



Installation Instructions

1) 360 Brake Applications

- a) The 360 Brake must be installed and tested by a professional mechanic trained, skilled and knowledgeable with the 360 Brake and its proper installation. Only professional mechanics, which have been properly trained as a “360 Brake Installer” should install or service this brake. We recommend that you do NOT install the 360 Brake yourself, unless you are a certified “360 Brake Installer.” If you do not follow these instructions, you not only void our manufacturer’s warranty, but you also waive any and all claims against the 360 Brake Company, LLC.
- b) Currently the 360 Brakes are available for Harley based, and other V-twin stock and custom motorcycles.
- c) Like any motorcycle brake, the 360 Brake can be over-taxed, improperly used or damaged through misuse. You must follow our guidelines on weight, speed and other use limitations.
- d) These instructions are for installation on Harley based stock and custom motorcycles. For other applications on American and metric cruisers consult with a 360 Brake technician, or follow the measurement and fitment instructions, for custom installations.
- e) The brakes can be used on front and/or rear of the motorcycle, if the motorcycle came with a single front brake it can be replaced with a single 360 Brake, if the motorcycle came with dual front brakes, i.e. FLH/FLT style models, we recommend they be replaced with dual 360 Brakes.
- f) 360 Brakes can only be used on a wide glide style fork set; they will not work on a narrow glide front end, i.e. Sportster and some Dyna models using Sportster front fork sets. Consult a 360 Brake technician for application information if in doubt.
- g) 360 Brakes cannot be used with stock wheels unless they have removable hubs.

2) Information required for selecting a correct 360 Brake application

- a) Front Brakes
 - ◆ Make, year, and model of motorcycle.
 - ◆ Axle diameter
 - ◆ Inside measurement of front forks at axle
- b) Rear Brakes
 - ◆ Make, year, and model of motorcycle.
 - ◆ Axle diameter
 - ◆ Inside measurement of swing arm at axle

3) Wheels

- a) Wheel width for mounting dual 360 Brakes without hat spacers is 2.25" to 2.3125".
- b) Weld wheels wheel width is 2.3125" and will work perfectly with the dual 360 Brakes on an FLH front end. Most other wheels are 0.75" wide. These wheels will require a hat spacer on both sides for dual brakes and on one side for single brakes. Width of spacer to be determined by 360 Brake upon receipt of the information requested below. (See hat spacer drawing sketch Fig 1. attached)
- c) When using one brake you will need to use the smooth hub on the opposite side of the wheel, discard the flanged hub. If new wheel is being used for a dual brake installation you will not need to purchase the hubs from the wheel Vendor. Determine if the smooth hub is threaded or through bolted. Most are threaded with a 7/16-14 thread. This is required to determine the type of pills required for the installation.
- d) Determine the inside hole diameter of the wheel and fill in this dimension on the attached hat spacer drawing for pilot. (Dimension "A", Figures 1 and 3)
- e) Submit the drawing and bolt pattern calculation sheet to 360 Brake for evaluation and pill selection.

4) Measurements required for fitment

a) Front Brake

- ◆ Determine the hub bolt circle diameter. (See attached Fig 2).
- ◆ Remove front wheel assembly, if wheel does not have removable hubs it cannot be used with 360 Brakes.
- ◆ Measure the distance between forks inside at the axle.
- ◆ Measure the thickness of the wheel at the hub mounting location.
- ◆ Measure the size of the axle and type of bearing in the hub being used. A hub cannot be used with tapered roller bearings or 3/4" diameter sealed bearings. If the hub has tapered roller bearings it must be machined to accept 1" ID sealed bearing HD #9247 or 3/4" sealed bearing will need to be replaced with 1" ID sealed bearing HD #9247.
- ◆ Provide marked up hub drawing and bolt circle calculation sheet and recorded dimensions listed above to 360 Brake for evaluation.

b) Rear Brake

- ◆ Submit pictures of the rear caliper and wheel assembly to determine the type of caliper arm required
- ◆ Remove rear wheel assembly, if wheel does not have removable hubs it cannot be used with 360 Brakes.
- ◆ Measure the distance between swing arm legs inside at the axle.
- ◆ 360 Brakes are set up for 1" axle if bike has smaller size axle install correct axle adapter bushing before installation.

- ◆ Install wheel assembly making sure the belt or chain is in alignment. Measure from the hub mounting on the wheel to the inside of the swing arm. Next, measure for the drive side spacer.
- ◆ Measure the thickness of wheel at the hub mounting location.
- ◆ Measure the size of the axle and type of bearing in the hub being used. Hub cannot be used with tapered roller bearings or $\frac{3}{4}$ " diameter sealed bearings. If the hub has tapered roller bearings it must be machined to accept 1" ID sealed bearing HD #9247 or $\frac{3}{4}$ " sealed bearing will need to be replaced with 1" ID sealed bearing HD #9247.
- ◆ Provide marked up hub drawing and bolt circle calculation sheet and recorded dimensions listed above to 360 Brake for evaluation.

