



**TOMARK, s.r.o.**  
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# SERVICE BULLETIN

**No:** SB\_SD4-01-2020

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**Approval:**

SB approved under the authority of DOA ref. EASA 21J.094 within project no. NZ AE/207

<b>MODEL AFFECTED:</b>	EASA-TCDS No. EASA.A.606, Issue 3, 01.April 2019										
<b>APPLICABILITY:</b>	<p>It is not mandatory to retrofit engines which are currently equipped with old type oil hoses. It is recommendation to be done those if any higher level of use than standard is observed during respective aircraft maintenance.</p> <p>In case of interchange/repair/maintenance it is not allowed to exchange individual types of hoses. Mixing of oil hoses types is not allowed. All oil hoses must be of the same type for the entire engine.</p> <p><b>Note:</b> During the closest oil hoses replacement prescribed every 5 years by MAINTENANCE MANUAL (LINE MAINTENANCE) FOR ROTAX (R) ENGINE TYPE SERIES /5/ valid issue in Chapter: 05-10-00 <u>TIME LIMITS</u> Section 2) Time limit Paragraph 2.1) Time limit for rubber parts replace the original oil hoses only with new type of oil hoses.</p>										
<b>SUBJECT:</b>	Introduction of Oil Hoses CONTI OLN M4M-2 for oil system of Rotax 912 S2 / ULS2 engines installed on Viper SD-4 RTC and Viper SD-4 Night-VFR aircrafts										
<b>COMPLIANCE:</b>	Implement this Service Bulletin when replacement of the original oil hoses type PETROTEC SAE 30R9 is needed.										
<b>DESCRIPTION:</b>	This Service Bulletin includes instructions for replacement of the original oil hoses type (P/N: SD4-A-6-003-N-1#4 or P/N: SD4-B-6-003-N-1#0) by the new type of oil hoses (P/N: SD4-A-6-003-N-1#5 or P/N: SD4-B-6-003-N-1#1) for Viper SD-4 RTC or Viper SD-4 Night-VFR aircrafts engine installation.										
<b>REASON:</b>	In the course of continuous development and standardization a new type of oil hoses CONTI OLN M4M-2 has been introduced, which is considered as direct replacement of original oil hoses type.										
<b>MANPOWER:</b>	One certified technician with approved qualifications for the corresponding engine type. (iRMT-Level: Line Maintenance) EASA Part M or Part 145 Maintenance organization										
<b>LABOR TIME:</b>	Approx. 8 – 10 working hours										
<b>MATERIAL:</b>	<p><b><u>Required tools for replacement:</u></b></p> <ul style="list-style-type: none"> <li>• Allen keys set</li> <li>• Combination pliers</li> <li>• Cutter knife</li> <li>• Cutting pliers</li> <li>• Permanent marker</li> <li>• Pliers for hoses shortening</li> <li>• Screw driver, scissors</li> <li>• Socket wrench set</li> </ul> <p><b><u>Required parts for replacement:</u></b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Viper SD-4 NEW P/N</th> <th style="text-align: center;">Qty per aircraft</th> <th style="text-align: center;">Description</th> <th style="text-align: center;">Viper SD-4 OLD P/N</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">6990-0144</td> <td style="text-align: center;">3,15 meters</td> <td style="text-align: center;">Oil hoses</td> <td style="text-align: center;">6990-0111</td> </tr> </tbody> </table>			Viper SD-4 NEW P/N	Qty per aircraft	Description	Viper SD-4 OLD P/N	6990-0144	3,15 meters	Oil hoses	6990-0111
Viper SD-4 NEW P/N	Qty per aircraft	Description	Viper SD-4 OLD P/N								
6990-0144	3,15 meters	Oil hoses	6990-0111								

