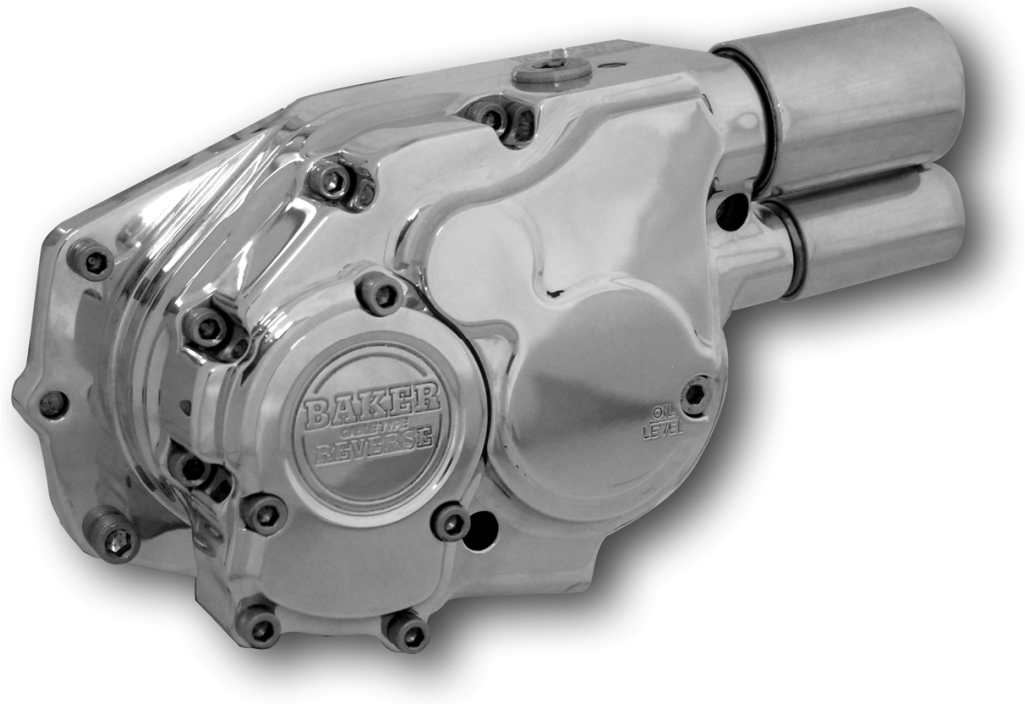
BAKER DD6 REVERSE

DD6RV
DIRECT DRIVE 6-SPEED REVERSE



FITMENT & OPTIONS

PN DD6-RV Retro fits all BAKER DD6 Gearsets

Add: -P Suffix For Polished Door And Side Cover
Add: -C Suffix For Chrome Door And Side Cover
Add: -U Suffix For Upgrade To A BAKER DD6 Builder's Kit Or Complete Transmission
Add: -H Suffix For Hydraulic Side Cover Version
Add: -HI Suffix For Hydrualic Side Cover, 2007-Newer Indian

PN SHB-A H-D™ Hand Control Mounted Switch Housing, Satin Black Powdercoat
PN SHC-A H-D™ Hand Control Mounted Switch Housing, Chrome
PN 423-F5R 1" Handlebar Mounted Switch Housing Assembly, Polished

*2000-2006 Softail Models Require BAKER PN TCSO-A, Oil Line Adapter Kit

BAKER DD6 REVERSE

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BAKER DD6 REVERSE

OVERVIEW

We introduced the F6R kit, or Factory 6-speed Reverse, for the 2007-later H-D® 6-speed bike. The biggest advantage of the F6R is the ability to engage reverse from one switch in the handle bar area without the need to reach down near the hot exhaust. Minimal clutch modulation is required in reverse to launch the vehicle due to the short gear ratio. We finally got off our duff and are doing the same for the 1990-2006 5-speed bikes. We call it the DD6-RV or Direct Drive 6 Speed Reverse. The contents in the DD6-RV kit are similar to the F6R; door, side cover, countershaft, reverse gear train and hardware. Existing gearset (except countershaft), shift system and top cover will be re-used with the DD6-RV installation. The DD6-RV will be appreciated by those with heavy GVW applications (trikes, side cars and trailers) or those with compromised leg mobility.

FEATURES

- Reverse selection controlled by aircraft grade shifting solenoid & bell crank assembly. Electronic reverse safety lock-out solenoid must first be energized with the provided handle bar or inner fairing mounted momentary toggle switch. Shift safely into reverse every time!
- No need to use the starter motor for reverse maneuvers.
- Includes ready to install solenoids and neutral safety switch wiring.
- Reverse can only be selected when bike is in neutral by tying the solenoid function to the neutral switch on the transmission.
- No case modifications required for reverse gearset installation.

REQUIRED READING

Regardless of the skill level or experience of the technician installing the DD6-RV Retro Fit Kit or DD6-RV Builder's kit, it is highly recommended that a genuine H-D© Parts Catalog and Factory Service Manual be available for your model of motorcycle.

TOOLS & PARTS

- Common Hand Tools
- Wire Cutters/ Strippers
- Dielectric Grease
- Heat Gun
- Voltmeter
- Split Bearing Press Tool (BAKER PN 483-DD6RV)
- Torque Wrench: 3/8" & 1/2" Drive
- 1 3/16" 6 pt Socket (Clutch Nut)
- 1 1/2" 6 pt Socket (Motor Sprocket Nut)
- 6" Calipers or 6" Machinists Scale
- Access To An Oven
- Primary Inner Race Service Kit (BAKER PN TOOLB-56)
- 32oz Primary Fluid (Spectro PN R.GAPCL)
- 22-24oz Transmssion Fluid (Spectro PN BD75140)
- 'Blue' & 'Red'Thread Lock
- 'Silver' Anti-Seize
- Access To A 20 Ton Hydraulic Press
- Primary Drive Service Kit (Gaskets, Seals, Lock Tabs, etc)

HYDRAULIC VERSION PARTS

- 11/16" Bore Master Cylinder Clutch Lever Assembly
- 3/8-24" Thread Banjo Bolt
- DOT 5 Silicone Based Brake Fluid (2007 & Newer Indian Models With Stock Controls Require Prestone, DOT 4 Synthetic Brake Fluid)
- 10mm Banjo Fitting (Angle Depends On Exhaust Bracket Style)

DD6-RV BUILDER'S KIT OR COMPLETE BUILD TRANSMISSIONS

Portions of these installation instructions do not apply to you if you bought a DD6-RV Builder's kit or a complete transmission with DD6-RV upgrade, but the wiring installation notes, reverse function tests, and the general DD6-RV riding usage instructions do. If you have a builders kit, reference your Factory Service Manual for the instructions on how to swap out the main drive gear, main drive gear roller bearing and main drive gear roller bearing seal. As well as the installation of your secondary drive belt pulley or chain sprocket for torque specs.

