



**OWNERS MANUAL**  
SKI-DOO iQS ZERO

## **TABLE OF CONTENTS**

<b>SAFETY INSTRUCTIONS</b>	<b>3</b>
INSTALLATION GUIDELINES	3
<b>PARTS DIAGRAM</b>	<b>4</b>
iQS COMPRESSION ADJUSTER	6
PARTS AND SUPPLIES	7
REQUIRED TOOLS	8
<b>INSTALLATION</b>	<b>9</b>
INSTALL THE SKI SHOCKS	9
PREPARATION	10
INSTALL THE TRACK SHOCKS	12
ROUTE THE REAR TRACK SHOCK WIRING	13
INSTALL THE WIRING HARNESS GUARD	15
ROUTE THE FRONT TRACK WIRING	16
INSTALL THE MAIN WIRING HARNESS	18
INSTALL THE SKI SHOCKS WIRING	19
CONNECT TO THE MAIN POWER	21
ROUTE THE MAIN HARNESS TRACK SHOCK WIRING	22
CONNECT THE REAR HARNESSES TO THE MAIN HARNESS	23
INSTALL THE IQS SWITCH	25
INSTALL THE ECU ASSEMBLY	26
FINAL CHECK	28
iQS SYSTEM TEST	29
<b>SHOCK SETUP</b>	<b>30</b>
<b>FINE TUNING</b>	<b>32</b>
<b>TROUBLESHOOTING</b>	<b>35</b>
<b>MAINTENANCE</b>	<b>37</b>
SERVICE	37
WARRANTY	37

## SAFETY INSTRUCTIONS

Thank you for choosing FOX direct-replacement shocks for your vehicle. FOX products are designed, tested, and manufactured by the finest professionals in the industry.

FOX recommends that you become completely familiar with the handling characteristics of your modified vehicle before operating it under rigorous conditions, helping to avoid potential rollover situations and other loss of control events. FOX further recommends that you use appropriate protective equipment at all times when operating your vehicle.

To achieve the best performance and product longevity, periodic service and maintenance is required. Please refer to the Maintenance and Service section for more information.

1. Read all instructions carefully before installing this kit. Use your factory authorized service manual as reference while installing this kit.
2. Torque all fasteners to the manufacturer's specifications.
3. If you do not possess the tools or the technical knowledge to install your FOX shocks, have it performed by an authorized dealer.

### WARNING

FOX direct-replacement, iQS shocks should always be installed with all four shocks for maximum performance.

Proper installation and service procedures are essential for the safe and reliable installation of chassis parts, requiring the experience and tools specially designed for this purpose. Installation and maintenance procedures for this product must be performed by a qualified service technician to avoid potentially unsafe vehicle handling characteristics, which may result in **SERIOUS INJURY** or **DEATH**.

Modifying your vehicle's suspension will change the handling characteristics of your vehicle. Under certain conditions, your modified vehicle may be more susceptible to loss of control or rollover, which may result in **SERIOUS INJURY** or **DEATH**. It is your responsibility to thoroughly understand the modified vehicle handling characteristics before any rigorous vehicle operation. Wear body protective gear including head protection when appropriate.

FOX direct-replacement shocks are gas-charged and are highly pressurized. Placing shocks in a vise or clamp, applying heat, or attempting to open or service the shock without the proper tools and training can result in **SERIOUS INJURY** or **DEATH**. Do not attempt to modify, puncture or incinerate a FOX direct-replacement shock absorber.

Any attempt to misuse, misapply, modify, or tamper with any FOX product voids any warranty and may result in **SERIOUS INJURY** or **DEATH**.

Do not switch the system continuously for extended periods of time, as damage to the ECU and actuators may occur.

Riding a snowmobile is inherently dangerous and an result in **SERIOUS INJURY** or **DEATH**. Take responsibility for yourself and others seriously. Keep your vehicle and its suspension systems in optimal working condition. Always wear protective clothing, eye protection, and a helmet. Know your limits and ride within them.

## INSTALLATION GUIDELINES

This manual provides step-by-step instructions on how to set-up and maintain your iQS system. This manual **does not** contain step-by-step shock rebuild instructions. Rebuilding should only be carried out by an authorized FOX service technician.

### WARNING

Always use the appropriate lift equipment (floor jack, jack stand, or hoist) for the installation of shocks, and make certain that the raised vehicle is securely attached to the lift equipment to prevent the vehicle from slipping, falling, or moving during the installation process.

DO NOT install any FOX product without the necessary special tools, expertise and lift equipment, or you will subject yourself to the risk of **SERIOUS INJURY** or **DEATH**.

### CRUSH HAZARD

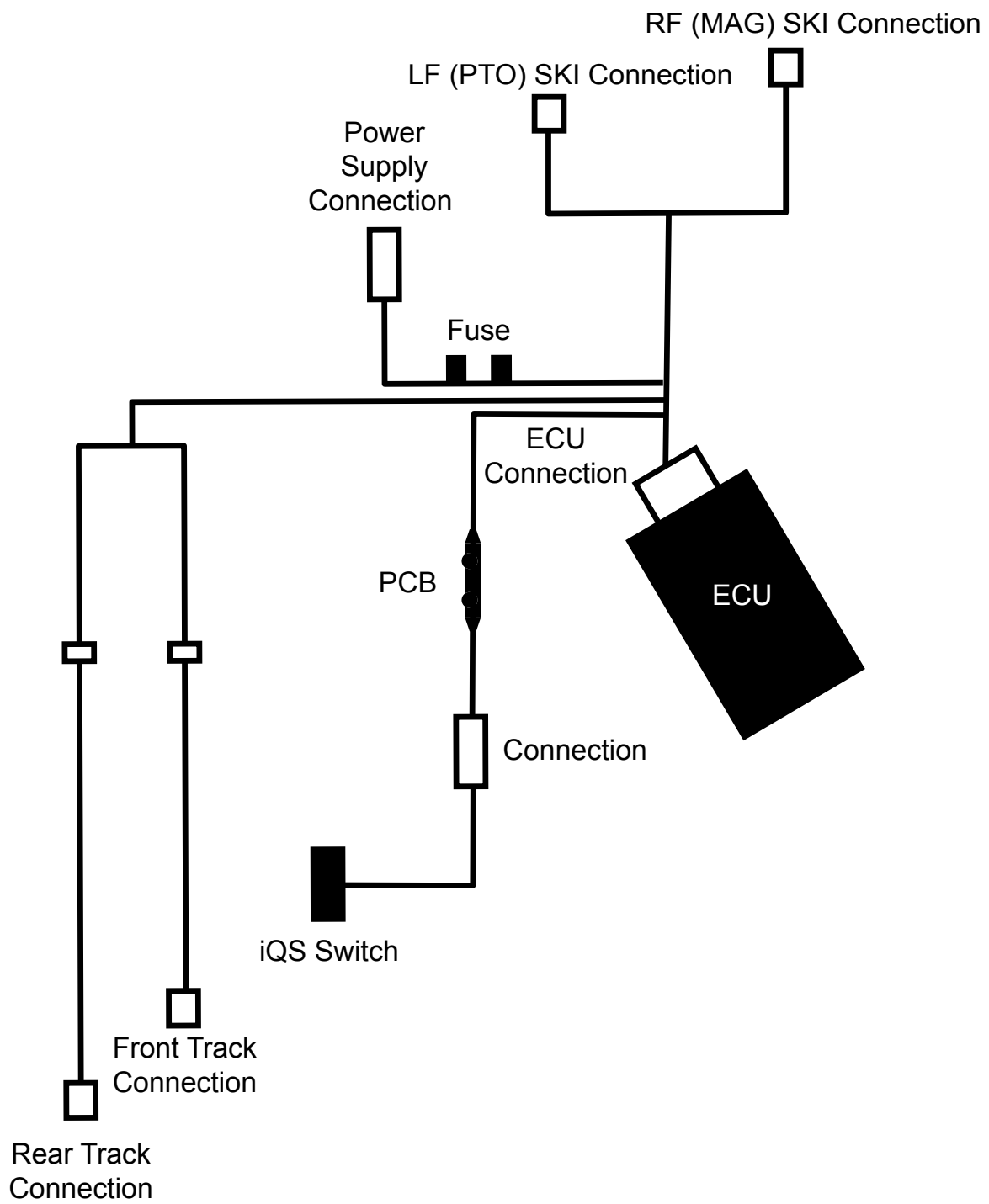
NEVER get under the vehicle until you have checked to ensure that the vehicle will be stable during installation. Placing body parts beneath an unstable vehicle may lead to **SERIOUS INJURY** or **DEATH**.

FOX direct-replacement shocks are designed to fit your vehicle's shock mounts with no modifications.

