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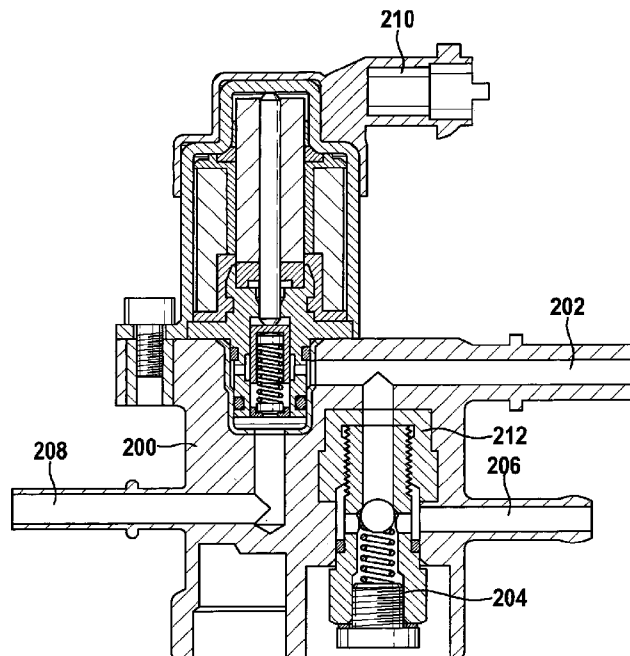
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MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM,
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(54) Title: A HOUSING FOR A FUEL CONTROL UNIT OF A HIGH PRESSURE PUMP



(57) Abstract: Disclosed herein is a housing (200) for a fuel control unit of a high pressure pump. The housing (200) comprises a first connector (202) in flow communication with an overflow valve (204) located within the housing (200). The overflow valve (204) opens into a second connector (206), and a third connector (208) in flow communication with the first connector (202) via a metering unit (210) located in the housing (200). The housing (200) is made from plastic and the first connector (202), the second connector (206) and the third connector (208) are integrated with the housing (200).

Fig. 2



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5 Description

TITLE

A housing for a fuel control unit of a high pressure pump

10 **Field of the invention**

This invention relates to the field of a fuel control unit of a high pressure pump.

Background of the invention

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A fuel control unit (FCU) regulates a metered quantity of fuel into a high pressure pump. The FCU used in the state of art is an aluminium (Al) based casting. One of the drawbacks in Al based casting is porosity. Porosity in castings occurs when Al solidifies. Porosity in casting leads formation of blow holes in the casting and imperfections which may lead to leakage of fuel passing through the FCU. Hence, there is need for a FCU that is leak proof. Also, the FCU used in state of art are made in a way such that, the connectors that are used for flow of fuel within and out of the FCU are made separate from the FCU. In other words the connectors have to be assembled on to the FCU using threads provided on the connector or through any other fastening and/ or connecting means. During the life of the FCU, the threads may weaken the joint between the connectors and the FCU leading to leakage of fuel. Hence, there is also a need for an FCU, in which leakage of fuel that occurs when connectors are assembled on to the FCU as available in the state of art, is prevented.

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Brief description of the accompanying drawing

Different modes of the invention are disclosed in detail in the description and illustrated in the accompanying drawing:

FIG. 1 illustrates a housing for a fuel control unit in the state of art; and

FIG. 2 illustrates a housing for a fuel control unit.

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Detailed description of the embodiments

FIG. 1 illustrates a housing (100) for a fuel control unit in the state of art. A fuel control unit (FCU) is used to regulate flow of fuel in the housing of a high pressure pump. Fuel passing through the fuel control unit reaches (a) at least one high pressure pump through a network of bores from the FCU to the inlet of the high pressure pump, (b) an overflow valve (104) for venting out fuel when pressure at inlet exceeds a specified limit through a backflow connector. The fuel reaches the FCU from a fuel tank, through at least one connector (102). The flow of fuel through the FCU is controlled with the help of metering unit (106) that may be present in the fuel control unit. The FCU may have multiple outlet connectors. The outlet connectors (108 and 110) serve to direct fuel out of the FCU. In the existing state of art, the housing of the FCU is made of metal. Also, the connectors that serve as an inlet and outlet medium for fuel from the FCU are made separate from the FCU.

