Engine Charge Air Cooler Nomenclature—SAE J1148

SAE Recommended Practice
Approved June 1976

THIS IS A PREPRINT AND WILL
APPEAR IN THE NEXT EDITION
OF THE SAE HANDBOOK

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ENGINE CHARGE AIR COOLER NOMENCLATURE—SAE J1148

SAE Recommended Practice

Report of Engine Committee approved June 1976.

1. Scope—This recommended practice is intended to outline basic nomenclature and terminology in common use for engine charge air coolers.

An ENGINE CHARGE AIR COOLER is a heat exchanger used to cool the charge air of an internal combustion engine after it has been compressed by an exhaust gas driven turbocharger and/or mechanically driven blower. The use of an engine charge air cooler allows increased engine output because of the denser and cooler air available for combustion. Normal cooling sources are the engine's coolant, a raw water source or air.

Engine charge air coolers are often referred to as either INTERCOOLERS or AFTERCOOLERS depending upon their location, relative to the final compression stage, in the air induction system.

Nomenclature sketches are presented below for the following general types of engine charge air coolers:

1.1 Air to Coolant Types

Mounted in Manifold—Figs. 1 and 2

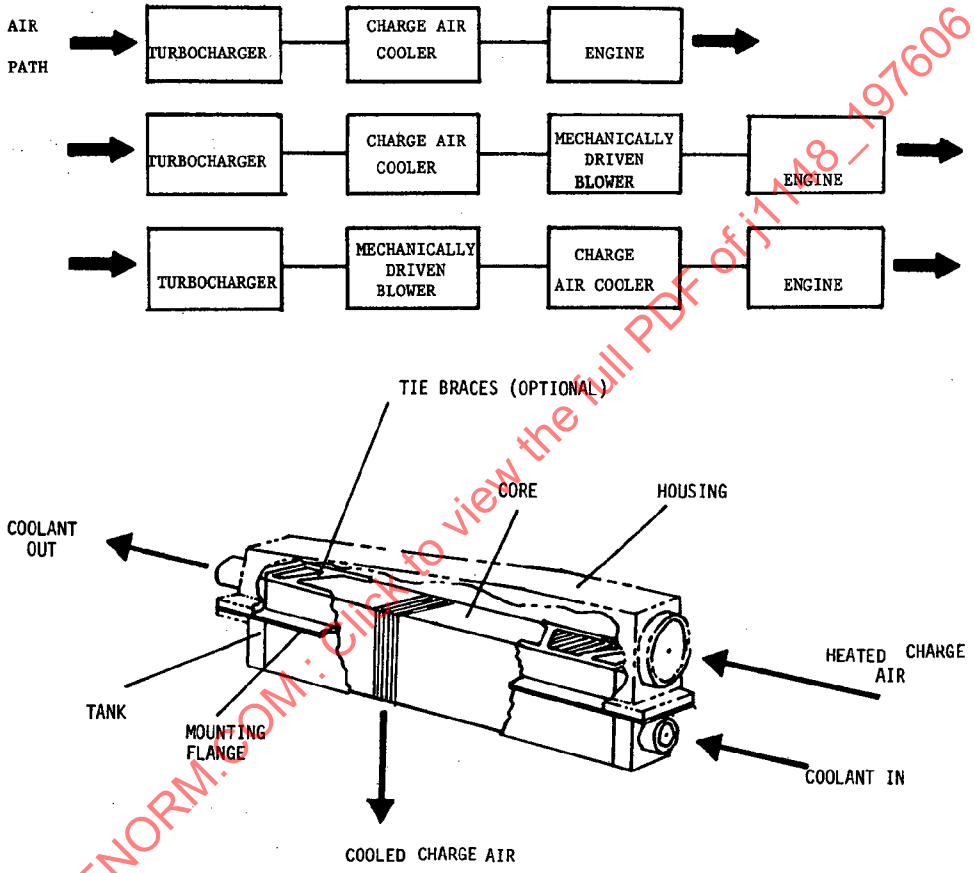
Mounted Remotely—Figs. 3 and 4

1.2 Air to Air Types

Engine-Fan Cooled—Fig. 5

Auxiliary Blower Cooled—Fig. 6

TYPICAL EXAMPLES OF CHARGE AIR COOLER SYSTEMS



NOTE:
COOLANT SOURCES CAN BE VARIED.
MATERIALS HAVE TO BE COMPATIBLE WITH THE TYPE OF COOLANT AND ENVIRONMENT.

COOLANT TRAVERSES MAY BE A SINGLE PASS OR A MULTI-PASS ARRANGEMENT.

