



TECH PROCEDURE

All engines from this point forward will be teched fully as is done with a custom built engine (compression, cubic inch, and full camshaft tech). Audi Technologies has built a custom cam doctor that will fully allow us to computer generate a full camshaft profile without removing it from the engine. A digital valve spring checker will be utilized to check valve spring seat and open pressure. All other aspects of the engine, cylinder head, header, ignition, intake manifold, short block and components will be teched as deemed necessary.

SPECIFIC GUIDELINES

Repair & Rebuild Parts

A. Non-GM Parts – may be purchased directly from manufacturer:

1. Oil Pan- available directly from Champ Pans- P/N- CP100LTRB
2. Oil Pump- Standard cast iron high volume oil pump, available from Millings, TRW, Elgin, etc. Low or High-pressure spring optional. Must be small block pump.
3. Piston- GM-P/N-10159437 available from MAHLE as P/N-027520 standard only. No over-boring at this time shall be permitted. Must be used with wristpin supplied with piston. No lightening (other than balancing) or alterations of any kind to piston or pin. No performance coatings allowed.
4. Piston Rings- Low tension racing ring of the same composition, size, and spec provided by GM available through Hastings, TRW, Sealed Power, etc. No gapless rings.
5. Gaskets- Any brand Oil pan, valve cover, and rear main seal are allowable. Intake gaskets must be of the same rigid plastic with rubber inlay seals as provided from GM P/N-89017465, an exact duplicate of this gasket is also available from Victor. No alterations to the gasket, locater pins may not be removed. Cylinder head gasket must be the same 0.051" compressed thickness as supplied by GM P/N-12557236, or the exact duplicate of this gasket which is available from Victor P/N-
6. Stock valve spring retainers and locks may be used. Must use GM spring-P/N-12551483 installed at original GM height spec 1.780". Valve spring shims may be used for adjustment. Valve seals optional. No additional or pressurized valve spring oilers will be permitted.
7. Engine bearings-Optional (coated or uncoated, brand) No rollerized cam, rod, or main bearings. Clearances are optional.
8. Lifters must be of same design supplied by GM. No lightweight, magnum or zero lash lifters will be allowed. All lifters must have the ability to preload a minimum of 0.080".
9. Timing gear and chain- No True roller timing chain sets will be allowed. No adjustable timing sets allowed. No modifications to gear or crank keyway of any kind will be allowed. Available from GM (Cloyes has kit for line-honed block P/N-GM604).

B. Mandatory parts you must use from GM:

1. GM crank P/N- 14096036 repair grinding permissible no alteration of stroke, rod or main journal diameter (small journal Honda, etc.) No Nitriding, hard plating or modification of any kind.
2. GM connecting rod P/N- 12495071(8) mandatory.
3. GM cam P/N-10185071 mandatory.
4. GM balancer P/N- 12555879 mandatory.



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5. GM push rod P/N-12371041 mandatory.
6. GM rocker stud P/N-12371058 mandatory.
7. GM rocker arm and adjuster nut P/N-12367345 mandatory.
8. GM intake valve P/N-12555331 mandatory.
9. GM exhaust valve P/N-12551313 mandatory.
10. GM head bolts P/N-12495499kit mandatory.
11. GM Block P/N-10105123 mandatory.
12. GM spider and lifter alignment retainers mandatory.
13. GM intake manifold P/N-12496822 mandatory (untouched).
14. GM cylinder head P/N-12497186 mandatory (untouched).

Machine work

Rotating Assembly- All parts in the rotating assembly may be balanced. Connecting rod, piston, and pin may not be less than 3 grams lighter than what was supplied by GM. Crankshaft balancing may only be done by drilling or adding weight to the counter balance (NO narrowing or knife-edging to obtain balance).

