

## Section # 10 Engine Mechanical Review (Long block)

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## 1. Engine Verification

The engine code should be checked against what is in the car. The engine type in the car is based on engine code is located on the trim (fender) tag, in the Vehicle Identification Number (VIN) code and the code related to the assembly number is on the build sheet. The build date should be compared against the block casting dates for correctness if the operator has disclosed that the engine is original or unknown. The lead judge must confirm the findings if the engine is not believed to be original to the car and is unknown by the owner before any deductions can be taken.

► Judges Guidance:

- Incorrect casting date code - Points must be deducted.
- Wrong engine - Points must be deducted.
- Warranty or replacement with evidence of it being related to the car – No deduction should be taken.

## 2. Cylinder Block General/ VIN review

The 5th digit of the VIN indicates which engine type was originally installed in a car. The engine should be physically inspected to determine if the VIN number matches the number on the VIN tag on the dash as a point of reference only.

► **Judges Guidance:** Depending on the engine it may not have a VIN stamp on the ID pad. The casting and assembly date must correlate with both the vehicle build date and engine block casting date. The engine configuration defines the carburetion and horsepower options of which the heads and fuel system must match.

### Engine assembly plant identification

The first two digits are the engine assembly plant ID

<b>K</b> – Toluca Plant – 6 cyl	<b>MV or MN</b> – Marysville Plant 426 Hemi	<b>PT or T</b> – Trenton plant – 361, 383, 400, 426 wedge and 440
<b>M</b> – Mound Road Plant – 318,340 and 360		<b>W</b> – Windsor plant -318, 340 and 360

### Small Block 318, 273, 340 and 360 (A and LA series) Engine identification

- 273 cid : 1964 – 69
- 318 cid 1967 – present 2007
- 340 cid: 1968-1973
- 360 cid 1971-1980

The engine identification is located on the left side front of the block just below the cylinder head.

Example:

GM 340 P 35620045 - G = Year 1971, M = Mound Road Plant, 340 CID, P = premium fuel, 3561 = April 28th 1971 Assembly date, 0045 = 47th engine assembled that day.

### Big block 361,383, 413, 426 wedge and 440 (B and RB series) Engine identification

- 350 cid : 1958
- 361 cid : 1958-66
- 383 cid RB : 1959-61
- 383 cid : 1959-71
- 413 cid 1959-65
- 426 cid: 1963-65
- 440 cid : 1966-78

### Hemi engine 426 ( casting number 2468330) –

All engines were cast and assembled at the Marysville Engine Plant

Assembly date information is stamped on the oil pan rail near the starter.

Typical example: MN 426303061196

- MN = Marysville assembly plant
- 426 = 426 CID,
- 3030 = Build date = Nov 13, 1969
- 61196 = Internal plant information.



## 426 Hemi Engine cont...

**Note:** Based on our research 1967 Hemi cars should have either left over 1965 cast or 1966 cast block. However, this is not an absolute however we have not seen a documented 1967 Hemi with an engine casting other than 1966. There were no 1967 HEMI blocks were cast. The latest 1966 block that we have run across is 10-31-66.

The first casting that we seen in 1968 was 4-15-1968. We understand that in 1969 that blocks were only casted only on a few days in the whole year of 1969. The dates were 5-9-69, 5-18-69, 5-19-69, 5-26-69, 7-28-69, 8-18-69 and 10-23-69. There were blocks cast in 1970.



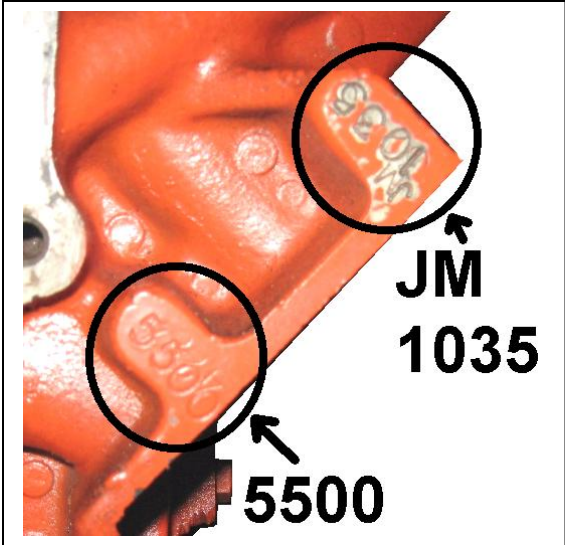
Casting # 2468330  
Casting date 8 -18- 69



C = 1967 Production Model Year  
H = Hemi Engine  
426 = 426 Cubic Inches  
WT (stamped sideways across the CH) = Water Tested Block  
Assembly date  
11 16 = November 16, 1966  
07 = 7th engine assembled that day

The numbers to the right are unknown at this time.

