PART TWO

FRONT IGNITION LOADING TECHNIQUE

A Message from the Author

THE FUNDAMENTALS of handloading are deep-seated facts that you, just as I, have probably learned many years past. My purpose is not to renumerate all these step-by-step processes that you probably know like the back of your hand. My intent throughout these following pages is to quote a simple and practical way for you to practice the art of front ignition loading. Not being connected with any manufacturer or dealer in any rifle parts or components, I also feel free to honestly quote the results of any of my findings on the testing of marketable items that you, the rifleman, may have bought or may be tempted to buy in the future.

Trying and testing these sometimes highly advertised items is part of my business. Finding their merits or flaws may help you in your future purchases. I believe in thoroughly testing any item that I may report on and also believe in quoting *all* the results. There are some mighty fine products being sold in the rifle trade and also some very poor examples of material and workmanship. My quotes of results will not be opinions of hasty assumption, but the actual findings from maybe months of testing and research.

You, as the purchaser of these few pages of abridged information, are undoubtedly interested in trying front ignition loading. My claims for front ignition are few, for after all it was not I that invented this type loading. As far as extra velocity is concerned, you may or may not be able to improve your velocities at all. I do feel sure that you will not drop any velocities after you have learned to work out a properly balanced load. As to accuracy, I have seen some rifles that were not particularly accurate with regular loading, but would deliver outstanding accuracy with front ignition duplex loading. At the same time I have also tested rifles that were equally accurate with either type loading. I have no interest or particular use for mild, mid-range loads. All of my tests and experiments have hinged around efficient, long-range, high-velocity loading.

There are two definite assets to front ignition loading. There is definitely less recoil and again definitely greater and longer barrel life.

I will mention now as I do later -- absorb these facts and absorb them well and if you find you cannot digest this material, I would much rather you send this literature back and then re-order it after you have become an experienced and proficient handloader.

You will find no complicated equations, mystifying formulas or bewildering chemical analyses to befuddle you. The results of these mentioned processes may be encountered and I am sure they will be in plain everyday language that you and I constantly use.

This material was never intended for the beginner in handloading but is assembled in this printed form for the man who wants to perhaps add to his already extensive knowledge of all phases of this fascinating art.

Let not the unkind words of some pompous, so-called expert, who has never seen or fired a front ignition load, deter you. His reaction to anything in the rifle field that he does not know or understand, is not to admit his shortcomings, but to phoo, phoo! it with some cute or sarcastic remark, which is supposed to fool you into thinking he knows it all. Heaven help these fellows if they ever get pinned down in the presence of others, by someone who has had the experience and knows the true and actual facts of front ignition.

After you have thoroughly learned by doing front ignition loading you will be able to tell in not less than two sentences from these infallible experts that their candid remarks on front ignition are completely lacking in any basic knowledge of the actual process and functions of this type loading.

The combinations of different length flash tubes, different results in velocity and accuracy are endless. You will find this type loading far more fascinating and with proper perseverance, I am sure your shooting will improve. By the same token I know you will become a better equipped handloader from the knowledge you gain in your own achievements.

If there is something in these following pages that you do not understand or anything that you may encounter in your loading that is not explained in this text, I will be glad to lend my assistance in solving your $64 problems.

Respectfully yours,

R.E. Gibbs

Chapter One

PRACTICAL APPROACH TO FRONT IGNITION

The desire for better accuracy and maybe more velocity, coupled with a yen to do more shooting at a smaller output of money, has led many ardent riflemen into the fascinating past-time of handloading. The real enjoyment of shooting is never realized until one shoots his own custom designed loads. Working out the best loads for different ranges in a single rifle constitutes a lot of time and a lot of shooting.

When that first handloading tool and shooting glasses were bought and a handloading book was first studied, heavy emphasis was placed on caution. To you as a tyro these words of caution were probably heeded with extreme care. Now, to you as an experienced rifleman, as well as an experienced handloader, these words of caution should carry even extra meaning. By now you should certainly be able to recognize signs of excessive and extreme pressures. Listing and reviewing some of these signs, we will comment and add to their emphasis and meanings.

