



5TH CATEGORY - HISTORIC RACING  
**GROUP Nc**  
 APPROVED VEHICLE SPECIFICATION

This form details the approved specifications of individual vehicle models in the 5th Category Historic car group. To be issued with a Historic Logbook, cars need to comply with these specifications, the physical appearance shown in the illustrations and the general historic rules as detailed in the current Motorsport Australia Manual.

<b>Make of Car:</b>	Chevrolet	<b>Model:</b>	Camaro SS 350 Small block
<b>Period of Original Manufacture:</b>	1969		
<b>Motorsport Australia Historic Group:</b>	Nc		
<b>Date of issue of this document:</b>	May 2020		



<b>Update Log</b>	
May 2020	GM Motorsport Block Part # 88962516 added
June 2020	Bodywork Photos added

Refer to Motorsport Australia Manual, Vehicle Eligibility, Historic Touring Cars, General Requirements & Nc Regulations for permitted modifications.

## SECTION 1 - CHASSIS

<b>1.1 CHASSIS FRAME</b>	
<b>Description:</b>	Uni body, two door coupe with sub frames
<b>Period of Manufacture:</b>	1969
<b>Manufacturer:</b>	Chevrolet
<b>Chassis no. from:</b>	12437-9N 500001 to 12437-9N 711000
<b>Chassis no. location:</b>	Left hand side of dash
<b>Material:</b>	Steel
<b>Comment:</b>	None

<b>1.2 FRONT SUSPENSION</b>			
<b>Description:</b>	Independent, wishbones		
<b>Spring Medium:</b>	Coil		
<b>Damper Type:</b>	Telescopic	<b>Adjustable:</b>	No
<b>Anti-sway bar:</b>	Fitted	<b>Adjustable:</b>	No
<b>Suspension adjustable:</b>	Yes	<b>Method:</b>	Shims for caster & camber, tie rod for toe
<b>Comment:</b>	None		

<b>1.3 REAR SUSPENSION</b>			
<b>Description:</b>	Live rear axle		
<b>Spring medium:</b>	Semi-elliptical leaf		
<b>Damper type:</b>	Telescopic	<b>Adjustable:</b>	No
<b>Anti-sway bar:</b>	Fitted	<b>Adjustable:</b>	No
<b>Suspension adjustable:</b>	Yes	<b>Method:</b>	Spring height
<b>Comment:</b>	None		

<b>1.4 STEERING</b>			
<b>Type:</b>	Recirculating ball & nut	<b>Make:</b>	GM
<b>Comment:</b>	None		

<b>1.5 BRAKES</b>			
	<b>Front</b>	<b>Rear</b>	
<b>Type:</b>	Disc, vented	Drum	
<b>Dimensions:</b>	25.4 x 298 mm	50 x 241 mm	
<b>Material:</b>	Cast iron	Cast iron	
<b>No. cylinders/pots per wheel:</b>	One	One	
<b>Actuation:</b>	Hydraulic	Hydraulic	
<b>Caliper Make:</b>	GM		
<b>Caliper Type:</b>	??		
<b>Caliper Material:</b>	Cast iron		
<b>Master cylinder make:</b>	Delco / Bendix	<b>Type:</b>	Tandem
<b>Adjustable bias:</b>	No		
<b>Servo Fitted:</b>	Yes		
<b>Comment:</b>	None		

## SECTION 2 - ENGINE

<b>2.1 ENGINE</b>			
<b>Make:</b>	Chevrolet		
<b>Model:</b>	Small block - 350		
<b>No. cylinders:</b>	Eight	<b>Configuration:</b>	Vee
<b>Cylinder block material:</b>	Cast iron	<b>Two/Four Stroke:</b>	Four
<b>Bore - Original:</b>	101.6 mm	<b>Max. allowed:</b>	103.1 mm
<b>Stroke - original:</b>	88.392 mm	<b>Max. allowed:</b>	88.392 mm
<b>Capacity - original:</b>	5733 cc	<b>Max. allowed:</b>	5904 cc
<b>Cooling method:</b>	Fluid		
<b>Identifying marks:</b>	Casting number, refer Appendix A New Block added		
<b>Comment:</b>	Refer Appendix A for component substitution <ul style="list-style-type: none"> <li>• GM Performance Small Block: 10066034</li> <li>• GM Performance Small Block: 88962516</li> </ul> Aluminium block/cylinder head engine <b>NOT</b> permitted as GM documented production was only 60 units. This does not meet the requirement of 1,000 units in 12 months.		

