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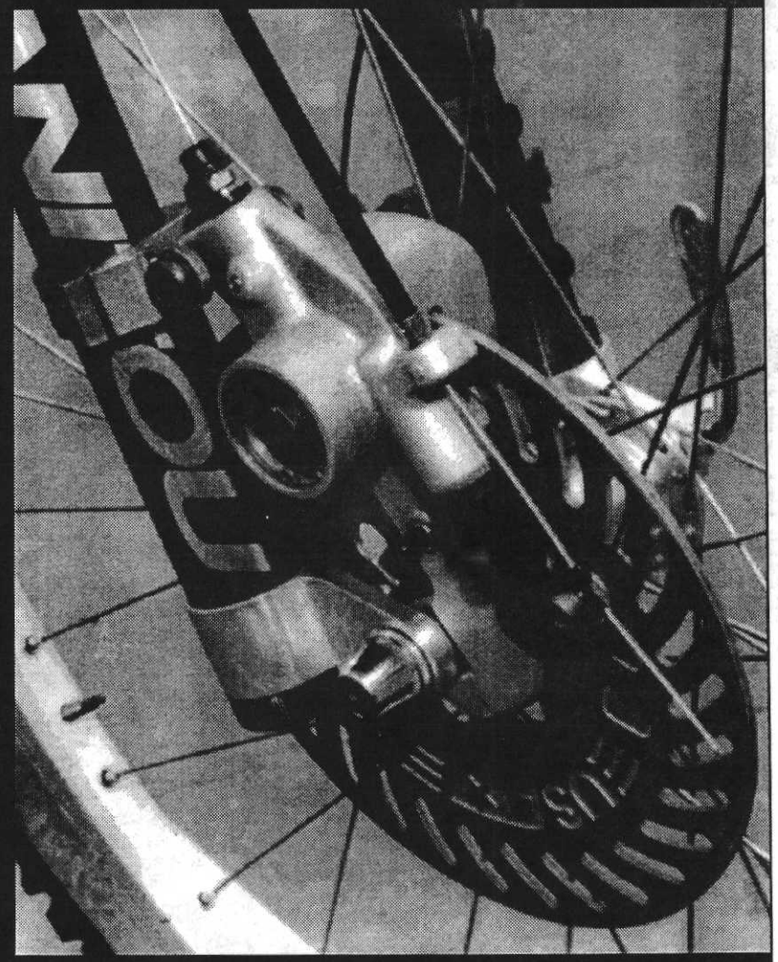
SPEEDCHECK™

