Timbersled Products
416 Larkspur St.
Ponderay, ID. 83852

Web Site: timbersled.com **Phone:** (208) 255-5644
E-mail: info@timbersled.com **Fax:** (208) 255-5924

TSS Fit Kit Installation Instructions
Timbersled Snow Bike System

Information needed before you start:

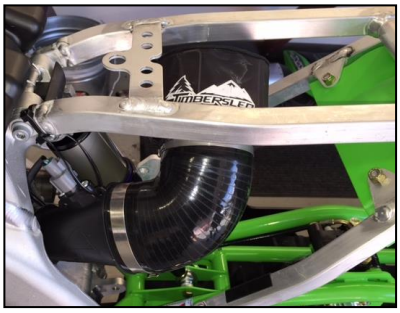
- Read the entire installation instructions before starting.
- The instruction sheet is universal for all bikes using the Timbersled Suspension Strut (TSS) Fit Kit mounting system.
- Fits Timbersled ST and LT models that are 2011 - 2016 and 2016 SX models.
- Note: The TSS Fit Kit will **NOT** fit the 2012 - 2015 and older SX models.
- The TSS Fit Kit system will **ONLY** fit the listed bikes on the Fitment Info Sheet.
- See the Fitment Info Sheet for proper part location.
- See the Fitment Info Sheet for proper engine sprocket size.
- Clean and grease all parts as you assemble.
- All bolts and nuts on the Timbersled snow bike system are U.S. Standard/SAE.

Motorcycle Rear Disassembly:

1. Place a stand under the bike to hold it up and balance it (an adjustable stand is helpful for reassembly).
2. Remove the seat, side panels, frame guards, and exhaust silencer (will be reinstalled).
3. Remove the air filter, roost guard, chain, upper and lower chain rollers and chain guides from bike frame (will not be reinstalled).
4. Remove the foot-brake master cylinder and lever from the bike frame.
5. Remove the upper shock bolt from frame (will be reinstalled).
6. Remove the suspension linkage bolt from the frame if your bike has one (will not be reinstalled).
7. Remove the swing arm pivot bolt (will be reinstalled).
8. Remove the shock, tire, brake, and swing arm assembly from the bike as a complete unit Note: It is recommended that you zip tie all pivoting points so that you do not lose any parts during storage (will not be reinstalled).
9. Remove the front brake line from handlebar master cylinder (master cylinder and banjo bolt will be reinstalled).
10. Note: Do not remove the front tire yet. You will do this later during the install process.

Air-Box Removal or Air-Box Modification:

11. To install your snow bike system with the TSS Fit Kit system the bikes stock air-box will need to be removed on some bikes and modified on others to make clearance for the added suspension movement with the TSS. The new provided Timbersled Deep Snow Intake System will take place of the stock air box.
12. ***Bikes without a battery in the air box:***
    a. Remove the air box completely from the bike.
    b. Unplug the air temp intake sensor.
    c. Remove the bikes rear sub-frame and unbolt the air-box with the intake plenum still attached to the air box. Note: Some bikes will have a plastic trim-part riveted to the side of the air-box. It is optional but this part can be removed and re-riveted to the side panel to make your bike look complete once everything is re-assembled.



    d. Once the air box is out you can reinstall the bike rear sub frame.
    e. On some bikes you will need to reattach the rear fender to the sub frame by using the 2 stock bolts that were threaded into the air box. 2 nuts will be needed to re attach. Note: Nuts are not provided with your Fit Kit.

