Tips for

Identifying Hydraulic Motor Ports

A short guide to quickly identifying
the ports on your final drive or travel motor

TEXAS FINAL DRIVE

by Jim Strong

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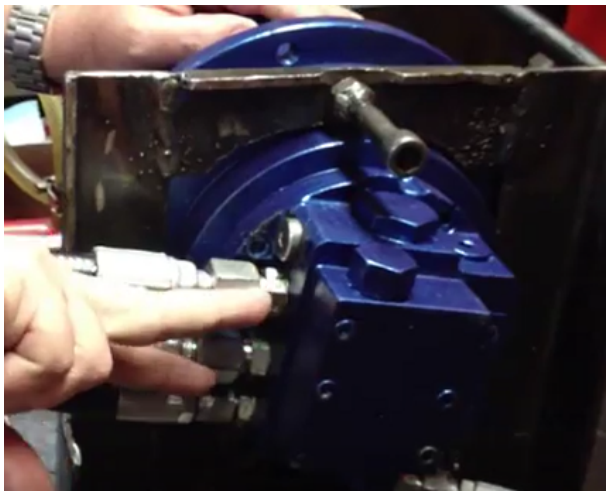
Introduction

A typical final drive motor can have anywhere between 2 and 5 hydraulic connections. Once you've pulled a hydraulic motor, we know that it can be a bit difficult to decide which line is associated with which port.

In this eBook, we'll review the basic hydraulic ports you can find on your final drive or travel motor, then look at some real world examples.



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CHAPTER ONE

Flow and Return Ports

Flow and Return Ports

*In any hydraulic motor, at least two hydraulic ports will always be present: the **flow and return ports**.*

These ports make it possible for the hydraulic fluid to enter and exit the motor, making the needed pressure and flow available for the hydraulic motor to do its job.

The flow and return ports are always going to be the two ports with the *largest diameter.*

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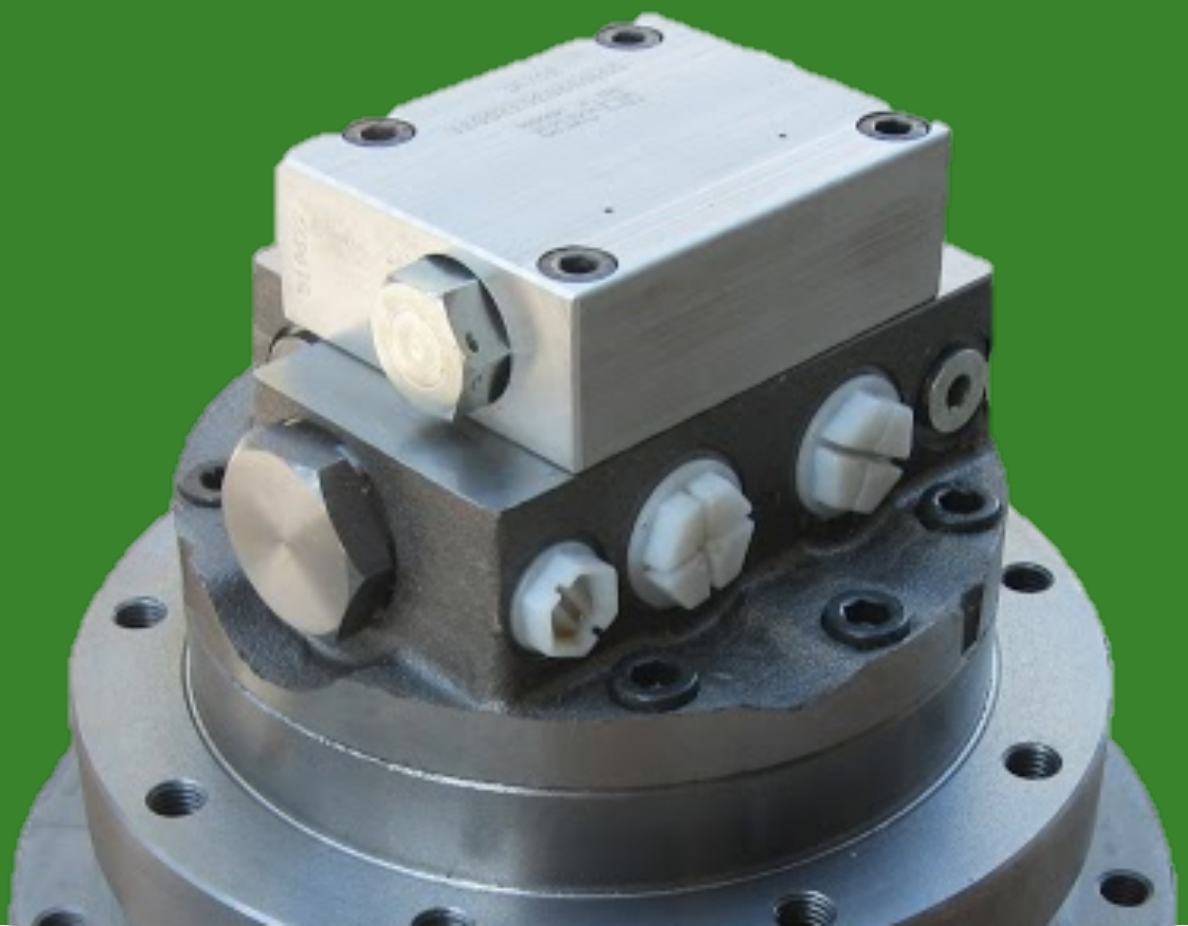
CHAPTER TWO