First, we will take the flattened primer. This, though not a positive indication, should not be completely ignored. Ease of extraction in some rifles, usually depending on how perfect the chamber is, will give a positive indication of extreme excessive pressures. While on the other hand, when a rifle does have one of these perfect chambers, pressures will go way above what is considered safe before sticky extraction occurs. Ejector marks on the flat surface of the case head should always be connected with excessive pressure and this pressure indication, coupled with the first two, should definitely give the handloader the "red" light.

A few years ago the rifleman experts were checking the 721-Remington action to see just how strong it was in comparison to the other actions. The abuse that all these actions took proved that any good bolt action is more than capable of handling pressures that would really cause noticeable damage to the case head itself.

The events that occur when a loaded rifle charge is ignited could be represented as a chain and all chains have a weakest link. Considering the different parts of the action that are under pressure stress and also considering the area of the case itself immediately in front of the bolt, which is not supported by the chamber walls, as links in a chain, it is a well known fact that the case head itself is the weakest link between our shooting eye and several thousand pounds of destructive pressure. The pressure guns used by the ballistic laboratories usually crush a small piece of metal to estimate pressures and the average inquisitive handloader does not have this equipment at his disposal. The average handloader does usually have a micrometer and a fair amount of intelligence. Now if he will only use these two items, the working up to safe maximum loads should not present too difficult a problem. Where the professional ballistics man is crushing metal to estimate pressures, we will be expanding or stretching metal for our pressure indications. This metal we must check and watch is naturally the case itself.

For working out these pressure testing loads we will, naturally, use one make of brass and what better brass could we find than UMC Remington? This brass is somewhat thicker and seems to be a bit softer than Super-X and super speed brass. A safe maximum load in Super-X or super speed is usually a bit too warm for UMC brass. We can just reverse this now and see what we find. Would a safe maximum load in UMC brass be safe in the Western Super-X or super speed brass? Naturally, it should.

I, personally, use UMC brass for pressure testing and have never had any difficulty finding the safe maximum for any of the rifles that I have tested. (Wildcats and new design cases.) Loads worked up on UMC brass to just under the loads that start to loosen the pockets a little have always proven to be good safe maximum loads with super-x brass. Case life with super-x or super speed has proven very good with any of the loads arrived at in this manner.

The ability to determine what is a safe load for your own rifle and cases is a great benefit in the art of handloading. A fellow that can recognize signs of extreme excessive pressure can, by progressive loading, work up to the flattest shooting loads in any good bolt action rifle with little difficulty. "Miking" all the cases before they are fired is the first prime requisite in this pressure loading. This holds true with standard or front ignition in plain or duplex loading. New UMC brass is ideal for this loading but is not essential.

Once-fired brass is also very good and can be sized down at the base so all the cases will "mike" the same at the pressure ring. This is just in front of the case head. New or once-fired brass usually still has plenty of its springback quality when fired and it will always spring back a small amount after the pressure comes back down. The greater the pressure, naturally, the less it will spring back. When pressures get too high the brass does not spring back as it normally does.

We will say that you are using once-fired UMC brass and they are sized to "mike" .468 at the pressure ring. Now this all holds true to standard or with front ignition loading. You can load ten of these with a proven safe load in your rifle; say it is a model 70-270. We will also say this load is 53-1/2 gr. 4350 with Western 8-1/2 primers, 150 Sierra bullets. Maybe you like this load and have used it for years and also you have had no reason to worry about the pressure it gave. We can also assume for illustration that you would not like to load up to much greater pressures. Now, remembering the brass all "miked" .468 after loading, we will fire these ten loads and very carefully mike them at the pressure ring. While you are at it look very closely at the primers and also check for ejector marks on the case heads. "Mike" readings on these cases may now be .4692 for some, .4695 for most and .4697 maximum. Here would be a good time to mention the best way to remember this and all your loading data. Spend .10 for a pocket notebook and *use* it for all your loading data. After "miking" and thoroughly checking your ten cases go ahead and de-cap them, clean the pockets and see how the new primers feel as you seat them in. Now make a note of this primer fit and you have a complete record of just what that load shows in regards to pressure.

