

 <p>TOMARK, s.r.o. Strojnícka 5 080 01 Prešov</p>	<h1>SERVICE BULLETIN</h1>	No: SB_SD4-01-2022
		Date: 28.APR 2022
		Revision: Initial issue
	<h1>OPTIONAL</h1>	Date: -
		Number of pages: 8
Approval:	SB issue by AEROSERVIS s.r.o DOA ref. EASA 21J.094 Technical content of this document is approved as part of EASA STC No.: 10080787 approval.	

MODEL AFFECTED:	Viper SD-4 RTC aircrafts Aircrafts in conformity with EASA.A.606, Issue 3, 01.April 2019
APPLICABILITY:	<p>Criterion A) Aircrafts Viper SD-4 RTC aircrafts S/N: 31613 or later. <i>(if older, contact TOMARK, s.r.o before starting work)</i></p> <p>Criterion B) Propellers – NEUFORM type CR-3-65-(IP)-47-101.6 Each Viper SD-4 RTC aircraft equipped by NEUFORM CR3-65-(IP)-47-101.6 propeller during aircraft manufacturing, repair, maintenance or general overhaul or any other exchange action.</p>
SUBJECT:	Installation of DUC Hélices FLASH-R type the P/N: H-FSH_3-D-R_I propeller ATA System: 61-10 Propeller Assembly.
COMPLIANCE:	Implement this Service Bulletin when replacement of the original NEUFORM CR3-65-(IP)-47-101.6 type propeller by DUC Hélices type FLASH-R the P/N: H-FSH_3-D-R_I type propeller was identified as practical.
COMPLIANCE CATEGORY:	CAT - 4 - Application is optional
DESCRIPTION:	TOMARK, s.r.o. as holder of EASA.A.606 identified that DUC Hélices FLASH-R type propeller installed on Viper SD-4 Night-VFR aircraft model, as derivative of Viper SD-4 RTC aircraft model also covered by EASA.A.606, could be installed on Viper SD-4 RTC aircrafts.
REASON:	In the course of continuous development and standardization a new type of the DUC Hélices FLASH-R type the P/N: H-FSH_3-D-R_I propeller has been introduced, which is considered as direct replacement of original NEUFORM CR3-65-(IP)-47-101.6 propeller with aim to offer customers new configuration of Viper SD-4 RTC aircrafts.
MANPOWER:	Persons with approved qualifications for the corresponding aircraft type. EASA Part 145, Part M or Part ML Maintenance organization
LABOR TIME:	1 person, approx. 6÷8 working hours

