

NRA INTRO TO RELOADING

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WHAT IS RELOADING?

- **THE REASSEMBLY OF OR REMANUFACTURING OF A CARTRIDGE TO ITS FORMER COMPLETE STATE**
- **ASSEMBLY OF FUNCTIONAL AMMUNITION FROM BASIC COMPONENTS**

WHY RELOAD?

- **IMPROVE PERFORMANCE**
- **SAVE MONEY**
- **LOAD FOR OBSOLETE CALIBER**
- **PERSONAL SATISFACTION**
- **SPECIAL PURPOSE AMMUNITION**



FIRING PROCESS



- ONCE TRIGGER IS PRESSED THE FIRING PIN STRIKES THE PRIMER, THE PRIMER MIXTURE IGNITES SENDING A SPARK THROUGH THE FLASH HOLE IN THE CASE HEAD
- THE SPARK IGNITES THE POWDER
- THE POWDER BURNS AT A RAPID RATE CREATING A RAPID INCREASE IN CHAMBER PRESSURE
- RAPID PRESSURE INCREASE EXPANDS THE CASE AND SEALS THE SIDE AND REAR OF THE CHAMBER
- PRESSURE INCREASE ALSO SENDS THE BULLET DOWN THE BARREL
- ONCE THE BULLET EXITS THE BARREL THE PRESSURE SUBSIDES AND THE CASE CAN RETURN TO NEAR NORMAL SIZE.

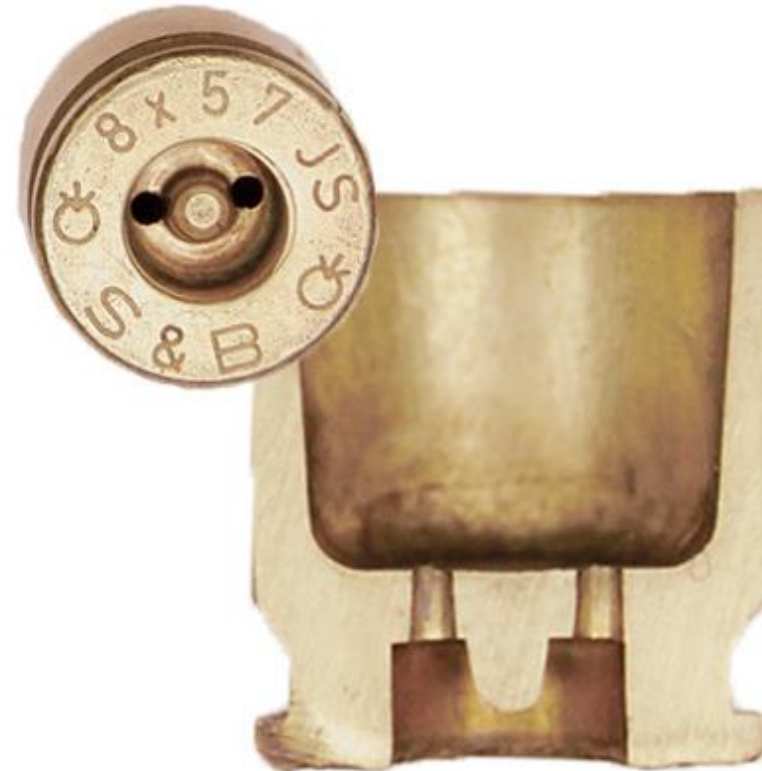
DETERMINE WHICH CARTRIDGES ARE RELOADABLE

- **CENTERFIRE RIFLE AND PISTOL CARTRIDGES ARE RELOADABLE**
- **SHOTGUN SHELLS ARE RELOADABLE**
- **RIMFIRE CARTRIDGES ARE NOT RELOADABLE**



DIFFERENT PRIMER DESIGN

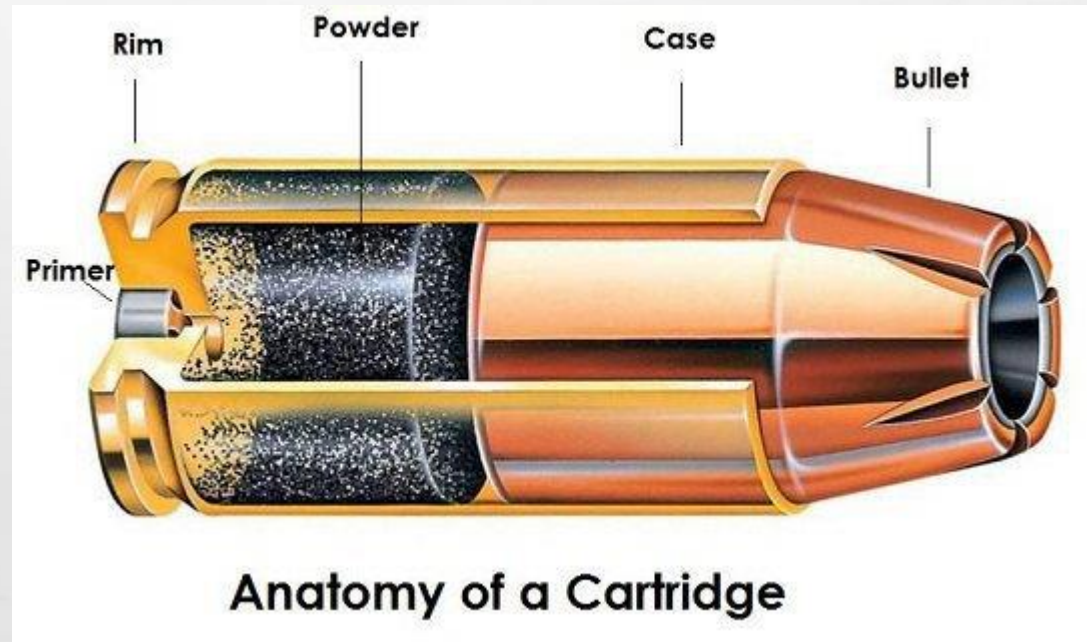
Boxer



Berdan

METALLIC CARTRIDGE COMPONENTS

- **CASE**
- **PRIMER**
- **POWDER**
- **BULLETS**



RELOADING PROCESS

- **CASE PREPARATION INSPECTION**
- **REMOVE THE SPENT PRIMER**
- **PRIME THE CASE**
- **CHARGE THE CASE WITH POWDER**
- **SEATING A NEW BULLET**



