



U.S. Department of Transportation  
**Federal Aviation Administration**

FEDERAL AVIATION ADMINISTRATION – PARTS MANUFACTURER APPROVAL

Aviation Products Systems, Inc.  
 3701 Highway 162  
 Granite City, IL 62040

PMA No.: PQ3830CE  
 Supplement No.: 42  
 Date: December 22, 2020

<b>Article Name</b>	<b>Article Number</b>	<b>Approved Replacement For Article Number</b>	<b>Approval Basis and Approved Design Data</b>	<b>Make/TCH Eligibility</b>	<b>Model/Series Eligibility</b>
Tube Assembly	APS12098-090	LW-12098-090	Test and Computations per 14 CFR § 21.303 <u>DWG No:</u> APS12098 <u>Rev:</u> - <u>Date:</u> 12/22/2006 or later FAA-approved revisions	Lycoming Engines	TIVO-540-V2AD, LTIO-540-V2AD
Tube Assembly	APS12098-100	LW-12098-0-100	Test and Computations per 14 CFR § 21.303 <u>DWG No:</u> APS12098 <u>Rev:</u> - <u>Date:</u> 12/22/2006 or later FAA-approved revisions	Lycoming Engines	IO-540-M1A5, -M1B5D, -M1C5,TIO-540-A1A, -A1B, -A2A, -A2B, -A2C, -F2BD, -J2B, -J2BD, -N2BD, -R2AD, LTIO-540-F2BD, -J2B, -J2BD, -N2BD, -R2AD, S1AD, IVO-540-A1A, O-360-A4M, O-320-A2B, -A3B, O-540-B, -E, -G, O-290-D2, -D2B, -D2C
Tube Assembly	APS12098-140	LW-12098-0-140, LW-12098-0-134	Test and Computations per 14 CFR § 21.303 <u>DWG No:</u> APS12098 <u>Rev:</u> - <u>Date:</u> 12/22/2006 or later FAA-approved revisions	Lycoming Engines	IO-320-B1A, -B1C, -C1A, -D1A, -D1B, -E1A, -E1B, -E2A, -E2B, LIO-320-B1A, -C1A, AEIO-320-A1B, B1B, C1B, D1B, -D2B, E1B, -E2B, IO-360-A1A, -A1B, -A1B6, -A1B6D, B1G6, -A1C, A1D, A1D6, A2A, -A2B, -A3B6, -A3B6D, -B1D, -B1E, -B1F, -B2F, -C1A, -C1B, -C1D6, -C1C, -C1C6, -C1D6, -C1E6, -C1F, -C1G6, -J1A6D, -M1B, LIO-360-C1E6, HIO-360-A1B, C1A, -C1B, -E1AD, -E1BD, -F1AD, TIO-360-A1B, AEIO-360-A1A, -A1B, -A1B6, -A1D, -A1E, -A1E6, -B1B, -B1F, -B2F, IO-540-AC1A5,-C4D5D, G1C5, -K1A5, -K1A5D, -K1B5, -K1F5, -K1F5D, -K1G5, -K1G5D, -K1H5, -K1J5, -K1J5D, -K1H5, -K1J5, -K1J5D, -K1K5, -AA1B5, TIO-540-AJ1A, IO-720-A1A, -B1B, -B1BD
Tube Assembly	APS12098-150	LW-12098-0-150	Test and Computations per 14 CFR § 21.303 <u>DWG No:</u> APS12098 <u>Rev:</u> - <u>Date:</u> 12/22/2006 or later FAA-approved revisions	Lycoming Engines	TIO-360-C1A6D