MATERIAL:	<p><u>Required tools for replacement:</u></p> <ul style="list-style-type: none"> • Phillips screw driver PH2 • Screwdriver handle 8 mm flat • Combined pliers • Side-cutting pliers • SP-28 clip protractor or other suitable angle-measuring tool • 13 mm spanner • Ratchet + HW6 hex bit • 5-30 Nm torque wrench + HW6 hex bit • Universal adjusting tool Reference: 01-80-001 DUC Hélices • Tools defined in Instruction manual FLASH propeller range (DH_FSH_BE_02_J) or latest issue 																																																		
	<p><u>Interchangeability of parts:</u></p> <ul style="list-style-type: none"> ➤ All M8 nyloc nuts used for whole set NEUFORM CR3 65 (IP) 47 101.6 propeller fixation are not able to be used for set of “new” DUC Hélices H-FSH_3-D-R_I propeller fixation. ➤ Damaged used parts are unserviceable and must be scrapped. 																																																		
	<p><u>Required parts for replacement:</u></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">NEW part P/N (Viper SD-4RTC order/stock No.)</th> <th style="text-align: center;">Qty per aircraft</th> <th style="text-align: center;">Description</th> <th style="text-align: center;">OLD part P/N (Viper SD-4RTC order/stock No.)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">P/N: H-FSH_3-D-R_I (8194-0177)</td> <td style="text-align: center;">1</td> <td style="text-align: center;">DUC Hélices FLASH-R Ø 1730 mm</td> <td style="text-align: center;">NEUFORM CR3-65-(IP)-47-101.6 (8194-01034)</td> </tr> <tr> <td style="text-align: center;">8190-0116</td> <td style="text-align: center;">1</td> <td style="text-align: center;">Set of propeller spinner 275 mm + connecting components (M5)</td> <td style="text-align: center;">8190-0116</td> </tr> <tr> <td style="text-align: center;">SD4-B-6-202-N-3</td> <td style="text-align: center;">1</td> <td style="text-align: center;">Flash spinner back plate flange</td> <td style="text-align: center;">SD4-A-6-202-N-3</td> </tr> <tr> <td style="text-align: center;">4111-0186</td> <td style="text-align: center;">6</td> <td style="text-align: center;">Screw M6x16 DIN 912-8.8 Zn</td> <td style="text-align: center;">4111-0186</td> </tr> <tr> <td style="text-align: center;">4311-0319</td> <td style="text-align: center;">6</td> <td style="text-align: center;">Nut M6 DIN 985-10 Zn</td> <td style="text-align: center;">4311-0319</td> </tr> <tr> <td style="text-align: center;">4411-0019</td> <td style="text-align: center;">6</td> <td style="text-align: center;">Washer 6 DIN 125-1A Zn</td> <td style="text-align: center;">4411-0019</td> </tr> <tr> <td style="text-align: center;">SD4-B-6-203-N-7</td> <td style="text-align: center;">6</td> <td style="text-align: center;">Propeller FLASH-R shaft extension insert</td> <td style="text-align: center;">SD4-A-6-203-N-7</td> </tr> <tr> <td style="text-align: center;">4111-0392</td> <td style="text-align: center;">6</td> <td style="text-align: center;">Bolt M8x140 DIN 912-8.8 Zn</td> <td style="text-align: center;">4122-0038 (Bolt M8x100 DIN 912 12,9 DC)</td> </tr> <tr> <td style="text-align: center;">4311-0324</td> <td style="text-align: center;">6</td> <td style="text-align: center;">Nut M8 DIN 982-10 Zn</td> <td style="text-align: center;">4311-0070 (Nut M8 DIN 985-10 Zn)</td> </tr> <tr> <td style="text-align: center;">4411-0026</td> <td style="text-align: center;">6</td> <td style="text-align: center;">Washer 8 DIN 125-1A Zn</td> <td style="text-align: center;">4411-0026</td> </tr> <tr> <td style="text-align: center;">TOM-TC-01-(FSH_R)- AFM</td> <td style="text-align: center;">1</td> <td style="text-align: center;">Aircraft Flight Manual</td> <td style="text-align: center;">TOM-TC-01-AFM.F or later issue</td> </tr> </tbody> </table>				NEW part P/N (Viper SD-4RTC order/stock No.)	Qty per aircraft	Description	OLD part P/N (Viper SD-4RTC order/stock No.)	P/N: H-FSH_3-D-R_I (8194-0177)	1	DUC Hélices FLASH-R Ø 1730 mm	NEUFORM CR3-65-(IP)-47-101.6 (8194-01034)	8190-0116	1	Set of propeller spinner 275 mm + connecting components (M5)	8190-0116	SD4-B-6-202-N-3	1	Flash spinner back plate flange	SD4-A-6-202-N-3	4111-0186	6	Screw M6x16 DIN 912-8.8 Zn	4111-0186	4311-0319	6	Nut M6 DIN 985-10 Zn	4311-0319	4411-0019	6	Washer 6 DIN 125-1A Zn	4411-0019	SD4-B-6-203-N-7	6	Propeller FLASH-R shaft extension insert	SD4-A-6-203-N-7	4111-0392	6	Bolt M8x140 DIN 912-8.8 Zn	4122-0038 (Bolt M8x100 DIN 912 12,9 DC)	4311-0324	6	Nut M8 DIN 982-10 Zn	4311-0070 (Nut M8 DIN 985-10 Zn)	4411-0026	6	Washer 8 DIN 125-1A Zn	4411-0026	TOM-TC-01-(FSH_R)- AFM	1	Aircraft Flight Manual
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<p><u>Special compounds/treatments/fluids</u></p> <ul style="list-style-type: none"> ➤ Thread lock paint (SCHRAUBEN SICHERUNGSLACK) ➤ In accordance with Instruction manual FLASH propeller range (DH_FSH_BE_02_J) or latest issue ➤ In accordance with the relevant TOM-TC-01-AMM /3/ and AE229W01X AMM Supplement /4/ 																																																			
REFERENCES:	<p>/1/ Instruction manual FLASH propeller range (DH_FSH_BE_02_J) or the latest issue</p> <p>/2/ TOM-TC-01-(FSH_R)-AFM Viper SD-4 RTC with FLASH-R propeller Aircraft Flight Manual</p> <p>/3/ TOM-TC-01-AMM Viper SD-4 RTC Maintenance Manual</p> <p>/4/ AE229W01X - Maintenance Manual Supplement</p>																																																		