Case Drain Ports



Case Drain Ports

If more than two ports are present, *one of the lines will most likely be a* ***case drain port***.

All piston-type hydraulic motors are going to leak hydraulic fluid from the rotator group.

This leaked fluid serves to *lubricate* the piston shoes, the swash plate, and the area between the cylinder block and the valve plate.

Case Drain Ports

This oil must be returned to the hydraulic tank under minimal pressure. That is the purpose of the **case drain line**, which runs from the travel motor to the hydraulic tank. Note that if there are only three lines, *the smallest one will most likely be the case drain line.*

Some travel motors actually have two case drain ports present and they are interconnected, meaning that either one can be used. Use the *highest case drain port on the unit.* If you don't use the highest one, you will have cavitation in the motor because the air cannot escape. Cavitation is never a good thing.

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CHAPTER THREE

Speed and Brake Ports

Speed Port and Brake Port

If your motor is a two-speed model, **a two-speed port** will be present and, as it name implies, it controls the speed of the travel motor. The speed line connects to the speed port, which is going to be the *smallest port and may be on the back side of the travel motor or final drive.*

Note that it is possible to obtain a conversion kit to transform a two-speed motor into a single-speed motor.

A **brake line port** may also be present and will be on the side or behind the main housing.

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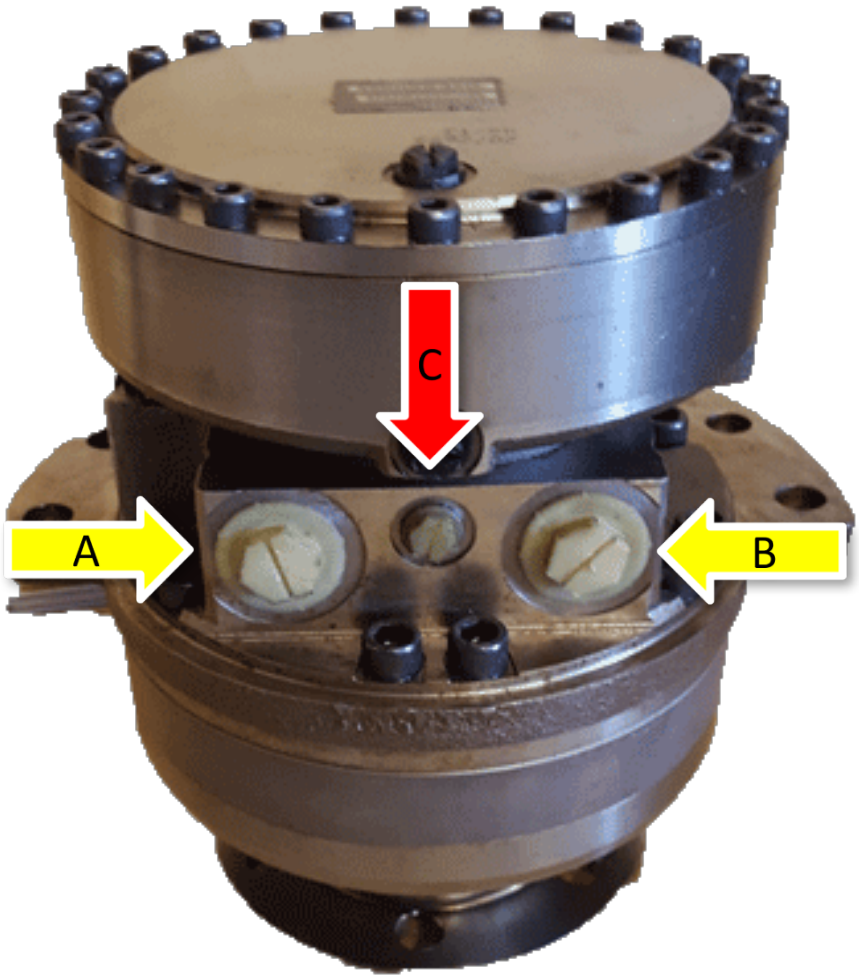
CHAPTER FOUR

