

# Service Bulletin 32



## 1. General

(a) Service Bulletin No:	32
(b) Revision / Date	4 / 03 November 2021
(c) Title:	Quick Shut Off Valves on Duplex propane cylinders CB2901, CB2902, CB2903.
(d) Description:	<p>Undersize CB437 flanged adaptors for Quick Shut-Off valves.</p> <p>Stainless Steel Cylinders CB426, CB497, CB599, CB959, CB2088, V20, V30, V40; Titanium cylinders CB2380, CB2383, CB2385, CB2387, T30 (CY-050-A-001 and "Worthington" Aluminium Cylinders CB250 may also be affected if fitted with CB437 flanged adaptors supplied on invoice numbers listed in section (f)</p>
(e) Applicability:	All HAB TCs and AS 105 GD Airships EASA.AS.002 All HAB manufacturers
(f) Effectivity:	<p>All owners/operators using cylinder Serial Numbers listed below if fitted with a CB437 flanged adaptor:</p> <p><u>CB2901 Cylinders</u> B01113, B01114, B01115, B01117, B01118, B01119, B01123, B01124, B01125, B01126, B01127, B01128, B01130, B01131, B01132, B01133, B01134, B01135, B01136, B01137, B01138, B01139, B01140, B01141, B01142, B01143, B01152, B01155, B01156, B01157, B01158, B01159, B01160, B01161, B01162, B01166, B01167, B01168, B01169, B01170, B01171, B01172, B01177, B01179, B01180, B01181, B01182, B01183, B01212, B01213, B01214, B01215, B01216, B01217, B01218, B01219, B01220, B01222, B01223, B01227, B01228</p> <p><u>CB2902 Cylinders</u> C00015, C00017, C00019, C00020, C00021, C00025, C00026, C00027, C00028, C00029, C00030, C00031, C00032</p> <p><u>CB2903 Cylinders</u> D01751, D01752, D01753, D01754, D01761, D01762, D01763, D01764, D01765, D01766, D01767, D01768, D01769, D01770, D01771, D01772, D01773, D01777, D01778, D01779, D01780, D01781, D01782, D01783, D01784, D01785, D01786, D01787, D01788, D01789, D01790, D01791, D01792, D01793, D01794, D01795, D01796, D01797, D01798, D01799, D01800, D01801,</p>

# Service Bulletin 32



D01802, D01803, D01804, D01805, D01806, D01807, D01808, D01809, D01810, D01811, D01812, D01814, D01815, D01816, D01817, D01822, D01824, D01825, D01826, D01827, D01828, D01829, D01830, D01831, D01832, D01833, D01834, D01835, D01836, D01837, D01838, D01839, D01840, D01841, D01842, D01844, D01845, D01846, D01847, D01848, D01849, D01850, D01851, D01852, D01853, D01854, D01855, D01856, D01857, D01858, D01859, D01860, D01861, D01862, D01863, D01864, D01865, D01866, D01867, D01868, D01869, D01870, D01871, D01877, D01878, D01879, D01880, D01881, D01882, D01883, D01884, D01885, D01886, D01887, D01888, D01889, D01890, D01891, D01892, D01893, D01894, D01895, D01896, D01897, D01898, D01899, D01900, D01901, D01906, D01907, D01908, D01909, D01910, D01911, D01912, D01913, D01914, D01915, D01916, D01917, D01918, D01919, D01920, D01921, D01922, D01923, D01925, D01926, D01927, D01929, D01930, D01932, D01934, D01935, D01936, D01937, D01938, D01939, D01940, D01941, D01942, D01943, D01944, D01945, D01946, D01947, D01948, D01949, D01950, D01951, D01952, D01953, D01954, D01955, D01956, D01957, D01959, D01961, D01962, D01963, D01964, D01965, D01966, D01967, D01968, D01970, D01971, D01972, D01973, D01974, D01975, D01976, D01750

All cylinders not listed above that have been fitted with CB437 Flanged Adaptors that were released on Invoice Numbers (and Form 1 Numbers) listed below:

Qty	Invoice No.	Form 1 No.
4	12545	13397
12	13044	12691
1	13242	12585
3	13283	12683
6	13444	12638
2	13636	12726
3	14114	12933
4	14118	12945
1	14310	13044
3	14328	13051
1	14783	13214
5	14809	-
1	14888	13257
3	14912	13259
3	14952	-
6	15203	-
4	15274	13384

