



CLASS 9 CHALLENGER

OPEN WHEEL - 100" Wheel Base

** Updated November 10th, 2020 **

DEFINITION

Single and two seat vehicles with a maximum wheelbase of 100". Vehicle parts are based on a Type I VW.

GENERAL REGULATIONS

Entrants in this class shall comply with all applicable general regulations.

TECHNICAL REGULATIONS

All parts called out for in this class shall remain in their stock shape, size, and configuration unless otherwise state herein.

NOTE: *The TR abbreviations listed under this class (I.E. TR1 HELMETS) refer to TR cross reference listings in the front of this book. These TR cross-referenced listings are part of the class rules. Where a conflict occurs between the TR cross-referenced listing and a rule contained under this class, the rule contained under this class takes priority.*

SAFETY EQUIPMENT

TR1 HELMETS

TR2 PROTECTIVE CLOTHING

TR3 EYE PROTECTION and DENTURES

TR4 HEAD AND NECK RESTRAINTS

TR5 FIRST AID KIT

TR6 EMERGENCY SIGNALING DEVICES

TR7 HORNS

TR8 REFLECTORS

TR9 FIRE SUPPRESSION EQUIPMENT

TR10 SURVIVAL SUPPLIES

SUSPENSION COMPONENTS

Front and rear suspension components are limited to stock VW production Type 1 parts unless otherwise stated within. Suspension must retain stock concept and no other suspension types used with the stock suspension (I.E. air shocks, sway-bars, coil over shocks, dual torsion bar, etc.).

FRONT SUSPENSION

Front suspension must be a VW Type 1 ball joint. Front axle torsion tube centers may be cut, rotated, rewelded to increase ground clearance. Original seams may be welded (not reinforced) on front beam. No additional material may be added. Torsion adjusters allowed

Filling of speedometer hole in spindle is permitted. Steering arm on spindle may be reinforced by welding a 0.25" gusset from the top of the upper ball joint mount to the end of the steering arm.

A single tube may be welded from one shock tower to the other as a reinforcement member.

Suspension limiters allowed.

REAR SUSPENSION

Rear suspension is limited to stock VW Type 1 components. Rear suspension torsion bars may be of any origin. The torsion housing must retain stock dimensions, aftermarket housing is allowed. Torsion bar grommets may be of any manufacturer as long as stock dimensions are retained. Torsion adjusters allowed.

Rear suspension limiters and spring plate retainers are allowed. Rear spring plates may be of any origin.

TR11 SHOCK ABSORBERS and BUMP STOPS

Only one shock per wheel is allowed. Outside diameter of shock may not be larger than 65.00mm. Shock shafts may not have a diameter larger than 0.875".

Front shocks must be mounted in the stock location. Rear shocks may be mounted in any location. Rear shocks may not have an extended length longer than 31.5".

Shock reservoirs are allowed.

Shocks may be of any manufacturer.

No air or coil over shocks allowed.

No external bypass shocks.

TR12 SECONDARY SUSPENSION

No secondary suspension is allowed.

TR13 WHEELS and TIRES

Must use a 15" steel rim, 5" wide maximum with any standard offset.

Any manufacturers tire and size allowed up to 32" tall and 10" wide as mounted and inflated on 5"x15" rim with 18 lbs of air.

TR14 FASTENERS

STEERING and BRAKE COMPONENTS

TR15 STEERING

Steering box may be of any origin. No power steering allowed. Any manufacturers steering wheel and adapter may be used. Any steering dampener may be used. Any steering shaft allowed and sheet metal tube may be removed. Any tie rods and tie rod ends are allowed.

TR16 BRAKES

Original VW types drum brakes only. Drums may be studded but not reinforced. Any combination of brake linings. Any combination of VW master and wheel cylinder are allowed. Dual master cylinders allowed. Turning brakes allowed. Stock VW drum is mandatory, mounting method is open.

ELECTRICAL SYSTEM

TR17 IGNITION

Battery ignition only, no magnetos. Six or twelve volt systems may be used. Any manufacturer's distributor may be used. Any VW type alternator or generator system in the stock location may be used.