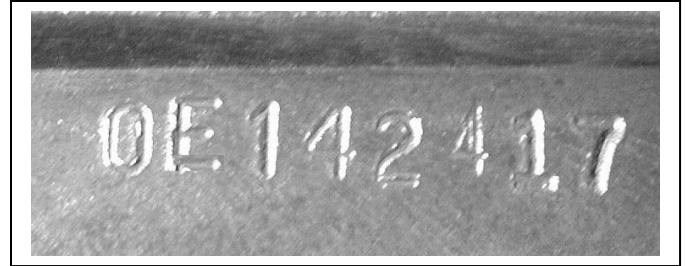
However, we have seen similar 4 digit numbers stamped on other areas of the block. We believe that this was a depart number were a repair may have been done.



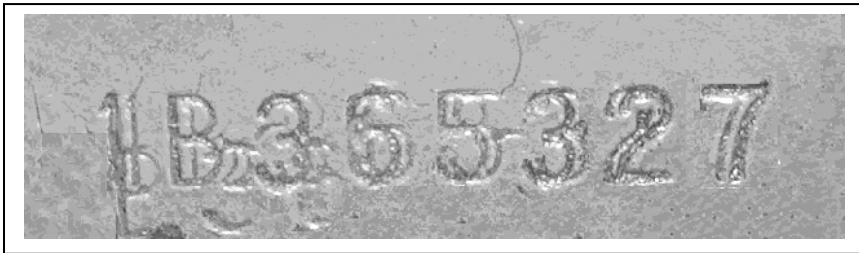
### VIN numbers Reference Photographs



1969 Reference



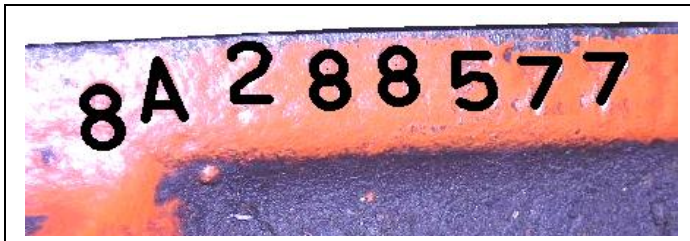
1970-74 Reference



1971 Reference of a VIN struck multiple times



1970 Reference of a partial VIN



1968 partial VIN as stamped at rear of engine near the oil pressure sending unit.

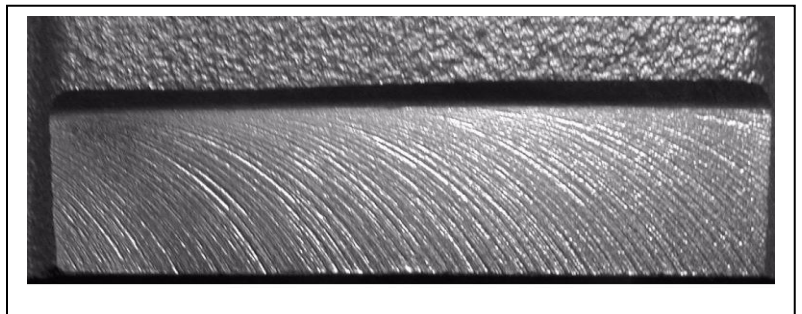
**Note:** The font is the same as other used in other years we just enhanced the font to illustrate how the stamp should look. As you can tell it is not uniformly lined up like the 1969 and beyond.



