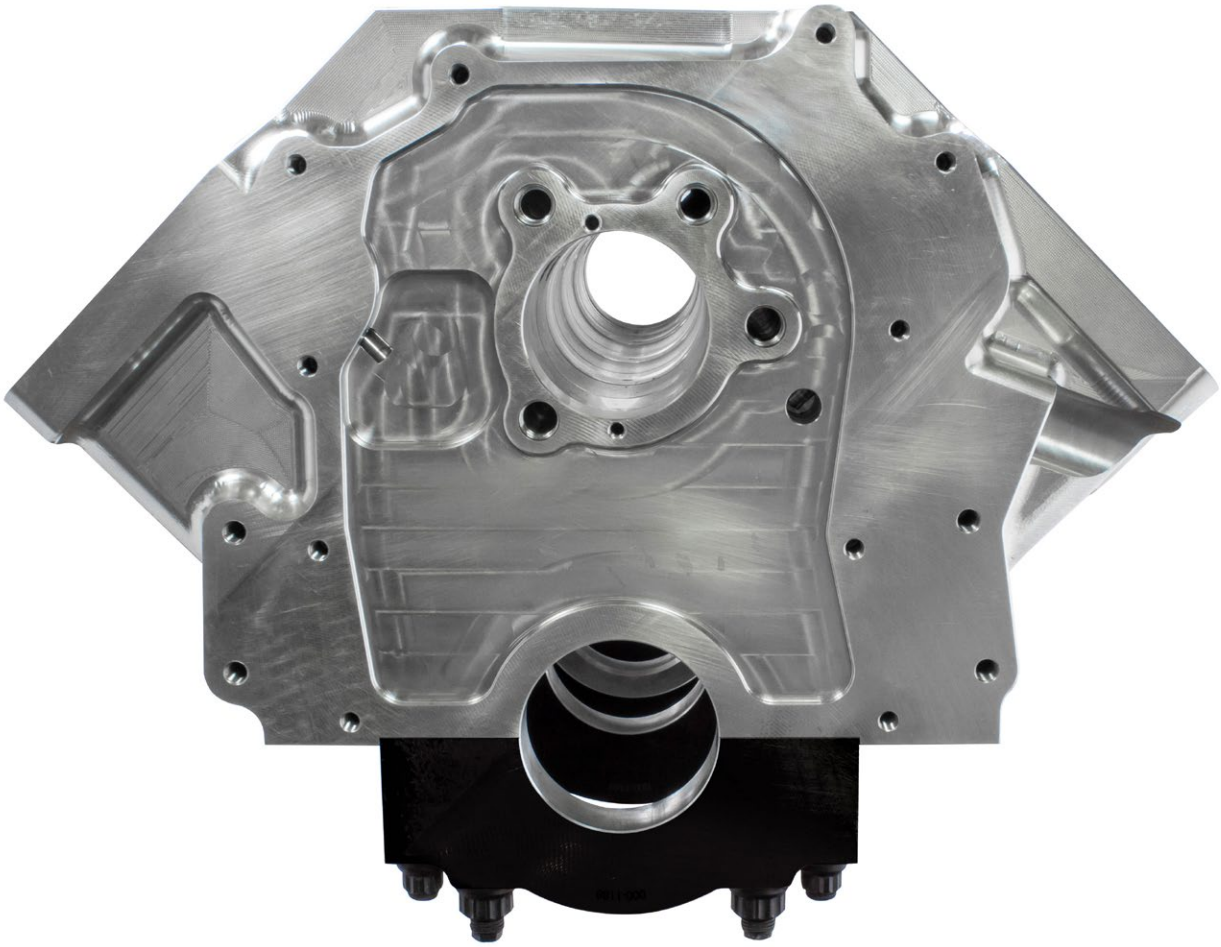
ENERGY
MANUFACTURING

1830 Old Oak Harbor Road, Fremont, OH 43420 PH: (419) 355-9304 FAX: (419) 355-9063
www.energymanufacturing.com info@energymanufacturing.com

Customer Informational Packet

Description: +1.273” Raised SBF
Serial No.’s: 000185-Current



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Rotational Assembly Clearance

Max Stroke Clearance: 4.750”

This stroke clearance only includes the aluminum engine block for 90% of rotating assemblies. The sleeves are left unnotched to accommodate the wide range of rotating assemblies used in our billet aluminum block. This allows for the maximum amount of cylinder sleeve support in each customer’s build. The end user will need to notch the cylinder sleeves, the aluminum block should remain untouched or at most require only a minimum amount of material be removed. Please contact Energy should you need substantial clearance of the aluminum.

China Wall

The China wall on this block is cut to the height that accommodates Energy Manufacturing’s cylinder heads. Should you not be putting a set of Energy cylinder heads on your block please view ‘Appendix I: China Wall Modification Print’ on page 12. The equation on this print will aid you in determining the height you will need to machine the China walls down to. One equation is the long hand version and the other is the input required if calculating with Microsoft Office Excel. In the table on page 12 we have included the proper China wall height for a 9.8” deck block with Energy cylinder heads for you to verify that your calculation is being completed properly.

Block Oiling

Please see illustration of the block’s oiling system and location of plugs included with the block in ‘Appendix G: Block Oil Feed Print’ on page 10, and ‘Appendix H: Block Oil Return Print’ on page 11. The oil drain back can either be gravity fed back into the pan by plugging the rear outlet or can be used with a scavenge system by plugging the drain at the pan rail and hooking up a scavenge bank to the rear outlet. **IMPORTANT: DO NOT PLUG BOTH!** Although Energy Manufacturing supplies the plugs for both the pan rail and the outlet, only ONE should be used based on your oiling system requirements. Energy Manufacturing suggests plugging the crank to cam oil passageways with 1/4-20 set screws in position #2, 3, #4, & #5 if utilizing roller cam bearings. While the #1 cam bearing is oiled directly off the main oil gallery. The block has (3) provisions for restricting oil to the lifter oil galleries, located at the lifter gallery crossover between the main oil gallery and driver deck oil gallery.