BAKER DD6 REVERSE

DD6-RV, MECHANICAL SIDE COVER, RETRO FIT KIT EXPLODED VIEW

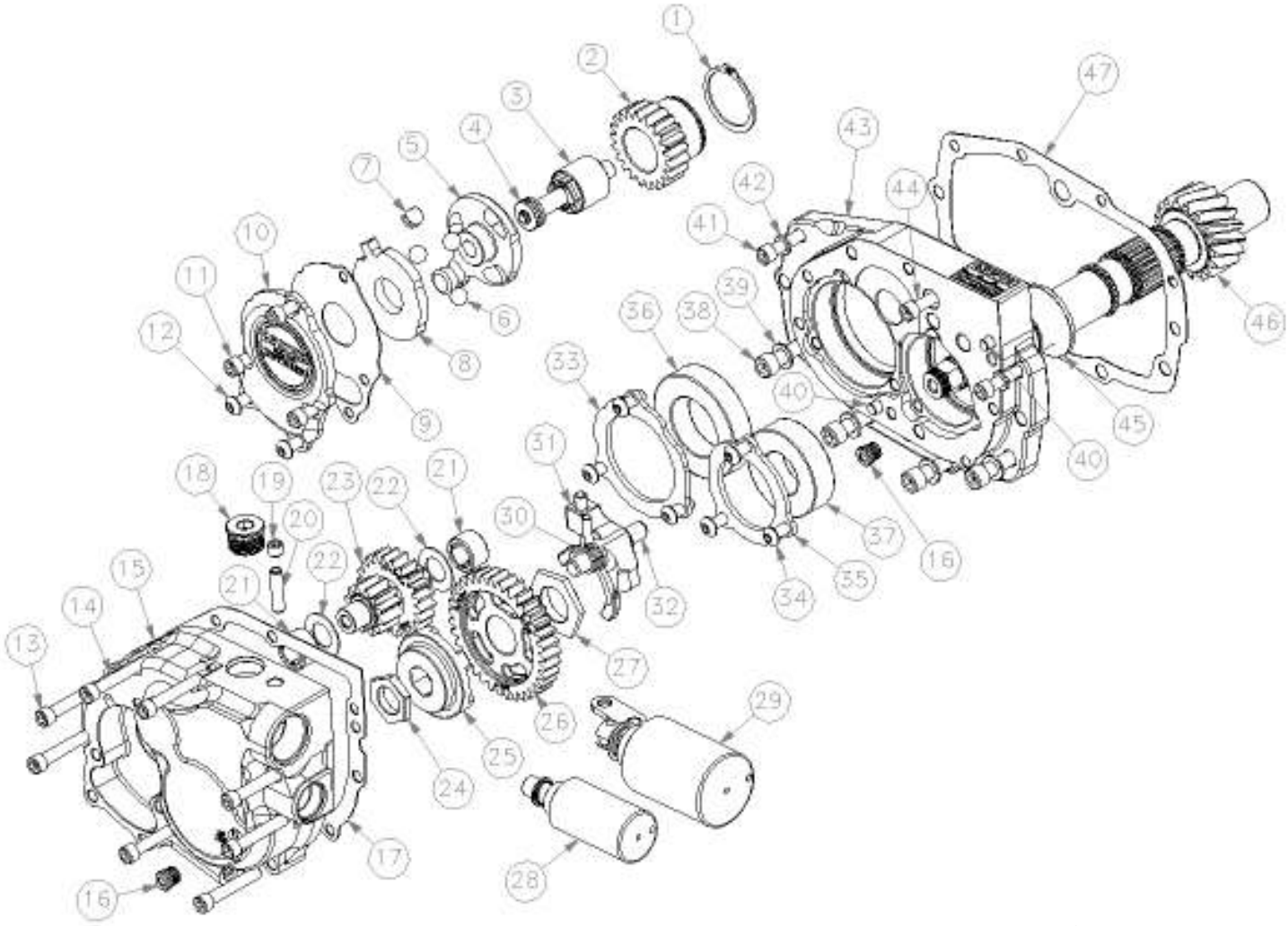


FIGURE 1

BAKER DD6 REVERSE

TAG	PN	QTY	DESCRIPTION
1	137RRRE	1	Snap Ring, External Ø1.375" Shaft
2	RV-7000	1	Driven Pinion Gear
3	RV-7051	1	Retainer Nut, Mainshaft
4	37089-84	1	Actuator Rod Assembly (2.625" Overall)
5	3096-F5R	1	Ball Ramp, Inner
6	987687	3	Ball Bearing, Ø3/8"
7	3094-DSSC	1	Ferrule, Clutch Cable
8	3196-F5R	1	Ball Ramp, Outer
9	415-F5R	1	Gasket, Ball & Ramp Cover
10	584-F5R	1	Ball & Ramp Cover
11	25C62KCSS	3	¼-20 x .625", SHCS, SS
12	73753	2	¼-20 x .625", BHCS, SS
13	25C150KCSS/P	7	¼-20 x 1.50", SHCS, SS
14	25C225KCSS/P	1	¼-20 x 2.25", SHCS, SS
15	401-F5R	1	Side Cover, Mechanical
16	51740-001	2	Drain & Oil Level Plug, 3/8-24
17	414-F5R	1	Gasket, Side Cover
18	51970S-008-01	1	Fill Plug, Zero Leak, ¾-16
19	31F31KKCS	1	5/16-24 x 5/16" Set Screw, SS
20	25R75PDP	1	¼" x ¾" Pull Dowel
21	HK1412	2	Needle Bearing, Split Idler Gear
22	TRA-916	2	Thrust Washer, Split Idler Gear
23	RV-7010	1	Split Idler Gear
24	408-F5R	1	Jam Nut, Countershaft
25	RV-7030	1	Dog Clutch
26	RV-7020	1	Slider Gear
27	168-F5R	1	Retainer Nut, Countershaft
28	420-F5R	1	Solenoid Assembly, Lockout
29	420S-F5R	1	Solenoid Assembly, Shifting
30	LW 05611 0325S	1	Redux Return Spring
31	404-F5R	1	Shift Fork, Reverse
32	412-RV07	1	Fork Rod, Reverse
33	407-F5R	1	Bearing Retainer Plate, Mainshaft
34	24050	6	¼-20 x .625", BHCS, Black Oxide
35	406-F5R	1	Bearing Retainer Plate, Countershaft
36	6007	1	Roller Bearing, Mainshaft
37	6205	1	Roller Bearing, Countershaft
38	31C125KCSS/P	4	5/16-18 x 1.25", SHCS, SS
39	6100	4	5/16" AN Washer, SS
40	26749	2	¼"x ½" Alignment Dowel
41	25C125KCSS/P	2	¼-20 X 1.25", SHCS, SS
42	6099SS	2	¼" AN Washer, SS
43	132-DD6RV	1	Bearing Door, DD6-RV
44	23207	1	¼-20 X 1.25", SHCS, Black Oxide
45	LS2542	1	Thrust Washer, Countershaft
46	413-DD6RV	1	Countershaft, DD6-RV
47	35652-79B	1	Gasket, Bearing Door

