

PART 2 SCHEDULE HQ[®]

Dinsdale Drywall NZ Six Holden HQ Race Series TECHNICAL REGULATIONS 2018 – 2019

PREAMBLE

The overlaying philosophy of Holden HQs is;

- To provide a low cost entry to a professionally organised Motor Race Series that emphasises driver ability rather than purchased technical advantage.
- To provide a tool through which anyone wishing to enter, continue or re-enter Motor sport, can do so at a very realistic cost.
- To regulate, through MotorSport NZ, the Series to provide fair competition for all.
- To always keep regulations simple, straightforward and along the lines of "it must remain standard unless specifically stated otherwise".
- To never allow freedoms within the regulations that would allow the class to become "dollar orientated".

COMPETITOR RECORD OF AMENDMENTS ISSUED TO THIS SCHEDULE

Use this table to keep a record of all official 'Manual / Championship Amendments' issued during the season relative to this Schedule;

Amendment Number	Issue/Effective date	Regulation reference	Subject / Notes

1.0 GENERAL INFORMATION RELATIVE TO THIS SCHEDULE

- 1.1 This Schedule shall be read in its entirety and shall take precedence over Appendix 2 Schedule A of the 'National Sporting Code' excepting where an item is not specifically covered within Schedule HQ, in which case Appendix 2 Schedule A will apply.
- 1.2 All text changes from the previous issue of this Schedule are highlighted such. Text changes for grammatical and/or formatting reasons are not highlighted.
- 1.3 All modifications are strictly prohibited except as specifically authorised within these regulations.
- 1.4 Efforts to find, bend or take advantage of perceived loopholes in these regulations or specifications will not be tolerated.
- 1.5 All cars competing in Events to which these regulations apply shall have a valid MotorSport NZ logbook.
- 1.6 **TECHNICAL ELIGIBILITY AND SAFETY EQUIPMENT ENQUIRY:** Where any doubt may exist in understanding any regulation contained within this Schedule it will be understood that it is the Competitors obligation to enquire as to the correct interpretation. All technical eligibility and/or safety equipment enquiry shall be submitted in writing to:
- (1) The Series Scrutineer, as detailed in the Series Articles, then to
 - (2) The MotorSport NZ Technical Manager
 - All enquiries should detail the article in question and the specific subject matter.
 - A written reply will always be given to a written enquiry.
 - On matters of technical eligibility and/or safety compliance, a verbal statement will have no validity.
- 1.7 Telemetry, data loggers, traction control, and radio communication devices are prohibited except where specifically allowed for under the Series Articles. This does not apply to devices whose sole function is to provide lap timing.
- 1.8 Provision for official seals; the following components shall be drilled (2 mm hole min) to enable fitment of official seals;
- **Engine:**
 - (1) Sump: left and right through sump and sump rail,
 - (2) Timing Cover or Oil Pump: upper driver's side bolts (x2),
 - (3) Cylinder head to Block: driver's side lugs between side plates (or two exterior head bolts),
 - **Gearbox:**
 - (1) Two bottom side cover bolts.
- 1.9 Control Tyres shall be fitted to all competing vehicles. The Series Control Tyre is prescribed within the Series Articles.
- 1.10 Regulations prescribing the purchase, allocation, eligibility and use of Series Control Tyres are detailed within the Series Articles.

2.0 DEFINITIONS

2.1 Definition of terms used within this Schedule shall be referenced from the National Sporting Code, Appendix Two Schedule A and as detailed below:

'Competing weight' means the minimum weight of the competing car in Race Trim. It may be measured at any time during the qualifying sessions and/or races, on the official scales of the meeting.

'Non standard' those components which are not "standard".

'Race trim' means the condition in which the car competes, and shall include all fluids, ballasts and the driver.

'Standard' means the component/s as originally optioned or fitted to the make, model and type of car by the manufacturer at the time of the initial sale.

3.0 ELIGIBLE VEHICLES

3.1 Vehicles eligible are the six cylinder "202" (red motor), 4 door Holden HQ sedan, with front wheel disc brakes manufactured during the period 1971 through 1974, described by the manufacturers for identification and ordering as a 4 door sedan. Identification numbers HQ 80169, HQ 80269, HQ 80369, HQ 80469, HQ 81169, HQ 81269, HQ 8M69, HQ 8N69 and HQ 8P69.

4.0 WEIGHTS and DIMENSIONS

4.1 **Vehicle weight:** The minimum vehicle weight is 1365 kg including the driver and all fluids. Ballast may be added (as per Schedule A) to achieve the minimum vehicle weight.

4.2 **Overall Width:**

- Front: 1885 +/- 20 mm (measured at the centreline of the respective axle).
- Rear: 1868 +/- 20 mm (measured at the centreline of the respective axle).

4.3 **Wheelbase:** 2819 +/-30 mm (measured at the centreline of the respective axle).

4.4 **Track:**

- Front: 1631 +/- 15 mm
- Rear: 1631 +/- 15 mm

4.5 **Ride Height:** There shall be a minimum 75mm of ground clearance for any sprung component of the vehicle (excluding exhaust system) with the driver normally seated. Ride height may be adjusted by the fitting of solid spacers between the springs and their unmodified mounting points to achieve minimum ride height.

5.0 PARTS (INCLUDING CONTROLLED COMPONENTS)

5.1 Unless otherwise specified in this Schedule, all vehicle components shall be the original unmodified General Motors Holden manufactured parts as fitted to the vehicles listed in vehicle eligibility. Any part or modification not listed in this schedule must receive the written approval of SCRANZ. (No component of the body, interior and exterior trim, power train, front and rear suspension or brakes, may be altered, re-sited, modified, removed or replaced nor be other than General Motors Holden manufacture unless specifically authorised in these regulations).

