

SCARECROW BIO-ACOUSTIC SYSTEMS

KEEPING BIRDS AT BAY

SCARECROW PREMIER 1500

INSTALLATION, OPERATION AND MAINTENANCE GUIDE

JUNE 2008 ISSUE



**INCLUDING: BIO-ACOUSTIC BIRD DISPERSAL, A
GUIDE TO THE USE OF DISTRESS CALLS**

DEVELOPED AND MANUFACTURED IN THE UNITED KINGDOM BY

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SCARECROW PREMIER 1500

HOST VEHICLE OPERATED DIGITALLY STORED BIRD DISPERSAL SYSTEM

SCARECROW PREMIER is CE Approved to Directive 89/336/EEC and

'e' Approved to €11 021910 for legal installation in vehicles.

INSTALLATION INFORMATION

ISSUE 6 : © JUNE 2008

PRODUCT SERIAL NUMBER

STANDARD CALLS INCLUDED IN THIS S/No :

Herring Gull	<input style="width: 50px; height: 20px;" type="checkbox"/>	Rook	<input style="width: 50px; height: 20px;" type="checkbox"/>	Black Headed Gull	<input style="width: 50px; height: 20px;" type="checkbox"/>
Common Gull	<input style="width: 50px; height: 20px;" type="checkbox"/>	Crow	<input style="width: 50px; height: 20px;" type="checkbox"/>	Magpie	<input style="width: 50px; height: 20px;" type="checkbox"/>
Pigeon	<input style="width: 50px; height: 20px;" type="checkbox"/>	Lapwing	<input style="width: 50px; height: 20px;" type="checkbox"/>	Starling	<input style="width: 50px; height: 20px;" type="checkbox"/>

SPECIAL CALLS INCLUDED IN THIS S/No :

<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>
<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>
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INTRODUCTION

Please note that we at SCARECROW BIO-ACOUSTICS don't claim to be "experts" at bird dispersal and control but we do offer many years of real experience obtained as a leading manufacturer of bio-acoustic bird dispersal products that some experts would say are "state of the art".

Specie distress calls have proven successful in dispersing birds in scientific experiment by the **UK Central Science Laboratory**, and through many years of practical use.

The dispersal of birds from airports and surrounding areas is an essential part of flight safety and must be carried out efficiently to minimise Birdstrike risk to aircraft and passengers. **Our products can be found at many airports throughout the World.**

The same dispersal principle used on airfields also applies to pleasure beaches, outdoor restaurants, docks, harbours, landfill sites, food processing and storage facilities and fields of farm produce where the presence of birds can be a health hazard or lead to stock loss. **Our products can be found at many such sites.**

Offshore oil and gas production platforms and storage facilities, helidecs, heliports and ships in port all benefit from the use of **SCARECROW** technology. **Our product can be found at many locations.**

We do aim to be helpful, so please contact us on any specific dispersal problem which, with your help, we will try to resolve. If we cannot, we'll direct you to an expert without hesitation.

DISCLAIMER:

Whilst the unique efficiency of SCARECROW bio-acoustic products is long established SCARECROW BIO-ACOUSTIC SYSTEMS LIMITED stress that they can only work effectively as part of an overall and planned programme of bird control. This will include total hygiene management and where applicable the use of operatives who have been professionally trained. Without limitation, SCARECROW BIO-ACOUSTIC SYSTEMS LIMITED will not accept liability for any consequences as a result of poor equipment maintenance, misuse, inappropriate use, lack of operative training, failure of due diligence or through lack of prior project consultation.

WARNING

SCARECROW bird control products contain digitally encoded, therefore easily identified, licensed recordings of SCARECROW processed bird species distress calls. These are Copyright protected and action will be taken against any person or business copying these whether for private or further commercial use. The possession, purchase and/or ownership of SCARECROW products is taken as acceptance of this Copyright and that due care and attention will be taken in its protection.

SCARECROW PREMIER 1500 - DIGITALLY STORED BIRD DISPERSAL SYSTEM

Using digitally stored sound, **SCARECROW** will reproduce spoken messages, bird calls and audio tones exactly as the original sound. Each sound or message is instantly selectable on a rotary switch for immediate replay.

PREMIER 1500 contains interface software to allow connection to LAPTOPS (**ISIS**).

Powered by an external 12v d.c. supply (or 24v with adaptor), **PREMIER 1500** has an input socket for a microphone enabling it to be used directly as a powerful mobile Public Address System.

The stored sounds and the microphone operate via a **volume control, SOUND LEVEL**, to adjust to the required sound level.

Since there are no moving parts to wear and being entirely solid state in construction the **SCARECROW PREMIER SERIES** is suitable for mobile or dirty, damp and dusty environments. No regular routine servicing is required and the quality of reproduction does not deteriorate with use.

As supplied the standard **SCARECROW** contains the distress calls of **Herring, Common and Blackheaded Gulls, Starling, Lapwing, Rook, Magpie, Pigeon and Crow**. Each sound is of approximately 15 seconds duration and will continuously repeat until switched off.

Your own specialised siren, tones and messages can be digitally encoded by **SCARECROW BIO-ACOUSTICS** from a customer recorded tape of suitable quality or a **SCARECROW BIO-ACOUSTICS** studio recording.

All digitally stored information can be changed or modified at a future date if necessary and at nominal extra cost.

Distress call recordings used on **SCARECROW** have been re-recorded in digital format by **SCARECROW BIO-ACOUSTICS** and stored using MP3 technology. Digitising the calls has made it possible to improve the signal (bird call) to noise ratio, producing 'cleaner' calls. Different bird species may be selected with a single multi-position rotary switch.

Digital reproduction of distress calls provide these advantages:-

- The calls are clear, with little system distortion and insignificant background noise.
- For each species, the sequence of calls continues for at least 12-15 seconds before repeating.
- There are no gaps of silence of more than 1 second in the sequence.

SCARECROW PREMIER distress calls **always start** at the beginning; this is important in that the birds would otherwise be confused and dispersal less effective.

