LSX Bowtie Block

19166454 - LSX Cylinder Block Assembly
Included With LSX Cylinder Block:

Part Number	Quantity	Description
11588723	12	Bolt, Oil Seal Housing (Rear Cover)
12567634	10	Pin, Crankshaft Bearing Cap Locator
12556127	10	Bolt, Crankshaft Bearing Cap (Side)
12560272	10	Bolt, Crankshaft Bearing Cap
12560273	10	Stud, Crankshaft Bearing Cap
19166182	8	Retainer, Lifter
12551163	8	Bolt, Tappet Retainer
11515756	6	Bolt, Camshaft Thrust Plate
14090911	1	Plug, Main Oil Gallery, 3/8" NPT
19166177	1	Plate, Camshaft Thrust
19166178	1	O-Ring, Camshaft Thrust Plate
19166179	1	Housing, Crankshaft Rear Oil Seal (Rear Cover)
19166180	1	O-Ring, Rear Oil Seal Housing
19166181	1	Loose Cable, Rear Oil Seal Housing
12453169	5	Bearing, Camshaft
11609289	5	Plug, Block Coolant Drain
1453658	2	PIN, Transmission Locator
9427693	1	Plug, Block Coolant Drain
12573460	1	Plug, Block Oil Gallery
11588949	2	Plug, Block Coolant Drain
12602972	1	Seal, Crankshaft Rear Oil

LSX Cylinder Block Specific Information:

- Oil pressure sender location is in the Valley Cover (P/N – 12570471)
- Additional transmission bolt boss and thread depth call out
- Deck height is semi finished to 9.260"
- Bore spacing is 4.400"
- Cylinder bores are semi finished to 3.990", Maximum Bore diameter 4.250"
- All other features are machined to production specifications
- Use grease to install o-ring seals in Crankshaft Rear Oil Seal Housing and Camshaft Thrust Plate
- When restricting the lifter feed passage use a tap size of 3/8" x 18 NPSF or NPT
- Front Cover options:
  - LS2 (P/N – 12600325)
  - LS7 (P/N – 12598292)

  Note: LS1/LS6 rear cam sensing does not work with this LSX cylinder block

Available Components for Use With Your LSX Cylinder Block:

- Crankshaft Reluctor Wheel options:
  - 24X (P/N – 12559353)
  - 58X (P/N – 12586768)
- Crankshaft Position Sensor options:
  - 24X (P/N – 12560228)
  - 58X (P/N – 12585546)
- LS2 and LS7 Knock Sensor (P/N - 12570125)
- Head Gasket options (Four Bolts per Cylinder):
  - LS2 (4.000" bore) (P/N - 12589227)
  - L92 (4.065" bore) (P/N – 12610046)
  - LS7 (4.125" bore) (P/N – 12582179)
- Camshaft Bearing options:
  - 58.605mm (2.3073") ID bore (P/N – 19167218), included with LSX cylinder block assembly
  - 59.105mm (2.3268") ID bore (P/N – 19167382), 0.5mm over size
  - 59.605mm (2.3467") ID bore (P/N – 19167383), 1.0mm over size

Torque Specifications:

Inner Main Bearing Cap Bolts:

Step 1: Tighten all inner bolts to a conditioning torque of 50 +/- 10 Nm. Loosen to 5 Nm or less.

Step 2: Tighten all inner bolts to 20 +/- 4 Nm + 80 Deg +/- 3 Deg (Maintain forward thrust).

Outer Main Bearing Cap Studs:

Step 1: Tighten all outer studs to a conditioning torque of 50 +/- 10 Nm. Loosen to 5 Nm or less.

Step 2: Tighten all outer studs to 20 +/- 4 Nm + 51 Deg +/- 3 Deg.

Side Main Bearing Cap Bolts:

Tighten side bolts to 25 +/- 4 Nm.

Rear Oil Seal Housing (Rear Cover):

Torque all bolts to 25 +/- 4 Nm.

Camshaft Thrust Plate:

Torque all bolts to 25 +/- 4 Nm.

Lifter Retainers:

Torque all bolts to 12 +/- 2 Nm.

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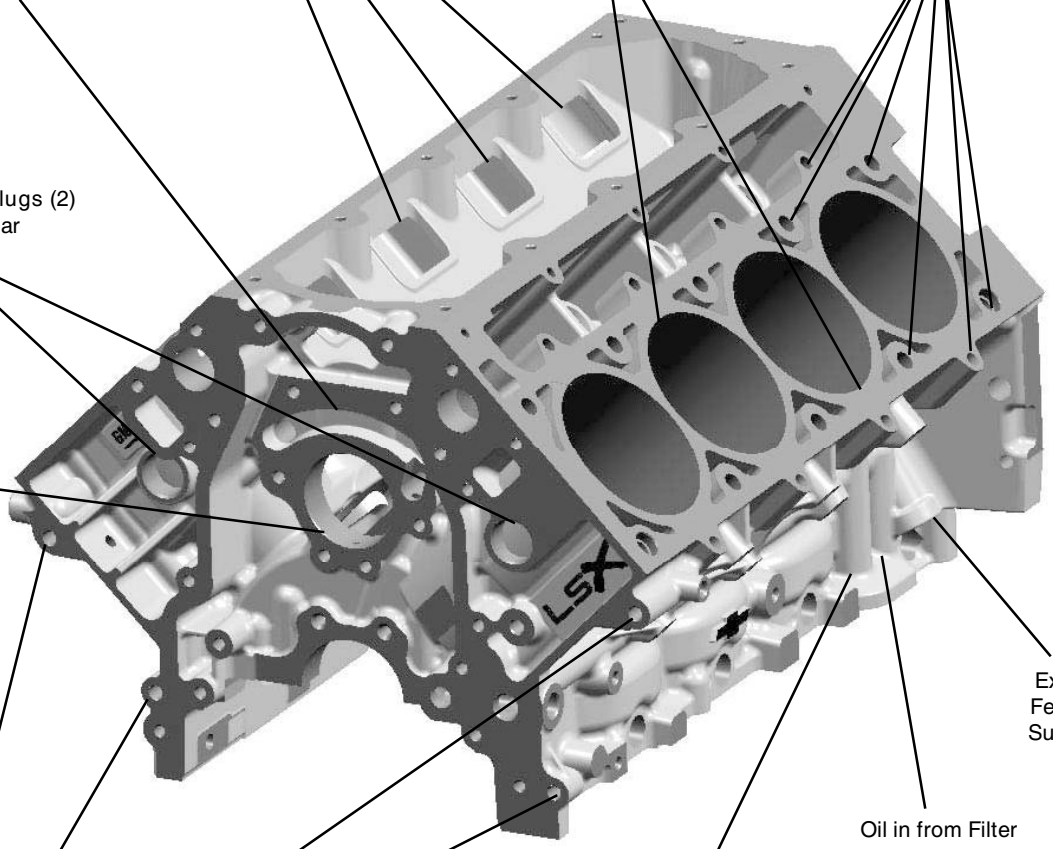
TO BE UNITIZED IN ACCORDANCE WITH GMSPO SPECIFICATIONS.

