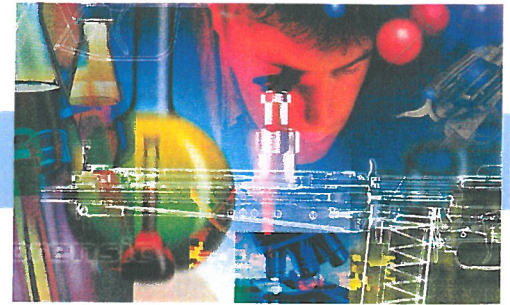


# Helston Forensics

F o r e n s i c   B a l l i s t i c   L a b o r a t o r i e s

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## Advanced Shot Gun (3 Days)

This course is designed for the Forensic Scientist and student who needs a better understanding of complex mechanisms and what they can tell you, how shot guns are manufactured, repaired, serviced, and maintained.

The course can be altered to meet specific needs and form part of a forensic strategy for the most serious of cases.

- |                         |                              |
|-------------------------|------------------------------|
| 1. Health & safety      | 10. Examination plan         |
| 2. Recovery of evidence | 11. Presenting evidence      |
| 3. Forensic markings    | 12. Common repairs           |
| 4. Manufacturers marks  | 13. Chambers, bores & chokes |
| 5. Proof marks          | 14. Test firing              |
| 6. Inspection & gauging | 15. Fault finding            |
| 7. Mechanisms           | 16. Planning techniques      |
| 8. Stripping & assembly | 17. Trigger pulls            |
| 9. Forensic strategy    | 18. Gunmakers marks          |

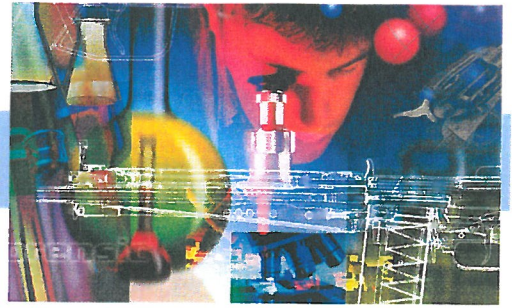
The student will be expected to have basic knowledge of safe firearms handling.

### Notes:

- 1) A pre-read shot gun overview will be supplied 7 days before the course.
- 2) The course duration will be 0900- 1730 finishing at 1600 on the third day.
- 3) Refreshments and lunch will be provided.
- 4) Assistance with hotel bookings will be available from our office staff.
- 5) This is a CPD-related course. This can contribute to your Continuing Professional Development (CPD) and will be evidenced through a multiple-choice summative assessment and the award of a Course Completion Certificate.

# Helston Forensics

Forensic Ballistic Laboratories



## Advanced Shot Gun



Smooth bore guns come in all shapes and sizes.



Another smooth bore "Sawn off"?

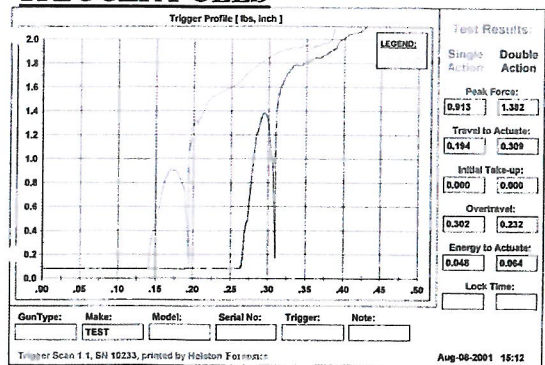
### TRIGGER PULLS



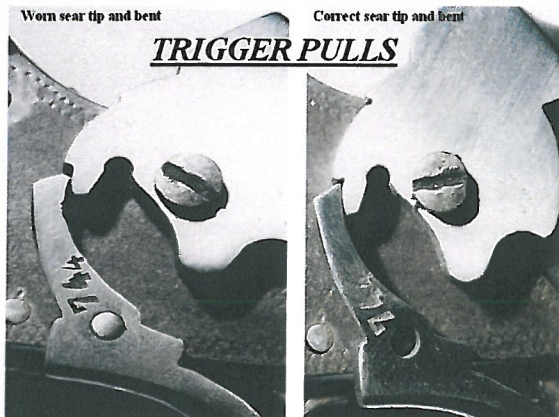
What angle do you pull the trigger from when testing?

