

TEMPORARY REVISION 4

This Temporary Revision 4 contains an update to the Aquila AT01 Maintenance Manual relating to a new cooling system / coolant introduced with SB-AT01-029.

It is valid in conjunction with the latest revision of the Aquila AT01 Maintenance Manual until the next revision of the affected chapters.

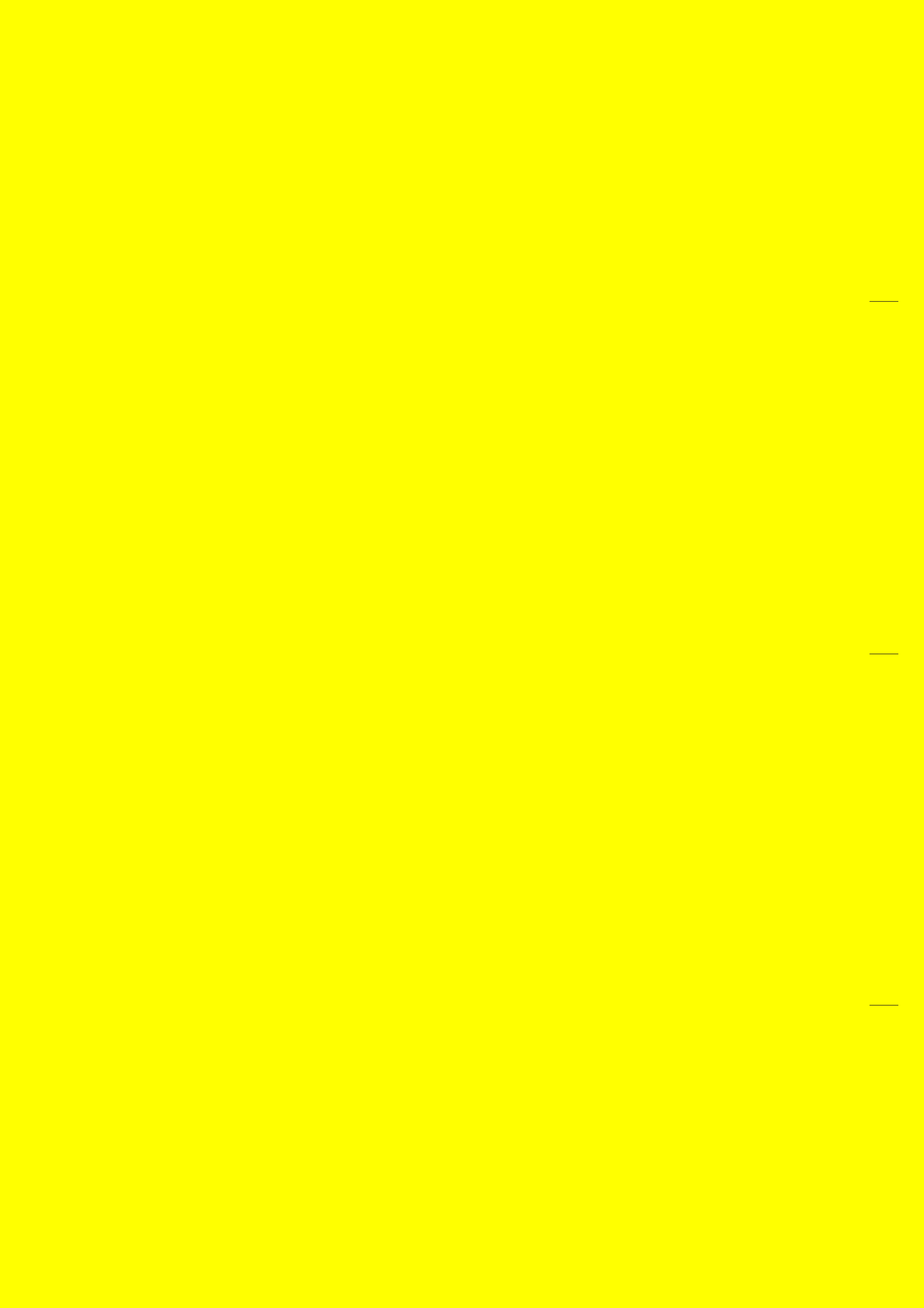
The information contained herein either supplement or, in the case of conflict, override those in the Aquila AT01 Maintenance Manual.

