June 22, 1965 R. H. MEIBAUER 3,190,254

OUTBOARD TO INBOARD CONVERSION UNIT

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FIG. 1.

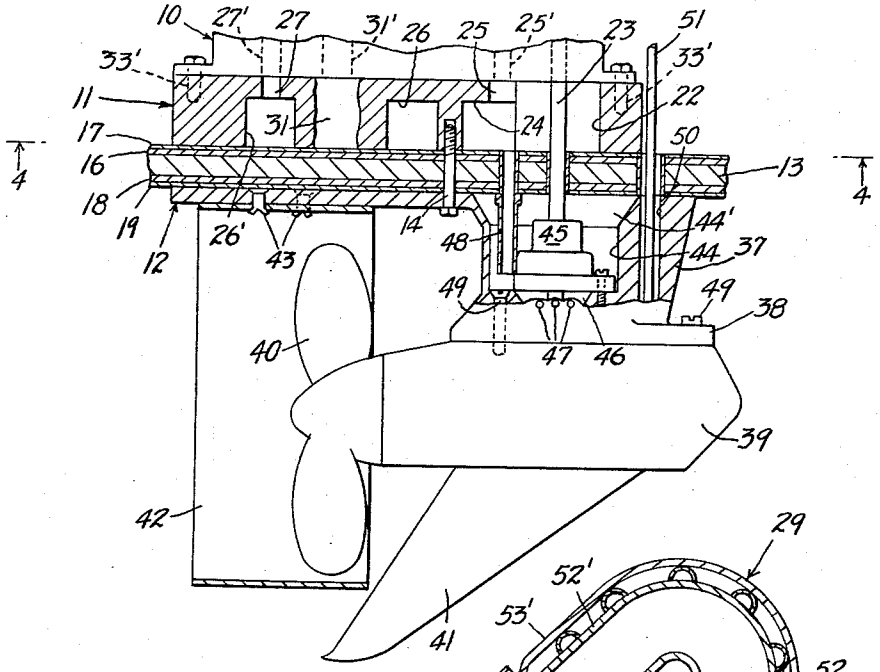


FIG. 2.

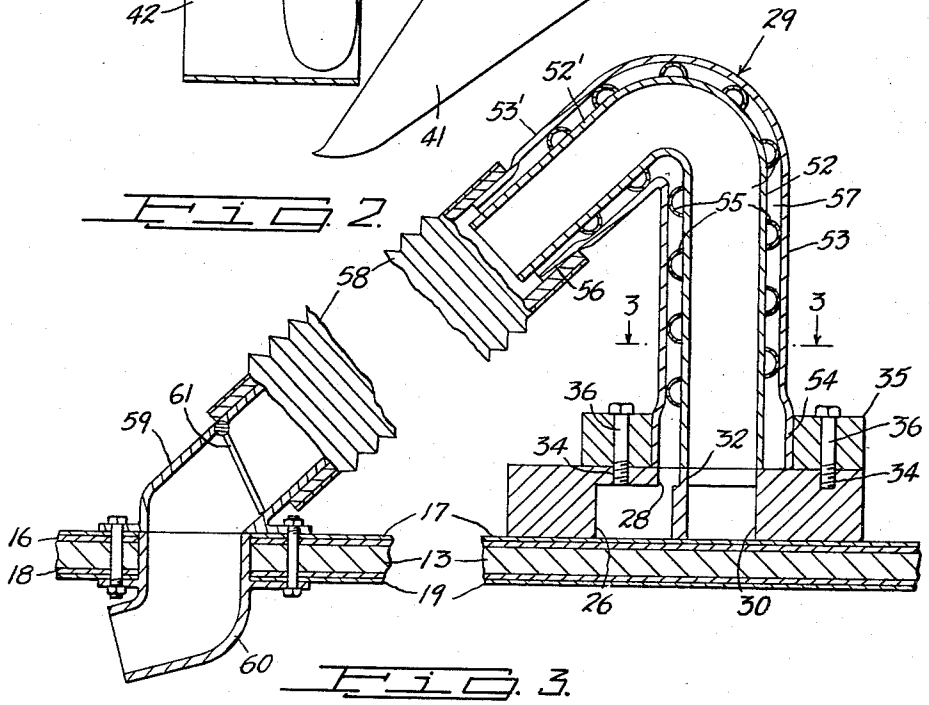
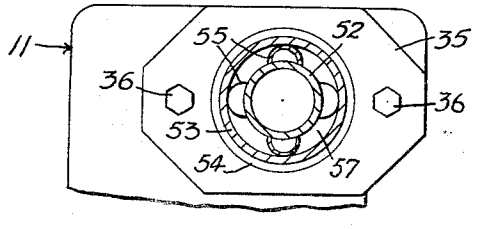


