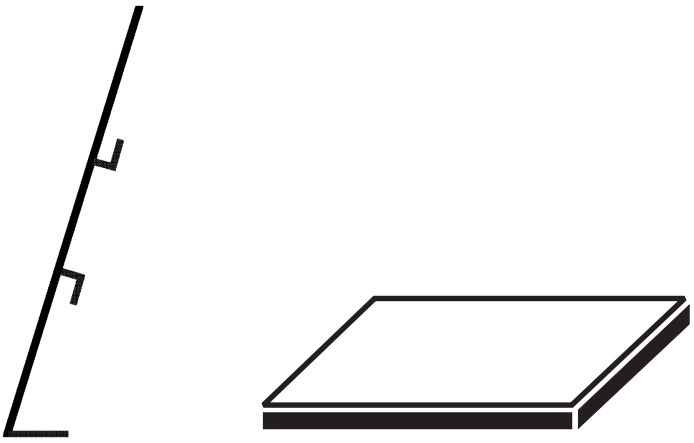
CONTROL BOX - houses the electronics in a weatherproof container and has connectors for all cables. The two microphones should be connected to the 2-pin sockets at the rear of the control box (as shown above). The remaining 2-pin sockets are for use with satellite microphones for shoot-off or Trap situations. The remote sequencer unit connects to the 3-pin socket. The main cable joining to the relay unit connects tot he 4-pin socket

SEQUENCER UNIT. Connects to the main control box. Toggle on/off switch, LED display lights and over-ride manual release button. Refer to Section 3.10 – 3.19 in the manual for full Sequencer operations.

MICROPHONE CABLES. Connects microphone to control box, with two-pin connectors at either end. 2 microphone cables are supplied – 1 x 1 metre and 1 x .315 mm long.



MICROPHONES. One-bolt connection to stand. Cable connects to underside of microphone.



MICROPHONE STAND. Base and upright similar to above. Bolt together with two wing nuts and washers provided

RELAY BRACKET. A small metal bracket is provided with each unit to locate the relay unit inside one of the trap houses. This has two small holes for attaching the bracket to the wall of the house. Use screws or dyna-bolts as required. The relay unit then locates onto the bracket with main cable connecting to the control box being inserted through the large hole. This will secure the relay unit to the bracket. The hock on the base of the bracket is to hold the main cable if required.

3) Assembly of components

SKEET STAND

3.1 Connect the main base plate (identified by its construction with feet to lift the control box off the ground) and main metal upright (identified by its construction with extra brackets) together using wing nuts provided. Upright stand should lean towards the shooter with the trigger location plate facing the shooter to the right of the microphone mount and on a slight angle. This positions the trigger unit, when held in the mounting in a position where it can easily been seen.

3.2 Attach one microphone to the top of the upright stand facing **TOWARDS** the shooter. This microphone attaches through the hole in the bracket provided and is locked in position with the wing nut and washers provided.

3.3 Attach the second microphone to the base of the upright facing **AWAY** from the shooter. This microphone is attached through the hole provided in the bracket mounted to the upright stand by using the wing nut and washers provided.

3.4 Attach the control box to the base stand and firmly push onto the Velcro supplied. This is industrial strength Velcro and is much stronger and durable than standard household Velcro. Position the control box so that the side with 2 LED lights faces towards the shooter. These lights are active when the unit is ON and provide a second visual check on which trap is to be released on next call. i.e. the Left Hand LED indicates the Hi house will fire next; The Right Hand LED for the Lo house and both LED's are lit for doubles.

3.5 Connect the upper microphone to the control box by use of the 1-meter long cables. Connect the microphone cable at one end to the socket on the microphone and at the other end to one of the 2-pin sockets located at the rear of the control box.

3.6 Connect the lower microphone using the .315 meter long cable. Connect the microphone cable at one end to the microphone and at the other end to the second 2-pin socket, located at the rear of the control box.

3.6 Connect the Sequencer unit to the control box (3-pin connection) and then push the Sequencer firmly onto the Velcro on the upright stand unit to lock it into position. It can be easily removed by lifting from the top of the hand piece and can then be held by the referee or scorer if required. Excess cable can be tidily wound around the hooks provided on the stand.

3.7 Connect the main cable to the control box and relay unit through the 4-pin socket provided. It is advisable to secure this cable to the microphone stand

with the cable ties provided or by looping it around the base of the upright stand. This ensures that any strain exerted on the cable puts stress onto the cable itself and not onto the socket connecting the cable to the control box. Damage to the socket connection point could result if you do not take this precaution.

