KB HYPEREUTECTIC PERFORMANCE PISTONS

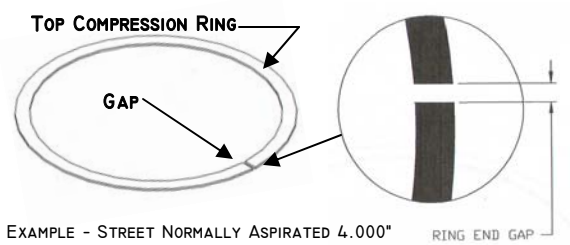
TECH. TIPS

APPLICATION	RING END GAP FACTOR	PISTON TO WALL CLEARANCE	
		4.000"-4.100"	4.100" AND UP
STREET NORMALLY ASPIRATED	0.0065"	.0015" - .0020"	.0020" - .0025"
STREET TOWING	0.0080"	.0015" - .0020"	.0020" - .0025"
STREET NITROUS OR SUPERCHARGED	0.0080"	.0020" - .0025"	.0025" - .0035"
CIRCLE TRACK 2 BBL/RESTRICTOR GAS	0.0070"	.0015" - .0045"	.0020" - .0050"
CIRCLE TRACK UNRESTRICTED	0.0080"	.0025" - .0045"	.0030" - .0045"
CIRCLE TRACK ALCOHOL INJECTION	0.0060"	.0025" - .0045"	.0025" - .0050"
CIRCLE TRACK ALCOHOL CARB.	0.0080"	.0030" - .0045"	.0030" - .0050"
DRAG GASOLINE	0.0075"	.0015" - .0045"	.0020" - .0045
DRAG ALCOHOL	0.0065"	.0015" - .0045"	.0020" - .0045
DRAG SUPERCHARGED OR NITROUS	0.0095"	.0020" - .0045	.0025" - .0050"
DRAG SUPERCHARGED ALCOHOL	0.0085"	.0015" - .0045"	.0025" - .0045"
DRAG SUPERCHARGED FUEL	0.0115"	.0030" - .0050"	.0035" - .0055"
MARINE NORMALLY ASPIRATED	0.0080"	.0030" - .0045"	.0035" - .0050"
MARINE SUPERCHARGED	0.0090"	.0030" - .0045"	.0035" - .0050"
AIR COOLED BAJA	0.0075"	.0030" - .0045"	.0035" - .0050"
PROPANE	0.0065"	.0015" - .0045"	.0020" - .0045"

MODERN PISTON DESIGN LOCATES THE TOP RING HIGHER FOR IMPROVED PERFORMANCE. A HIGH TOP RING OPERATES AT HIGHER TEMPERATURES AND REQUIRES A LARGER TOP RING END GAP. TO FIND THE PROPER RING END GAP, MULTIPLY YOUR BORE SIZE BY THE RING END GAP FACTOR LISTED ON THE CHART (I.E., STREET NORMALLY ASPIRATED 4.000" BORE X .0065" GAP FACTOR = .026" TOTAL TOP RING END GAP).

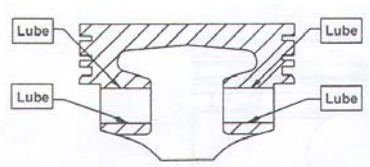
YOUR HYPEREUTECTIC PERFORMANCE PISTON WILL EXPAND LESS THAN TYPICAL CAST OR FORGED PISTONS. BECAUSE OF THIS AND THE WEAR CHARACTERISTICS OF THE HYPEREUTECTIC ALLOY, YOU CAN RUN TIGHT PISTON-TO-WALL CLEARANCES.

NOTE: HYPEREUTECTIC PISTON ENGINES WILL REQUIRE 2-4 DEGREES LESS TOTAL IGNITION TIMING. ONE KEY TO TOP PERFORMANCE IS TO HAVE ALL CYLINDERS LONGING FOR THE SAME TIMING NUMBERS. EQUAL AIR FLOW, FUEL MIX, QUENCH, CHAMBER TEMPERATURE, SWIRL, AND COMPRESSION AT EACH CYLINDER WORK TO THIS END.



