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Description

DETAILED DESCRIPTION OF THE INVENTION

[0001]

The present invention relates to relates to the side housing of the rotary engine.

[0002]

To reduce the weight of the Related Art Rotary engine, housing, It is known that in particular constitutes the side housing of an aluminum alloy. However, aluminum alloys are relatively soft, usually cast iron constituting the rotor housing and the rotor of the rotary engine (FC2

Abrasion resistance is inferior as compared to 0). Meanwhile, apex seal, corner seal which is fitted to the rotary engine rotor, the sealing member such as the side seals, for sliding contact with the inner surface of the side housing with the rotation of the rotor, the sliding surface of the side housing is worn is the cause of the gas leak or oil leak Te. Therefore, especially when configuring the side housings of aluminum alloy, the inner surface of the sealing member of the rotor sliding contact, that it is necessary to ensure the wear resistance of the rotor housing side surfaces.

As a means to secure such wear resistance, the inner surface of the side housing, i.e. the surface of the rotor housing side, obtained by forming a sprayed coating layer by spraying a high wear resistant hard metal material (e.g., Utility Model 46-20

See JP 083), or those in which a hard ceramic layer (e.g., see JP-A-63-266101) is known. Furthermore, the wear on the side housings

Replaceable plate (sliding auxiliary plate) made of high sexual material

Also known those base charge in capacity (e.g., JP 62

See JP -189,329).

[0004]

[SUMMARY OF THE INVENTION] However, a method of forming a wear-resistant coating on the inner surface of the side housing as the former, high material costs, and because it requires a high degree of technology, very cost overall there is a problem that get high. Moreover, it is not possible to avoid sliding due to abrasion of the seal member even the wear resistant coating, and since the film is integrated with the side housing, is easy to repair a worn the coating Absent.

[0005] The present invention is a means of ensuring wear resistance

Te, using the latter interchangeable plate (sliding auxiliary plate)

By employing technical means, the wear resistance of the side housing inner surface in sliding contact with the sealing member of the rotor easily secure Come, it only repair can be performed easily in the case of wear

Ku, cooling water passage provided in the side housing, and an object thereof is to provide an aluminum side housings of the rotary engine that can be processed like a simple depressurizing passage or side air intake port holes.

[0006]

To achieve the above object of the Invention The present invention, the rotor housing side surface of the aluminum alloy side housing constituting the housing of the rotary engine mounted on opposite sides of the rotor housing

, In rotary engines interchangeably base charge the sliding auxiliary plate made

of highly wear-resistant material, said Saidohau

Characterized in that the managing, the opening to the groove is provided on the rotor housing side surface, the cooling water passage of the surface opening of the groove and sealed by the sliding contact auxiliary plate is formed

To. Further, the side housing, the narrow groove which is open to the rotor housing-side surface is provided so as to extend from the central portion radially outwardly, while sealing the surface opening of the thin groove by the sliding supporting plate, communicates with the intake port and the rotor chamber of the rotor housing through the through-hole end portions of the narrow groove is provided in the sliding supporting plate,

Depressurizing passage is formed. Further, in the side housing, said groove opening into the rotor housing side surface is provided over the rotor chamber from a side surface of the rotor housing, to seal the surface opening of the groove by the sliding supporting plate on the other hand, communicates with the intake port provided in the rotor housing through the through-hole end portions of said groove is provided in the sliding contact supporting plate said rotor chamber, the side intake port holes are formed.

[0007]

By the action above-described structure, the side housing itself does not wear does not contact the sealing member and the sliding of the rotor, whereas,

The auxiliary plate has been worn in contact the seal member and the sliding is repaired by exchanging. Further, by sealing the surface opening of the groove formed in the side housing the sliding contact supporting plate, the cooling water passage, depressurizing passage, such as side air intake port holes are formed.

[0008]

BRIEF DESCRIPTION OF THE PREFERRED embodiment of the present invention with reference to the drawings.

[0009] Figures 1-3 show a rotary engine with a side housing according to the present invention, a cylindrical side housings on opposite sides of the rotor housing 1 having two trochoid-shaped inner peripheral surface 2,2 the arranged, the rotor 4 having a cross-section substantially triangular shape is accommodated in fitted and fixed to the eccentric body 6 of the eccentric shaft 5 in the rotor chamber 3 formed by the rotor housing 1 and both side housings 2,2 ing. The rotor 4, the top edge makes a planetary rotational motion while sliding along the inner peripheral surface of the rotor housing 1. Then, as is best shown in FIG. 2, apex seal 7 axially extending on each top edge of the rotor 4, but also side seal 8 extending substantially parallel to the rotor rim are formed on both side surfaces of the rotor 4, further corner seal 9 to join the apex seal 7 and the side seals 8 are fitted respectively. Eccentric shaft 5 penetrates the insertion hole 10 provided in the center portions of the side housings 2, 2, it is rotatably supported via a bearing 11, 11. The rotor housing 1, The intake port 12 and an exhaust port 13 is provided, and an ignition plug 14 is mounted.

