



POLARIS®

TIMBERSLED®

2019
OWNER'S MANUAL
TIMBERSLED® ST 93 RIPPER

IMPORTANT NOTICE TO OWNERS

Read, understand, and follow all of the instructions and safety precautions in this manual and on all product labels.

Failure to follow the safety precautions could result in serious injury or death.

WARNING

Read, understand, and follow all of the instructions and safety precautions in this manual and on all product labels.

Failure to follow the safety precautions could result in serious injury or death.

WARNING

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.



For videos and more information about a safe riding experience with your Polaris vehicle, scan this QR code with your smartphone.



2019 Owner's Manual

ST 93 RIPPER

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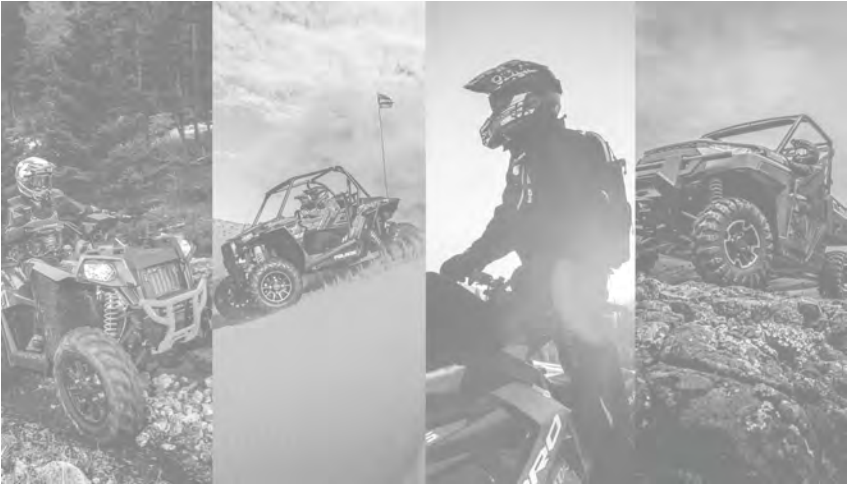
EK® is a copyright trademark of Enuma Chain Mfg. Co., Ltd.

The original instructions for this vehicle are in English. Other languages are provided as translations of the original instructions.

Printed in U.S.A.

2019 Timbersled Owner's Manual

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Thank you for purchasing a POLARIS vehicle, and welcome to our world-wide family of POLARIS enthusiasts. Be sure to visit us online at www.polaris.com for the latest news, new product introductions, upcoming events, career opportunities and more.

Here at POLARIS we proudly produce an exciting line of utility and recreational products. We believe POLARIS sets a standard of excellence for all utility and recreational vehicles manufactured in the world today. Many years of experience have gone into the engineering, design, and development of your POLARIS vehicle, making it the finest machine we've ever produced.

- Snowmobiles
- All-terrain vehicles (ATVs)
- Low emission vehicles (LEVs)
- *RANGER*® utility vehicles
- BRUTUS® work vehicles
- SLINGSHOT® three wheel motorcycles
- RZR® sport vehicles
- GEM® vehicles
- INDIAN® motorcycles
- POLARIS POWER® generators
- POLARIS DEFENSE® combat vehicles
- Timbersled® Snow Bikes

For safe and enjoyable operation of your vehicle, be sure to follow the instructions and recommendations in this owner's manual. Your manual contains instructions for minor maintenance, but information about major repairs is outlined in the POLARIS Service Manual and can be performed by a factory certified Master Service Dealer® (MSD) technician.

Your POLARIS dealer knows your vehicle best and is interested in your total satisfaction. Your POLARIS dealership can perform all of your service needs during, and after, the warranty period.

WELCOME

The following signal words and symbols appear throughout this manual. Your safety is involved when these words and symbols are used. Become familiar with their meanings before reading the manual.

 **WARNING**

WARNING indicates a hazardous situation that, if not avoided, **may** result in death to the operator, bystanders or person(s) inspecting or servicing the vehicle.

 **CAUTION**

SAFETY ALERT CAUTION indicates a potential hazard that may result in minor personal injury or damage to the vehicle.

CAUTION

CAUTION indicates special precautions that must be taken to avoid vehicle damage or property damage.

NOTICE

NOTICE provides key information by clarifying instructions.

IMPORTANT

IMPORTANT provides key reminders during disassembly, assembly, and inspection of components.

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INTRODUCTION

IMPORTANT NOTES FOR OWNERS AND DRIVERS

After reading this manual, store it with the snow bike for convenient reference. It should remain with the vehicle when it is sold.

Some of the illustrations and photos used in this manual are general representations. Your model may differ.

Follow the maintenance program outlined in this manual. Preventive maintenance ensures that critical components of the snow bike are inspected at specific mileage intervals. This service can be performed by your authorized Timbersled dealer.

You and your dealer must complete the registration form included with your vehicle and forward it to us. This form should be completed at the dealership upon purchase, and is necessary to ensure warranty coverage.

Protect and preserve your right to ride by joining your local trail riding clubs.

When teaching inexperienced operators to ride, set up a predetermined course for practice. Make sure they know how to drive and control the vehicle before allowing them to make longer trips. Teach them proper riding courtesy, and enroll them in driver's training and safety courses sponsored by local or state organizations.

PRESERVATION OF THE ENVIRONMENT

Timbersled is committed to supporting an environmental education campaign. We encourage state and provincial governments across the snowbelt to adopt rigorous safety training programs that encourage protection of our environment, including wildlife and vegetation.

Clubs and other organizations are working together to protect our environment. Please support their efforts and operate your snow bike with consideration for the protection and preservation of our environment.

INSTALLATION

See your local Timbersled dealer for installation instructions and accessory attachments.

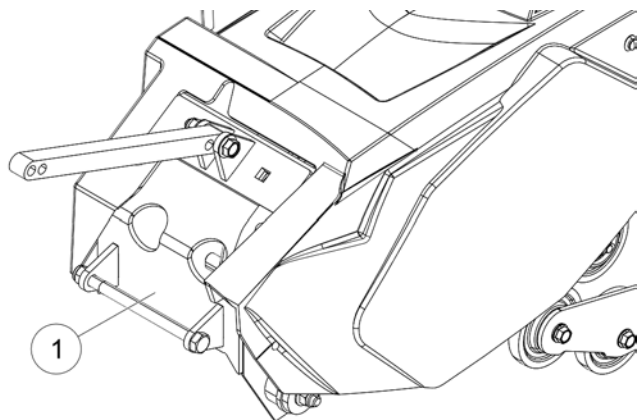
INTRODUCTION

VEHICLE IDENTIFICATION NUMBERS

Record your Timbersled's serial number in the spaces provided.

NOTICE

If installing an aftermarket tunnel wrap, do not cover the tunnel serial number with the wrap. If the tunnel wrap doesn't provide an opening for the label, remove the section of wrap where the label is located.



① Serial Number

SERIAL NUMBER:	
----------------	--

SAFETY

OPERATOR SAFETY

Follow the recommended maintenance program on page 33 to ensure that all critical components on the snow bike are thoroughly inspected at specific intervals outlined in the Periodic Maintenance Chart. Your dealer can perform this service.

WARNING

Driving a snow bike requires your full attention. **DO NOT** drink alcohol or use drugs or medications before or while driving or riding as a passenger. They will reduce your alertness and slow your reaction time.

Snow bikes are capable of traveling at high speeds. Use extra caution to ensure operator safety. Make sure your snow bike is in excellent operating condition at all times. Always check major and vital safety components before every ride.

All Timbersled snow bikes are designed and tested to provide safe operation when used as directed. Failure of critical machine components may result from operation with any modifications, especially those that increase speed or power. **DO NOT MODIFY YOUR MACHINE.** The snow bike may become aerodynamically unstable at speeds higher than those for which it is designed.

Loss of control may occur at higher speeds. Modifications may also create a safety hazard and lead to bodily injury.

HOST BIKE

The Timbersled Snow Bike system is designed to be attached to a variety of host bikes. Read and understand your host bike's operation manual and follow all safety and maintenance information. Failure to do so could result in serious injury or death.

STAY CLEAR OF TRACK

Your snow bike is propelled by a revolving track that must be partially exposed for proper operation.

WARNING

Serious injuries may result if hands, feet, or clothing become entangled in the track. Be alert when riding, and remain properly seated to stay clear of the track. Never hold the snow bike up or stand behind it while warming up the track. A loose track or flying debris could cause serious injury or death. We recommend having your dealer perform all track service and alignment procedures.

SAFETY

RIDING POSITION

Operating a Timbersled requires skill and balance for proper control. Rider positions may vary with experience and the features available on some models, but under many conditions the proper position is to be seated with both hands on the handlebar grips for proper throttle, brake, and steering control. See your host bike's owners manual for proper riding position.

WARNING

Improper riding position may reduce control and could result in serious injury or death. Always ride in a position that allows for control of your vehicle.

RIDER CAPACITY

This Timbersled is designed for a single rider only. Never carry a passenger on this vehicle.

RIDING APPAREL

HELMET

Wearing a helmet can prevent a severe head injury. Whenever riding a Timbersled vehicle, always wear a helmet that meets or exceeds established safety standards.

Approved helmets in the USA and Canada bear a U.S. Department of Transportation (DOT) label.

Approved helmets in Europe, Asia and Oceania bear the ECE 22.05 label. The ECE mark consists of a circle surrounding the letter E, followed by the distinguishing number of the country which has granted approval. The approval number and serial number will also be displayed on the label.

EYE PROTECTION

Do not depend on eyeglasses or sunglasses for eye protection. Whenever riding a Timbersled vehicle, always wear shatterproof goggles or use a shatterproof helmet face shield. Timbersled recommends wearing approved Personal Protective Equipment (PPE) bearing markings such as VESC 8, V-8, Z87.1, or CE. Make sure protective eye wear is kept clean.

CLOTHING

Be prepared, be warm and be comfortable when riding. Be aware of the weather forecast, especially the windchill, and dress accordingly. See page 21.

WARNING

Avoid wearing loose clothing or long scarves, which can become entangled in moving parts and cause serious injury. Always wear an approved helmet and eye protection.

SURVIVAL PREPARATION

For your safety, always ride in a group. Always tell someone where you're going and how long you expect to be gone. If it isn't possible to ride with others, and you must travel into remote areas, always carry survival equipment that's appropriate to the conditions you may encounter. Such equipment may include, but is not limited to: extra clothing, a sleeping bag, a flashlight, food and water, a signaling mirror, a means of building a fire, and a two-way radio or cellular telephone.

Always carry the owner's manual on your snow bike. For added protection, purchase and carry the following items on your snow bike as well:

- Extra Set of Spark Plugs
- Spare Drive Chain
- Tow Rope
- Spare Chain Case Chain (if equipped)
- Extra Oil
- Trail Map
- Fuel Deicer
- First Aid Kit
- Winter Survival Kit
- Tool Kit

EXCESSIVE SPEED

WARNING

High speed driving, especially at night, could result in serious injury or death. Always reduce speed when driving at night or in inclement weather.

Always observe all state and local laws governing snow bike operation and speed limits. Always be alert and pay attention to the trail ahead. If your speed is 40 MPH (64 km/h), your snow bike is traveling about 60 feet (18 m) per second. If you look back for only two seconds, your snow bike will travel about 120 feet (36 m). If your speed is 60 MPH (96 km/h), your snow bike will travel about 180 feet (55 m) in two seconds.

Traveling at night requires extra caution. If your host bike is equipped with a headlight, check headlight and taillight to ensure proper operation, and don't over-drive your headlight beam. Always be able to bring your snow bike to a stop in the distance illuminated by the headlight.

SAFETY

DRIVER AWARENESS

Slow down when traveling near poles, posts, or other obstacles. Be especially alert if you're snow biking after dark. Always be on the alert for wire fences.

Single strands are especially dangerous, since there may be a great distance between posts. Guy wires on utility poles are also difficult to distinguish.

Make sure the way is clear before crossing railroads and other roads and highways. The noise of your snow bike will drown out the sound of approaching vehicles. Look ahead, behind, and to both sides before turning or crossing railroad tracks or highways. Steep embankments may also hide your view. Always leave yourself a way out.

Variances in snow depth and/or water currents may result in uneven ice thickness. You may drown if you break through the ice. Never travel on frozen bodies of water unless you have first verified that the ice is sufficiently thick to support the weight and moving force of the snow bike, you and your cargo, together with any other vehicles in your party. Always check with local authorities and residents to confirm ice conditions and thickness over your entire route. Operators assume all risk associated with ice conditions on frozen bodies of water.

When teaching inexperienced operators to ride, set up a predetermined course for practice. Make sure they know how to drive and control the snow bike before allowing them to make longer trips. Teach them proper snow bike courtesy, and enroll them in driver's training and safety courses.

DISABLED OPERATORS

Safe operation of this rider-active vehicle requires good judgement and physical skills. Operators with cognitive or physical disabilities have an increased risk of loss of control, which could result in serious injury or death.

MOUNTAINOUS TERRAIN RIDING

Mountainous terrain operation, even for experienced riders, can present conditions and situations that could result in serious injury or death. Please review all of the information about riding in mountainous terrain on the following pages of this manual.

WARNING

An avalanche can occur at any time, in any conditions and on any slope.