DATE	REVISION	AUTH
30MR07	Initial Release - Shawn Smith	

FRONT VIEW



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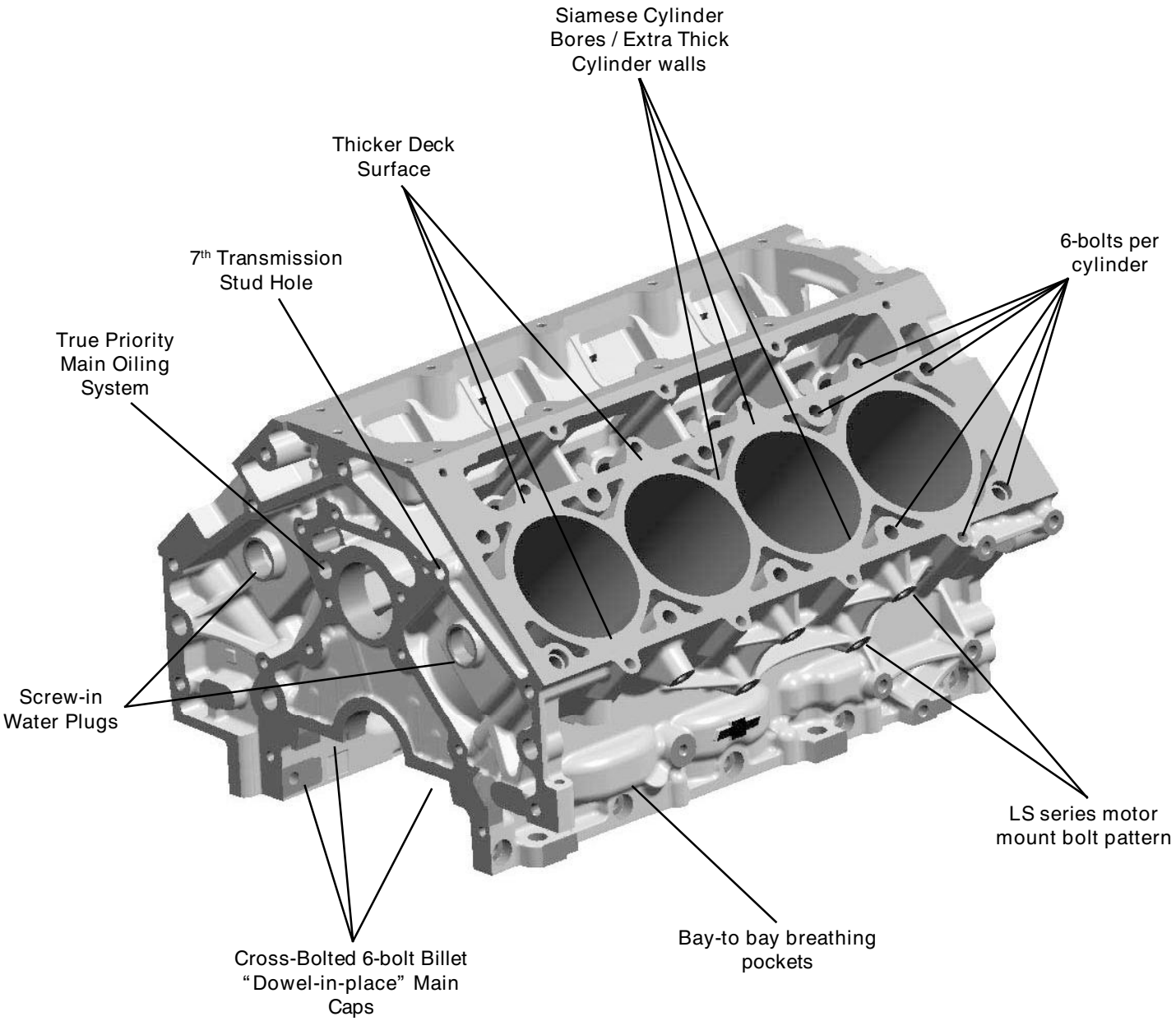
REAR VIEW



