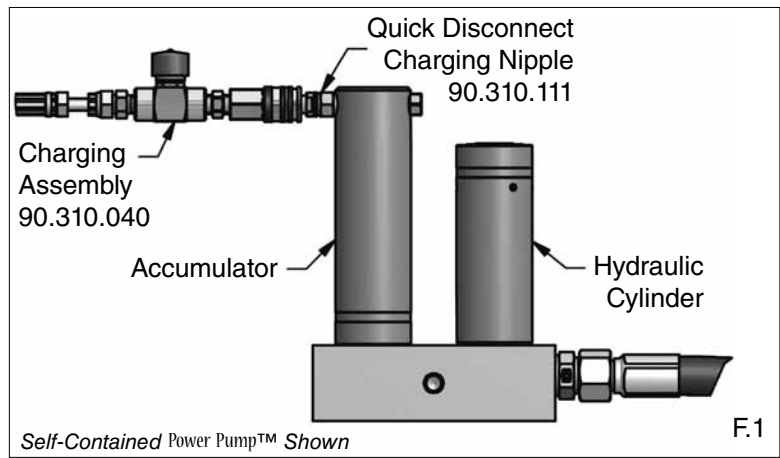


DADCO has established system setup and operating specifications for its Power Cam™ and Power Pump™ System to help ensure customer safety and to optimize product performance. Review the guidelines in this bulletin carefully.

CAUTION: Always wear safety goggles when performing any maintenance work.

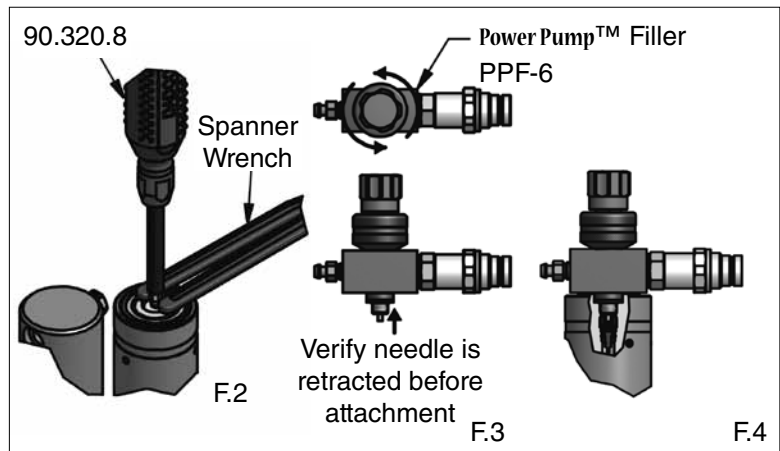
Pressurizing the Accumulator

1. Verify that the Power Pump™ (Hydraulic Cylinder and Accumulator) is vertical at all times during filling.
2. Remove the port plug for self-contained systems. Refer to page 2 for linked Accumulator setup.
3. Use a Charging Assembly (90.310.040) with a Quick Disconnect Charging Nipple (90.310.111), or piped to a control panel, to charge the Accumulator with nitrogen gas to 25 bar (350 psi) (F.1).
4. Remove the Charging Assembly from the Accumulator and set aside for later use.