The avalanche information provided in this manual should be considered basic information and is not intended to replace your participation in an avalanche safety training course. After reviewing the avalanche information in this manual, be sure to participate in an avalanche safety training course before riding in mountainous terrain. The training course will provide more information as well as the opportunity to practice riding and using proper search and recovery techniques.

For more information, education, training courses, and links to international resources, visit www.avalanche.org or scan the QR code with your smartphone or other device.

GET THE SAFETY GEAR

In addition to carrying a spare belt, spark plugs and tools on each snow bike, each person in your riding group should wear the recommended snow bike riding apparel and carry (on their person) the following survival items when riding in mountainous terrain:

- A digital avalanche beacon with new “fresh” alkaline batteries
- An avalanche probe
- A compact shovel and hand saw
- A backpack (preferably an avalanche air bag backpack)
- Emergency provisions, including the following items:
 - Small first aid kit
 - Extra pair of gloves
 - Extra dry socks
 - Tow rope, map, compass/GPS
 - Lighter or waterproof matches
 - Signal mirror and whistle
 - Bottled water
 - High calorie snack food
 - Compact emergency blanket
 - Cell phone
 - Radio

GET TO KNOW YOUR SAFETY GEAR

Following the safety gear and apparel recommendations will increase your chances of survival if you encounter an avalanche or become stranded in the backcountry, but even experienced and properly-equipped snow bikers, hikers and skiers perish in avalanches or succumb to hypothermia. Using a beacon or probe for the first time during an avalanche recovery operation, or not knowing how to deploy your avalanche air bag backpack during a slide, should be considered UNACCEPTABLE to you and all members of your riding group. It's critical that you *and all members of your riding group* know how to use the safety gear.

While you may know how to use your gear, you may have to rely on your riding group to find you in an avalanche. Make sure they know how to use their gear.

- Dress in layers. Multiple layers of clothing provide the best barrier to cold and wind. Layers can be removed, but if you start out without enough layers, they cannot be added later. Avoid cotton materials, which will freeze if they get wet.
- Wear highly visible gear.
- Try on all gear and equipment to make sure it fits and doesn't interfere with your riding capabilities. Place all survival aids in your backpack and wear the backpack at all times. Non-essential items can be stored on the snow bike in an accessory bag.
- Read and follow the manufacturer's user and maintenance instructions for all gear. If you have questions about how your gear works, contact the manufacturer for more information.
- Practice using your beacons, shovels and probes with your riding group in real-world conditions wearing all of your gear. Have someone hide an active "transmitting" beacon by throwing it (not walking it) into a snowbank and timing your group's search for it.
- Test deploying your gear. If you own an avalanche air bag backpack, check with the manufacturer's test deployment guidelines and bottle weight replacement specifications. Most air bag backpack manufacturers recommend testing the pack once a year so you know it works and feel comfortable with the bag and deployment time.
- Make sure your probe and shovel are in good condition and that you know how to assemble them.

GET THE PICTURE

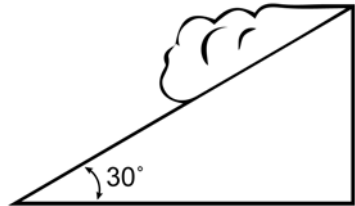
Slopes steeper than 30° are more prone to avalanches, but any slope should be considered avalanche terrain, even small slopes with trees. Low-angle slopes are also avalanche terrain if they have steeper slopes above them.

NOTE

The 30° slope graphic is for illustration purposes only. The risk of an avalanche is always present in mountainous terrain, regardless of slope angle.

Always look for the following warning signs of unstable snow. If you see or hear any of these signs, riding on or below any slope is dangerous and should be avoided:

- Recent avalanches
- A “whumpfing” sound under a snowpack
- Cracks across the top of a snowpack
- A recent heavy snowfall
- Blowing snow
- Rain
- Rapid warming



GET OUT OF HARM'S WAY

- Before riding, always tell a responsible person (i.e. at the lodge or gas station) where your group is going.
- Never ride alone. Always ride in a small, manageable group. Riding in a large group makes it more difficult to track riders or find missing members.
- Go “one at a time”. Only one snow bike at a time should cross, ascend or highmark a slope. Other riders should watch from a safe location until the previous rider exits the slope.
- Never park at the base of a slope or at the bottom of a gully or valley. When parking to take a break or watch other riders, park at the sides of the slope with the front of your snow bike pointed away from the slope.

SAFETY

GET THE FORECAST

Make a riding plan based on the current avalanche and weather forecast. It is important to remember that overnight weather conditions may have created unsafe riding terrain that was considered safe the day before. Visit www.avalanche.org or scan the QR code. Follow the page links to locate current avalanche reports and conditions for your area of operation.



GET AVALANCHE SAFETY TRAINING

Timbersled recommends you and all members of your riding group participate in an avalanche safety course. Visit www.avalanche.org/education or scan the QR code for education and training resources.








AVALANCHE AWARENESS

Avalanches are a matter of timing. A steep slope can be safe one day, but unsafe the next day due to changing weather and wind conditions.

- Always review the user instructions provided with your safety equipment and follow the recommendations for maintenance, testing and use. Always test your safety equipment to ensure it works properly before riding in mountainous terrain.
- Always store your survival gear in your backpack and wear the backpack. Do not store your survival gear on the snowmobile.
- Always research current avalanche conditions in your area of operation before riding. Check with local law enforcement, resort or lodging personnel, gas station attendants and other riders to learn about current conditions and any advisories in the area.
- Read and understand the avalanche danger scale. Pay attention to any danger level warnings issued for your area of operation.
- Always remain alert while riding in mountainous terrain. Be aware of snowpack conditions above you as you ride. Avalanches can occur at any time regardless of current condition reports.

North American Public Avalanche Danger Scale

Avalanche danger is determined by the likelihood, size and distribution of avalanches.

DANGER LEVEL		TRAVEL ADVICE	LIKELIHOOD OF AVALANCHES	AVALANCHE SIZE AND DISTRIBUTION
5 Extreme		Avoid all avalanche terrain.	Natural and human-triggered avalanches certain.	Large to very large avalanches in many areas.
4 High		Very dangerous avalanche conditions. Travel in avalanche terrain <u>not</u> recommended.	Natural avalanches likely; human-triggered avalanches very likely.	Large avalanches in many areas; or very large avalanches in specific areas.
3 Considerable		Dangerous avalanche conditions. Careful snowpack evaluation, cautious route-finding and conservative decision-making essential.	Natural avalanches possible; human-triggered avalanches likely.	Small avalanches in many areas; or large avalanches in specific areas; or very large avalanches in isolated areas.
2 Moderate		Heightened avalanche conditions on specific terrain features. Evaluate snow and terrain carefully; identify features of concern.	Natural avalanches unlikely; human-triggered avalanches possible.	Small avalanches in specific areas; or large avalanches in isolated areas.
1 Low		Generally safe avalanche conditions. Watch for unstable snow on isolated terrain features.	Natural and human-triggered avalanches unlikely.	Small avalanches in isolated areas or extreme terrain.
<p>Safe backcountry travel requires training and experience. You control your own risk by choosing where, when and how you travel.</p>				

SAFETY

ICE AND SNOW BUILD-UP

WARNING

Ice and snow build-up may interfere with the steering and braking of your snow bike, resulting in serious injury or death. Keep the snow bike free of snow and ice.

Before driving, manually turn the ski to the left and right to be sure ice and snow are not interfering with full left and right steering. If difficulty is encountered, remove ice and snow build-up that may be obstructing the steering.

DRIVING ON SLIPPERY SURFACES

WARNING

Never attempt an abrupt change of direction when operating on slippery surfaces. Proceed slowly and use extra caution. Driving on ice or hard-packed snow reduces steering and braking control, which may result in loss of control and serious injury or death. Slow down and use extra caution when operating on slippery surfaces.

INADEQUATE SNOW CONDITIONS

Driving in too little snow will result in excessive wear and damage to the front ski and skags. The ST 93 Ripper is designed to be ridden in inadequate snow conditions or no snow when the front ski is removed and front host bike wheel is installed.

OPERATING IN DEEP SNOW

If the snow bike becomes stuck in snow, clear the track and tunnel area of snow, then step down the snow in front of the snow bike so that when the throttle is opened, the snow bike will be able to climb up and over the snow.

DRIVING DOWNHILL

When riding downhill, shift your weight to the rear of the snow bike and reduce your speed to a minimum. Apply just enough throttle to keep the engine from stalling, allowing the engine's compression to help slow the snow bike and keep it from rolling freely downhill.

WARNING

When driving on long downhill stretches, pump the brakes. Riding the brakes may cause the brake system to overheat, which may result in brake failure. Excessive or repetitive use of the brakes for high speed stops will also cause an overheated brake system. This condition may lead to a sudden loss of brakes and/or fire and may result in serious injury or death.

DRIVING IN HILLY TERRAIN

WARNING

Climbing a hill or crossing the face of a slope may result in loss of balance and rollover, causing serious injury or death. Use caution and good judgement when driving in hilly terrain.

Use extra caution when operating in hilly terrain. If climbing a hill is unavoidable, keep your weight low and forward. If you must cross the face of a slope, keep your weight on the uphill side of the snow bike to maintain proper balance and avoid possible roll-over.

Slow down when reaching the crest of a hill. Be prepared to react to obstacles, sharp drops or other people or vehicles that may be on the other side of the hill.

If you're unable to continue up a hill, turn the snow bike downhill before it loses momentum. If this isn't possible, spin the track just enough to dig in to prevent it from rolling back down the hill. Stop the engine and set the parking brake (if equipped). Keeping away from the downhill side of the snow bike, pull the rear of the snow bike around and point the front end and skis downhill. Remount the snow bike, restart the engine, release the parking brake (if equipped), and descend the hill carefully.

COLD WEATHER DRIVE-AWAY

Whenever your snow bike has been parked for a length of time, especially overnight, always make sure the ski and track are loosened from ice and snow before attempting to drive. Apply the throttle with enough authority to put the snow bike into motion, but always operate within safety limits.

CAUTION

Reference host bike's owner's manual to insure bike is adequately prepared for cold temperature conditions.

SAFETY

MANEUVERABILITY

While much control and maneuverability is achieved through the steering system and ski, maximum control is achieved by the shifting of your body weight. Maneuverability will change for lighter operators.

DRIVING RESPONSIBLY

Every snow bike handles differently, and even the most docile conditions may become dangerous if operators drive improperly. If you're new to snow biking, acquaint yourself with the snow bike and with what it will and won't do under various conditions. Even seasoned drivers should spend some time getting the feel for a snow bike before attempting ambitious maneuvers.

- A snow bike depends on the rider's body position for proper balance in executing turns, traversing hills, etc. Always start on a smooth, level area to begin building your operating experience.
- Before allowing someone else to use your snow bike, know the extent of their operating skills. Check to see if they've taken a safety course and have an operator's certificate. For their protection, as well as yours, make sure they take a safety course. Everyone can benefit from the course.
- Don't "jump" your snow bike over large drifts or similar terrain. Jumping may injure your back because of spinal compression that could occur when the snow bike impacts the ground. The seat and suspension of your snow bike have been designed to provide protection under normal riding conditions. Your snow bike is not intended for this kind of use.
- Be courteous to oncoming traffic by dimming your headlights (if equipped) and reducing your speed.
- When traveling in a group of snow bikes, don't tailgate (follow too closely). Leave enough distance between snow bikes to provide ample stopping room and to provide protection from flying snow and debris. Allow even more distance when driving on slippery surfaces or when driving in darkness or other low visibility conditions. Be aware of any traffic around your vehicle. Drive defensively to avoid accidents.
- If equipped, remove the key from the ignition when you leave the snow bike unattended.

WINDCHILL/TEMPERATURE CHARTS

The following information is provided to help you determine when temperatures become dangerous for riding.

WINDCHILL CHART (°F)

Wind Speed in MPH	Actual Thermometer Reading (°F)																		
	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45	
	Equivalent Temperature (°F)																		
Calm	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45	
5	36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63	
10	34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72	
15	32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77	
20	30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81	
25	29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84	
30	28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87	
35	28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89	
40	27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91	
45	26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93	
50	26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95	
55	25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97	
60	25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98	
Frostbite in >>									30 min.	10 min.	5 min.								

WINDCHILL CHART (°C)

Wind Speed in Km/h	Actual Thermometer Reading (°C)																	
	5	2	-1	-4	-7	-10	-13	-16	-19	-22	-25	-28	-31	-34	-37	-40	-43	-46
	Equivalent Temperature (°C)																	
Calm	5	2	-1	-4	-7	-10	-13	-16	-19	-22	-25	-28	-31	-34	-37	-40	-43	-46
8	3	0	-4	-7	-11	-14	-18	-22	-25	-29	-32	-36	-39	-43	-46	-50	-53	-57
16	2	-2	-6	-10	-13	-17	-21	-24	-28	-32	-36	-39	-43	-47	-50	-54	-58	-62
24	1	-3	-7	-11	-15	-19	-22	-26	-30	-34	-38	-42	-45	-49	-53	-57	-61	-65
32	0	-4	-8	-12	-16	-20	-24	-28	-32	-36	-39	-43	-47	-51	-55	-59	-63	-67
40	-1	-5	-9	-13	-17	-21	-25	-29	-33	-37	-41	-45	-49	-53	-57	-61	-65	-69
48	-1	-5	-9	-13	-18	-22	-26	-30	-34	-38	-42	-46	-50	-54	-58	-62	-66	-70
56	-2	-6	-10	-14	-18	-22	-26	-31	-35	-39	-43	-47	-51	-55	-59	-64	-68	-72
64	-2	-6	-10	-15	-19	-23	-27	-31	-35	-40	-44	-48	-52	-56	-61	-65	-69	-73
72	-2	-7	-11	-15	-19	-23	-28	-32	-36	-40	-45	-49	-53	-57	-61	-66	-70	-74
80	-3	-7	-11	-15	-20	-24	-28	-33	-37	-41	-45	-50	-54	-58	-62	-67	-71	-75
88	-3	-7	-12	-16	-20	-24	-29	-33	-37	-42	-46	-50	-55	-59	-63	-67	-72	-76
96	-3	-8	-12	-16	-21	-25	-29	-34	-38	-42	-47	-51	-55	-60	-64	-68	-73	-77
Frostbite in >>									30 min.	10 min.	5 min.							