RELOADING SAFETY

- **WEAR EYE PROTECTION**
- **ALWAYS FOLLOW THE RELOADING DATA EXACTLY**
- **NEVER SUBSTITUTE BLACK POWDER FOR SMOKELESS POWDER**
- **NEVER MIX POWDERS OR SUBSTITUTE POWDERS**
- **ONLY USED CORRECTLY LABELED COMPONENTS**
- **1111RULE ONLY ONE BRAND OF POWDER ONE BRAND/TYPE OF PRIMER, ONLY ONE TYPE OF PROJECTILE, ONLY ONE BRAND OF CASE SHOULD BE ON THE RELOADING BENCH AT ONE TIME.**
- **ESTABLISH A SYSTEM OF CHECKS AND INSPECTIONS TO INSURE QUALITY**



MINDSET



- **CONCENTRATE ON THE TASK AT HAND**
- **BEWARE OF FATIGUE**
- **NEVER USE ALCOHOL OR DRUGS WHILE RELOADING**
- **NEVER SMOKE OR HAVE AN OPEN FLAME NEAR RELOADING COMPONENTS**
- **AVOID DISTRACTIONS**
- **STORE COMPONENTS SEPARATELY IN A COOL DRY PLACE IN FACTORY CONTAINERS**
- **STORE ALL COMPONENTS SO THAT UNAUTHORIZED INDIVIDUALS CANNOT GAIN ACCESS; KEEP THE RELOADING AREA CLEAN AND ORGANIZED**
- **DON'T EAT OR DRINK AWHILE RELOADING, WASH HANDS AND FACE AFTER HANDLING RELOADING GEAR**

What you need to reload: Space

RELOADING BENCH



Reloading Space Should Be:

- Clean & Well Organized
- Well Lit
- Free from Distraction

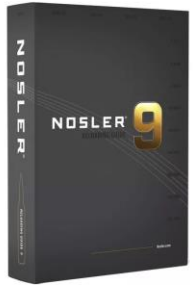
Reloading Bench:

- Can be as small as 3' x 1'
- Must be very sturdy – recommend mounting to wall and/or floor
- Comfortable height for ergonomics

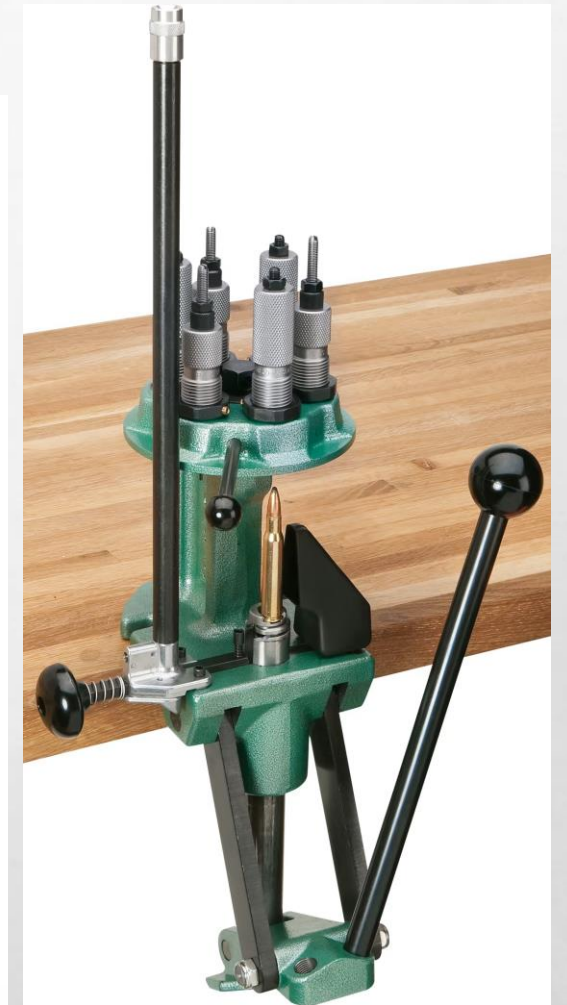
Adequate Storage Space

- keep components clean, dry and well organized

EQUIPMENT NEEDED



RELOADING PRESS



COMPONENTS



Primers. Device responsible for initiating the propellant combustion that propels the projectile

Cartridge size dependent:

Small and Large Pistol, Small and Large Magnum Pistol, Small and Large Rifle, Small and Large Magnum Rifle and Shotshell



Brass Cartridge. a cylindrical container that houses the primer, propellant and bullet



Smokeless Powder. a type of propellant used in firearms and artillery that is composed mainly of nitrocellulose

Cartridge dependent:

Multiple manufacturers worldwide, always refer to published loading manuals for correct Min / Max Loading Data



Bullets. a metal / alloy projectile for firing from a rifle, revolver or other small firearm

RELOADING MANUAL

CARTRIDGE

7mm Remington Magnum - 175 grain

Version 8.0

Nosler

UP FRONT

7mm Remington Magnum - 175 grain 7mm (.284")

