BRP

2012 BRP Lynx & Ski-Doo race school

Presenters

- **Janne Tapio**
  - **Lynx Race Engineer**
- **Sebastien Thibault**
  - **Ski-doo Race Engineer**
- **Emil Öhman**
  - **ISOC professional racer (Ski-Doo)**
  - **FIM 2011 World champion (Lynx)**

Agenda

- **Ski-Doo**
  - **Key features & improvements**
  - **Suspension**
  - **Handling**
- **Lynx & Ski-Doo**
  - **Engine**
  - **Clutching**
  - **Carburetor**
  - **Race Day Strategy & Set-up Scenarios**
- **Lynx**
  - **Key features & improvements**
  - **Suspension**
  - **Handling**

01

2012 MXZx 600RS Ski-Doo

Agenda (Ski-Doo)

- **Key features & improvements**
  - Motor
  - Front suspension
  - Rear Suspension
  - Drive line
- **Suspension**
  - Shock calibration
  - Coupling fonctions
- **Handling**
  - Suspension 101
  - FAQ

Tip sheet application

- **Send email:**
- **to: helene.despaties@brp.com**
- **Subject: Tip sheet**
- **Empty email please**

- **You will be added to Ski-Doo tip sheet email group**

Ski-Doo tip sheet #1

Tip Sheet

Number: 12-01
Date: 10/21/2011

2012 TIP Sheet
Ski-Doo Race Department

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- Racing Handbook Part number #484 800 968 – available soon;
- Race School: No Race Schools scheduled this year. Setup information will be sent, after testing, (Mid-November, before Duluth) by Tip Sheet instead.
- Ordering parts from Valcourt: New contact in the Valcourt Race Parts Dept. Marc-Antoine Lemay may be contacted via email at piecesracingparts@brp.com or fax 450-532-5075. Send an e-mail to request order forms. NO PHONE ORDERS WILL BE ACCEPTED
- 2012 MXZ 600 RS: Closed course racing ONLY – Replace drive clutch spring with the one you will get with your sled (in your parts box).
- Jetting for sno-x race on closed course only: 230PTO 230 MAG - air screw set @ 1.0;
- 2012 MXZ 600 RS - Recommended octane fuel VP MS98L;
- Orange helmet rules: ISOC informs us the helmet and orange clothing rules will be enforced and checked in tech. If you do custom wraps, etc., be sure to check with Glen (tech@isocracing.com) in tech to get the okay that they fit the rules;
- Respect the thickness of your cylinder base gasket in case of replacement
  If you have .5mm, replace with .5mm
  If you have .8mm, replace with .8mm ... to be sure you do not have any failure of your engine;
- New on facebook: we invite you to communicate with your fans (see attached document);
- Mod engine kits for Sno X Open class. Limited number of kits are available thru the Valcourt Race Dept. P/N 486 0120 01. Contact Marc-Antoine Lemay.
- New race coordinator in MidWest will be announced soon.

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Number: 12-01
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SKI-DOO MX ZX 600 RS GETS BIG IMPROVEMENTS FOR 2012

Valcourt, QC, September 9, 2011 - BRP's 2012 version of the Ski-Doo MX Zx 600 RS will see big improvements in engine and chassis performance to propel Ski-Doo X-Team racers to even more wins this year. The engine, front and rear suspensions and drive train were all changed with sno-cross and cross country racers in mind.

Headlining the list of changes will be the new engine which delivers an additional six horsepower and better throttle response across the entire operating range. The list of new components is lengthy but starts with a new crank case, a new patent pending crank shaft design and new cylinders – all directed to provide better flow and higher horsepower. The engine is designed to be very efficient from 8300 to 8800 rpm with a broad powerband. A new fuel pump and hose routing improves fuel delivery to the muscular monster and new ECM calibrations will complete the power pack.

The front suspension was also analysed for ways to improve chassis performance and balance to better match up with the new skid frame introduced last year. The change to new, taller spindles improves ski pressure and cornering while the new powder coating will reduce any snow or ice build up. A redesigned steering post and bushing further reduce any bump steer to non-existent. Finally a new upper A-arm which creates a new steeper caster angle rounds out the geometry package. Racers will notice much straighter tracking through the bumps and better chassis balance front to rear.

The rear suspension was introduced last year as "PCX" but that was only intended to disguise the rMotion name until the consumer version was introduced. For 2012 the rear suspension is named rMotion Racing. Both skid frames share the same basic geometry featuring a rising rate rear shock and long front arm, but each are optimized for their intended uses. The rMotion Racing has a new reinforced rear arm, improved coupling system, and new reinforced powder coated rails for reduced ice build up.

Once all the new parts were put together, significant time was spent on chassis calibration. All four shocks have been re-worked to deliver more compliant performance in small bumps for less rider fatigue, yet still handle the nasty kickers and big jumps.

The drive train changes were aimed at improved belt and clutch performance to deliver consistent RPM and performance lap after lap. The new engine mounts are stiffer to keep the clutches better aligned and new specs for the secondary clutch will allow it to float a little to improve belt life. There's better venting to the clutches, reducing power robbing heat and the belt itself is new construction for durability and performance. The

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Ski-Doo tip sheet #1

Tip Sheet

Number: 12-01
Date: 10/21/2011

deep 19/49 gearing will pull hard to the first turn and optimize clutch calibrations for sno-cross set-ups. The driveshaft mounted brake will also get better venting for cooler running.

Finally the look of the machine changes with a new black powder coated tunnel to further reduce and ice build-up and provide a stealth look, along with new graphics and coloration.

Recap of what's new:

600 RS Engine – six more horsepower

- New crank case design
- New patent pending crankshaft design
- New cylinder design
- New fuel pump and hose routing
- Broader power band, from 8300 – 8800 RPM

Front Suspension

- New taller, powder coated spindle
- New steering post
- New steering post bushing
- New upper A-arm
- New shock calibration

Rear Suspension – rMotion Racing

- New reinforced rear arm
- Improved coupling system
- New reinforced powder coated rails
- New shock calibration

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Drive Line

- New engine mounts
- New sliding driven clutch
- Better venting to clutches
- New Belt
- New 19/49 gearing
- New brake venting

Chassis

- New powder coated tunnel

Bombardier Recreational Products Inc. (BRP), a privately-held company, is a world leader in the design, development, manufacturing, distribution and marketing of motorised recreational vehicles. Its portfolio of brands and products includes: Ski-Doo and Lynx snowmobiles, Sea-Doo watercraft and sport boats, Evinrude and Johnson outboard engines, Can-Am all-terrain and side-by-side vehicles and roadsters, as well as Rotax engines. BRP products are distributed in more than 100 countries.

www.brp.com

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Tip Sheet

Number: 12-01
Date: 10/21/2011

Subject	**Get ready for the Ski-Doo flatland Facebook page launch!**
From	**France Landreville**
To	**Internal, dealers, sales force**
Date	**October 19, 2011**

After a successful year with the Ski-Doo Mountain page on Facebook, we are pleased to announce that we have just launched another Facebook presence for non-mountain snowmobilers. We now have a Ski-Doo "non-mountain" page at www.facebook.com/BRPSkidoo.

As part of this launch, we are consolidating all of the "unofficial" Ski-Doo pages our consumers have created over the years, and on Day 1, we should have more than 20,000 fans/subscribers. That will give us the most Facebook fans of all snowmobile companies – and that doesn't even count the 12,000+ mountain sledders we already are connecting with using our Ski-Doo Mountain Facebook page.

This new Ski-Doo brand Facebook page enables us to connect with our consumers like few other tactics. We will be able to announce new products, promotions and events. It will be a helpful tool in communicating our racing efforts as well as our community outreach programs. But most importantly, we can easily interact with our loyal and passionate riders. Give them an inside look at their favorite brand and have a relationship with them that goes beyond seller-buyer.

And if you're familiar with Facebook (with more than 500 MILLION users, it would be the third largest country in the world), you know that our brand messages will appear

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alongside messages, links, photos and videos from our consumers' closest friends and family. This is powerful.

We have developed a great community on our Ski-Doo Mountain Facebook page and our Elevation mountain blog over the past year. Our fans have posted hundreds and hundreds of photos, shared our information with family and friends, participated in research projects and much more. And we have even more planned for 2011-12!

One other item. **We are also launching an updated "newsroom" section of ski-doo.com in November:** ***On Track.*** It will give us the opportunity to provide our consumers with interesting information about what BRP and Ski-Doo are up to – faster and in a more compelling format than ever before. Some of the first content you'll see on there is detailed race sled and racer information.

We are excited to hear your ideas for Facebook and the new *On Track* newsroom – plus Ski-Doo Mountain Facebook and the Elevation mountain blog. Send your suggestions and feedback on any of this to mountainblogideas@brp.com.

Share the news with your friends and "like" us on www.facebook.com/BRPSkidoo today!

France Landreville
Brand Manager, Ski-Doo snowmobiles

Version française sur pages suivantes:

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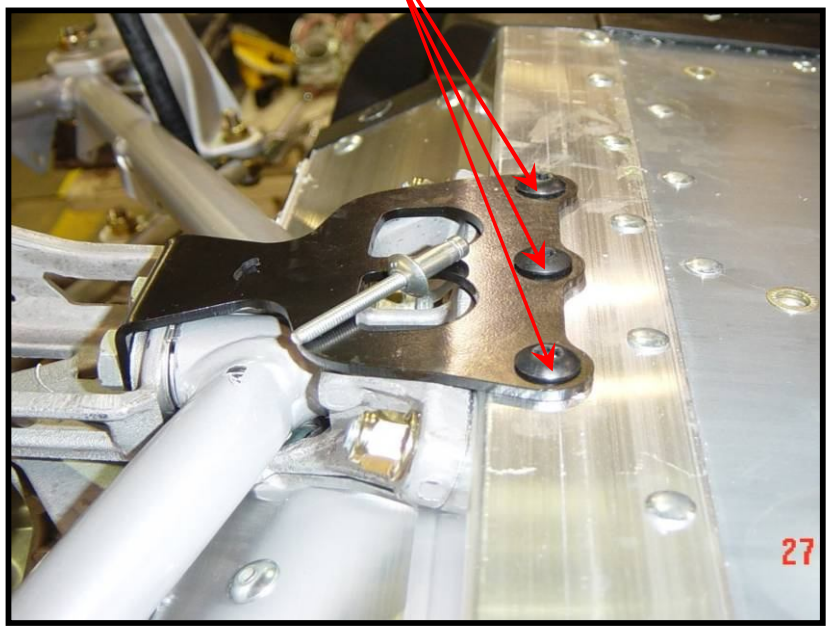
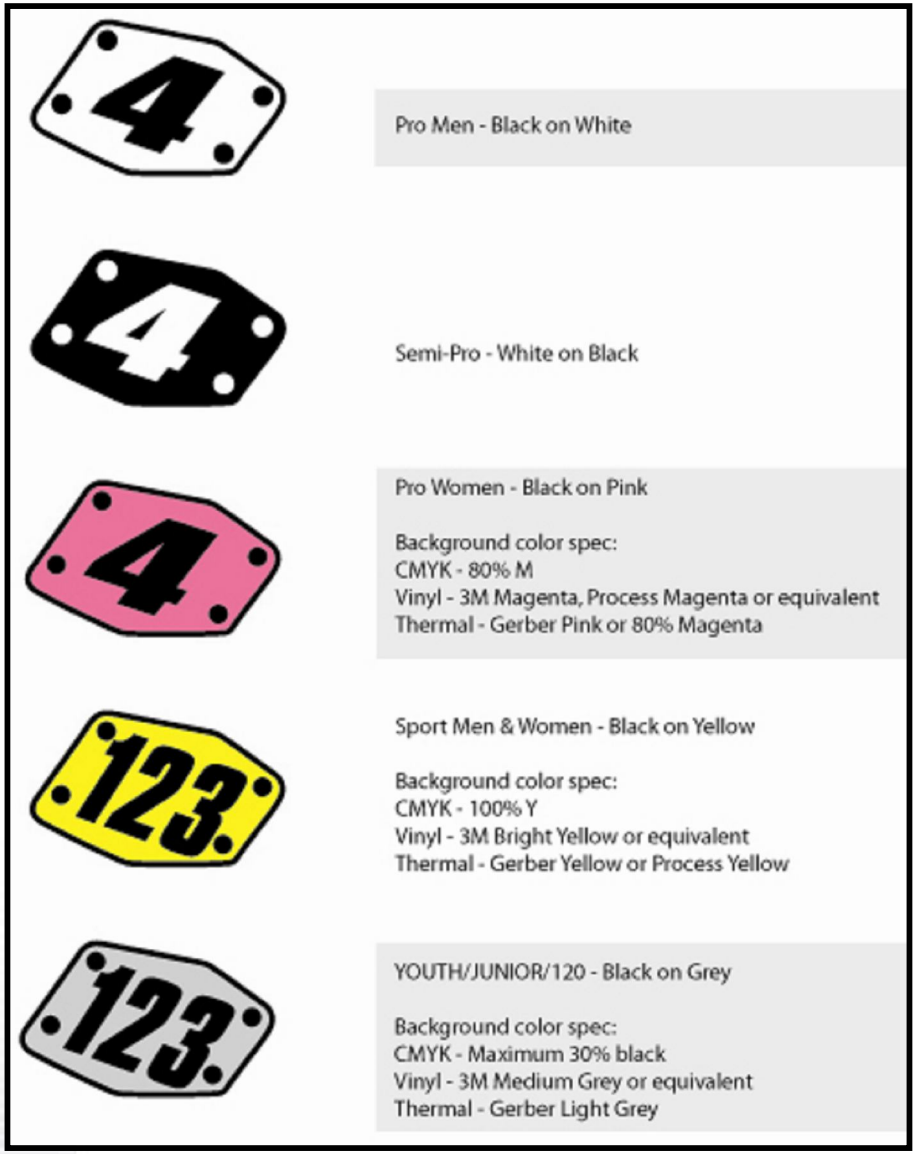
To be installed at PDI

- **For racing purpose only, Clutch drive spring to be changed with the provided one into the part box. Part #417 223 610 (265/405)**
- **Engine break in period: Burn 1st fuel tank using XPS mineral oil 33:1.**
- **Always keep your tool box intalled on belt guard for reduced belt temperature.**

- 3 hole to be drilled
- Install rivets or 6mm button head bolts.
- Warning: Do not drill coolant hoses in the engine bay



I.S.O.C Number plate guidelines



- 2010-2011 Number Plate Guidelines
- All riders taking part in the ISOC/AMSOIL Championship Snocross Series will be
- required to display a semi rigid number panel on each side of the rear portion of the
- tunnel. Panel material can be black or white, however, the background color of the
- panel must correspond to the class you race and the background MUST be large
- enough to display a full 6-inch number within a minimum 1-inch stroke (line thickness).
- Any vendor may be used as long as it complies with guidelines set here.
- If two different people are using the same sled with the same number, but different
- classes, please use the background of the higher level rider.
- Panels should be attached directly to the tunnel in at least two locations and it is
- recommended that any portion extending above the tunnel more than 3 inches also be
- reinforced. The edges of the panel must be rolled for safety.

Key features & improvements

- **New 600 RS Engine**
  - six more horsepower
  - New crank case design
  - New patent pending crankshaft design
  - New cylinder design
  - New fuel pump and hose routing
  - Broader power band, from 8300 – 8800 RPM

Key features & improvements

- **Front Suspension**
  - New taller, powder coated spindle
  - New steering post
  - New steering post bushing
  - New upper A-arm
  - New shock calibration

Key features & improvements

- **Rear Suspension – rMotion Racing**
  - New reinforced rear arm
  - Improved coupling system
  - New reinforced powder coated rails
  - New shock calibration

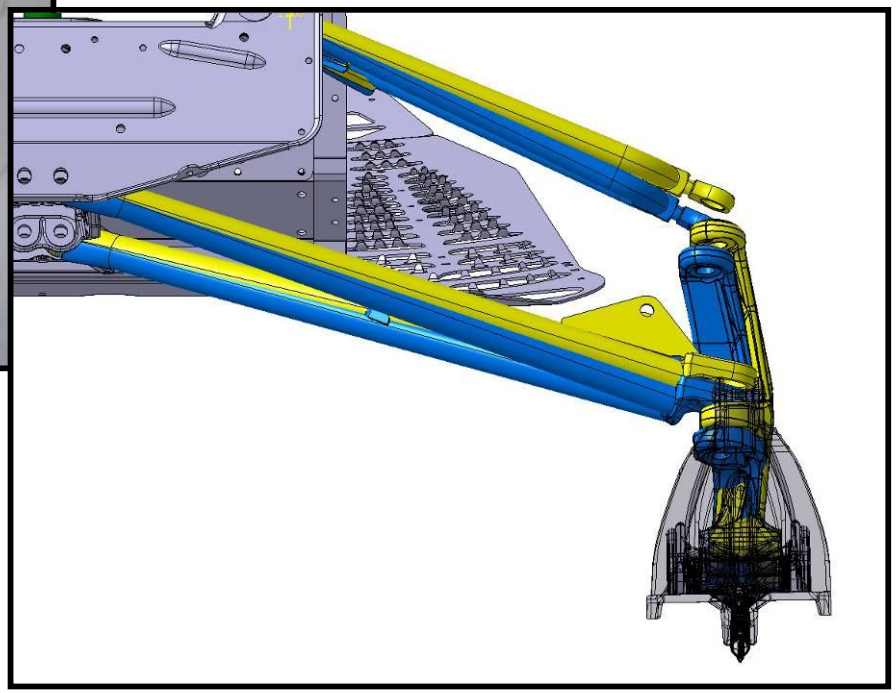
Key features & improvements

- **Drive Line**
  - New engine mounts
  - New sliding driven clutch
  - Better venting to clutches
  - New Belt
  - New 19/49 gearing
  - New brake venting

