

# Gold Cup Commissioning / Start-up



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# Pre-Start Up Check List

- Has plumbing been properly flushed?
  - High velocity flushing is recommended
- Are the correct types of hoses being used for the application?
  - Reference Parkers Hose Acronym “STAMP” (Size, Temperature, Application, Media, Pressure) to specify
- Do hose lengths pose any compressibility issue for the application?
  - Dynamic systems with high compressibility often use an accumulator in the “K” port to ensure adequate replenish pressure.
- Is the proper size plumbing being used to keep fluid velocities within limits?
  - Maximum Recommended Velocity (see Lightning Reference Handbook)
    - Suction: 4 ft/sec
    - Return Lines: 10 ft/sec
    - Pressure Lines: 15-30 ft/sec
  - Case drain and inlet ports not to be reduced
- Eliminate as many bends and 90 degree fittings in auxiliary pump suction lines
- Is correct fluid grade being used for the application?
- Is the fluid compatible with the component seal type chosen?
- Has fluid been filtered to acceptable component requirements?
  - NOTE: A new drum of oil is not always at a cleanliness level required for hydraulic components.

# Pre-Start Up Check List (continued)

- Pump / Motor cases along with system lines have been filled with fluid?
  - Remove as much air from the system as possible.
- Is plumbing all installed and routed to the correct port locations.
  - See “Port Selection ID” tab
- Has system been designed to provide adequate cooling and filtration?
- Are case drain and suction shut-off valves (ball valves) open?
- Have drive shafts been lubricated and checked for proper alignment?
- Has pump rotation been confirmed to be the same as rotation of prime mover?
  - Pump rotation is denoted as viewed from shaft end.
- Have pressure relief adjustments been reduced to eliminate starting under load?
  - Venting or reducing the pressure compensator setting on the valve block is one method of reducing the load.
- Are operating conditions designed to be within catalog limits (speed, pressure, etc)?
- Conduct safety check for potential risks upon start up.
  - Is there any danger if actuators begin moving at start up?

# Start-Up

- Ensure Pre-start up check list items have been considered
- Some systems may contain an auxiliary circuit that is started prior to starting the main pumps. This can be used to provide external replenish and/or servo flow to stabilize the system and fill lines. This method also uses servo to bring the Gold Cup to its default position prior to start-up.
- Reduce pressure compensator or system reliefs to 1000 psi (70 bar) or less
- For electric drives, jog the system a couple times and watch to see that replenish and servo begin to build pressure. For engine drives, crank the engine without starting for 15 seconds and watch to see that replenish and servo begin to build pressure. Check for leaks.
- If possible, start the unit and run at 1500 rpm or less. If replenishment pressure fails to rise to 200 psi within 30 seconds shut down; otherwise idle for 15 minutes, slowly stroke the pump in both directions to purge air from the lines. If replenishment pressure drops off during stroking, limit maximum displacement until the system purges itself of air. Make sure brakes are released so motors will rotate.
- If possible, continue break-in process as below
  - run system at 50% stroke and 50% pressure for 15 minutes
  - run system at 75% stroke and pressure and 75% rated speed
  - run the system for a few hours at 75% rated speed and pressure until temperature stabilizes.

Note: The above steps for starting a new system or a new pump at very low pressure may need modified to fit the system. It is not good practice to run in a new pump at very low pressure and high speed because of lack of lubrication from low internal leakage.

# Start-Up Additional Considerations

- **Mechanical Over-ride:**
  - The Hydraulic Stroker (8A) and the Electro-Hydraulic Stroker (9A) control both come standard with a mechanical over-ride. This is the shaft in the center of the control for the 8A and it is located beneath the SAE plug in the center of the control for the 9A. This cavity on the 9A control is sealed, so the SAE plug can be removed at any time to access the servo stem. Using an Allen wrench, the Gold Cup can be manually commanded on stroke. The over-ride control is often used during commissioning to ensure the pump is functioning as expected. Being next to the pump as it's being commanded on stroke for the first time allows the operator to listen for any unexpected or strange noises.
- **Cold Startup:**
  - During cold startups, the diesel engine, hydraulic components and hydraulic oil must reach minimum operating temperature before full power may be used. Full power operation at temperature below these minimums may damage components and will hasten their eventual failure.
  - Hydraulic component minimum temperatures are a function of both mechanical strengths and fluid viscosities. At lower temperatures, the fluid and the components in the system should be brought up to temperature at low shaft speeds, low pressure and low displacements. When the minimum full power viscosity is reached, the speed, pressure and displacement may then be increased.