WEIGHT and BALANCE:	Change of weight Change of CG position
ELECTRICAL LOAD DATA:	Not affected
SUPPORT INFORMATION:	Any possible support for Viper SD-4 RTC aircrafts contact: TOMARK s.r.o., Strojnícka 5, 080 01 Prešov, Slovak republic https://www.tomarkaero.com/kontakt/ , E-Mail: service@tomarkaero.com

ACCOMPLISHMENT ISNTRUCTIONS:**WARNING !**

- ! Before the replacement of the circuit breakers, shut down the engine and wait for a decrease of its temperature, if the engine was warmed up for the operating/flight temperature.
- ! Park the airplane in a sufficiently large parking area.
- ! To prevent accidental movement, secure with a parking brake in the airplane's cockpit (see /2/l) or secure the wheels with chocks.

A) Remove upper engine cowling

1. Remove the top engine cowling according to TOM-TC-01-AMM /3/ and AE229W01X AMM Supplement /4/ Chapter 71-00-01.
Push and turn by 90° to the left the Phillips screwdriver PH2 to unlock the 2x CAMLOCK screws at the front of the upper engine cowling, between the propeller spinner and the intake openings, on both sides of front part of the upper engine cowling.



Release the upper cowling from the crews and pull it forward (in the flight direction). Then lift it evenly on both sides.

