

## **BAKER HYDRAULIC SIDE COVERS FOR FACTORY 6-SPEED**



## **INSTALLATION INSTRUCTIONS**



# BAKER HYDRAULIC SIDE COVERS FOR FACTORY 6-SPEED

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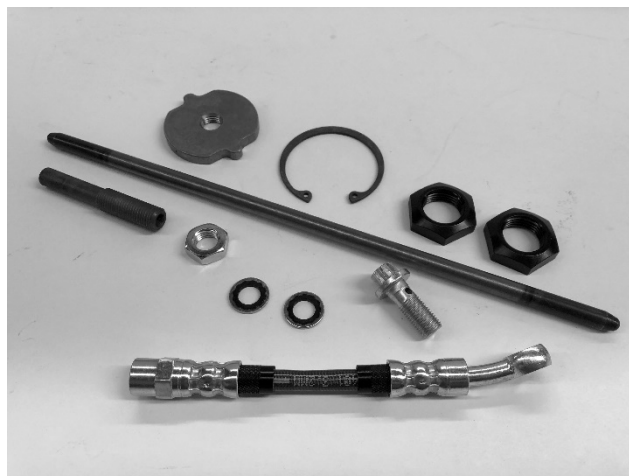
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## FITMENT

- CD6, Cruise Drive Models (P/N DD7-106C-KIT)
  - 2006-2017 Dyna®
  - 2007-2017 Softail®
  - 2007-2016 Touring
- M8, Milwaukee-Eight® Models (P/N M8-106C-KIT)
  - 2018-Later Softail®
  - 2017-Later Touring

## INCLUDED PARTS FOR P/N M8-106C-KIT

- 1x - Center rod, clutch release, P/N 37088-90
- 1x - Adjuster screw, clutch, P/N 9P235-56
- 1x - Clutch release plate, P/N 37903-90
- 1x - Jam nut, 7/16-20, P/N 36258
- 1x - Retaining ring, 1-7/8", P/N 68065
- 2x - Nut, mainshaft, countershaft, P/N 7340BD
- 1x - Hydraulic adapter line, P/N 434-RV17
- 1x - Banjo bolt, 3/8-24, P/N 41747-82A
- 2x - Washer, banjo bolt, P/N 41731-01