FIG. 3.



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FIG. 4.

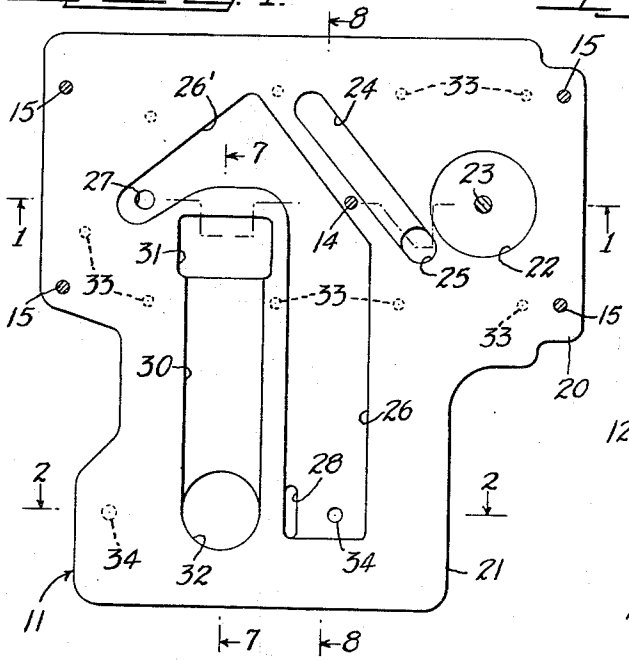


FIG. 5.

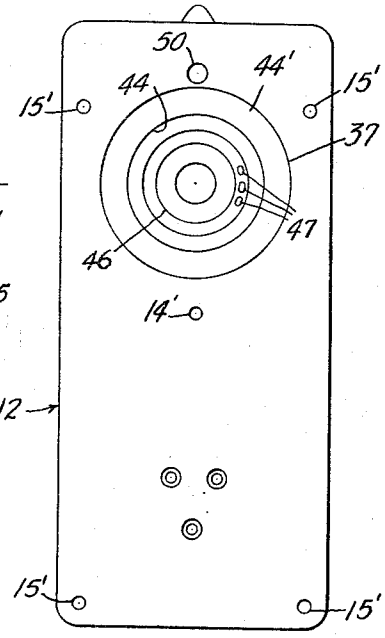


FIG. 6.

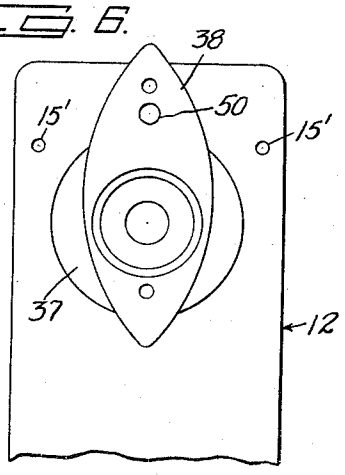


FIG. 7.