SCARECROW: THE UNBEATABLE PEDIGREE

SCARECROW PREMIER series, contain in standard form the digitally stored distress calls of **Herring, Common and Black Headed Gulls, Lapwing, Starling, Rook, Magpie, Pigeon and Crow**; others can be programmed to specific requirements. *Any call changes for the PREMIER bearing the serial number on the front page of this Manual are shown on the front page.*

To operate, the vehicle driver simply switches to an appropriate distress call.

Control Panel graphics are designed to be easily visible under low light conditions.

SCARECROW BIO-ACOUSTIC SYSTEMS hold a library of distress calls for birds found in both Northern and Southern hemispheres and which are a particular hazard or nuisance at the locations discussed.

BIRD DISPERSAL PROGRAMMES

When planning a daily bird control programme take into account the manner in which birds have responded historically to dispersal activity; be aware of the various flight paths that birds use to and from the area. Familiarity will enable the minimum delay before implementing dispersal procedures. The early interception of approaching birds before they land will not provide the birds the opportunity to settle; the effect of subsequent dispersal action, if necessary, will thus be increased.

Often the dispersal of small numbers of birds may not appear to warrant the required effort but it must be emphasised that birds in flight are frequently joined by other birds already on the ground. A relatively small number of birds can form the core from which a large flock congregates; importantly, single birds have been responsible for serious birdstrike incidents. The presence of single birds, or even a small number, on an airport must not be ignored.

Remember, no single dispersal method is 100% effective against 100% of the birds for 100% of the time. Don't just rely on the playback of bird distress calls, consider using bird scaring cartridges, for example, to reinforce the message that birds are not welcome at your airfield.

INSTALLING A PREMIER 1500 SYSTEM

Thank you for purchasing **SCARECROW PREMIER**. **Installation is simpler than fitting a car radio!!** Mount the unit in any convenient position (i.e., under-dash) using the bracket provided.

A plug-socket interface exists between **SCARECROW** and the host vehicle, facilitating removal to another vehicle, or for security reasons. The mating connector for DC powering and the loudspeakers, is included and both DC loudspeaker cabling should be connected via this. SEE PAGE 15.

Carefully dismantle the cable connector noting that it should be re-assembled just as carefully after all wiring is completed. SEE PAGE 14 FOR DETAILED INFORMATION.

REMOTE CONTROL FACILITY

Using the RJ45 interface on the rear panel, the hand-held, cabled, **REMOTE CONTROL 1235** can be connected replicating all front panel controls. A 2m lead is supplied as standard; extra lengths are available at extra cost. This provides facility for installing **PREMIER** under, for example, the front passenger seats.

ADDITIONAL FACILITIES

SCARECROW also incorporates a facility for relaying the host vehicles VHF radio/s, helpful if the driver has to leave the vehicle, and (relevant to airports) to broadcast public address announcements via a hand-held microphone, or from a series of pre-stored digital messages - for example, "**please assemble over here**". Once selected, these stored messages can be continuously repeated without further human involvement.

SCARECROW distress calls may be "**wired-remote**" started and stopped by simple use of the **push-on, push-off** button fitted to a 10m lead and connected to the **SCARECROW**. Ask **SCARECROW** for further details.

SUPPLY REQUIREMENTS

12v DC; peak current 2.8 Amps. Quiescent: 150mA. In-line DC fuse, **protecting against reverse polarity connection. 24v powering is an option.**

Connect the 12v d.c. power source. **Incorrect polarity connections will not damage the unit but it will fail an internal fuse 4AT, behind the power input connector on the p.c.b.**

IMPORTANT NOTES:

1. **SCARECROW is designed to operate from 12v dc supplies. Never connect SCARECROW to DC voltages in excess of 15 volts, or AC supplies of any kind; 24v dc operation is possible if fitted with a SCARECROW BIO-ACOUSTICS d.c. adaptor.**
2. **Never operate SCARECROW without loudspeakers, of the correct impedance, connected.**
3. **Always ensure that any radio transmitting equipment sharing the same (battery) supply is fully suppressed to CE Mark/EMC standards of Approval and that all equipment is fully bonded (grounded) to the vehicle body.**

RATED OUTPUT POWER

30 watts RMS, 40 watts peak, into 4 ohm load. Using two SCARECROW 1211 high efficiency horn loudspeakers, sound pressure levels in excess of 110dBA @ 6 metres and a useful operating distance of 300 metres can be sustained.

LOUDSPEAKER CONNECTION

Using the rear panel drawing for reference (Page 15) connect the loudspeakers to the connector positions shown. The mating cable connector should be carefully dismantled, both DC and Loudspeaker cables being connected at this time.

Full output power will only be achieved when the **PREMIER 1500** is correctly loaded with two 8ohm loudspeakers wired in parallel.

Just one loudspeaker of 8 ohms will provide an output of less than 5 watts, insufficient for the intended use.

LOUDSPEAKER EFFICIENCY

The positioning of loudspeakers on airside vehicles is important to the system performance in efficiently dispersing birds.

The TYPE 1211 loudspeakers SCARECROW supplies were especially selected for their efficiency, the physical shape playing no small part in the process. By placing these speakers on a vehicle roof bar, facing forward spaced at 600mm centres, a very effective sound field with a strong vertical beam that could extend up to 300 metres above the airfield is created, ensuring that the birds being dispersed are aware of their specie distress call up to at least this height.

Angle the loudspeakers downwards by 2 – 5 degrees; not only does sound 'rise' in warm air but, by inclining, the ingress of rain is reduced and the loudspeaker will 'self drain'.

Mounting on square tube frames is facilitated by use of SPEAKER MOUNT 1217.

IMPORTANCE OF QUALITY

As established during formal tests and assessments carried out on behalf of the Ministry of Agriculture Fisheries and Food it should be noted that satisfactory bird dispersal will only be achieved if high quality reproduction is maintained.

SCARECROW IS NOW READY FOR USE.

CONTROLS : See page 16

SOUND LEVEL: Rotary, 12 position, stepped attenuator.

POWER: ON/OFF switch and re-assurance, power indicator. See page 12: SELF DIAGNOSTIC SYSTEM

FUNCTION SWITCH:

- a) Microphone / Remote
- b) Birds: playback of nine pre-stored bird calls
- c) Aux 1/VHF Radio 1
- d) Aux 2/VHF Radio 2
- e) Playback of a pre-stored voice message: extra cost option.
- f) Playback of sweep siren tone
N.B. The selected store will continuously repeat until cancelled.