The technical information contained in this document has been approved under the authority of DOA No. EASA.21J.025.

Doc. No.	Chapter	Affected Pages
MM-AT01-1020-100	12-14-00 75-10-00 79-20-00	12-14-00 pages 301 & 302 75-10-00 page 201 79-20-00 page 201

Instruction

- Print this document on yellow paper.
- Insert this cover page as the first page of the Aquila AT01 Maintenance Manual.
- Insert the other pages of this Temporary Revision in front of the corresponding pages of the Aquila AT01 Maintenance Manual.



COOLING SYSTEM - SERVICING1. General

WARNING: NEVER OPEN PRESSURE CAP OR RADIATOR CAP WHEN THE COOLING SYSTEM IS HOT. FOR SAFETY REASONS, COVER CAP WITH A CLOTH AND OPEN SLOWLY. SUDDEN OPENING OF THE CAP COULD PROVOKE THE EXIT OF BOILING COOLANT AND RESULT IN SEVERE SCALDING.

A. The cooling system of the ROTAX 912 is designed for liquid cooling of the cylinder heads and ram air cooling of the cylinders. The cooling system of the cylinder heads is a closed circuit with an expansion tank. For a more detailed description and related maintenance procedures of the cooling system, refer to 75-20-00.

B. Coolant

There are two different cooling systems possible on the AQUILA AT01 each requiring a different coolant. The standard cooling system of the AQUILA AT01 (combined water / oil radiator) must only be operated with waterless coolant based on propylene glycol. If SB-AT01-029 has been carried out (installation of the AT01-100 cooling system with separate water and oil radiators) only conventional coolant based on ethylene glycol with 50% water content must be used.

Refer to the ROTAX Service Instruction SI-912-016, latest revision, for further information on suitable coolants. The maximum coolant quantity is 2,5 liters (2.6 U.S. quarts).

(1) Waterless coolant based on propylene glycol such as EVANS Aero Cool 180

NOTE: This type of coolant must be used on the standard AQUILA AT01 cooling system with a combined water / oil radiator.

CAUTION: WATER OR COOLANT CONTAINING WATER MUST NEVER BE ADDED TO THE COOLING SYSTEM! THE MAX. WATER CONTENT MUST NOT EXCEED 3,6%; IT CAN BE TESTED USING A BRUX REFRACTOMETER. ANY WATER PRESENT IN THE COOLING SYSTEM IS SEPARATED OUT AS VAPOR. THIS CAN CAUSE THE COOLING SYSTEM TO FAIL DUE TO INSUFFICIENT COOLANT QUANTITY.

USE COOLANT IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

NOTE: If EVANS Aero Cool 180 is not available locally for servicing the cooling system, a conventional coolant based on pure 100% ethylene glycol can be used temporarily. However, the coolant must be replaced again with EVANS Aero Cool 180 within the next 15 days. Only add 100% pure ethylene glycol!

(2) Conventional coolant based on ethylene glycol such as BASF Glysantin Protect Plus / G48 50% antifreeze concentrate with additives against corrosion and 50 % pure water, or use of an equivalent premixed coolant. The coolant must be renewed every two years.

NOTE: This type of coolant must be used if SB-AT01-029 has been carried out and the standard AQUILA AT01 cooling system has been replaced by the AT01-100 cooling system with separate water and oil radiators.

CAUTION: ENSURE THAT ONLY ANTIFREEZE CONCENTRATE CONTAINING ADDITIVES AGAINST CORROSION FOR LIGHT METAL ENGINES IS USED.

USE ANTIFREEZE CONCENTRATE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

2. Adding Coolant

- A. Prior to adding coolant, the reason for the loss of the liquid must be investigated and corrected.
- B. Servicing procedures
 - (1) Remove engine cowling (refer to 71-10-00).
 - (2) When engine is cold, open pressure cap of the expansion tank and fill up the expansion tank completely.
 - (3) Run engine to operating temperature and allow engine to cool down before checking coolant level again. Replenish as necessary.
 - (4) Close pressure cap, check the condition of the rubber sealing rings.
 - (5) Install engine cowling (refer to 71-10-00).