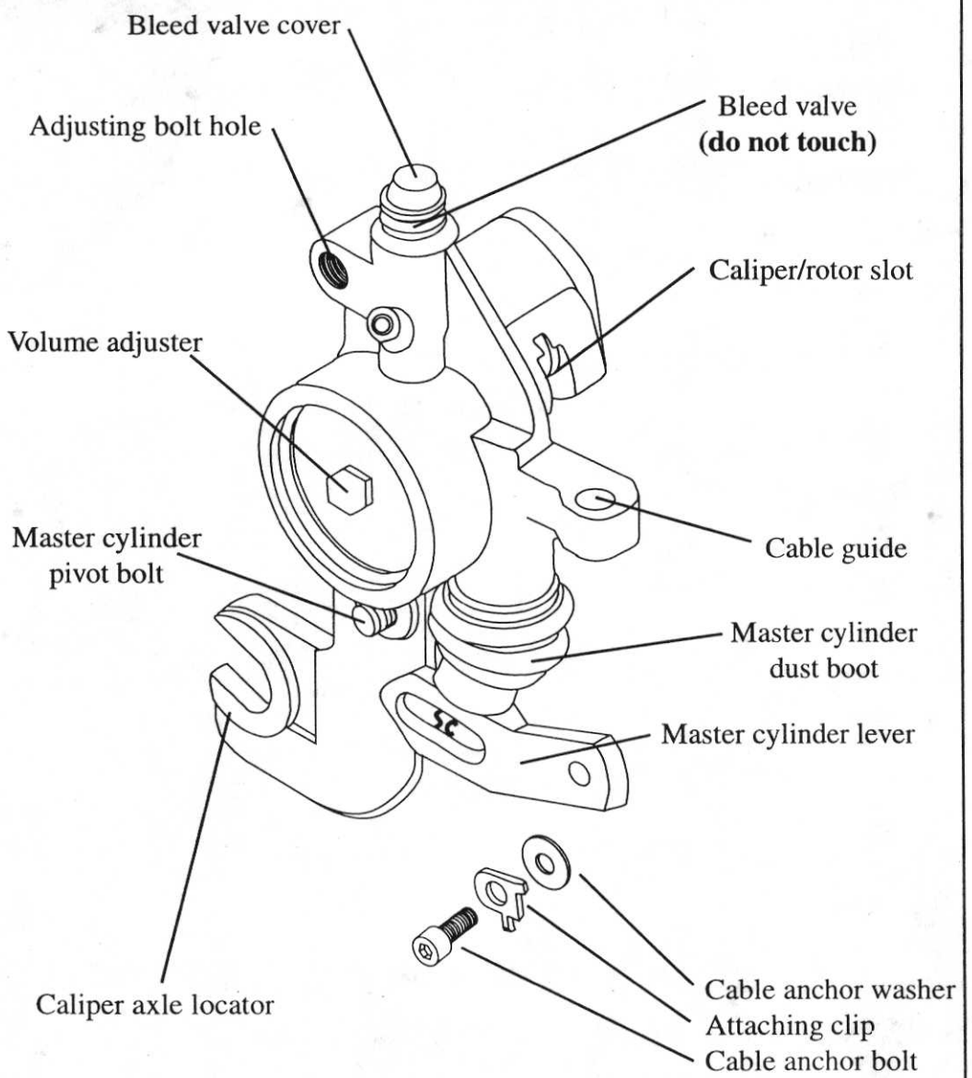
DIA-COMPE USA



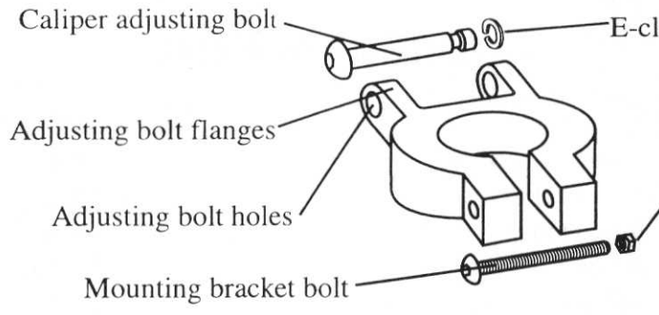
Technical Manual

SpeedCheck Caliper Part Breakdown

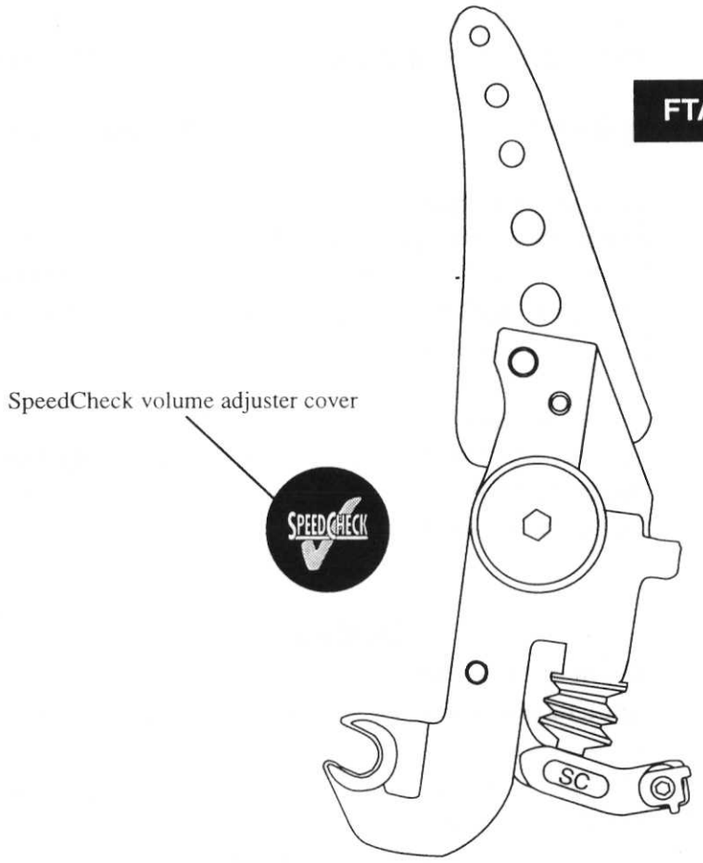
SpeedCheck Caliper



Force Transfer Arm Caliper



Mounting Bracket



FTA Caliper

SpeedCheck parts and tools for installation

SpeedCheck Parts

SpeedCheck calipers:	DC USA Part #
Standard caliper	DB0100
FTA caliper	DB0101
Rear caliper	DB0102
Rotor	.DB0250
Volume adjuster cover	.DB0344
Torx rotor bolts (6)	.DB0243
Torx T-15 wrench	.HU0244
9mm spacer (for hub dish)	.HU0260
Mounting bracket	See matrix on page 16
Mounting bracket hardware	
Mounting bracket adjusting bolt	.DB0301
Mounting bracket E-clip	.DB0303
Mounting bracket bolt	.DB0340
Mounting bracket nut	.DB0342
Cable anchor assembly	
Cable anchor bolt	.DB0343
Attaching clip	.DB0344
Cable anchor washer	.DB0345

Tools

10mm open end wrench
3mm allen wrench
4mm Allen wrench
T15 Torx wrench
Needle nose pliers
Safe-T-Eze™ (for pad replacement)

SpeedCheck mounting bracket fit/sizing matrix

All clamps have a size/tolerance range of approximately +/- 1mm

DB0365 20	DB0366 22	DBO367 24	DB0371 12	DB0372 14	DB0373 16	DB0374 18	DB0375 20	DB0376 22	DB0377 24	DB0381 leading DO	DB0382 Marzo-cchi	DB0383 Girvin Vector	DB0384 Amp research	DB0385 Cannon dale
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• If a specific fork is not listed on this matrix, it is suggested that you measure the diameter of the fork's lower leg (slider) 110mm up from the center of the fork dropout. The diameter reading should correspond with the correct mounting bracket size for the fork.