### HAZARDOUS WASTE DISPOSAL

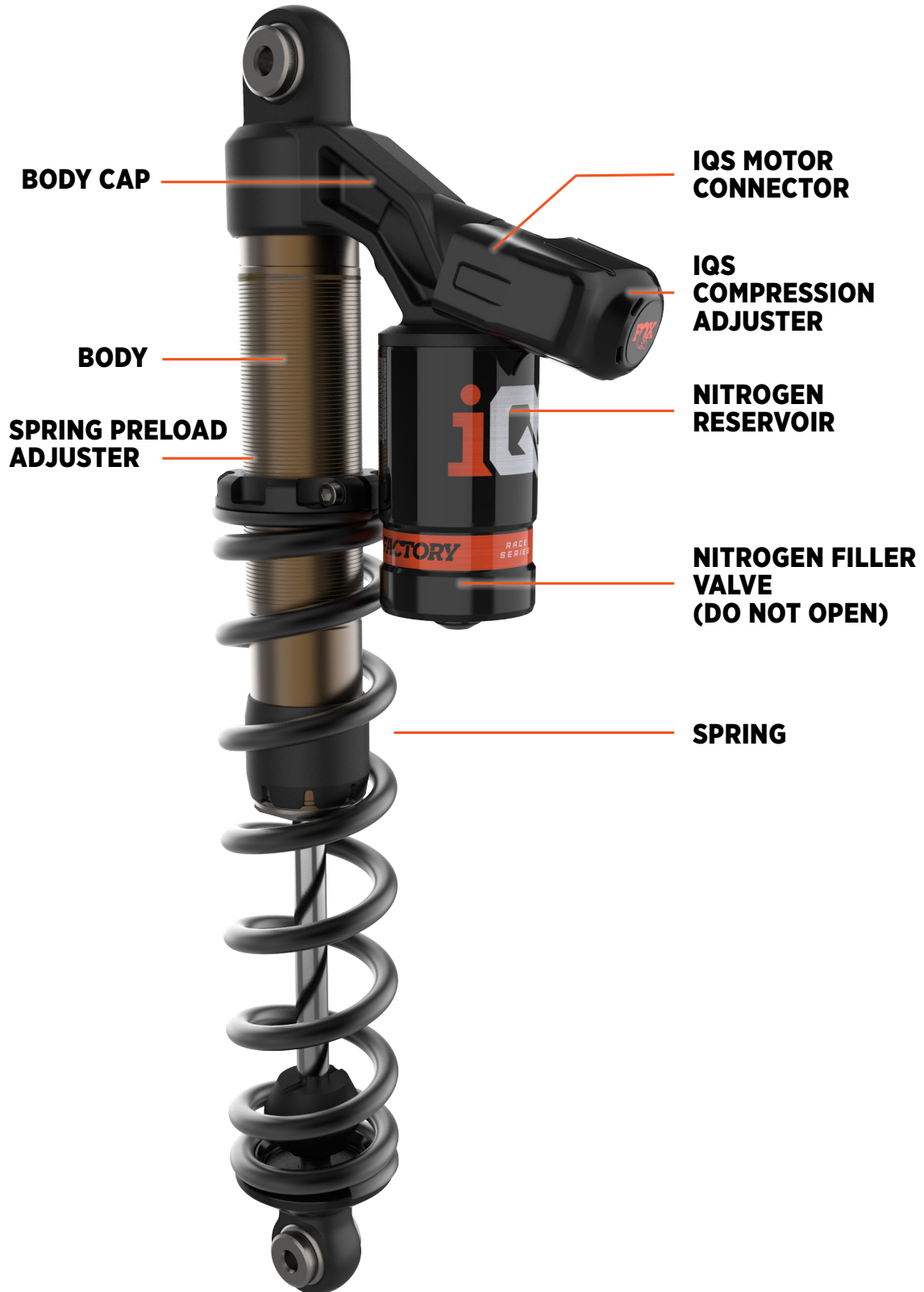
The FOX iQS electronics system may contain hazardous material and is considered e-waste in case of disposal, it cannot be thrown away with household waste. Please adhere to your local and federal regulations regarding e-waste and locate a designated e-waste handler or recycler.

# iQS MAIN HARNESS WIRING DIAGRAM





# FOX ZERO 1.5 IQS SHOCK PARTS DIAGRAM



## iQS COMPRESSION ADJUSTER

The FOX iQS handlebar switch gives you the ability to quickly and easily adjust the compression damping of your shocks on-the-fly. The iQS system has four unique modes:



SUSPENSION MODE DETAILS // FOX FACTORY				
	SKI	CENTER	REAR	RIDE CHARACTERISTICS
<b>HOLD "LOCKOUT"</b>	SOFT	MID	LOCK	EASY SIDE HILLING, PREDICTABLE CLIMBING (LIMITS WEIGHT TRANSFER AND TRENCHING) <small>*LONG PRESS TO ENTER MODE 4 (SLOW BLINK - ACTIVATED)</small>
<b>MODE 3</b>	FIRM	FIRM	MID	AGGRESSIVE TRAIL RIDING, INCREASED LOAD CARRYING CAPACITY
<b>MODE 2</b>	MID	MID	MID	BALANCED ALL AROUND SETTING
<b>MODE 1</b>	SOFT	SOFT	SOFT	MAXIMUM TRAIL COMFORT EASY SIDE HILLING AND DESCENT

### COMPRESSION SETTING

Compression damping affects how quickly the shock reaches full bottom-out. Adjusting the compression setting affects how quickly the shock compresses when bumps and corners are encountered.

The optimum compression setting usually requires the least amount of damping possible without bottoming out the shock. Firmer compression damping will typically feel harsh at slow speeds but plush at high speeds and during large g-outs and jumps. Firmer compression damping on ski shocks may provide more stability when cornering on the trail but can also make it more difficult to get the sled leaned over when boondocking.

### LOCKOUT MODE

Switching to Lockout mode will increase ski pressure, improve traction in deep snow, and improve transfer on top of the snow. The benefits of Lockout mode can provide superior stability when riding deep off-trail snow, hillclimbing, and boondocking.

#### ⚠ WARNING

Do not use Lockout mode while trail riding. The shock internals could reach pressures that may damage the shock and reduce performance.

## SHOCK AND WIRING HARNESS INSTALLATION

Item	Description	Quantity
850-02-024	Kit: BRP, AM, Summit RAS 3 Ski [17.53, 5.85] 1.5 Zero iQS	1
950-02-010	BRP, AM, Summit RAS 3 Right Ski [17.53, 5.85] 1.5 Zero iQS	1
950-02-011	BRP, AM, Summit RAS 3 Left Ski [17.53, 5.85] 1.5 Zero iQS	1
853-02-024	Kit: FOX Factory AM, BRP, Summit/Freeride, FT [14.28, 4.35] 1.5 Zero iQS, RT [17.36, 6.18] 1.5 Zero iQS	1
951-02-022	FOX Factory AM, BRP, Summit/Freeride, FT [14.28, 4.35] 1.5 Zero iQS	1
952-02-022	FOX Factory AM, BRP, Summit/Freeride 146/154/163, Rear Track [17.31, 6.18] 1.5 Zero iQS	1
018-05-030-A	Fastener, Standard: Washer [0.418 ID X 0.800 OD X .060 TH] SAE, Yellow Zinc	4
019-01-105	Fastener, Metric: Bolt [m8 x 1.25mm x 3.94"] hex head cap, class 8.8, steel, zinc plated	2
803-01-349	Kit: iQS, BRP Summit, Electronics Bundle	1
026-01-160	Mounting Hardware: Mounting Plate, iQS ECU, BRP Summit	1
026-01-161	Mounting Hardware: Clamp Pad, iQS ECU Mounting Plate [2.00 WD X .063 TH X 5.00 TLG] Adhesive-Backed Silicone, Red	1
006-02-020	Cover: iQS Wire Guard [2.01 H X .62 W X 11 TLG] Skid, BRP Summit, Front Arm	1
026-01-157	Mounting Hardware: Loop Clamp [1.00 ID x 0.50 THK] Vibration-Damping, Neoprene Rubber Cushion, 304 Stainless Steel	1
026-01-158	Mounting Hardware: Loop Clamp [.625 ID x 0.50 THK] Vibration-Damping, Neoprene Rubber Cushion, 304 Stainless Steel	2
026-01-200	Mounting Hardware: Loop Clamp [.375 ID x 0.50 THK] Vibration-Damping, Neoprene Rubber Cushion, 304 SS	1
019-01-103	Fastener, Standard (Metric): [M6 X 1, 16mm Long] 18-8 SS, Button Head, Socket Cap	1
019-00-022	Fastener, Standard (Metric): Nut [M6 X 1 X 6 TLG] Nylon Lock, 18-8 Stainless, DIN 985	1
019-01-145	Fastener, Standard (Metric): Screw [M4 X 0.7 X 12mm] Button Head Cap, 18-8 Stainless	10
019-00-021	Fastener, Standard (Metric): Nut [M4 X 0.7 X 5 TLG] Nylon Lock, 18-8 Stainless, DIN 985	10
019-01-147	Fastener, Standard (Metric): Washer [M4, 4.3mm ID X 9mm OD X 0.8mm Thk], 18-8 Stainless, DIN 125	20
026-01-153	Mounting Hardware: Vibration Damping Grommet [0.18" ID X 0.46" OD X 0.22" THK] For 0.32" Hole, 0.04" THK Plate, Extreme Temperature, Black	4
026-01-176	Mounting Hardware: Rubber Push-In Grommet [0.625" ID X 1.125" OD X 0.375" THK] For 0.875" Hole, 0.125" THK Plate, Black	1
026-00-009	Mounting Hardware: Cable Tie, .19" Width x 11" Length, Black	40
218-00-010	Electronic Part: Switch, iQS, 3 Button Momentary	1

## TOOLS

- 7 mm socket wrench
- 12 mm socket wrench
- 13 mm socket wrench
- 15 mm socket wrench
- 16 mm socket wrench
- 17 mm socket wrench
- Torx® T25
- Torx® T27
- 2.5 mm hex wrench or socket
- Small flat blade screwdriver
- Flush cut side cutter (preferred)
- # 11 step drill (for 7/8 inch tunnel hole)
- 300 mm flat scale
- Center punch and hammer
- #2 Phillips screwdriver
- #16 drill bit (for tunnel p-clamp hole)
- Torque wrench

Note: Sockets will need the appropriate ratchets and extension.

Required tools and supplies may change over time. Visit [ridefox.com](http://ridefox.com) or contact a representative for the most up-to-date details.



#11 Step Drill

## INSTALL THE SKI SHOCKS

1. Ensure that your snowmobile is safely supported with a floor jack or jack stand. Make sure the skis are off the ground and there is no load on the front suspension.

### ⚠ CRUSH HAZARD

Failure to properly secure the snowmobile can create a crush hazard. Do not place body parts below a snowmobile that is not secured properly.

2. Remove the stock ski shocks according to the manufacturer's instructions. The stock shocks should be fully extended before removing.

### ⚠ PINCH HAZARD

If the stock shocks are not fully extended before removing the stock shocks, the bolts will be difficult to remove and the snowmobile could collapse on the shock. This could result in pinched hands or fingers as the shock dislodges from the mounting point.

