INSTALLATION INSTRUCTIONS

FAILURE TO FOLLOW THESE INSTRUCTIONS COULD RESULT IN ENGINE DAMAGE AND VOID YOUR WARRANTY!!

INSTALLATION:

1. INSPECT ALL COMPONENTS FOR MISSING OR DAMAGED ITEMS
2. GAP THE RINGS, REFER TO PAGE 2 FOR MORE INFORMATION
3. CLEAN
   - CYLINDER BORES WITH BRAKE CLEANER, WIPE WITH CLEAN WHITE TOWEL REPEAT UNTIL TOWEL IS NO LONGER DIRTY
   - PISTONS, RINGS, WRIST PIN BORES, AND WRIST PINS (INSIDE AND OUT) WITH RED SOLVENT OIL
   - WRIST PIN AREA OF CONNECTING RODS
   - ALL GASKET SURFACES SHOULD BE CLEANED AND DRY DURING ASSEMBLY
4. COAT ALL COMPONENTS WITH RED SOLVENT OIL, INCLUDING CYLINDER BORE
5. INSTALL
   - BASE GASKET WITH CASE SEALER ON TOP AND BOTTOM
   - PISTON ONTO CONNECTING ROD, VERIFY CIRCLIPS ARE SEATED
   - RINGS ONTO PISTONS, REFER TO PAGE 2 FOR MORE INFO
6. USING A RING COMPRESSION TOOL, COMPRESS THE RINGS
7. SLIDE CLEANED AND LUBRICATED CYLINDER OVER THE PISTON AND RINGS
   NOTE: IF ANY RING SHOULD POP OUT, REMOVE THE CYLINDER AND START OVER
8. APPLY 20W-50 ENGINE OIL TO THE THREADS OF ALL CYLINDER HEAD NUTS, NUT BASES, AND WASHERS BEFORE INSTALLING THEM
9. TORQUE CYLINDER HEAD USING FACTORY TORQUE SPECS (SEE PAGE 3 FOR MORE INFO)

ENGINE BREAK-IN GUIDELINES:

- BUILD OIL PRESSURE: REMOVE THE SPARK PLUGS AND CRANK THE ENGINE FOR NO MORE THAN 6 SECONDS, REPEAT 5-6 TIMES
- STANDING HEAT CYCLING: START THE ENGINE, BRING IT TO NORMAL OPERATING TEMPERATURE, THEN LET IT COOL TO ROOM TEMPERATURE, REPEAT 3 TIMES
- TUNE ENGINE (A PROFESSIONAL BASE TUNE IS REQUIRED BEFORE MAKING ANY DYNO PULLS). THE FINAL TUNE WILL NEED TO BE COMPLETED AFTER THE DYNO HEAT CYCLES.

BREAKING IN ON THE DYNO: REMEMBER TO LET ENGINE SLOW USING DYNO WHEEL ONLY BETWEEN PULLS.

- CYCLE 1 - BRING ENGINE TO OPERATING TEMP, PERFORM 3 PULLS AT 50% THROTTLE FROM 1500-3000 RPM, TURN OFF, ALLOW ENGINE TO COOL TO AMBIENT TEMPERATURE
- CYCLE 2 - BRING ENGINE TO OPERATING TEMP, PERFORM 3 PULLS AT 75% THROTTLE FROM 2500-5000 RPM, TURN OFF, ALLOW ENGINE TO COOL TO AMBIENT TEMPERATURE
- CYCLE 3 - BRING ENGINE TO OPERATING TEMP, PERFORM 3 PULLS AT 100% THROTTLE FROM 3000-6000 RPM, TURN OFF, ALLOW ENGINE TO COOL TO AMBIENT TEMPERATURE
- COMPLETE THE FINAL TUNING PROCESS.

THE ENGINE WILL HAVE 30-50 MILES AT THIS POINT. A SMALL AMOUNT OF OIL USAGE DURING THIS TIME IS NORMAL AND WILL STABILIZE • CHANGE OIL AND FILTER USING 20W50 BEL-RAY V-TWIN MINERAL OIL AND A HIGH FLOW FILTER (SUCH AS A FLO REUSABLE FILTER).

