RotorSport UK Ltd Service Bulletin (CofA)

Title: Cavalon *pro* fuel tank/body seal		
SB-C-004 Iss1	**Related documents** Modification: MC-357 CCAR No.: CCAR-063	**Compliance Category:** ~~**OPTIONAL**~~ or **RECOMMENDED or** ~~**MANDATORY**~~
Applicability		
Aircraft type & model: **Cavalon Pro**	**Aircraft serial Nos. affected:** **RSUK/CVLN/011** **RSUK/CAVP/001** **RSUK/CAVP/002**	
The maintenance manual to be referenced is this stated or subsequent issue.		RSUK0335 Iss2

This form is the response from RotorSport UK Ltd either against a problem found in the product in service requiring a containment or rectification action, or as service information for aircraft modification incorporation. For help, contact RotorSport on 44(0)1588 505060, or email compliance@rotorsport.org.

The technical content of this document is approved under the authority of the UK CAA Design Organisation Approval Ref: **DAI/9917/06**

Documentation (Service Bulletin Completion action)

a) Entries within the aircraft logbooks, eg CAA BCAR A6-1 Authorised Person to certify that the work is completed by writing *'SB-C-004 Fuel tank/body seal incorporated'* in the aircraft logbook white pages, and record the action in the pink pages entitled 'Aircraft Modifications'. Both entries must be signed by the CAA Authorised Person together with their CAA Authorisation number.

b) Completion of the SB worksheet attached, This must contain a CRS statement, and a final check item that no tools or equipment have been left within the aircraft.

c) No Type certificate change application document is required. (This is required where the SB will affect the type certificate limitations, eg airspeed change or MTOW change and enables the owner to request the certificate change required)

d) Any other Certificate of Release to Service form requirements.

Document approval signatures			
Engineering Manager	**CVE (as required)**	**Chief Test Pilot (if flight performance or safety effect)**	**Head of Airworthiness**
Graham Shaw Jun 28 2017 12:43 PM cosign Gerry Speich Jun 28 2017 12:51 PM cosign	**Not required as MC-357 approved**	**Not required**	Andy Lyons Jun 30 2017 1:08 PM cosign

Reason and overview of the Service Bulletin (cause of problem if known)

Cavalon Pro aircraft manufactured to-date have a formed-in-place mastic seal between the fuel tank inlet and the body moulding. It is difficult to create a uniform seal and complaints of cockpit fuel smell have been traced to this seal area. Under MC-357 a moulded seal is introduced and this SB-C-004 describes fitment to aircraft in-service.

Manpower estimates

Accomplishment of this Service Bulletin requires the following personnel

(i) A6-1 Authorised engineer

Estimated man-hours to complete the task as a stand-alone item are; 3 hours (additional time is allowed to allow complete removal of the existing mastic seal)

Tooling required

Hand tools including specially formed ring spanner (see below)

Weight and Balance Effects

None

Manuals affected

POH RSUK0334 is not affected, AMM RSUK0335 affected only by description of the modification.

Previous Modifications that affect the SB

MC-347 “Cavalon fuel tank inlay ring” (and associated SB-109) introduce the improved method of clamping for the fuel tank to body interface, as also used in this SB-C-004

Accomplishment instructions (Action required to implement this bulletin):

Effective date of this SB is 06.09.16

There is no relevant MPD or other outside body documentation to be referenced.

Instructions

See text of Auto-Gyro document AG-SB-2016-06-B-EN (Cavalon fuel-tank inlay ring) appended. (Note that this Auto-Gyro document also covers installation of the inlay ring, previously described by RSUK document SB-109)

Material information (Parts required to be made to implement this service bulletin):

No parts manufactured during embodiment

List of components (with purchasable part nos)

See text of Auto-Gyro document AG-SB-2016-06-B-EN (Cavalon fuel-tank inlay ring) appended

Interchangeability

Not applicable

Parts disposition

a) Disposal requirements – Normal waste
b) Environmental hazards of parts containing hazardous materials – not applicable
c) Scrap requirements (eg mutilate scrapped items beyond use) – not applicable

Service Bulletin implementation Worksheet

Aircraft type: Cavalon Pro	**Serial no:**	**G-**
Worksheet completed by:		**Document ref:**
Worksheet cross-checked by (if applicable):		**SB-C-004 iss 1**

Purpose – record service bulletin implementation actions taken to inspect aircraft and return to service.

