



## V-12 Engine Specifications

Number of cylinders..... 12  
 Type of block..... 70°V  
 Crankshaft degrees..... 120  
   1936-9 1940-1  
 Bore..... 2.75" 2.875"  
 Stroke..... 3.75" 3.75"  
 Displacement Cu. In..... 267 292  
 Taxable H.P. rating..... 36.3 39.6  
 Firing order..... 1-4-9-8-5-2-11-10-3-6-7-12..  
 Head "L" type

### Cylinder Block

Cast alloy iron.  
 Water jackets full length of cylinders.  
 Offset of cylinders..... 0.250"

### Piston Pins

Float in rod and piston retainer at ends of pin.  
 Diameter..... .7501" to .7504"  
 Length 1936 to 1939..... 2.482"  
 Starting 1940..... 2.607"  
 Clearance in piston..... .0005"  
 Fit in rod .0001 loose.

### Lubrication

Pressure lubrication to all main bearings, connecting rod bearings and camshaft bearings.  
 Normal oil pressure at 2000 RPM 40 to 45 lbs.  
 Oil pump 2.55 gallons per minute at 2000RPM.  
 Oil capacity..... 5 quarts  
 Type oil gauge..... Float  
 Type oil pump..... Gear  
 Drain plug diameter..... 0.75"  
 Crankcase ventilation; 1936-8 Breather outlet under car, 1939-41, Breather outlet into carburetor air cleaner.

### Piston Rings

**Top ring** (compression) plain.  
 Width..... .0930" to .0935"  
 Thickness..... .130" to .140"  
 Gap..... .012" to .017"  
**No. 2** compression ring, 1936 to 1938 plain. 1939 to 1941 expander types.  
 Width..... .093" to .0935"  
 Thickness 1936-9..... .094" to .098"  
 Thickness 1940-1..... .105" to .109"  
 Gap..... .012" to .017"

## CYLINDER HEADS

Part Number			Comp. Ratio	Max. Brake Horsepower		Maximum Torque		Compression Maximum		Pressure At Cranking Speed. lbs.	Volume
R.H.	L.H.	Material		H.P.	R.P.M.	Lbs.	R.P.M.	Lbs.	R.P.M.		
86H-6049-A	86H-6050-A	Alum.	6.7 to 1	110	3900	186	2000	146	1000	118	55.5 c.c.
96H-6049	96H-6049	Cast Iron	6.7 to 1	110	3900	186	2000	146	1000	118	58.0 c.c.
06H-6049-A	06H-6050-A	Alum.	7.2 to 1	120	3500	226	1800	154	1000	125	62.0 c.c.
06H-6049-B	06H-6050-B*	Alum.	7.2 to 1	120	3500	226	1800	154	1000	125	62.0 c.c.
06H-6049-C	06H-6050-C	Alum.	7.2 to 1	120	3500	226	1800	154	1000	125	62.0 c.c.
16H-6049	16H-6050	Cast iron	7.2 to 1	120	3500	226	1800	154	1000	125	64.5 c.c.

\*Motor 91859 and thereafter.

## PISTONS

Part Number	Material	Dome	Skirt	Weight Grams	Fit of Piston in Cylinder (Using 0.50" Wide Feeler)		Ring Groove Width		
					Thickness of Blade	Pounds Pull on Feeler Blade	Top	Center	Bottom
86H-6110-A to C	Steel	Spherical	Solid	326	.002"	4 to 8	.0965"	.096"	.1885"
06H-6110-B to D	Steel	Spherical	Solid	442	.002"	4 to 8	.0965"	.096"	.1885"

ABOVE APPLIES TO MODELS:  
**ALL LINCOLN-ZEPHYR  
 LINCOLN STARTING 1941**

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# SERVICE BULLETIN



SUBJECT NO. 6000

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## Oil Control Ring

1936 to 1938 plain oil control. 1939 to 1941 expander oil control.

Width 1939 to 1941.....	.1845" to .1850"
Width 1936 to 1938.....	.186" to .1865"
Thickness 1939-41.....	.105" to .109"
Thickness 1936-8.....	.090" to .094"
Gap.....	.008" to .013"

## Connecting Rods

Length center to center.....	7.400"
Crankpin end bore.....	2.298"
Width crank pin end.....	.869"
Bushing bore.....	.7506"
Bushing length.....	1.166"
Weight.....	638 grams.

## Crankpin Bearing Inserts

Type fixed in rod.	
Two rods on each insert.	
Length overall.....	.787"
Combined end play.....	.014"
Clearance.....	.001" to .0025"

## Camshaft and Gear

Shaft material special cast alloy steel.	
Gear pressed on 1936 to 1939.	
Gear bolted on starting 1940.	
Gear material bakelized fabric 1936 to 1939.	
Aluminum 1940-1.	
Camshaft bearing 4 steel backed babbitt lined.	
Bearing diameter.....	1.797"
Length front.....	1.485"
Length—No. 2 on No. 3.....	.720"
Length rear.....	1.111"

## Crankshaft

Counter balanced 120 degree type.	
Cast alloy steel.	
Torsional vibration damper.	
Length overall.....	32.25"
Crank pin journal diameter.....	2.126"
Length.....	1.75"
Main bearing journals diameter.....	2.401"
Length front.....	1.841"
Length No. 2.....	1.378"

Length No. 3.....	1.378"
Length rear.....	2.255"
Weight pounds 1936 to 1938.....	73.5 lbs.
Weight pounds 1939 to 1941.....	80. lbs.
End play.....	.002" to .006"

## Main bearing inserts—

Length front.....	1.625"
No. 2.....	1.248"
No. 3.....	1.248"
Rear.....	2.248"
Wall thickness.....	.1005"
Piloted cap no shims.	

## Flywheel and Starter Gear

Flywheel material cast iron.	
Flywheel gear material steel.	
Flywheel weight.....	34.5 lbs.

## Valves

Mushroom stem.	
Lifter non-adjustable hollow cast 1936-7.	
Hydraulic self adjusting starting 1938.	
Valve, guide and spring removable as an assembly.	
Valve seat inserts (molybdenum chrome alloy steel) for exhaust.	
Valve material high chrome silicon alloy steel.	
Diameter of head.....	1.537"
Diameter of stem.....	0.3115"
Diameter of stem end.....	0.550"
Diameter of seat angle.....	45 degrees
Diameter of lifter.....	0.9995"
Lift of cam.....	0.292"
Spring length valve closed.....	2.13"
Valve clearance 1936-7.....	.0125" to .0135"
1938-41.....	zero
Pressure valve closed.....	51 to 57 lbs.
Pressure valve open.....	111 to 121 lbs.
Stem clearance.....	.0015" to .0035"
Valve clearance 1936-37.....	.0125" to .0135"
Starting 1938.....	zero

## Valve timing

	1936-37	1938-41
Intake opens B.T.C.....	19.5°	10.42°
Intake closes A.B.C.....	54.5°	35.58°
Exhaust opens B.B.C.....	57.5°	50.92°
Exhaust closes A.T.C.....	16.5°	8.08°

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