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NBAR SPECIFICATIONS

PURPOSE: In the initial conceptual discussion of the current "New Bolt Action Rifle" design, the sole design criteria, other than Customer Safety, was understood to be "low manufacturing cost". Results produced with this goal in mind are as follows:

Barrel/Receiver Construction:

The barrel and receiver are to be formed from one "gun quality" steel blank. The contour of the firearm will be standardized to allow for the chambering of any production caliber, non-magnum or magnum. The overall length of this unit is 28", which if viewed as a current assembly will contain an 8" receiver and a 20" barrel as measured from the bolt face. The firearm will also be formed as to allow for the use as a right hand or left hand firearm by replacing only the bolt. The "receiver" will be constructed as a straight cylinder with the appropriate cuts to meet the above mentioned specifications.

Locking Lug:

To achieve the above mentioned barrel/receiver design, the locking mechanism to which the bolt will engage, is to be constructed as separate item. Upon assembly, the locking lug is to be pressed, then brazed or welded into place. The locking lug is also to be constructed of "gun quality" steel. The lug will contain two entities that will engage the bolt to produce the sufficient locking surface contact at a lock rotation of 70 degrees, as well as providing a recoil bracket for interaction of the barrel/receiver with the stock.

Bolt Assembly:

The bolt assembly will consist of a bolt, bolt bushing, extractor, ejector and a bolt handle. The bolt is be constructed from a single piece of "gun quality" steel. The bolt will also be standardized, with the exception of left and right handed, to allow for the use with any caliber by assembling the proper extractor. To reduce the weight of the bolt, the bolt inside diameter will be bored out and a bushing inserted in the rear of the bolt. The bushing will contain the counter bore and threads for the firing pin assembly, the cocking cam and cocking notch, and an assembly slot for the bolt handle. The bolt bushing will be produced with a cocking cam designed for a lock rotation of 70 degrees. The extractor will be of a claw style forging, but upon case failure will act as an integral part of the bolt shroud.

Firing Pin Assembly:

The M/700 firing pin assembly will be add used except for the bolt plug and firing pin head. The bolt plug will require cosmetic changes to the outside diameter. Material will be added to the firing pin head to ensure proper interaction with the sear.

BARREL:

Barrel Length: 20"
Muzzle Diameter: .600"
Breech Diameter: 1.25"
Barrel Contour: Breech Contour same as M/700 Magnum
Barrel Length and Muzzle Diameter Altered
Drilled and Tapped for standard M/700 sights
Rifling Contour: ECM process
Calibers: (Possible First Year)
Short Action: 243, 7mm-08 & 308
Long Action: 25-06, 270, 280, 30-06
Magnum: 7mm Rem Mag.

RECEIVER:

Receiver Length: 8.0"
Receiver Diameter: 1.25"
Receiver Construction: Double ejection ports and bolt handle cuts.
Drilled and tapped scope holes.

BOLT:

Bolt Length: 6.240"
Bolt Diameter: .900"
Bolt Contour: Shrouded bolt face, standard for all calibers, bolt stop slot length altered for short or long action, claw style extractor

STOCK:

Stock Material: Synthetic
Stock Contour: Beaver Tail Fore-End, Classic Stock, Universal Design Left or Right Handed

OTHER:

Detachable Magazine Box (add used from M/700)
Assembly Weight approx. 7 lbs.

Areas of Concern:

Receiver strength: Testing may show that the receiver wall thickness is not sufficient to produce desired accuracy.

If required, the outside diameter may be increased to improve receiver rigidity.

Locking Lug to Barrel/Receiver Assembly:

Testing will be required to determine if brazing or laser welding will produce the desired union between the two components.

Presently, the locking lugs are at 140 degree separation, This may not provide the proper support for the bolt upon repeated firing. The lugs can be altered to allow for 180 degree separation with increased bearing surfaces.

Trigger Assembly: The proposed testing will be conducted by adapting the current M/700 Trigger Assembly. It has not been determined whether a new trigger assembly will be required for this firearm.

Proposed "ECM" Rifling:

Thorough testing of this process will be required to determine if the desired accuracy can be acheived as well as barrel life.

Chemical analysis will be required to determine the contents of the process waste so that proper disposal of the waste can be factored into the process justification analysis.

MANUFACTURING PROCESSES

Barrel/Receiver:

- Blank Cutoff	Will add use current barrel cutoff machines.
- Heat Treatment	Will add use current "Oil Case Furnaces" for heat treatment to Rc 20-25.
- Gundrill Bore	Will add use the Barnes Drill replacement machine that is currently on order.
- Turn Barrel/Receiver	Will add use current CNC Monarch Lathe used for M/700 barrels.
- Bore Receiver	* Will require a new CNC Chucker
- Machine Receiver	* Will require a new CNC Vertical Milling Center
- Ream Bore and Rifle	* Will require a new Electro Chemical Machining Center
- Bore Chamber	Will add use the CNC Chucker required to bore the Receiver.
- Assemble Locking Lug to Barrel/Receiver	* Will require a new brazing or welding machine.
- Rotoblast	Will add use Goff Blaster
- Black Oxide Color	Will ad use current coloring equipment.
- Final Head Bolt to Barrel/Receiver	Will add use current M/700 heading machine.
_ Assemble Action	

Bolt:

- Cutoff and Bore Bolt	Will add use CNC Miyano Lathes currently producing M/700 Bolt Bodies and Receiver Blanks.
- Turn Bolt	Will add use CNC Okuma Lathe used to finish turn M/700 Bolt Body Assemblies.
- Machine Bolt	Will add use current CNC Fadal Machining Center used for M/700 Bolt Heads.
- Assemble Bushing	Will add use a standard Denison Press.
- Braze and Heat Treat Assembly	Will add use current furnaces.
- Rotoblast	Will add use current equipment.
- Black Oxide color	Will add use current equipment.

Pluses:

Something new, No other centerfire rifles on market

Perceived strength due to One Piece Construction.

Perceived Accuracy, bored from the same centerline

Lightweight, under 7 lbs.

Negatives:

Non- replaceable barrel