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Tube Assembly	APS12098-160	LW-12098-0-160	Test and Computations per 14 CFR § 21.303 <u>DWG No:</u> APS12098 <u>Rev:</u> - <u>Date:</u> 12/22/2006 or later FAA-approved revisions	Lycoming Engines	IGO-540-B1A, -B1C, IO-720-A1B, -B1B, -B1BD-D1B, -D1DB, -D1C, -D1CD
Tube Assembly	APS12098-170	LW-12098-0-170	Test and Computations per 14 CFR § 21.303 <u>DWG No:</u> APS12098 <u>Rev:</u> - <u>Date:</u> 12/22/2006 or later FAA-approved revisions	Lycoming Engines	IO-320-B1A, IO-360-B1B, -B1F, B2F, -B2F6, -B4A, -F1A, -L2A, AEIO-360-B1G6, -B1H, -B4A, -H1A, -H1B, -H4A, TIO-360-C1A6D, IO-540-A1A5, -AB1A5, -AC1A5, -C1B5, -C1C5, -C4B5, -C4D5D, -AE1A5, -D4A5, -D4B5, -G1A5, -G1B5, -G1D5, -G1E5, -G1F5, -J4A5, -K1A5, -K1B5, -K1C5, -K1D5, -K1E5, -K1E5D, -K1F5, -K1H5, -K1J5, -L1C5, -M1A5, -M1C5, -M1B5D, -N1A5, -P1A5, -R1A5, -S1A5, -T4A5D, -T4B5, -T4B5D, -T4C5D, -AA1A5, -V4A5, -V4A5D, -W1A5, -W1A5D, -W3A5D, TIO-540-U2A, -AE2A, -AF1A, -AF1B, AG1A, -AH1A, -AJ1A, -AK1A, -AA1AD, AB1BD, -S1AD, LTIO-540-U2A, AEIO-540-D4A5, -D4B5, -D4D5, -LIB5, -LIB5D, L1D5, TIVO-540-A2A, IO-720-A1A, -A1B, -D1B, -D1BD, -D1C, -D1CD, -O-360-A4M, O-320-A2B, -A3B
Tube Assembly	APS12098-180	LW-12098-0-180	Test and Computations per 14 CFR § 21.303 <u>DWG No:</u> APS12098 <u>Rev:</u> - <u>Date:</u> 12/22/2006 or later FAA-approved revisions	Lycoming Engines	IO-320-B1A, IO-360-B1B, -B1F, -B2F, -B2F6, -B4A, -F1A, -L2A, AEIO-360-B1G6, -B1H, -B4A, -H1A, -H1B, TIO-360-C1A6D, IVO-360-A1A, IGO-480-A1B6, IO-540-AE1A5, IGO-540-B1A, -B1C, IVO-540-A1A, TIVO-540-A2A, IO-720-A1A, -B1B, -B1BD, O-360-A4M
Tube Assembly	APS12098-190	LW-12098-0-190	Test and Computations per 14 CFR § 21.303 <u>DWG No:</u> APS12098 <u>Rev:</u> - <u>Date:</u> 12/22/2006 or later FAA-approved revisions	Lycoming Engines	TIO-540-V2AD, -W2A, LTIO-540-V2AD, -W2A, IO-720-A1A