5.2 The prohibition of modifications of components shall also extend to the operation of the components which shall remain standard as intended by the manufacturer.

- 5.3 Control parts (where specified) shall be used unless stated otherwise. These shall not be modified in any way from the manufacturer's specifications unless stated otherwise in the applicable Article.
- 5.4 No titanium parts are permitted.

6.0 ROLLAGE

- 6.1 Roll over protection shall comply with Schedule A and shall remain entirely within the cockpit of the vehicle.
- 6.2 It is not permitted to attach the rollage to the bodyshell excepting the rollage footing plates which may be welded or bolted to the floor pan as per Schedule A and the main rollbar which may be bolted to the original 'B' post top seat belt mount.
- 6.3 Side intrusion bars are mandatory on the driver's side.

7.0 BODYSHELL, VEHICLE EXTERIOR and SUB-FRAMES

- 7.1 **Bodyshell:** All bodywork including any subsequent repair of damage shall be to a trade accepted standard with no signs of corrosion, primer or poor paintwork, or bodywork damage carried over from previous meetings to be visible. Vehicles not presented to an acceptable standard shall be penalised as prescribed within the Series Articles.
- 7.2 Seam welding of the bodyshell or the attachment of any additional strengthening is prohibited.
- 7.3 The edges of the wing panels may be folded back if they protrude inside the wheel arch, but the original wheel arch profile must not be altered.
- 7.4 External body trim decoration, excluding windscreen trim, of less than 25mm wide may be removed. Badges may be removed, excluding grille badge.
- 7.5 The headlamps may be replaced with tin or plastic replicas provided that the headlamp cavity is completely covered with no holes allowing increased airflow to the engine bay.
- 7.6 The tail lamps may be replaced by a controlled component LED tail lamp, to be purchased through SCRANZ. Both tail lamps shall either remain as original or be replaced by the controlled component LED lamp. It is not permitted to have a combination of both.
- 7.7 **Bonnet and Boot Lid:** may be replaced by components manufactured from fibreglass provided that the silhouette of the vehicle remains standard in appearance.
- 7.8 The bonnet latch shall be removed and bonnet safety pins fitted.
- 7.9 **Chassis:** The front subframe shall be from the HQ model sedan and mounted with the original unaltered subframe mounts. (Later model subframe assemblies are prohibited).
- 7.9.1 The chassis rails and floor pan may not be altered in any way, except for the fitting of a floor type gearshift.
- 7.9.2 The standard type HQ Holden drawbar may be securely bolted (as originally intended) to the rear chassis rails, provided that the ball tongue is removed and the section of the drawbar remaining does not protrude beyond the rear of the bumper bar when viewed from directly above.

8.0 VEHICLE INTERIOR

- 8.1 The interior shall remain as manufactured except where specifically allowed for under this schedule.

- 8.2 Removal of seats and replacement of the driver's seat with a competition type and mounted in accordance with Appendix Two, Schedule A of the current New Zealand MotorSport Manual is permitted
- 8.3 Mechanical devices to provide adjustment to the rake are prohibited.
- 8.4 The rear seat may be removed, if it is retained it must be firmly fixed in place.
- 8.5 The steering wheel may be replaced.
- 8.6 Floor coverings, boot floor coverings, the driver's door arm rest, pillar linings, head lining foot well kick linings, sun visors, rear parcel shelf cover may all be removed.
- 8.7 The original door trims may be replaced with flat metal trim of the same dimensions (eg. fabricated from sheet aluminium). The door trims shall be fastened with screws and be readily removable for inspection purposes. All internal door mechanisms shall remain and be fully functional.
- 8.8 A footrest maybe fitted to the left of the clutch pedal.
- 8.9 A floor covering of anti-skid type material may be secured to the driver's side floor forward of the driver's seat.
- 8.10 The spare wheel shall be removed.

9.0 ENGINE SPECIFICATIONS for 98 Octane

- 9.1 **Cylinder Block:** It is permitted to use only the HQ Holden 202, six cylinder in line engine. The 3.3 "red" (casting l/h side) block may be used providing it is of the same configuration as the 202 (casting l/h side) "red" block.
 - 9.1.1 **Re-Bore:** 93.827mm maximum.
 - 9.1.2 **Stroke:** 82.55mm ± 0.05 mm.
 - 9.1.3 It is permitted to machine the cylinder block. Angle machining of such is prohibited.
 - 9.1.4 Core plugs may be mechanically fastened.
 - 9.1.5 It is permitted to machine the "rope seal block" for fitment of the rubber type rear crank seal.
- 9.2 **Pistons:** Replacement pistons are permitted provided that any piston and rod assembly does not weigh less than 1080 grams. (Assembly includes piston, rings, piston pin, bearing shells, rod bolts and nuts).
 - 9.2.1 Pistons must remain either Flat or Dish topped as manufactured with 3 complete ring grooves each with a ring fitted.
 - 9.2.2 Piston pin retention is by interference fit with connecting rod.
 - 9.2.3 The pistons shall not protrude above the cylinder block (to cylinder head) face when at TDC (at ambient temperature).
 - 9.2.4 It is permitted to re-sleeve 2 cylinders only.
 - 9.2.5 Standard push rods shall be used.
- 9.3 **Cylinder Head:** All engines shall use the control head supplied and logged by Marsh Motorsport utilising 202 Holden bridge-type rocker arms.