4831 data powder has proven to be very good in the heavier bullets for the 270 but maybe you have never used it. Here is a good chance to see how it compares in pressure to your old favorite 4350. Again we will use once-fired UMC brass, not the brass already used for the 4350 test. Again we size the brass to .468 and load at least five of each progressively with 4831 data powder. Care must be used to use the same make primers, same 150 gr. bullets and also the same seating depth. Now with five loads of each and one grain increase for each group let's start with 54 grs. of this data powder and load six batches up to 59 grains. While you are pressure testing this powder you may as well check the accuracy also, so use a separate target for each five-shot string at the range you prefer. By "miking" each batch after it is fired and by careful inspection of each case after firing, I am sure you will have no trouble in determining which load gives the same pressures as the 4350 load.

The mike readings of the 4350 load hinged around .4695 so now for comparison let's say 57 gr. of data showed mostly .469 and 58 grs. gave a reading of .4695 while 59 grs. left most of the cases at .470. You can readily see that the 58 gr. load is just as safe and gives approximately the same pressures as the 4350 load. Again we will place emphasis on recording all of this data for future use.

If you can make this simple experiment with a strange powder to pin down a safe maximum load and if you already knew or now understand what to look for in case inspection for pressure signs, I am sure that front ignition in its simple form or front ignition duplex loading will not prove difficult or mysterious to you. ●

Chapter Two

INTERNAL BALLISTICS

TO GET a true picture of what happens internally when a rifle is fired, let's see just what occurs in each stage of the process before the bullet leaves the barrel.

First we will take conventional loading and see just what transpires in that short interval of time. Here we have a flash hole for the primer flame to squirt through and a column of powder directly behind the missile lying in the throat of the barrel. When the firing pin hits the primer it fires and squirts its flame through the flash hole and ignites the powder column at its base. The rifle powder does not explode; it burns and builds up pressure by its gases. When the powder first ignites at the base of the column it begins to burn and expands in this gaseous state. The pressures from this burning and expansion are the same in all directions. The area offering least resistance is naturally out toward the mouth of the case. As the gaseous area increases and the mass of powder decreases the bullet is forced out of the case neck and into the awaiting lands and grooves of the barrel. The powder is still burning and part of it still remains in its unburned solid granular shape. With our modern slow burning powders and large capacity cases a very large percentage of this unburned powder passes through the throat of the rifle with great turbulence before it is ever consumed by flame. As it travels directly behind the bullet in its flight out the barrel, the burning process is supposed to be completed.

Some of our leading barrel makers, with whom I have spent many hours on barrel behavior, seem to attribute a large percentage of the throat wear to the sand blasting effect created by these unburned and partially burned grains of powder as they pass through the throat of the barrel with this turbulating action.

If pressure and velocity caused barrel wear, the first signs of this erosion would show up out from 10 to 20 inches in the barrel, because here the pressure has reached its peak along with the velocity.

Another contributing factor to throat wear seems to be free boring or long throating as some refer to cutting lands from the first 1/2" or so of the barrel. True, this free boring, or allowing the bullet to jump before it engages in the lands, does relieve the initial pressure and allows more powder to be loaded for greater velocity. All the better barrel men frown on this type of chambering as they claim the smooth free bored section allows gas to squirt around the bullet, increasing by many times the rate of erosion here in this critical area of the throat. Also the velocity attained by the bullet when it strikes the land section does not help the lands nor does it give the bullet a chance to get a true and even start on its journey.

Now how can we cut down on this amount of unburned powder rushing out through the throat? We could use the very fast burning powders. This would certainly reduce the amount through the throat and also reduce our velocities. Sharp shoulders on the cases tend to hold the powder in the case, but only slightly better than regular cases.

If the powder column was ignited in the forward section of the case immediately behind the bullet, the pressure created then as it burned would certainly hold that column of powder in the case until it was consumed by flame. This, called front ignition, would prevent any or practically no unburned grains to leave the confines of the case itself. A good illustration of this can be had by a very simple experiment. Take a fired 30-06 brass and saw it in two right behind the shoulder. Clamp the head of the case in a vise in a vertical position, then fill the case with a slow burning powder; such as 4831 data. Now then, light this powder at the top of the column and watch it burn. It will surprise you as to how slow and evenly it consumes itself. All that comes out the case outlet is a bright yellow flame that will last for about 10 seconds. On the other hand, if you were to punch out the old primer and attempt this experiment by lighting the vertical column of powder through the flash hole in the bottom of the case, the resulting shower of burning powder would probably be something to behold.