B) Demounting of propeller NEUFORM CR3-65-(IP)-47-101.6

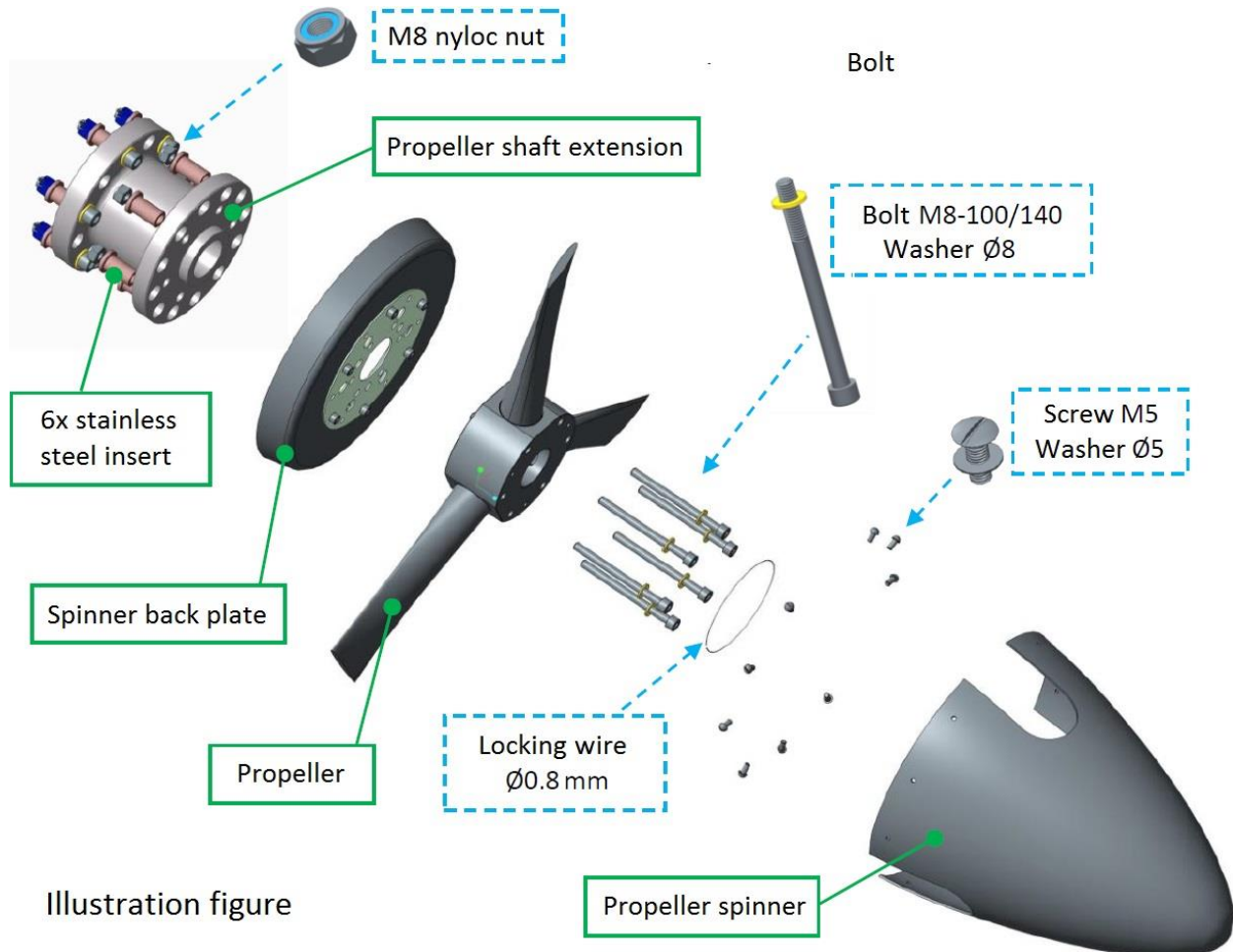


Illustration figure

1. Using 8 mm flat screwdriver unscrew 9 x screw M5 on perimeter of spinner. Demount the propeller spinner.
2. Using side-cutting pliers and combined pliers remove the locking wire $\varnothing 0.8$ mm from the 6 x Bolt M8x100 heads.
3. Using ratchet with HW6 hex bit and spanner 13 mm unscrew 6 x Bolt M8x100.

WARNING ! Do not reuse the M8 nyloc used nuts.

4. Demount the propeller NEUFORM CR3-65-(IP)-47-101.6.
5. Remove the spinner backplate from the propeller shaft extension.

ATTENTION ! The demounted stainless-steel inserts (**length L=25.5 mm**) are designed and should only be used for the installation of the **CR3-65-(IP)-47-101.6 propeller**.

C) Mounting of propeller DUC Hélices FLASH-R

1. Put the “new” spinner back plate – fit for FLASH-R propeller – to place by hand..

WARNING ! Use stainless-steel inserts (**length L=33,5 mm**) fit for FLASH-R propeller.

Install the 6 x stainless-steel inserts into the respective high-precision holes $\varnothing 13H9$ in the propeller shaft extension

2. Put the assembled FLASH-R propeller on the place.
3. Using ratchet with HW6 hex bit and spanner 13 mm screw on 6 x “new” bolt M8x140

WARNING ! Use “new” M8 nyloc nuts.

ATTENTION ! Do not tighten the 6 x bolted connections on the propeller and 6x bolted connections to attach the propeller to the propeller shaft extension.

4. Adjust the DUC FLASH-R propeller. Proceed according to the instructions contained in the "Instruction manual FLASH propeller range (DH_FSH_BE_02_J)" or the latest issue.