3.8 Connect the relay unit to the Trap wiring. A three-wire cable is provided for connection to the trap machines.

These leads should be connected in the same manner as the manual release button. General experience has shown a common system to be where a three-wire connection is made to a three button manual release, using a three-pin plug. One of the wires is common for both trap machines. The Hi button connects between one wire (to the Hi house) and common. The Lo button connects between the other wire (to the Lo house) and common. The DOUBLES button connects both wires to common. On the 3 wire cable from the relay unit, Green is common, Brown is Hi House and Blue is Lo House.

We strongly recommend that advise is taken from the Field electrician on correct wiring of this unit as not all Skeet fields are wired similarly. Failure to operate the correct sequence of trap machine and possible damage could result from incorrect wiring at this point. Some experimentation may be required if the Field wiring is not well documented.

3.9 With all connections made secure, the system should be checked that it is working correctly by switching on the power and visually checking that LED lights on the Sequencer unit are operating. The voice call can then be checked without releasing a target, by watching the Hi LED light "wink" out when a call is made over a microphone. Alternatively the relay unit should be heard to "click" on such a call.

Sequencing to the next target is activated by the report from a gunshot. For initial testing purposes, shouting close to the microphone can simulate this. This test can be done as follows: call "pull" in the normal manner – the Hi House LED should 'wink' – then call "bang" close into the microphone mouth. This will sequence the system forward so that the Lo LED illuminates. On the next call the Lo LED winks and a shout will then sequence the system forward to the next position, i.e. Both LED's will be lit if the unit is on the H-L-D sequence.

Also check the lower microphone for similar operation. The lower microphone reduces the units susceptibility to background sounds. If it is not working, then the system may appear to be operating normally but will be excessively sensitive to background sounds.

SEQUENCER TRIGGER UNIT - FUNCTIONS

3.10 The two lights in the top corners are the sequencer indicator lights and they illuminate to indicate which trap machines will be activated next.

3.11 The large round button between them is the override button, which allows a target to be manually thrown. The target will come from whichever trap machine is indicated to be active by the light at the top of the sequencer. This manual release can be used for setting the traps, checking the traps or by the referee if required. Using the manual button sequences the system forward on each press of the button.

3.12 Third button down is the "back-up" button. Each time it is pressed, the selected sequence backs up one phase. It is used to reverse up the automatic sequencer after a broken target or for an optional shot.

3.13 Under that is a simple on/off button ("On/Off") to activate the system. It is recommended that the system by switched off by using this button after a squad has completed shooting at one station and before the stand is moved to the next station. This will assist to prevent any targets being accidentally thrown by vibration on the stand activated the trap release.

At the end of each round the system should be turned off to prevent people inadvertently releasing a target by talking near a microphone. It's also useful if the competitors enter into any discussions whilst on the firing line. It has an LED light beside it to indicate whether it's on or off.

Note that this automatically turns off if no target is fired after 2 minutes. To reactivate the system, press this button again.

3.14 Immediately under that are the six sequencer selector buttons, which also have LED lights beside them to indicate which one is currently in operation, and these are all marked in such a way as to be self-explanatory.

3.15 "H-L-D" activates the equipment to release the traps in the sequence of Hi House, Lo House and then Doubles on each call. The sequencer will continue to rotate through these positions for as long as shooters call. The sequencer can be visually checked for its current position by looking at the top two lights and seeing which trap(s) will release next.

3.16 "H-L" activates the equipment to release the traps in the sequence of Hi House and then Lo House on each call. The sequencer will continue to rotate through these two positions for as long as shooters call. The sequencer can be visually checked for its current position by looking at the top two lights and seeing which trap will release next.

3.17 "L-H-D" activates the equipment to release the traps in the sequence of Lo House, Hi House and then Doubles on each call. The sequencer will continue to rotate through these positions for as long as shooters call. The sequencer

can be visually checked for its current position by looking at the top two lights and seeing which trap(s) will release next.

NOTE: This option is used in Australia and New Zealand.

3.18 "D" will activate the equipment to only fire both trap houses. The sequencer will only fire doubles for as long as shooters which to call and can be checked visually by noting that both lights at the top of the hand piece are lit.

3.19 "H" will activate the equipment to only fire the Hi house. The sequencer will only fire the Hi house trap for as long as shooters which to call and can be checked visually by noting that the light at the top left of the hand piece is lit.

3.19 "L" will activate the equipment to only fire the Lo house. The sequencer will only fire the Lo house for as long as shooters which to call and can be checked visually by noting that the light at the top right of the hand piece is lit.

