

International
Aero Engines

V2500 Propulsion System — Nacelle

SERVICE BULLETIN

NACELLE - EXHAUST - LEVER ASSEMBLY, THRUST REVERSER OUTER LOCKING
ACTUATOR - REPLACEMENT OF

MODEL APPLICATION

V2500-D5

BULLETIN INDEX LOCATOR

78-30-00

Compliance Category Code

4

Internal Reference No.

LL/JR 95VN319

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1. Planning Information

A. Effectivity

- (1) Airplane: MD90
- (2) Nacelle: V2500-D5 thrust reverser serial numbers 0021001 through 0056005.

B. Reason

(1) Condition

Operators have reported damage to the proximity sensor on thrust reverser outer locking actuator.

(2) Background

Overtravel of outer locking actuator lever assembly during operation.

(3) Objective

To eliminate any possible contact between lever assembly and proximity sensor during actuation.

(4) Substantiation

Trial fit check and operation of revised lever assembly was successful.

(5) Impact of Bulletin on Workshop Procedures:

Removal/Installation	Not Affected
Disassembly/Assembly	Not Affected
Cleaning	Not Affected
Inspection/Repair	Not Affected
Repair	Not Affected
Testing	Not Affected

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(6) Supplemental Information

None.

C. Description

The change introduced by this Bulletin is to replace the existing thrust reverser outer locking actuator lever assembly with a redesigned lever assembly.

D. Approval

Incorporation of this Service Bulletin must be accomplished only in conjunction with Douglas Aircraft Company Service Bulletin MD90 78-002 which has received exclusive FAA approval for MD-90 Series aircraft.

E. Compliance

Category 4

Accomplish at the first visit of the nacelle component to a maintenance base capable of compliance with the accomplishment instructions regardless of the planned maintenance action for the nacelle or nacelle component.

F. Manpower

Estimated Manhours to incorporate the full intent of this Bulletin on one V2500-D5 thrust reverser:

VENUE

ESTIMATED MAN HOURS

(1) In Service

(a)	To get access	0.25	M/Hrs
(b)	To rework (S/B 1802-78-L1802-02)	1.00	M/Hrs
(c)	To put nacelle to service	0.25	M/Hrs

Total 1.50 M/Hrs

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The parts to accomplish this Service Bulletin are available from Lucas Aerospace as kit CH1802-00SHT4 at no cost to the operator.

H. Tooling Cost and Availability

I. Weight and Balance

- ## J. Electrical Load Data

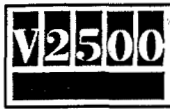
K. References

Lucas Aerospace Service Bulletin
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IAE V2500 Standard Practices/Processes 70-09-00
Manual

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Not subject to the EAR per 15 C.F.R. Chapter 1, Part 734.3(b)(3).



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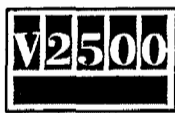
L. Other Publications Affected

MD90 Engine Illustrated Parts Catalog	78-31-14
MD90/V2500-D5 Thrust Reverser Component	78-32-05
Maintenance Manual	78-32-06
	78-32-07
	78-32-08

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2. Accomplishment Instructions

A. Prerequisite Instructions

- (1) Open fan cowl doors. Refer to MD90 Aircraft Maintenance Manual, Chapter 71-13-00.

B. Rework or Modification Instructions

- (1) Locate TY1802-03 outer locking actuator on left hand upper and lower thrust reverser doors. Refer to Figure 1.
- (2) Visually examine stow pipe on TY1802-03 outer locking actuator for any damage. Refer to Lucas Aerospace Service Bulletin 1802-78-L1802-02 for possible damage area. If there is no damage, continue to paragraph 2.B.(3). If damage is visible, remove damaged outer locking actuator and install replacement TY1802-04 outer locking actuator. Refer to MD90 Aircraft Maintenance Manual, Chapter 78-31-14. Return damaged outer locking actuator to Lucas Aerospace and get replacement TY1802-04 outer locking actuator. Refer to Lucas Aerospace Service Bulletin 1802-78-L1802-02 for address and availability. Continue to paragraph 2.C.
- (3) Replace outer locking actuator lever assembly and proximity sensor, if required, and reidentify TY1802-03 outer locking actuator to TY1802-04 with instructions in Lucas Aerospace Service Bulletin 1802-78-L1802-02.
- (4) Make sure gap is correct between proximity sensor and outer locking actuator lever assembly. Refer to MD90 Aircraft Maintenance Manual, Chapter 78-33-11.
- (5) Repeat procedures in paragraphs 2.B.(1) through (4) for right hand upper and lower thrust reverser doors.