Oil Pan

The oil pan on your block is custom with some 351C features. Please see details of the fastener holes & locations in ‘Appendix A: Oil Pan Pattern Print’ on page 4. Verify that your front cover & the rear of your oil pan will have clearance.

Cylinder Head Studs

Please see print with details of the cylinder head stud holes in 'Appendix B: Cylinder Head Bolt Pattern Print' on page 5. On 'Appendix E: Cylinder Head Stud Order Form Print' on page 8, use the 'Cylinder Head Stud Order Form' to simplify ordering head studs from your chosen provider. Required customer supplied information is Gasket Thickness, Column Height, diameter of Counterbore in head, clearance distance above counterbores, and whether or not the customer included hat washers in their measurements. If hat washers are going to be used, they must be included in the column thickness measurement. Your cylinder head stud provider should be able to provide you with torque specifications and installation instructions. We at Energy Manufacturing suggest completely coating the end of the stud going into the block with Marine Grade Anti-Seize to prevent dissimilar metal corrosion. To avoid damage to the threads, thread the fastener into the block hand tight without the use of power tools.

Please see 'Appendix C: Cylinder Head Bolt Pattern Print – Aux, Energy Thru Holes' on page 6 if your block comes with the optional "Energy" head bolt pattern, which has (8) additional 3/8" auxiliary thru holes, (4) per side under the intake ports.

Please see 'Appendix D: Cylinder Head Bolt Pattern Print – Aux, SC-1' on page 7 if your block comes with the optional "SC-1" head bolt pattern, which has (8) additional 3/8-16 auxiliary head bolt holes, (4) per side under the intake ports.

Timing Drive Options

The Energy Manufacturing SBF block takes a BBF timing drive system.

***Jesel Belt Drive:* KBD-34510**

- Contact Jesel for thrust bearing/washer options or additional accessories specific to your setup to accompany your gear drive.

***Innovators West Belt Drive:* 5302**

- Drive belt includes dual bearing thrust plates. Contact Innovators West for additional accessories specific to your setup to accompany your belt drive.

Main Caps

We at Energy Manufacturing suggest completely coating the end of the stud going into the block with Marine Grade Anti-Seize to prevent dissimilar metal corrosion. To avoid damage to the threads, thread the fastener into the block hand tight without the use of power tools. The 1/2” splayed studs are designed to have the threads bottom out in the bottom of the threads, the 9/16” studs are designed to have the bullet nose bottom in the bottom of the tap drill hole. After installing main caps, and before torquing the main studs, verify that the caps are seated on the split line and with a .001” shim. The main stud nuts should be hand tight before checking the caps. The torque specifications are 170 ft-lbs. for the vertical doweled 9/16” studs and 120 ft-lbs. for the splayed 1/2” studs, the washers should not spin during torquing. Energy Manufacturing suggests ARP Ultra Torque for the nut end of the studs. The slide hammer bolt hole for cap removal is 5/16-18.

Miscellaneous Information

This block does not have a distributor hole and will require an alternate method to fire the ignition.

Max Cylinder Bore Size: 4.160”

Max Suggested Cam Tunnel Size: 60mm Roller Bearing

- When proceeding with a cam tunnel larger than a 60mm Roller Bearing housing size please contact Energy Manufacturing to review all the required modifications and review the associated risks.

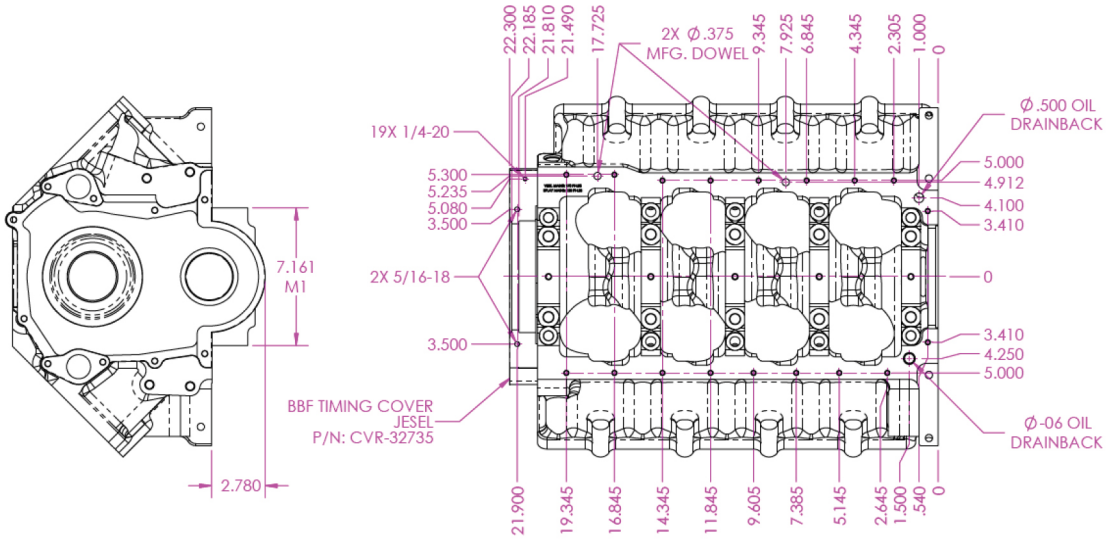
Suggested Cam Bearing Width: 20mm

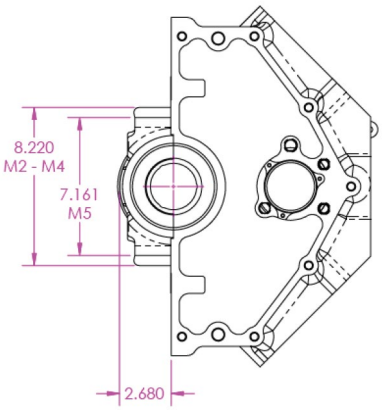
Lifter Position: Energy Standard, 45° Intake/49° Exhaust