MAXIMUM S.A.A.M.I. O.A.C.L.		3.290"	TESTED O.A.C.L.	B.C.	S.D.
AccuBond® Long Range		175gr. Spitzer	3.290"	0.672	0.310
Partition®		175gr. Spitzer	3.290"	0.519	0.310
CASE TYPE:	Nosler		PRIMER TYPE	Fed 215	
CASE HOLDS:	77.0	Gr. WATER	BARREL Length/Make	24" Wiseman	
			BARREL Twist	1-9"	
POWDER TYPE	POWDER CHG. GRS.		MUZZLE VEL. F.P.S.	LOAD DENSITY (VOLUME)	
IMR 4320	51.0	MAX.	2720	71%	
	49.0		2620	68%	
	47.0	*	2520	66%	
RL19	58.5	MAX.	2820	83%	
	56.5		2720	80%	
	54.5	*	2619	77%	
H1000	65.5	MAX.	2850	89%	
	63.5		2800	86%	
	61.5	*	2750	84%	
IMR 4150	58.0	* MAX.	2840	80%	
	56.0		2740	77%	
	54.0		2640	74%	
IMR 4831	60.0	MAX.	2870	83%	
	58.0		2780	80%	
	56.0	*	2690	77%	
IMR 7828	63.5	MAX.	2871	88%	
	61.5		2806	85%	
	59.5	*	2729	82%	
Viht N560	60.0	* MAX.	2878	87%	
	58.0		2816	84%	
	56.0		2725	81%	
MAGPRO	70.0	MAX.	2899	94%	
	68.0		2820	91%	
	66.0	*	2734	88%	
RL22 Most Accurate Powder Tested	62.5	* MAX.	2970	88%	
	60.5		2890	85%	
	58.5		2810	83%	

An Important Note on Loading Data Manuals

- ALWAYS refer to a current and reputable loading data manual for information regarding the selection of components as well as their suggested safe load development procedures.***

NOTE: The sample loading data page (left) shows the specific components used to develop this load data (primer, case, bullet, powders, case length, cartridge overall length, etc).

- Specific information regarding safe load development procedures and practices can be found in the reference sections of most reloading data manuals. If clarification is needed regarding published load data or their recommended safe load development practices, contact the source before proceeding.**

CASE PREP



Cases should be cleaned and examined for flaws prior to beginning the reloading process.

Cases that exhibit flaws such as splits or signs of head separation should be discarded.

CASE PREP CON'T



- A brush is used to remove any carbon deposits from the neck of the case, where the bullet will eventually be seated.
- Primer pockets are cleaned with a tight fitting metal blade (Primer Pocket Cleaning Tool) which removes any carbon build up from the firing process.
 - This is important so that the new primer seats flat and to the proper depth assuring proper ignition when struck by the firing pin.



CASE PREP



Cartridge Case Cleaning

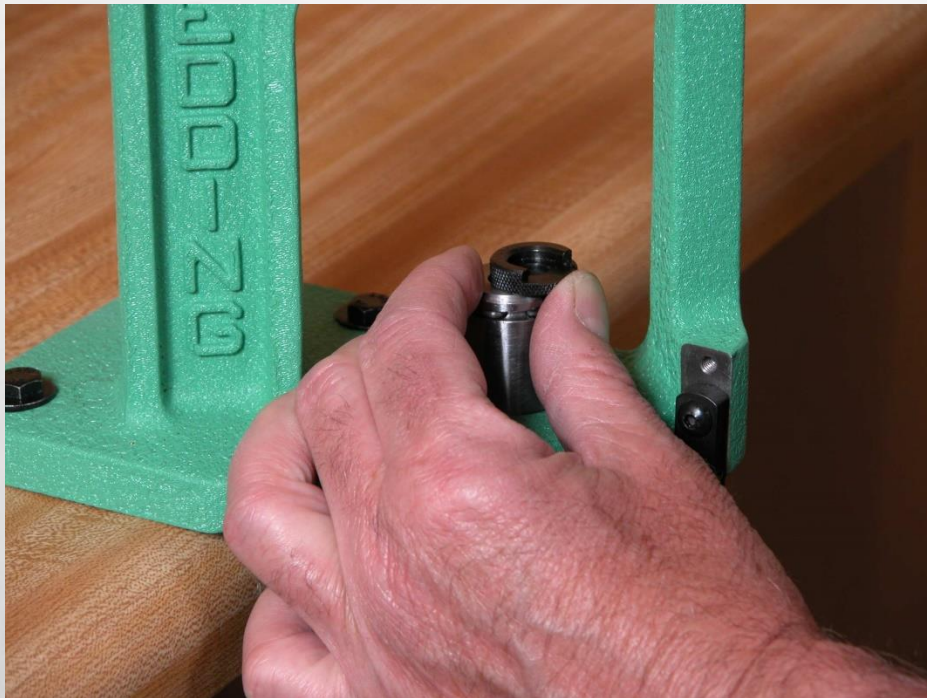
Vibratory Tumblers

- Usually use **walnut shell** or **corn cob** media to clean and polish cases.
- Care must be taken to make sure that all media is removed from the case including the primer pocket and flash hole