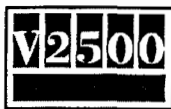
C. Recording Instructions

- (1) A record of accomplishment is necessary. Write in

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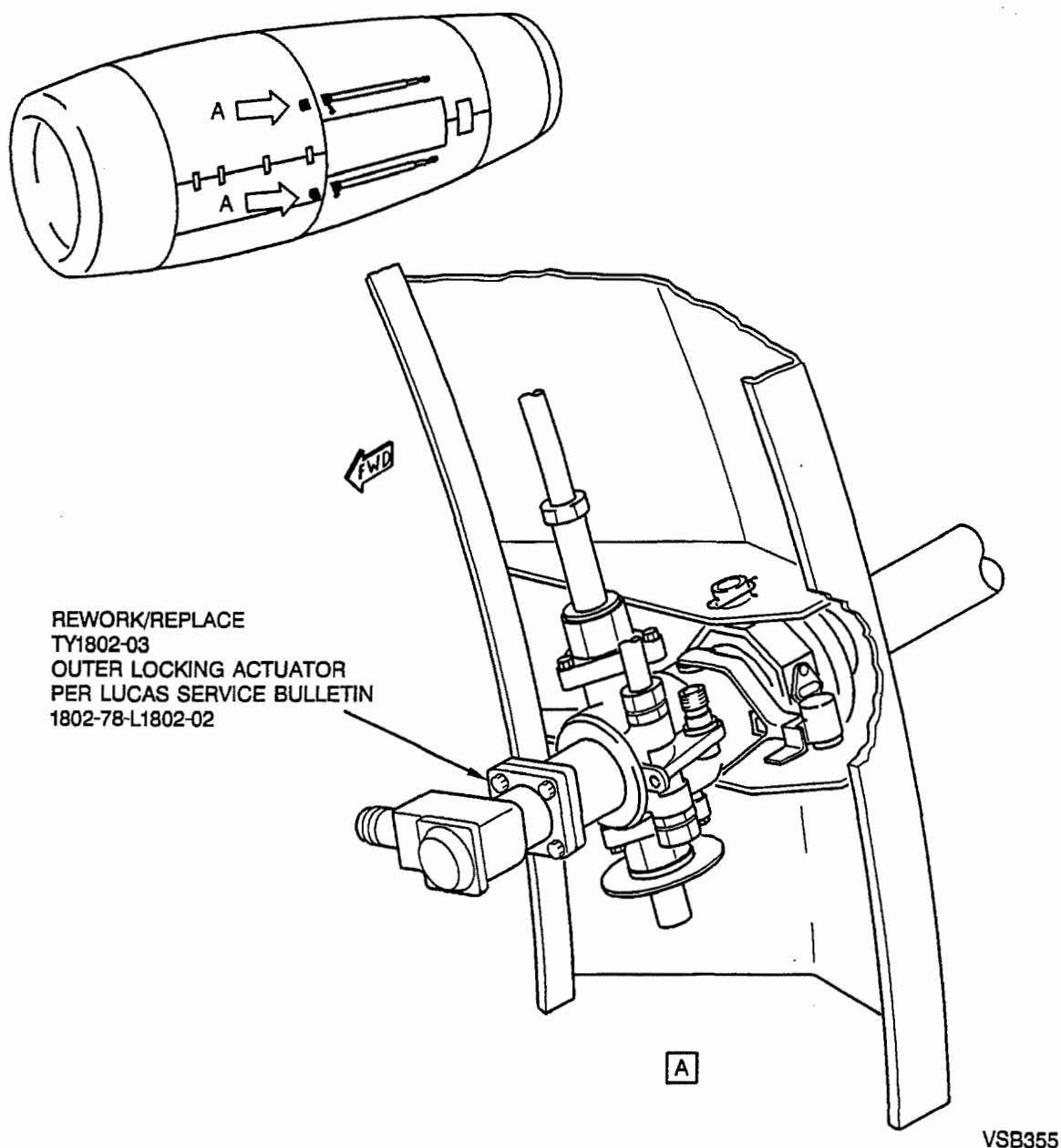
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Thrust reverser outer locking actuator
Figure 1

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applicable records and metal stamp, vibroetch, or electroetch on thrust reverser data plate that Service Bulletin V2500-NAC-78-0106 has been done. Refer to IAE V2500 Standard Practices/Processes Manual, Chapter 70-09-00.

