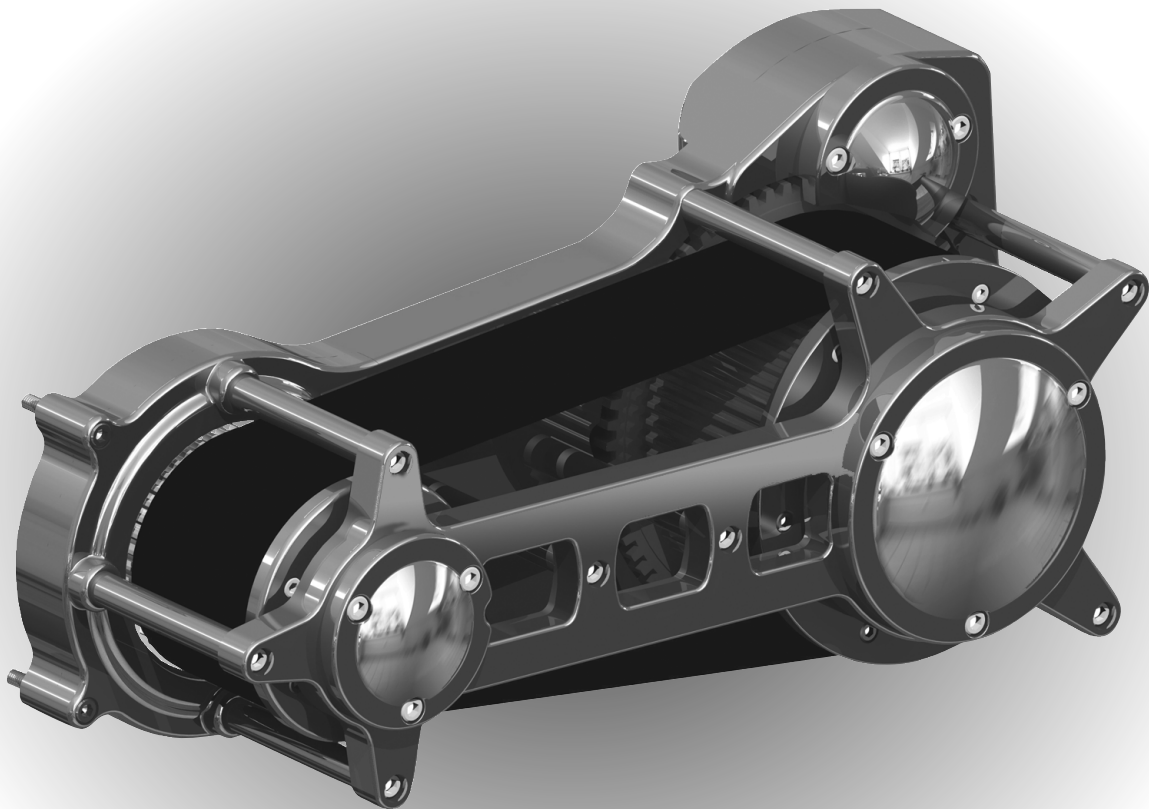




ASSEMBLY DIAGRAM AND ASSEMBLY REFERENCE ULTIMA 8MM 3.5" BELT DRIVE UNITS

DYNA® EVO® & T.C.® MODELS '91 - '05



Part #

58-904 DRAG STYLE

58-902 STREET STYLE

REV 10-22-14

ASSEMBLY DIAGRAM AND ASSEMBLY REFERENCE

ULTIMA 8MM BELT DRIVE UNITS

BELT DRIVE PRODUCTS

WARRANTY PROVISIONS

Ultima's® component parts used in our belt drives are guaranteed to the original purchaser to be free of manufacturing defects in materials and workmanship for a period of twelve (12) months from the date of purchase through Midwest Motorcycle Supply.

Merchandise that fails to conform to these conditions will be repaired by Ultima® if the parts are returned to Midwest Motorcycle Supply by the purchaser within the 12-month warranty period or within 10 days thereafter.

Some problems can be rectified by a telephone call and need no further course of action. A part that is suspected of being defective must not be replaced by a Dealer without prior authorization from Midwest Motorcycle Supply. If it is deemed necessary for Ultima® to make an evaluation to determine whether the part was defective, it must be packaged properly to prevent further damage and be returned prepaid to Midwest Motorcycle Supply with a copy of the original invoice of purchase, detailed letter outlining the nature of the problem, how the part was used and the circumstances at the time of failure. If, after an evaluation has been made by Ultima® and the part was found to be defective, repair or replacement will be granted at Ultima's® discretion.

