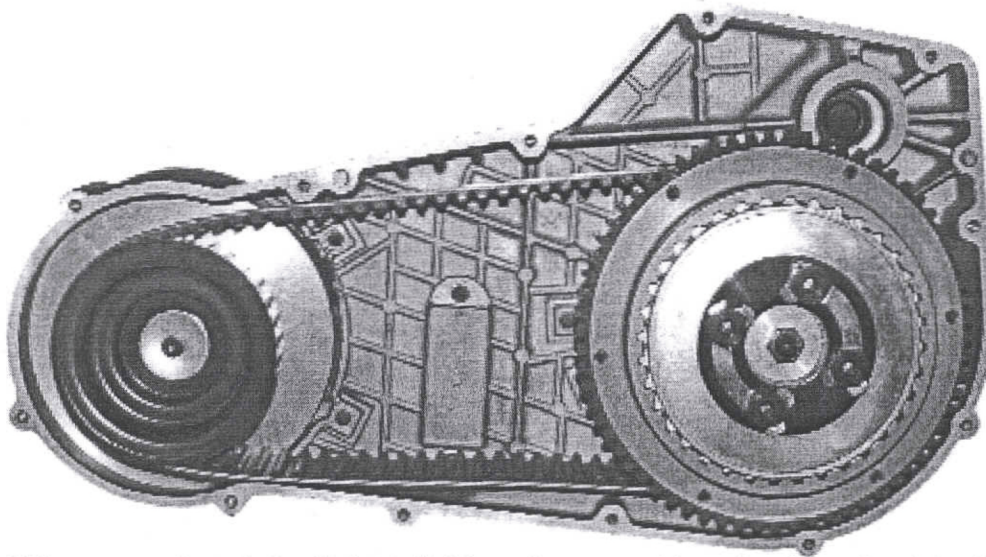


V-Twin MFG.
Primo Rivera
Brute III Extreme Belt Drive Unit
Fits 1994-99 ST & FXD Models
VT No. 20-0012

This is a custom application and should only be installed by a knowledgeable and trained motorcycle technician. V-Twin Mfg. accepts no responsibility for improper installation.

INSTALLATION INSTRUCTIONS FOR PRIMO'S **BRUTE III EXTREME™** BELT DRIVE



11mm
1-3/4" Wide

Fits
1994-1999
Softail® &
Dyna Glide®
Models

It is common knowledge that a belt drive primary provides advantages & service that a standard chain drive primary cannot. For dependable, high-performance, long lasting service nothing beats a modern Primo® primary Belt Drive! A long standing tradition of "Quality & Performance" has made Primo® Belt Drive systems the most popular in the world! That same quality & performance is now available in the Brute III EXTREME™ belt drive for Evolution Big-Twin and Twin Cam motorcycles (fully enclosed primary drive). The wet clutch nightmare is over, no more leaky primary, no more draining the primary for inspection or maintenance. Carefully read & follow these instructions for a quick, convenient installation.

If you have questions call (562) 907-2600.

IMPORTANT SAFETY NOTICE....

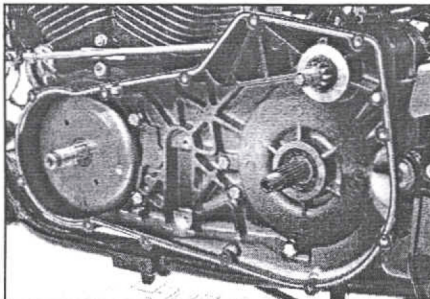
When performing any motorcycle work such as installing a belt drive, secure the motorcycle in an upright position with convenient access to the primary drive. If you are working with the motorcycle on a lift make sure it is securely fastened to prevent it from falling.

Remove the battery prior to starting this installation.

Strip the primary

Drain the primary case, remove both the inner & outer primary covers, & all OEM chain drive components from the primary chaincase. Thoroughly clean the inner & outer primary covers to remove all traces

of primary fluid. Pictured is a 1995 Harley-Davidson® Dyna-Glide primary. Remove the factory bearing race from the transmission mainshaft using the Jims tool part # 34902-84.