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Tube Assembly	APS12098-210	LW-12098-0-210, LW-12098-0-200	Test and Computations per 14 CFR § 21.303 <u>DWG No:</u> APS12098 <u>Rev:</u> - <u>Date:</u> 12/22/2006 or later FAA-approved revisions	Lycoming Engines	IO-320-B1A, -B1C, -C1A, -D1A, -D1B, -E1A, -E1B, -E2A, -E2B, LIO-320-B1A, -C1A, AIO-320-A1B, -B1B, -C1B, AEIO-320-D1B, -D2B, -E1B, -E2B, IO-360-A1A, A1B, -A1B6, -A1B6D, -A1C, -A1D, -A1D6, -A2A, -A2B, A3B6, -A3B6D, -B1D, -B1E, -B1F, -B2F, -B1G6, -C1A, -C1B, -C1C, -C1C6, -C1D6, -C1E6, -C1F, -C1G6, -J1A6D, -M1B, AIO-360-A1A, -A1B, -B1B, HIO-360-A1B, C1A, -C1B, -E1AD, -E1BD, -F1AD, LIO-360-C1E6, TIO-360-A1B, AEIO-360-A1A, -A1B, -A1B6, -A1D, -A1E, -A1E6, -B1F, -B2F, TIO-360-C1A6D, IGO-480-A1B6, IGO-540-B1A, -B1C, IO-540-A1A5, -AB1A5, -AC1A5, -C1B5, -C1C5, -C4B5, -C4D5D, -D4A5, -D4B5, -G1A5, -G1B5, -G1D5, -G1E5, -G1F5, -C4D5D, -G1C5, -J4A5, -K1A5, -K1A5D, -K1B5, -K1C5, -K1D5, -K1E5, -K1E5D, -K1F5, -K1F5D, -K1G5, -K1G5D, -K1H5, -K1J5, -K1J5D, -K1K5, -L1C5, -N1A5, -AA1A5, -AA1B5, -AB1A5, -P1A5, -R1A5, -S1A5, -T4A5D, -T4B5, -T4B5D, -T4C5D, -V4A5D, -W1A5, -W1A5D, -W3A5D, TIO-540-C1A, -E1A, -G1A, -U2A, -AE2A, -AF1A, -AF1B, -AG1A, -AA1AD, -AB1AD, -AB1BD, -AH1A, -AJ1A, -AK1A, -V2AD, -W2A, LTIO-540-U2A, -V2AD, -W2A AEIO-540-D4D5, -D4B5, -L1B5, -LIB5D, -L1D5, IO-720-A1A, -B1B, -B1BD, C1B
Tube Assembly	APS12098-220	LW-12098-0-220	Test and Computations per 14 CFR § 21.303 <u>DWG No:</u> APS12098 <u>Rev:</u> - <u>Date:</u> 12/22/2006 or later FAA-approved revisions	Lycoming Engines	I VO-360-A1A, IO-720-B1B, B1BD, -C1B
Tube Assembly	APS12098-240	LW-12098-0-240, LW-12098-0-230	Test and Computations per 14 CFR § 21.303 <u>DWG No:</u> APS12098 <u>Rev:</u> - <u>Date:</u> 12/22/2006 or later FAA-approved revisions	Lycoming Engines	HIO-360-B1A, TIO-360-C1A6D, IGO-480-A1B6, IO-540-AE1A5, TIO-540-V2AD, -W2A, LTIO-540-V2AD, -W2A, TIVO-540-A2A, IO-720-A1A, -B1B, -B1BD, -C1B, D1C, DICD
Tube Assembly	APS12098-260	LW-12098-0-260	Test and Computations per 14 CFR § 21.303 <u>DWG No:</u> APS12098 <u>Rev:</u> - <u>Date:</u> 12/22/2006 or later FAA-approved revisions	Lycoming Engines	HIO-360-A1A, TIO-360-C1A6D, IVO-360-A1A, TIO-540-V2AD, -W2A, LTIO-540-V2AD, -W2A, IVO-540-A1A, IO-720-A1A