Cameron Balloons Ltd., St Johns Street  
Bedminster, Bristol BS3 4NH, United Kingdom

# Service Bulletin 32



2	15327	13450
1	15348	13415
4	15643	13559
1	15735	13644
1	15817	13664
1	15830	13666
2	15848	13670
4	15982	14929
2	16018	13750
3	16217	13844
1	16237	
3	16354	13880
2	16401	13944
6	16439	13924
3	16573	13979
1	16615	13995
1	16702	14029
1	16708	14027
3	16773	14115
2	16808	-
5	16898	14091
2	16956	14126
1	16981	14160
8	17044	8983
1	17153	14211
1	17170	14255
1	17503	14432
8	13740/13933	12843
4	15309/15311	14024
1	16510/16640/16641	14000

Affected Flanged Adaptors can be alternatively identified by the presence machine engraved part numbers. Below is an example of an affected machine engraved Flanged Adaptor:



Figure 1 - Machine Engraved Flanged Adaptor

# Service Bulletin 32



NOTE: Flanged Adaptors that are machine engraved as Issue H (CB437/H) or subsequent are not affected.

Affected Flanged Adaptors were released into service from the 18 January 2019. Flanged Adaptors supplied before this date are not affected.

The above machined engraving must not be confused with hand stamped part numbering. Flanged Adaptors identified with hand stamped markings are unaffected. Below is an example of an unaffected hand stamped Flanged Adaptor:



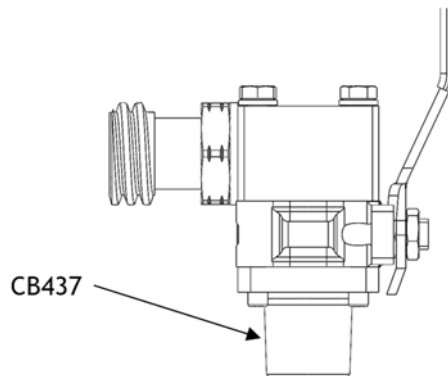
*Figure 2 - Hand Stamped Flanged Adaptor*

**Note:** Applicability= All types and variants to which the change can be applied.  
Effectivity= Actual CN or group of CN's to which the bulletin has been/will be applied.

# Service Bulletin 32



Two batches of CB437 Flanged Adaptors for Quick Shut-Off (QSO) valves have been supplied with undersized threads.



When the minimum sized adaptors are combined with cylinder bosses at maximum tolerance dimension the thread can bottom out in the cylinder boss. Although the required installation torque values can be achieved the unscrewing torque may be undesirably low. In extreme cases the adaptor may be unscrewed by hand.

This condition, if not detected and corrected, could result in an uncontrolled release of liquid propane which in turn could result in a fire hazard that could damage the balloon and its envelope, ultimately leading to a forced emergency landing, during which balloon occupants and persons on the ground could be injured.

### 3. Compliance (Category)

Required on receipt of this bulletin.

### 4. Consequences of Non-Compliance (Possible)

Uncontrolled leak of LPG fuel.

### 5. Accomplishment Instructions

Affected cylinders are prohibited from further flight.

Affected cylinders must be checked for leaking around the interface between the QSO valve Flanged Adaptor and the cylinder boss using leak detector fluid within 24 hours of receipt of this bulletin. Any cylinders found to be leaking should be emptied of fuel immediately. A pilot may carry out this inspection. A satisfactory leak check **does not** release the cylinder to service.

Cylinders found not to be leaking may be subject to a Torque Test. Satisfactory completion of the Torque Test allows the return of the cylinder to service until 31/01/2022. The Torque Test must be carried out by a Part-66 inspector or

# Service Bulletin 32



approved equivalent. Details of the Torque Test are included in document CBL/TN/DCB/3287.

Cylinders that fail the Torque Test may not be returned to service, and must be quarantined until final rectification action is completed.

Re-installation or re-tightening of affected flanged adaptors into cylinders that have failed the Torque Test is not permitted.

Final rectification action must be applied to all affected cylinders before 31/01/2022. Rectification action requires the replacement of the Flanged Adaptor with either a CB437 adaptor at Issue H or later, or by replacing the QSO valve assembly with a handwheel valve part No CB0824-0001 (this part has a Rego-type hose connection).



