

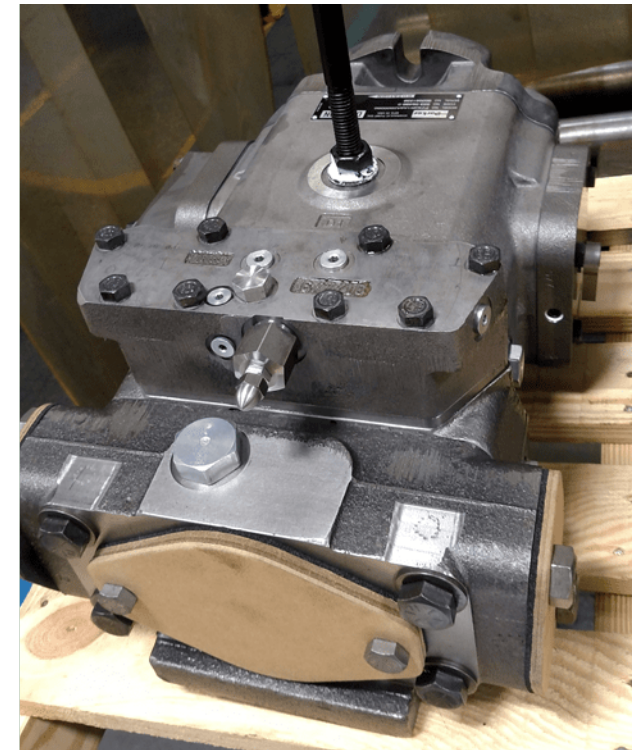
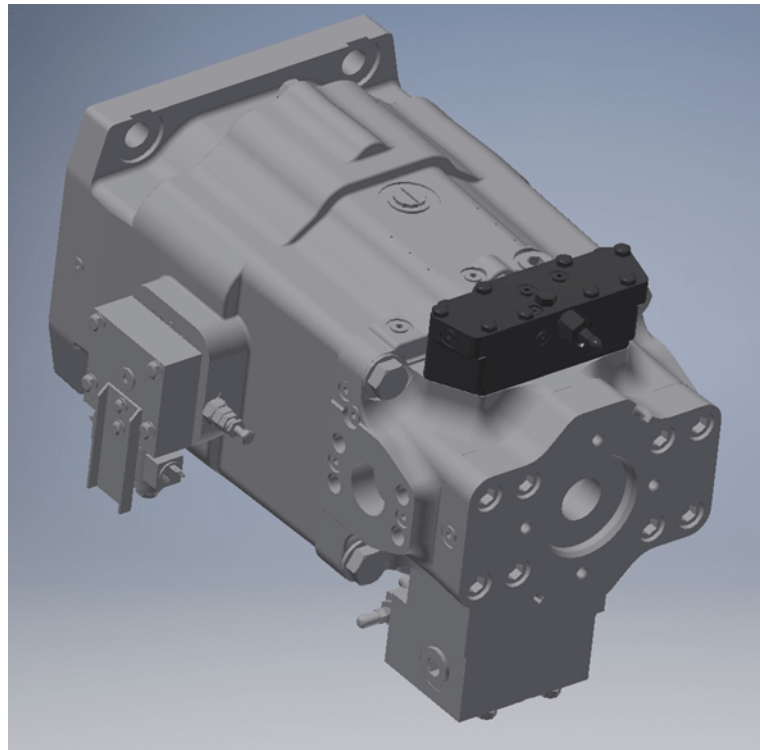
Gold Cup Training – Understanding the Valve Block

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“Brain” of the Gold Cup

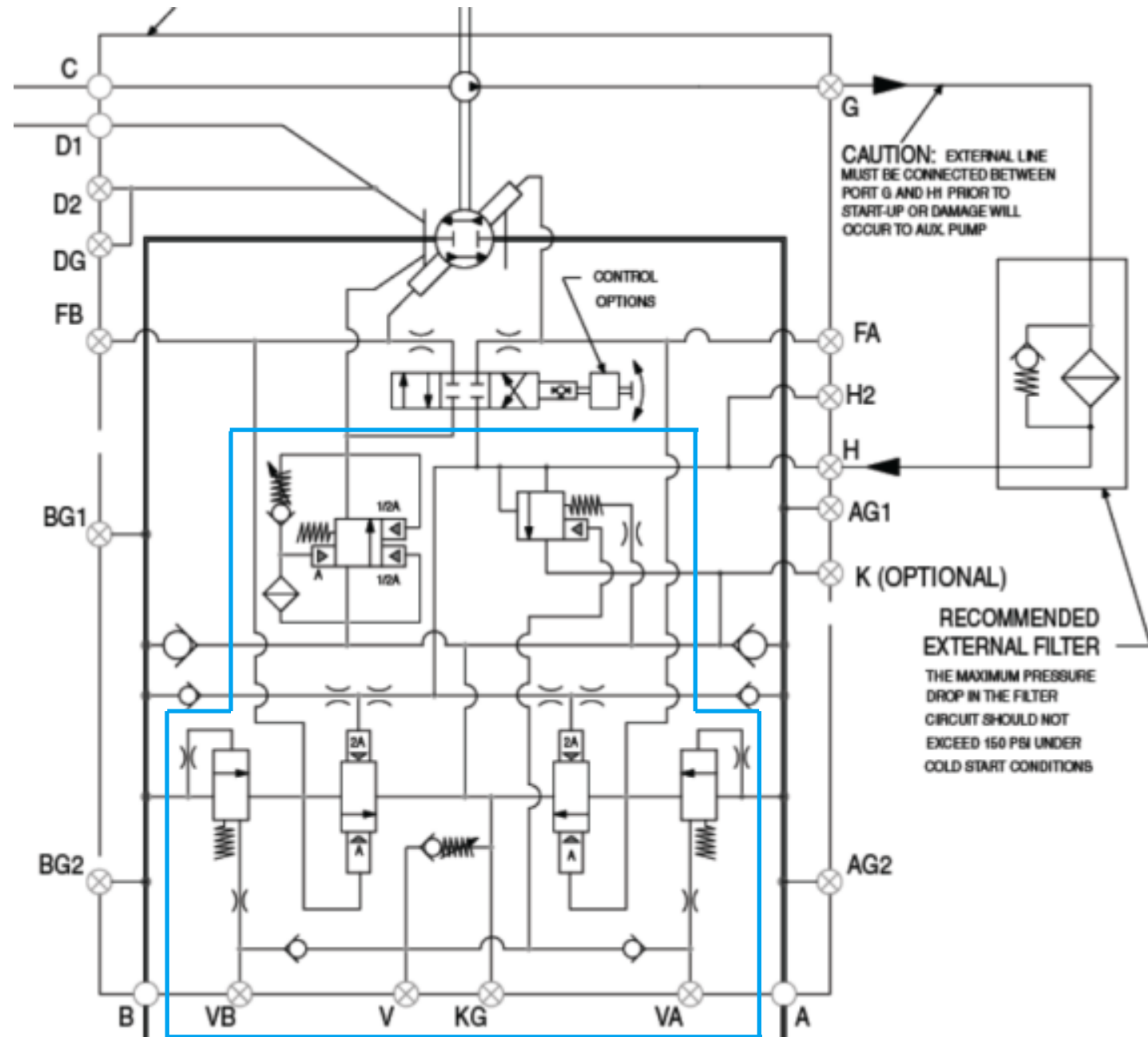
Common to All Gold Cup Pumps

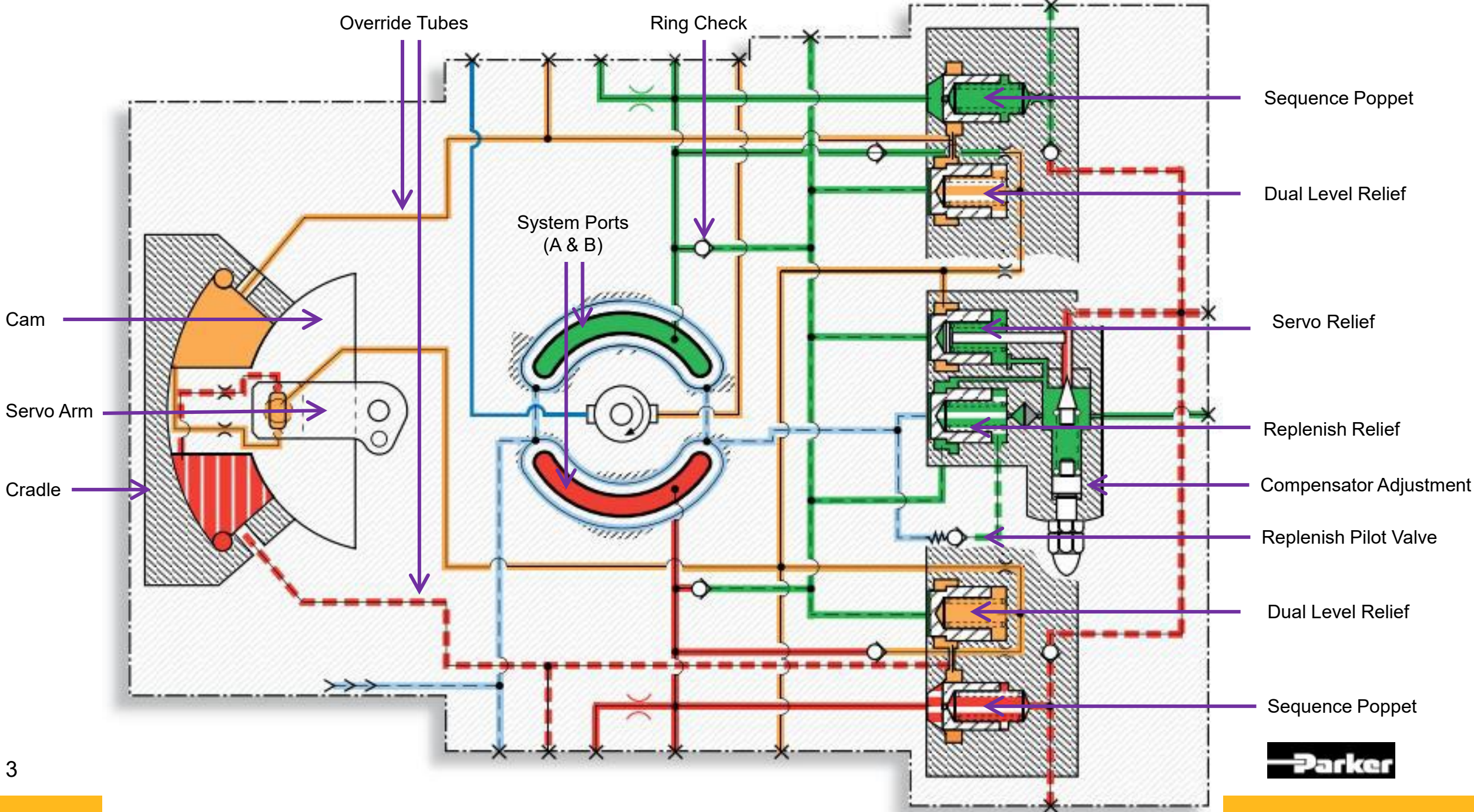


ENGINEERING YOUR SUCCESS.