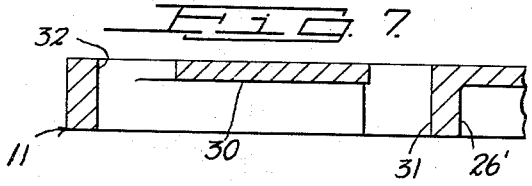
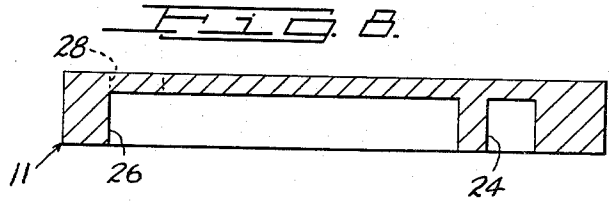


FIG. 8.



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OUTBOARD TO INBOARD CONVERSION UNIT

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15 Claims. (Cl. 115—.5)

This invention relates to the conversion of outboard motors to inboard motors by the use of conversion plates mounted on the hull so that the plates can be utilized for converting numerous types and styles of outboard motors to the inboard mounting, thereby avoiding the necessity of having independent conversion plates for each outboard motor style or design.

More particularly, the invention deals with the provision of an exhaust system assemblage mounted in connection with the power head conversion plate of the unit and in connection with the hull for discharge of the exhaust gases. Still more particularly, the invention deals with an assemblage, wherein the circulating cooling water of the unit is passed around the exhaust assemblage in cooling the exhaust gases.

The novel features of the invention will be best understood from the following description, when taken together with the accompanying drawing, in which certain embodiments of the invention are disclosed and, in which, the separate parts are designated by suitable reference characters in each of the views and, in which:

FIG. 1 is a diagrammatic sectional view through the conversion plates mounted upon the hull, with part of the construction shown in elevation and illustrating, in part, the base of a power head, background showing being omitted.

FIG. 2 is an enlarged diagrammatic sectional view through the exhaust system assemblage, the section through the power head conversion plate being generally on the line 2—2 of FIG. 4, part of the construction being shown in elevation and with parts broken away.

FIG. 3 is a section on the line 3—3 of FIG. 2

FIG. 4 is a bottom plan view of the power head conversion plate looking generally along the line 4—4 of FIG. 1 and showing the motor drive shaft as well as the mounting or coupling screws in section.

FIG. 5 is a top plan view of the water pump and gear case conversion plate detached.

FIG. 6 is a bottom plan view of one end portion of the plate shown in FIG. 5.

FIG. 7 is a partial section along the line 7—7 of FIG. 4; and

FIG. 8 is a section along the line 8—8 of FIG. 4.

In FIG. 1 of the drawing, I have indicated diagrammatically at 10 the lower or base portion of any type and kind of power head. At 11 is shown the power head conversion plate which may be defined as the upper or inner plate. At 12 is shown the water pump and gear case conversion plate, these plates being secured to each other and to the hull 13 in any desired manner and, in the showing in FIG. 1, one of the coupling screws is shown at 14. However, in turning to FIG. 4, for clarity in the illustration, four other coupling screws are illustrated in section at 15. In this connection, it will be understood that, with different types of power heads, the plate 11 will be fashioned to properly locate the coupling head with respect to both of the plates 11 and 12.

The hull 13, or at least that part of the hull in connection with which the unit is mounted, will include an aluminum plate 16, plus an asbestos gasket 17 on the inner surface of the hull 13 and on the lower surface of the hull is an aluminum plate 18 and a neoprene gasket 19.

Turning now to FIG. 4 of the drawing illustrating a

bottom plan view of the plate 11, it will appear that this plate has a generally oblong rectangular portion 20, with a reduced offset 21 at one side thereof. The portion 20 includes, at one end, a large aperture 22, through which the drive shaft 23 from the power head passes, the aperture being sufficiently large for proper location of the shaft of different power heads. The shaft 23 only is shown in section in FIG. 4 for this purpose.

