5TH CATEGORY - HISTORIC RACING
GROUP N
APPROVED VEHICLE SPECIFICATION

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.

Make of Car:	Studebaker	**Model:**	Lark Lark Daytona Lark Cruiser
Period of Original Manufacture:	1963 to 1966		
Motorsport Australia Historic Group:	Nb		
Date of Issue of this Document:	1 January 2024		

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

Update Log

1/1/2024	Inclusion of kerb and minimum racing weights

SECTION 1 - CHASSIS

1.1. CHASSIS

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

1.1. FRONT SUSPENSION

Description:	Independent - upper and lower wishbones			
Spring Medium:	Coil			
Damper Type:	Telescopic		**Adjustable:**	No
Anti-sway bar:	Fitted		**Adjustable:**	No
Suspension adjustable:	Yes	**Method:**	Caster, camber and toe	
Comments:	Refer to Appendix A			

1.1. REAR SUSPENSION

Description:	Live rear axle			
Spring Medium:	Semi-elliptical leaf			
Damper Type:	Telescopic		**Adjustable:**	No
Anti-sway bar:	Yes		**Adjustable:**	No
Suspension adjustable:	No	**Method:**	N/A	
Comments:	Refer to Appendix A			

1.2. STEERING

Type:	Recirculating ball	**Make:**	Saginaw
Power steering	Fitted – RAM type system		
Comments	None		

1.3. BRAKES

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

SECTION 2 - ENGINE

2.1. ENGINE

Make:	Studebaker Chevrolet from 1964		
Model:	289 R2 – Studebaker* 283 – Chevrolet**		
No. cylinders:	Eight	**Configuration:**	Vee
Cylinder Block-material:	Cast iron	**Two/Four Stroke:**	Four
Bore – Original - Studebaker:	90.4 mm	**Max allowed:**	91.9 mm
Stroke – original - Studebaker:	91.9 mm	**Max allowed:**	91.9 mm
Capacity – original - Studebaker:	4590 cc	**Max allowed:**	4744 cc
Bore – Original - Chevrolet:	98.4 mm	**Max allowed:**	99.9 mm
Stroke – original - Chevrolet:	76.2 mm	**Max allowed:**	76.2 mm
Capacity – original - Chevrolet:	4638 cc	**Max allowed:**	4732 cc
Identifying marks:	N/A		
Cooling method:	Liquid		
Comments:	* 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: • GM Performance Small Block: 10066034 • GM Performance Small Block: 88962516		

2.2. CYLINDER HEAD

Make:	Studebaker Chevrolet				
No. of valves/cylinder:	Two	**Inlet:**	One	**Exhaust:** One	
No. of ports total:	Eight	**Inlet:**	Four	**Exhaust:** Four	
No. of camshafts:	One	**Location:**	Block	**Drive:**	Chain
Valve actuation:	Pushrod and rocker				
Spark plugs/cylinder:	One				
Identifying marks:	N/A				
Comments:	Refer to Appendix A for component substitution when using 283 Chevrolet block: • 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				

2.3. LUBRICATION

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

2.4. IGNITION SYSTEM

Type:	Points, coil & distributor
Make:	Delco
Comments	Breakerless electronic ignition permitted

2.5. FUEL SYSTEM

Carburettor Make:	Carter	**Model:**	7000
Carburettor Number:	One		
Fuel injection Make:	N/A	**Type:**	N/A
Supercharged:	Yes *	**Type:**	Impeller (Engine driven)
Comments:	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

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

3.2. TRANSMISSION

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

3.1. FINAL DRIVE

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

3.2. TRANSMISSION SHAFTS (EXPOSED)

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

3.1. WHEELS & TYRES

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

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4.1. FUEL SYSTEM

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

4.1. ELECTRICAL SYSTEM

Voltage:	12	**Alternator fitted:**	Alternator
Battery Location:	Engine compartment		
Comments:	None		

4.2. BODYWORK

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

4.3. DIMENSIONS

Track - Front:	1485 mm	**Rear:**	1485 mm
Wheelbase:	2768 mm – (Coupe) 2868 mm – (Sedan)	**Overall length:**	4826 mm – (Coupe) 4926 mm (Sedan)
Approved Manufacturer's kerb weight:	1220 kgs		
Approved minimum racing weight:	1196 kgs		
Comments:	None		

4.4. SAFETY EQUIPMENT

Refer applicable Group Regulations

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 must be located within the engine bay in an easily accessible position. The wiring must be visible along its length with the earth connected to the nearest practical earth point. The limiter will be subject to testing at race meetings..

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.