# BAKER CD6 HYDRAULIC SIDE COVER

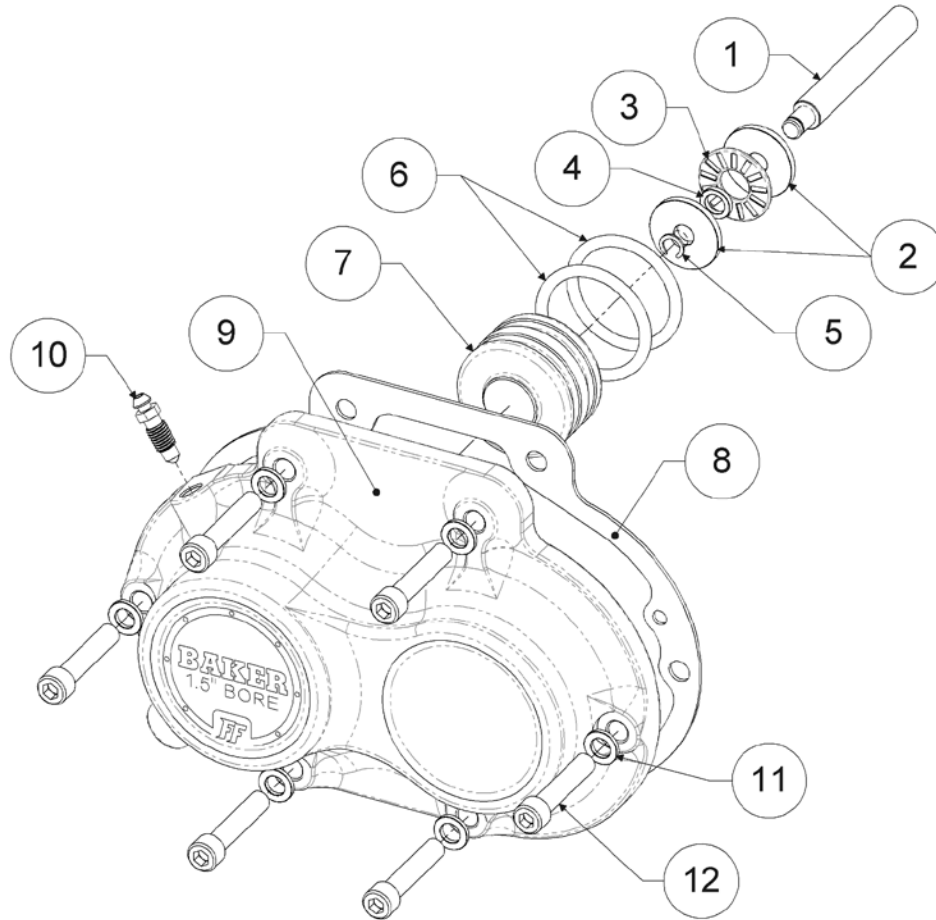


FIGURE 1 | CD6 HYDRAULIC SIDE COVER

ITEM	QTY	P/N	DESCRIPTION
1	1	37084-84	Clutch Actuator Rod Assembly (2.623" Overall)
2	2	BD411-56	Thrust Washer, Heavy Duty
3	1	FNT-1024	Throwout Bearing, Heavy Duty
4	1	BD410-56	Washer, Spacer, Brass, Throwout Bearing
5	1	10705-01149	C-Clip, Retaining Ring, Actuator Rod
6	2	66855	Hydraulic Piston O-Ring
7	1	124-56L	Hydraulic Piston, 1-1/2" Diameter, LSD
8	1	36805-06-F	Gasket, Side Cover
9	1	DD7-106C	CD6 Hydraulic Side Cover, 1-1/2" Bore
10	1	94-4504	Bleeder Valve (1/4-28 Thread)
11	6	6099SS	Washer, Stainless Steel
12	6	73463	1/4-20 X 1-1/4" 18-8 S.S. SHCS

