

# CAMS

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 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 CAMS Manual of Motor Sport.

**Make of Car:** Morris **Model:** Cooper S

**Period of Original Manufacture:** 1965 - 72

**CAMS Historic Group:** Nc

**Date of Issue of this Document:** 5<sup>th</sup> March 2004



## SECTION 1 - CHASSIS

### 1.1 CHASSIS FRAME

**Description:** Unitary Construction **Period of Manufacture:**  
**Manufacturer:** BMC 1/1965 – 12/1971  
**Chassis no. from:** YKG2S2 YKG2S4  
**Chassis no. location:** Various  
**Material:** Steel  
**Comments:** Any Mk 1 or Mk 2 Australian body is permitted. Further modifications – Refer Group Nc General Reg'ns.

### 1.2 FRONT SUSPENSION

**Description:** Independent – Upper Link and Lower Wishbone  
**Spring medium:** Rubber Cone or Hydrolastic  
**Damper Type:** Telescopic **Adjustable:** Permitted  
**Anti-sway bar:** Fitted – Solid Bar only. **Adjustable:** Permitted  
**Suspension adjustable:** Yes. \* BMC castor bars permitted **Method:** \* Threaded Bars  
**Comments:** Modifications permitted. Refer Note 2 – App'x A, and Group Nc Regulations.

### 1.3 REAR SUSPENSION

**Description:** Independent – Trailing Link  
**Spring medium:** Rubber Cone or Hydrolastic  
**Damper type:** Telescopic **Adjustable:** Permitted  
**Anti-sway bar:** Fitted – Solid Bar only **Adjustable:** Permitted  
**Suspension adjustable:** Yes **Method:** Adjustable camber brackets and slotted pivot hole.

**Comments:** See 1.2 above.

### 1.4 STEERING

**Type:** Rack & Pinion **Make:** BMC  
**Comments:** Modifications permitted. Refer Group Nc Regulations

### 1.5 BRAKES

<b>Type:</b>	<b>Front</b>	<b>Rear</b>
<b>Dimensions:</b>	Disc	Drum
<b>Material of drum/disc</b>	190 x 9.5mm	178 x 31.75mm
<b>No. cylinders/pots per wheel:</b>	Cast Iron	Cast Iron/Aluminium
<b>Actuation:</b>	2	1
<b>Caliper: Make, Material, Type:</b>	Hydraulic	Hydraulic
<b>Master cylinder make:</b>	Lockheed	
<b>Adjustable bias:</b>	Free	<b>Type:</b> Free
<b>Servo Fitted:</b>	Optional	

**Comments:** Modifications permitted. Refer Group Nc Regulations. Dual circuit permitted with adj. Bias. Modification to rear brake regulating valve permitted, Adjustment not permitted from drivers seat. Vented discs permitted.

## SECTION 2 - ENGINE

### 2.1 ENGINE

<b>Make:</b>	BMC		
<b>Model:</b>	"A" Series		
<b>No. cylinders:</b>	4	<b>Configuration:</b>	In Line
<b>Cylinder Block-material:</b>	Cast Iron	<b>Two/Four Stroke:</b>	4 Stroke
<b>Bore - Original:</b>	70.6mm	<b>Max. allowed:</b>	72.1mm
<b>Stroke - original:</b>	81.33mm	<b>Max. allowed:</b>	81.33mm
<b>Capacity - original:</b>	1275cc	<b>Max. allowed:</b>	1326cc
<b>Cooling method:</b>	Water		
<b>Identifying marks:</b>	9F/SA/Y or 9F/XE/Y or 1200 & 12Y		

**Comments:** Modifications permitted – Refer Group Nc Regulations. Refer also; Note 3 – App'x. A regarding alternative engine blocks.

### 2.2 CYLINDER HEAD

<b>Make:</b>	BMC				
<b>No. of valves/cylinder-</b>		<b>Inlet:</b>	1	<b>Exhaust:</b>	1
<b>No. of ports total:</b>	5	<b>Inlet:</b>	2	<b>Exhaust:</b>	3
<b>No. of camshafts:</b>	1	<b>Location:</b>	Block	<b>Drive:</b>	Chain**
<b>Valve actuation:</b>	Pushrod				
<b>Spark plugs/cylinder:</b>	1				
<b>Identifying marks:</b>	AEG163, 126940				

**Comments:** Modifications permitted. Refer Group Nc Regulations.\*\* Toothed belt with cover permitted.

### 2.3 LUBRICATION

<b>Method ((Wet/Dry Sump):</b>	Wet Sump	<b>Oil tank location:</b>	
<b>Dry sump pump type:</b>		<b>Location (If Appl.):</b>	
<b>Oil cooler standard (Yes/No):</b>	Permitted	<b>Location (If Appl.):</b>	Optional