FIG. 1—AIR TO COOLANT—MOUNTED IN INTAKE MANIFOLD

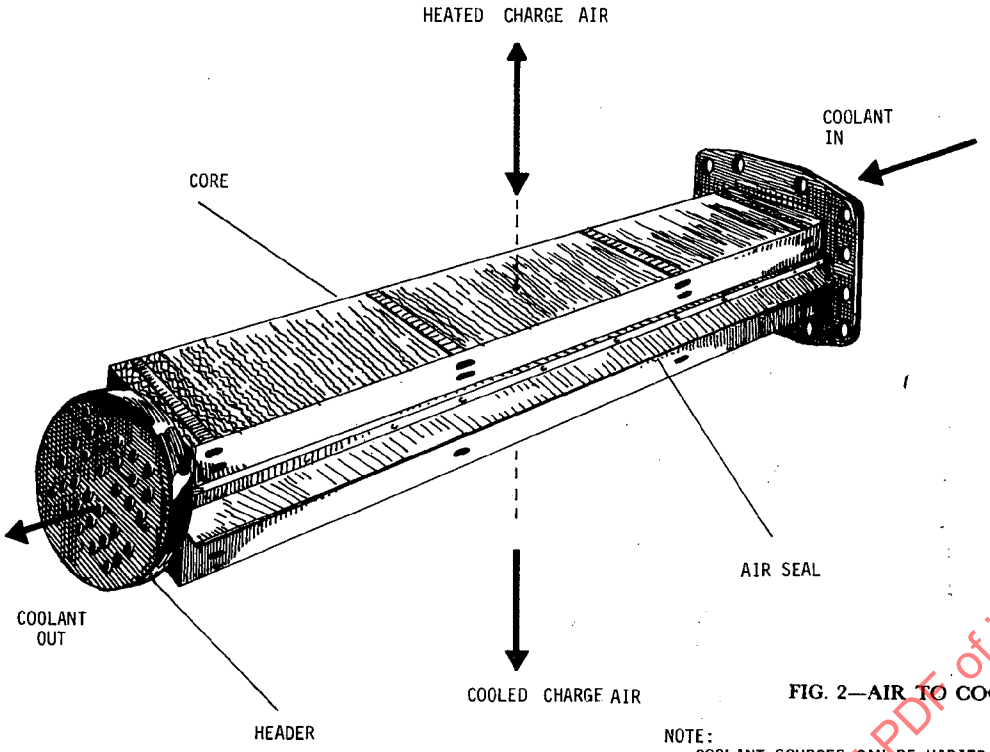


FIG. 2—AIR TO COOLANT—MOUNTED IN INTAKE MANIFOLD

NOTE:
COOLANT SOURCES CAN BE VARIED. MATERIALS HAVE TO BE COMPATIBLE WITH THE TYPE OF COOLANT AND ENVIRONMENT.

COOLANT TRAVERSES MAY BE A MULTI-PASS ARRANGEMENT.

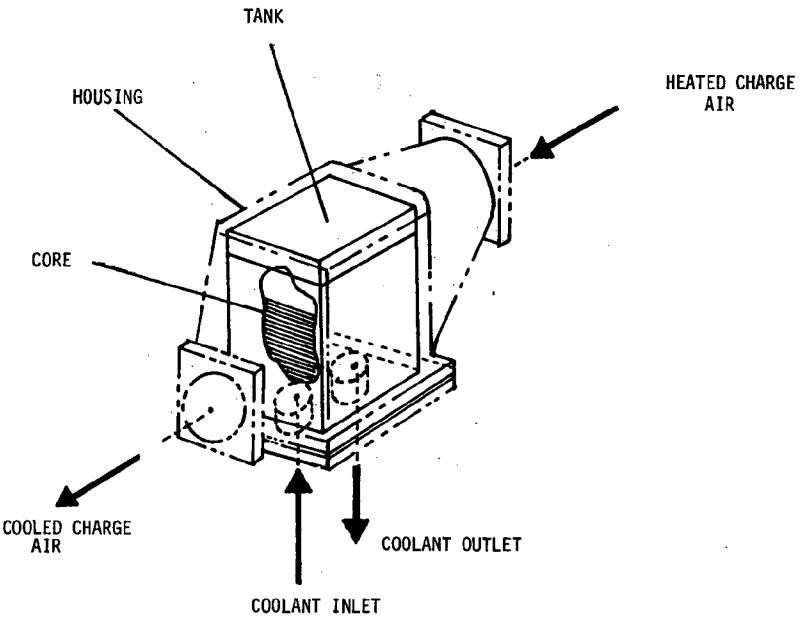


FIG. 3—AIR TO COOLANT—MOUNTED REMOTELY

NOTE:
COOLANT SOURCES CAN BE VARIED. MATERIALS HAVE TO BE COMPATIBLE WITH THE TYPE OF COOLANT AND ENVIRONMENT.

COOLANT TRAVERSE MAY BE A SINGLE PASS OR MULTI-PASS ARRANGEMENT.