Maintenance manual referred-to and issue level:	

Note: attach SB sheets to this document

Task	Notes	Eng'r check/date	Inspector check/date
Remove mounting screws/inlay plate			
Cut-away mastic seal	Prevent debris from entering fuel tank		
Fit moulded seal			
Replace mounting screws/inlay plate	Refit earth braid		
Refit/adjust filler cap			
Check for fuel contamination	Syphon from tank and filter as required		

Customer acceptance:	
Name: Signature/date:	Aircraft hobbs meter reading: Confirm logbooks annotated:

Certificate Release to Service:

'The work recorded has been carried out in accordance with the requirements of the Air Navigation Order for the time being in force and in that respect the aircraft and equipment is considered fit to release to service. I confirm that no tools, equipment or debris have been left in the aircraft'

Engineer signature and date: CAA CRS Authorisation ref :	Location where work completed

AG-SB-2016-06-B-EN – Cavalon fuel-tank inlay ring

Category B

EFFECTIVE DATE	SUPERSEDES/REPLACES
06.09.2016	N/A (initial issue)

APPLICABILITY

This Service Bulletin is applicable for all Cavalon that are affected by fuel smell in the cockpit.

COMPLIANCE

To be performed with the next maintenance.

BACKGROUND

Some Cavalon owners have complained of a fuel smell in the cockpit, noticeable mainly after standing a longer period of time with the doors closed. This has been traced sometimes to small gaps in the sealing between the fuel tank flange and the composite body.
At the affected Cavalon an aluminium “inlay ring” is placed inside the filler neck and by means of a new rubber seal combined with longer fuel filler mounting screws allows the fuel tank flange to be pulled uniformly against the body – squeezing the new rubber seal between to ensure a perfect sealing (see fig. 1).

RISK OF NEGLECT

Failure to comply with this instruction/information will result in:

- Possible damage to the aircraft
- Loss of related warranty.

SCOPE OF WORK

- Check for seepage from the fuel outlet, failure of fuel level sender unit gasket, poor seal between tank lids and the tank, or poor seal tank to body.

AFFECTED AREAS

Fuel tank

SPECIAL TOOLS & CONSUMABLE MATERIALS

xx-00-00-S-xxxxx (L) 7mm ring spanner bent to fit fuel inlet (see fig.3)

PARTS

xx-00-00-S-42901 (L1) Inlay tank insert - kit

LABOR AND REQUIREMENTS

To accomplish 1.5 h

Task may only be performed by an organization or individual trained and entitled to do 'Line Maintenance'!

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SUPPORT POLICY

n / a

REFERENCES

Manufacturer Maintenance Manual (MMM) in latest revision.

DOCUMENTATION

The accomplishment of this Service Bulletin, or the decision of its rejection, must be properly documented, if such procedure is required by the relevant authority.

Warnings Caution and Notes

This instruction uses **WARNING**s, **CAUTION**s and **NOTE**s in bold italic letters to indicate especially critical and important instructions. The call-outs appear at the top of the Maintenance Job Card if of general nature or applicable for the complete task, or will directly precede the individual Work Step.

The meaning of each call-out is defined below:

WARNING: A warning means that the neglect of the appropriate procedure or condition could result in personal injury or fatal accidents.

CAUTION: A caution means that the neglect of the appropriate procedure or condition could result in damage to or destruction of equipment.

NOTE: A note stresses the attention for a special circumstance, which is essential to emphasize.

Category Codes

A Safety critical - failure to comply may result in a significant reduction of flight safety, injury or death

B Important - failure to comply may result in reduced safety margin, injury and/or equipment damage

C Beneficial - improves operating behaviour, reliability and/or maintainability

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COMPLIANCE PROCEDURE

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual entitled and trained to do line maintenance.

Secure gyroplane against unauthorized or unintended operation.

Execute procedure only in cold engine condition.

Position the aircraft on level ground with the brakes applied.