Due to the fact that front ignition does give the bullet a slower start, this is probably the only contributing factor to usually greater accuracy. This probably also accounts for the fact that even the most maximum of loads are generally just as accurate as the milder low velocity loads, because the bullet *always* gets a slow start into the barrel. I would also venture to say, as a result of my findings, that barrel life will

be over twice as long as there is no funneling mass of unburned powder rushing out through the throat.

Utilizing the slow burning properties of powder, such as 4831 (data) usually requires a barrel of 24". This was thoroughly proven to me by chambering a 1-10, 270 barrel of 20" to the 270 Gibbs. I had chambered several 1-10 24" barrels to this case and had found that the 150 gr. Sierra B.T. bullet pushed by 63 grs. of this data powder would consistently give a 21" to 23" drop at 400 yards (100 yd. zero). This same load was used on several occasions with the 20" barrel and the drop at 400 yds. always ran about 10" more. This indicated a velocity loss of approximately 300 feet per second. This also indicated to me that part of this powder was burning in the air after the bullet had left the muzzle. 61 grs. of 4350 was then used in this short barrel with the same bullet and the velocities and drop were comparable to the same load of 4350 in the 24" barrel. A lot of this is probably attributed, not especially to the extra capacity of the Gibbs case, but to the extra length of the case body and also the powder column. A short, squatty column of powder will naturally receive more primer saturation and will consume itself quicker than a more slender and longer column of the same, or even less, quantity. This extra length of the case body and powder column is probably a contributing factor in the fact that the Gibbs cases all give velocities comparable to the short magnums. The greater saturation of the primer flame in the short magnum cases, naturally hastens the burning process with regular loading. That is one reason why they may be able to use a shorter barrel to get their velocities. Breech pressures are measured or estimated in pounds per square inch. 60,000 lbs. breech pressure on the area of the bolt face with a magnum case would actually amount to about 13,200 lbs. and as far as your locking lugs are concerned, this is the amount of thrust that they have against them.

This same 60,000 lbs. chamber pressure would create a thrust of about 2,000 lbs. less if the case head was of the dimensions of the 30-06 or 270. From the standpoint of the locking lugs and the stress they are put under, it would be safer to load to equivalent breech pressures with the smaller case head. This was one of the controlling factors, along with brass availability and cost, that led me to choose the 30-06 and the 270 brass for the Gibbs cartridges.

One of our leading writers, who has contributed several articles on rifle performance, is of the opinion that a straight bodied case with very little taper should extract easier, with heavy loads, than a sloping case; such as the 270 Winchester.

This, I definitely will not agree with. If he were to chamber a 721-Remington with its small and inadequate extractor, to a case with a straighter body, I am sure that he would find his improved case, with heavy loads, would often be left in the chamber after the bolt was opened. In fact, I had this experience with a 721-270 chambered to the Ackley 270. I traded that baby in on a different rifle. I have already stated the fact that opinions, as mere statements not backed by logical explanations and facts, are not worth two whoops in Hades, so let me explain. Loads fired under extreme pressure *set* the brass against the chamber walls. These wall surfaces are rough (microscopically) and the brass tends to fill in the small rough areas throughout the entire chamber. Pulling this brass from a sloping area, such as the standard 270 chamber, would be like pulling a log or board downhill. The slightest rearward movement immediately gives relief and clearance from the chamber if it has a definite slope to it. With a straighter bodied case that may only have .010 taper to the inch a rearward movement of 1/16 of an inch would only change this relation of practical fusion by .0006 (which is six ten-thousandths) of an inch, as compared to .0010 (one thousandth) for the tapered 270 case. I would also venture to say from past experiments that if a case could be measured while still in the chamber, after an excessive load, that it would probably "mike" smaller than it will after it is removed. The excessive pressure that slaps this brass out against the chamber undoubtedly leaves the molecules of the brass in a compressed and resistant state, so that relief from the custody of the steel chamber allows this stress to react in a process of further expansion. Now this last statement is strictly a well-based supposition on my part and may not necessarily be the actual case. Rough chambers invariably cause case separation and extraction trouble. It is a very good idea to always polish and burnish the chamber on any new barrel or rifle before you ever fire it. This goes for any new rifle, by any manufacturer or custom rifle builder, as the polishing and burnishing won't hurt even a perfect chamber. It will certainly help a rough one. ●