TR18 BATTERIES

TR19 LIGHTS

Rear facing blue light is required.

TR20 STARTERS

FUEL SYSTEM

TR21 FUEL

Fuel is restricted to automotive pump gasoline only. Automotive pump gasoline will be considered gasoline that is sold to the general public for use in domestic cars.

TR22 FUEL TANKS

Safety fuel cells are required.

Fuel cell may not hold more than 22 gallons.

Stock fuel pump must be used. Electric fuel pump may be used but must be used as a backup and routed through the stock system.

TR23 FUEL FILLERS LINES, VENTS, and CAPS

ENGINE, TRANSMISSION and DRIVELINES

TR24 ENGINE and ENGINE DISPLACEMENT

Engine must utilize VW series type 1, 1600cc, U.S. Model sedan components and dimensions. The maximum allowable engine displacement is 1584cc as delivered from the factory.

ENGINE CASE

Any VW type 1,2,3 or "universal" case is allowed. The following modifications may be made to the stock case:

- A. The case may be align bored.
- B. The case may be drilled and tapped for oil pressure and/or temperature sending units.
- C. The case may be machined to allow the installation of a crank pulley seal.
- D. Case savers may be installed.
- E. Cylinder seating surface may be machined.
- F. Early case oil galleries (8mm) may be enlarged to the dimensions of the universal case (10mm).
- G. Threaded oil gallery plugs allowed.

OIL PUMP

Any manufacturer's oil pump is allowed. No deep sumps, dry sumps, or sump alterations. Windage trays are allowed. The use of any oil bypass pistons and springs are allowed.

FUEL PUMP

Stock fuel pump must be used. Electric fuel pump may be used but must be used as a backup and routed through the stock system. Any fuel filters and fuel pressure regulators of any type may be used.

PISTONS

Pistons must be stock 3 ring only. Pistons and cylinders may be any manufacture as long as original stock dimensions are maintained. Any type wrist pin retainers. Piston assemblies may be statically balanced to the equivalent weight in grams of the lightest original non balanced piston, wrist pin, etc.

CRANKSHAFT

Crankshaft must be stock VW. Crankshaft may be balanced. Crankshaft maximum journal re-sizing is limited to .030" undersize. No polishing or lightening of crankshaft is allowed. No offset grinding of crankshaft is allowed. Any crankshaft gear is allowed. Any manufacturers engine bearing may be used as long as the stock dimensions are maintained. Power pulleys not allowed. Pulleys may be balanced. Sand seals may be used. Any VW flywheel may be lightened and balanced. Flywheels may be eight dowel pinned and any gland nut and washer may be used. No aluminum flywheels are allowed. Any manufacturers clutch disc or pressure plate allowed but must retain original stock VW diameter. Clutch and pressure plate may be

balanced. Connecting rods may be statically balanced, but not polished or profiled. Balanced weight of the connecting rods in grams should be equivalent to the lightest original non balanced stock rod.

HEADS

Heads may be U.S. sedan stock single port or dual port or their equivalent. Heads may be flycut for clean up. No porting or polishing is allowed. Only dual port heads from Brazil, part number 040 101 375 2 or 040 101 375 13, or stock OEM heads will be allowed.

Intake manifold is restricted to a stock 34mm original equipment center section or its replacement. A 1½-inch (1.500) long by half-inch (.500) diameter tube may be weld two inches below carburetor flange. A maximum of a ¼ inch (.250) may be removed from each end of the center section for clearance. A slip tube with a 1 5/8 inch (1.625) diameter, two inches (2.000) long may be welded to the end of the runners to allow the use of a better hose connection. No porting or polishing.

End castings must be original equipment VW, with VW logo and part numbers. No porting, polishing, or matching of ports allowed. Balancing slot may be welded close. Vacuum hole may be plugged. A 34mm to 30 mm carburetor adapter must be used. The only carburetor adapter that is allowed is the EMPI part number 98-1293-B.

Combustion chamber volume may not be smaller than 42cc. 7.5 to 1 is the highest compression ratio allowed.