5) Additional parts required for installation

- a) If the axle is not 1" diameter, adapter bushings will be required based on the diameter of the axle provided to 360 Brake.
- b) Hub spacer(s) machined to correct thickness, bolt pattern, and pilot diameter (IMPORTANT! These parts must be machined).
- c) Caliper anti - rotation arms as specified by 360 Brake per application.
- d) Spacers for holding the caliper anti -rotation arm in place to the forks and shims as required. Thickness to be determined by 360 brakes technician.
- e) Pills as determined by a 360 Brakes technician.
- f) Bolts for mounting caliper arm in place as determined by a 360 Brake technician.
- g) Tubing 1" ID x .125 wall min. for crush tube and spacers. Either mild steel (i.e. 1018) or high grade aluminum (i.e. 6061-T6).

6) After receiving the additional parts, start the installation.

a) Front single brake installation

- ◆ Determine the correct side of the wheel to install the brake on. Set wheel between fork in the correct orientation and note the correct side for the brake installation base on original caliper location on forks. If the tire is already installed on the wheel, note that the tire rotation arrow is correct.
- ◆ Temporarily install the brake hat assembly, with correct pills and hub spacer installed on the brake side and smooth hub assembly on the other side of the wheel with the socket head cap screws that came with the original hub. Verify the length is correct; the hub must be tight when the bolts bottom out. If the screws bottom out before being tight, you will need shorter screws (To determine how much shorter the screws need to be, measure the gap that is left from the wheel to the hub spacer after the bolts bottom out). Screws must engage a minimum of 6 threads or more when tightened.
- ◆ Measure for the crush sleeve with the depth side of the caliper from the outside of the inner race of the bearing to the inside of the bearing race on the other side of the wheel then subtract the thickness of the bearing inner race width. (HD #9247 measures .825) Then add .005 to give you the length of the

crush tube required. This will be made from the 1" ID x .125 wall tubing. Verify that the tubing will fit loosely over 1" axle. If not machine the ID to 1.010 to fit over the axle loosely.

- ◆ Install the axle into the bearings from the hub side (If axle is not 1" diameter you will need a 1" diameter shaft to perform this action), then remove the hat assembly and drop the crush tube over the axle. Reinstall the hub assembly with the socket heads screws. USE BLUE (242) LOCTITE® ON THESE SCREWS WHEN ASSEMBLED. Tighten screws to 20 ft/lbs. Be sure that the axle is loose inside the bearing and crush sleeve during tightening so that the axle can be removed smoothly.
- ◆ Remove axle from wheel assembly. Be sure the crush tube is tight between the bearings. If it is not it will have to be redone to be tight.
- ◆ Install the caliper arm on the caliper assembly with the 4 provide flat head screws. USE BLUE (242) LOCTITE® ON THESE SCREWS WHEN ASSEMBLED.
- ◆ Install the caliper assembly into the hat assembly; you will need to align the slots in the rotor with the pins in the hat to install. Install the axle adapter bushings if required. Hold this assembly together when placing between fork legs.
- ◆ Slide wheel assembly in between forks and install the axle loosely.
- ◆ Install the caliper arm block. Slide the wheel assembly over on the axle until the caliper arm goes up against the caliper arm block. Install the correct size bolts and tighten. Verify that the wheel looks centered. If it is not, install shim stock to move it to the center. (Some aftermarket forks will need to be installed differently, contact 360 Brake for additional directions.)
- ◆ Making spacers for wheel.
 - ◇ Measure the distance between the caliper face or axle adapter bushing as required and the inside of the fork leg and write it down. Make spacer from the 1" ID x .125 wall tubing for 1" axle or 3/4" ID x .125 wall tubing for 3/4" axle. Verify that the tubing will fit loosely over 1" axle. If not machine the ID to 0.010 larger than the axle diameter to fit over the axle loosely.
 - ◇ If using stock HD forks, set the axle so that the shoulder on the hub side is 0.06-0.10 inside the face of the fork leg. Measure between the axle shoulder and the inner bearing race or adapter bushing and write it down.
 - ◇ If using aftermarket forks install the axle loosely and measure between the fork flat face and the inner bearing race or adapter bushing and write it down. Make spacer from the 1" ID x .125 wall tubing for 1" axle or 3/4" ID x .125 wall tubing for 3/4" axle. Verify that the tubing will fit loosely over 1" axle. If not machine the ID to 0.010 larger than the axle diameter to fit over the axle loosely.
- ◆ Remove bolts, caliper arm, spacer, and shims (if used), and then remove the wheel and caliper assembly. Be sure to hold the caliper in the hat assembly while removing the wheel.
- ◆ Reinstall wheel assembly with the spacers installed and tighten axle to 20 ft/lbs. Install cap on hub side on fork and tighten.