Ultrasonic Cleaners

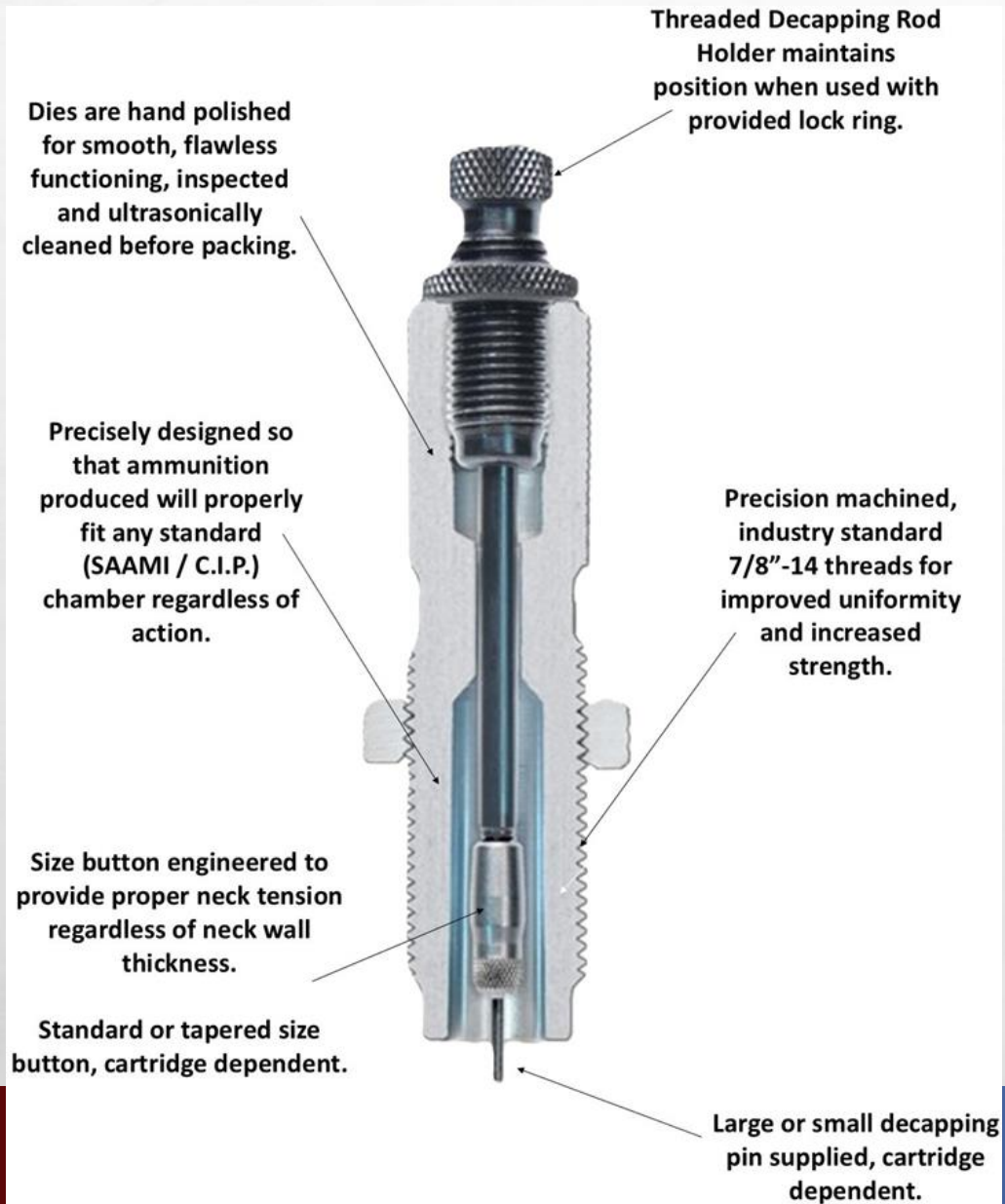
- Use a cleaning agent in an aqueous solution combined with ultrasonic sound waves to clean cases.
- Follow manufacturer's procedure for drying cases after cleaning ultrasonically

SHELL HOLDER INSTALLATION



- A shellholder is inserted into the press to allow the ram to accept and capture the case head such that it can be inserted and removed from a reloading die. Shellholders are unique to each family of case head.
- For example, the 30-06, 308, 270 and 45 ACP all share a common case head and therefore use the same shellholder.

SIZING DIE



- For a bottleneck case a Full Length sizing die is the first step. This reforms the case to fit the chamber and hold the bullet after firing has expanded the case.
- Neck sizing only can be done but only if the case is being used in the same rifle as chambers do vary.

NOTE: Neck sizing only is not appropriate for all action types.

SIZING DIE INSTALLATION



- For a bottleneck case the full length sizing die is generally set up to contact the shellholder firmly at the top of the stroke.
 - Internally the decap rod must be adjusted so the spent primer is removed.
- The expander button then sets the internal neck dimension (tension) as it is pulled through the case neck on the ram's down stroke.

CASE LENGTH



- Cases stretch and become longer as they are fired and resized. Should the cases become longer than is allowable by SAAMI / C.I.P. and/or a reliable load data source, the case necks should be trimmed to the proper length.
- If the necks grow too long, a dangerous overpressure situation can result because the bullet may become “crimped” into place by the chamber’s lead into the rifling.

CASE TRIMMING



- A case trimmer is used to trim the length of the case from the neck end.
 - Trimmers are piloted to assist in maintaining a square cut to the body of the cartridge case.
 - Redding trimmers are unique as they are a true lathe, turning the part and not the cutter to assure a square case mouth which is critical for accuracy.

CASE MOUTH CHAMFERING



- Once trimmed, the case mouth should be chamfered to receive the bullet during seating. At this time any burrs on the outside of the case mouth are removed as well using the opposite end of the chamfering tool.



PROPER CASE LUBING



- For bottleneck cases, the body of the case must be lubricated prior to sizing.
- Be careful to not lubricate excessively and to not put any lubricant on the shoulder as it will result in case denting.
- Case necks should be lubricated (inside and outside) with a graphite based dry neck lube.



NOTE: Case lubricant should be removed after sizing for safety reasons. Be sure that all lubricant is removed from the case before cases are primed or charged and do not fire loaded rounds that have case lubricant on them or dangerously high pressure will result.



CASE PRIMING



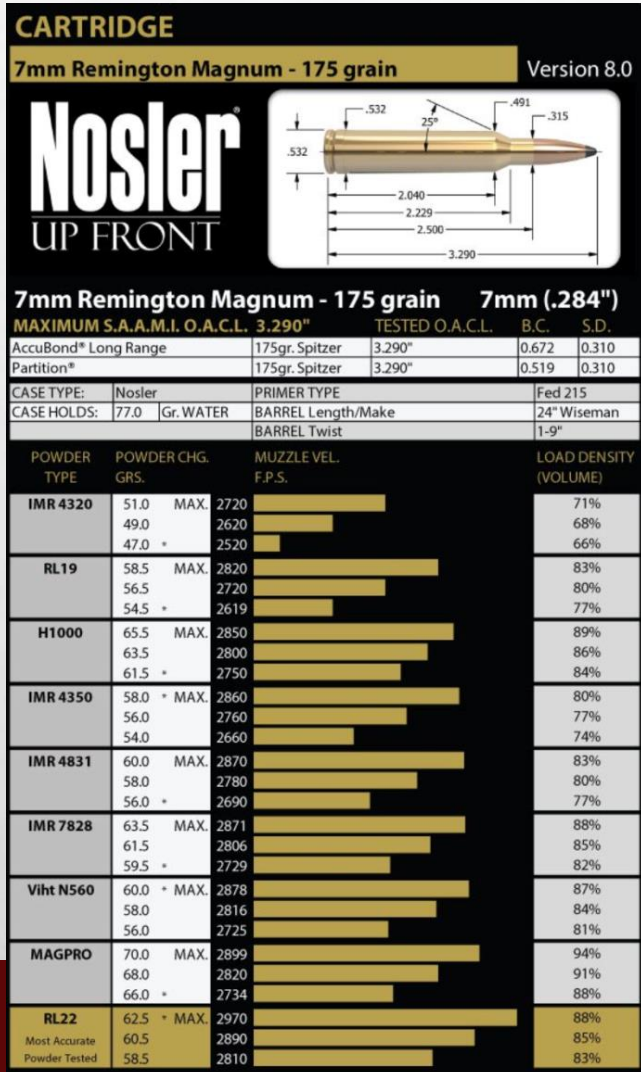
- The decap rod of the sizing die will remove the spent primer. A new primer is inserted into the primer cup (as shown). The primer will be seated into the previously cleaned primer pocket on the down stroke of the press.
- Primers should be seated flush to slightly below flush of the case head for safe and proper function.