<b>2.2 CYLINDER HEAD</b>					
<b>Make:</b>	GM				
<b>No. of valves/cylinder:</b>	Two	<b>Inlet:</b>	One	<b>Exhaust:</b>	One
<b>No. of ports total:</b>	Eight	<b>Inlet:</b>	Four	<b>Exhaust:</b>	Four
<b>No. of camshafts:</b>	One	<b>Location:</b>	Block	<b>Drive:</b>	Chain
<b>Valve actuation:</b>	Pushrod & rockers				
<b>Spark plugs/cylinder:</b>	One				
<b>Identifying marks:</b>	Refer Appendix A				
<b>Comment:</b>	Conditional upon individual application Refer Appendix A for component substitution <ul style="list-style-type: none"> <li>• Dart Iron Eagle 180 SBC 23 Degree cast iron part no 10120010</li> <li>• RHS "Pro Action" 23 degree Cast Iron SBC head – (180cc Intake Runner/64cc chamber). Part No. 12317 straight plug Part No. 12318 angled plug</li> </ul>				

<b>2.3 LUBRICATION</b>			
<b>Method:</b>	Wet sump		
<b>Oil cooler standard:</b>	No		
<b>Comment:</b>	None		

<b>2.4 IGNITION SYSTEM</b>	
<b>Type:</b>	Coil & distributor
<b>Make:</b>	Delco Remy
<b>Comment:</b>	None

<b>2.5 FUEL SYSTEM</b>			
<b>Carburettor Make:</b>	Rochester	<b>Model:</b>	Quadrajets
<b>Carburettor number:</b>	One		
<b>Size:</b>	Primary 27.69 mm	Secondary 38.10 mm	
<b>Comment:</b>	Barry Grant reproduction carburettor not approved		

### SECTION 3 - TRANSMISSION

<b>3.1 CLUTCH</b>			
<b>Make:</b>	GM		
<b>Type:</b>	Diaphragm		
<b>Diameter:</b>	254 mm	<b>No. of Plates:</b>	One
<b>Actuation:</b>	Mechanical		
<b>Comment:</b>	None		

<b>3.2 TRANSMISSION</b>			
<b>Type:</b>	Synchro-mesh		
<b>Make:</b>	GM Muncie M20 model		
<b>No. forward speeds:</b>	Four	<b>Gearbox location:</b>	Behind engine
<b>Gear change type and location:</b>	Remote on floor		
<b>Case material:</b>	Alloy	<b>Identifying marks:</b>	N/A
<b>Comment:</b>	None		

<b>3.3 FINAL DRIVE</b>			
<b>Make:</b>	GM	<b>Model:</b>	12 bolt
<b>Type:</b>	Live rear axle		
<b>Wheel drive method:</b>	Rear		
<b>Ratios:</b>	Various		
<b>Differential type:</b>	LSD		
<b>Comment:</b>	None		

<b>3.4 TRANSMISSION SHAFTS (EXPOSED)</b>	
<b>Number:</b>	One
<b>Description:</b>	One-piece open tail shaft
<b>Comment:</b>	None

<b>3.5 WHEELS &amp; TYRES</b>			
<b>Wheel type - Original:</b>	Disc	<b>Material - Original:</b>	Steel
<b>Allowed:</b>	Cast	<b>Allowed:</b>	Aluminium alloy
<b>Fixture method:</b>	Studs	<b>No. studs:</b>	Five
<b>Wheel dia. &amp; rim width:</b>	<b>FRONT</b>		<b>REAR</b>
<b>Original:</b>	6 x 14 inch		6 x 14 inch
<b>Allowed:</b>	8 x 15 inch		8 x 15 inch
<b>Tyres allowed:</b>	60% minimum aspect ratio, refer approved tyre list.		
<b>Comment:</b>	None		

## SECTION 4 - GENERAL

### 4.1 FUEL SYSTEM

<b>Tank Location:</b>	Boot	<b>Capacity:</b>	N/A
<b>Fuel pump type and location:</b>	Mechanical on engine block	<b>Make:</b>	GM
<b>Comment:</b>	None		

### 4.2 ELECTRICAL SYSTEM

<b>Voltage:</b>	12	<b>Alternator:</b>	Fitted
<b>Battery Location:</b>	Engine bay		
<b>Comment:</b>	None		

### 4.3 BODYWORK

<b>Type:</b>	Coupe	<b>Material:</b>	Steel
<b>No. of seats:</b>	Four	<b>No. doors:</b>	Two
<b>Comments:</b>	See Appendix B		

### 4.4 DIMENSIONS

<b>Track - Front:</b>	1514 mm	<b>Rear:</b>	1511 mm
<b>Wheelbase:</b>	2743.2 mm	<b>Overall length:</b>	4724 mm
<b>Dry weight:</b>	1429 kg		
<b>Comment:</b>	None		

### 4.5 SAFETY EQUIPMENT

*Refer applicable Group Regulations*

### GENERAL COMMENTS:

- Delete options are not permitted unless documentary evidence of production of 1,000 units in 12 months to 'delete option specification' is available.