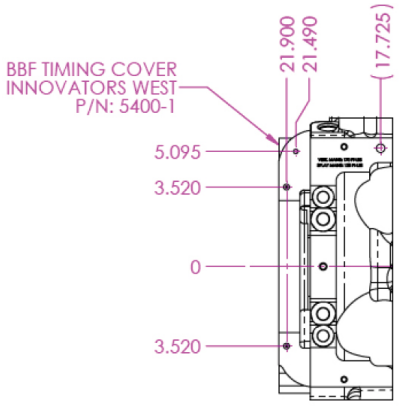
Rear Cam Plug: This block comes with a rear cam plug included in the packaging. It seals with an included O-ring, pilots into the rear of the block and is fastened with (3) #8-32 countersunk head screws.

For details relevant to manufacturing an engine plate and mid plate, please view ‘Appendix F: Block Mounting Print’ on page 9. The 7/16-14 holes are in BBC mounting locations, the bell housing is the Chevy pattern. The starter location requires the use of a 168-tooth flywheel/flex plate.

Appendix A: Oil Pan Pattern Print



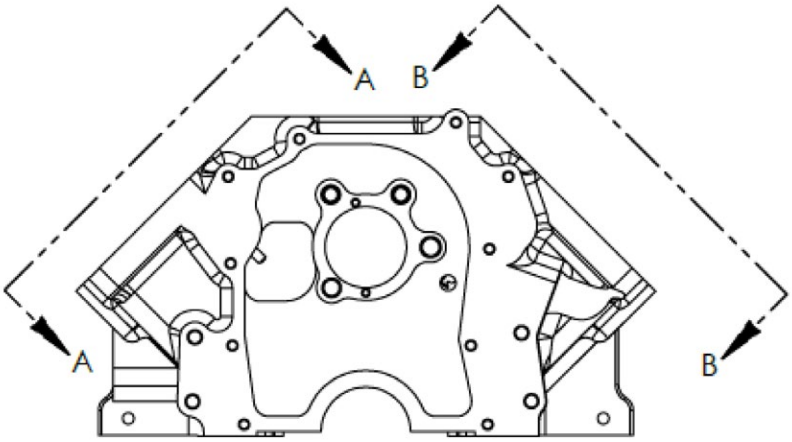


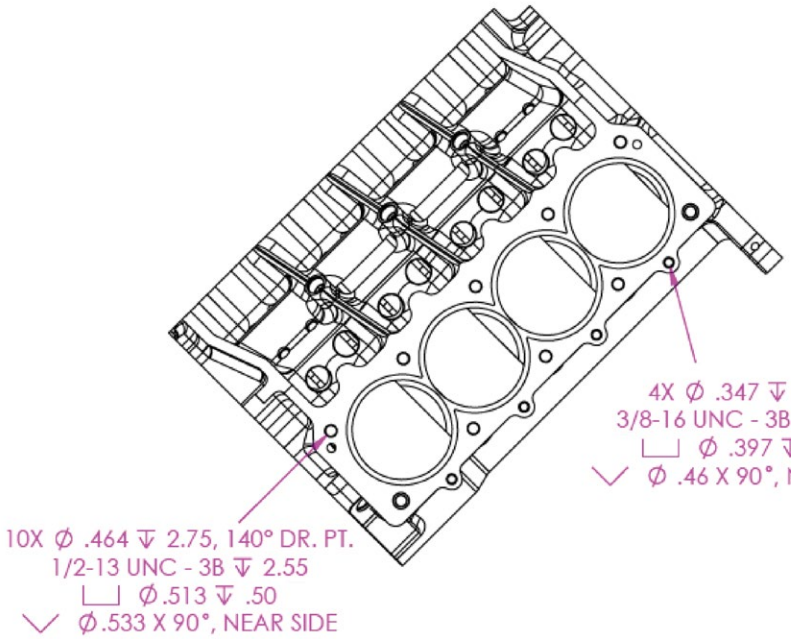


NOTE: -06 Oil drainback may have plug protrude +.100” from pan rail surface.

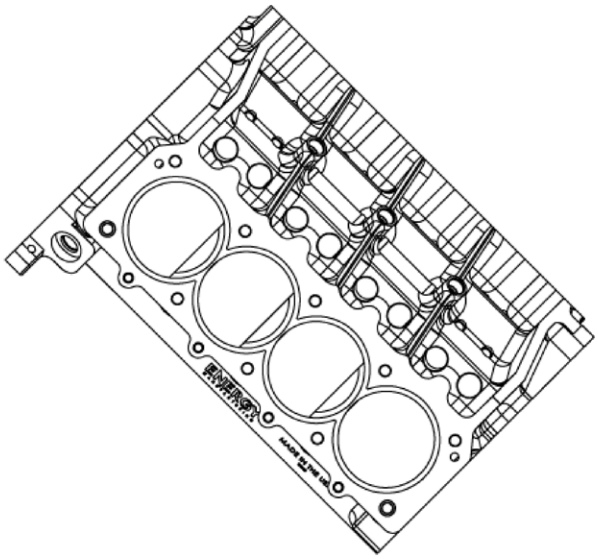
Timing cover bolt hole locations provided as reference, customer to verify actual timing cover bolt hole locations.