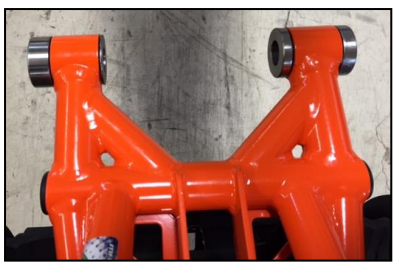
13. ***Bikes with a battery inside the air box:***
    a. Unplug the air temp intake sensor.
    b. Remove the crank case breather hose from the intake plenum and route it so that it is pointing downward so that snow and water do not run into it. Secure the hose in place with zip ties.
    c. Loosen the intake plenum throttle body hose clamp.
    d. Remove the intake plenum from the bike. You can do this by simply pulling it out with your hands.
    e. Remove the intake sensor from intake plenum. Note: You will reinstall the intake sensor into the new intake system later on in the assembly process.
    f. Modify the air box by cutting the bottom section out.
    g. Draw cut line on your air box.
    h. Plug the throttle body and exhaust pipe so that shavings do not get in them.
    i. Use a roto-zip blade mounted in a Dermal Tool to free hand cut the plastic section out.
    j. Test fit the new intake system. Note: See Air Intake System Install below for proper orientation. You may need to cut a little more to achieve clearance around the air filter. Once test fitted remove the intake; final install will be later in the assembly process.
    k. Clean the cut edge with a die-grinder and deburr as needed.
    l. Clean all shavings from the bike.




Installing the Frame Bushings and Spacer/Reducers:

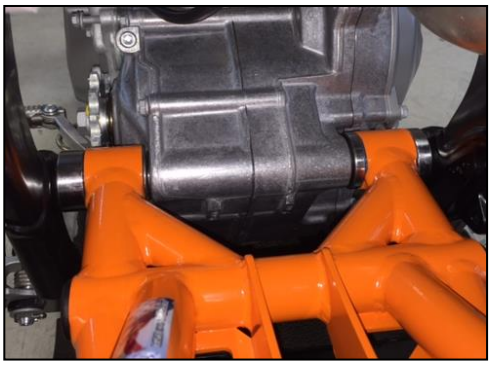
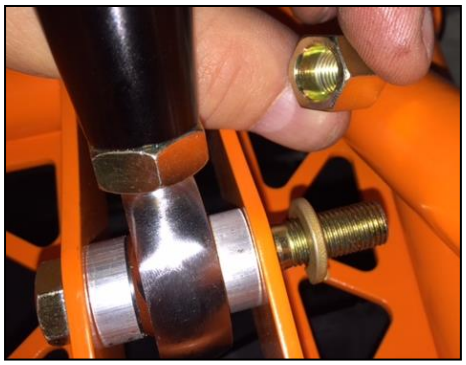
14. Before you can install your snow bike system on the bike you will need to install the provided pivot bushings and fit kit spacer/reducers.
15. Knock the bushings into each of the front eyelet holes on the frame using a plastic or rubber hammer. The bushing is going to be a little short and will need to be centered in the hole so that the reducer O-rings can seal the eyelet. You can use a slightly smaller diameter socket with a hammer to tap the bushing so that it is properly centered.
16. Test fit the spacer/reducer into the bushings to check fit, they should slide in smoothly. If they are tight, the bushings will need to be sized. To do this, use a 7/8" drill bit. Slide the drill bit all the way through the bushing before spinning it. Place your drill in high range and spin the drill bit. It should easily cut the plastic smoothly without chattering. Hone the bushing with the drill until the spacer/reducer has a precision fit. Note: If you are installing this onto a 2016 kit then the fit should be good without the need to resize the bushing. If you are installing this onto a 2011 - 2015 kit then the bushing will more than likely need to be sized.
17. To locate the spacer/reducer positioning see the included Fitment Info Sheet. Each of the frame spacer/reducers will have a part number stamped on the end that will be its reference number on the Fitment Info Sheet to show their location.
18. Install the spacer/reducers into their proper location. To do this, first verify that there is an O-ring on each of them. Put a coating of grease on the inside of the bushing and the outside of the spacer/reducer and install them into the frame. They should slip in without interference.