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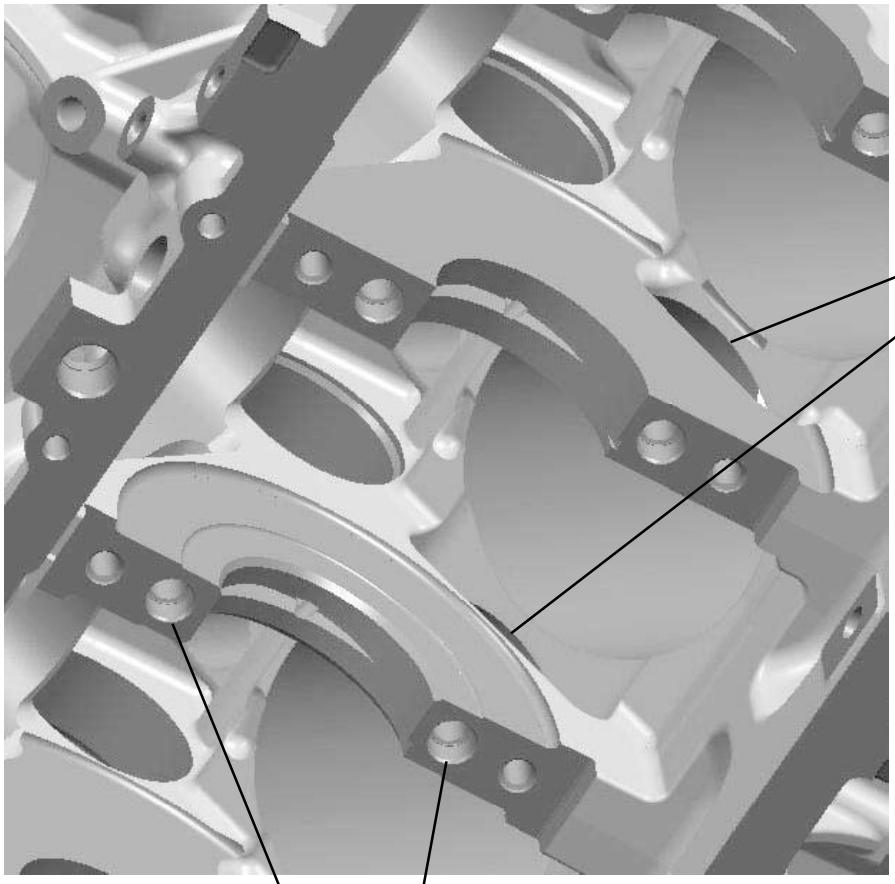
MAIN BEARING BULKHEAD



Bay-to-bay Breathing windows in the main caps show significant HP gains at higher RPMs without sacrificing block integrity

Main Cap dowel locations

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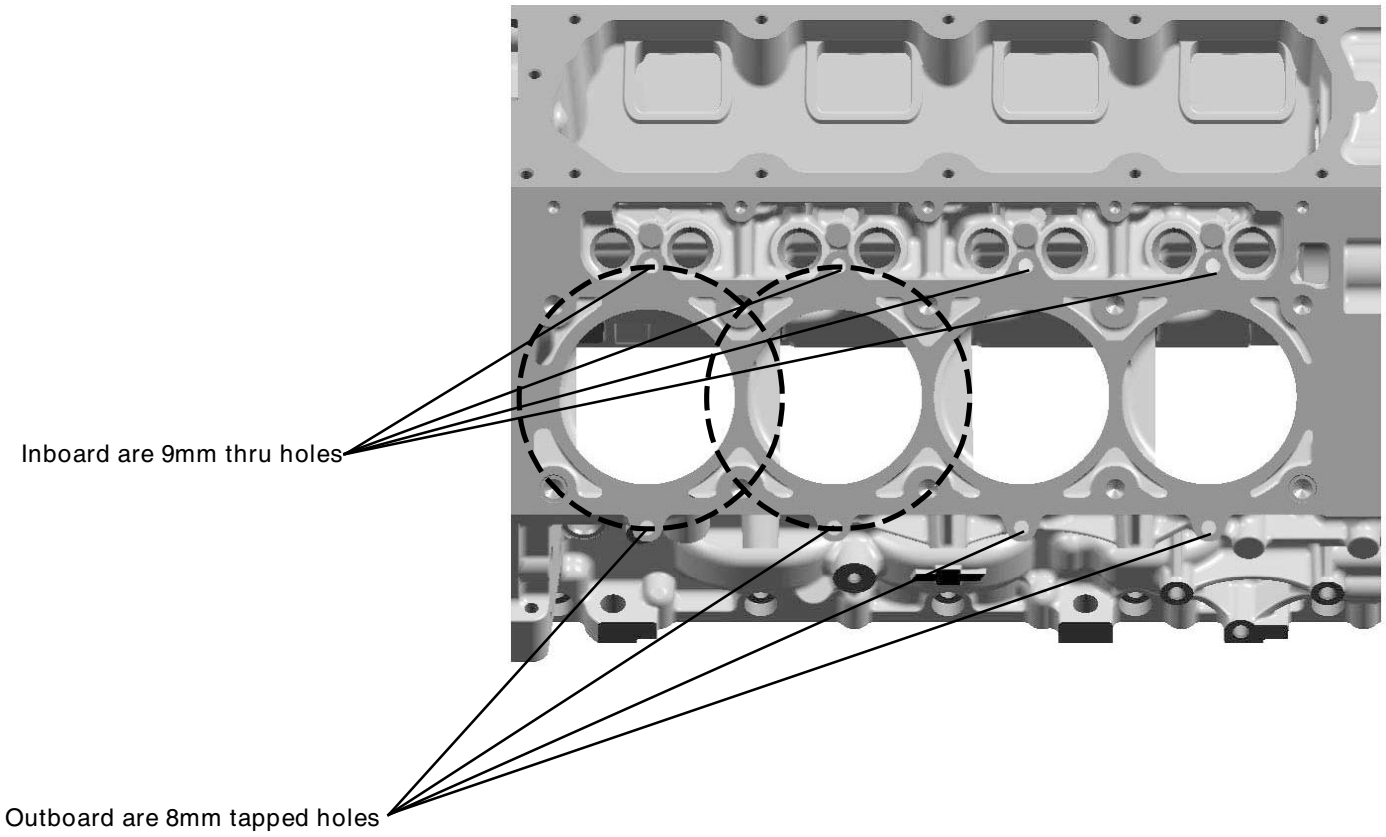
HEAD BOLT PATTERN