SAFETY

SAFETY LABELS AND LOCATIONS

Safety and warning labels have been placed on the vehicle for the operator's protection. Make sure the operator understands the information on all labels. If any label becomes illegible or comes off, contact your POLARIS dealer for a replacement. Replacement *safety* labels are provided by POLARIS at no charge. The part number is printed on the label.

The safety labels are located on the tunnel/cowling of your snow bike.

PROPER USE WARNING



WARNING

Prior to operation, read and understand Timbersled and OEM motorcycle owner's manuals and all warnings.

- ALWAYS wear a DOT approved helmet, eye protection, and protective clothing while operating this vehicle.
- Never carry a passenger.
- Before starting engine, check throttle and brake for proper operation.
- Reduce speed and use extreme caution when operating in unfamiliar terrain.
- Ensure that sprocket and track shrouds are in place and secure. Do not operate with shrouds removed.

Failure to follow these instructions could result in severe injury or death. If owners manual is missing contact Timbersled for a replacement.

TOWING WARNING

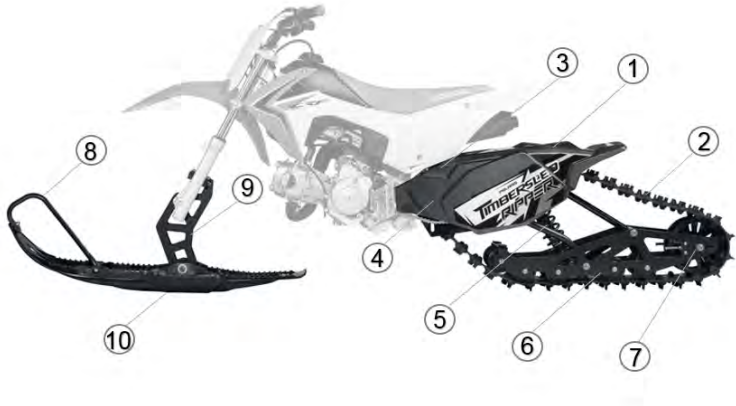
WARNING

NEVER pull or tow any person or object behind this Timbersled. Objects towed can easily collide with the rear of the track or other objects, resulting in severe injury or death.

NEVER sit on track tunnel. ALWAYS stay clear of track. Entanglement with track can cause severe injury or death.

FEATURES

COMPONENT LOCATIONS



- | | |
|----------------|--------------------------|
| ① Cowling | ⑥ Rail |
| ② Track | ⑦ Track Tensioning Block |
| ③ Brake System | ⑧ Ski |
| ④ Drive Chain | ⑨ Spindle |
| ⑤ Shock | ⑩ Ski Skags |

TOOLS

Timbersled recommends carrying a few tools to work on the snow bike kit when in the backcountry. These tools will take the entire snow bike kit apart.

- Wrenches: 8 mm, 10 mm, 13 mm, 14 mm, 15 mm, 16 mm, adjustable wrench.
- Torques: T25, T27, T30, T40
- Hex Keys: 4 mm, and 5 mm.
- Other Tools: flat blade screwdriver, pliers

PRE-RIDE INSPECTION**PRE-RIDE CHECKLIST**

Inspect all items on the checklist for proper operation or condition before each use of the snow bike. Procedures are outlined in the referenced sections.

ITEM	SEE SECTION
Steering System	page 27
Injection Oil Level	See Host Bike's Owners Manual
Ignition Switch	See Host Bike's Owners Manual
Headlight/Taillight/Brakelight	See Host Bike's Owners Manual
Suspension Mounting Bolts	page 36
Skags (Wear Bars)	page 40
Ski Saddle and Spindle Bolts	page 40
Track Alignment/Condition	page 38

PRE-RIDE INSPECTION

PRE-RIDE SUSPENSION INSPECTION

Loose nuts and bolts can reduce your snow bike's reliability and cause needless repairs and down time. Before beginning any ride, a visual inspection will uncover potential problems. Check the following items on a weekly basis or before any long trip.

ITEM	SEE SECTION
Check suspension mounting bolts for tightness.	-
Check rear idler wheel bolt for tightness.	page 38
Check rear idler adjusting bolt locknuts for tightness.	-
Check torque arm limiter strap condition.	-
Check track tension.	page 41
Check ski runner/skag condition.	page 40
Check ski spindle bolts for tightness.	-

BEFORE STARTING THE ENGINE

Before starting the engine, reference your host bike's owner's manual for engine starting process and safety warnings.

WARNING

Operating the vehicle with worn, damaged, or malfunctioning components could result in serious injury or death. Never start the engine without checking all vehicle components to be sure of proper operation.

READ AND UNDERSTAND YOUR OWNER'S MANUAL

Read your Timbersled owner's manual, as well as your host bike's owner's manual, completely and refer to it often. The manual is your guide to safe and enjoyable experience.

STEERING SYSTEM

WARNING

Ice and snow build-up may interfere with the steering of your snow bike, resulting in serious injury or death. Keep the vehicle free of snow and ice.

Before driving, manually turn the ski to the left and right to be sure ice and snow are not interfering with full left and right steering. If difficulty is encountered, remove ice and snow build-up that may be obstructing the steering linkage or front ski and skags.

Ensure fork clamps, spindle and ski bolts, and front axle bolt are torqued properly.

BRAKES

Always check the following items for proper operation before starting the engine.

BRAKE LEVER TRAVEL

Squeeze the brake lever. It should move no closer to the handgrip than 1/2 inch (1.3 cm). A smaller distance indicates low brake fluid level or air in the hydraulic system. Your dealer can assist.

LEVER FEEL

If the brake lever feels "spongy" when squeezed, check the brake fluid level and condition.

WARNING

Continued use of "spongy" brakes may cause a complete loss of brakes, which could result in serious injury or death. Always have the brakes serviced at the first sign of sponginess.

NOTICE

To gain 100% braking performance, Timbersled recommends performing 20–50 stop cycles of the Timbersled Brake System before first ride. Brake cycles should be performed at a slow controlled speed in a flat, open environment. Starting the snowbike and engaging it into gear, allow the track to spin 3–5 full rotations. Apply moderate pressure to the brake until the track is completely stopped and is no longer spinning. Repeat as necessary.

OPERATION

BREAK-IN PERIOD

SNOW BIKE SYSTEM BREAK-IN

Break-in Function	Engine Run Time	Description
Chain: Drive and Chain Case	3 hours	Lubricate
Chain (Drive and Chain Case) Deflection	3 hours	Check Tension
Brake Line Connections	3 hours	Check for leaks
Track Tension	3 hours	Check Tension
Swing Arm Bolt	3 hours	Re-Torque
Strut Rod Bolts	3 hours	Re-Torque
Front Axle	3 hours	Re-Torque
Ski Bolt	3 hours	Re-Torque

Drive with extra caution during the break-in period. Perform regular checks on fluid levels, lines, and all other important areas of the snow bike.

TRACK WARM-UP

 **WARNING**

A loose track or flying debris could cause serious injury or death. Stand clear of the front of the snow bike and the moving track. Never hold the snow bike off the ground or stand behind it while warming up the track. Do not use excessive throttle during warm-up or when the track is free-hanging. Use a stable rear support.

OPERATION

WARNING

Use of traction products such as studs, ice growers, etc. will increase the possibility of track damage and/or failure. This could cause loss of control, resulting in serious injury or death. Always inspect for track damage before operating the snow bike.

Follow these steps to ensure proper warm-up of the engine, drive train and track.

1. Use an appropriate stand to securely support the rear of the snow bike at the rear bumper. The track should be about 4 inches (10 cm) off the ground.
2. Start the engine and allow it to warm up two to three minutes.
3. Engage the throttle abruptly and allow the track to rotate several revolutions.

TIP

It will take longer to warm up the track sufficiently during colder outdoor temperatures.

4. Release the throttle, apply the brakes, shut off the engine and lower the snow bike to the ground.
5. Grasp the ski by the front loop and move it from side to side to loosen snow and ice.

FUEL STORAGE

WARNING

Gasoline is highly flammable and explosive under certain conditions.

- Always exercise extreme caution whenever handling gasoline.
- Always follow the safety procedures outlined in your host bike's owner's manual.
- Always refuel outdoors or in a well-ventilated area.
- Always turn off the engine before refueling.
- Do not overfill the tank. Do not fill the tank neck.
- Do not smoke or allow open flames or sparks in or near the area where refueling is performed or where gasoline is stored.
- If gasoline spills on your skin or clothing, immediately wash it off with soap and water and change clothing.
- Never start the engine or let it run in an enclosed area. Engine exhaust fumes are poisonous and can cause loss of consciousness or death in a short time.

FUEL RECOMMENDATION

See host bike owner's manual for fuel recommendation.

NOTICE

Operating with obstructed fuel systems will result in serious engine damage. Perform maintenance as recommended. Prolonged exposure to petroleum based products may damage paint. Always protect painted surfaces when handling fuel.

DAILY STORAGE

At the end of each ride, park the vehicle on a level surface and support it at the rear with an appropriate track stand. The track should be suspended approximately 4 inches (10 cm) off the ground.

Remove the key (if applicable) and cover the vehicle.

MAINTENANCE

HOST BIKE MAINTENANCE

For host bike maintenance procedures and recommendations, refer to your host bike's owner's manual. The maintenance information found in the manual only applies to the Timbersled Snow Bike system.

TIMBERSLED RECOMMENDED MAINTENANCE PROGRAM

Always follow recommended regular maintenance and perform service checks as outlined in this manual. Record maintenance and service in the Maintenance Log.

The recommended maintenance schedule on your vehicle calls for service and maintenance inspections at 150 miles (240 km), 500 miles (800 km) and 1000 miles (1600 km). These inspections should be performed by a qualified service technician. For continued optimum performance and component life, continue maintenance checks at 1000 mile (1600 km) intervals.

All necessary replacement parts and labor incurred, with the exception of authorized warranty repairs, become the responsibility of the registered owner. If, during the course of the warranty period, part failures occur as a result of owner neglect in performing recommended regular maintenance, the cost of repairs are the responsibility of the owner.

Personal safety is critical when attempting to service or make adjustments to your vehicle. If you're not familiar with safe service or adjustment procedures and the use of tools, or if you don't feel comfortable performing these tasks yourself, your authorized Timbersled dealer can provide any needed service.

NOTICE

Hot components can cause damage to plastic. Always make sure the exhaust system and engine have cooled before tipping the vehicle on its side for service or inspection.

NOTE

Timbersled recommends changing the oil in your host bike more frequently that stated in the host bike's owners manual.

MAINTENANCE

PERIODIC MAINTENANCE INTERVAL TABLE

The following chart is a guide based on average riding conditions. You may need to increase frequency based on riding conditions. When inspection reveals the need for replacement parts, always use genuine Timbersled parts, available from your Timbersled dealer.

I - INSPECT (CLEAN, ADJUST, TIGHTEN, LUBRICATE, REPLACE IF NECESSARY) C - CLEAN, R - REPLACE, L - LUBRICATE					
ITEM	FREQUENCY				
	150 MI. (240 KM)	500 MI. (800 KM)	1000 MI. (1600 KM)	2000 MI. (3200 KM)	PRE- SEASON
BRAKES					
Hose Routing					
Hose Condition					
Fluid Leaks					
Brake Pads					
Brake Disc					
Brake System					
Brake Fluid					
FUEL MANAGEMENT					
Air Box/Air Intake					
CHASSIS					
Suspension Mounting Bolts					
Steering Fasteners					
Rear Suspension Fasteners					
Ski Saddle/Spindle Bolts					
Drive Chain Tensioner					
Rear Wheel Idler Bolt					

I - INSPECT (CLEAN, ADJUST, TIGHTEN, LUBRICATE, REPLACE IF NECESSARY) C - CLEAN, R - REPLACE, L - LUBRICATE					
ITEM	FREQUENCY				
	150 MI. (240 KM)	500 MI. (800 KM)	1000 MI. (1600 KM)	2000 MI. (3200 KM)	PRE- SEASON
Idler Bolt Jam Nut					
Track Alignment					
Track Tension					
Fork Clamp Bolts					
Swing Arm Bolts					
Strut Rod Bolt					
Front Axle Bolt					

LUBRICATION

CHAIN LUBRICATION

Lubricate the chains every 8 to 10 hours of operation. We have found that the use of Maxima Chain Wax for O- ring chains works best. It is recommended to lift the track off the ground. Start the bike and put it into first gear and let the clutch out allowing the drive system to spin. Slowly spray lube directly onto the chain rollers and O-rings, soaking the chain. This will allow good penetration into the moving chain parts.