BAKER DD6 REVERSE

DD6-RV, HYDRAULIC SIDE COVER, RETRO FIT KIT EXPLODED VIEW

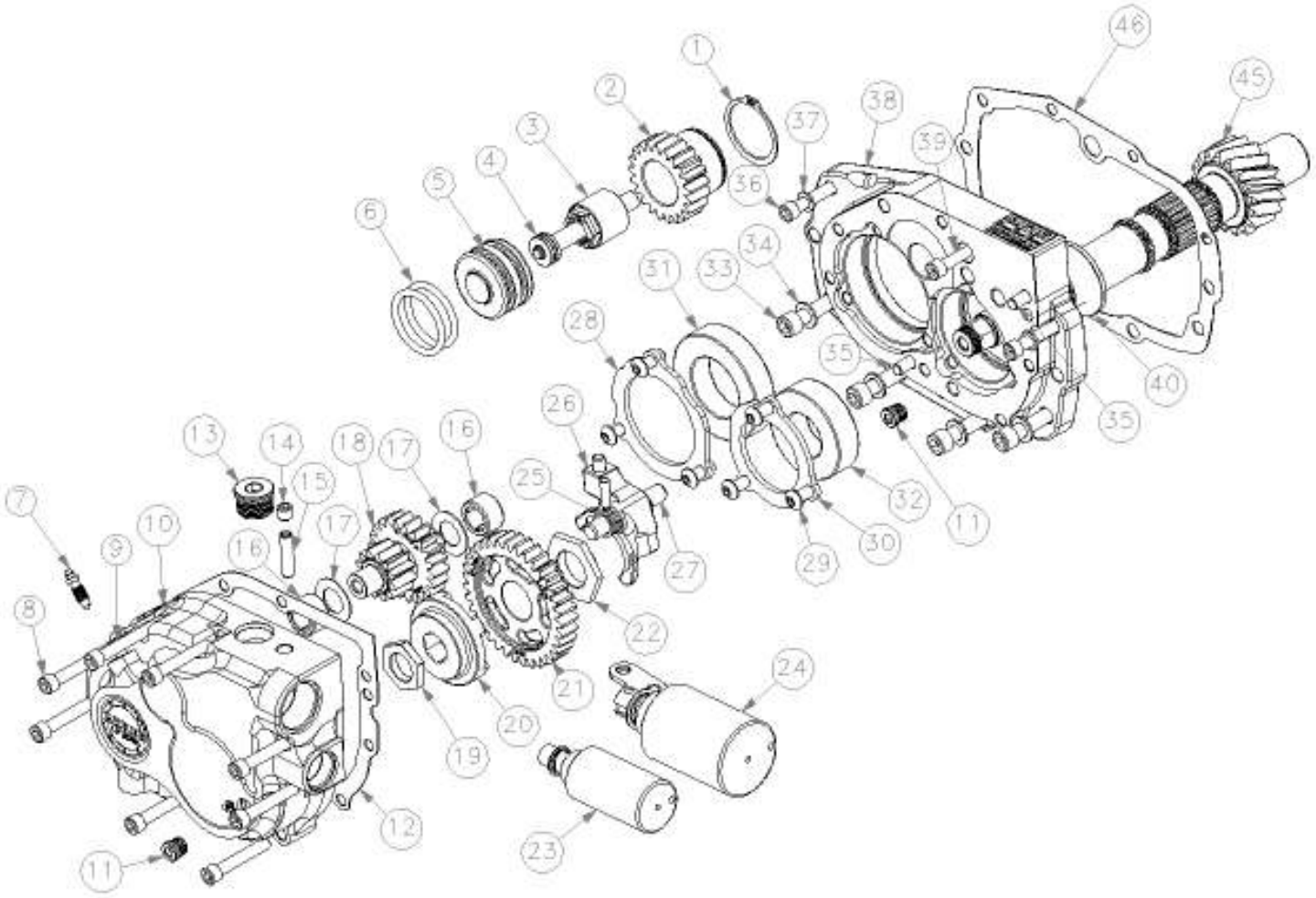


FIGURE 2

BAKER DD6 REVERSE

TAG	PN	QTY	DESCRIPTION
1	137RRRE	1	Snap Ring, External Ø1.375" Shaft
2	RV-7000	1	Driven Pinion Gear
3	RV-7051	1	Retainer Nut, Mainshaft
4	37089-84L	1	Actuator Rod Assembly (2.810" overall)
5*	124-56L	1	Piston, Ø1.500" LSD
5*	124-56L10	1	Piston, Ø1.000" 2007-newer Indian
6*	66827	2	O-Ring, Buna, 1.5"OD Hydraulic Piston
6*	9452K29	1	O-Ring, 1" OD, 3/4" ID Hydraulic Piston
6*	9452K81	1	O-Ring, 1" OD, 13/16" ID Hydraulic Piston
7	45-9404	1	Bleeder Valve
8	25C150KCSS/P	7	¼-20 x 1.50", SHCS, SS
9	25C225KCSS/P	1	¼-20 x 2.25", SHCS, SS
10*	429-F5R	1	Side Cover, Ø1.5" Hydraulic Bore
10*	429-F5R-I	1	Side Cover, Ø1.0" Hydraulic Bore
11	51740-001	2	Drain & Oil Level Plug, 3/8-24
12	414-F5R	1	Gasket, Side Cover
13	51970S-008-01	1	Fill Plug, Zero Leak, ¾-16
14	31F31KKCS	1	5/16-24 x 5/16" Set Screw, SS
15	25R75PDP	1	¼" x ¾" Pull Dowel
16	HK1412	2	Needle Bearing, Split Idler Gear
17	TRA-916	2	Thrust Washer, Split Idler Gear
18	RV-7010	1	Split Idler Gear
19	408-F5R	1	Jam Nut, Countershaft
20	RV-7030	1	Dog Clutch
21	RV-7020	1	Slider Gear
22	168-F5R	1	Retainer Nut, Countershaft
23	420-F5R	1	Solenoid Assembly, Lockout
24	420S-F5R	1	Solenoid Assembly, Shifting
25	LW 05611 0325S	1	Redux Return Spring
26	404-F5R	1	Shift Fork, Reverse
27	412-RV07	1	Fork Rod, Reverse
28	407-F5R	1	Bearing Retainer Plate, Mainshaft
29	24050	6	¼-20 x .625", BHCS, Black Oxide
30	406-F5R	1	Bearing Retainer Plate, Countershaft
31	6007	1	Roller Bearing, Mainshaft
32	6205	1	Roller Bearing, Countershaft
33	31C125KCSS/P	4	5/16-18 x 1.25", SHCS, SS
34	6100	4	5/16" AN Washer, SS
35	26749	2	¼"x ½" Alignment Dowel
36	25C125KCSS/P	2	¼-20 X 1.25", SHCS, SS
37	6099SS	2	¼" AN Washer, SS
38	132-DD6RV	1	Bearing Door, DD6-RV
39	23207	1	¼-20 X 1.25", SHCS, Black Oxide
40	LS2542	1	Thrust Washer, Countershaft
45	413-DD6RV	1	Countershaft, DD6-RV
46	35652-79B	1	Gasket, Bearing Door