Examples

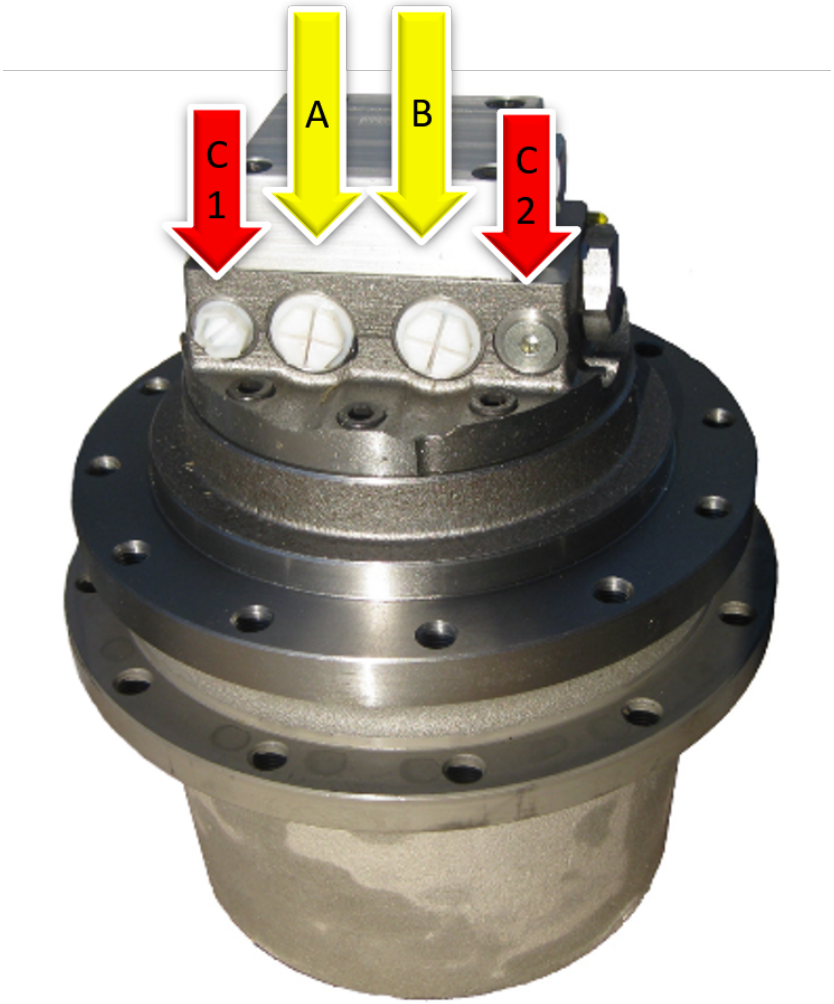
Example #1

Here you see a final drive with the flow and return ports, labeled A and B in yellow, and a single case drain port, labeled C and in red.



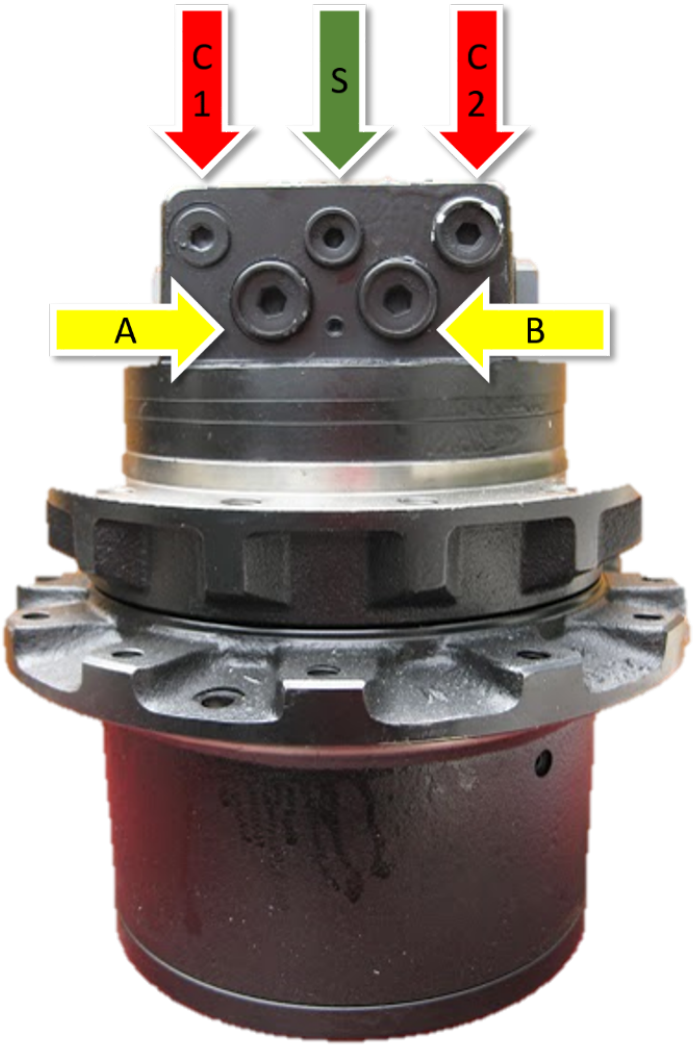
Example #2

This final drive has the flow and return ports in the center with a case drain line, labeled C1 and C2 in red, on either side.



