



# FHR PISTONS

## Installation Instruction

### CALCULATING TOP RING END GAP

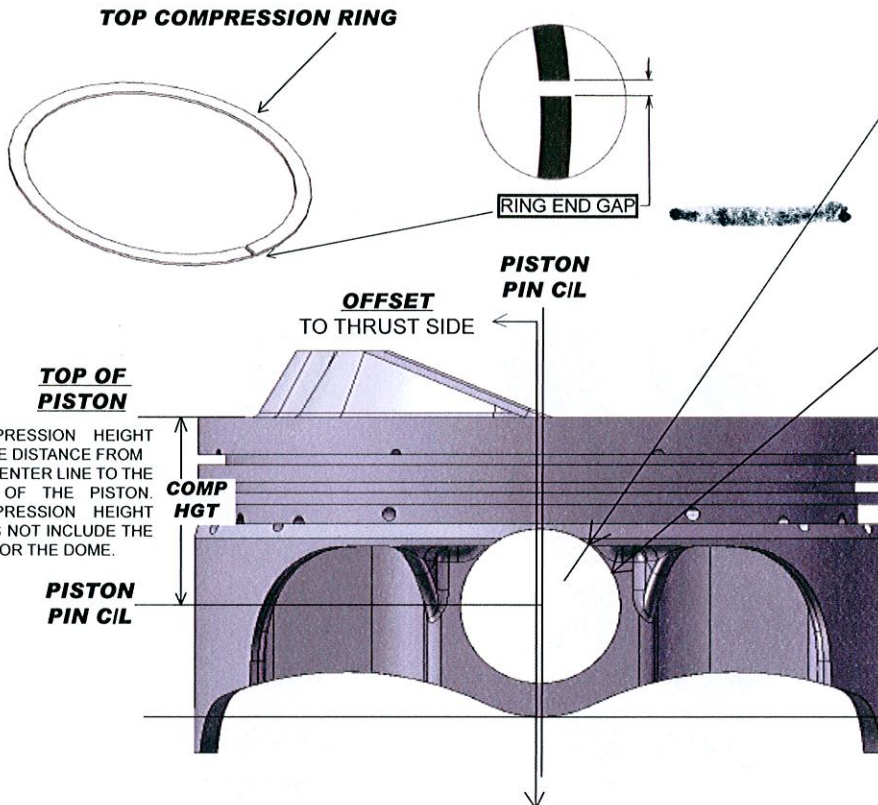
Top Ring Example - Street  
Normally Aspirated 4.000" bore x  
.004" gap factor = .016" total top  
ring end gap.

**Second Ring:** Set second ring  
end gap at .004 per inch of bore  
minimum.

TOP RING END  
GAP FACTORS  
FOR ALL APPLI-  
CATIONS LOCATED  
ON PAGE 2.

### TRU-ARC LOCKRING INSTALLATION

1. KEEP OPEN END OF LOCKRING FACING DOWN.
2. DO NOT OVER COMPRESS LOCK.
3. DO NOT USE LOCKS WHEN PRESS FITTING THE PIN.



### TRU-ARC LOCKRING

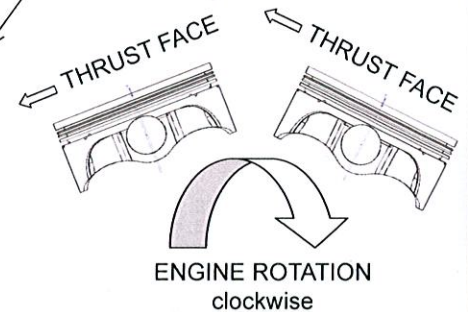


### LUBE PIN HOLE

1. USE HIGH QUALITY OIL OR SUPPLIED LUBE. NEVER USE GREASE
2. PRESS FIT, USE ROD HEATER.
3. DO NOT USE LOCKS WHEN PRESS FITTING THE PIN.