Installing the Snow Bike Track System:

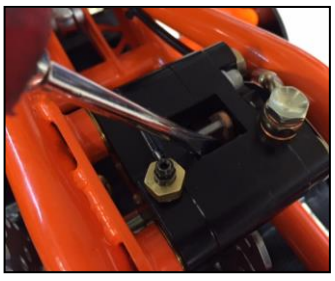
19. Push the snow bike track assembly into bike between the engine and the frame. It will be a snug fit due to the O-rings holding the spacers out. It will squeeze in as you firmly push the assembly into place. Visually make sure everything looks correct and is aligned properly.
20. Install the previously removed swing arm pivot bolt and nut. Torque the nut to 75 ft.-lbs.
21. Install the aluminum spacer/reducers into the TSS shock. They are color coated with a Red or Yellow marking to identify their location. For quick reference the Red reducer/spacers will be located in the adjustable rod-end and the Yellow spacer/reducers will be located into the shock body end. For further reference, see the Fitment Info Sheet for locations.
22. Install the TSS onto the bike and Snow Bike kit. Insure that the TSS shock is correctly oriented with the shock body toward the top and air valve cap toward the bottom. First place the adjustable end of the TSS into the lower snow bike kit bracket using the supplied bolt, lock washer, and nut. Note: The nut has a counter bored end so it will fit over the shoulder of the bolt that comes through the bracket. Insure that this is assembled properly. Tighten the nut and bolt. Place the shock body end into the bike frames shock mounting bracket and install the original bolt and nut. Torque to 55 ft-lbs.


Brake System Installation:

23. There are 2 possible ways to hook up the brake system. (1) Hook it up to the stock handlebar front brake master cylinder or (2) hook up to the stock foot brake master cylinder. We recommend using the hand brake since the foot brake may get buried in the snow and be difficult to operate.
24. ***Handbrake installation:*** Route the supplied 5' brake line up to the handlebar and connect it to the factory master cylinder using the stock banjo bolt and sealing washers. Secure the line with zip ties so it does not touch the exhaust or anything that will damage it. Note: The brake line has 2 different bends on the banjo fittings; if the brake line does not fit your master cylinder with ease you can swap ends for a better bend angle to fit your bike.
25. ***Footbrake installation***: Remove the stock foot brake line from the swing arm and rear caliper. Attach it to the snow bike caliper. Route the line in the most uniform fashion.
26. ***Bleeding the brake system*:**
    a. Using a medical style syringe with hose, suck all of the fluid out of the master cylinder.
    b. Remove the bleed screw from the caliper and gently blow compressed air into the caliper bleed hole until you see both pistons push the brake pads out touching the brake disk.
    c. Reinstall the bleed screw so that you can open and close it with your fingers.
    d. Fill the syringe using Dot-4 brake fluid and place the hose on the caliper bleed screw while holding it onto the bleed screw with your fingers, open the bleed screw and push fluid into the system with the syringe until you see the master cylinder is full.
    e. Close the bleed screw and tighten.
    f. Pull and release the brake lever many times. While doing this, you will see small bubbles rising out of the master cylinder and start to feel some brake pressure. Lean the bike to the left and right side while pulling and releasing the brake lever. You will continue to see bubbles coming out the top of the master cylinder. Do this until you stop seeing bubbles. It may take a while.
    g. Bleed the brake the traditional way down at the brake caliper. Pump the brake a few times. At this point your brake pressure will feel fairly good
    h. Push both brake pads back using a flat blade screw driver; be careful to not overflow the master cylinder. This may push some more air bubbles out the top of the master cylinder. Re-pump up the brake, your brake lever should feel more solid.
    i. Repeat steps "G" and "H" as many times as needed to get a firm lever feel. You will know when your brake is bled free of any air because the brake lever will feel solid when you pull it.
    j. Once the brake is fully bled fill your master cylinder full of fluid so that when you put the cap on it overflows.

