



<b>5TH CATEGORY - HISTORIC RACING</b> <b>GROUP N</b> <b>APPROVED VEHICLE SPECIFICATION</b>
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This form details the approved specifications of individual vehicle models in the 5th Category Historic car group. To be issued with an Historic Log Book, 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>	Studebaker	<b>Model:</b>	Lark Lark Daytona Lark Cruiser
<b>Period of Original Manufacture:</b>	1963 to 1966		
<b>Motorsport Australia Historic Group:</b>	Nb		
<b>Date of Issue of this Document:</b>	23 September 2021		



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

***Update Log***


**SECTION 1 - CHASSIS**

**1.1. CHASSIS**

<b>Description:</b>	Full perimeter with four cross members
<b>Period of Manufacture:</b>	1963 – 1966
<b>Manufacturer:</b>	Studebaker
<b>Chassis Number From:</b>	64V1001 (Aus. Assembly) C51001 (Canada assembly)
<b>Chassis Number location:</b>	Chassis rail
<b>Material:</b>	Steel
<b>Comments</b>	None

**1.1. FRONT SUSPENSION**

<b>Description:</b>	Independent - upper and lower 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>	Caster, camber and toe
<b>Comments:</b>	Refer to Appendix A		

**1.1. REAR SUSPENSION**

<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>	Yes	<b>Adjustable:</b>	No
<b>Suspension adjustable:</b>	No	<b>Method:</b>	N/A
<b>Comments:</b>	Refer to Appendix A		

**1.2. STEERING**

<b>Type:</b>	Recirculating ball	<b>Make:</b>	Saginaw
<b>Power steering</b>	Fitted – RAM type system		
<b>Comments</b>	None		

**1.3. BRAKES**

	<b>Front</b>	<b>Rear</b>
<b>Type:</b>	Disc, solid	Drum
<b>Dimensions:</b>	292 mm x 50 mm	280 mm x 57 mm
<b>Material of drum/disc:</b>	Nodular iron	Nodular iron
<b>No. cylinders/pots per wheel:</b>	Two	One
<b>Actuation:</b>	Hydraulic	Hydraulic
<b>Caliper make:</b>	Bendix	
<b>Caliper type:</b>	Sliding	
<b>Material:</b>	Cast iron	
<b>Master cylinder make:</b>	Bendix	
<b>Type:</b>	Tandem	
<b>Adjustable bias:</b>	No	
<b>Servo Fitted:</b>	Yes	
<b>Comments:</b>	None	

## SECTION 2 - ENGINE

### 2.1. ENGINE

<b>Make:</b>	Studebaker Chevrolet from 1964		
<b>Model:</b>	289 R2 – Studebaker* 283 – Chevrolet**		
<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 - Studebaker:</b>	91.4 mm	<b>Max allowed:</b>	103.1 mm
<b>Stroke – original - Studebaker:</b>	91.9 mm	<b>Max allowed:</b>	91.9 mm
<b>Capacity – original - Studebaker:</b>	4693 cc	<b>Max allowed:</b>	4938 cc
<b>Bore – Original - Chevrolet:</b>	90.4 mm	<b>Max allowed:</b>	91.9 mm
<b>Stroke – original - Chevrolet:</b>	82.5 mm	<b>Max allowed:</b>	82.5 mm
<b>Capacity – original - Chevrolet:</b>	4248 cc	<b>Max allowed:</b>	4876 cc
<b>Identifying marks:</b>	N/A		
<b>Cooling method:</b>	Liquid		
<b>Comments:</b>	<p>* Studebaker engine phased out August 1965.  **Chevrolet engine utilised in Canada production – 1964 – 1966.  Refer to Appendix A for component substitution for 283 Chevrolet Block:</p> <ul style="list-style-type: none"> <li>• GM Performance Small Block: 10066034</li> <li>• GM Performance Small Block: 88962516</li> </ul>		

### 2.2. CYLINDER HEAD

<b>Make:</b>	Studebaker Chevrolet		
<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 and rocker		
<b>Spark plugs/cylinder:</b>	One		
<b>Identifying marks:</b>	N/A		
<b>Comments:</b>	Refer to Appendix A for component substitution when using 283 Chevrolet block: <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). <ul style="list-style-type: none"> <li>○ Part No. 12317 straight plug</li> <li>○ Part No. 12318 angled plug</li> </ul> </li> </ul>		

### 2.3. LUBRICATION

<b>Method:</b>	Wet sump	<b>Oil tank location:</b>	N/A
<b>Dry sump pump type:</b>	No	<b>Location:</b>	N/A
<b>Oil cooler standard:</b>	No	<b>Location:</b>	N/A
<b>Comments:</b>	Oil cooler permitted.		