Attaching the Power Pump™ Filler

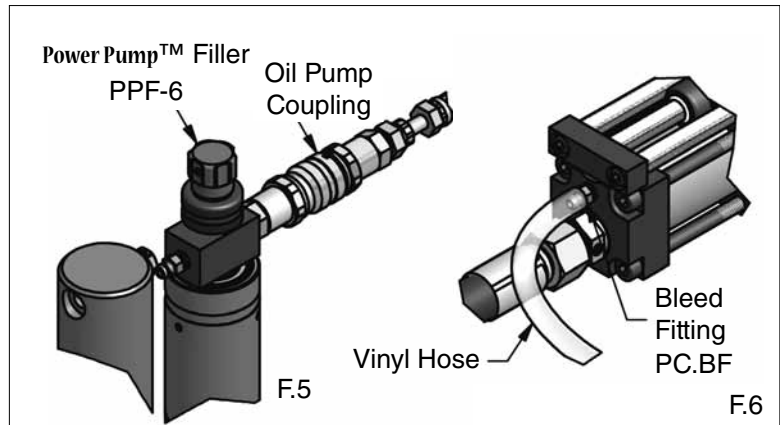
1. Using the Spanner Wrench (SW-3 or SW-55) and a 5 mm hex key (found in DADCO's Port Servicing Tool, 90.320.8) remove the G 1/8 oil fill port plug located at the top of the Hydraulic Cylinder's plunger (F.2).
2. Verify the needle valve on the Power Pump™ Filler (PPF-6) is retracted by turning the red knob counter-clockwise (F.3).
3. Attach the PPF-6 to the oil fill port on top of the plunger (F.4).



Attaching the Oil Pump

NOTE: When the Power Cam™ is not accessible, use the Bleed Block with Bleed Port Reducer and Bleed Fitting (refer to Tools for System Setup).

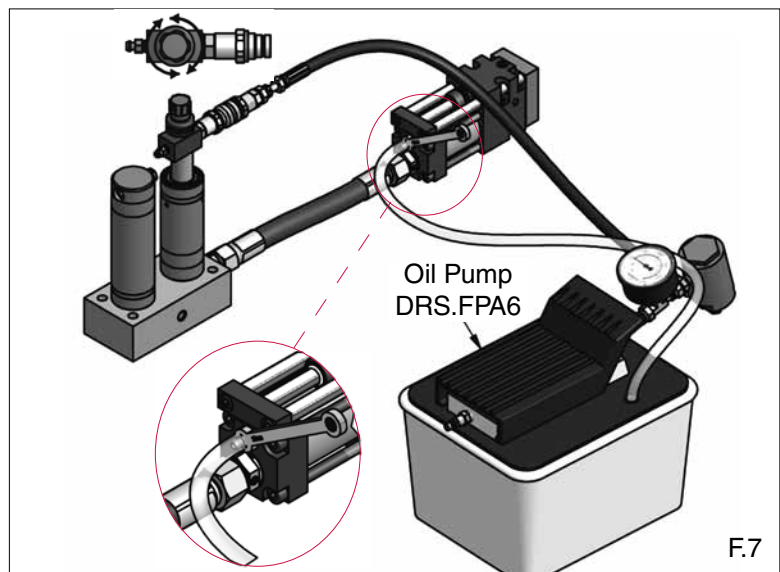
1. Attach the coupling from the Oil Pump (DRS.FPA6) to the Power Pump™ Filler (PPF-6) (F.5).
2. Attach the clear vinyl hose (included with PPF-6) to the Bleed Fitting (PC.BF) on the Power Cam™ (F.6) or Bleed Block (PC.BB.4).
NOTE: To capture clean hydraulic oil for reuse, place the other end of the vinyl hose into the fill port located on top of the Oil Pump.
3. Turn the red knob on the PPF-6 clockwise to extend the needle valve allowing open flow into the Hydraulic Cylinder.



Filling the Power Cam™ with Hydraulic Oil and Bleeding the Air

CAUTION: Cam will extend during filling.