Appendix B: Cylinder Head Bolt Pattern Print



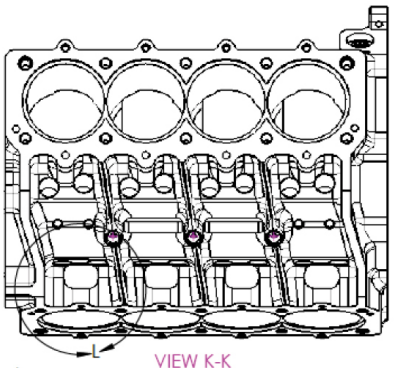


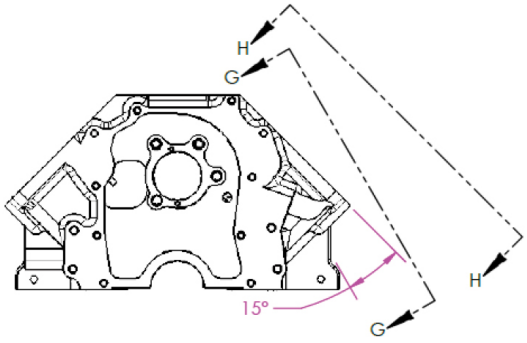
VIEW B-B



VIEW A-A

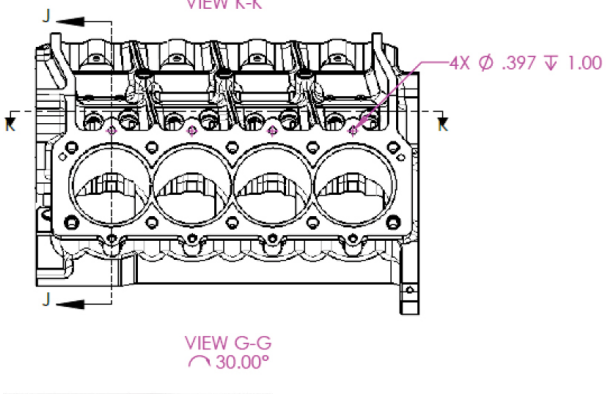
Appendix C: Cylinder Head Bolt Pattern Print - Aux, Energy Thru Holes

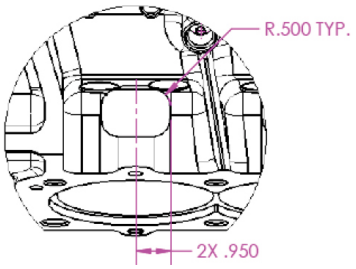


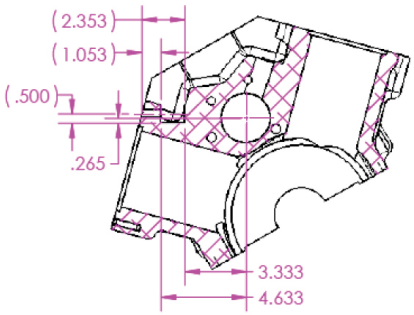


10.2 DECK ONLY

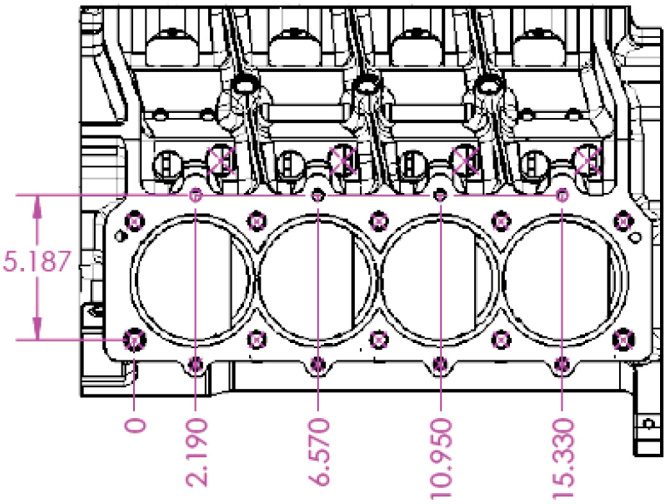
REFERENCE DIMENSIONS FROM FURTHEST INTERSECTION POINT OF Ø.397" THRU HOLE AND DECK. REFERENCE OF UNDERCUT DEPTH IS FROM Ø.397" CENTERLINE