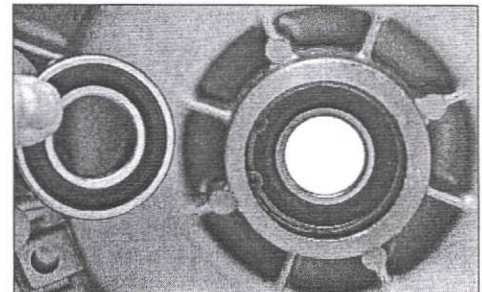


1

Install the sealed bearing (PP-216)

2

Install Primo's one-piece, sealed bearing included in the kit.

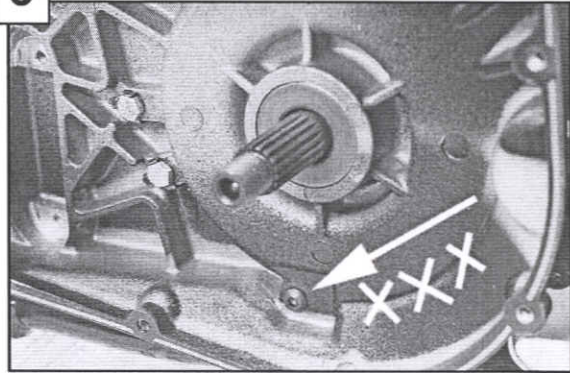


Install Allen head bolt

NOTE: Replace the OEM hex-head bolt (Dyna Glide only) with the button-head Allen bolt provided in the kit. **TORQUE THE BUTTON-HEAD BOLT TO 29 FOOT POUNDS.**

Early FXR models may need to have some material removed from the inner primary in the area indicated by the X's. Check pulley/belt clearance here before tightening clutch hub nut.

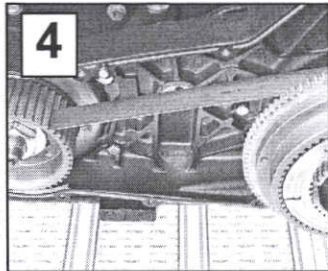
3



Check pulley alignment with a straight-edge

Install front pulley (together with front inside guide plate) & rear pulleys without the belt & check alignment as shown (straight edge flush with rear of ring-gear lines-up with outer edge of front pulley) remove pulleys and proceed with installation. If alignment isn't satisfactory see photo 8. The provided .100" washer can be used to space the front pulley outward as needed.

4



Shims are manufactured from high quality steel, precision ground for parallel & flat surfaces to ensure perfect pulley alignment. Correct pulley alignment & correct belt tracking are a must for long belt life. These shims make pulley alignment easy. Shims are available in .020", .030", .050", .075" & .100" thick dimensions, or sets of "one-of-each."

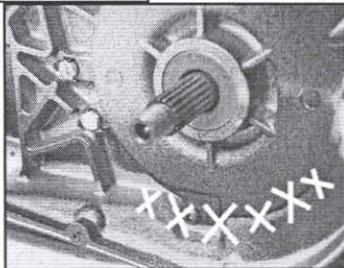
Optional pulley shims, PART # PX-1
Includes one of each
.020", .030", .040",
.050" and .100"



Check for proper belt clearance

5

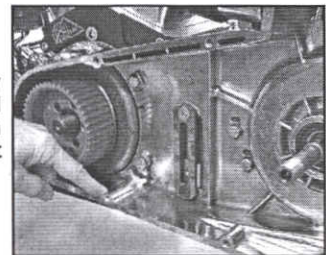
After ensuring proper pulley alignment, again check the areas indicated in the photo for belt and/or pulley clearance. Always check rear-pulley and belt clearance here before operating the motorcycle.



Check primary belt clearance here

5A

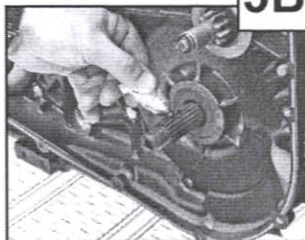
This inner primary (Early Evo) has had a tab removed to allow belt clearance in the area indicated. Most installations require some grinding on the inner and outer primaries.



Apply grease to the main-shaft splines

Apply a thin coat of the special Primo grease supplied in the kit to the splines of the transmission main-shaft to act as both a corrosion inhibitor, & lubricant. The grease also acts as a cushion for the splines on the transmission main-shaft during operation.