3. Install the 1.5 ZERO iQS ski shocks. Use a 13 mm and 15 mm sockets or wrenches, along with the original hardware, to mount the nitrogen reservoir end to the chassis. Orient the reservoirs toward the **front** of the snowmobile. Torque the original hardware to the manufacturer's specification.



Figure 1



Figure 2



## PREPARATION

1. Remove the side panels and hood according to your snowmobile manufacturer's instructions.
2. Remove the rear suspension assembly according to your snowmobile manufacturer's instructions.
3. Remove the exhaust, according to your snowmobile manufacturer's instructions, for accessibility when installing the main harness wiring.

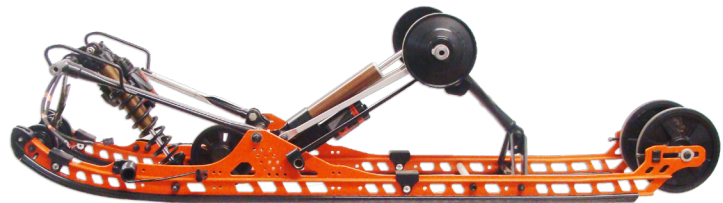


Figure 3: Rear Suspension Assembly

## PREPARE THE TUNNEL

1. You will need to drill a hole in the rider's right (MAG) side tunnel for the wiring harness to route through. Measure 120 mm (4.724 in) forward of the front torque mounting bolt and make a mark (Figure 4). All measurements and figures shown are taken from the inside of the tunnel, NOT from the outside. We recommend drilling from the inside of the tunnel.
2. Measure 190 mm (7.480 in) down from the top of the tunnel and make a mark (Figure 5).

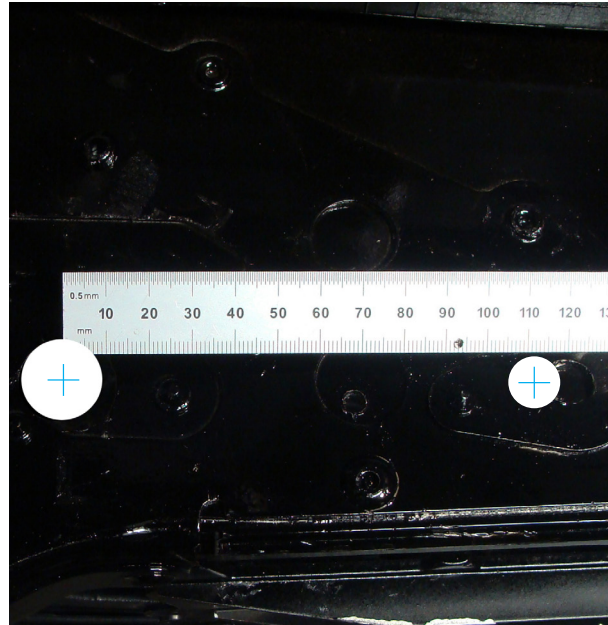


Figure 4: first mark for drill hole (left), front torque arm mounting bolt (right)

### NOTE

Measure twice and drill once. Do not drill holes in your tunnel unless you are absolutely sure the positioning is correct. For additional reference, see our installation video here:

[www.https://vimeo.com/ridefox](https://vimeo.com/ridefox)

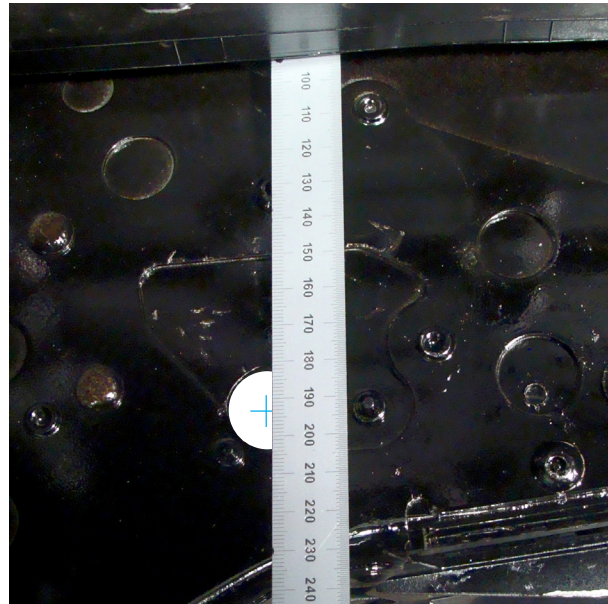


Figure 5: second mark for drill hole

3. Use a #11 step drill to drill a 22.25 mm (0.875 in) hole through the tunnel. Debur all edges.

4. Install the supplied tunnel grommet (O26-01-176 Rubber Push-in Grommet) into the hole.

5. You will also need to drill a hole in the rider's right (MAG) side tunnel for the installation of the p-clamp, which will occur in a later section.

6. Measure 52 mm (2 in) forward of the front torque mounting bolt and make a mark (Figure 6).

7. Measure 190 mm (7.5 in) down from the top of the tunnel and make a mark (Figure 6).

8. Use a #16 drill bit to drill a hole through the tunnel. Debur all edges.

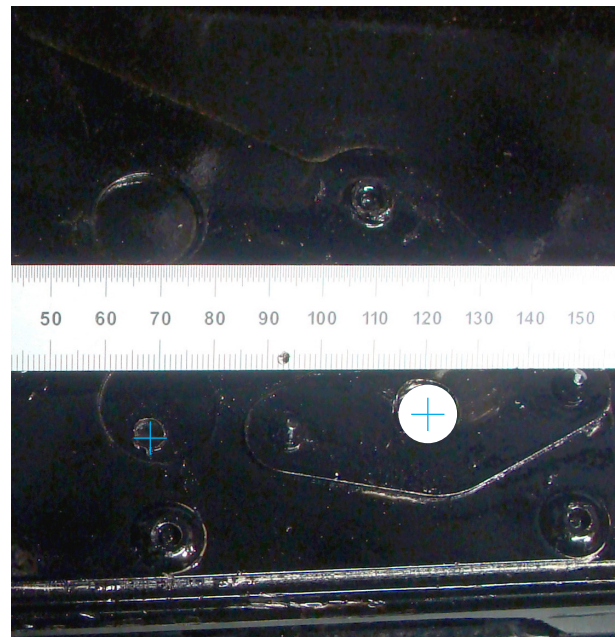


Figure 6: P-clamp drill hole (left), front torque arm mounting bolt (right)

## INSTALL THE TRACK SHOCKS

### ⚠ WARNING

Improper installation of the shocks or wire harness can cause interference with the action of the rear suspension, resulting in possible loss of control and rider injury or death.

1. Position the front track shock with the reservoir oriented to the rider's right side (Figure 7). Torque the original hardware to the manufacturer's specification. Set the spring preload between a minimum of 1/4 inch to a maximum of 5/8 inch of spring preload.
2. Assemble the upper and lower link rods using the two bolts (100 mm long) and the four supplied washers (.060 inch thick). Install a washer between the link rod and the bushing on all four ends, as indicated by the arrows (Figure 8). Use a 12 mm and 13 mm socket to torque to the manufacturer's specification.
3. Position the rear track shock with the reservoir under the shock body, facing down (Figure 8). Torque the original hardware to the manufacturer's specification.

**Note:** this position will be the opposite position of the stock/OE shock reservoir, which faces up.



Figure 7: Orientation of front track shock reservoir



Figure 8: Orientation of rear track shock reservoir. Four arrows point to washer locations.



## ROUTE THE REAR TRACK SHOCK WIRING

1. Press the rear track wire connector into the rear track shock motor until it clicks.
2. Route the wiring harness as shown. Install the supplied 3/8" p-clamp and M6 hardware to the middle hole in the top row of the right-side rail and align the blue marking on the harness with the p-clamp as shown in figures 9, 10, and 12. Secure the wiring with two cable ties: one cable tie around the loop at the connector (Figure 9b), and one cable tie around the front torque arm tube just before the torque arm guard (Figure 11).

### NOTICE

You must leave slack around the pivot point so the suspension can move through its travel without damaging the wiring harness. **It is critical that there is at least 6" of slack between the cable tie around the connector loop and the p-clamp.**