Front Forks

Dia-compe USA part number
Mounting bracket (inner diameter)

Clamp part # Diameter in mm	DB0101 FTA caliper	DB0351 25.4	DB0352 27	DB0353 28.6	DB0354 30.2	DB0355 31.8	DB0356 33.3	DB0357 34.9	DB0361 12	DB0362 14	DB0363 16	DBO364 18
AMP Research												
Anti Gravity						•						
Cannondale Delta V												
Girvin Fastrax						•						
Girvin Vector												
Halson Inversion				•								
Manitou												
Manitou II												
Manitou III												
Marzocchi												
ProForx ST/LT							ST					
RST					•							
Rock Shox RS1						•						
Rock Shox Mag 20	X							•				
Rock Shox Mag 30	X							•				
Rock Shox Mag 10	X							•				
Rock Shox Mag 21	X						•					
Rock Shox Mag 21 SL	X						•					
Rock Shox Quadra	X						•					
Specialized Direct Drive	X											
Specialized FutureShock	X							•				
Specialized Carbon FS	**DO NOT USE THE SPEEDCHECK ON THIS FORK!**											
SR DuoTrac						•						
SR Leading Axle												
Tange Struts						•						
Trek Extreme	X					•						
Trek Black Diamond '93				•								
Trek DDS 3						•						
Trek Gravity						•						
Trek Mogul						•						
Trek Shockwave						•						
Trek System 1												
Trek System 2		•										
Showa EX7	X					•						

• The Force Transfer Arm caliper is specially designed for use on all forks with cast magnesium sliders (lower tubes) and other specified forks within this matrix.

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SpeedCheck is a trademark of Dia-Compe USA, INC. If you have any questions regarding the SpeedCheck hydraulic disc brake, its installation, or its maintenance-please call a Dia-Compe USA technical representative at 800.234.2725.

WARNING: Bicycle forks with cast magnesium sliders (lower tubes) require that the considerable braking force of the Dia-Compe SpeedCheck disc brake be spread to the upper end of the slider (lower tube). The Force Transfer Arm caliper (Part #DB0101) is designed to make the SpeedCheck disc brake compatible with cast magnesium sliders (lower tubes) used on forks such as Rock Shox and Specialized Future Shocks. The use of a caliper without the Force Transfer Arm can cause catastrophic failure of the slider, which can result in serious injury or death to the rider.

Introduction: The SpeedCheck hydraulic disc brake is a sophisticated system. Care and patience must be used when installing and maintaining its components. Once set up properly, the SpeedCheck disc brake requires little maintenance for many miles of superior braking performance.

WARNING: Incorrect installation or adjustment of a brake can cause brake failure, which may result in serious injury or death to the rider.

Keys to Performance

1. Maintaining a true rotor
   a. Preparation and care should be taken when traveling with the SpeedCheck disc brake.
      i. The rotor should be taken off and packaged separately from the wheel.
      ii. The caliper should be lightly secured to the fork leg with a toe strap or similar item.
   b. The rotor tabs and hub mounting recesses should be free of debris when installing the rotor onto the hub. Any amount of debris between the tabs/recesses can cause the rotor to appear warped (out of true), and can cause unwanted drag.

2. Drop out alignment

It is necessary that the caliper axle locator and the dropout of the fork are parallel for correct alignment of pads and rotor. If these surfaces are not parallel, unwanted drag may be experienced.

g. Leave the pads against the rotor for at least 30 minutes before centering the pads and correctly setting the caliper/rotor to the desired brake adjustment.

h. The new pads and rotor will need to be "burnished" (broken in) before they will perform at their best, most aggressive level. Breaking in the new pads and rotor will take about 40-50 aggressive stops while riding.

i. It may be necessary to readjust the centering of the caliper after a few hard stops.

NOTICE

DANGER: DO NOT USE TITANIUM QUICK RELEASE SKEWERS WITH THE SPEEDCHECK DISC BRAKE. THE USE OF TITANIUM QR SKEWERS WITH THE SPEEDCHECK DISC BRAKE COULD RESULT IN SERIUOS INJURY OR EVEN DEATH TO THE RIDER.

WARNING: Tampering with the bleed valve will void the warranty of your SpeedCheck disc brake.

a. Remove the wheel from the fork.

b. Using compressed air, carefully blow any dirt or pad debris out of the caliper slot and off of the pads.

IMPORTANT: Before pad replacement, you will need to carefully and evenly push the pistons back into the bore. Otherwise the rotor will not fit between the pads. To do this back the volume adjuster out by turning it counter-clockwise all the way. Remove the caliper from the fork and cable assembly and place it on a flat surface, such as a work bench. Using a flat steel bar or plate that can fit between the pads, press against one pad and then the other downward to force the piston back into the chamber. This will need to be done each time new pads are installed on your SpeedCheck caliper.
(Illustration 24)

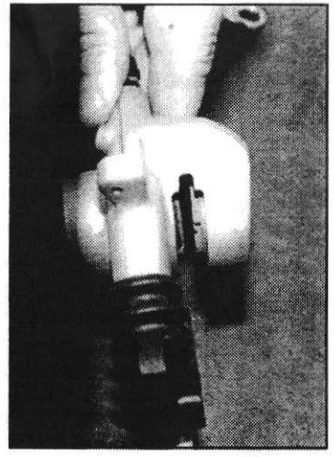


Illustration 24

c. Using a flat screwdriver, carefully pop the worn pads out of the caliper. The pads are notched to ease this process.
(Illustration 25)