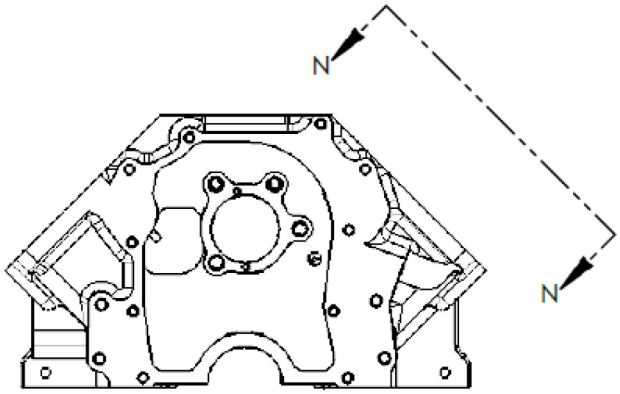


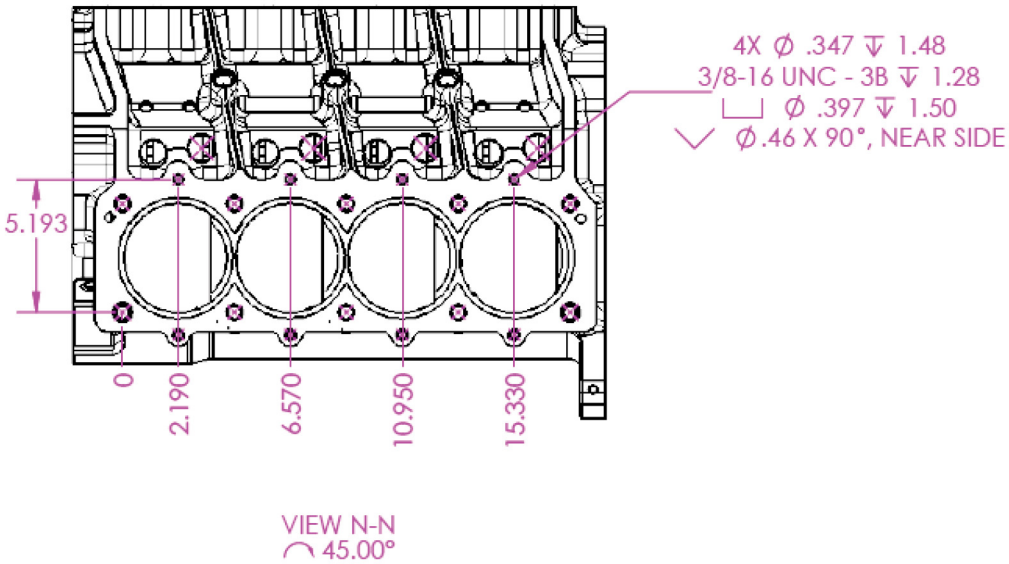


DETAIL L
SCALE 1 : 3



Appendix D: Cylinder Head Bolt Pattern Print - Aux, SC-1





Appendix E: Cylinder Head Stud Order Form Print

STUD DESIG.	QTY	A (GASKET THK)	ØB1 (BLOCK CB Ø)	B2 (BLOCK CB ↧)	ØC1 (HEAD THRU Ø)	C2 (HEAD THRU ↧)	D1 (THD SIZE, PITCH, & CLASS)	D2 (THD ↧)	ØE1 (CB Ø)	E2 (CLEAR ABOVE CB ↧)	ØF1 (DRILL Ø)	F2 (DRILL ↧)	F3° (DRILL ANGLE)
#1	10		0.513	0.500			1/2-13 UNC-3B	2.550		SEE BELOW	.464	2.750	140
#2	10		0.513	0.500			1/2-13 UNC-3B	2.550		SEE BELOW	.464	2.750	140

E2, CIRCLE (1):

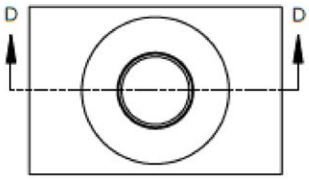
NUT HEIGHT + WASHER HEIGHT + 3P

LEGEND:

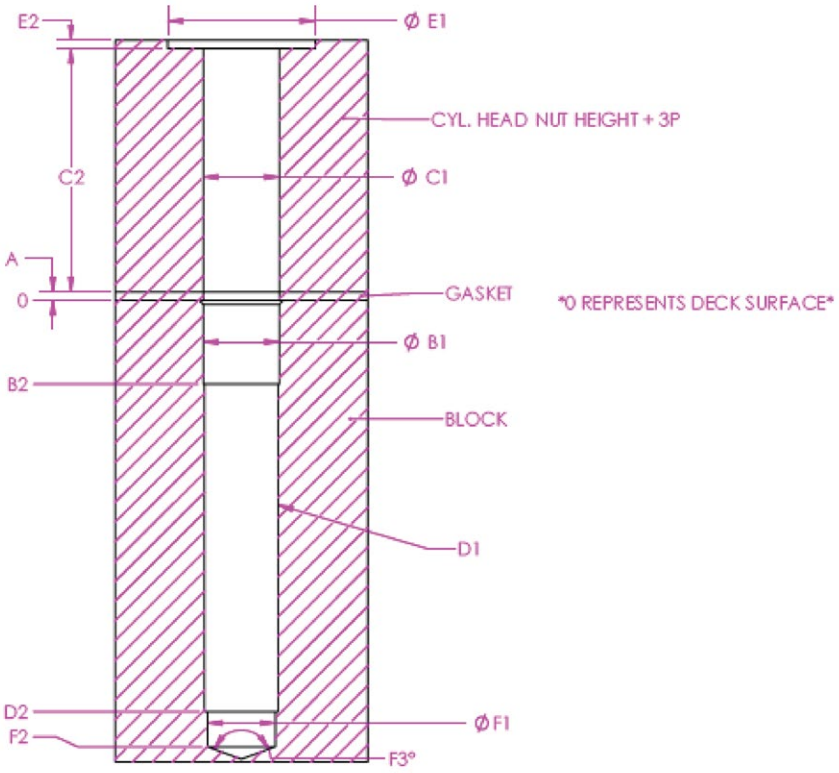
Ø = DIAMETER

↧ = DEPTH

° = DEGREE



BLOCK MFG.	BLOCK REV./SERIAL #	BLOCK PART #	HEAD MFG.	HEAD PART #	ENERGY CUSTOMER #	STUD MFG.	RFQ DATE	TORQUE RATING
ENERGY MFG.								