- ◆ Install caliper arm spacer. If it is too tight you cut the spacer on the caliper side too small and will need to shim it or remake it so the caliper arm spacer will fit tight. If the caliper arm spacer fits loosely use the shims, between the caliper arm and spacer, to space properly and install and tighten bolt to 20 ft/lbs. USE RED (271) LOCTITE® ON THESE SCREWS WHEN ASSEMBLED. Bolts should extend past the inside of the caliper arm bracket by 1 thread minimum and no more than 4 threads.
- ◆ Verify that wheel spins freely after installation.

b) Front dual brake installation

- ◆ Temporarily install the brake hat assemblies on both sides, with correct pills (one side uses threaded pills and the other one uses through hole and counter bored pills). Threaded pills to be on right side hat assembly using a hub spacer installed on the both sides. Use socket head cap screws of the correct length. Verify the length is correct; when the hub is tight the bolts must not extend more than 1 thread out of the threaded pills or be recessed into the pill by 1 thread.
- ◆ Measure for the crush sleeve with the depth side of the caliper from the outside of the inner race of the bearing to the inside of the bearing race on the other side of the wheel then subtract the thickness of the bearing inner race width. (HD #9247 measures .825) Then add .005 to give you the length of the crush tube required. This will be made from the 1" ID x .125 wall tubing. Verify that the tubing will fit loosely over 1" axle. If not machine the ID to 1.010 to fit over the axle loosely.
- ◆ Install the axle into the bearings from the right side (If axle is not 1" diameter you will need a 1" diameter shaft to perform this action), then remove the hat assembly and drop the crush tube over the axle. Reinstall the hub assembly with the socket heads screws. USE BLUE (242) LOCTITE® ON THESE SCREWS WHEN ASSEMBLED. Tighten screws to 20 ft/lbs. Be sure that the axle is loose inside the bearing and crush sleeve during tightening so that the axle can be removed smoothly.
- ◆ Remove Axle from wheel assembly. Be sure the crush tube is tight between the bearings. If it is not it will have to be redone to be tight.
- ◆ Install the correct caliper arms on the caliper assemblies with the 4 provide flat head screws. USE BLUE (242) LOCTITE® ON THESE SCREWS WHEN ASSEMBLED.
- ◆ Install the caliper assemblies into the hat assemblies; you will need to align the slots in the rotor with the pins in the hat to install. Install the axle adapter bushings if required. Hold this assembly together when placing between fork legs.
- ◆ Slide wheel assembly in between forks and install the axle loosely.
- ◆ Install the caliper arm blocks; slide the wheel assembly over on the axle to the left side. (Nut side of axle) until the caliper arm goes up against the caliper arm block. Install the correct size bolts and tighten. Verify that the wheel looks centered. If it is not, install shim stock to move it to the center. (Some

aftermarket forks will need to be installed differently, contact 360 Brake for additional directions.)

- ◆ Making spacers for wheel.
 - ◇ Measure the distance between the caliper face or axle adapter bushing as required and the inside of the fork leg and write it down. Make spacer from the 1" ID x .125 wall tubing for 1" axle or 3/4" ID x .125 wall tubing for 3/4" axle. Verify that the tubing will fit loosely over axle. If not machine the ID to 0.010 larger than the axle diameter to fit over the axle loosely.
 - ◇ If using stock HD forks, set the axle so that the land on the hub side is 0.06-0.10 inside the face of the fork leg. Measure between the axle land and the inner bearing race and write it down.
 - ◇ If using aftermarket forks install the axle loosely and measure between the flat fork face and the inner bearing race and write it down. Make spacers from the 1" ID x .125 wall tubing for 1" axle or 3/4" ID x .125 wall tubing for 3/4" axle. Verify that the tubing will fit loosely over axle. If not machine the ID to 0.010 larger than the axle diameter to fit over the axle loosely.
- ◆ Remove bolts, caliper arm, spacer, and shims (if used), and then remove the wheel and caliper assembly. Be sure to hold the caliper in the hat assembly while removing the wheel.
- ◆ Reinstall wheel assembly with the spacers installed and tighten axle to 20 ft/lbs. Install cap on hub side on fork and tighten.
- ◆ Install left side caliper arm spacer. If it is too tight you cut the spacer on the caliper side too small and will need to shim it or remake it so the caliper arm spacer will fit tight. If the caliper arm spacer fits loosely use the shims between the caliper arm and spacer, to space properly and install and tighten bolt to 20 ft/lbs. USE RED (271) LOCTITE® ON THESE SCREWS WHEN ASSEMBLED. Then install right side caliper arm spacer, if it is too tight you cut the spacer on the caliper side too thick and will need to remake it so the caliper arm spacer will fit tight. If the caliper arm spacer fits loosely use the shims, between the caliper arm and spacer, to space properly and install and tighten bolt to 20 ft/lbs. Bolts should extend past the inside of the caliper arm bracket by 1 thread minimum and no more than 4 threads.
- ◆ Verify that wheel spins freely after installation.