- 9.3.1** Facing or shimming of the aluminium rocker bridge is permitted. Any machining or facing of rocker pedestals shall be parallel with the original factory machining. Any shimming shall be limited to 6mm combined thickness for any one valve.
- 9.3.2** Any machining or facing of rocker-bridge shall be parallel with the original factory machining.
- 9.3.3** Valve spring retainers are free.
- 9.3.4** The valve spring shroud may be removed.
- 9.3.5** Valve springs are free; subject to there being only one spring per valve (additional flat wound damper springs are permitted).
- 9.3.6** It is permitted to machine the head in:
- (1)** the specific area of the valve spring seat,
 - (2)** the valve guide boss (spring side) to enable “push-on” valve stem seals to be fitted.
- 9.3.7** Shimming is permitted under the valve spring.
- 9.3.8** It is permitted to reclaim valve guides by using the “K-LINE” bronze sleeve method.
- 9.3.9** It is permitted to reclaim up to four guides using the “THIN-WALL” .503” guide method.
- 9.3.10** The minimum internal diameter of any guide is 0.340”.
- 9.3.11** Oversize stem valves are permitted, as is the reaming of guides to accommodate such. The practice of reducing valve stem length to enable rockers to act on components (such as collets and retainers) other than push rod and valve is deemed to be a prohibited modification.
- 9.3.12** Planing of the cylinder head to block face is permitted, but angle planing is prohibited.
- 9.3.13** Valves are free, save that they must be either steel or stainless steel respecting the provisions of Article 9.3.14.
- 9.3.14** Maximum sizes for valves are 41.50mm for inlet and 1.375” for exhaust.
- 9.3.15** It is permitted to reclaim the valve seats.
- 9.3.16** No free hand or hand held tool grinding or finishing is permitted under any circumstances apart from deburring. This deburring shall be limited to the edges formed by the junction of the combustion chamber and head gasket face, and the junction of the ports and the manifold face. Any deburring shall have a maximum width of 1.0mm.
- 9.4 Camshaft:** All engines shall use the controlled camshaft, being AC profile 167.
- 9.4.1** All camshafts shall be supplied and logged by Auckland Cams.
- Note:** *See Appendix 1 for contact details*
- 9.4.2** It is permitted to fit an alloy or steel camshaft gear with spur or helical teeth.
- 9.4.3** Alternative locking of the camshaft gear is permitted as is offset keying.
- 9.4.4** Cam followers are free save that they must be of hydraulic operation and have a maximum diameter of 0.8428 inches.
- 9.5 Crankshaft and Connecting Rods:** shall be from the 202 Holden Red Engine or 3.3 blue/black engine.
- 9.5.1** It is permitted to heat treat or chemically treat the crankshaft.

- 9.5.2 Bearing journals may be reclaimed subject to offset grinding being strictly prohibited.
- 9.5.3 Offset keying of the crankshaft timing gear is permitted.
- 9.5.4 Connecting rods may be shot panned.
- 9.5.5 The connecting rod retaining bolts are free.
- 9.5.6 Connecting rod maximum length (centre to centre) = 133.35mm. (Conrod big ends may be resized).
- 9.5.7 Total connecting rod minimum total weight including bolts and nuts (less bearings) = 460 grams.
- 9.6 **Flywheel:** Only the 6-cylinder 202 Red Engine flywheel is permitted.
- 9.6.1 Doweling of the flywheel to the crankshaft is permitted.
- 9.6.2 Machining of the flywheel on the clutch face only is allowed. (Step machining is prohibited).
- 9.6.3 Flywheel Weight: 9.8 kg minimum.
- 9.6.4 Flywheel Diameter: 277.4mm minimum (may not be machined).
- 9.7 **Balancing:** It is permitted to balance all rotating and reciprocating components. The minimum amount of material only may be removed to achieve balance. Excess removal of material, polishing and or deliberate modification of these components is strictly prohibited.
- 9.7.1 The harmonic balancer may be bolted to the crankshaft.
- 9.7.2 A safety disc may be fitted in front of the harmonic balancer provided that the disc is not thicker than 3.2mm and has a diameter that does not exceed the outside diameter of the harmonic balancer.
- 9.7.3 The standard balancer may be replaced with a controlled part. The control part harmonic balancer is Powerbond P/N PB17A-SR.
- 9.8 **Lubrication:**
- 9.8.1 Baffle plates may be added to the removable section of the oil pan only.
- 9.8.2 The oil capacity may not be altered.
- 9.8.3 The pick-up is free below the pick-up brace.
- 9.8.4 Oil coolers are not permitted.
- 9.8.5 The original oil pump may be modified and replacement gears fitted.

10.0 ENGINE SPECIFICATIONS for Avgas

- 10.1 **Cylinder Block:** It is permitted to use only the HQ Holden 202, six cylinder in line engine. The 3.3 "red" (casting l/h side) block may be used providing it is of the same configuration as the 202 (casting l/h side) "red" block.
- 10.1.1 Re-Bore: 93.827 mm maximum.
- 10.1.2 Stroke: 82.55 mm ± 0.05 mm.
- 10.1.3 It is permitted to machine the cylinder block. Angle machining of such is prohibited.
- 10.1.4 Core plugs may be mechanically fastened.

