V4/V4F GUIDE

To
PERMITTED
&
PROHIBITED

Modifications of Vintage 4 and Vintage 4 Flathead engine blocks to be used in SCTA/BNI Competition Classes

COMMITTEE CONTACTS

Vintage Engine Committee Chairman
Mike Spacek
714-287-3014 Calls & Texts (Texts Pref)
vintageracecar@aol.com

V4/V4F Sub-Committee Chairman
Mike Spacek
714-287-3014 Calls & Texts (Texts Pref)
vintageracecar@aol.com

V4/V4F Sub-Committee Members
Mike Stewart
Greg Martinez
John Neilson
Timmy McMaster

This Guide outlines the PERMITTED and **PROHIBITED** modifications to V4/V4F engine blocks, when used in SCTA/BNI Competition Classes.

Additional rules pertaining to the General Requirements of V4/V4F competition engine classes can be found in the current SCTA/BNI Rule Book.

On page 3 of this Guide is a TABLE OF CONTENTS

If you should have certain modifications to V4/V4F engine blocks in mind and they are not listed in this Guide, they are probably **PROHIBITED**! Better contact any of the Vintage Engine Committee members listed above.

TABLE OF CONTENTS

Section		Page
VG.1	Bottom of Block	4
VG.2	Passenger Side of Block	6
VG.3	Top/Deck Area of Block	8
VG.4	Driver Side of Block	9
VG.5	Front of Block	9
VG.6	Rear of Block	9
VG.7	Attachment to V4/V4F Blocks	9

PERMITTED AND PROHIBITED MODIFICATIONS TO V4/V4F ENGINES

VG.1 Bottom of Block

Looking at the Oil Pan Rail Area

VG.1.1 It is PERMITTED to notch the inside of the oil pan rail for connecting rod clearance.

VG.1.2 It is PERMITTED to window the oil pan rail and lower portion of the crankcase to gain clearance, if oversized aftermarket connecting rods are being used. Limited to connecting rod clearance, no other modifications are allowed.

VG.1.3 It is PROHIBITED to strengthen the oil pan rail bottom areas by welding and adding material. Always legal to attach items by bolting to rail, or perform repairs.

Looking at the Crankshaft Main Journal Area
In addition to the restriction of only being allowed to move the crankshaft centerline a maximum of .150" from stock location. As specified in Sect. 2.A.1 in the current Rule Book.

VG.1.4 It is PERMITTED to line bore the factory crankshaft main journals as large as possible within the factory main webs, or remove the immediate crankshaft main journal areas from the factory main webs and replace those areas with non-factory material. These replaced main journal areas may not be larger than 4.5" x 4.5" ". They may be attached by bolting or welding.

VG.1.5 It is PROHIBITED to reinforce the factory main webs by welding plates to the sides to connect/stiffen the main journals within the crank case area.

VG.1.6 It is PERMITTED to modify the factory rear main journal by shortening it in length and to make modifications to accept modern seals.

VG.1.7 It is PERMITTED to add #2 and #4 crankshaft main journal webs by welding or bolting in crank case area.

Looking at the Camshaft Main Journal Area
Centerline of Camshaft must remain in its original factory location. As specified in Sect. 2.A.1 in the current Rule Book.

VG.1.8 It is PERMITTED to line bore the factory camshaft main journals as large as possible within the factory main webs, or remove the immediate camshaft main journal areas from the factory main webs and replace these areas with non-factory material. These replaced main journal areas may not be larger than 3" x 3". They may be attached by bolting or welding.

VG.1.9 It is PERMITTED to add #2 and #4 camshaft main journal webs by welding or bolting in crank case area.

Looking at the Lifter Bore Area
(Still from bottom/inside the crankcase)

VG.1.10 It is PERMITTED to machine (spot face) bottom of lifter bore area for greater lifter clearance of mushroom lifters, or notch bottom of bosses for roller lifter clearance.

VG.2 Passenger Side of Block

Looking at the Lifter Bore Area
(From inside the valve/side cover)

VG.2.1 It is PERMITTED to over bore the factory lifter bore bosses for larger lifters.

VG.2.2 It is PERMITTED to offset bore the factory lifter bore bosses, to be able to spread the valves farther apart.

VG.2.3 It is PERMITTED to modify the factory lifter bore bosses in height.

VG.2.4 It is PERMITTED to remove the factory lifter bore bosses and replace with non-factory material by BOLTING only. Welding the non-factory lifter bore bosses in place is PROHIBITED.

VG.2.5 It is PROHIBITED to remove all or part of the factory lifter tray, which would hold the factory lifter bore bosses in place.

VG.2.6 It is PERMITTED to install lifter bore stiffener blocks by bolting over factory lifter bore bosses. Welding in place is PROHIBITED.

VG.2.7 It is PERMITTED to fill the factory lifter bore bosses by welding etc. if engine is using an SOHC or DOHC cylinder head.

Looking at the Valve Guides and Valve Guide Area
(From inside the valve/side cover)

VG.2.8 It is PERMITTED to over bore factory size valve guides to use a larger valve stem.