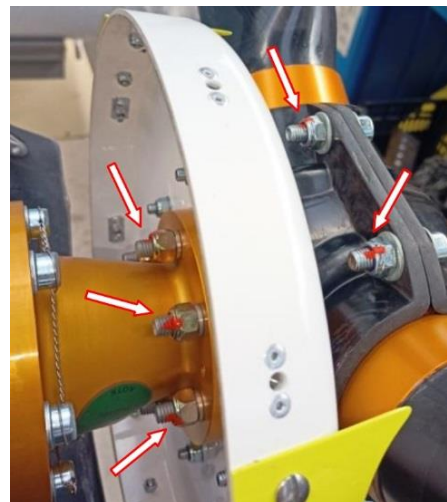
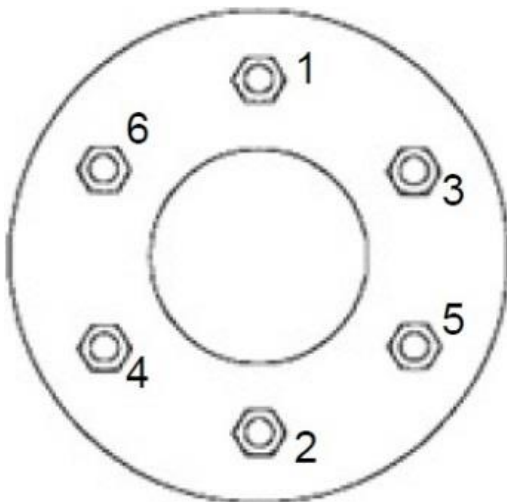
WARNING ! Set the propeller blade pitch to $23.5^{\circ} \pm 0.2^{\circ}$ at a distance of 250 mm from blade tips, measured on the back (flat) side of a blade.

WARNING ! Tighten the bolted connections (locking of the propeller blade positions) using a torque wrench with HW6 hex bit and spanner 13 mm to a **tightening torque of 25 Nm**.

5. Using a torque wrench with HW6 hex bit and spanner 13 mm tighten the propeller with the tightening torque.

WARNING ! Tighten the bolted connections connecting the propeller to the propeller shaft extension using a torque wrench with HW6 hex bit and spanner 13 mm to a **tightening torque of 25 Nm**.

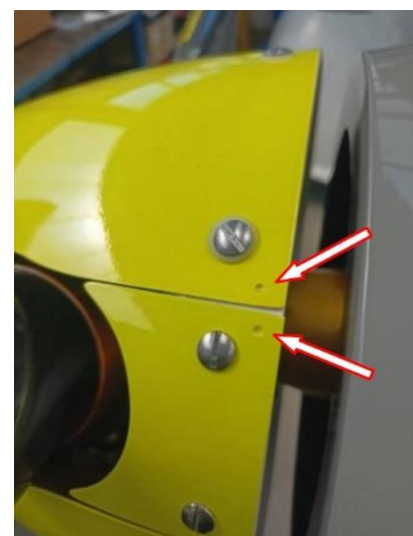
ATTENTION ! Tighten the bolted connections in the order as shown in the picture below on the left.



6. Mark the position of all bolted connections after their tightening and locking with thread lock paint.

NOTE See picture above on the right for an example.

7. Using combined pliers and side-cutting pliers install locking wire $\varnothing 0.8$ mm on the 6 x Bolt M8x140 heads. The locking wire needs to be threaded through the hole in the bolt head in a way in which the pull of the wire towards the adjacent bolt is always in the tightening direction according to the principle shown in the picture below on the left.



8. Put the "new" propeller spinner on the place.

ATTENTION ! Position the propeller spinner according to the marks – see picture above on the right.

9. Using 8 mm flat screwdriver screw 9 x screw M5 on perimeter of the spinner.

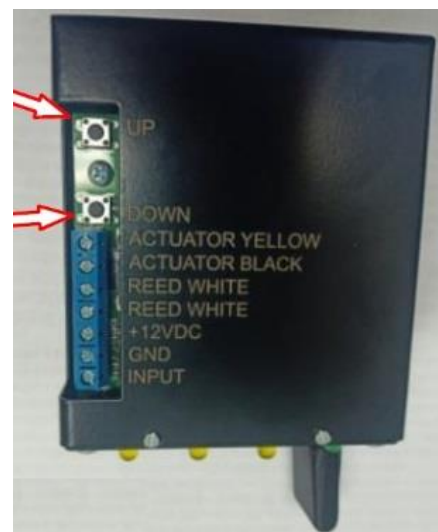
D) Change of the adjustment of flap deflection in Position III FLAPS Control Panel.