Typical Gold Cup Circuit Schematic

Blue outlined area represents the Valve Block components





Override Tubes

Ring Check

Sequence Poppet

Dual Level Relief

System Ports
(A & B)

Servo Relief

Cam

Replenish Relief

Servo Arm

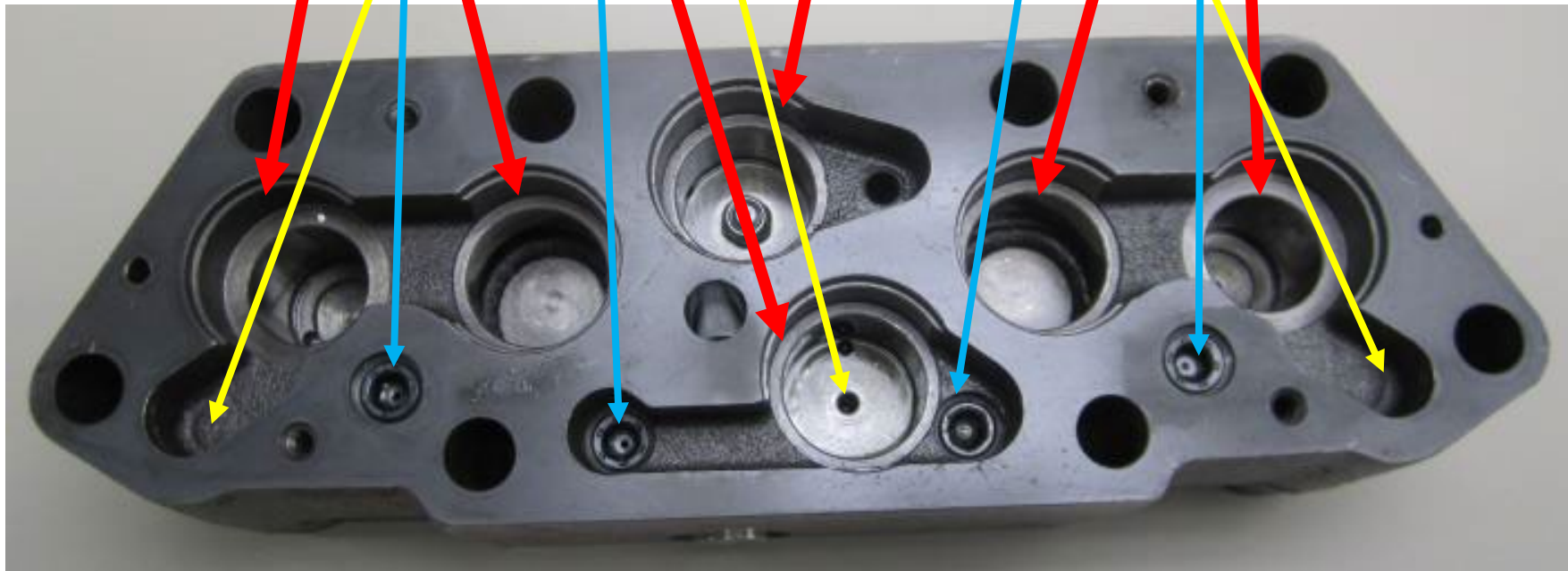
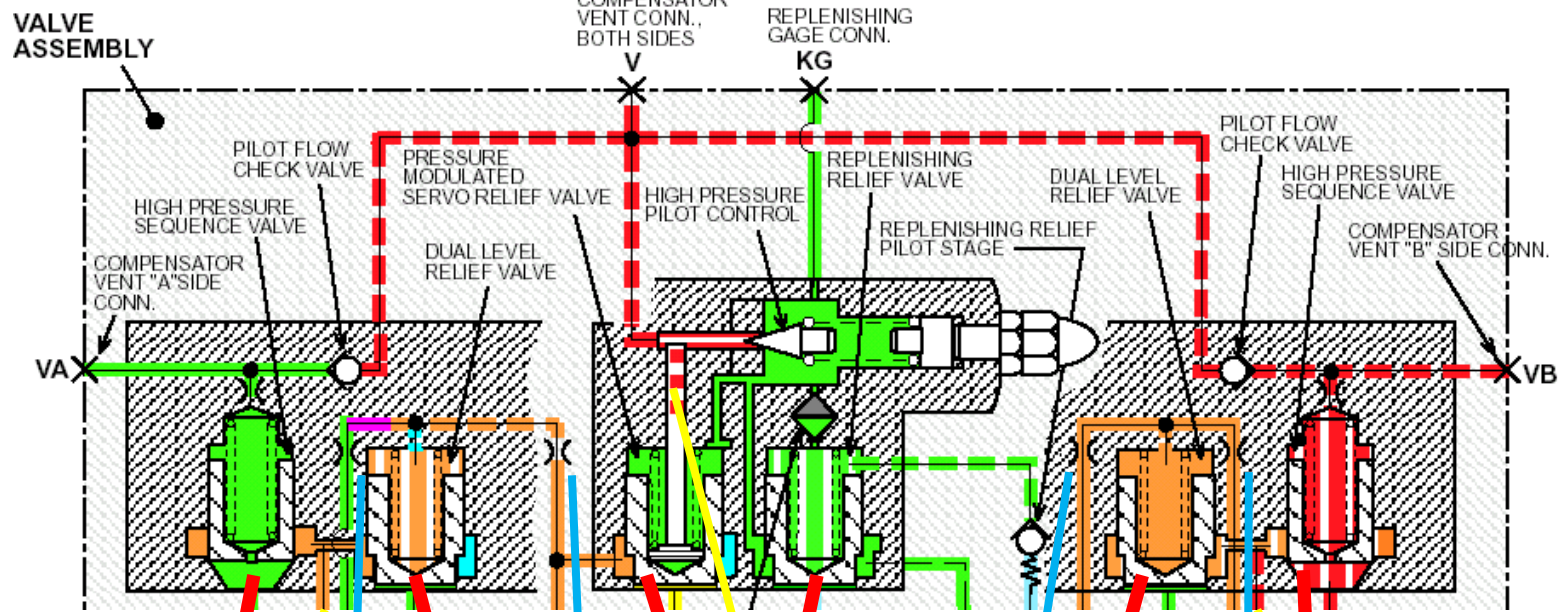
Compensator Adjustment

