

REV	DESCRIPTION	BY	DATE
/	INITIAL RELEASE ECN 3725	S. Johnson	10/8/02
A	Pg 1, Inst'l note 1: corrected typo to remove the word "goof" and replace with "acceptable" ECN 4308	H. Kubitza	01/04/07

ELIGIBILITY

FAA-PMA RAM P/N 2600-1 & 2601-1 engine mounted oil coolers.

FAA-PMA RAM P/N	Replaces TCM P/N	Eligible TCM Engine Model
2600-1	6548580	TSIO-520-BE, -E, -EB, -J, -JB, -L, LB, =N, -NB, -VB, -WB; TSIO-550-B, -C, -E
2601-1	646685	GTSIO-520-F, -H, -L, -M, -N

DESCRIPTION

2600-1: Mounts directly to TSIO-520/550 crankcase using standard TCM hardware. Oil enters cooler cast inlet tank from crankcase. Before reaching normal operating temperature, oil moves through the central "decongealing" passage and temperature/pressure control valve before returning to the crankcase. Upon reaching normal operating temperature, the control valve closes, blocking the by-pass passage and forcing oil through the core, which removes heat from oil through fins exposed to air. In the core, oil travels up one side, across the upper cast tank and back down to the cast outlet tank. Oil then flows past the control valve and exits the crankcase.

2601-1: Mounts directly to GTSIO-520 crankcase using standard TCM hardware. Oil enters cooler case inlet tank from an external line. Some oil exits cooler directly to crankcase right main galley while remaining volume passes through cooler temperature/pressure control valve and exits to crankcase main galley. Upon reaching normal operating temperatures, the control valve closes and diverts oil from the main galley to the core, which removes heat from oil through cooling fins exposed to air. In the core, oil moves up one side across the upper cast tank and back down to the cast outlet tank. Oil then flows past the control valve and exits to the left main galley. *Note: On some GTSIO-520-N engines, oil enters the cooler directly from the crankcase in which case oil goes through the control valve and core in the same direction as defined.*

INSTALLATION

- Use these installation instructions in conjunction with the TCM manual specified below (or later FAA approved revision) and acceptable aircraft maintenance practices. (ref. FAA AC 43.13):
 - TCM Form No. X30574A, Feb. 1991. *TSIO-520 Permold Series Overhaul Manual.*
 - TCM Form No. X30616A, Jan 1997. *Maintenance and Overhaul Manual Model TSIO-550-B, C, E.*
 - TCM Form No. X300454, Mar. 1981. *Overhaul Manual for GTSIO-520 Series Aircraft Engines.*
- Install all required baffle support brackets, through bolts, o-rings, gaskets and spacers on crankcase in accordance with TCM service instructions.
- Lubricate threaded areas such as studs, nuts, fittings with clean SAE 50-wt oil.
- Mount oil cooler on appropriate crankcase studs and secure with hardware specified in applicable TCM parts catalog; torque values shown below.

ITEM	SIZE	TORQUE (WET)	
NUT	.375 -24	275-325 IN-LBS	22.9 – 27.1 FT-LBS
NUT	.31 - 24	180-220 IN-LBS	15.0 – 18.3 FT-LBS
PUG, PIPE	3/8 – 18	185-215 IN-LBS	15.4 – 18.0 FT-LBS
PLUG, PIPE	1/8 – 27	60-80 IN-LBS	5.0 – 6.7 FT-LBS
OIL CONTROL VALVE	1.0 - 14	440-460 IN-LBS	36.7 -38.3 FT-LBS



TITLE: TCM TSIO-520/550 & GTSIO-520 OIL COOLER INSTALLATION INSTRUCTIONS & CONTINUED AIRWORTHINESS		DWG. NO 2168	REV A
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5. Install control valve gasket and temperature control valve plus any oil cooler plugs or fittings. *Note: On GTSIO-520-H, install MS28778-10 packing and MS9954-10 plug in upper hole cast inlet tank; for GTSIO-L, M, N, install packing and plug in bottom hole at base of cast inlet tank.*
6. Reference applicable airplane service manual for aircraft installation requirements for external lines & fittings, baffles, oil temperature probe, etc. Be sure there is no interference between cooler and nacelle cowling and that baffles provide good seal with nacelle cowling for optimum cooling performance.
7. Run engine on ground to check oil pressure. Shut down engine and inspect for leaks.
8. Conduct flight test to ensure oil pressure and temperature do not exceed operating limits. Flight envelope extremes are high power, slow speed climb and high altitude, low power cruise. *NOTE: There is no change to the existing FAA approved engine ratings or operating limitations when using the RAM oil cooler.*
9. Make an engine logbook entry referencing installation of FAA-PMA oil cooler part number, serial number and installation date.

CONTINUED AIRWORTHINESS

1. Inspection:
 - a. Follow basic TCM engine inspection intervals as specified in the applicable overhaul manual.
 - b. Inspect for oil leaks and visible damage during pre-flight inspection.
 - c. At each oil change, inspect condition of oil cooler, baffle seals, lines and fittings and check for leaks.
 - d. At 100-hour inspection, check cooler for damaged and dented, cracked, punctured or scratched oil passages, headers or flanges. Check baffles, baffle seals, lines and hardware for proper installation and positioning. Correct any unsatisfactory items. Perform leak check in conjunction with 100-hour inspection operational run-up.
2. Troubleshooting:
 - a. See applicable TCM overhaul manual for complete troubleshooting guide.
 - b. For high oil temperature (relating to oil cooler):
 - i. Check oil cooler baffle seals for air gaps. Adjust seals if necessary.
 - ii. Check oil cooler air passage fins. Clean out any clogged areas and straighten any bent fins.
 - iii. Check oil temperature control valve. Be sure seat is free of burrs that may cause valve to remain open. Replace valve if necessary.
 - iv. Remove oil cooler and flush core with mineral spirit solvent.
3. Removal: Remove oil cooler by following installation procedures in reverse.
4. Cleaning: Use mineral spirit solvent to clean and flush oil cooler. **CAUTION:** DO NOT USE strong alkaline solution that will cause aluminum to deteriorate. Also, do not use wire brushes that may damage core or oil cooler surfaces.
5. Repair: Major repairs to the RAM oil cooler, such as repairing punctures, cracks or bent items are not recommended. Red tag and replace any cracked oil cooler. Any repair work should be thoroughly evaluated before returning oil cooler to service. Contact RAM Aircraft if necessary.
6. Overhaul: It is recommended to send the RAM oil cooler to RAM Aircraft's facility or to another FAA approved repair facility for overhaul. Requires fluorescent particle inspection to inspect for cracks and 200 psig pressure test.
7. Airworthiness Limitations: The Airworthiness Limitations section is FAA approved and specifies maintenance required under § 43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved. There are no airworthiness limitations, such as mandatory replacement times or inspection intervals for TAM P/N 2600-1 or 2601-1 oil cooler. Changes to Airworthiness Limitations will be published in FAA Airworthiness Directives (AD).
8. Contact: For additional information, service difficulty or replacement parts, contact:

RAM Aircraft, Limited Partnership
Attn: Customer Service Department
7505 Karl May Drive
Waco, TX 76708
PHONE: (254) 752-8381
FAX: (254) 752-3307
Website: <http://ramaircraft.com>

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