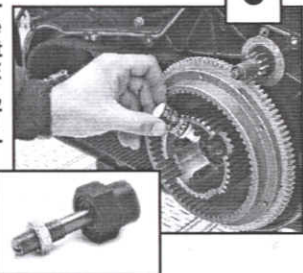
5B



Install rear pulley & belt.

6

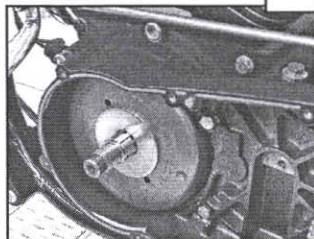
Install the rear pulley (clutch basket) & belt. Apply Rivera blue thread lock to the main-shaft threads as shown. **INSTALL THE CLUTCH HUB NUT (WITH SEAL), & TIGHTEN TO 70-80 FOOT POUNDS OF TORQUE.** The center adjustment screw/sealed nut combination prevents transmission oil from leaking thru the main-shaft into the clutch pack.



Install washer as needed.

A .100" washer may be needed behind the front pulley on some Dyna-Glide & Softail applications.

7



Use thread-lock here.

Install front pulley, washer & inner/outer guides. Use 1-2 drops of blue thread-lock on the threads of the motor shaft. **INSTALL & TIGHTEN NUT TO FACTORY SPECS (150-165 FOOT POUNDS)** using a quality torque wrench.

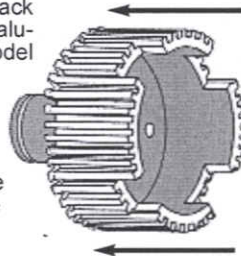
8



UPDATED CLUTCH HUB INFORMATION

Primo's new clutch hub uses a .120" thick steel plate at the back of the clutch pack replacing the permanently attached aluminum backing plate of the earlier model clutch hub. See drawing.

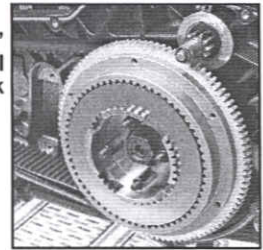
Install the .120" thick steel plate at the rear of the clutch pack as shown. The clutch pack can then be installed.



.120" thick Steel Plate plate first.

9

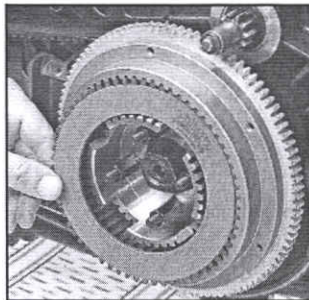
After installing the .120" steel drive plate, install the rest of the clutch pack per steps 10 and 11.



Friction Plate plate second...

Friction plate 2nd, then alternate steel, friction, steel, friction. The clutch plates should be installed in the same order as delivered. The clutch pack height is pre-set prior to shipment, & should not be altered without consulting a Primo technician.

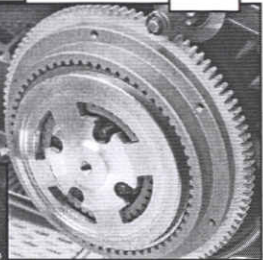
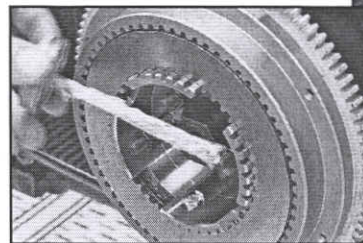
10



Install the pressure plate

11

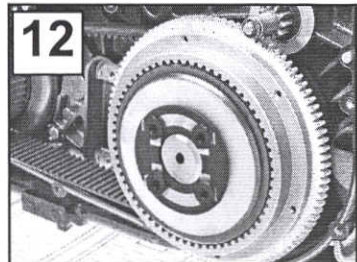
Install the pressure plate as shown. Apply a generous dab of high quality anti-seize to each of the Pro-Clutch studs (as shown).



Install the locking tabs & retainer, & adjust the clutch.

Install the diaphragm spring, spring retainer (beveled side inward against the spring) locking tabs, and shouldered nuts as shown. **TIGHTEN THE NUTS EQUALLY UNTIL THEY BOTTOM & THEN TIGHTEN TO 30 INCH POUNDS OF TORQUE.** Bend a tab over each nut to keep it tight! Spring adjustment (and clutch pack height) is established prior to shipping.