- 10.1.5** It is permitted to machine the “rope seal block” for fitment of the rubber type rear crank seal.
- 10.2** **Pistons:** Replacement pistons are permitted provided that any piston and rod assembly does not weigh less than 1080 grams. (Assembly includes piston, rings, piston pin, bearing shells, rod bolts and nuts).
- 10.2.1** Pistons must remain either Flat or Dish topped as manufactured with 3 complete ring grooves each with a ring fitted.
- 10.2.2** Piston pin retention is by interference fit with connecting rod.
- 10.2.3** It is permitted to re-sleeve two(2) cylinders only.
- 10.2.4** Standard push rods shall be used.
- 10.3** **Cylinder Head:** Casting number 2811930 or 9937262 large combustion chamber type utilising 202 Holden bridge-type rocker arms.
- 10.3.1** Facing or shimming of the aluminium rocker bridge is permitted. Any machining or facing of rocker pedestals shall be parallel with the original factory machining. Any shimming shall be limited to 6mm combined thickness for any one valve.
- 10.3.2** Any machining or facing of rocker-bridge shall be parallel with the original factory machining.
- 10.3.3** Valve spring retainers are free.
- 10.3.4** The valve spring shroud may be removed.
- 10.3.5** Valve springs are free; subject to there being only one spring per valve (additional flat wound damper springs are permitted).
- 10.3.6** It is permitted to machine the head in:
- (1)** the specific area of the valve spring seat,
 - (2)** the valve guide boss (spring side) to enable “push-on” valve stem seals to be fitted.
- 10.3.7** Shimming is permitted under the valve spring.
- 10.3.8** It is permitted to reclaim valve guides by using the “K-LINE” bronze sleeve method.
- 10.3.9** It is permitted to reclaim up to four guides using the “THIN-WALL” .503”guide method.
- 10.3.10** The minimum internal diameter of any guide is 0.340”.
- 10.3.11** Oversize stem valves are permitted, as is the reaming of guides to accommodate such. The practice of reducing valve stem length to enable rockers to act on components (such as collets and retainers) other than push rod and valve is deemed to be a prohibited modification.
- 10.3.12** Compression ratio is free.
- 10.3.13** Planing of the cylinder head to block face is permitted, but angle planing is prohibited.
- 10.3.14** The cylinder head manifold face may be machined parallel with the factory machined face.
- 10.3.15** Head bolts (with washers optional) are free provided the thread of such is 7/16 UNC.
- 10.3.16** Valves are free, save that they must be either steel or stainless steel.
- 10.3.17** Maximum sizes for valves are 1.675” for inlet and 1.375” for exhaust.
- 10.3.18** It is permitted to reclaim the valve seats.

- 10.3.19** It is permitted to machine the combustion chamber locally in the area of the valve head, provided that the edge of the valve head is within 0.125" of the wall of the combustion chamber.
- 10.3.20** Throating or machining of the cylinder head ports is permitted only between the valve seat to a depth no greater than the top of the untouched valve guide boss casting using a parallel or tapered cutter with the centre-line of the valve guide being the axis of rotation of the cutter. Any taper may only be diminishing in size from the valve seat at its narrowest point to the valve guide boss casting.
- 10.3.21** No free hand or hand held tool grinding or finishing is permitted under any circumstances apart from deburring. This deburring shall be limited to the edges formed by the junction of the combustion chamber and head gasket face, and the junction of the ports and the manifold face. Any deburring shall have a maximum width of 1.0mm.
- 10.3.22** It is permitted to trim the inlet manifold flange in order to clear the exhaust flanges as used on some header systems. The internal dimensions of the manifold shall not be altered in any way.
- 10.3.23** Cylinder heads must conform to the eligibility diagram 1H.
- 10.4 Camshaft:** All engines shall use the controlled camshaft, being Wade profile No 933.
- 10.4.1** All camshafts shall be logged by:
- Kelford Camtech (N.Z) Ltd, or
 - Franklin Cam Services Ltd.
- Note:** See Appendix 1 for contact details
- 10.4.2** It is permitted to fit an alloy or steel camshaft gear with spur or helical teeth.
- 10.4.3** Alternative locking of the camshaft gear is permitted as is offset keying.
- 10.4.4** Cam followers are free save that they must be of hydraulic operation and have a maximum diameter of 0.8428 inches.
- 10.5 Crankshaft and Connecting Rods:** Crankshaft and connecting rods shall be from the 202 Holden Red Engine or 3.3 blue/black engine.
- 10.5.1** It is permitted to heat treat or chemically treat the crankshaft.
- 10.5.2** Bearing journals may be reclaimed subject to offset grinding being strictly prohibited.
- 10.5.3** Offset keying of the crankshaft timing gear is permitted.
- 10.5.4** Connecting rods may be shot panned.
- 10.5.5** The connecting rod retaining bolts are free.
- 10.5.6** Connecting rod maximum length (centre to centre) = 133.35mm. (Conrod big ends may be resized).
- 10.5.7** Total connecting rod minimum total weight including bolts and nuts (less bearings) = 460grams.
- 10.5.8** The use of engine bearing material of a competition composition is permitted.
- 10.6 Flywheel:** Only the 6-cylinder 202 Red Engine flywheel is permitted.
- 10.6.1** Doweling of the flywheel to the crankshaft is permitted.
- 10.6.2** Machining of the flywheel on the clutch face only is allowed. (Step machining is prohibited).
- 10.6.3** Flywheel Weight: 9.8 kg minimum.
- 10.6.4** Flywheel Diameter: 277.4 mm minimum (may not be machined).

10.7 Balancing: It is permitted to balance all rotating and reciprocating components. The minimum amount of material only may be removed to achieve balance. Excess removal of material, polishing and or deliberate modification of these components is strictly forbidden.

10.7.1 The harmonic balancer may be bolted to the crankshaft.

10.7.2 A safety disc may be fitted in front of the harmonic balancer provided that the disc is not thicker than 3.2mm and has a diameter that does not exceed the outside diameter of the harmonic balancer.

10.7.3 The standard balancer may be replaced with a controlled part. The control part harmonic balancer is Powerbond P/N PB17A-SR.

10.8 Lubrication:

10.8.1 Baffle plates may be added to the removable section of the oil pan only.

10.8.2 The oil capacity may not be altered.

10.8.3 The pick-up is free below the pick-up brace.

10.8.4 Oil coolers are not permitted.

10.8.5 The original oil pump may be modified and replacement gears fitted.

11.0 COATINGS

11.1 The use of specialised coatings to enhance performance is prohibited. This does not apply to the exhaust system as described.

