

EXHIBIT 24

U.S. Patent No. 7,683,509

Claims 14 and 15.

Toyota / Aisin Pump

Toyota P/N 161A0-39035

"14. A fluid-cooled motor comprising:"

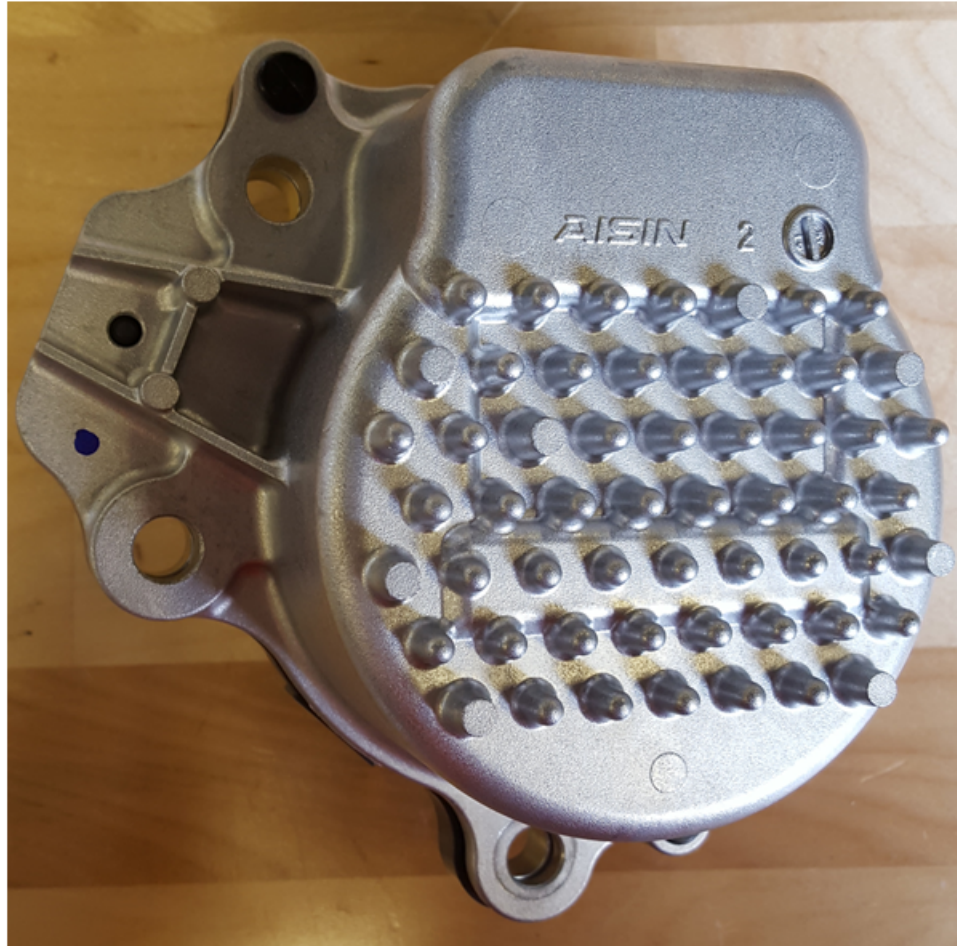
14. A fluid-cooled motor comprising:

The Toyota / Aisin Water Pump (the "Aisin Pump") has Toyota part number 161A0-39035:



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The Aisin Pump is marked with the Aisin logo.



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The Aisin Pump is a water pump and is believed to be installed in the following 2016 Toyota models:

- 2016 Toyota Prius Four Touring 1.8L L4 - Electric/Gas
- 2016 Toyota Prius Three Touring 1.8L L4 - Electric/Gas
- 2016 Toyota Prius Two Eco 1.8L L4 - Electric/Gas
- 2016 Toyota Prius Two 1.8L L4 - Electric/Gas

- 2016 Toyota Prius Four 1.8L L4 - Electric/Gas
- 2016 Toyota Prius Three 1.8L L4 - Electric/Gas



See, <http://www.toyota.com/configurator/#!/build/step/model/year/2016/series/prius/model/1228>

<http://parts.olathetoyota.com/oe-toyota/161a039035> (accessed December 12, 2016).

The Aisin pump is made in Japan:


"14. A fluid-cooled motor comprising:"



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The Aisin Pump is a water pump containing a fluid-cooled electric motor. As shown below, the Aisin Pump is referred to as a pump.

"14. A fluid-cooled motor comprising:"



Kerry Thomas'

OLATHE

TOYOTA

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E-mail: parts@olathetoyota.com · Web: www.olathetoyota.com

ALL CLAIMS AND RETURNED GOODS MUST BE ACCOMPANIED BY THIS INVOICE.
NO RETURNS ON ELECTRICAL OR SPECIAL ORDER PARTS.
NO RETURNS AFTER 30 DAYS. 20% RE-STOCK CHARGE ON ALL RETURNED PARTS.

DISCLAIMER OF WARRANTIES
All expressed warranties, if any, by a Manufacturer or supplier other than the Dealer are theirs, not Dealer's, unless otherwise provided in writing on the face of this order or in a separate writing furnished to Customer by Dealer.
ALL PARTS INSTALLED ARE NEW UNLESS SPECIFIED OTHERWISE AS BEING USED OR REMANUFACTURED.

DATE ENTERED 29 JUL 16	YOUR ORDER NO. 16879	DATE SHIPPED 29 JUL 16	INVOICE DATE 29 JUL 16	INVOICE NUMBER 630681
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PREPAID

ACCOUNT NO. P66 PAGE 1 OF 2

SOLD TO: GRIFF NEAL
707 S. VERMONT ST
PALATINE, IL 60067

SHIP TO: GRIFF NEAL
707 S. VERMONT ST
PALATINE, IL 60067

SHIP VIA FEDX HOME (W)	QESM. 377	BL NO. 415-902-6600	TERMS	F.O.B POINT OLATHE, KS
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QTY	UNIT	PART NO.	DESCRIPTION	LIST	NET	AMOUNT
1	0	89257-30080	16727 1 COMPU	258.92	258.92	258.92
1	1	80960-0R030	0 MOTOR	481.04	360.78	360.78
*** ABOVE PART IS PREPAID ***						
1	1	161A0-39025	0 PUMP	283.25	283.25	283.25
*** ABOVE PART IS PREPAID ***						
1	1	161A0-39035	0 PUMP	278.29	208.72	208.72
*** ABOVE PART IS PREPAID ***						
1	1	15100-37060	0 PUMP	164.83	123.62	123.62
*** ABOVE PART IS PREPAID ***						
1	1	G9040-33030	0 PUMP	331.69	248.77	248.77
*** ABOVE PART IS PREPAID ***						
1	1	77020-06306	0 TUBE	363.30	363.30	363.30
*** ABOVE PART IS PREPAID ***						
1	1	80960-06020	0 MOTOR	445.67	334.25	334.25
*** ABOVE PART IS PREPAID ***						
FREIGHT 22.67						
The following parts have been special ordered:						
1		80960-0R030	MOTOR ASSY			
1		161A0-39025	PUMP ASSY,			
1		161A0-39035	PUMP ASSY,			
1		15100-37060	PUMP ASSY,			