1. Demount the FLAPS control panel in cabin from its housing (unscrew the 4x attachment screws) – unscrew 4 fixing screws using 6+8 mm flat screwdriver. Pull out the box of the FLAPS control panel to secure access to the adjustment control buttons. The adjustment buttons are located at the bottom of the FLAPS control panel box, on the left.
2. Switch ON the “MASTER” and “INSTR” main circuit breakers and the “FLAPS” circuit switch/circuit breaker or check whether the “FLAPS” circuit breaker is reset (recessed) and reset it if necessary. The FLAPS control lever must be in the OFF position and the flaps must be retracted. The control LEDs on the FLAPS control panel must indicate normal operation.
3. Attach the SP-28 clip protractor (or attach/place on other suitable tool) to the trailing edge of the flap and adjust the zero position, corresponding with the retracted flaps – the control in the OFF position and the 0° deflection on the protractor. After the adjustment of the zero position lock the 0° position on the dial of the SP-28 protractor with a locking screw.

NOTE The SP-028 protractor (see picture below) can be ordered from the manufacturer of Viper SD-4 RTC.



4. Move the FLAPS control lever to Position III to extend the flaps to position III = 40°. See picture below on the left.



5. By means of the "DOWN" button (or the "UP" button if necessary) adjust the flap deflection to 35° (+0° / -2°). See picture above on the right.
6. By simultaneous depressing of both the "DOWN" and "UP" buttons (for at least 2 seconds) store the adjustment to 35° in the FLAPS control panel's memory.
7. Check the deflection in position III. Set the FLAPS control lever gradually into all positions: OFF-I-II-III and check the prescribed deflections of both the left and right flaps and the symmetry of their deflection. After checking the deflections, move the FLAPS control lever to the OFF position and retract the flaps.
8. Switch OFF the "FLAPS" circuit switch/circuit breaker and the "INSTR" and "MASTER" main circuit breakers.
9. If the adjustment of the flaps is satisfactory and the control works correctly, mount the FLAPS control panel back into the housing - screw in 4 x fixing screws and tighten them using 6÷8 mm flat screwdriver.

E) Reinstall upper engine cowling

1. Install the upper engine cowling according to TOM-TC-01-AMM /3/ and AE229W01X AMM Supplement /4/ Chapter 71-00-01.

Put the upper engine cowling on the slide-in locks, press it backwards, and attach and lock it at the front with the original screws. The pin locks along the perimeter of the upper engine cowling must fit in until the stop on the lower engine cowling and the front of the cockpit. Subsequently, lock 2x CAMLOC screws on the upper engine cowling by pushing and turning them 90° to the right with the Phillips screwdriver PH2.



F) SkyView setting adjustment

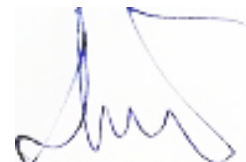
1. In the SkyView settings you need to update the Vx and Vy speeds. Contact TOMARK, s.r.o. to request that they prepare the exact procedure for your aircraft S/N.
2. Follow the procedure provided by TOMARK, s.r.o.

G) Final actions

3. Replace TOM-TC-01-AFM.F or later issue by TOM-TC-01-(FSH_R)-AFM in accompanied aircraft documentation.
4. Execute instruction for weighing and CG position estimation in accordance to instructions given in TOM-TC-01-AMM /3/ and AE229W01X AMM Supplement /4/ Chapter 08 and TOM-TC-01-(FSH_R)-AFM /2/ Chapter 6.
5. Make records to the TOM-TC-01-(FSH_R)-AFM /2/ Chapter 6 – update data regarding empty weight and CG position.
6. Make records to the airplane documentation (Service Log-Book) – regarding this Service Bulletin accomplishment.
7. Execute engine test in accordance to instructions given in TOM-TC-01-(FSH_R)-AFM /3/ Chapter 4.
8. Execute a maintenance check test flight to verify the correct functioning of all demounted, replaced and mounted parts following instructions in TOM-TC-01-AMM /3/ and AE229W01X AMM Supplement /4/ Chapter 05-21 the latest issue and TOM-TC-01-(FSH_R)-AFM /3/ the latest issue.
9. Process the documentation required for release aircraft back to service.
10. Apply to the appropriate national authority for a new noise certificate according to the EASA record number: **XXXXXX**
11. Send information about the bulletin implementation to airplane manufacturer with evidence; e.g. copy/photocopy of records in airplane documentation (Service Log-Book).



Compiled by: Jozef Kalnický
Position: Head of Airworthiness Dpt.
Date: 25.APR 2022



Approved by: Slavomír Dobrovič
Position: Head of Design Dpt.
Date: 25.APR 2022