## Appendix A

### Engine Block

Spare part 10066034 GM performance parts replacement small block 305, 327 & 350, four bolt design with split rear seal.

Spare part 88962516 GM performance parts replacement small block 305, 327 & 350, four bolt design with one-piece rear seal, a kit to retain split rear seals is available and will be permitted.

#### **88962516 Engine Block Casting Numbers**

TBA						
Or others by specific approval						

#### **10066034 Engine Block Casting Numbers**

3782870	3789817	3790721	3791362	3794460	3852174	3858174
3858180	3858190	3868657	3876132	3892657	3903352	3914660
3914678	3932368	3955618	3959512	3970010	3970014	3970016
Or others by specific approval						

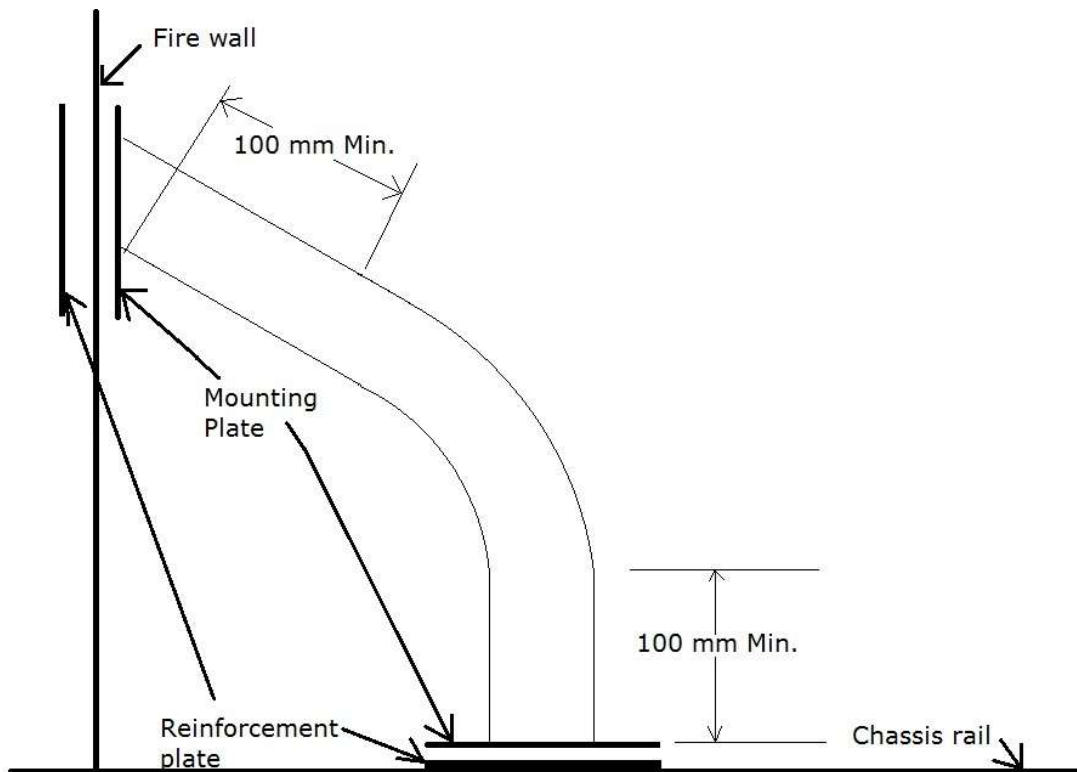
### Cylinder Head

#### **GM Cylinder Head Casting Numbers**

3782461	3890462	3917291	3917292	3917293	3927185	3927186
3927187	3927188	3932441	3947041	3973414	3973487	3986316
3986339	3991492	3998916	3998993			
Or others by specific approval						

- Dart Iron Eagle 180 SBC 23 Degree cast iron part no 10120010
- RHS "Pro Action" 23 degree Cast Iron SBC head – (180cc Intake Runner/64cc chamber).  
Part No. 12317 straight plug  
Part No. 12318 angled plug
- The heads to be in the manufactured state, save for refacing the cylinder gasket face and matching the inlet ports by not more than 12mm from the port face.
- Dart Iron Eagle heads require the use of a MSD Soft Touch rev limiter Part No 8728 with a 7500 RPM limit. The limiter will be subject to testing at race meetings. The limiter will be located in an easily accessible position within the engine bay.
- Engine to be sealed as per procedure in this appendix.
- Once approved, endorsement and the engine seal numbers will be recorded in the log book

## Sub frame reinforcement



**Requirements of sub frame reinforcements**

### Reinforcement plates:

On chassis rail – minimum of 8 mm thickness. To be the same size of tube mounting plate.