PARTS	
SUBLET	
FREIGHT	
SALES TAX	
TOTAL	

CUSTOMER'S SIGNATURE
X

CUSTOMER COPY

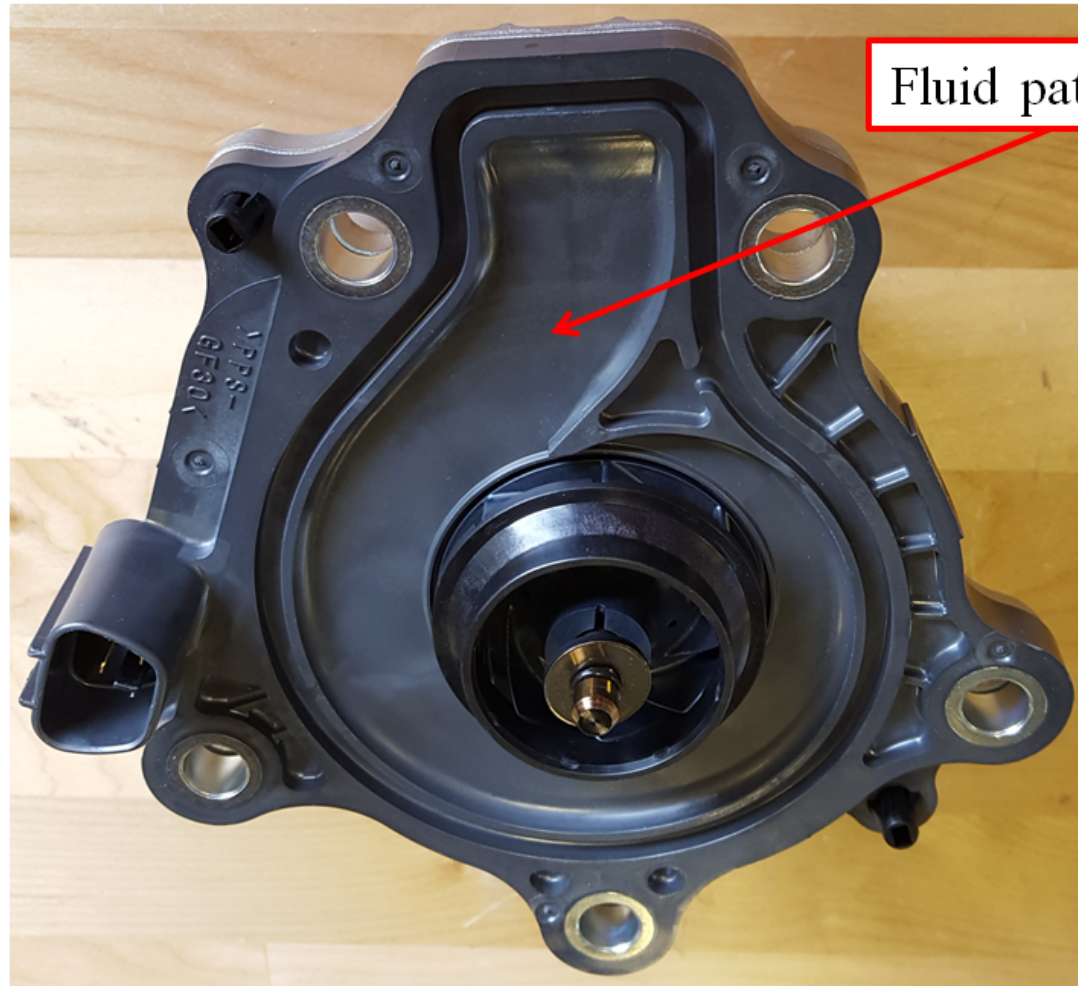
Copyright 2004 CEM GROUP, LLC PARTS INVENTORY SYSTEM - MAGGIO

U.S. Patent No. 7,683,509, Claim 14
"14. A fluid-cooled motor comprising:"

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The water pumped by the Aisin Pump cools the motor. See, e.g., U.S. Pat. No, 7,683,509 at 1:67-2:4 ("Other fluids, and liquids in particular, typically have a high enough heat capacity that they can be used to carry away heat. For example, a water pump driven by a motor uses the water to cool the pump. "):

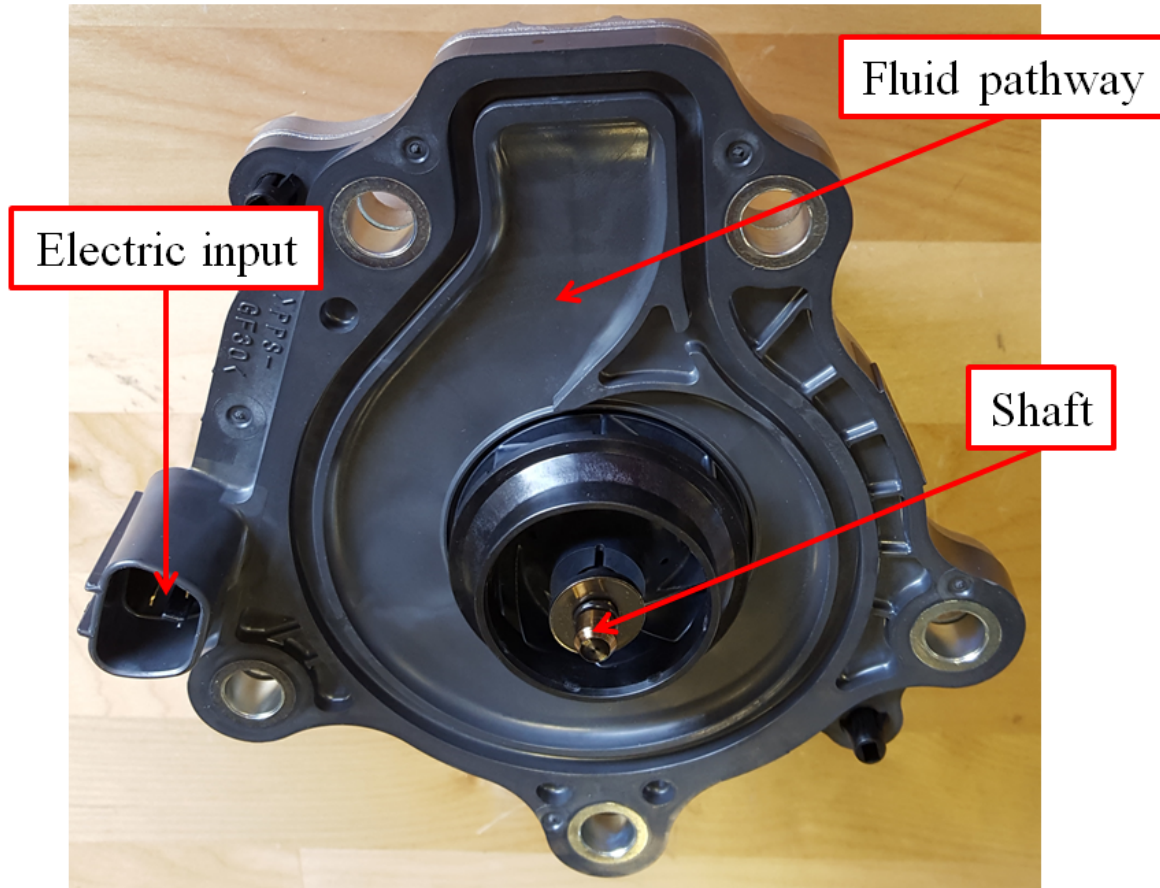
By way of further example, the Aisin Pump contains a heat transfer fluid pathway to conduct fluid that cools the motor:



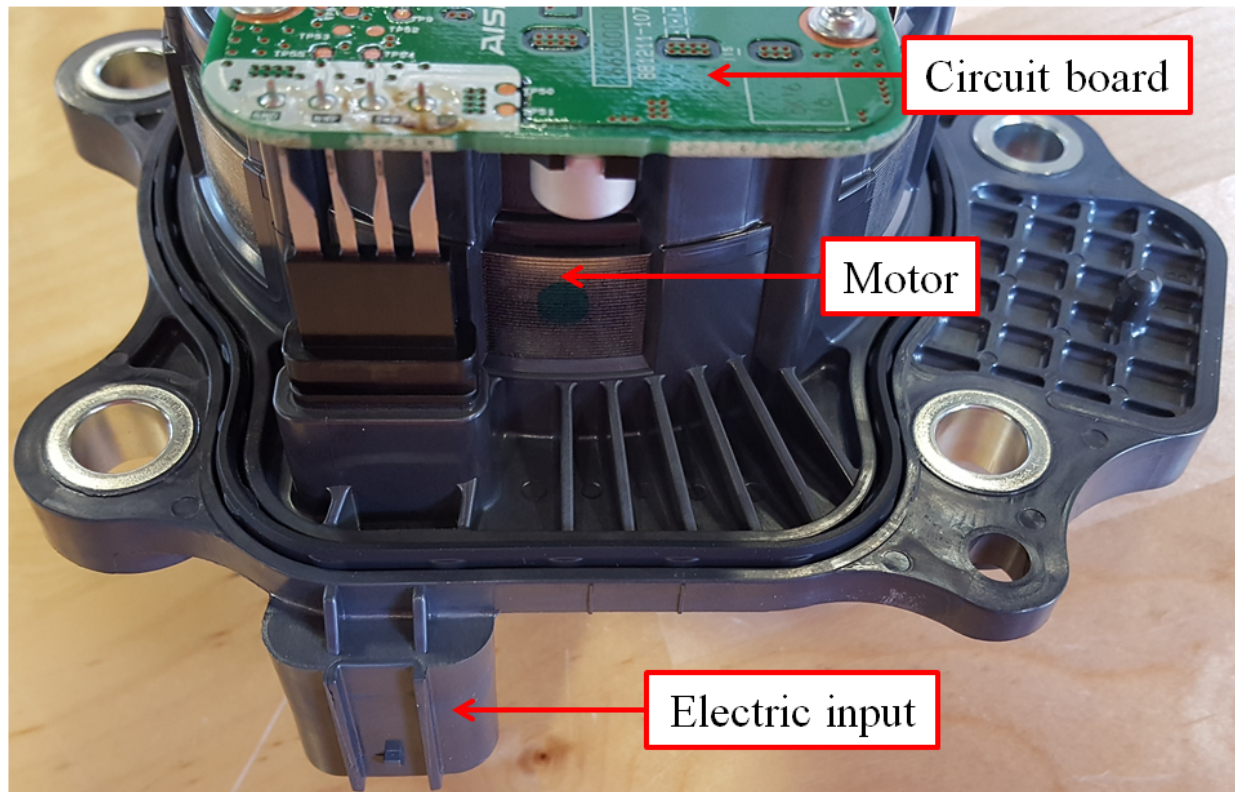
20160808_102545.jpg

"14. A fluid-cooled motor comprising:"

Additionally, the Aisin Pump contains a rotating shaft powered by an electric motor, and an electric input.



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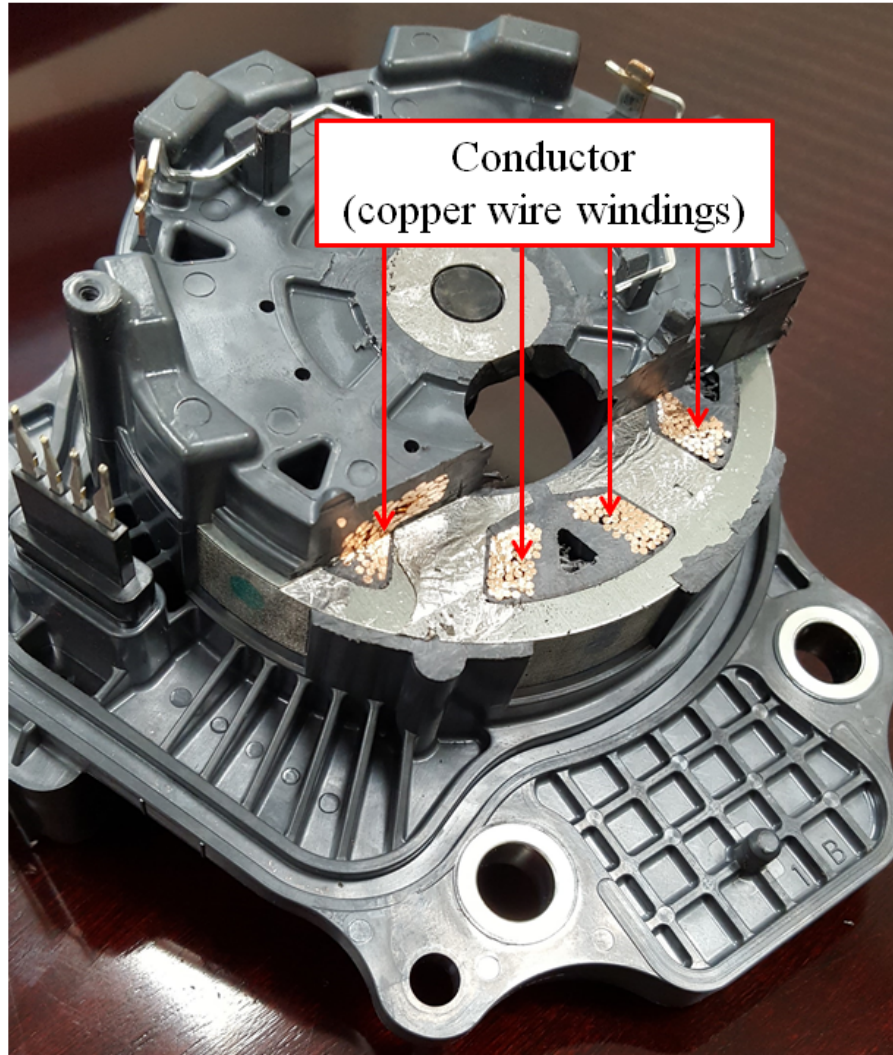


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a) at least one electrical conductor;

The Aisin Pump comprises at least one electrical conductor.

The Aisin Pump comprises copper wire windings that function as electrical conductors.