VG.2.9 It is PERMITTED to offset bore factory size valve guides to spread valves apart and use larger valve stems.

VG.2.10 It is PERMITTED to remove factory size valve guides and replace with non-factory/larger ones to use larger valves and/or spread valves apart. Block may be machined as necessary, but it is PROHIBITED to weld up the guide area to do so.

VG.2.11 It is PROHIBITED to remove all or part of the factory valve guide location area and replace with non-factory material.

Looking at the Valve Lifter, Bore, Water jacket area
(From inside the valve/side cover)

VG.2.12 It is PERMITTED to weld/braze between the bores, along the bores and the water jacket and/or along the lifter bore tray to strengthen and fuse the areas together. But it is PROHIBITED to weld or braze and connect to the lifter bore bosses.

VG.2.13 It is PERMITTED to remove all or part of the factory oil delivery galley on a Ford Model B/C Block.

VG.2.14 It is PERMITTED to use all or part of this internal block area as a water jacket, when using a SOHC or DOHC cylinder head conversion.

Looking at the Outside of the Passenger Side Block

VG.2.15 It is PERMITTED to remove or modify all or part of the valve side cover/door opening flange, as long as it still looks factory from the outside, when the side cover is installed.

VG.2.16 It is PROHIBITED to remove all or part of factory items like fuel pump opening flanges on Ford Model B/C or oil drain backs on Model A blocks, etc.. But these areas may be closed off (or modified) as long as the block retains the outside appearance.

VG.2.17 It is PROHIBITED to weld or braze up the outside of the oil pan rail.

Looking at the Intake/Exhaust Port Area from the outside

VG.2.18 It is PERMITTED to modify the outside intake/exhaust port manifold area to create an 8 port configuration flathead conversion.

VG.2.19 It is PERMITTED to remove the entire intake/exhaust port manifold area to create an 8 port configuration flathead and replace with non-factory material. But it is PROHIBITED to remove the factory deck portion of the intake/exhaust port manifold area and replacing it with non-factory material. Must replace factory deck material as specified in Sect. 2.A.1 in the current Rule Book.

VG.2.20 It is PROHIBITED to shift or extend the intake/exhaust ports beyond the original leading/trailing edge of the factory intake/exhaust manifold flange mounting surface of the block. It is PERMITTED to weld or bolt bosses beyond the above described area, for the purpose of being able to better attach the intake/exhaust manifold to the mounting surface of the block.

VG.3 Top/Deck Area of Block

Looking at the Intake/Exhaust Port Area inside Block/Water Jacket

VG.3.1 It is PERMITTED to modify or remove all 8 ports inside the water jacket (between deck and guide area) and replace with non-factory material **to create a multi or 8-port V4F engine.**

VG.3.2 It is PERMITTED to fill the entire water jacket/port area or parts there off with concrete/aluminum or other material.

VG.3.3 It is PERMITTED to remove all or part of the factory deck area to fabricate a multi or 8-port configuration V4F engine, as long as it will be replaced with FACTORY DECK PARTS. Must replace factory deck material as specified in Sect. 2.A.1 in the current Rule Book.

VG.3.4 It is PROHIBITED to remove all or part of the factory deck area to fabricate a multi or 8-port configuration V4F engine and replace the deck area with NON FACTORY deck material.

VG.3.5 To monitor and enforce the current factory deck height and factory deck thickness material limitations as specified in Sect. 2.A.1 in the current Rule Book, the record certification official may use several different methods.

VG.3.6 It is PERMITTED to move valve seats to enlarge or spread valves apart.

VG.3.7 It is PERMITTED to delete/add or shift head bolts on the factory deck.

VG.4 Driver Side of Block

VG.4.1 It is PERMITTED to modify or weld to factory areas like water outlets, oil filler holes, dip stick holes etc., so long as the block retains the factory outside appearance.

VG.4.2 It is PROHIBITED to weld or braze:

- Between the outside bores and/or
- The bore area to the water jacket and/or
- The bore area to the crank case area and/or
- Along the oil pan rail to strengthen the outside of the block.
- No outside welding, unless it is for necessary repair.

VG.5 Front of Block

VG.5.1 It is PROHIBITED to remove all or part of the timing cover flange on the front of the block.

VG.5.2 It is PROHIBITED to weld or braze:

- From the bore area to the water jacket and/or
- The bore area to the crank case area to strengthen the outside of the block.
- No outside welding, unless it is for necessary repair.

VG.6 Rear of Block

VG.6.1 It is PERMITTED to modify the flange on the rear water jacket of the block. But it is PROHIBITED to remove this area and replace with non-factory parts.

VG.7 Attachments to V4/V4F Blocks

VG.7.1 It is PERMITTED to add a plate to the top of **a V4** block/deck. Attached with "Bolts Only" or "Bolted and Sleeved with the Block". **(PERMITTED only in V4, PROHIBITED in V4F)**

VG.7.2 It is PROHIBITED to add a plate to the top of the block/deck, that is Welded to the Block.