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FIG. 2 illustrates a housing 200 for a fuel control unit of a high pressure pump. The housing 200 comprises a first connector 202 in flow communication with an overflow valve 204 located within the housing 200. The overflow valve 204 opens into a second connector 206, and a third connector 208 in flow communication with the first connector 202 via a metering unit 210 located in the housing 200. An insert 212 enables positional location of the overflow valve 204 in the housing 200. The second connector 206 is in flow communication with a fuel tank. The housing 200 is made from plastic, and the first connector 202, the second connector 206 and the third connector 208 are integrated with the housing 200. The plastic used may be a thermoplastic or a thermosetting plastic. Alternately, a sub-category of plastic under thermoplastic or thermosetting plastic may also be used as the material for housing 200 of the FCU. By using plastic as a material for the FCU, a reduction in weight and cost of the FCU is achieved

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- 3 -

During working of the high pressure pump, fuel reaches the first connector 202 from the low pressure pipe. The low pressure pipe may have a fuel filter. From the first connector 202, the fuel can move through at least one flow path. The flow path that the fuel needs to take is decided by the metering unit 210. The metering unit receives signals from an electronic control unit, based upon the signals received the fuel is either sent to the second connector 206 via the overflow valve 204. The fuel may also flow via the third connector to reach the high pressure pump. The first connector 202, the second connector 206, and the third connector 208 are made integrated with the housing 200. This prevents leakage of fuel entering and leaving the FCU.

It should be understood that embodiments explained in the description above are only illustrative and do not limit the scope of this invention in terms of the type or variety of plastic used. Many such embodiments and other modifications and changes in the embodiment explained in the description are envisaged. The scope of the invention is only limited by the scope of the claims.

- 4 -

We Claim:

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1. A housing (200) for a fuel control unit of a high pressure pump, said housing comprising

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a first connector (202) in flow communication with an overflow valve (204) located within said housing (200), said overflow valve (204) opens into a second connector 206; and

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a third connector 208 in flow communication with said first connector via a metering unit 210 located in said housing 200, characterized in that

said housing 200 is made from plastic and said first connector 202, said second connector 206 and said third connector 208 are integrated with said housing 200.

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2. The housing 200 of claim 1, wherein an insert (212) enables positional location of said overflow valve (204) in said housing 200.
3. The housing 200 of claim 1, wherein said second connector 206 is in flow communication with a fuel tank.