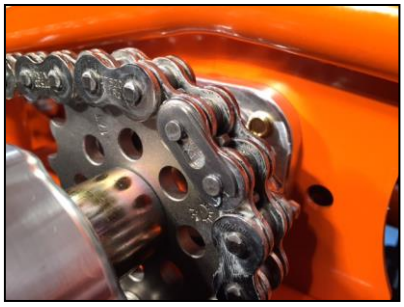


Installing the Engine Chain:

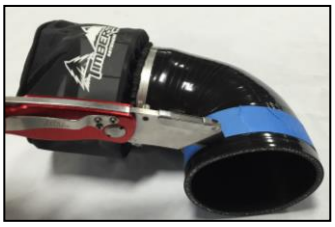
27. See the Fitment Info Sheet for proper engine sprocket size for your make/model of bike. This is important to achieve proper chain adjustment.
28. On some bike models in order to fit the wider supplied O-ring engine chain, the engine sprocket may need to be removed and turned around or require a supplied spacer placed behind the engine sprocket to provide more clearance between the chain and engine case. See the Fitment Info Sheet for info.
29. Install the engine chain with master link by wrapping the 2 ends of the chain around the jack shaft sprocket. Thoroughly grease the master link pins and O-rings with the supplied grease before installing. If the chain is too tight to get the master link in, compress the rear suspension slightly by having someone sit on the seat or by letting the air out of the TSS shock. Install the O-rings and outer plate by placing it on the pins and pressing it together with pliers. Install the retaining clip so that it is facing backwards of rotation.
30. Adjust the chain so that it is tight to the touch. Note: This is required due to the chain becoming looser when the TSS suspension is compressed.

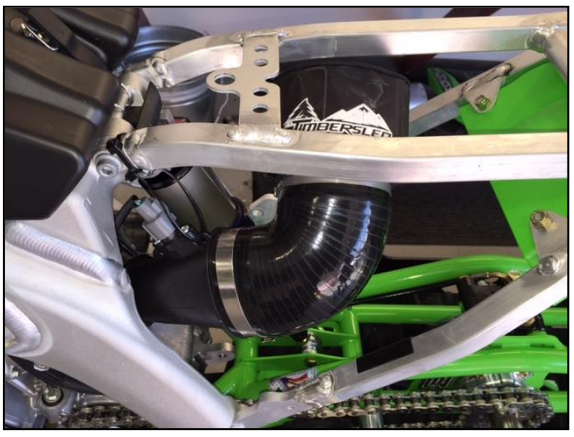




Air Intake System Install:

31. The supplied Intake system is designed for snow use **ONLY**. This system is universal for all EFI dirt bikes that have the throttle body on the back side of the engine. Note: On carbureted bikes a correct size adapter is available through Timbersled.
32. Install your air temp intake sensor into the oval center adapter by using the 2 supplied screws. Insure that the factory O-ring is still in place for a proper seal. Note: On carbureted bikes, plug the sensor hole with the supplied press in plug. Install the plug by taping it in with a punch and hammer. Insert the plug so it is below the surface 1/8".
33. Install intake system so that air filter is located as high as possible and pointing toward the Right-hand side of the bike. To accomplish this each of the rubber hoses has an angle built into them. With this you are able to rotate the components on the oval shaped center adapter to clock the air filter to its best fitting location. Also, if needed you can trim the hoses shorter to make a better fit. For cutting hose: wrap tape around the hose where you want the cut line to be. Then use a sharp box cutter to cleanly cut the hose.
34. Once everything is set, insure that the center oval shaped adapter is vertical for max clearance between the TSS shock and bike frame and that the filter is not touching anything that could rub a hole in it. Also insure that it is not to close to the exhaust where it could burn a hole in the filter. Secure all 3 hose clamps at this time.
35. Note: A zip tie can be used to help support the intake system if needed. Use the supplied holes that are next to the intake sensor.
36. Plug in the air temp intake sensor and route the wiring as needed.