CAMSHAFT, LIFTERS, VALVES, ROCKER ARMS

Any camshaft, camshaft gear, steel valve spring retainers, single valve springs and lifters are allowed. Valve spring seat diameter, in head, must remain stock VW. Valves must be stock 45 degrees. One-piece valve are allowed. No polishing or profiling of valves allowed. Valve guides may be steel, bronze or cast iron. Valve guide seals are allowed. No grinding or polishing in the port including valve guides. Any camshaft may be used which will allow the use of the standard stock VW 1600cc rocker arm(s). Rocker arms must remain stock VW 1600cc. No roller or needle bearings will be allowed as part of the camshaft or as an interface between the rocker arm(s) and the camshaft. Push rods and push rod tubes may be of any manufacturer. Rocker arm valve adjustment screws and wave washers may be of any origin. Clips on rocker arms may be wire tied. Valve covers and sheet metal must remain stock, any year allowed. Valve covers and sheet metal may be modified a minimum to allow for the use of engine breathers.

FAN SHROUD

Must use stock fan shrouds. Heater tubes are optional. No thirty six(36) horse dog house shrouds allowed.

CARBURETOR

Air cleaner location is optional and may be of any manufacture. Velocity stacks may be used as long as they are not welded or bonded to the carburetor. Stock VW carburetors 30 pict 1, 2, and 3 or the Solex H-30-PIC replacement must be used. Maximum venturi size of carburetor is 24.10mm. No internal modifications in the carburetor venturi or throttle blade are allowed. This includes no removing of parts, no grinding, polishing, or filing. Intake manifolds must be stock VW. No chemical milling of manifold or carburetors. Automatic choke housing may be removed. Choke plate and shaft may be removed. Electric needle valves are optional. The stock float bowl vent may be moved and/or plugged. An external float bowl vent may be incorporated. Any air and main jet may be used.

ENGINE CLAIM REGULATIONS

This class is an engine claimer class. This means that any finisher in the top five can claim the first place finisher's engine by putting up \$2500.00 CASH in the allotted protest time. The first place finisher has to release rights to his engine to the claimer. The engine in this case will be considered the long block. Sheet metal, fan housing, carburetor, generator/alternator, distributor, intake manifold, etc. are not included in this rule.

TR25 ENGINE REPLACEMENT

TR26 TRANSMISSION

Type 1 bug, 4-speed swing axle only. Heavy-duty side plates and differential allowed. Stock VW type 1-ring and pinion ratios only (8:33 and 8:35). Stock VW type 1 gears only. Closed ratio 3rd and 4th gears allowed.

Axle over tubes permitted.

Other internal modifications are optional.

TR27 THROTTLES

TR28 EXHAUST

Open.

TR29 DRIVE SHAFTS

TR30 FLYWHEEL SHIELDS

TR31 FLUID COOLERS

Any oil cooler is allowed. Location is optional. Full flow systems allowed. No deep sumps or dry sumps will be allowed.

TR32 AUXILIARY EQUIPMENT

TR33 SUPERCHARGERS and TURBOCHARGERS

VEHICLE SAFETY EQUIPMENT

TR34 ROLL CAGES
TR35 SAFETY HARNESS
TR36 SAFETY NETS
TR37 SEATING

GENERAL VEHICLE COMPONENTS

TR38 DRIVERS COMPARTMENT
TR39 DOORS AND LATCHES
TR40 FIREWALLS
TR41 BALLAST
TR42 WEIGHT

Minimum dry weight single seat = 1550 pounds. Two seat = 1350 pounds.

TR43 FLOORBOARDS
TR44 BUMPERS and HAZARDOUS PROTRUSIONS
TR45 MIRRORS
TR46 SKID PLATES
TR47 STORAGE
TR48 CHASSIS and BODY

Maximum wheelbase is 100".

TR49 HOSES
TR50 IDENTIFICATION MARKINGS
M400 will assign race numbers.

TR51 ADVERTISING on VEHICLES
TR52 RADIO EQUIPMENT
TR53 WORKMANSHIP
TR54 TRACKING DEVICE