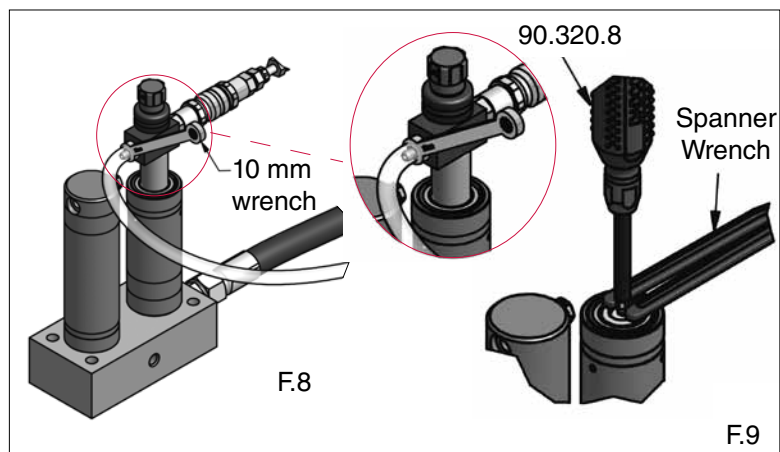
1. Using a 10 mm wrench, open the Bleed Fitting (PC.BF) on the Power Cam™ and compress the pedal of the Oil Pump (DRS.FPA6) to activate the pump. Run the pump until no air bubbles are visible in the vinyl hose, then close the Bleed Fitting.
2. Compress the pedal of the Oil Pump to activate the pump. Run the pump until the gauge reads 50 bar (720 psi) (F.7).
3. Using a 10 mm wrench, open the Bleed Fitting until the hydraulic oil flows through the vinyl hose and the pump gauge reads 0 bar. Close the Bleed Fitting.
4. Repeat steps 2-3 until no air bubbles are visible in the vinyl hose for two consecutive times.



NOTE: It is important to bleed all air from the Power Cam™ and Power Pump™ System to ensure proper operation.

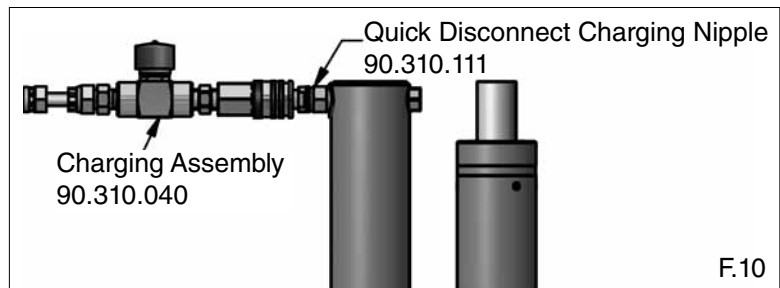
Filling the Power Pump™ with Hydraulic Oil and Bleeding the Remaining Air

1. Remove the vinyl hose from the Power Cam™ (or Bleed Block) and attach it to the Bleed Fitting (PC.BF) on the Power Pump™ Filler (PPF-6) (F.8). Repeat steps 2-4 above to bleed the air from the Power Pump™.
2. Turn the Power Pump™ 180° (upside down) to direct any air trapped in the system to the Power Cam™. Remove the vinyl hose from the Power Pump™ and attach it to the Bleed Fitting on the Power Cam™. Repeat steps 2-4 above to bleed the remaining air from the Power Cam™.
3. To verify that the entire system is free of air turn the red knob on the PPF-6 counter-clockwise to retract the needle valve. Push down on the plunger of the Hydraulic Cylinder. Movement indicates that air is still in the system. Repeat the above bleeding procedure until the plunger does not move.
4. Once all the air is evacuated from the system, reinstall the G 1/8 oil fill port plug located at the top of the Hydraulic Cylinder's plunger (F.9).



Adjusting Accumulator Pressure

1. Adjust the pressure in the accumulator using the Charging Assembly (90.310.040) with a Quick Disconnect Charging Nipple (90.310.111), or piped to a control panel (F.10). Maximum charging pressure is 150 bar (2175 psi).
2. Remove the Charging Assembly and Quick Disconnect Charging Nipple from the Accumulator. For self-contained systems reinstall the port plug.



Operating Specifications	
Medium: Nitrogen Gas and ISO VG 32 Hydraulic Oil	Maximum Nitrogen Gas Pressure: 150 bar (2175 psi)
Operating Temperature: 10°C – 60°C (50°F – 140°F)	Maximum Velocity: 0.8 m/s (2.6 ft/s)

Installation Requirements

- DADCO's Power Cam™ and Power Pump™ System will permit travel of the full nominal stroke; however, a 10% stroke reserve is recommended to achieve optimal performance and safety (F.1, F.2).
- Verify that all air is bled out of the Power Cam™ and Power Pump™ System to ensure proper operation.
- Contact DADCO when linking multiple cams to one Power Pump™.
- Never compress the Accumulator in a vice or clamp outside of the die as damage can result.