Finish up work on back end of bike:

37. Reinstall the exhaust system and frame guards if your bike has them.
38. Reinstall the side panels, seat, and needed engine chain guards.
39. Grease the back suspension using quality water-proof synthetic bearing grease.
40. Important: Do not grease the drive bearings at this time. They are full of grease from the factory. (See pictures next page)

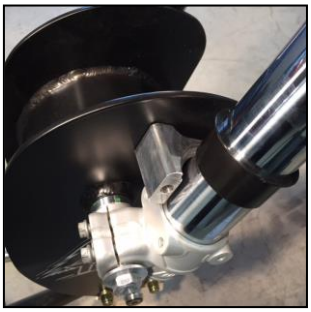


Front End Disassembly:

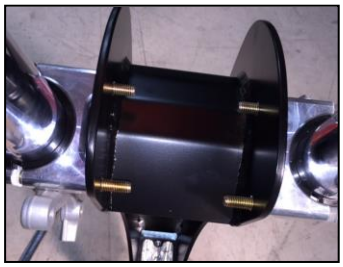
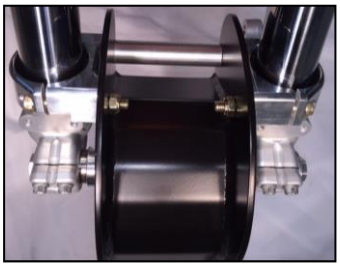
41. Remove the front brake system from forks (will not be reinstalled).
42. Remove the axle nut. Loosen the axle bolt clamps and remove the axle bolt (will be reinstalled).
43. Remove the wheel from the bike (will not be reinstalled).
44. Remove the fork guards (will be reinstalled).

Spindle Install:

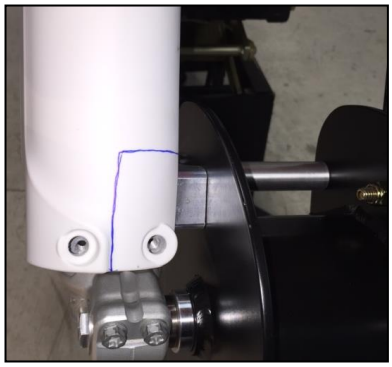
45. Install the spacer/reducers into the left and right side of the spindle cross tube. Note: Some models have a 3 piece setup with a spacer/reducer on the left hand side with a tube style spacer that will fit into the center of the spindle and a washer style spacer on the right hand side. See the Fitment Info Sheet for proper location.
46. Slide in the stock axle bolt (unless the fit kit is supplied with one) with the spindle assembly in place and install the nut. Do not tighten any of the front end fasteners.
47. **Installing the fork clamps:**
    a. Place both fork clamps onto the fork tubes with the fork seal relief groove facing up.
    b. Slide both fork clamps (less fork clamp cap) down between the spindle and fork tubes. Position them as low as possible.
    c. Install the plastic split bushing onto the fork tubes above the clamps with the bushing flange on the top. Slide the bushing down into the fork clamps so that bushing flange is all the way down inside the relief groove.
    d. Note: The Timbersled spindle is universal for all models of bikes. To make it fit, 4 holes will need to be drilled in the spindle to install the fork clamp bolts.
    e. For proper placement rotate the spindle until the back of the fork clamp is 1/8" away from the back edge of the spindle. This will properly set the correct amount of trailing the ski will have in relation to the axle bolt. Note: to help hold the spindle in place while you work on it you can snug of the axle nut and set the spindle on the ground. You can then tap the spindle back and forth to get the correct positioning.
    f. Important: Before drilling insure that the left and right fork clamps are sitting as low as possible and are at the same height on both sides. Slide the brake-side clamp down as low as it will go first, then match other side. Once in position drill a 21/64" hole through the spindle, using the fork clamps as a guide. After each hole is drilled slide a bolt in. This will insure that nothing moves as you drill the others. Once all 4 holes are drilled thoroughly clean all metal chips away making sure there are no metal fragments between the fork tubes, bushing, and clamps.
    g. Place the fork clamp caps onto the fork tube with bolts in place. Note: Use the two 2 ½" long bolts and nuts on the front portion of the clamps and the two longer 2 ¾" long bolt on the rear. On the back fork clamp bolts you will use the included cross shaft that the 2 3/4" bolts will thread into. This cross shaft will fit in-between the ears of the spindle and will provide support to the assembly. Torque the front and back bolts evenly to 18 ft.-lbs.
48. Tighten the axle bolt nut and clamps. Torque the axle nut to 60 ft.-lbs. / Torque the axle clamp bolts to 12 ft.-lbs.