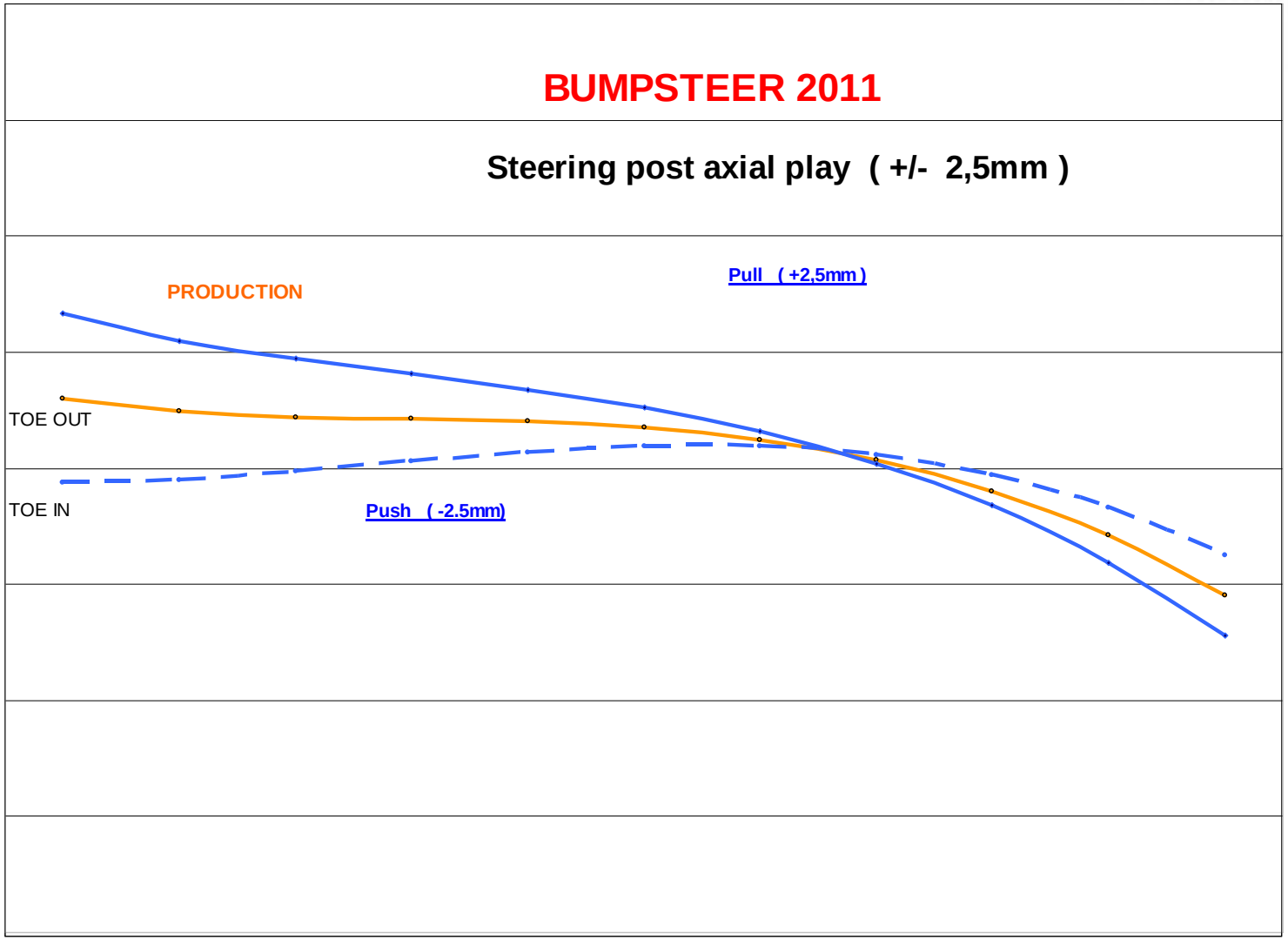
02

2012 600RS Suspension

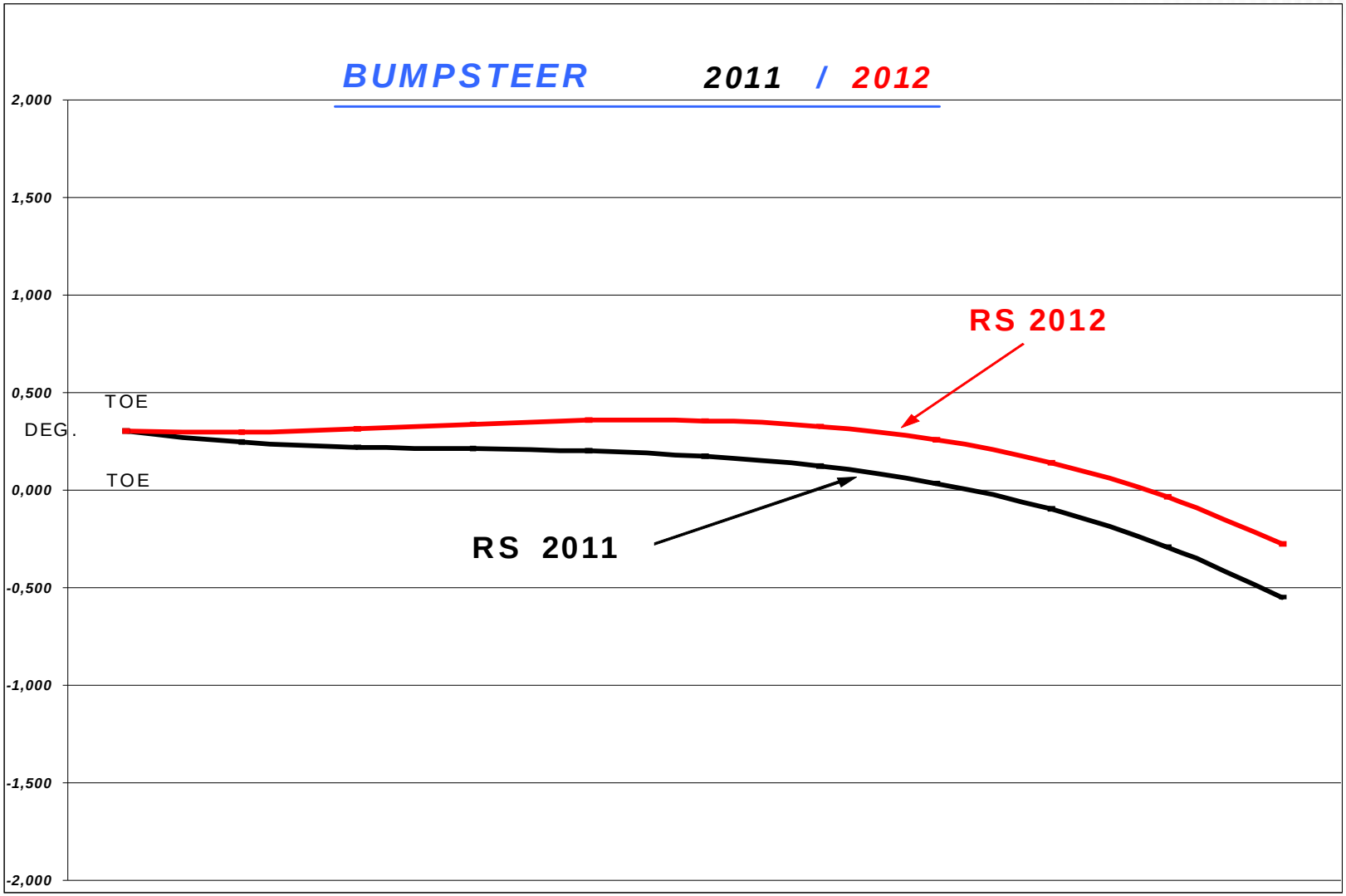
Front suspension



Front suspension: Bumpsteer MY2011



Front suspension: Bumpsteer MY2012



Front suspension (Europe calibration)

600 RS 2012 Ski	
505 073 145-146	
Valve spec	
REB.	COMP.
30-t0.254 x 1	34-t0.254 x 4
16-t0.114 x 1	22-t0.152 x 1
30-t0.203 x 5	32-t0.114 x 1
17-t0.114 x 2	34-t0.203 x 6
	32-t0.203 x 1
	30-t0.254 x 1
	28-t0.254 x 1
	26-t0.254 x 1
	24-t0.254 x 1
	20-t0.305 x 1
No piston bleed	
BASE VALVE SPEC	
RL=2 BL=4 BH=3/4	
IFP height = 66mm	
Spring rate = 165lbs/in * 3/4"	
Spring rate = 28,9N/mm * 19mm	

600 RS 2012 Ski	
505 073 145-146	
Valve spec	
REB.	COMP.
30-t0.254 x 1	34-t0.254 x 4
16-t0.114 x 1	22-t0.152 x 1
30-t0.203 x 5	32-t0.114 x 1
17-t0.114 x 2	34-t0.203 x 6
	32-t0.203 x 1
	30-t0.254 x 1
	28-t0.254 x 1
	26-t0.254 x 1
	24-t0.254 x 1
	19-t0.305 x 1
No piston bleed	
BASE VALVE SPEC	
RL=6 BL=8 BH=3/4	
IFP height = 66mm	
Spring rate = 165lbs/in * 5/8"	
Spring rate = 28,9N/mm * 16mm	

Part description	Part #	QTY
19 x 0.305	486 900 100	2

Basic Suspension Setup

- Check following things before riding the unit:
  - Check spring preload and adjust to Std if needed
  - Check clicker positions and adjust to Std if needed
- 2012 600 RS is calibrated for:
  - Soft snowcross competition tracks (I.S.O.C.) for PRO & PRO Light riders

Basic Suspension Setup

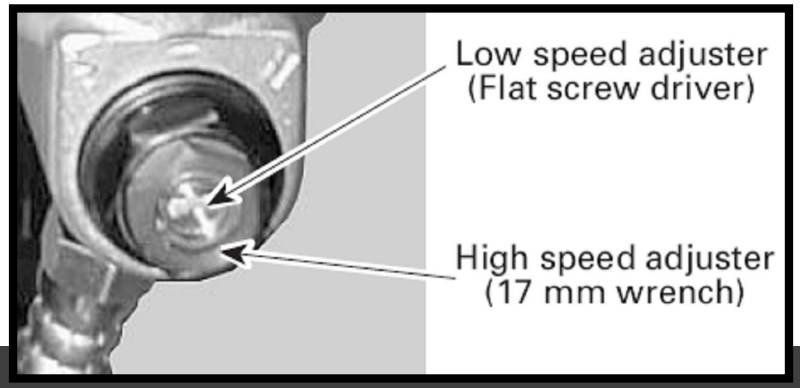
- Shock absorbers needs 1-2 hours break in time in order to work smoothly!!
- Make sure that you know WHERE you started, and be ready to return to Std setups!!!
- Make notes and comments on paper, and keep papers filed in one place (car or toolbox, not home)
- Be systematic and do **1** change at a time
- In order to really feel the difference you need to ride long enough (15min).
- Understand that there is lot of difference between hard practice track at the morning and race track at afternoon when chewed up

Basic Suspension Setup

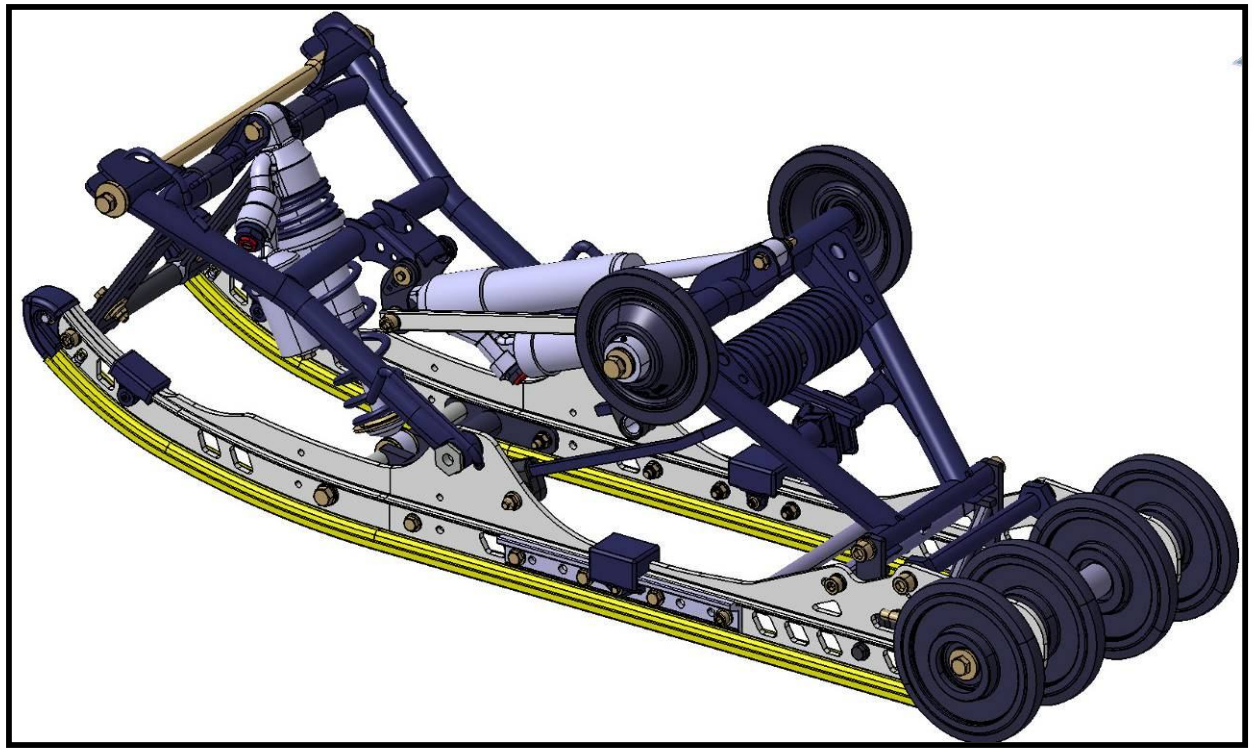
- Spring preload is measured when shock absorber is not installed on the sled (also center)
- Example 260mm spring total lenght – 250mm installed = 10mm preload
- One full turn of preload adjuster increases preload by 1,5mm

Basic Suspension Setup, Compression

- Low speed compression clicker adjustments are for SLOW INGOING shaft speed.
  - Jump ramp, cornering, acceleration and braking. It controls the transitions
- High speed compression clicker adjustments are for FAST INGOING shaft speed.
  - Fast straightaway with ripples, landing on flat, square edges, big hits.
- Clicker adjuster positions are always counted from fully closed position;
  - 12clicks = 12 clicks opened from fully closed position.
- Usually 3 clicks slow speed, or half turn high speed makes difference



Rear suspension rMotion Racing



Rear suspension ”Center” (Europe calibration)

600 RS 2012 Center	
503 193 111	
Valve spec	
REB.	COMP.
30-t0.254 x 2	34-t0.254 x 6
16-t0.114 x 1	34-t0.203 x 1
30-t0.203 x 5	22-t0.152 x 1
17-t0.114 x 2	30-t0.114 x 1
	34-t0.254 x 5
	30-t0.203 x 1
	28-t0.203 x 1
	26-t0.203 x 1
	24-t0.203 x 1
	22-t0.203 x 1
	20-t0.305 x 1
1 slit piston (2 x 0.1)	
BASE VALVE SPEC	
BL=4 BH=3/4	
IFP height = 66mm	
Spring rate = 735/240lbs/in x 1/8"	
Spring rate = 128/42N/mm * 3mm	

600 RS 2012 Center	
503 193 111	
Valve spec	
REB.	COMP.
30-t0.254 x 2	34-t0.254 x 6
16-t0.114 x 1	34-t0.203 x 1
30-t0.203 x 4	22-t0.152 x 1
17-t0.114 x 2	30-t0.114 x 1
	34-t0.254 x 5
	30-t0.203 x 1
	28-t0.203 x 1
	26-t0.203 x 1
	24-t0.203 x 1
	22-t0.203 x 1
	19-t0.305 x 1
1 slit piston (2 x 0.1)	
BASE VALVE SPEC	
BL=8 BH=3/4	
IFP height = 66mm	
Spring rate = 735/240lbs/in x 1/8"	
Spring rate = 128/42N/mm * 3mm	

Part description	Part #	QTY
19 x 0.305	486 900 100	1

Rear suspension ”Rear” (Europe calibration)

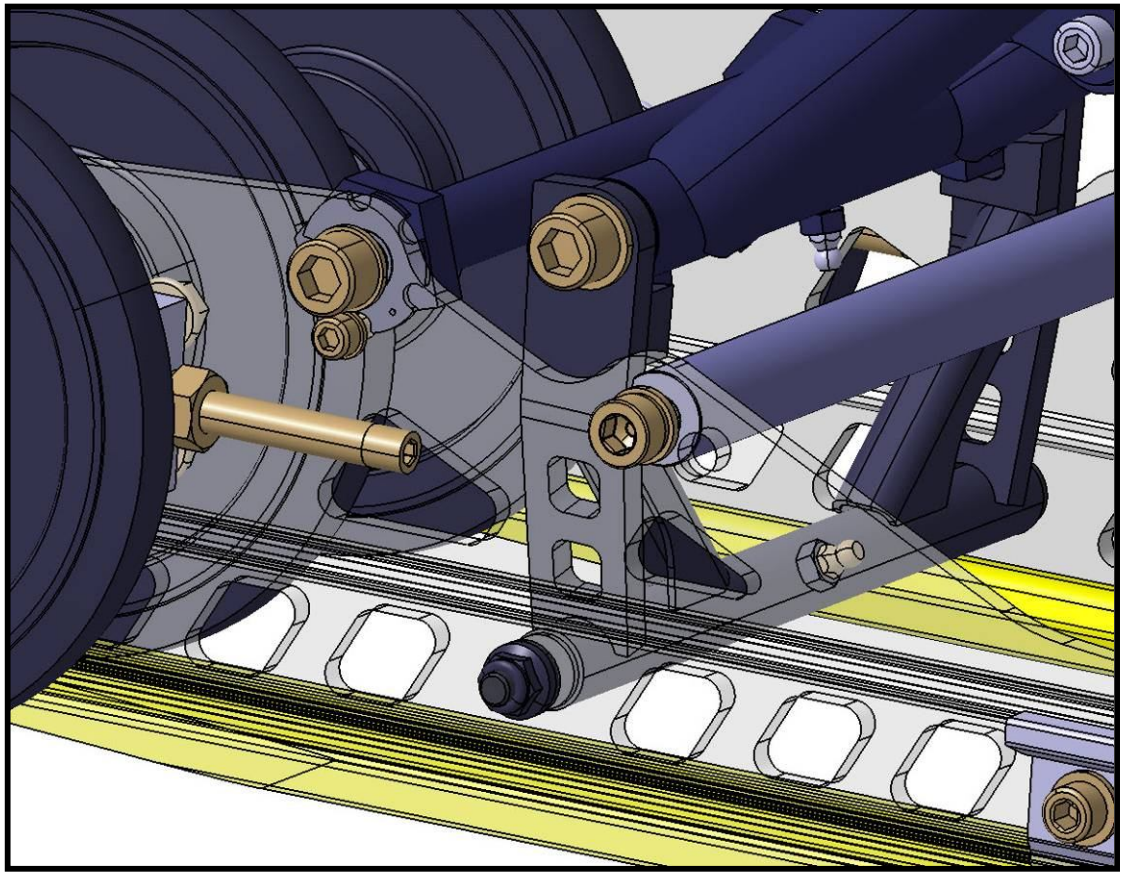
600 RS 2012 Rear	
503 193 109	
Valve spec	
REB.	COMP.
30-t0.254 x 2	34-t0.254 x 6
16-t0.114 x 1	23-t0.152 x 1
30-t0.203 x 5	32-t0.114 x 1
19-t0.114 x 2	34-t0.203 x 2
	32-t0.254 x 1
	30-t0.305 x 1
	28-t0.305 x 1
	26-t0.305 x 1
	24-t0.305 x 1
	22-t0.305 x 1
	20-t0.305 x 1
1 slit piston (2 x 0.1)	
BASE VALVE SPEC	
BL=4 BH=3/4	
IFP height = 66mm	
Spring rate = **1.56-100** #1 - #1	
Coupling #4 (Maximum is #5)	

600 RS 2012 Rear	
503 193 109	
Valve spec	
REB.	COMP.
30-t0.254 x 2	34-t0.254 x 6
16-t0.114 x 1	23-t0.152 x 1
30-t0.203 x 5	32-t0.114 x 1
19-t0.114 x 2	34-t0.203 x 2
	32-t0.254 x 1
	30-t0.305 x 1
	28-t0.305 x 1
	26-t0.305 x 1
	24-t0.305 x 1
	22-t0.305 x 1
	19-t0.305 x 1
1 slit piston (2 x 0.1)	
BASE VALVE SPEC	
BL=8 BH=3/4	
IFP height = 66mm	
Spring rate = **1.56-100** #1 - #1	
Coupling #4 (Maximum is #5)	

Part description	Part #	QTY
19 x 0.305	486 900 100	1

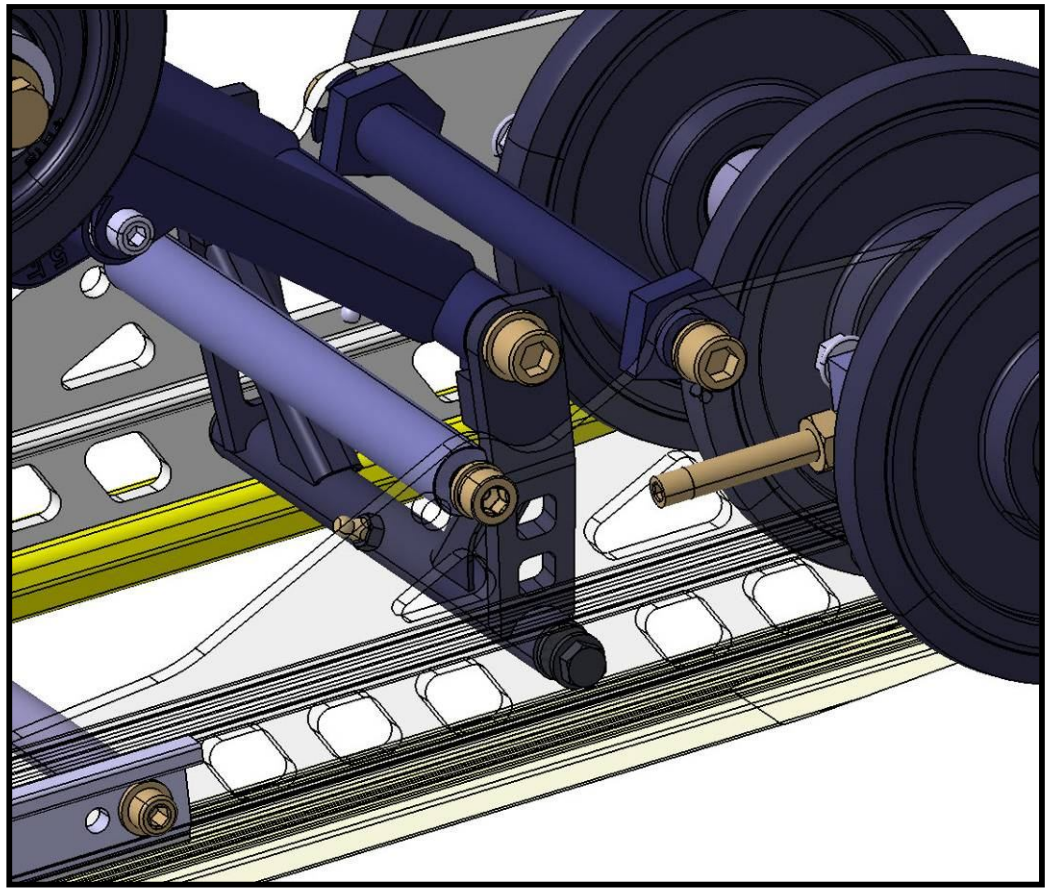
rMotion Racing: Center to rear coupling

- Coupling system center to rear.
- 2 mounting position on rails and 2 shaft positions (Total of 4 different settings).



