

REMINGTON ARMS COMPANY, INC.
Product Team Meeting Agenda
March 4th, 2004 Elizabethtown Meeting (7:30 a.m.)

Future Meetings

April 15th - Ilion
June 22nd - Ilion
July 14th - Madison
August 25th - Ilion
September 15th - Ilion
November 17th - Ilion
December 15th - Elizabethtown

Future Important Dates

Feb. 28 th	Customer Early Order Qualification Period Ends
March 3 rd	M2100 Review and Test Fire
March 11 th	Planning Meeting - Madison
March 31 st	Target Rev. 1 Forecast
April 16 th -18 th	NRA Convention-Pittsburgh, PA

Business Review

Jay Bunting to provide overview of current business environment
SHOT Show Business Review
Jay Bunting provided current state of affairs of the business

Military & Law Enforcement Products

Ed Schoppman overview and direction of Military products

Competitive Product Review

Starting with 4/13 Meeting, Trull and Fink will conduct competitive product reviews for group
Action: JF JT Send out planned overview for team to review.

ILION BASED SHOTGUN PRODUCTS

New Shotgun Product

• **Model 332**

OBJECTIVE: Establish a legitimate presence in the O/U market

Production Status:

- Guns per day
- Status of incoming wood
- CAR status of Salt Bleed Out tanks
- Status of 3/5/04 salt bleed out station for O/U's
- Other

ACTION: Perniciaro to contact Billy Crutchfield at Lonoke to discuss performance of current guns on hand at Lonoke and to arrange to have ported guns delivered to Lonoke for use. Steve to update Team at March PTM.

- April going to 10 guns per day, currently at 8 guns days. 14 guns behind for the year to date versus the plan.

- S&K wood not an issue.
- End of March no-bleed tanks set up off line for 332.
- Rest of line set up by end of July shutdown.
- Have not been able to reproduce shoot open, even with Shane Naylor's gun.
- Having guns ported and will continue shooting.
- ACTION: S. Perniciaro to contact Serven on GTA ammunition testing to get guns there.

2004 New Shotgun Product

- General New Product Discussion
OBJECTIVE: Ship new product on time
ACTION: Iliion to provide status of any 2004 new shotgun products that have not been released in production yet. From my notes, these products are:
 - 9583 – M1100 Sporting 28/27
T&P scheduled for Feb. Production May
 - 9549 – M1100 Sporting 410/27
 - T&P scheduled for week of March 8th
 - ACTION: Fink to get gun 268 back to J Mroz

ACTION: Engineering to insure gun reliably cycles both 2 ½" and 3" shells
Scheduled same as 28 GA Both shell lengths functioning reliably.
ACTION: Manufacturing to advise current T&P status and production date.
- 6457 – M870 SPS FR/CL 20 GA
T&P scheduled to begin 2/6 with production in April.
 - Waiting on new guide rings
 - Barrel incorporates new optimized rifling
 - Every 20 gauge except 1100 now has 3" chamber

ACTION: Manufacturing to advise current T&P status and production date.

 - Just finished CL bases and will go through T&P
- 4455 – M1100 Sporting XBL 28/27
Schedule concurrent with gun.
ACTION: Manufacturing to advise current T&P status and production date.
 - May on the 28/27, the 410 has been pushed out until June.

2005 New Shotgun Product

- 2005 New Shotgun Product
OBJECTIVE: New Product
ACTION: Discussion of prospective new shotgun programs and strategies for 2005.
- **M870 EXP .410 slug gun.** Findlay working up quotes for sights. NPP-2004-35
 - \$47K for sight tooling
 - 10 prototypes being built
 - Engineering will continue to develop
 - Prototype sights in March 12th, week to finish barrels and get into T&P, then order MIM tools to arrive late May. Tentative schedule.