### DIAL POINT

MEASURE PISTON MAJOR  
AXIS (DIAMETER) HERE



### PISTONS WITH OFFSET PIN

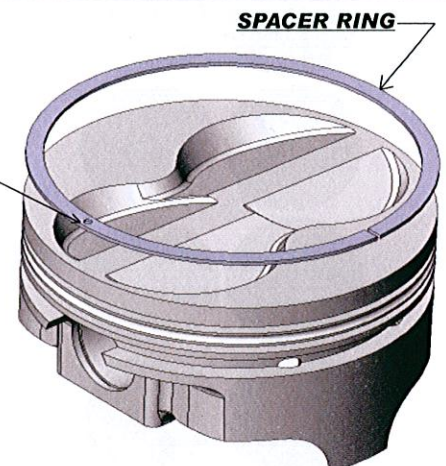
SOME FHR PISTONS ARE MANUFACTURED WITH OFFSET PIN BORES. OFFSET PIN BORES ARE DESIGNED TO QUIET YOUR ENGINE. THE OFFSET MUST ALWAYS BE TOWARDS THE THRUST FACE SIDE OF THE ENGINE. PISTONS WITH OFFSET PIN BORES WILL HAVE A MARK ON THE TOP WHICH SHOULD POINT TO THE FRONT OF THE ENGINE.

### SPACER RING

THE SPACER RING SUPPORTS THE OIL RAIL ON LONG ROD APPLICATIONS WHEN THE WRIST PIN IS INTERSECTING THE OIL GROOVE. THE SPACER RING SHOULD BE LOCATED IN THE BOTTOM OF THE OIL GROOVE. TO INSTALL, SPIRAL THE RING INTO THE OIL GROOVE. TAKE CARE NOT TO DISTORT OR BEND THE SPACER RING.

### DIMPLE

DIMPLE SHOULD BE PLACED OVER THE OPENING FORMED BY THE PIN INTERSECTING THE OIL GROOVE. THE RAISED SECTION SHOULD BE PLACED FACING DOWN.



**United Engine & Machine Co. Inc.**

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# General Clearance Guidelines

APPLICATION	RING END GAP FACTOR	4032 Alloy PISTON TO WALL CLEARANCE	
		3.5" TO 4.1"	4.1" AND UP
STREET NORMALLY ASPIRATED	0.0040	.0025-.0035	.0035-.0045
STREET TOWING	0.0045	.0030-.0040	.0040-.0050
STREET NITROUS OR SUPER CHARGED	0.0050	.0035-.0045	.0045-.0055
CIRCLE TRACK 2 BBL / RESTRICTOR	0.0040	.0030-.0040	.0045-.0055
CIRCLE TRACK UNRESTRICTED	0.0040	.0035-.0055	.0045-.0065
CIRCLE TRACK ALCOHOL INJECTION	0.0040	.0035-.0055	.0045-.0065
CIRCLE TRACK ALCOHOL CARB	0.0045	.0040-.0060	.0050-.0070
DRAG GASOLINE	0.0040	.0040-.0060	.0050-.0070
DRAG ALCOHOL	0.0040	.0030-.0060	.0040-.0070
DRAG SUPERCHARGED OR NITROS	0.0050	.0050-.0080	.0060-.0090
DRAG SUPERCHARGED ALCOHOL	0.0050	.0040-.0060	.0050-.0070
MARINE NORMALLY ASPIRATED	0.0040	.0035-.0050	.0045-.0060
MARINE SUPERCHARGED	0.0045	.0045-.0060	.0055-.0070

## Warranty Disclaimer

Due to the nature of performance applications, the parts sold by United Engine & Machine Co. Inc. are sold without any express warranty or any implied warranty of merchantability or fitness for a particular purpose. UEM shall not, under any circumstances, be liable for any special, incidental or consequential damages, including, but not limited to damage, or loss of profits or revenue, cost of purchased or replacement goods, or claims of customers of the purchaser, which may arise and/or result from sale, installation or use of these parts.

UEM reserves the right to make product improvements or changes without notice and without incurring liability with respect to similar products previously manufactured.

The information contained in this instruction should not be considered absolute. Final decisions concerning the installation and use of these products are ultimately the responsibility of the customer. UEM makes no guarantee of warranty on emissions.

**Final piston clearance should be based solely on the demands of your application.**

Factors such as fuel type, altitude, outside temp., humidity, tune up, and many others factors need to be taken into account for your final clearance.