### TRIGGER PULLS

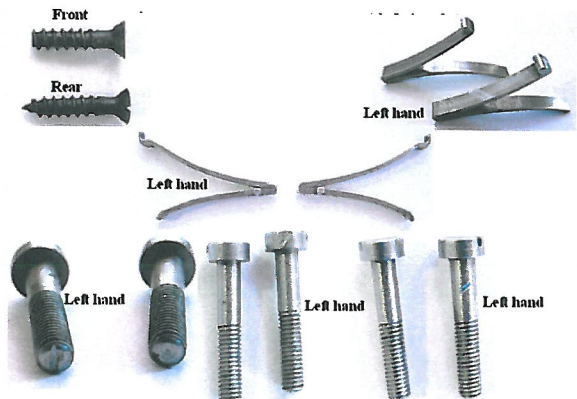
Trigger Pull Test Results Fig 29



Trigger pull testing, weights, spring balance or strain gauge?



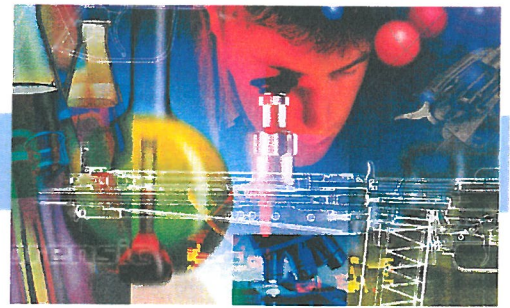
What happens when you pull the trigger?



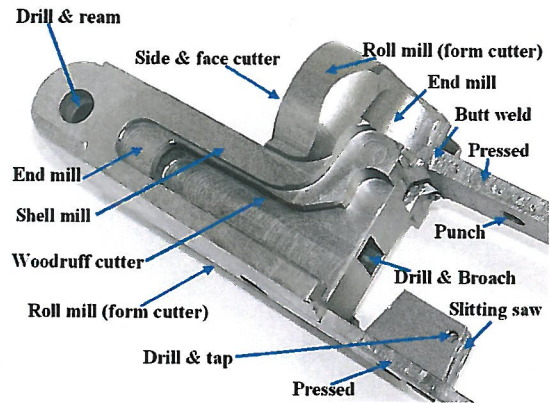
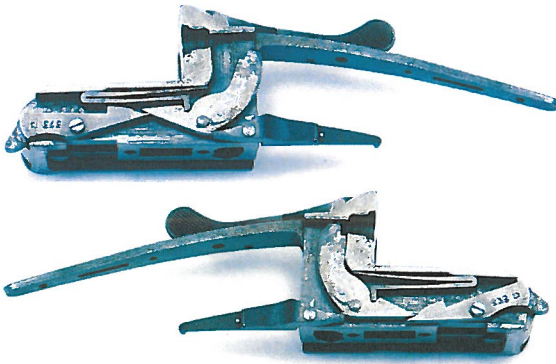
How do you tell if the components are left hand or right hand?

# Helston Forensics

Forensic Ballistic Laboratories

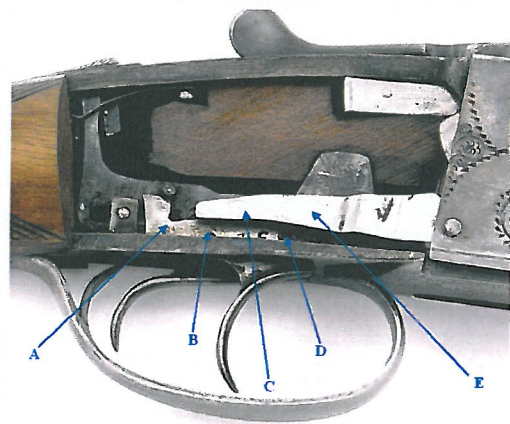
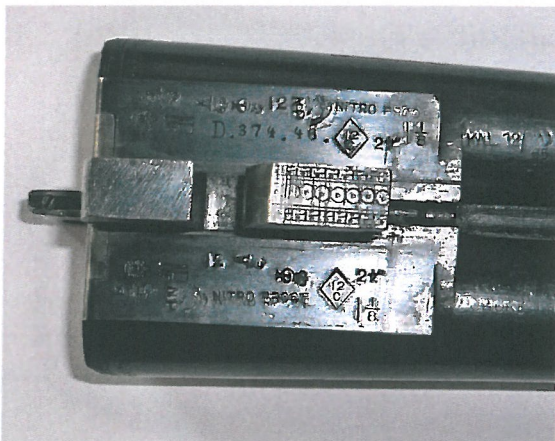


## Advanced Shot Gun



Understand how the mechanism works.

How are shot guns manufactured?



Proof Laws are complicated, marks and measurements are important for legal reasons as well as the information they can tell us.

