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1

DESCRIPTION & OPERATION

1-1 BRIEF HISTORY

The jet drive system for propelling a craft through the water arrived on the scene in the mid 1960's with the jet drive boat. In those early days, the jet drive system was mated only with high performance powerplants -- engines in the 454 cu. in. class and larger. For this reason, during the "gas crunch" in the 1970's the jet drives were labeled as inefficient and as "gas hogs".

In addition to these two negative terms, they earned the reputation as "bad boy" boats due to

their noisy "straight" exhaust, high rpm operation, and their almost unbelievable maneuverability. These combined factors did little to enhance their image and certainly restricted their popularity.

With new and improved technology, personal watercraft arrived on the scene about the mid 1970's. Personal watercraft, as we know them today, were developed using the same principles as the jet boats, and originally powered with a single cylinder two-stroke engine.

In order to meet the demand for more speed and the ability to carry more than just



A typical inner harbor summer weekend with scores of personal watercraft preparing to leave or just returning from a "fun day" on the water in the "outer harbor" or at sea close to shore. Just a reasonable amount of "TLC", will reward the owner and his/her friends with hours of trouble free enjoyment.

1-2 DESCRIPTION & OPERATION

one person, watercraft manufacturers were quick to respond. Today, most modern craft are powered with a twin cylinder or three-cylinder two-stroke powerplant, coupled to a single stage pump.

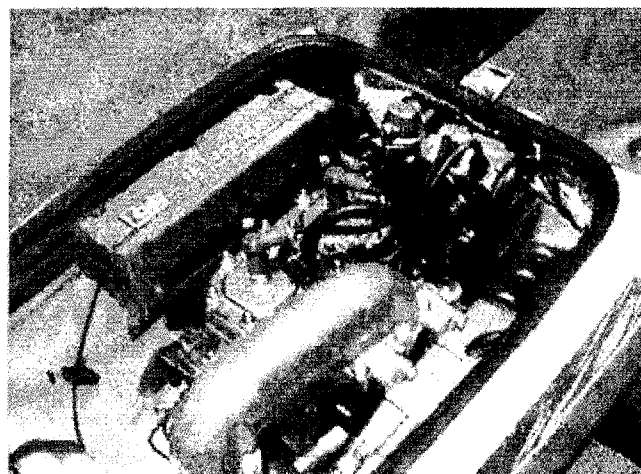
Aftermarket shops and manufacturers have come into existence all across the United States and Canada. Their output of specialty products and services permit the owner to gain more speed and in over the competition at racing events wherever enough water is available.

As mentioned in the "Foreword", this book has been designed and written to cover stock, factory "out the door" engines and jet drives. Modifications for higher than manufacturer's rated performance are so extensive and varied, no attempt has been made to include them in this volume. (Actually, for such coverage, a separate comprehensive book would be required.) In such cases the publisher's recommendation is to follow the after market instruction with the particular product or service.

Series Covered

The following Kawasaki series produced from 1992 thru 1998 are covered in this manual.

Model	Approx. Yr. of Production
JS550 Series	1992-1994
JF650 Series	1992-1996
JL650 Series	1992-1995
JS650 Series	1992-1993
JS750 Series	1992-1996
JH750 Series	1992 & On
JT750 Series	1994 & On
JH900 Series	1995 & On
JT900 Series	1997 & On
JH1100 Series	1996 & On
JT1100 Series	1997 & On



Overall view of the popular Model 750 Series twin cylinder installation.

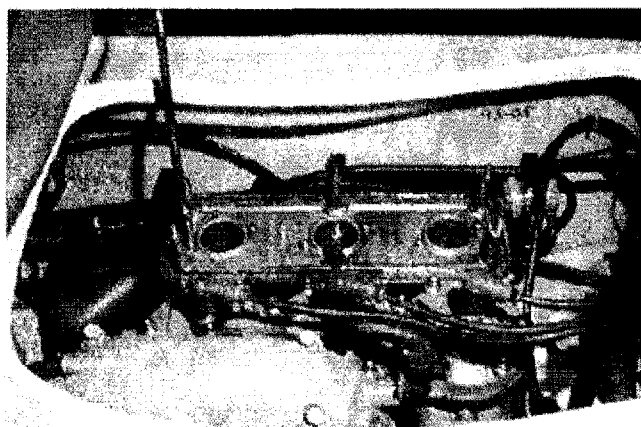
1-2 PRINCIPLES OF OPERATION

One of the first lessons to be learned in any elementary physics class is Newton's basic law: "For every force, there is an opposite and equal force". This statement is the basic principle of the jet pump. Water is "sucked" and "scooped" in from under the craft by a powerful pump rotating at incredible speed and then discharged, "blown" out, sternward in the opposite direction. In this manner the watercraft is propelled forward.

The personal water craft covered in this manual are all equipped with a twin or 3-cylinder water cooled two-stroke engine, matched with a single stage (one impeller) jet pump.

On a very few models, a reverse "gate" is swung down over the pump outlet nozzle forcing the exhausted water back in a forward direction thus moving the craft sternward.

Personal watercraft jet pumps may be classified as "axial flow" or "mixed flow".



KB11797T

Many times the Model 900ZXi Series engine is modified with aftermarket equipment and service for higher than factory "out-the-door" performance.