Chapter Three

SEEKING ACCURACY

A FEW HINTS on loading for accuracy with any type loading may help some of our most experienced handloaders. First, we will mention bullets. I have never tested or seen a rifle that would not handle one particular make bullet better than all others, so don't be reluctant about trying all makes. Next, I am sure you will find that a particularly accurate load and bullet at one range; such as 200 yards, will not necessarily be the best load for another range, such as 400 yards. Bullet construction, especially in the forward wind resisting area, greatly affects remaining velocity and drop out at 300 to 500 yards. Here, as an example, we can use factory ballistic figures on three different 180 gr. .06 bullets. Now all these bullets have the same sectional density and the same muzzle velocity of 2700 f.p.s., but at 300 yds, the round nosed soft point bullet has dropped to 1740 f.p.s. The silver tip, which is more streamlined, has a remaining velocity at 300 yds. of 2040 f.p.s., 300 feet per second greater than the soft point. The 180 gr. boattail which is even more streamlined shows a remaining velocity of 2190 f.p.s. -- 450 ft. faster than what the round nose had left at this range of 300 yards.

It may seem surprising, but I know three fellows who are gunsmiths of merit and ardent wildcatters; yet they were using the round nosed 154 gr. Hornady bullet in a 7 MM short magnum that they had in barrels of 1 in 8-3/4 twist. For bullets up to 160 gr. and probably heavier, they would do much better with a 1 in 12 twist in this large capacity short magnum. They had built these rifles for long range hunting. It is a known fact that fast twist and blunt nosed bullets do not go with flat shooting.

I have found, when loading my 7 MM Gibbs (1-12), that the same load (67 gr. data) used with 140 gr. Sierra, 139 ABC and 139 gr. Hornady that the Sierra bullets will shoot 3" flatter at 400 yds., due to the more streamlined nose surface. As far as factory rifles are concerned, I have found several 721 Remingtons that were very accurate. These little rifles are fine for a fellow who has a lot of esteem for the American Dollar and who will only shoot factory ammo, but for handloading the problems with that little spring type extractor will invariably cause difficulty. The stocks on these rifles are very light and subject to warpage. Still the average hunter does not require pin-point accuracy and will be shooting factory ammo, so he should do very well with a 721.

The F.N. Mausers have proven to be very good rifles and several of our wildcat builders use these fine barreled actions for building their products. While still on factory rifles, we should naturally mention the model 70 Winchester. This seems to be universally accepted as a very fine rifle. With the model 70 as with any other factory rifle, a little tuning up is usually required to get the best accuracy. First the trigger can stand a lot of attention. The pull on this trigger is much too hard for either offhand or bench rest accuracy. Next the stock should be taken off and the bedding checked, after the rifle has been fired a few rounds. By doing this you can find just where the points of stress are; that is, if the rifle does not shoot as accurate as you think it should with your pet handloads. When you put the stock back on this Winchester product, tighten the screw in front of the magazine first, and next insert the screw at the rear of the trigger guard and pull it down good and snug. For this check you can leave out the middle screw in front of the trigger guard. Now the action is tightened firmly in the stock. While inserting the screw that goes in out on the forestock hold the barrel and stock right at the foretip with the other hand, while tightening the screw. If you can feel the barrel pull down to the stock you should make some bedding correction here. Having too much downward pull on the barrel is just as bad as having too much pressure up against the barrel here at the foretip.

The primary purpose of any bedding is not to force the barrel in any direction, but merely to cradle it very gently to prevent excessive vibrations.

I have seen several rifles that shoot very well with clearance all the way out (full floating) but none of my rifles have shot as well with a full floating barrel as when they are gently supported at the foretip.