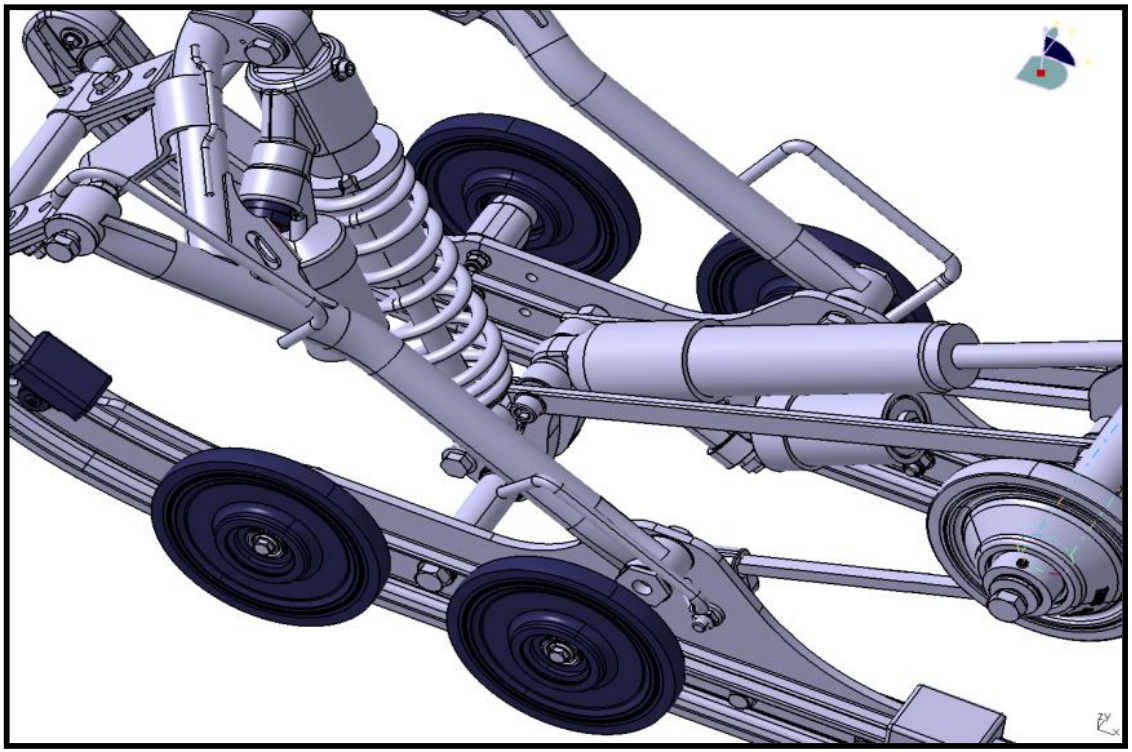
rMotion Racing: Rear to center coupling

- Improved welding 2012
- 5 positions



rMotion Racing: Tips

- On hard icy tracks, wheels may be used. Install them on the outside part of the rail.
- When installing the rear torsion springs, place the holding block in the UP position



Suspension Optional springs

OPTIONAL SPRINGS 600RS MY2012				
SKI	**COLOR CODE**	**PN**	**Wire diameter (mm)**	**Free lenght (mm)**
90 lbs/in	N/A	505 072 968	7,49	280
110 lbs/in	white/pink	486 900 125	8,25	270
135 lbs/in	white/yellow	486 900 123	8,84	285
145 lbs/in	N/A	505 072 687	9,20	290
Ti 145 lbs/in	white/gold	486 900 002	10,00	272
155 lbs/in	white/silver	486 900 124	9,20	290
165 lbs/in	**N/A**	**505 072 845**	**9,52**	**300**
175 lbs/in	white/orange	486 900 174	9,52	290
190 lbs/in	white/green	486 010 012	9,98	305
CENTER	**COLOR CODE**	**PN**	**Wire diameter (mm)**	**Free lenght (mm)**
222 lbs/in	N/A	503 192 744	6,17	59
350 lbs/in	N/A	503 192 725	6,95	56
732lbs/in	**N/A**	**503 193 112**	**8,41**	**51**
240 lbs/in	**N/A**	**503 193 113**	**8,71**	**160**
275 lbs/in	N/A	503 192 724	9,19	155
325 lbs/in	4 x silver	486 010 069	9,19	145
REAR	**COLOR CODE**	**PN**	**Square Wire**	
1.28N.m/deg	green/red/yellow	503 191 612 RH	8,85	
95°		503 191 613 LH		
1.33N.m/deg	yellow/yellow/yellow	503 191 186 RH	8,85	
100°		503 191 188 LH		
1.56N.m/deg	**green/blue/yellow**	**503 191 614 RH**	**9,525**	
100°		**503 191 615 LH**		
1.73N.m/deg	green/green/yellow	503 191 616 RH	9,855	
100°		503 191 617 LH		
2.02N.m/deg	green/gold/yellow	503 191 892 RH	N/A	
100°		503 191 893 LH		

Tunning strategy

How to know which shock to adjust:

- Problems related to:
  - Going IN to the corner
  - Braking
  - Slowing speed
  - → releated to SKI or CENTER

- Problems related to:
  - Accelerating OUT of the corner
  - Accelerating on rough straights and bumps
  - → related to CENTER or REAR

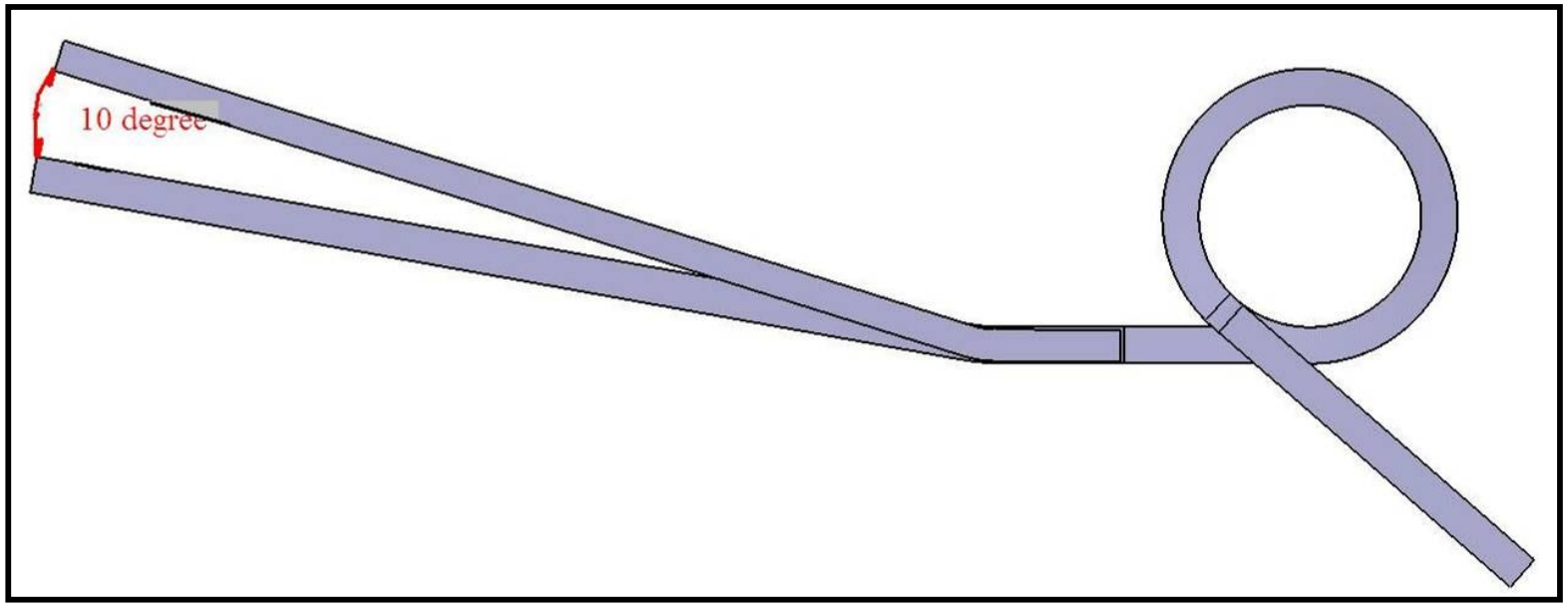
Tunning strategy

- Under braking vehicle kick on stutter bumps. Going down hill vehicle back end is loose and tend to kick.

- Rear shock and torsions vs fronts are working together. Always need to consider them together. Increasing front spring preload or rate will considerably cure the kick problem but therefore the back will be deeper into it's stroke. You will need to increase Rear shock low speed dampening to compensate.

Tunning strategy

- Under braking vehicle kick on stutter bumps. Going down hill vehicle back end is loose and tend to kick.
- Rear torsions spring preload could be reduced in order to get a plusher ride through fast hard packed part of the track. Reducing torsion spring preload by 10deg (2 positions) help to get a more compliant suspension with good sled (front to rear) balance.



Tunning strategy

- Under acceleration, skis are lifting too much. Not enough ski pressure accelerating out of the corner. Inside ski lift into the corner.

- You need to look at the back in order to solve the front problem. 1st solution is to increase coupling (5 positions steel shaft). To the next number. Also, you could shorten limiter strap length but this will give away suspension travel.

Tunning strategy

Too much body roll when going IN to the corner

- STEPS:
  1. Increase ski spring preload or (spring rate)
  2. Close low speed compression adjustment on ski shocks

Tunning strategy

Darting on jump face, makes jumping difficult

- STEPS:
  1. Check ski alignment, (4 mm toe out when nose up)
  2. Increase caster angle

Tunning strategy

Suspension bottom on jump face.

- Isolate the problematic shock
  - Usually center or rear
- STEPS:

1. Increase low speed dampening
2. Increase spring preload or rate
3. Shocks need to be serviced to the optional stiffer valving at this time

Tunning strategy

Suspension bottom on jump landings.

- Isolate the problematic shock
- STEPS:

1. Increase HIGH speed dampening
2. Spring preload will NOT help
3. Shocks need to be serviced to the optional stiffer calibration

Tunning strategy

Suspension is too harsh:

- **Locate problem area (ski, center or rear)**
  1. Open high speed dampening adjuster
  2. Reduce spring rate (for lighter or novice riders)
  3. Open rebound speed adjustment (Front shock only!!)

Tunning strategy

Suspension is too stiff even with High speed adjusters at 2,5 turns open or more

- Isolate the problematic shock (ski, center or rear)
- Shocks need to be serviced to the optional softer calibration.
- Reducing spring preload does NOT help, unless preload is totally wrong.

Tunning strategy

- **Suspension is too soft even with High speed adjusters at fully closed position**
  - Isolate the problematic shock (ski, center or rear)
  - Shocks need to be serviced to the optional stiffer valving.

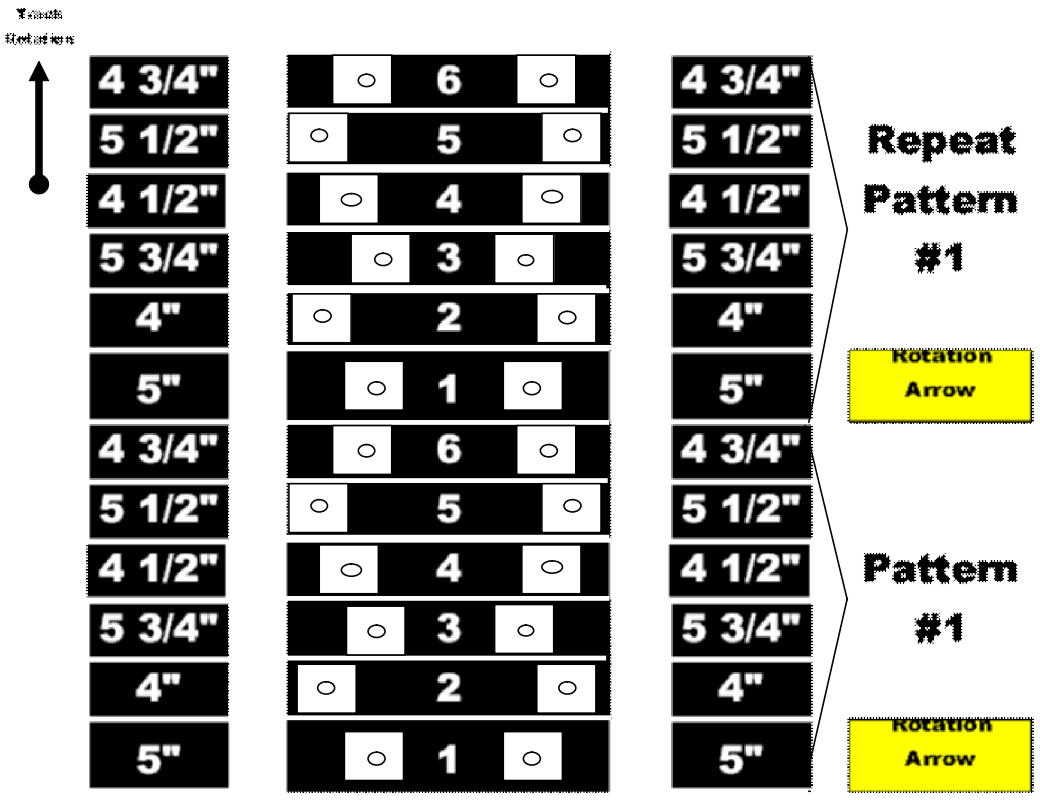
02

2012 600RS Track and Brake

Sno-X stud pattern

TRACTION BY STUD BOY

Single "Power Plate or Superlite" Pattern Repeats Every 6 Lugs. Dimensions Measured From Outside Edge of Track to Outside Edge of Backer Plate



BRP Track Part #504152981 1.750"x15"x120"

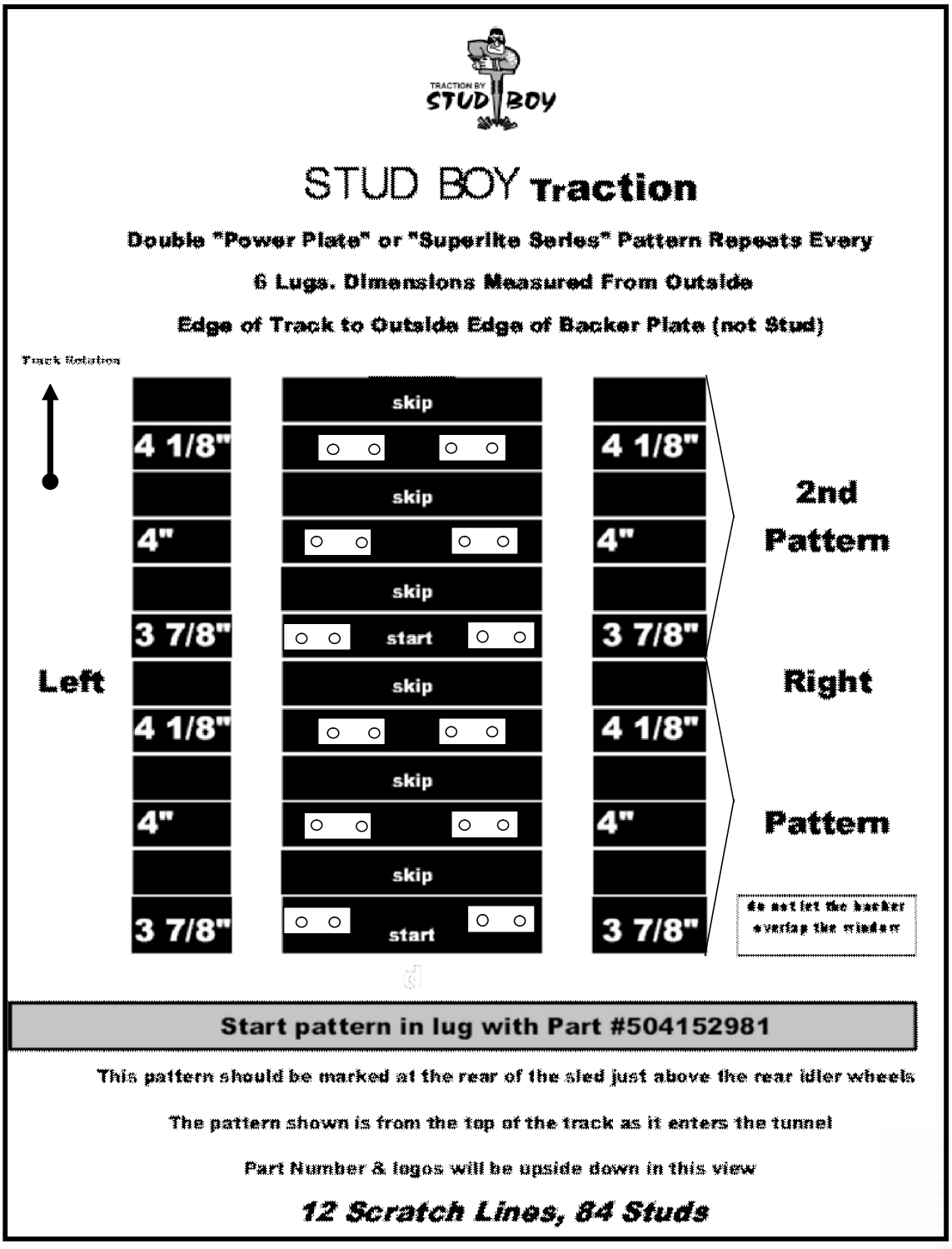
Start Pattern in lug with Rotation Arrows

Be Sure to Check Installed STUD HEIGHT - keep studs behind lugs less than 1.25"

12 Scratch Lines, 84 Studs

84 Power Plate Aluminum or Superlite Single Backers

Sno-X stud pattern



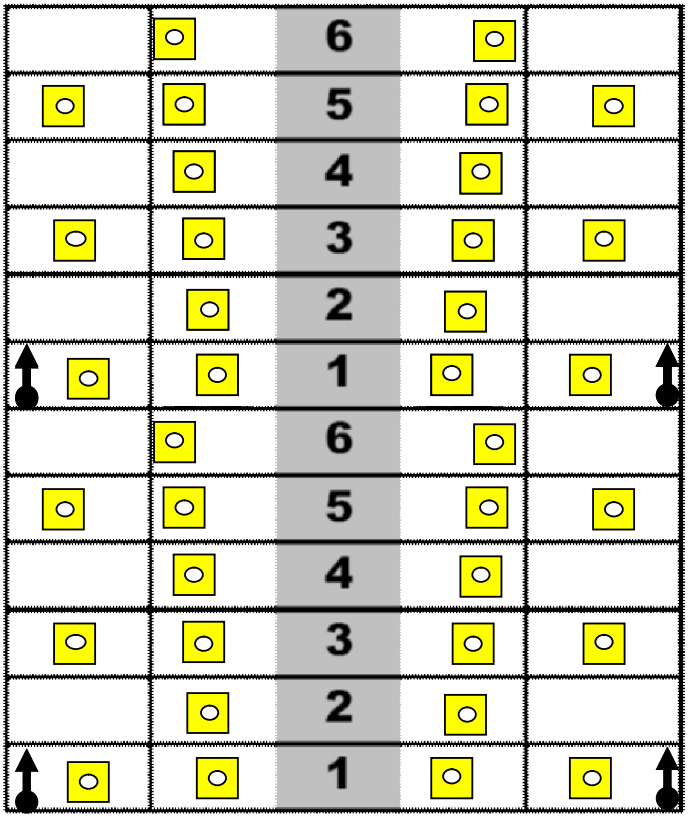
X-country stud pattern

TRACTION BY STUD BOY

Pattern Repeats Every 6 Lugs note pattern number in shaded area

Dimensions Measured From Outside

Edge of Track to Outside Edge of Backer Plate



center backers	outside backers
4"	skip
4 1/4"	5/8"
4 1/2"	skip
4 3/4"	3/4"
5	skip
5 1/4"	7/8"
4"	skip
4 1/4"	5/8"
4 1/2"	skip
4 3/4"	3/4"
5	skip
5 1/4"	7/8"

Start 1st - 6 lug pattern at directional arrows on track.

