

Many Circuit Types are Explained, With Details of Advantages and Potential Problems

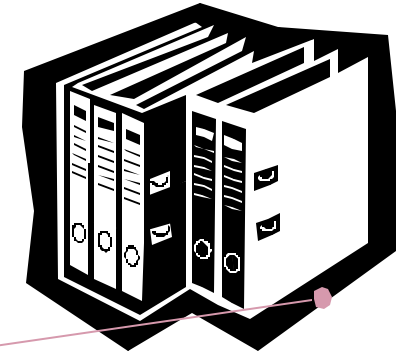
Starting with detailed explanations of Accumulator circuits and the accessory valves that go with them to how to hydraulically synchronize cylinders. Learn how these circuits are designed, how they operate and how to use them reliably and safely.

- Learn about different ways to use flow controls and the way and how much heat they generate in type any circuit.
- See the difference in spool and motor type flow divider function and how energy can be conserved with the latter.
- See the simplest to most accurate way of hydraulically synchronizing cylinders.
- Find out how rotary actuators can smoothly and quickly move a machine piece without shock.
- See the ways servo valves can control actuators to give precise movement, accurate speed control or exact force to any fluid power circuit.
- Learn how air logic control hardware functions and how it can be used to replace electrical control circuits in many instances.
- As the Table of Contents on the reverse page indicates there are numerous other circuits with explanations of their function and use.

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INTRODUCES



Fluid Power Circuits Explained

**See Fluid Power Circuits in
Schematic Form in Motion
From Detailed Explanations
Learn How Most Fluid Power
Circuits Work**

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FLUID POWER CIRCUITS EXPLAINED

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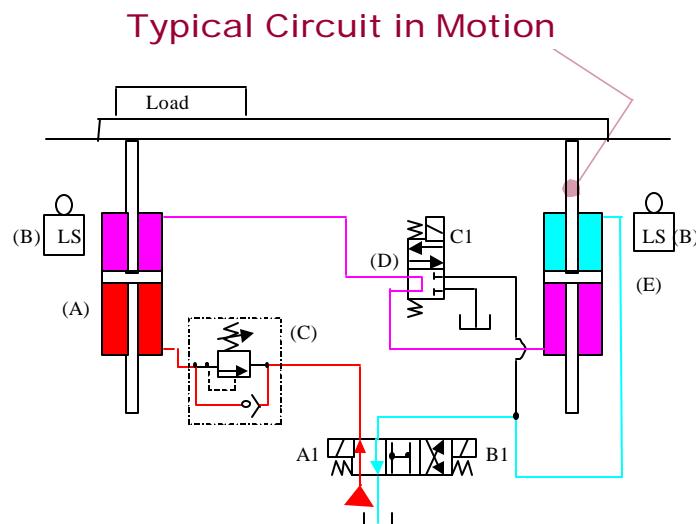


Fig. SYN8 Synchronizing Circuit With Double Rod End Cylinders
In Series Flow Cylinders Extending

Explanation of Action

Energizing solenoid **A1** of the main directional valve, **Fig. SYN8**, sends oil to cylinder (**A**), causing it to extend. Oil from the opposite end of cylinder (**A**) flows through leveling valve (**D**) to the push end of cylinder (**E**). Oil from the opposite end of cylinder (**E**) goes to tank through the main directional valve. When the trapped volume is completely full and all seals do not leak, the cylinders synchronize nearly perfectly, regardless of load position.

To retract the cylinders, energize solenoid **B1** of the main directional valve, **Fig. SYN9**, sending oil to the retract side of cylinder (**E**). Oil from the opposite end of cylinder (**E**) goes through leveling valve (**D**) to the top of cylinder (**A**). Oil from the opposite end of cylinder (**A**) goes to tank through the counter balance valve and main directional

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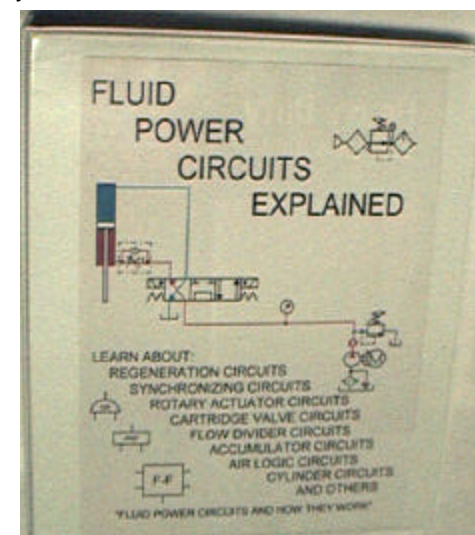
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