M332 Sporting

M332 Trap

- Production-Are barrels longer than 30" an issue?
- Can we do raised side panels?
- Engineering-We must figure out shooting open issue
- **ACTION: Engineering-Figure out what it will require to produce 32" and 34" barrels as well as raised side panels**
- **32" barrels are possible on autoloaders**
- **34" barrels are possible on pumps or O/U's**
- **ACTION: Fink-Provide clear written NPP with direction**
- **OBJECTIVE: Announce Target models on 2005 Spring Gun Program**

M332 Small Gauge

- Small frame 20 gauge
- Frame to accommodate 16 gauge barrels
- Stock dimensions-trimmed down version of 12 gauge
- 26" and 28" Barrels
- Steve Perniciaro and Dave Findlay have drawings
- Need to examine ways to build low volume items efficiently
- Investment cast-brings some new issues and solves others
- Have to improve cost, efficiency and quality
- **OBJECTIVE: To announce 20 gauge M332 on 2006 Spring Gun Program**
- Brad Howard presented current design status and timelines to meet August 2005 announcement

Ilion Quality – Shotguns

- Shotgun POI
OBJECTIVE: Conformance to SAAMI spec
ACTION: Ilion to provide status of this project. Priority of shotguns in which to incorporate these changes first:
 1. All 1100 Target, 1100 Classic Field and Synthetic
 2. 11-87 Premier and SP/SPS
 3. 870 Wingmaster and SPS
 4. 870 Express
 5. SP-10
Findlay presented prototype of proposed new rib design to bring our POI in line with SAAMI.
ACTION: Ilion to test in January and report on results of testing at March PTM.
Need samples shipped to Madison to evaluate.
 - 12 gauge 870, 1100, 1187 SAAMI sight picture 3.27" low, Remington sight picture .90" High
 - Raised POI 3'-4"
 - M332 shoots to SAAMI sight picture
 - Tooling & Gauging to be complete by June 2004
 - T&P Scheduled September 2004 for 870/1187**ACTION: 12 gauge 1187 standard contour barrels shipped to J. Fink for Marketing evaluation and report at March PTM**
 - **Ribs in process for the 1100 Target, Classic Field, 1187 Premier and 870 Wingmaster.**
 - **ACTION: Marketing to shoot 1187 barrels and report to Engineering before next meeting.**
- 11-87 Super Mag
OBJECTIVE: Determine necessary changes to make this product to the performance requirements as originally specified.
Action: Engineering to provide update on design recommendations and timeline for implementation. What testing needs to be done and when can we expect to make the transition in production?
Findlay presented new gas collar design to give a better seal.

- (10) 12 gauge barrels in test with new design
- Objective to reduce 3" & 3 1/2" terminal velocities and improve function
- Testing to be completed by 2.15.04
- MIM, gas cylinder prototype-10 weeks and \$15K
- 30 piece 12 gauge machined sample to transmit April 30, 2004

ACTION: Report on test status

- Range of 350 Max and 150 Min. Still testing different gas cylinder designs.
- By 3.30.04 start MIM Gas

- Choke Tube Constriction/Patterning Concerns

OBJECTIVE: Conformance to SAAMI spec/product enhancement.

Testing with the M1100 Tournament Skeet 20 GA showed that we had a problem with the extended choke tubes patterning too tight. This has sparked discussion of a full scale audit of all of our 12 and 20 GA choke tubes to verify patterns are correct. Findlay has proposed drawing changes that will be confirmed through a test plan.

ACTION: Review test results at January PTM.

Corrective action date-

New Tube Identification-Need some sort of symbol or marking to differentiate new tubes from older tubes.

- Complete shooting of 12/20/28 gauge extended Briley tubes by end of February
- Old fixed skeet was "bow tie" configuration all others tapered to .5" flat; why?

ACTION: Pursue making tubes meet SAAMI specs. Gain an understanding of old fixed choke dimensions and performance. Get hardcopy of specs to J. Fink and J. Bunting

- Better to error on the side of tighter constrictions
- Engineering to start with 410/28/20 to get choke tubes patterning to spec.

