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## **Mtn. Tamer Back Suspension TSP-1806: Using Custom Slide Rails**

### **Installation Instructions for: Ski-Doo XP**

#### **Things you should know about this kit before you start:**

- *Read the entire installation instructions and tuning sheet before starting so that you will be prepared and will know your suspension set-up.*
- **Warning:** *The Mtn. Tamer is a high performance mountain sled back suspension. It has the ability to make extreme amounts of adjustments to the point of damaging results. The listed tuning and set-ups are for Ski-Doo XP sleds only. Know the limits of adjustability for your Mtn. Tamer suspension. There is no warranty on damage that is caused by tuning results.*
- Timbersled slide rails are mandatory for this kit.
- It is recommended that you install Timbersled Heavy-Duty drop brackets (TSP-1055-1), due to the added stress that the Mtn. Tamer suspension puts on the tunnel and brackets. If you do not, in time, this will result in broken drop brackets and bent running boards where the brackets attach. Timbersled Products Inc. is not liable for this.
- *All bolts that thread into aluminum cross-shafts will need to have blue Loctite on the threads and will need to be torqued to 55 foot pounds.*

#### **Tear Down:**

1. Loosen the track and remove the back 2 suspension bolts first, and then remove the front bolts. Lift the back of the sled up high enough so that you can remove the back suspension from the sled.
2. Remove the back axle and wheel assembly. Remember the order that they went on. These are the only parts you will need from the stock skid.

#### **Installing the Front Arm:**

3. Install the new limiter straps with the 3 new provided aluminum strap guide spacers onto the new provided cross-shaft. Longest spacer will go in the middle.
4. Install new assembled shaft onto new slide rails using 3/8"x1 1/4" long bolts with lock washers only.
5. Install the front arm use 3/8 x 1 1/4" long bolts with lock washers only.
6. **IMPORTANT!** Identifying the front and back shock. The 2 shocks are the same length, but they do not have the same internal valving. Each shock has a number located at the top of the black air body.  
**Front Shock # 951-99-071 / Back Shock # 952-99-071.**
7. **Installing the front shock:** First insert the provided shock bushings into the bottom end of the shock. Use a rubber hammer to knock them in. Grease the inside of the bushing and the new provided shock cross-shafts. Install the shaft into the shock bushing. Note, one of the shock alignment collars has an "X" on it; this collar is pre-set in the right location so that the shock is centered on the shaft. Slide the other collar on and squeeze the two together with your fingers with the shock in the middle. Tighten the set-screw down tight enough so that you can feel the end of the set-screw sink into the aluminum shaft. Use red Loctite on the set-screw threads.
8. Place the shock assembly in the slide rails using 3/8"x1 1/4" long bolt and lock washer only.
9. Place rubber O-rings and Heim reducers into the top side of the shock, then attach it to the suspension arm using 3/8"x 2" long bolt and nylock nut (no washer needed). Note, the air body will go on top with air valve facing the front.

**10. Front arm set-up:** Limiter strap setting and front shock air pressure will depend on your sled's set-up. Refer to the set-up sheet. If your sled is stock, the recommended starting point is the standard end hole in 6<sup>th</sup> adjustment hole down on limiter strap with 55 psi in front shock. Note, there is no need for more or less air pressure for heavy or light riders.

### **Installing the Back Arm:**

11. Install the back arm and shock in the same sequence as you did with the front arm and shock with air valve facing the front, using the desired hole in the slide rails. Refer to the set-up sheet. Note, for deep snow riding and boondocking use rearward holes. It is recommended that you only put 40 PSI in the back shock at this time; this will make it easier for installing it into the sled.
12. Install the 2 provided upper idler wheels onto the back arm cross-shaft. Use a rubber hammer to knock them on if they do not go on freely. Secure the wheels with the provided snap-ring. Due to the taper on the end of the shaft you can simply push the snap-ring on with your fingers without having to use any tools. Note, if you are using aftermarket idler wheels in this spot, they must be no less than 5-1/2" diameter. If they are any smaller, the track will rub the top of the back shock when the suspension is compressed and will permanently damage it.
13. Install the back axle and wheel assembly in the same sequence as you removed it.
14. **Note,** if you're going to use Timbersled Heavy-Duty drop brackets, install them at this time. The brackets have two optional mounting locations. Either will work on the Mtn. Tamer but it is recommended that you use the upper hole. This will give you the best performance.