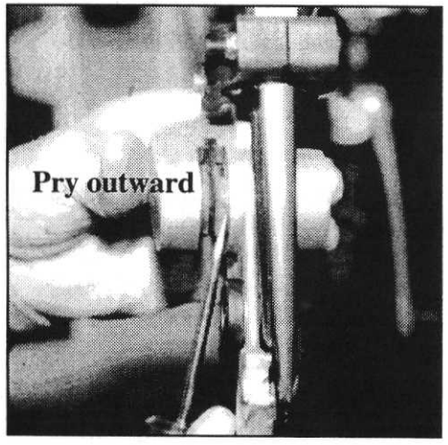


Illustration 25

d. Use your finger to spread a smooth, very thin film of Safe T Eze™ (which may be purchased from any hardware store), on the back of the new pads **NOTE:** The thin wafer-like pad insulator should not come off the piston. If it does, please contact a technical representative from Dia-Compe USA before continuing the installation of new pads.

e. Carefully insert the new pads, one at a time, into the caliper slot and onto the pistons with the adhesive side towards the piston.

f. Place the wheel back into the fork and turn the volume adjuster clockwise, closing the pads against the rotor. **DO NOT OVERTIGHTEN-** approximately 20 in./lbs. is the suggested torque.

Potential problem situations (DON'TS)

1. Compressing lever with no rotor between the pads:

WARNING: Do not actuate (push/pull) the master cylinder lever or stroke the brake lever without the rotor installed into the caliper. This can cause the pistons to become jammed in the caliper, causing malfunctioning braking performance.

2. Contaminants on rotor/pads:

Special care should be taken to keep the pads and rotor free of any foreign contaminants such as oil or grease. Substances such as these (even oils from the skin) can contaminate the pads/rotor and adversely affect the performance of the brake. The rotor can be cleaned with Isopropyl alcohol. It is also suggested that you clean your hands before handling the rotor or replacing the pads. Additionally the rotor should be held as a compact disc is held.

3. Trials/tandem riding voids warranty:

The SpeedCheck disc brake is designed for use on single mountain bikes ONLY. The standard, Force Transfer Arm (used with cast magnesium lower legs), and rear models of the SpeedCheck disc brake are not to be used on tandems, trials, freestyle or BMX bicycles. NOTE: Using the brake on bicycles other than mountain bikes voids the warranty. There will be a specific unit designed for use on tandem bicycles.

4. Tampering with bleed valve voids warranty:

Tampering with the bleed valve is not necessary.

WARNING: Tampering with the bleed valve can cause major failures to the SpeedCheck disc brake and will void the warranty.

Wheel Building

Please see the Tsali SpeedCheck hub instructions packaged with Tsali hub. A 9mm spacer is included to correctly dish and true the wheel.

Rotor Installation

Rotor Installation

The SpeedCheck metal-matrix rotor is precision manufactured to mount on the Tsali SpeedCheck hubs and remain rigid and "true" throughout use. A "true" rotor and precision fit to the specially designed hub is key to producing totally drag free performance. The rotor is made with 6 mounting tabs which interlock with the machined recesses of the Tsali SpeedCheck hub's rotor flanges. Upon installation, handle the rotor on the non-braking surface area only (similar to handling a compact disc).

1. After the wheel is built, mount the SpeedCheck rotor to the hub's rotor flange. Make sure the rotor mounting tabs seat properly with the hub's recesses. Both sets of tabs/recesses must be totally clean and free from debris to ensure proper rotor alignment and drag free performance.

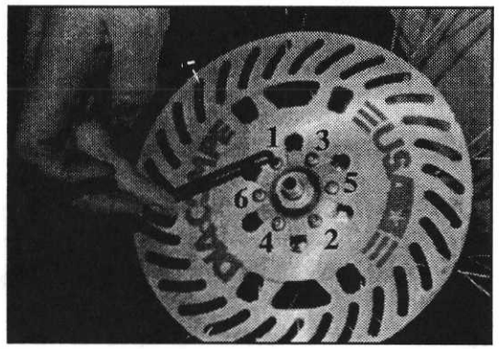


Illustration 1

2. Secure the rotor to the hub with the 6 T15 Torx bolts, using a cross pattern (Illustration 1) to tighten the bolts to a torque of 50 in./lbs. Torx wrenches and Torx adapters for torque wrenches can be obtained at most hardware stores. Dia-Compe USA has provided a small T15 Torx wrench for trail use if necessary.

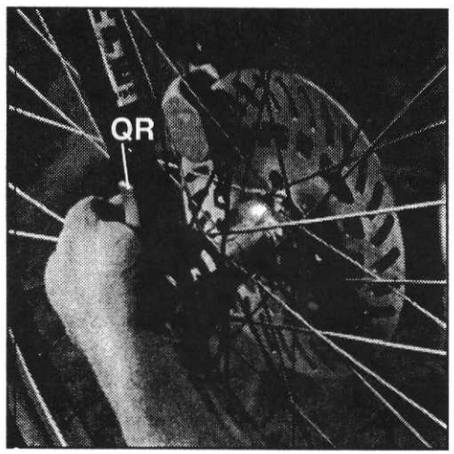


Illustration 2

WARNING: The quick release skewer must be installed through the hub with the quick release lever extending from the non-rotor side of the hub. This prevents bracing against the rotor when closing the quick release, which can damage the rotor, knock it out of "true", and cause unwanted drag. (Illustration 2)

Maintenance
Pad Replacement

Maintenance

The SpeedCheck disc brake has been designed to be as maintenance free as possible. However, there are some maintenance procedures that will maximize the performance of the SpeedCheck disc brake over time.