Block-P/N-101105123 (block casting #10243880 or 14093638. No cylinder boring at this time is allowed. No aftermarket, high-tech, hardened, polished or performance sleeves are allowed. Minimum piston deck height-0.010". No angle milling block, it will be measured on 90-degree intervals. Block may be line honed. Stock GM caps and bolts mandatory. No shot-peening or heat-treating of the caps. Stock push in Welch plugs may be replaced with screw in plugs. Block honing method optional. No rollerized cam bearings. Excessive casting debris may be removed. No polishing of the block inside or out. No performance enhancing coatings. No additional oil supply or enlargement of oil supply galleys. No oil restrictors of any kind. No plugging, drilling, or modification of the cooling system. No block fillers or other strengthening materials. Standard push in soft plugs only, no spot welding, pinning, or locking device of other kinds.

Cylinder head-P/N-12497186. Multi-angle valve job with minimum 44 degree- maximum 46 degree for primary valve or seat angle (blending angles top and bottom optional). Untouched portion of seat as comes from GM may not be enlarged or modified in any way. Depth of valve job lower cut not to exceed depth of original GM valve job. Absolutely no modification to the bowl, pocket, port radius, port, roof, floor, port entry/exit, no gasket matching (IN OTHER WORDS DO NOT TOUCH IT). Volume of the port, and radius measurements and all other aspects will be teched (intake and exhaust). Original GM valves- Intake P/N-12555331, Exhaust P/N-12551313 mandatory. Valves may not be decreased in diameter. Heli-coils protruding into intake port may be trimmed (heli-coil only). Depth of valve in the combustion chamber may not be altered more than 0.040", measured from cylinder head deck surface. Surfacing of the head for warpage repair allowable. No angle milling of heads. No polishing or modification to the combustion chamber. Compression ratio maximum 10.0:1, No deviation, anything more will be deemed illegal. Please realize that the GM catalog states that these engines are 9.6:1 however GM 604 specification pamphlet that comes with engine states 10.0:1. Therefore 10.0:1 will be the absolute maximum allowed.



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Comments

Nothing in these rules or guidelines will have a direct influence on increasing or improving the performance of the GM 604, these rules will insure that the GM 604 is all that GM originally intended it to be and nothing more. Everything we are doing is directed at making the GM 604 program as affordable as possible for all competitors. More than 95% of the late model class is now running the GM 604, rebuilding is a reality and necessity to keep the program affordable. The rules and guidelines for rebuild and repair are intended to be the baseline for parity and fairness to everyone. We believe these rules and guidelines are without much gray area however if you don't see it in the rules it doesn't necessarily mean that it is legal or illegal. Anything not here you are required to call and get a judgment prior to doing anything not in these guidelines. Doing anything not here without our permission will be deemed as not legal. (DO NOT ATTEMPT TO INTERPERET ANYTHING NOT IN THESE RULES AS BEING LEGAL, THE OPPOSITE IS EXACTLY TRUE ANYTHING NOT HERE IS ILLEGAL).

2 *rebuild kits* will be available one including pistons and one without: and rings; rod, cam and main bearings, gaskets, and seals, oil pump and oil pump shaft, brass soft plug kit, timing gear and chain kit with plastic timing cover will be available through Motor Warehouse in Sacramento, CA- 1-800-367-6717 as Kit # ARPWESTCAR604-XXwith pistons-Racer Cost \$420.00 and Kit # ARPWESTCAR604-CKwithout pistons-Racer Cost \$315.00. We recommend replacing connecting rods available through GM if your engine has near or more than 2000 laps although the rod is probably good for more it is a pretty good insurance policy especially for the low cost from GM for a set of rods. Valves should be inspected thoroughly and replaced as necessary. Valve springs available through GM as Kit # 012495494 is also a real bargain through GM. Nearly all of the other parts in your GM 604 after close inspection are usually in good enough condition for reuse. If you have over-revved your engine inspect lifters carefully for signs of splitting or cracking, loose roller trunion, these are also available economically from GM P/N-12371042. All you need now, good valve, honing, and cleaning work and you will be good to go. The GM manual you receive with your engine has all torque specifications listed for rebuild. The management at All American Speedway is doing everything possible to make the GM 604 program as affordable as possible to you the competitor. As always we reserve the right to change or modify these rules as we deem necessary in the future.

Any questions for any part of these rules and guidelines feel free to call Jeff Macy (209)-617-1985