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## **Mtn. Tamer Back Suspension Fit Kit: P-1800-53 (P-65-A)**

### **Installation Instructions: Arctic Cat M-Series, 2007 / 153 & 162 track**

#### **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. Note: pictures below are taken from older model kits; some details will have a different appearance on newer style kits.
- ***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 Arctic Cat M-Series sleds only. Know the limits of adjustability for your Mtn. Tamer suspension. There is no warranty on damage that is caused by tuning results.
- When installing do not alter any of the given measurements. Use Sharpie ultra fine tip marker or ball point ink-pen to accurately make your measurement marks
- Use very sharp drill-bits so that they do not walk to the side or cut elongated holes. It is recommended that you always center-punch your marks first.
- 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 track.
2. Remove the 2 upper idler wheels from the back arm. They will be re-used on the new back arm. To do this, remove the snap-ring that holds the wheel onto the bearing. Tap the wheel off the bearing using a rubber hammer. Remove the bearing using a 2-armed puller. You will be re-using them on the new suspension arm so you will need to reinstall the bearing back into the wheel.
3. It is optional to remove all the small unnecessary idler wheels from the slide rails. We recommend that you do this for maximum weight loss. Running ice scratchers in their place is mandatory.
4. Remove the front and back portion of the suspension from the rails. These 2 assemblies can be removed as a complete unit; you do not need to disassemble them.

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

5. Remove and discard limiter straps and cross-shaft assembly. Re-drill holes to 25/64". 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.
6. Install new assembled shaft onto rails using new 3/8"x1/4" long bolts with lock washers only.
7. Remove the front rubber bottom-out pads and relocate them 2-1/2" forward on the slide rail, use a 5/32" drill bit to drill a new hole in the slide rail. You will also need to sand off the underside of the bottom-out pads at a 45 degree angle because it will be in the way of the limiter strap cross shaft bolts. **See Fig. 1**
8. Install the new front suspension arm onto the slide rails using new 3/8"x1/4" long bolts with lock washers only.
9. **Drilling new bolt holes in the slide rails to mount the front shock. Hole Location:** The rails will have 2 mounting locations for the shock, the first set of holes are the factory holes. The second set will need to be drilled. Measure 1 1/4" straight forward from the center of the factory hole and mark this spot. Then place a provided 3/8" flat washer on the bottom slot of the slide rail; place it up against the lip that sticks out. Mark the center of the hole and put a good center punch on your mark, drill the holes using a 25/64" drill bit.

10. **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.**
11. **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.
12. Place the shock assembly in the slide rails and into the reward set of mounting holes using new 3/8"x1¼" long bolt and lock washer only.
13. Place rubber O-rings and Heim reducers into the top side of the shock, then attach it to the suspension arm using the new 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.
14. **Front arm set-up:** Limiter strap setting and front shock air pressure will depend on your sleds set-up. Refer to the set-up sheet. If your sled is stock, the recommended starting point is standard end hole in 7<sup>th</sup> adjustment hole down on limiter strap with 80 psi in front shock. Note, there is no need for more or less air pressure for heavy or light riders.