1. Contaminants with caliper/rotor/pads:

a. The SpeedCheck disc brake's performance excels in muddy and wet conditions, however special care should be taken to keep the pads and rotor free of any foreign contaminants such as oil or grease. Substances such as these (even oils from the skin) can contaminate the pads and adversely affect the performance of the brake, and can cause unwanted brake noise.

b. The rotor can be cleaned with Isopropyl alcohol. It is also suggested that you clean your hands before handling the rotor or replacing the pads. The rotor should be held as you would hold a compact disc.

2. Packing for travel:

When traveling with your bike and the SpeedCheck disc brake (eg. when a bike bag is utilized), the rotor should be removed from the wheel and packaged carefully to prevent it from being bent or knocked out of true. A true rotor is essential to the drag free performance of the SpeedCheck disc brake. Also, when traveling with your bike on a rack (if front wheel removal is necessary) the caliper should be secured to the fork's lower leg preventing caliper movement.

3. Alignment of rotor:

Rotors can become warped or damaged from a crash. At no time should an attempt be made to straighten the rotor if it is warped or out of true. If your rotor becomes damaged or warped, please contact a Dia-Compe USA representative.

Pad Replacement

The SpeedCheck's brake pads are an organic friction material designed to have a much longer wear life than the conventional cantilever pads. They will, however, eventually need to be replaced. They are secured to the caliper's pistons with a low contact adhesive and are easily replaceable. We suggest using a low contact adhesive (such as Safe T Eze™), which can be purchased from any hardware store.

NOTE: If some usable pad is still visible, but all adjustment is used up with the barrel adjuster or volume adjuster on the caliper, you must replace the pads.

Caliper Adjustment

The caliper can be centered for drag-free performance and also adjusted for your own personal preference of braking feel.

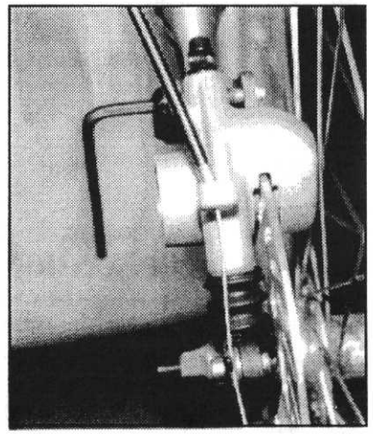


Illustration 23

1. Center the caliper over the rotor by turning the 5mm adjusting bolt. Turning the bolt clockwise moves the caliper away from the wheel. Turning the bolt counterclockwise moves the caliper towards the wheel (Illustration 23). **NOTE**: This adjustment may be necessary after a few hard stops and possibly after removing and reinstalling the wheel.

2. Turning the 10mm volume adjuster bolt will affect the relationship between the SpeedCheck's pads and the rotor. Turning the adjuster clockwise will displace the fluid in the main reservoir, forcing the pads closer to the rotor. This causes the brake to engage with less hand lever movement. Turning the adjuster counterclockwise allows the pads to retract away from the rotor, which causes the brake to require more hand lever movement before engaging.

3. The volume adjuster is designed to be used for initial "feel" set up, brake lever travel set up, and long term pad wear adjustment. Fine tuning for braking feel and lever travel is done with the brake lever's barrel adjuster. **NOTE:** "Large" adjustments made with the brake lever's barrel adjuster can reduce the piston stroke and reduce the braking performance of the SpeedCheck disc brake.

4. New SpeedCheck brake pads and rotor need to be "burnished" (broken in) before they will perform at their best, most aggressive level. Burnishing the pads/rotor will take about 40-50 aggressive stops.

5. It may be necessary to readjust the centering of the pads after a few hard stops.

WARNING: For safe operation, brakes must be adjusted so that the pads engage the rotor within one inch of brake lever movement and full braking force can be applied without the lever touching the handlebar.

1. FTA Caliper Installation

Force Transfer Arm Caliper (FTA caliper): Installation for forks with cast magnesium sliders/ lower legs (eg. Rock Shox and Specialized Future Shocks).

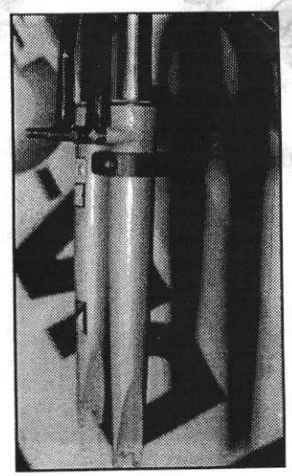


Illustration 3

a. Install the mounting bracket onto the fork's left (as you sit on the bike) lower leg roughly 215 mm (8.75 in.) up from the center of the dropout and tighten the bracket mounting bolts snug enough to prevent the bracket from pivoting around too easily. The bracket should be installed so that the smaller of the mounting bracket's two adjusting bolt holes is on the "inside" -toward the wheel. (Illustration 3)

b. With the caliper adjusting bolt removed from the FTA caliper and the volume adjuster in its outermost position (fully counterclockwise), slide the FTA caliper over the rotor and place the caliper axle locator over the hub axle.