BAKER DD6 REVERSE

DD6-RV BUILDER'S KIT GEARSET EXPLODED VIEW

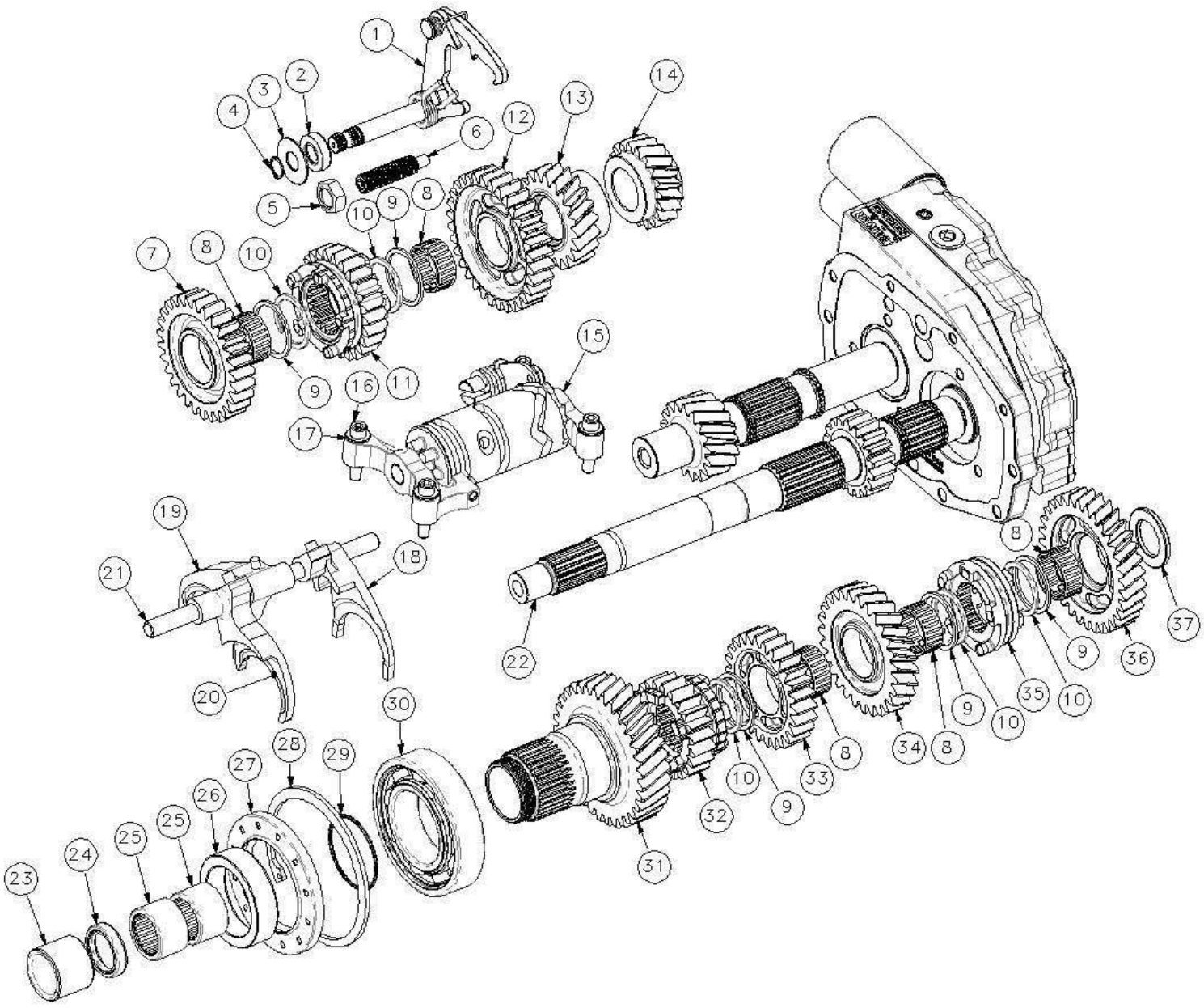


FIGURE 3

BAKER DD6 REVERSE

TAG	PN	QTY	DESCRIPTION
1*	555-56B-A	1	Shifter Pawl Assembly (EVO Models)
1*	555-56L-A	1	Shifter Pawl Assembly (Twin Cam Models)
2	12045	1	Seal, Shifter Pawl
3	6947HW	1	Washer, Shifter Pawl
4	68010	1	Snap Ring, External, Ø7/16”
5	70813	1	Jam Nut, Eccentric Screw 7/16-14
6	152-56A	1	Eccentric Shifter Pawl Adjuster
7	DD6-2C-1	1	2nd Gear, Countershaft
8	8876A	5	Split Cage Needle Bearing
9	6003B	5	Thrust Washer, Gearset
10	11067A	6	Snap Ring, External, Gearset
11	DD6-3C-1	1	3rd Gear Counter Shaft
12*	DD6-1C-1	1	1st Gear C/S, (3.24 Ratio)
12*	DD6-1C-2.94	1	1st Gear C/S, (2.94 Ratio)
13	DD6-4C	1	4th Gear, Countershaft
14	DD6-5C	1	5th Gear, Countershaft
15	124E-DD6A	1	Shift Drum Assembly
16	23207	4	¼-20 x 1.5” SHCS, Black Oxide
17	33001	4	Washer, #10 Plain
18	174-DD6	1	Shift Fork, 4th-5th Mainshaft
19	173-DD6	1	Shift Fork, 3rd Gear Countershaft
20	172-DD6	1	Shift Fork, 2nd Gear Mainshaft
21	122-6R-FF	1	Fork Rod
22*	DD6-MS	1	Mainshaft (3.24 1st Gear)
22*	DD6-MS-2.94	1	Mainshaft (2.94 1stGear)
23	34091-85X	1	Inner Primary Race
24	12035B	1	Oil Seal, Main Drive Gear
25	HK2520	2	Caged Needle Bearing, Main Drive Gear
26	33344-94S	1	Pulley Spacer
27	12067B	1	Oil Seal, Roller Bearing
28	1302-334PP	1	Snap Ring, Internal, Beveled, Ø3 11/32
29	11165A	1	Quad Seal
30	6209	1	Roller Bearing, Main Drive Gear
31	DD6-6M-1	1	Main Drive Gear, 6th Gear
32	DD6-2M-1	1	2nd Gear, Mainshaft
33	DD6-3M-1	1	3rd Gear, Mainshaft
34	DD6-4M-1	1	4th Gear, Mainshaft
35	DD6-4C5-1	1	Dog Clutch, 4^{th}-5^{th} Gear
36	DD6-5M-1	1	5th Gear, Mainshaft
37	TWD1423	1	Thrust Washer, Bearing Door .125

BAKER DD6 REVERSE

DISASSEMBLY

SIMILAR TO ANY OTHER DRIVETRAIN RELATED PROJECT, THE FIRST STEP THAT YOU WANT TO TAKE IS TO REMOVE THE SEAT AND DISCONNECT THE BATTERY FOR YOUR OWN SAFETY. NOW IS ALSO A GOOD TIME TO DRAIN THE PRIMARY AND TRANSMISSION FLUID. FOR LOCATIONS OF APPLICABLE DRAIN PLUGS, CHECK YOUR SERVICE MANUAL.

1) While referencing your Factory Service Manual (section 7), follow the gearset removal procedure. If you are installing the DD6-RV Retro Fit Kit on your BAKER DD6, you do not need to remove your main drive gear, but do need to remove the secondary drive pulley/sprocket in order to install the provided fork rod (PN 122-6R-FF) during the DD6-RV gearset install.
2) With the gearset still bolted in the transmission case, but no shift system, slide the gears by hand to lock the transmission in two gears and remove the shaft nuts with a 1 1/16" socket.
3) With the gearset out of the motorcycle, remove 2nd gear (pnDD6-2M-1), the snap ring (PN 11067A) and thrust washer (PN 6003B) to be able to slide 3rd gear (PN DD6-3M-1) down the mainshaft. Care must be taken to ensure that no gear teeth are damaged during the disassembly process as you are re-using all of your gears, except the countershaft. When removing the factory split cage needle bearings, only open them enough to slide up the shaft, rather than pulling them off to the side. This will help prevent cracks to the plastic cage of the bearings. Press the countershaft out of the bearing door. Then press the mainshaft out.
4) Clean the transmission case out with brake cleaner or another suitable cleaner at this time and inspect it for issues that may affect the installation of the gearset or cause leaks down the road. Including, but not limited too, bad threads in the case, gouges in the gaskets surfaces, residual build up of thread lock and that the case bearings spin freely and smoothly.
5) Set the mainshaft aside and start disassembling the countershaft by sliding 3rd gear (PN DD6-3C-1) into 2nd gear (PN DD6-2C-1) to gain the room to reach the snap ring (PN 11067A) holding 1st gear (PN DD6-1C-1) in place. You need to do this to be able to get a press tool around the shaft to press 4th (PN DD6-4C-1) and 5th (PN DD6-5C-1) gear off. (See Figure 3)
6) Slide the snap ring (PN 11067A), thrust washer (PN 6003B) and 1st gear (PN DD6-1C-1) towards 3rd gear (PN DD6-3C-1). (See Figure 4)
7) Slide the BAKER DD6-RV Press Tool (PN 483-DD6RV) around the shaft and bolt the halves together. Torque the bolts to 20 ft-lbs. At the same time, press off 4th (PN DD6-4C-1) and 5th (PN DD6-5C-1) gears. Remove the rest of the gears from the countershaft at this time.
8) With the gears laid out, inspect everything; gear teeth, dog teeth and split cage needle bearings for any cracks excessive wear, heat spots or evidence of being run low on oil or without oil.

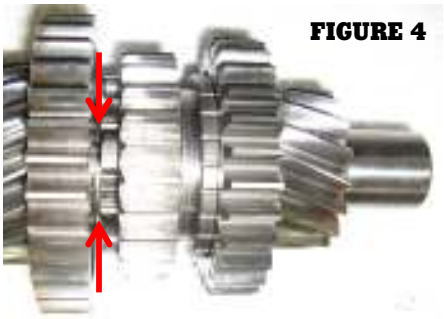


FIGURE 4



FIGURE 5

IF THERE IS ANY DOUBT ABOUT THE INTERGRITY TO RE USE ANY OF THE SPLIT CAGE NEEDLE BEARINGS AFTER INSPECTION, REPLACE THEM.

9) Install the provided main drive gear oil seal (PN 12035B), roller bearing seal (PN 12067B) and quad seal (PN 11165A) at this time. With the old seal of out the main drive, check to make the outboard most needle bearing has not 'walked' towards the transmission. If so, reference your Factory Service Manual in order to replace it with a new bearing (PN HK2520)

GEARSET ASSEMBLY, DD6-RV RETRO FIT KIT

1) Preheat an oven to 450° and place 4th (PN DD6-4C-1) and 5th (PN DD6-5C-1) gears in the oven for 25-30 minutes in preparation for pressing them on the provided DD6-RV countershaft. (PN 413-DD6RV)

DO NOT HEAT THE GEARS WITH A TORCH, ANY OTHER FORM OF DIRECT HEAT, OR ANY NON THERMOSTATICALLY CONTROLLED OVEN AS YOU WILL DAMAGE THE HEAT TREAT ON THE SURFACE OF THE GEARS. DO NOT PRESS ON THE GEARS AT ROOM TEMPERATURE. THE GEARS ARE DESIGNED WITH A LARGE AMOUNT OF PRESS TO HOLD THEM IN PLACE UNDER LOAD. PRESSING THEM ON COLD WILL INDUCE STRESS RISERS IN THE GEAR AND/ OR THE COUNTERSHAFT. THIS WILL CAUSE PREMATURE WEAR RELATED ISSUES THAT WILL NOT BE COVERED UNDER WARRANTY DUE TO IMPROPER INSTALLATION PROCEDURE.

2) Provided are six gearset snap rings (PN 11067A) Five are needed and one is extra as they are easy to overstretch. Pre-lube all of the split cage needle bearings with new transmission fluid before installing them.

TAKE CARE TO ONLY OPEN UP THE GEARSET SNAP RINGS ENOUGH TO SLIDE THEM DOWN THE SPLINES INTO THEIR PROPER POSITION ON THE SHAFTS.

3) Assemble the countershaft gear cluster while referencing the gearset exploded view and legend on pages 6 and 7. With 1st, 2nd and 3rd gear on the shaft, the snap rings securely in place and 4^{th} and 5^{th} gear properly heated. Press the gears on the shaft in the proper orientation (See Figure 2) and make sure to fully seat them on the shaft for proper gear alignment in the transmission.
4) Slide the provided countershaft thrust washer (PN LS-2542) onto the countershaft in preparation for pressing the shafts into the bearing door.
5) With 3rd gear (PN DD6-3M-1) on the mainshaft, but not held in place with a snap ring, slide the mainshaft into the bearing door. Make sure that you re use the hardened mainshaft thrust washer, (PN TWD-1423) on the end of the mainshaft. While you press the mainshaft into the door bearing (PN 6007), make sure to fully support the inner race of the bearing to maintain its integrity. Fully seat the mainshaft in the door against the thrust washer.
6) Press the countershaft gear cluster into the bearing door making sure to fully support the inner race of the bearing (PN 6205) to maintain its integrity. Support 3rd gear (PN DD6-3M-1) with your hand to make sure it is meshing with 3rd gear (PN DD6-3C-1) on the countershaft.
7) With both shafts pressed into the bearing door, and fully 'bottomed out' on their applicable thrust washers, install the thrust washer (PN 6003B) and snap ring (PN 11067A) on the mainshaft to hold 3rd gear (PN DD6-3M-1) in place. Slide 2nd gear (PN DD6-2M-1) onto the mainshaft at this time.