Cradle

Replenish Pilot Valve

Dual Level Relief

Sequence Poppet



Isolation Check Valve



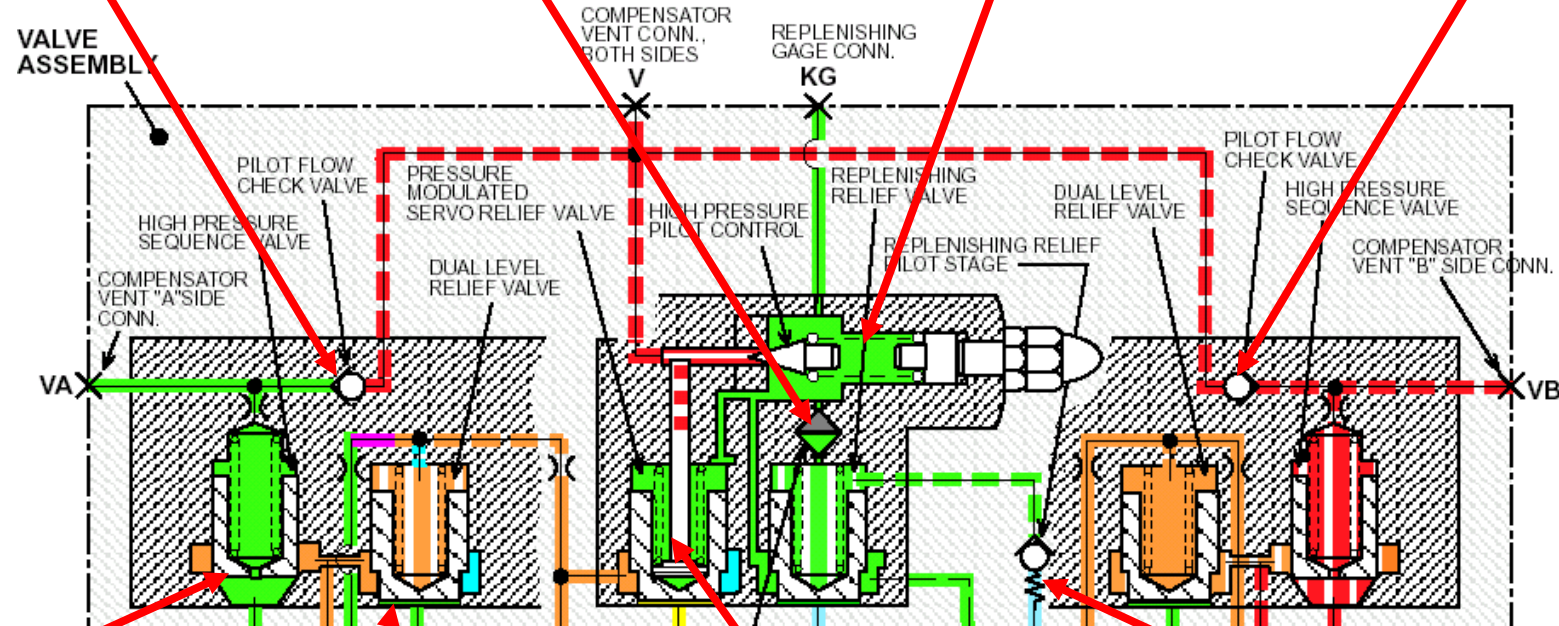
Strainer Assembly



Compensator Assembly



Isolation Check Valve



Sequence Poppet and seat



Dual Area Poppet and Seat

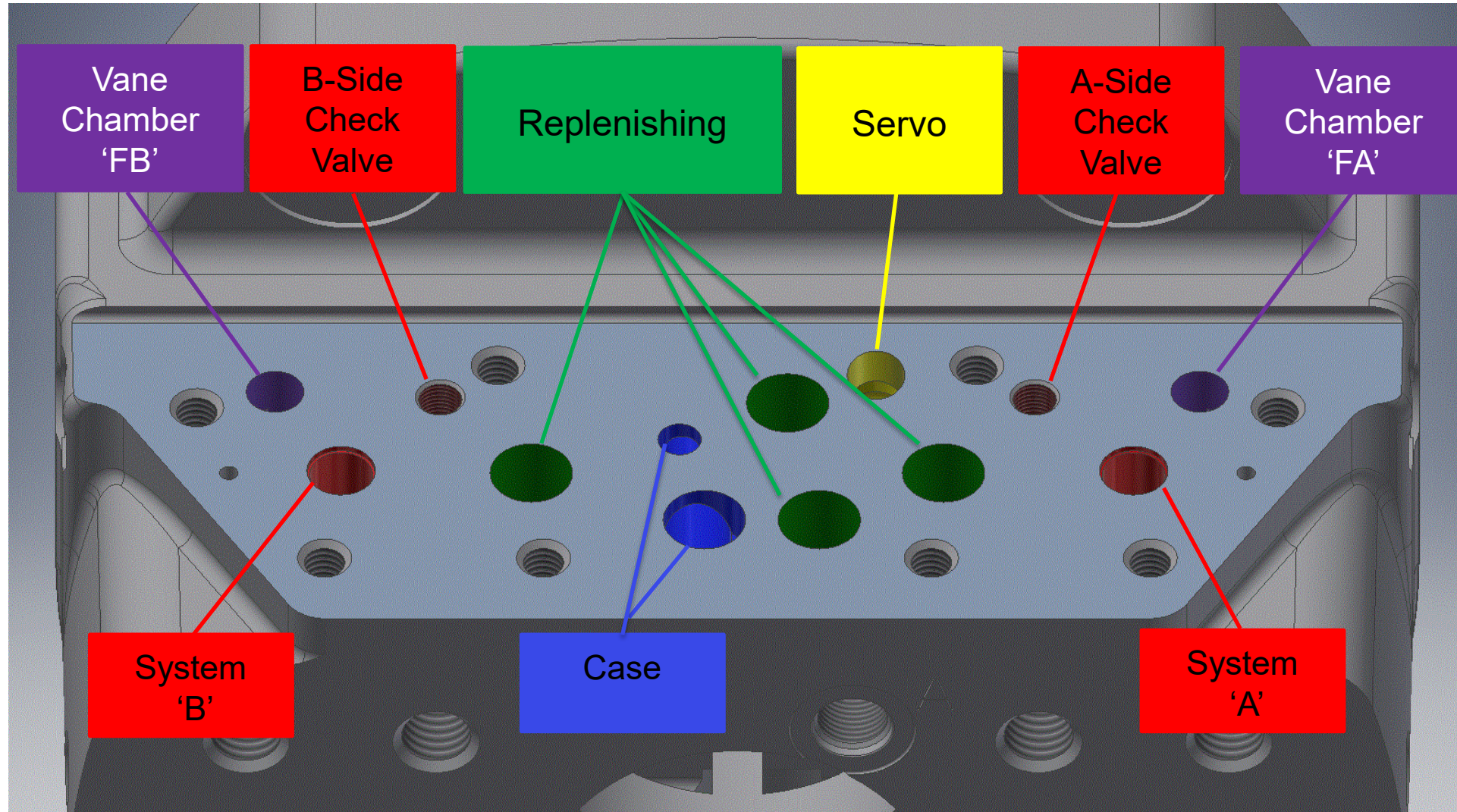


Plunger & Modulating Pin



Replenish Relief Pilot Stage Valve

Interface to Pump



What functions does the standard Valve Block perform?

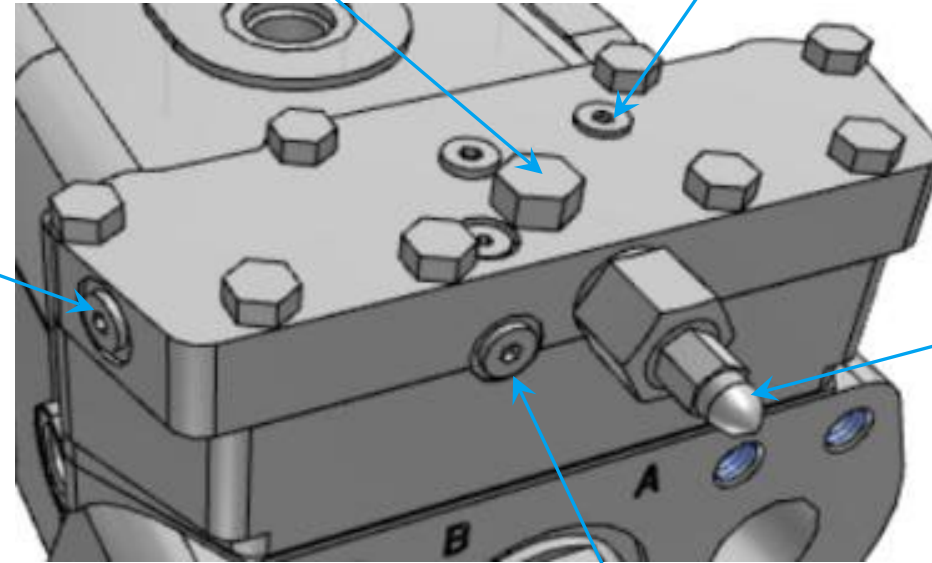
- **Compensator setting**
 - Limits pressure. Protects system from over pressurization (or over torque for motors)
- **Replenish pressure regulation**
 - Maintains low pressure leg to protect against cavitation
- **Servo pressure modulation**
 - Power savings and ensures adequate pressure to stroke pump at full pressure & disp.
- **Dual level relief valves**
 - Provides relief protection to the main system legs and stroking chambers
- **Isolation check valves**
 - Enables A & B vent galleries for independent pressure settings

Port Identification

KG (SAE-6 STR. THD):
Replenish pressure gage
connection

V (SAE-4 STR. THD): Common
compensator vent connection
- Approximately 0.5 gpm pilot flow
- Often used as a high-pressure gage port

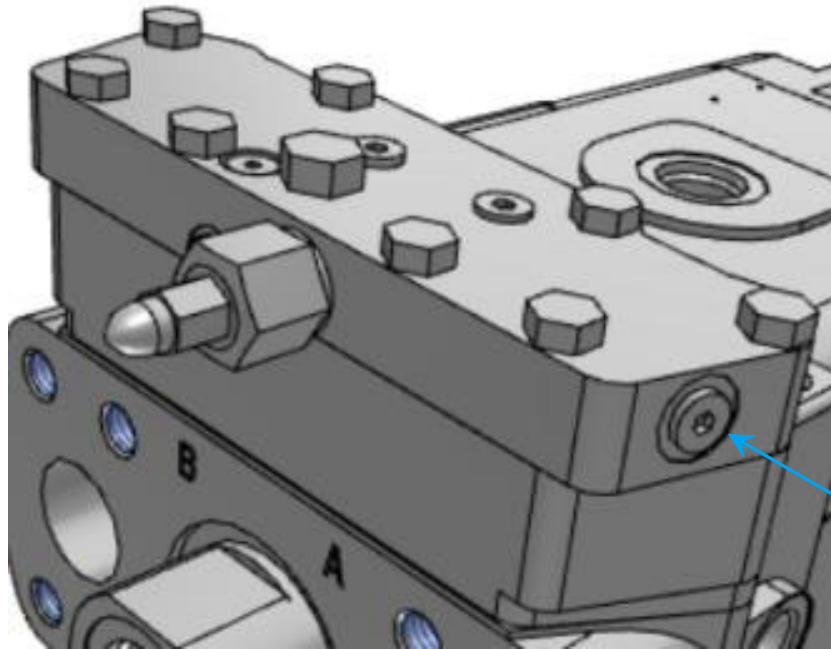
VB (SAE-4 STR.
THD): Individual ("B"
side) compensator
vent connection



Compensator
Adjustment

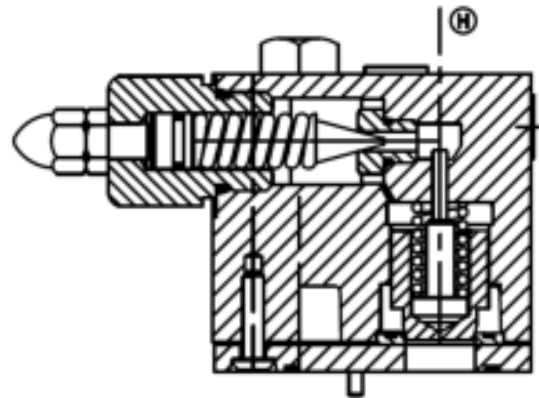
VA (SAE-4 STR. THD):
Individual ("A" side)
compensator vent
connection

(SAE-3 STR. THD): Access port for
replenish relief pilot stage.
**Caution: Never open when unit is in
operation.**

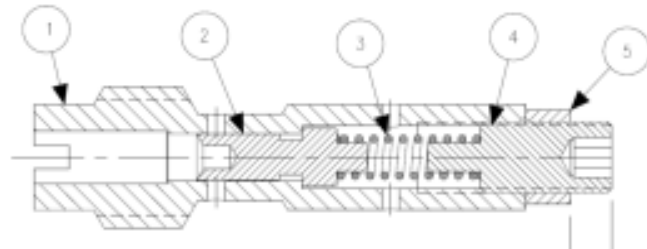


Adjustments

- Pressure Compensator (2000 psi/turn)