Outside of these minor details for improving the accuracy in the model 70 they, as a general rule, will give close to minute of angle accuracy; especially, in the 257 and 270. In fact, the 400 yard record group on our local range was fired with a model 70 Winchester 270. While on this subject of

accuracy and the things that may affect it, I would like to give this rifle as an example. We all know that leed of the bullet and different capacity cases are associated factors with accuracy. This rifle was bought and unpacked from its factory carton by old handloader Gibbs himself. The only alterations made were in the trigger pull and a little contouring of the outside dimensions of the stock. The desire to beat the then standing five-shot group of 4-1/4" as held by a custom-built 25-06 was uppermost in my mind, while working with the loads for this 270. It took about three weeks for me to work out the best load in front ignition. Also I must mention that this 400 yd. event is scored on drop as well as accuracy and is limited to sporter weight rifles and scopes of six power or less. I knew I had a hot little 25 with 100 gr. bullets to beat. I had found many moons past that the tricky winds on our range required a well built-bullet of good sectional density to *consistently* deliver long range accuracy. Now this long range accuracy is one thing, but the additional scoring of flat shooting puts quite a load on the 150 gr. bullet in the 270 caliber. The combination of that 270 with the 150 gr. Sierra boattail, plus front ignition duplex loading did beat that record for flat shooting and accuracy. This combination set a new record, naturally with scope and bench rest shooting, of *six shots* in a 4-1/8" group at 400 yds. That was a standard 270 with the heavy hard hitting 150 gr. bullet shooting flatter and straighter than a wildcat 25 with 100 gr. bullets.

Now before and many times since, we have had many rifles compete for this "long range hunting rifle event" but that record established by this standard 270 has never been beaten by any other rifle. There have been rifles that have shot a little flatter than this, but their accuracy has left a whole heck of a lot to be desired. We have had several fellows with Weatherby calibers try for this record, but it seems that when they load about 3,000 f.p.s. that they should stick to the indoor shooting with a chronograph that has a very wide bullet screen.

The short magnum 270's have been a great disappointment to many a man who has actually tested these over case capacity rifles on the 400 yd. drop test. We, of the range committee, have fired many thousands of rounds with different versions of wildcats in this event and we definitely learned that the great big case with a small diameter bullet may look impressive and burn a lot of powder but most of them make a much bigger noise than they do impressive shooting. Another thing that we learned was that chronographed velocities and unsolicited testimonials will not necessarily deliver accuracy when the chips are down.

It has been a long accepted fact that basically a rifle is built around a barrel. If the barrel is poor, so will be the accuracy. Being of a curious nature and possessor of a few hard-learned facts about case to bore capacity, I was interested in exploring the realm of case capacity between the 270 Ackley and the 270 short magnums. The 270 Ackley improved did give a little more velocity for its 5% increase of case capacity, yet the 27% larger magnum 270 cases had not shown near enough of an increase in velocity for their exorbitant capacity.

With the modern slower burning powders, larger capacity cases than the standard 270 and the 270 Ackley, did interest me, but I wanted to concentrate on the 150 gr. bullet for long range shooting and did not want to have a lot of air space left with this heavy bullet seated to a normal depth. Free boring is fine if you like it, but I do not for several reasons, so I knew I was not going to design a case for this weight and caliber bullet that would require removing the first section of the lands to facilitate high density loading. I personally have never seen a long throated or free bored rifle that will long give accuracy. It seems that free bored section gets rougher and larger in diameter much quicker than a regular throated barrel.

The 25 Gibbs, as well as the 6.5 MM, 270, 7 MM and 30 Gibbs that I may refer to throughout these pages are all on this case of mine. The case capacity is about six grains more than the standard 270 or 06. The body of the case, up to where the shoulder starts, is 54 MM long as against 52 MM for the 270 Ackley Imp. and 49 MM for the standard 270. My cases are all formed from 270 or 30-06 brass. The neck of the Gibbs cases are shorter than the standard, but still they are longer than the 300 Savage. A lot of my experiments and research has been done on these cases with standard and front ignition loading. This is the reason for the explanation as to what a 6.5 Gibbs or 30 Gibbs may be. The case has been standardized and R.C.B.S. of Oroville, California has the dies available for rifles thus chambered.