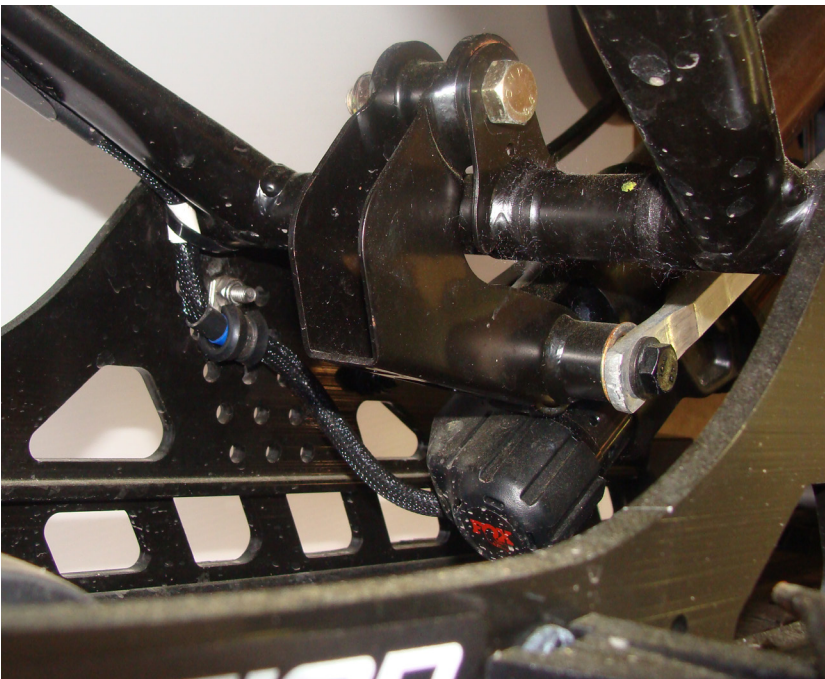


Figure 9a



Figure 9b



Figure 10



Figure 11

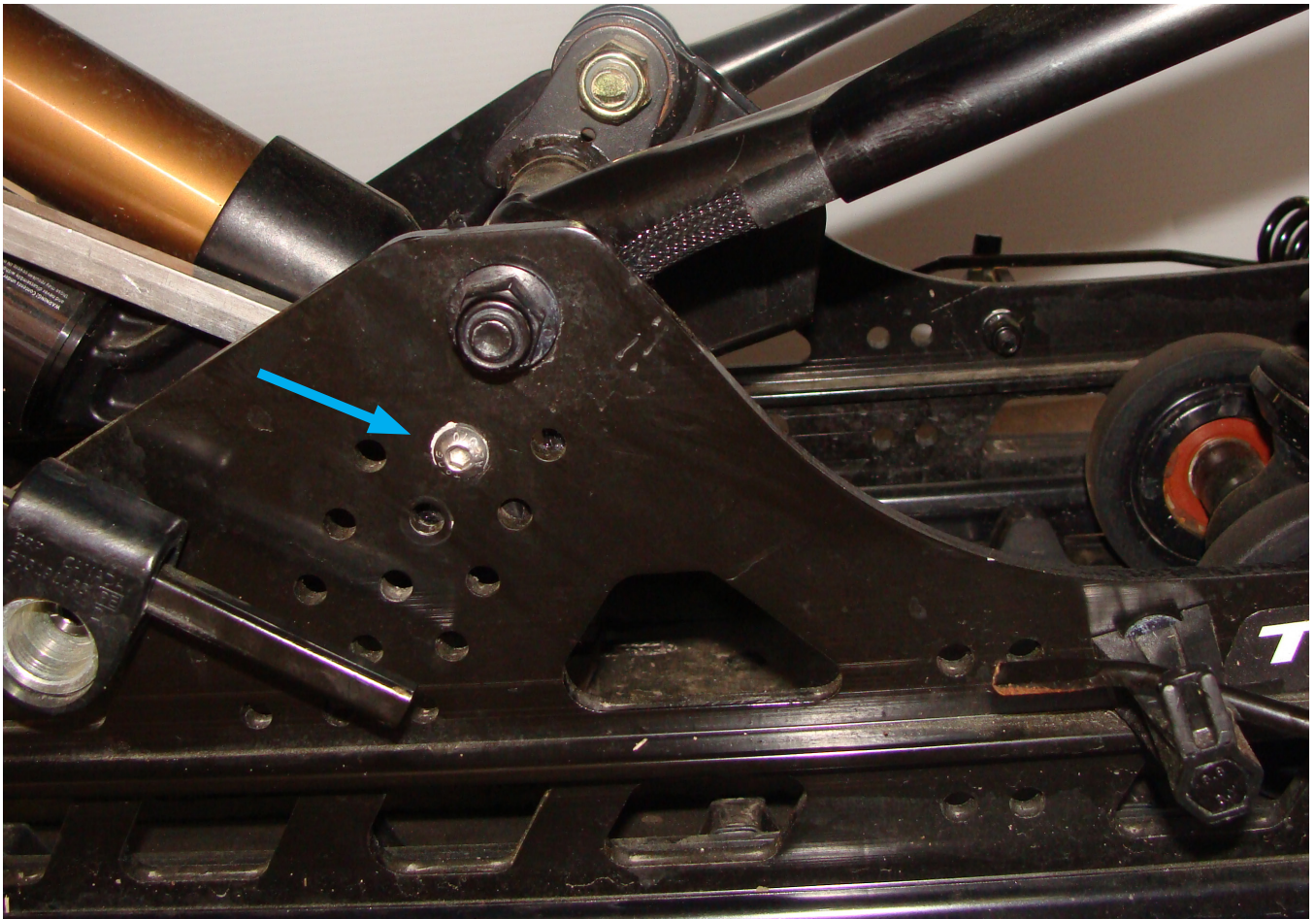


Figure 12



## INSTALL THE WIRING HARNESS GUARD

1. Secure one cable tie to the most upper/forward section of the front arm, as shown. Make sure the harness is routed along the outer edge of the front arm (Figure 13).



Figure 13

2. Install the front torque arm harness guard over the front arm and the harness (Figure 14). Use the three supplied stainless steel bolts, three washers, and three nylock nuts. Ensure the heat shrink tubing (the smooth section of tubing that protects the wiring from the edges of the guard) is aligned with each end of the guard. Tighten the bolts to 2.5 N·m (22.1 in-lb).

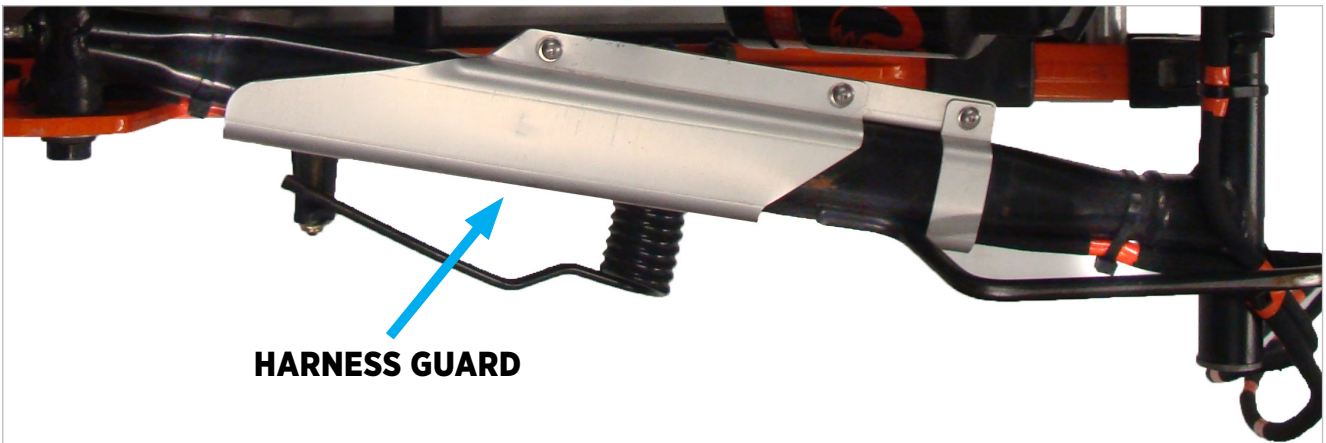


Figure 14

## ROUTE THE FRONT TRACK WIRING

1. Press the front track wiring connector into the shock motor until you hear a click.
2. Route the wiring harness as shown. Ensure the harness is routed on the cross tube as shown and exits on the right side (Figures 15 and 16).

### NOTICE

Failure to route the front track wiring properly can result in damage to the system. Upon full compression, this section can bottom out on the slide rail and can cut the wiring, causing system failure.

3. Secure the wiring with four cable ties: one cable tie around the body cap (Figure 14) and three cable ties around the cross tube (Figure 16).
4. Follow the manufacturer's instructions to reinstall the rear suspension assembly, reset the limiter straps, torque all bolts and mounting hardware, and adjust the track tensions before moving to the next step.



Figure 15





Figure 16

## INSTALL THE MAIN WIRING HARNESS

1. Locate all parts of the main harness using the Parts Diagram on page 4. Note that each harness is labeled with the corresponding location where it will connect (example: Right Front Ski = RF SKI).
2. Lay out the main harness on the chasis. Loosely place the wiring harness with track leads pointing toward the rear of the snowmobile and ski leads placed out toward each respective ski.
3. Secure the PCB section of the main wiring harness by placing cable ties around each end of the wiring. Do NOT place cable ties around the PCB section of the main wiring harness (Figures 17 and 18).

### NOTICE

Do not place cable ties around the PCB section of the main wiring. The system will not function properly and can become damaged if cable ties are attached directly over the PCB (Figures 17 and 18).



Figure 17

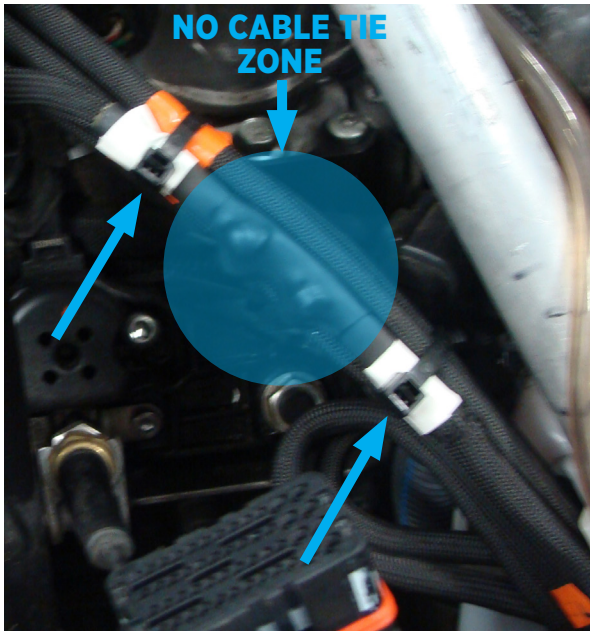


Figure 18

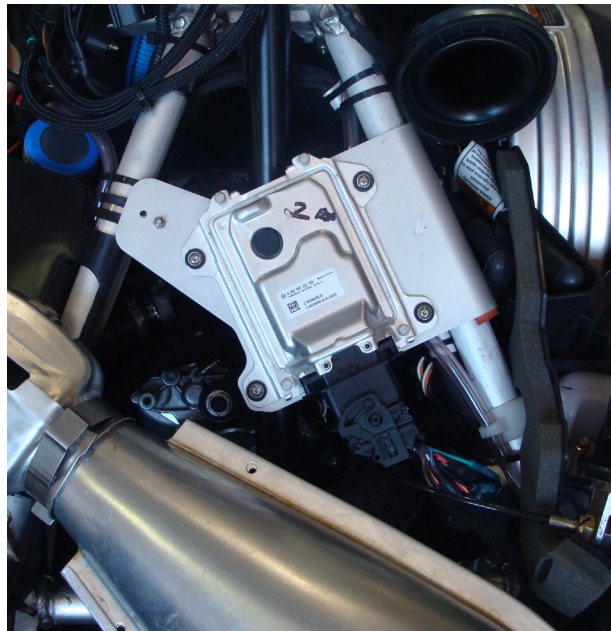


Figure 19



## INSTALL THE SKI SHOCKS WIRING

1. Use a Torx T27 socket to remove the two torque screws from the front bottom pan and the side bottom pan. Complete steps 1-5 on both the right (MAG) side and left (PTO) side.
2. Separate the pans to allow the right (MAG) and left (PTO) wiring to pass through (Figures 20 and 21).