ADDITIONAL WARRANTY PROVISIONS:

1. Ultima® shall have no obligation in the event an Ultima® part is modified by any other person or organization.
2. Ultima® shall have no obligation in the event an Ultima® part becomes defective in whole or in part as a result of improper installation, improper maintenance, improper use, abnormal operation, or any other misuse or mistreatment of the Ultima® part.
3. Ultima® shall not be liable for any consequential or incidental damage resulting from the failure of an Ultima® part, the breach of any warranties, the failure to deliver, delay in delivery, delivery in non-conforming condition, or for any other breach of contract or duty between Ultima® and a customer.
4. These Diagrams are provided for a reference only and in no way imply that this part is suitable for the applications it is being installed to. The Part #'s these diagrams reference were designed to fit OEM Dyna® style motorcycles made from 1991-2005.

PROFESSIONAL INSTALLATION REQUIREMENTS:

Ultima® Belt Drives should be installed by trained professional mechanics into a motorcycle in which they were intended for use. Failure to do so may result in injury and even death. It is the customer's responsibility to insure their mechanic has proper training.

ASSEMBLY INSTRUCTIONS

I. PREPARATION FOR ASSEMBLY

Before installing the Ultima® belt drive system you must remove your entire existing primary drive. This also includes the pressed on transmission mainshaft race used with chain drive inner primary bearings. For most Dyna® models, exhaust must be removed to allow access to swing arm pivot bolt. **Always disconnect battery before removing or installing primary drive systems.**

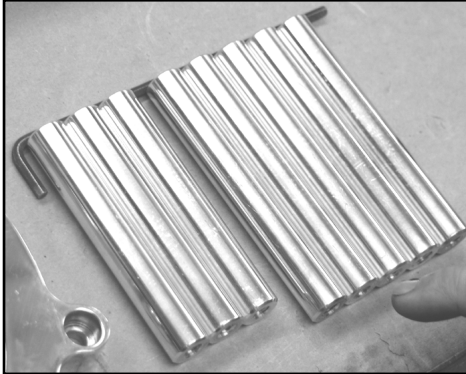
The Ultima® belt drive system comes with a 1989-1993 type starter drive shaft which will fit 89'-06' starter models. Starter bolts are available to accommodate 89'-06' starters. We also suggest using any of our heavy duty Ultima® Thunder Fire® starters part # 70-220 thru 70-229 which incorporate both 89/93 and 94/06' style drive shaft bolt arrangements. These starters are available in 1.4, 1.75, 2.0 and 2.4 Kw configurations.

At this time we suggest inspection of your charging system. Ultima® belt drives are designed to work with most 32 amp charging system on the market today. Later model 38, 40 and 44 amp systems may interfere with the motor plate.

While you are inspecting the alternator we highly recommend that you install a new crankshaft seal on the engine replacing the existing seal with a high quality double lip seal and installing the seal with the steel face out. Belt drive units require a dry environment free from oil and by flipping the oil seal you ensure any crankcase pressure and oil will stay in your engine. This is also a great time to inspect the transmission sprocket and seal for wear and to ensure the sprocket is tight.

II. PREASSEMBLY OF BELT DRIVE COMPONENTS (DRAG STYLE ONLY)

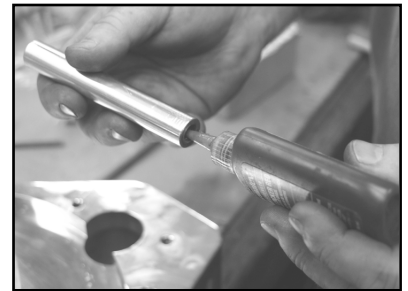
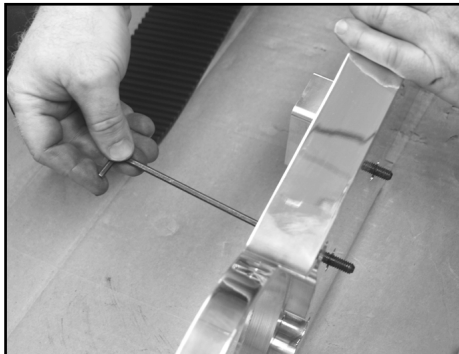
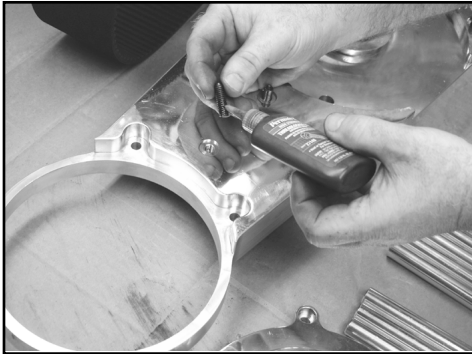
When assembling **Street Style Belt Drive** assemblies no preassembly is required on the motor plate. **Drag Style Belt Drives** require the outer cover spacers to be installed prior to assembling onto the motorcycle.