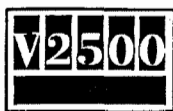
D. Post-requisite Instructions

- (1) Close fan cowl doors. Refer to MD90 Aircraft Maintenance Manual, Chapter 71-13-00.

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3. Material Information

Applicability: For each V2500-D5 thrust reverser to incorporate this Bulletin

A. Kits associated with this Bulletin:

Refer to Lucas Aerospace Service Bulletin 1802-78-L1802-02 for kit information.

B. Parts affected by this Bulletin:

<u>NEW PART NO.</u> <u>(ATA NO.)</u>	<u>QTY</u>	<u>EST'D UNIT</u> <u>PRICE</u>	<u>KEYWORD</u>	<u>OLD PART NO.</u> <u>(IPC NO.)</u>	<u>INSTR/</u> <u>DISPOS</u>
TY1802-04 (78-31-14) (78-31-14)	1	\$38,975.00	Actuator	TY1802-03 (01-005) (02-005)	(A)(B) (S1)

C. Consumables Required to Incorporate This Bulletin

None.

D. Instructions/Disposition Code Statements

(A) New part is available.

(B) Rework old part with instructions in Lucas Aerospace Service Bulletin 1802-78-L1802-02.

(S1) Old part number may be used as a replacement only where old part was installed. New part number is acceptable replacement for the old or new part number.

NOTE: The estimated 1995 unit prices shown are provided for planning purposes only and do not constitute a firm quotation. Consult the Rohr Price Catalog or contact Rohr's Customer Support Department for information concerning firm prices.

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1802-78-L1802-02

ENGINE – OUTER LOCKING/FEEDBACK ACTUATOR TY1802-03 – To prevent possible lever/proximity switch foul condition.

MODIFICATION L1802-02

1. Planning Information

- A. Effectivity – MD90/V2500 Outer Locking/Feedback Actuator TY1802-03
- B. Reason – Operators have reported a foul condition between the lever assembly and proximity switch, resulting in damage to the proximity switch.
- C. Description – To introduce a modified lever preventing the foul condition with the proximity switch, and replace any damaged proximity switches. This Service Bulletin introduces build standard TY1802-04.
- D. Approval – This service bulletin has been reviewed by the Federal Aviation Administration (FAA) and the repairs and modification herein comply with the applicable Federal Aviation Regulations (FARs) and are FAA approved for use on MD-90 Series aircraft.
- E. Compliance – Recommended.
- F. Manpower – Approximate manpower necessary to do this service bulletin on a thrust reverser is one hour.
- G. Material – Cost and Availability – Refer to para 3.
- H. Tooling – Normal overhaul tooling and, if available, Setting Slip CH1542-0203 to set the proximity switch clearance.
- J. Weight and Balance – Not affected.
- K. References – None.
- L. Other Publications Affected – Lucas Component Maintenance Manual 78-31-14.

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ENGINE – OUTER LOCKING/FEEDBACK ACTUATOR TY1802-03 – To prevent possible lever/proximity switch foul condition.

MODIFICATION L1802-02

2. Accomplishment Instructions

A. Disassembly

- (1) Visually examine the stow pipe attached to the jack head assembly. If there is any damage to the stow pipe (refer to Figure 1), remove the TY1802-03 outer locking/feedback actuator and return to Lucas Aerospace. Replace with TY1802-04 outer locking/feedback actuator and ignore the remainder of this service bulletin.