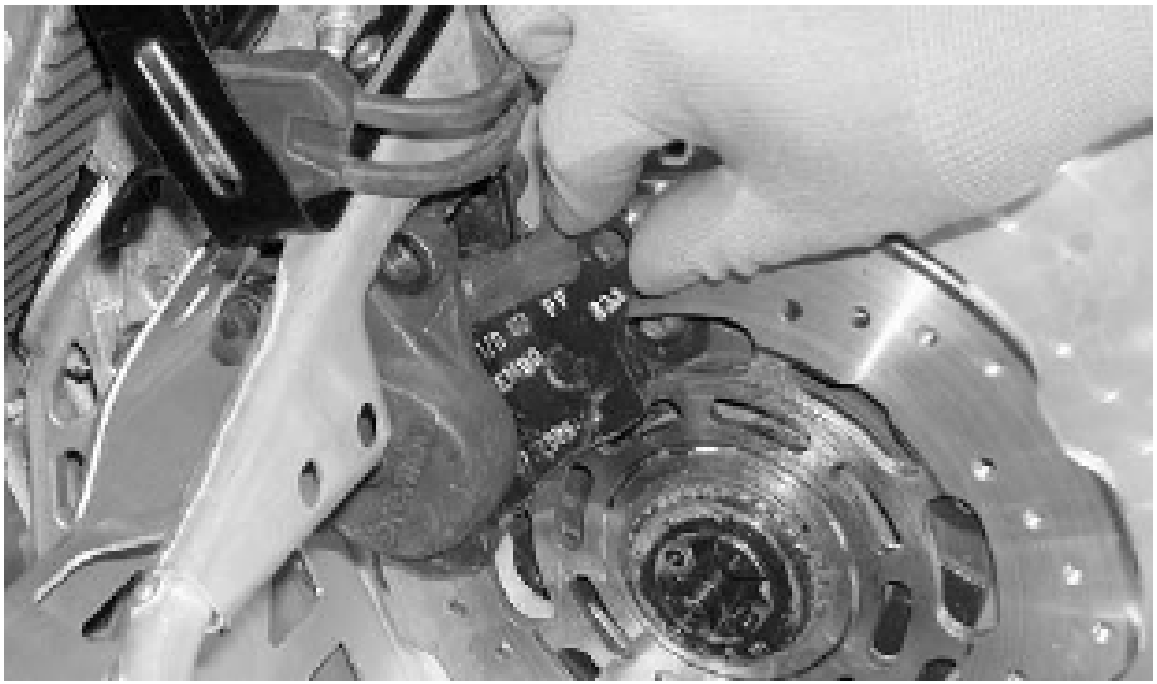
Repeat this 6 lug pattern completely around the track

18 Scratch Lines

2.52" Pitch = 144 Studs 2.86" Pitch = 126 Studs

Brake System

- Castrol SRF DOT 4 (600degF) Dry bowling point.
- 600RS come with hard compound brake pads
- We recommend soft compound brake pads for riders to be hard on brakes. It reduce heat, reduce disk wear, reduce oil fading and it increase pad wear.



mmr2008-046-007

02

2012 600RS Engine
Ski-doo & Lynx

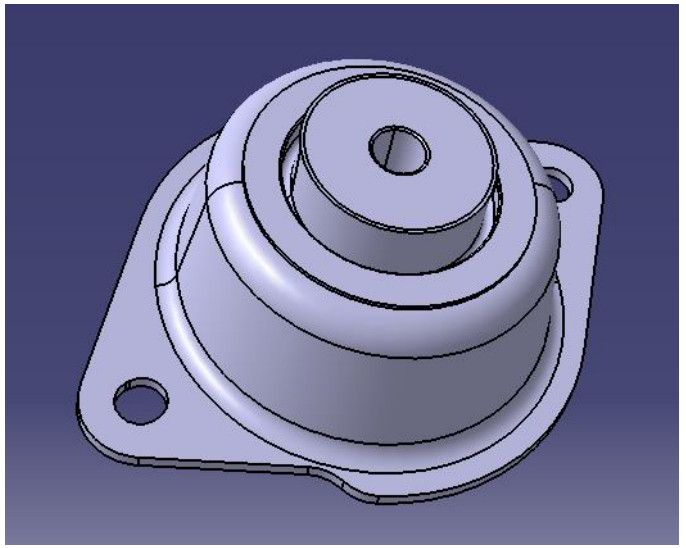
New 600 RS Engine

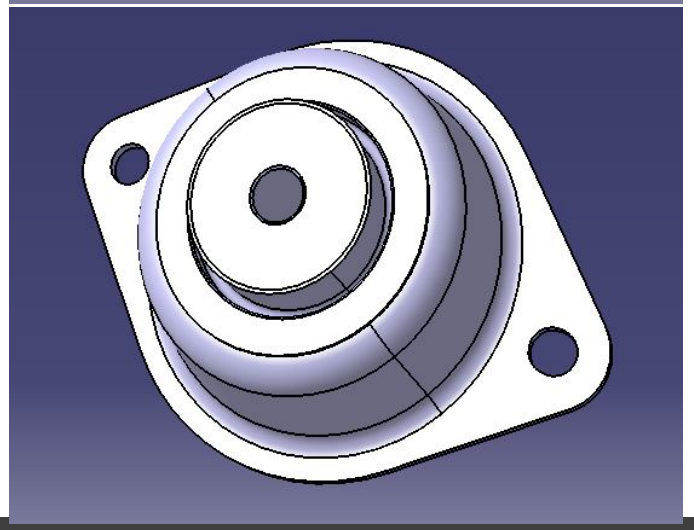
- six more horsepower (+4kW)
- New crank case design
- New patent pending crankshaft design
- New cylinder design
- New fuel pump and hose routing
- Broader power band, from 8300 – 8800 RPM
- Peak Torque @ 8300 RPM
- Peak HP @ 8550 which builds to 8700 with hot pipe

Engine Mounting Rubbers

- We recommend changing engine mounting rubbers every 20h of riding (REAR PTO side)

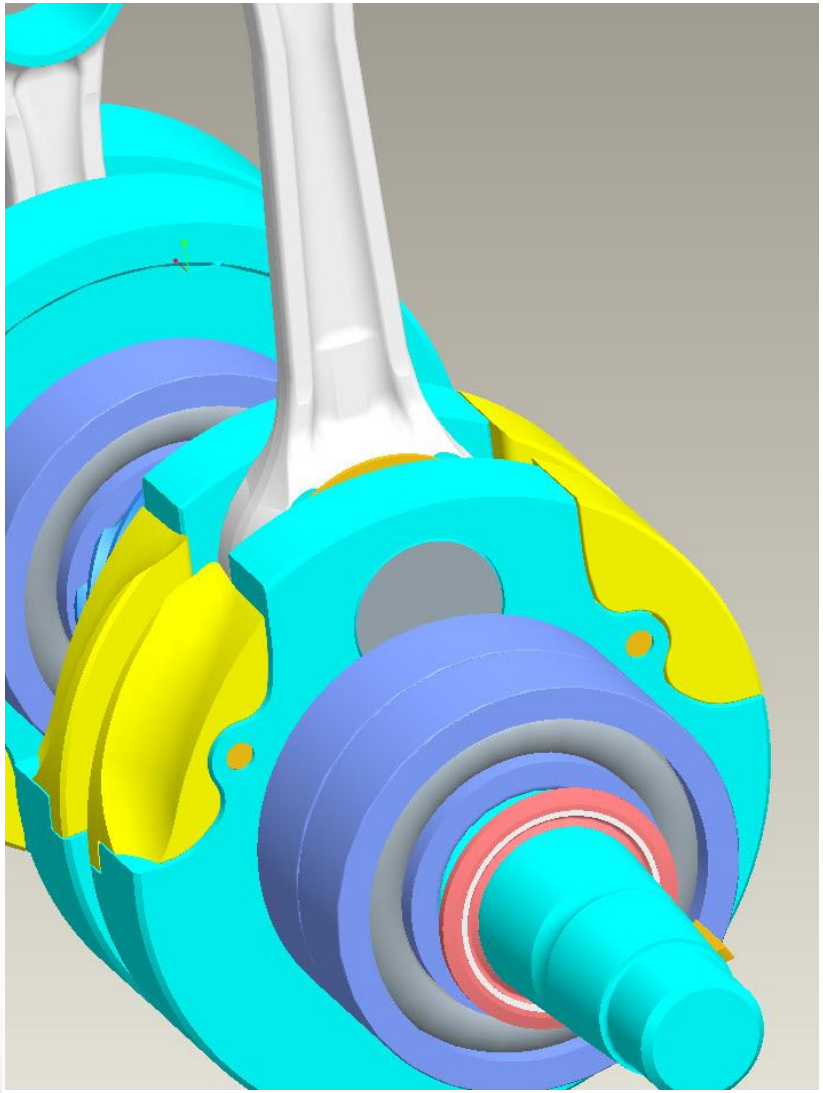
- 1 x 512 060 772 Rear MAG side

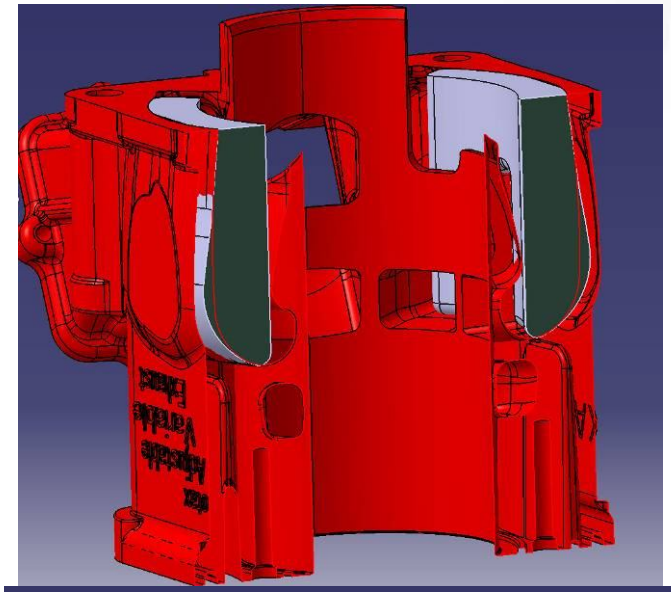


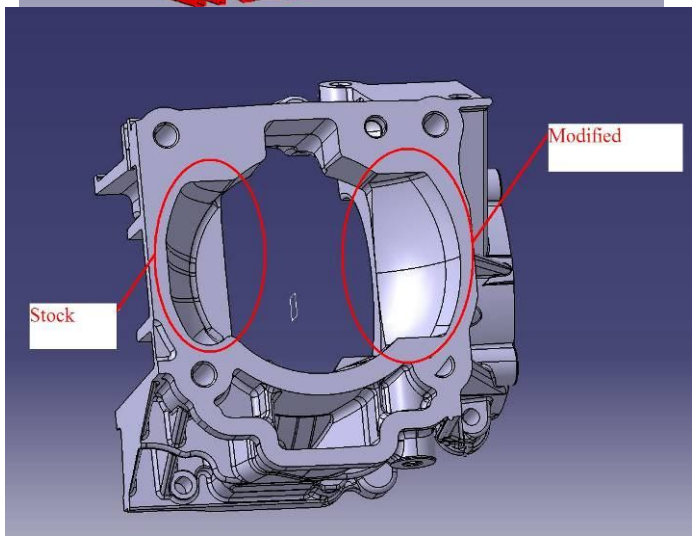


- 3 x 512 060 385 PTO&front MAG side

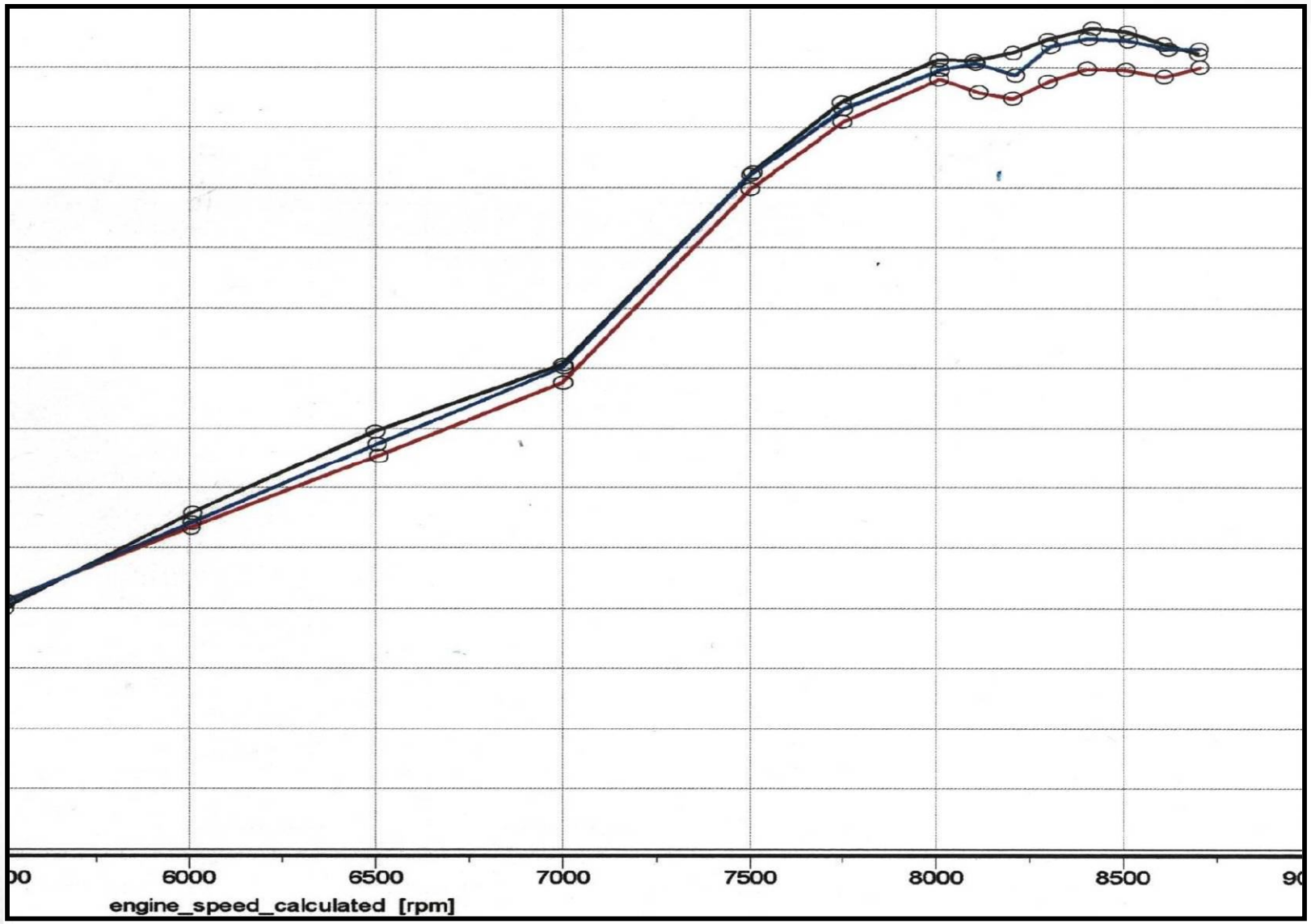
New 600 RS Engine







New 600 RS Engine (Before ECU calibration)



New 600 RS Stock Engine

- **Recommended carburetion specs for: <u>Sno-X North America (sea level)</u>**
- Main Jet 230-230
- Air Screw 1.0 turns
- Jet Needle #3
- All testing as been achieved with VP fuel MS98L.

- **Recommended carburetion specs for: <u>X-country North America (sea level)</u>**
- Main Jet 290-290 *
- Air Screw 3.0 turns *
- Jet Needle #3*
- **<u>Preheat button disconnected</u>**
- All testing as been achieved with VP fuel MS98L* or VP C9*. We recommend a good fuel 96MON.

- * Subject to change after fall testing "<u>see your tip sheets</u>"

New 600 RS Stock Engine **Europe only**

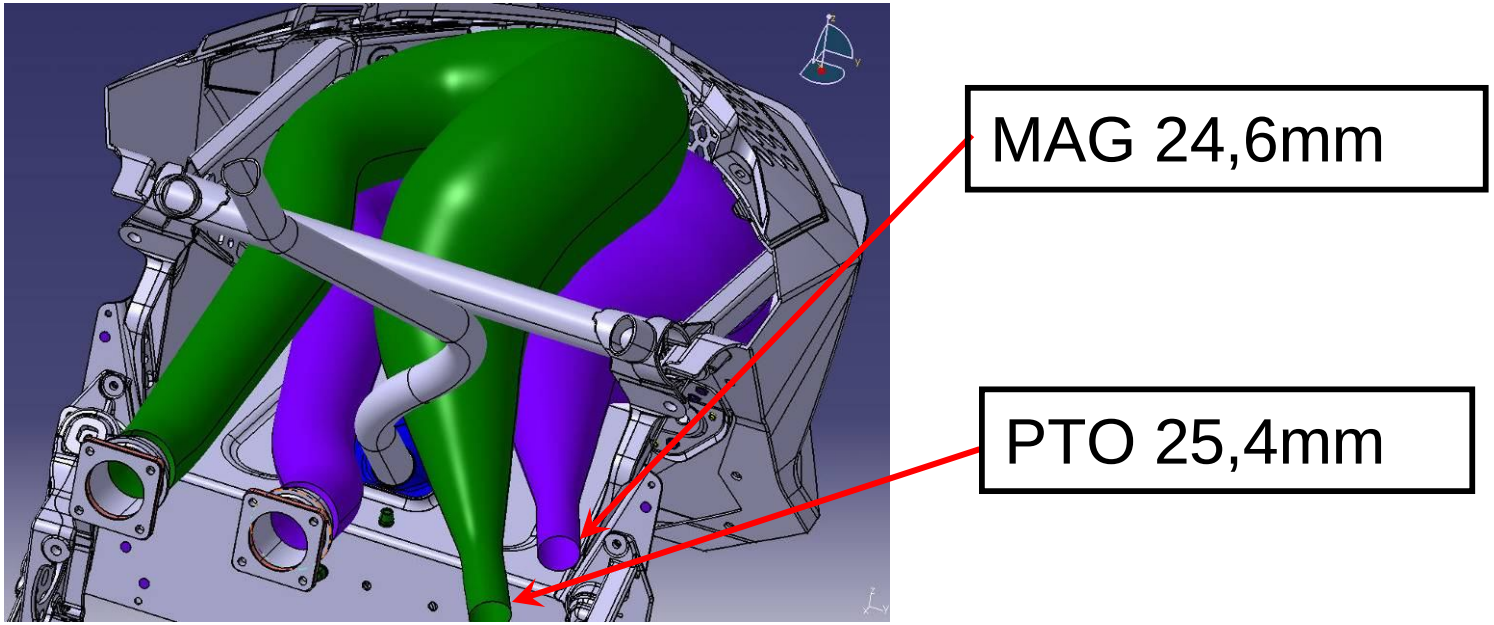
- **Recommended carburetion specs for: Sno-X Europe (sea level)**
- Main Jet 300-300
- Air Screw 1.0 turns
- Jet Needle #3
- All testing as been achieved with 98E fuel (87,6MON).