CASE PRIMING



- The primer arm rotates into the ram and rests against the press frame as the ram and shellholder pull the case down onto the “cup” to re-prime the case.

REVIEW COMPONENTS



An Important Note on Loading Data Manuals

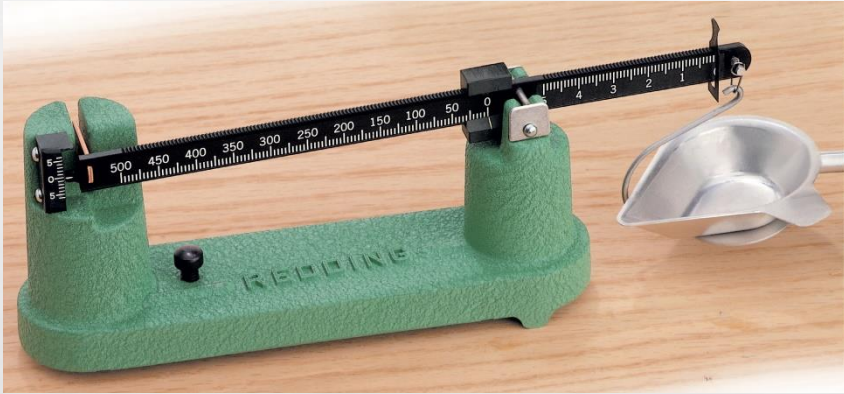
- **DOUBLE CHECK!!!!**
- **ALWAYS refer to a current and reputable loading data manual for information regarding the selection of components as well as their suggested safe load development procedures.**

NOTE: The sample loading data page (left) shows the specific components used to develop this load data (primer, case, bullet, powders, case length, cartridge overall length, etc).

- Specific information regarding safe load development procedures and practices can be found in the reference sections of most reloading data manuals. If clarification is needed regarding published load data or their recommended safe load development practices, contact the source before proceeding.

DO NOT DEVIATE FROM PUBLISHED LOAD DATA AND ITS RECOMMENDED SAFE LOADING PRACTICES!!

POWDER HANDLING



- Powder must be precisely measured. A good Powder Scale measures to 1/10th of a grain or 1/70,000th of a pound.



Cases are filled using a powder funnel.

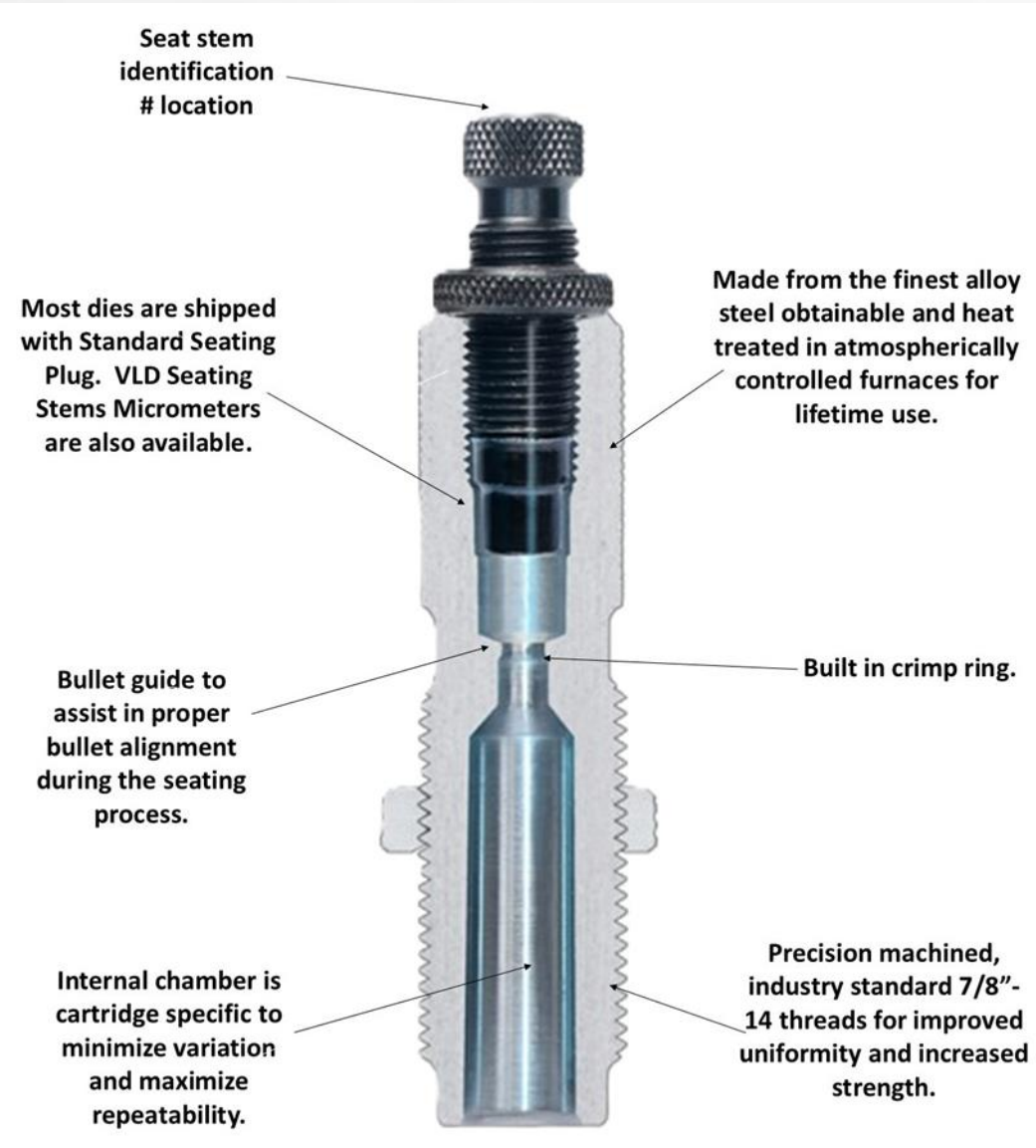
- The weighed contents of the pan are poured into the case slowly to prevent bridging of the grains of powder.

