

Title (en)
In tank oil cooler.

Title (de)
Ölkühler in einem Tank.

Title (fr)
Refroidisseur d'huile dans un réservoir.

Publication
EP 0384612 A2 19900829 (EN)

Application
EP 90301265 A 19900201

Priority
CA 592041 A 19890224

Abstract (en)
A heat exchanger and method of, making same is disclosed. The heat exchanger is particularly useful for cooling automotive engine oil or transmission fluid, the exchanger being located inside the radiator or other part of the engine cooling system. The heat exchanger is made from a plurality of stacked plates (24, 26), the plates being arranged into pre-assembled pairs (12), each pair having a turbulizer (38) located therein. The plates have peripheral tabs (40) which are crimped over to form plate pair sub-assemblies. The plates also have outwardly disposed dimples (36) which are in contact when the sub-assemblies are stacked together to maintain good contact between all heat transfer surfaces while the assembly is completed by brazing.

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Cited by
EP0622600A1; AU670760B2; EP1122505A4; DE19624358A1; DE19624358B4; EP0666461A1; US5524938A; US7708884B2; US6681844B1; WO9533967A1; WO9946549A1; WO9310415A1

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