1. Locate the 2 different length outer cover spacers #56



2. Install the 3 shorter outer cover spacers using red Loctite & the supplied set screws. Motor sub plates are drilled through so you can access the allen head side of set screw from the inside.



3. Using red Loctite Install the remaining 5 long outer cover spacers with set screws into the motor plate. Motor plates are drilled through so you can access the allen head from the inside. Put the hex side of the set screw into the motor plate. Use red Loctite on outer cover spacers



4. A good way to tighten the outer cover spacers is to use one of your 5/16-18 bolts and a jam nut. This will allow you to get some torque on the spacers.

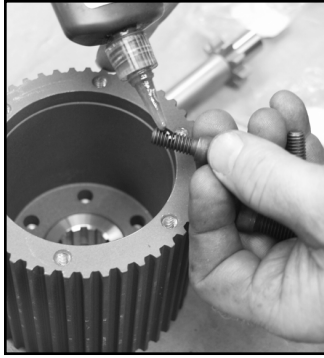


5. The motor plate and motor sub-plate ready for assembly.

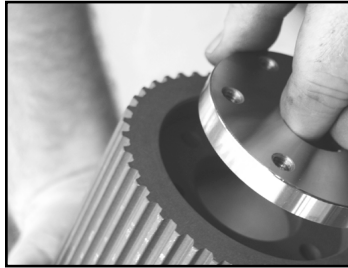


6. Install outer cover caps onto the outer cover using blue Loctite. Torque to 18-22 ft lb. Note the bolt clearance notch location on the motor pulley cap to the outer plate.

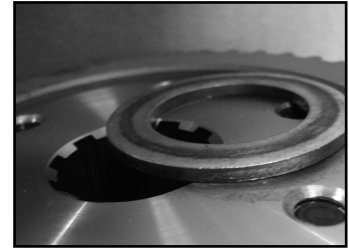
III. SELECTING THE PROPER OFFSET PULLEY INSERT



1. Ultima Drives use 6 bolts to fasten the motor pulley to the pulley insert. Install these bolts using red Loctite and tighten to 18-22 ft lb torque.



2. All Ultima Drives include the stock offset spacer/insert. For wide tire applications see list below for proper pulley insert/spacer



3. When using a stock offset spacer/insert, always use the proper thickness shim between the pulley and the rotor. Failure to do so will result in improper torque on the outer portion of the motor pulley instead of the pulley insert.

The following spacers/inserts are available separately for wide tire applications.

MWM # **58-606** .250" Offset

MWM # **58-608** .750" Offset

MWM # **58-611** 1.5" Offset

MWM # **58-607** .500" Offset

MWM # **58-609** 1.00" Offset

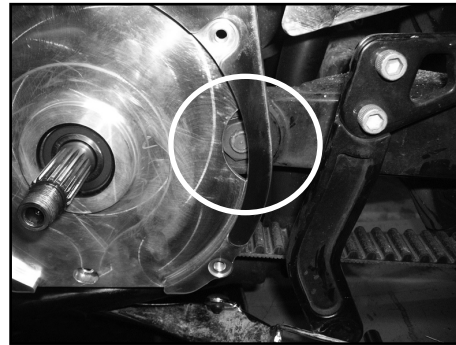
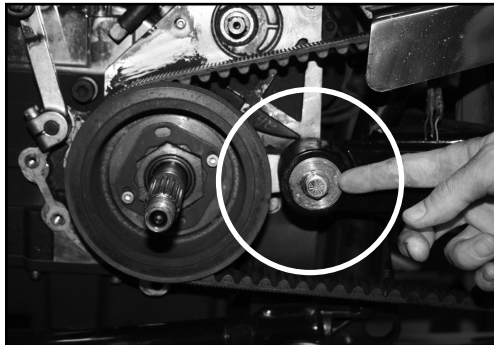
MWM # **58-612** 1.75" Offset

MWM # **58-610** 1.25" Offset

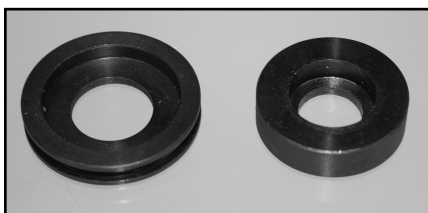
MWM # **58-613** 2.00" Offset

When use of a 1-1/2" to 2" offset is needed, you must purchase Midwest Part#**58-724** motor pulley nut.

IV. INSTALLING THE MOTOR PLATE



1. Before installing the backing plate you may need to remove your swingarm pivot bolt & reinstall from the opposite side of the bike frame. This will prevent interference when seating the backing plate. Always support motorcycle frame & swingarm properly before removing the pivot shaft bolt. After removing the castle nut (99 & earlier), we recommend using a correct diameter drift pin to drive the pivot shaft bolt out. Do not damage pivot bolt threads. The drift pin will aid in keeping all components aligned.