7) Rear Brake Installation

- ◆ Determine the correct side of the wheel to install the brake on. Set wheel between fork in the correct orientation and note the correct side for the brake installation base on original caliper location on forks. If the tire is already installed on the wheel, note the tire rotation arrow is correct.
- ◆ Temporarily install the brake hat assembly, with correct pills and hub spacer installed on the brake side and drive hub assembly on the other side of the wheel with socket head cap screws that came with the original hub. Verify the length is correct; the hub must be tight when the bolts bottom out. If the

screws bottom out before being tight, you will need to acquire shorter screws (To determine how much shorter the screws need to be, measure the gap that is left from the wheel to the hub spacer after the bolts bottom out). Screws must engage a minimum of 6 threads or more when tightened.

- ◆ Measure for the crush sleeve with the depth side of the caliper from the outside of the inner race of the bearing to the inside of the bearing race on the other side of the wheel then subtract the thickness of the bearing inner race width. (HD #9247 measures .825) Then add .005 to give you the length of the crush tube required. This will be made from the 1" ID x .125 wall tubing. Verify that the tubing will fit loosely over 1" axle. If not machine the ID to 1.010 to fit over the axle loosely.
- ◆ Install the axle into the bearings from the hub side (If axle is not 1" diameter you will need a 1" diameter shaft to perform this action), then remove the hat assembly and drop the crush tube over the axle. Reinstall the hub assembly with the socket heads screws. **USE BLUE LOCKTITE ON THESE SCREWS WHEN ASSEMBLED.** Tighten screws to 20 ft/lbs. Be sure that the axle is loose inside the bearing and crush sleeve during tightening so that the axle can be removed smoothly.
- ◆ Remove Axle from wheel assembly. Be sure the crush tube is tight between the bearings. If it is not it will have to be redone to be tight.
- ◆ Install the caliper arm on the caliper assembly with the 4 provide flat head screws. **USE BLUE (242) LOCTITE® ON THESE SCREWS WHEN ASSEMBLED.**
- ◆ Install the caliper assembly into the hat assembly; you will need to align the slots in the rotor with the pins in the hat to install. Install the axle adapter bushings if required. Hold this assembly together when placing between swing arm legs.
- ◆ Slide wheel assembly in between swing arm legs and install the axle loosely.
- ◆ Engage the caliper arm with the stop on the swing arm as required for the installation.
- ◆ Making spacers for wheel.
 - ◇ Make the spacer for the drive side of the wheel based on the measurement taken in step D. 2.d above. Make spacer from .125 min. wall tubing for 1" axle or 3/4" ID x .125 wall tubing for 3/4" axle. Verify that the tubing will fit loosely over axle. If not machine the ID to 0.010 larger than the axle diameter to fit over the axle loosely.
 - ◇ Measure the distance between the caliper face or axle adapter bushing as required and the inside of the swing arm leg and write it down. Make spacer from .125 min. wall tubing for 1" axle or 3/4" ID x .125 wall tubing for 3/4" axle. Verify that the tubing will fit loosely over axle. If not machine the ID to 0.010 larger than the axle diameter to fit over the axle loosely.
- ◆ Remove the wheel and caliper assembly. Be sure to hold the caliper in the hat assembly while removing the wheel.

- ◆ Reinstall wheel assembly with the spacers installed and tighten axle to 20 ft/lbs. Check that the caliper arm is engaged correctly with the stop on the swing arm.
- ◆ Verify that wheel spins freely after installation.

8) Brake line installation (USE ONLY DOT APPROVED BRAKE LINES AND FITTINGS)

Factory HD brake lines will not work with 360 Brakes. Custom motorcycles may have the correct type of lines. Installer will need to verify fitment. Call a 360 Brake technician if in not sure about the fitment.

Determine what brake fluid your motorcycle was supplied with. HD motorcycles have used both DOT 4 (glycol) and DOT 5 (silicone) brake fluids as original equipment in recent years. These are incompatible compounds, and must not be mixed. The 360 Brake is assembled using DOT 5 brake fluid.