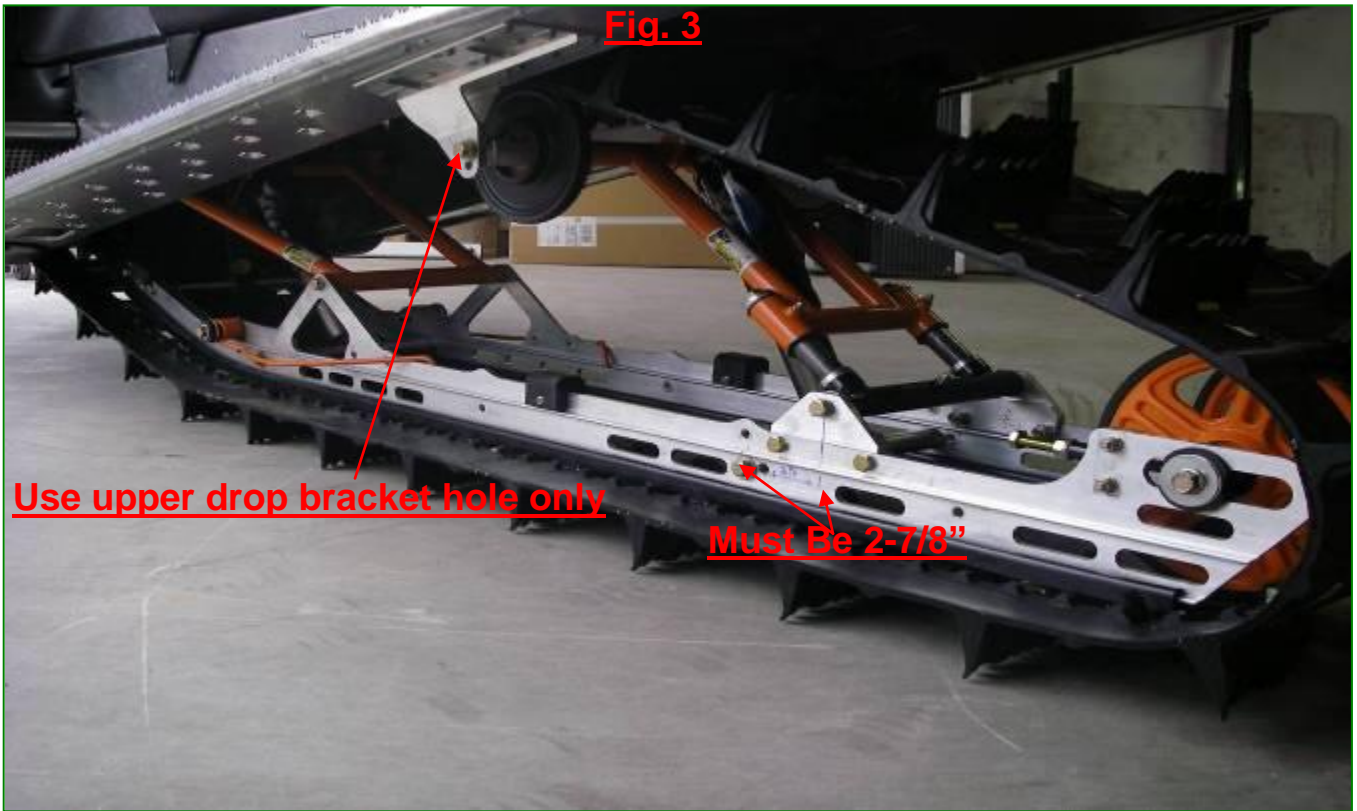
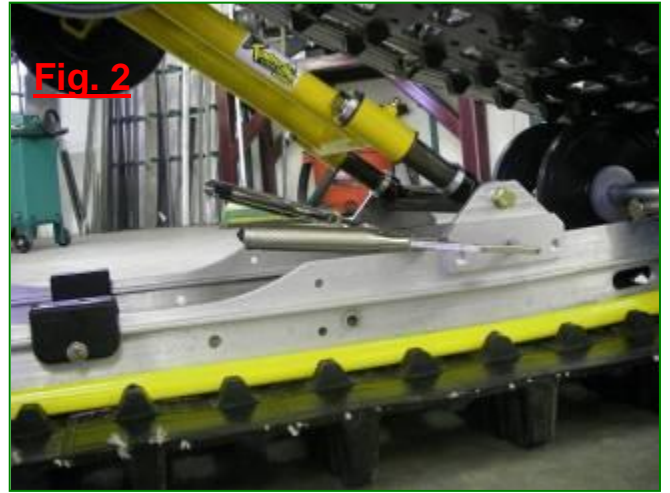
### **Installing the Back Arm:**