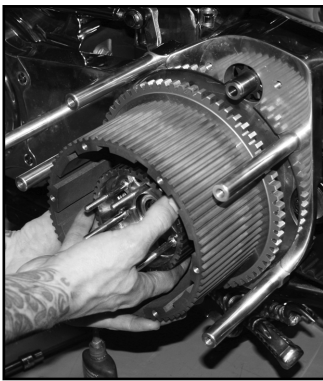


2. Once the pivot bolt is removed, install the supplied counterbored washer/seal onto the shaft. **Remove the stock O-ring & install onto the supplied washer/seal.** Reinstall pivot bolt from the left side so that the head of the bolt is seated inside the counterbore of the washer/seal. This provides the clearance needed for the backing plate to fully seat on the transmission. Using the second supplied washer, reinstall the castle nut & torque to 65 ft lbs. Reinstall safety clip/pin.



3. Install the motor plate and motor sub-plate without the rubber o-ring for the inner primary to engine. Align the motor plate to the engine and transmission then install the mounting bolts for the engine and trans snug only. You might need a dead blow or plastic hammer to seat the motor plate over the transmissions dowel pin. Using red Loctite, torque all bolts to 18-22ft lb.

V. INSTALLING PULLEYS AND BELT



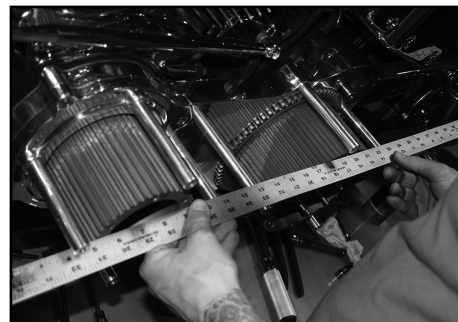
1. Install the clutch basket assembly onto the transmission mainshaft. Apply red Loctite to the mainshaft nut and torque to 55-65 ft lb.



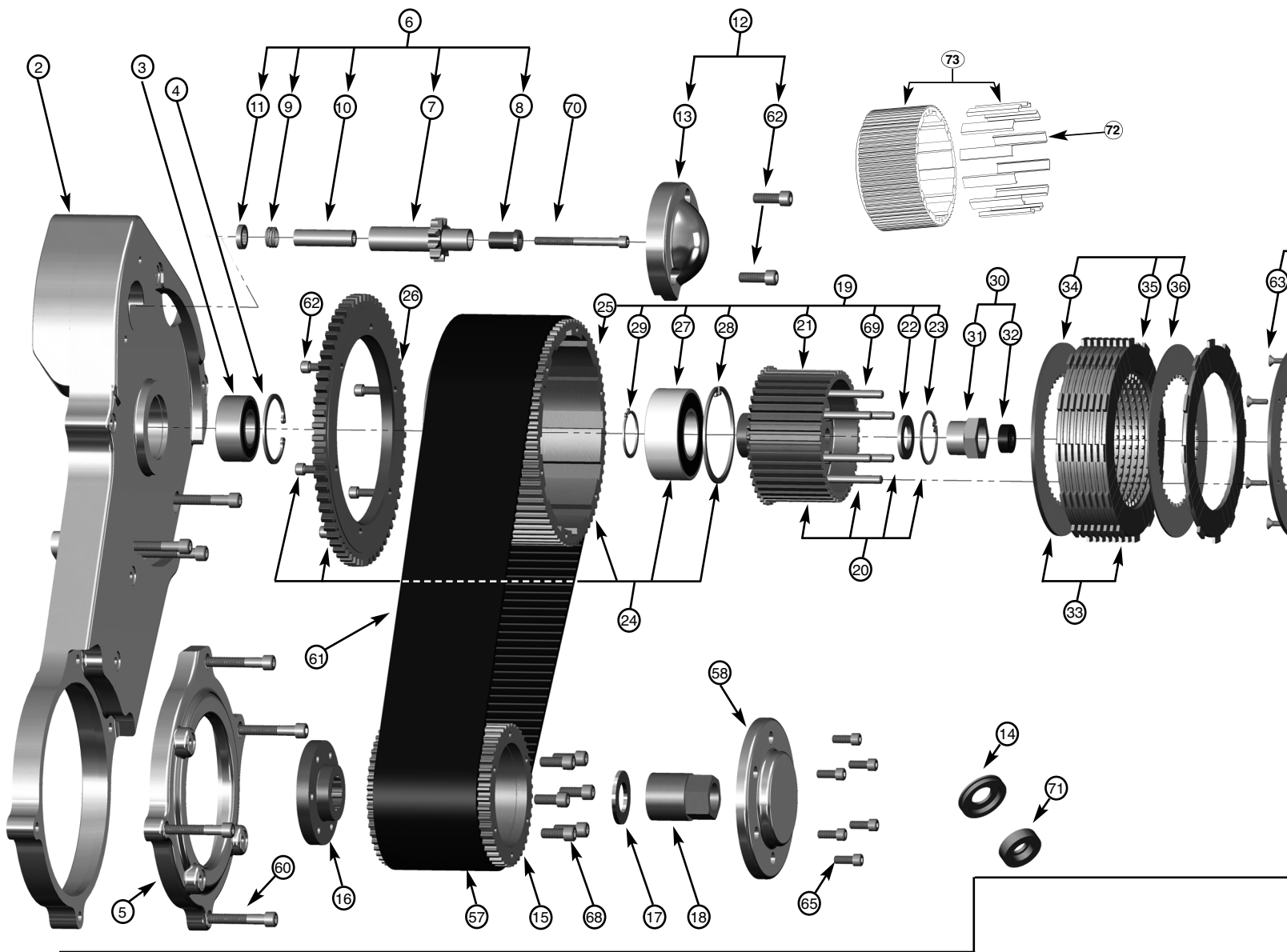
2. Install the stator, rotor, washer and any shims that were present or are needed. (see notes concerning stock pulley insert if utilizing the provided insert)