PTO mainjet size		Outside air temp [°C]			
		-20	-10	0	10
Altitude [m]	0	300	292	283	272
	600	284	276	267	256
	1200	268	260	251	240
	1800	252	244	235	224
	2400	236	228	219	208
	2550	232	224	215	204
	3000	220	212	203	192

MAG mainjet size		Outside air temp [°C]			
		-20	-10	0	10
Altitude [m]	0	290	282	274	263
	600	275	267	258	248
	1200	259	251	243	232
	1800	244	236	228	217
	2400	228	220	212	201
	2550	224	216	208	197
	3000	213	205	197	186

New 600 RS Open mod Engine

- **Recommended carburetion specs for: <u>Sno-X N-A Open mod KIT (sea level)</u>**
- Main Jet 280-280
- Air Screw 3/4 turns
- Jet Needle #3
- Needle jet P-8
- Pilot jet 60
- All testing as been achieved with VP fuel C14+.
- Also mandatory, past years pipes stingers need to be rebored to: **<u>25.4mm PTO & 24,6mm MAG</u>**

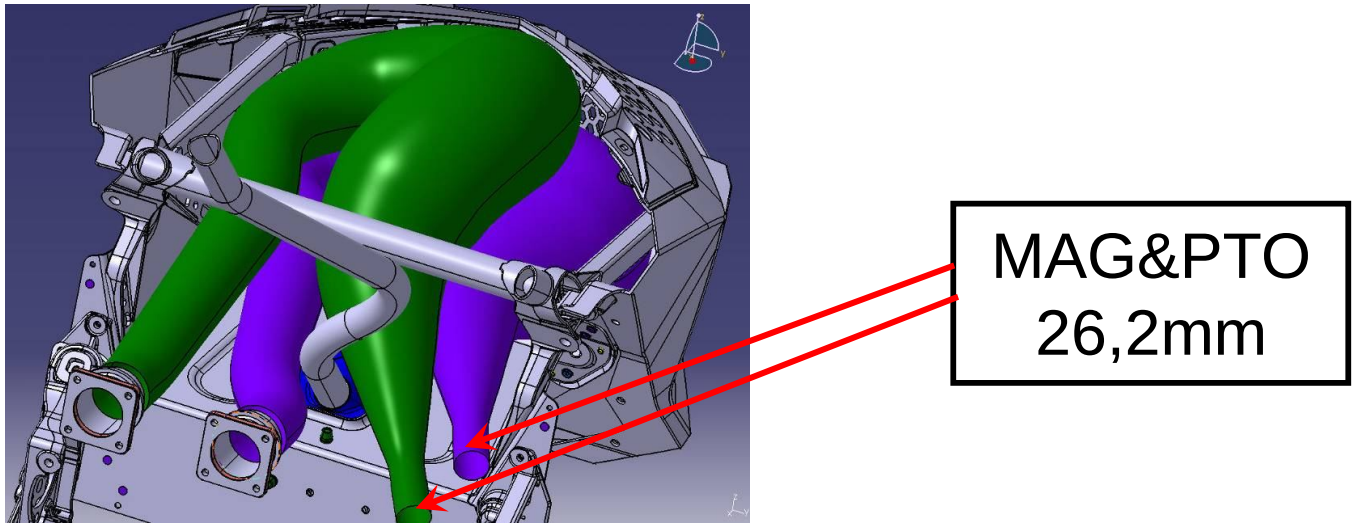


New 600 RS Open mod Engine

- **Recommended carburetion specs for: Sno-X Europe Open mod KIT (sea level)**

Main Jet	350-350 *TBC
Air Screw	3/4 turns
Jet Needle	#3
Needle jet	P-8
Pilot jet	60

- All testing as been achieved with VP fuel C9 * TBC



Recommended fuel

- North-America
  - Sno-X 600RS STK. 13.5:1CR VP MS98L 96 MON
  - Sno-X 600RS open 16.5:1CR VP C14+ 115 MON
  - X-Country 600RS 13.5:1CR *VP C9 or 98L 92-96 MON

  *Fuel to be confirm next fall. "see your tip sheets"

- Europe
  - Sno-X 600RS STK. 13.5:1CR 98E or **VP C9** 87,6 - **92** MON
  - Sno-X 600RS open 14.5:1CR 98E or **VP C9** 87,6 - **92** MON
  - X-Country 600RS 13.5:1CR 98E or **VP C9** 87,6 - **92** MON

  - Dyno testing and calibration as been achieved with VP fuels

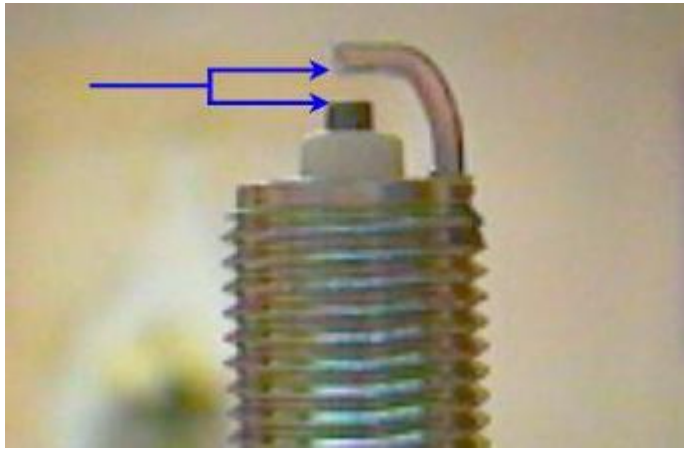
ECU Trouble Codes

- Check Engine Light
  - Unplugged or faulty air box sensor
  - Faulty EGT sensor
  - Faulty water temp sensor

- If problem can’t be resolved, contact your **dealer** and the vehicle can be plugged in to the diagnostic port and fault code will be detected

Spark Plugs

- Use only NGK BR9ECS sparkplugs
- Part number # 512059552
- Spark plug gap needs to be 0,45mm
- Check gap before installing new plugs
- Tightening torque 27Nm



Technical Data

- Piston to Cylinder wall clearance
  - New 0,10mm – 0,15mm
- Piston Ring end gap
  - New 0,40mm – 0,55mm
  - Wear limit 0,70mm – 0,80mm
- Replace base gasket with exact size only

Ignition Timing

- 2012 600 RS Ignition Timing
- 22 degrees
- Check @ 3500 RPM

- Open Mod: 23 Degrees @ 3500 RPM

Rave Valve Cleaning

Remove exhaust valve, clean valve slides, remove carbon from valve

- Make sure valve moves freely
- Clean every 15h of ride

Open Mod Kit 2012 North-America

- **NEW** 2012 Open Mod kit available
  - # 486 012 001
- LIMITED availability for kits

- **Kit includes:**
- Double exhaust pipes (new) + sockets
- After muffler
- Air intake system
- Strong clutch guard
- ECM – module with new 2012 file
- Compression insert for Race Fuel VP C14+
- Calibration parts

Open Mod Kit 2012 Europe only

- **NEW** 2012 Open Mod kit available already NOW!
  - # 619 400 089
- Latest Calibrations will be available at December
- LIMITED availability for kits
- 2 fuel options:
  - 98E normal pump fuel
  - Unleaded Race Fuel / VP C9

Open Mod Kit 2012 Europe only

- **Kit includes:**
- Double exhaust pipes + sockets
- Air intake system
- Strong clutch guard
- ECM – module with new 2012 file
- Compression insert for Race Fuel
- Calibration parts

Scandinavian Open Mod aftermuffler

Europe only

- **Pass FIM noise levels**
- **Aftermuffler 605255857**
- **Tailpipe 619690019**
- **Tailpipe 619690018**

Open Mod Kit 2012 Europe only

- **98E normal pump fuel**
  - Same peakpower as Stock, wider range and better middle area
  - Peak power at 8500-8700 rpm
- **Unleaded Race Fuel**
  - More power than Stock, wider range and better middle area
  - Peak power at rpm 8600-8700

Race School 2012
Lynx & Ski-Doo

Clutching & Scenarios

Clutching

Understanding basics, Crucial for tuning

- **Driver input + Data acquisition + Outside observations => Best results**
- **Know and Tune to:**
  - Peak TORQUE RPM 8300
  - Peak HP @ 8550 which builds to 8700 with hot pipe
- **Testing → learn what changes to make for conditions, temperature, track, altitude, carburetor setups**
- **Knowledge of these factors and cumulative efforts on your part, will make the winning difference**
- **Do only one adjustment at the time!!**
- **Keep record of setups and changes**
- **Belt + Clutch area need to be clean, NO snow / moisture / oil /fuel**

Clutching Tools Needed

- **TRA Drive clutch puller bolt 529000064**
- **TRA Drive pulley holder 529035674**
- **TRA Button retainer fork kit 529005500**
- **TRA Spring compressor 529036012**

RS 600 2012 calibrations

- **TRA 3 Light Weight Clutch**
  - White/White 250-380 (New) LYNX
  - 417223610 265-405 (New) Ski-Doo
    - Std Red/Red 70-170 spring is not for Snowcross → **change before using the unit, right comes with the sled**
  - Ramp 443
  - Threaded long pin + 25mm + 6 mm (New) Clicker adjustment # 4

- **TEAM Secondary Driven**
  - Black/Orange 180-280 (New)
  - 68-46x0,46 (other angle 70-44x0,46) (New)

RS 600 2012 calibrations

- **Gearing**
  - 19 / 49 (104 link chain) gearing is optimal for snowcross
  - For faster tracks, we recommend
    - 21 / 49 (104) 504096200 (powder sprocket → change 5h-10h)
    - 23 / 49 (106) 504085400 (machined, strong)

Clutching; Rule of Thumb #1

- **Adjust Clutch when:**
  - Engine makes more or less power
    - big weather or altitude changes
  - Engine RPM range is different (Open mod)

- **Adjust Secondary Driven when:**
  - Different Traction
    - loose snow, heavy snow, icy tracks
  - Different Track
    - Lug height differences 38mm vs 44mm

- **Change Gearing when:**
  - Average speed is very different
    - Slow 19/49 (Östersund SM Final 2011, Kalix Stadioncross, etc)
    - Normal 21/49 (“old” style fast snowcross tracks)
    - Fast 23 or 25 /49 (Enduro racing)

Clutching; Rule of Thumb #2

- **Clutch effect mainly up shifting**
  - Acceleration out of the corner
  - Starts
- **Secondary Driven effect mainly back shifting**
  - Corners
  - Between big whoops or doubles
- **Both of them are still effecting both ways**

Clutching; Rule of Thumb #3

- **Focusing ONLY on up sifting for start acceleration**
  - will make back shifting worse on track
  - Difficult to get enough speed between whoops or doubles
  - Poor acceleration out of corners
- **Focusing ONLY on back shifting in track performance**
  - Acceleration on starts is not optimal
- **Winning combination is balance of these two for each track and combination**

Tuning Components

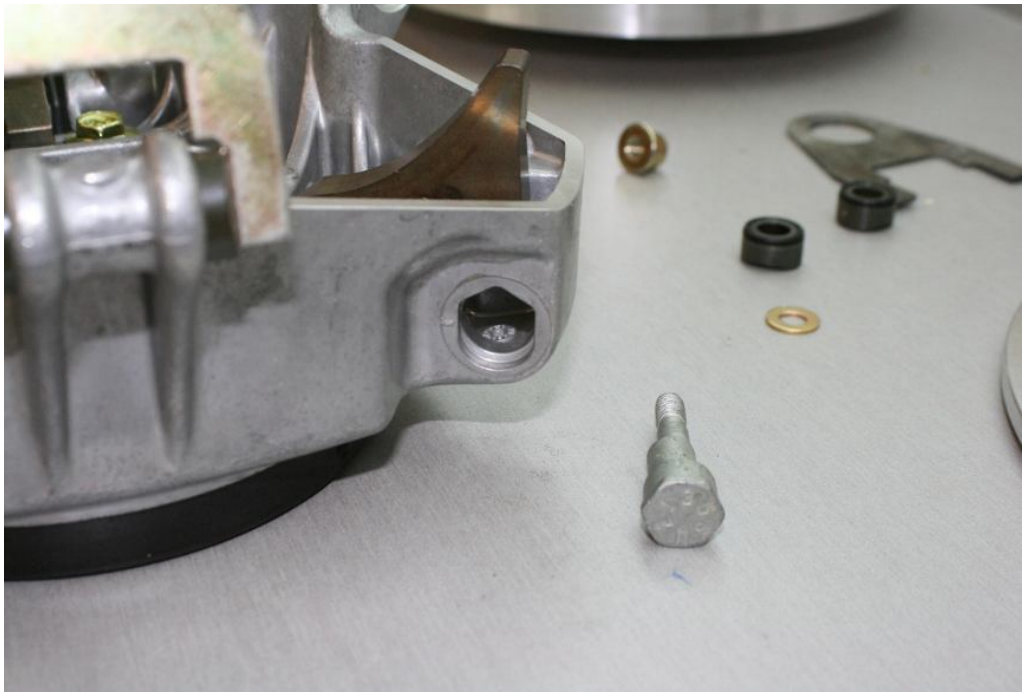
- **Lightweight TRA 3 Drive Clutch**
  - Calibration Screw (Clickers)
  - Pin Weight
  - Drive Spring
  - Ramp

Tuning Components

- **TEAM TSS-04 Secondary Driven**
  - Cam (Helix)
  - Driven Spring
  - Belt Deflection

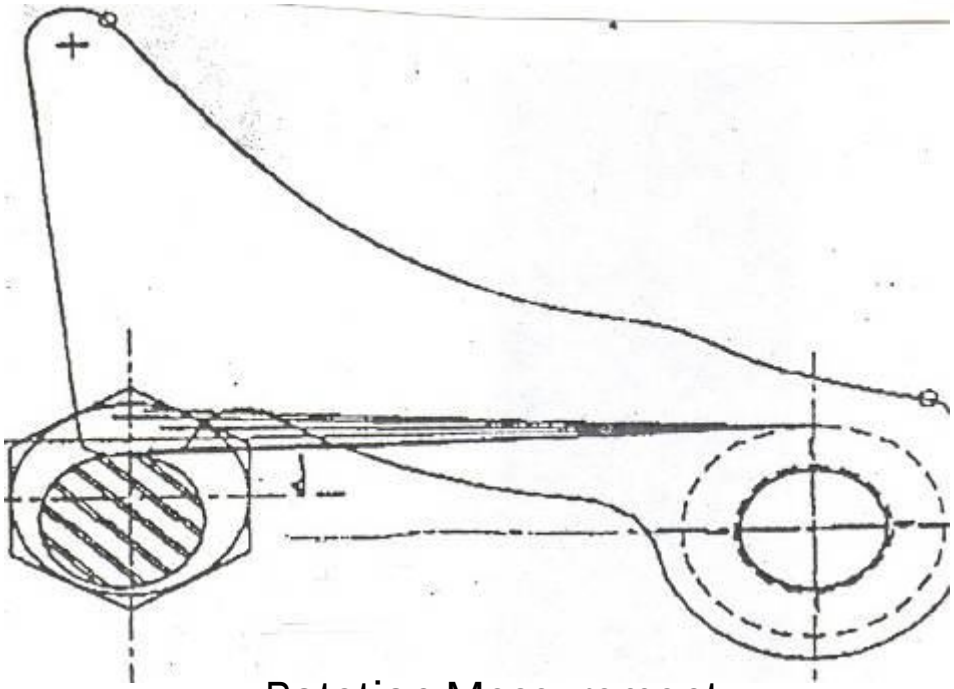
TRA clickers

- **BRP only manufacture to offer quick external shift RPM adjustment**
- **Cam adjuster allows you to raise or lower ramp, changing profile**
- **Clicking up to higher # will slow upshift and raise RPM**
- **Clicking down to a lower # will upshift faster and lower RPM**

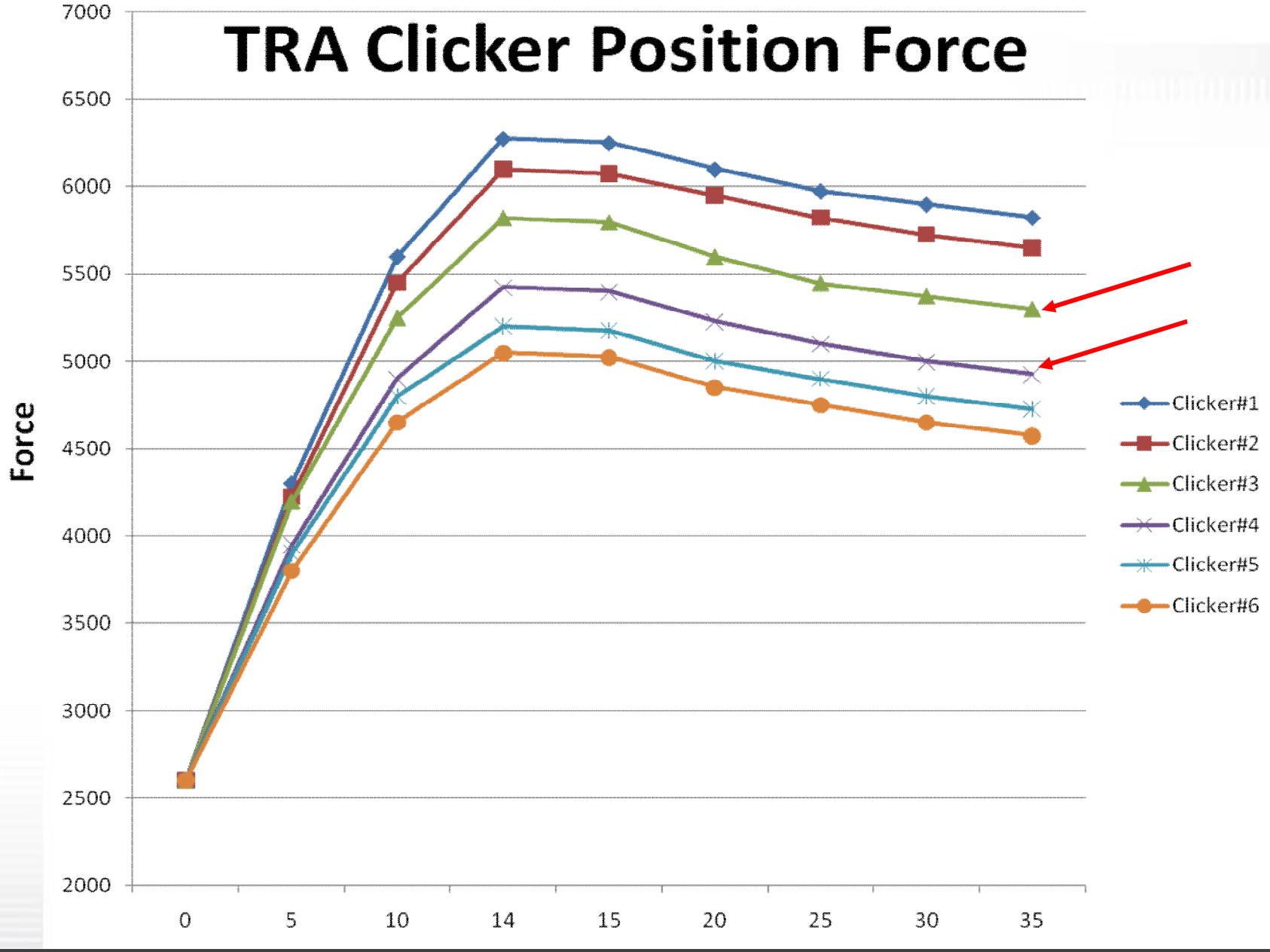


TRA clickers

Ramp Force - LBS	
#1	1370
#2	1355
#3	1315
#4	1275
#5	1240
#6	1225



Rotation Measurement		
1-2	.698 deg	.014
2-3	1.062 deg	.031
3-4	1.245 deg	.032
4-5	1.225 deg	.027
5-6	.540 deg	.018
Total	4.770 deg	.122


TRA Clicker Position Force
Force
7000
6500
6000
5500
5000
4500
4000
3500
3000
2500
2000
0
5
10
14
15
20
25
30
35
Displacement-mm
Clicker#1
Clicker#2
Clicker#3
Clicker#4
Clicker#5
Clicker#6

TRA clickers, Tuning Strategies

- You went out for morning practice, conditions were hard pack and fast, RPM's are low (8300), your clickers are at # 4.

- Your first heat race is right after practice session and you can see track has softened and you know RPM's are bit down already, you come off the track.

  - **A: adjust clickers to # 3**
  - **B: adjust clickers to # 5**
  - **C: adjust clickers to # 6**

TRA clickers, Tuning Strategies

- Very cold conditions, high air density, you just ran your second round,
- Tach recall rpm's are high 8800 and not pulling strong starts or out of turns, you have to run the LCQ right away,
- Your clickers are at # 5.
  - **A: adjust clickers to #3**
  - **B: adjust clickers to #4**
  - **C: adjust clickers to #6**

- **Trick: fine tune with 1 clicker 1 step lower or higher than others**

TRA Drive Springs

- Controls 2 things:
  1. **ENGAGEMENT RPM (first number)**
  2. **SHIFT RPM (first and second number)**

- White / White 250 – 380 (lbs)
- TRA springs measured when @74mm - 41mm

- Read color code with stripes down
- Large assort of springs available
- **Never** preload spring with extra washers
- White retainer washer reduces friction

TRA Drive Springs

TRA DRIVE SPRINGS

NOTE: To read springs correctly, place spring stripes down and read LEFT to RIGHT.