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8) Hang the provided door gasket (PN 35652-79B) on the transmission case door pins.
9) With the gearset assembled, wrap the clutch nut threads and splines on the mainshaft with electrical tape before sliding the gearset into the case to protect the new oil seal (PN 12035B) in the main drive gear.
10) Depending on the brand of exhaust that you have on your motorcycle and the subsequent mounting brackets, now is a good time to do a 'dry fit' of the exhaust bracket and side cover (PN 401-F5R Mechanical or PN 429-F5R Hydrualic), with side cover gasket (PN 414-F5R) to determine if any modifications need to be made to your exhaust bracket. Also install the crush washers, banjo fitting and hydraulic clutch line at this time (on hydraulic side cover models) to assess the clearance for those parts as well. (When satisfied with the exhaust bracket mounting proceed with 'blue' thread lock to install the four 5/16-18 x 1.25" door bolts (PN 31C125KCSS/P), with washers (PN 6100) and three, ¼-20 x 1.25" door bolts (PN 25C125KCSS/P & PN 23207) with washers (PN 6099SS) at this time. Torque the 5/16" bolts to 220 in-lbs and the 1/4" bolts to 130 in-lbs in the order shown in figure 5.

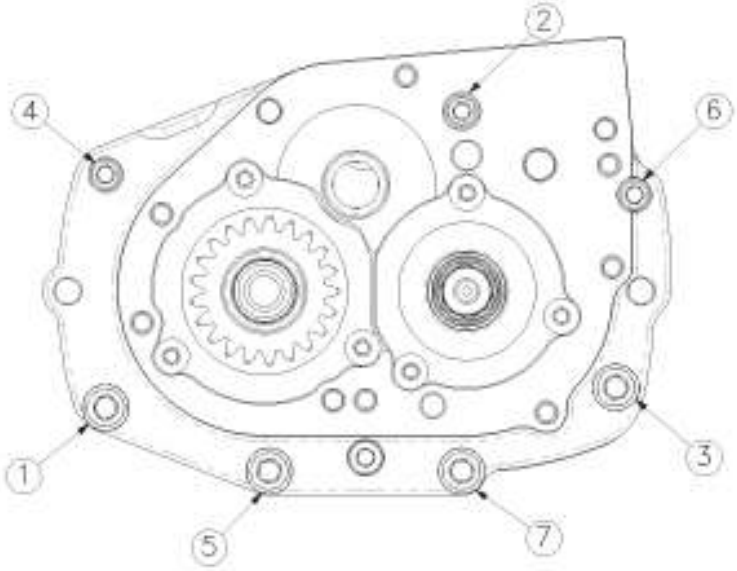


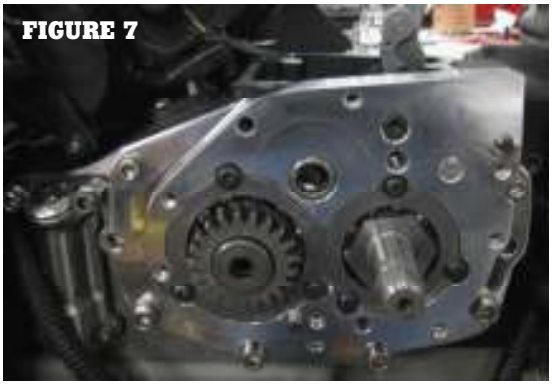
FIGURE 6

11) Slide the gears in the transmission to lock it in two gears and remove the countershaft retainer plate (PN 406-F5R) to ensure full socket contact with the retainer nut on the countershaft. While using 'red' thread lock, torque the countershaft (PN 168-F5R, 'snout' of nut facing door bearing) and mainshaft (PN RV-7050) nuts to 45-50 ft-lbs.

DO NOT USE AN IMPACT GUN TO TIGHTEN EITHER SHAFT RETAINING NUT AS YOU RISK DAMAGE TO THE NUTS AND/OR SHAFTS BY DOING SO.

BAKER DD6 REVERSE

12) Install the countershaft retainer plate using 'red' thread lock and torque each ¼-20 x .625" button head (pn 24050) to 130 in-lbs.
13) Install the shift system at this point, while referencing the exploded view on page 6. Install the provided fork rod (PN122-6R-FF) from the primary side of the motorcycle.
14) Torque the four pillow block bolts (PN 23207) to 130 in-lbs using 'blue' thread lock. Adjust the shifter pawl over the drum pins to +-.010" with the transmission in 3rd gear and torque the eccentric adjuster jam nut (PN 70813) to 20 ft-lbs with 'blue' thread lock.
15) Run the transmission through all the gears multiples time before proceeding with the DD6-RV reverse geartrain installation to ensure the gearset was correctly assembled.


FIGURE 7

INSTALLATION PICTURES TAKEN USING THE BAKER 1999 ROAD KING, WHICH HAS CUSTOM EXHAUST AND THEREFORE HAS NO EXHAUST BRACKET ON THE FACE OF THE BEARING DOOR

16) With correct transmission function validated, install the secondary drive pulley/ sprocket and belt/ chain at this time while referencing your Factory Service Manual.
17) Install the reverse side cover components while referencing the exploded views on page 4 and legend on page 5. Remember to place a thrust washer (PN TRA-916) behind the split idler gear (PN RV-7010). Install sllider gear (PN RV-7020) and dog clutch (PN RV-7030). Torque the countershaft jam nut (PN 408-F5R) to 33-35 ft-lbs using 'red' thread lock.
18) Slide the shift fork (PN 404-F5R) onto the slider gear and rotate it up into place to slide the provided fork rod (PN 412-RV07) into the bore in the bearing door. Fully seat the fork rod with your hand, but do not hit it with a hammer, you do not need to do so and will struggle to remove it in the future by binding it in the bearing door. Place the redux return spring (PN LW 05611 0325S) on the fork rod. Place the other provided thrust washer (PN TRA-916) on the outboard pinion of the split idler gear. Hang the side cover gasket (PN 415-F5R) on the door at this time as well.
19) Re-use and install your center clutch rod and slide the provided clutch push rod assembly (PN 37089-84 Mechanical or PN 37089-84L Hydraulic)) into the mainshaft


FIGURE 8

20) Install the top cover with the provided neutral switch (PN 21-438) per your Factory Service Manual at this time. Torque the neutral switch to 135 in-lbs. Double check that the transmission is in neutral and that you have proper neutral switch function by using a voltmeter to check for continuity.

BAKER DD6 REVERSE

DD6-RV MECHANICAL SIDE COVER COMPONENTS INSTALLATION

PN 420S-F5R, Shifting Solenoid Assembly

TAG	PN	QTY	DESCRIPTION
1	S-22-150	1	R22x22 12V, Pull Solenoid
1	410-F5R	1	Shifting Solenoid Cover
2	OR568119	1	O-ring, 1.00" ID
3	LP 032N 01 S316	1	Return Spring, .720" ID
4	PB26165	1	Spring Seat, .625" ID
5	WSM-62	1	Spiral Snap Ring, .625"
6	26735	1	3/16" X 1/2" Solid Dowel
7	185-F5R	1	Shifting Plunger
8	409-F5R	1	Shifting Bell Crank

PN 420-F5R, Reverse Lock Out Solenoid Assembly

TAG	PN	QTY	DESCRIPTION
9	S-062311	1	R16x16,12V, Pull Solenoid
10	66827	1	O-ring, .750" ID
11	LP 026K 01 S316	1	Return Spring, .475" ID
12	716NWSFS	1	Spring Seat, .440" ID
13	91665A350	1	Spiral Snap Ring, .440" ID
14	182-F5R	1	Lockout Plunger

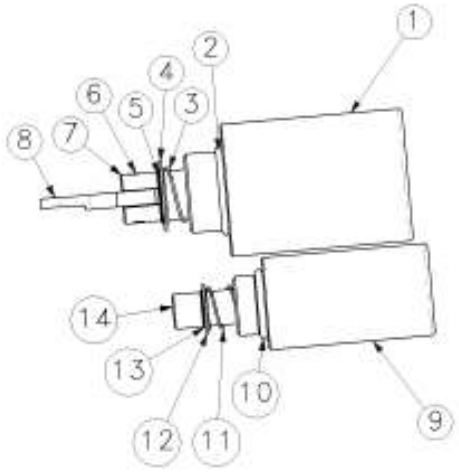


FIGURE 9

1) Apply anti-seize to the threads and install the mechanical clutch cable into the side cover. Check to make sure the clutch cable o-ring is in good working condition, if it is not, replace it at this time.