3. Install the motor pulley nut using red Loctite and torque to mfg recommended specification.



4. Ultima® belt drives are not as sensitive as chain drives to pulley alignment as the clutch basket acts as a guide but proper alignment should be checked. At this time install the belt.

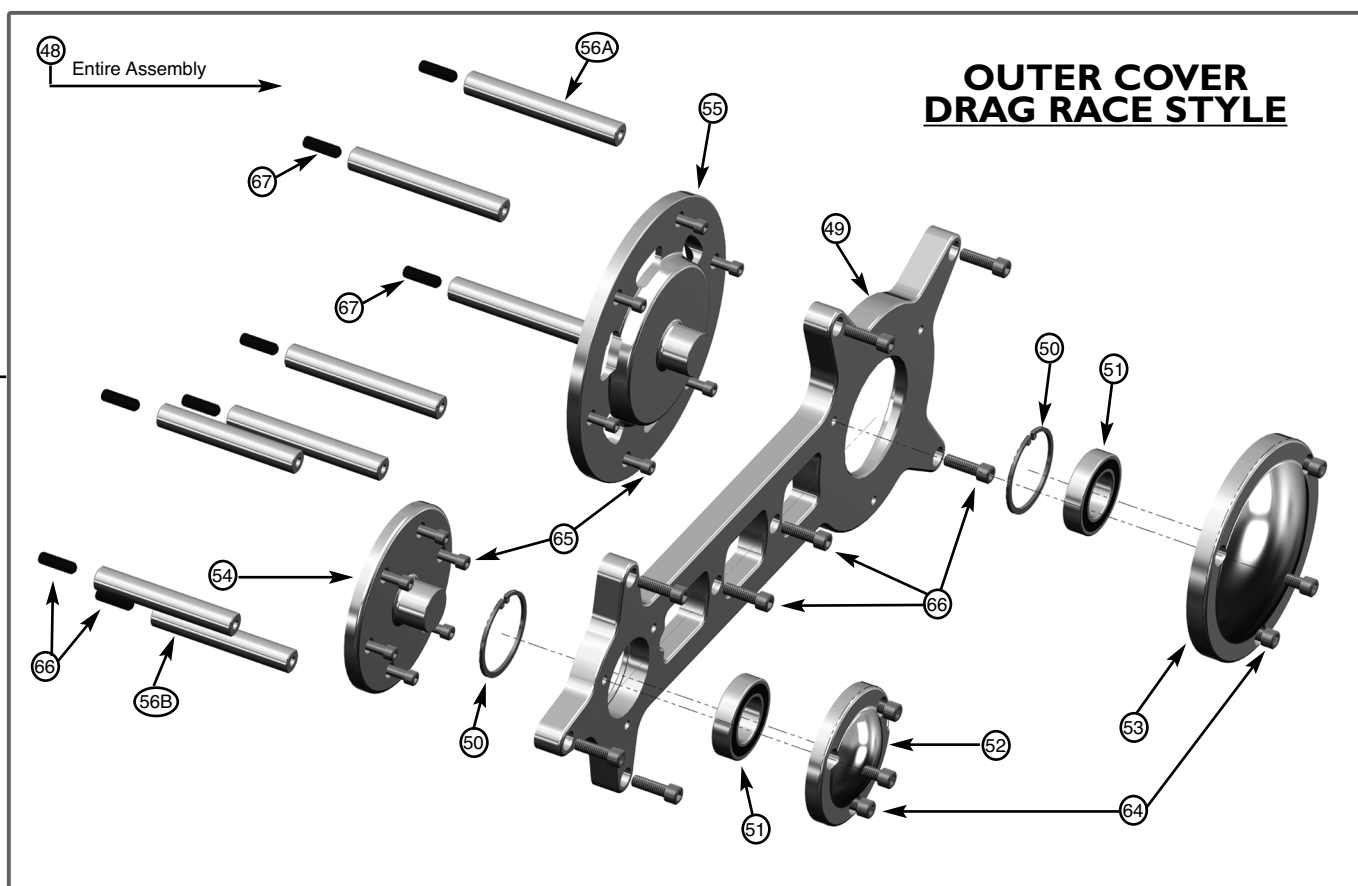
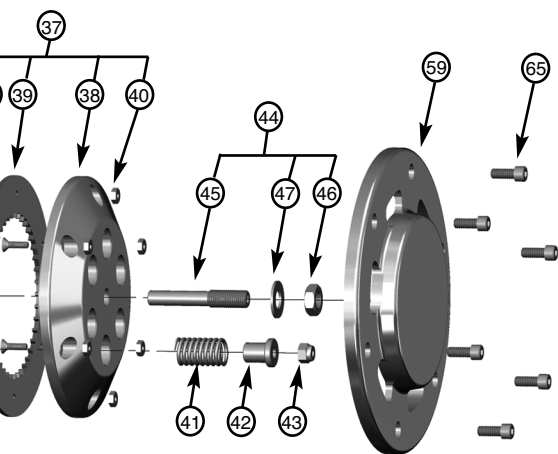