### 2.4. IGNITION SYSTEM

<b>Type:</b>	Points, coil & distributor		
<b>Make:</b>	Delco		
<b>Comments</b>	Breakerless electronic ignition permitted		

### 2.5. FUEL SYSTEM

<b>Carburettor Make:</b>	Carter	<b>Model:</b>	7000
<b>Carburettor Number:</b>	One		
<b>Fuel injection Make:</b>	N/A	<b>Type:</b>	N/A
<b>Supercharged:</b>	Yes *	<b>Type:</b>	Impeller (Engine driven)
<b>Comments:</b>	Supercharger approved for Daytona R2 models. Only for use with original Studebaker 289 R2 motor. Barry Grant reproduction carburettor not approved.		

**SECTION 3 - TRANSMISSION**

**3.1. CLUTCH**

<b>Make:</b>	Borg Warner
<b>Type:</b>	Diaphragm
<b>Diameter:</b>	267 mm
<b>No. of Plates:</b>	One
<b>Actuation:</b>	Mechanical
<b>Comments:</b>	None

**3.2. TRANSMISSION**

<b>Type:</b>	Synchromesh
<b>Make:</b>	Borg Warner T10
<b>Gearbox location:</b>	Behind engine
<b>No. forward speeds:</b>	Four
<b>Gearchange type and location:</b>	H pattern, Remote lever floor
<b>Case material:</b>	Nodular iron
<b>Identifying marks:</b>	T10
<b>Comments:</b>	None

**3.1. FINAL DRIVE**

<b>Make:</b>	Dana	<b>Model:</b>	44
<b>Type:</b>	Live rear axle		
<b>Ratios:</b>	3.31:1, 3.54:1, 3.73:1, 2.91:1, 4.09:1		
<b>Differential type:</b>	Semi floating hypoid		
<b>Comments:</b>	Standard R2 equipment		

**3.2. TRANSMISSION SHAFTS (EXPOSED)**

<b>Number:</b>	One
<b>Location:</b>	Gearbox to final drive
<b>Description:</b>	Open tailshaft with twin uni joints
<b>Comments:</b>	Steel

**3.1. WHEELS & TYRES**

<b>Wheel type - Original:</b>	Pressed disc	<b>Material - Original:</b>	Steel
<b>Wheel type - Allowed:</b>	Period cast	<b>Material - Allowed:</b>	Alloy
<b>Fixture method:</b>	Studs and nuts	<b>No. studs:</b>	Five
<b>Wheel dia. &amp; rim width</b>	<b>FRONT</b>		<b>REAR</b>
<b>Original:</b>	5" x 15"		5" x 15"
<b>Allowed</b>	6" x 15"		6" x 15"
<b>Tyre Section:</b>			
<b>Allowed:</b>	Refer approved tyre list.		
<b>Aspect ratio - minimum:</b>	60% minimum aspect ratio.		
<b>Comments:</b>	None		

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## SECTION 4 GENERAL

### 4.1. FUEL SYSTEM

<b>Tank Location:</b>	Rear, under floor	<b>Capacity:</b>	60 litres
<b>Fuel pump, type:</b>	Mechanical, engine block	<b>Make:</b>	Carter
<b>Comments:</b>	None		

### 4.1. ELECTRICAL SYSTEM

<b>Voltage:</b>	12	<b>Alternator fitted:</b>	Alternator
<b>Battery Location:</b>	Engine compartment		
<b>Comments:</b>	None		

### 4.2. BODYWORK

<b>Type:</b>	Sedan/Coupe	<b>Material:</b>	Steel
<b>No. of seats:</b>	Five	<b>No. doors:</b>	Two (Coupe); Four (Sedan)
<b>Comments:</b>	None		

### 4.3. DIMENSIONS

<b>Track - Front:</b>	1485 mm	<b>Rear:</b>	1485 mm
<b>Wheelbase:</b>	2768 mm – (Coupe) 2868 mm – (Sedan)	<b>Overall length:</b>	4826 mm – (Coupe) 4926 mm (Sedan)
<b>Dry weight:</b>	1250 kg		
<b>Comments:</b>	None		

### 4.4. SAFETY EQUIPMENT

Refer applicable Group Regulations
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## Appendix A

### Suspension

#### Front

Spring height adjustment permitted.

#### Rear

Spring height adjustment permitted.

### Engine

#### Block replacement - 283 – Chevrolet

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

Logbook endorsed and the engine sealed required.

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.

Logbook endorsed and the engine sealed required.

#### 88962516 Engine Block Casting Numbers

N/A

#### 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 Heads – when used with Block replacement – 283 - Chevrolet

##### 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						

#### Approved substitute heads are:

- 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 are 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 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.

#### 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 1.94" in diameter for the inlet, and 1.6" 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 match inlet and exhaust ports to manifold to a maximum of the allowed depth 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. 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.
4. Valve seat cutting/grinding is allowed, but the original valve sizes of inlet and exhaust must be retained. No machining is permitted under the valve seat.
5. No machining is permitted in the combustion chamber. Combustion chambers must be left completely untouched except for original machining by the manufacturer. i.e. 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.