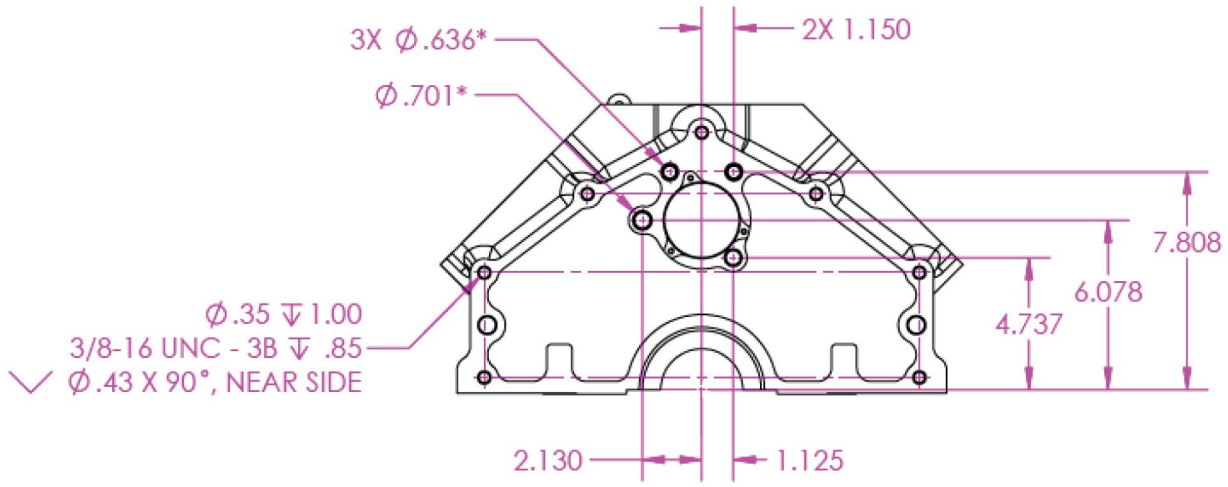


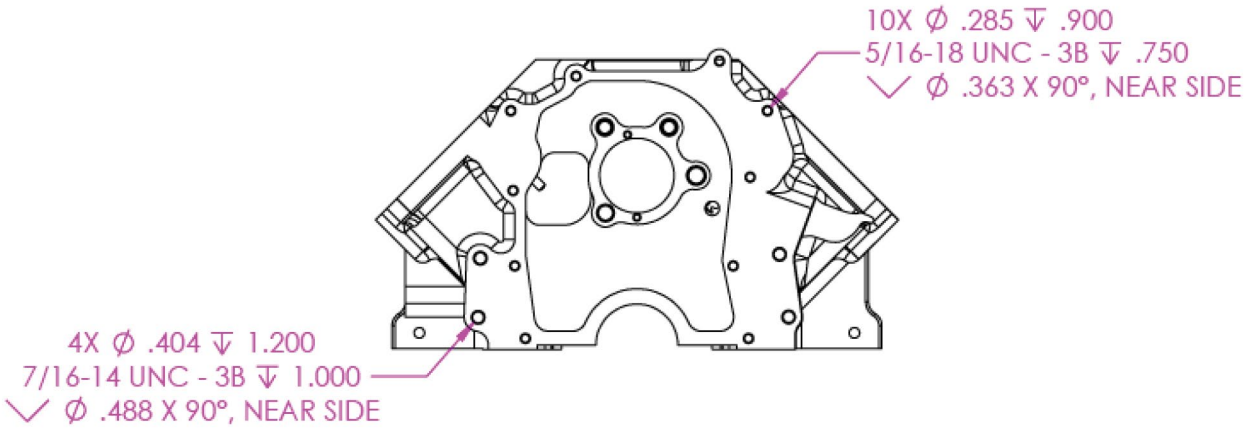
Appendix F: Block Mounting Print

NOTE:

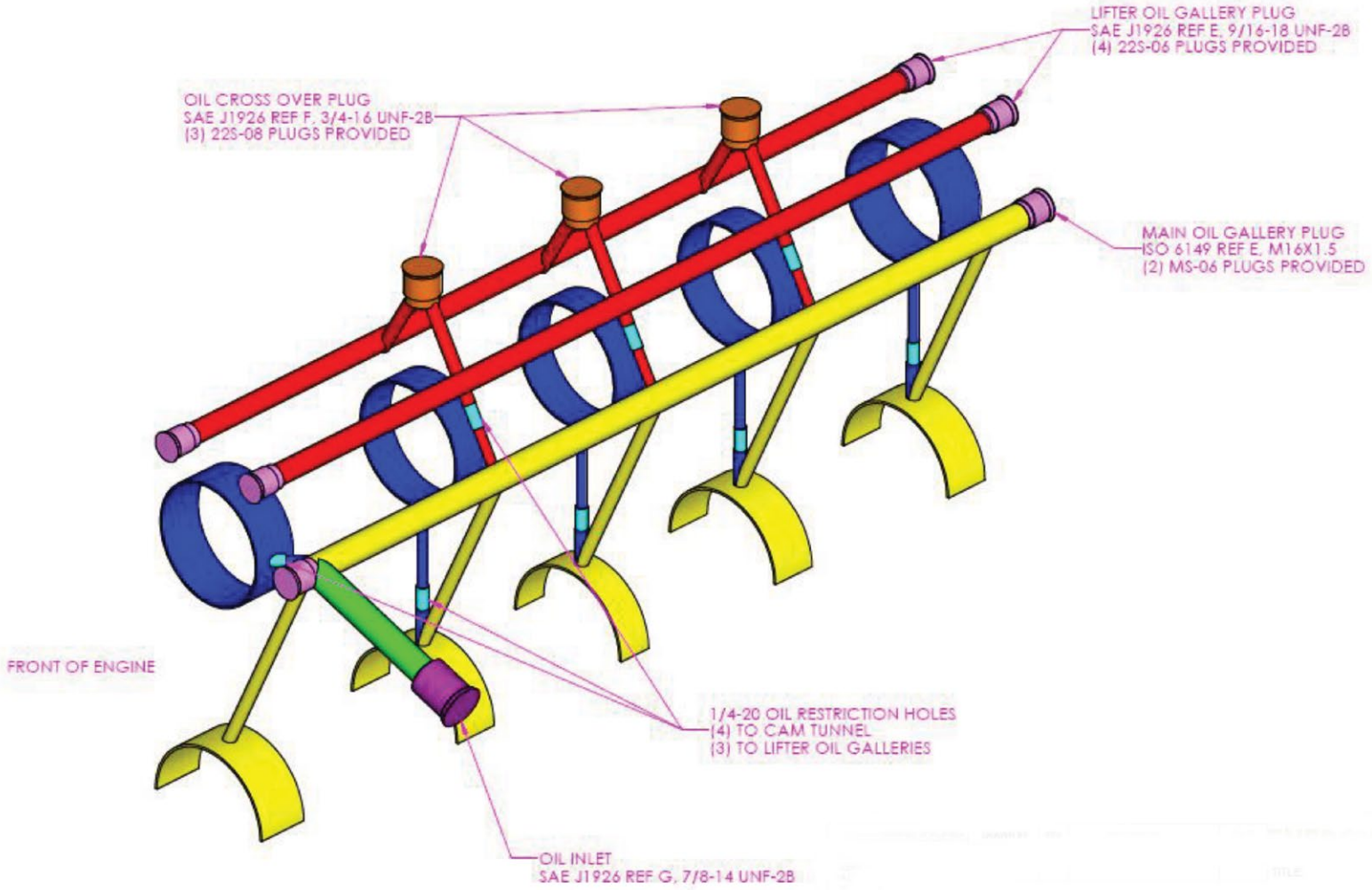
TIMING AND BELL HOUSING BOLT HOLES
IN OEM LOCATIONS.