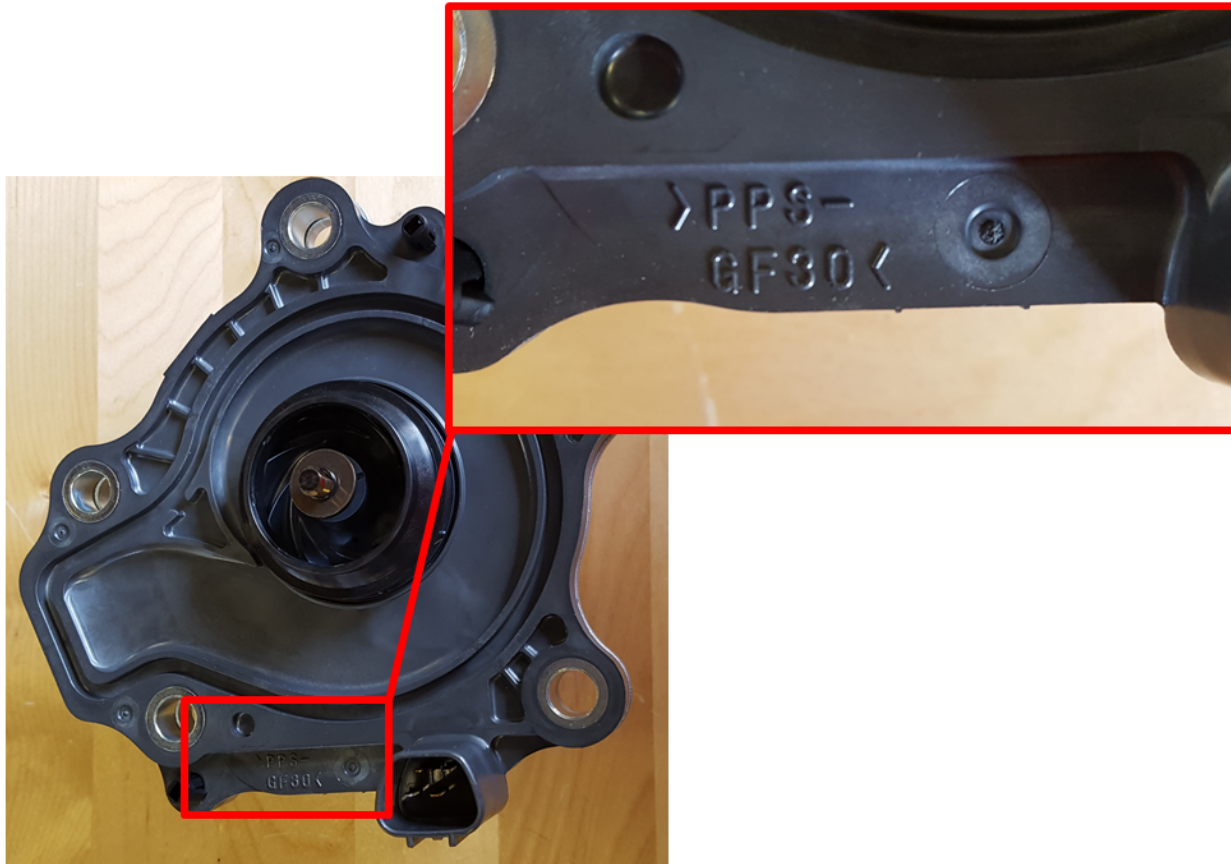
20160816_141631.jpg

"b) a monolithic body of injection molded thermoplastic material"

b) a monolithic body of injection molded thermoplastic material

The Aisin Pump contains a monolithic body of injection molded thermoplastic material.

The Aisin Pump includes a monolithic body formed from a material identified on the Aisin Pump as "PPS – GF 30."



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"PPS – GF 30" refers to polyphenylene sulfide with 30% glass fiber filler ("PPS-GF30"). *See, e.g.*, U.S. Patent Publication 2009/0173903 (application No. 12/295,565), at ¶ 0114 ("The abbreviations of the resin names in the tables above are as follows. PPS-GF30: Polyphenylene sulfide resin containing 30 wt % of glass fibers").

PPS-GF30 is a thermoplastic – below is a summary of its properties (including the categories of which it is a member, which includes "thermoplastic") from the MatWeb database of materials properties.

"b) a monolithic body of injection molded thermoplastic material"

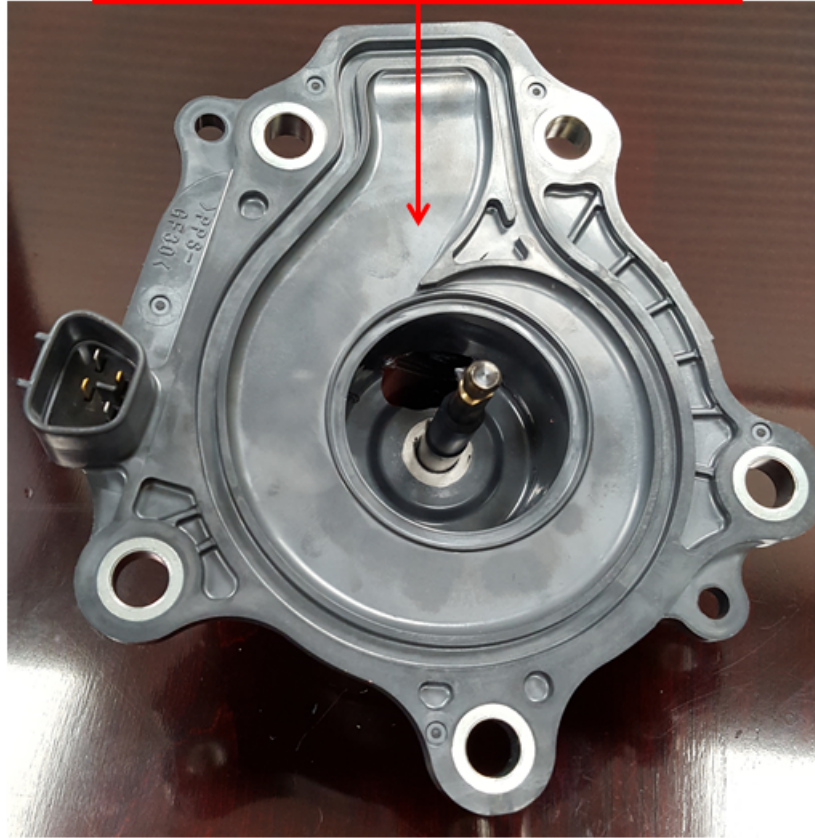
The screenshot shows the MatWeb website interface. At the top left is the MatWeb logo with the tagline "MATERIAL PROPERTY DATA". To the right, there is a navigation menu with links for HOME, SEARCH, TOOLS, SUPPLIERS, FOLDERS, ABOUT US, FAQ, and LOG IN. Below the navigation menu is a search bar containing the text "PPS" and a "SEARCH" button. The main content area features a blue header for "Overview of materials for Polyphenylene Sulfide (PPS) with 30% Glass Fiber Filler". Below this header, the "Categories" are listed as Polymer, Thermoplastic, Polyphenylene Sulfide (PPS), and Polyphenylene Sulfide (PPS) with 30% Glass Fiber Filler. A "Material Notes" section follows, stating that the property data is a summary of similar materials in the MatWeb database for the category "Polyphenylene Sulfide (PPS) with 30% Glass Fiber Filler". It notes that specific grades with glass content between 25% and 34% are included, and that the property range of values reported is minimum and maximum values of appropriate MatWeb entries. The notes also mention that the values are not necessarily typical of any specific grade, especially less common values and those that can be most affected by additives or processing methods.

<http://www.matweb.com/search/DataSheet.aspx?MatGUID=c43bc743bdc0413ead2b87aca2e38a30&ckck=1> (downloaded Dec. 9, 2016).

The "PPS – GF 30" label on the Aisin Pump denotes that the plastic body of the Aisin Pump is made of this type of thermoplastic material.

"b) a monolithic body of injection molded thermoplastic material"

Body of thermoplastic material



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PPS – GF 30 is a thermoplastic that is commonly used in injection molding processes to manufacture parts.

"b) a monolithic body of injection molded thermoplastic material"

PROSPECTOR[®]



Home > Plastics > Generics > **Polyphenylene Sulfide (PPS)**

Polyphenylene Sulfide (PPS) Plastic

Polyphenylene Sulfide (PPS) - Manufacturers - Materials - Classification

Polyphenylene Sulfide (PPS) - A crystalline polymer having a symmetrical, rigid backbone chain consisting of recurring p-substituted benzene rings and sulfur atoms. **A variety of grades suitable for slurry coating, fluidized-bed coating, electrostatic spraying, as well as injection and compression molding are offered.** Polyphenylene sulfides exhibit outstanding chemical resistance, thermal stability, dimensionally stability, and fire resistance. PPS's extreme inertness toward organic solvents, and inorganic salts and bases make for outstanding performance as a corrosion-resistant coating suitable for contact with foods.

<https://plastics.ulprospector.com/generics/41/polyphenylene-sulfide-pps> (downloaded Dec. 15, 2016).