### **Installing the Suspension:**

15. With the sled lifted up high enough so that the tunnel will clear the suspension, slide the suspension into the track.
16. Bolt in the suspension using new 3/8"x1 1/4" long bolts with flat washers and lock washers. Note, bolt in the front arm first. To bolt in the back arm you will need to pull the back arm down to bring it into alignment with the drop bracket bolt holes.
17. **Back arm set-up:** The back shock air pressure will depend on rider weight, and rider style. Riders under 200 pounds start at 130 psi. Riders 250 pounds start at 145 psi. Riders 300 pounds use forward mounting hole, start at 155 psi. Refer to the set-up sheet for more shock and slide mechanism tuning on turbo sleds.
18. Use a hand-operated grease gun with quality water-proof bearing grease and pump each grease zerk full until you see it coming out of both ends of the cross shafts. Push up and down on the suspension a few times then re-grease all zerks again.
19. Readjust the track to the factory specs.



**Should you have any problems during installation, please call (208) 255-5644**

# **Ski-Doo XP Mtn. Tamer Suspension Adjustments & Set-Up**

***Warning:*** *The Mtn. Tamer is a high performance mountain sled back suspension. It has the ability to make extreme amounts of adjustments to the point of damaging results. The listed tuning and set ups are for Ski-Doo XP sleds only. Know the limits of adjustability for your Mtn. Tamer suspension. There is no warranty on damage that is caused by tuning results.*

## **Understand How the Mtn. Tamer Suspension Works:**

The biggest benefits of the Mtn. Tamer design is that it puts even pressure on the snow between the front and back portion of the suspension. This is achieved by our rear arm slide mechanism and the mounting position of the shocks. The slide mechanism couples the back portion of the suspension to the front at a specific spot in the range of travel. At this point the suspension will travel straight up into the tunnel, reduce the track angle, and applying the sleds weight toward the front, pulling it on top of the snow.

## **Knowing the 5 Adjustment Points on the Suspension:**

**1<sup>st</sup> Limiter Strap:** The limiter straps are only adjustable from one end (the top). The lower end must be fastened around the limiter strap cross shaft and in-between the 3 alignment spacers. The strap has 10 adjustment holes in the middle of the strap. At the top end of the strap there are 2 other holes to choose from. The hole that is closest to the end of the strap is the standard adjusting hole. The hole that is 3" down from the end of the strap is an optional hole that will give the strap 10 coarser adjustments (works well on high-horse power sleds).

**2<sup>nd</sup> Optional Shock Mounting Locations (for back shock only):** Rearward hole mounting location: In this position the suspension will have a softer progression of spring rate threw out the range of travel. This will work the best for good ride quality and all around deep powder riding.

Forward hole mounting location: In this position the suspension will be 30% stiffer and will have a stiffer progression threw out the range of travel. This will work well for more aggressive riders and making more affective adjustments on turbo charged sleds.

**3<sup>rd</sup> Float Shock Air Pressure:** Note: In your installation instructions are recommended air pressure set-ups for rider weight. Your kit includes an air pump to adjust the spring rate of the shock. To do this, lift up the back end of the sled, remove the silver air valve-cap (be very careful that you do not get any moisture inside the air valve). Thread the pump onto the valve-stem until you feel the pump pressure up, you will be able to see the pressure on the gauge. Also keep in mind that when the pump pressures up the shock looses 4 psi. When you unthread the pump you will hear it release air but will not affect the exact pressure you gave it. When tuning your suspension it is best to change air pressure in increments of 10 psi at a time. The Mtn. Tamer shocks have specific air pressure range that they must run in so that you do not damage the suspension

**Shock Pressure Ranges:** ***Front shock, 40 psi. Min. and 95 psi Max***

***Back shock, 120 psi Min. and 175 psi Max***

***Warning:*** *If your suspension is bottoming out you need to stop and readjust. If you are unable to make the shocks perform properly you need to stop riding and contact us for assistance. Damage will occur if you ignore the problem.*

**4<sup>th</sup> & 5<sup>th</sup> Back Arm Slide Mechanism:** The slide mechanism has 2 adjustment points by adding or removing aluminum shims that are included in the kit.