Inwardly of the aperture 22 is a water intake area 24 diagonally arranged on the plate 11, this area being exposed through the lower surface of the plate, but communicating somewhere with this area is a water intake aperture 25 to extend to a suitable circulating passage in the head 10, as indicated, in part, in dotted lines at 25' in FIG. 1 of the drawing.

Adjacent the area 24, the plate 11 has an irregularly-shaped water exhaust area 26, having a generally triangular-shaped end 26', the areas 26, 26' opening through the lower surface of the plate 11 and at 27 is shown an aperture communicating with a passage in the power head 10, as indicated in dotted lines at 27' in FIG. 1. The area 26 extends into the offset 21 of the plate 11 and this end portion of the area has an exhaust passage 28 which communicates with an exhaust system assemblage 29, note FIG. 2, mounted upon the offset 21 and later described in detail.

Adjacent the area 26 is an exhaust gas area or chamber 30, at one end of which is a rectangular aperture 31 shown, in part, in FIG. 1 of the drawing in the broken away portion, with which communicates the exhaust gas passage from the power head, indicated at 31' in dotted lines in FIG. 1 of the drawing. At the other end of the passage 30 is an aperture 32, through which the exhaust gases pass into the assemblage 29, as noted in FIG. 2.

The plate 10 is apertured to receive the screw 14, as well as the screws 15, as will be apparent from the sectioning of these screws in FIG. 4. The plate 11 also includes threaded apertures in the upper surface thereof for mounting of the power head 10 thereon, these apertures being illustrated by the dotted showing 33 in FIG. 4 and two of the screws for mounting the head 10 being illustrated in dotted lines at 33' in FIG. 1. The plate 11 also has other threaded apertures in the upper surface thereof, as indicated at 34 in FIG. 4, for mounting of the base 35 of the assemblage 29 on the plate 11, the screws for this mounting being illustrated at 36 in FIG. 2.

By providing the areas or chambers, as at 24, 26 and 30, the plate 11 adapts itself for use in conjunction with various types and kinds of power heads, at least a wide range thereof, to place the various components of the head in communication with said areas for transmission of water and the gases from the water pump, later described, to the head and from the head through the assemblage 29, through which the exhaust gases also pass.

The conversion plate 12 has, at one end portion thereof, a downwardly projecting housing 37 terminating at its lower surface in a flange portion 38, in connection with which the gear casing 39 is supported, this casing having the propeller 40 at one end, as well as a depending blade portion 41. The propeller 40 operates in a housing sleeve 42 riveted to the opposed end portion of the plate 12, as seen at 43 in FIG. 1 of the drawing. Within the housing 37 is a chamber 44, in which the water pump 45 is positioned, the pump being fixed to the motor shaft 23, which shaft extends downwardly into the gear casing 39 for operation of the propeller 40, as with other motors of the type and kind under consideration.

At the lower portion of the chamber 44 is a water admission chamber 46, the housing 37 being apertured, as indicated at 47, for admission of water into the housing by the pump 45 for transmission through a pipe 48 extend-

ing upwardly through the hull 13 and communicating with the chamber 24. Thus, water is admitted into the area 24 for circulation through the power head, as indicated, in part, at 25' in FIG. 1 of the drawing. The flange or lower portion of the housing 37 is generally of the contour noted in FIG. 6 of the drawing and this lower portion is apertured to receive screws 49, indicated in FIG. 1 of the drawing, for mounting the casing 39 in connection with the plate 12.

The upper end of the chamber 44 is preferably flared, as seen at 44', to again provide freedom of adaptation of the plate 12 to power heads of different constructions. The housing 37 has an aperture 50 extending therethrough and through the upper surface of the plate 12 to accommodate the gear control rod 51 of the power head, as clearly noted in FIG. 1 of the drawing.