410

Skeet, IC 2.5" #9

M, Full 3" #6

28

Skeet, IC-TGT load

M, F-Express #6

- ACTION: FINK to provide direction on testing
- Skeet gun-currently offered in Skeet and IC, historically was skeet and improved skeet
- Use Remington specifications to provide direction to Briley
- ACTION: R&D to insure new SG to meet pattern spec.

- Surface Finishes on Internal Components

OBJECTIVE: Product enhancement

Action: Fink to lead discussion with examples on current concerns from Marketing on surface finish of components.

- Marketing to provide direction on acceptable finishes/changes. Images of a M1100 Sporting 410 breech bolt were supplied. With the exception of tool marks in the locking block, the top of the bolt was within current manufacturing levels of acceptability. However, in the eyes of Marketing the level of finish was not acceptable based on quality of finish of competing guns.

ILION BASED GENERAL TOPICS

- Elimination of ISS on common fire control and Model 700, Model 7

ACTION: Establish final plan forward for ISS.

- Conversion to be complete no later than 1.1.05
- Design transmittal of Regal trigger block for all common fire controls from D. Diaz by end of February to S. Perniciaro and D. Findlay

- Audit current CA DOJ designs
 - Trigger block must allow M7400 to lock bolt open
 - Block must not mar gun or fire control
 - Regal needs conditional PO by Mid-March
 - 2 months delivery from receipt of PO and \$2.95 cost each
 - Regal will have block tested by CA DOJ by 6.15.04
 - With DOJ approval, all common fire controls converted by 1.1.05
 - M700/M7 to cable lock-\$1.63 cost
 - Vendor good with a memo of understanding vs conditional PO. Will not start tooling until memo received at Regal. Working on sample.
 - Bolt action rifle will phase out and go to same lock as 710.
 - On schedule to meet implementation NLT 1.1.05
- R3 Pad on Wood Stocks
OBJECTIVE: Product enhancement
ACTION: Ilion to confirm roll-in to begin Q2 and establish timeline by model.
 - Waiting of nobides from S&K
 - No RAMAC change
 - Start implementation in February 2004
 ACTION: Matrix of products to J. Trull and J. Fink from Engineering. R3 Label on 5 pack for identification.
 - Will be cataloged in 2005
 - Tooling ready to go. Being phased in as products come up on the production schedule.
 - Marketing to advise planning if certain products should have priority.
- Styrofoam Insert in Gun Boxes
OBJECTIVE: Product enhancement
ACTION: Update team on progress.
 - Two new vendors given drawings
 ACTION: Make sure trigger block will fit into new insert
 - Will have final estimate on cost by end of April.
- Dimensional Audit
OBJECTIVE: Quality Control
Action: Marketing requests that Ilion conduct a dimensional audit of weights and dimensions of current catalog items to allow Marketing to cross check against catalog.
 - C. Shoemaker developing actual weights and dimensions. S. Perniciaro developing spec sheets for active SKU's

ILION BASED RIFLE PRODUCTS

2004 New Rifles

- Model 700 CDL (Classic Deluxe)
NPP-2004-24 RAMACS (7007,7015,7011,7017,7047,7049,7051,7053)
OBJECTIVE: New Product
Action: Production Status from Ilion
ACTION: WE MUST SHIP CDL'S IN THE FIRST QUARTER!
 - Starting 3/8-100 stocks per day on long action
- Model Seven Synthetic Stock
OBJECTIVE: New Product

ACTION: Samples to Trull at SHOT, determined to go with Polypropylene gray stock. Texturing not great, but will leave as is for now. Marketing direction to proceed with production.