- Replenishing Pilot (160 psi/turn)



Located Under
SAE-3 Plug on
Front of Valve Block



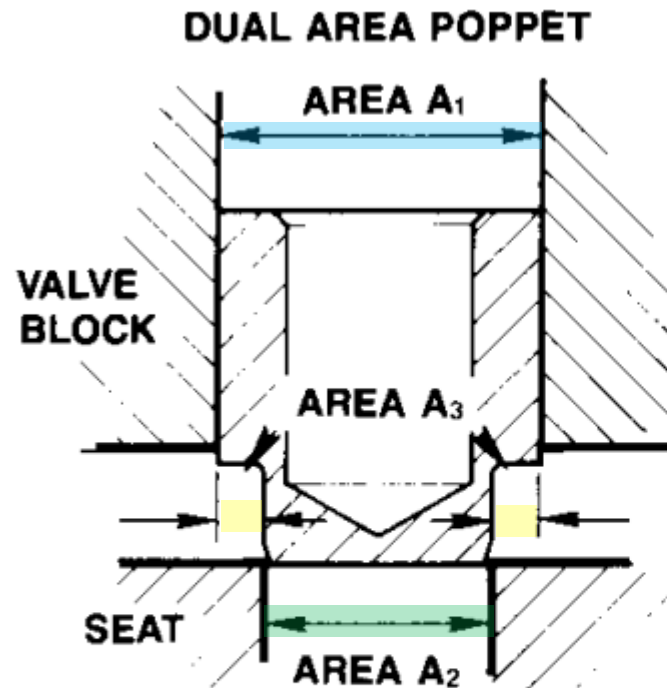
Poppet Concept

≈ 2:1 Area Poppets

Dual Level Reliefs

Servo Relief

Replenish Relief



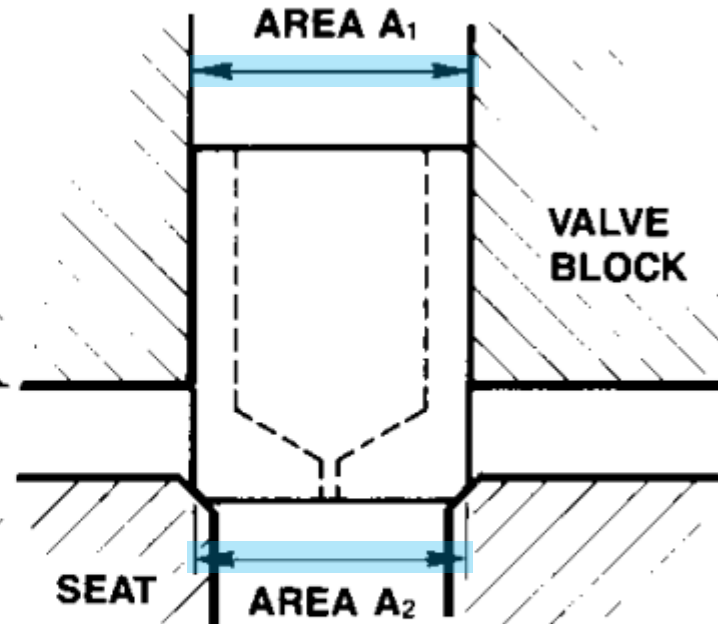
$$A_1 \approx A_2 + A_3$$

$$A_2 \approx \frac{1}{2} A_1$$

$$A_3 \approx \frac{1}{2} A_1$$

$$A_2 \approx A_3$$

SEQUENCE POPPET

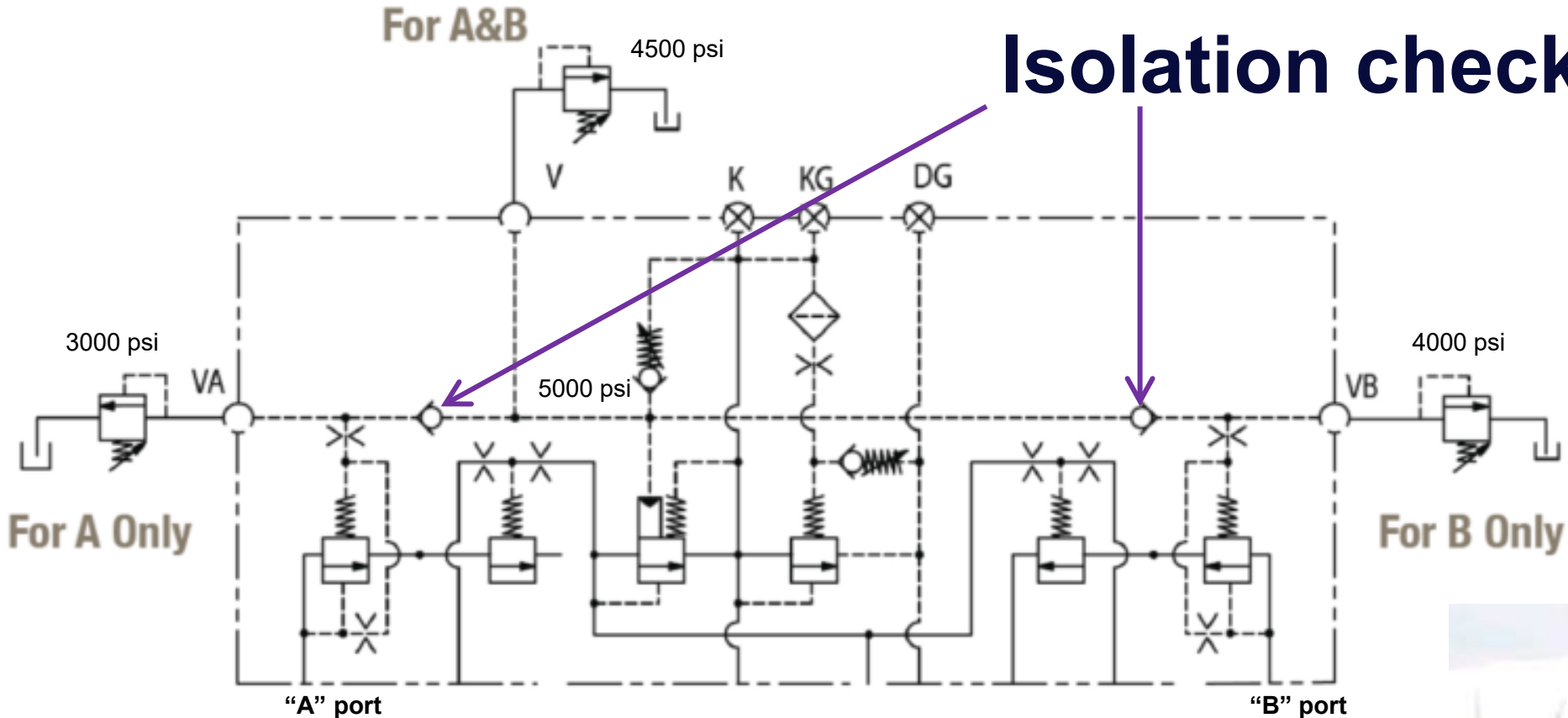


$$A_1 = A_2$$

1:1 Area Poppets

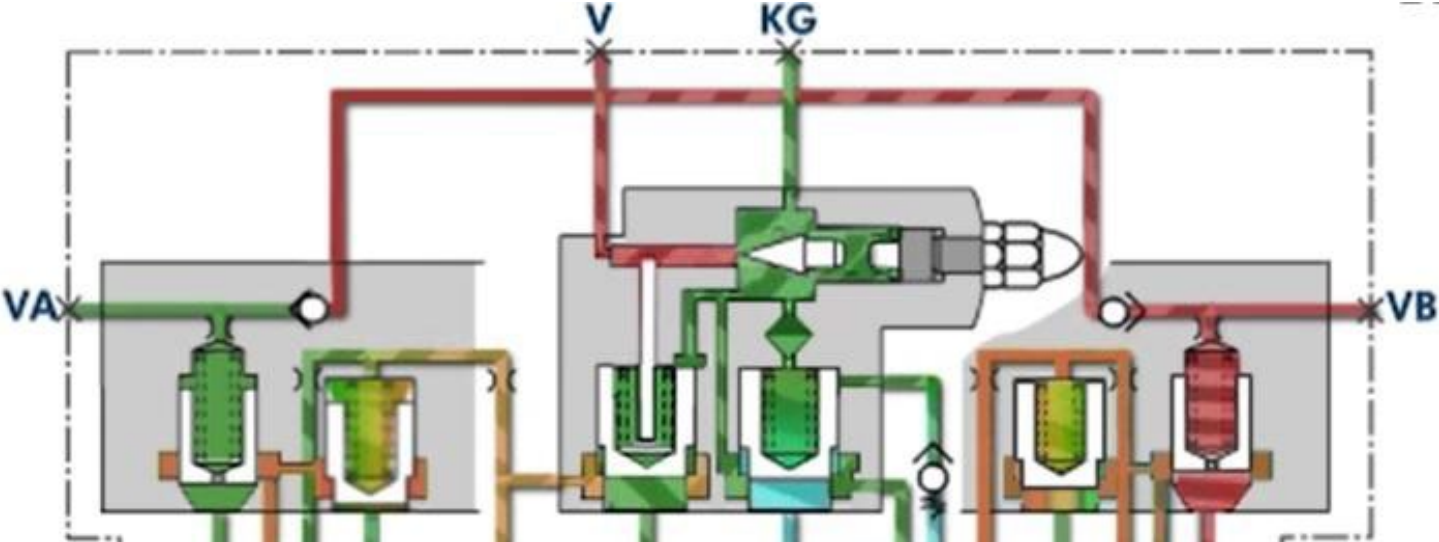
Sequence Valve

Isolation check valves



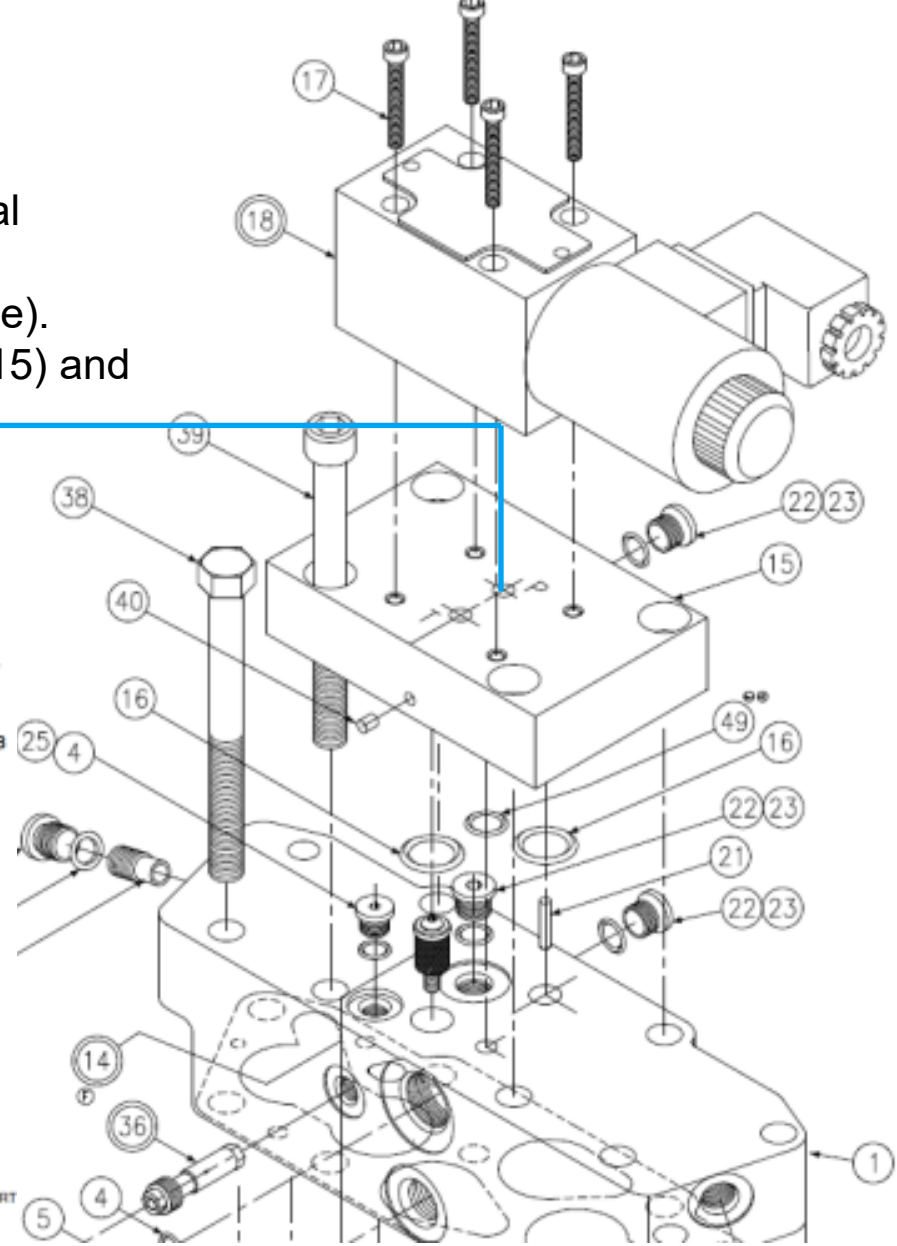
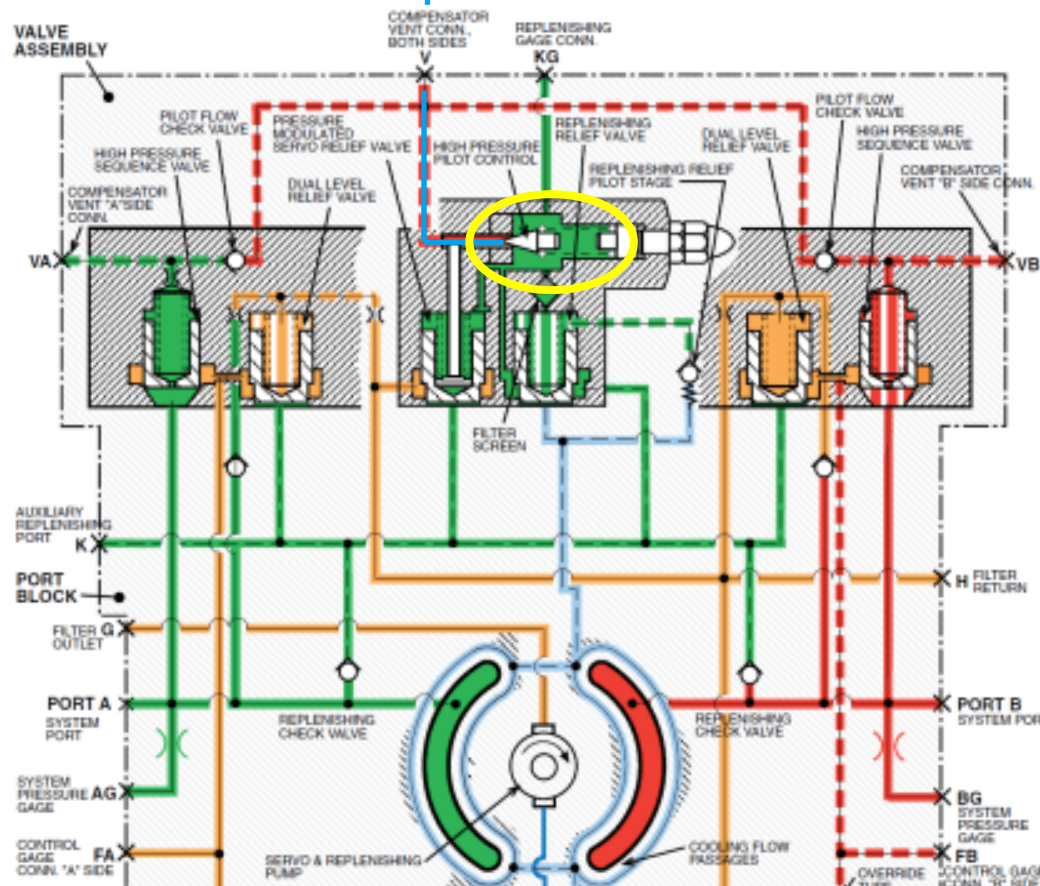
Applications