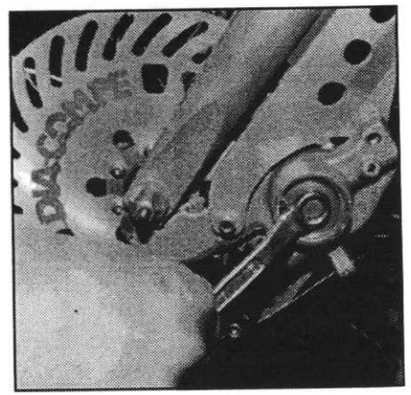


Illustration 4

c. Using a 10mm wrench, turn the volume adjuster clockwise until the pads fully clamp the rotor. Secure the caliper to the rotor by tightening to a torque of 20 in./lb. (Ilustration 4)

d. Place the wheel and caliper into the fork dropouts making sure that it is completely seated into the fork dropout. Lightly secure the wheel and caliper in the fork with the quick release. Remember that the quick release should extend out of the non-rotor side of the hub. Do not tighten so much that the caliper cannot be rotated for alignment. NOTE: Make sure the hub/caliper is completely seated in the fork dropouts.

Illustration 5

e. Rotate the FTA caliper until it is parallel with the fork leg, centering the FTA adjusting bolt hole with the mounting bracket's adjusting bolt holes(Illustration 5). The FTA's bolt hole section should be located between the mounting bracket flanges.

f. Insert the adjusting bolt through the mounting bracket and FTA (Illustration 6), threading the bolt through the FTA. Make sure the 5mm bolt head is positioned toward the outside of the bike, away from the wheel.

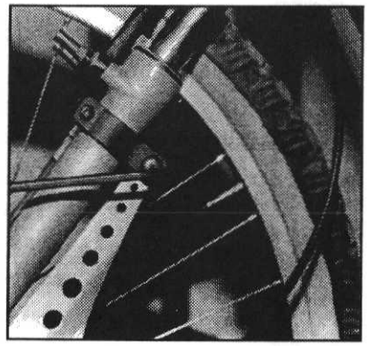


Illustration 6

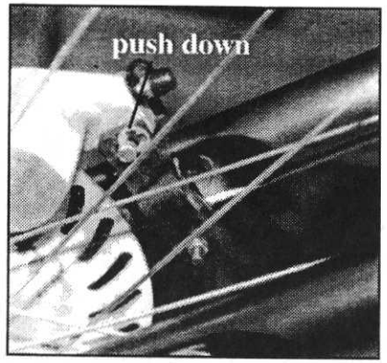


Illustration 7

g. Using needle nose pliers, snap the E-clip into the adjuster bolt groove, securing the caliper to the mounting bracket.
(Illustration 7)

h. Check the alignment of the mounting bracket on the fork's lower leg. The bracket should be perpendicular to the fork's lower leg.

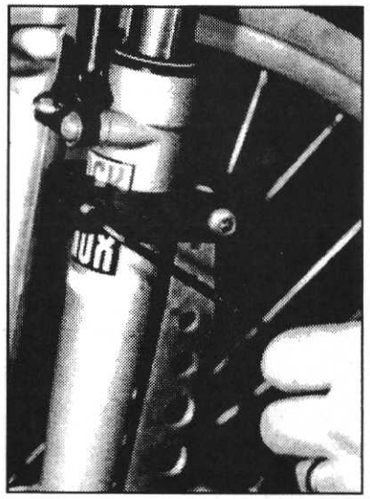


Illustration 8

i. Secure the mounting bracket to the fork leg by tightening the 3mm mounting bolt to a torque of 25 in./lb. (Illustration 8)

j. Proceed to **Cable Attachment** (Page 11).

Cable Attachment

i. Secure the mounting bracket and caliper assembly to the fork leg, by tightening the 3mm mounting bracket bolt to a torque of 25 in./lbs.
(Illustration 21)

j. Proceed to **Cable Attachment**.

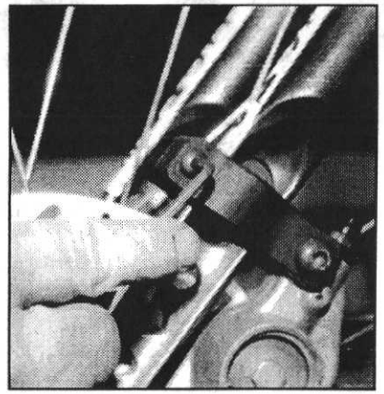


Illustration 21

Cable Attachment

Install the brake cable and casing into the lever as with conventional brakes, running the casing from the lever to the caliper with a small amount of slack to prevent binding. Make sure that the casing ends are square and are not pinched. It is recommended that casing ferrules such as Dia-Compe's #90B be used at each end of the brake casing. These will ensure maximum braking performance with any braking system.

1. Insert the brake cable through the caliper's cable casing stop and the cable clamp assembly, running the cable towards the end of and on the outside of the lever, away from the wheel. The cable should be installed between the cable anchor washer and teh cable attaching clip.

2. Take up the slack in the cable and secure the cable by tightening the cable clamp pinch bolt to a torque setting of 45 in./lbs.
(Illustration 22)

3. Turn the volume adjuster fully counter-clockwise, releasing the rotor from the clamp of the pads.

4. Press the volume adjuster cap onto the caliper to keep the volume adjuster clean and free of debris.

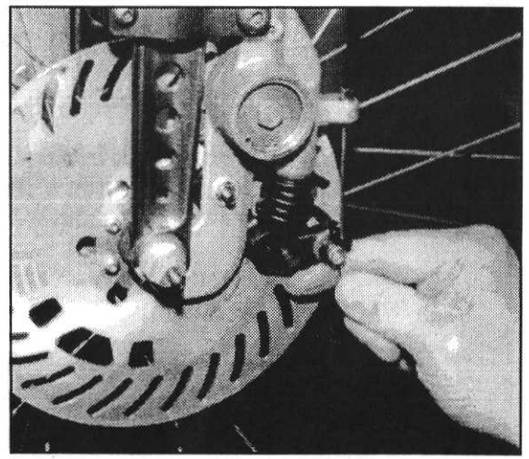


Illustration 22

d. Place the wheel and caliper into the fork dropouts making sure that it is completely seated into the fork dropout. Lightly secure the wheel and caliper in the fork with the quick release. Remember that the quick release should extend out of the non-rotor side of the hub. Do not tighten so much that the caliper cannot be rotated for alignment.