The work detailed below may be carried-out with some fuel in the tank, but the tank(s) must not be full. Ensure that a suitable fire-extinguisher is to-hand. When drilling through the filler-neck flange ensure that no debris falls into the tank – use of slow rpm will assist, but if this does occur the fuel must be "vacuumed" out of the tank with a large-bore syphon tube and the tank must be cleaned.

SPECIAL TOOLS, CONSUMABLE MATERIALS AND PARTS

SP	IMPORTANT NOTE: Procedure involves spare parts. Check parts list below for ordering details of affected components!
xx-00-00-S-xxxxx (L)	7mm ring spanner bent to fit fuel inlet (see fig. 3)

PRECAUTIONS AND SAFETY MEASURES

CAUTION: Failure to comply with this instruction will cause the loss of warranty referred and/or related components!

NOTE: Procedure involves handling and disposal of special materials. For your health and environmental aspects respect all applicable regulations!

NOTE: Absolute cleanliness at any time during execution of the procedure must be ensured

PROCEDURES

1 Using the specially formed spanner to hold and retrieve the nuts and plain washers inside the filler neck remove the 6-off M4 countersunk screws. The top screw retains the braided earth strap – attach a safety string to this to avoid loss inside the fuel tank (fig 2-5).

2 The two most fwd screw positions do not pass into the fuel tank void but into rivnuts secured in the body moulding. These must be carefully and progressively drilled-thru 4.1mm diameter. If the drill bites into the rivnut and causes it to spin in the body the fuel cap mounting plate must be removed completely by prising it off the cork gasket between it and the body.(The gasket is bonded in place with Loctite 5331 sealant). The rivnut heads may then be slotted (using a Dremmel or similar tool) to enable the rivnut heads to be held still during drilling (fig 6).

3 Replace the fuel cap mounting plate into position with its gasket and sealant.

4 Place the rubber seal between the the fuel tank flange and the body (fig 9).

5 Form the inlay ring so that it may be "spiralled" into position inside the filler neck. Position the open slot to the front of the aircraft (fig 7-8).

6 Fit M4 x 50 screws on the front two mountings and M4x40 screws on the others. Use an M4 stiff nut and plain washer on each screw. Ensure that the earth strap is refitted to the top-most fastener. When all fasteners are in place tighten in sequence, hand-tight only to avoid distortion of the filler neck flange

Note: the screw and nut are both stainless-steel and the threads may "pick-up" during tightening – this can be mitigated by use of a thread lubricant compatible with petrol (e.g. LM-grease or engine oil)