VG.7.3 It is PERMITTED to use Cylinder Heads, which overhang the factory Block dimensions.

VG.7.4 It is PERMITTED to use Crankshaft Support Girdles, which overhang the factory Block dimensions.

VG.7.5 It is PERMITTED to ADD EXTRA HEAD BOLTS/STUDS TO THE OUTSIDE AS FOLLOWS:

VG.7.5.1 **DRIVER SIDE**

Option 1

It is PERMITTED to connect the overhanging Cylinder Head and the overhanging Crankshaft Girdle with 4 (Four) bosses, measuring 1 ½" x 1 ½" x height of Block (maximum)

These 4 bosses may be used with one each single ½" (maximum) bolt/stud from head to girdle,

OR

One ½"(maximum) bolt/stud to connect the head to the connecting block and another ½"(maximum) bolt/stud to connect the connecting block to the girdle, for each boss.

It is PROHIBITED to connect these 4 bosses with each other or connect to either the front timing cover/plate or rear motor mount/bell housing plate.

Option 2

It is PERMITTED to connect the overhanging Cylinder Head to 4 (Four) bosses, measuring 1½"x 1 ½" x 1 ½" (maximum). Attached to the outside of the Driver Side Water Jacket by welding. The head and the 4 bosses on the outside of the water jacket may be connected with one 1/2" (maximum) bolt/stud each boss.

Option 3

It is PERMITTED to connect the overhanging Cylinder Head and the overhanging Crankshaft Girdle with 4 (Four) added 1/2" (maximum) bolts/studs.

It is PERMITTED to only use Option 1, Option 2 or Option 3 !!! One option only, limited to 4 added Head Bolts/Studs, which shall be located entirely between the leading/trailing edge of the original Cylinder Head Gasket Surface of the block.

VG.7.5.2 **FRONT OF ENGINE**

Option 1

It is PERMITTED to install 1 (one) ½" (maximum) Bolt/Stud to connect the cylinder head with the timing cover or front plate.

Option 2

It is PERMITTED to install 1 (one) 1 ½" x 1 ½" x 1 ½" (maximum) Boss to the front of the Water Jacket by welding. This boss may be connected to the cylinder head with one ½" (maximum) stud/bolt.

It is PERMITTED to only use Option 1 or Option 2 !!!!
One option only, limited to 1 (One) added Head Bolt/Stud, which shall be located entirely in front of the leading edge of the original Cylinder Head Gasket Surface of the block.

VG.7.5.3 **REAR OF ENGINE**

Option 1

It is PERMITTED to install 1 (one) ½" (maximum) Bolt/Stud to connect the cylinder head with the rear motor mount or other plate.

Option 2

It is PERMITTED to install 1 (one) 1 ½" x 1 ½" x 1 ½" (maximum) Boss to the rear of the Water Jacket by welding. This boss may be connected to the cylinder head with one ½" (maximum) stud/bolt.

It is PERMITTED to only use Option 1 or Option 2 !!!! One option only, limited to 1 (One) added Head Bolt/Stud, which shall be located entirely behind the trailing edge of the original Cylinder Head Gasket Surface of the block.

VG.7.5.4 **PASSENGER SIDE OF ENGINE**

Option 1

It is PERMITTED to install 4 (Four) Extra Outside Head Bolts/Studs.
Installed as Follows:
It is PERMITTED to install an oversized valve/side cover in the original location. The valve/side cover may extend from the top of the block to where the original valve/side cover would end. (below the lower row of valve/side cover bolts) This Oversized valve/side cover may not be connected to the front timing cover/plate, or the rear motor mount plate. But it can be connected to the overhanging crankshaft support girdle by 4 (four) bosses. These bosses may measure 1 ½" x 1 ½" x distance between side cover bottom edge to crankshaft support girdle top (maximum).
These 4 bosses may be used with ½" (maximum) bolt/stud from valve cover to girdle each.
It is PROHIBITED to connect these 4 bosses with each other or connected to either the front timing cover/plate or rear motor mount/bell housing plate.
It is PERMITTED to connect the overhanging Cylinder Head to the top of this valve/side cover with 4 (Four) bolts/studs ½"
(maximum).

Option 2
It is PERMITTED to connect the overhanging Cylinder Head and the overhanging Crankshaft Girdle with 4 (Four) added 1/2" (maximum) bolts/studs.

It is PERMITTED to only use Option 1 or Option 2 !!! One option only, limited to 4 added Head Bolts/Studs, which shall be located entirely between the leading/trailing edge of the original Cylinder Head Gasket Surface of the block.

VG.7.6 It is PROHIBITED to install/attach outside plating etc. to create an external Water Jacket.

VG.7.7 It is Permitted to install Longer Bolts or other threaded means of attachment as an extension of the Main Cap Bolts, for the purpose of connecting the Main Caps or Girdle with the Cylinder Head. Such devices shall be only used in place of the closest Main Bolts, to the left or right of the Crankshaft Main Journal. It is PROHIBITED to attach such devices by welding to the block/crankcase or water jacket.