If stow pipe is not damaged:

- (2) Remove the CH1802P0008 lever assembly (TY1802-03 letter A) or the CH1802-0009 lever (TY1802-03 letter B and C) from outer locking/feedback actuator with the four 91223223 screws (refer to Figure 1). Discard the CH1802P0008 lever assembly, return the CH1802-0009 lever to Lucas Aerospace. Retain screws.
- (3) Visually examine the CH250112 proximity switch for any damage which may have occurred from a foul with lever. If there is no damage, return proximity switch from kit to Lucas Aerospace and proceed to paragraph 2.B. (2). If damage has occurred, remove proximity switch as follows:
 - (a) Remove the wirelocking, remove the nut and lockwasher from CH250112 proximity switch. Retain nut and lockwasher.
 - (b) Remove CH1542-0015 spacer and CH250112 proximity switch. Discard proximity switch. Retain spacer.

B. Assembly

- (1) If proximity switch required replacement, install new proximity switch as follows:
 - (a) Assemble the original CH1542-0015 spacer on new CH250112 proximity switch.
 - (b) Put CH250112 proximity switch on jack head assembly of outer locking/feedback actuator with lockwasher and nut. Tighten nut to a torque of 12 to 16lbf ft (16,3 to 21,7Nm).
- (2) Apply Hylomar SQ32M or PL32M jointing compound to four 91223223 screws. Put new CH1802-0010 lever on outer locking/feedback actuator with four 91223223 screws. Tighten the screws to a torque of 2.35 to 2.75lbf ft (3,15 to 3,85Nm).

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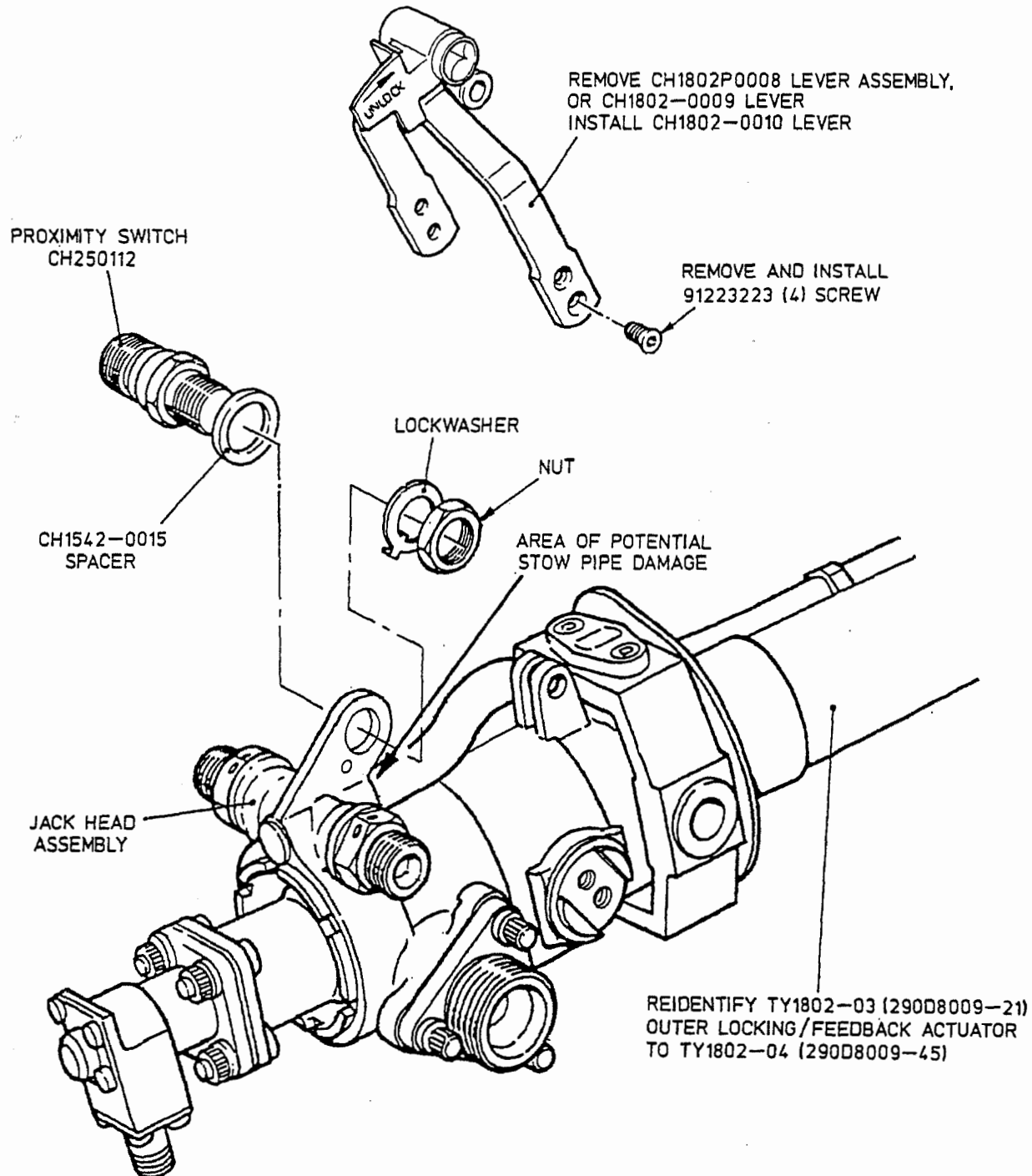
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ENGINE - OUTER LOCKING/FEEDBACK ACTUATOR TY1802-03 - To prevent possible lever/proximity switch foul condition.