My Winchester 270 was one of the first rifles chambered for this case, record or not. This case has done very nicely with front ignition loading and again this rifle set a new record for drop and accuracy at 400 yds. from 100 yd. zero. This time the 150 gr. bullets were used on three different occasions and the average size of the three 400 yd. groups was 4-1/2", the smallest of which was 3-1/4", the new record which has stood for over a year. The average drop for the three groups of 150 gr. 270 bullets was 18-1/2", in fact, that is what the actual drop was on all three groups. The average group size in the 100 yd. zero was under 1". This 18-1/2" drop at 400 yds. from 100 yd. zero may not seem very flat shooting to some fellows but if they will check the drop figures on the 220 Swift, the 130 gr. 270 and 300 magnum, they will find their drop at 400 yds. as 21" for the 220, 30" for the 130 gr. 270 and 33" for the 180 gr. 300 mag. This heavy accent on accuracy at almost a quarter of a mile distance is very important in long range shooting. This accuracy, coupled with this velocity, plus a well-built 150 gr. 270 bullet puts this rifle up into the good long range rifle class. Accuracy with front ignition seems to get better as the velocity gets higher. This sometimes holds true with regular loading but usually it is just the reverse. If you can efficiently transfer the dormant energy that lies in a powder charge into a smooth even push on the bullet through that 24" of barrel and that perfectly rifled barrel is bedded the way it should be, I contend that if that perfectly rifled barrel has the proper rate of twist the accuracy should get better as the velocity gets higher. I have maliciously loaded way beyond safe maximum pressures with front ignition and have shot some mighty good groups with these loads. Here again I will say a lot of this is due to the fact that the bullet gets a slow even start in the rifling and is well on its way up the barrel before the faster burning powder in the bottom of the case steps up the velocity.

Front ignition duplex loads have a feel and a tone to them that you will learn to recognize. Recoil as compared to

that you will learn to recognize. Recoil as compared to regular loading is much milder; thus enabling the shooter to assume that relaxed, trigger squeezing that is so very, very important when seeking consistent accuracy. How in the heck can a fellow relax and concentrate on his hold and trigger squeeze if he knows dog-gone good and well his shoulder is going to take another beating!

I have had quite a lot of experience at all the different shooting positions, including off-hand at running deer targets and bench rest shooting, still I can't shoot near as well with a rifle that bothers me with its recoil. ●

Chapter Four

CHRONOGRAPHS APPLIED

VELOCITY SEEMS to be the main reason for experimenters designing their different wildcat cases. Some of these new designs have proven very successful in delivering more velocity than their predecessors. While others, for one reason or another, give the designer a very sad disappointment when they actually chronograph their pets on one of the many different machines designed to measure the bullet's velocity. The sad part about chronographs seems to be the fact that they do not always agree with one another. Invariably one chronograph will give a given load, as an average for several rifles, either quite a bit higher or lower velocity than its counterpart gives for the same identical loads. Considering this fact as very important I prefer to compare my velocities in relation to a standard caliber and bullet weight that is well known to the average handloader. Most of my comparisons are to what this particular chronograph actually gave the factory loads in the 30-06 and 300 magnum.

If you chronograph the factory loads in conjunction with the hand loads, all at the same time, you can definitely give their relations as to velocity. If you have shot the 150 gr. Silvertip in the 30-06 you have learned to accept some figure as its muzzle velocity. We can use as an illustration the 30 Gibbs. This is one of my favorites for either long range deer hunting with the 150 and 180 grain bullet and should also prove very effective as a killer of heavy game with the 220 grain bullet.

I refer to my 30 Gibbs as "The world's most powerful 30-06." It is truly a blown out version of the 06 brass with the same body dimensions as the other Gibbs cases. The case capacity is 67 gr. 4350 when loaded to 100% density as to 60 gr. for the standard 30-06 case, and about 63 gr. for the Ackley Improved .06 case.