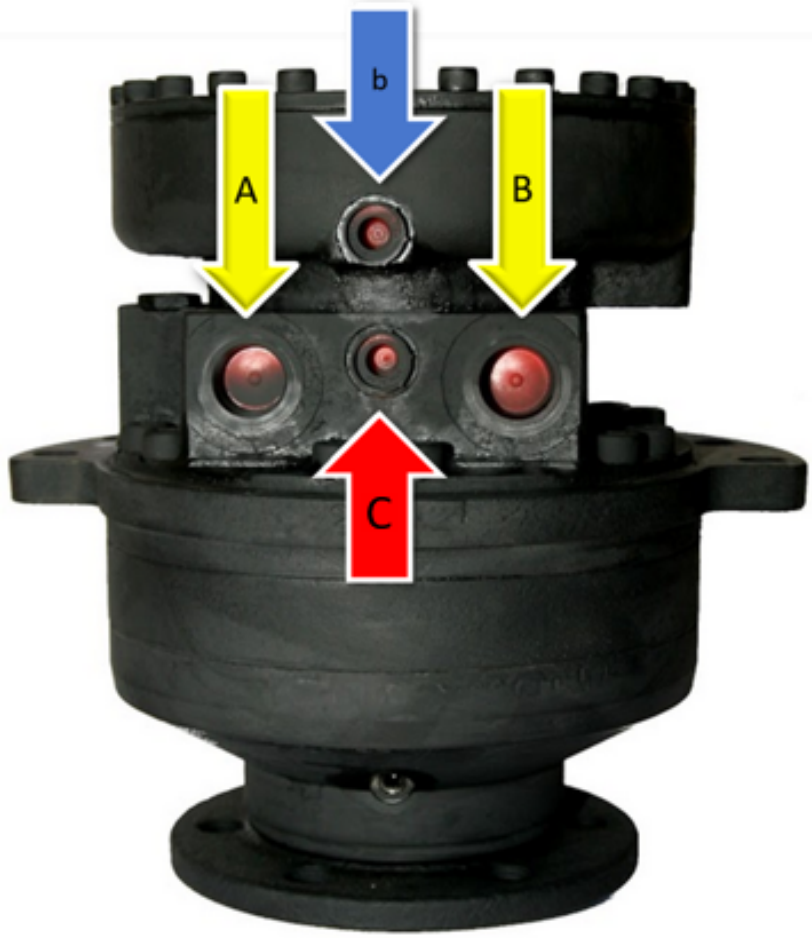
Example #3

This two-speed final drive is from a Komatsu machine. It has the flow and return ports at the bottom and two case drain ports on either side of the two-speed port, labeled S.