TRA III DRIVE CLUTCH SPRING						
P/N	FORCE (lbs) 74 mm	FORCE (lbs) 41 mm	RATE LENGTH lbs/inch	FREE LENGTH mm	COLOR CODE	MATERIAL
414 689 800	70	170	77	97	RD/RD	ST
414 817 500	70	230	123	88	RD/YL	ST
414 701 000	70	320	192	89	RD/PL	ST
414 993 000	100	170	54	121	YL/RD	ST
414 689 700	100	200	77	106	YL/OR	ST
414 748 600	100	230	100	99	YL/YL	ST
414 742 100	100	260	123	95	YL/GN	ST
414 639 000	130	200	54	134	BL/OR	ST
414 689 500	130	230	77	115	BL/YL	ST
414 817 700	130	260	100	105	BL/GN	ST
414 689 400	130	290	123	100	BL/BL	ST
414 817 800	130	320	246	97	BL/PL	ST
414 916 300	130	350	169	94	BL/PK	ST
415 015 300	160	230	54	158	PL/YL	ST
415 015 400	160	260	77	134	PL/GN	ST
415 034 900	160	290	100	115	PL/BL	ST
414 817 900	160	320	123	107	PL/PL	ST
414 949 500	160	350	146	102	PL/PK	ST
417 222 703	160	380	169	99	PL/WH	ST
415 019 500	185	410	173	105	BK	ST
414 768 200	200	290	69	147	GN/BL	ST
486 600 014	200	290	69	147	GN/BL	HTS
414 762 800	200	320	94	130	GN/PL	ST
414 756 900	200	350	116	118	GN/PK	ST
417 222 371	200	380	139	111	GN/WH	ST
414 754 200	230	320	69	155	PK/PL	ST
415 074 800	230	350	92	137	PK/PK	ST
414 991 400	230	380	116	125	PK/WH	ST

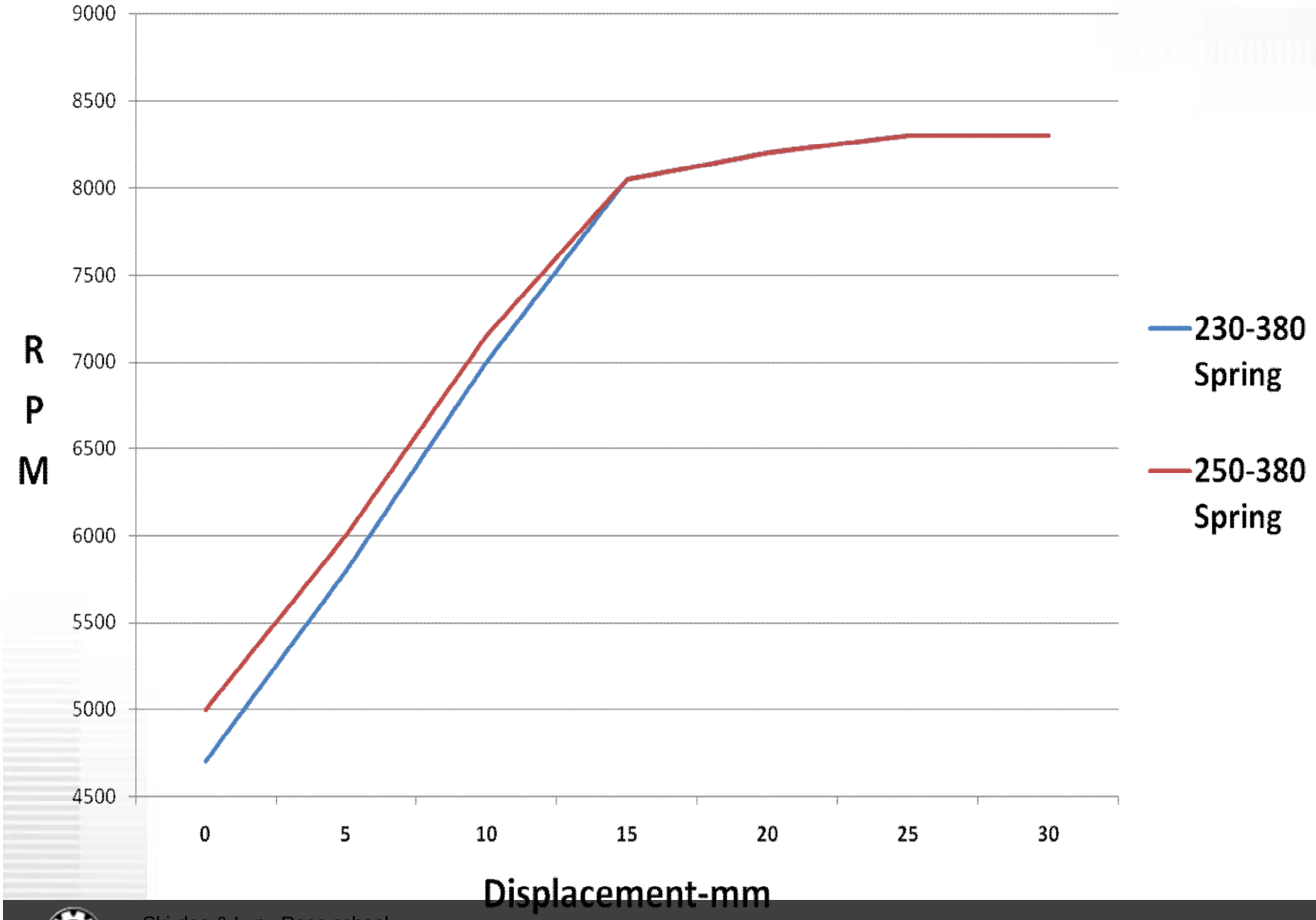
TRA III DRIVE CLUTCH SPRING						
P/N	FORCE (lbs) 74 mm	FORCE (lbs) 41 mm	RATE LENGTH lbs/inch	FREE LENGTH mm	COLOR CODE	MATERIAL
415 019 700	230	410	139	120	RD	ST
417 222 958	240	370	100	135	GY/GY	HTS
486 010 010	240	370	101	135	WH/GY/GY	LS-002
415 019 800	240	430	146	120	BL	ST
417 222 004	250	380	100	137	WH/WH	ST
415 019 900	250	460	162	116	PK	ST
417 222 164	260	420	123	128	WH/SI	ST
486 010 002	265	405	108	136	WH/GN/GN	LS-002
486 010 010	240	370	101	135	WH/GY/GY	LS-002
486 011 002	280	450	131	128	WH/GR/PK	LS-002
486 011 003	310	480	131	134	WH/PK/PK	LS-002
415 020 100	280	420		148	GN/GN	ST
415 020 200	280	460	139	132	RD/RD	ST
417 223 050	280	460	145	125	BR/BR	HTS
415 020 300	280	510	177	121	BL/BL	ST
415 020 400	310	460		148	PK/PK	ST
415 020 500	310	510	154	132	GD/GD	ST

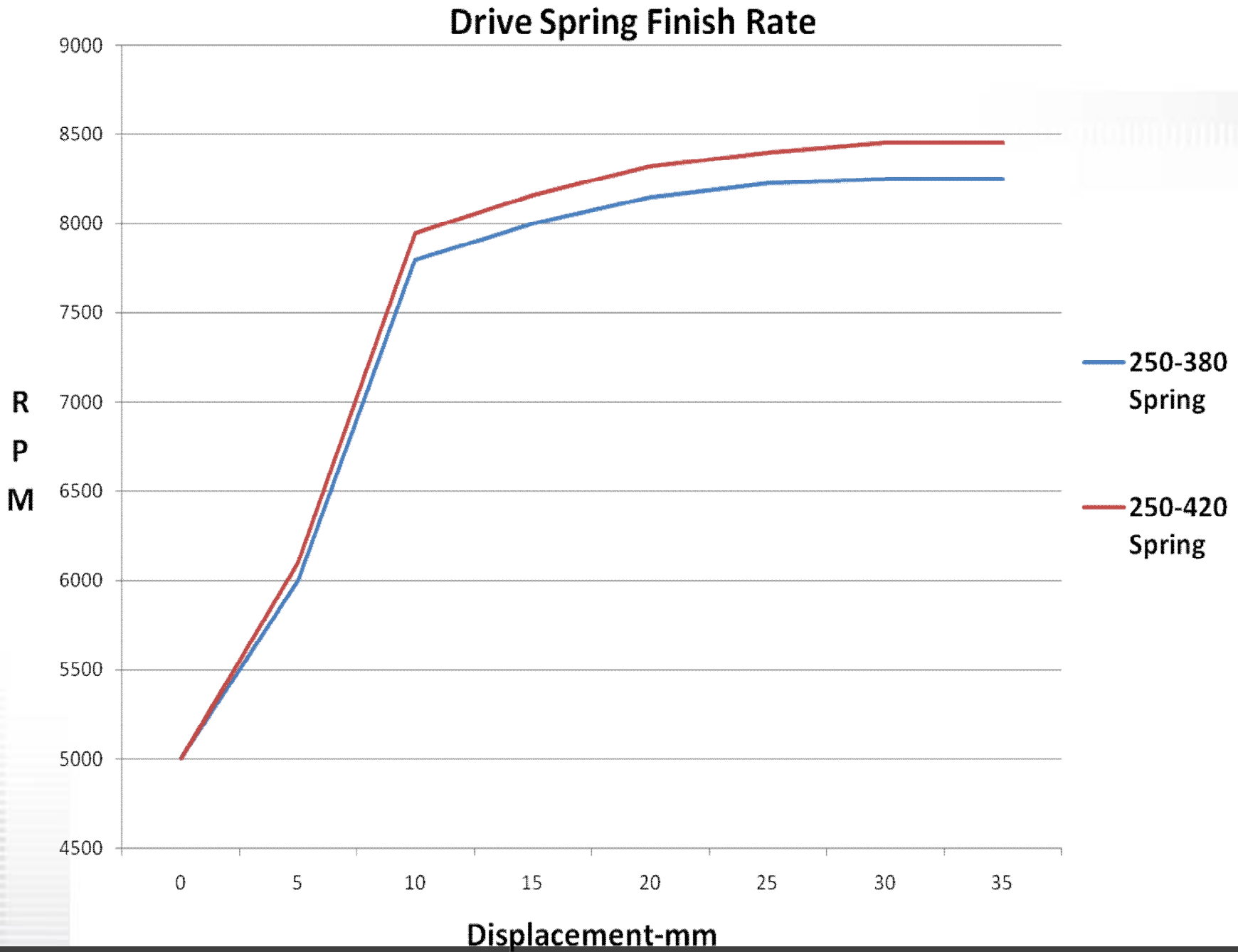
BRP / TEAM SECONDARY SPRING						
P/N	FORCE (lbs) 74 mm	FORCE (lbs) 41 mm	RATE LENGTH lbs/inch	FREE LENGTH mm	COLOR CODE	MATERIAL
486 011 004	200	260	55	149	WH/WH/BL	LS-002

COLOR CODE				
RD=RED	PK=PINK	PL=PURPLE	GN=GREEN	OR=ORANGE
SI=SILVER	BL=BLUE	GY=GRAY	WH=WHITE	YL=YELLOW
GD = GOLD	BG= BEIGE	BR= BROWN	BK= BLACK	

MATERIAL -	ST=STEEL	HTS=HIGH TENSILE STEEL

Drive Spring Start Rate




Drive Spring Finish Rate
9000
8500
8000
7500
7000
6500
6000
5500
5000
4500
R
P
M
0
5
10
15
20
25
30
35
Displacement-mm
250-380 Spring
250-420 Spring

TRA Drive spring

NO SAG CLUTCH SPRING SERIES						
TRA III Drive clutch spring						
P/N	Force lbs 74mm	Force lbs 41mm	Rate lenght lbs/inch	Free lenght mm	COLOR CODE	MATERIAL
486 010 002	265	405	107,8	136,44	WH/GR/GR	LS-002
486 010 010	240	370	100,08	134,9	WH/GY/GY	LS-002
486 011 002	280	450	130,87	128,3	WH/GR/PK	LS-002
486 011 003	310	480	130,87	134,2	WH/PK/PK	LS-002
Team secondary spring						
486 011 004	200	260	54,55	149,01	WH/WH/BL	LS-002

TRA Drive spring, Tuning Strategies

- Rained Friday evening, low air pressure, Saturday morning forecast for heavy rain.
- → need to jet down main jets
- → less engine power available
- → heavy snow with lot of traction on starts

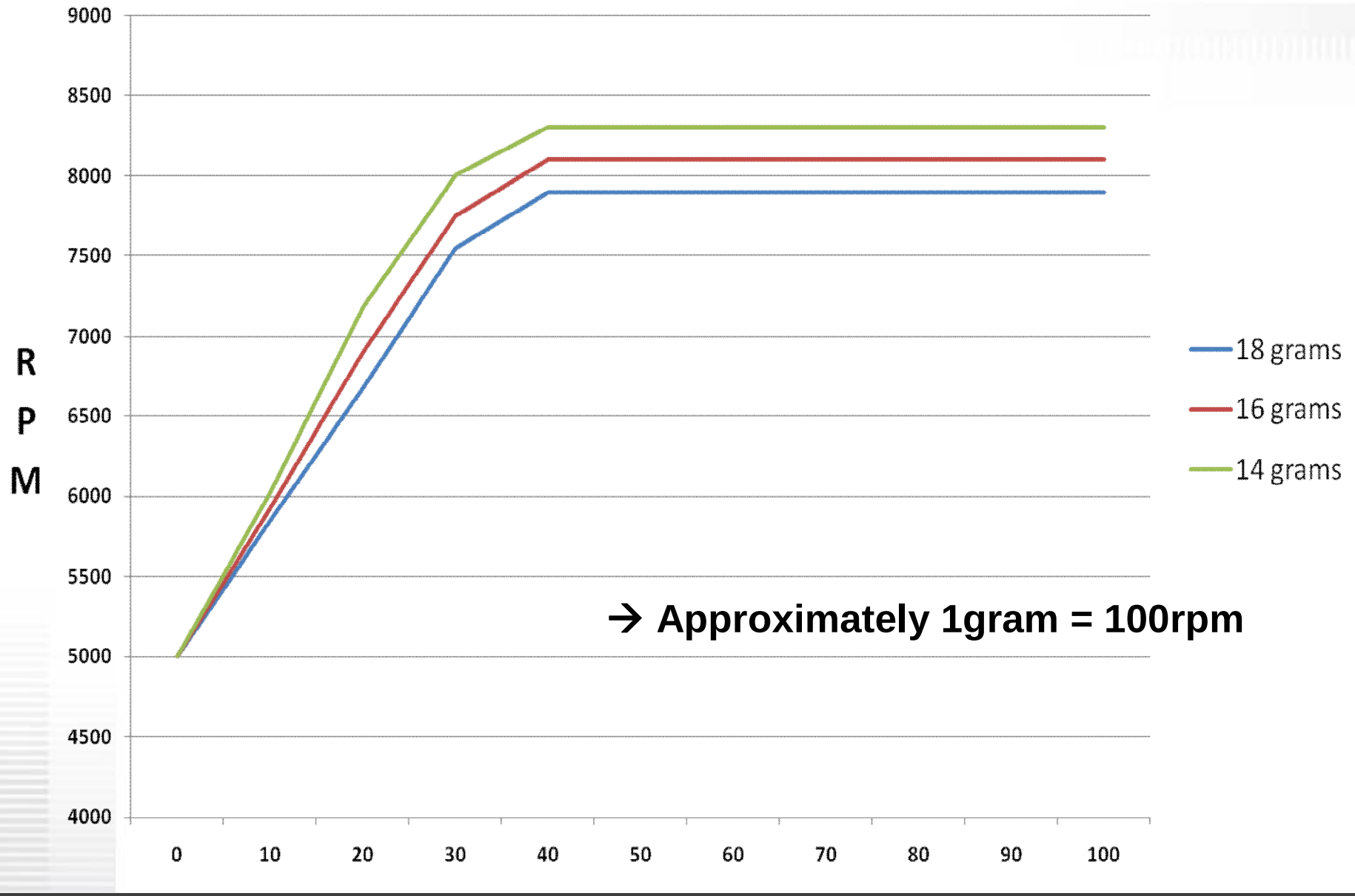
- You have been running a 250-380 drive spring usually, what spring would you go for Saturday to knowing the situation?
  - **A. 230-320**
  - **B. 200-350**
  - **C. 260-420**
  - **D. 280-460**

TRA Pin Weight

- Shift force directly controlled with weight of pin
- Lighter pin weight → Higher RPM
  - Slower upshift
- Heavier pin weight → Lower RPM
  - Faster upshift

- 12.4g pin with 20mm screw 3,02g = 15.42 grams total
- All 3 pins MUST have same weight!!
- Use extra light Loctite on threads

Drive Clutch Roller Pin Weight



→ **Approximately 1gram = 100rpm**

16.15 GRAMS SET-UP

PART DESCRIPTION	P/N	WEIGHT (g)	QTY
Pin 35.75 mm	417 222 595	12.4	1
Set screw 20 mm	206 262 099	3.02	1
Set screw 6 mm	206 260 699	0.73	1

16.21 GRAMS SET-UP

PART DESCRIPTION	P/N	WEIGHT (g)	QTY
Pin 35.75 mm	417 222 595	12.4	1
Set screw 25 mm	206 262 599	3.81	1

16.27 GRAMS SET-UP

PART DESCRIPTION	P/N	WEIGHT (g)	QTY
Pin 35.75 mm	417 222 595	12.4	1
Set screw 6 mm	206 260 699	0.73	3
Set screw 12 mm	206 261 299	1.68	1

16.43 GRAMS SET-UP

PART DESCRIPTION	P/N	WEIGHT (g)	QTY
Pin 35.75 mm	417 222 595	12.4	1
Set screw 16 mm	206 261 699	2.35	1
Set screw 12 mm	206 261 299	1.68	1

16.88 GRAMS SET-UP

PART DESCRIPTION	P/N	WEIGHT (g)	QTY
Pin 35.75 mm	417 222 595	12.4	1
Set screw 20 mm	206 262 099	3.02	1
Set screw 6 mm	206 260 699	0.73	2

16.94 GRAMS SET-UP

PART DESCRIPTION	P/N	WEIGHT (g)	QTY
Pin 35.75 mm	417 222 595	12.4	1
Set screw 25 mm	206 262 599	3.81	1
Set screw 6 mm	206 260 699	0.73	1

17.16 GRAMS SET-UP

PART DESCRIPTION	P/N	WEIGHT (g)	QTY
Pin 35.75 mm	417 222 595	12.4	1
Set screw 6 mm	206 260 699	0.73	1
Set screw 16 mm	206 261 699	2.35	1
Set screw 12 mm	206 261 299	1.68	1

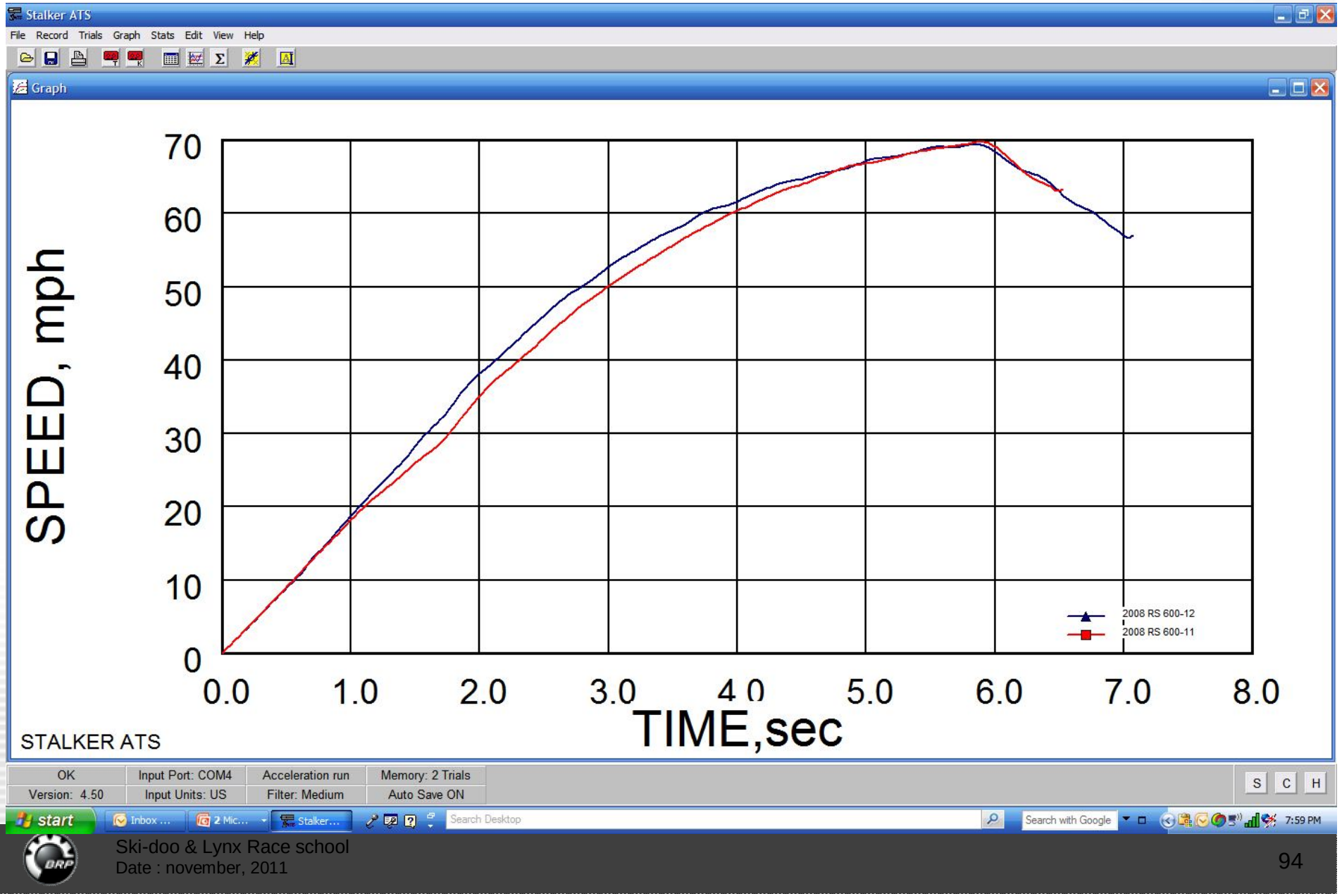
18.17 GRAMS SET-UP

PART DESCRIPTION	P/N	WEIGHT (g)	QTY
Pin 35.75 mm	417 222 595	12.4	1
Set screw 6 mm	206 260 699	0.73	1
Slug 14 mm	486 400 004	5.044	1