## BAKER M8 HYDRAULIC SIDE COVER

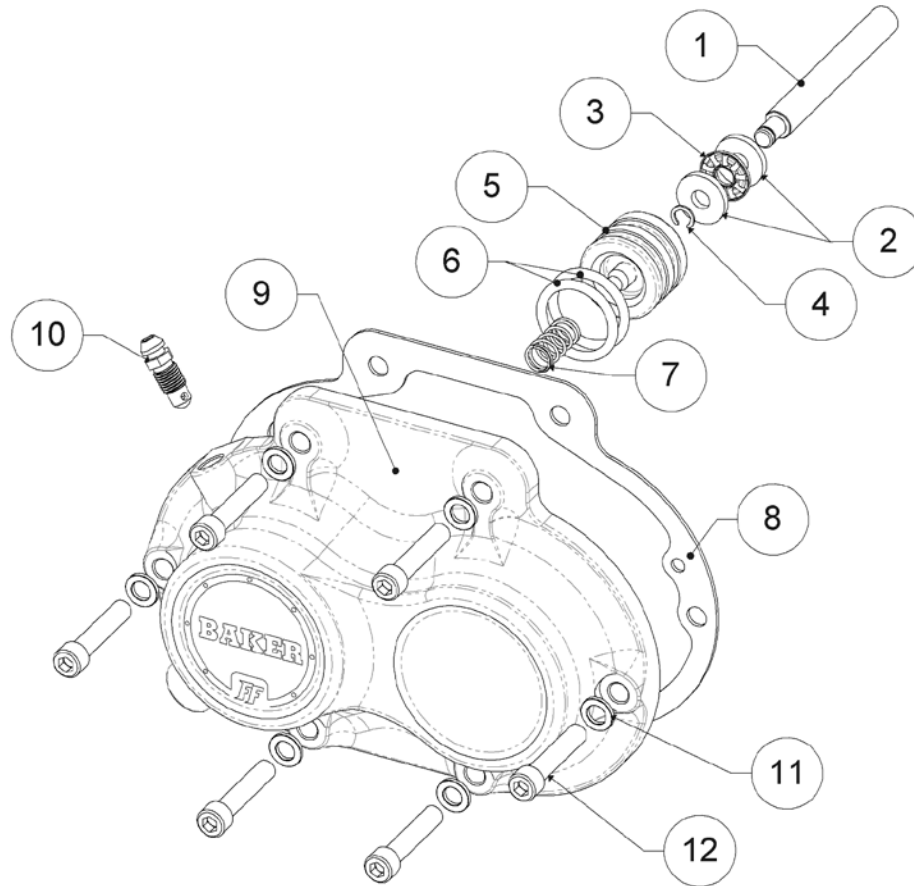


FIGURE 2 | M8 HYDRAULIC SIDE COVER

ITEM	QTY	P/N	DESCRIPTION
1	1	37084-84L	Clutch Actuator Rod Assembly (2.815" Overall)
2	2	TWC411	Thrust Washer
3	1	TC411	Throwout Bearing
4	1	10705-01149	C-Clip, Retaining Ring, Actuator Rod
5	1	128-6L	Hydraulic Piston, 28MM Diameter
6	2	9262K269	Hydraulic Piston O-Ring, 3 x 22MM
7	1	9435K78	Compression Spring, 302 Stainless
8	1	36805-06-F	Gasket, Side Cover
9	1	M8-106C	M8 Hydraulic Side Cover, 28MM Bore
10	1	45-9403	Bleeder Valve (5/16-24 Thread)
11	6	6099SS	Washer, Stainless Steel
12	6	73463	1/4-20 X 1-1/4" 18-8 S.S. SHCS

## WHAT DO I NEED?

### REQUIRED PARTS, TOOLS, & REFERENCE MATERIALS

- Factory Service Manual for your year and model motorcycle
- Common hand tools (allen wrenches, sockets, retaining ring pliers, etc.)
- Torque wrenches, 3/8" & 1/2" drive
- Red & blue thread lock
- Brake bleeder pump if available
- Transmission fluid, 28-32 oz.
  - BAKER recommends Spectro Heavy Duty Platinum 6-Speed Transmission Oil; P/N BD-75140-32
- Hydraulic brake fluid for your make and model
  - 2006-07 Models – DOT 5
  - 2008-Later Models – DOT 4
  - **See brake fluid compatibility chart →**

Brake Fluid Compatibility Chart				
	DOT 3	DOT 4	DOT 5	DOT 5.1
DOT 3	✓	✓	✗	✓
DOT 4	✓	✓	✗	✓
DOT 5	✗	✗	✓	✗
DOT 5.1	✓	✓	✗	✓

✓ Totally compatible. May be mixed and used interchangeably  
 ✗ Not compatible. Do not mix under any circumstances

### ADDITIONAL PARTS FOR NON-M8 MODELS

All BAKER hydraulic actuators are designed to use mechanical ball and ramp components for the center rod that goes through the transmission mainshaft, as well as the release plate, adjuster screw, jam nut and retaining ring that are in the clutch basket. The BAKER hydraulic feed port is designed to work with aftermarket style banjo fittings and bolts and is not compatible with the CVO™ style straight entry, formed end hydraulic line. As such, you may need to purchase a few additional parts, listed below.

#### 2013 - 2017 ALL NON-M8 MODELS (HYDRAULIC PISTON) REQUIRE:

- Hydraulic line adapter with fitting (BAKER P/N 432-RV07-A)
  - Includes 1x banjo bolt and 2x banjo washers

#### 2006 - 2012 CD6 MODELS (MECHANICAL BALL & RAMP) REQUIRE:

- 11/16" bore hydraulic clutch lever (master cylinder) assembly
- AN-3 hydraulic line for your make and model
- 2x 3/8"-24 banjo bolt
- 2x 10mm banjo fitting
- 4x banjo washers

#### 2006 - 2012 CVO™ MODELS (HYDRAULIC PISTON) REQUIRE:

- AN-3 hydraulic line for your make and model
- 1x 3/8"-24 banjo bolt (re-use 1 already on bike)
- 2x 10mm banjo fitting
- 4x banjo fitting washers
- Clutch release pushrod (P/N 37092-06)
- Adjuster screw (P/N 37090-98A)
- Jam nut (P/N 7848W)
- Release plate (P/N 37903-90)
- Retaining ring, internal (P/N 37909-90)

# INSTALLATION

## DISSASSEMBLY

1. Securely support your motorcycle on a bike lift or jack and drain the transmission fluid. Refer to your Factory Service Manual for the location of your drain plug.
2. Depending on the style of exhaust that you have on your motorcycle, the exhaust may need to be removed at this time to allow access to the transmission side cover.
3. If you have a mechanical ball and ramp style side cover, remove the clutch cable and clutch lever (master cylinder) at this time. If you have a 2006-2012 CVO™ model, remove only the hydraulic line from the clutch lever (master cylinder) at this time. You will be replacing these in a later step.
4. Unbolt the side cover from the transmission. Remove the stock side cover, as well as the factory clutch actuator rod, and set aside.
5. Remove the derby cover and back off the jam nut for the clutch adjustment. If you have a CVO™ model, remove the clutch rod and snap ring at this time.
6. Wipe down the gasket surface of the bearing door and inspect to make sure it is free of residual oil, old gasket material and debris.