Additional 5th and 6th Head Bolt holes have been added for boosted and high compression engines. All 6 bolts per cylinder are on the same bolt diameter for better gasket sealing and clamping.



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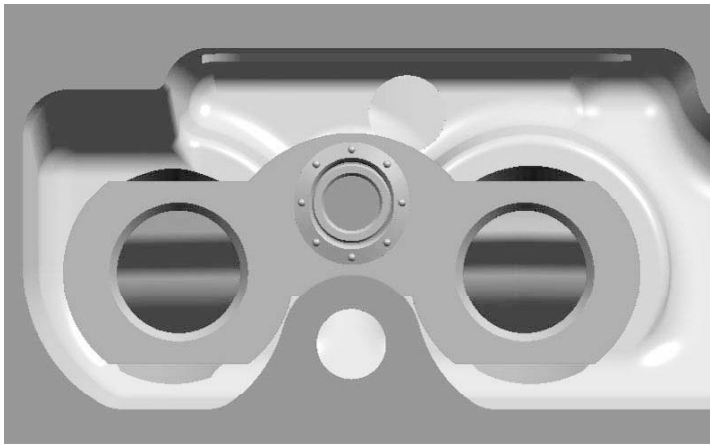
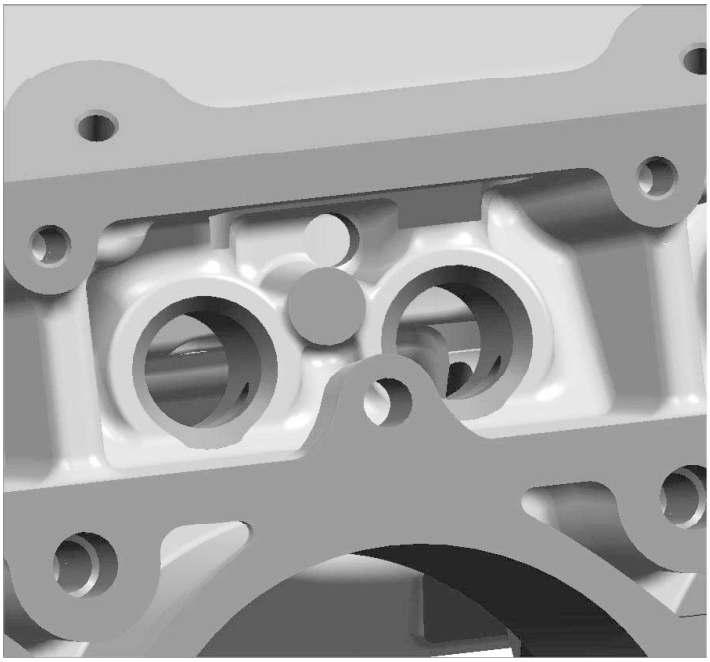
LSX LIFTER RETAINERS



The LSX lifter retainer features a trapped steel insert that will permit the retainer to float preventing lifter bind.

This LSX lifter retainer is similar to the production LS units that hold the lifters up allowing quick and easy cam swaps without removing the cylinder heads.



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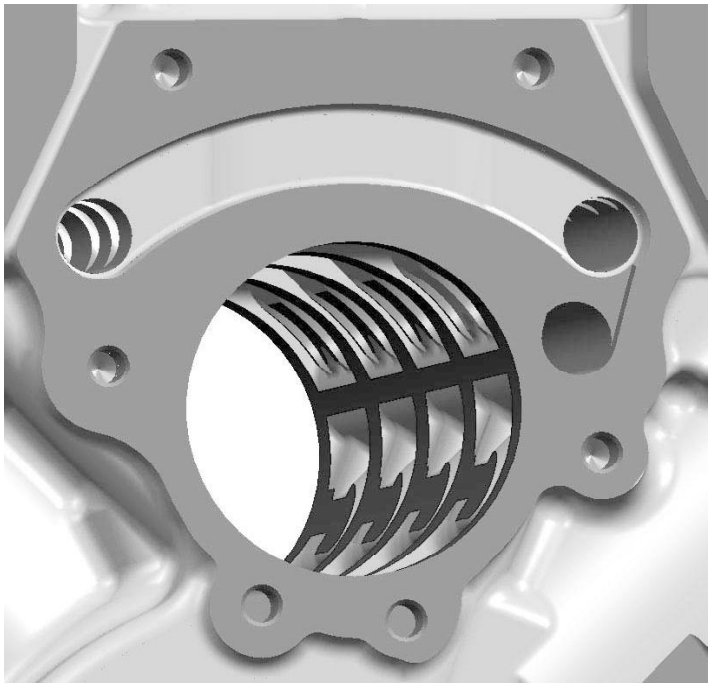
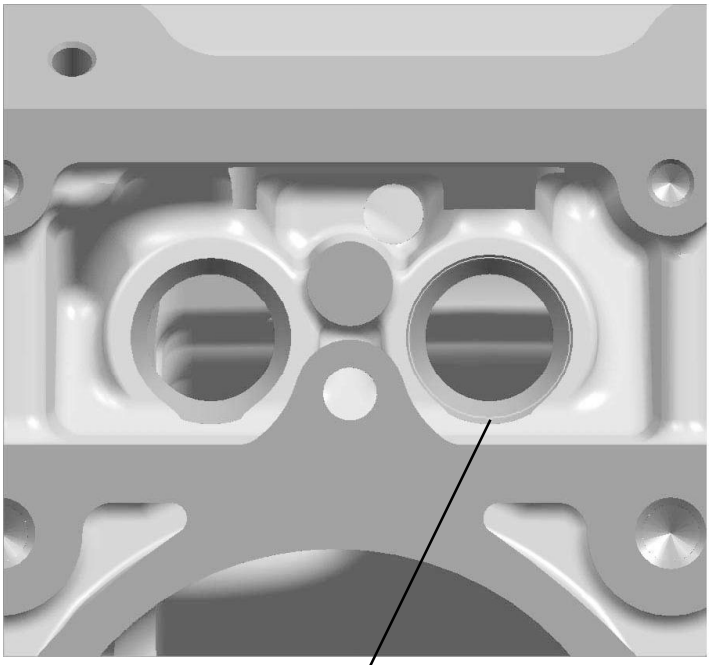
PROTECTION FOR AFTERMARKET CAM BEARINGS & LIFTERS



