

Spec Racer Ford

Engine Rebuilding Program

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1.9L

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- ENGINE TUNING

 - Measuring Equipment

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Engine Check-in

- SCCA rebuild sheet
- Engine detail form
(Enterprises Usage)
- Contact information

SPEC RACER FORD ENGINE REBUILD PROGRAM

MUST BE RECEIVED AT ENTERPRISES BEFORE ENGINE REBUILD CAN START

Owner's name: _____

Daytime phone: _____

Best time to call: _____

CSR's name (FOR BILLING): _____

Return ship to address: _____

Engine number (Roush # on cam cover): 000 _____

Leak down or compression test results 1. _____ 2. _____ 3. _____ 4. _____

Has the engine been overrevved? Yes _____ No _____

If yes, how many times _____ Highest RPM: _____

Oil detected in air filter? Yes _____ No _____

Approximate time on engine: _____ Hours

Low oil pressure Yes _____ No _____

Comments: _____

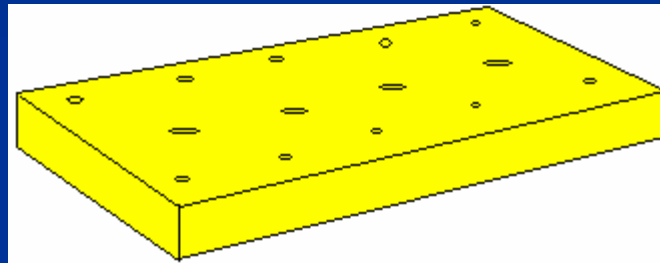
Engines will be return shipped either pre-paid or freight collect after receipt of payment.

Any engine not paid for within 30 days after notification of completion, becomes the property of SCCA Enterprises, Inc.

Owner's signature _____ Date _____

Evaluation

- Engine accessories removed
- Cylinder head removed
- Cylinder leak down adapter plate installed



SRF Tolerances:

0 to 15% - Eligible for cylinder head reconditioning

16% and Greater complete rebuild **Recommended**

- Number 4 rod bearing and number 5 main bearing are checked using plastic gage.
- Rebuilding process will continue once customer is contacted with the results of this evaluation.

Tear down

Short block components

Oil pump removed and visually inspected for:
scratches on rotors and backing plate

Rear main seal removed

Crank case breather tube removed

Piston/Connecting Rod Assemblies removed

Crankshaft removed

Cylinder head components

Rocker arms removed

Valve tappets removed and discarded

Camshaft removed

Valve retainers and keepers removed

Valves and valve springs removed and discarded

Inspection

SRF cylinder bore tolerances:

Piston to cylinder bore clearance .003-.005 inch.

Piston ring end gaps .020-.030 inch.

Surface flatness .003 inch. Maximum

Crankshaft oil clearances (all journals) .0015-.002 inch.

- Cylinder Blocks that exceed the maximum cylinder bore clearance are bored .020" oversized. Blocks that are already oversized are replaced with a used one (if available). If not available are then subjected to have sleeves installed.
- Cylinder blocks are measured for flatness.
- Crankshaft may need to be reground undersized if clearances exceed tolerances. .010, .020 inch. Replaced if fly wheel bolt holes are stripped out.

Cylinder head and Valve train inspection

- Cylinder Head thickness is measured and recorded.
- Cam bores are visually inspected
- Cylinder head flatness
- Valve guides are measured for wear
- Valve stem heights

SRF Tolerances

Valve stem to guide clearances: .001-.002 inch.

Cylinder head flatness maximum: .003 inch.

Valve stem heights ranges: IN= 1.940-1.970 inch.

EX= 1.870-1.900 inch.

Notes

If **ANY** of the exhaust guides exceed the maximum then all of the exhaust guides are replaced with bronze ones. Same goes with the intake guides.

Exhaust guides tend to show more than intake side.

If cylinder head is warped above .003 inch. **CAMSHAFT BORES WILL BE OUT OF ALIGNMENT**. When this happens, the camshaft will be difficult to rotate.

Adjustments/Replacements

- Cylinder head thickness adjusted using a steel shim, different head gasket or is milled.
- Valve stem heights adjusted by having new valve seats installed.
- New valves, valve springs, valve stem seals, cam seal, lifters; are all installed, 100% of the time.
- Valve spring heights are adjusted by steel shims.
- Camshaft replaced if it shows signs of extreme wear on lobes, journals, or seal surface.

- Oil pump replaced (if necessary)
- Water pump replaced (if necessary)
- All new crankshaft bearings installed
- New pistons installed (100% of the time)
- New rings installed
- Short block assembled using all new gaskets and seals

Assembly

- Cylinder head washed, dried, and painted
- All cylinder head components washed and dried
- Cylinder block washed, dried, and painted
- Cylinder head assembled
- Cylinder block assembled
- Both are combined and now ready to be tested on the dynamometer