## MILWAUKEE-EIGHT® MODELS ONLY

1. Remove the mainshaft and countershaft retaining nuts on the end of the shafts. Hold the rear brake or shift the bike into gear to keep the transmission from spinning.
2. Thoroughly clean the threads on both shafts and on the supplied retaining nuts. Use a rag and brake cleaner, lacquer thinner, or equivalent.
3. Install the supplied mainshaft and countershaft retaining nuts with red thread lock. Install the nuts so that the chamfer faces outward (see figure 3).
4. Torque both retaining nuts to 75-85 ft-lb. Hold the rear brake or shift the bike into gear to keep the transmission from spinning.

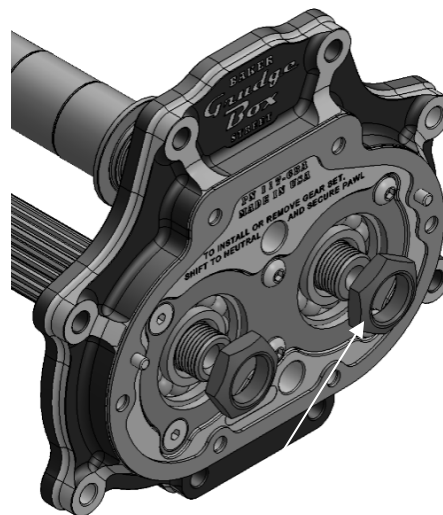


FIGURE 3 | RETAINING NUT INSTALLATION  
CHAMFER FACING OUT ON BOTH NUTS

## INSTALLATION

1. Install the supplied side cover gasket on the bearing door. Place the provided clutch actuator rod assembly into the hole in the end of the mainshaft on the right side of the bike.
2. Remove the hydraulic piston from the side cover. Tip – Place the side cover on a towel or rag with the back side facing down. Use the light touch of an air blow gun in the hydraulic feed port to push the piston out of its bore and onto the towel/rag.
3. Bathe the piston in brake fluid, making sure the O-rings are fully coated. You must use the correct type of brake fluid for your make and model (see compatibility chart on page 3).
4. Double check that the inside of the side cover, especially the hydraulic bore, is free of dirt and debris. Clean with shop air or brake cleaner/lacquer thinner if necessary.

## INSTALLATION

- Coat the inside walls of the hydraulic bore with the same brake fluid that you used to lubricate the O-rings. Gently slide the piston back into the side cover until it bottoms out. Take care to not force the piston into place – you don't want to damage the O-rings on the edge of the hydraulic bore.



**THESE EXTRA LUBRICATION STEPS ARE NECESSARY FOR THE PARTS TO FUNCTION AS DESIGNED**

- Place the side cover onto the bearing door using the 3/16" dowels for proper positioning.
- Using the provided fasteners, torque the side cover bolts to 130 in-lb using blue thread lock. Refer to the proper torque sequence to the right (figure 4).
- Route the hydraulic line to the side cover, making sure there are no kinks. Torque the 3/8"-24 banjo bolt to 17-22 ft-lb. Note: All ball and ramp & 2006-2012 CVO™ models require a new hydraulic line. 2013-2017 non M8 models will require a hydraulic line adapter, P/N 432-RV07-A.