DO NOT OVER TIGHTEN THE CLUTCH CABLE FITTING OR IT WILL BREAK OFF IN THE SIDE COVER.

2) Insert the plunger (PN 185-F5R) with bell crank installed on it in the solenoid port from the inside of the side cover without the washer or spring. Refer to Figure 10 for orientation of the bell crank when installed. Slide the washer and spring over the plunger from the solenoid port side.
3) Apply anti-seize to the threads on the solenoids and thread them in by hand with the side cover off of the motorcycle. Install the lockout solenoid (PN 420-F5R) as a complete assembly as shown in Figure 9.

DO NOT TIGHTEN THE SOLENOIDS WITH ANYTHING OTHER THAN YOUR HANDS. RUN THE SOLENOIDS ALL THE WAY IN UNTIL THEY BOTTOM OUT IN THE SIDE COVER. TAKE CARE WHEN THREADING THE SOLENOIDS IN TO NOT GET THE WIRES TWISTED AT THE POINT THEY COME OUT THE BACK OF THE SOLENOID. ANYTIME THE SOLENOIDS NEED TO BE REMOVED IN THE FUTURE FOR REGULAR MOTORCYCLE SERVICE, MAKE SURE THEY ARE UNPLUGGED SO YOU ARE NOT PINCHING THE WIRES CAUSING A POSSIBLE FAILURE POINT.

4) With the solenoids installed slide the pull dowel (PN 25R75PDP) part of the way into the side cover to hold bell crank out of the way while installing the side cover on the bearing door. Make sure to have the threaded end (8-32 thread) of the dowel facing up when you install it.
5) Grab two of the side cover bolts and thread them into the door to hold the side cover in place during installation of the bell crank (PN 409-F5R) on to the reverse shift fork (PN 404-F5R).
6) Remove the pull dowel and with a pick or a small screwdriver, slide the bell crank slot over the fork pin. Final installation should like Figure 10. Reinstall the pull dowel. A little wiggling of the bell crank may be necessary to line up the pivot hole with the pull dowel. Install the set screw (PN 31F31KKCS) with 'blue' thread lock and screw in until it is flush with the top of the side cover.
7) Remove the ball and ramp cover (PN 584-F5R) and gasket (PN 415-F5R).
8) Lay the inner ball ramp (PN 3096-F5R) on a workbench and fill each of the three pockets with enough axle grease to hold the ball bearings (PN 987687) in place during assembly. Place the ball bearings in the greased pockets and then the outer ball ramp (PN 3196-F5R) on top. While making sure to hold the ramps together, slide them into the side cover. Align the tab on the outer ramp with the corresponding pocket in the side cover. The cable attachment boss of the inner ramp should be pointing towards the rear of the motorcycle when installed.
9) With all of the adjustment out of the clutch cable (full slack) slide the clutch cable through the inner ball ramp enough that you can then slide the ferrule (PN 3094-DSSC) over the end of the cable. Carefully pull on the clutch lever enough to get the ferrule seated in the ball ramp pocket.
10) Place the ball and ramp cover (PN 584-F5R) and gasket (PN 415-F5R) back on the side cover and install the top bolt (PN 25C62KCSS) and one of the bottom bolts, (PN 73753) to hold the ball and ramp assembly in place during installation of the F5R solenoid wiring harness and reverse function testing. Skip to page 15 for wiring harness installation.

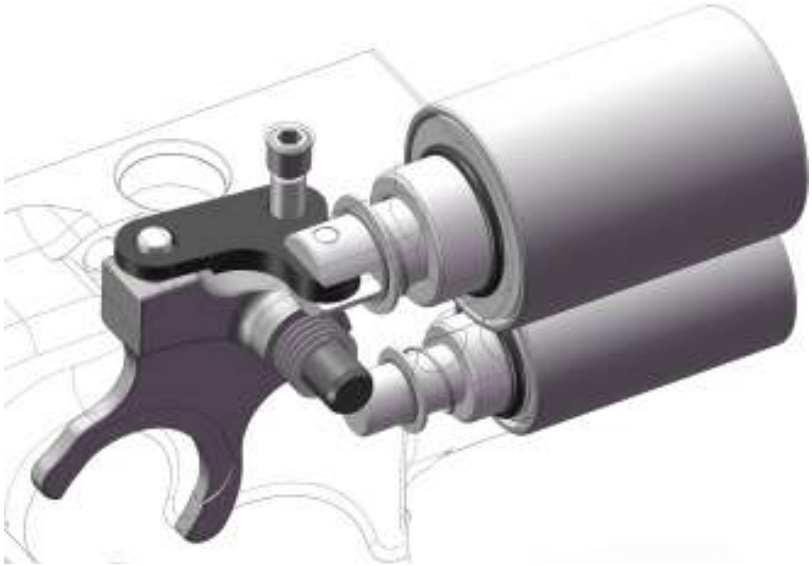


FIGURE 10

BAKER DD6 REVERSE

DD6-RV HYDRAULIC SIDE COVER COMPONENTS INSTALLATION

1) Insert the plunger (PN 185-F5R) with bell crank installed on it in the solenoid port from the inside of the side cover without the washer or spring. Refer to Figure 10 for orientation of the bell crank when installed. Slide the washer and spring over the plunger from the solenoid port side.
2) Apply anti-seize to the threads on the solenoids and thread them in by hand with the side cover off of the motorcycle. Install the lockout solenoid (PN 420-F5R) as a complete assembly as shown in Figure 9.

DO NOT TIGHTEN THE SOLENOIDS WITH ANYTHING OTHER THAN YOUR HANDS. RUN THE SOLENOIDS ALL THE WAY IN UNTIL THEY BOTTOM OUT IN THE SIDE COVER. TAKE CARE WHEN THREADING THE SOLENOIDS IN TO NOT GET THE WIRES TWISTED AT THE POINT THEY COME OUT THE BACK OF THE SOLENOID. ANYTIME THE SOLENOIDS NEED TO BE REMOVED IN THE FUTURE FOR REGULAR MOTORCYCLE SERVICE, MAKE SURE THEY ARE UNPLUGGED SO YOU ARE NOT PINCHING THE WIRES CAUSING A POSSIBLE FAILURE POINT.

3) With the solenoids installed slide the pull dowel (PN 25R75PDP) part of the way into the side cover to hold bell crank out of the way while installing the side cover on the bearing door. Make sure to have the threaded end (8-32 thread) of the dowel facing up when you install it.
4) Grab two of the side cover bolts and thread them into the door to hold the side cover in place during installation of the bell crank (PN 409-F5R) on to the reverse shift fork (PN 404-F5R).
5) Remove the pull dowel and with a pick or a small screwdriver, slide the bell crank slot over the fork pin. Final installation should like Figure 10. Reinstall the pull dowel. A little wiggling of the bell crank may be necessary to line up the pivot hole with the pull dowel. Install the set screw (PN 31F31KKCS) with 'blue' thread lock and screw in until it is flush with the top of the side cover.
6) Install two crush washers, banjo fitting (3/8-24 thread) and hydraulic line at this time. Hold off fully tightening the banjo bolt and line fittings until the side cover is fully installed.

BAKER DD6 REVERSE

DD6-RV WIRING HARNESS INSTALLATION

Based on the year and model of your motorcycle there are 2 different configurations of the same basic wiring harness used, as laid out in Figure 17. The following steps will lay out, in detail, how to install the various wires and switches.

IGNITION WIRE, 12V POWER SOURCE

1) While referencing your Factory Service Manual, trace down the main ignition wire on your motorcycle as shown in Figure 11. Cut the wire a few inches before it splits off to enter the main fuse block and strip the insulation back 1/4" on each wire. You are going to splice in the power wire for the reverse shifting and safety toggles switches here. Take care to install the provided inline fuse holder in such a manner that it easily accessible should you ever need to change the standard size 20A blade fuse.
2) The provided step down, heat shrink butt connector (PN SCB-646) needs to be crimped in the same manner as a standard butt connector but also has the added feature of containing heat activated glue to further adhere the wires together and provide a weather tight seal. Twist the keyed ignition side wire together with the bare wire end of the provided toggle switch to 12V power wire assembly (PN 428-F5R) and slide into the plain end of the PN SCB-646 splice butt connector. Crimp the connector to the two wires, making sure that you have them securely in place. Insert the fuse block side ignition wire into the striped end of the connector and crimp it in place. Using a heat gun, shrink the connector to the wires.

