

# Hydraulic Control Valve Body

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Matthew Whitten  
Brookhaven College

## AOD Transmission

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- ☐ What pressures control the shift timing and feel.
    - Governor Pressure
    - Throttle Pressure
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## Governor Pressure

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- ☐ What is governor pressure?
  - "The transmission's pressure that is directly related to output shaft speed. Used to control shift points."
  - Hydraulic pressure that is directly proportional to the speed of the vehicle.

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## Types of governors

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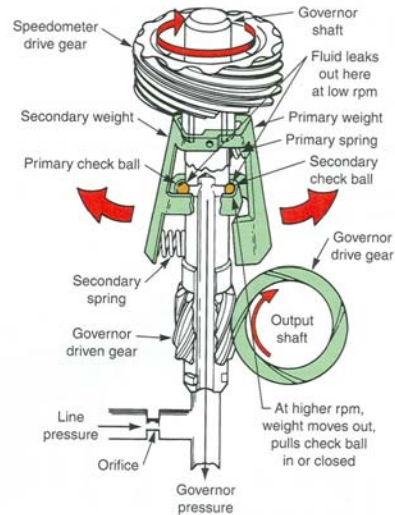
- ☐ Gear driven with spool valve
- ☐ Gear driven with check balls
- ☐ Shaft mounted
- ☐ Note: Line pressure from the manual valve must be regulated down.

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## Gear driven w/ check balls

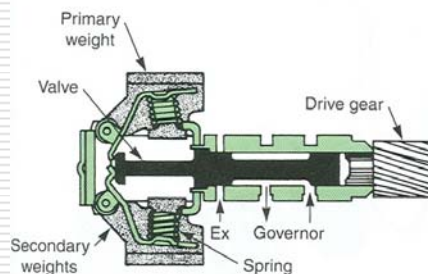
- ❑ Uses only port for governing pressure
- ❑ Hydraulic pressure is dumped to the sump past check balls.
- ❑ As speed increases the weights fly out forcing the check balls to close off the dump.
  - The weights reach around the governor body to the ball on the opposite side.



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## Gear driven w/ spool valve

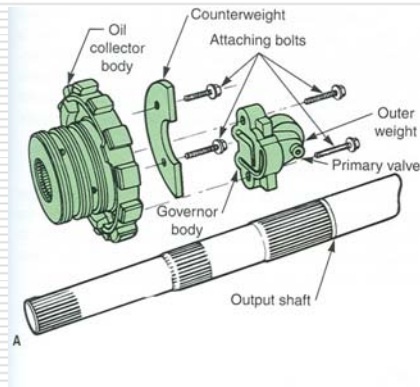
- ❑ Uses pressure inlet line, dump and governor outlet ports.
- ❑ When not spinning the fluid pressure pushes up on the spool valve opening the dump port.
- ❑ The faster it spins the more force the weights push down on the spool valve blocking off the dump port.



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## Shaft mounted

- ❑ Not gear driven, mounted directly to the output shaft.
- ❑ Almost exclusively used on rear wheel drive transmissions
- ❑ Fluid pressure is forced into a spring loaded cap.
- ❑ At low speeds fluid pressure is dumped, the faster the shaft spins the more force the cap exerts on the fluid and spring. This blocks off the fluid dump.



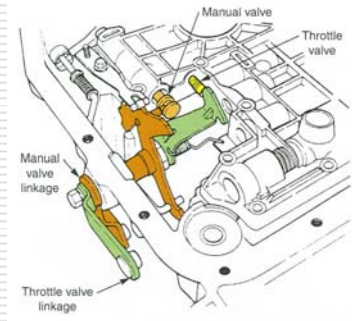
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## Throttle pressure

- ❑ Types of throttle pressures:
  - T.V. Pressure (throttle valve)
  - Vacuum modulator
  - Kick-down/Detent valve

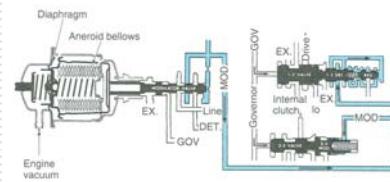
## T.V. pressure

- Constantly acted upon by the accelerator pedal
- As accelerator pedal increases input the higher the T.V. Pressure.
- Uses:
  - May be only engine load input.
  - May be used with vacuum modulator valve.
  - May include some component of a Detent valve.



## Vacuum Modulator

- Used to give load of engine signal to transmission.
- Uses manifold vacuum.
- High vacuum = low engine load.
- Low vacuum = high engine load.
- Uses:
  - Must be used with kick down or T.V.



## Kick-down/Detent Valve

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- ☐ Simply provides the transmission with a throttle input which would require a downshift.
  - ☐ Only activated with close to or at WOT.
  - ☐ Uses:
    - May be integrated into T.V. operation
    - May be independent of T.V. operation
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## What happens when we ...

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- ☐ Vehicle stopped in Drive ?
    - Governor: Minimum pressure, does not rise
    - Throttle pressure: Minimum pressure, does not rise
  - ☐ Vehicle stops accelerating?
    - Governor:
    - Throttle pressure:
  - ☐ Slowing to a stop?
    - Governor:
    - Throttle pressure:
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## What happens when we ...

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- ☐ Slowing to a stop?
    - Governor:
    - Throttle pressure:
  - ☐ Vehicle is cruising at steady speed light throttle input?
    - Governor:
    - Throttle pressure:
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## What happens when we have a problem?

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- ☐ Governor pressure never increases from minimum?
    - Concern:
  - ☐ Governor pressure is always at maximum?
    - Concern:
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## What happens when we have a problem?

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- ☐ Throttle pressure never increases from minimum?

- Concern:

- ☐ Throttle pressure is always at maximum?

- Concern:

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