[0010] The rotor housing 1 and the rotor 4 having the above structure is comprised of a cast iron (FC20), both side housings 2,2 of aluminum alloy (e.g., A

It is constituted by C4D). And in the present invention, the inner surface of both side housings 2,2, i.e. cast iron (FC20) manufactured by sliding the auxiliary plate 15, 15 is the base charge interchangeably to the surface 2a, 2a of the rotor housing 1 side.

The auxiliary plate 15 has an opening 16 which is eccentric shaft 5 in the center is inserted, have insertion holes 17 of the tension bolt 18 is provided in the peripheral portion, as shown, the other side from one of the side housings 2 by tightening the lock nut 19 screwed on the tension bolt 18 inserted through to the housing 2, the subsidiary plates 15 and 15 respectively, are fixed as pinched between the side housing 2 and the rotor housing 1, the side housing 2 is the base charge in close contact with the inner surface 2a of. The seal member 7, 8 and 9 of the rotor 4 on the surface of the auxiliary plate 15 assembled in this way is in sliding contact, when the sliding surface of the auxiliary plate 15 along with the planetary rotary motion of the rotor 4 is worn, Remove the side housing 2 loosen

the tension bolt 18, simply by replacing the new auxiliary plate 15, it is possible to easily repair.

Meanwhile, as shown in FIGS. 4 and 5, the side

The housing 2, together with arranging the recessed groove 21 that opens to the surface 2a of the rotor housing 1 side in a U-shape extending substantially parallel to the inner circumferential surface of the rotor housing 1, the cooling water which open outwardly at both ends may be provided an inlet 22 and an outlet 23, to seal the surface opening of the recessed groove 21 by sliding the auxiliary plate 15 to the base charge to the side housing 2 as shown in FIG. 5 cold

??passage 24 is formed. It is desirable to dispose the sealing member 25 on both sides of the surface opening of the groove 21.

[0012] Figures 6 and 7 show an embodiment of forming a depressurizing passage side housing 2. The side housing 2, narrow grooves 31 which open to the surface 2a is provided so as to extend from the center to the outer side, configured to seal the auxiliary plate 15 of the surface opening of Said sub groove 31 is the same as the previous embodiment the case, together with the inner end 31a of the narrow groove 31 communicates with the insertion hole 10 of the side housing 2, the outer end portion 31b is an auxiliary plate 15

Communicating with the intake port 12 through the through-hole 32 and through hole 33 provided in the rotor housing 1 is provided in the depressurizing passage 3

4 is formed. Carburetor 3 in the intake port 12

5 is mounted. The provision of such a depressurizing passage 34, the rotor 4 and the sliding supporting plate 15 from the rotor chamber 3

Intake port through the high-pressure groove 31 of the gas or oil depressurizing passage 34, through hole 32 and the hole 33 which has leaked into the insertion hole 10 of the side housing 2 through the gap between the 12

Returned to, it is injected into the rotor chamber 3 again together with the oil supplied through the carburetor 35. Thus, gas or oil leaking into the insertion hole 10 is eccentric shaft 5

Not only there is no fear of leaking to the outside through the outer peripheral surface of, it is possible to improve the fuel consumption rate.

[0013] FIGS. 8 and 9 show an example of forming the side air intake port holes on both side housings 2. The side housing 2, the groove 41 which is open to the surface 2a is provided so as to extend from the rotor housing 1 side to the rotor chamber 3, configured for sealing by the auxiliary plate 15 of the surface opening of the concave groove 41, previously is similar to the embodiments described, one end portion of the groove 41 communicates with the rotor chamber 3 through the through-hole 42 provided in the auxiliary plate 15, the through-hole 43 and the other end is provided in the auxiliary plate 15 side air intake port hole 45 communicating with the intake port 12 through hole 44 provided in the rotor housing 1 is formed. Thus providing the side air intake port hole 45, the rotor chamber 3 oil supplied through one of the carburetor 35 mounted on the outer peripheral portion of the rotor housing 1 through the side inlet port holes 45, 45 of the two side housings 2,2

It can be injected from both sides. Therefore, it is unnecessary to provide a conventional carburetor 35 to the side housing 2 as.

[0014] In the above embodiment, grooves 21 provided in the side housings 2, both narrow groove 31 and the groove 41, the entire is open to the surface 2a, it is easily processed using an end mill can. Also, although an example that employs a cast iron as the material of the sliding supporting plate 15, the ceramic material not only a metal material having high abrasion resistance can also be applied.

