

TORNADO GAS GUN – SERVICE GUIDE.

Issue 3. 28th August 2002

This service guide covers both the Mk1 and Mk2 versions of the Tornado Gas Gun. The two guns are functionally the same but differ in their appearance and design. The main difference between the two guns is the position of the HT coil which the Mk2. gun now houses in the metal casing underneath the main barrel whereas on a Mk1 gun the coil is mounted in the upper housing. This in turn changes the wiring looms which also have been upgraded to the now standard colours for low voltage equipment.

Spare parts lists are available for both Mk1 and Mk2 guns upon request.

The troubleshooter chart below is relevant to both MK1 and Mk2 guns but reference should be made to the correct instructions and wiring diagrams in this guide. Much of the information in this guide can be applied to the Tornado Conversion Kits (Mk1 and Mk2) as the Control Module and associated components are common to both the Kits and the Tornado guns

Included in this service guide.

Troubleshooter Chart

Mk1 Tornado Instructions

Mk2 Tornado Instructions

Mk1 Tornado Wiring Diagram

Mk2 Tornado Wiring Diagram

Contact our Sales Office for Spare parts information and prices on 0870 746 1300 or Fax on 0870 746 1900

Notes.

Always follow the 'Tornado Operating Instructions' which are supplied with the machine.

Always make sure there are no gas leaks before connecting the battery. If gas flows into the combustion chamber continuously then the solenoid valve is probably faulty and should be replaced. (Part No. MN0001A)

If the gun fires intermittently or only once then the 'GAS' control could be set too high or the spark plug gap is too small. (should be 2 - 3mm).

| | | | | | | | | | | | | |
|---|-------|--|-------|---|-------|---|-------|---|-------|---|-------|--|
| Does the red LED light up? | Yes → | Does the red LED go out after 15 seconds? | Yes → | When the "TEST" button is pressed is there a spark at the spark plug? | Yes → | When the "TEST" button is pressed, can the solenoid valve be heard to open? | Yes → | Can the gas be heard flowing into the combustion chamber? | Yes → | Does the gas continue to flow even after the six seconds? | Yes → | The solenoid valve is sticking open and should be replaced. (Part No. MN0001A) |
| No ↓ | | No ↓ | | No ↓ | | No ↓ | | No ↓ | | No ↓ | | → Or |
| Is the battery charged? - check for 12V with a voltmeter. | | Is the 'MORNING DELAY' set to minimum? | | Is the orange control module lead connected to the positive terminal of the HT coil? | | Are the 2 grey leads connected to the parallel terminals of the solenoid valve? | | Is there gas in the gas bottle? | | Is one of the gas jets blocked? | | The gas regulator is faulty and should be replaced. (Part No. MN0002) |
| Yes ↓ | | Yes ↓ | | Yes ↓ | | Yes ↓ | | Yes ↓ | | No ↓ | | |
| Are the battery clips attached the right way round and are they making good contact? | | Is the machine being tested in good daylight? (the photocell is not as sensitive to artificial light as to daylight) | | Is the green earth lead connected between the earth tab and the negative terminal of the HT coil? | | Is the grey lead which is attached to the brown battery lead broken at any point? | | Are there any sharp bends in the rubber pipe or the nylon pipe? - replace as necessary. | | The gas knob is probably set too high | | |
| Yes ↓ | | Yes ↓ | | Yes ↓ | | No ↓ | | Yes ↓ | | | | |
| Are the battery leads broken at any point? Check with a continuity tester | | The Control Module is probably faulty and should be repaired or replaced. (Part No. TM0031) | | Spark plug, Control module or HT coil is faulty - repair/replace in that order. | | Control Module or Solenoid Valve is faulty. Repair/Replace in that order. | | Are the gas jets blocked? | | | | |
| No ↓ | | | | | | | | No ↓ | | | | |
| Are the Control Module leads connected correctly? | | | | | | | | The gas regulator is probably faulty. Replace. (Part No. MN0002) | | | | |
| Yes ↓ | | | | | | | | | | | | |
| The Control Module is probably faulty and should be repaired or replaced. (Part No. TM0031) | | | | | | | | | | | | |



TANTO™ TORNAO

BIRDSCARER

TESTING & OPERATING INSTRUCTIONS

WARNING

PROPANE GAS IS HIGHLY FLAMMABLE.
NEVER TEST OR USE THE BIRDSCARER IN OR NEAR BUILDINGS,
HEDGES, HAYSTACKS, DRY CROPS OR ANYTHING FLAMMABLE.