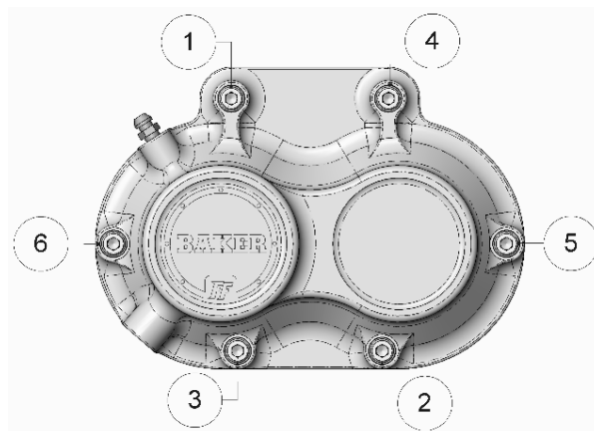


FIGURE 4 | TORQUE SEQUENCE



**TAKE THE NECESSARY TIME AND PROPER PRECAUTIONS TO ROUTE THE HYDRAULIC LINE AWAY FROM ANY MOVING PARTS AND EXHAUST PIPES THAT COULD DAMAGE THE LINE IN ANY WAY. MAKE SURE THAT YOU ARE ABLE MOVE THE FRONT END THROUGH ITS FULL RANGE OF MOTION LEFT TO RIGHT WITHOUT BINDING, KINKING OR PINCHING THE HYDRAULIC LINE. FAILURE TO DO SO COULD RESULT IN PART FAILURE OR PERSONAL INJURY.**

- If you have converted from a mechanical to a hydraulic system, install the clutch master cylinder and the banjo bolt with washers.
- Bleed the hydraulic clutch system. Refer to the next page for detailed instructions.

### FINISH LINE

- Fill the transmission with 32 oz. of transmission fluid. Re-install the exhaust. Double check that all fasteners are tight on the motorcycle, any ancillary parts that you removed to perform this installation are back in their intended place on the motorcycle, and that your hydraulic clutch fluid line is secured to the motorcycle frame.
- Once a short maiden voyage has been made around the block or down the road, take the time to double check all fasteners and hydraulic fittings for tightness. Make sure that you have no leaks around the side cover or on any part of the hydraulic clutch system. With the bike securely on the kickstand and the transmission warmed up, double check the level of the transmission fluid. Drain off any excess fluid if the transmission is overly full.

## BLEEDING THE HYDRAULIC CLUTCH SYSTEM



**BAKER DRIVETRAIN STRONGLY RECOMMENDS THAT A POWER BLEEDER SYSTEM BE UTILIZED, WHETHER THAT IS A HAND OPERATED PUMP OR PNEUMATIC, TO BLEED THE HYDRAULIC CLUTCH SYSTEM ON YOUR MOTORCYCLE. IT IS THE MOST EFFECTIVE AND ONLY SUREFIRE WAY TO ENSURE THAT ALL OF THE AIR BUBBLES ARE PURGED FROM THE SYSTEM. IF YOU DO NOT OWN A POWER BLEEDER, THE FOLLOWING SET OF INSTRUCTIONS WILL ENABLE YOU TO BLEED YOUR CLUTCH SYSTEM. GREAT CARE AND ATTENTION TO DETAIL MUST BE USED IN FOLLOWING THESE STEPS TO ENSURE A PROPERLY BLED AND FUNCTIONING SYSTEM AND YOUR SAFETY AS A RIDER.**

1. Before you can bleed the hydraulic clutch system, you must adjust the free play and rod length at the clutch. Loosen the bleeder valve on the side cover. Using an Allen wrench, run the adjuster bolt (center of the clutch) inboard until you can feel the piston bottom out in the side cover. You will also know that you have hit the bottom point as the clutch will begin the move. At the point where it is fully bottomed out, back the adjuster off 1/2 to 1 full turn. The closer to the 1 full turn that you adjust it to, the more reserve you will have in the lever before the motorcycle begins to move; the full engagement of the clutch will be proportionally closer to the end of the sweep of the lever. This amount can be adjusted to suit rider comfort and riding style. Tighten the jam nut to 120 in-lb while holding the adjuster screw from rotating.
2. Snug the bleeder valve and place a clear tube over the bleeder valve on the side cover. Run the tube into a clean container.
3. Stand the motorcycle upright so that the master cylinder on the clutch lever is level. Remove the master cylinder lid and gasket.
4. Add new brake fluid (per your make and model) to the master cylinder reservoir until the fluid level is at or below the full line. **DO NOT OVERFILL THE MASTER CYLINDER.**
5. Squeeze the lever 5-10 times. Open the bleeder valve on the side cover and clutch fluid should flow through the tubing. If not, keep pumping the lever as it may take a few minutes for the fluid to make it all of the way through the line and cover. Once fluid begins to flow through the clear tube, close the bleeder valve. It may be necessary to add more fluid at this time, even before any fluid begins to flow out of the clear tubing.
6. Squeeze the clutch lever and hold it against the handlebar to build up hydraulic pressure. Open the bleeder valve on the side cover about 1/2 turn. Clutch fluid will flow through the clear tubing. Close the bleeder when the clutch lever has traveled about 50-75% of its full travel. Wait for the clutch lever to return to its released position. Repeat this step until all air bubbles have been forced out of the system and there are no bubbles in the fluid within the clear tubing.
7. When the system has been fully bled and the clutch lever no longer feels mushy, fully tighten the bleeder valve on the side cover to 80 in-lb. It may be necessary to fill the fluid in the reservoir to the full line at this time. **DO NOT OVERFILL THE MASTER CYLINDER.**
8. Place the cover back on the master cylinder and tighten down according to the manufacturer's specifications. Check to make sure that the hydraulic line is tight at the clutch lever and the side cover at this time.
9. Install the primary derby cover, referring to the Factory Service Manual for the proper torque sequence.