Mechanisms can tell a story, be careful how you interpret it!

## CONSEQUENCES

### Opening The Gun

- 1 Lever rotates
- 2 Compresses top lever spring
- 3 Rotates spindle
- 4 Spindle exits hub
- 5 Bolt disengages
- 6 Lumps rotate on hinge pin
- 7 Lumps rotate in action bar
- 8 Bolt pushes safety-cocking pin
- 9 Pin pushes safety catch
- 10 Safety catch moves in slot
- 11 Safety catch depresses spring
- 12 Safety bar engages trigger
- 13 Forward rotates on knuckle
- 14 Cocking dog L/H engage forward iron
- 15 Cocking dog R/H engage forward iron
- 16 Cocking dog L/H rotates
- 17 Cocking dog R/H rotates
- 18 Cocking dog L/H lifts R/H hammer
- 19 Cocking dog R/H lifts R/H hammer
- 20 Cocking dog spring L/H compresses
- 21 Cocking dog spring R/H compresses
- 22 L/H hammer rotates
- 23 R/H hammer rotates
- 24 L/H mainspring compresses
- 25 R/H mainspring compresses
- 26 L/H sear rotates
- 27 R/H sear rotates
- 28 L/H sear engages bust
- 29 R/H sear engages bust
- 30 L/H intercepting sear positions
- 31 R/H intercepting sear positions
- 32 L/H sear spring compresses
- 33 R/H sear spring compresses
- 34 L/H intercepting sear spring compresses

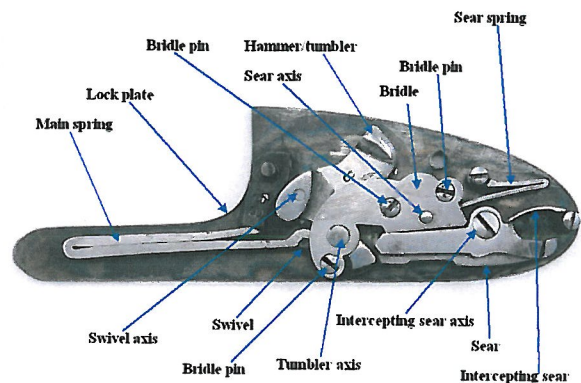
- 35 R/H intercepting sear spring compresses
- 36 L/H trigger moves forward
- 37 R/H trigger moves forward
- 38 Trigger spring compresses
- 39 L/H firing pin moves to rear
- 40 R/H firing pin moves to rear
- 41 L/H firing pin spring compresses
- 42 R/H firing pin spring compresses
- 43 Drop moves kicker lifter
- 44 Kicker lifter rotates axes
- 45 L/H kicker rotates
- 46 R/H kicker rotates
- 47 L/H ejector spring moves on kicker
- 48 R/H ejector spring moves on kicker
- 49 L/H extractor levered by cam
- 50 R/H extractor levered by cam
- 51 Cam rotates in forward iron
- 52 Extractors strike retaining screw
- 53 Barrel lump engages drop

### Closing the gun

- 15 L/H cocking dog spring cases
- 16 R/H cocking dog spring cases
- 17 L/H extractor seats
- 18 R/H extractor seats
- 19 Top lever spring cases
- 20 Bolt snaps forward
- 21 Spindle rotates to battery
- 22 Forward iron rotates on knuckle
- 23 Barrel lump rotates on knuckle
- 24 Barrel lump rotates on hinge pin
- 25 Barrel lumps rotate in action bar

### Striking 24 components

- 1 R/H cocking dog axis on screw
- 2 L/H cocking dog axis on screw
- 3 L/H ejector lifter axis on pin
- 4 R/H kicker axis on pin
- 5 L/H hammer rotates in lock plate
- 6 R/H hammer rotates in lock plate
- 7 L/H bridge absorbs hammer axis
- 8 R/H bridge absorbs hammer axis
- 9 L/H sear pin rotates in lock plate
- 10 R/H sear pin rotates in lock plate
- 11 L/H intercepting sear pin rotates in lock plate
- 12 R/H intercepting sear pin rotates in lock plate
- 13 Top lever spring rotates on peg
- 14 Safety bar travels in stock hole
- 15 Safety catch spring arms on pin
- 16 L/H trigger axis on screw
- 17 R/H trigger axis on screw
- 18 Drop sear tensioned by lump engaging
- 19 L/H sear turns in hammer and spring
- 20 R/H sear turns in hammer and spring
- 21 Ejector lifter axis on pin



What happens when you open and close a side lock ejector shot gun? .... plenty!

Understand the components, and how they work.