EXHAUST SYSTEM

For exhaust system inspection procedures, see your host bike's owner's manual.

CAUTION

Hot exhaust system parts can cause burns. Allow adequate time for the exhaust system to cool. Never perform this procedure with the engine running.

SUSPENSION

SUSPENSION MAINTENANCE

The following procedure should be performed regularly to properly maintain the suspension of your snow bike.

1. Adjust the track only if it starts to skip on the drivers. This sometimes happens with new tracks after they have been run. Proper track tension should be 1/2 to 3/4" free hang from the top of track clip to the bottom of the track at its lowest hanging point. Adjust equally on both sides for the track to run true.

BRAKES

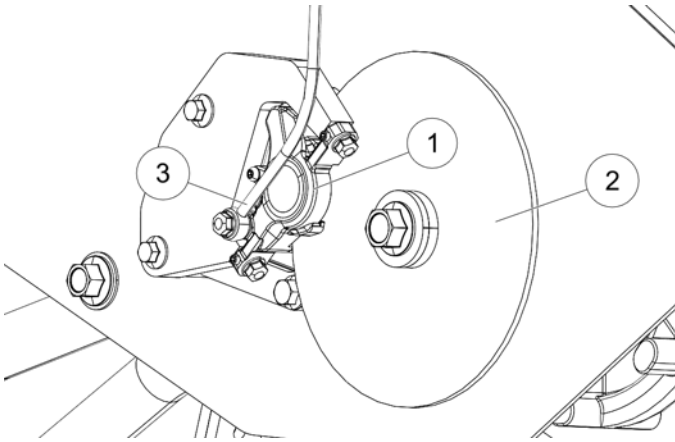
HYDRAULIC BRAKE INSPECTION

Inspect the brake lever reserve before each use of the snow bike. See page 27.

Brake pads must be replaced when the brake pad material becomes thinner than 1/16 inch (1.5 mm). A kit is available for replacing brake pads. Your Timbersled dealer can assist.

WARNING

Brake failure during operation can result in serious injury or death. Properly functioning brakes are vital to your safety. Be sure the brake pads do not drag on the disc and that brake lever travel is not excessive. Always replace brake pads when the brake pad material becomes thinner than 1/16 inch (1.5 mm).

BRAKE COMPONENTS

- ① Brake Caliper
- ② Brake Disc
- ③ Brake Line

EXCESSIVE LEVER TRAVEL

Hydraulic brakes are self-adjusting, but if excessive brake pad clearance develops, bring the snow bike to an authorized Timbersled dealer for inspection and adjustment.

MAINTENANCE

BRAKE FLUID

The brake fluid level can be seen through a plastic sight glass in the brake reservoir. If the fluid is sufficient, the sight glass will be black. If the sight glass is any color other than black, add brake fluid.

Replace brake fluid at least every two years with DOT 4 high temperature brake fluid, or an equivalent product.

WARNING

After opening a bottle of brake fluid, always discard any unused portion. Never store or use a partial bottle. Brake fluid is hygroscopic, meaning it rapidly absorbs moisture from the air. The moisture causes the boiling temperature of the brake fluid to drop, which can lead to early brake fade and the possibility of accident or serious injury.

WARNING

Keep the master cylinder cover free of dirt and debris. The vent slits allow for diaphragm movement, and if they become plugged, movement of brake fluid below the diaphragm may be restricted, altering brake function.

NOTICE

Brake fluid will damage labels, paint and some plastics. Always wipe up spills immediately.

TRACK INSPECTION

1. Using a hoist, safely lift and support the rear of the snow bike off the ground.
2. Rotate the track by hand to check for damage.
3. Carefully examine the track along the entire length of each rod. Bend the track to check for breakage.
4. Replace the track if any rod damage is found.

WARNING

Broken track rods can cause a rotating track to come off the snow bike, which could cause serious injury or death. Never operate with a damaged track.
Never rotate a damaged track under power.

SKI MAINTENANCE

Timbersled recommends periodically inspecting your ski for damage.

- Check the ski bolt to make sure it is tight. Torque to specification.

TORQUE

50 Nm (37 ft. lbs)

WARNING

Failure to torque fasteners as directed will adversely affect the steering system and may lead to severe injury or death.

- Inspect for cuts or peeled up plastic that will cause the ski to handle poorly.
- Inspect for bent, broken, or worn-out ski skags.
- Inspect the ski saddle for bends that may make the ski crooked.
- Inspect the ski rubber to make sure it is not smashed or worn out.

NOTE

Timbersled highly recommended that you DO NOT tie your bike against the front of the ski. This can permanently bend the plastic ski causing your bike to handle poorly.

SKI SKAGS

WARNING

Worn skis and/or skags will adversely affect handling. Loss of vehicle control may result, causing serious injury or death. See your dealer's studding chart for recommended skags.

Check skags before each use of the snow bike to ensure positive steering characteristics. Skags must be replaced when worn to half their original diameter.

TIP

Carbide skags must be replaced if any abnormal wear or chipping is found.

SKAG REPLACEMENT

1. Raise and support the front of the snow bike so the ski is approximately 6 inches (15.2 cm) from the ground.
2. Remove the attaching nuts and pry the skag downward.
3. Remove the front end of the skag.
4. Remove the rear end of the skag.
5. Reverse the steps to install a skag.

SPINDLE MAINTENANCE

The spindle does not require any maintenance. It is designed to bend if it comes in contact with a rock or stump during operation. Timbersled recommends thoroughly inspecting the assembly for bends or cracks before you ride.

FALL TUNE-UP

For maximum performance, your Timbersled dealer can perform a fall service tune-up. Their experienced and trained service technicians will keep your snow bike in peak operating condition.

EXTENDED STORAGE

Off-season or extended storage of your snow bike requires preventive measures to aid against deterioration and to prolong the useful life of many components.

CLEANING AND PRESERVATION

Proper storage starts with cleaning, washing, and waxing the cowling, side panels, chassis, and plastic parts. Wipe down remaining surfaces with a damp cloth. Clean and touch up with paint any rusted or previously painted surfaces. Be sure that corrosive salt and acids are removed from surfaces before beginning preservation with waxes and rust inhibitors (grease, oil or paint).

The snow bike should be stored in a dry garage or shed, out of direct sunlight, and covered with a fabric snow bike cover. Plastic tarp may cause condensation to form and damage snow bike components.

TRACK AND SUSPENSION

Moderate track tension should be maintained during summer storage. The snow bike should be supported off the ground to allow the track to hang freely.

TRANSPORTING THE SNOW BIKE

Whenever the snow bike is transported:

1. Be sure the fuel cap and oil cap are installed correctly.
2. Tie the snow bike to the transporting unit securely using suitable straps.
3. Remove the ignition key (if equipped) to prevent loss.

NOTE
Use of a cover is recommended when transporting your vehicle on an open trailer.

INSTALLATION

APPLICATION

The Timbersled Model No. J19RTAXXXA is designed specifically for the bike models listed below:

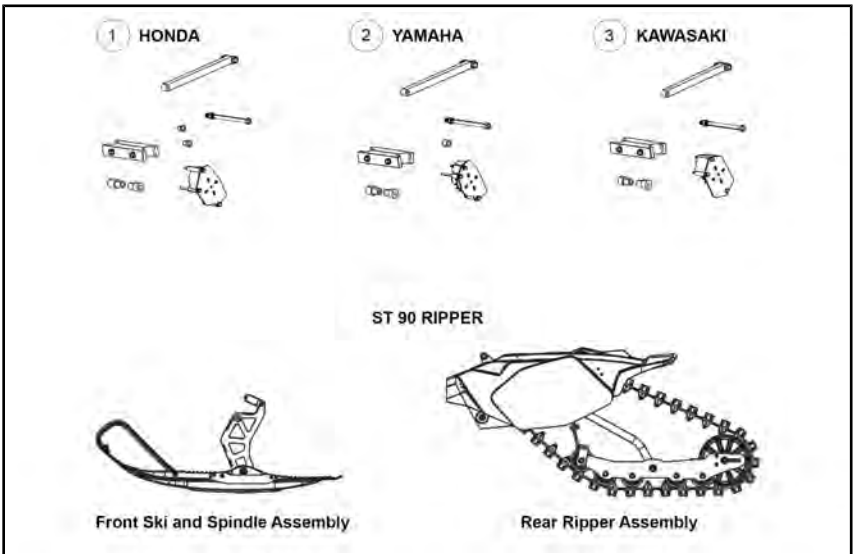
- Yamaha®— TTR110, 2008 to current
- Honda® — CRF110F, 2013 to current
- Kawasaki® — KLX110, 2003 to current; KLX110L, 2010 to current

BEFORE YOU BEGIN

Read these instructions and check to be sure all parts and tools are accounted for. Please retain these installation instructions for future reference and parts ordering information.

KIT CONTENTS

The ST 93 Ripper Install Kit includes: Qty.- 1, Install kit for your specific model. ST 93 Ripper sold separately.



REF	QTY	PART DESCRIPTION	PART NUMBER
1*	1	Honda Install Kit	2882729
2*	1	Yamaha Install Kit	2882730

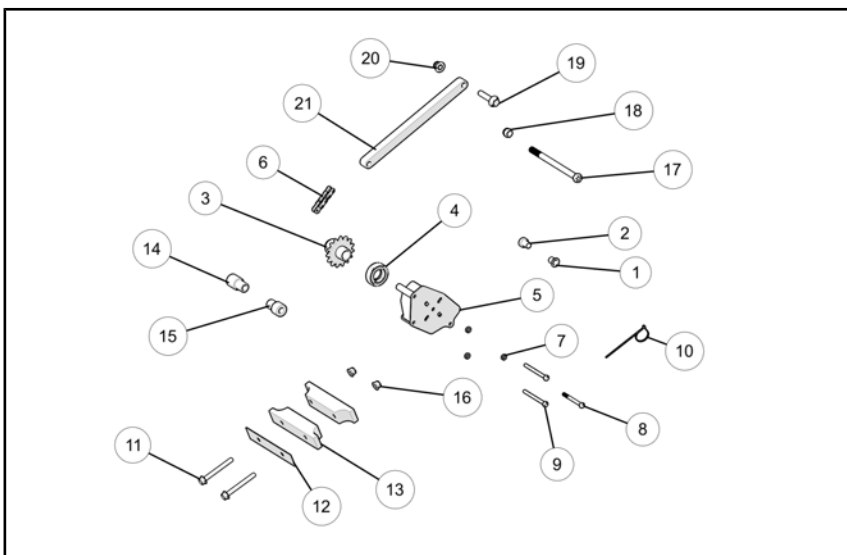
INSTALLATION

REF	QTY	PART DESCRIPTION	PART NUMBER
3*	1	Kawasaki Install Kit	2882731
4	1	ST 93 Ripper Install Kit instructions	9927988

Items marked (*) are specific to your make and model of bike. Only items specific to your make and model of bike are included in the Install Kit. See Install Kit drawings and parts lists for items specific to each Install Kit.

INSTALL KIT: 2882729

This install kit is specific to the Honda models listed in the application section:



REF	QTY	PART DESCRIPTION	PART NUMBER
1	1	RDCR, Ripper - Honda, LH	5141218
2	1	RDCR, Ripper - Honda, RH	5141219
3	1	Drive Sprocket - Honda	1333882
4	1	Bearing-Ball	3514549
5	1	Asm, Backer Plate - Honda	1333883
6	1	Chain, 420 - Ripper	3222273

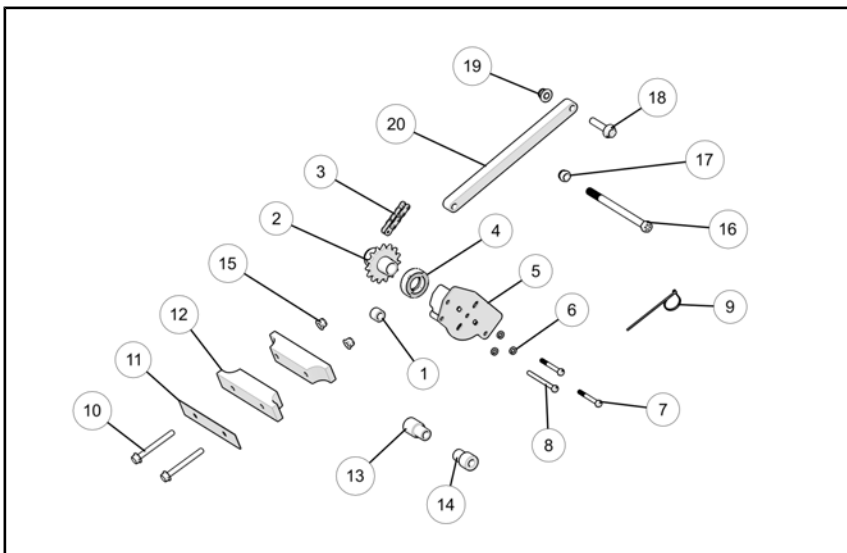
INSTALLATION

REF	QTY	PART DESCRIPTION	PART NUMBER
7	3	Washer-Split	7557064
8	1	Screw - M6X65	7520727
9	2	Screw - M6X75	7520729
10	5	Cable Tie, Nylon	7081504
11	2	Screw - M8X75	7519948
12	1	Plate, Fork Tube, Clamp	5264330
13	2	Clamp, Fork Tube, Top	5454078
14	1	Reducer-Spindle - Honda, RH	5141389
15	1	Reducer-Spindle - Honda, LH	5141390
16	2	Nut, Locking - M8,	7547332
17	1	Screw - 7/16X6.5	7520726
18	1	Nut, Locking - 7/16	7542525
19	1	Screw - M10X50	7518971
20	1	Nut, Locking - M10	7547423
21	1	Strut, Fixed - Ripper	5141221