**Comments:** Modifications permitted. Refer Group Nc Regulations.

### 2.4 IGNITION

<b>Type:</b>	Coil & Breaker Type Distributor
<b>Make:</b>	Free

**Comments:** Modifications permitted. Refer Group Nc Regulations.

### 2.5 FUEL FEED (Induction)

<b>Carburettor/s :</b>	SU HS2 (x2)	<b>Fuel Inj'n :</b>	
<b>Make :</b>		<b>Make :</b>	
<b>Type/Model :</b>		<b>Type/Model :</b>	
<b>No. Fitted :</b>		<b>S/Charged (Yes/No):</b>	
<b>Size :</b>		<b>Make (If Applic.):</b>	

**Comments:** Other period carburettors permitted (incl. Weber DCOE) subject to integrity of firewall being maintained. In order to accommodate a Weber, the speedo. aperture sheet metal may be reformed, (but removal of metal not permitted) to achieve not more than 50mm increase in dimension. Note ; integrity of firewall between engine and passenger compartments must always be maintained. Refer Group Nc Regulations.



## SECTION 3 - TRANSMISSION

### 3.1 CLUTCH

**Make:** Free      **Type:** Diaphragm      **Diameter:** 185mm  
**No. of Plates:** 1  
**Method of Actuation :** Hydraulic  
**Comments:** Modifications permitted. Refer Group Nc Regulations.

### 3.2 TRANSMISSION

**Type:** 4 Speed Manual.  
**Make:** BMC      **Model:** Mk.1 & Mk.2  
**No. forward speeds:** 4      **Gearbox location:** Integral with Engine  
**Gearchange type and location:** Floor - Remote  
**Case material:** Cast Iron/Alloy      **Identifying marks:** 22G 1128 - 4syn.  
22G 333 /22A 1522 /22A1288 - 3 syn  
**Comments:** Modifications permitted. Refer Group Nc Regulations. Straight Cut Gears permitted ..

### 3.3 FINAL DRIVE

**Make:** BMC      **Model :** Cooper "S"  
**F/R/All Wheel Drive:** Front  
**Ratios:** Free  
**Differential Type :** LSD permitted      **Make:** Various  
**Comments:** Modifications permitted. Refer Group Nc Regulations.

### 3.4 TRANSMISSION SHAFTS (EXPOSED)

**Number** 2      **Location:** Final Drive to Front Wheels.  
**Description:** Steel Driveshafts with H/S or Dunlop Universal Joints, and C/V Joints.  
**Comments:** Refer Group Nc Regulations.

### 3.5 WHEELS & TYRES

<b>Wheel type:</b> Original:	BMC Steel Disc	<b>Material: Original:</b>	Steel
Allowed:	Alternative Period Style	Allowed:	Steel or Alloy
<b>Fixture method:</b>	Bolt On	<b>No. studs:</b>	4
	<b>FRONT</b>		<b>REAR</b>
<b>Wheel dia. &amp; rim width</b>			
Original:	4.5 x 10		4.5 x 10
Allowed:	6 x 10		6 x 10
<b>Tyre Section</b>			
Original:	450 x 10		450 x 10
Allowed:	165 x 10		165 x 10
<b>Min. Asp.Ratio Allowed :</b>	60%		60%
<b>Comments:</b>	Refer Group Nc Regulations. 12 inch Wheels are not permitted.		

## SECTION 4 - GENERAL

### 4.1 FUEL SYSTEM

**Tank Location:** In Boot **Capacity:** 50 Litres  
**Fuel pump, type and location:** Electric - Rear Sub **Make:** Free  
Frame

**Comments:** Refer Group Nc Regulations. Twin fuel tanks compulsory from Sept. 1965, on Series Prod'n. Aust. cars.

### 4.2 ELECTRICAL SYSTEM

**Voltage:** 12 **Dynamo/Alternator fitted:**  
**Battery Location:** Boot Alternator  
**Comments:**

### 4.3 BODYWORK

**Type:** 2 Door Saloon **Material:** Steel  
**No. of seats:** 4 **No. doors:** 2  
**Comments:** See Notes 4 & 5 – App'x A. Refer A Group Nc Regulations.

### 4.4 DIMENSIONS

**Track - Front:** Free **Rear:** Free  
**Wheelbase:** 2036mm **Overall length:** 3054mm  
**Dry weight:**  
**Comments:** See Note 4 – App'x. A.