12.0 ENGINE INDUCTION

12.1 Inlet manifold: Is a controlled part, being Redline Torker 2 Part no. 12-65M. No hand finishing porting, polishing, coating matching of ports or removal of material is permitted.

12.1.1 It is permitted to trim the inlet manifold flange in order to clear the exhaust flanges as used on some header systems. The internal dimensions of the manifold shall not be altered in any way.

12.2 98 Octane Carburettor: Controlled part 2 barrel 350 CFM Holley list no. 7448

12.2.1 Carburettor venturi internal diameter $37.9\text{mm} \pm 0.05\text{mm}$.

12.2.2 Jetting is free subject to the number of such remaining unchanged from Holley manufacture.

12.2.3 The emulsion tube and the power valve may be modified.

12.2.4 It is permitted to block off the vacuum passage in the carburettor body.

12.2.5 It is permitted to remove the choke butterfly and associated linkage from the carburettor. The holes left by the removal of the shaft must be securely blanked off.

12.2.6 It is permitted to add a baffle to the float chamber of the carburettor for the sole purpose of controlling fuel surge.

12.2.7 The carburettor float must remain standard and unmodified in shape, size and fixture.

12.3 Avgas Carburettor: Type Stromberg BXV-2, Stromberg BXUV-3.

12.3.1 Carburettor venturi internal diameter = $30.94\text{mm} \pm 0.05\text{mm}$ (may not be machined).

- 12.3.2 Carburettor flange internal diameter = 40.00mm ± 0.05mm (may not be machined).
- 12.3.3 Jetting is free subject to the number of such remaining unchanged from GMH manufacture.
- 12.3.4 It is permitted to remove the screw in plug directly under the main jet to enable the fitment of an externally adjustable jet provided the means of adjustment protrudes no further than 50mm from the carburettor body.
- 12.3.5 The emulsion tube and the power valve may be modified.
- 12.3.6 It is permitted to block off the vacuum passage in the carburettor body.
- 12.3.7 It is permitted to remove the choke butterfly and associated linkage from the carburettor. The holes left by the removal of the shaft must be securely blanked off.
- 12.3.8 It is permitted to add a baffle to the float chamber of the carburettor for the sole purpose of controlling fuel surge.
- 12.3.9 It is permitted to use an HQ Holden V8 carburettor float needle and seat.
- 12.3.10 The carburettor float must remain standard and unmodified in shape, size and fixture.
- 12.4 **Air Filter Canister:** is a controlled part, P/N 66185. Contact DC Trading.

Note: See Appendix 1 for contact details
- 12.4.1 Air Filter element is free, provided that it can be fitted to the control Air Filter Canister without modification.

13.0 FUEL and FUEL SYSTEM

- 13.1 **Fuel:** the only fuels authorised are 98 Octane Pump fuel and Avgas as detailed in the National Sporting Code, Appendix Two Schedule A.
- 13.2 No additives shall be added to the fuel nor may a blend of fuels be used.
- 13.3 It is not permitted to artificially cool the fuel.
- 13.4 A fuel sample of not less than 1000ml shall be made available from the competing vehicle, at the request of the Series Scrutineer, any time during the competition.
- 13.5 SCRANZ reserves the right to seal fuel tanks, up to two(2) hours prior to the vehicle competing on the track.
- 13.6 The original fuel tank shall be used in its original position and unmodified. The tank may be filled with anti-spray foam.
- 13.7 An aftermarket fuel tank to a known standard (US Mil or such) may be fitted as a replacement to the original tank. This shall be installed in the centre of the boot and shall not protrude lower than the original tank. Such tanks shall only be vented to outside the boot by means of an anti-spill line.
- 13.8 The tank breathers may be extended provided extensions do not increase the diameter of the original hoses.
- 13.9 An inline fuel filter may be used (preferably metal cased).
- 13.10 The fuel pump is free, respecting Schedule A, and may be electrical or mechanical.
- 13.11 The fuel line from the fuel pump to the carburettor may be replaced with Schedule A approved fuel tubing.

14.0 COOLING SYSTEM

- 14.1 Radiator:** A replacement water radiator is permitted subject to its fitment requiring no modification to any part of the vehicle. (The original mounting points must be used). No aluminium water radiators are permitted.
- 14.2 Radiator fan:** It is permitted to remove the original radiator fan and spacer and fit an electric unit/s.
- 14.3 Thermostat:** The engine thermostat may be removed or replaced with a restrictor plate.
- 14.3.1** The thermostat housing and or the water pump may be machined for clearance one to the other.
- 14.4 Hoses:** An in-line water filter may be fitted into the top hose.
- 14.4.1** Heater hoses may be removed.

15.0 TRANSMISSION, GEARBOX and DIFFERENTIAL

- 15.1 Clutch:** It is permitted to replace the clutch with one as originally designed for installation in and sold as a replacement part for the Holden 1 tonne vehicles.
- 15.1.2** Kevlar type clutch friction linings are permitted on the original type clutch plate. (Friction plate diameter and weight are to remain standard).
- 15.1.3** The pressure plate spring rate may be increased but the plate assembly must remain a diaphragm spring type and be the same dimensions and weight as the original GMH part.
- 15.1.4** It is permitted to alter the standard method of actuation of the clutch fork to either cable or hydraulic.
- 15.1.5** Clutch diameter: 218mm \pm 2mm.
- 15.2** A replacement bell housing part No.92002426 as fitted to HZ Series cars may be used.
- 15.3** Only the original 3 speed manual gearbox may be used. Lay Gear part number 7434307.
- 15.3.1** Gear Ratios are:
- 1st 3.07:1
 - 2nd 1.68:1
 - 3rd 1.00:1
 - Reverse 3.59:1
- 15.4** The steering column gear linkage may be replaced by a floor change mechanism, in which case it is permitted to modify the floor pan only as much as is necessary for the fitting of the shifter.
- 15.5** Only the non-limited slip differential may be used, as fitted to the six cylinder or V8 HQ Holden. Later "H" series fine spline rear axles and the appropriate differential gears to suit those axles may be used.
- 15.5.1** It is permitted to add baffles to the rear axle housing for the sole purpose of controlling lubricant surge.
- 15.5.2 Final drive:** ratio is 3.55:1, number of teeth 39:11
- 15.6** At any time a suspended wheel must rotate when subjected to 15-ft/lbs. torque on the axle. Hot or cold.
- 15.7** It is permitted to extend the breather.