7 Replace the filler cap, adjusting the back nut if required to give a positive clamping action.

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PARTS LIST

Fig.	Pos.	Description	PC PIT	Remark

ILLUSTRATIONS

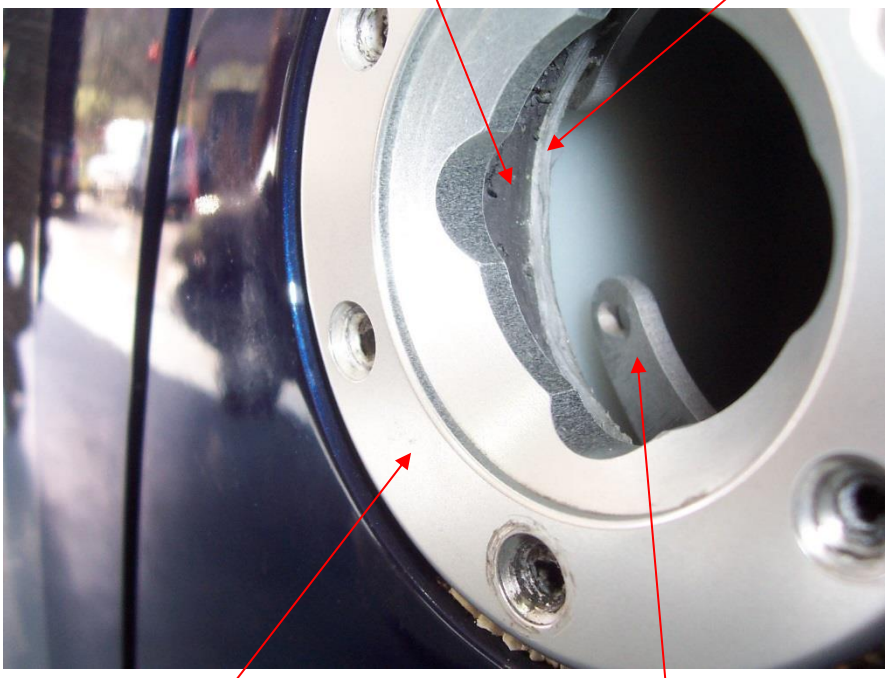

Fig. 1: Fuel filler

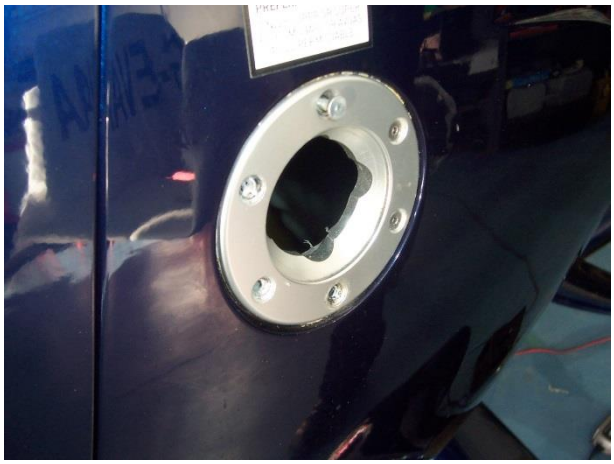

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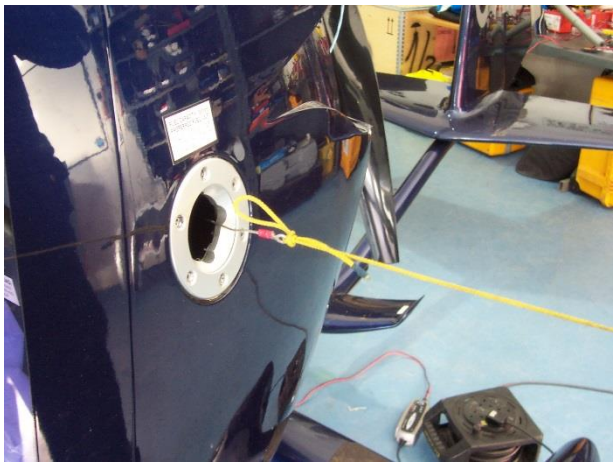
Fig. 2+3: Fuel filler and specially formed spanner