POWDER HANDLING



- A Powder Measure may be used for larger batches of cases but a powder scale is still needed for initial set up of the powder measure as well as periodic checks of the actual thrown weight of powder in each charge.

SEATING DIE

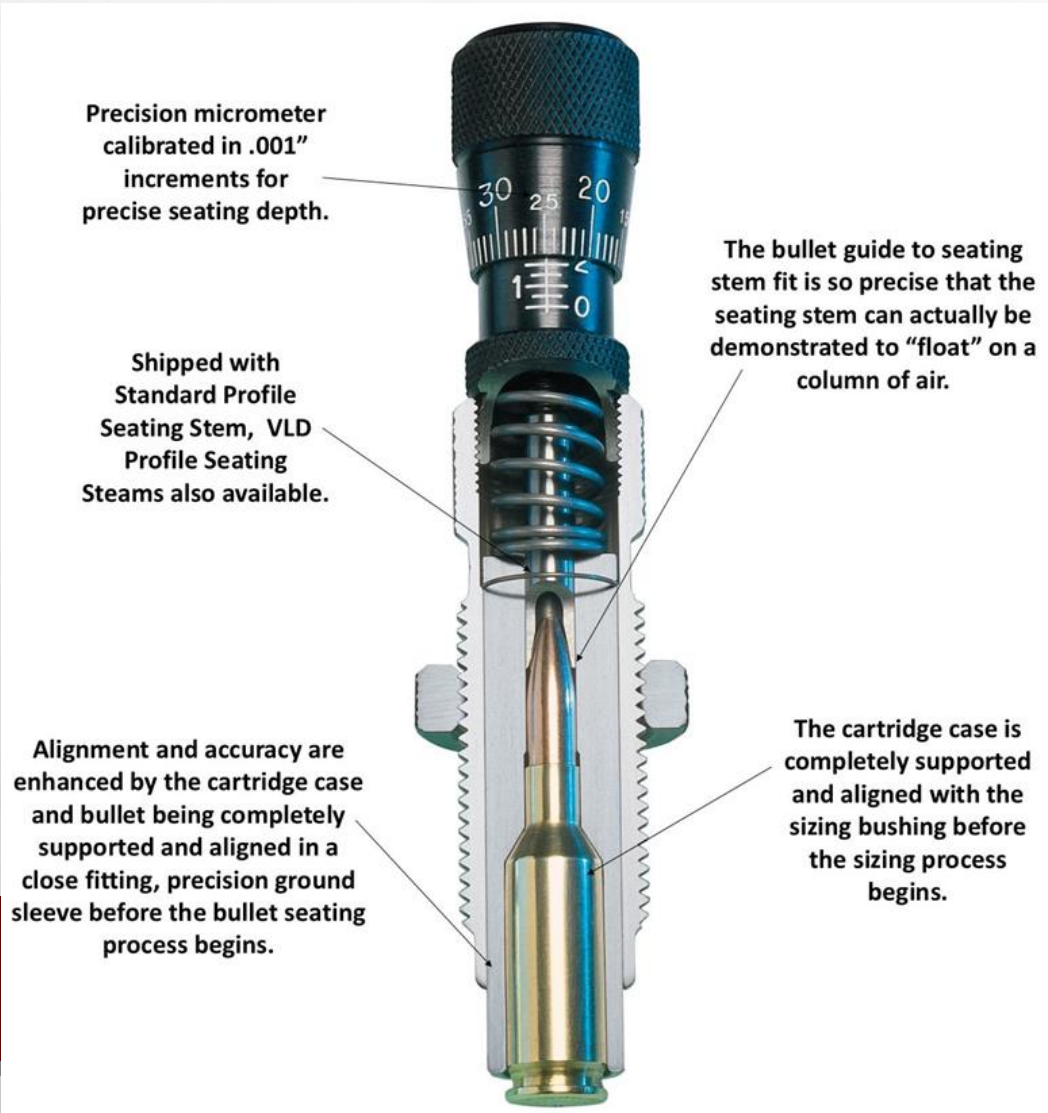


- The Seating Die is designed to align and seat the bullet to the desired depth. A Seating Die can also apply a crimp to the bullet if needed or desired.



Micrometer Equipped

COMPETITION SEATING DIE



- A Redding Competition Seating Die uses a micrometer to set the seating depth for a higher level of precision.
- This die also uses a set of *Patented* features to control important aspects of the case and bullet alignment to reduce or eliminate variations in run-out providing a higher level of consistency and resultant accuracy.
- Competition Seating Dies do not have the ability to apply a crimp.

SEATING DIE INSTALL



- The Seating Die should be adjusted so that it is backed away from the shellholder 1 complete turn when the ram is in its uppermost position. Use the supplied lock ring to secure the die in place.
- The threaded seating plug can now be adjusted to produce the desired seating depth (C.O.A.L.)
- If crimping is desired, remove the threaded seating plug and adjust the die body lower into the press in small increments until the desired crimp is applied.

BULLET SEATING



- The bullet is set into the case mouth and aligned by hand and eye.
- The die will center the case and bullet during the seating process.
- Boat Tail style bullets are generally easier to start in the case mouth.
- A flat base bullet is more easily aligned when a generous internal chamfer is cut after the trimming process.