- 15.8 The driveshaft is free save that it must be of one piece single tube steel construction.
- 15.8.1 The use of the tail-shaft yoke, pinion flange and universal joints from V8 Holden's is permitted.
- 15.9 A minimum of 2 steel straps 6mm thick must be fitted to retain driveshaft sections in the event of driveshaft failure.

16.0 EXHAUST

- 16.1 The exhaust is free from the exit of the cylinder head.
- 16.2 Manifold gaskets up to a maximum 2mm total combined compressed thickness may be used between the manifolds and the cylinder head.
- 16.3 Exhaust noise limits shall comply with Schedule A.
- 16.4 The exhaust exit shall comply with Schedule A.

17.0 ELECTRICAL SYSTEM

17.1 Ignition System:

- 17.1.1 **Coil:** Any Bosch, Pertronics or Lucas coil may be used. The location of such is free within the engine bay.
- 17.1.2 The distributor shall be either from the 202 "red engine" or 3.3 "blue engine" (electronic).
- 17.1.3 The mechanical advance curve of the distributor may be modified and the points may be replaced with the controlled part Pretronics ignitor unit. P/n 5822(model1) or 6122 (model2) contact Autopia.

Note: See Appendix 1 for contact details

- 17.1.4 The vacuum advance mechanism may be disconnected or removed.
- 17.1.5 It is permitted to use the "Scorcher" type single point type distributor.
- 17.1.6 It is permitted to use a steel distributor gear.

17.2 Electrical System

- 17.2.1 The location of the battery is free. (Mounting as per Schedule A).
- 17.2.2 The battery must be of a size that would fit into the original battery tray.
- 17.2.3 The electrical system must be complete as manufactured, with all components in their original location; save for the addition of supplementary switches, gauges and an electric cooling fan/s if fitted. As a minimum the following electrical components must be operational: windscreen wiper, taillights, stop lights, alternator and starter motor.
- 17.2.4 No supplementary gauge, performance monitoring instrument or sensor with the capacity to hold data in memory or to transmit information outside of the vehicle is permitted. This does not apply to in-car cameras.
- 17.2.5 The use of radios for communication is not permitted.
- 17.2.6 The use of in-car electronic 'hot lap type' lap timing equipment is permitted.
- 17.2.7 No switches or devices are permitted which prevent the standard operation of the alternator.

- 17.2.8** The alternator pulley may be replaced, save for the maximum diameter being 100 mm.
- 17.2.9** The alternator brackets may be reinforced.
- 17.2.10** An operational HI-STOP brake light must be fitted to the centre of the rear screen at the bottom. This must be retained by mechanical fastening and not solely by adhesives.
- 17.2.11** A control rain light, part number Hella 955901140, shall be installed in the centre of the boot lid, either covering or just above, the boot key-lock aperture.
- 17.2.12** The later type alternator with internal regulator may be fitted provided no changes to the mountings are made. The existing wiring may be modified to accept this alternator.
- 17.2.13** Any 12-volt starter motor shall be used.

18.0 SUSPENSION

- 18.1** The retaining/adjustment bolts on the front upper control arms may be replaced with bolts 7/16 inch diameter, minimum grade "8" (55 tonne) high tensile, with a maximum length of 2.75 inches measured from the shoulder. A self-locking nut shall be fitted so as to leave at least 2 full threads visible on the bolt when the nut is fully tightened.
- 18.2** Front and rear coil springs are free, subject to the original location and number remaining unchanged.
- 18.3** Front and rear shock absorbers are free, subject to the original location, mounting points and numbers remaining unchanged. Bump stop collars on the control rod shall be rubber. It is permitted to trim or remove bump stop rubbers.
- 18.4** Front wheel alignment settings shall be within the range of adjustment provided originally by the manufacturer, respecting the provisions of Article 18.6.
- 18.5** It is permitted to replace the alignment setting shims with solid ferrous spacers.
- 18.6** The camber on each front wheel must not exceed 3 degrees negative.
- 18.7** The camber on any rear wheel must not exceed 1 degree negative.
- 18.8** Suspension bushings may be rubber as envisaged by the manufacturer or urethane as available as standard replacement parts for HQ Holden.
- 18.9** Right hand side upper control arm, rear bush flange may be machined for clearance of the steering shaft, to a measurement of not less than 6mm measured from the outer bush housing
- 18.10** Front lower control arms, shock absorber retaining bolts. It is permitted to replace these bolts with a longer length bolt of the same original diameter, and it is recommended that the bolt be fitted with lock nuts.
- 18.11** To allow for the easier fitting of some types of shock absorbers, the lower control arms may be modified by the removal of metal as shown in Fig 5A
- 18.12** The original 17.5mm diameter front swaybar shall be used. This shall be mounted in original location in standard bushes.

19.0 BRAKING SYSTEM

- 19.1** Front brake pad material is free, as is the attachment of such material to the front pad backing plates.