18.90 GRAMS SET-UP

PART DESCRIPTION	P/N	WEIGHT (g)	QTY
Pin 35.75 mm	417 222 595	12.4	1
Set screw 6 mm	206 260 699	0.73	2
Slug 14 mm	486 400 004	5.044	1

TRA Pin Weight



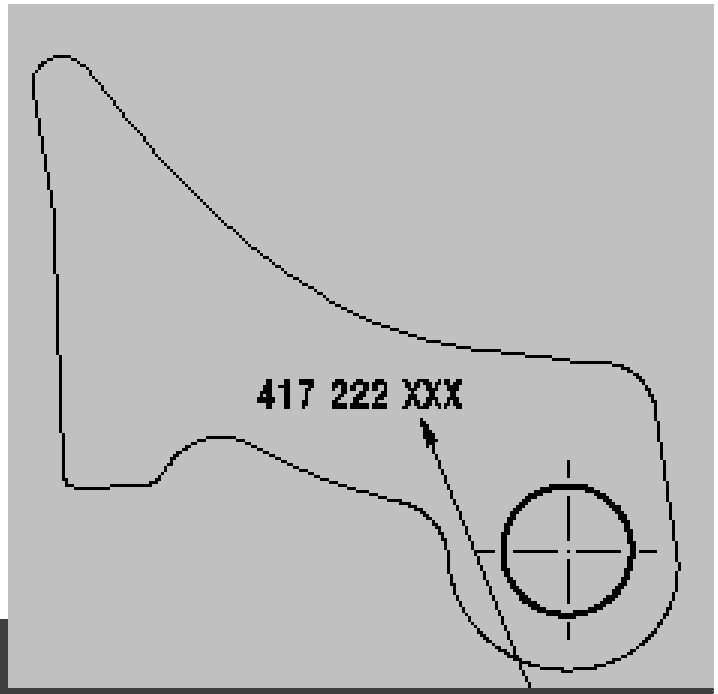
TRA Pin Weight, Tuning Strategies

- Cold conditions, powdery / loose snow, ran first and second heats, qualified for final, which doesn't run until end of the day, weather is getting colder towards evening.
- After looking at tachometer recall you notice you have plenty of rpm (8700-8800) everywhere on track. What change to pin weight could you make for final?

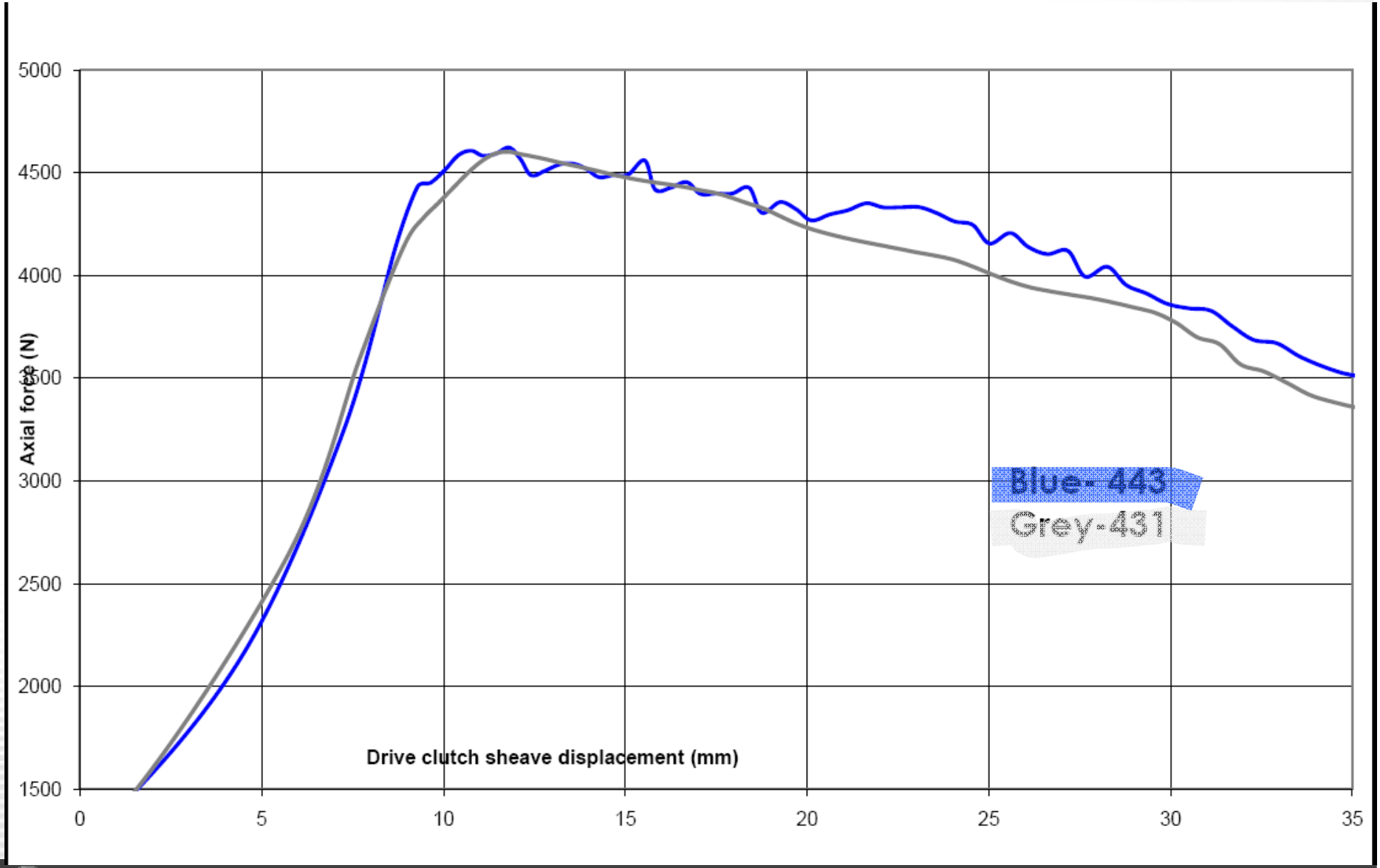
- **A. Add 1 gram**
- **B. Add 3.5 grams**
- **C. Remove 1 gram**
- **D. Remove 2 grams**

TRA Ramp

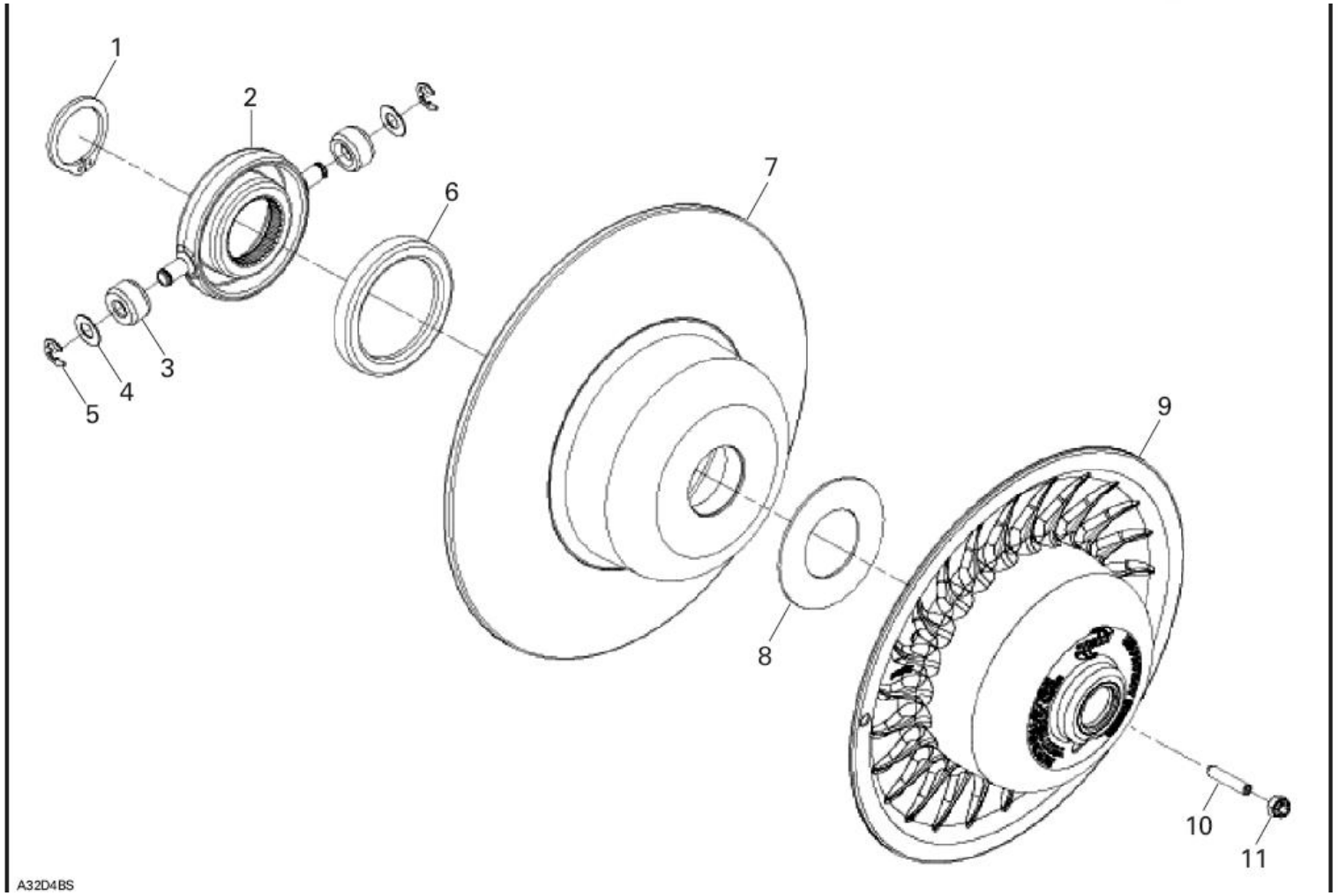
- The profile of the ramp controls the axial or shift force generated to the drive belt
- It is the angle of the ramp at the point of roller contact that determines the shift force
- BRP has a wide variety of ramp profiles available for different purposes and engines
- Changing ramp is always **BIG change!**
- **Not recommended to do at the race day**



TRA Ramp


5000
4500
4000
3500
3000
2500
2000
1500
Axial force (N)
0
5
10
15
20
25
30
35
Drive clutch sheave displacement (mm)
Blue- 443
Grey-431

Secondary Driven, TEAM TSS-04



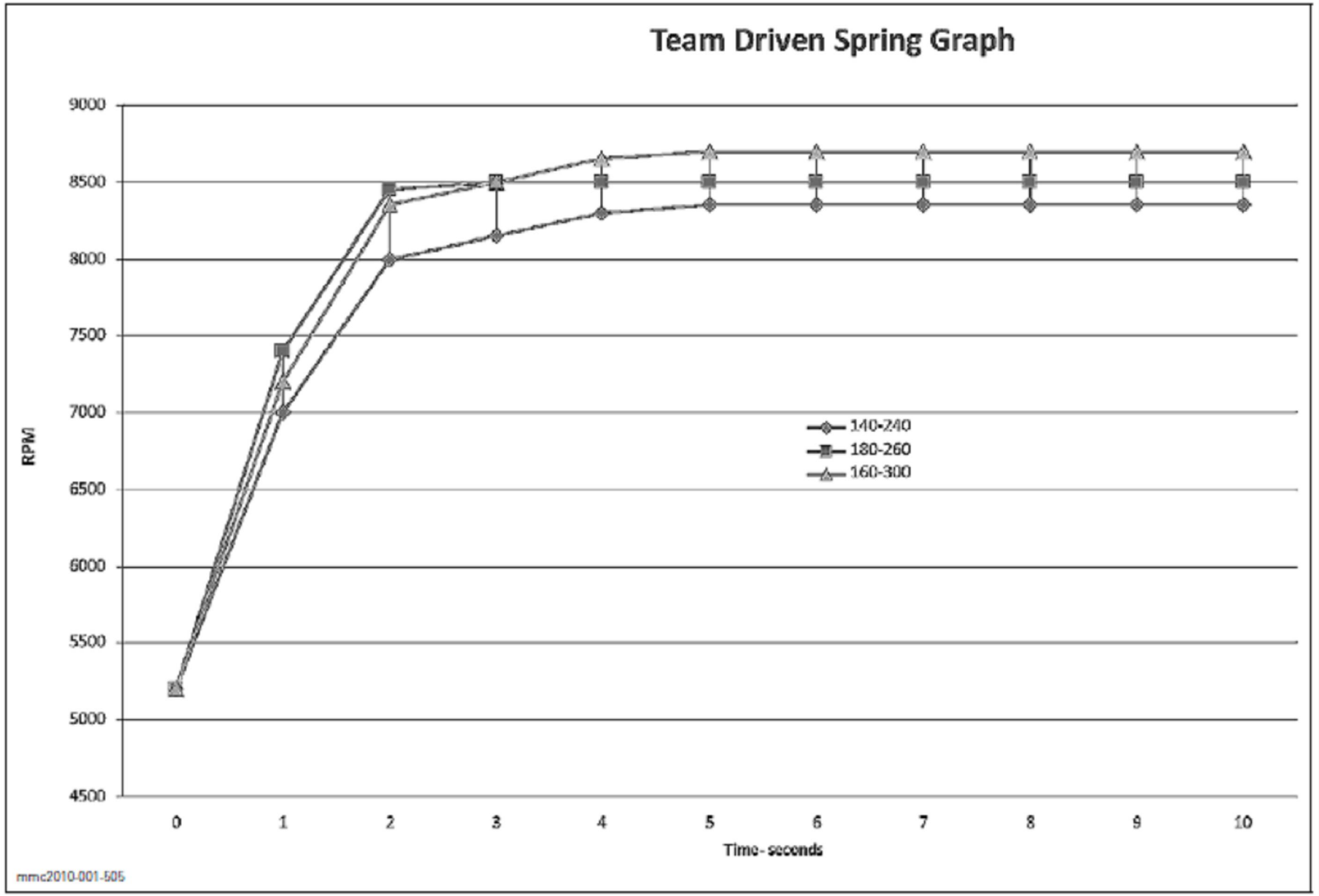
Secondary Driven Spring

- Driven Spring affects mostly for secondary backshift response time on part throttle and when releasing throttle
- Stiffer Spring
  - Part throttle higher RPM, Slower Upshift and Faster Backshift
- Softer Spring
  - Part throttle lower RPM, Faster Upshift and Slower Backshift
- Use “delrin” washer under spring cup (white plastic washer) → less torsional friction
- Read color code with stripes down

TEAM TSS-04 Springs

TEAM PT #	Pressure (lbs)	Color Code
210180	100-150	Red/Yellow
210179	125-175	Red/Gray
210181	140-200	Red/Dark Blue
210178	100-200	Red/White
210177	120-220	Red/Green
210176	140-240	Red/Black
210184	140-260	Red/Pink
210182	155-222	Black/Red
210183	120-200	Blue/Black
210186	140-220	Black/Green
210185	160-260	Black/White
210190	180-260	Black/Light Blue
210193	160-240	Black/Purple
210278*	160-300	Black/Gold
210279*	160-280	Black/Silver
210280*	180-280	Black/Orange
210281*	180-300	Black/Lime Green
955556	180-260	Black/Yellow HTS

Secondary Driven Spring



Secondary Driven spring, Tuning Strategies

- Spring time conditions, Sunny, temperatures in the +2C degrees, deep holes, big uphill, you are running a 160-260 Black-White, rpm's are low everywhere
- What driven spring could you go to?

  - **A. 155-222**
  - **B. 160-240**
  - **C. 160-280**
  - **D. 180-280**

Secondary Driven Cam

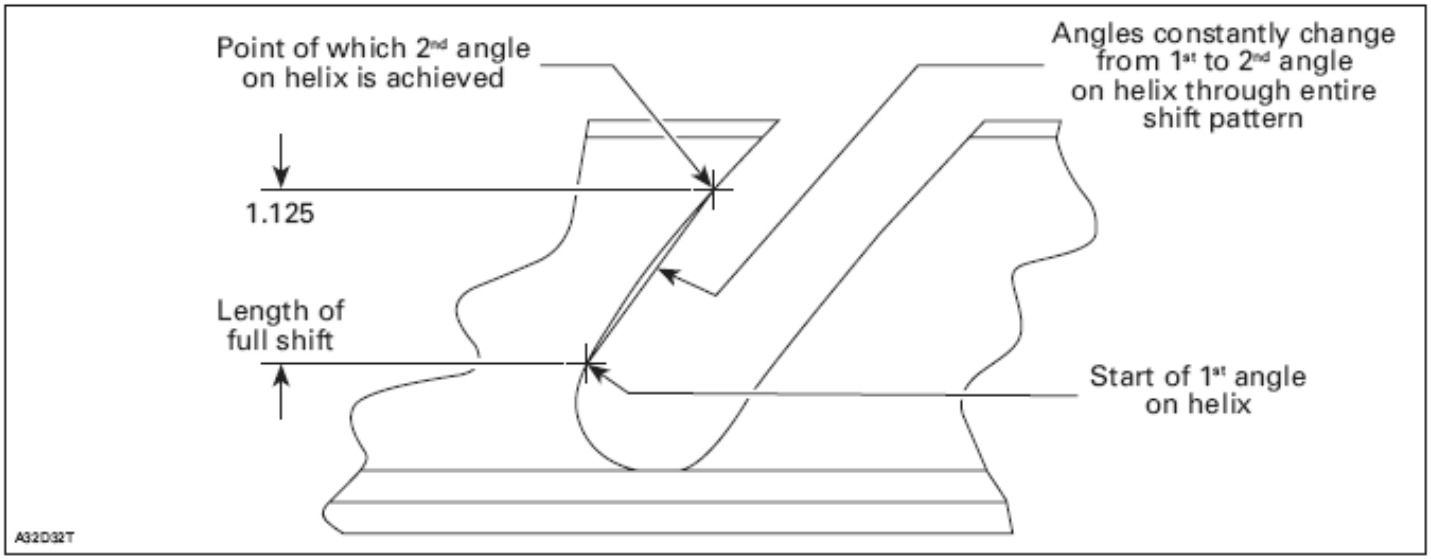
- **Higher / Steeper angles →**
  - faster upshift - slower backshift
  - lower RPM

- **Lower / Shallower angles →**
  - slower upshift - faster backshift
  - higher RPM

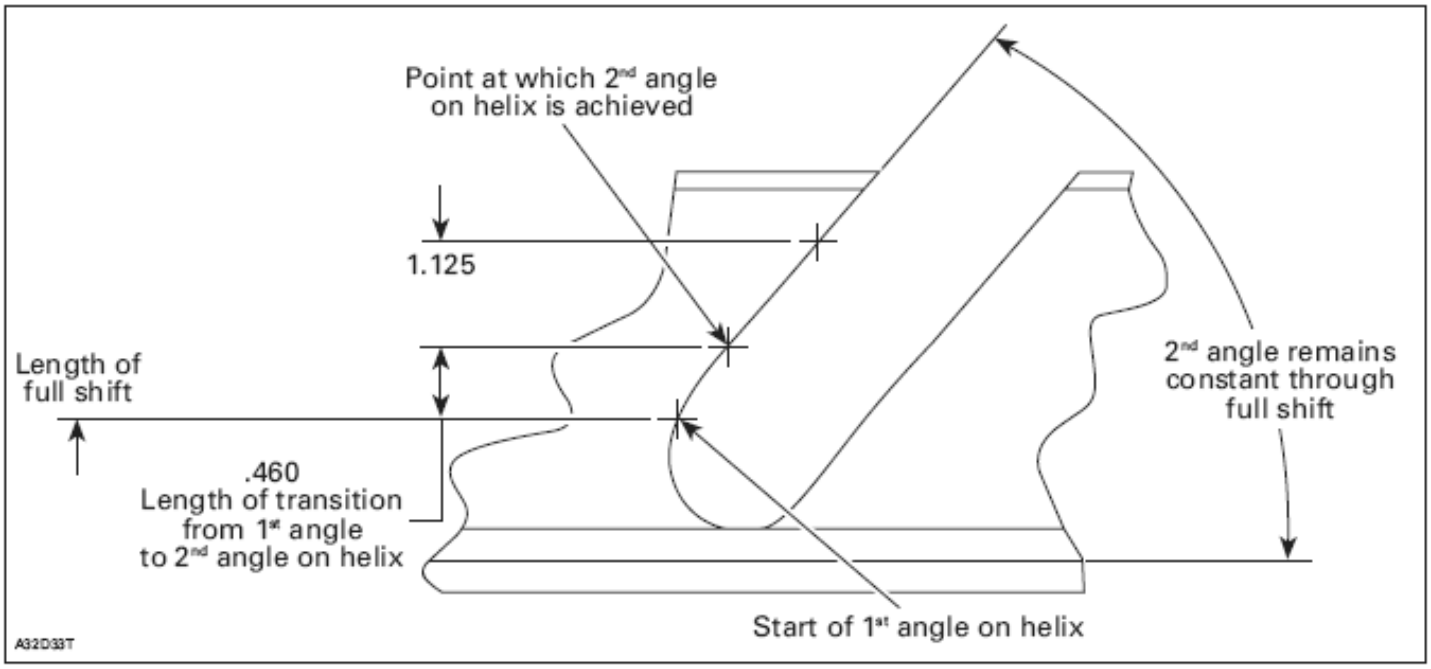
Secondary Driven Cam

- 68 – 46 x 0,46 cam angle numbers?
- First number (68)
  - angle for starts mainly
- Last number (0,46)
  - length of the first section in inches
- Middle number (46)
  - angle which is used most of the time in track.