e. Rotate the caliper until it is parallel with the fork leg, centering the caliper adjusting bolt hole with the mounting bracket's adjusting bolt holes. The caliper's bolt hole section should be located between the mounting bracket flanges.
(Illustration 18)

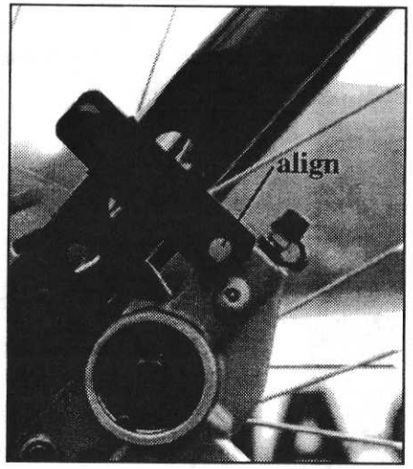


Illustration 18

f. Insert the adjusting bolt through the bracket and caliper, threading the bolt through the caliper. Make sure the 5mm bolt head is positioned towards the outside of the bike, away from the wheel.
(Illustration 19)

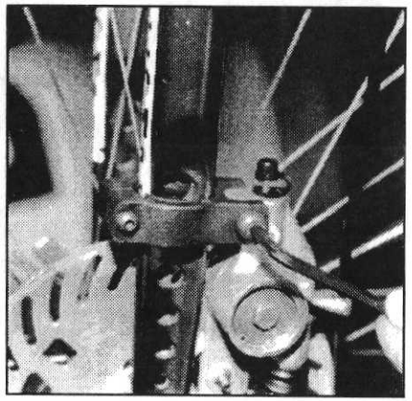


Illustration 19

g. Using needle nose pliers, snap the E-clip into the adjuster bolt groove, securing the caliper to the mounting bracket.
(Illustration 20)

h. Check the alignment of the mounting bracket on the fork's lower leg. The bracket should be perpendicular to the fork leg.

Illustration 20

Leading Dropout Fork Installation

2. Installation with Forks Using Leading Dropouts

(Manitou, Pro Forx, Rock Shox Judy, etc.).

NOTE: With these forks, the caliper must be installed on the right fork leg (as you sit on the bike) and ahead of the fork's lower leg. It is also necessary to use a machined aluminum mounting bracket with leading dropout forks. Do not use a plastic mounting bracket. Please refer to the fork matrix on page 14 for the correct specifications and Dia-Compe part number.

a. Install the mounting bracket over the fork's right (as you sit on the bike) lower leg approximately 110mm(4 3/8 in.) up from the center of the dropout. After aligning the mounting bracket's adjusting bolt flanges over the fork's leading dropout, tighten the mounting bracket bolt snug enough to prevent the bracket from pivoting around too easily. The bracket should be installed so that the smaller of the mounting bracket's adjusting bolt holes is toward the "inside"- toward the wheel.
(Illustration 9)

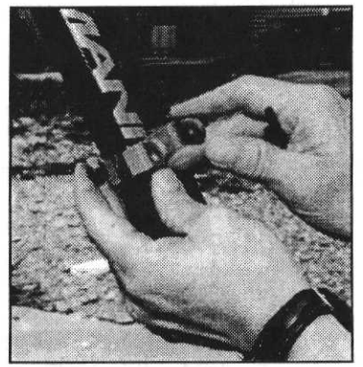


Illustration 9

c. With the caliper adjusting bolt removed from the caliper and the volume adjuster in its outermost position (fully counterclockwise), slide the caliper over the rotor and place the caliper axle locator over the hub axle.

d. Using a 10mm wrench, turn the volume adjuster clockwise until the pads fully clamp the rotor. Secure the caliper to the rotor by tightening to a torque of 20 in./lb.
(Illustration 10)

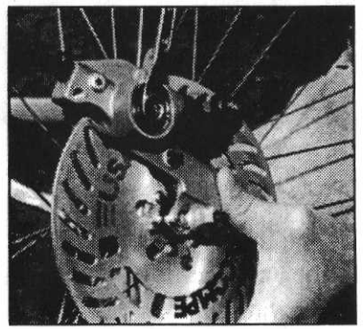


Illustration 10

e. Place the wheel and caliper into the fork dropouts making sure that it is completely seated into the fork dropout. Lightly secure the wheel and caliper in the fork with

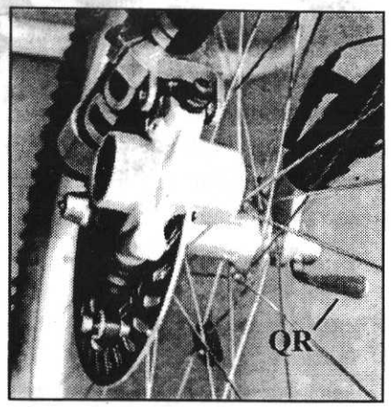


Illustration 11

the quick release. Remember that the quick release should extend out of the non-rotor side of the hub. Do not tighten so much that the caliper cannot be rotated for alignment. NOTE: Make sure the hub/ caliper is completely seated in the fork dropouts. (Illustration 11)

f. Rotate the caliper until it is parallel with the fork leg, centering the caliper adjusting bolt hole with the mounting bracket's adjusting bolt holes. The caliper's bolt hole section should be located between the mounting bracket flanges. (Illustration 12)