- 19.2** Front pad backing plate: maximum thickness is 6mm and the shape of such shall be as per GMH manufactured.
- 19.3** Attachment of front pad backing plate to calliper shall be as per GMH manufactured.
- 19.4** Front brake callipers shall be as per GMH manufactured. The caliper part numbers are:
- PBR L/H 9933233 R/H 9933234
 - Girlock L/H 9929899 R/H 9929900
- 19.5** Front disc dimensions: Diameter = 276mm ± 2mm. Minimum thickness = 23mm.
- 19.6** Rear brake lining materials are free, as is the method of attachment to the brake shoe.
- 19.7** Brake shoes shall be as per GMH manufactured (with exception of brake lining material).
- 19.8** The internal bore diameter of the rear wheel cylinders is free, but must have equal effective seal diameters.
- 19.9** The rear brake self-adjusting mechanism may be removed.
- 19.10** The rear brake backing plates shall remain standard and unmodified.
- 19.11** It is permitted to add one flexible hose (maximum outside diameter 75 mm) to direct air towards the brake of each wheel.
- 19.12** An entry scoop (maximum internal dimensions of 250 x 65mm) may be fitted to each hose.
- 19.13** All brake scoops must remain within the confines of the bodywork.
- 19.14** The original brake pressure limiting valve spring may be modified or replaced. The valve shall not be externally adjustable.
- 19.15** The original flexible brake hoses may be replaced with aeronautic quality hoses.
- 19.16** It is permitted to strengthen the brake booster mounting area by the fitting of a bracket mounted from the booster to the scuttle panel.
- 19.17** Brake Master Cylinder: The standard 25.4mm master cylinder shall be used. It is permitted to remove the pressure retention valves.

20.0 STEERING SYSTEM

- 20.1** The steering lock shall be made inoperable. The ignition switch may be removed but the hole left must be neatly blanked off.
- 20.2** The front and rear suspension, steering box, idler arms, control arms, and tie rods shall be as originally fitted to a HQ Holden (see figure 3).
- 20.3** When using a power steering box, the power steering pump, hoses, belts and brackets shall be fitted and the power steering box operating as originally fitted by General Motors.
- 20.4** It is permitted to change the original fibre steering shaft universal with an aftermarket equivalent.

21.0 ROAD WHEELS

- 21.1** Road wheels are free, however all road wheels shall respect the following:
- (1) The diameter / width of the wheel shall be 15" x 7",
 - (2) The offset shall be zero(0) +/- 8.0mm, and
 - (3) The weight of the wheel must be no less than 9.74Kg

22.0 REPLACEMENT PARTS

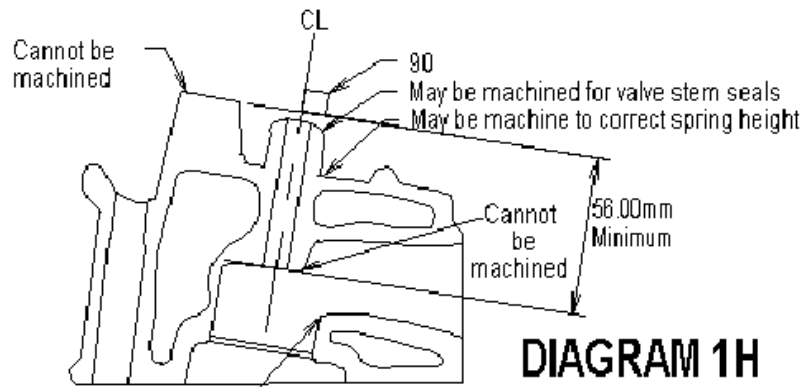
22.1 Any replacement part not listed in this schedule must receive the written approval of the SCRANZ Inc.

22.2 Non-genuine parts: The use of non-genuine GMH replacement parts is permitted. The following parts must be standard replacement parts in terms of configuration and functional dimensions and similar material, and shall not result in any unauthorised modifications to any other component:

- Gaskets and seals
- Oil seals
- Engine bearings
- Master cylinder & repair kits
- Ignition condenser
- Wheel cylinders and repair kits
- Distributor rotor
- Thermostat
- Voltage regulator
- Brake discs and drums
- Ignition points
- Wheel bearings
- Idler shaft
- Bodywork components
- Carburettor repair kits
- Filters (excluding Air)
- Distributor cap
- Window glass
- Harmonic balancer
- Universal joints
- Fuel pump and repair kits
- Windscreen wiper motor and assembly
- Wiper blades and arms
- Fan belt
- Differential bearings
- Water pump
- Gearbox bearings
- Ball joints
- Tie rod ends
- Suspension Bushes (rubber or urethane)

22.3 Authorised Parts: The following parts may be from any source provided that their use does not result in any unauthorised modifications to any other component:

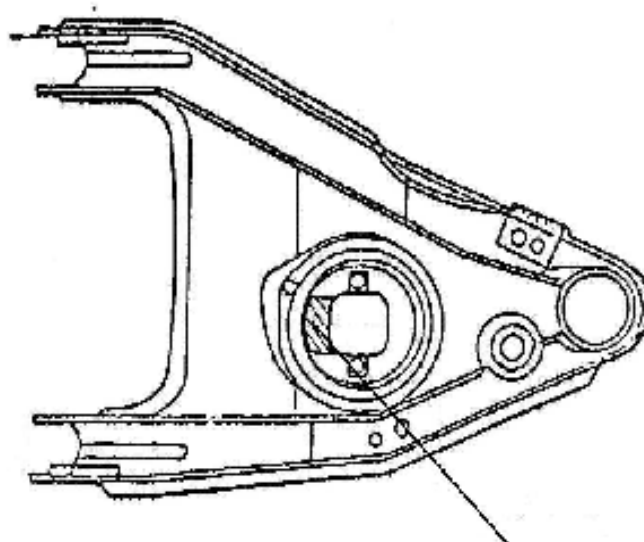
- Fasteners: nuts, bolts, screws etc. (excluding all engine, transmission, drive train assembly and suspension mounting bolts which must remain original as supplied by GMH unless specifically authorised in these regulations).
- Cylinder head gasket
- Pistons
- Piston rings
- Headlight units
- Battery
- Lamps
- Oil filler caps
- Spark plug leads
- Disc pads and brake linings
- Timing gears
- Manifold gasket
- Oil pump & repair kits
- Battery holder & leads
- Thermostat housing
- Auxiliary gauges
- Rocker cover & side plate covers
- Auxiliary bonnet fasteners
- Spark plugs
- Valve followers (hydraulic only)
- Water radiator
- Screw thread repair devices
- Inlet & Exhaust valves