THE LIGHT SENSOR IS ONLY EFFECTIVELY SENSITIVE TO NATURAL LIGHT, SO ALL TESTING SHOULD BE CARRIED OUT IN UNOBSTRUCTED DAYLIGHT.

1. Assemble and attach the front and rear legs using the fixing kit provided. Install the spark plug (2 - 3 mm gap) in the rear of the birdscarer and connect the HT lead.
2. Undo the two 1/4 turn screws and remove the transparent lid.
3. Turn all three knobs fully anti-clockwise to minimum and switch to single position.
4. Connect the crocodile clips to a 12V car type battery (no smaller than 10 AH) Brown + , Blue - . The red LED will light for approximately 15 seconds and then go out; you will hear the solenoid valve pull in and a crack at the spark plug as the valve closes. NO GAS AT THIS STAGE. DISCONNECT the battery. Connect the gas, check for and rectify any leaks.
5. Point the barrel away from buildings, people etc. **WEAR EAR DEFENDERS. TURN OFF THE GAS BOTTLE HANDWHEEL.** Connect the battery, the red LED will light for about 15 seconds and then go out, the solenoid valve will pull open and the gas in the hose will flow into the combustion chamber and may ignite with a low thud. Open the gas bottle handwheel and press the red TEST button to fire, adjust the GAS setting a little at a time until a satisfactory bang is achieved, do not set the GAS too high otherwise you will choke the combustion chamber and waste gas.

TIMING.

With the interval knob set at MIN and the switch set to SINGLE, bangs will occur at approximately 5 and 7 minute alternating intervals. The interval knob set to maximum increases this to approximately 7 and 30 minute alternating intervals.

SINGLE/DOUBLE.

With the switch set to DOUBLE, the 7 minute period is reduced to 10 seconds thus causing a double bang.

MORNING DELAY TIMER

This feature allows you to delay the start time from dawn by up to 4 hours. The red LED indicates when a delay is taking place in the morning. Adjust the morning delay knob for the desired delay. The dots around the knobs do not represent precise times but are for reference only. (The red LED also indicates when the light intensity is too low, i.e. it will come on at dusk and go out at the end of the Morning Delay).

IMPORTANT: The birdscarer has negative earth so be sure to keep the positive battery clip and terminal away from the body of the machine.

TORNTON TORNTON BIRDSCARER MK2

TESTING & OPERATING INSTRUCTIONS

WARNING

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HEDGES, HAYSTACKS, DRY CROPS OR ANYTHING FLAMMABLE.

THE LIGHT SENSOR IS ONLY EFFECTIVELY SENSITIVE TO NATURAL LIGHT; SO ALL TESTING SHOULD BE CARRIED OUT IN UNOBSTRUCTED DAYLIGHT.

1. Assemble and attach the front and rear legs using the fixing kit provided. Install the spark plug (2 - 3 mm gap) in the rear of the birdscarer and connect the HT lead.
2. Undo the two over-centre clamps and remove the transparent lid.
3. Turn all three knobs fully anti-clockwise to minimum and switch to single position.
4. Connect the crocodile clips to a 12V lead acid battery (no smaller than 7 AH) Red +ve, Black -ve. The red LED will light for approximately 15 seconds and then go out, you will hear the solenoid valve pull in and a crack at the spark plug as the valve closes. NO GAS AT THIS STAGE.
5. DISCONNECT the battery. Connect the gas, check for and rectify any leaks.
5. Point the barrel away from buildings, people etc. **WEAR EAR DEFENDERS. TURN OFF THE GAS BOTTLE HANDWHEEL.** Connect the battery, the red LED will light for about 15 seconds and then go out, the solenoid valve will pull open and the gas in the hose will flow into the combustion chamber and may ignite with a low thud. Open the gas bottle handwheel and press the red TEST button to fire, adjust the GAS setting a little at a time until a satisfactory bang is achieved, do not set the GAS too high otherwise you will choke the combustion chamber and waste gas.

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IMPORTANT: The birdscarer has negative earth so be sure to keep the positive battery clip and terminal away from the body of the machine.

NB. The battery housing on the Mk2 Tornado enables the use of the a small lead acid battery available from your Tornado supplier, Part No. EM0031. This battery, when fully charged, will operate the gun for up to 7 days.