Figure 20: wiring before it is passed between the pans



Figure 21: wiring after it is passed between the pans

3. Press the wiring harness connector into the shock motor connector until you hear a click. Then place a cable tie around the harness and shock body cap (Figure 22 and 23).



Figure 22



Figure 23

4. Route the wiring along the aluminum frame tube and attach two cable ties (Figure 24).
5. Use a Torx T27 socket to reinstall the two torque screws on the front bottom pan and side bottom pan.

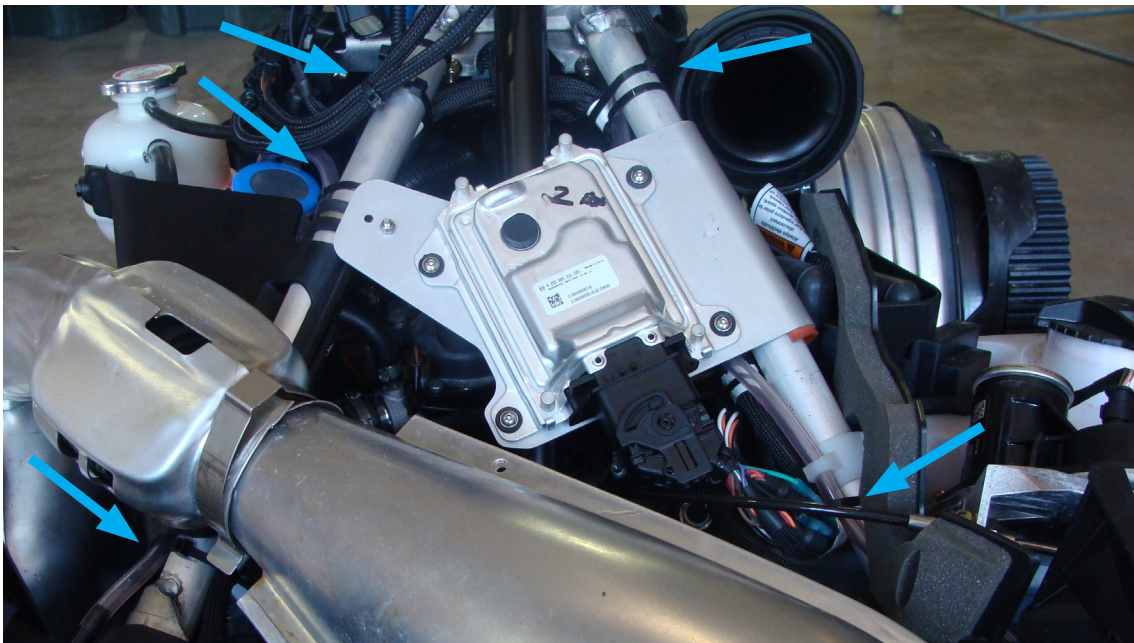


Figure 24



## CONNECT TO THE MAIN POWER

1. Locate the snowmobile's accessory power plug. For 2018 and older models, the accessory plug is black and can be located on the back of the coolant tank (Figure 25). For 2019 and newer models, the accessory plug is grey and can be located behind the rip cord handle (Figure 26). Locate the power supply end of the main wiring harness, which has two fuse blocks on it.
2. Press the two power supply plugs together until they click. Use cable ties to secure the iQS power supply lead along the gas tank cover (Figure 27).

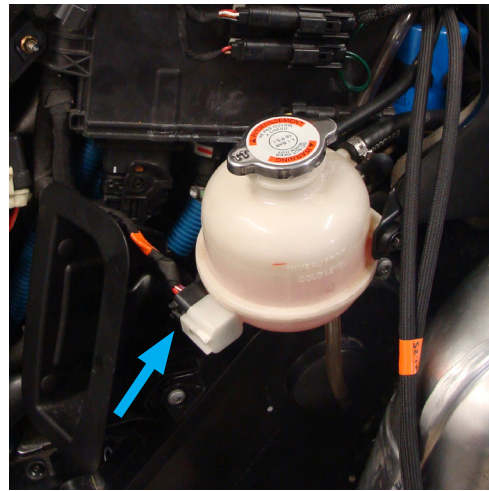


Figure 25



Figure 26

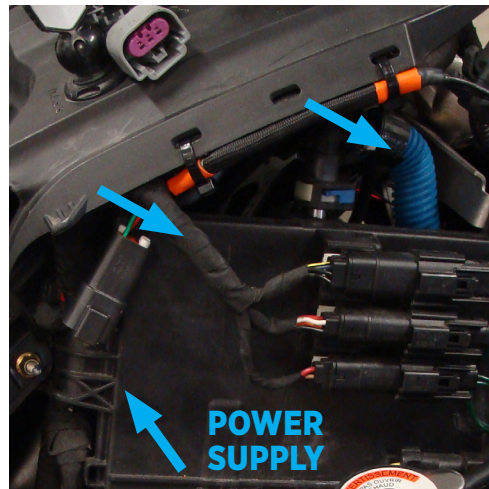


Figure 27

## ROUTE THE MAIN HARNESS TRACK SHOCK WIRING

1. Remove the exhaust for accessibility and rotate the heat shield out of the way (Figure 28). Refer to the manufacturer's instructions for removal and installation of the exhaust silencer.
2. Locate the main harness track leads. Route the leads along the rider's right of the snowmobile, under the OEM harness and coolant hose, and along the chain case (Figure 29). Leave the leads loose for now until you're ready to connect to the rear harness track leads.



Figure 28



Figure 29



## CONNECT THE REAR HARNESES TO THE MAIN HARNESS

1. Route the front track and rear track harness wires through one of the p-clamps (026-01-158 Loop Clamp [.625 in x 0.500 in THK]). Use one bolt, one nylock nut, and two washers to secure the p-clamp to the hole you made in the tunnel to support the rear suspension wiring harnesses (Figure 30). Torque to 2.5 N·m.
2. Install the grommet (026-01-176 rubber push-in grommet) into the tunnel hole, if not already installed. Then route both wiring harnesses through the grommet (Figure 31).
3. Tuck the wires down into the chain case cavity of the running board as shown (Figure 32).

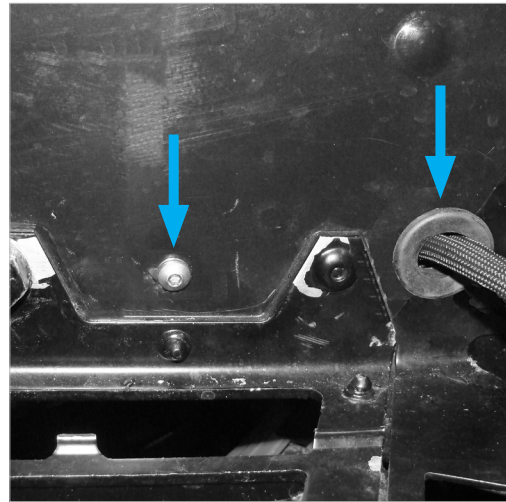


Figure 30: p-clamp location (left), grommet (right)

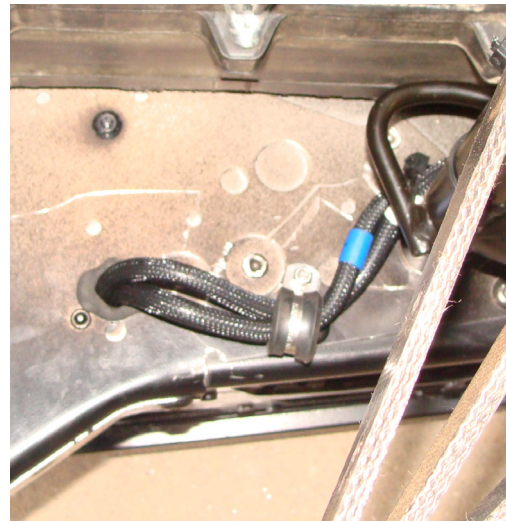


Figure 31

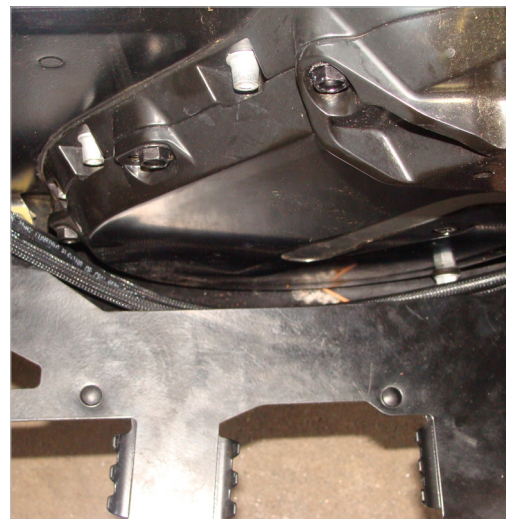


Figure 32

4. Use a 10 mm socket to remove the nut on the lower chain-case mounting bolt (Figure 33).

5. Route both harnesses through the second p-clamp (026-01-158 Loop Clamp [.625 in x 0.500 in THK]). Use the existing nut to install the p-clamp to the lower chain-case mounting bolt as shown (Figure 34). Torque to the manufacturer's specification.