◆ Front single brake installation

- ◇ The 360 Brake comes with straight adapters for the brake line connections, bleeder screws and plugs for the 4 holes in the caliper assembly.
- ◇ Remove the plugs from the 4 holes.
- ◇ Install the straight connector and the bleeder in the appropriate holes in the caliper assembly for the installation. Install the plugs in the unused holes. Use Teflon tape on the fitting, bleeder screw, and plugs to prevent leaks.
- ◇ Remove the factory brake line and measure it to find out the approximate length of the new brake line. The line may require additional length to provide correct slack for fork movement.
- ◇ Pump out all fluid from the master cylinder and wipe clean. Put a small amount of DOT 5 fluid in master cylinder and pump it through. Discard fluid appropriately.
- ◇ Provide appropriate adapter at master cylinder (i.e. Bikers choice P/N 030655, 036254, 036056, or 036255 as required) to install new flexible brake line compatible with the connector supplied by 360 Brakes from the master cylinder to the 360 Brake. Route the line in the factory location and provide slack at the bottom equal to the factory slack. Attach the new brake lines to the motorcycle as the original ones were tied.
- ◇ After the assembly is complete, fill the master cylinder with DOT 5 fluid and bleed the brakes per HD instructions.

◆ Front dual brake installation

- ◇ The 360 Brake comes with straight adapters for the brake line connections, bleeder screws and plugs for the 4 holes in the caliper assembly.
- ◇ Remove the plugs from the 4 holes.

- ◇ Install the straight connector and the bleeder in the appropriate holes in the caliper assembly for the installation. Install the plugs in the unused holes. Use Teflon tape on the fitting, bleeder screw, and plugs to prevent leaks.
- ◇ Remove the factory brake lines.
- ◇ Pump out all fluid from the master cylinder and wipe clean. Put a small amount of DOT 5 fluid in master cylinder and pump it through. Discard fluid appropriately.
- ◇ Provide tee fitting to split the brake lines to both front brakes. (i.e. Bikers Choice P/N 035450) Install the tee fitting and measure the line lengths providing appropriate slack at brake end for fork movement.
- ◇ Provide appropriate adapter at master cylinder (i.e. Bikers Choice P/N 030655, 036254, 036056, or 036255 as required) to install new flexible brake line compatible with the connector supplied by 360 Brakes from the master cylinder to the tee fitting and from the tee fitting to the 360 Brake. Route the line in the factory location and provide slack at the bottom equal to the factory slack. Attach the new brake lines to the motorcycle as the original ones were tied.
- ◇ After the assembly is complete, fill the master cylinder with DOT 5 fluid and bleed the brakes per HD instructions.

◆ **Rear brake installation**

- ◇ The 360 Brake comes with straight adapters for the brake line connections, bleeder screws and plugs for the 4 holes in the caliper assembly.
- ◇ Remove the plugs from the 4 holes.
- ◇ Install the straight connector and the bleeder in the appropriate holes in the caliper assembly for the installation. Install the plugs in the unused holes. Use Teflon tape on the fitting, bleeder screw, and plugs to prevent leaks.
- ◇ Remove the factory brake line and measure it to find out the approximate length of the new brake line. The line may require additional length to provide correct slack for swing arm movement.
- ◇ Pump out all fluid from the master cylinder and wipe clean, put a small amount of DOT 5 fluid in master cylinder and pump it through. Discard fluid appropriately.
- ◇ Provide appropriate adapter at master cylinder to install new flexible brake line that is compatible with the connector supplied by 360 Brake from the master cylinder to the 360 Brake. Route the line in the factory location and provide slack at the bottom equal to the factory slack. Attach the new brake lines to the motorcycle as the original ones were tied.
- ◇ Rear line has a brake light switch that has to be reused. You will need to provide a tee in the line that will fit the new lines and the factory switch (i.e. Bikers Choice P/N 036075 or 031196). Mount in the factory location. Be sure to plug in the switch after the brake line installation is complete. Verify that the brake light is working when pressing the rear brake lever only after bleeding is complete.

- ◇ After the assembly is complete, fill the master cylinder with DOT 5 fluid and bleed the brakes per HD instructions.

9) Check out and Brake test

- a) After installation is complete and bled check all bolts for tightness, brake lines and fittings for leakage prior to moving the motorcycle.
- b) After check roll bike manually and check brake actuation both front and rear separately.
- c) Find a location for brake testing that you can stop safely in case of brake failure during this test. Start motorcycle and run the bike up to 5 MPH and check the brake operation both front and back separately.
- d) If everything works properly go on the break in of the 360 Brakes. If not repair the problem and retest.