* DIAMETERS PROTRUDE .100" ABOVE BELL HOUSING SURFACE

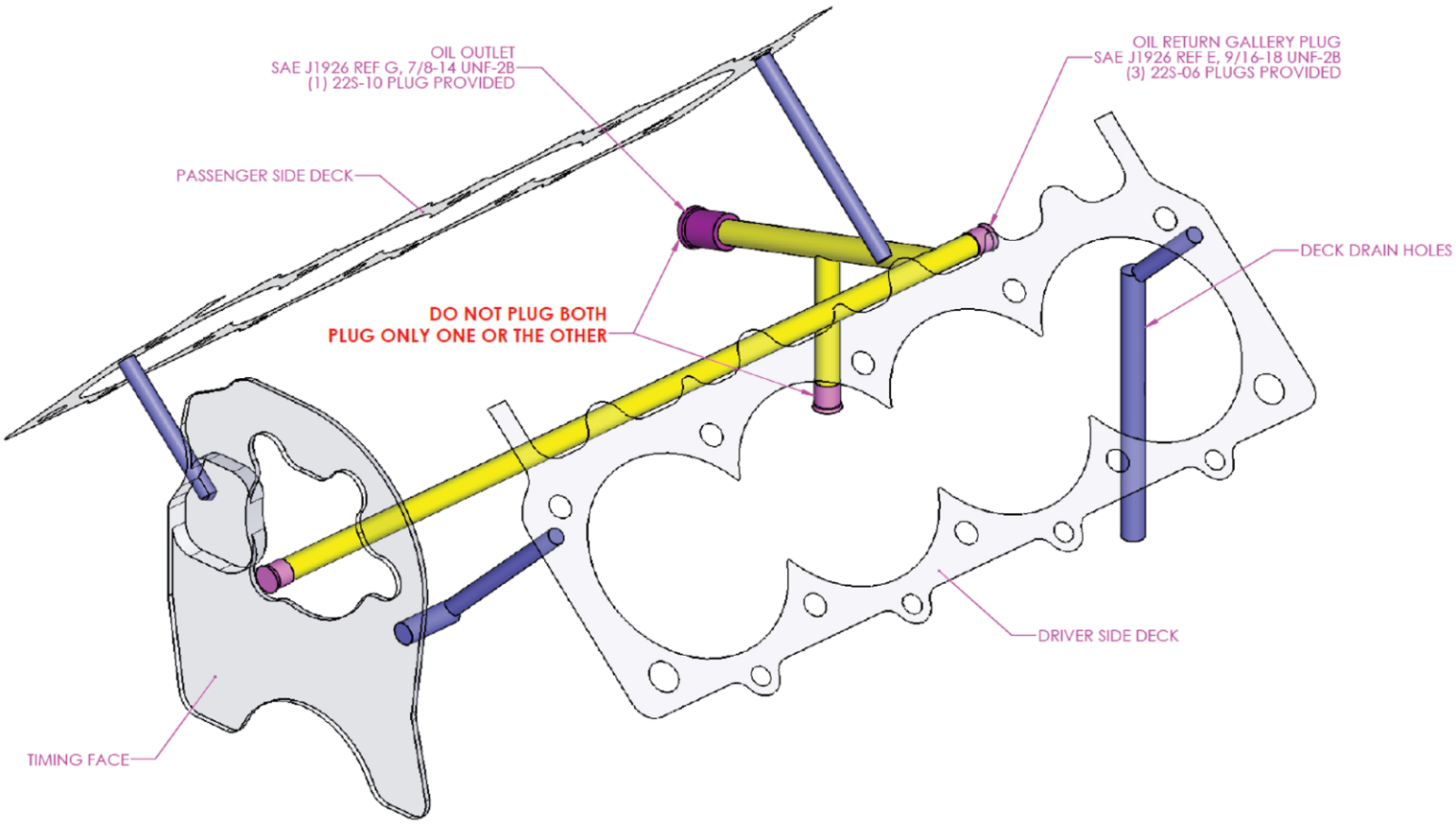




Appendix G: Block Oil Feed Print

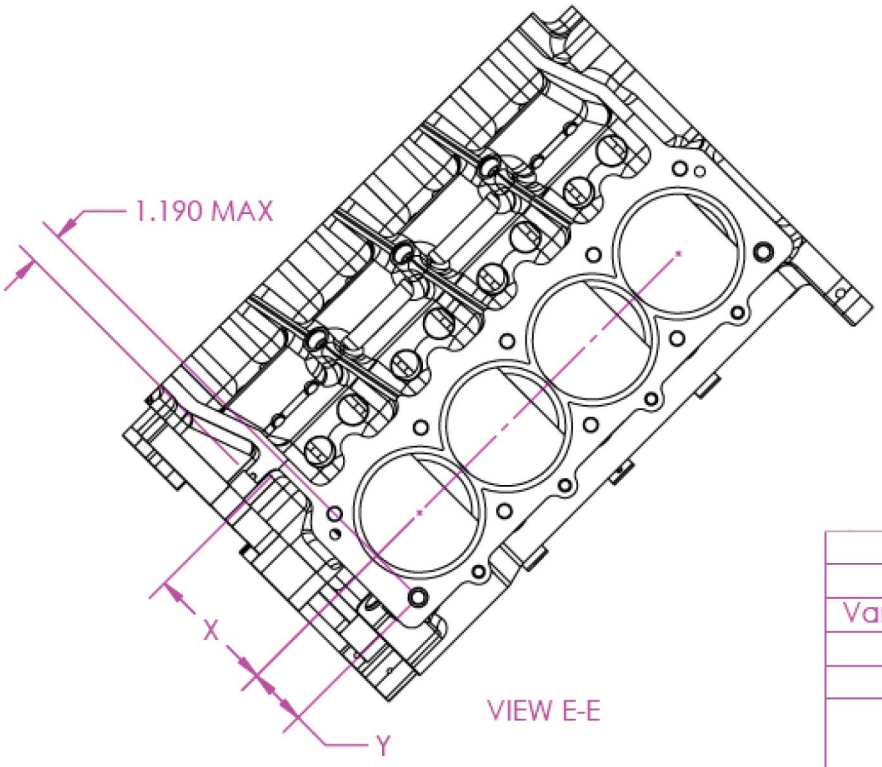


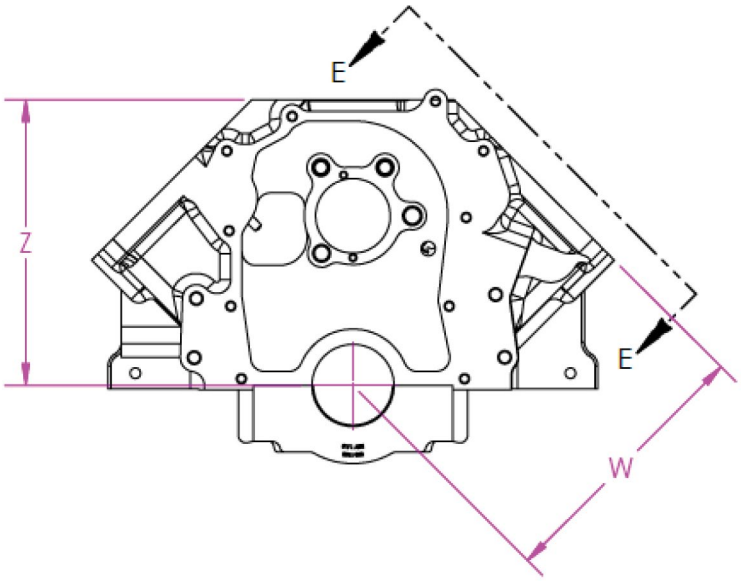
Appendix H: Block Oil Return Print



Appendix I: China Wall Modification Print

NOTE:
1. DO NOT MACHINE THE FRONT OF THE CHINA WALL MORE THAN THE MAX SUGGESTED DIMENSION.





REQUIRED INFORMATION		
Variable	Description	Energy Mfg.
W	Deck Height	EX.) 9.800
X	Dowel C/L to Intake Flange of Cylinder Head	4.680
Y	Bore C/L to Dowel C/L	2.120
Z	China Wall Height	EX.) 11.738
'EX.)' LABELED VALUES PROVIDED AS AN EXAMPLE FOR END USERS VERIFICATION THAT THEY ARE UTILIZING EQUATIONS PROPERLY		

FORMS OF EQUATION	
TYPE	WRITTEN FORM
LONG HAND	Z=(W*(2^0.5))-((W-(X+Y))/(2^0.5))
EXCEL	=(W*(POWER(2,.5)))-((W-(X+Y))/(POWER(2,.5)))