Figure 3 - Replacement Flanged Adaptor

Replacement Flanged Adaptors are marked with the drawing number and issue (CB437/H) and are available by contacting [aftersales@cameronballoons.co.uk](mailto:aftersales@cameronballoons.co.uk).

Final Rectification Action is described in CBL/TN/DCB/3287.

**6. Materials** See CBL/TN/DCB/3287

**7. Other Publications Affected** None

**8. Mass (Weight)/Balance:** Not Affected

**9. Maintenance and Operating Instructions** Not Affected



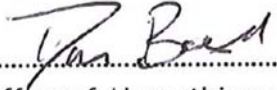
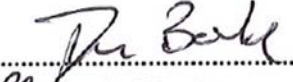
**10. Additional Information**

Original purchasers of affected cylinders have been contacted to arrange rectification action. Organisations and individuals to whom Form 1s have been issued will also be contacted directly.

Individuals still requiring materials for rectification action are encouraged to contact [aftersales@cameronballoons.co.uk](mailto:aftersales@cameronballoons.co.uk).

# Service Bulletin 32



Compiled by:  .....		Notes: 
Date: 03/11/2021	Name: D J Cameron	
<b>11. Design Organisation Approval</b>		
<b>Statement of Compliance Verification</b>		
I hereby confirm that the instructions identified in this bulletin provide for practical and well-defined installation/inspection methods and when accomplished the product is in conformance with approved design data.		
Signed, for and on behalf of Cameron Balloons Ltd.		
 .....		
Office of Airworthiness (not to be signed by form compiler)		
Date: 03-11-21	Name: D. Boxall	
<b>Approval Statement</b>		
I hereby confirm that these instructions are in compliance with all the applicable airworthiness requirements. The technical content of this document is approved under the authority of DOA nr UK.21J.0140		
Signed, for and on behalf of Cameron Balloons Ltd.		
 .....		
Head of Design		Company Stamp
Date: 03-11-21	Name: D. Boxall	





SB32 Cylinder Torque Test  
& Rectification Action

CBL/TN/DCB/3287

Issue: C

14/10/2021

Compiled by: D J Cameron 

Checked by: O M Maynard 

Issue	Date	Comments
A	21/09/2021	Initial Issue
B	22/09/2021	Revision Section 2.2
C	14/10/2021	Addition of Rectification Action section





## CONTENTS

1. Introduction .....	2
2. Torque Test .....	2
2.2 Torque Test for Empty Cylinders .....	2
2.3 Torque Test for Cylinders Containing Fuel .....	3
2.4 Release statement .....	5
3. Rectification Action.....	6
3.2 Replacement of QSO with Handwheel Valve.....	6
3.3 Replacement of Affected Flanged Adaptor .....	6
3.4 SB32 Confirmation Form .....	7
Appendix A: Calculation of torque adjustment factor.....	8

The technical content of this document is approved under the authority of the DOA ref. UK.21J.0140

## 1. INTRODUCTION

- 1.1.1 This document contains details of the Torque Test referred to in SB32 to allow cylinders with Flanged Adaptors identified in Section F of the bulletin to remain in service for a limited period.
- 1.1.2 The Torque Test applies an unscrewing torque of 90 Nm to the Flanged Adaptor (80% of the minimum installation torque).
- 1.1.3 Completion of the Torque Test must be carried out by a Part-66 engineer or equivalent approved by the state of registration of the aircraft.

## 2. TORQUE TEST

- 2.1.1 This section contains details the Torque Test referred to in SB32 to allow cylinders with Flanged Adaptors identified in Section F of the bulletin to remain in service for a limited period.
  - 2.1.2 The Torque Test applies an unscrewing torque of 90 Nm to the Flanged Adaptor (80% of the minimum installation torque).
  - 2.1.3 Completion of the Torque Test must be carried out by a Part-66 engineer or equivalent approved by the state of registration of the aircraft.
- ### 2.2 Torque Test for Empty Cylinders
- 2.2.1 Equipment Required:
    - Flanged Adaptor Installation Tool
    - Torque wrench, minimum capacity 100 Nm
    - 10 mm socket or spanner.
    - Leak detector spray
  - 2.2.2 To check the unscrewing torque on a cylinder empty of fuel, the following procedure applies:
    1. Ensure the cylinder is completely empty and vented to zero pressure.
    2. Remove the four M6 retaining bolts holding the QSO assembly to the Flanged Adaptor and remove the QSO assembly.
    3. Make an alignment mark on the thread of the Flanged Adaptor and the cylinder boss to assist in observing rotation.