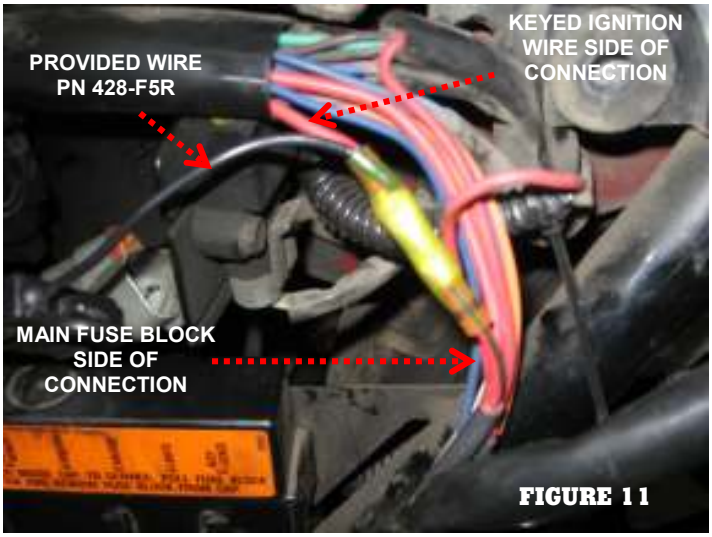


FIGURE 11

3) Run the wires up to the handlebars via the back bone, under the gas tank and by the right side of the neck in preparation for installing the switch housing that you ordered. Take care to make sure the wires are securely in place to prevent, chaffing, binding or pinching.

BAKER DD6 REVERSE

H-D BRAKE LEVER PERCH MOUNTED SWITCH HOUSING

1) If you choose either switch housing assembly, Satin Black (PN SHB-A) or Chrome (PN SHC-A) installation is the same. Both units have the Toggle Switches (PN 7200018, Momentary, Screw Terminals & PN 73185, ON-OFF, Screw Terminals) installed in them and the rubber boots are snug. Remove the factory handle bar inner clamp, reusing the factory torx head bolts, & washers, with 'blue' thread lock, torque to 120 in-lbs. Set the factory clamp aside.
2) Locate the solenoid toggle switch wires (PN 424-F5R) and run them up through the battery box from the transmission, up the back bone under the gas tank and by the neck to the toggle switches Take care to make sure the wires are securely in place to prevent, chaffing, binding or pinching. Before sliding all 4 wires into the switch housing (PN 422-F5RB), slide the provided protective sleeve over the wires. (refer to figure 17)
3) Arrange the wires as shown in Figure 12, The wires are a tight fit, and no different than dealing with the factory switch housing for the RUN/OFF & START buttons, care needs to be taken to prevent shorting out the wires by crimping them in the housing, or chaffing on each other. After installing them on the toggle switches, wrap the terminals and wires with electrical tape. Gently slide the 4 wires back through the housing and install the two provided 10-24x ½" Stainless Bolts. (PN 10C50KCSS) Torque to 85 in-lbs with 'blue' thread lock.
4) While referencing your Factory Service Manual, locate the neutral switch wires and cut off the factory end(s) at the neutral switch on the transmission top cover. Slide on the provided 1/8" dia heat shrink and eyelet(s) (PN A-321-10), crimp the eyelets in place, and slide the heat shrink over the crimp. Shrink the tubing with a heat gun.
5) Install the neutral switch to solenoid ground wire (PN 426-F5R) as shown in Figure 17. Also install the other neutral switch terminal wire at this time as shown in Figure 17. (Model year dependent).



FIGURE 12



FIGURE 13

BAKER DD6 REVERSE

HANDLEBAR MOUNTED SWITCH HOUSING

1) If you ordered a handlebar mounted switch housing assembly (PN 423-F5R) it comes with the toggle switches already installed and ready to go. All you have to do is find a spot on your 1" diameter handlebars that will allow the housing to fully clamp to the bars. This spot will need to clear the gas tank with the bars at full lock in either direction and that the wires will not get pinched or experience chaffing from the bars turning.
2) Install the wires the same as the Bat Wing Fairing models.
3) Torque the four 10-24 x 1/2" SHCS, SS (PN 10C50KCSS) screws to 85 in-lbs in a 'X' pattern using 'blue' thread lock to ensure the housing and switches stay in on place on the handlebars.


FIGURE 13

BAKER DD6 REVERSE

REVERSE FUNCTION TEST

1) With all of the wires hooked up and double checked against Figure 15, you are ready to do a reverse functionality test. Temporarily hook up the battery. With the bike ignition on, and the bike in neutral, the first check is that the Safety Switch (the momentary style switch) activates the Safety solenoid. You will hear an audible 'click' of the solenoid. This let's you know that you have the wires hooked up correctly. If you do not hear an audible click then, you need to double check that the safety (smaller diameter, lower solenoid) is hooked up to the momentary switch.
2) With the bike in neutral and the back tire off of the lift or shop floor, spin the back tire by hand to enable the shifting dogs on the reverse gears to get aligned. In one motion activate the safety switch, hold it 'ON' and then hit the shifting switch. The transmission should be in reverse at this time. Perform this test a few times until you are satisfied that the reverse shifting function works properly. More complete reverse usage instructions can be found on page 21

SAFETY SWITCH 'OFF'

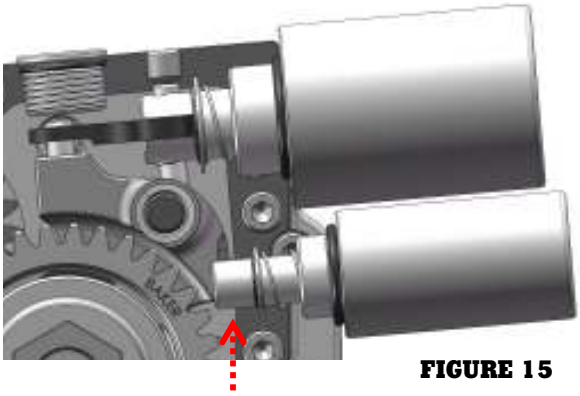


FIGURE 15

In the 'OFF' position the plunger of the Safety solenoid mechanically blocks the bike from being shifted into reverse.

SAFETY SWITCH 'ON'

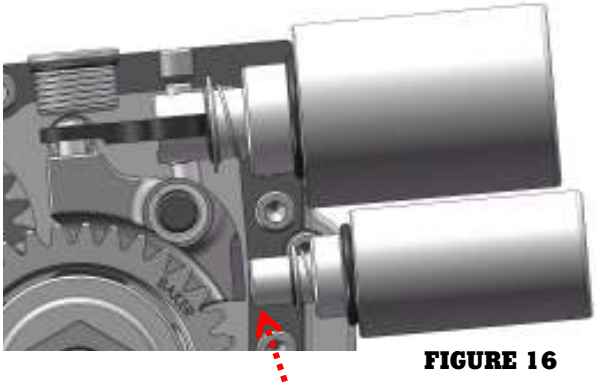


FIGURE 16

In the 'ON' position the plunger of the Safety solenoid clears the shift fork and allows the bike to be shifted into reverse.

The motorcycle will remain in reverse as long as the shifting solenoid is powered and the bike is neutral. If you turn off the shifting switch, the F5R will automatically shift back to neutral by nature of the redundant return spring design on the shifting solenoid and shift fork. If you shift the bike out of neutral, it will kill the power to the solenoid, and automatically shift out of reverse the moment power is cut.

If the bike was running, and you were to shift the foot lever out of neutral while the shifting switch is ON, and you did not first turn it off, there is no chance that the bike would try to shift into reverse the next time that you go into neutral by nature of the reverse lockout solenoid. When the power was cut to the solenoids the return spring (PN LP 026K 01 S316) fired the lockout plunger (PN 182-F5R) in the way of the reverse fork, mechanically preventing you from accidentally shifting into reverse.

BEFORE YOU START PUTTING THE REST OF THE MOTORCYCLE BACK TOGETHER DISCONNECT THE BATTERY. THIS IS SOLELY FOR YOUR SAFETY WHILE WORKING ON THE MOTORCYCLE.