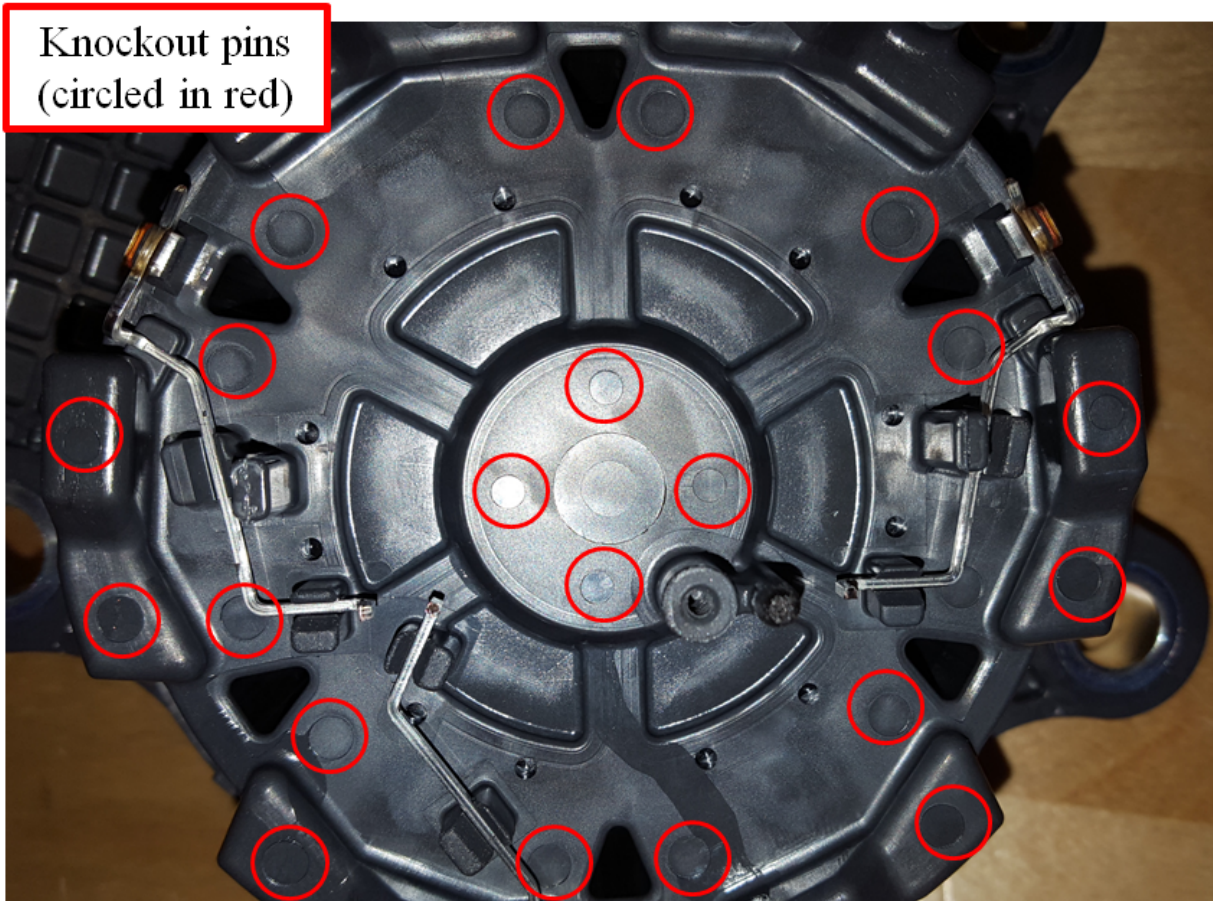
The monolithically formed body of the motor of the Aisin Pump contains markings that indicate it as manufactured using injection molding. For example, as shown in the images below, the monolithically formed body of the Aisin Pump shows signs of gates and knockout pins, such markings being associated only with injection molded manufacturing.

"b) a monolithic body of injection molded thermoplastic material"



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"b) a monolithic body of injection molded thermoplastic material"



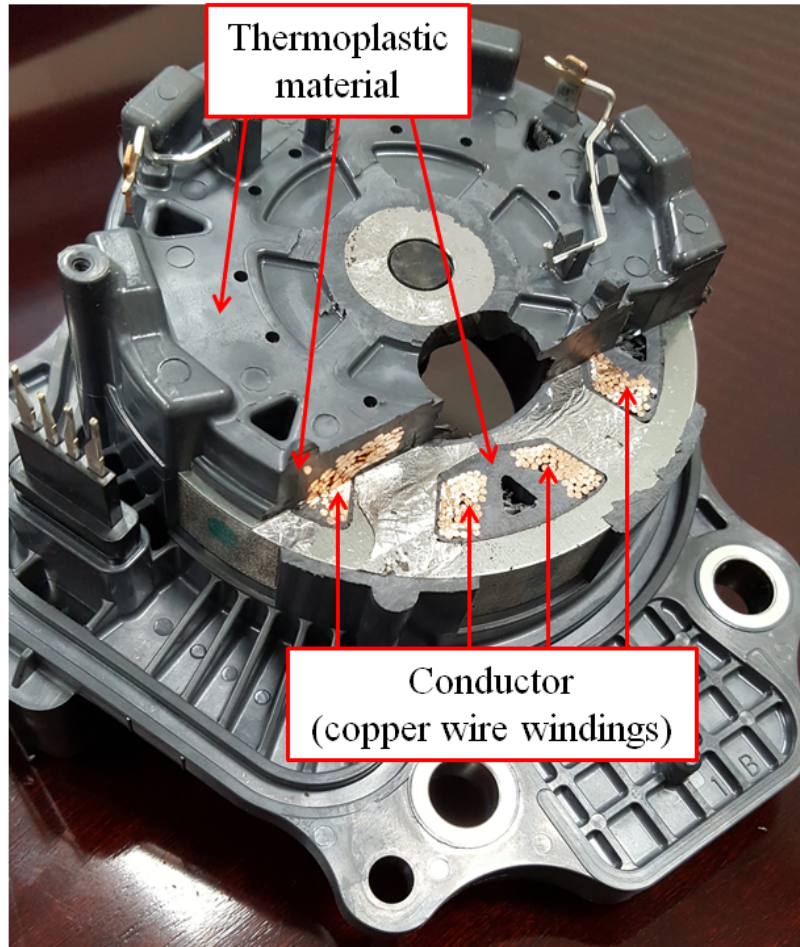
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"substantially encapsulating the at least one conductor; and"

substantially encapsulating
the at least one conductor;
and

The Aisin Pump comprises a monolithic body of injection molded thermoplastic material that substantially encapsulates the at least one conductor.

The thermoplastic material of which the Aisin Pump's body is formed, as described above, encapsulates the copper wire windings that operate as the at least one conductor.



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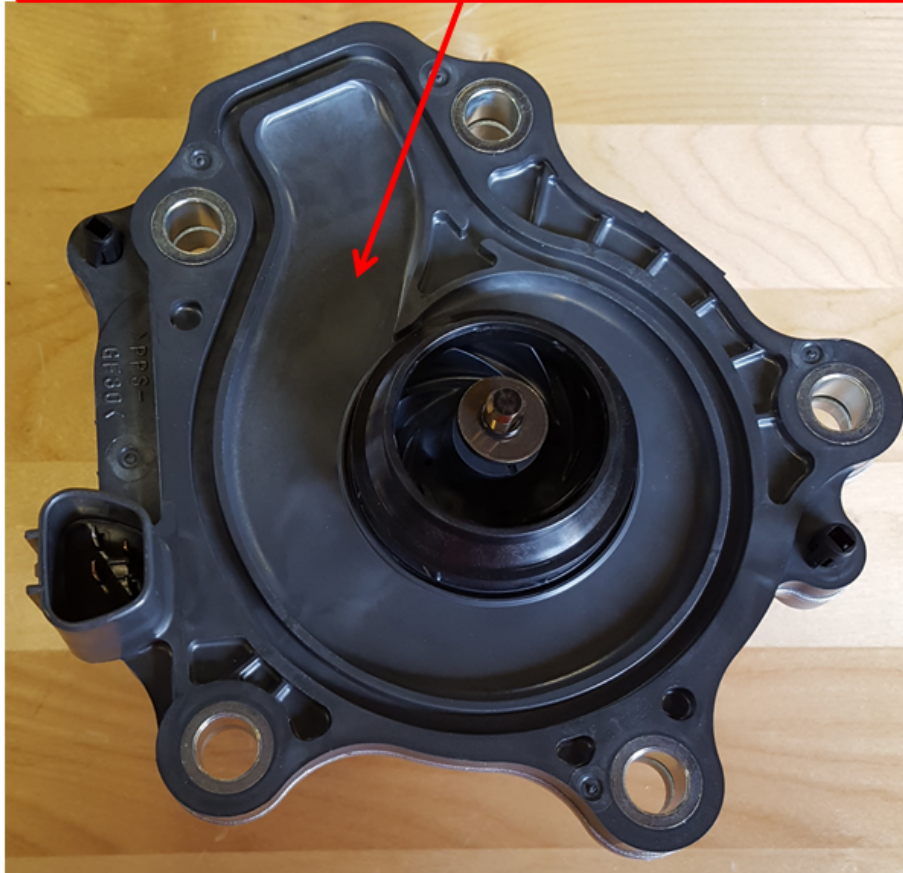
"c) a non-linear heat transfer fluid pathway in the monolithic body, with at least one fluid inlet and at least one fluid outlet to said pathway to allow for passage of heat transfer fluid through the pathway,"