We will compare the actual findings on this chronograph with the findings on the 30-06 and 300 magnum rifles. This is regular loading, not front ignition, and should give a fair comparison of the velocities. With 150 gr. Hornady, 8-1/2 primers, Den-43 brass and 60 gr. of 4064 the 30 Gibbs gave 485 f.p.s. more velocity than the 150 gr. Silvertip in the 06. The 180 gr. Barnes bullet gave 339 f.p.s. more velocity than the 150 S.T. and the Barnes bullet was pushed by 65 gr. 4350.

What about big game? The 220 Remington bullet in the 30 Gibbs gave 400 f.p.s. more velocity than the same weight bullet in the factory 06 load and about 200 f.p.s. more than the 300 mag. gave its 220 gr. bullet.

The comparison on front ignition can be shown by a comparison of a couple of standard 270 loads. One was the well accepted 49.5 gr. of 4064 -- 120 primers-super x brass -- 130 gr. ABC bullet and the other was a front ignition load with the 150 gr. Sierra boattail. Both of these loads were tested in the same rifle and one was run right behind the other. This front ignition load with the heavier 270 bullet was only 27 feet a second slower than the 130 gr. bullet. This front ignition load was the holder of our 400 yd. drop and accuracy event for quite a long time (six shots in a 4-1/2" group at 400 yd.) and was fired in a standard grade model 70 with 6X Weaver scope. With front ignition loading, again the same evening, a 270 Ackley with 24" 1-12 barrel gave the 150 gr. Sierra bullet 257 f.p.s. more velocity than the 49.5 gr. 4064 -- 130 ABC load. This front ignition load in the 270 Ackley is a maximum load and my brother's favorite hunting load in his rifle.

We will give a quick comparison now between the 150 gr. Silvertip in the 06 and what some of the other Gibbs' rifles did. This is standard loading as I have not had time to chronograph the front ignition loads yet. You will note the comparison to the 150 gr. Silvertip but here I would like to add that we checked the 150 bronze point also and its velocity was very close to the Silvertip. I also had my old friend Jack O'Connor check the remainder of the two boxes of factory 150 gr. 06 loads on Vernon Speer's Potter chronograph. His velocities were not identical but were close enough for all practical purposes.

Now to those velocities shown as the number of feet per second greater than what this machine gave the factory 150 gr. Silvertip in a standard 30-06 Springfield.

25 Gibbs-87 gr. Sierra-62 gr. 4350 . . . 817 f.p.s. more vel.

6.5 Gibbs-120 ABC-Den-43 Brass-60 gr. 4350 525 f.p.s. more vel.

6.5 Gibbs-140 Speer-super-x brass-62 gr. data 167 f.p.s. more vel.

270 Gibbs-150 gr. bullet-super-x brass . . . 375 f.p.s. more vel.

7 MM Gibbs-140 Sierra-duplex load . . . 573 f.p.s. more vel.

7 MM Gibbs-140 Sierra-67 gr. 4831-super-x 493 f.p.s. more vel.

7 MM Gibbs-160 Speer-67 gr. 4831-super-x 373 f.p.s. more vel.

30 Gibbs-150 gr. Hornady-60 gr. 4064 Den-43 485 f.p.s. more vel.

30 Gibbs-180 gr. Barnes-65 gr. 4350 Den-43 339 f.p.s. more vel.

The importance attached to velocity is usually given in relation to some other rifle. After all, how could a 270 man lord it over an 06 man if factory ballistics did not show more velocity for that 130 gr. 270? This is why I gave these velocities, not in the actual feet per second this chronograph gave, but the amount of additional velocity over what this same chronograph gave the 150 gr. factory load in the 06. These chronographed records are on permanent file with the owner of this machine and are subject to inspection by anyone so desiring.

Whether front ignition will give greater velocities on my cases remains to be seen, but I am sure of one thing and that is the fact that barrel life will, with front ignition, be much longer and that recoil will always be less (as with any case).

As a further comment to velocity comparisons I might mention that a front ignition load on a standard 30-06 Springfield with 180 gr. Speer bullets also gave more velocity than the 150 gr. factory load fired in the same rifle. As of now I won't mention what this front ignition duplex load was, but it will be given when we actually get into front ignition loading charts. ●