3. Renewal of the Coolant

- A. Servicing procedures
 - (1) Open the radiator cap, remove the bottom attachment screw (with sealing ring) of the water pump and drain the coolant.
 - (2) Install attachment screw (stainless steel) along with a new sealing ring. Tighten to 10 Nm (90 in.lbs).
 - (3) Refill coolant into expansion tank (highest point of the cooling system). Install radiator cap.
 - (4) Run engine to operating temperature and allow engine to cool down before checking coolant level. Replenish as necessary.

4. Flushing the Cooling System (conventional coolant only!)

- A. Servicing Procedure
 - (1) Open the lowest coolant hose (either at water pump or radiator).
 - (2) Flush system with a water hose at a max. pressure of 2 bar (30 psi).
 - (3) Reconnect coolant hose.
 - (4) Refill freshly mixed coolant into the expansion tank.
 - (5) Run engine to operating temperature and allow engine to cool down before checking coolant level. Replenish as necessary.

ENGINE COOLING SYSTEM - MAINTENANCE PRACTICES**1. General**

- A. The water radiator is mounted on the inner forward part of the lower engine cowling behind the main air intake. There are two types of cooling systems in use:
 - Type 1: Standard cooling system of the AQUILA AT01 with a combined oil / water radiator.
 - Type 2: A retrofit cooling system with separate oil and water radiators. Refer to SB-AT01-029 for further information on upgrading to this type of cooling system.
- B. For information beyond the scope of this section pertaining to the engine cooling system, refer to the Operator's Manual for ROTAX[®] 912 series engines, and to Maintenance Manual for ROTAX[®] Engine Type 912 Serie.
- C. For inspection time requirements of the cooling system components, refer to 05-20-00.

WARNING: NEVER OPEN RADIATOR, EXPANSION TANK OR OVERFLOW BOTTLE CAP WHEN THE COOLING SYSTEM IS STILL HOT! FOR SAFETY'S SAKE, COVER CAP WITH A CLOTH AND OPEN SLOWLY. SUDDEN OPENING OF THE CAP WOULD PROVOKE EXIT OF BOILING COOLANT AND RESULT IN SEVERE SCALDS.

2. Water Pump Removal/Installation

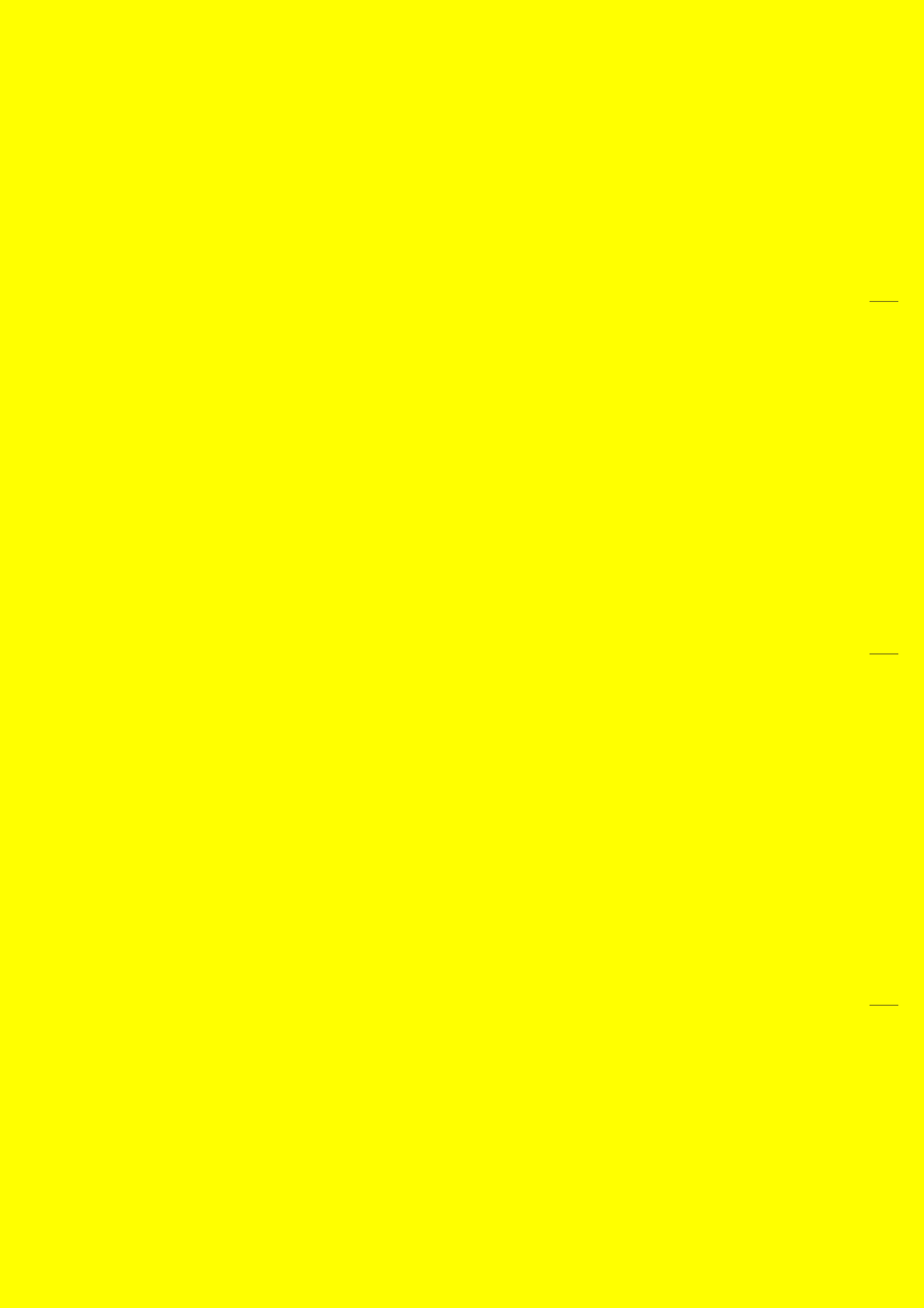
- A. Refer to applicable engine manufacturers documentation.