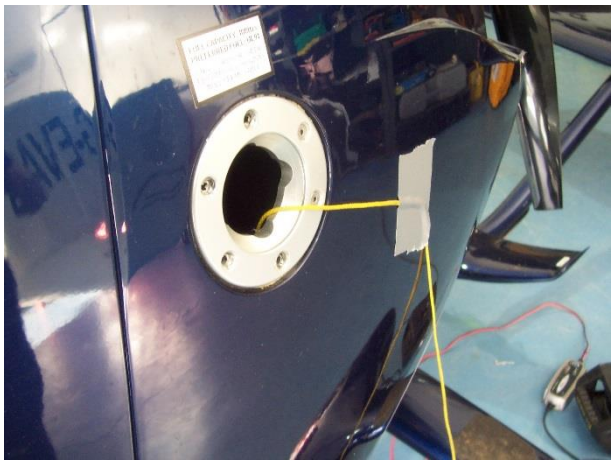


Fig. 4+5: Fuel filler and earth strap safety string

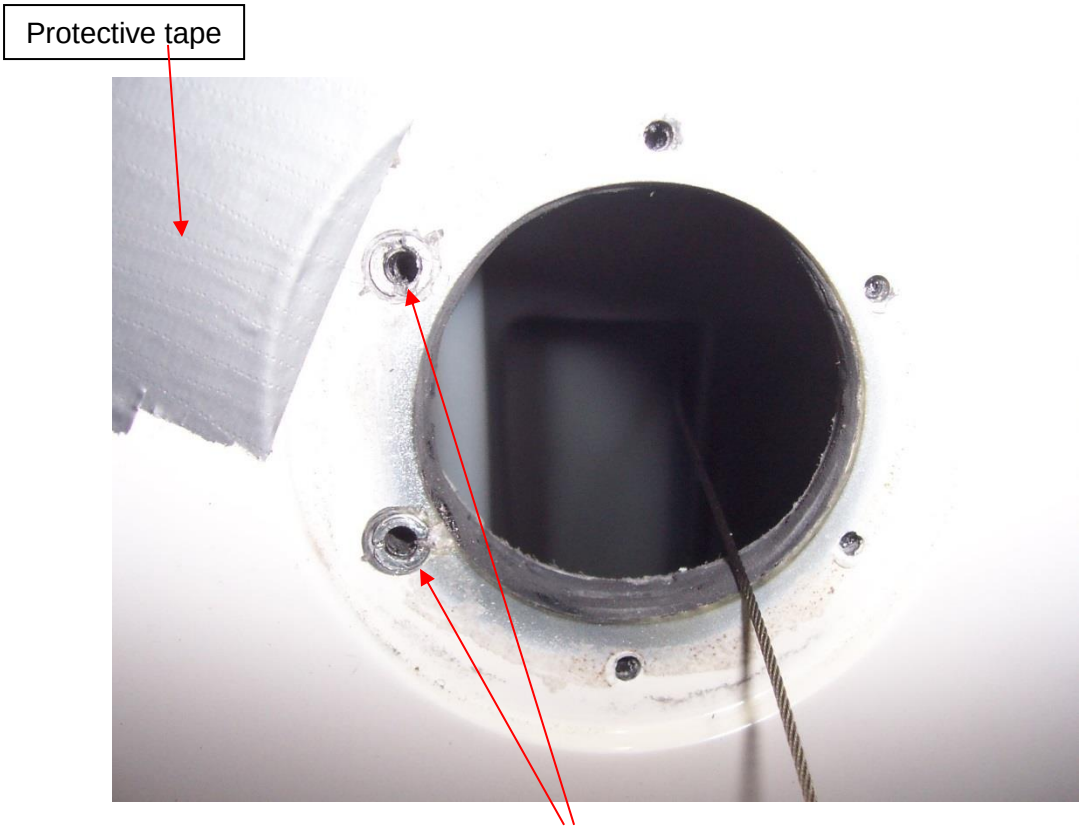


Fig. 6: Two rivnut heads slotted for drilling

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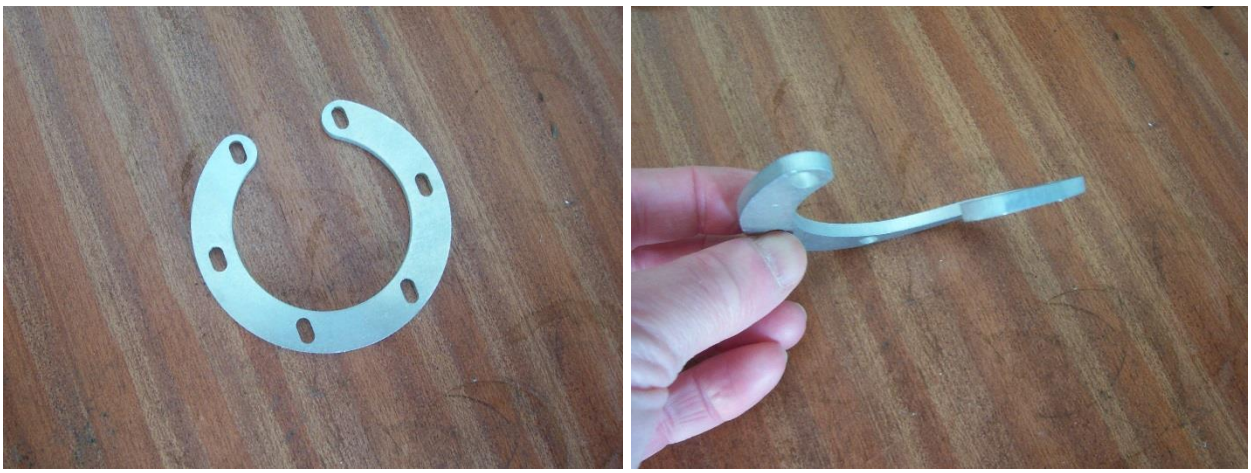