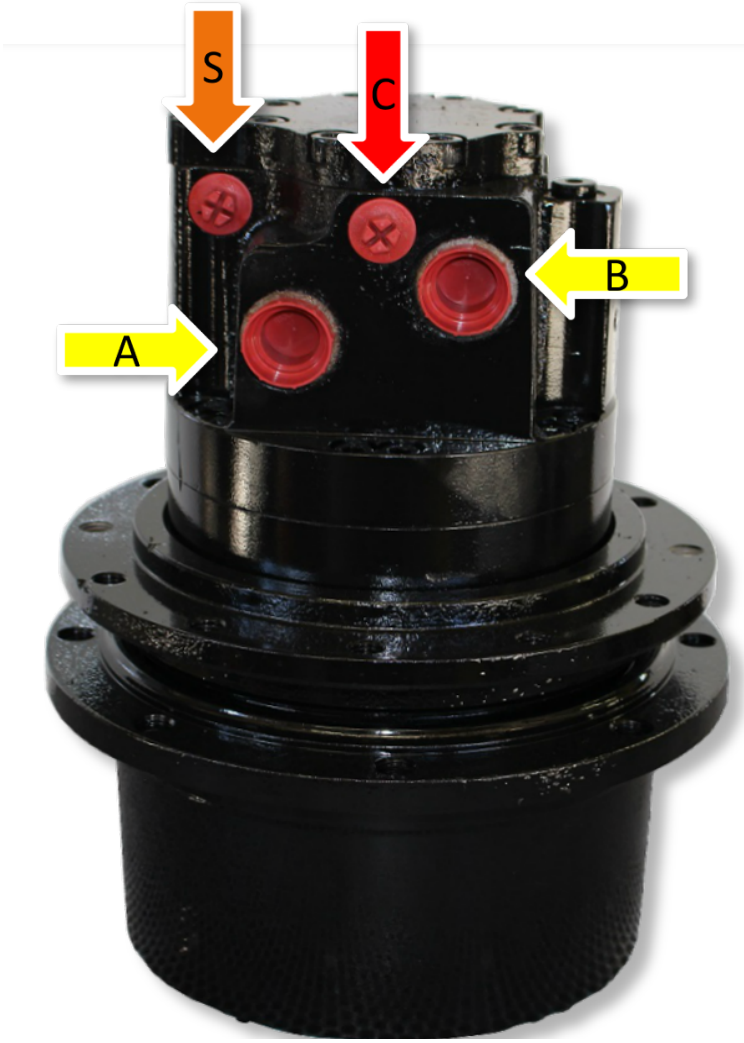
Example #4

This is a final drive for the Bobcat T180/T190/T140. It has a case drain port at the bottom with flow and return ports on other side. The brake port is located above (highlighted by a blue arrow and marked with a b).



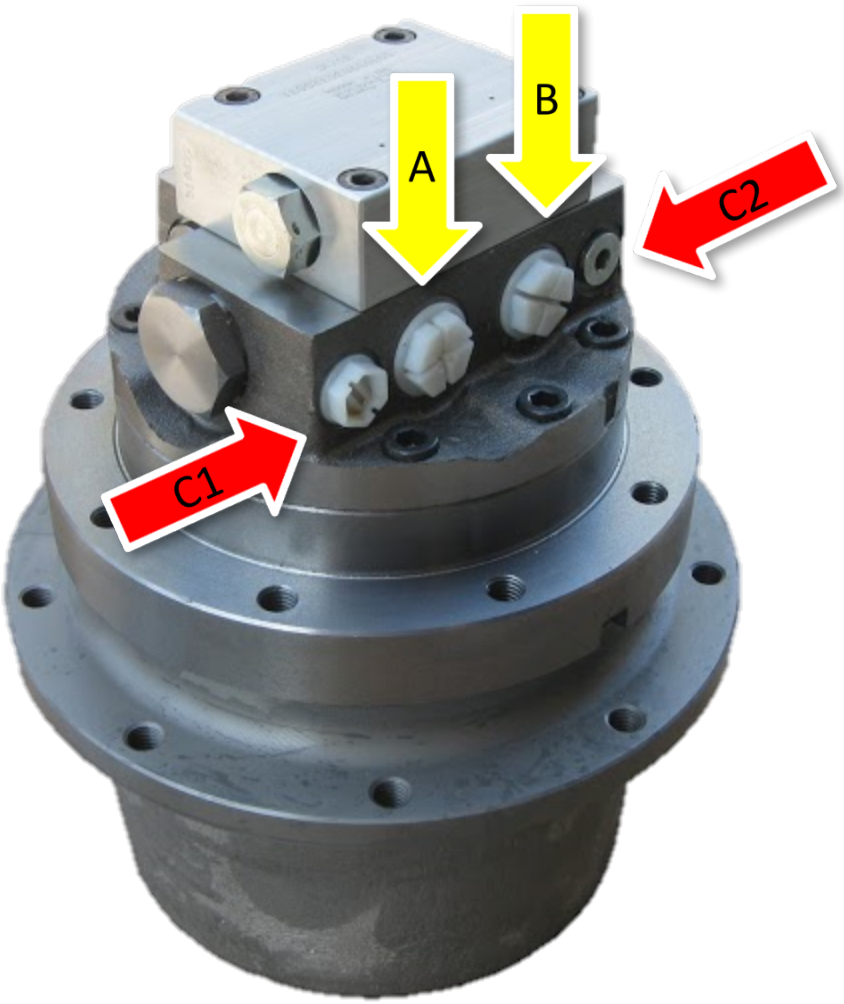
Example #5

This final drive is used on CASE and New Holland equipment. It has flow and return ports, a two-speed port (marked in orange with the letter S), and a case drain port.