**1<sup>st</sup>** you can adjust the sleds rear ride height by adding a shim onto the top side of the slide mechanism. This works well for fine tuning the amount of ski pressure your sled has on the trail without jeopardizing the amount of ski lift when climbing.

**2<sup>nd</sup>** you can adjust how much suspension couples by adding a shim to the bottom side of the slide mechanism. In conjunction with the limiter strap, this controls how much ski lift your sled will have.

The Slide Mechanism has a maximum and minimum shim capacity.

**Top Side of Slide:** ***0" Min. and 1/2" Max***

**Bottom Side of Slide:** ***0 Min. and 3/4" Max***

## Ski-Doo XP Recommended Set-Ups:

The given set-ups are intended to control ski lift and have been tested with a 200 lbs rider. They are a good starting point to go by; however, every rider has a different liking and will need to fine tune the suspension from these set-up points.

**Normally Aspirated Sled** *Slide shims:* No shim on bottom & 0" shim on top  
**(Up to 160 HP)** *Front shock:* 55 psi.

*Back shock:* 130 psi. In rearward hole  
*Limiter strap:* 6<sup>th</sup> hole down, using standard end hole on strap

**Turbo Sled, 4 psi of boost** *Slide shims:* ¼" shim on bottom & 0" shim on top  
**(Up to 190 HP)** *Front shock:* 55 psi.

*Back shock:* 130 psi. In rearward mounting hole  
*Limiter strap:* 8<sup>th</sup> hole down, using standard end hole on strap

**Turbo Sled, 8 psi of boost** *Slide shims:* ½" shim on bottom & ¼" shim on top  
**(Up to 210 HP)** *Front shock:* 45 psi.

*Back shock:* 140 psi. In rearward mounting hole  
*Limiter strap:* 10<sup>th</sup> hole down, using standard end hole on strap

**Turbo Sled, 10 psi of boost** *Slide shims:* ¾ shim on bottom & ½" shim on top  
**(Up to 230 HP)** *Front shock:* 40 psi.

*Back shock:* 150 psi. In rearward mounting hole  
*Limiter strap:* 8<sup>th</sup> hole down, using optional end hole on strap

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## **Suspension Maintenance:**

- Check shock air pressure once a month.
- Grease all zerks 3 times per year using quality water-proof bearing grease.
- Re-tighten all bolts after first ride and each year.
- Re-tighten inner air-valve needle after 5 rides (special tool needed, Can be purchase at any hardware store).
- Shock oil change and service is recommended every 2000 miles (Timbersled offer this service).

## **Warranty:**

Timbersled Products inc. warranty's all products of its own manufacture against defects in materials and workmanship for a period of one (1) year from the date of purchase. Replacement and / or repair warranty is valid only if all terms and conditions are met.

1<sup>st</sup> Timbersled Products inc. requires notification prior to replacement of any part under this warranty.

2<sup>nd</sup> Replacement and / or repaired parts will be supplied upon receipt of defective parts.

3<sup>rd</sup> Timbersled Products inc. shall have no obligation under this warranty if:

- Buyer fails to notify Timbersled Products inc. of any possible defect.
- Product is improperly installed.
- Product is used in an application other than its original intent.
- Buyer continues to use product after product malfunction.

The obligation of Timbersled Products inc. is limited to replacement and / or repair of defective products only for the period of time as stated above. Timbersled Products inc. has no other obligation or liability for any other injury or damage resulting there from.

**Should you have any additional tuning questions, please call (208) 255-5644**