Additional Facilities:

- a) Live announcement using 1210 fist microphone
- b) Relay of host vehicle's VHF communication radios: fully isolated transformer input: maximum sensitivity 1v, suitable for connection to the vehicle radio's loudspeaker output.
- c) Provision for optional plug-in hand held remote control, enabling PREMIER to be stowed elsewhere in the vehicle. PRODUCT CODE : 1235

Switch on **SCARECROW** by using the front panel rocker switch, **POWER**; a further reassurance lamp will also illuminate.

LEAVE PREMIER SWITCHED ON DURING DUTY USE. DO NOT SWITCH OFF BETWEEN DISTRESS CALL DISPERSAL USE; A DELAY OF 7 SECONDS (SEE PAGE 11) WILL BE EXPERIENCED. IT IS RECOMMENDED THAT, BETWEEN USE, THE OPERATOR SIMPLY SWITCHES TO ANOTHER FUNCTION POSITION OR REDUCES SOUND LEVEL TO ZERO.

Set the **SOUND LEVEL** control initially at about 12 o'clock, "midway"; to operate, select the required mode:

BIRDS: Select the relevant bird distress call. Adjust the **OUTPUT** level as appropriate to the operational environment.

N.B. Remote control of **BIRD** operation is possible using the rear mounted relevant DIN connector and optional 10m lead and with the **FUNCTION** switch in the **MIC/REMOTE** or **AUX** positions. **PRODUCT CODE : 1221**

MICROPHONE: This operates from the **PRESS TO TALK** grip on the microphone (separately ordered); speak within 2.5 cms of the microphone front and adjust the **SOUND LEVEL** as appropriate. Safety operation means that operating the **press to talk** grip in any **FUNCTION** position will give priority to microphone use.

AUX 1/AUX 2: Useful when the operator leaves the vehicle and needs to keep in **RADIO** touch with messaging, from the **CONTROL TOWER** for example.

MESSAGE: Playback of a pre-stored voice message. This message is recorded by **SCARECROW** and is an extra cost option.

SIREN: Playback of sweep siren tone.

RADIO RELAY CONNECTION

To connect the vehicles V.H.F. radio output simply wire between the V.H.F. speaker output and the relevant pins on the interface DIN connector at the rear of **SCARECROW**; see page 15. Two radios may be connected to **SCARECROW**.

Adjust the **SOUND LEVEL** as appropriate, using the rear panel level adjustments to equalize sound levels (radio/birds).

If any difficulty is experienced in operation or installation please Contact us by fax phone or email.

SELF DIAGNOSTIC SYSTEM

Each time **SCARECROW PREMIER** is powered up, by using the **POWER** switch, the following SELF DIAGNOSTIC procedure will take place:

1. On activating, a **7 second delay-for-use** will occur, whilst the unit configures itself and performs diagnostic checks.
2. The **POWER** led will display the following information during use
 - a) *Continuous display : indicates fully operational system.*
 - b) *flashing one second on, one second off : indicates an internal software fault, or connection error.*
 - c) *Long flash followed by short flash : indicates a Memory card error.*
 - d) *Long flash followed by 2 short flashes : indicates amplifier error, open circuit loudspeaker, or line disconnection, VOLUME set too high.*
 - e) *Long flash followed by 3 short flashes : indicates external DC supply voltage is below 9V and is NOT viable; the PREMIER amplifier will be disabled.*
 - f) *Short flash every 3.5 seconds : indicates unit PREMIER is in low power sleep mode, i.e. unit has not been in recent operational use and is in shut down mode to save externally sourced dc supply power.*

PLEASE NOTE

IT IS NOT 'BEST PRACTICE' to use the **POWER ON/OFF** switch between bird dispersal processes; every time **PREMIER 1500** is switched **ON** again there will be a 7 second delay while the internal self-check system operates as stated above.

As stated earlier in this **Installation Manual**, use the **FUNCTION** switch to cancel a bird distress call – move from **BIRDS** to **AUXI**, or **MIC/REMOTE** – then back to **BIRDS** to restart the dispersal process.

Use the POWER switch ONLY when starting your Duty, or on close.

You can also leave PREMIER switched ON so that control is from the vehicle ignition switch, when the host vehicle engine is started, or stopped. See 2 (f) above.

CORRECTING ERRORS DISPLAYED BY THE SELF DIAGNOSTIC SYSTEM

Most display modes are self explanatory; some errors displayed require attention to the vehicle installation (**b,d,e**).

However, **c**), indicating a Memory Card error, possibly be due to long term environmental issues can be corrected by an experienced Service/Maintenance Engineer:

1. Switch off PREMIER, disconnect the 12dc supply plug from rear.
2. Remove lid, 8 screws.
3. Locate Memory Card socket at the front left of main circuit board.
4. Carefully remove the black (or white) plastic card retention rivet with a small screwdriver.
5. Push the small eject lever to remove the Memory Card to a clean and dry working surface
6. Clean the gold contacts of the Card with IPA solvent and a clean, lint free, cloth.
7. Spray solvent onto the Card contacts and re-insert into and eject from the Card Holder four times whilst still wet.
8. Remove the Card and wait 1 minute for the solvent to evaporate, the Card to completely dry.
9. Re-insert the Memory Card when completely dry, without touching the gold contacts.
10. Re-fit the plastic Card retention rivet and re-assemble PREMIER.
11. RE-install PREMIER, reconnect 12dc supply plug and retest.

4 POLE SOCKET CONNECTOR

LOUDSPEAKER OUTPUT / 12V DC SUPPLY INPUT

Assembly Instructions

Table 1				
No. of ways	A	B	Wire Sizes	Cable diameter
4	18	4	0.5-2.5mm ²	6-8.1

1. Prepare the cable to the requirements of table 1.
2. Remove the insert locking ring and withdraw the insert.
3. Feed the appropriate piece parts over the prepared cable. Once the insert has been terminated pull the cable back gently until the insert is in the connector housing.