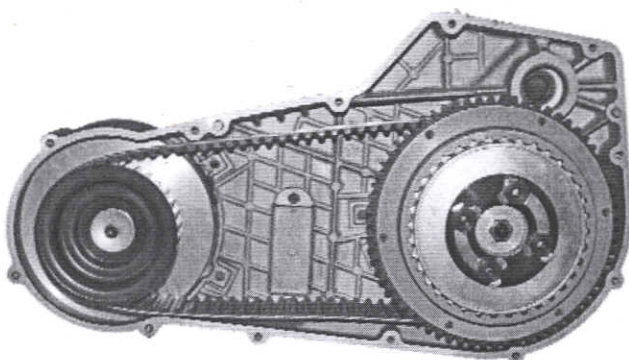
12



Bend the locking tabs over as shown! Belt should have 1/2" - 3/4" of up & down play when the drive train is cold. Re-install the outer primary cover and check belt clearance. Install a louvered or vented derby or inspection cover, and you're ready to ride. Check belt tension after the drive train reaches normal operating temperature (15-20 minutes of riding at 55 MPH in ambient air temperature of 68 degrees). The belt should feel snug but not excessively tight!

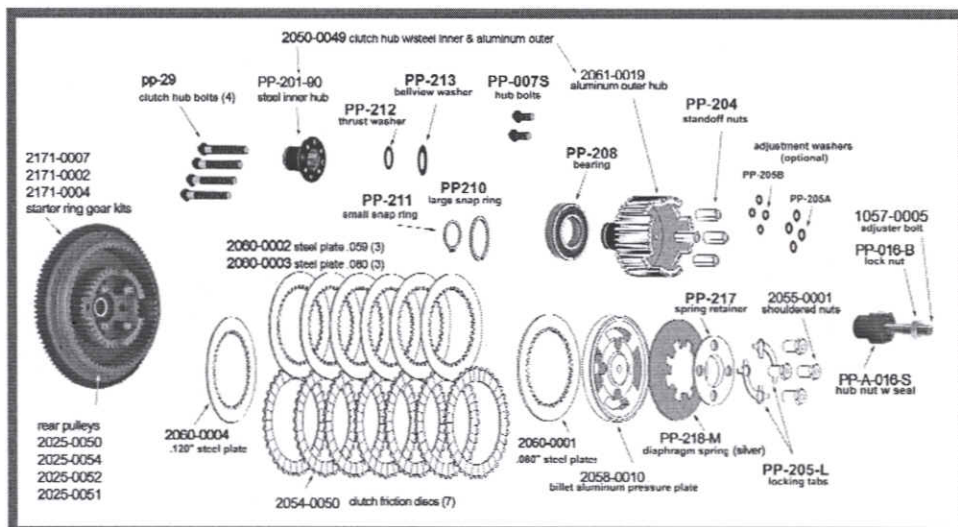
ATTENTION BELT INSTALLERS!

BELT SHOULD HAVE 1/2" - 3/4" UP & DOWN PLAY WHEN THE DRIVE TRAIN IS COLD!



Always check the clearance between the OUTER PRIMARY COVER, & the belt drive assembly PRIOR TO OPERATING THE MOTORCYCLE with a new belt drive, particularly with 95 and later motorcycles. Harley-Davidson® is continuously making changes that may affect after-market belt drive clearances.

EXPLODED VIEW OF THE CLUTCH ASSEMBLY (BRUTE III EXTREME™)



2050-0050 CLUTCH HUB / COMPLETE ASSEMBLY/FITS 1990 & UP BIG TWIN
 2050-0049 CLUTCH HUB w/STEEL INNER & ALUMINUM OUTER ONLY
 PP-201-90 CLUTCH HUB / STEEL INNER / FOR EVO SPLINED SHAFT
 2061-0019 CLUTCH HUB / OUTER ONLY / ALUMINUM
 PP-007-S CLUTCH HUB BOLTS / 1/4-28 x 3/8" SHCS (REQUIRES QTY 2)