Cam bore material has been added to accommodate a 68mm (2.677") bore (shown) for 60mm roller cam bearings. Interrupted cutting will be experienced when machining to 68mm.



Lifter bore bosses have been enlarged to accommodate larger diameter lifters, or lifter bushings. Lifter bores are machined for stock .842" lifters.

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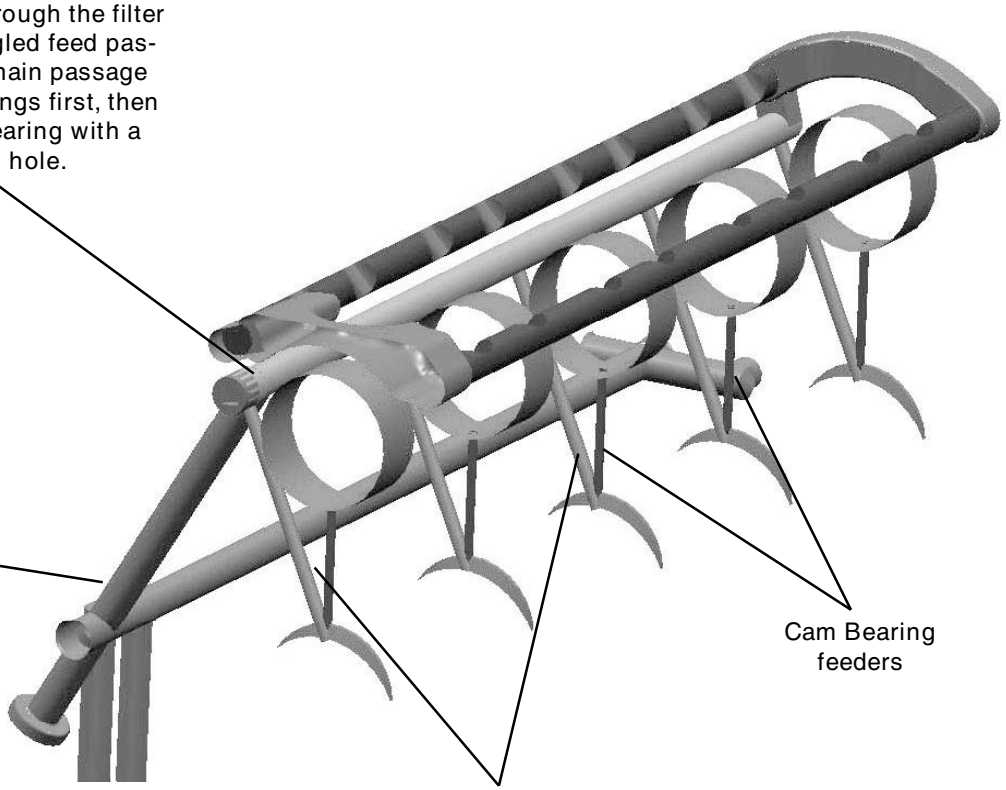
PRIORITY MAIN OILING

Front of Block

The priority main passage is fed from the main passage through the filter and then via the angled feed passage. The priority main passage feeds the main bearings first, then feeds each cam bearing with a vertical feed hole.

For external oil pump racing applications, oil can be directly fed to this main passage (the end is tapped for a supplied plug). The passage that feeds from the oil filter will need to be plugged in these external oil pump applications.



Cam Bearing feeders

Rear of Block

Main Bearing feeders

The priority main oiling system was specifically designed to accommodate 60mm cam journals, as well as mechanical and oversized lifters or lifter bushings (all of these require appropriate machining). This design ensures uninterrupted oil supply to the mains and guarantees oil supply to the main bearings first, not only upon startup, but also in the event of pump starvation. The oil must pass through the main passage before it fills the lifter galleys.