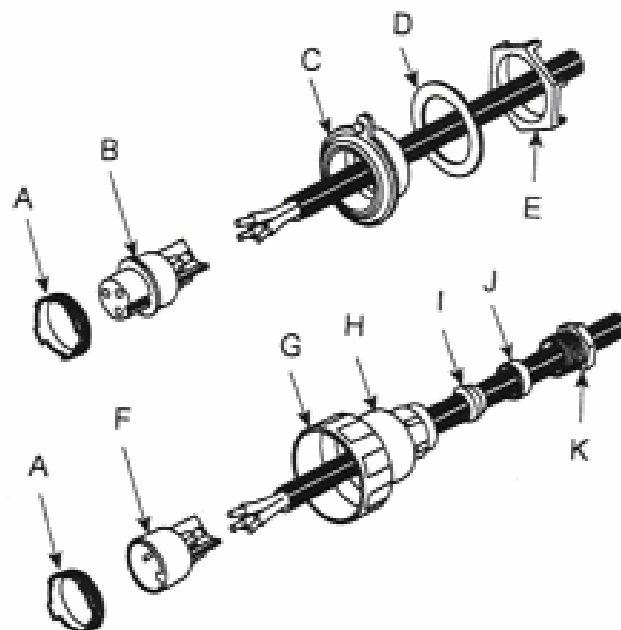
Note: The insert has a flat which aligns inside the outer shell.

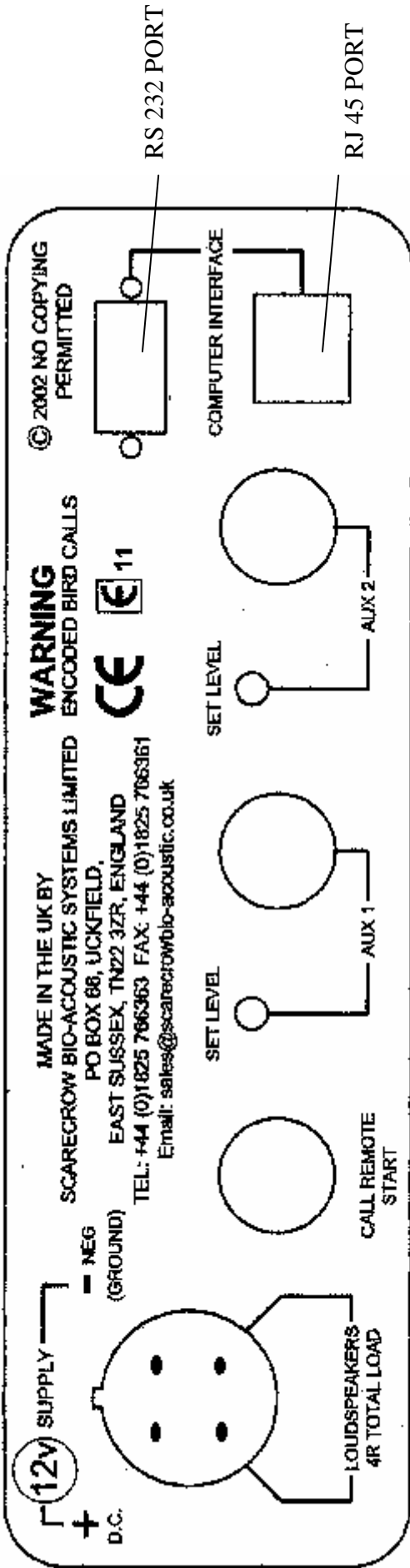
4. Fit the locking ring over the insert and tighten the locking ring by turning the tool clockwise to torque limits of 1.3 Nm min/2.82 Nm max.
5. On the cable mounted connectors push the sealing gland, gland cage and gland nut into the connector bodyshell and tighten the cable retaining nut to limits of 1.7 Nm min/4.0 Nm max.
6. Secure the connector with the large castellated nut. Tighten to a torque limit of 1.70 Nm min/4.0 Nm max.

Insert Termination

1. Inserts have screw terminations. Prepared cables according to table 1 should be passed through all piece parts. Insert the bared ends into the appropriate identified screw terminations. Tighten the screws down.

- A. Locking ring
- B. Socket/(plug) insert
- C. Main body
- D. Sealing washer
- E. Rear nut
- F. Plug/(socket) insert
- G. Locking cap
- H. Main body
- I. Gland
- J. Gland cage
- K. Gland nut

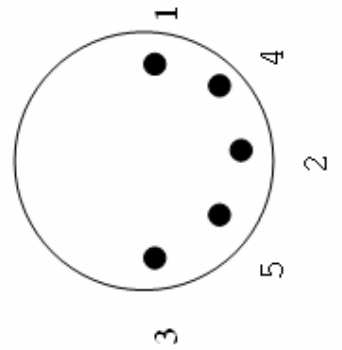




PIN CONNECTIONS

CALL REMOTE START

- 1 Ground
- 2 Light sensor input (lo-go)
- 3 12 volt feed to light sensor
- 4 Remote start switch
- 5 Remote start switch ground