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Tube Assembly	APS12098-270	LW-12098-0-270	Test and Computations per 14 CFR § 21.303 <u>DWG No:</u> APS12098 <u>Rev:</u> - <u>Date:</u> 12/22/2006 or later FAA-approved revisions	Lycoming Engines	IO-720-C1B
Tube Assembly	APS12098-280	LW-12098-0-280	Test and Computations per 14 CFR § 21.303 <u>DWG No:</u> APS12098 <u>Rev:</u> - <u>Date:</u> 12/22/2006 or later FAA-approved revisions	Lycoming Engines	HIO-360-B1A, IO-540-AC1A5, -C4D5D, -G1C5, -K1A5, -K1A5D, -K1G5, -K1G5D, -K1H5, -K1J5, -K1J5D, -K1K5, -AA1B5, TIO-540-AJ1A, IO-720-B1B, -B1BD, -C1B
Tube Assembly	APS12098-300	LW-12098-0-300	Test and Computations per 14 CFR § 21.303 <u>DWG No:</u> APS12098 <u>Rev:</u> - <u>Date:</u> 12/22/2006 or later FAA-approved revisions	Lycoming Engines	HIO-360-D1A, -G1A, IVO-360-A1A, TIO-540-V2AD, -W2A, LTIO-540-V2AD, -W2A, IO-720-B1B, -B1BD
Tube Assembly	APS12098-310	LW-12098-0-310	Test and Computations per 14 CFR § 21.303 <u>DWG No:</u> APS12098 <u>Rev:</u> - <u>Date:</u> 12/22/2006 or later FAA-approved revisions	Lycoming Engines	HIO-360-B1A, IO-720-B1B, -B1BD, -C1B
Tube Assembly	APS12098-320	LW-12098-0-320	Test and Computations per 14 CFR § 21.303 <u>DWG No:</u> APS12098 <u>Rev:</u> - <u>Date:</u> 12/22/2006 or later FAA-approved revisions	Lycoming Engines	HIO-360-A1A, , -B1A, IGO-540-B1A, -B1
Tube Assembly	APS12098-340	LW-12098-0-340	Test and Computations per 14 CFR § 21.303 <u>DWG No:</u> APS12098 <u>Rev:</u> - <u>Date:</u> 12/22/2006 or later FAA-approved revisions	Lycoming Engines	HIO-360-A1A, -B1A, IO-540-AC1A5, TIO-540-AJ1A, -V2AD, -W2A, LTIO-540-V2AD, -W2A, IO-720-B1B, -B1BD, -C1B
Tube Assembly	APS12098-350	LW-12098-0-350, LW-12098-3-350	Test and Computations per 14 CFR § 21.303 <u>DWG No:</u> APS12098 <u>Rev:</u> - <u>Date:</u> 12/22/2006 or later FAA-approved revisions	Lycoming Engines	HIO-360-B1A, -D1A, -G1A, IVO-540-A1A
Tube Assembly	APS12098-390	LW-12098-0-390, 76360	Test and Computations per 14 CFR § 21.303 <u>DWG No:</u> APS12098 <u>Rev:</u> - <u>Date:</u> 12/22/2006 or later FAA-approved revisions	Lycoming Engines	HIO-360-A1A, -B1A, -D1A, -G1A

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Tube Assembly	APS12098-412	LW-12098-0-412	Test and Computations per 14 CFR § 21.303 <u>DWG No:</u> APS12098 <u>Rev:</u> - <u>Date:</u> 12/22/2006 or later FAA-approved revisions	Lycoming Engines	HIO-360-D1A, -G1A, IO-540-AC1A5, TIO-540-AJ1A, IVO-540-A1A
Tube Assembly	APS12098-120	LW-12098-0-120	Test and Computations per 14 CFR § 21.303 <u>DWG No:</u> APS12098 <u>Rev:</u> - <u>Date:</u> 12/22/2006 or later FAA-approved revisions	Lycoming Engines	O-290-D, -D2, -D2B, -D2C, O-540-B1A5, -B2B5, -B2C5, -E4A5, -E4C5, -G1A5
Tube Assembly	APS12098-130	LW-12098-0-130	Test and Computations per 14 CFR § 21.303 <u>DWG No:</u> APS12098 <u>Rev:</u> - <u>Date:</u> 12/22/2006 or later FAA-approved revisions	Lycoming Engines	O-360-A4M, O-320-A2B, -A3B
Tube Assembly	APS12098-290	LW-12098-0-290	Test and Computations per 14 CFR § 21.303 <u>DWG No:</u> APS12098 <u>Rev:</u> - <u>Date:</u> 12/22/2006 or later FAA-approved revisions	Lycoming Engines	O-360-A4M

-----END OF DATA-----

GENERAL NOTES:

Provide minor design changes in a manner as determined by the ACO. Process major design changes to drawings and specifications in the same manner as that for an original FAA-PMA.

The FAA accepted the ICA approach for the above articles with their designs. These ICA may refer to those of the respective articles from the holders of type certificates. Otherwise, provide supplementary ICA for differences in the replacement articles. Make referral statements or supplemental ICA readily available per 14 CFR § 21.50.

\_\_\_\_\_  
for Timothy P. Smyth  
Manager, Chicago ACO Branch,  
Compliance & Airworthiness Division

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Neal R. Rice  
Manager, Wichita MIDO Section,  
System Oversight Division