**Note:** Numbers matching engine and transmission. Note that the font spacing and size is identical.

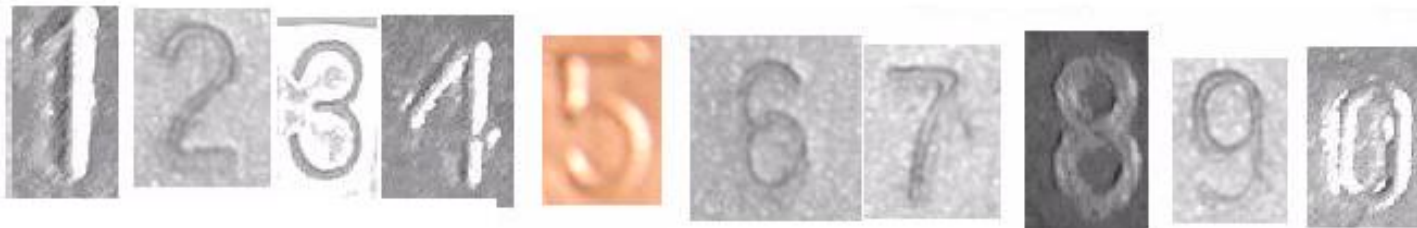
#### Cylinder block VIN pad reference information

The marks on the pad were produced by a 10 inch diameter cutter. Even if the engine has the VIN number stamped on it the cutter marks should be visible.





## General/ VIN Review Cont...



**1969- 72 Font type Hamtramck, St. Louis and Los Angeles and Lynch Road cars.**

**Note: Some of the font characters uses in 1968 are unique to the Hamtramck assembly plant.**

The vehicle VIN number is stamped on a raised machine pad on the right hand side of the block just above the oil pan rail. All VIN digits have a numerical size of .203" in height. The mechanical judge should be familiar with the correct type of font and the possible factory anomalies.

1968 Hamtramck Assembly VIN font reference  
on a manual the transmission.



### Car Vehicle Identification Number (VIN) reference

The VIN was applied to the engine starting in mid year 1968.

- 1967 and older engines (including low performance 1968 engines) have engine date prior to the scheduled production date of the vehicle. Small block engines (273, 318, 340 and 360) have the date stamped on the front of the below the driver's side cylinder head.
- Big block B engines (383 and 400) have the date stamped on the front of the below the passenger's side cylinder head.
- Big block RB engines have the (413, 426 and 440) have the date stamped on the front of the block in front of the intake manifold adjacent to the distributor. This is true for all 1964-1967 Hemi engines.
- Big block 426 RB engines have the date stamped on the oil pan rail at the rear flange under the starter. This is true for all 1968 383 and 440 engines.
- For 1969 and newer engines (including 1968 high performance engines) a full or partial V.I.N. is stamped on the engine block. 1968 HP engines are stamped on the top rear of the block near the oil sending unit. The font style is different between 1968 and 1969 to 1972.
- 1969 and newer V8 engines are stamped on the pad at the lower passenger side of the block above the oil pan.

**Note:** Early in the 1969 model year the complete 13 digit was stamped on the engine and transmission. Mid year 1969 and later engines only the last 8 digits of the V.I.N. were stamped on the engine and transmission.

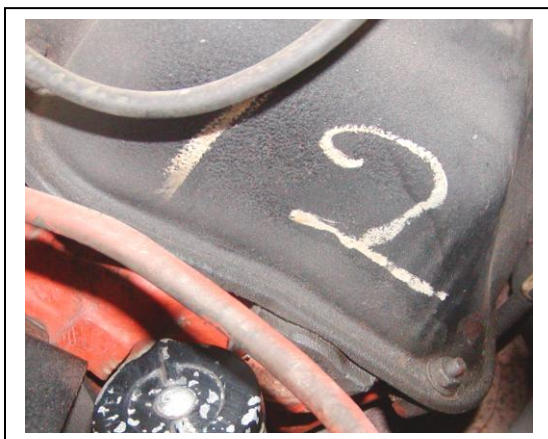
Engine Assembly Part Numbers Cont...