AUXILLARY 1 & 2

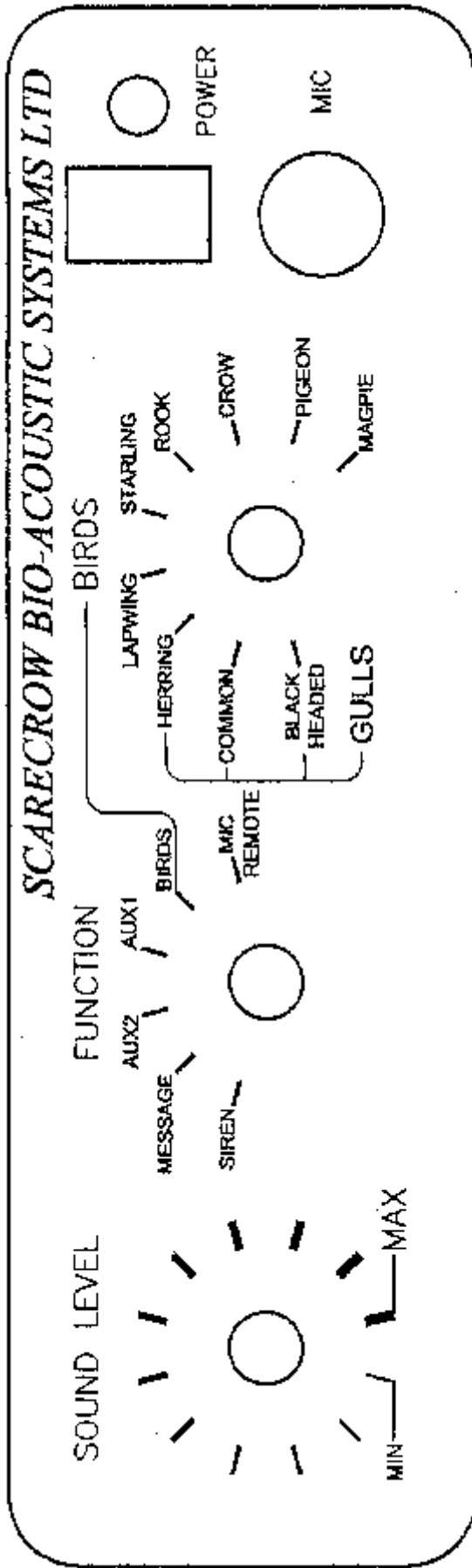
- 1 Signal +
- 2 Signal -
- 3 Ground

RS 232

- 2 Receive
- 3 transmit
- 5 ground

DATA FORMAT : 9600 BAUD, 8 Bits, no parity, 1 stop bit.

REAR PANEL LAYOUT : PREMIER SERIES



FRONT PANEL LAYOUT : PREMIER SERIES

In the unlikely event of service being necessary, please return the product direct:

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SCARECROW
BIO-ACOUSTIC SYSTEMS
KEEPING BIRDS AT BAY

**ABOUT BIO-ACOUSTIC BIRD DISPERSAL: THE USE OF DISTRESS
CALLS**

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platforms etc.**
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- 5. THE INTEGRATED BIRD MANAGEMENT SYSTEM**

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1. SOME GENERAL NOTES ABOUT BIRD DISPERSAL

- 1.1. The use of bird distress calls as a tool for bird dispersal is not new. They have been around for over 40 years, being initially tested and used on UK aerodromes to help combat the bird strike problem to aircraft. Following this success they have been introduced, where possible into all pest bird management
- 1.2. Their use differs from other commercially available bird control techniques because they are not based upon what we, as humans, consider should scare or startle birds. Merely because loud bangs may startle birds in the same way as they make us jump, does not mean birds will associate such a noise with danger. If they are not in danger, they have no reason to leave.
- 1.3. **So what is a distress call?** This needs definition, as there is confusion over alarm and distress calls. An alarm call is given by some birds as a signal that there is a potential risk of danger. A bird gives a distress call only when a predator or man catches it. In other words, it is not warning of potential danger, it is stating that the danger is here now.
- 1.4. Birds have an instinctive behaviour when subjected to their own species distress call and this has caused confusion in the past with operators unfamiliar with the technique. It is expected that any bird control device will cause birds to fly away immediately and, hopefully, not return for a long time. Some species do fly away from the source of the call, some species react immediately on hearing the call, but others do not. Instead, on hearing the distress call, they stop whatever they are doing and appear to be assessing the situation and identifying the location of the source. This may take from a few seconds to over a minute before they take flight.
- 1.5. **What have the target birds discovered at this stage?** First, they know the location of the predator, it is at the source of the call and, it is on the ground. An obvious fact if the predator is a fox but if the predator is a falcon, this master of the air is now on the ground and very vulnerable to attack. Gulls and corvids, in particular, after the initial "thinking time", take flight and fly towards the predator - these birds are not being scared.
- 1.6. In the natural situation, the approaching birds could mob the predator, forcing it to release its prey. Thus, the distress call has a survival value for the bird giving it. Also, of course, because it indicates the presence of an actively hunting predator, any bird not responding to it could well end up as its next meal!

- 1.7 When the call is broadcast artificially, the initial response of the birds is the same but when those species that approach the source of the call do so, they do not see a predator. The distress call indicated that there was one, it gave away the predator's position, they have arrived at that location and there is no predator. Suddenly the once safe area for them has become hostile because they cannot pinpoint the predator, so they move on to a safer site.
- 1.8 The following table summarises the general reaction to broadcast distress calls.

Bird Type	Approach the source	Hold for duration of call	Immediate Flee
Gulls	Yes	Over Source	Rare
Corvids	Yes	Over Source	Rare
Waders	No	Over position	Often
Pigeons	Occasional	Rare	Usual
Starlings	No	No	Normal

- 1.9 **Where do birds "feel secure"?** This varies between species but it can be a location that allows birds to undertake their normal daily routine in safety. Or, it can be a site where the birds "feel safe" to escape any danger, house sparrows, for example, feed close to shelter and if disturbed, fly straight into the nearest dense shrubs or bushes. The social flocking ground feeders such as gulls and waders seek the security of flat open areas from where they can see the approach of any predator soon enough to take evasive action.
- 1.10 It is unfortunate that one avian pest finds security in the very location pest controllers seek to remove it from. Feral pigeons find security, resting and breeding sites on buildings and when disturbed from the ground fly straight to these. They are then very reluctant to leave their safe perch when there is a threat somewhere in their vicinity.
- 1.11 **Is the target birds' response always the same?** The short answer is no, the dispersal response varies because of a number of factors. As a general rule, breeding birds are virtually impossible to scare from their nest site; feeding birds have a stronger attachment to a site than do resting birds. However, resting birds become more reluctant to move when they are in moult. Very often, juvenile birds make no response at all, probably because they do not know what they should do. In the case of ground nesting birds, these youngsters often try to bury themselves in the ground to hide on hearing a distress or alarm call, as they did when they were flightless.