c) a non-linear heat transfer fluid pathway in the monolithic body, with at least one fluid inlet and at least one fluid outlet to said pathway to allow for passage of heat transfer fluid through the pathway,

The Aisin Pump comprises a non-linear heat transfer fluid pathway in the monolithic body, with at least one fluid inlet and at least one fluid outlet to said pathway to allow for passage of heat transfer fluid through the pathway.

As shown below, the Aisin Pump comprises a curved heat transfer fluid pathway in the monolithic body described above. This pathway contains at least one fluid inlet and at least one fluid outlet for heat transfer fluid. The fluid inlet allows heat transfer fluid (water) to enter the fluid pathway and the fluid outlet allows the fluid to exit the pathway, thereby allowing passage of heat transfer fluid through the pathway.

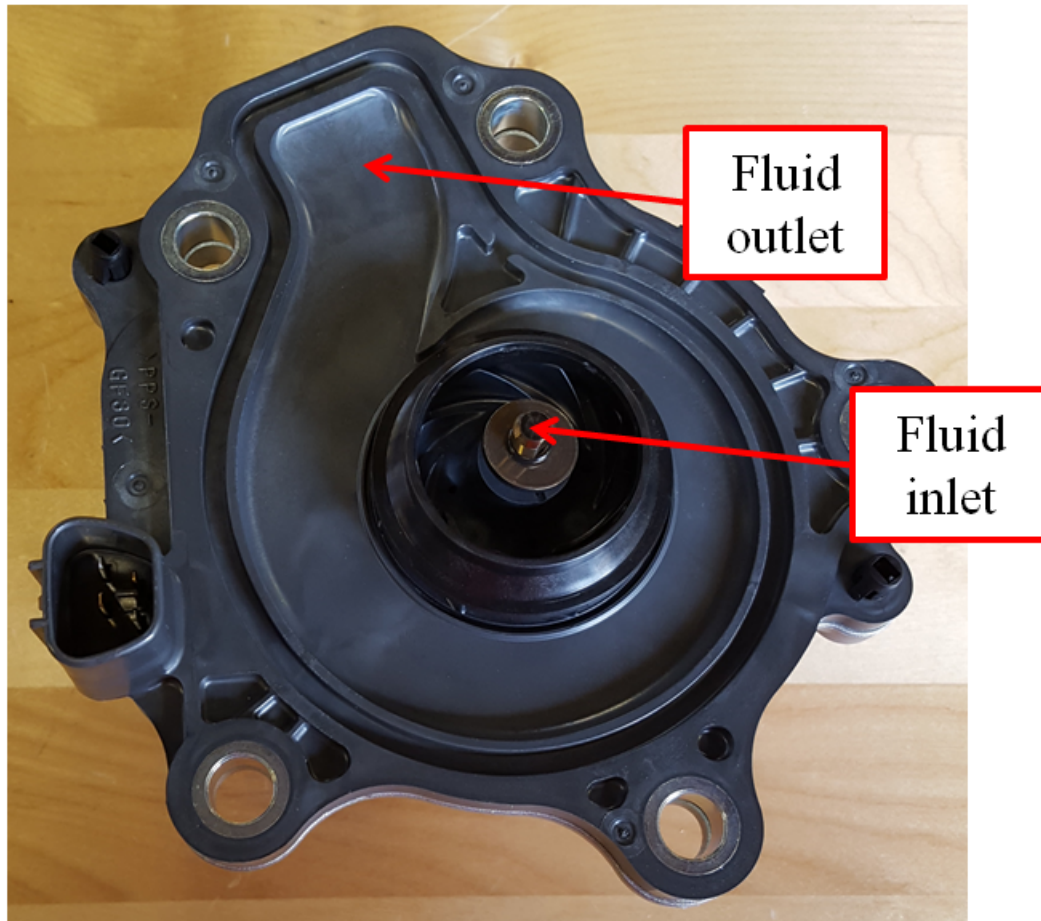
Non-linear heat transfer fluid pathway



"c) a non-linear heat transfer fluid pathway in the monolithic body, with at least one fluid inlet and at least one fluid outlet to said pathway to allow for passage of heat transfer fluid through the pathway,"

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As shown in the images below, the Aisin Pump contains at least one fluid inlet and at least one fluid outlet to the heat transfer fluid pathway in the monolithic body of the Aisin Pump. The fluid inlet allows heat transfer fluid (e.g., water) to enter the fluid pathway and the fluid outlet allows the fluid to exit the pathway, thereby allowing passage of heat transfer fluid through the pathway.



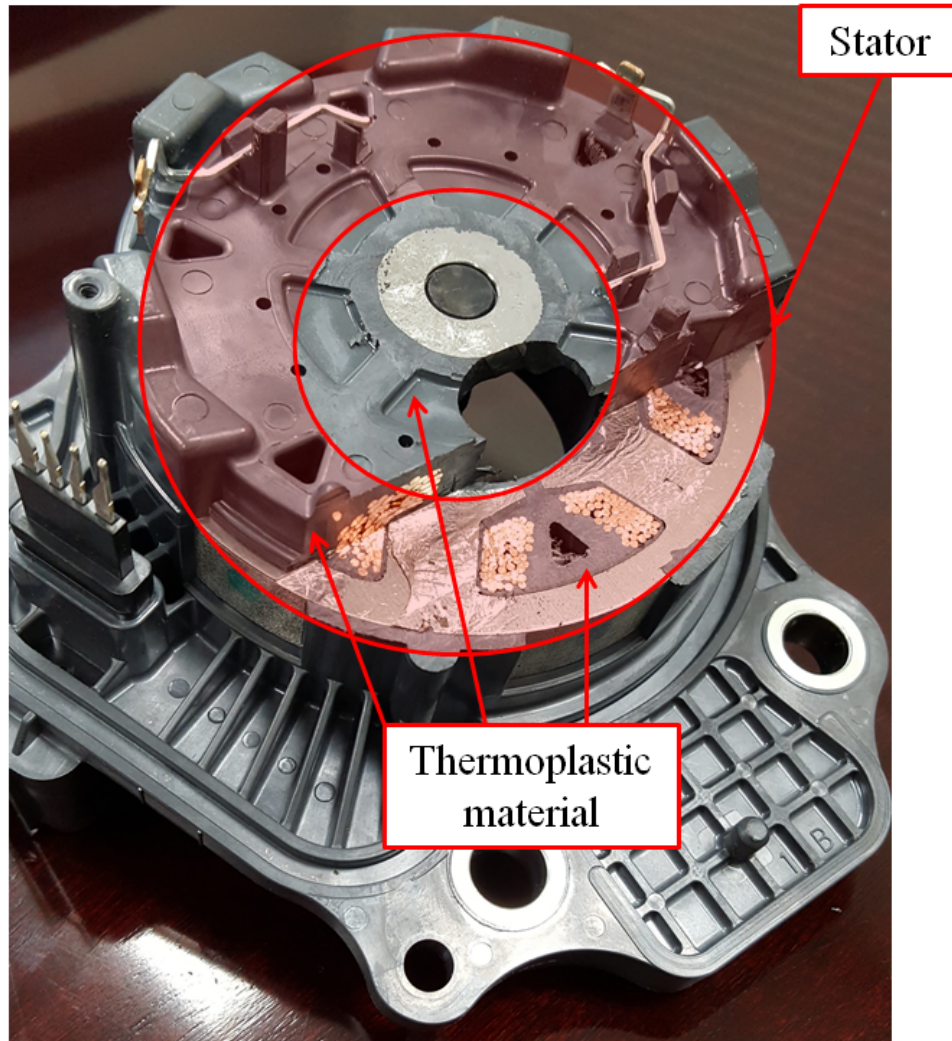
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"wherein the monolithic body of injection molded thermoplastic material substantially encapsulates a stator of the motor."