<b>MATERIAL:</b>	<b><u>Special material / compounds / tooling:</u></b>			
	<b>Description</b>	<b>Viper SD-4 P/N</b>	<b>Qty per aircraft</b>	<b>Application</b>
	Fireproof sleeve	6990-0109	3,2 metres	Oil hoses fire protection
	Fireproof ending tape	6990-0122	2 metres	Oil hoses end fireproof sleeves ends fire protection
	Hose clamp 16-18	4150-0949	4 pieces	On fittings oil hoses fixation
	Hose clamps 18-20	4500-0950	5 pieces	On fittings oil hoses fixation
	Plastic tightening ties 203x3,6mm PLT21-M69 Panduit	8000-0022	15 pieces	On structure oil hoses fixation
	Plastic tightening ties 142x3,6mm PLT1.5I-M69 Panduit	8000-0161	9 pieces	On structure oil hoses fixation
	LOCTITE 243 BLUE	5360-0115	as required	Screw fixation
	<b><u>Interchangeability of parts:</u></b>			
	- Damaged used parts (respective old type oil hoses, contaminated fireproof sleeves, fireproof tape, clamps, ...) are unserviceable and must be scrapped.			
<b>REFERENCES:</b>	/1/ TOM-TC-01-AMM Viper SD-4 RTC Maintenance Manual (valid issue) /2/ TOM-TC-15-AMM Viper SD-4 Night-VFR Maintenance Manual (valid issue) /3/ TOM-TC-01-C1-010 Viper SD-4 RTC Powerplant installation definition (valid issue) /4/ TOM-TC-15-C1-010 Viper SD-4 Night-VFR Powerplant installation definition (valid issue) /5/ MAINTENACE MANUAL (LINE MAINTENANCE) FOR ROTAX (R) ENGINE TYPE SERIES (MML-912 / part.no.: 899191, current issue) /6/ INSTALLATION MANUAL FOR ROTAX (R) ENGINE TYPE SERIES (IM-912 / part.no.: 898643, current issue) /7/ TOM-TC-01-AFM Viper SD-4 RTC Aircraft Flight Manual (valid issue) /8/ TOM-TC-15-AFM Viper SD-4 Night-VFR Aircraft Flight Manual (valid issue)			
<b>WEIGHT and BALANCE:</b>	Change of weight – Negligible Moment of inertia – Not affected			
<b>ELECTRICAL LOAD DATA:</b>	Not affected			
<b>SUPPORT INFORMATION:</b>	Any possible support for Viper SD-4 RTC and Viper SD-4 Night-VFR aircrafts contact: TOMARK s.r.o., Strojnícka 5, 080 01 Prešov, Slovak republic <a href="http://vipersd4.com/contact/">http://vipersd4.com/contact/</a> , E-Mail: <a href="mailto:service@tomarkaero.com">service@tomarkaero.com</a>			
<b>ACCOMPLISHMENT INSTRUCTIONS:</b>				
<ol style="list-style-type: none"> <li>1. Remove the top engine cowling according to chapter 71-00-01 of the TOM-TC-01-AMM /1/ or TOM-TC-15-AMM /2/ respectively.</li> <li>2. Remove the bottom engine cowling according to chapter 71-00-02 of the TOM-TC-01-AMM /1/ or TOM-TC-15-AMM /2/ respectively             <ol style="list-style-type: none"> <li>2.1. Before removing bottom engine cowling disconnect airbox intake and landing light power connector.</li> </ol> </li> <li>3. Drain oil from the engine. Follow the procedures as presented in chapter 12-20-00 of the ROTAX MML-912 /5/</li> </ol>				

4. Remove plastic (or metal) tightening ties by which oil hoses are mounted to the engine and other engine inhalations.  
**NOTE: Before removing the tightening ties, it is advisable to make a photographic documentation of the method of attaching the hoses for re-attachment after replacement.**
5. Label individual hoses or fireproof sleeves on the hoses by permanent marker yourselves.
6. Sequentially disconnect oil hoses – unwind terminal fireproof tape, release hose clamp and pull ending of oil hose down from respective fitting.