Gold Cup pressure control is ideal for constant tension circuits (fishing lines, mooring winches, cable installation)



Electronic Pressure Control

The Electronic pressure valve functions in parallel with the mechanical compensator (cone, spring, and seat circled in yellow). It's "P" port communicates to the "V" port passage of the valve block (see blue line). The "T" port (drain) will exit the back side of the adapter block (item#15) and be tubed directly to the pump case.



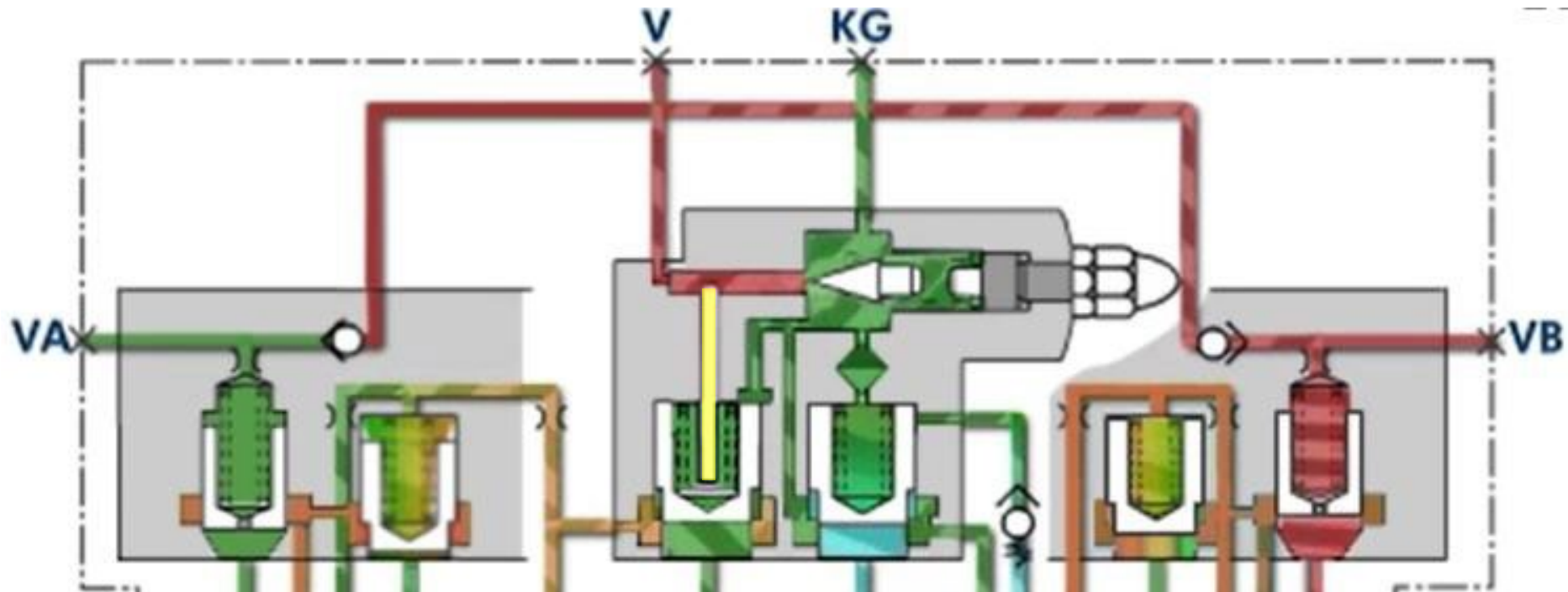
Common Valve Blocks

- S23-12742-0...Standard P6-24
- S23-12795-0...Standard P30
- S23-12771-0...P*D Valve Block (Higher Servo)
- S23-12784-0...Flushing Orifice in Place of Replenish Pilot
- S23-16476-0...HI-IQ