EXAMPLE - STREET NORMALLY ASPIRATED 4.000" BORE X .0065" GAP FACTOR = .026" TOTAL TOP RING END GAP.

PIN LUBRICATION AND INSTALLATION



1. HIGH PRESSURE LUBRICANT MUST BE USED BETWEEN PIN AND PIN BORE. FAILURE TO PROPERLY LUBRICATE MAY RESULT IN PIN SEIZURE.
2. FOR PRESS FIT PINS WE SUGGEST USING A ROD HEATER.
3. YOU SHOULD NEVER USE GREASE WHEN LUBRICATING THE PIN. GREASE ACTS AS A DAM AND PREVENTS OIL FROM GETTING TO THE PIN.

CLEARANCES FOR KB HYPEREUTECTIC COATED AND NON-COATED SKIRTS

THE FOLLOWING STANDARDS ARE USED ON ALL KB HYPEREUTECTIC NON-COATED PISTONS. ON 4.000" TO 4.100", STD SIZES HAVE .0005 CLEARANCE BUILT INTO THE PISTON (EXAMPLE 4.00 BORE BLOCK, STD PISTON SIZE WILL BE 3.9995). THIS ALLOWS YOU TO HONE STD BLOCK TO ATTAIN THE .0015 MINIMUM CLEARANCE REQUIRED IN THE APPLICATION CHART. ALL OTHER OVERSIZES HAVE THE MINIMUM CLEARANCE BUILT INTO THE PISTON (EXAMPLE 4.030" BORE BLOCK, .030 PISTON SIZE WILL BE 4.0285, .0015 MIN CLEARANCE). ***ADJUSTMENTS MUST BE MADE TO THE MIN CLEARANCE BASED ON APPLICATION AS NOTED IN THE APPLICATION CHART ABOVE***. ON THE 4.125 AND ABOVE HYPEREUTECTIC THERE IS .001 CLEARANCE FOR THE STD AND THE OVERSIZES HAVE .002 CLEARANCE.

IMPORTANT!!!!!!!

NOTE: COATED PISTONS ***CANNOT BE MEASURED***. DO NOT MAKE ANY ADJUSTMENTS FOR THE COATING - USE THE SUGGESTED CLEARANCES ON THE APPLICATION CHART.

WHERE TO MEASURE A NON-COATED KB HYPEREUTECTIC

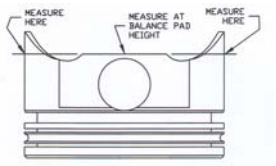
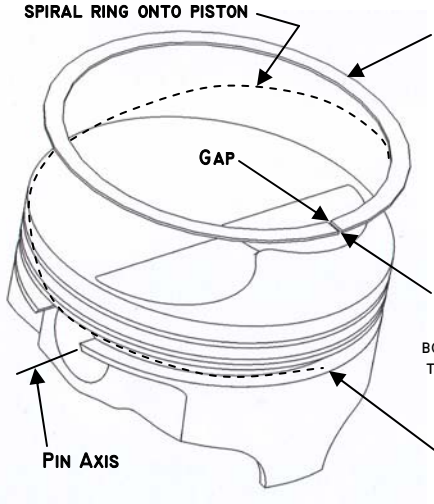


FIGURE 1

SPACER RING INSTALLATION



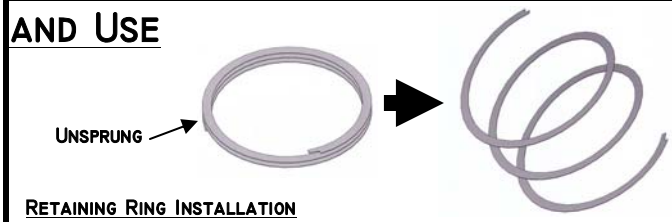
SPACER RING

SPACER RINGS SUPPORT THE OIL RAIL ON LONG ROD APPLICATIONS WHERE THE PIN IS MOVED INTO THE OIL GROOVE.