Thus when refereeing a normal round, if no one missed and neither machine threw a broken target, theoretically you would only touch the controller six times in total. Once to turn it on, once between stations two and three, once between five and six, once more between six and seven, again between seven and eight and finally to turn it off when finished on eight.

4) Installation and set up

Connect up all components as per this manual.

The main cable connecting the trap houses to the control box should be laid along the ground to provide the easiest route between the trap house and shooting positions.

The main stand is designed to be moved to each station by a shooter or the referee and is easily balanced on the handle for this purpose. The cable will drag over the ground without damage – provided that assembly instruction 3.7 has been followed, i.e. tie the main cable to the stand to reduce any potential for stress on the connections.

In practice, the last shooter in a squad is best positioned to carry the stand to the next station after they finish their shot and place the stand in front of the first squad shooter who can be in position ready to commence firing. Prior to picking the stand up and moving it, ensure that the system is switched off by pressing the "On-Off" button once. Then when placing the stand in front of the next shooter, simply press the "On-Off" button again to switch the system back on.

Place the stand in front of the shooter and operate.

5) Operator Tips

NO CONTROLS

The Canterbury Voice Release system features an optimised sensitivity setting that responds to nearly all quiet calls, yet rarely throws a false target from background sounds. There is no provision for adjustment of sensitivity, volume, balancing of microphones, etc. Under no circumstances should any person remove the lid of the control box to attempt to adjust any setting of this equipment. If there is a persistent problem with the equipment releasing false targets or missing calls, then refer to the Owner Manual, your nearest distributor or the manufacturer, for advice.

Removal of the lid of the control box will invalidate the warranty on this equipment.

NO CROSS TALK

Units can be used on adjacent ranges. Calls and gun shots from adjacent ranges rarely cause false triggering. The referee or scorer can comfortably stand behind the shooters and call miss/hit targets without releasing targets. It is suggested that this person should maintain a minimum distance of three to five yards behind the competitors to both eliminate the possibility of interference and also to reduce any potential for a false release.

BACKGROUND SOUNDS

When fully assembled the 2 microphones monitor the general level of background sound to filter extraneous noises and so eliminate almost all potential for false releases. Where high wind is being experienced or there is other consistent background noise level, competitors may have to call a little louder. The system relies on one microphone receiving a louder sound than the other does and therefore triggering the target release. This is no different to a human 'puller' needing to be able to hear the call, where there are other interfering noises.

Shooters on the line should avoid (as they currently do with manual release) talking, coughing, etc. A referee standing 3 – 5 yards behind the line can report without normally firing false targets. If a referee has an abnormally loud voice, and is triggering release, then it may be prudent to locate this person's position a few more feet to the rear.

Closing of the shotgun, gunshots, the noise of empty cartridge shells hitting concrete and calls from adjacent fields will not normally release a target. Some early model semi-automatic shotguns may release a false target, in which case the competitor should be encouraged to turn slightly from the microphone to eject shells and reload – however it is not necessary for them to move from their position.

This equipment works equally well with competitors who use a whistle to 'pull' their target and also with persons who shoot from a wheelchair.

MICROPHONE POSITION

For best results, the microphone stand should be placed in front of or slightly to the left of the shooting position so that the microphone is approximately 1 yard from the shooter. Ensure that the barrel/sight tip of the shotgun does not accidentally bump the top microphone. Not only does this safeguard the shooter's gun, it also prevents any likelihood of a false release of a target through vibration of the microphone stand.

Having the microphone placed on the left does not disadvantage a left-handed shooter, as the unit works equally with left and right-handed competitors.

EXTREME WIND/EXCESSIVE ECHOES

In some extraordinary circumstances where the shooting range is situated in a location which may cause excessive echo or where high wind blows directly into the mouth of the microphones, it may be necessary to take some preventative action if false releases are being experienced.

In order to reduce the sensitivity of the microphones where such an event may occur, two simple operations are suggested to return the unit to its normal operating parameters.

a) A material, such as woven stocking, can be placed over the mouth of the microphone and secured by a rubber band or string

b) Inserting pieces of polystyrene (3 - 4 pieces is all that is required) gently into the mouth of each microphone can reduce the sensitivity to false release

Please note that these actions should not be taken under normal conditions, as they will reduce the standard effectiveness of the equipment.

EXCESSIVE RAIN/MOISTURE

This equipment is moisture resistant at all times however normal precautions should be taken when operating the Canterbury Voice Release in constant rain or excessive moisture.

Take care to ensure that the control box is not immersed in water or covered in mud.