Valve Block – Standard 6/24

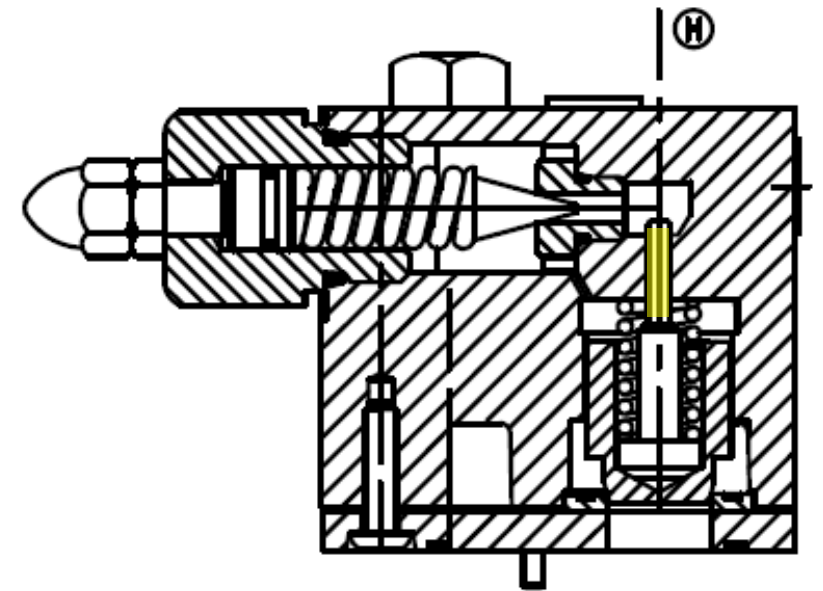
S23-12742-0

- Includes all functions w/ **.125** diameter modulating pin, resulting in servo increasing **40 psi** per 1000 psi system pressure

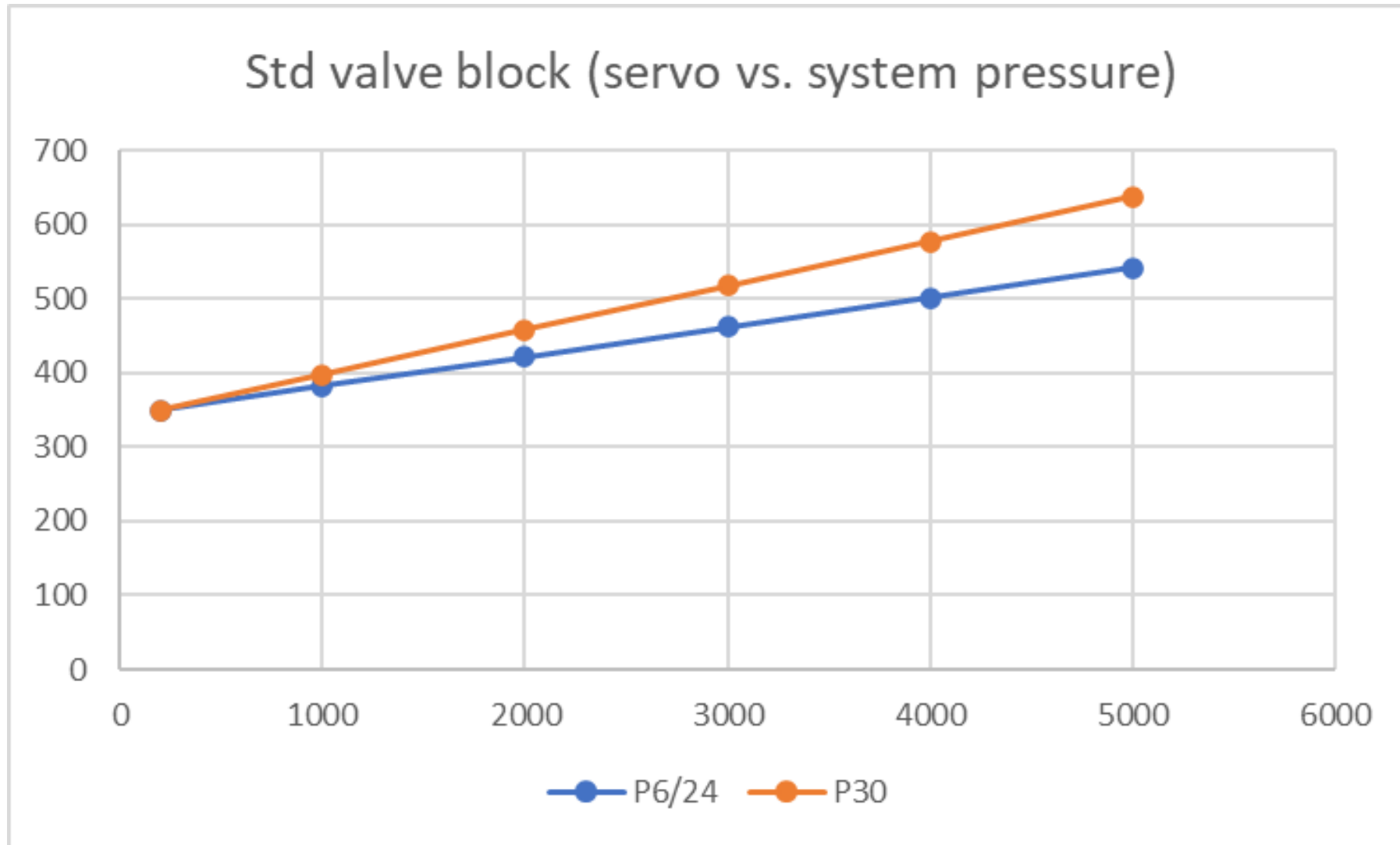


Valve Block – Standard 30 S23-12795-0 (Ref: 12742)

- The only difference between this valve block and the standard one used for size 6-24 is the size of the modulating pin.
- The P30 requires higher servo pressure to control the cam. Standard servo pressure would not be able to stroke the pump to full displacement at max system pressure.
- Includes all functions w/ **.156** diameter modulating pin, resulting in servo increasing **60 psi** per 1000 psi system pressure



Modulated servo pressure.



Question:

How do you set servo pressure on a Gold Cup?

Answer:

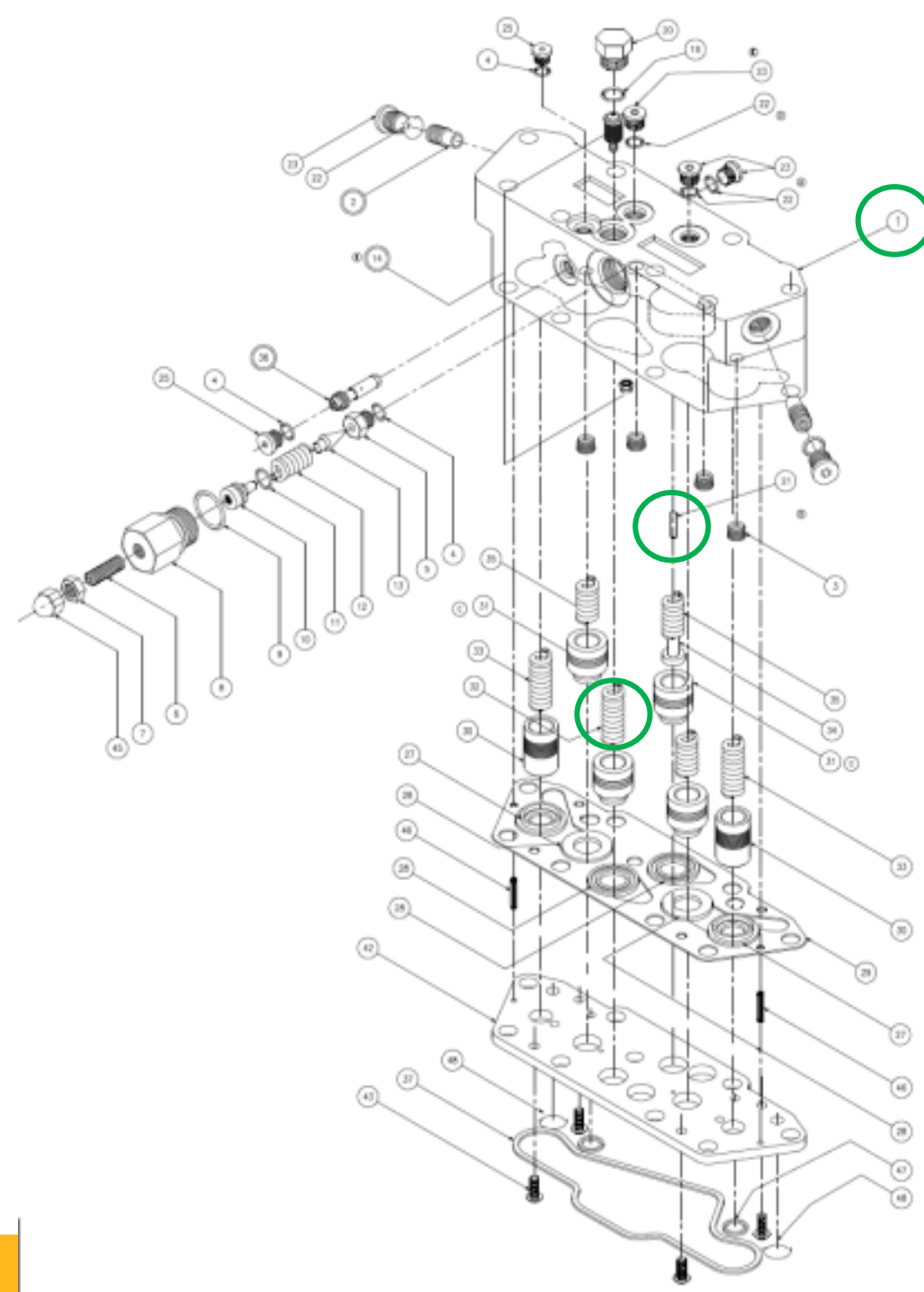
Servo pressure is non-adjustable. It's typically about 200 psi above replenish setting and automatically regulated.



