



This block should be assembled only by experienced, professional engine builders!

INSPECTION

Upon receiving this engine block, it should be thoroughly inspected for transport damage.

Prior to machining and assembly, please inspect the following items.

Cylinder bores – Oil passages – Deck surfaces – All threads

MEASURING AND MACHINING

All initial measuring should be done prior to any machining work.

Decks are CNC machined to .010" to .015" above standard (9.210" – 9.215"). If you need a specific deck height always measure before machining.

Main journal tunnels are SEMI FINISHED. With many of today's engine builders having different requirements, crankshaft and bearing manufacturers having different specifications and tolerances we have left the main tunnels .004" undersize for final align honing so the engine builder may achieve the best result possible to their exacting tolerance. When changing to high strength fasteners, clamping forces and tolerances will change the size and shape of the bearing tunnels. The main tunnels should always be ALIGN HONED using the same fasteners and lubricants to be used during final engine assembly at the recommended tensions and preloads.

Crank and rod clearance should be checked before any machining is started. You need .060" for rotating assembly clearance.

Due to variations in OD dimensions of a number of different lifter manufactures, lifter bore are finished on the tight side of of the tolerance to leave room for lifters that are slightly larger than standard. Sometimes these lifter bores will need to be honed to obtain correct lifter to bore clearance. Lifter bore spec is .8747" - .8757". Most lifter manufacturers recommend .0015" - .002" clearance. ALWAYS CHECK lifter to bore clearance!

WASHING

Final washing should be very thorough, paying particular attention to cylinder bores, lifter galleries and bolt holes. Use hot soapy water. REMEMBER – if you're not 100% sure that's its clean – DO IT AGAIN!!!!!!

ARROW FORD 351 CLEVELAND SMALL BLOCK – TECH NOTES

ALL STANDARD CLEVELAND COMPONENTS WILL FIT ONTO AND INTO AN ARROW BLOCK!!

Sump, Timing cover, Fuel pump, Cylinder heads, engine mounts and Water pump are direct fit to an ARROW block

HEAD STUDS / BOLTS

Head stud holes are blind. They do not go into the water jacket.

CAMSHAFT BEARINGS

ARROW blocks are designed to accept standard replacement camshaft bearing.

OIL SYSTEM

The lifter gallery is fed from the rear of the block giving it TRUE PRIORITY MAIN OILING.

LIFTERS

When using flat tappet lifters, either hydraulic or solid, use a Cleveland style lifter

WARNING

When using roller followers, either hydraulic or mechanical, you must use **WINDSOR** style lifters!!

OIL GALLERIES

All front and rear oil galleries are tapped ¼" NPT. They are a straight thread, not a tapered thread. When using a ¼" NPT tapered pipe plug, the diameter of the plug will determine how deep the plug goes into the hole. Sizes from various plug manufacturers will vary a great amount!

REAR MAIN SEAL

The rear main seal position has been modified to accept a one piece full circle seal. The seal is a Fel Pro product , part No # FP2921.

ARROW 351 FORD CLEVELAND

Part No	A351C – Phase 3B
Material	High strength cast iron
Bore	3.996" unfinished
Max bore and stroke	4.185" x 4.000"
Cam bearing bore	Standard Cleveland
Cam bearings	Standard Cleveland replacement
Cam journal O.D.	Standard Cleveland
Cam end plug	Standard Cleveland 2 ¼"
Cylinder wall thickness	.250" @ 4.155"
Cubic inch	440 max recommended
Deck height	9.200" (+.010" - .015")
Deck thickness	.630"
Fuel pump	Standard Cleveland mechanical
Core plugs	Standard Cleveland 1 ½"
Head bolts	Standard Cleveland – ½"
Lifter bores	Standard Ford .8747" - .8757"
Main journal size	Standard Cleveland 2.750"
Main bearing bore	Semi finished – require align honing
Main caps	Steel – 4 bolt all 5 caps. No 2,3 and 4 Splayed
Main cap bolts	Inner 1/2" 100 Ft lbs Outer 3/8" 45 Ft lbs
Oil system	Priority mains with dry sump provision
Oil filter	Standard AFL1 Ford
Sump	Standard Cleveland
Rear main seal	1 piece performance Fel Pro FP2921
Timing chain / gears	Standard Cleveland
Timing cover	Standard Cleveland
Weight	105 kg with main caps and bolts

MAIN CAPS / BOLTS

Steel 4 bolt main caps, on all 5 main tunnels, have been used on the Arrow Cleveland block. It is recommended that in higher HP applications, the use of ARP fasteners be used.

ARP 2 bolt mains – BOLTS					154-5004
ARP 2 bolt mains – STUDS					154-5404
No 1 and 5 cap – Hex	7/16" head	3/8" bolt	1.750" long		654-1750
12 point	7/16" head	3/8" bolt	1.750" long		644-1750
No 2,3 and 4 cap- Hex	7/16" head	3/8" bolt	2.500" long		654-2500
12 point	7/16" head	3/8" bolt	2.500" long		644-2500

Main tunnel bores are *semi finished* and require align honing to achieve correct tolerances. The main tunnel bores should always be align honed using the same fasteners and lubricants to be used during final engine assembly at the recommended tensions and preloads

DISTRIBUTOR LOCATION

The distributor locating bore has been made to fit the "early" type distributor (.517"). Please check fitment of your distributor before any cleaning or machining is done.

SPECIAL NOTE

With a vast range of crankshaft, piston and rod combinations available today it is very important to check the clearance of all moving parts – especially crankshaft counterweights and connecting rod to block clearance. All parts must be checked before any type of machining or assembly is attempted.

WARRANTY

Arrow warrants that its products will be free from defects in material and workmanship under normal use for a period of 6 months. There is no warranty on products that have been physically altered, abused, tampered with, improperly installed or maintained, used for racing and competition purposes or improper applications or not used in conjunction with the proper parts.