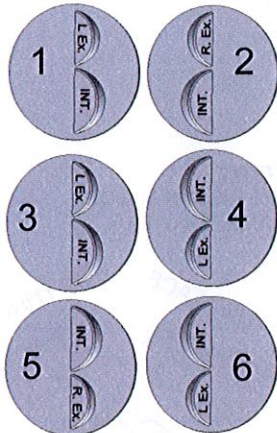
## PISTON ORIENTATION



**QUENCH AREA (YELLOW):** Quench is the area behind the valves. This area should match the flat area on your cylinder head. Proper quench promotes cooling of the piston and can be effective in reducing detonation.

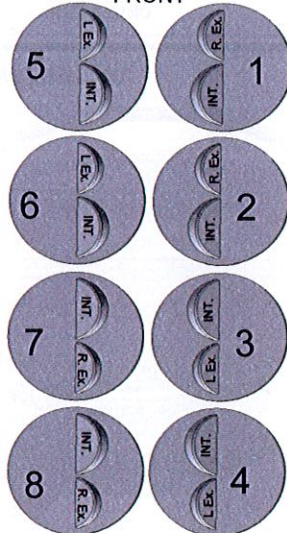
CHEVY V-6 262 4 LEFTS AND 2 RIGHTS

FRONT



**FORD** 390FE, 406FE, 410FE, 427FE, 428FE, 438FE, 452FE, 455FE, 482FE

FRONT



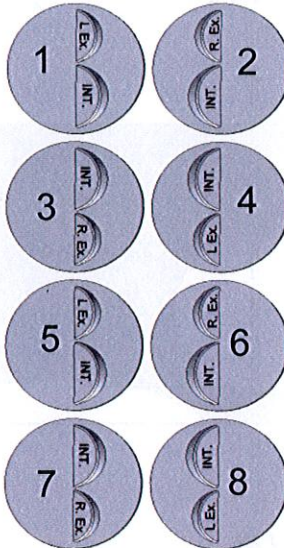
**CHEVY** 302, 305, 327, 334, 350, 377, 383, 400, 434

**CHRY** 318, 340, 360, 383, 400, 408, 440, 450, 463, 468, 493, 498, 505, 520

**BUICK** 455

**PONTIAC** 389, 400, 428, 455

FRONT

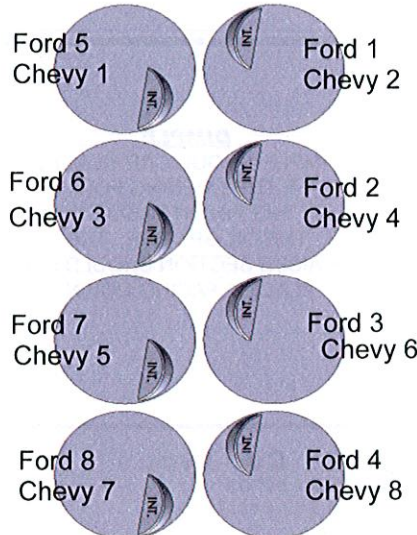


**FORD CLEV** 351C&W/C, 377C, 387C, 402C

**FORD BB** 429, 460, 502, 520, 545

**CHEVY BB** 396/402, 427, 454, 489, 502, 540

FRONT



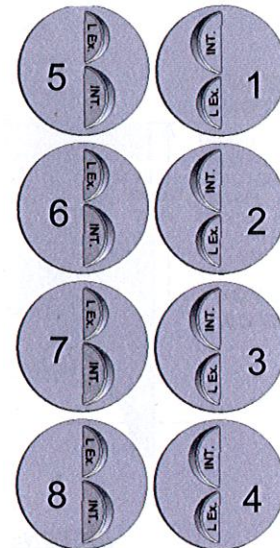
**CHECKING CYLINDER HEADS:** WE THE MANUFACTURER SUGGEST CHECKING CYLINDER HEADS WITH CLAY OR SOME OTHER METHOD BEFORE FINAL ASSEMBLY TO ASSURE PROPER PISTON TO HEAD CLEARANCE.

**FORD** 289, 302, 331, 347, 351W, 372W,

383W, 393W, 408W, 416W, 418W

**CHEVY LS SERIES**

FRONT



**TOYOTA** 22R YRS 1985 AND NEWER

FRONT