ACTION: Ilion to update on production status

- **50 piece first article, T&P's built, few dimensional changes**

- Model 700 204 Ruger

OBJECTIVE: New Product

NPP-2004-36, 37,38 RAMACS 6196 (LV SF), 7467 (VLS), 7527 (ADL SYN)

Current on order status is 3,585 pieces (1376- ADL, 1224-VLS, 985- LV SF)

ACTION: Test and Production Status from Ilion

- **Production capable at the end of March**
- **Need new madrel.**

2005 Prospective Ilion New Rifle Programs

- 2005 New Products

- **Model 700 Syn Stock Redesign Status**

- **Need sample stocks by Sept. 30, 2004**
 - **May have vendor that will furnish mold to get our business**
 - **ACTION: D. Diaz to provide design at PTM**
 - **M700 LV-Custom Foam \$30 savings v. Bell & Carlson**
 - **Pillar bedded, steel reinforced**
 - **Weight currently with in ounces of B&C stock, can change weight**
 - **ACTION: Communicate desire to pursue to purchasing**
 - **Stock geometry looked good.**
 - **NDA in place with Hogue**

- **Model 700 Special Purpose Synthetic – Trull to issue NPP prior to Meeting.**

- **Must compete with Tikka and Vanguard**
 - **Must market as "high tech" material**
 - **ACTION: Trull to evaluate**

- **Update to Varmint Line – Review/discuss new concepts. Review McMillan stock designs**

ACTION: D. Diaz to check intellectual property concerning bedding block in HS Precision stocks

Trull having discussions with H.S. Precision now on how to update the line. It is going to be a difficult sell to steer the market away from the H.S. stock after we have done such a thorough job convincing the market on how great it is. Committing resources to design around it may be an inefficient use of our resources.

Custom Foam

- **Will mock up model, once approved by all, tool will be built.**

- **Model 700 Classic thoughts – Any Ideas? 35 Remington?**

- **Despite 1979 catalog-308 Win has never been done**

Action: Trull to proceed with .308 Win unless Ilion has discovered new information indicating that it has already been done.

- **No 308 Win in the process records**

- **Ultimate Firearms Muzzleloader – Samples received. Need to review and address path forward**

- 700ML Concept
 - Improves 209 Primer ignition
 - Interchangeable barrel that eliminates blow-back
 - Sample to present to customers at SHOT Show
- ACTION: J. Trull to report on customer response and plan forward**

Ilion Engineering Topics – Rifles

- **Alternative Metal Finish for Stainless Rifles**
 OBJECTIVE: Product Enhancement
Titanium Carbide-Hardest >RC90-\$50
Zirconium Carbide <RC90-\$29
Will get samples to test & shoot
ACTION: Marketing to provide direction on color-black or silver. Engineering to have samples and testing started by next meeting.
- **Sample too gold. Looks dirty.**
- **Match ROBAR finish.**
- **Improved Chamber Finish Program**
 OBJECTIVE: Product Enhancement
 Engineering reported at last meeting that this process is being held up due to chamber eccentricity issues. Bulk of problem appears to rest with current CF heading process at Ilion.
Action: Engineering to update on status. Can we implement on 7400/7600's?
 - **Switching to process used on SS models. Starting by end of March.**

Ilion Quality Issues – Rifles

- **Bolt-Action Rifle "Lays Left" Issue**
 OBJECTIVE: Quality Issue
Action: Engineering and Quality to Provide a brief overview of implementation of corrective action on issues uncovered by team.
- **Process in place to make sure barrels are straight.**
- **Model 700/Seven Trigger Pull Weights**
 OBJECTIVE: Quality Issue
 Sales and Marketing are receiving a great deal of feed back from customers and consumers that we are losing sales at a devastating level to the Savage Accutrigger offerings.
Action: M700/7 Trigger Pull- Set pull at final assembly to 4 ½ to 5 ½ pounds. Ilion engineering to report on implementation at final assembly.
Action: D. Diaz to evaluate fluted firing pin and report status at next meeting.
- **Model 7400 Improvement Project**
 OBJECTIVE: Quality Issue
ACTION: Trull must have information to present to customers at IWA. Primarily, what we are doing, why we are doing it and when we will see the changes. Also, how to handle the 150-200 35 Whelen guns that Borchers has in their possession.
 - **1.7% average malfunction rate with new orifice holes.**
 - **Design complete 5/28**
 - **Production and T&P 12/15**
 - **Production start 1/05**
 - **International Winter Program ships in October, Trull to identify specs for implementation.**