- 1.12 Where distress calls are frequently used, local birds that usually approach the source may not do so after a while but disperse on hearing the call; habituation is possible but distress calls, if used correctly, it will take longer to be seen than with bird scarers. In both these cases, changing to the call of a closely related species will reinforce the usual call that should be rested for a short period. However, habituation will develop if dispersal action is less than thorough. For example, driving a vehicle at speed whilst broadcasting distress calls from it gives no opportunity for the target birds 'approach and investigate' behaviour. By the time birds have taken flight, the reason for disturbance has departed and they will return soon afterwards.
- 1.13 **How long will it take the birds to disperse?** This again varies with the activity of the target birds and the attraction of the site. In some cases, as with local residents mentioned above, it can be immediate. However, because the reaction is instinctive, distress calls should not be considered when immediate dispersal is necessary.
- 1.14 As already mentioned, there is usually a time lag before the target birds respond. As they identify the call, the birds take flight and those that do, approach the source and circle overhead for at least the duration of play. Gulls, for example, appear to be more secure when in the air than in a flock on the ground and may remain in the area for some time before dispersing. The same is true for corvids and as a rule the greater the distance between the SCARECROW equipment and the target flocks, the greater the time for dispersal.
- 1.15 The recommended distance is 100 metres and the recommended length of play 90 seconds. This allows the target birds to "think about it", approach the source and begin to disperse. It is best if the broadcast is upwind of the birds but not imperative. As the distress call is indicating the location of a predator on the ground, it follows that the broadcast should be from a stationary position.

2. PRACTICAL USES OF DISTRESS CALLS

2.1 **The basic technique.** There are a few points to always bear in mind before considering bird dispersal techniques:

- a. Why are the birds there?
- b. Is bird dispersal the right option?
- c. Can the attractions be removed first - this makes any dispersal attempt easier!
- d. It is generally easier to prevent birds arriving than to disperse them once they have become established.
- e. Bird dispersal, by any method, should only be a part of an Integrated Bird Management System.

2.2 Once it is decided that distress calls are suitable, the first step is to identify the birds in order to select the correct call. Each call is species specific, therefore, birds respond best to distress calls of their own species. This is not a hard and fast rule as already mentioned in 1.11, using the call of a closely related species' delays the onset of any "cry wolf" effect.

Similarly, birds that share the same habitat often react on hearing the distress call of their companion species. This is due in part to the sudden change in behaviour of their companions on hearing the call.

"What's up? Where are they going? I'm going too!"

So on a landfill, for example, gulls and corvids may react to each other's calls.

2.3. The following table details call preferences:

<u>TARGET SPECIES</u>	<u>PRIMARY</u>	<u>CLOSE RELATED</u>
Black-headed gull	Black-headed gull	Common gull Herring gull
Common gull	Common gull	Black-headed gull Herring gull
Herring gull	Herring gull	Black-headed gull Common gull
Lesser black-backed gull		Herring gull Black-headed gull Common gull
Great black-backed gull		Herring gull Black-headed gull Common gull
Lapwing	Lapwing	
Golden plover		Lapwing
Starling	Starling	
Feral pigeon	Feral pigeon	
Woodpigeon		Feral pigeon

Rook	Rook	Jackdaw Carrion crow
Jackdaw	Jackdaw	Rook Carrion crow
Carrion crow	Carrion crow	Rook Jackdaw
Magpie	Magpie	Rook Jackdaw Carrion crow
Myna	Myna	Starling

- 2.4 Broadcast the call. Common sense is required after the call is selected. If possible follow the ideal method as in 1.14 but if, the distance is shorter or longer than, 100m adjust the length of play accordingly. Additionally only play the call at sufficient volume to disperse the target flock.
- 2.5 Whenever possible, time being the usual constraint, allow the birds to undertake their natural response to the call. Do not move the speaker position while the call is broadcast (but see 3.1.5) nor employ any other scaring device. Once the broadcast is stopped, if the target birds have approached the source, allow them to disperse at their own pace.
- 2.6 What happens if other devices are used in conjunction with distress calls? Some may help the harmless confidence trick whereas others can counter any repellent effect. Of the former, waving a white or black rag while the call is broadcast can reinforce the call by simulating the calling bird. Any pyrotechnic device or shotgun blast induces birds to flee; therefore, their use during a broadcast when birds are approaching the source can create confusion. As such, they do not enhance any dispersal effort. Once the broadcast is stopped, they may be used to hasten the birds' dispersal if time is a problem.
- 2.7 **Scarecrow Bio-Acoustic Systems recognises that no single bird dispersal method is 100% effective for 100% of the time.** The greater the variety within the bird control armoury, the more efficient will be the system. The ultimate bird controller is man; everything else is just a tool to assist the task. However, that same man must have the knowledge of how the systems work. In most circumstances, bio-acoustic bird control is only successful if activated by a trained and knowledgeable operator at the right moment.
- 2.8 Dispersal action must be a determined and organised routine without being a repeat of a regular plan or previous pattern. So, it is important to vary the approach as much as possible within the scope and limitations of the equipment, local situation and routine. In order to be successful, the operator has to be motivated to be more persistent than the birds. **Remember that they only want a quiet life too!**

3. APPLICATION OF DISTRESS CALLS BY LOCATION.

Risk-reducing measures and bird dispersal are essential in situations where the presence of birds can be a safety or health hazard.

3.1 AIRFIELD BIRD DISPERSAL PROCEDURES

Aerodrome users of Scarecrow equipment are reminded that ICAO and National Regulatory Authorities provide full details of bird control policy, regulation and methodology. The following notes are not intended as a replacement for these but are for general guidance only.

- 3.1.1 The dispersal of birds from airfields and surrounding areas is an essential part of flight safety for civil and military operations and it must be carried out efficiently to maximise safety.
- 3.1.2 Airfields differ from many other bird pest problem areas in that they are generally flat, have a fairly uniform habitat, and because people are not present in the operational area, are very safe locations for birds. The problem is also easy to define and the target for bird control straightforward - a bird-free situation. A simple aim following the concept that if birds, especially those known to create a high risk of damage if hit, are not present then aircraft cannot hit them!
- 3.1.3 After habitat management procedures have been introduced the major attraction of any airfield is reduced and the number of birds decreases. However, some birds persist in visiting the site and need to be dispersed. These include gulls, grassland waders, corvids and starling; the species that the distress call technique was initially used against.
- 3.1.4 The bird control device has to be taken to the birds because of the large area airfields occupy, therefore, it is usually carried in a vehicle. The procedure for using SCARECROW equipment is the same except that the first stage is to locate the birds. Following identification and call selection (Table 2.3), the call is played from the stationary vehicle for 90 seconds.
- 3.1.5 The loudspeaker and/or vehicle are moved when broadcasting distress calls of lapwings and starlings. The typical lapwing response once in the air is for the flock to hold over their original position then for the flock to break into 3 or 4 groups that re-settle in different parts of the airfield. By moving the speaker to hold the flock in its beam, the flock can be slowly driven off the site. In this case, the distress call is broadcast continuously until the birds have been followed to the boundary fence.
- 3.1.6 Starlings tend to fly up immediately on hearing the call, fly downbeam for about 100m and re-settle. Once they are in the air the operator follows the birds, keeping about 100m behind them while broadcasting the call. The flock is then driven over the boundary fence.