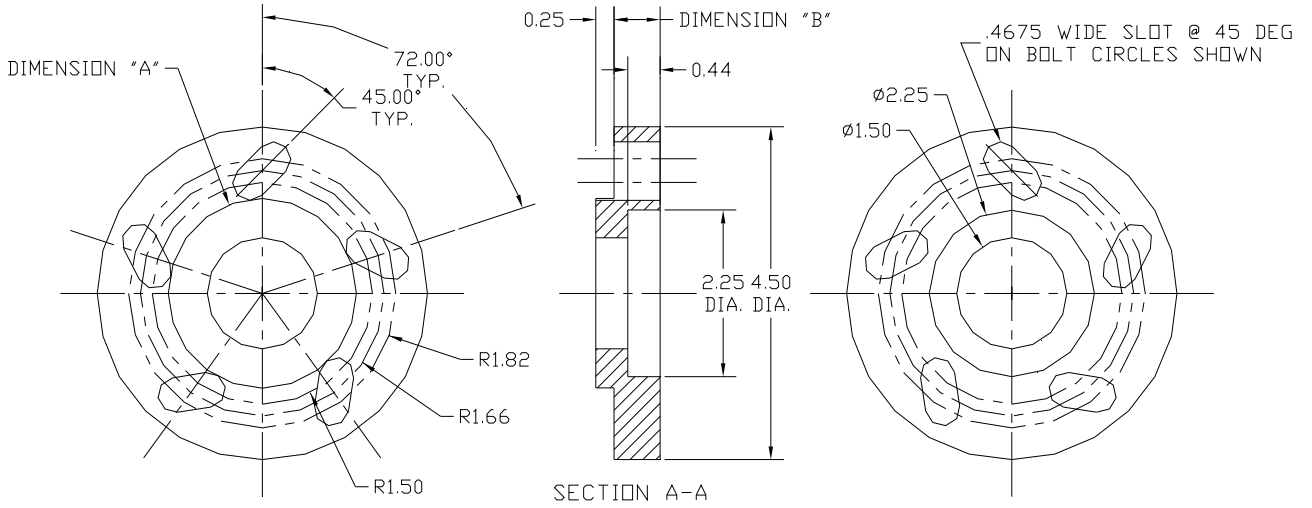
10) Break in/Bedding Procedure: (If the rear brake is not installed skip the rear brake testing)

- a) Find road without traffic for the following break in.
 - ◇ Run the motorcycle up to 10 MPH and bring bike to a gradual stop using a moderate / normal deceleration rate (not panic or lock up stop). Do this for the new brake or alternate between brakes if both brakes are new. Repeat 5 times allowing the brake to cool at least 30 seconds after each stop. Let brakes cool completely before going to the next step.
 - ◇ Run the motorcycle up to 30 MPH and bring bike to a gradual stop using a moderate/ normal deceleration rate (not panic or lock up stop). Do this for the new brake or alternate between brakes if both brakes are new. After stopping, hold brake pedal/ handle for 1 minute and allow pads to heat soak. Repeat stops 5 times allowing the brake to cool at least 30 seconds after each heat soak. Let brakes cool completely before going to the next step.
 - ◇ Run the motorcycle up to 40 MPH and slow the bike to 20 MPH using a moderate / normal deceleration rate. Repeat stops 5 times allowing the brake to cool at least 30 seconds after each slow down.

The Brakes are now bedded and ready for use, but performance will continue to improve after completing this procedure. When the system achieves elevated brake temperatures for the first time, a slight increase in pedal travel and pedal effort may occur. After this first "fade" and proper cooling, the system will maintain its optimum performance at all temperatures.

This completes the "break-in" of your pads to the rotor surface. Note any irregularities and report them to a 360 Brake technician for evaluation and problem solving. Full seating of your new brake pads normally occurs within 1000 miles.

Thank you for using 360 Brakes for your ride, we expect you to have a great experience using our product.