6. Connect the front and rear track leads to the main harness: connect the two leads labeled "rear track" and connect the two leads labeled "front track" (Figure 35).

7. Attach one cable tie to the track wires and rotary sensor cable, and one behind the chain case. This cable tie should only capture the two wires together and will not secure them to any other parts (Figure 36).

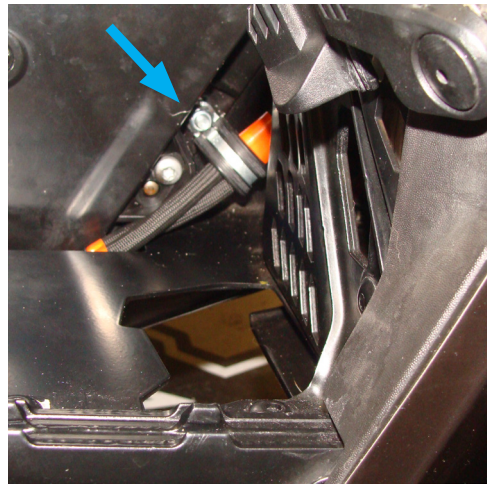


Figure 33: lower chain-case mounting bolt

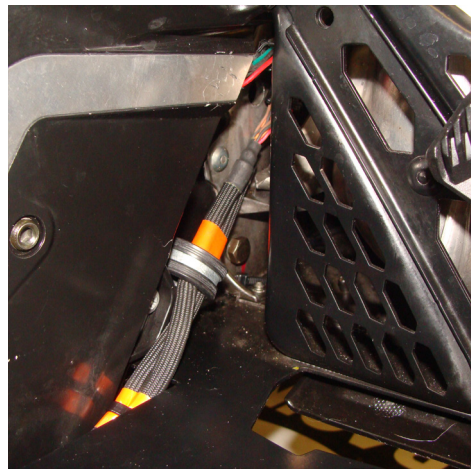


Figure 34

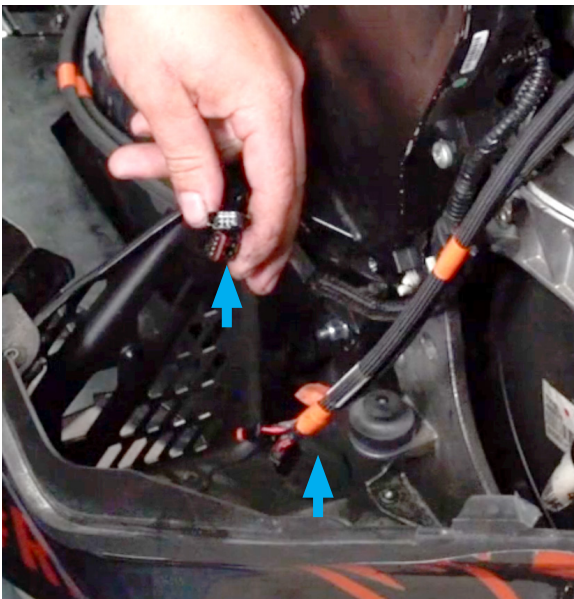


Figure 35: arrows showing connection ends of leads labeled "front track" and "rear track"



Figure 36



## INSTALL THE IQS SWITCH

1. Remove the factory cable ties from the OEM left-side handlebar wiring.
2. Use a Phillips screwdriver to loosely install the IQS switch onto the handlebar (Figure 37). Before you completely tighten the screw, sit on the snowmobile and position the switch in a comfortable position for your hand. Then tighten the screw to 1.2 N.m (10.6 in-lb).

### PINCH HAZARD

The IQS switch mount can pinch hands or fingers. Do not to place hands or fingers in the clamp during installation.

3. Route the wiring along the lower part of the handlebar. Replace the factory cable ties at the IQS switch. Secure the wiring along the brake line with cable ties until it passes the gas tank cover (Figure 38).
4. Route the wiring into the upper frame structure (Figure 39). Connect the plug-in at the end of the PCB line to the handlebar switch connector until you hear a click.

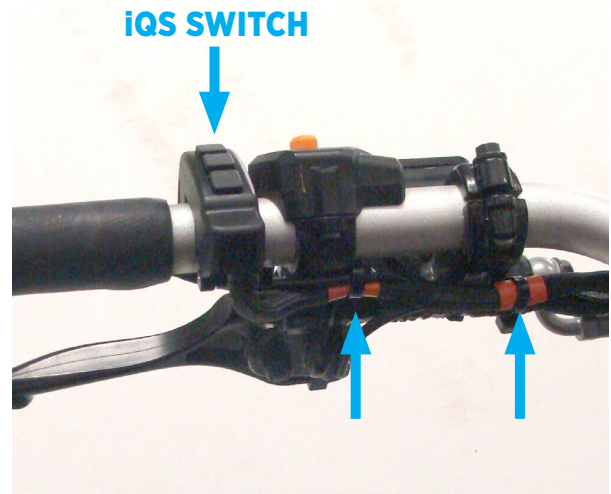


Figure 37

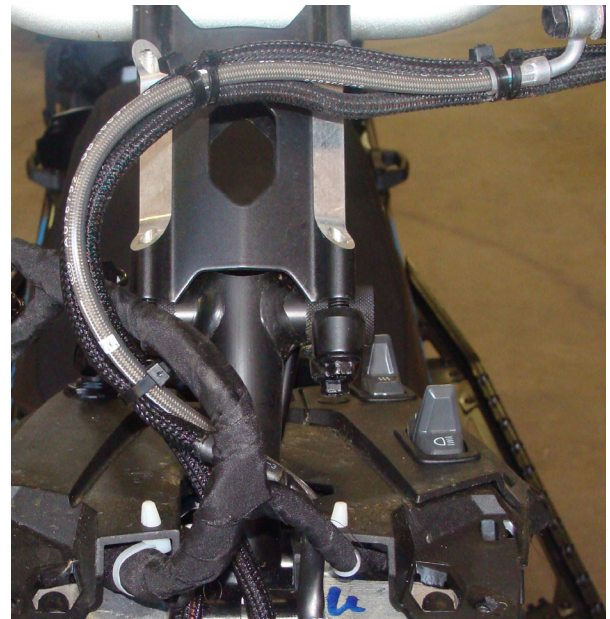


Figure 38



Figure 39

## INSTALL THE ECU ASSEMBLY

1. Install the ECU onto the ECU mounting plate using the provided hardware. Install the four grommets, followed by the four nuts, eight washers, and four bolts. Make sure to keep the bottom edge of the ECU parallel to the bottom edge of the ECU plate (Figure 40). Tighten the bolts **ONLY** until the nylock is fully engaged.

### NOTICE

**Do NOT** over-tighten the bolts. Over-tightening the bolts can damage rubber grommets.

2. Remove the plastic from the adhesive anti-vibration clamp pad. Apply the clamp pad to the inside channel of the ECU plate (Figure 41).
3. Install the ECU assembly by pressing the curved channel of the ECU plate onto the rider's left aluminum frame support (Figure 42).
4. Use the supplied p-clamp and hardware (one nut, two washers, one bolt) to attach the assembly to the rider's right aluminum frame support. (Figure 42). Torque to 2.5 N·m (22.1 in·lb).

### NOTICE

Make sure there is sufficient clearance between the ECU assembly and the steering post.

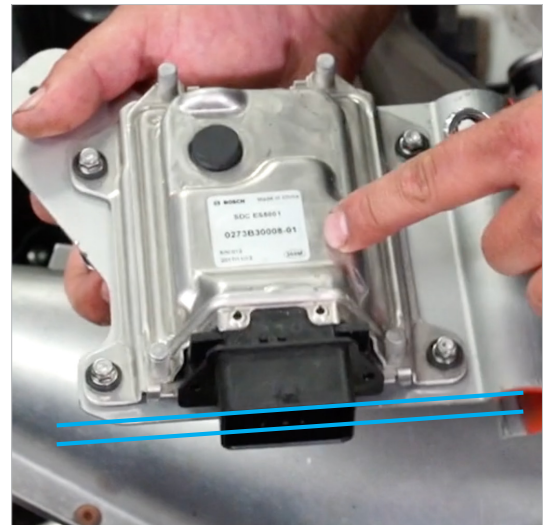


Figure 40: parallel blue lines show proper alignment of ECU and ECU plate



Figure 41

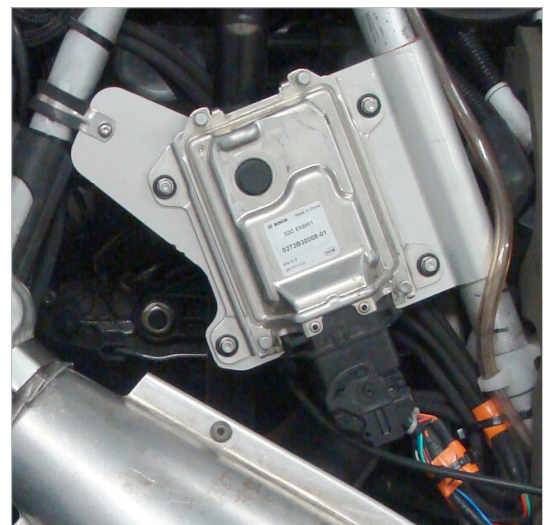


Figure 42



5. Connect the main harness connector to the ECU assembly (Figure 43).
6. Rotate the clip from the open position (Figure 44) to the locked position (Figure 45) until you hear a click.
7. You have now completed the installation of the iQS System.