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Replacement of Lever Assembly/Proximity Switch
Figure 1

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- (3) Using Setting Slip CH1542-0203 or other suitable means, make sure the clearance between the CH250112 proximity switch and the CH1802-0010 lever target face is 0.059 to 0.079 in (1,5 to 2,0 mm). If necessary to obtain the correct clearance select and install a spacer of the correct thickness from the graded range CH1542-0015-1, CH1542-0015-2, CH1542-0015-3 supplied with the mod kit. It may be necessary to use a number of spacers.
- (4) With locking wire, lock the proximity switch nut to the proximity switch.
- (5) Re-identify outer locking/feedback actuator with the vibro-peen method. Refer to paragraph 2.C.

C. Modification Record

- (1) Re-identify TY1802-03 outer locking/feedback actuator to TY1802-04 (Rohr Part Numbers 290D8009-21 to 290D8009-45).

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ENGINE – OUTER LOCKING/FEEDBACK ACTUATOR TY1802-03 – To prevent possible lever/proximity switch foul condition.

MODIFICATION L1802-02

3. Material Information

A. Data Basis Quantity specified is for each unit.

B. Parts Affected

<u>New Part No.</u>	<u>Qty</u>	<u>Unit List Price</u>	<u>Keyword</u>	<u>Old Part No.</u>	<u>Instructions disposition</u>
CH1802-0010	1	–	Lever Assy	CH1802P0008	Scrap
			Lever	CH1802-0009	Return to Lucas

C. Modification Kit

<u>Part No.</u>	<u>Qty</u>	<u>Keyword</u>	<u>Dollars Each</u>
CH1802-00SHT4 Comprising:-			
CH1802-0010	1	Lever	–
CH250112	1	Proximity Switch	–
CH1542-0015-1		Spacer	–
CH1542-0015-2		Spacer	–
CH1542-0015-3		Spacer	–

NOTE: Prices are at September 1994 catalogue levels and are F.O.B. UK port. Modification kits will be supplied Free-of Charge one time only.

For cost and availability apply to :-

LUCAS AEROSPACE CSC
BIRMINGHAM ROAD
WEST BROMWICH
WEST MIDLANDS
B71 4JR
ENGLAND

PHONE : (44) 121 627 6767
TELEX : 334174
FAX : (44) 121 500 6405
SITA : BHXLW7X

LUCAS AEROSPACE CSC
P O BOX 120039
STAMFORD
CONNECTICUT 06912
USA

PHONE : (1) 203 351 8400
TELEX : 4750339
FAX : (1) 203 351 8444
SITA : BDRLU7X

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LUCAS AEROSPACE CSC
35-37 LOYANG WAY
SINGAPORE 1750

PHONE : (65) 545 9975
FAX : (65) 545 9965
SITA : SINLU7X

D. Materials

Name

Hylomar SQ32/M or
PL32/M Jointing Compound

Specification

DTD900/4586

From

Marston Lubricants Ltd.
9/11 Naylor Street,
Liverpool
L3 6DS
England

APPROVED FOR LUCAS AEROSPACE LTD



PP Product Support Manager



Product Integrity Manager

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