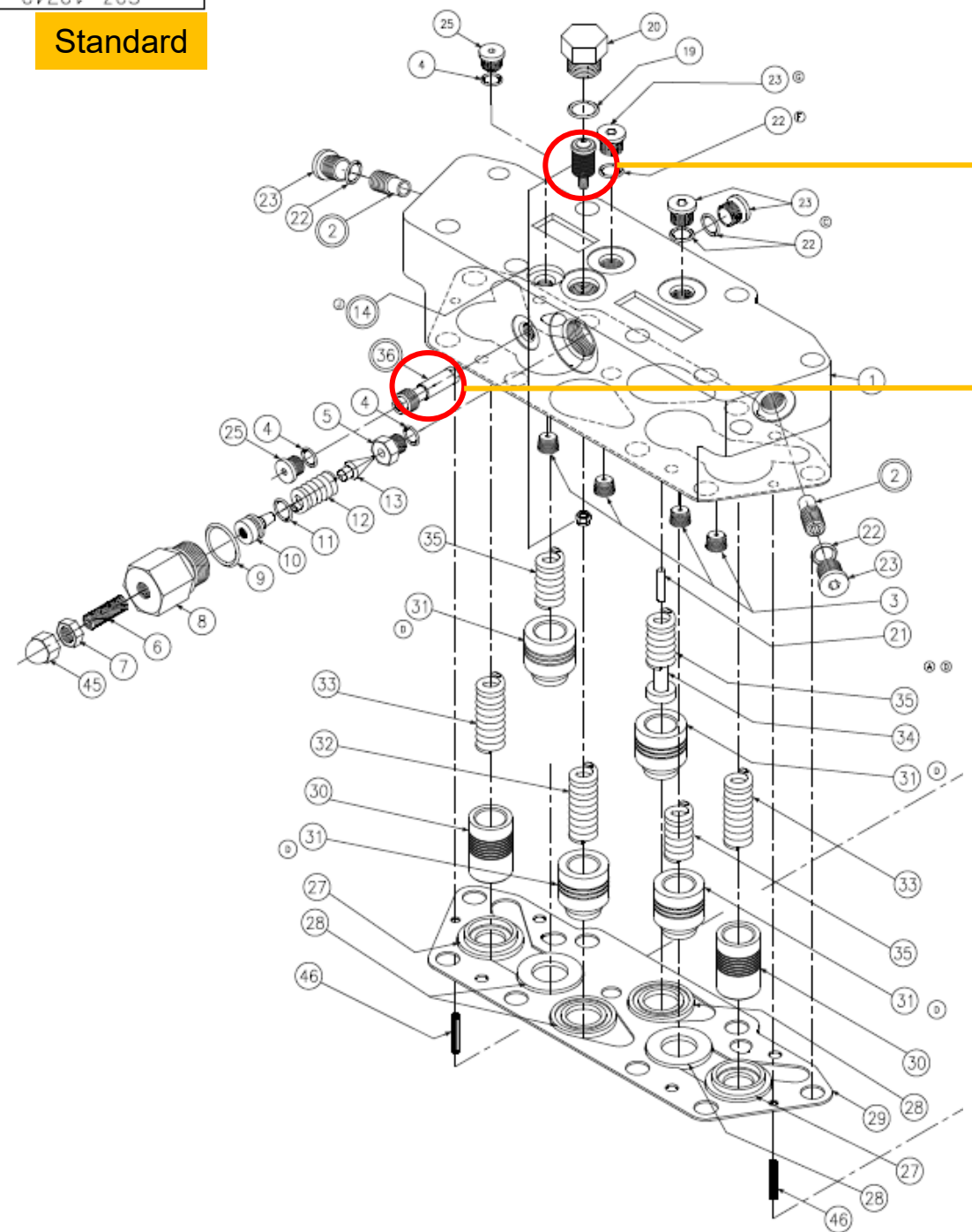
Valve Block P*D

S23-12771-0

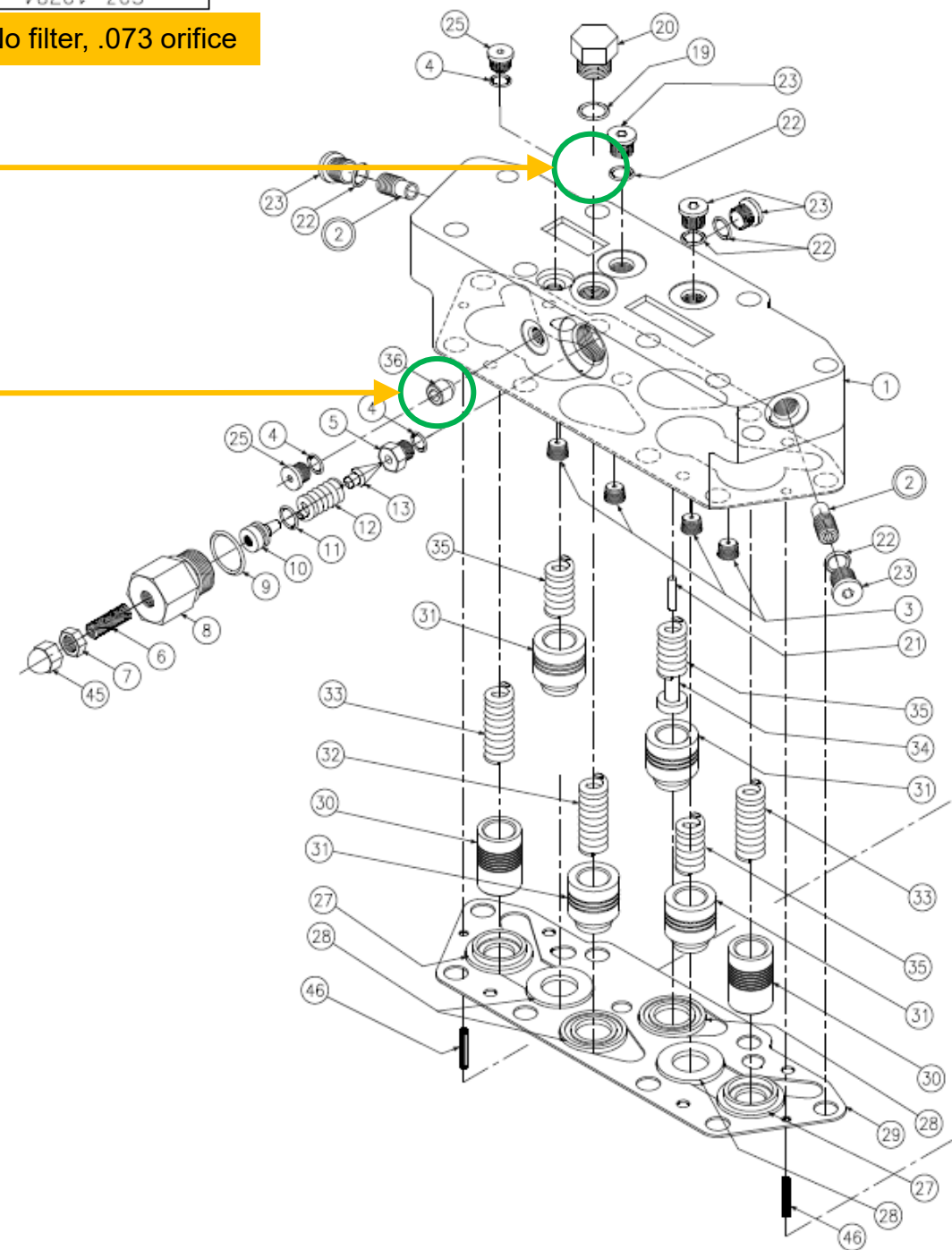
- For applications that use the pump in open and closed circuits
- When in an open circuit mode, replenishing pressure drops very low. Recall that replenish pressure sits on top of the servo poppet.
- To ensure we have adequate servo to stroke the pump in this condition the valve block with larger modulating pin is used, plus a heavier replenish poppet spring.
 - The heavier spring (033-72693-0) puts about 11.5 lbs on top of the replenish poppet vs. about 3.3 lbs with the standard spring.