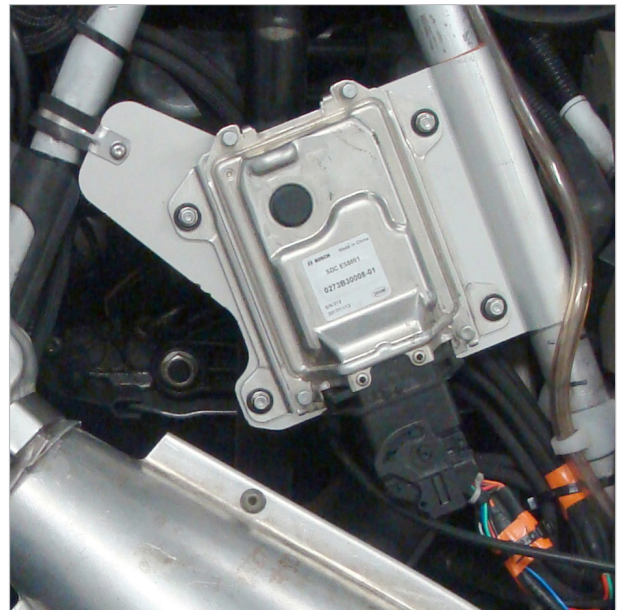


Figure 43

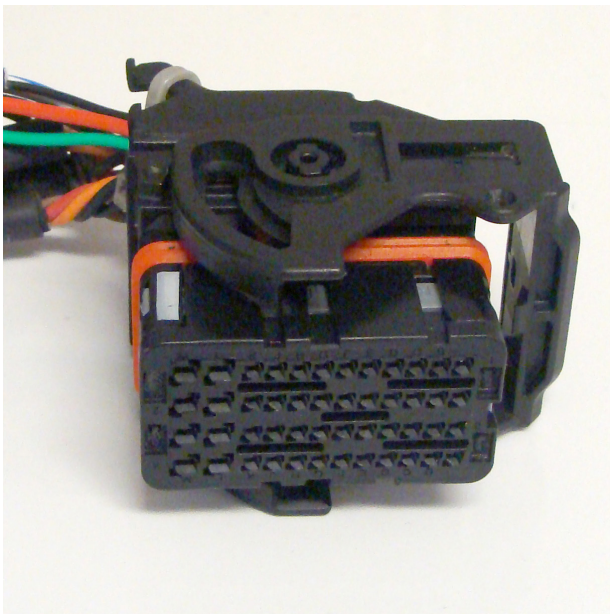


Figure 44: Open Position

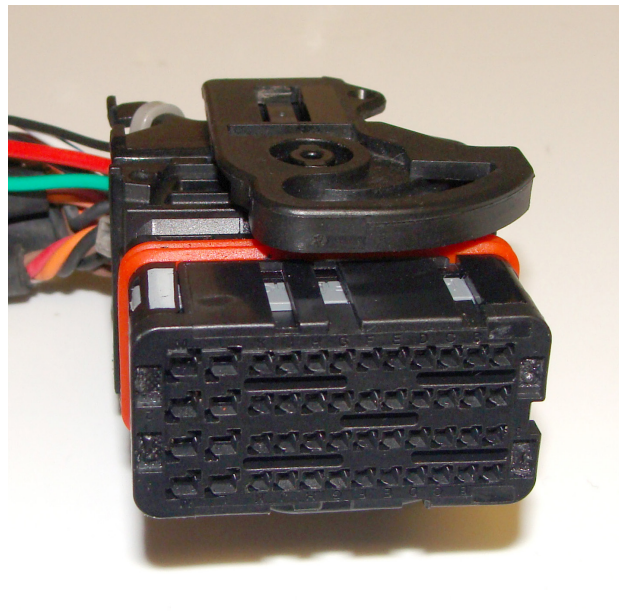


Figure 45: Locked Position


## FINAL CHECK

- Check all connections to make sure they are secure.
- Make sure all cable ties are in line with the colored designated cable tie locations along the wiring harness.
- Before you install the side panels and hood, check the wiring harness to make sure the wiring does not come in contact with the exhaust system, steering system, or any other components that may cause damage to the system.
- Turn the handlebars to full lock in both directions to confirm there are no steering issues.
- Make adjustments if you notice anything questionable. If you aren't sure if the iQS system is installed properly, contact FOX at [www.ridefox.com](http://www.ridefox.com) Help Center/Powersports/Warranty or Contact a representative at: 1.831.740.4619.
- Reset limiter straps.
- Reset torsion springs.
- Torque all bolts and mounting hardware to manufacturer's specifications.
- Adjust the track tension to the manufacturer's specifications.
- Reinstall the exhaust silencer and the inner shield according to manufacturer's instructions.
- Reinstall hood and side covers according to manufacturer's instructions.
- After first short ride, check wire placement.
- Occasionally monitor your iQS system to ensure there has been no movement of parts, wiring, or cable ties.



## iQS SYSTEM TEST

Once you have completed the installation and setup of the whole system, run the iQS System Test. FOX recommends you run this test before every ride or any time you suspect there may be an issue.



SUSPENSION MODE DETAILS // FOX FACTORY				
	SKI	CENTER	REAR	RIDE CHARACTERISTICS
<b>HOLD "LOCKOUT"</b>	SOFT	MID	LOCK	EASY SIDE HILLING, PREDICTABLE CLIMBING (LIMITS WEIGHT TRANSFER AND TRENCHING) <i>*LONG PRESS TO ENTER MODE 4 (SLOW BLINK - ACTIVATED)</i>
<b>MODE 3</b>	FIRM	FIRM	MID	AGGRESSIVE TRAIL RIDING, INCREASED LOAD CARRYING CAPACITY
<b>MODE 2</b>	MID	MID	MID	BALANCED ALL AROUND SETTING
<b>MODE 1</b>	SOFT	SOFT	SOFT	MAXIMUM TRAIL COMFORT EASY SIDE HILLING AND DESCENT

1. Start the snowmobile.

- The top and bottom buttons should illuminate solid during the short calibration sequence.
- Once the calibration is complete (about 5 seconds), the system should default into last remembered mode.

2. Press the bottom "SOFT" button.

- Confirm only the bottom button illuminates solid.
- Rock the snowmobile back and forth to confirm the ski shocks feel soft.
- Push up and down on the rear of the tunnel to confirm the track shocks feel soft.

3. Press the middle "MED" button.

- Confirm only the bottom and middle buttons illuminate solid.
- Rock the snowmobile back and forth to confirm the ski shocks feel stiffer than "SOFT" mode.
- Push up and down on the rear of the tunnel to confirm the track shocks feel stiffer than "SOFT" mode.

4. Press top "FIRM/LOCK" button.

- Confirm ALL buttons illuminate solid.
- Rock the snowmobile back and forth to confirm the ski shocks feel stiffer than "MEDIUM" mode.
- Push up and down on the rear of the tunnel to confirm the track shocks feel stiffer than "MEDIUM" mode.

5. Press and hold the top "FIRM/LOCK" button for 3 seconds.

- Confirm the bottom and middle buttons illuminate solid while the top button blinks.
- Rock the snowmobile back and forth to confirm the ski shocks feel soft.
- Push up and down on the rear of the tunnel to confirm the rear track shocks feels stiffer than "FIRM" mode.

# SHOCK SETUP

## SKI SHOCKS

The most important step in setting up snowmobile suspension is setting the “sag” of the front and rear suspension. Sag is the distance the suspension compresses with rider and gear on the machine, otherwise known as ride height. Dialing in your sag will ensure your snowmobile’s suspension is properly balanced.

1. Ensure that your snowmobile is safely supported with a floor jack or jack stand with the skis off the ground and no load on the front suspension.

### ▲ CRUSH HAZARD

Failure to properly secure the snowmobile can create a crush hazard. Do not place body parts below a snowmobile that is not secured properly.

2. Set your ski shocks at the preload starting point, which is 10.25 inches installed spring length.
3. Place the snowmobile with the skis on a hard, level surface, preferably on a thin piece of cardboard or plastic to allow the carbides to slide on the surface.
4. Push up and down on the front bumper three times. Then measure the sag shock length of both shocks WITH THE RIDER AND GEAR ON THE SNOWMOBILE. Round the measurement length to the nearest 1/16 inch.
5. If the sag shock length is not at 30% (15.78 inches) of total travel, adjust the preload to achieve desired 30% sag shock length. Repeat steps 1-4 until 30% sag shock length is reached.

**TIP: Increase the spring preload 2-3 revolutions:** If the front of the vehicle is too low as you are riding, if you pass through the available travel too quickly on big bumps, or if you have too much roll in corners. **Decrease the spring preload 2-3 revolutions:** If the front of the vehicle is too high, if you are not fully utilizing the available travel, or if the sled does not roll over easy in corners (deep snow powder turns.)

## TRACK SHOCKS

1. Once you have the front suspension sag set at 30% shock travel, set the rear suspension sag. Lift the rear of the snowmobile so there is no load on the rear suspension. Measure the distance from the rear bumper to the floor.

**NOTE:** This step may be easier with the sled rolled over onto its side.

2. Place the rear of the snowmobile back on the ground. Remeasure the distance from the rear bumper to the floor with the rear suspension completely bottomed.

3. Calculate the 30% sag height of your snowmobile. Calculation example below:

Distance "A" : Distance from the rear bumper to the floor with rear suspension unloaded as measured in step 5.

Distance "B" : Distance from the rear bumper to the floor with rear suspension bottomed as measured in step 6.

$A - B = [\text{TOTAL TRAVEL}]$

$[\text{TOTAL TRAVEL}] \times .30 = [\text{30\% TRAVEL SAG}]$

$A - [\text{30\% TRAVEL SAG}] = [\text{DESIRED 30\% SAG HEIGHT}]$

4. Push up and down on the rear bumper three times. Measure the sag height of the rear suspension WITH THE RIDER AND GEAR ON THE SNOWMOBILE. Round the measured length to the nearest 1/16 inch. Repeat steps 1-4, adjusting the preload on the torsion springs until 30% sag shock length is reached.
5. After setting rear sag, recheck front sag and adjust accordingly. Repeat as necessary. Increasing rear suspension preload will put more weight on front suspension and vice-versa.