***DENOTES OPTIONAL PARTS NOT INCLUDED IN THIS KIT**

1. Complete Assembly
2. 58-928 Motor Plate Assy. - Billet, includes #3 & #4
3. 58-707 Bearing, Ball, Double Row Angular Contact
4. 58-708 Snap Ring
5. 58-927 Pulley
6. 58-633 Gear Assembly, Starter drive
7. 58-710 Gear, Start Drive, One piece
8. 58-711 Starter Gear Bushing
9. 58-712 Starter Spring
10. 58-713 Starter Gear Spacer
11. 58-714 Spring Stop
12. 58-715 Cover Assembly, Starter Gear
13. — Cover, Starter Gear
14. 58-929 Spacer, grooved for swingarm
15. 58-725 Pulley, Motor 45T
16. 58-605 0" Offset Collar, Sprocket Shaft
IMPORT USA MADE
- *58-606 — 1/4" Offset Collar, Sprocket Shaft
- *58-607 — 1/2" Offset Collar, Sprocket Shaft
- *58-608 — 3/4" Offset Collar, Sprocket Shaft
- *58-609 — 1" Offset Collar, Sprocket Shaft
- *58-610 — 1-1/4" Offset Collar, Sprocket Shaft
- *58-611 — 1-1/2" Offset Collar, Sprocket Shaft
- *58-612 *58-106 1-3/4" Offset Collar, Sprocket Shaft
- *58-613 — 2" Offset Collar, Sprocket Shaft
17. 58-726 Washer, 1.655 x .94 x .125
18. 58-727 Nut, Motor Pulley
- *58-724 Nut, Motor Pulley long
(for 1-1/2-1-3/4" offset collar)

19. 58-728 Complete Trans Pulley Assembly
Includes 62, 26, 29, 24, 20.
- 58-922 Transmission Pulley, bare,
w/stainless inserts 71T
- 58-924 Stainless inserts for 2" pulley. Pkg.
20. 58-729 Clutch Hub Assembly
21. 58-755 Clutch Hub
22. 58-756 Washer, Clutch Hub
23. 58-757 Snap Ring
24. 58-733 Trans Pulley Assy 71T w/BRG
(Includes 62, 26, 27, 28)
25. — Pulley, Trans 71T Bare
26. 58-735 Gear, Starter Ring
27. 58-737 Bearing, Ball, Double Row Angular
Contact
28. 58-738 Retaining Ring, Clutch Assy Outer
29. 58-739 Retaining Ring, Clutch Assy inner
30. 58-622 Clutch Retaining Nut Assy
31. 58-741 Clutch Retaining Nut
32. 95-778 Clutch Rod Seal
33. 58-760 Complete Replacement Clutch
Assy, 9 friction, 9 steel plates
34. 96-83 Clutch Drive Plate, Inner .
119 Thick
35. 58-762 Clutch Plate, Friction
36. 96-34 Clutch Plate, Steel .049 Thick
37. 58-770 Pressure Plate Assembly
38. 58-771 Pressure Plate