The plate 12 is apertured, as seen in FIG. 5, at 14' to receive the screw 14; whereas, the plate has four apertures 15', through which the screws 15, shown in section in FIG. 4 of the drawing, pass in mounting the two plates 11 and 12 securely upon the hull in combination with the screw 14 and other couplings of this type and kind can be employed, if desired.

Turning now to the exhaust system assemblage 29 shown in FIGS. 2 and 3 of the drawing, it will appear that this system comprises inner and outer spaced tubes 52 and 53, the outer tube 53 having an enlarged or flared end 54 secured in the base 53, as shown in FIG. 2, the two tubes being spaced one from the other by suitable spacers 55, the tubes having angularly offset ends 52' and 53', the end 53' having a reduced terminal portion 56 which forms a contracted discharge of the water circulating passage 57 formed between the two tubes where it passes into a bellows-type flexible tube 58 for atomizing the water exhaust. The exhaust gases pass through the inner tube 52 and are also discharged into the flexible tube 58 and the measure of water and gases is ultimately directed to fittings 59 and 60, the fitting 59 being secured to the interior of the hull 13; whereas, the fitting 60 extends to the exterior of the hull. These fittings can be arranged at any part of the hull for exhaust to atmosphere or, as in the present illustration, for exhaust into the water through the bottom of the hull. In this latter use, a suitable check valve 61 will be provided in the fitting 59 to prevent backward flow of water through the fittings when the boat is not in operation.

The spacers 55 are diagrammatically shown, as is also the structure of the outer tube 53. The outer tube will be formed by separate parts welded or otherwise coupled together to envelop the inner tube. It will be understood that the spacers 55 will be suitably fixed to surfaces of at least one of the tubes by welding or otherwise.

It is pointed out that, while the area 30 and the tube 52 have been referred to as gas exhausts, reference here is made to the exhaust from the power head, in other words, the exhausts of the products of combustion.

It will be understood that, in a conversion unit of the character defined, in addition to drive of the propeller, the power head can also be utilized in running auxiliary equipment, such as generators, alternators, bilge pumps, compressors and the like in the manner of usual inboard motor installations. The foregoing is especially practical when the conversion motor head is of sufficient power to care for the running of auxiliary equipment.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent is:

1. An outboard to inboard conversion unit of the character defined, comprising a power head conversion plate, a water pump and gear case conversion plate and an exhaust system assemblage mounted in connection with the first named plate, said first named plate having three widely extended areas opening through the lower surface thereof, one of said areas comprising a water intake area, a second area comprising a water exhaust area, the third area comprising a gas exhaust area, means in said first named plate placing all of said areas in communication with a power head mounted on the upper surface of said first named plate, said first named plate being mounted on the interior of a boat hull and coupled with the second named plate arranged upon the outer surface of the hull, said second named plate including a housing in which a water pump is mounted and exposed to a water intake chamber in said housing, a transmission pipe for transferring pumped water from said housing into the water intake area of the first named plate, the first named plate being apertured for passage of the motor shaft of said power head therethrough and into said housing for actuating said water pump, the housing of said second named plate having means supporting a gear casing driven by said motor shaft, a propeller at one end of said gear casing driven by said power head, said assemblage comprising a base coupled with the first named plate, the base supporting an outer water discharge tube and an inner gas exhaust tube, means spacing said tubes one from the other to form a water circulating chamber between said tubes, the first named plate being apertured to place said last named chamber in communication with the water exhaust area of the first named plate, said first named plate being apertured to place the inner gas exhaust tube in communication with the gas exhaust area of said first named plate, suitable fittings on the hull for discharge of the exhausted gases and water, and a flexible tube between said fittings and discharge ends of said inner and outer tubes.

2. A unit as defined in claim 1, wherein means is provided for protection of that part of the hull in connection with which the unit, including said fittings, are mounted.

3. A unit as defined in claim 1, wherein the second named plate includes means for supporting a propeller encircling sleeve in connection therewith.