Firewall plate - 3 mm mild steel plate same size of tube mounting plate.

Maximum size of each mounting & reinforcement plates is 75 x 75 mm or 56.25 cm<sup>2</sup>.

### Reinforcement tube:

To be round mild steel tube 38mm dia. With 2.5 mm wall thickness.

Minimum length of straight tube from the end of the bent to the mounting plate is to be 100 mm.

The bend in the reinforcement tube is to be a included angle between 90° and 120°.

### Location:

Lower chassis rail mounting point is on the chassis rail. Location is allowed from the firewall to 200 mm forward of the front wheel centre line.

The upper mount on the firewall in not to be aligned with any part of the roll cage.

The locating area on the firewall is defined by a rectangle within the following parameters.

The vertical area is from the top of the chassis rail to the top of the firewall.

The horizontal area is from the outer edge of the chassis rail (where it contacts the firewall) to 300 mm towards the centre line of the vehicle.

### Mounting:

Chassis reinforcement plate to be welded to chassis rail, drill & tapped to allow mounting plate attachment.

Firewall reinforcement plate is to be bolted through the firewall & tube mounting plate.

Each mounting point to incorporate at least two fasteners having the minimum diameter of M8 and minimum quality 8.8 (ISO standard), self-locking or fitted with lock washers.



### Chevrolet small block sealing procedure for engines using the substitute cylinder head

1. Engine to be assemble to short motor without sump.
2. Heads to be assembled ready to be fitted to engine.
3. 2 sump bolts/studs to be drilled. 2 top timing case bolts/studs to be drilled.
4. The sealer will pick two valves from one cylinder of either head to be removed to check that under the valve head and the ports are unmodified and that the valve heads are 2.02" in diameter for the inlet, and 1.60" for the exhaust.
5. Check the inlet and exhaust ports are unmodified except for the allowance allowed, from the manifold faces, into the port for manifold alignment.
6. Combustion chambers are to be as per above.
7. Measure bore and stroke.
8. Note whether 2 bolt or 4 bolt block.
9. Fit sump and fit seal. Seal timing case.
10. Fit heads and drill holes in appropriate positions in the corners of the block and heads to enable wire and seals to be fitted.
11. Seal heads to block. Note seal numbers. Competitor gets a signed sealers document.

Note: If the heads are removed they must be re-sealed following the above points 4, 5, 10 and 11.

### Allowances

1. Surfacing of the head face is allowed to achieve required combustion chamber volume or restore the cylinder head from engine failure damage and/or overheating.
2. K Line .030" bronze valve guide inserts are allowed if required and to recondition to standard size from excessive wear.
3. Port matching in the cross hatched area for the inlet and exhaust ports to manifold to a maximum of the 12 mm from the manifold face. Inlet and exhaust ports must be left completely untouched from under the valve seats to within allowed depth from the manifold face.
4. Machining is allowed of the valve spring pad and valve guide outside diameter and length as well as pushrod holes. This will enable spring locators, valve springs, stem seals, valve spring installation height and pushrod clearance to be correctly set up and fitted.
5. Valve seat cutting/grinding is allowed, but the original valve sizes of 2.02" inlet and 1.60" exhaust must be retained. No machining is permitted under the valve seat.
6. No machining is permitted in the combustion chamber. Combustion chambers must be left completely untouched except for original machining by the manufacturer.  
ie. No machining, no hard or soft wire brushing, no coarse or fine grinding either by hand, machine or high speed grinder etc, no shot peening, no sand blasting, no glass bead blasting, no water blasting, no hand scraping, no filing, no emery wheels or stones, no acid etching, no chiselling, no hammering or pneumatic peening, no flexi honing, no spark eroding, no removal of any metal by milling machine.  
The only exception is the metal between the inlet valve head and the exhaust valve head which may be rounded in case it creates a hot spot.





## Appendix B



The rear spoiler is to meet the specifications and dimensions of the original GM part number 3949798. The spoiler will have an overall length of 61" and be 6" in height from leading edge to the top of the spoiler with a 5" base.



The front spoiler is to meet the specifications and dimensions of the original GM part number 3938689. The spoiler will be of high impact flexible plastic with the outside of the longest part 52" in length. The total width in the centre 4".



1969 Chev Camaro Cowl Induction hood is permitted. The hood scoop is to meet the specifications of the original GM part No 3949708. The hood will be an all steel hood with a 2" high cowl.