Fig. 7+8: inlay ring

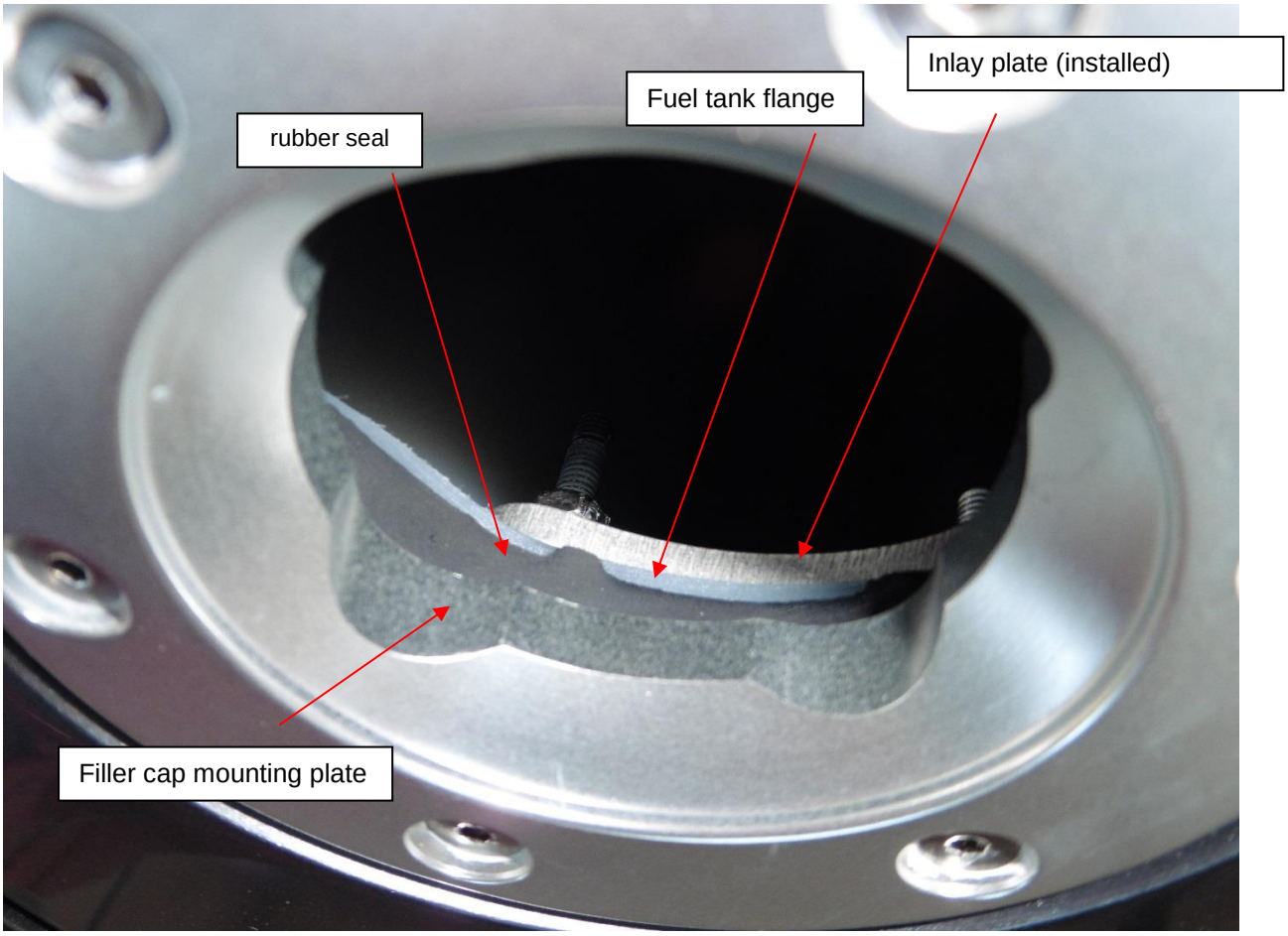

Fig. 9: fuell filler with attached inlay ring and rubber seal

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