DIMENSION "A" = I.D. OF WHEEL @ HUB = _____
 DIMENSION "B" = SPACER THICKNESS = _____

Figure 1

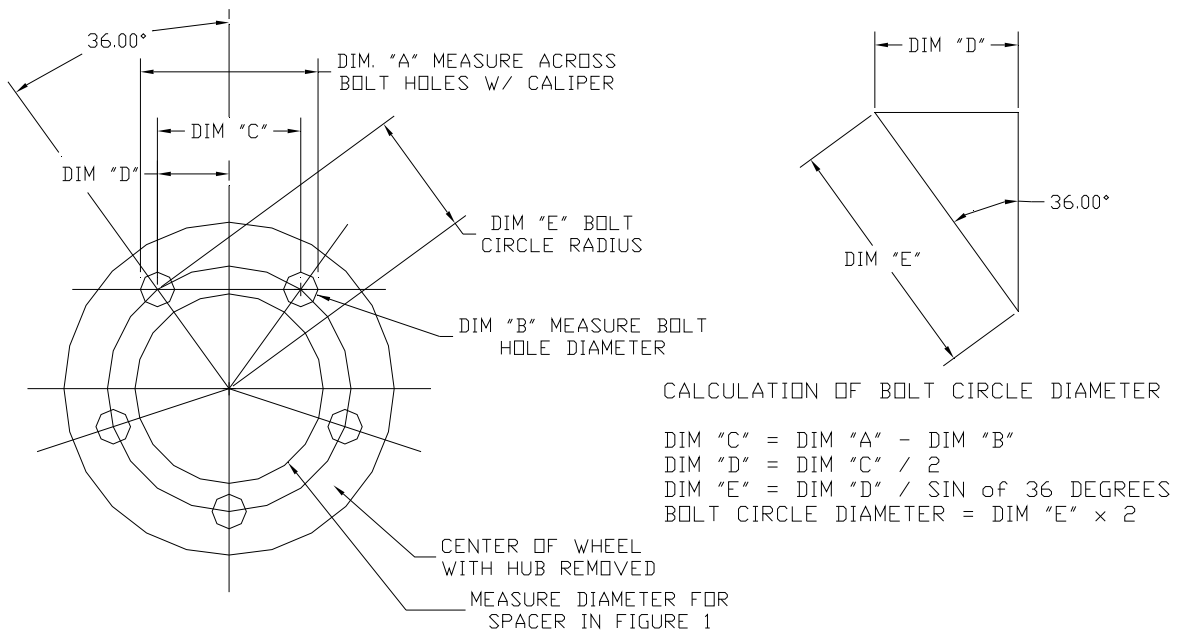


Figure 2

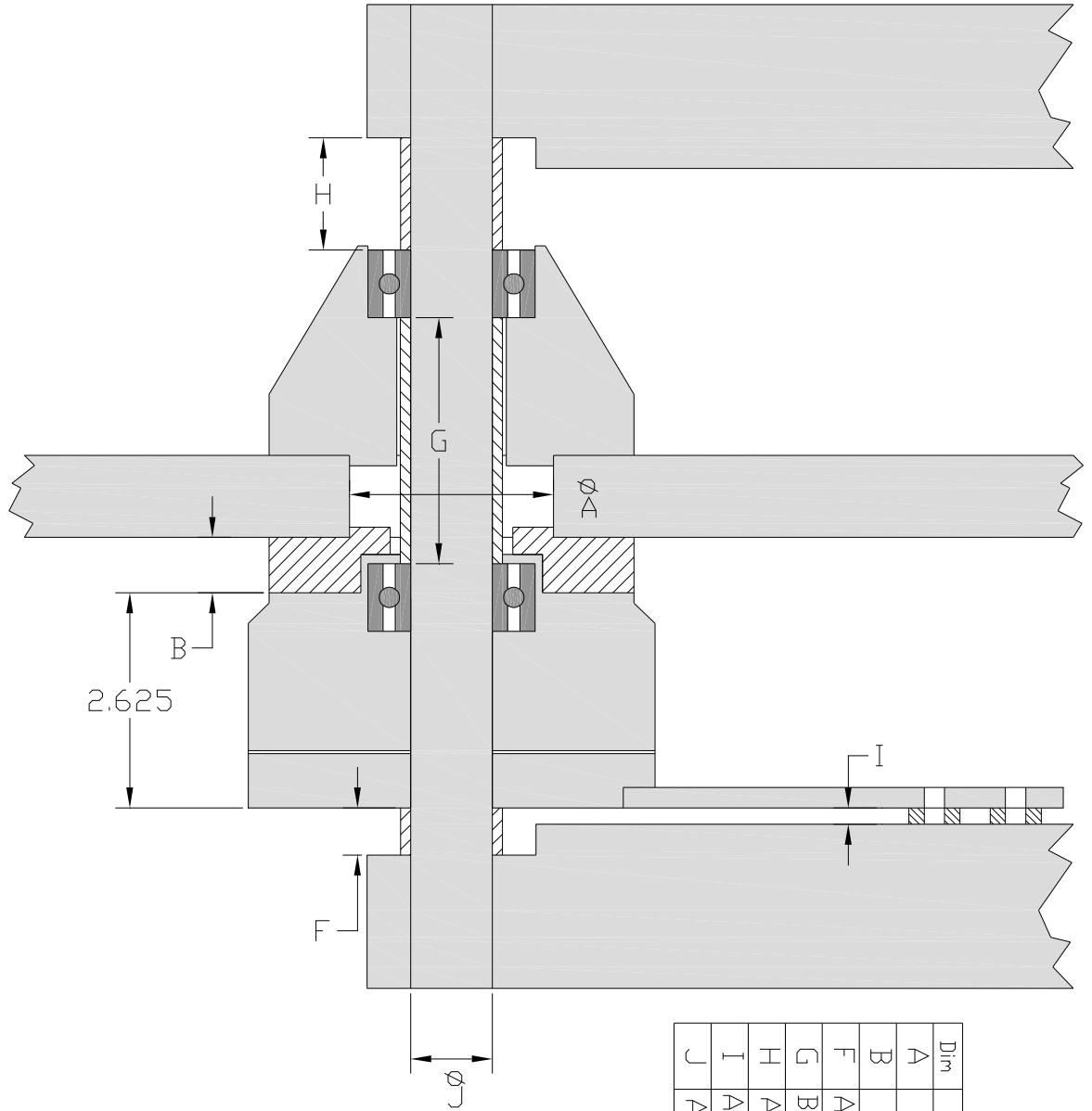


Figure 3

Dim	Description	Measurement