INSTALLATION

INSTALL KIT: 2882730

This install kit is specific to the Yamaha models listed in the application section:



REF	QTY	PART DESCRIPTION	PART NUMBER
1	1	Spacer, Ripper - Yamaha	5141220
2	1	Drive Sprocket - Yamaha	1333888
3	1	Chain, 420 - Ripper	3222273
4	1	Bearing-Ball	3514549
5	1	Asm, Backer Plate - Yamaha	1333889
6	1	Washer - Split	7557064
7	2	Screw - M6X65	7520727
8	1	Screw - M6X75	7520729
9	5	Cable Tie, Nylon	7081504
10	2	Screw - M8X75	7519948
11	1	Plate-Fork Tube Clamp	5264330
12	2	Clamp-Fork Tube Top	5454078

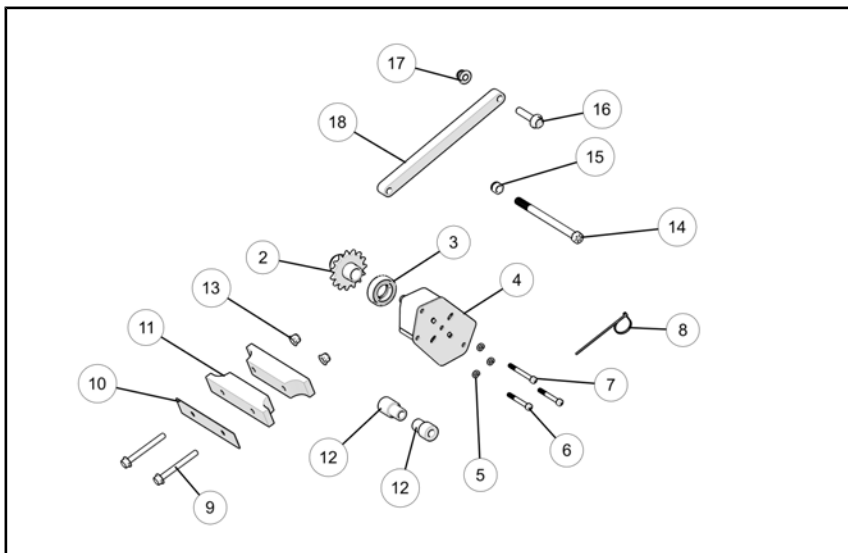
INSTALLATION

REF	QTY	PART DESCRIPTION	PART NUMBER
13	1	Reducer, Spindle - Yamaha, LH	5141394
14	1	Reducer, Spindle - Yamaha, RH	5141393
15	2	Nut, Locking - M8	7547332
16	1	Screw - 7/16X6.5	7520726
17	1	Nu t- 7/16 Nylon	7542525
18	1	Screw - M10X50	7518971
19	1	Nut, Locking - M10	7547423
20	1	Strut, Fixed - Ripper 260mm	5141221

INSTALLATION

INSTALL KIT: 2882731

This install kit is specific to the Kawasaki models listed in the application section:



REF	QTY	PART DESCRIPTION	PART NUMBER
1	1	Chain, 420 - Ripper	3222273
2	1	Drive Sprocket, - Kawasaki	1333885
3	1	Bearing-Ball	3514549
4	1	Asm, Backer Plate - Kawasaki	1333886
5	1	Washer, Split	7557064
6	2	Screw - M6X55	7520728
7	1	Screw - M6X65	7520727
8	5	Cable Tie, Nylon	7081504
9	2	Screw - M8X75	7519948
10	1	Plate, Fork Tube Clamp	5264330
11	2	Clamp, Fork Tube Top	5454078
12	2	Reducer, Spindle - Kawasaki	5141392

REF	QTY	PART DESCRIPTION	PART NUMBER
13	2	Nut, Locking - M8	7547332
14	1	Screw - 7/16X6.5	7520726
15	1	Nut, Locking - 7/16	7542525
16	1	Screw - M10X50	7518971
17	1	Nut, Locking - M10	7547423
18	1	Strut, Fixed - Ripper	5141388

TOOLS REQUIRED

- Safety Glasses
- Screwdriver, Standard
- Pliers, Slip Joint
- Pliers, Side Cutting
- Hex Key Set, Metric
- Socket Set, Metric

IMPORTANT

Your is exclusively designed for your vehicle. Please read the installation instructions thoroughly before beginning. Installation is easier if the vehicle is clean and free of debris. For your safety, and to ensure a satisfactory installation, perform all installation steps correctly in the sequence shown.

ASSEMBLY TIME

2–4 Hours

INSTALLATION INSTRUCTIONS

MOTORCYCLE DISASSEMBLY:

NOTE

The disassembly process listed is universal for all bikes using the ST 93 Ripper kit. This process may vary slightly between makes and models. Refer to your host bike's owner's manual for specific references and disassembly procedures.

1. Place bike on a stand or suitable support where both wheels are off the ground. Secure properly to prevent bike from tipping when wheels are removed. (An adjustable stand is helpful for reassembly.)
2. Remove the seat and side panels.
3. Remove chain by disconnecting master link.
4. Remove the rear brake lever from frame and let hang (this includes the spring).
5. Remove upper rear shock bolt or pin.

NOTE

Keep upper shock bolt for later use as this item will be reinstalled.

6. Remove the rear swing arm bolt (this will drop the entire swing arm assembly off the bike) and remove the shock, tire, brake, and swing arm assembly from the bike as a complete unit.

NOTE

It is recommended to cable tie all bushings, spacers, etc. to their corresponding parts at all pivoting points to prevent losing any parts during storage.

7. Remove the front brake lever and cable retainer bolts from the bikes front forks. (On some models use the provided cable tie to secure start button).
8. Loosen the front axle bolt and remove the front wheel.

NOTE

Keep front axle bolt for later use, this item will be reinstalled.

9. Remove the front drive sprocket and sprocket cover.

10. Check to ensure all previous steps are complete. You are now ready to start the assembly portion of the process.

REAR RIPPER ASSEMBLY

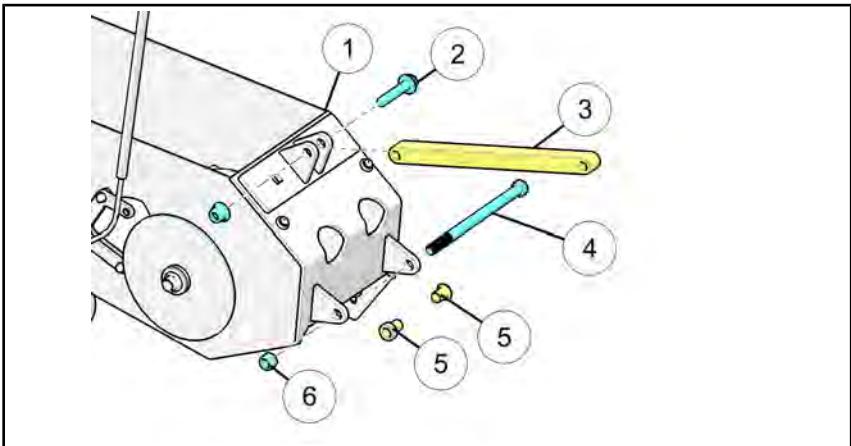
	Left Side		Right side	
	Spacer Spec.	Part #	Spacer Spec.	Part #
Honda	0.80 mm	5141218	6.87 mm	5141219
Kawasaki	N/A	N/A	N/A	N/A
Yamaha	N/A	N/A	15 mm	5141220

*Left and Right as positioned sitting on the bike

1. Locate rear track assembly ① and position it up to the rear swing arm bolt location on the bike. Some fit kits will require spacers ⑤ on one or either side of the frame, located between the Ripper frame mount brackets and the bike's swing-arm bolt bracket location. See table at the beginning of this section for specific bike model spacers.

NOTE

Kawasaki KLX models do not require any spacers. Honda CRF models require left and right swing arm bolt spacers/reducers. Yamaha TTR models require a single spacer positioned on the right side of the bike.



INSTALLATION

- Slide provided 7/16" x 6-1/2" swing arm bolt ④ in from the left hand side of the bike and tighten lock nut ⑥ to listed torque specification.

TORQUE

54 Nm (40 Ft. Lbs)

- Bolt the lower portion of the strut rod ③ to the kit assembly ① using the provided M 10 x 40mm bolt ②. **DO NOT TIGHTEN** until after upper portion of strut rod has been bolted in place.
- See note below before continuing.

NOTE

KAWASAKI MODELS ONLY skip Step 4 and complete Steps 5 and 6. For Honda and Yamaha models continue with Step 4.

Bolt upper portion of the strut rod ③ into the bike's upper shock bracket using the bike's upper shock mount bolt or pin. For bikes using a bolt, torque to the bike manufacturer's specifications. Once you have the upper portion of the strut rod in place, torque the lower portion of the strut rod to the specification listed below.

TORQUE

60 Nm (44 Ft. Lbs)

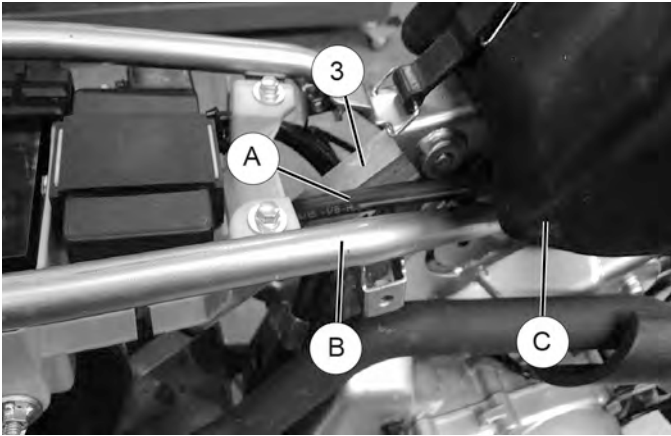
For Honda and Yamaha models continue to the *Brake Line Assembly and Routing* section.

5. See note below before continuing.

NOTE

This step includes the upper strut rod installation and brake line routing for Kawasaki models only.

Once you've completed Step 3 and before you fasten the upper strut rod bolt, move the strut rod ③ up to provide enough clearance, feed the brake line ① and master cylinder over top of the rear right sub-frame tubing ② of the bike and under the gas tank ④ as seen in the image below. Now move the top of the strut rod ③ down back into place lining up the mounting holes.



NOTE

Some Kawasaki models can use secondary bolt hole in the strut rod for lower ride height.

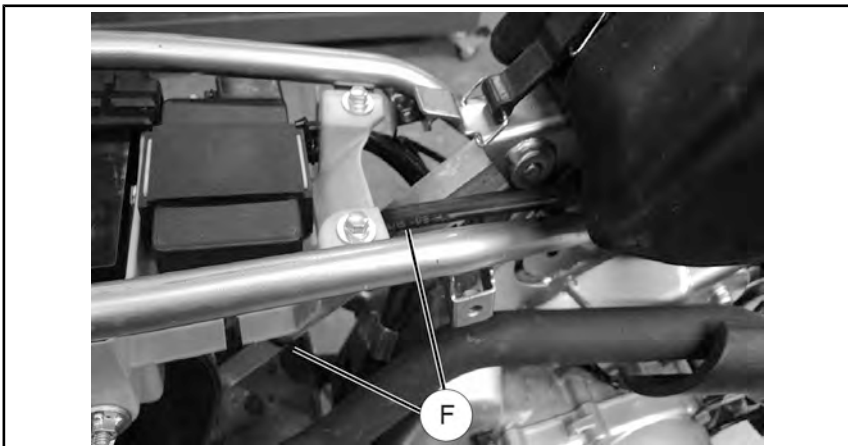
Bolt in place using the original upper strut rod bolt or pin and torque to the bike manufacturer's specifications. Once you have the upper portion of the strut rod in place, torque the lower portion of the strut rod to the specification listed below.

TORQUE

60 Nm (44 Ft. Lbs)

INSTALLATION

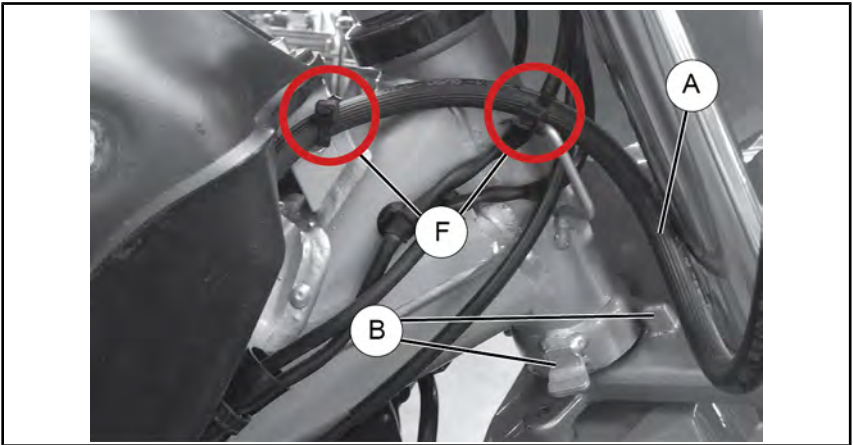
6. Keeping all of the slack out of the brake line, fasten the brake line to the top and the bottom of the strut rod with provided cable ties in the locations ⑥ indicated in the image below.