The LSX oiling system is compatible with all production LS oil pumps, lifters, cams, oil pans, etc.,

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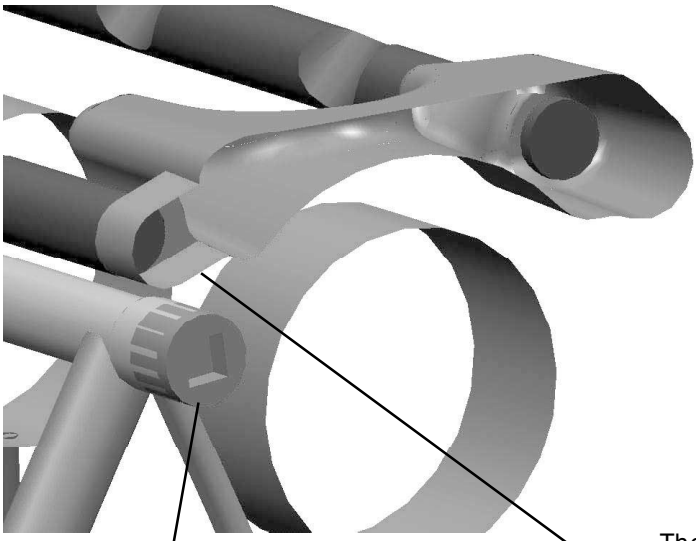
PRIORITY MAIN OILING

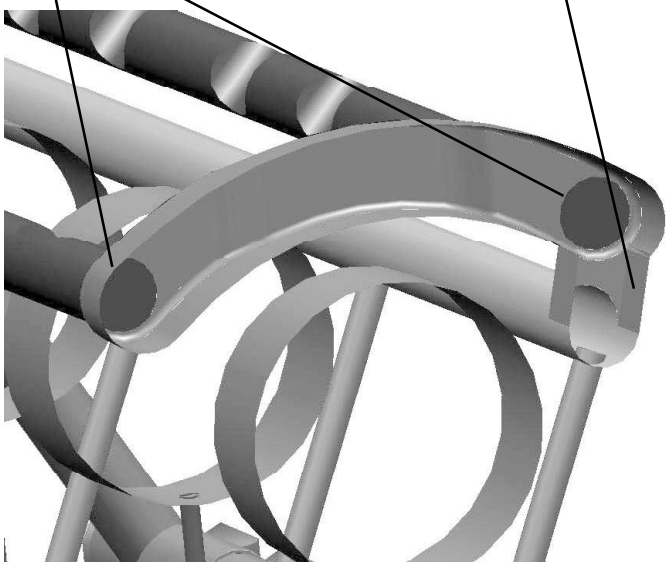


The left lifter oil feed passage is machined to intersect the cast in crossover between the lifter galleys at the rear of the block to allow for pressure and flow equalization.

The front of the new main is machined to intersect the cast in crossover between the lifter galleys under the cam thrust plate. This passage now becomes the primary feed for both lifter galleys so its cross section has been increased to permit flow to both galleys without restriction.

The new priority main oil passage is plugged with a pipe plug at the rear behind the rear seal retainer/cover.

The lifter feed passages can be easily tapped and plugged with oil restrictors for mechanical cam applications



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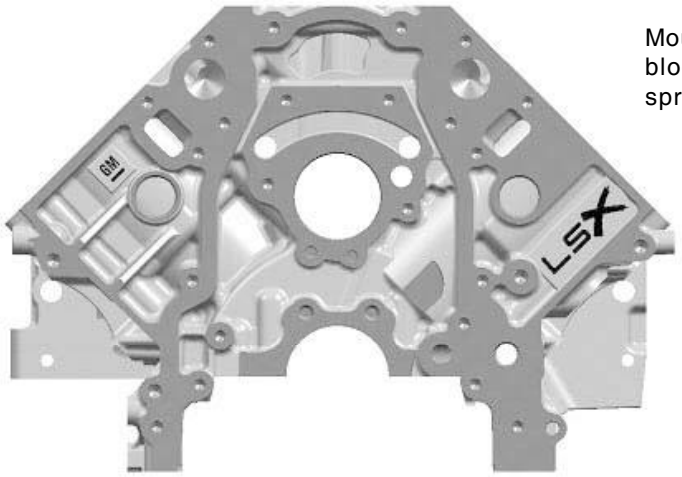
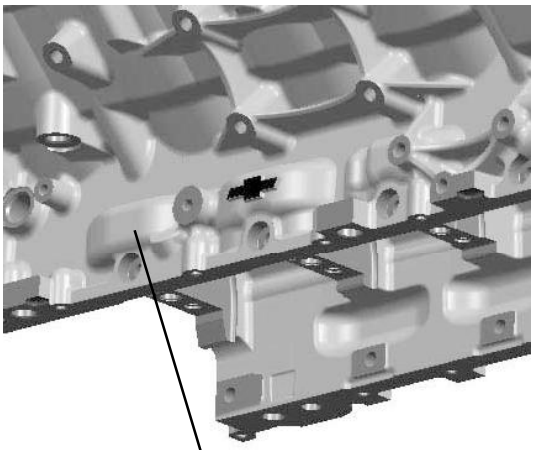
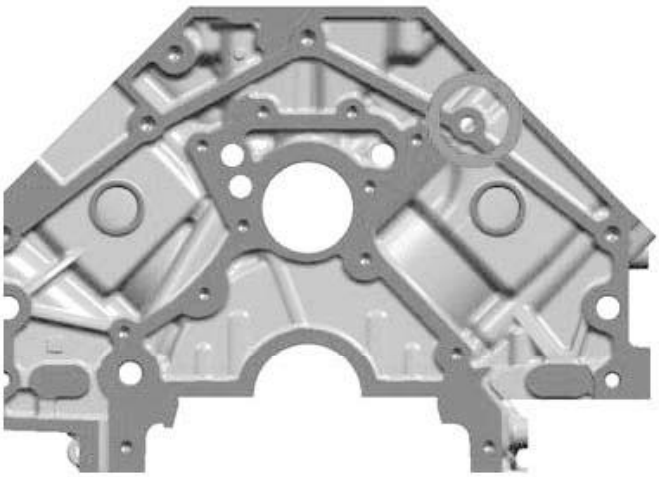
MOTOR PLATE MOUNTING BOSSES/ BREATHING POCKET



Mounting bosses have been added to the front of the block for motor plate use – specifically for drag, sprint, and circle track racing applications.