[0015]

As described above, according to the present invention, the side housing of the present invention, since a structure in which the base charge interchangeably sliding contact auxiliary plate to the surface of the rotor housing side, the supporting plate is the seal member of the rotor when worn by sliding, can simply by repair to replace it in the new sliding auxiliary plate, or

One, the side housing, the grooves opening into the surface of the rotor housing side provided by sealing the surface opening of the concave groove in the sliding

auxiliary aid plate, simply cooling water passage, depressurization it is possible to form passages or side air intake port holes, functionally superior side Howe Thing inexpensively manufactured, can be provided.

BRIEF DESCRIPTION OF THE DRAWINGS

Is an essential part longitudinal cross sectional view of a rotary engine having a side housing according to the invention; FIG.

2 is an arrow view taken along line 2-2 in FIG.

3 is a longitudinal sectional view showing an exploded the same side housings and the rotor housing.

FIG. 4 is a cutaway front view of a portion of the side housing.

5 is an enlarged sectional view taken along the line 5-5 in FIG.

6 is a main part longitudinal sectional view showing an alternative embodiment.

FIG. 7 is a fragmentary front view of a side housing shown in FIG. 6,

(B) is a partial front view of the sliding supporting plate of FIG.

8 is a further enlarged view showing another embodiment.

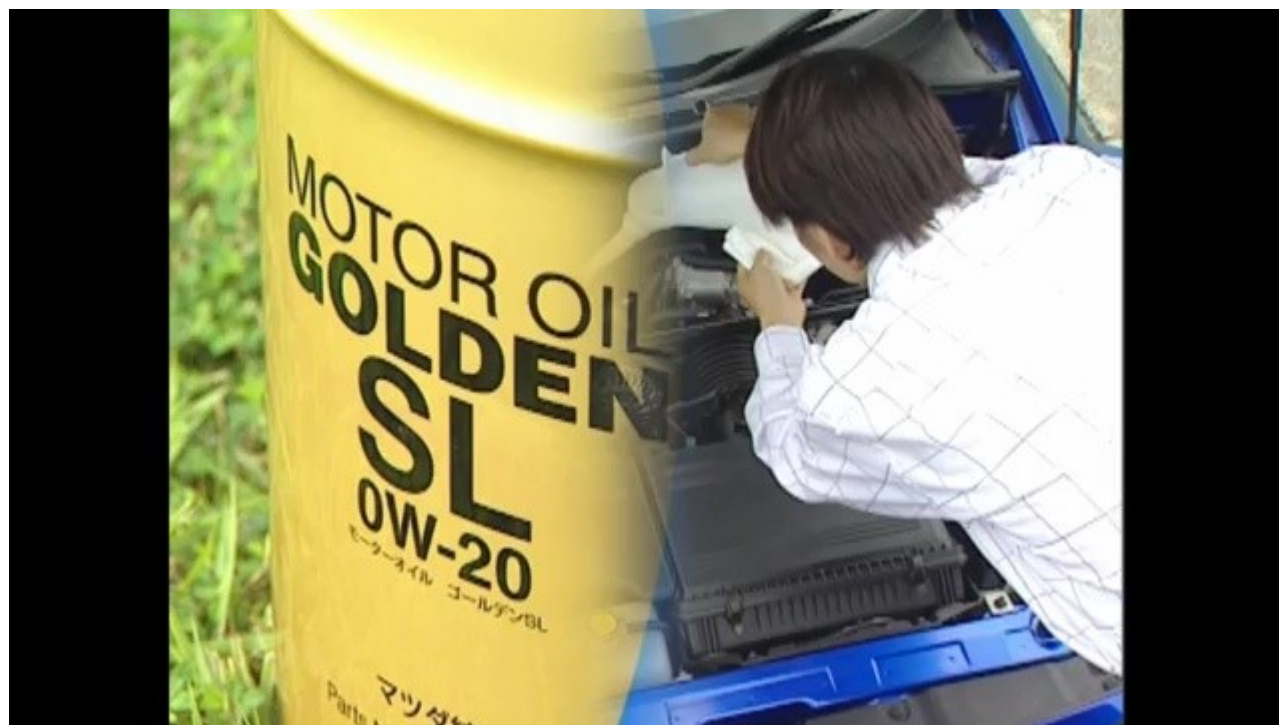
Is a sectional view taken along line 9-9 of FIG. 8;

DESCRIPTION OF SYMBOLS

Rotor housing side housings 2a of the side housing 2 the rotor housing 1 side surfaces rotor chamber rotor eccentric shaft eccentric sliding supplementary plate groove coolant passage narrow groove depressurizing passage groove side air intake port hole of

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■ ポイント

アクセル・ペダルを
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■ ポイント

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