### 4.5 SAFETY EQUIPMENT

**Fire extinguisher required:** Refer Schedule "H" CAMS Manual  
**Seat belt required:** Refer Schedule "I" CAMS Manual  
**Rollbar optional/required:** Refer Schedule "J" CAMS Manual and Group Nc Regulations.  
**Electrical cut off switch required:** Required  
**Safety fuel tank optional/required:** Optional

**Further Comments:** Part Numbers for Flares, Perspex, and Aluminium Panels are as follows:  
Aluminium Doors : # C/A JJ 3379  
Aluminium Boot/Bonnet: # C/A JJ 3380  
Flare Kit: # C/A JJ 3316  
Flare Kit: # C/A JJ 3353  
Perspex Window: # C/A JJ 3363. A non-opening perspex window kit is permissible, subject to the use of appropriate window seals.

## APPENDIX A

### **Historic Group Nc – Mini Cooper Mk1 and MkII – Additional Notes**

These notes are intended to assist Eligibility Officers in assessing candidate cars for classification under Group Nc regulations. At all times the Group Nc regulations as published in the CAMS Manual of Motor Sport must be adhered to.

The Cooper 'S' as a model continued to be subject to technical development over a number of years – FIA Group 2 Variants were being documented as late as 1970.

Cars with Aust. wind up windows should have heater, twin tanks and short #plate indentation.

Cars with sliding windows should represent UK cars with optional heater, optional twin tanks and long #plate indentation.

#### **Note 1**

Front and rear sway bars are permitted. However adjustment may only be by movement of linkage location, threaded adjustment etc.

#### **Note 2**

All suspension arms must be of BMC manufacture and be unmodified; "cutting and shutting" of these components is prohibited. Lower front suspension arms may be adjustable. Re-threading of caster arms is permitted as per BMC Special Tuning book. Re-bushing or shimming to achieve caster change is permitted. Suspension pick-up points may be moved by not more than 30mm from original location. Adjustable shock absorbers are permitted; remote adjustment (ie from within cockpit) and the use of remote reservoir shock absorbers are not permitted.

#### **Note 3**

Replacement of the original Mk I block with the Mk 2 block or the 1100S block is authorised. The Mk 2 block is identified by prefix 9F/XE/Y, has a vertical rib beside the dipstick, a thick bottom sump web and side cover. The 1100S block is generally prefixed "12", has no side covers, can have thick or thin sump web and has two core plugs at the flywheel end. **A+ and Metro blocks are prohibited.**

#### **Note 4**

When viewed from above, the maximum width between the outside edge of the flares shall not exceed

Front 1475 mm

Back 1435 mm

Tyres must be contained within the flares as per Cams Manual Clause 8.30 J.1

#### **Note 5**

Cars should represent either Australian or UK cars in either Mk 1 or Mk 2 guise. Any bodyshell may be made to represent identification year. Mk 3 UK car is permitted.



The only exception to this is when the use of aluminium factory doors are used. These were the sliding window type. The use of Aluminium door skins is permitted only on sliding window types. Aluminium bonnet and boot options from the era may be used only in their complete form.

Perspex sliding door windows, rear quarter windows and rear window may be fitted provided the original frames and sealing rubbers are maintained and in accordance with Cams Manual. Most Series Production cars were Aust. built Mk.1 & Mk 2, with Hydro.suspension,, wind up windows,heater, and 2 tanks.Also had shorter number plate indentation. Improved Production cars were usually English spec. ie: Dry suspension,sliding windows, optional heater , optional tanks and long number plate indentation.

### **Historic Group Nc – Mini Cooper Mk1 and MkII – Additional Notes - *Continued***

#### **Note 5 - *Continued***

All trim items other than the floor mats must be in place.

The standard seat is not very robust and if used for competition it is recommended that the seat frame and mountings be strengthened.

Flared guards are permitted. Refer to 4.4 Dimensions.

#### **Note 6**

An Austin Cooper 's' is permissible in Nc form with the following provisions:

- Single fuel tank
- English Mk. 11 or Mk III style grille (Same as Morris, except for wavy slats).
- Clubman style tail lights

Plus all badge work, chrome work, interior cosmetics are applicable to that model. All other specifications shall apply as per Morris Cooper 'S'.

#### **General**

**September 1965** : Cooper S Mark 1 in production in Australia with two fuel tanks giving 11 gallons ( 50 litres ) capacity, laminated windscreen and seat belts of the approved type for racing with

Three – point fixing. It in production until April 1969 . Engine was 1.275 litre with twin Sus, developing 75 bhp at 5800 rpm . Top sped was 95 mph . Price was \$2280 inc tax.

**October 1965** : Australian cars were fitted with wind up windows

**1967** : Cooper S Mark II introduced in UK, with oval S badge and bolt on wheel arch flares.

**May 1969**: Mark 11 introduced in Australia.

**1970** : UK Mk 3 cars were fitted with an updated grille.

**August 1971** : Body design updated and the new model sold as a clubman . Cooper S was replaced by Clubman GT 1275 .