WARNING

When routing brake lines it is critical that you keep all brake lines away from any surfaces, such as engine or exhaust, that can become hot while operating the vehicle. Failure to comply will adversely affect the vehicles brake system and may lead to severe injury or death.

7. Run the brake line (A) forward under the bottom of the gas tank along the main frame of the bike towards the bike's front neck-tube. Make sure there is a minimum of one inch of clearance between the brake line and the lower head set turning stop posts (B) to prevent the brake line from being pinched. Place another cable tie (F) around the brake line fastening it to the bike's throttle cable keeper bracket (C). The remaining brake line can free hang up to the master cylinder mounted on the right handle bar. Adjust the pitch of the brake lever, ensuring it is easily reached and easy to pull. Tighten the brake lever perch hand tight being careful to not strip the mounting perch threads. If needed, you can loop any remaining slack in the brake line in between the right fork tube upper and the neck-tube of the bike frame as seen in the photo below. (Honda model shown for reference)



⚠ WARNING

When routing brake lines, make sure there is a minimum of one inch of clearance between the brake line (A) and the lower head set turning stop posts (B) to prevent the brake line from being pinched. Failure to comply will adversely affect the vehicles brake system and may lead to severe injury or death.

For Kawasaki models, once you have completed Step 7 continue to the *Drive Chain and Sprocket Assembly* section.

INSTALLATION

BRAKE LINE ASSEMBLY AND ROUTING

WARNING

When routing brake lines it is critical that you keep all brake lines away from any surfaces, such as engine or exhaust, that can become hot while operating the vehicle. Failure to comply will adversely affect the vehicles brake system and may lead to severe injury or death.

- **Yamaha Models**

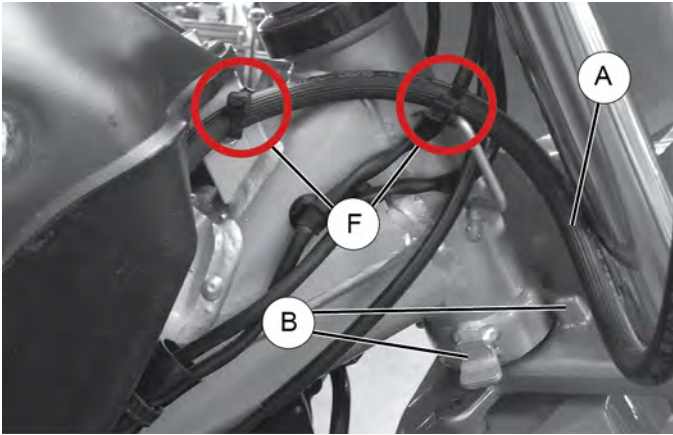
NOTE

Refer to images of Honda model for routing references.

- For the Yamaha TTR models, run the brake line forward either on top of the strut rod or located parallel against the left hand side of the strut rod. Secure the brake line to the strut rod with a cable tie located at the top of the strut rod and one at the bottom of the strut rod in a similar fashion to the photo for the Honda model. From here feed the brake line and master cylinder to the right side of the bike feeding the brake line between the bike's upper sub-frame column and the wiring harness brackets on the frame. This will help hold the brake line against the bikes frame and as far away from the exhaust system as possible. From here route the brake line forward towards the front of the bike underneath the bikes fuel tank. Place another cable tie near the front of the bike securing the brake line to the bikes lower horizontal frame tube.

⚠ WARNING

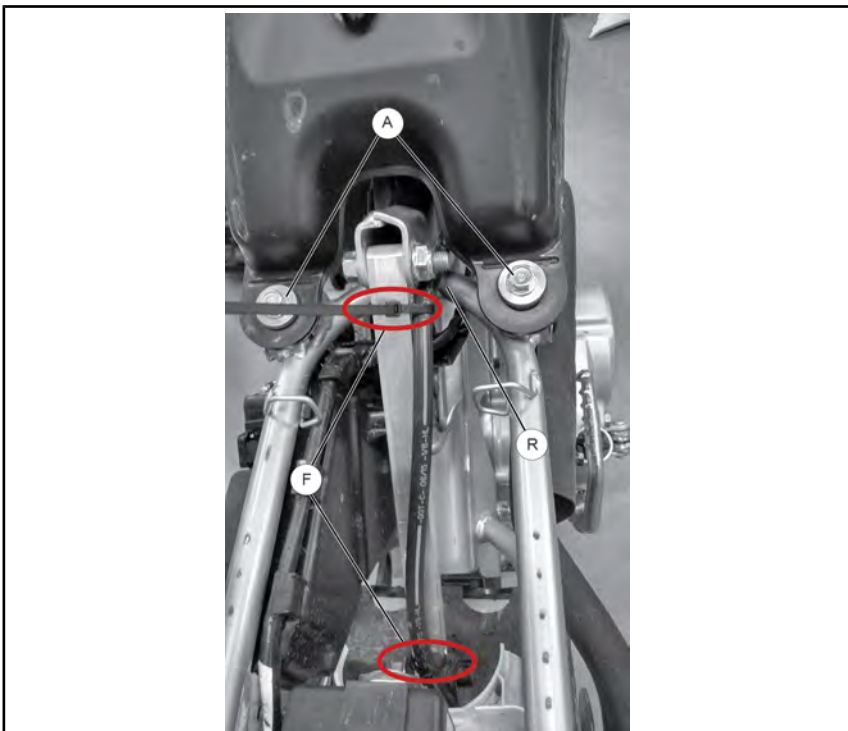
When routing brake lines, make sure there is a minimum of one inch of clearance between the brake line **(A)** and the lower head set turning stop posts **(B)** to prevent the brake line from being pinched. Failure to comply will adversely affect the vehicles brake system and may lead to severe injury or death.



INSTALLATION

• Honda Models

- Remove the two rear gas tank bolts (A) and loosen the front tank bolt on the bike. Lift up on the rear of the gas tank giving yourself enough room to feed the brake line and master cylinder over top of the rear right sub-frame tubing of the bike and under the gas tank as indicated in the image below (R) Feed the brake line forward under the bottom of the gas tank along the main frame of the bike. Keeping all of the slack out of the brake line fasten the brake line to the top and the bottom of the strut rod with cable ties as shown (F). Reinstall the two rear gas tank bolts (A) previously removed and torque to bike manufacturers specification. Next, torque the front tank bolt to manufacturers specifications. See image below for brake line routing reference (R):

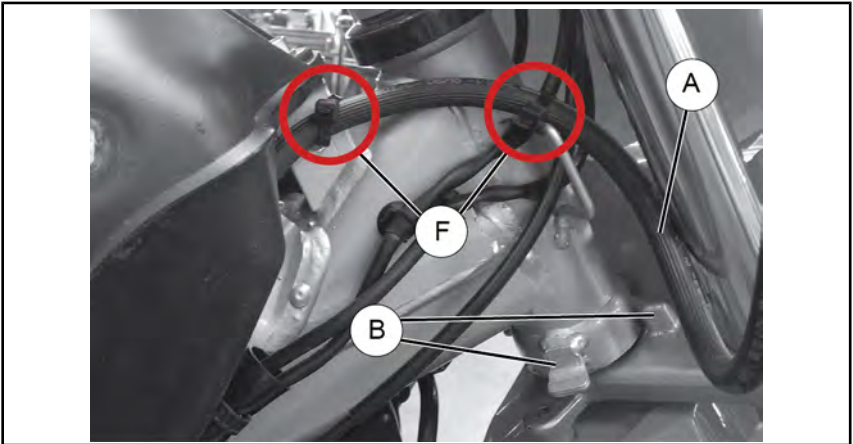


- Near the front of the bike where the brake line is approaching the front neck tube of the bike, cable tie the brake line to the front gas tank frame mount and another cable tie to the bikes frame-mounted wire harness on the bike's neck tube. See photo below for cable tie locations (F). The remaining brake line can free hang up to the master cylinder mounted on the right handle bar.

Adjust the pitch of the brake lever, ensuring it is easily reached and easy to pull. Tighten the brake lever perch hand tight being careful to not strip the mounting perch threads. See image below:

⚠ WARNING

When routing brake lines, make sure there is a minimum of one inch of clearance between the brake line (A) and the lower head set turning stop posts (B) to prevent the brake line from being pinched. Failure to comply will adversely affect the vehicles brake system and may lead to severe injury or death.



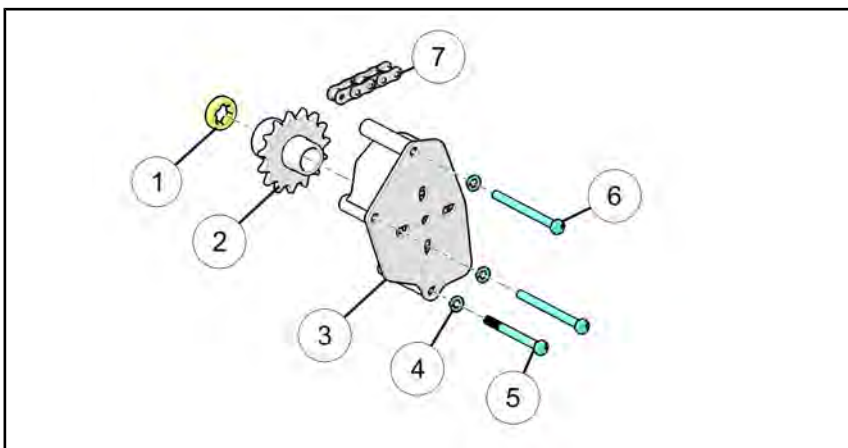
INSTALLATION

DRIVE CHAIN AND SPROCKET ASSEMBLY

1. Install provided sprocket ② and bearing carrier housing ③ onto transmission output shaft. Make sure to use Blue Loctite® 243 on the provided 3 button head screws ⑥. **HONDA ONLY:** Place provided spacer ① onto output shaft before installing sprocket.

NOTE

Reference you host bikes owner's manual or manufacturers specifications for proper torque specifications.



2. Tighten sprocket backer plate ③ to the engine case and torque to bike manufacturers specifications before chain ⑦ is installed and chain tension is set.
3. Route chain ⑦ around both sprockets.
4. Complete the assembly of the chain with the master link provided. Be sure to install the master link with the opening of the link facing rearward in relation to the chain direction.
5. Set the proper chain tension by loosening chain slider nut and bolt. Slide the chain slider up or down until 1/2"-5/8" of vertical deflection is met in the upper chord of the drive chain. Torque chain slider nut to specification below when proper tension is achieved.

TORQUE

25 Nm (18 Ft. Lbs)

NOTE

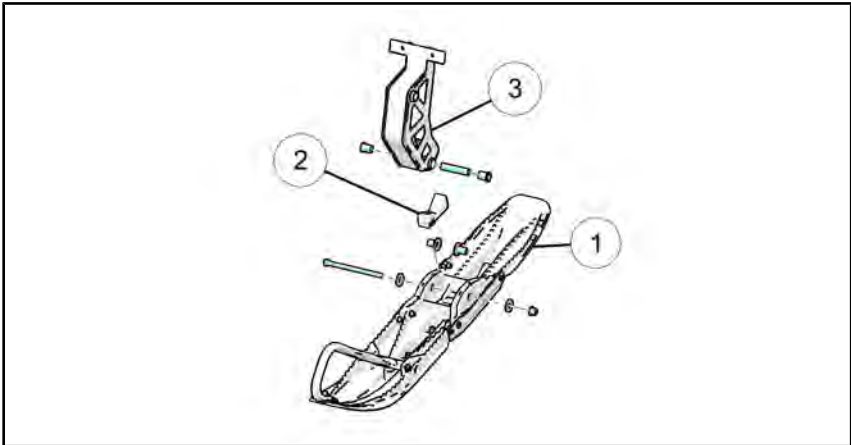
Chain will stretch within the first 5hrs. You will want to check for proper chain tension. Chain slider is not intended to roll and can be rotated as needed to keep proper chain tension on usable surface of slider.