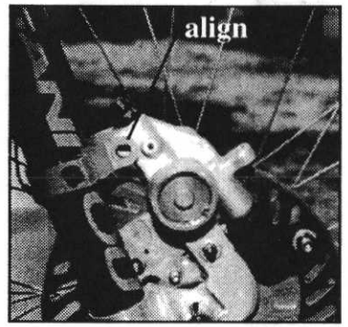


Illustration 12

g. Insert the adjusting bolt through the mounting bracket and thread through the caliper. Make sure the 5mm bolt head is positioned towards the outside of the bike, away from the wheel. (Illustration 13)

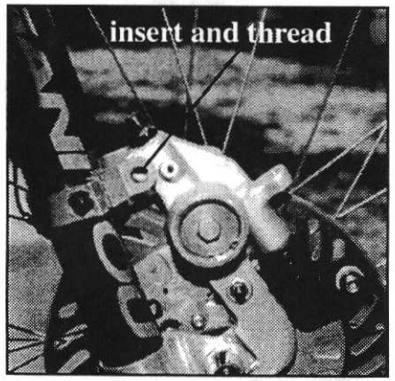


Illustration 13

h. Using needle nose pliers, snap the E-clip into the adjuster bolt's groove, securing the caliper to the mounting bracket. (Illustration 14)

Illustration 14

i. Check the alignment of the mounting bracket on the fork's lower leg. The bracket should be perpendicular to the fork leg.

j. Secure the mounting bracket to the fork leg by tightening the 5mm mounting bracket bolt to a torque of 40 in./lbs. (Illustration 15)

k. Proceed to **Cable Attachment** (page 11).

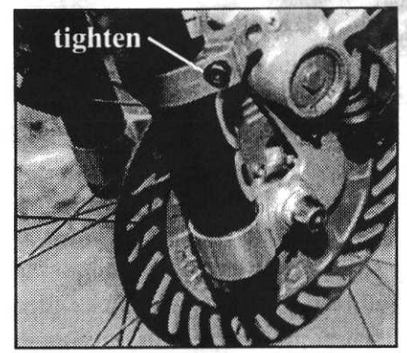


Illustration 15

3. Installation For All Other Forks

a. Install the mounting bracket over the fork's left (as you sit on the bike) lower leg approximately 110 mm(4 3/8 in.) up from the center of the dropout and tighten the mounting bracket bolt snug enough to prevent the bracket from pivoting around too easily. (Illustration 16)

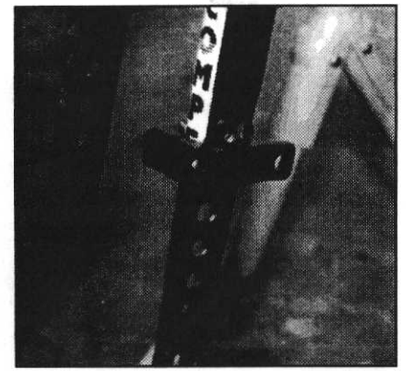


Illustration 16

b. With the caliper adjusting bolt removed from the caliper and the volume adjuster in its outermost position (fully counterclockwise), slide the caliper over the rotor and place the caliper axle locator over the hub axle.

c. Using a 10mm wrench, turn the volume adjuster clockwise until the pads fully clamp the rotor. Secure the caliper to the rotor by tightening to a torque of 20 in./lb. (Illustration 17)

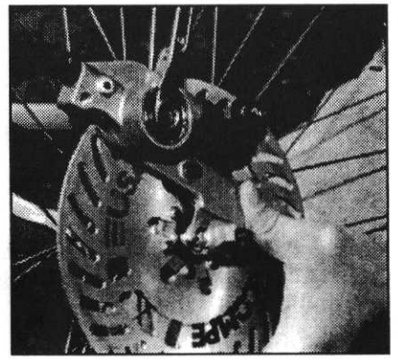
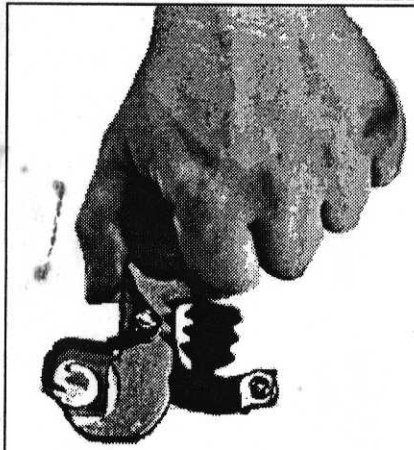


Illustration 17



When using leading axle forks the SpeedCheck caliper with the caliper retaining clip must be used (Dia-Compe part # DB0100). This caliper retaining clip is to keep the caliper from sliding out of the dropout and away from the rotor, which could result in brake failure. The clip has a spring that will hold the clip in a downward position. Simply pull up on the retaining clip as you are installing the wheel into the drop out, as with removing the wheel. Make sure to properly tighten the quick release when installing the wheel onto the fork.