BAKER DD6 REVERSE

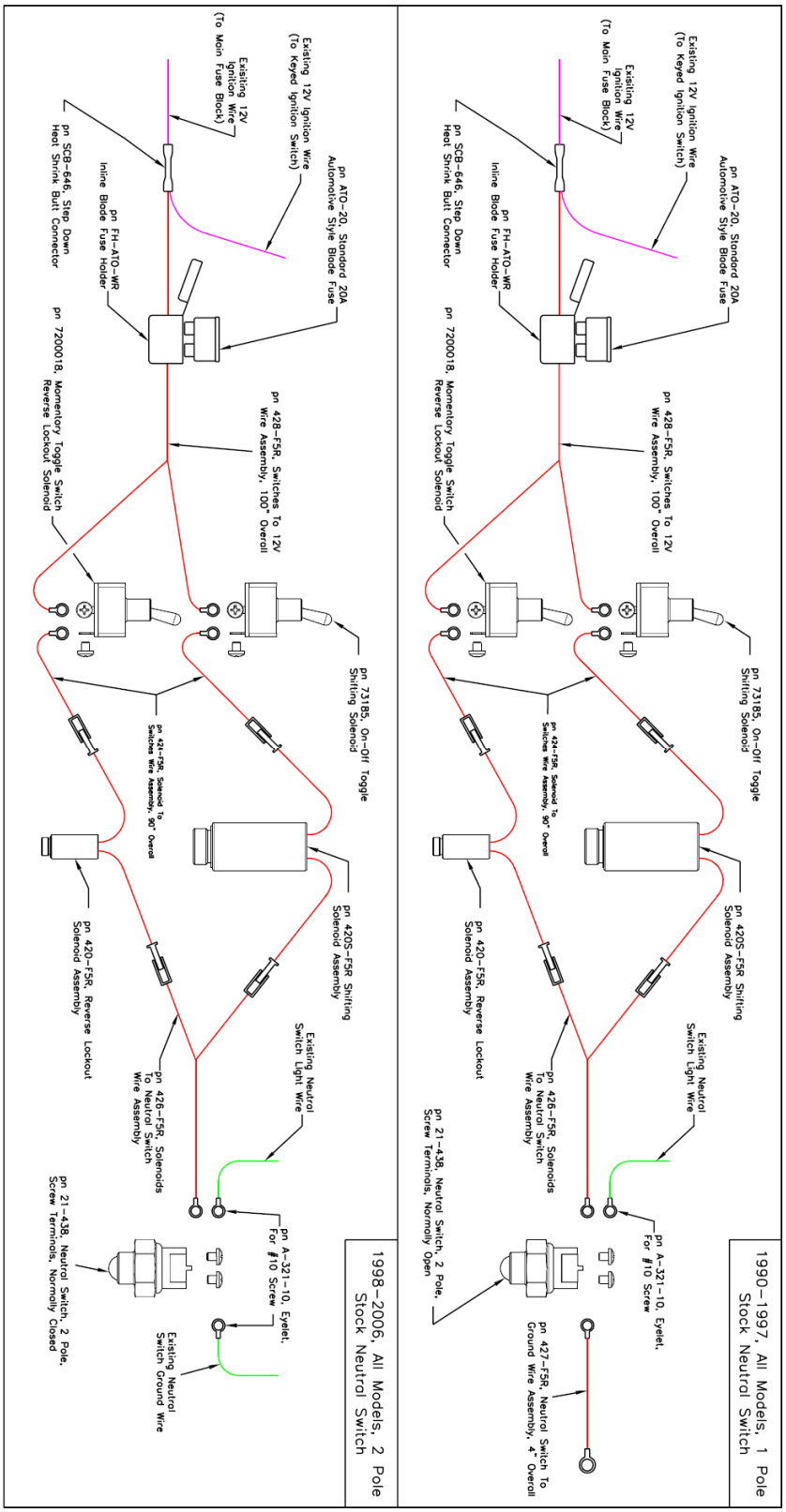


FIGURE 17

BAKER DD6 REVERSE

FINISH LINE

1) With reverse installation validated by passing the reverse function test, you ready to install the side cover and ball and ramp cover for good. Using 'blue' thread lock, install all of the side cover bolts and torque to them to 130 in-lbs using the numerical torque sequence in Figure 15. Following the alpha torque sequence in Figure 15, and using 'blue' thread lock, torque the ball and ramp cover bolts to 130 in-lbs as well.

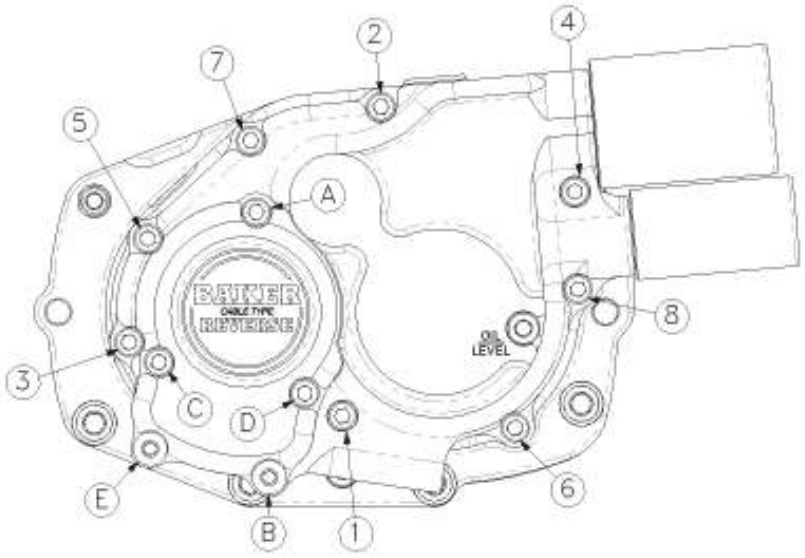


FIGURE 18

2) Fill transmission with 22-24 oz of transmission via the 3/4"-16 fill plug (PN 51970S-008-01) hole on top of the side cover. Put a small amount of anti-seize on the fill plugs threads and install, turn until snug. Do not over tighten or you risk wrecking the o-ring.
3) Finish installing the primary drive and adjust the clutch cable while referencing your Factory Service Manual. Exhaust, controls, outer fairing and then the battery can be hooked up for good. You are ready for a full test ride.

BAKER DD6 REVERSE

PLEASE REMOVE THIS PAGE FROM THE INSTRUCTIONS AND KEEP WITH YOUR MOTORCYCLE FOR REFERENCE.

HOW TO OPERATE YOUR BAKER DD6 REVERSE:

- **WITH YOUR MOTORCYCLE IN NEUTRAL, PULL IN THE CLUTCH LEVER AND HOLD IT**
- **ACTIVATE AND HOLD BOTH TOGGLE SWITCHES IN THE 'ON' (UP) POSITION**
- **SLOWLY LET THE CLUTCH LEVER OUT JUST ENOUGH TO FEEL REVERSE ENGAGE. ONCE ENGAGED PULL THE CLUTCH LEVER BACK IN.**
- **LET GO OF BOTH TOGGLE SWITCHES.**
- **SLOWLY LET OUT THE CLUTCH LEVER AND WHILE USING CAUTION, BACK UP IN REVERSE.**
- **WHEN YOU ARE DONE BACKING UP, COME TO A COMPLETE STOP, WITH THE CLUTCH LEVER PULLED IN, TURN THE REVERSE SHIFTING SWITCH 'OFF' (DOWN). YOU ARE NOW IN NEUTRAL, AND LOCKED OUT OF REVERSE.**
- **PULL THE CLUTCH LEVER IN AND SHIFT INTO FIRST GEAR, TAKE OFF, AND HIT THE OPEN ROAD…**



FIGURE 19

BAKER DD6 REVERSE

TERMS:

SPECIAL ORDERS

A minimum $500 deposit is required with all special orders. Special orders include unique case finishes, unique side door requests (i.e.; wrinkle black door or no logo).

ALL OTHER ORDERS

Orders can be pre-paid using VISA, Mastercard or American Express.

Prices shown are F.O.B. Haslett, MI. BAKER™ provides free UPS ground shipping on all retail orders for complete transmissions or transmission kit. UPS air shipment is available upon request. Customer is responsible for air shipment premiums.

LIMITED WARRANTY

BAKER™ Inc DD6-RV Retro Fit Kit is 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.

BAKER™ Inc. DD6-RV transmission assemblies and DD6-RV 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 is sooner.

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 the problem.
If it is deemed necessary for BAKER™ to make an evaluation to determine whether the transmission assembly or transmission kit 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 invoice of purchase.
If after an evaluation has been made by BAKER™ and a defect in materials and/or workmanship is found, BAKER™ will, at BAKER™ option, repair or replace the defective part of the assembly.
Warranty card must be returned within 45 days of purchase to be valid.

ADDITIONAL WARRANTY PROVISIONS

This 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: improper installation, accident, modification (including but not limited to use of unauthorized parts), 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, swingarm, fender, 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 Wide Tire Kits are designed exclusively for use in Harley-Davidson® motorcycles. BAKER™ shall have no warranty or liability obligation if a BAKER™ part is used in any other application.

If it is determined that a BAKER™ transmission assembly has been disassembled during the warranty period for any reason, this limited warranty will no longer apply.

BAKER DD6 REVERSE

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It is the sole responsibility of the user to determine the suitability of this product for his or her use, and the user shall assume all legal, personal injury risk and liability and all other as well as all other obligations, duties and risks associated therewith.

CUSTOMER SUPPORT

For any installation or service questions, please contact our BAKER technical department toll free: 1-877-640-2004.

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