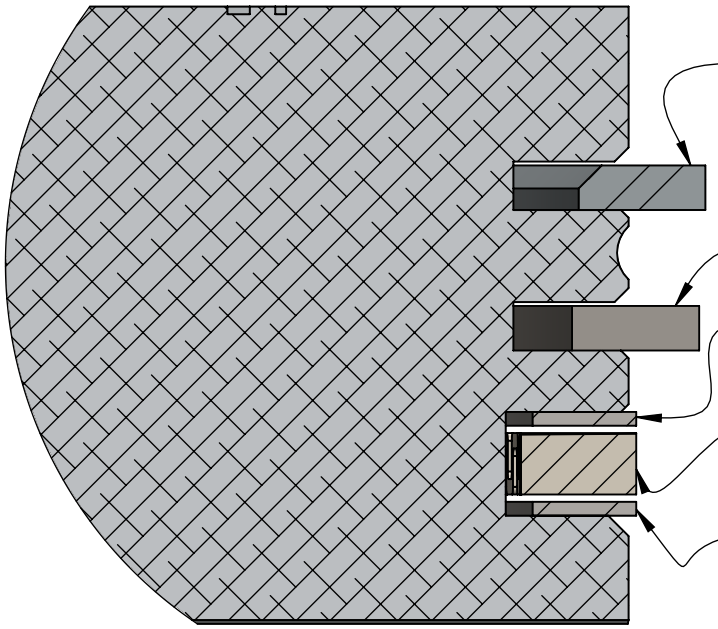
WE DO NOT RECOMMEND BREAKING IN ON THE STREET. PLEASE CONSULT YOUR TUNING SOFTWARE COMPANY TO RECOMMEND A TUNING CENTER NEAR YOU.

RIDE 500 TO 1000 MILES BEFORE CHANGING THE OIL AND FILTER USING 20W50 BEL-RAY V-TWIN MINERAL OIL (SEMI OR FULL SYNTHETIC). CHANGE OIL AND FILTER EVERY 2500 MILES FOR THE LIFE OF YOUR ENGINE

***IF ANY COMPONENTS ARE DAMAGED DURING INSTALLATION, PLEASE CONTACT REVOLUTION PERFORMANCE AT 866-892-2109 FOR REPLACEMENTS**

BEL-RAY TOTAL PERFORMANCE LUBRICANTS

RP REVOLUTION PERFORMANCE



TOP RING (CHROME)- INSTALL WITH DOT OR LETTER FACING UP
MIN RING GAP IS BORE x .0045"(FOR EXAMPLE: 4.25"x.0045= .019" MIN GAP)
MAX RING GAP IS +.004" (FOR EXAMPLE: .019"+.004"=.023" MAX GAP)

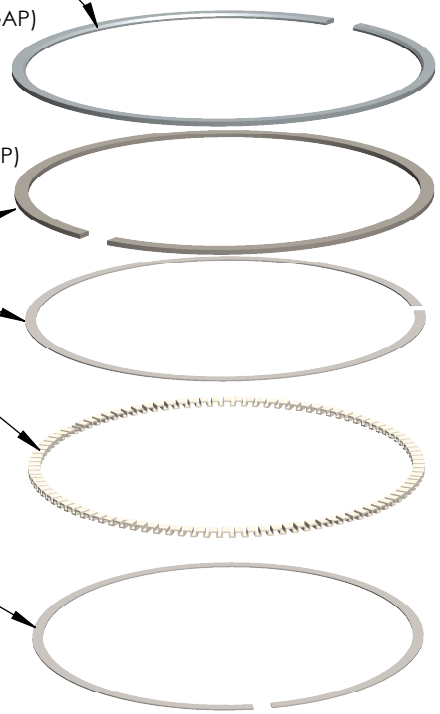
2ND RING (BLACK) - INSTALL WITH DOT OR LETTER FACING UP
MIN RING GAP IS BORE x .005" (FOR EXAMPLE: 4.25"x.005"=.021" MIN GAP)
MAX RING GAP IS +.004" (FOR EXAMPLE: .021"+.004"=.025" MAX GAP)

TOP SCRAPER RAIL
(NO GAPPING REQUIRED)