It is recommended that in times of rain or persistent moisture, the remote trigger switch should be covered with a plastic bag and a rubber band can be used to clamp the end of the bag around the cable. This will prevent water from seeping inside this unit and yet still allow maximum use of the switching arrangement. When not in use, ensure the trigger unit is placed into its mounting bracket.

TRAP RELOAD/RETURN TO BATTERY

For safety reasons and to give the trap time to reload, a 2-second time out is incorporated within the control box of this equipment. If a call is made while the trap is reloading, the competitor may get a no target or what appears to be a slow pull, if it catches the end of this cycle.

On calling, if a no target is thrown, and the voice release has activated, you will not get another target for a further 2 seconds due to this in-built time out. If shooting the Hi-Lo combination, then this time out does not apply as each trap machine is timed individually.

So remember if no target is thrown after a call, then give the trap time to reload.

REFEREE

Advise each squad that no talking should be allowed on the line and for competitors with semi-automatic guns, they should shut these with care or inside the 2-second time out. In some cases, the different noise characteristics of some older model semi-automatic guns can cause a false release.

Use the manual release button to show each squad a target, or have the no. 1 shooter give a call over the microphone. Check that the equipment is operating correctly by watching the LED light (red light on the remote trigger switch) to note that it "winks" off on the call of each competitor.

If the LED winks off, but a target is not released, then there is a problem with the trap.

If the LED does not wink off then a problem exists with the voice activation equipment and the cable connections should be checked and the system re-tested.

If there is a problem with a trap or if a gun breakdown is experienced or as soon as the squad finishes, then switch off the equipment with the on/off button. This is to prevent accidental target release.

The referee should remain three to five yards behind the competitors to eliminate any chance of their call releasing a false target. If a false target is released by the referee's call, then vary the position to find a suitable distance where competitors can hear the call, yet a false target is not released.

TWO MINUTE SHUT DOWN

Each unit has a built in shut down feature, which operates if the equipment has not received a call for 2 minutes. This is a safety feature to prevent accidental target release if a unit may have been left switched on. If the unit has shut down under this feature then it will be noticeable through the red On/Off LED light being "off". To reactivate the system, press the On/Off button. The On/Off LED will turn back on and the unit will be ready for use.

6) Product Maintenance:

Firstly it is important to remember that this product is based on electronic components and as they are being used in an outdoors environment, they may be subject to harsh and imprudent treatment. Where possible, always handle the various components with respect. Not only will this ensure optimum performance of the equipment; it will also increase the product's life span.

There are several areas where regular maintenance on this product will ensure long and trouble free usage:

1) It is recommended that the socket connections be cleaned occasionally with a dry electrical spray (e.g. CRC/WD40) and be brushed clean of any dust and grit that may accumulate.

2) If any components are immersed in water then it is recommended that they be thoroughly dried before re-use. Again a spray such as CRC/WD40 can be used.

3) The remote trigger switch, if subjected to dirt, dust, water, grit, coffee, soft drink, etc, can malfunction via the toggle on/off switch not making a clean connection. If this occurs, then spray liberally with a solvent spray (e.g. CRC/WD40) to clean the connection and 'work' the toggle switch until it restores to its proper function.

4) Use of a small amount of a di-electric silicon compound in all sockets can ensure perfect electrical contacts, in regions where moisture may cause problems. "No-Ox-Id grease is highly recommended.

5) Cables may be subjected to tension through competitors tugging to shift the microphone stand. If unnecessary force is used then it is possible that the microphone cable may be pulled from its connection clamp. Simply use a Phillips screwdriver to re-assemble.

6) Over prolonged use, cable connectors can sometimes become loosened and may fail to provide a clean electrical connection. Check occasionally for tightness and if required, either lightly spread the male pin of the connector or close the female socket through using a fine screwdriver or knife blade. Do not over-tighten or use too much force as this may cause breakage to the connectors.

7) When first setting up your CVR system, ensure that the relay unit in the trap house is permanently located on the wall and sufficiently away from any potential damage situation. Check the connections for dirt or dust build up and clean if necessary. Ensure that moisture does not enter this unit.

7) Manual Loaded Trap Warning and Recommendation:

As with all equipment on a trap-shooting field, safety is of paramount importance. This cannot be stressed highly enough and it is extremely important that all persons who may be involved in the set up and use of the CVR voice release equipment become familiar with its operation.

Of particular concern is the situation where a club may still be using manually loaded traps, rather than automatic loaders. The potential for mishap is increased greatly where a person is located inside the trap house while the trap is being used.