# TERMS & CONDITIONS

## ORDERS

Orders can be pre-paid using VISA, MasterCard, American Express, and Discover or via wire transfer (\$30 wire transfer fee applies). All orders not pre-paid will be sent C.O.D. certified check or money order only unless pre-approved for company check acceptance. Any orders from outside the USA must be pre-paid in US funds via wire transfer (\$30 transfer fee applies). Prices shown are F.O.B. Haslett, MI. BAKER™ ships via UPS Ground or USPS Parcel Post for all orders. UPS air shipment or USPS Priority/ Express services are available upon request. Customer is responsible for all shipping charges unless otherwise arranged at the time of sale.

## CUSTOMER SUPPORT

For any installation or service questions, please contact our BAKER technical department: 1-517-339-3835.

## LIMITED WARRANTY

NOTE: Warranty card must be returned within 45 days of purchase for your warranty to be valid.

BAKER™ transmission assemblies and transmission builder 's kits, are guaranteed to the original purchaser to be free of manufacturing defects in materials and workmanship for a period of 5 years from the date of purchase or up to 50,000 miles, whichever occurs first. All other BAKER products are guaranteed to the original purchaser to be free of manufacturing defects in materials and workmanship for a period of 2 years from the date of purchase or up to 24,000 miles, whichever occurs first, except for the following; Warranty does not cover clutch plate wear, throw out bearing failures or mainshaft breakage due to improper clutch nut installation.

Electrical components carry a 30-day warranty; cosmetic finishes (chrome plating, hard anodizing, powder coating) are covered for 60 days. Certain promotional products may carry a shorter warranty as specified at the time of purchase. If the product is found by BAKER to be defective, such products will, at the option of BAKER, be replaced or repaired at cost to BAKER.

In the event warranty service is required, the original purchaser must call or write BAKER immediately with a description of the problem. If it is deemed necessary for BAKER to make an evaluation to determine whether the transmission assembly or transmission kit or accessory is defective, the entire transmission assembly, whether originally purchased as an assembly or kit, must be properly packaged and returned prepaid to BAKER with a copy of the original purchase invoice. If after evaluation by BAKER a defect in materials and/or workmanship is found, BAKER will, at their option, repair or replace the defective part of the assembly.

## RETURNS AND EXCHANGES

Any merchandise returned for any reason (exchange, credit or modification) must be accompanied by a Return Goods Authorization (RGA) number or it will be refused. Call BAKER to obtain this number prior to returning goods for any reason. There is a 15% re-stocking fee for all returned items.

BAKER is not liable for any shipping.

## ADDITIONAL WARRANTY PROVISIONS

NOTE: Limited warranty does not cover labor or other costs or expenses incidental to the repair and or replacement of BAKER products.

This warranty does not apply if one or more of the following situations is judged by BAKER to be relevant: BAKER OEM transmissions ; (these are subject to the OEM manufacturers warranty only), Improper installation , accident, modification (including but not limited to use of unauthorized parts, transmission oils or lubricants), racing, high performance application, mishandling, misapplication, neglect (including but not limited to improper maintenance), or improper repair.

BAKER shall not be liable for any consequential or incidental damages arising out of or in connection with a BAKER transmission assembly, transmission kit, component or part. Consequential damages shall include without limitation, loss of use, income or profit, or losses sustained as the result of injury (including death) to any person or loss of or damage to property.

BAKER transmissions, transmission kits and accessories are designed exclusively for use in American V-Twin motorcycles. BAKER shall have no warranty or liability obligation if BAKER parts are used in any other application.

If it is determined that a BAKER product has been disassembled during the warranty period for any reason, this limited warranty will no longer apply unless you were instructed to do so by a BAKER Drivetrain technician for diagnostic purposes.