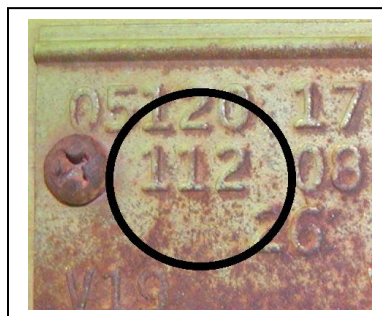
Lynch Road Assembly Trim Tag  
 Engine code (440 -4 HP) that would be found  
 on valve cover # 917



1969 Dodge Super Bee reference engine  
 (383 4 bbl with AC) code # 899



1970 Plymouth Hemi Super Bird reference  
 "12" short for "112"



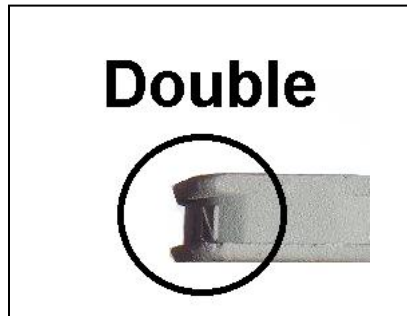
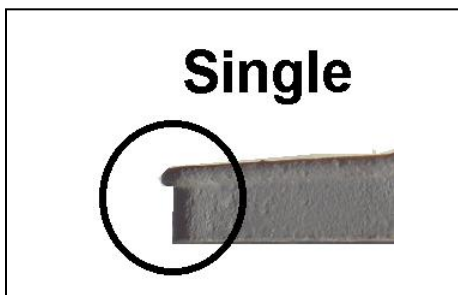
1970 Plymouth Hemi Super Bird reference

## 8. Water Pumping System

### Water Pump, Water Pump Housing and Thermostat Housing.

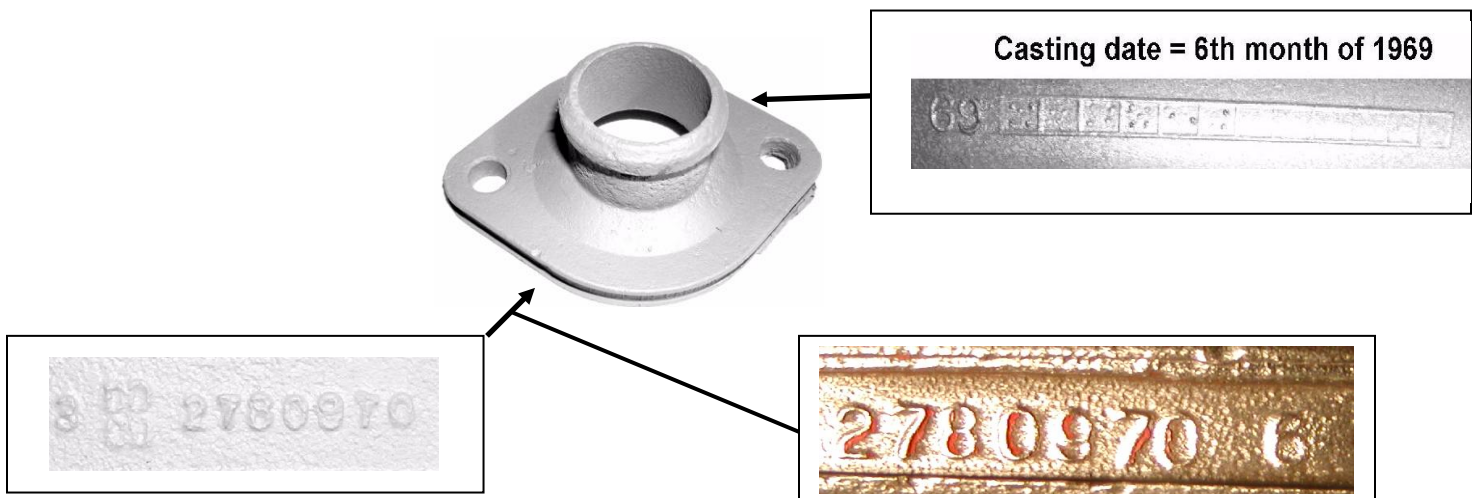
#### Thermostat housing

There are at least two known aluminum cast housings that were used between 1967 and 1974. One housing has Made in Canada on it and the other sometimes have NW (Newark Casting Plant) on it. The housing is aluminum and there is typically a casting number (i.e., # 2780970, 3698569 etc...) and a casting date cast into the side of the housing. However, we have found variations of markings. Some do not have casting dates. We have found castings with double and single edges on the flange.



The housing is mounted to the housing prior to the engine being painted. The part number and date code are not always cast into the housing.