FRONT SKI AND SPINDLE ASSEMBLY

	Left Side		Right side	
	RDCR Spec.	Part #	RDCR Spec.	Part #
Honda	18.03 mm	5141390	25.4 mm	5141389
Kawasaki	17.35 mm	5141392	17.35 mm	5141392
Yamaha	14.91 mm	5141394	20.49 mm	5141393

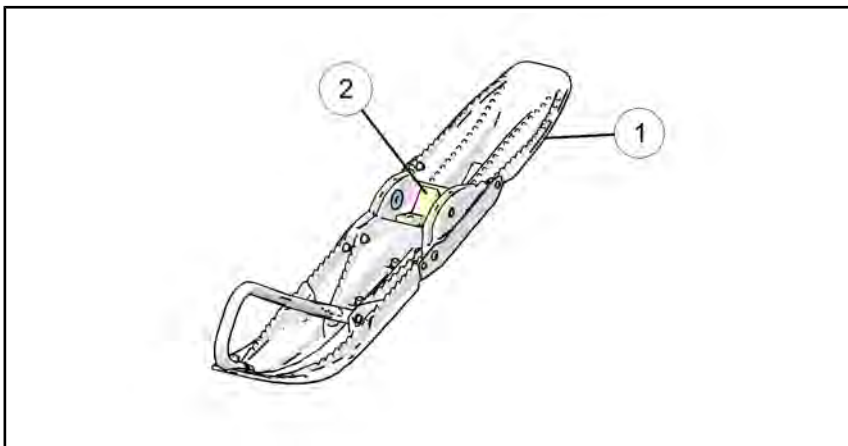
*Left and Right as positioned sitting on the bike

1. Locate the front ski ①, spindle ③, ski rubber ②, and provided hardware.

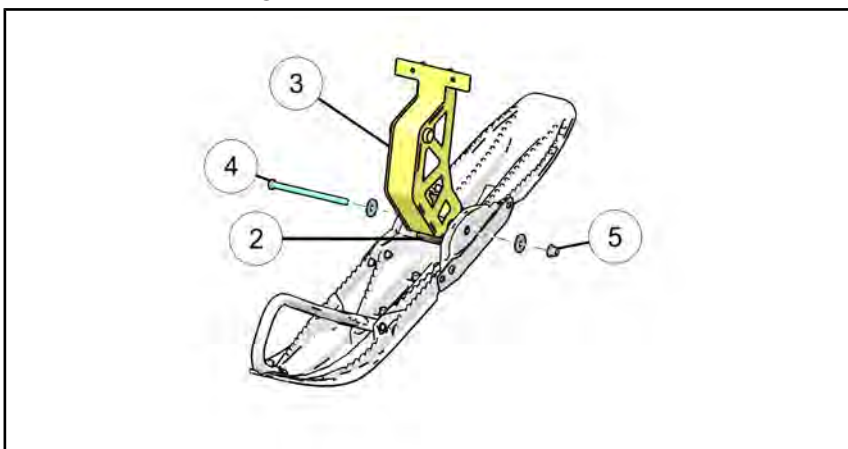


INSTALLATION

- Place the Ski Rubber ② on top of the center of the ski ① with the indicated "Front" of the Ski Rubber towards the front tip of the Ski.



- Place the lower portion of the Spindle ③ on top of the Ski Rubber ② in the ski saddle to where the Fork Clamp support bracket would be positioned behind the front forks of the bike. Line up the bottom bolt hole and insert the M 10 x 155 mm bolt ④.



Apply nut ⑤ to bolt and torque to specification listed below.

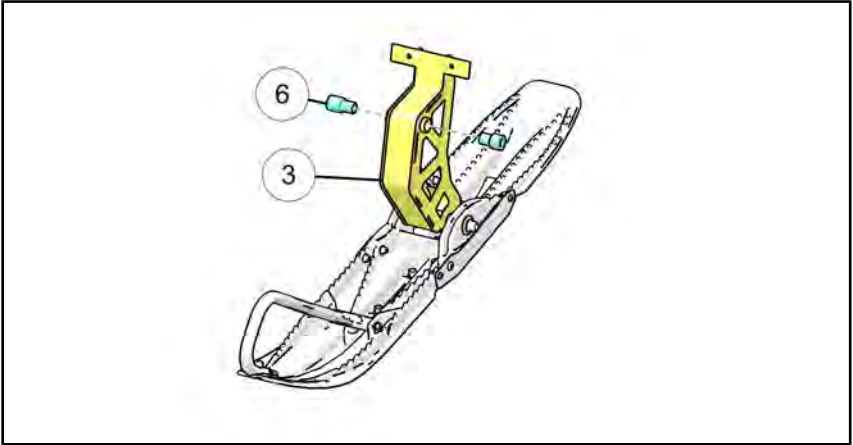
TORQUE

45 Nm (33 Ft. Lbs)

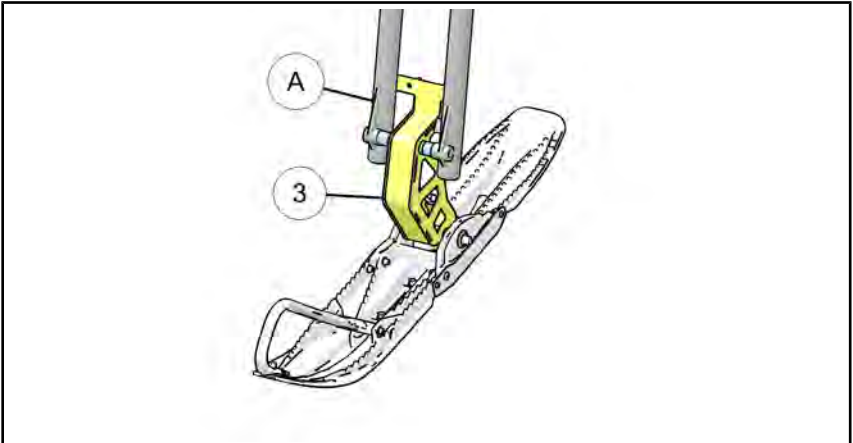
⚠ WARNING

Failure to torque fasteners as directed will adversely affect the steering system and may lead to severe injury or death.

4. Insert front spindle reducers (6) into spindle (3). These will change per bike manufacturer. Your individual bike model fit kit will come with the appropriate spindle reducers/spacers, see the table at beginning of this section for spindle reducer placement for your specific bike model.



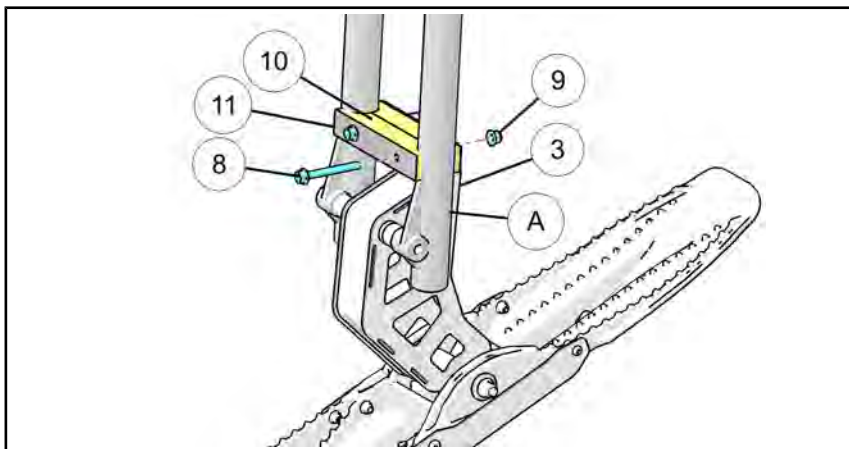
5. Use existing front axle bolt (B) to attach the front spindle (3) to the forks (A).



For now, just snug the front axle bolt, do not tighten until after step 6.

INSTALLATION

- Using the composite fork clamp ⑩ (fork clamp halves are identical), place one half of the fork clamp in front of the fork tubes (A) with the concave portions sitting around the face of the lower fork tube. Take the other half and mate it around the back side of the fork tubes between the fork tubes and the spindle backer plate. Take the Fork Clamp washer plate ⑪ and place it over the face of the front fork clamp lining up the bolt holes of the washer plate with the clamp.



Using Qty.–2, M8 x 75mm bolts ⑧ supplied with your kit, insert bolt through the washer plate, both halves of the fork clamp, and through the spindle backer plate. Apply the supplied M8 locking nuts ⑨ and torque to specification listed below.

TORQUE

20 Nm (15 Ft. Lbs)

- Tighten front axle bolt ⑧.

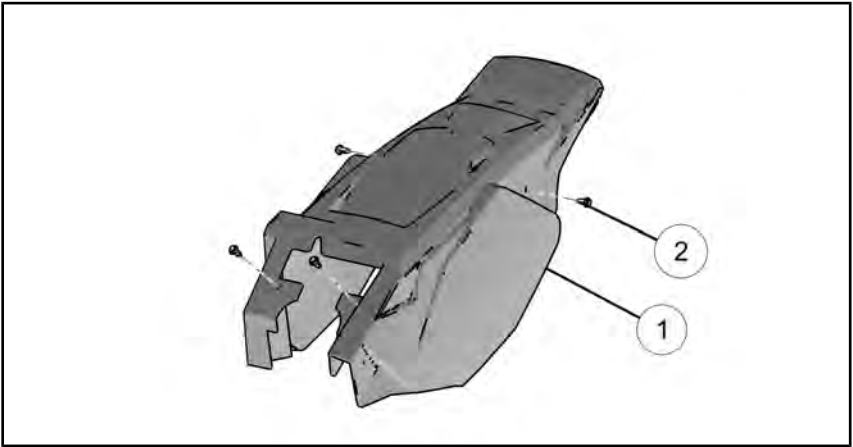
IMPORTANT

Refer to manufacturers specifications for proper torque setting.

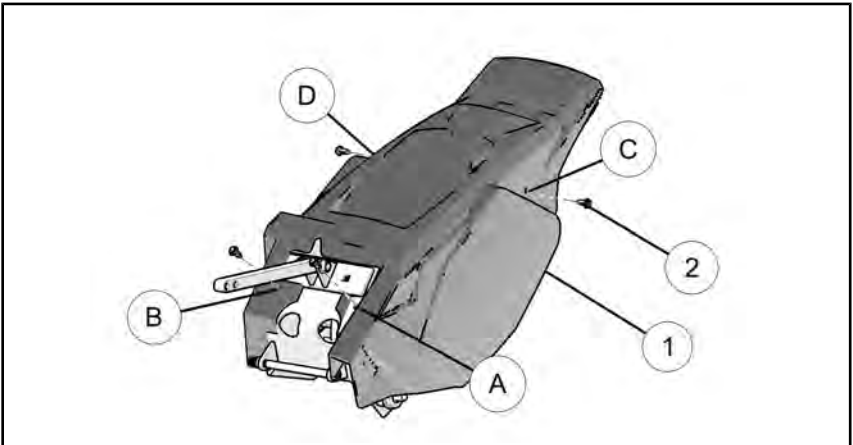
- Check to ensure all previous steps are complete then move on to the rear cowling assembly section.

REAR COWLING ASSEMBLY

1. Install the rear cowling ① with the provided, Qty.– 4, nylon rivet fasteners.②.



2. Slide cowling ① forward under bikes rear fender making sure the front left chain guard portion of the cowling is positioned behind the Drive Sprocket Plate.



INSTALLATION

3. Start with the front left side mounting hole (A). Insert nylon rivet fastener (2). Repeat process for the front right side mounting hole (B), inserting nylon rivet fastener securely.

NOTE

The rear cowling is pliable, the easiest process for lining up the rear fastener mounting holes of the skid frame with the cowling holes is to pull out on the bottom most part of the cowling in the middle of the molding. This will pull the rear hole in the cowling forward allowing you to line up the holes to insert the nylon rivet fastener.

4. Repeat this process for both left (C) then right (D) rear mounting holes.
5. Check to ensure all tools are accounted for and all steps have been completed in the proper order.

SPECIFICATIONS

ST 93 RIPPER

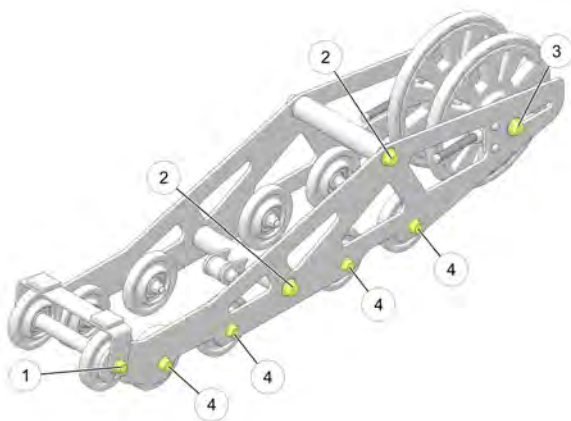
DIMENSIONS	
Estimated Dry Weight - Front (lbs./kg.)	13 lbs (6 kg)
Estimated Dry Weight - Rear (lbs./kg.)	55 lbs (25 kg)
Overall Length - pivot to bumper (in./cm.)	97 in (246 cm)
ENGINE AND DRIVETRAIN	
Disc Brake Type	Hydraulic Disk
Drive Shaft Sprocket	26 tooth - splined
Engine Sprocket	13 tooth - splined
Drive Chain	420
Chain Slider	Round Composite Slider
SUSPENSION	
Rear Suspension	8 inches - Ripper Suspension
Front Track Shock	RydeFX
Rear Travel - Fixed Fit Kit (in./cm.)	43.8 in (111 cm)
Ski Type	Ripper Balance Ski
Skag Type Center	Ripper Balance Tri Skagg
Skag Type Outer	Ripper Balance Tri Skagg
Track Width/Length/Height	90 x 6 x 0.75"
FEATURES	
Graphics	Black/White/Silver
Install Kits Options	Honda, Kawasaki, Yamaha 110cc