Check this area - the distinct edge that is formed during machining cannot be modified

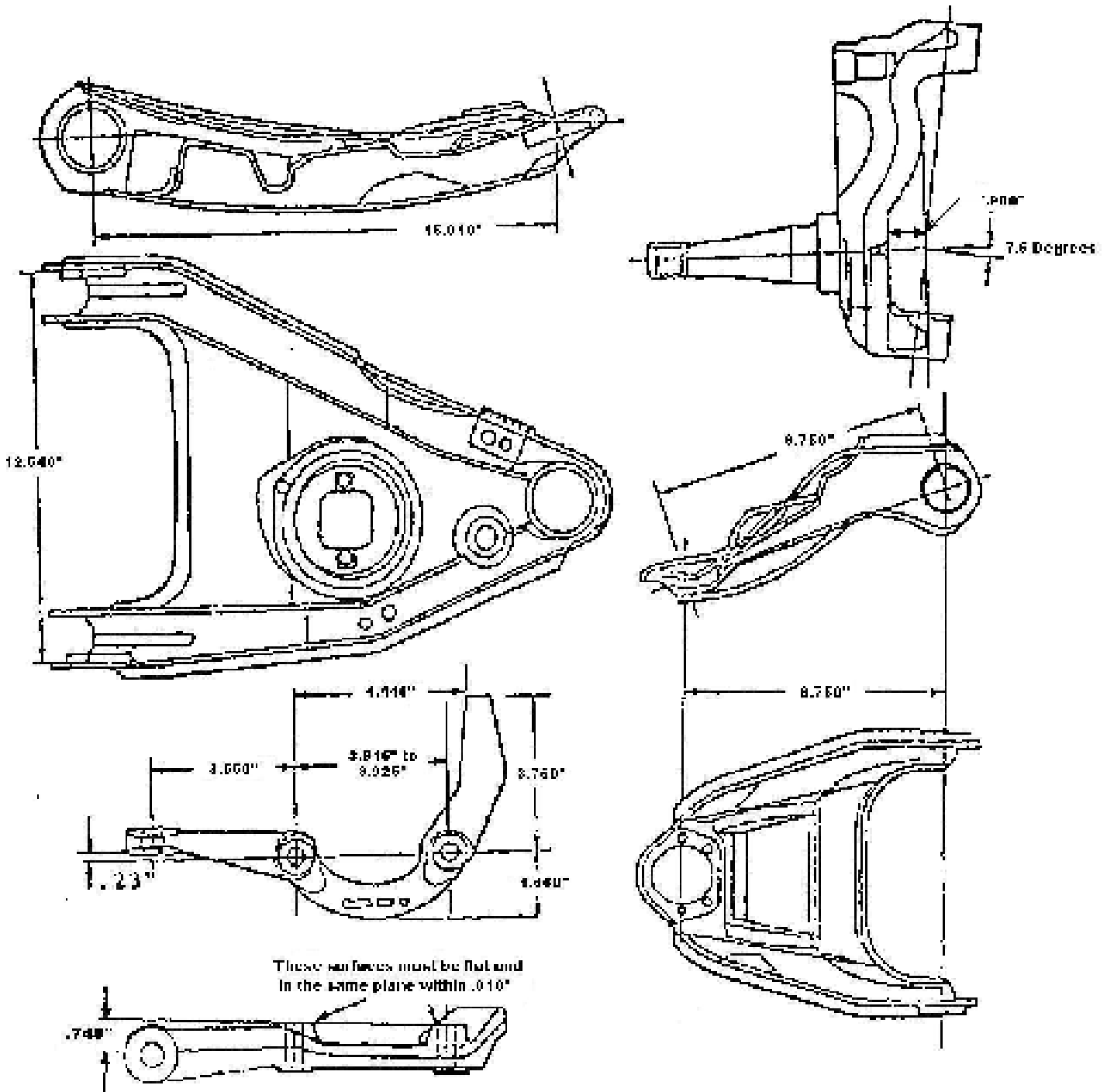
Fig 5A

Front lower control arm



It is permitted to remove the shaded area

Figure 3
FRONT SUSPENSION PARTS
CHECKING DIMENSIONS



APPENDIX ONE

Auckland Camshafts Ltd
251 Don Buck Rd
Massey
Auckland
Ph 09 833 5478
Mob: 0274 860 400

Marsh Motorsport Ltd
3B Smales Rd
East Tamaki
Auckland
Ph 09 274 7997

DC Trading Ltd
1/38 Andromeda Pl
East Tamaki
Auckland
Ph 09 274 8262
amb@slingshot.co.nz
www.dctrading.co.nz

Kelford Camtech (N.Z) Ltd,
11-15 Kennaway Rd
Woolston
Christchurch 8022
Ph: 03 929 0725
www.kelford.co.nz

Franklin Cam Services Ltd.
127 Manukau Rd
Pukekohe
Auckland 2340
Ph: 0800 226 742387
Email: fcams@xtra.co.nz
www.camshafts.co.nz