BULLET SEATING



- The ram is then raised to seat the bullet into the case.
 - Measurements are taken and the process is repeated until the specified overall cartridge length is reached allowing for proper function in the firearm for which the cartridge is intended.



- The completed round (Cartridge) is finally removed from the press and inspected for any problems or brass deformities caused by the reloading process.

MEASURING CASE LENGTH (COAL)



- The completed cartridge is measured for overall length.
- If the finished cartridge is too long the threaded seat plug should be adjusted until the bullet is seated to achieve the proper cartridge overall length (C.O.A.L.)

REPEAT THE STEPS



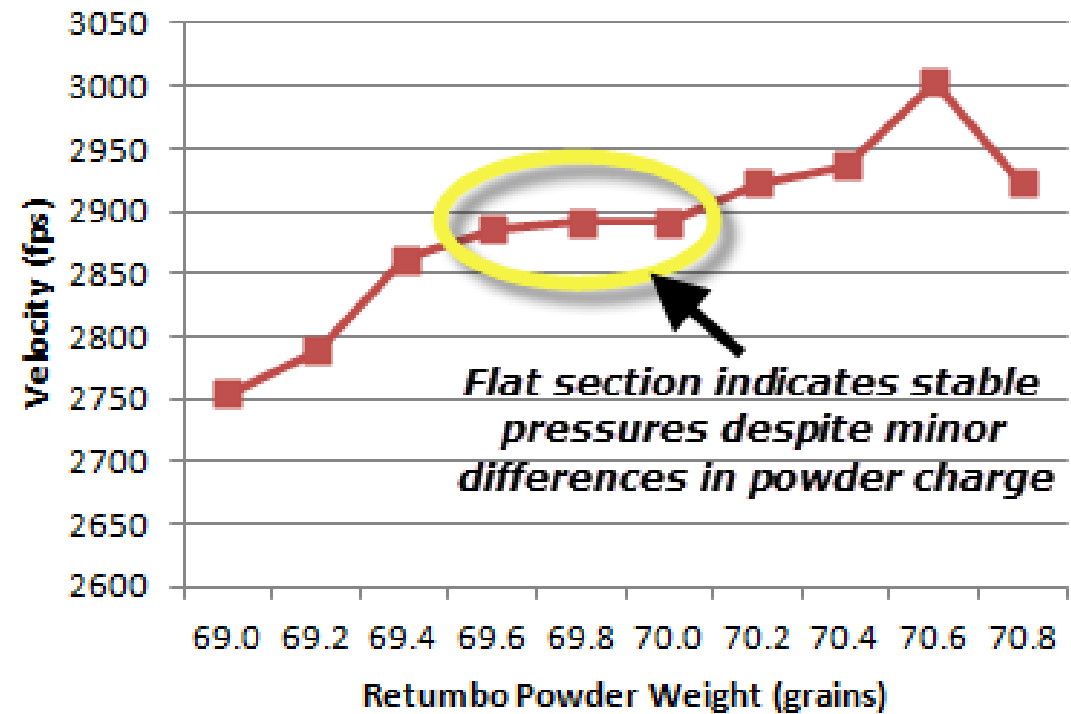
- Repeat the steps as discussed
- Always proceed with caution
- Follow your published Reloading Manual
- Measure, measure, measure
- Have fun 😊

LOAD DEVELOPMENT

- **LOAD 3 RDS AT .2 GRAIN INTERVALS**
- **LOAD IN STEPS FROM +/- 1 GRAINS**
- **DO NOT EXCEED MAXIMUM LOAD**
- **SHOOT THREE RD GROUPS AT 100 YARDS**
- **MEASURE VELOCITY OF ALL RDS**
- **CHART ON A GRAPH**
- **LOOK FOR NODES (FLAT SPOTS ON GRAPH)**

Audette Ladder Test Velocities

(Recorded on chronograph 15 ft from muzzle)



KEEP GOOD NOTES

- COMPONENTS
- RIFLE INFO

RELOADING DATA LOG BOOK

Date/Time:		Rifle:		Cartridge:	
------------	--	--------	--	------------	--

LOAD DEVELOPMENT LOG

Case: _____ Case Lot#: _____ #Of Firings: _____

MFG:	Length:	Wt:	Times Fired:
------	---------	-----	--------------

Chamfer:	Debur:	Uniform Primer Pocket:
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Uniform Flash Hole:	Neck Turn:
---------------------	------------

Trim Length:	<input type="checkbox"/> Yes <input type="checkbox"/> No	Finish Diameter:	<input type="checkbox"/> Yes <input type="checkbox"/> No
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Pocket Depth:	<input type="checkbox"/> Yes <input type="checkbox"/> No	Neck Wall Thickness:	<input type="checkbox"/> Yes <input type="checkbox"/> No
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Concentricity:	<input type="checkbox"/> Yes <input type="checkbox"/> No	Max Variance:	<input type="checkbox"/> Yes <input type="checkbox"/> No
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Primer	Powder	Bullet
Primer _____	Powder _____	Bullet _____
Primer Type _____	Powder Type _____	Bullet Type _____
Primer Lot# _____	Powder Lot# _____	Bullet Lot# _____
Primer Weight _____	Powder Weight _____	Bullet Weight _____
MFG _____	MFG _____	MFG _____

Cartridge:	Crimp	Seat Depth	R.O.	C.O.A.L.
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Additional Notes: _____

Date/Time:		Rifle:		Cartridge:	
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LOAD DEVELOPMENT LOG

Case: _____ Case Lot#: _____ #Of Firings: _____

MFG:	Length:	Wt:	Times Fired:
------	---------	-----	--------------

Chamfer:	Debur:	Uniform Primer Pocket:
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Uniform Flash Hole:	Neck Turn:
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Trim Length:	<input type="checkbox"/> Yes <input type="checkbox"/> No	Finish Diameter:	<input type="checkbox"/> Yes <input type="checkbox"/> No
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Pocket Depth:	<input type="checkbox"/> Yes <input type="checkbox"/> No	Neck Wall Thickness:	<input type="checkbox"/> Yes <input type="checkbox"/> No
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Concentricity:	<input type="checkbox"/> Yes <input type="checkbox"/> No	Max Variance:	<input type="checkbox"/> Yes <input type="checkbox"/> No
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Primer	Powder	Bullet
Primer _____	Powder _____	Bullet _____
Primer Type _____	Powder Type _____	Bullet Type _____
Primer Lot# _____	Powder Lot# _____	Bullet Lot# _____
Primer Weight _____	Powder Weight _____	Bullet Weight _____
MFG _____	MFG _____	MFG _____