Whilst the CVR unit's operation is exactly the same as a manual release button, great care should be taken where it is linked to a manual loaded trap and competitors are not familiar with its automatic response.

A sample warning notice is shown below and we recommend that this be reproduced and prominently displayed around the field for all competitors attention. CVR takes no responsibility for any person contravening these recommendations where accident occurs as a result.

As the CVR unit cannot make a mental judgement on whether the trap loader may or may not be ready for a target release, as opposed to a manual puller, the activation of this system is reliant entirely upon the competitor.

Each CVR unit is equipped with a 2-second shut down after a call and before another target can be released. This timing is set to provide sufficient time for the trapper to reload the trap, yet still be a fast enough cycle for top competitors to enjoy a quick calling squad. In fact, must competitors have a call time of around 4 – 5 seconds.

It is strongly recommended that where a club is using manual loaded traps, that all competitors be briefed on the need for caution on the squad to ensure that no inadvertent call is made which may release a target and cause injury to the trapper.

If any club may wish to have the 2-second shut down extended to 2.5 or 4 seconds, then this can be undertaken by your distributor at a minimal charge. Please contact your distributor and arrange for the control box to be returned to them for this adjustment to be made.

Warning: Under no circumstances should any club or individual attempt to make adjustments inside the control box themselves, as not only will this invalidate the warranty, it may also result in damage to the product.

WARNING

Microphones MUST be
Switched OFF prior to
any person approaching
the Trap House

8) Warranty

Warranty

Congratulations on your purchase!

This Canterbury Voice Release product is warranted against faulty materials and labour for a period of twelve (12) months from the date of original purchase.

If service is required during the warranty period, please contact your nearest Canterbury Voice Release distributor. These repairs will be carried out at no charge to the owner, subject to the conditions specified herein.

The owner is responsible for any transportation and insurance costs if the product has to be returned for repair.

This warranty does not extend to defects or injuries caused by or resulting from causes not attributable to faulty parts or the manufacture of the product, including but not limited to, defect or injury caused by or resulting from misuse, abuse, neglect, accidental damage, improper voltage, liquid immersion, vermin infestation, or any other alterations made to the product which are not authorised by Canterbury Voice Release International Ltd.

Please retain your sales documentation, as this will need to be produced to validate a warranty claim.

IMPORTANT: DO NOT RETURN THIS CARD TO CANTERBURY VOICE RELEASE INTERNATIONAL LTD or YOUR LOCAL DISTRIBUTOR.

For your reference only, please enter the particulars of your purchase below and retain, along with your purchase documentation.

Model:

Serial Number:

Date of Purchase:

Distributor/Dealer:

9) Canterbury Voice Release Distributors - Worldwide:

NEW ZEALAND **Canterbury Voice Release Intl Ltd** 457 Marine Parade South New Brighton Christchurch New Zealand Tel: 64 3 356 0327 Fax: 64 3 356 0328 Email bruce@cvr.co.nz Mr Bruce Rickard	**AUSTRALIA** **Canterbury Voice Release Intl Ltd** 457 Marine Parade South New Brighton Christchurch New Zealand Tel: 1800 125 642 Fax: 1800 125 649 Email bruce@cvr.co.nz Mr Bruce Rickard
NW USA + BC, Canada **Northwest Shooters Supply** 10410 Douglas Drive S.W. Tacoma Washington 98499-4817 Tel: (253) 582 2940 Fax: (253) 584 2707 Mr Ron Tree	**SW USA** **Las Vegas Shooting Park** 9400 Tule Springs Road Las Vegas Nevada 89131 Tel: (702) 645 5606 Fax: (702) 645 4093 Email LVGUN1@aol.com Mr Steve Carmichael
Central USA **Peifer Rifle Co** PO Box 192 Nokomis Illinois 62075-0192 Tel: (217) 563 7050 Fax: (217) 563 7060 Email peiferco@hotmail.com Mr Ralph Peifer	**SCANDINAVIA** **Beomat Sweden AB** Box 4 S-688 21 Storfors Sweden Tel: (46) 550 617 70 Fax: (46) 550 602 06 e-mail sune@beomat.se Mr Sune Svensson
Eastern USA **Target Shotguns** 330 Airport Road PO Box 66 Arden North Carolina 28704 Tel: 1800 684 6329 Fax: (828) 654 9925 Email: AA27AAbob@aol.com Mr Bob Schultz	**UNITED KINGDOM** **Mid-Wales Shooting Ground** Ffinnant Farm Trefeglwys Caersws Powys SY17 5QY Tel: (01686) 430 215 Fax: (01686) 430 215 Mr Arthur Williams