- **Bolt-Action Rifle Torque Settings at Final Assembly**
OBJECTIVE: Quality Issue
ACTION: Manufacturing to confirm that processes have been changed at final assembly.
 - Manufacturing fine tuning process
 Action: Ilion to confirm that all controls are in place by March PTM.
 - Complete and in place

Rutland Plywood 870 Exp stock

- Adds \$0.75 in cost per gun
- Reduces scrap rate
- Should be economic calculation

R&D TOPICS

E-Town Development Topics

- **Model 597 Performance Improvement**
OBJECTIVE: Performance Improvement of 597
Action: Diaz to advise of redesign efforts.
 - Different magazine springs & box designs being evaluated
 - Should start shooting new boxes week of 2/2
 - Three different boxes .070", .120", .140"
 ACTION: Get boxes to J Trull once we have redesigned box
 - Objective-reduce malfunctions, make mag box more user friendly
 - Flexible capacity, overall length
 - Changed internal geometry-reduced width and increased height
 - Tested mag springs and mag followers
 - Evaluated 13 different configurations
 - Current malfunction rate 9-15%
 - Narrow box configuration <2%
 - Final proposed configuration was .1%-(1 malfunction in 1300 rounds)
 - 9 Round capacity
 - Design easiest to load clean and dirty-300 rounds on each box
 To implement
 - Need new mag box cores
 - Remove 10 on outside of box
 - Change follower
 To Change to 10 round box
 - Need new box bottom height
 - New mag spring with longer free length
 - New springs and extended box bottom on order
 - To date- 10 round box is untested and unproven
 ACTION: Continue development of 10 round box, evaluate magnum box next.
ACTION: Boxes to Marketing for evaluation. Marketing to provide direction on 9 round vs 10 round implementation
- **17 Hornady Mach 2 Project**
OBJECTIVE: New Product
Action: Discuss M504 strategy and M597 strategy for this new cartridge. Need to have shippable product in the warehouse in September this year.
- May require tungsten bolt in 597

- **504 barrels available later in March**
- **504 priority-Mach 2 then magnums**
 ACTION: Communicate 504 availability by next PTM
 ACTION: Can we do a 572. Effects of ammunition in a tubular magazine. S. Perniciaro to work on details.
- **Model 332 Small Gauge**
 OBJECTIVE: New Product
 Action: Diaz to update on design status. Is 2006 new product likely?
- **Prototype 1-2 guns**
- **Drawings out for quote on parts**
- **Ilion to supply barrels**
- **Introduction date August 2005**
- **Marketing to provide NPP with 26, 28 and 30 inch barrels**
- **Beretta currently smallest frame in market, Remington design smaller yet**
- **Design eliminates curved bottom barrel**
- **Add use as many parts as possible from 12 gauge**
- **Development schedule set up for 8/05 warehouse position**
 ACTION: S. Perniciaro to check/evaluate to report on "straight" bottom barrel on 12 gauge. Report at next meeting.
 - Quickest route to market from Remington standpoint machining.
 - Casting-overall appearance and lines more flexible in S. Perniciaro opinion.
 - Frame to be machined identical to 12 gauge
- **6.8mm Rem SPC Cartridge**
 OBJECTIVE: New Product
 Action: Diaz & Perniciaro to address expense and timing involved to implement on 700 LTR and Model Seven
- **Marketing not convinced demand to justify development**
- **Model 7600 223 Remington**
 OBJECTIVE: New Product
 Action: Diaz to update on DAT status. Guns were received from Ilion. Advise of anticipated completion date.
 Colt magazine box to E Town
 Issues with stem low
 Modified insert by 5°, 400 rounds with no issues
 Colt is standard but supply is extremely tight
 Action: R&D to give status
- **M7615-16.5" bbl, Wilson ghost ring rear sight, adapted to accept AR15 mag box**
- **Designed stripper system to allow use of un-altered magazine box**
 ACTION: R&D to communicate to Marketing which mag boxes work and which ones do not. DPMS box consistently works well.
 25 rifles in Etown
 Testing to begin 3/15
- **C.A.R. (Centerfire Autoloading Rifle)**
 OBJECTIVE: New product
 Action: Discuss concept and timing
- **N.B.A.R. (New Bolt-Action Rifle)**
 OBJECTIVE: New Product (Long term)
 Action: Discuss strategy & timing
 Product boarded