Figure 1 - Alignment marking on thread and boss

4. Fit the Flanged Adaptor installation tool onto the Flanged Adaptor. Smoothly and progressively apply a torque of up to 90Nm with the Torque Wrench. Do not jerk the wrench or the set torque may be exceeded.
5. If the Flanged Adaptor rotates the cylinder has failed the Torque Test and must be removed from service.
6. If the Flanged Adaptor does not rotate re-assemble the QSO assembly onto the flange and perform a Pneumatic Leak Test on the cylinder [HAB Maintenance Manual Supplement 7.52].
7. If the cylinder passes both the Torque Test and the Pneumatic Leak Test, then it may be released to service. Make a log-book entry or complete other release paperwork (e.g. Form 1) See section 3.

## 2.3 Torque Test for Cylinders Containing Fuel

2.3.1 This test may also be used for empty cylinders where a Flanged Adaptor installation tool is not available.

2.3.2 Testing of cylinders containing fuel must be carried out outside. Operators must wear suitable eye protection.

### 2.3.3 Equipment Required:

- Torque wrench, minimum capacity 100 Nm
- 45 mm or 1 ¾ inch 'Crow's Foot' spanner
- Extension drive
- Padding (closed cell foam, cardboard, or rags) to protect the top of the cylinder in case of the spanner slipping.



Figure 2 - 'Crow's Foot' Spanner

NOTE: Use of a 'Crow's Foot' adaptor requires an adjustment factor to be calculated for the torque wrench, see Appendix A. If the torque wrench is held at 90° to the centreline of the 'Crow's Foot' no adjustment factor is required. 90° to the centreline of the 'Crow's Foot' is a good orientation for the 'Crow's Foot' in this application.

2.3.4 To check the unscrewing torque on a cylinder with fuel, the following procedure applies:

1. Make an alignment mark on the thread of the Flanged Adaptor and the cylinder boss to assist in observing rotation.
2. Fit the padding material over the top of the cylinder.
3. Secure the cylinder either by strapping it to a fixed object or by having a second person hold it.
4. Fit the 'Crow's Foot' over the flange of the flange adaptor.

**WARNING:** Do not apply torque to the Ball Valve or the Aluminium Mounting Block.

5. Calculate the Torque adjustment factor required for the 'Crow's Foot' position used (See Appendix A).

NOTE: The outlet fitting of the QSO assembly will prevent full engagement of the 'Crow's Foot', but sufficient engagement should be possible to apply the required torque.

6. Using one hand to apply force to the torque wrench and one hand to steady the upper end of the extension drive or end of the torque wrench. Smoothly and progressively apply a torque of up to 90Nm with the Torque Wrench. Do not jerk the wrench or the set torque may well be exceeded.
7. If the Flanged Adaptor rotates the cylinder has failed the Torque Test and must be removed from service.
8. If the Flanged Adaptor does not rotate perform a leak test using leak detector fluid.

8. If the cylinder passes both the Torque Test and the Pneumatic Leak Test, then it may be released to service. Make a log-book entry or complete other release paperwork (e.g. Form 1) See section on Release Statement.

## 2.4 Release statement

- 2.4.1 The following statement should be used to release the cylinders to service:

The SB32 torque check CBL/TN/DCB/3287 Issue A has been performed on cylinder number(s) XXXXX. This / These cylinders are released to service until 31-January-2022.

### 3. RECTIFICATION ACTION

3.1.1 This section contains details the Rectification Action referred to in SB32 to allow cylinders with Flanged Adaptors identified in Section F of the bulletin to be returned to service.