- 3.1.7 With all species, if the airfield is attractive the birds will always return and the procedure is then repeated. Eventually the birds move on, they do not want the continual harassment created by a persistent operator.

3.2. BIO-ACOUSTIC DISPERSAL IN AGRICULTURE

In comparison to the aerodrome and urban bird situations, bird problems in agriculture tend to be relatively short-lived and seasonal. This is the market for which most of the “traditional” bird scaring devices were developed.

- 3.2.1. bird control in the rural environment has largely been by lethal or automatic means. Killing the pest birds removed the immediate problem, if only psychologically, and the traditional *Scarecrow* in the farmer’s field provided long-term protection. Commercial bird scaring devices tend to follow the *Scarecrow* tradition by being placed in a field and left to operate; bang, move, light flash or any combination as the automatic timer or wind dictate, whether birds are present or not.
- 3.2.2. There is a temptation to use distress calls in the same manner; place a broadcast system with a random timer sequence in a field and leave the device emitting distress calls, again whether the birds are present or not. There is the danger with such a system that the pest species will rapidly habituate to the call if always coming from the same position, especially so in a highly attractive feeding situation, such as starlings on a ripening cherry crop or gulls and corvids around intensive rearing units.
- 3.2.3. The basic principle is no different to that on aerodromes, dispersal is more efficient if distress calls are used as part of a variety of methods that are taken to the birds by man and used only when necessary.
- 3.2.4. Bird dispersal should commence before the birds arrive and distress calls of the relevant species broadcast as the birds approach. Starlings tend to bunch up into a large flock in the air and the loudspeaker should be moved to keep the birds in one cohesive flock. The call in this case should be broadcast for more than 90 seconds.
- 3.2.5. Gulls and corvids feeding around livestock approach the source on hearing the call and disperse to a safer area. While the food is available they will always attempt to settle but they cannot feed and they seek another location where they can.

The behaviour of the stock animals must be monitored for signs of stress, especially when distress calls are first introduced.

Correct use of the volume control may reduce the risk. On first broadcasting, gradually increase the volume from ‘0’ until the birds take notice and respond.

3.2.6. Starling distress calls are very useful when attempting to clear a woodland starling roost. As roost dispersal of any communally roosting species is very complex, we recommend you first call Scarecrow Bio-Acoustic Systems Limited for specialist advice.

3.3. **USING SCARECROW IN THE URBAN AREA.**

3.3.1. The most common pest species in the urban area are feral pigeons and starlings. More recently, gulls have created problems by fouling, blocking drainage gullies and gutters with nest material, and allegedly attacking people.

3.3.2. The basic principles of an Integrated Bird Management scheme apply here because the reasons why the birds are present and creating the problem are usually very simple to define. Wherever we are there will be food for birds and other pests whether left deliberately or not. Additionally, the buildings that we live and work in provide birds with ample safe resting, overnight roosting and breeding sites.

3.3.3. 'Physical' proofing of buildings and structures has proved effective in excluding birds but only where it has been correctly fitted and maintained. Denying the birds access to food in an area where the proofing is efficient removes any reasons for the birds to stay there. Unless such actions are taken to any extent, all "scaring" attempts will be temporary measures and the greater the attraction to the birds, the sooner they will overcome their fear to the dispersal stimulus.

3.3.4. The most difficult species in this location is the feral pigeon, they are very used to people, general traffic noise and are only startled by sudden sharp noises such as vehicle backfires etc. Their response is then to seek the security of their perches on nearby buildings until they assess that any "danger" has passed. The response, when they do react to their own broadcast distress call, is similar and the nearest safe area might only be two storeys above the feeding site. Once on or in their safe perch, they are very reluctant to leave whilst they think a predator is still in the area.

3.3.5. Dispersal action should be taken at the start of the day, before the pigeons arrive at the feeding site. As the birds approach, the distress call should be broadcast to deter them from landing and the action repeated whenever they try to return throughout the daylight hours. Persistence by the operator is necessary to achieve any degree of success but if the attractions remain, the task will be so much more difficult.

3.3.6. The current recommended approach to dispersing pigeons from perching ledges is to broadcast the call from above the birds. Broadcasting from the ground, with the possibility of a high ambient noise level, is difficult and may not cause them to leave their safe site. The broadcast position give the birds the impression that the predator location is below them and, while it

is there, it is probably more dangerous to leave the perch than sit it out. When the predator is above them, it appears that they are less secure and may therefore depart.

- 3.3.7. The major problem created by large numbers of starlings in urban areas is from their overnight roosts, containing perhaps several thousands of birds. Roosting sites can be on or inside buildings, or in trees, especially those in sheltered city squares.
- 3.3.8. The dispersal methodology using starling distress calls is very similar to that needed for rural roosts and again, we recommended that specialist advice should be sought from Scarecrow Bio-Acoustic Systems.
- 3.3.9. Birds have the greatest attraction to their breeding sites and it is generally considered that distress calls have limited, if any, effect against breeding birds. However, birds have a stereotyped breeding behaviour and this can be disrupted at any stage before eggs are laid.
- 3.3.10. Roof-nesting gulls are a relatively recent and rapidly spreading problem. Action is usually requested against these birds when nest site tenacity is at its greatest, they have full clutches of eggs or chicks, and the adults dive-bomb residents and visitors to the building.
- 3.3.11. Again this has to be considered in terms of an Integrated Bird Management System; the breeding activity of herring gulls sometimes begins as early as January, with the dominant males return to the colony to establish their territories. These appear to be loosely maintained until the start of the breeding cycle gets underway, when they are vigorously defended as they attract a mate. Following courtship and copulation, a nest is made of local materials and the sight of the empty nest stimulates the female to drop an egg in it and she continues to do this until there is a full clutch. The sight of the latter causes her to sit on the eggs to incubate them until they hatch. If the eggs are removed, the empty nest causes the female to lay again and if the eggs and nest are removed, the effort of rebuilding the nest and re-laying a full clutch of eggs may cause the birds to desert the site.
- 3.3.12. Strange as it may appear, the initial action before using distress calls against roof-nesting gulls is to get a broom to clean the roof of all the old nesting material. If the gulls have to leave their territory to get nesting material the task is made more difficult. Thereafter, the roof should be regularly swept or hosed down and this will delay or disrupt the breeding activity. Broadcasting distress calls as the gulls attempt to return reduces the attraction of the site by creating a general disturbance.
- 3.3.13. If the cleaning and disturbance programme is not maintained, at the weekend for example, and birds do lay eggs, it is too late to use distress calls for effective dispersal.