Fluted firing pin status

- Firing pins have been measured assembled and are ready fo DAT
- DAT put on hold at the request of Product Team pending resolution of trigger pull reduction
- Trigger pull being set at final assembly at 5 lbs. Results to be provided at end of March by S. Perniciaro.
- Must find method in assembly to reduce pull to minimum side of range-4.5Lbs immediately.

MAYFIELD BASED RIFLE PRODUCTS

2004 New Rifle Product – Mayfield

- Model 504
OBJECTIVE: New Product
Action: **Golemboski to advise of production status.**
Problem encountered with left extractor creating a burr in the barrel due to hitting the extractor cut. Will I.D. the problem and correct within one week. Otherwise, production is coming up to speed.
Action: **Will continue to follow at subsequent PTM's.**
- 27 guns per day. Some supplier issues. Build will be constrained by receivers and bolt heads.
- Should be approaching 50 guns per day by end of April.
- Rounded extractor will resolve issue.
- Model 710 Magnum
OBJECTIVE: New Product
Action: **Review status of T&P and build plan.**
Continuing to struggle with riveted extractors.
Action: **Samples at E-Town to test week of 2/16/04**
Status needed prior to next PTM
 - T&P progress coming to end of endurance, two guns going from 1000 to 2000 rounds. Take down screw being loctited in place.
 - S. Perniciaro recommended trying spiral thread, however with only 1.5 thread engagement will not work.
 - Initial movement taking place at 20 rounds with a full ¼ turn at 100 rounds. Current test protocol created issue.
 - Magazine boxes lengthening under recoil and becomes difficult to remove at approximately 100 rounds.
 - Averaging 2.1" average of 3-5 shot groups. Best group 0.9", worst group 3.1"
 - Magazine loading technique critical with belted magnums
 ACTION: **Mayfield to resolve path forward on take down screw backing out.**

2005 New Rifle Product – Mayfield

- Model 504-TLS HB
OBJECTIVE: New Product
NPP-2005-03 RAMAC's TBD
Line Extensions to M504 line in 22LR and 17HMR target versions.
Action: **Discuss concepts and clarify any issues**
Manufacturing and R&D understand the guidelines by Marketing.

Action: Will review stock prototype at SHOT from Boyd's. Will continue to monitor at next PTM.

- Boyd's making modifications based on direction made at SHOT. Prototype to be sent to J. Trull.

- Prototypes built with Eley Match chamber

ACTION: V. Norton Check chambers on 541T and 541S as well as 40XR.

ACTION: Barrel to be roll marked per SAAMI protocol for LR Match

- Model 710 Steel Receiver

OBJECTIVE: Product Enhancement

Early 2004 indicators suggest that "sprucing up" the line in 2005 will be needed.

Action: Discuss path forward

Action: Team agreed to focus on this after 710 Magnums get into production.

- Will have receivers in the plant week of March 8th.

- Model 710 Short Action

OBJECTIVE: New Product

Action: Discuss plan of action to introduce .243 Win caliber in M710. True short action vs. using current action.

Team agreed that if we can make the all steel extruded receiver work, a true short action is a viable product option. Possibly for 2005 if we can get the magnums behind us.