39. 58-772 Clutch Drive Plate, Outer
40. 58-773 Nut .164-32 (6)
41. 58-776 Clutch Spring - Medium,
Gold (68lb @ 1")
- *96-252 Clutch Spring - Heavy Duty,
Black (82lb @ 1")
- *96-253 Clutch Spring - Extra Heavy Duty,
Red (105lb @ 1")
42. 58-777 Clutch Spring Guide
43. 58-778 Ny-Loc nut 1/4 - 28
44. 58-779 Clutch Adjuster Assy.
45. 58-780 Clutch Adjuster 0.4375-20x1
46. 58-781 NUT 0.4375-20
47. 58-782 FW 0.4375
48. 58-917 Outboard Support Kit
49. 58-916 Cover, Outer
50. 58-786 Retaining Ring
51. 58-787 Bearing, Radial Ball,
Single Row
52. 58-812 Cap One, Outer Cover
53. 58-813 Cap Two, Outer Cover
54. 58-815 Cap, Motor Pulley - w/ Outboard S
55. 58-814 Cap, Trans Pulley - w/ Outboard S
56. 58-793A Spacer, Outer Cover (5) 4.360"
- 58-793B Spacer, Outer Cover (3) 3.920"
57. 58-903 Belt, Ultima / Goodyear 3.35" 8mm
58. 58-767 Motor Pulley Cap, w/o Outboard su
59. 58-765 Transmission Pulley Cap, w/o Outb
60. 58-919 HX-SHCS 0.3125-18x1.75 (4)



OUTER COVER DRAG RACE STYLE

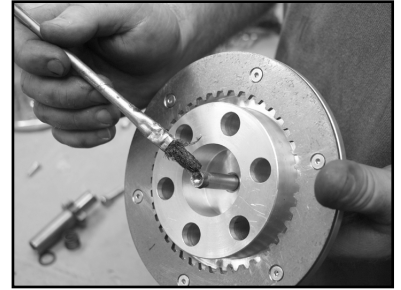
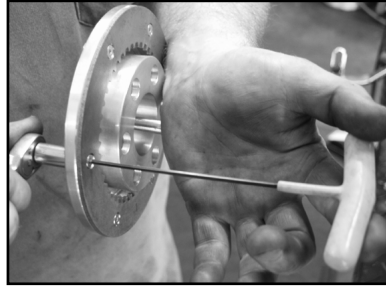
- 61. 58-926 Belt
- 62. 58-798 HX-SHCS 0.3125-18x0.875 (2)
- 63. 58-774 SCHCSCREW 0.164-32x0.625(6)
- 64. 58-790 HX-SHCS 0.3125-18x.5 (6)
- 65. 58-736 HX-SHCS 0.25-20x0.625 (12)
- 66. 58-794 HX-SHCS 0.3125-18x1 (8)
- 67. 58-795 SSFLATSKT 0.3125-18x1(8)

- 68. 58-796 HX-SHCS 0.3125-18x0.75 (6)
- 69. 58-775 Clutch Spring Stud (6)
- 70. 58-718 Starter Bolt .25-20x2.75 (1)
- (89'-93' supplied)
- *58-719 Starter Bolt .10-32x2.75 (1)
- (94'-06' available for purchase)
- 71. 58-930 Spacer, counterbored for swingarm
- 72. 58-922 Outer Pulley 71T w/inserts, 3.35"
- 73. 58-924 Pulley Inserts only, 3.35"

support
support

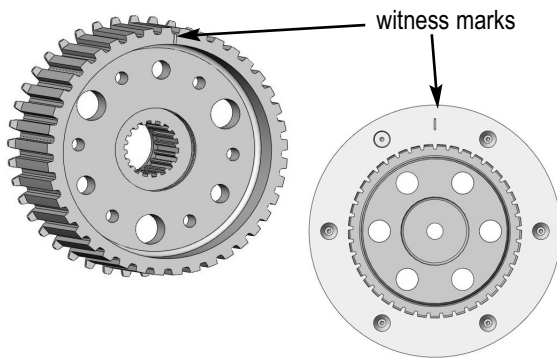
140T
support
board support

VI. INSTALLING THE CLUTCH

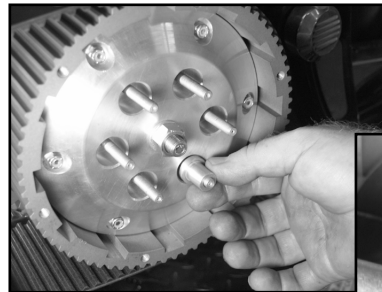


1. Ultima® 3.35" belt drives utilize 9 of the old style 900cc Sportster® steel drive plates and 9 special size fiber plates designed to provide a very adjustable clutch package. When installing the clutch pack, install the thick .119" steel plate first, then alternate fiber/steel. The last plate you install should be fiber.

2. Check the pressure plate screws to ensure they are all tight and the heads of the bolts are sitting below the plate surface. Install the clutch adjusting screw using a small amount of high temp grease on the thread and especially on the clutch pushrod end. Don't get too much grease out there –Remember this is a DRY clutch.