Full Progressive Twin Trax Helix



Partial Progressive Twin Trax Helix



Secondary Driven Cam

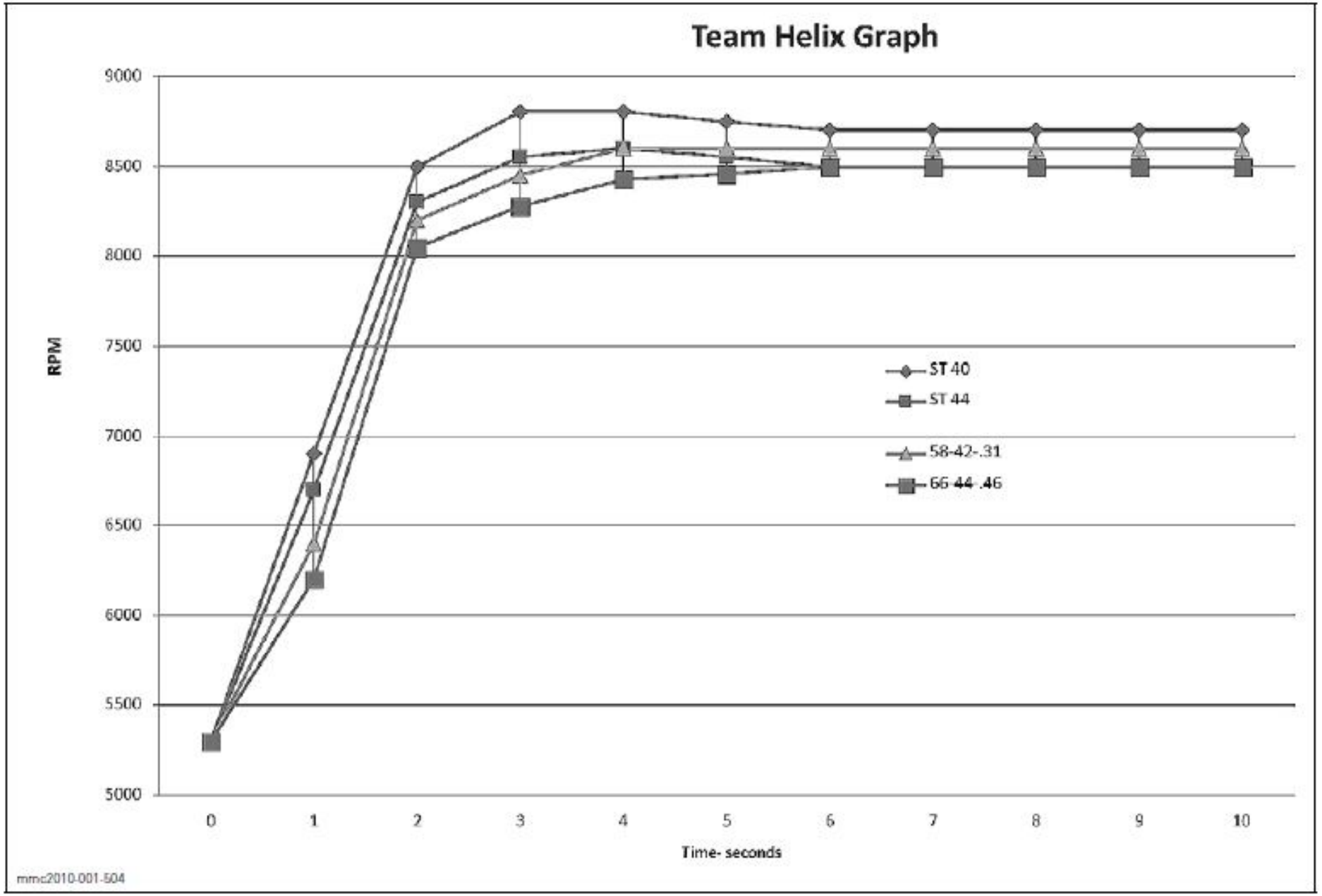
- Std Cam has 2 optional angles:
  - 68 - 46 x 0,46 (std)
  - 70 - 44 x 0,46 (open mod)

- 70 – 44 cam position will be better
  - For heavy snow
  - For icy tracks when transitions from ice to snow will demand good back shift

TEAM TWIN TRAX HELIX

TEAM PT #	#1 ANGLE	TYPE	#2 ANGLE	TYPE
420451LW	50-42	0.46	50-44	0.46
420512LW	54-38	0.46	54-36	0.46
420514LW	54-40	0.46	54-38	0.46
420515LW	58-40	0.46	58-38	0.46
420517LW	58-44	0.46	58-42	0.46
420518LW	60-40	0.46	60-38	0.46
420519LW	60-48	0.46	58-44	0.46
420520LW	54-36	0.46	54-34	0.46
420522LW	74-44	0.46	74-40	0.46
420525LW	62-44	0.46	62-40	0.46
420538LW	66-44	0.46	66-40	0.46
420546LW	58-40	0.46	58-42	0.46
420552LW	70-46	0.46	72-48	0.46
420561LW	66-44	0.46	70-44	0.46
420562LW	38	STR	42	STR
420563LW	40	STR	44	STR
420564LW	42	STR	46	STR
420565LW	44	STR	48	STR
420566LW	46	STR	50	STR
420568LW	50	STR	54	STR
420569LW	52-42	FULL	52-40	FULL
420571LW	54-42	FULL	54-44	FULL
420572LW	56-44	FULL	56-46	FULL

TEAM PT #	#1 ANGLE	TYPE	#2 ANGLE	TYPE
420573LW	70-44	0.46	70-42	0.46
420574LW	70-48	0.46	72-44	0.46
420745LW	58-46	0.36	58-48	0.36
420506LW	50-36	FULL	56-36	0.46
520100LW	58-44.30T	DBL STR	58-42.30T	DBL STR
420551LW	70-50	0.46	72-52	0.46
420438LW	56-38	0.46	56-40	0.46
420509LW	52-40	FULL	58-40	0.46
420532LW	64-48	0.46	54-44	FULL
420534LW	68-44	0.46	54-42	FULL
420536LW	54-34	0.46	48-34	FULL
420539LW	68-44	0.46	52-42	FULL
420540LW	70-48	0.46	54-44	FULL
420547LW	52-42	FULL	66-42	0.46
420549LW	54-44	FULL	68-44	0.46
520106LW	74-44	.36T	74-46	.36T
520105LW	58-46	0.46	46-36	FULL
520100LW	58-44	.30T	58-42	.30T
520119LW	60-44	.25T	64-44	.25T
520120LW	62-44	.25T	66-44	.25T


Team Helix Graph
RPM
9000
8500
8000
7500
7000
6500
6000
5500
5000
0
1
2
3
4
5
6
7
8
9
10
Time- seconds
ST 40
ST 44
58-42-.31
66-44-.46
mmc2010-001-504

Secondary Driven Cam, Tuning Strategies

- Springtime conditions, Sunny, +5C , deep holes, heavy snow, rpm's low, sluggish performance out of holes and turns.
- You are running a 70– 46 x 0.46 helix, what could you go to?

- **A. 70 – 44 x 0,46**
- **B. 64 – 42 x 0,30**
- **C. 64 – 46 x 0,46**
- **D. 68 – 44 x 0,46**

Drive Belt

- **New part number: 417 300 425**
- **Same treatment as in 800Etec belt ..391, keeps cord in.**

- **Tip:**
- Wash new belts with soap and water, and rinse well
  - **Removes slippery molding grease from inner surface**

Drive Belt, Tension

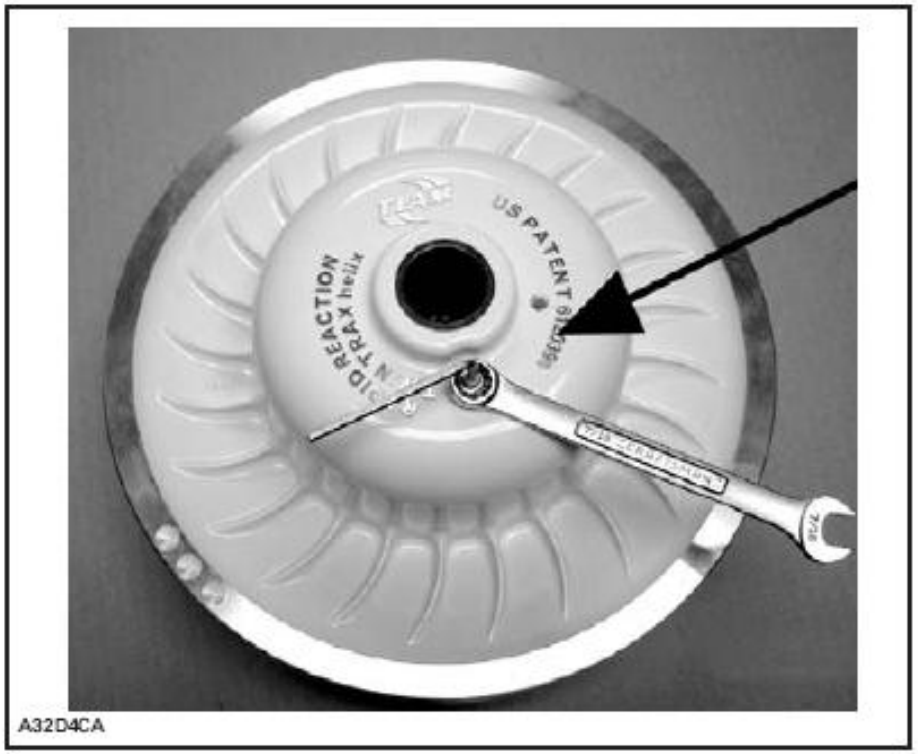
- Belt tension is important and varies especially when belt is new. Therefore “break in” is important.
- Belt lengths are not constant.
- Perform “break in” for new belts, 10 – 20km
- After break in of new belt, adjust tension
- Keep belt tension all the time in same.
- Tension is easy to feel by hand
  - Remove clutch guard, stop the engine
  - Push belt to right (clockwise) with your hand
  - Belt should move when pushing,
    - if not → too tight,
    - if moves easily → too loose

ADJUSTING BELT DEFLECTION ON THE TEAM ROLLER SECONDARY

1. To adjust the sheaves, loosen the 7/16" jam nut on the belt width adjuster.
2. Using a 1/8" Allen wrench (P/N 920001), adjust the threaded set screw as needed.

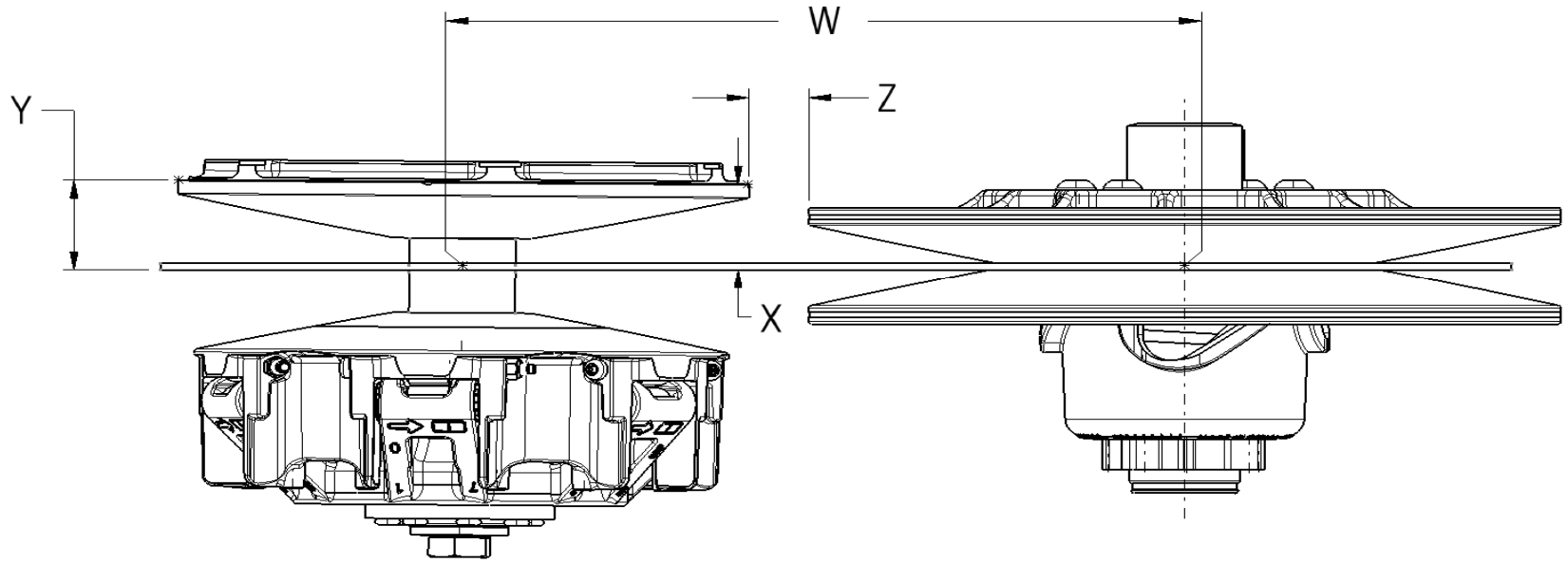
NOTE: Turn the set screw in (clockwise) to increase the distance between the sheaves and out (counterclockwise) to decrease the distance.

3. Tighten the jam nut after the belt adjustment has been made. See arrow.



Pulley Alignment

MODEL	TYPE	TYPE	DIM W (mm)	DIM X (mm)	DIM Y (mm)	DIM Z (mm)	BELT
600 RS	TRA 3 LIGHT	TEAM TSS04	258,7 ± 2,3	39,0 ± 0,5	Y>X 1.6 ± 0,9	19,5	417300425



Scenarios & Race Day Strategy

Tuning Strategies, Bigger Scenario # 1

Europe only

- **Your sled works very well on following conditions at home:**
  - **-20 C with 300/300 mainjets, air screw 1,5**
  - **Altitude: Sea level, 0m**
  - **Normal snowross track with loose snow**

- **Conditions will be following at next weekend race:**
  - **0 C (check weather forecast)**
  - **Altitude: + 300m (check from map)**
  - **Slow track with plenty of loose and heavy snow, big whoops**

Tuning Strategies, Bigger Scenario # 1

Europe only

- **What would you do for carbs?**
  - **Enter temperature and altitude information to main jet calibration chart:**
  - **You can see that right main jet for this air density (temperature 0C/altitude300m) would be around 275 → change 280 main jets**
  - **Adjust also air screw a bit more open (1,75) IF sled runs rich and heavy on idle and low throttle positions.**
  - **Due to air density + main jet change, engine will make a bit less power than earlier.**

Mainjet - Temp & Altitude Correction
2012 LYNX® RAVE RS 600

Altitude [m]	Outside air temp [°C] -20	-10	0	10
0	**300**	292	283	272
600	284	276	267	256
1200	268	260	251	240
1800	252	244	235	224
2400	236	228	219	208
3000	220	212	203	192

Tuning Strategies, Bigger Scenario # 1

What would you do for Clutching?

- **Less engine power would need changes to clutch**
  - Reduce pin weight one step (1gram per lever)
  - **Or** go one step higher on TRA clickers

- **Track is slower, big whoops, heavy snow BECAUSE of temperature dropping to 0 C → needs good back shifting**
  - Reduce cam angle one step (46 → 44)

- **Example shows 2 changes for clutching, which is a big change already!**
- **After doing changes determine in practice session if calibration is working**
- **KEEP RECORD OF SETUPS and be always ready to come back to original.**

Tuning Strategies, Bigger Scenario # 2

Europe only

- **Your sled works very well on following conditions at home:**
  - **-15 C with 290/290 mainjets, air screw 1,5**
  - **Altitude: 300m**
  - **Slow snowross track with loose snow**

- **Conditions will be following at next weekend race:**
  - **-10 C (check weather forecast)**
  - **Altitude: 0m (check from map)**
  - **Normal snowcross track with loose snow**

Tuning Strategies, Bigger Scenario # 2

Europe only

- **What would you do for carbs?**
- **Enter temperature and altitude information to main jet calibration chart, you need find right value for yellow box to match your weather conditions, in this case 305 would give right 290 for -15C/300m.**
- **You can see that right main jet for new air density (temperature -10C/0m) would be around 300.**
- **Due to air density + main jet change, engine will make a bit more power than earlier.**

Mainjet - Temp & Altitude Correction
2012 LYNX® RAVE RS 600

Altitude [m]	Outside air temp [°C]			
	-20	-10	0	10
0	305	297	288	277
600	289	280	272	261
1200	272	264	256	244
1800	256	248	239	228
2400	240	231	223	212
3000	224	215	207	195

Tuning Strategies, Bigger Scenario # 2

- **What would you do for clutching**
  - **A bit more power**
  - **→ add 1g pin weight**

- **Snow conditions remain about the same**
  - **→ no need for change**

- **Average speed may be faster**
  - **→ no need for change, but be aware of it and test it at practice session**

- **→ DO Small changes, not big ones because they may lead you too far a way from optimal calibration**

Race Day Strategy & Scenarios

- **Before the Race, Do your homework:**
  - **Schedule → does event timetable allow testing**
  - **Place → does event area allow testing (Kalix No, World Champ Yes)**
  - **Track → layout of the track, big up hills, tight track, fast track, average speed of the track**
  - **Weather → what is the forecast, does it change dramatically**
  - **Altitude → use of barometers is most accurate**
  - **History → check your notes to learn what have happened earlier**

- **With this information it is already possible:**
  - **To plan AHEAD and be aware what could be done during race day**
  - **Be aware what is not possible to do during race day**

- **Key to success is small steps to right direction basing of information**
  - **Big leaps to wrong direction will be disastrous**

Race Day Strategy & Scenarios

- **Understand how Snow works**
  - **Why track is hard pack at morning and how it will change**
  - **What happens if snow qty on track is low**
- **Understand how temperature changes snow**
  - **When close to 0 C snow changes most from loose to heavy**
  - **What happens if day prior the event is close to 0C and event day is -10 C**
- **Understand difference with**
  - **Hard pack practice track vs race track**

Tips, Left Sidepanel

- When closing left side sidepanels, keep especially eye on lower edge fitting to the bottom pan. If fitment is not right, there is gap between the side panel and bottom pan. This cause snow to go to the clutch and cause belt problems.
- It is also recommend installing extra rubber strap 1 x 5342952 and 1 x 605449087 to prevent snow entering to the drive belt in extreme landings from big jumps.

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