4. A unit as defined in claim 1, wherein the housing of the second named plate is apertured to receive a gear control rod.

5. A unit as defined in claim 1, wherein said three areas are so positioned on the first named plate as to adapt said plate for use in inboard mounting of power heads of numerous designs.

6. A unit as defined in claim 5, wherein the support of the exhaust system assemblage on the first named plate constitutes an extension at one side of that part of the first named plate, in conjunction with which the power head is mounted.

7. A unit as defined in claim 1, wherein said fittings are mounted in connection with the hull for exhaust into the water, and one of said fittings including a check valve.

8. In outboard to inboard conversion units of the character defined, a power head conversion plate, in connection with which power heads of numerous different designs are adapted to be mounted, said plate having three widely extended areas opening through the lower surface thereof, one of said areas comprising a water intake area, a second area comprising a water exhaust area, the third area comprising a gas exhaust area, means in said plate placing all of said areas in communication with a power head mounted on the upper surface of one side portion of the plate, the other side portion of the plate having an extension, upon which an exhaust system assemblage is adapted to be mounted, and the second and third areas projecting onto said extension to place both of said areas in communication with said assemblage.

9. In units as defined in claim 8, wherein said assemblage includes an inner gas discharge tube, an outer water discharge tube spaced with respect to said inner tube, means placing the gas and water exhaust areas of said plate in communication with said inner and outer tubes, and means including fittings mounted in the hull of a boat, in connection with which the unit is mounted for discharge of said exhausts.

10. In outboard to inboard conversion units of the character defined employing a power head conversion

plate, in connection wtih which various power heads are adapted to be mounted, a water pump and gear case conversion plate coupled with said first named plate with a hull of a boat disposed between said plates, said second named plate including a housing supporting a water pump and a flange portion, in connection with which a gear casing is supported, and means for passing pumped water from said housing to means on the first named plate for introduction into a power head mounted on said first named plate, and said first named plate including means supporting an exhaust system assemblage for exhaust of products of combustion and exhaust water discharged from said power head.

11. In outboard to inboard conversion units of the character defined employing a power head conversion plate, in connection with which various power heads are adapted to be mounted, said plate being mounted upon the interior of a hull of a boat, a water pump and gear case conversion plate mounted on the outer surface of the hull and coupled with said first named plate, an exhaust system assemblage mounted in connection with the first named plate, said assemblage including a tube, through which exhaust gases from a power head mounted on the first named plate are adapted to pass, said assemblage including means for circulating exhaust water from said power head around said tube, suitable fittings on the hull of said boat through which the exhausts are adapted to be discharged, and a flexible tubing placing said fittings in communication with said tube and said means.

12. In units as defined in claim **11**, wherein said fittings exhaust into the water in which the boat is operated, and a check valve in one of said fittings.

13. A conversion plate for inboard installation of an

outboard power head and an exhaust system assemblage for said power head, said plate comprising an oblong rectangular side portion, in connection with which a power head is adapted to be mounted, a side extension on said plate, in connection with which said assemblage is adapted to be mounted, the plate having an extended water intake area, an extended water exhaust area and an extended gas exhaust area, both of said exhaust areas being arranged over both side portions of said plate, all of said areas opening through the lower surface of the plate, and the surface of the plate, in connection with which the power head is mounted, having passages extending therethrough and communicating with said areas to plaec the water intake, the water exhaust and the gas exhaust of the power head in communication with the respective areas.

14. A conversion plate as defined in claim **13**, wherein said plate is apertured to receive the motor shaft of said power head.

15. In outboard to inboard conversion units of the character defined, a power head conversion plate, in connection with which a power head and an exhaust system assemblage are adapted to be mounted, said plate having an area for admission of water to said power head, an area placing the gas exhaust from the power head in communication with said assemblage and an area placing the water exhaust from the power head in communication with said assemblage, and said plate being apertured for passage of the motor shaft of the power head therethrough.

No references cited.

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