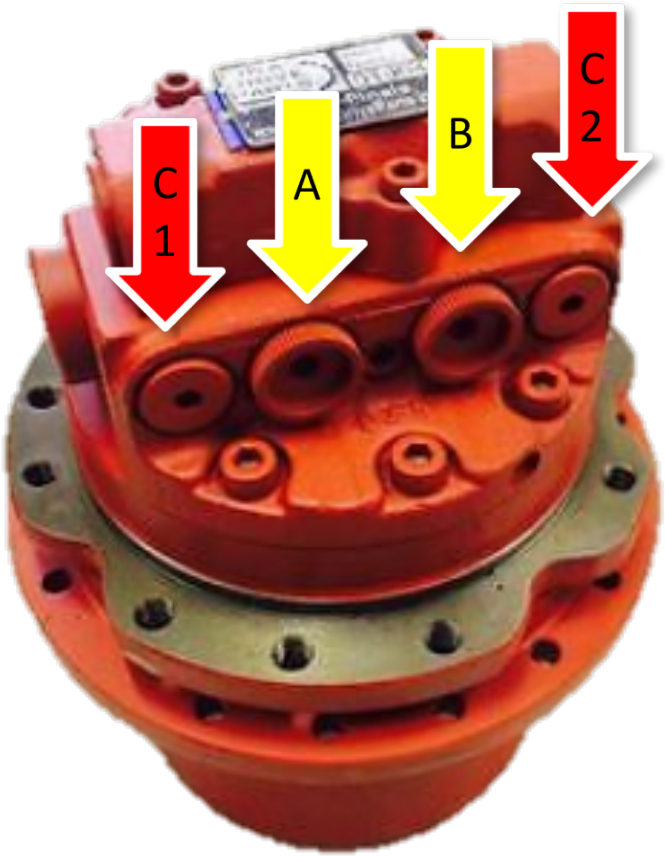
Example #6

This final drive has the flow and return ports in the center with a case drain ports, labeled C1 and C2 in red, on either side.