15. **Mounting the rail adapters:** Place the rail adapter so it sets flush on the rail along the top edge with the mass of the bracket on the outside so that you can use the rail adapter as a jig to drill the bolt holes. Measure 27" from the center of the front arm bolt hole to the center of the back arm bolt hole on the rail adapter. Clamp it tight to the slide rail. Drill the two 25/64" holes in the rails (no pilot hole is need). Remove the clamp and turn the rail adapter to the inside of the rail and bolt it on using new 3/8"x1" long bolts and nylock nuts (no washers needed). **See Fig. 2 & 3**
16. **Drill new bolt hole in the slide rails for mounting the back shock. Hole Location:** Use a small ruler and draw a line straight down from the center of the front arm bolt hole. Measure 2-7/8 straight forward from this point and mark a spot on the lower portion of the slide rails. Then place a provided 3/8" flat washer on the bottom slot of the slide rail; place it up against the lip that sticks out. Mark the center of the hole and put a good center punch on your mark, drill the holes using a 25/64" drill bit. **See Fig. 3**
17. **Important:** Remove the 2 bolts on the back Mtn. Tamer arm that hold the slide mechanism together. Install a provided ¼" thick aluminum slide shim onto the top side of the slide mechanism. Note, this will make the arm slightly shorter, this is mandatory for use with the factory slide rails.
18. 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, 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.
19. Install the 2 upper idler wheels onto the back arm cross shaft. Secure the wheels with the provided snap-ring. Note, if you are using aftermarket idler wheels in this spot, they must be no less than 5-1/2" diameter.

### **Installing the Suspension:**

20. With the sled lifted up high enough so that the tunnel will clear the suspension, slide the suspension into the track.
21. Bolt in the suspension using new 3/8"x1¼" 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. Note: it is mandatory that you use the upper hole in the drop bracket. Never use the lower hole; if you do, it will break the drop bracket. **See Fig. 3**
22. **Back arm set-up:** The back shock air pressure will depend on rider weight, and rider style. Riders under 200 pounds start at 140 psi. in rearward shock mounting hole. Riders 250 pounds start at 165 psi. in reward shock mounting hole. Riders 300 pounds start at 160 psi. in forward shock mounting hole. Refer to the set-up sheet for more shock and slide mechanism tuning on turbo sleds.
23. 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.
24. Readjust the track to the factory specs.

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



# A/C M-Series 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 Arctic Cat 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:** 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: 1/4" Min. and 1/2" Max**

**Bottom Side of Slide: 0 Min. and 1/4" Max**

## A/C M-Series Recommended Set-Ups:

The given set-ups are intended to control ski lift and have been tested with a 200lbs 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 & ¼" shim on top  
(Up to 180 HP) *Front shock:* 80 psi. In rearward mounting hole  
*Back shock:* 140 psi. In rearward hole  
*Limiter strap:* 7<sup>th</sup> hole down, using standard end hole on strap

**Turbo Sled, 7 psi of boost** *Slide shims:* No shim on bottom & ¼" shim on top  
(Up to 220 HP) *Front shock:* 75 psi. In rearward mounting hole  
*Back shock:* 145 psi. In rearward mounting hole  
*Limiter strap:* 9<sup>th</sup> hole down, using standard end hole on strap

**Turbo Sled, 10 psi of boost** *Slide shims:* ¼" shim on bottom & ¼" shim on top  
(Up to 250 HP) *Front shock:* 55 psi. In forward mounting hole  
*Back shock:* 160 psi. In rearward mounting hole  
*Limiter strap:* 10<sup>th</sup> hole down, using standard end hole on strap

**Turbo Sled, 12 psi of boost** *Slide shims:* ¼" shim on bottom & ½" shim on top  
(Up to 280 HP) *Front shock:* 50 psi. In forward hole  
*Back shock:* 130 psi. In forward mounting hole  
*Limiter strap:* 8<sup>th</sup> hole down, using optional end hole on strap

**Turbo Sled, 14 psi of boost** *Slide shims:* ¼" shim on bottom & ½" shim on top  
(Up to 325 HP) *Front shock:* 40 psi. In forward hole  
*Back shock:* 140 psi. In forward mounting hole  
*Limiter strap:* 10<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**