SPECIFICATIONS

TORQUE TABLES

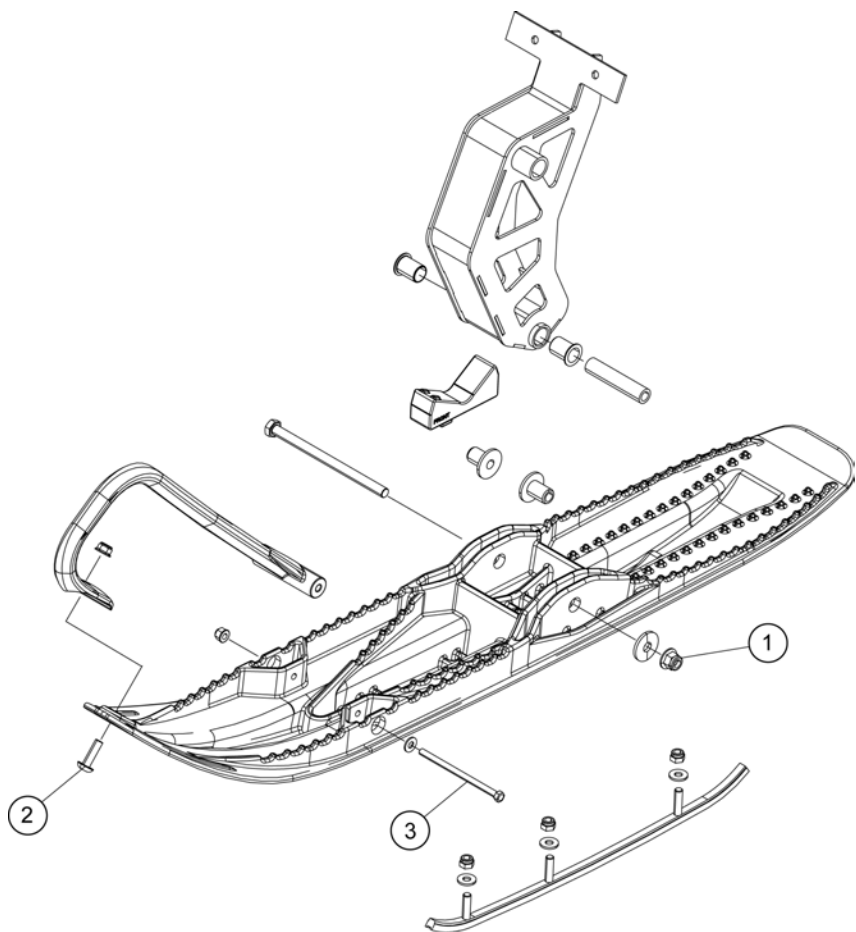
RAILS AND TRACK

The torque values listed below apply to both sides of the rails and track, even though the picture only shows one side.



	Torque		Torque
①	25 Nm with Loctite® Blue 243	③	60 Nm with Loctite® Red 263
②	60 Nm with Loctite® Red 263	④	25 Nm

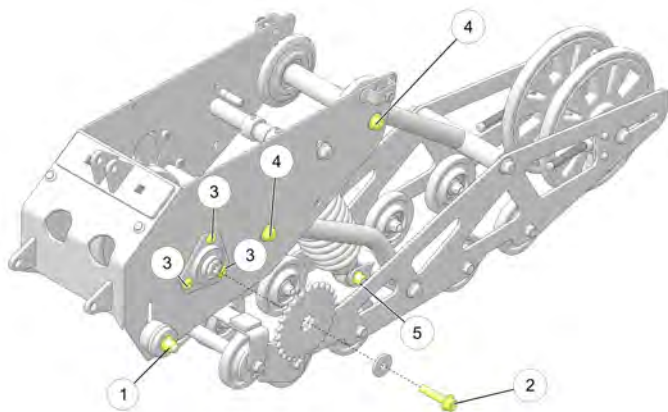
SPINDLE AND SKI



	Torque
①	45 Nm
②	18 Nm
③	6 Nm

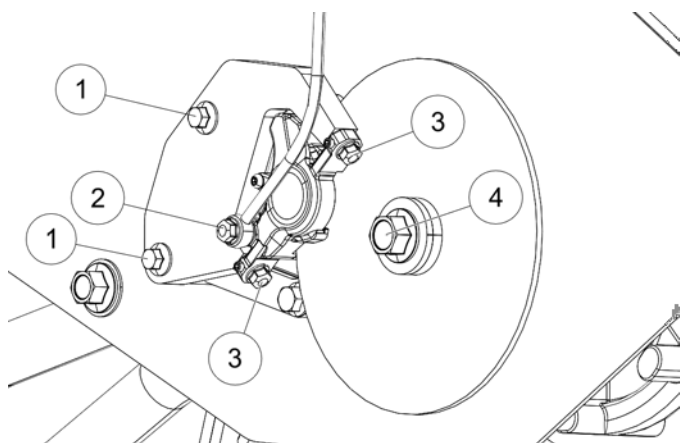
SPECIFICATIONS

DRIVE CHAIN ASSEMBLY



	Torque		Torque
①	25 Nm	④	60 Nm with Loctite® 263 Red
②	60 Nm with Loctite® 263 Red	⑤	25 Nm
③	25 Nm with Loctite® 243 Blue		

BRAKES



	Torque		Torque
①	11.7 Nm with Loctite® Blue 243	③	11.7 Nm with Loctite® Blue 243
②	6.8 Nm	④	60 Nm with Loctite® Red 263

WARRANTY

TIMBERSLED CONVERSION SYSTEMS LIMITED

WARRANTY

POLARIS Sales Inc., 2100 Highway 55, Medina, MN 55340 (POLARIS) gives a 12 MONTH LIMITED WARRANTY on all components of your TIMBERSLED Conversion System against defects in material or workmanship. This warranty covers parts and dealer labor charges for repair or replacement of defective parts and begins on the date of purchase by the original retail purchaser. This warranty is transferable to another owner during the warranty period through a TIMBERSLED dealer, but any such transfer will not extend the original term of the warranty. The duration of this warranty may vary by international region based upon local laws and regulations.

See your dealer for details and separate terms and conditions for any promotional warranties.

REGISTRATION

At the time of sale, the Warranty Registration Form must be completed by your dealer and submitted to TIMBERSLED within ten days of purchase. Upon receipt of this registration, TIMBERSLED will record the registration for warranty. No verification of registration will be sent to the purchaser as the copy of the Warranty Registration Form will be your proof of warranty coverage. If you have not signed the original registration and received the customer copy, please contact your dealer immediately. **NO WARRANTY COVERAGE WILL BE ALLOWED UNLESS YOUR CONVERSION SYSTEM IS REGISTERED WITH TIMBERSLED.**

WARRANTY COVERAGE AND EXCLUSIONS: LIMITATIONS OF WARRANTIES AND REMEDIES

This TIMBERSLED limited warranty excludes any failures that are not caused by a defect in material or workmanship. **THIS WARRANTY DOES NOT COVER CLAIMS OF DEFECTIVE DESIGN.** This warranty also does not cover damage caused due to incorrect installation, acts of God, accidental damage, normal wear and tear, abuse or improper handling. This warranty also does not cover any Conversion System, component, or part that has been altered structurally, modified, neglected, improperly maintained, used for racing, competition, or for purposes other than for which it was designed.

This warranty also excludes failures resulting from improper lubrication; surface imperfections caused by external stress, heat, cold or contamination; operator error or abuse; improper component alignment, tension, adjustment; improper maintenance; modified components; use of aftermarket components; unauthorized repairs; repairs made after the warranty period expires or by an unauthorized repair center; use of the product in competition or for commercial purposes. Warranty will not apply to any product which has been damaged by abuse, accident, fire or any other casualty not determined a defect of materials or workmanship.

WARRANTY

This warranty excludes coverage for consumable components, general wear items, or any parts exposed to friction surfaces, stresses, environmental conditions and/or contamination for which they were not designed or not intended, including but not limited to the following items:

Skis	Ski Wear Rods
Tracks	Slide Rails
Suspension Components	Finished and Unfinished Surfaces
Brake Components	Chains
Idler Wheels	Hydraulic Components

This warranty provides no coverage for personal loss or expense, including mileage, transportation costs, hotels, meals, shipping or handling fees, product pick-up or delivery, replacement rentals, loss of product use, loss of profits, or loss of vacation or personal time.

THE EXCLUSIVE REMEDY FOR BREACH OF THIS WARRANTY SHALL BE, AT POLARIS' OPTION, REPAIR OR REPLACEMENT OF ANY DEFECTIVE MATERIALS, COMPONENTS, OR PRODUCTS. THE REMEDIES SET FORTH IN THIS WARRANTY ARE THE ONLY REMEDIES AVAILABLE TO ANY PERSON FOR BREACH OF THIS WARRANTY. POLARIS SHALL HAVE NO LIABILITY TO ANY PERSON FOR INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES OF ANY DESCRIPTION, WHETHER ARISING OUT OF EXPRESS OR IMPLIED WARRANTY OR ANY OTHER CONTRACT, NEGLIGENCE, OR OTHER TORT OR OTHERWISE. THIS EXCLUSION OF CONSEQUENTIAL, INCIDENTAL AND SPECIAL DAMAGES IS INDEPENDENT FROM AND SHALL SURVIVE ANY FINDING THAT THE EXCLUSIVE REMEDY FAILED OF ITS ESSENTIAL PURPOSE.

THE IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS EXCLUDED FROM THIS LIMITED WARRANTY. ALL OTHER IMPLIED WARRANTIES (INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTY OF MERCHANTABILITY) ARE LIMITED IN DURATION TO THE ABOVE 12 MONTH WARRANTY PERIOD. TIMBERSLED DISCLAIMS ALL EXPRESS WARRANTIES NOT STATED IN THIS WARRANTY. SOME STATES DO NOT PERMIT THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES OR ALLOW LIMITATIONS ON THE DURATION OF IMPLIED WARRANTIES, SO THE ABOVE LIMITATIONS MAY NOT APPLY TO YOU IF INCONSISTENT WITH CONTROLLING STATE LAW.

HOW TO OBTAIN WARRANTY SERVICE

If your Conversion System requires warranty service, you must take it to a TIMBERSLED Servicing Dealer. When requesting warranty service you must present your copy of the Warranty Registration to the dealer. (THE COST OF TRANSPORTATION TO AND FROM THE DEALER IS YOUR RESPONSIBILITY). TIMBERSLED suggests that you use your original selling

dealer; however, you may use any TIMBERSLED Servicing Dealer to perform warranty service.

In the Country where your product was purchased:

Warranty or Service Bulletin repairs must be done by an authorized TIMBERSLED dealer. If you move or are traveling within the country where your product was purchased, Warranty and Service Bulletin repairs may be requested from any authorized TIMBERSLED dealer that sells the same line as your product.

Outside the Country where your product was purchased:

If you are traveling temporarily outside the country where your product was purchased, you should take your product to an authorized TIMBERSLED dealer. You must show the dealer photo identification from the country of the selling dealer's authorized location as proof of residence. Upon residence verification, the servicing dealer will be authorized to perform the warranty repair.

If you move:

If you move to another country, be sure to contact TIMBERSLED Customer Assistance and the customs department of the destination country before you move. Product importation rules vary considerably from country to country. You may be required to present documentation of your move to TIMBERSLED in order to continue your warranty coverage. You may also be required to obtain documentation from TIMBERSLED in order to register your product in your new country. You should warranty register your product at a local TIMBERSLED dealer in your new country immediately after you move to continue your warranty coverage and to ensure that you receive information and notices regarding your Conversion System.

If you purchase from a private party:

If you purchase a TIMBERSLED product from a private party, to be kept and used outside of the country in which the product was originally purchased, all warranty coverage will be denied. You must nonetheless register your product under your name and address with a local TIMBERSLED dealer in your country to ensure that you receive safety information and notices regarding your product.

EXPORTED PRODUCTS

EXCEPT WHERE SPECIFICALLY REQUIRED BY LAW, THERE IS NO WARRANTY OR SERVICE BULLETIN COVERAGE ON THIS PRODUCT IF IT IS SOLD OUTSIDE THE COUNTRY OF THE SELLING DEALER'S AUTHORIZED LOCATION. This policy does not apply to products that have received authorization for export from TIMBERSLED. Dealers may not give authorization for export. You should consult an authorized dealer to determine this product's warranty or service coverage if you have any questions. This policy does not apply to products registered to government officials or military

WARRANTY

personnel on assignment outside the country of the selling dealer's authorized location. This policy does not apply to Safety Bulletins.

NOTICE

If your product is registered outside of the country where it was purchased and you have not followed the procedure set above, your product will no longer be eligible for warranty or service bulletin coverage of any kind, other than *safety* bulletins. Products registered to Government officials or military personnel on assignment outside of the country where the product was purchased will continue to be covered by the Limited Warranty.

Please work with your dealer to resolve any warranty issues. Should your dealer require any additional assistance, they will contact the appropriate TIMBERSLED department.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state or in different countries. If any of the above terms are void because of federal, state, local law, all other warranty terms will remain in effect.

For questions call TIMBERSLED Customer Assistance:

United States & Canada: 1-800-POLARIS (1-800-765-2747)

French: 1-800-268-6334

MAINTENANCE LOG**MAINTENANCE LOG**

Present this section of your manual to your dealer each time your snowmobile is serviced. This will provide you and future owners with an accurate log of maintenance and services performed on the snowmobile.

DATE	MILES (KM)	TECHNICIAN	SERVICE PERFORMED / COMMENTS
	150 mi. (240 km)		
	500 mi (800 km)		
	1000 mi (1600 km)		
	2000 mi (3200 km)		

MAINTENANCE LOG

DATE	HOURS	TECHNICIAN	SERVICE PERFORMED / COMMENTS

A

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 Avalanches 13

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*For your nearest Polaris dealer,
call 1-800-POLARIS (765-2747)
or visit www.polaris.com*

*Polaris Industries Inc.
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