wherein the monolithic body of injection molded thermoplastic material substantially encapsulates a stator of the motor.

The monolithic body of injection molded thermoplastic material of the motor of the Aisin Pump substantially encapsulates a stator of the motor.

The stator of the motor of the Aisin Pump is encapsulated by the injection molded thermoplastic material of the body of the motor.



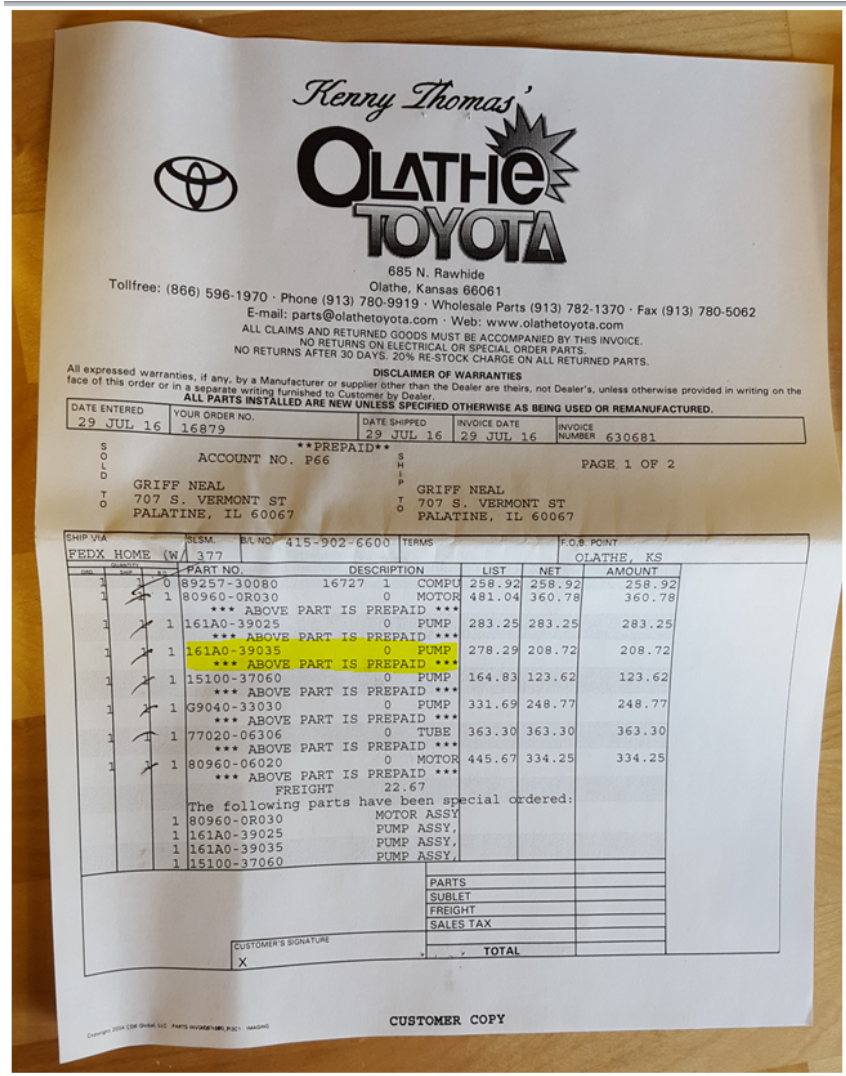
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15. A pump comprising the motor of claim 14.

The Aisin Pump is a pump comprising the motor of claim 14.

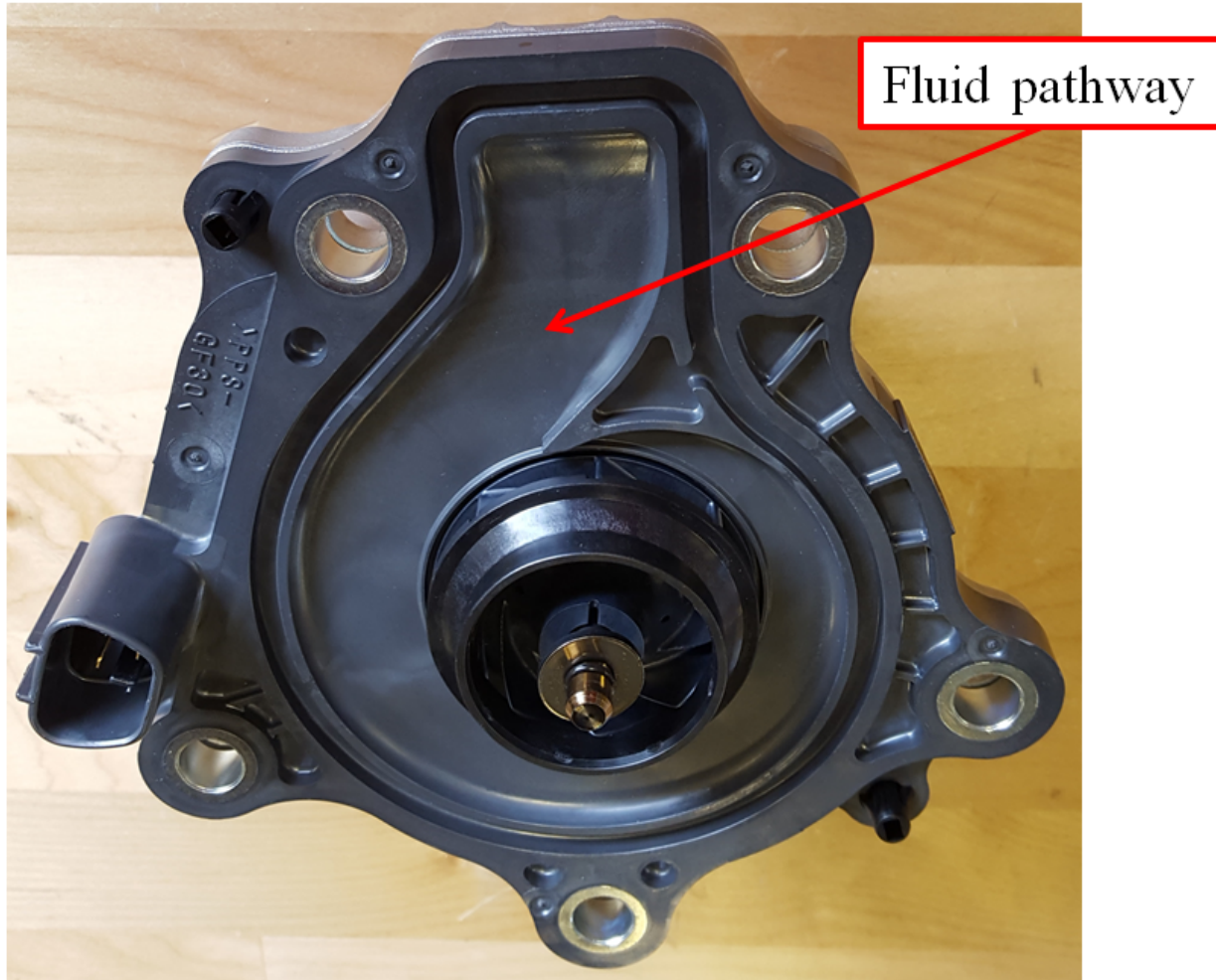
See Chart of Claim 14, above.