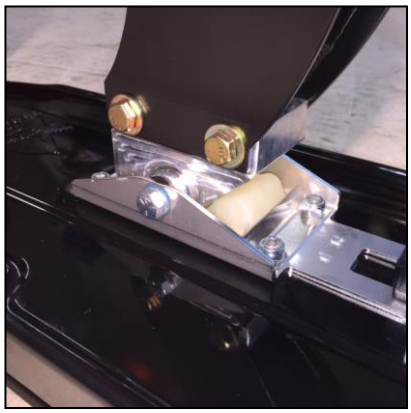


49. ***Reinstalling the fork guards:*** It is optional to reinstall the fork guards. To do this you will need to modify them to fit around the fork clamps. First hold the fork guard up into place and free hand draw a line where they will need to be cut. Use tin snips to cut out this portion of the fork guards. Install them on the bike using only the two outside screws. The inside screws will not be used due to the portion being cut away.



50. ***Install the ski onto the spindle:*** First make sure that the thick side of the ski rubber is toward the front. Adjust the bike so that the spindle bottom is slightly higher than the ski. Place the ski under the spindle and lift up on the front of the ski to pull it up into place. Note: it will be a tight fit between the ears of the ski bracket. Push the bolt through and install a lock washer on each side of the bolt. Torque the nut to 50 ft.-lbs.


TSS Shock Tuning Information:

51. The TSS suspension system is intended to work in harmony with the in track rear suspension creating a dual rear suspension feel that is unique to the Timbersled snow bike. It is not intended to have a soft squishy feel like the stock motorcycle rear suspension. It is important to not try and tune it to feel this way. For maximum suspension performance follow the tuning instructions.
52. The TSS shock is preset from the factory with 250 psi. This is tuned best for 150 lbs. to 200 lbs. riders.
53. Your kit includes a 300 psi Fox Float air pump to adjust the spring rate and preload of the TSS shock. Your shock has a sticker on it with the air pressure tuning parameters and recommendations to best fit your body weight. Note: The TSS shock can handle much higher pressures than the pump reads. At this time Timbersled does not have a pump that reads higher than 300 psi.
54. To adjust, first take the weight off the shock by lifting the bike from under the engine or tipping it on its side. Remove the silver valve-cap and thread the pump onto the valve-stem until the pump pressures up. You will see the supplied pressure on the gauge. When the pump pressures up the shock instantly loses 10-12 psi from the volume it takes to fill the pump hose (you will need to compensate this when checking your pressures). When you unthread the pump you will hear it release air but it will not affect the exact pressure you gave it. When tuning your TSS shock it is best to change the air pressure in increments of 25 psi at a time. Note: when tuning the TSS shock be very careful not to get snow or water inside the valve stem. This can cause the shock to leak air out of the valve.
55. For a more refined tuning method the TSS shock has an O-ring on the outer shock body. This O-ring is intended to be a gauge to show how much travel you are using. The TSS shock has a max travel distance of 1.5” to bottom out. It is recommended that the targeted amount of shock travel used is 1-1/8” of stroke. Tune in increments of 25psi to accomplish correct calibration. Note: Once you have made an adjustment slide the O-ring back up and ride for approximately 10 minutes before rechecking your shock travel distance.