PP-29 BOLTS FOR STEEL INNER HUB / BUTTON HEAD (REQUIRES QTY 4)
 PP-204 STAND-OFF NUTS FOR CLUTCH HUB (REQUIRES QTY 4)
 PP-208 BEARING FOR CLUTCH BASKET
 PP-210 LARGE SNAP RING / RETAINER FOR CLUTCH BASKET BEARING
 PP-211 SMALL SNAP RING FOR REAR OF CLUTCH HUB
 PP-213 BELLVIEW WASHER / FITS 1990 & LATER MODELS
 PP-212 THRUST WASHER (HARDENED) / FITS 1990 & LATER MODELS
 1057-0005 CLUTCH ADJUSTER ROD / 2.5" / SCREWS INTO PRESSURE PLATE
 PP-016-B JAMNUT/ CLUTCH ADJUSTING SCREW
 PP-A-016-S . . . CLUTCH HUB NUT w/SEAL (SPLINED SHAFT)

2054-0050 FRICTION PLATE (KEVLAR) w/ALUMINUM CORE
 .110" THICK (REQUIRES QTY 7)

2060-0002 STEEL DRIVE PLATE / .059" THICK (REQUIRES QTY 3)
 2060-0003 STEEL DRIVE PLATE / .080" THICK (REQUIRES QTY 3)
 2060-0004 STEEL DRIVE PLATE / .120" THICK (REQUIRES QTY 1)
 2060-0001 STEEL DRIVE PLATE / .100" THICK (REQUIRES QTY 1)
 2058-0010 PRESSURE PLATE / ALUMINUM / 5" O.D.
 PP-218-M DIAPHRAGM SPRING / SILVER
 2048-0050 REPL.CLUTCH PACK / PACK HEIGHT= 1.410"-1.430"
 2055-0001 SPRING RETAINER NUTS / SHOULDERED
 .865" LONG-3/4" WRENCH SIZE (REQUIRES QTY 4)
 PP-217 RETAINER / DIAPHRAGM SPRING (FLAT SIDE OUT)
 PP-205-L LOCK TAB FOR SPRING RETAINER NUTS (REQUIRES 2)
 PP-017 CLUTCH HUB NUT SEAL
 PP-016-S CLUTCH HUB NUT ONLY FOR SPLINED SHAFT

IMPORTANT INFORMATION

LIMITED WARRANTY:

All pulleys are warranted to be free from defects in material and workmanship under normal use for a period of one year from actual date of purchase. Seller's liability shall be limited to repair or replacement of any materials found to be defective, free of charge at it's plant or authorized service depots, of specific manufactures components. It is further warranted that products that were designed for a specific purpose, shall perform for that purpose when installed exactly as defined in the Installation Instructions accompanying the unit. In no event shall Rivera Primo Inc. or seller be liable for consequential or special damages asserted to be attributed to malfunction of our product, for any reason including, but not limited to, damage asserted to be from improper installation of our purchased Primary Belt Drive components.

This warranty shall not apply to any products which have been subjected to abuse, neglect or accident, nor shall it apply to any product which has been repaired or modified by any person not specifically authorized in writing by the manufacturer.

THERE IS NO WARRANTY ON BELTS. Due to the differing conditions and circumstances under which all belts are installed and used, Gates Rubber Company will not warranty any belt for length of service. Regardless of belt type, keeping your system free of debris and other objects is most important. Remember too, improper handling of the belt can shorten service life. Do not crimp the belt. Do not twist the belt. Do not pry the belt onto the application. If you're shipping or storing, try to eliminate forward and back-bending of the belt.

LIMITATION OF LIABILITY:

THERE ARE NO IMPLIED WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE OF ANY SHIPMENT AND THERE IS NO IMPLIED WARRANTY OF MERCHANTABILITY AND FITNESS EXCEPT THAT THE MATERIAL SOLD HEREUNDER SHALL BE OF SELLER'S STANDARD QUALITY, and buyer assumes all risk and liability for all loss, damage or injury to person or property resulting from the use of said material in manufacturing processes or in combination with other substances, or otherwise. Except as otherwise provided herein quality shall be in accordance with seller's specifications. Final determination of the suitability of the material for the use contemplated by buyer is the sole responsibility of buyer, and seller shall have no responsibility in connection with such suitability.

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