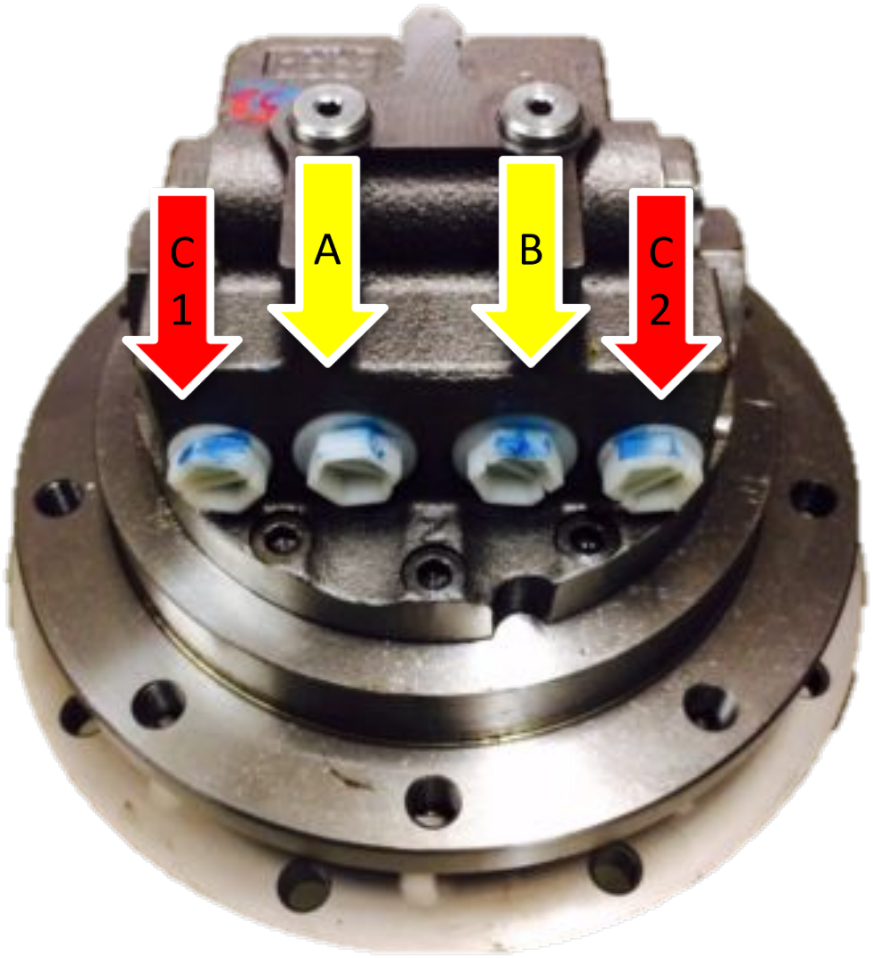
Example #7

Here we have a final drive from a Kobelco (or sometime a Yanmar) machine. The flow and return lines are in the center with the case drain lines on either side.



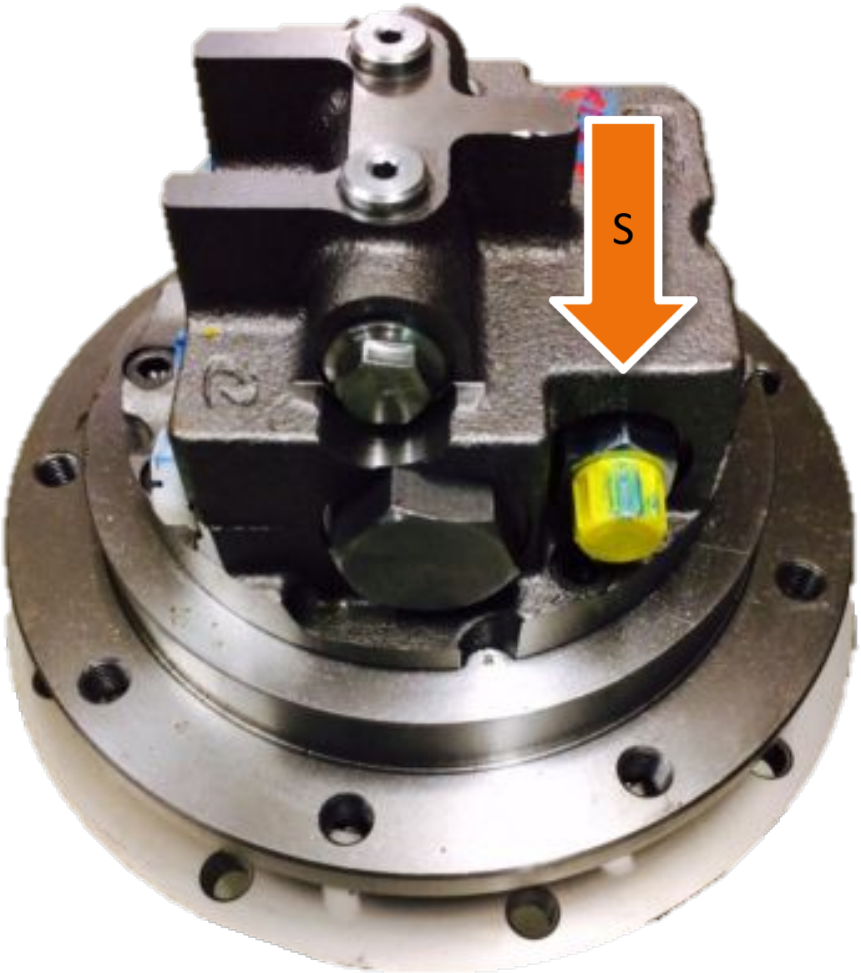
Example #8

Here we have a final drive from a Caterpillar or Takeuchi machine. The flow and return lines are in the center with the case drain lines on either side.



Example #9

Here is another final drive motor that is shown from a different angle. I this instance, the two-speed port is on the side.



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