1 / 2

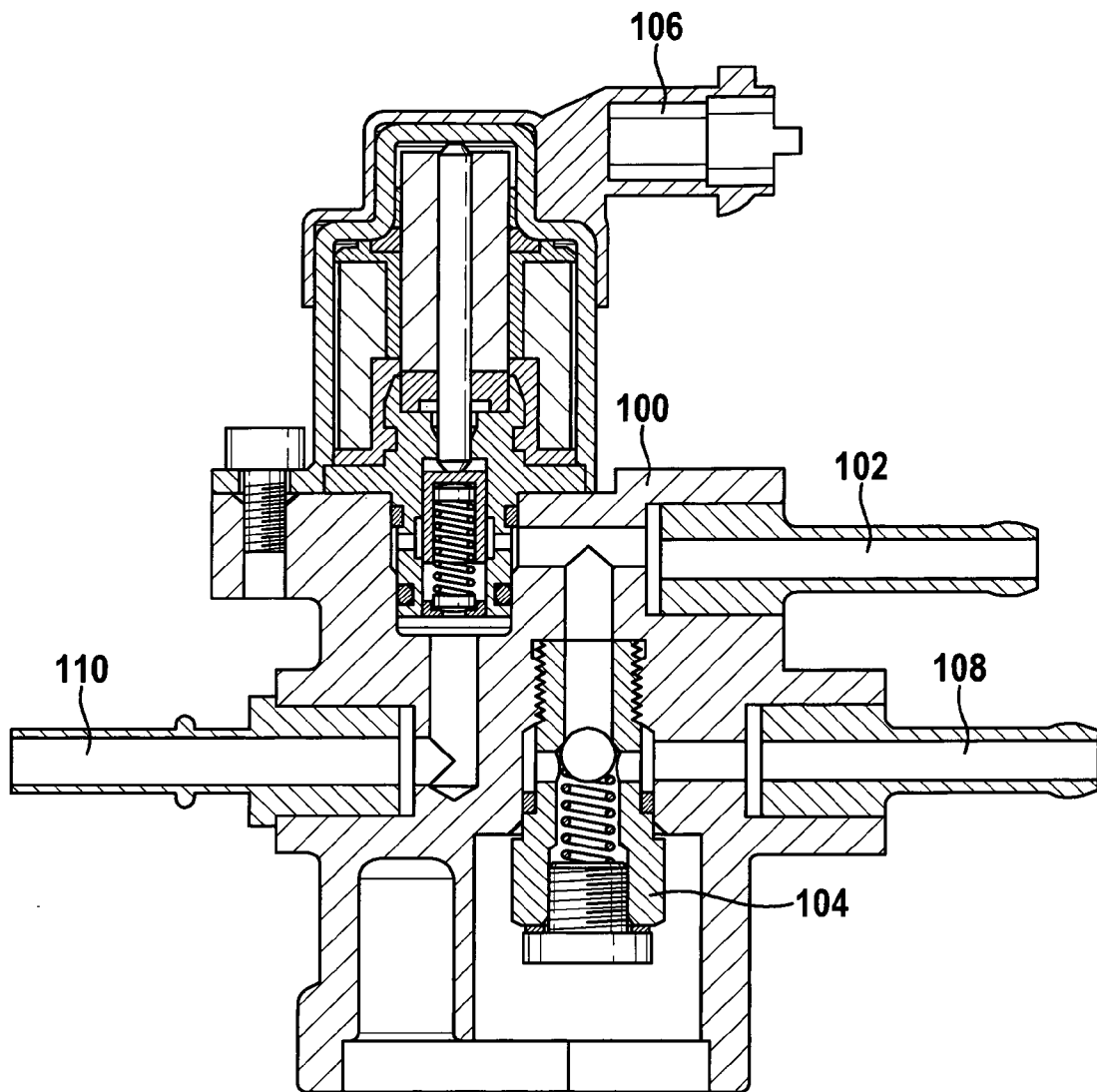


Fig. 1

2 / 2

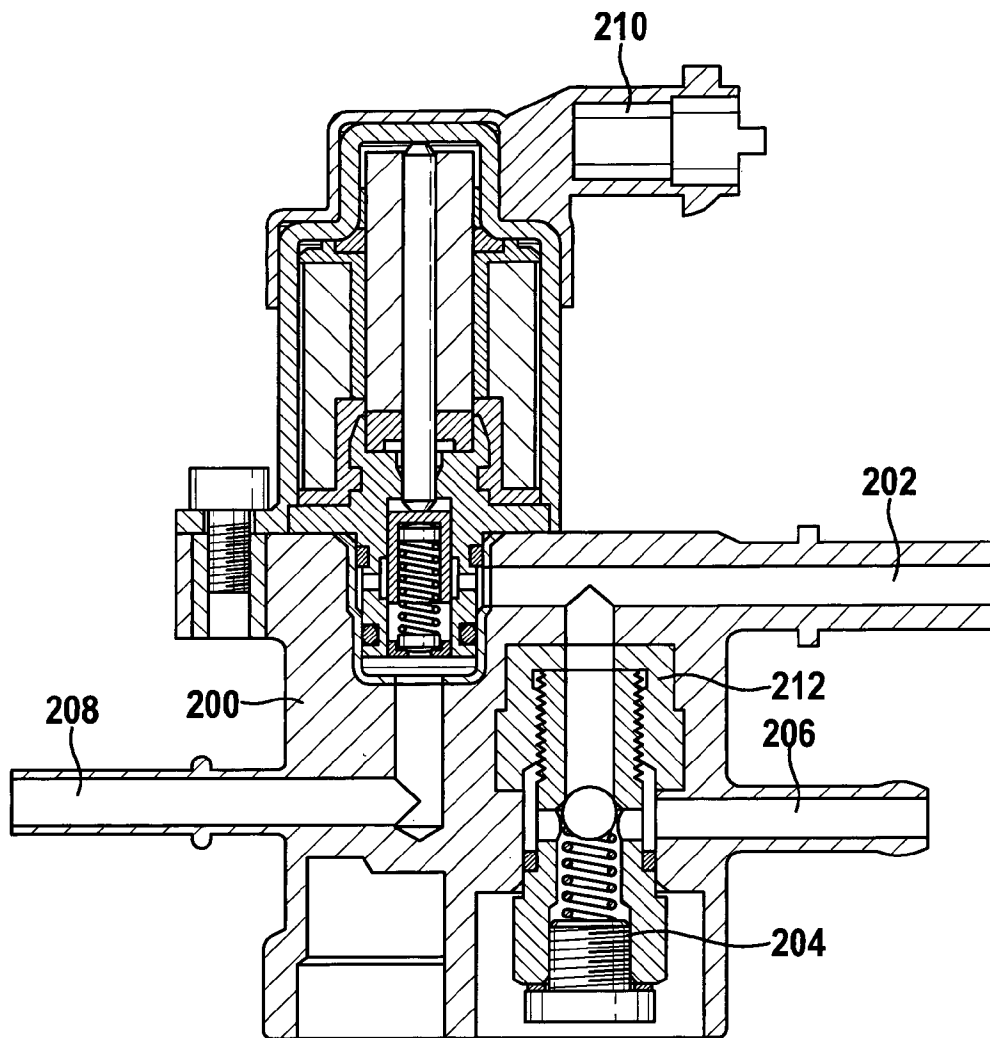


Fig. 2

INTERNATIONAL SEARCH REPORT

International application No
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A. CLASSIFICATION OF SUBJECT MATTER
INV. F02M59/48 F02M59/46 F02M59/44 F04B53/16
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
F02M F04B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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Y	US 2015/059320 A1 (WINKLER JOCHEN [DE] ET AL) 5 March 2015 (2015-03-05) paragraph [0025]; figures 1,2 -----	1-3
Y	US 2012/152208 A1 (LANDENBERGER TOBIAS [DE] ET AL) 21 June 2012 (2012-06-21) paragraph [0026]; figure 3 ----- -/--	1-3



Further documents are listed in the continuation of Box C.



See patent family annex.

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"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
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INTERNATIONAL SEARCH REPORT

Information on patent family members

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