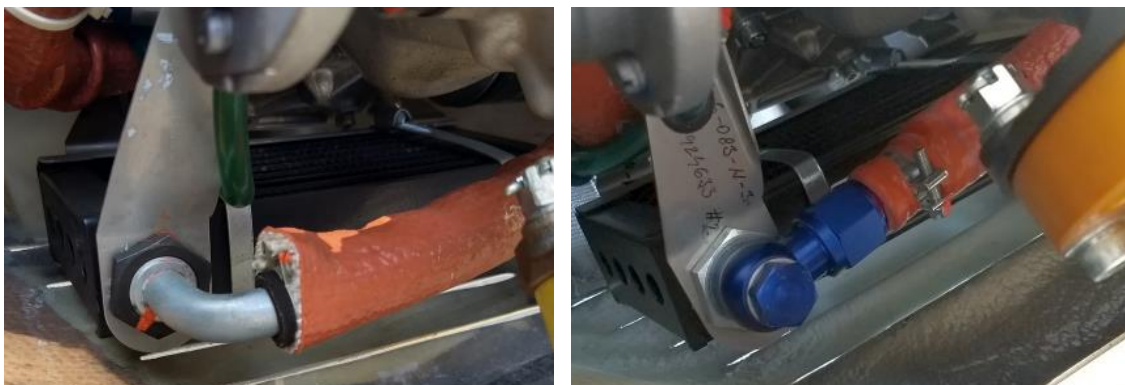
- From the engine output



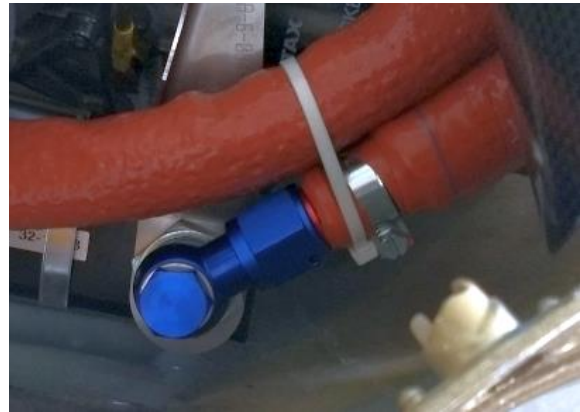
- From the oil tank input and output



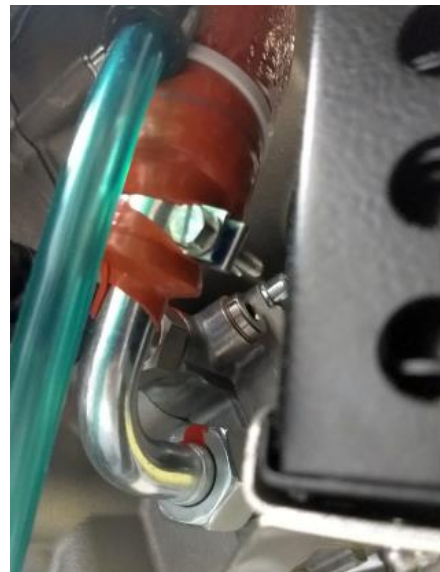
- From the oil radiator output



- From the oil radiator input



- From oil pump input



**CAUTION:** During disconnecting hoses (mainly at the lowest oil circuit point) the residual oil could outflow.

7. Dismount oil hoses from the oil thermostat.



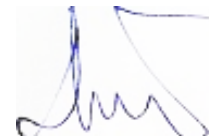
8. Put down and straight all dismantled hoses on the workbench.
9. Sequentially pull out hoses from the fire sleeves and check fire sleeves – if they are contaminated by leaked oil, it's needed to be exchanged by new ones.
10. Measure length of the original hoses and cut new hoses according them.

11. Put corresponding new hoses on the oil thermostat and lock them by spring clamps.  
**CAUTION: Observe thermostat orientation – individual branches inputs and outputs.**
12. Put on fireproof sleeves on all hoses.
13. Put on hose clamps on hoses.  
**NOTE: Instead of the original clamps 18-20 use new clamps 16-18.**
14. Install hoses on the engine – put on corresponding hoses to respective fittings as in dismount (in optional order). On the clamp thread screws spread the thread glue and tighten. Follow the procedures as presented in chapter 12-20-00 of the ROTAX MML-912 /5/  
See information as presented in Chapter: 79-00-00 of the ROTAX IM-912 /6/  
**CAUTION: Observe the minimum hose bending radius – 70 mm!**
15. Every junction from sleeves thru hose to fitting wind by fireproof finishing tape up – 2-3 tape winding.
16. Mount hoses by plastic (or metal) tightening ties to the engine and to other engine's installation – according original mount.  
See your photos taken in step 4.
17. Replenish oil. Follow the procedures as presented in chapter 12-20-00 of the ROTAX MML-912 /5/
18. Perform pre-flight inspections. Follow the instructions as presented in section 4.2 Pre-flight Inspections of the TOM-TC-01-AFM /7/ or TOM-TC-15-AFM /8/ respectively.
19. Execute engine ground run (without cowlings) according to the procedures as presented in chapter 12-20-00 of the ROTAX MML-912 /5/ and in section 4.7.1 Before Take-off of the TOM-TC-01-AFM /7/ or TOM-TC-15-AFM /8/ respectively.
20. Visually check oil installation for leaks.
21. Install the bottom engine cowling according to chapter 71-00-0 of the TOM-TC-01-AMM /1/ or TOM-TC-15-AMM /2/ respectively.
22. Install the top engine cowling according to chapter 71-00-01 of the TOM-TC-01-AMM /1/ or TOM-TC-15-AMM /2/ respectively.
23. Make records to the airplane documentation (Service Log-Book).



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Date: 07.JAN 2020



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Date: 09.JAN 2020