Standard



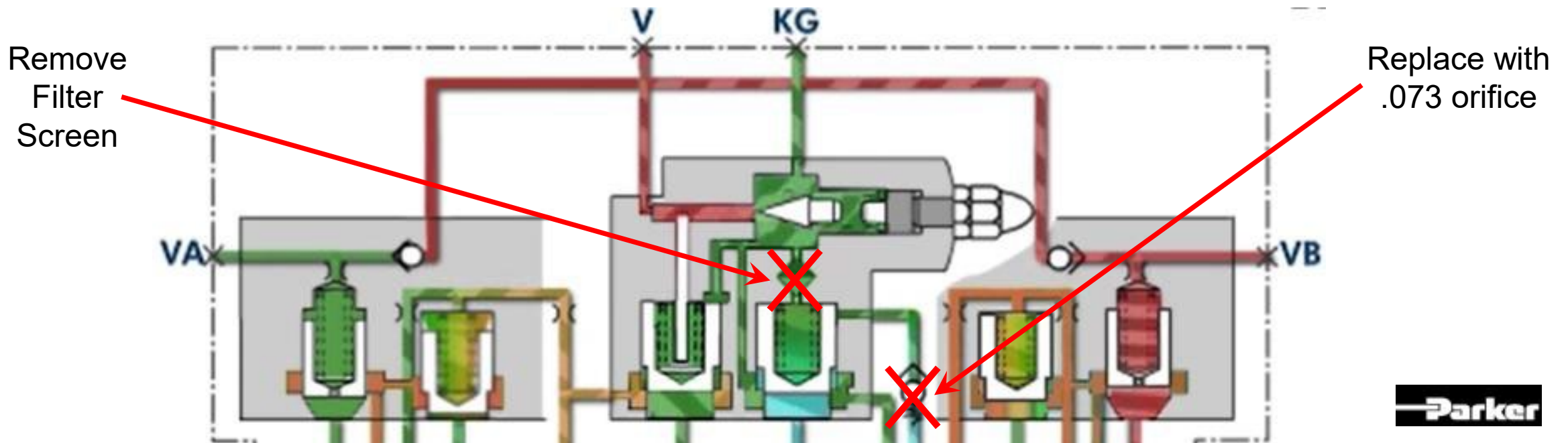
No filter, .073 orifice



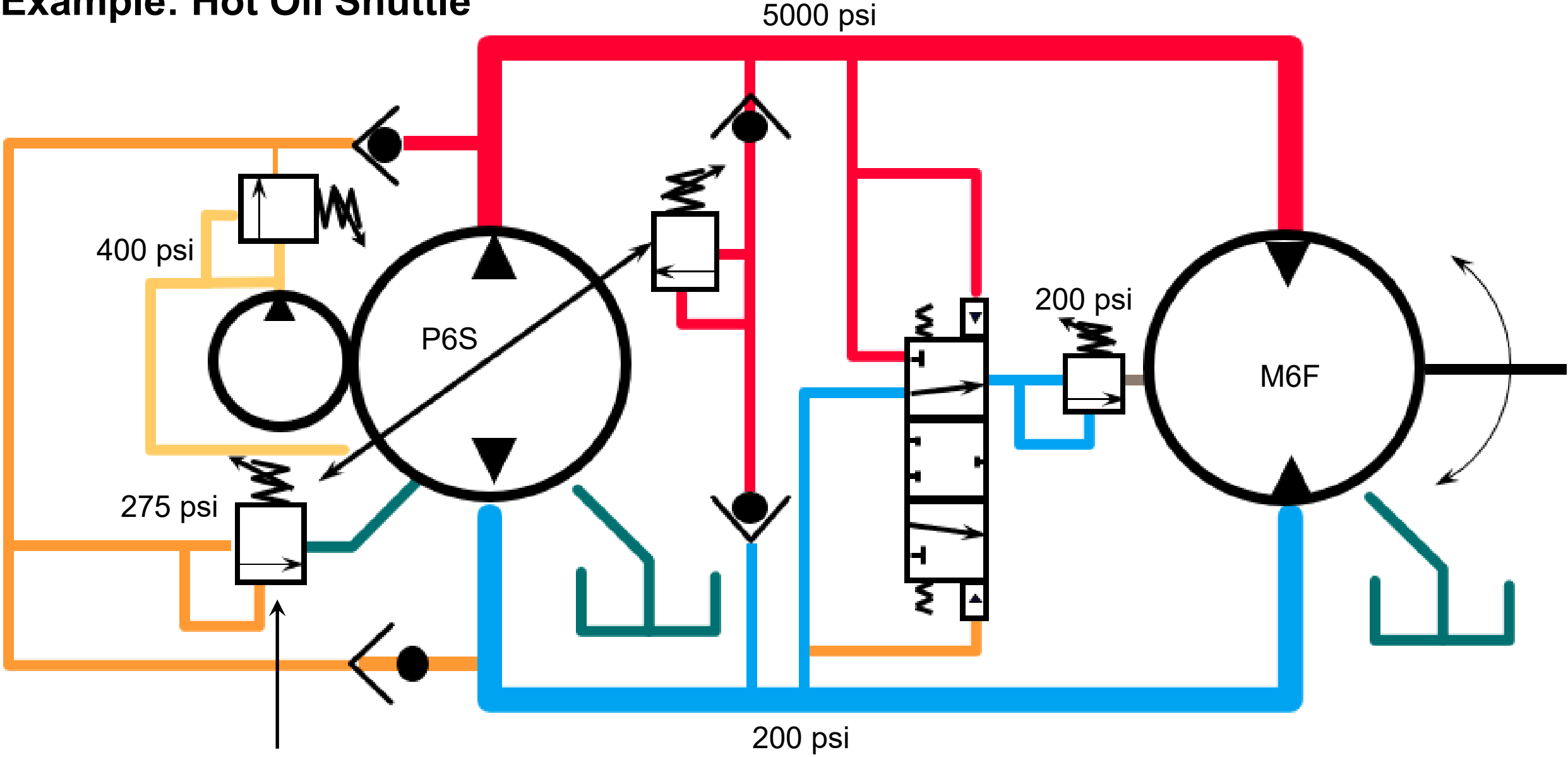
Valve Block – No Filter .073 orifice 6-24

S23-12784-0

- This valve block is often used when continuous case flushing is desired, and the low leg pressure is controlled by the hot oil shuttle valve (see next slide).
- The replenish pilot valve is replaced by an orifice and the filter is removed. If the filter is not removed, you will not be able to build replenish pressure.



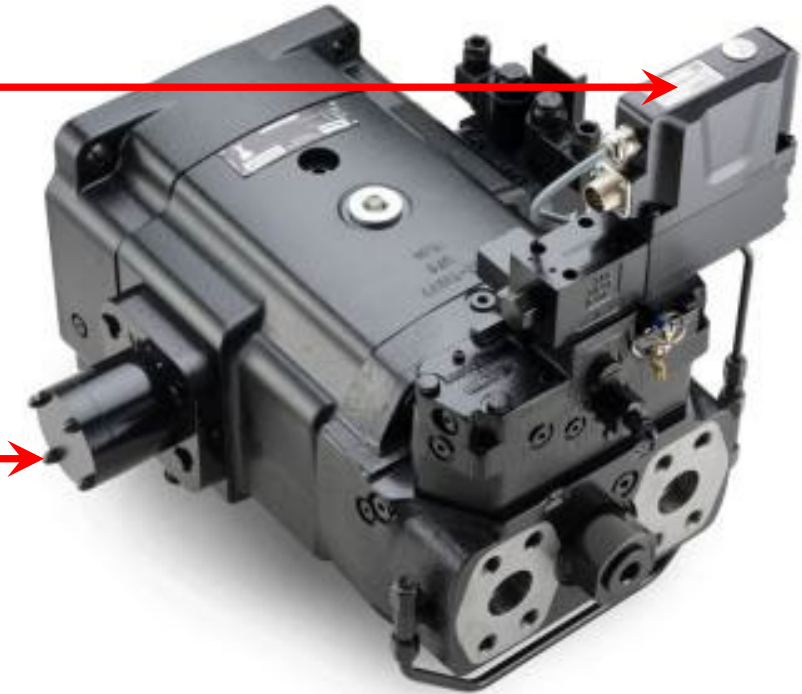
Example: Hot Oil Shuttle



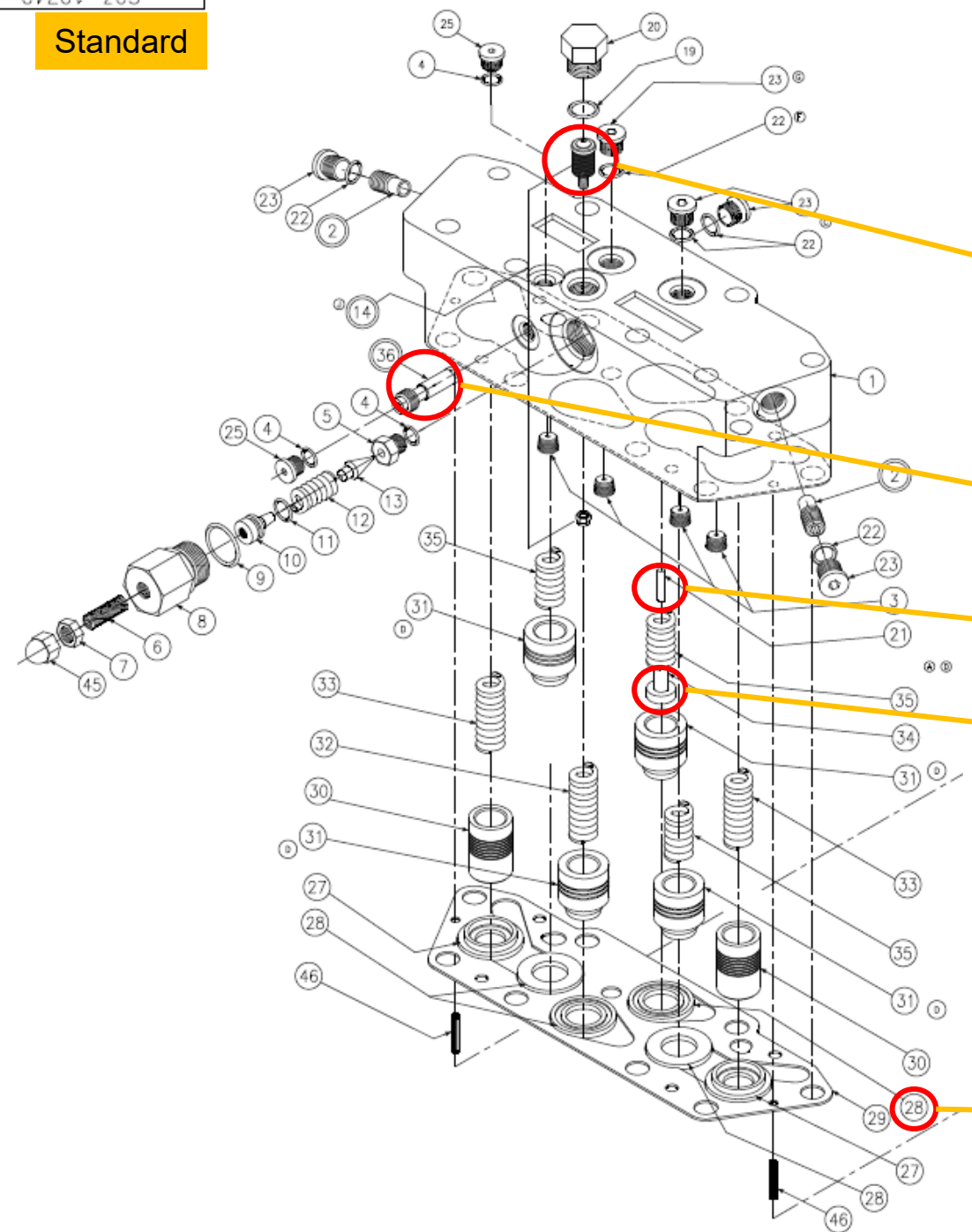
Replenish Pilot Relief valve would be replaced by an orifice, if case cooling was needed.

Valve Block – Hi-IQ 7J*-00 No Pilot RV S23-19035-0 (Std version S23-16476-0)

- The Hi-IQ valve block allows us to mount a servo valve or Parker DF+ valve for high flow control directly to the vane chambers.
- This is used as the primary control.
- Cam feedback is required.
- Purpose: Fast response applications (ship steering, gun turret, reciprocating cylinders)



Standard



Hi-IQ