SPACER RING INSTALLATION

LOCATE THE SPACER RING IN THE BOTTOM OF THE OIL GROOVE. ROTATE THE GAP 90 DEG. FROM PIN AXIS AS SHOWN IN THIS EXAMPLE.

SPIRAL RETAINING RING INSTALLATION AND USE



RETAINING RING INSTALLATION

1. THE SPIRAL RETAINER COMES UNSPRUNG. KB SUGGESTS THAT YOU SLIGHTLY SPRING THE RETAINER ABOUT 1/2"-3/4" BUY GRASPING BOTH ENDS AND STRECHING IT. THIS WILL HELP WITH INSTALLATION.

2. INSTALLATION OF THE RETAINING RING. PLACE THE END OF THE RETAINING RING INTO THE RETAINING RING GROOVE IN THE PISTON. USING A SMALL SCREWDRIVER PRESS THE RETAINING RING IN PLACE. MOVE AROUND THE PINHOLE IN A CIRCULAR PATTERN TO SPIRAL THE COMPLETE RETAINER INTO THE GROOVE. **MAKE SURE THE RETAINER IS COMPLETELY IN THE GROOVE AS IT WILL UNWIND AND LEAD TO FAILURE.**

WHEN TO USE THE LOCKRINGS

IF YOU ARE GOING TO USE A PRESS FIT PIN THE LOCKRINGS SHOULD **NOT** BE USED. WHEN FLOATING THE PIN THE LOCKRINGS MUST BE INSTALLED.

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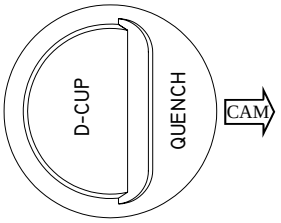
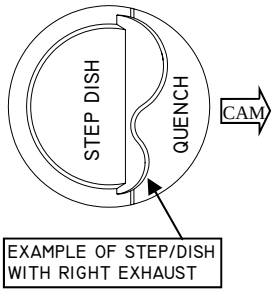
PISTON ORIENTATION

ORIENTATION OF DISH PISTONS

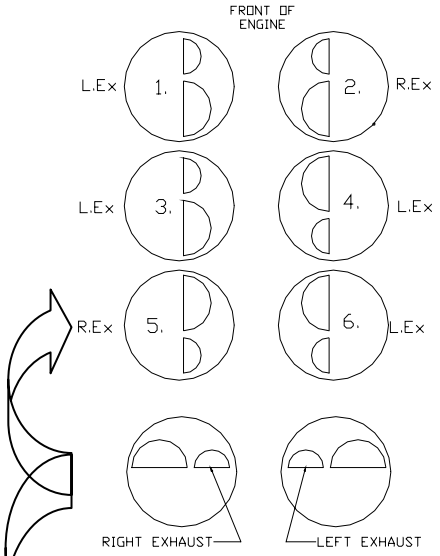


INSTALLATION OF PISTONS DESIGNED WITH A D-CUP AND SYMMETRICAL TROUGH SHOULD ORIENT THE PISTON SO THE QUENCH IS POINTING TOWARD THE CAM.

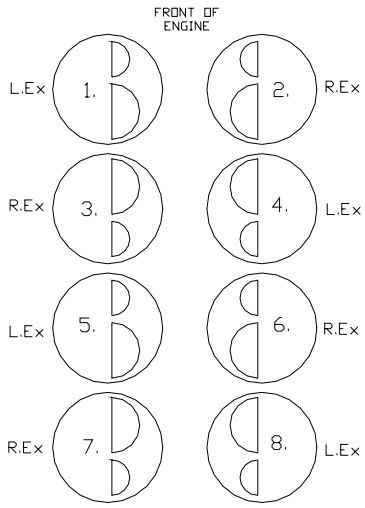
NOT ALL DISH PISTONS ARE MADE THE SAME. KB STEP/DISH DESIGN MAINTAINS A FULL QUENCH WHILE STILL OFFERING RIGHT AND LEFT EXHAUST DESIGN. THE STEP DISH REQUIRES THAT YOU FOLLOW NORMAL INSTALLATION FOR YOUR APPLICATIONS SHOWN IN THE CHART BELOW.