3.4 AUTOMATIC DISPERSAL SYSTEMS :SCARECROW MARINA

- 3.4.1 There are situations which require the broadcast of bird distress calls even when there are no humans present or human involvement is not possible or desirable. Examples will be inaccessible structures, marinas, harbours, docks, oil and gas platforms, car parks, outdoor restaurants.
- 3.4.2 MARINA is a fully automatic, random play, system that can be programmed to function 24 hours a day or, for example, from dawn to dusk. It cannot be used on airfields where its (automatic) function could promote a severe flight safety hazard.
- 3.4.3 Each system will comprise a central MARINA processor and a number of loudspeakers whose quantity and location will have been determined by specialist SCARECROW engineers from plans/layouts of the site to be cleared. There are various other considerations: prevailing wind direction, geographic position, proximity to housing etc.
- 3.4.4 The whole objective is to create an environment that is always regarded by the problem birds to be hostile and to giving the impression that there will be other locations for their use that are less stressful, hostile or potentially dangerous. Anything for a quieter life.
- 3.4.5 Experience shows that such systems are often spectacularly successful; because the calls used are natural, played at a natural level, the general public, as local residents or visitors, do not comprehend that dispersal processes are in place, merely that they cannot see the birds they hear.

4. BIRD DISPERSAL PROGRAMMES

- 4.1 When planning a daily bird control programme take into account the manner in which birds have responded historically to dispersal activity; be aware of the various flight paths that birds use to and from the area. Familiarity will enable the minimum delay before implementing dispersal procedures. The early interception of approaching birds before they land will deny the birds the opportunity to settle; the effect of subsequent dispersal action, if necessary, will thus be increased.
- 4.2 Often the dispersal of small numbers of birds may not appear to warrant the required effort but it must be emphasised that birds in flight frequently join other birds already on the ground. A relatively small number of birds can form the core from which a large flock congregates.
- 4.3 We hope this very simple guide is useful in focusing on the problems that may be experienced and, in seeking solutions, some of the pitfalls to be overcome.
- 4.4 We do aim to be helpful, so please contact us on any specific problem which, with your help, we will try to resolve. If we cannot, we'll direct you to an expert without hesitation.

5. BIRD DISPERSAL : AN INTEGRATED BIRD MANAGEMENT SYSTEM

5.1 An effective **Integrated Bird Management System** at first sounds very complicated but is effectively the use of common sense in Professional Pest Control. This appears to be a flippant statement but it has become so very simple while chasing new methods or creating new equipment to lose sight of the basic problem. For example, in many areas we seek to ease the symptoms to satisfy the immediate needs of the client rather than eradicate the root cause.

5.2. What is the problem?

A fundamental requirement is to correctly identify the problem. Birds are capable of creating a number of different problems and the same species can be seen as both friend and foe, depending on one's outlook. When called to investigate a bird pest problem what are we looking for and, how does this equate to the requirements of the client? In many cases, the client is only interested in removing the visible symptom, such as the presence of droppings. This is a cleansing problem and not pest management.

5.3 What is causing the problem?

The visible symptoms are droppings, clean away the droppings and the problem is solved? Unfortunately not the case, the problem is the depositors of the droppings and why they happen to be at the particular site. Birds need secure sites to roost, rest, feed and breed in, therefore, the attractions of a particular site should be identified before control action of any sort. The attraction to gulls presented by a landfill is easy to identify and is removed by changes in materials tipped, exclusion netting or active bird control using distress calls. If the birds cannot feed there is no attraction!

5.4 Remove the attractions.

Sometimes this is easier said than done. However, if the attractions remain, the birds will always attempt to return. Deny the problem birds access to food, remove the safe perches and breeding sites, etc. Nothing else will reduce the numbers so effectively.

5.5 Remove the birds.

Some birds will persist in their attempts; the client may not be able to prevent staff from inadvertently or deliberately feeding the birds and it is not possible to remove all the attractions at every site.

Whether the control method chosen is by lethal means or "scaring" it must be remembered that no single method is 100% successful for 100% of the time. Additionally, not all bird control methods disperse birds, some are more subtle confidence tricks.

5.6 **Bird Control Organisation: how SCARECROW BIO-ACOUSTIC SYSTEMS LTD. can help.**

In order for bird control to be successful, staff must be organised and trained in the correct use of the available techniques. Some appear ridiculous to us as humans but if, by their novelty value alone, they keep birds away from a particular site for the two or three days when that site is vulnerable to "damage", we need recommend nothing else.

Most problems usually last for much longer than a couple of days.

5.7. **How is an Integrated Bird Management System applied?**

This is simplicity and yet, to some, it is an obstacle of immense magnitude - especially with some clients. Whatever is recommended they then see as the total answer - some professional pest controllers maintain the same view!

- 5.7.1. If a problem is not examined using IBMS, unnecessary treatments may be applied in true "sledge hammer" fashion. In addition, we are able to indicate the client's day to day responsibilities so that these do not disadvantage whatever treatment we advocate or install.
- 5.7.2. By identifying the attractions to birds in a "problem situation", we are able to differentiate between a true pest control and a straightforward cleaning problem.
- 5.7.3. The bird problem at a fast food Drive-Thru is the result of an abundant food supply – not a matter for pest control, or expensive equipment – just a broom! In other areas, it may not be so straightforward, especially where the public is present.

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