An additional bay-to-bay breathing pocket has been added for better wind-age and crankcase pressure control.



The 7th transmission mounting hole has been added to the block. It intersects one of the head bolts when machined at full depth, so the tap depth has been reduced to eliminate this. When it is to be used, a shorter stud (recommended) or bolt will be needed.

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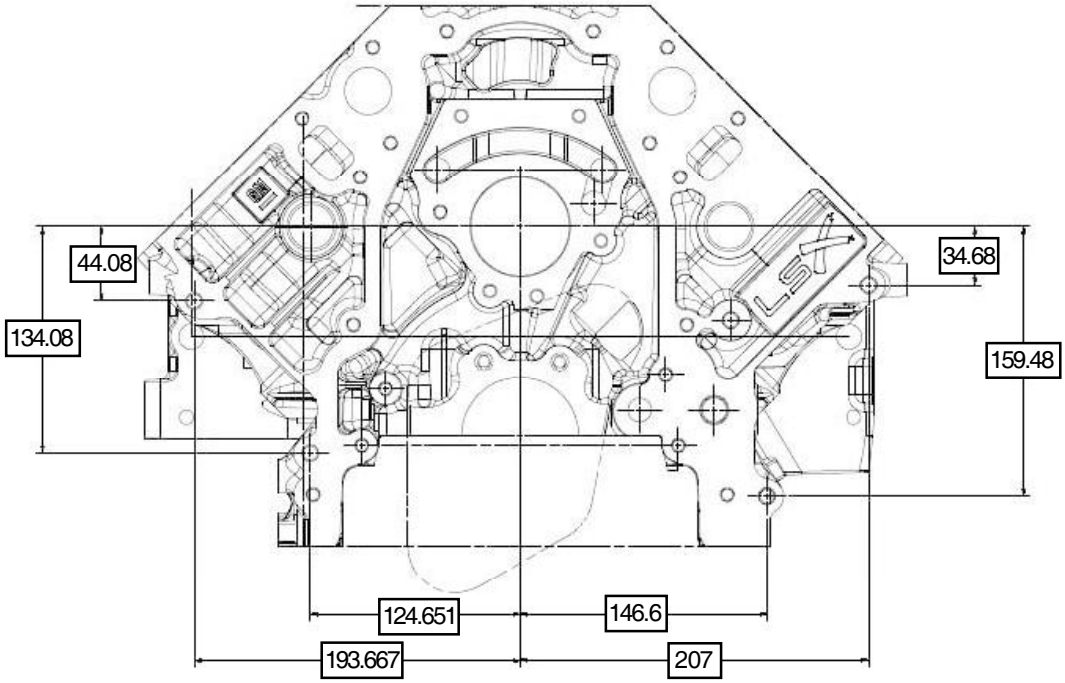
MOTOR PLATE MOUNTING BOLT HOLE LOCATIONS



TITLE LSX Bowtie Block	IR 30MR07	PART NO. 19170852	PAGE 11 OF 13

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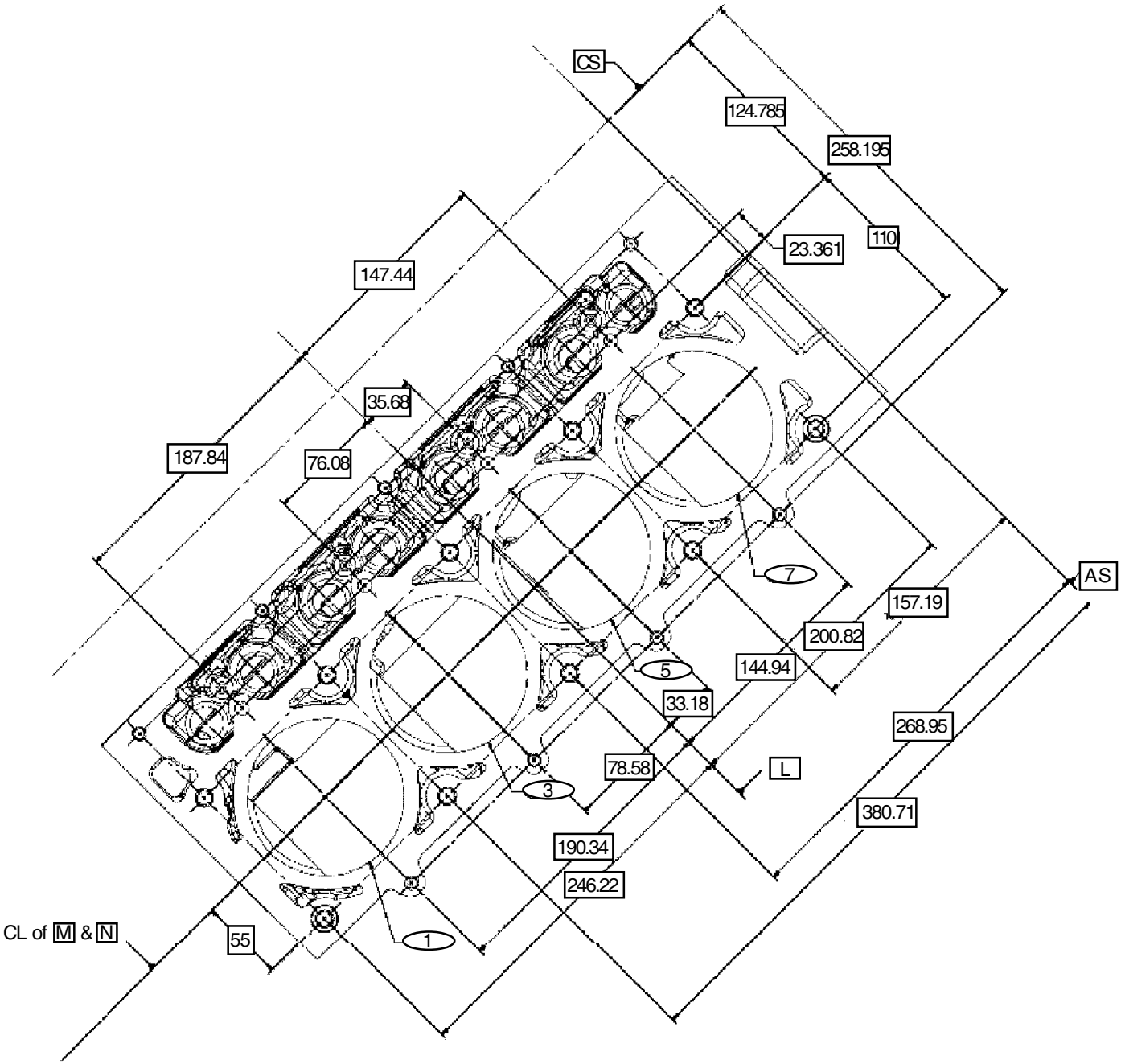
LEFT HAND CYLINER HEAD BOLT HOLE LOCATIONS