For example, the Aisin Pump is a water pump. As shown below, the Aisin Pump is referred to as a pump.



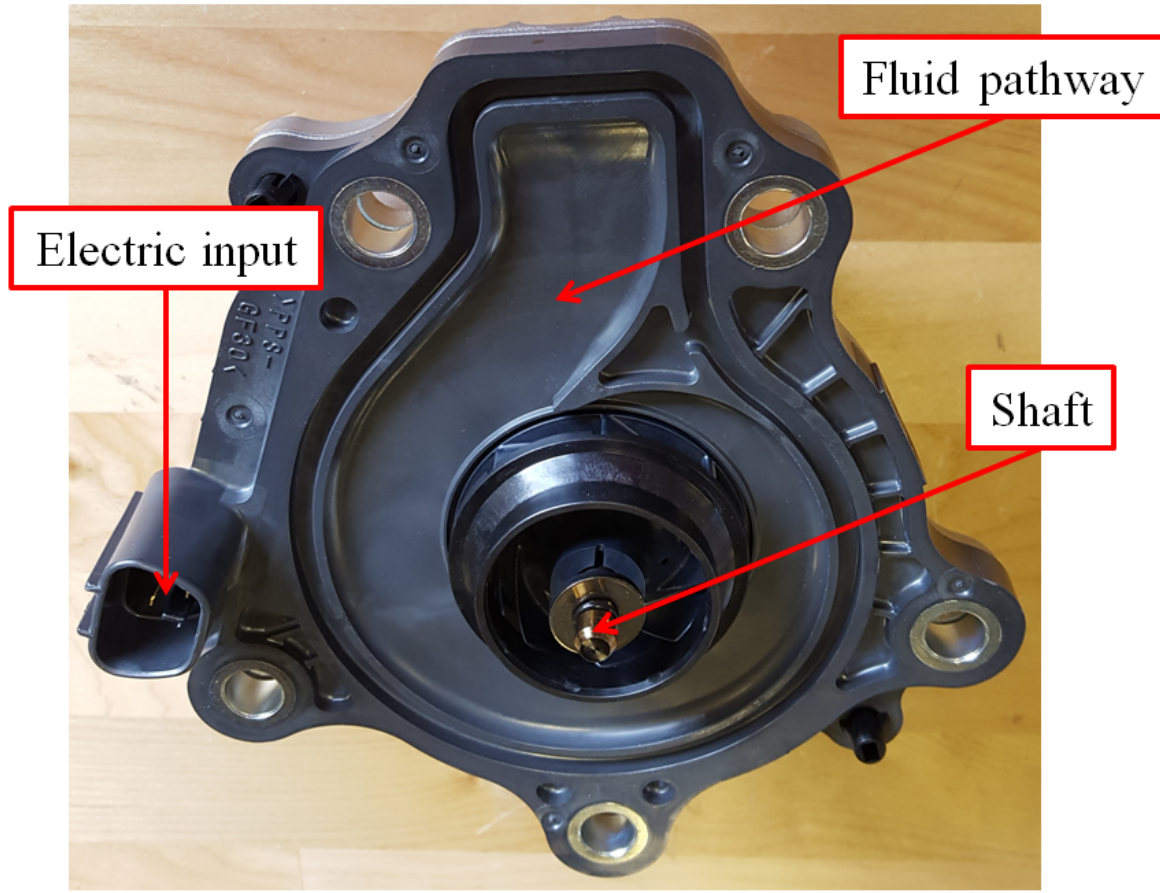
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Additionally, the Aisin Pump contains the fluid-cooled motor of Claim 14. The Aisin Pump contains a heat transfer fluid pathway to conduct fluid that cools the motor:

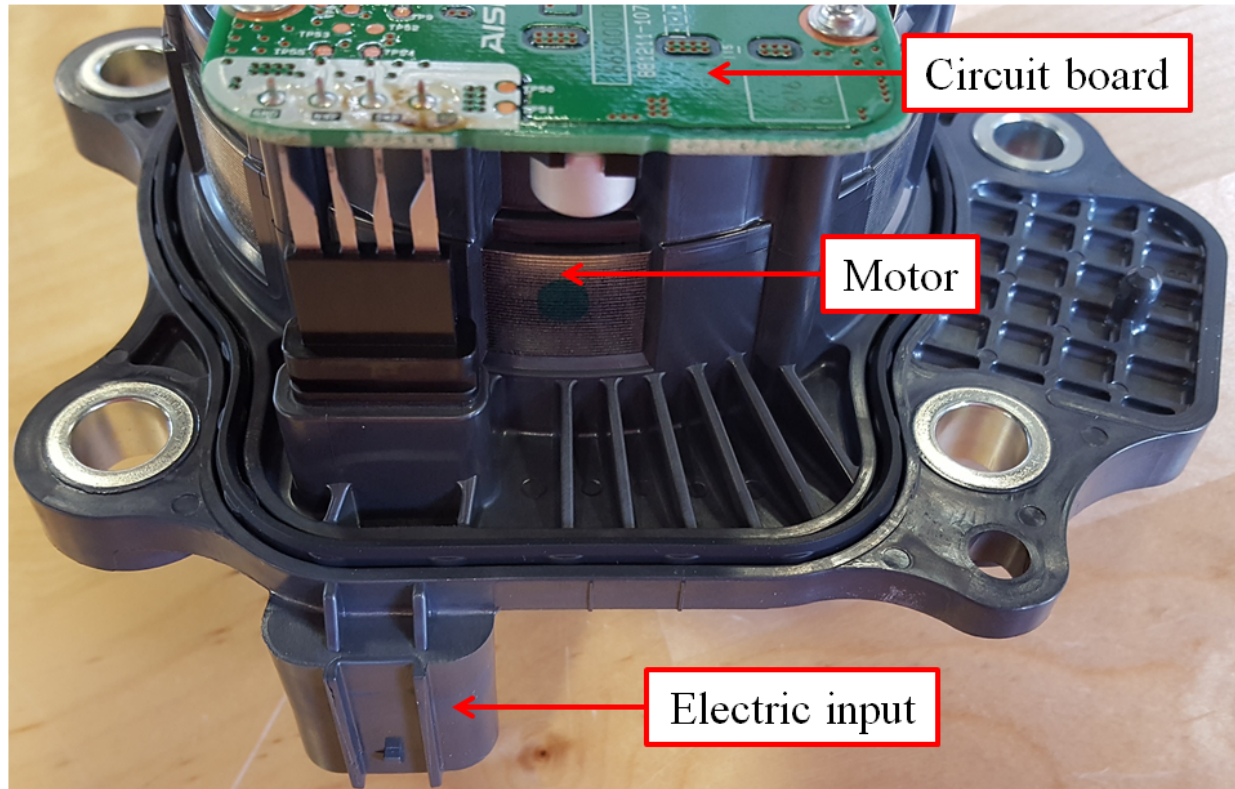


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Additionally, the Aisin Pump contains a rotating shaft powered by an electric motor, and an electric input.



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