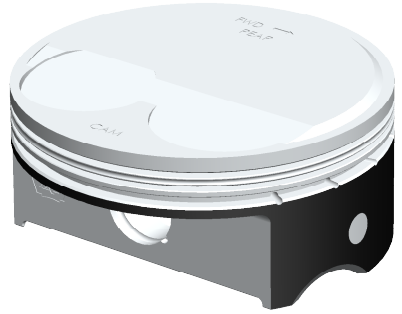
EXPANDER RAIL

BOTTOM SCRAPER RAIL
(NO GAPPING REQUIRED)

UP



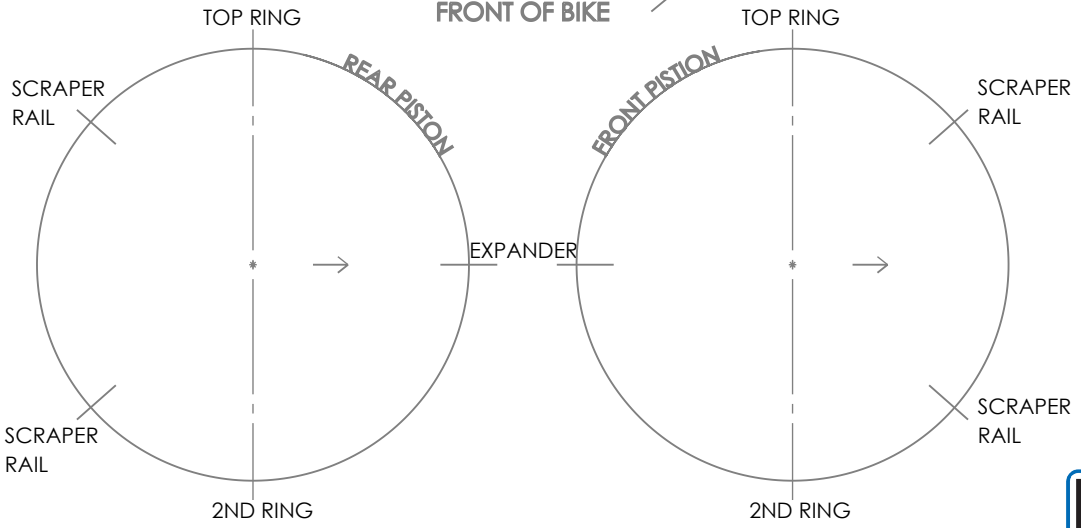
CROSS-SECTION OF PISTON & RINGS

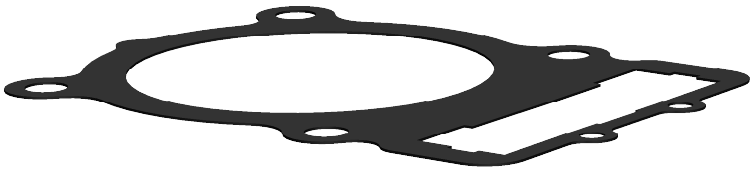


FRONT PISTON SHOWN

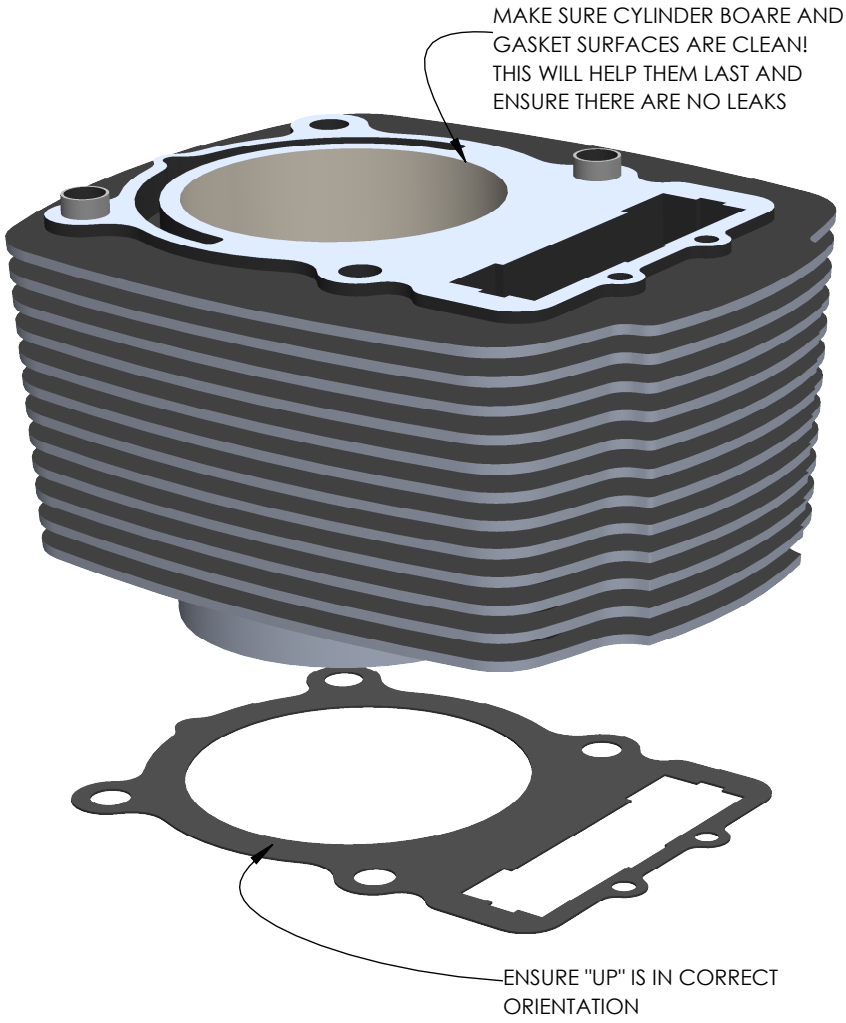
RING GAPS

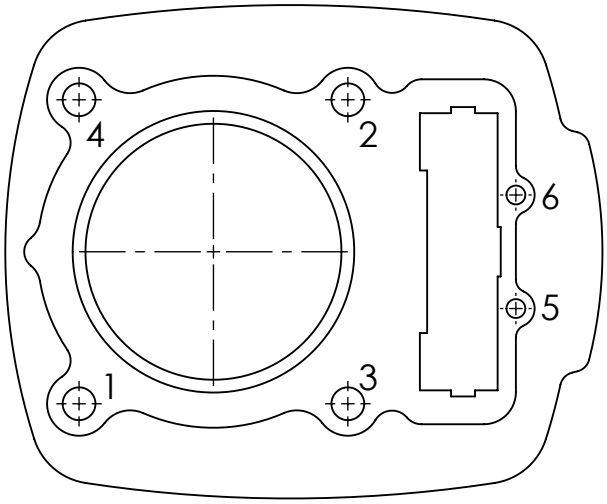
FRONT OF BIKE





- ALL COMPONENTS SHOULD BE THOROUGHLY CLEANED BEFORE BEGINNING ASSEMBLY (REFER TO PAGE 1)
- CYLINDER BORE, PISTON, RINGS, AND WRIST PIN SHOULD BE GENEROUSLY COATED WITH RED SOLVENT OIL BEFORE ASSEMBLY
- USE A RING COMPRESSOR FOR COMPRESSING RINGS DURING INSTALLATION
- APPLY 20W-50 ENGINE OIL TO THE THREADS OF ALL CYLINDER HEAD NUTS, NUT BASES AND WASHERS
- TORQUE THE HEAD USING THE FACTORY SPECS (SHOWN BELOW)





CYLINDER HEAD TORQUE PROCEDURE	
STEP 1	TORQUE ALL NUTS (1-6) TO 10 FT*LB
STEP 2	TORQUE THE 10mm NUTS (1-4) TO 20 FT*LBS
STEP 3	TORQUE THE 10mm NUTS (1-4) TO 30 FT*LBS
STEP 4	TORQUE THE 10mm NUTS (1-4) TO 40 FT*LBS
STEP 5	TORQUE THE 8mm NUTS (5-6) TO 18 FT*LBS

IF YOU HAVE QUESTIONS OR CONCERNS, PLEASE CALL 866-892-2109 AND DISCUSS THEM WITH OUR KNOWLEDGEABLE STAFF

BEL-RAY TOTAL PERFORMANCE LUBRICANTS

RP REVOLUTION PERFORMANCE