References for the correct mounting fasteners can be found in the MMC Detroit Fastener Reference Guide.





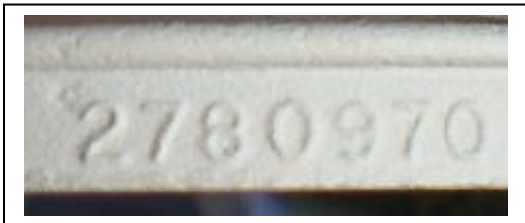
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**Note:** The thermostat housings with the Made in Canada cast on them typically only have the part number and vendor code. The Made in Canada has been seen in various positions around the edge of the housing. The casting date is not cast into these housing.



Part number with vendor code



Part number only without vendor code right next to part number

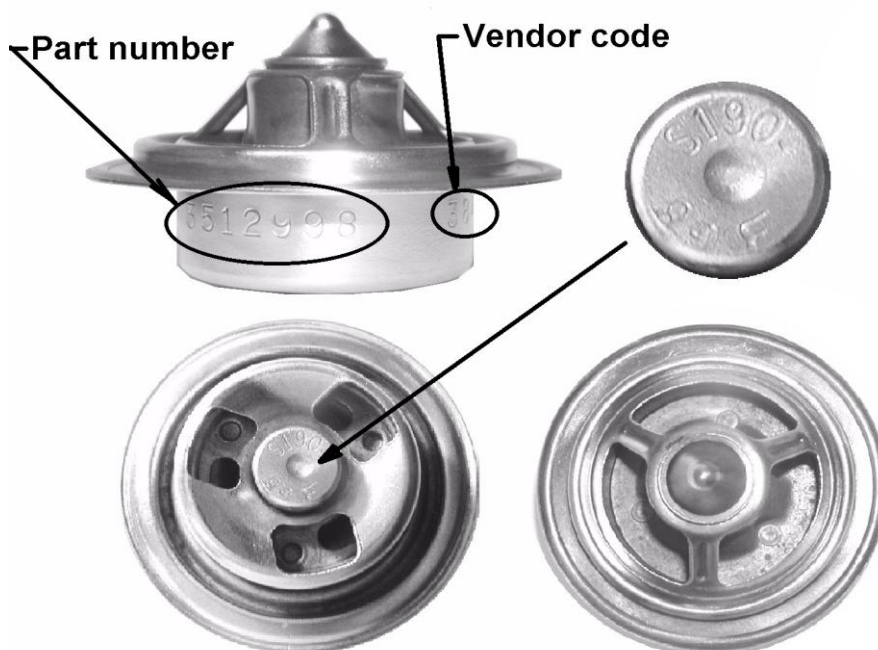


NW – Newark Casting Plant



### Thermostat

The thermostat installed at the factory was manufactured by the Stant Company. The part number, production date, vendor code and temperature rating is stamped into the thermostat. Big block 195 degree thermostat shown in the reference photograph below is part # 3418459. Chrysler recommended that their brand of sealer be used during installation. This part is not checked during the inspection of a vehicle. This information is for reference only.



### Heater Hose Fitting - fits 1965-1974 small block engines.

The 5/8" hose fitting screws into the intake manifold and water pump on 1965-69 models, and the water pump only on 1970-1974 models. This reproduction has an overall length of 1-1/2" and the threaded side is 3/8" N.P.T.

### Heater Hose Fittings - fit 1970-and-later big block and 426 Hemi engines.

Heater hose fittings- The fittings consist of one (1) one 1/2" and one 5/8" hose fitting. The 1/2" fitting has a 1/4" N.P.T. threaded end and is 1-3/4" long. The 5/8" fitting has a 3/8" N.P.T. threaded end and is 3" long.

### Heater Hose Fittings - fit 1965-1969 big block and 426 Hemi engines.

Heater hose fittings- The fittings consist of two (2) 5/8" hose fittings and thread into the water pump housing. The fittings are slotted at one end to help with installation. One fitting measures 3" and the other is 1-1/2" long.

**Note:** The nipples for the heater hoses are installed prior to the engine being painted. It would be common to see paint on the lower portion of the nipple where they are threaded into the housing. Heater delete cars have a black rubber cap over the nipples that are secured in place with Corbin clamps.