**IMPORTANT:** Only adjust the spring preload on the rear shock when dialing in the rear suspension sag. Front track shock spring preload will effect steering effort, weight transfer, braking, and bump absorption but should not be used to adjust sag height.

**NOTE:** If desired sag setting cannot be achieved with the OEM torsion spring, contact your local dealer for an alternate rate torsion spring.

## FINE TUNING YOUR SUSPENSION

At this point, you have set the sag of your snowmobile by adjusting preload. Use the below fine-tuning guide to achieve your preferred suspension setting.

FINE-TUNING SPRING ADJUSTMENTS		
Adjustment	Result	Ride Conditions
Ski	Increased Preload	Increased stability at high speeds
		Increased load capacity
		Increased ride height
		Lighter steering
	Decreased Preload	Increased ski pressure
		Increased slow speed comfort
Easier chassis roll initiation		
Front Track	Increased Preload	Lighter steering
		Increased traction, braking, bump absorption
		Increased flotation
	Decreased Preload	Increased ski pressure
		Increased track attack angle
Rear Track	Increased Preload	Increased hill climbing stability
		Increased boondocking maneuverability
		Increased ski pressure
		Increased bottom-out resistance
	Decreased Preload	Increased comfort at low speeds
		Easier wheelie initiation

iQS ADJUSTMENTS		
Adjustment	Result	Ride Conditions
Lockout Setting	Increased boondocking maneuverability	Steep hill climbing
	Increased hill climbing stability	
Firm Setting	Increased bottom-out resistance	Aggressive boondocking, sidehilling, jumping, high-speed trail riding
	Decreased chassis roll at high speeds	
Medium Setting	Best all-round compression setting	Constant transitions through various ride conditions
Soft Setting	More plush ride at slow speeds	Slow-speed boondocking and sidehilling, with increased flotation
	Easier chassis roll initiation	

## FINE TUNING YOUR SUSPENSION (continued)

<b>FINE-TUNING LIMITER STRAP ADJUSTMENTS</b>		
<b>Adjustment</b>	<b>Result</b>	<b>Ride Conditions</b>
Longer Limiter Strap Setting	Increased boondocking maneuverability	Aggressive boondocking, sidehilling, and jumping
	Increased bump absorption	
	Better deep snow starts	
Factory Limiter Strap Setting	Best all-round setting	Constant transitions through various ride conditions
Shorter Limiter Strap Setting	Increased track attack angle for hill climbing	Hill climbing or high-speed groomed trails
	Decreased weight transfer	
	Decreased chassis roll at high speeds	



# TROUBLESHOOTING

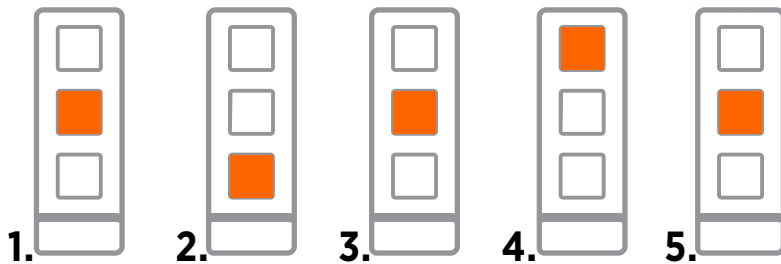
## DIAGNOSTIC MODE

The FOX iQS system comes with a built-in Diagnostic mode that can help troubleshoot any issues you may have. To enter Diagnostic mode, restart the snowmobile and enter the button sequence below within the first 10 seconds of restart.

Once entered into the Diagnostic mode, fault codes are indicated as the number of blinks on the FIRM/LOCK and MEDIUM buttons of the iQS handlebar switch. A graphical representation of the Diagnostic mode can be found on the next page.

## DIAGNOSTIC MODE SEQUENCE



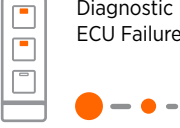



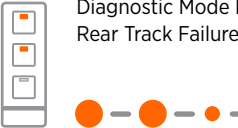
SEQUENCE	BUTTON
1	MEDIUM
2	SOFT
3	MEDIUM
4	FIRM/LOCK
5	MEDIUM



## NOTE

- Only current faults will be displayed in Diagnostic blink mode. No historic faults will be shown.
- A 1-2 start blink code will display upon entering Diagnostic mode and before current system fault codes are displayed. This signals that the Diagnostic mode has begun and follows with fault code.
- The start code and current system fault codes will continue to repeat until the system is powered off and restarted.
- The only way to exit Diagnostic mode is to restart the snowmobile.

## TROUBLESHOOTING CONTINUED

PROBLEM	TROUBLESHOOTING MEASURE
 <p>iQS handlebar switch is unresponsive with no buttons illuminated</p>	<ul style="list-style-type: none"> <li>- Check iQS wire harness connection to the snowmobile's power.</li> <li>- Check the in-line fuses on the iQS wire harness. Replace if bad.</li> </ul>
 <p>iQS handlebar switch is unresponsive with the top and bottom buttons illuminated solid</p>	<ul style="list-style-type: none"> <li>- Conduct a visual inspection of your iQS wire harness and ECU.</li> <li>- If no clear harness damage, enter Diagnostic mode to read fault code.</li> </ul>
 <p>Diagnostic Mode Blink Pattern: 1-1 ECU Failure</p>	<ul style="list-style-type: none"> <li>- Inspect the ECU connector. Ensure it is properly plugged in and locked in place.</li> <li>- Unplug ECU connector, inspect for water intrusion. If water intrusion occurs, dry the connector and the ECU then reconnect.</li> <li>- If parts are physically damaged or the source of the fault cannot be identified, contact a Fox Representative at 1.831.740.4619.</li> </ul>
 <p>Diagnostic Mode Blink Pattern: 1-7 Left Ski Failure</p>	<ul style="list-style-type: none"> <li>- Inspect left ski wire harness lead for any damage.</li> <li>- Inspect left ski shock for damage to iQS compression adjuster motor.</li> <li>- Unplug wire harness from left ski compression adjuster motor, inspect for water intrusion. If water intrusion, dry connector and motor then reconnect.</li> <li>- If parts are physically damaged or the source of the fault cannot be identified, contact a Fox Representative at 1.831.740.4619.</li> </ul>
 <p>Diagnostic Mode Blink Pattern: 1-8 Right Ski Failure</p>	<ul style="list-style-type: none"> <li>- Inspect right ski wire harness lead for any damage.</li> <li>- Inspect right ski shock for damage to iQS compression adjuster motor.</li> <li>- Unplug wire harness from right ski compression adjuster motor, inspect for water intrusion. If water intrusion, dry connector and motor then reconnect.</li> <li>- If parts are physically damaged or the source of the fault cannot be identified, contact a Fox Representative at 1.831.740.4619.</li> </ul>
 <p>Diagnostic Mode Blink Pattern: 1-9 Front Track Failure</p>	<ul style="list-style-type: none"> <li>- Inspect front track wire harness lead in skid for any damage.</li> <li>- Inspect front track wire harness lead under hood for any damage.</li> <li>- Inspect front track shock for damage to iQS compression adjuster motor.</li> <li>- Unplug wire harness from front track compression adjuster motor, inspect for water intrusion. If water intrusion, dry connector and motor then reconnect.</li> <li>- Unplug front track skid wire harness from front track main harness, inspect for water intrusion. If water intrusion, dry both connectors and reconnect.</li> <li>- If parts are physically damaged or the source of the fault cannot be identified, contact a Fox Representative at 1.831.740.4619.</li> </ul>
 <p>Diagnostic Mode Blink Pattern: 2-1 Rear Track Failure</p>	<ul style="list-style-type: none"> <li>- Inspect rear track wire harness lead in skid for any damage.</li> <li>- Inspect rear track wire harness lead under hood for any damage.</li> <li>- Inspect rear track shock for damage to iQS compression adjuster motor.</li> <li>- Unplug wire harness from rear track compression adjuster motor, inspect for water intrusion. If water intrusion, dry connector and motor then reconnect.</li> <li>- Unplug rear track skid wire harness from front track main harness, inspect for water intrusion. If water intrusion, dry both connectors and reconnect.</li> <li>- If parts are physically damaged or the source of the fault cannot be identified, contact a Fox Representative at 1.831.740.4619.</li> </ul>



## **MAINTENANCE**

PROPER INSPECTION AND MAINTENANCE IS ESSENTIAL TO MAINTAIN THE PERFORMANCE AND RELIABILITY OF YOUR SHOCK ABSORBERS.

It is important to keep the shock absorbers clean and free of dirt, ice and snow. The FOX ICE SCRAPER TECHNOLOGY (FIST) will help eliminate moisture from entering the shock. Cleanliness will add to FIST seal life. When cleaning the vehicle, avoid using a high-pressure washer near the seals as this could drive debris inside the FIST seal system.

Ideally, the shocks should be clean around the adjusters when changing the damping setting. A small blast of contact cleaner or brake cleaner before making adjustments will keep these parts clean and operating smoothly for years.

The service interval depends on how frequently and aggressively the snowmobile is ridden. As a guideline, if you race every weekend, you may want to change the oil in your shock at least every 10-20 hours of usage. Otherwise, it is generally recommended to have the shock absorbers completely serviced annually. FOX or an authorized factory service center can perform these procedures.

## **SERVICE**

Contact the FOX Service Center at 1.831.740.4619 or [psservicemw@ridefox.com](mailto:psservicemw@ridefox.com) to receive a return authorization number before shipping shocks to one of the service centers listed below.

## **WARRANTY**

All FOX products have a one-year warranty on defects in materials or workmanship. Please view the full warranty terms and conditions at [www.ridefox.com](http://www.ridefox.com) Help Center/Powersports/Warranty or contact a representative at: 1.831.740.4619. A service RMA will be issued. Ship shocks to one of the following service centers:

### **FOX Powersports Service**

130 Hangar Way  
Watsonville, CA 95076

### **FOX Midwest Service Center**

13461 Dogwood Drive  
Baxter, MN 56425