A	Wheel ID	
B	Hat Spacer	
F	Axle Spacer 1	
G	Bearing Spacer	
H	Axle Spacer 2	
I	Arm Spacer(s)	
J	Axle Diameter	

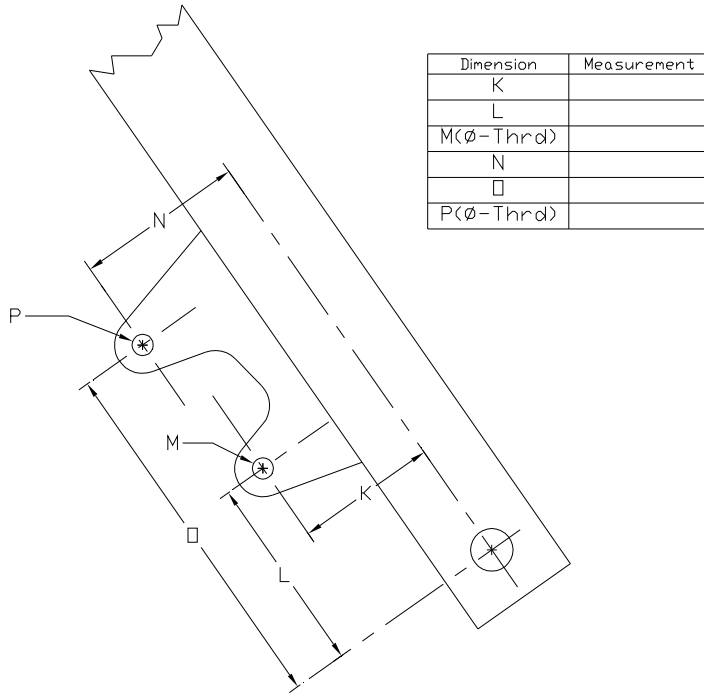


Figure 4

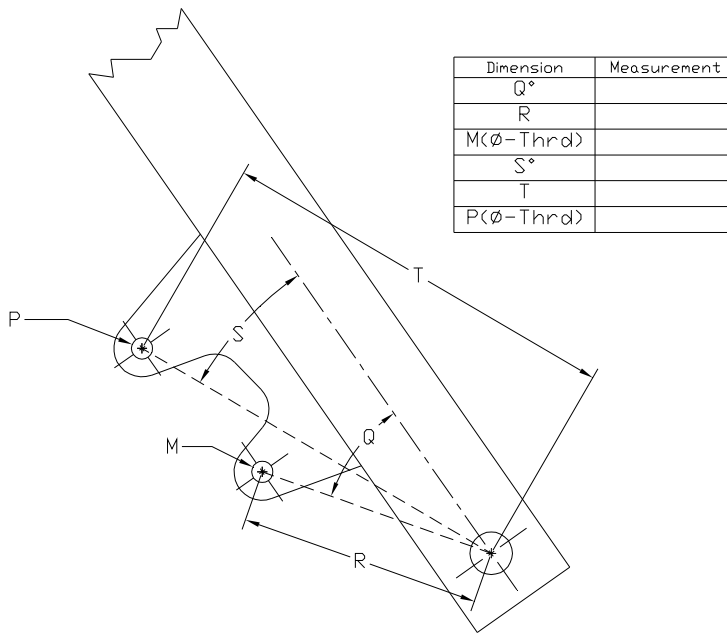


Figure 5