#### 3.2 Replacement of QSO with Handwheel Valve

3.2.1 The following procedure should be followed if the rectification action chosen by the owner/operator has been to replace the QSO Assembly with a Handwheel Valve:

1. Empty the cylinder of LPG and allow to fully vent of all vapour. The FLLG (Fixed Liquid Level Gauge) must be keep open until after the Liquid Fuel Handwheel Valve has been installed.
2. Install the Handwheel Valve as normal.
3. Complete the Leak Test described in HAB Maintenance Manual Supplement 7.52.
4. Record the completion of SB32 in the Balloons Logbook.
5. Complete the SB32 Confirmation Form and send to Cameron Balloons Ltd.

#### 3.3 Replacement of Affected Flanged Adaptor

3.3.1 The following procedure should be followed if the rectification action chosen by the owner/operator has been to replace the Flanged Adaptor in the QSO Assembly:

1. Empty the cylinder of LPG and allow to fully vent of all vapour. The FLLG (Fixed Liquid Level Gauge) must be keep open until after the QSO assembly has been reinstated.
2. Disassemble the QSO Assembly to access the Flanged Adaptor.
3. Remove the affected Flanged Adaptor. The affected Flanged Adaptor must be rendered unserviceable and disposed of. Damaging the thread to prevent future installation is an acceptable means of rendering the Flanged Adaptor unserviceable.
4. Install the replacement Flanged Adaptor (CB437 Issue H or later) according to Service Instruction 28 (SI28).
5. Record the completion of SB32 in the Balloons Logbook.
6. Complete the SB32 Confirmation Form and send to Cameron Balloons Ltd.

### 3.4 SB32 Confirmation Form

3.4.1 Once the final rectification action has been completed for a cylinder, the below table must be completed and returned to Cameron Balloons Ltd.

SB32 Confirmation Form	
To be completed after rectification action has been applied to cylinder(s)	
Owner / Operator	
Contact Address / Email	
Balloon Registration	
Balloon Construction No.	
Cylinder Serial Number(s)	
Chosen Rectification Action	Replacement Flanged Adaptor / Handwheel Valve
Signed:	Date:
Please return this form to Technical Department, Cameron Balloons Ltd, St Johns Street, Bedminster, Bristol BS3 4NH, UK. Alternatively, scan and email to <a href="mailto:technical@cameronballoons.co.uk">technical@cameronballoons.co.uk</a>	

**APPENDIX A: CALCULATION OF TORQUE ADJUSTMENT FACTOR**

When you put an adaptor on a torque wrench (e.g. a 'Crow's Foot') that extends its length the torque applied to the fastener increases as the lever arm extends. This calculation will work out what value you should set into the wrench to achieve the required fastener torque.

The following formula has is used:

$$M1 = M2 \times L1 / L2$$

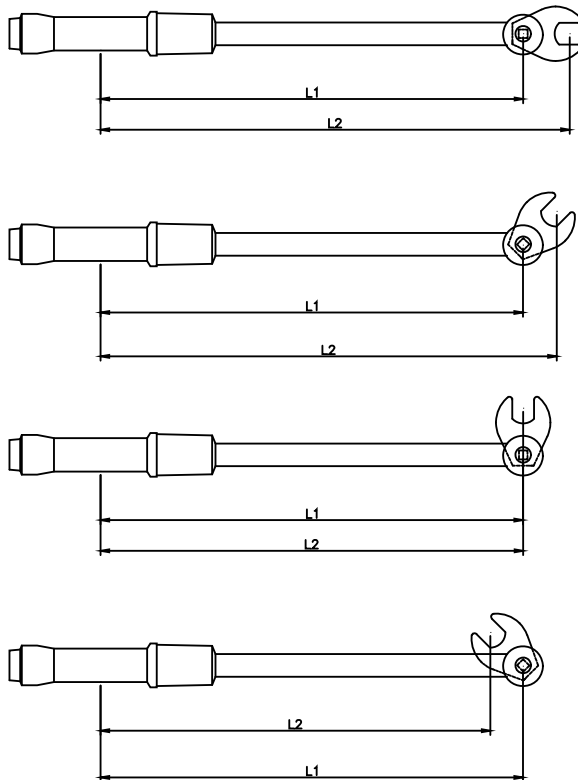
Where:

M1 is the torque setting of the wrench

M2 is the actual torque applied to the nut

L1 is the normal length of the wrench

L2 is the extended length of the wrench



Note that when the 'Crow's Foot' is at 90° to the torque wrench  $L1 = L2$ , so no correction factor is required.