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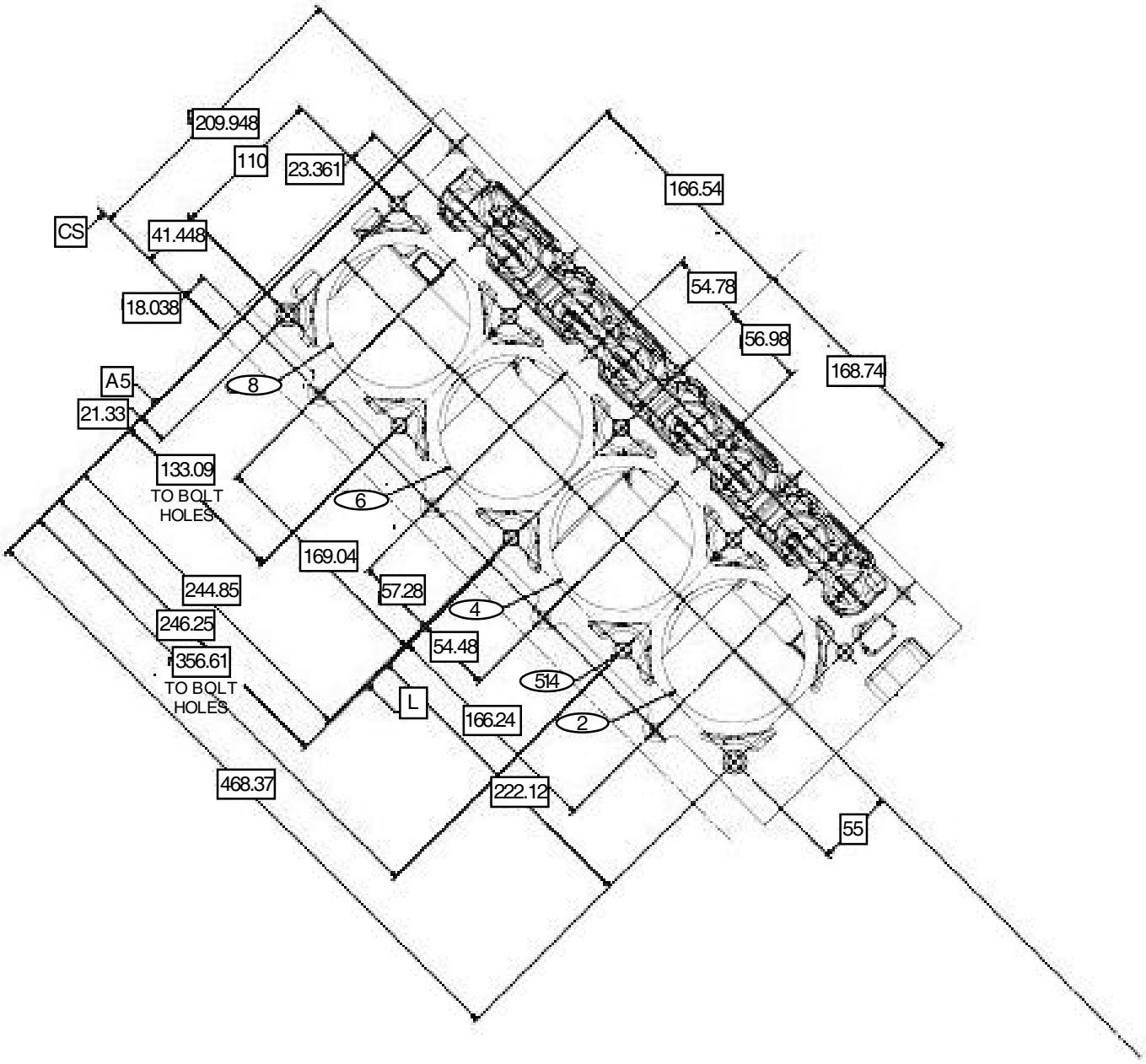
RIGHT HAND CYLINDER HEAD BOLT HOLE LOCATIONS



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