3. Align the witness marks on the pressure plate and inner clutch hub as shown when assembling.

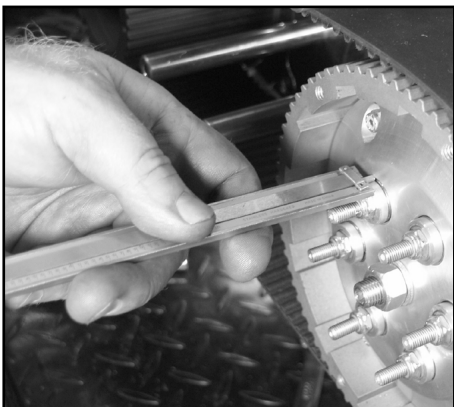


NOTE: CENTER PUSHROD IS REQUIRED

The center clutch push rods (located in the transmission main shaft) may need to be changed depending on setup. Below is a list of available sizes.

PART#	LENGTH	DESCRIPTION
96-442	11.375"	1987-1989 5 speed
96-538	10.8125"	1990+ 5 speed
96-469	11.875"	1985+ 5 & 6 speed

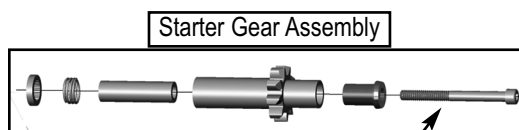
4. Check the inner stud alignment using the clutch spring collar flipped over with the flange side in. The collar should pass through the pressure plate freely a minimum of 1/4". Straightening is generally not required, but if needed, straighten the stud by using a small brass drift.



5. Install the clutch springs and clutch spring guides with the flanges out. Install the clutch spring nuts until you measure .350" +/- .010 from the face of the pressure plate to the face of the spring guide as shown. This sets the spring at approx. 1.250 installed height. For higher power applications go in to .100" measured max for 1.000 installed height. Ultima® belt drives come with a medium pressure gold spring for most applications under 100 hp.
MWM #58-776 clutch spring - **medium, gold**
Pressure 68lb @ 1"
Pressure 42lb @ 1.250"

The clutches grip is adjusted by the spring tension and your clutch lever pressure goes up with spring pressure. For higher horsepower applications we offer:

MWM # 96-252	Clutch spring - heavy duty, black (82lb @ 1")
# 96-253	Clutch spring - extra heavy duty, red (105lb @ 1")



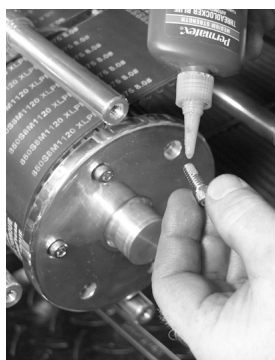
Starter Gear Assembly

- 58-718 1/4-20 x 2.75 (89'-93' supplied)
 58-719 10-32 x 2.75 (94'-06' available)

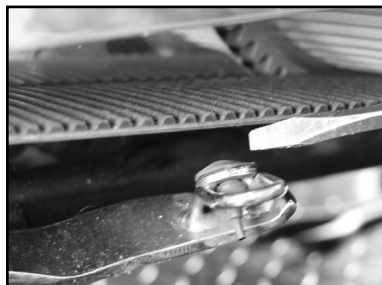


6. Install your starter motor to the motor plate, then install the starter drive gear assembly in the order shown using blue Loctite. The starter drive gear should be a minimum of .150" from the clutch basket starter ring gear once installed. **APPLY SOME HIGH TEMP GREASE TO THE STARTER END CAP BUSHING.** Apply upward pressure to end cap when torquing to 18-22 ft/lbs. Always use blue Loctite on end cap bolts. Reapply grease to bushing every 6 months minimum - **DO NOT RUN DRY!**

VII. INSTALLING THE OUTBOARD BEARING SUPPORT



1. Install motor pulley and trans pulley caps using blue Loctite. Snug bolts only. Install the preassembled outer support plate assembly starting with the clutch basket side. With a small hit of the hand pushing towards the clutch basket side the outer support plate should snap in. Snug the outer support plate with the 2 center bolts only. Using the starter motor with the plugs out of the engine rotate the belt drive a few times to insure the pulley caps get centered. Get 2 or 3 bolts tight on the caps—120-140 in lb. Remove the outer support plate and torque all pulley cap bolts.



2. After all pulley caps are tight, reinstall the outer support plate using blue Loctite. Torque bolts to 15-18ft lb.
3. Check your kickstand clearance to the belt by pushing down on the belt then adding at least 1/2". Use MWM # 5-190 adjustable kickstand leg stop if needed.

NOTES

NOTES



Midwest Motorcycle Supply
2100 HWY Z • Pevely, Mo 63070
PH: 636-931-3200 • FAX: 636-931-3300
www.midwestmc.net
www.ultimaproducts.com



Shown with optional outboard support # 58-908