3. Radiator Removal/Installation

- A. Remove Radiator
 - (1) Remove engine cowling (refer to 71-10-00).
 - (2) Disconnect inlet and outlet hoses at radiator.
 - (3) Disconnect inlet and outlet hoses at oil cooler (cooling system type 1 only).
 - (4) Remove bolts securing radiator to mounting plate (cooling system type 2 only).
 - (5) Remove radiator from aircraft.
- B. Install Radiator
 - (1) Secure radiator to mounting plate using bolts, washers and spacers (cooling system type 2 only).
 - (2) Connect inlet and outlet hoses at oil cooler (cooling system type 1 only).
 - (3) Connect inlet and outlet hoses at radiator.
 - (4) Install engine cowling (refer to 71-10-00).
 - (5) Replenish engine coolant and oil as required (refer to 12-12-00 and 12-14-00).

CAUTION: IF ENGINE WAS RUNNING RECENTLY, HOT ENGINE COMPONENTS MAY CAUSE SKIN BURNS!

- (6) Perform an engine run and check oil cooler / radiator and connections for leaks.



OIL COOLER - MAINTENANCE PRACTICES

1. General

- A. The oil cooler is mounted on the inner forward part of the lower engine cowling behind the main air intake. There are two types of cooling systems in use:
 - Type 1: Standard cooling system of the AQUILA AT01 with a combined oil / water radiator.
 - Type 2: A retrofit cooling system with separate oil and water radiators. Refer to SB-AT01-029 for further information on upgrading to this type of cooling system.
- B. The oil cooler should be replaced if metal particles were found while servicing oil screens and the engine has thus had to be disassembled.

2. Oil Cooler Removal/Installation

- A. Remove Oil Cooler
 - (1) Remove engine cowling (refer to 71-10-00).
 - (2) Disconnect inlet and outlet hoses at oil cooler.
 - (3) Disconnect inlet and outlet hoses at radiator (cooling system type 1 only).
 - (4) Remove nuts securing oil cooler to mounting plate (cooling system type 2 only).
 - (5) Remove oil cooler from aircraft.
- B. Install Oil Cooler
 - (1) Place oil cooler in front of radiator and secure to mounting plate using washers and nuts (cooling system type 2 only).
 - (2) Connect inlet and outlet hoses at radiator (cooling system type 1 only).
 - (3) Connect inlet and outlet hoses at oil cooler.
 - (4) Install engine cowling (refer to 71-10-00).
 - (5) Replenish engine oil and coolant as required (refer to 12-12-00 and 12-14-00).

CAUTION: IF ENGINE WAS RUNNING RECENTLY, HOT ENGINE COMPONENTS MAY CAUSE SKIN BURNS!

- (5) Perform an engine run and check oil cooler / radiator and connections for leaks.