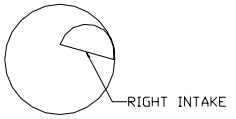


CHEVY. V-6, 262

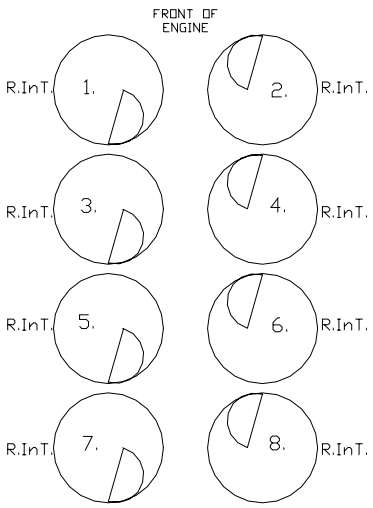


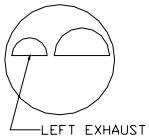
SMALL BLOCK CHEVY.



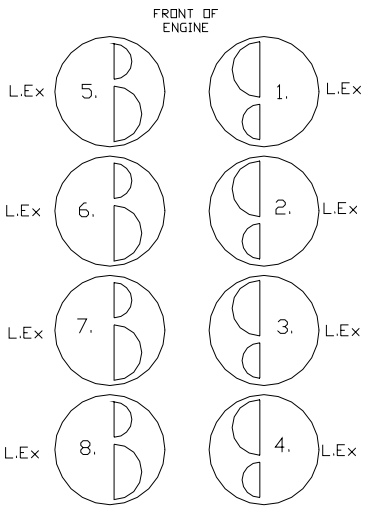


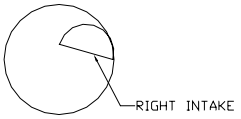
CHEVY BIG BLOCK 427, 454, 502



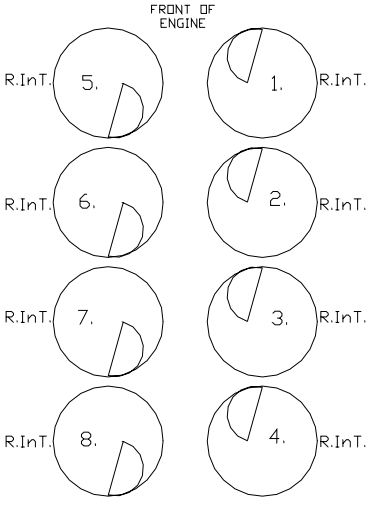


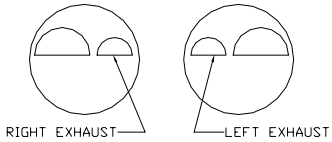
FORD, 289, 302, 351W



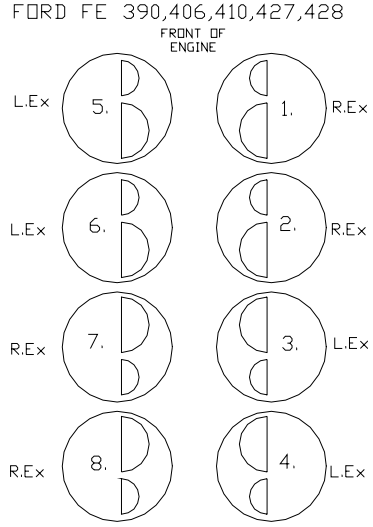


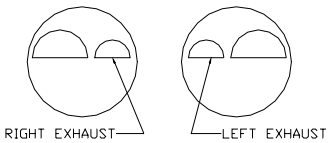
FORD 351C,460





FORD FE 390,406,410,427,428





CHRYSLER 340,360,383,400,440