Improve the quality of your loads through testing

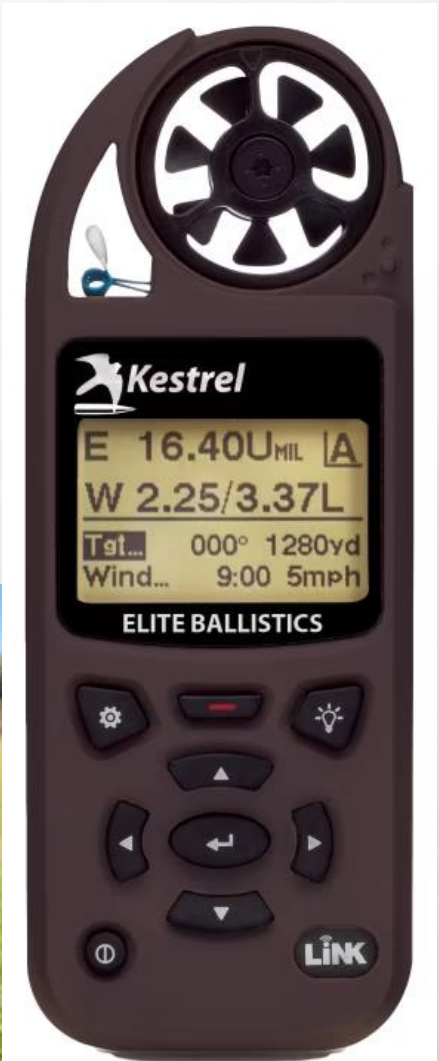
SIGNS OF OVERPRESSURE

- **BLOWN OUT PRIMERS**
- **CRATERED PRIMER**
- **CASE HARD TO EXTRACT**
- **CIRCUMFERENTIAL CRACK IN CASE**
- **CASE HEAD SEPARATION**
- **FEEL GAS IN YOUR FACE**
- **HEAT CAN AFFECT CHAMBER PRESSURE**
- **HOT BARREL**
- **AMMO IN DIRECT SUNLIGHT**



FINAL THOUGHTS

- **TECHNIQUE**
- **GEAR**
- **BALLISTIC SOLVER**
- **WEATHER METER**
- **RANGE FINDER**



ENJOY THE RESULTS



MEET THE PRESSERS



WITH MATT MALLORY AND KLINT MACRO



www.triggerpressersunion.com

MEET THE PRESSERS
With Matt Mallory and Klint Macro

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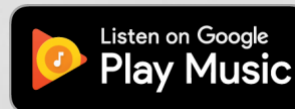
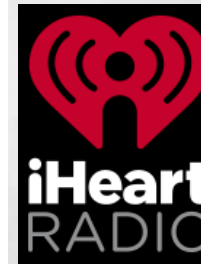
www.psanded.com



Roku

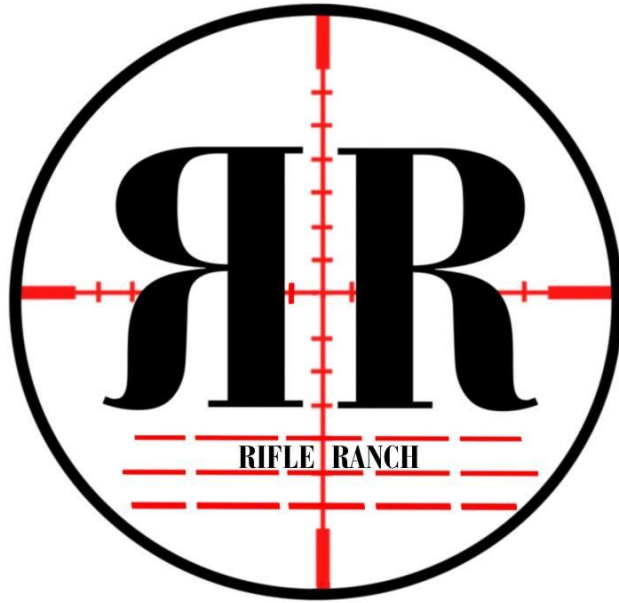


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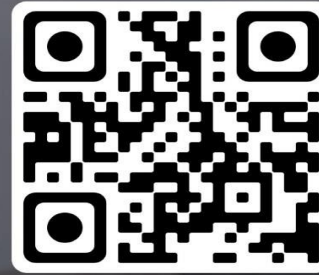
IMDb

RifleRanch.net



Rifle Ranch
1031 County Rd 579
Graham AL
770-377-1635

900 Yard Rifle Range



GFL

2025

GA FIRING LINE TRAINING

UPCOMING EVENTS

APRIL

OPEN RANGE DAY / NIGHT

12TH

OPEN RANGE WEEKDAY

23RD

NRA SHOW! BOOTH #5155 NEW

24TH - 26TH

MAY

OPEN RANGE DAY / NIGHT NEW

10TH

HIKE AND SHOOT

17TH

LONG RANGE 101

22TH / 24TH

OPEN RANGE WEEKDAY

28TH

JUNE

OPEN RANGE DAY / NIGHT

14TH

P.R.S. MATCH @ RIFLE RANCH

21ST

OPEN RANGE WEEKDAY

25TH

APPLIED PISTOL NEW

28TH



PISTOL 101
EVERY THURSDAY -
SUNDAY



APR 15TH
MAR 20TH
JUNE 17TH

IDPA

USPSA

MATCHES EVERY
THURSDAY NIGHT

.22 LEAGUE
EVERY TUESDAY

Gafiringline.com

THANK YOU