Avoid Side Loading

- Verify that there is adequate clearance in the die for the Accumulator. **DO NOT** impact the top of the Accumulator (F.3).
- Side loading resulting from press action or die construction causes increased wear on the bearing, seal and plunger of the Hydraulic Cylinder (F.4). Therefore, avoid side loading when possible (F.3).

Hose Installation

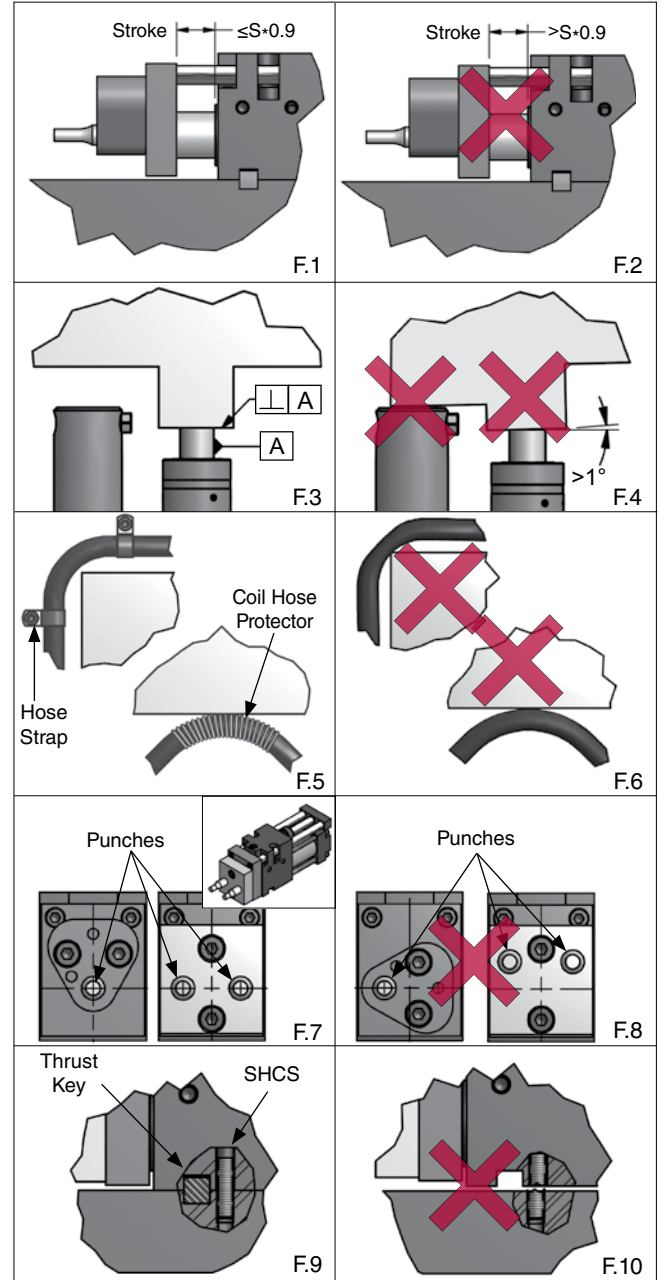
- Use hose clamps to secure the hose in place and add hose protectors to the hose when necessary to protect against abrasion, thus extending hose life (F.5).
- Unprotected and improperly installed hydraulic hose may rub against rough surfaces causing wear and reducing hose life (F.6).

Punch Installation

- DADCO recommends locating a single punch on center of the drive rod on the tool plate for optimal performance (F.7).
- Punch(es) must be installed symmetrically spaced through the centerline of the drive rod (F.7). Contact DADCO for more information.
- Punch(es) that are installed off-center or not spaced symmetrically through the centerline of the drive rod will cause side load, increasing wear on the cam and reducing life (F.8).

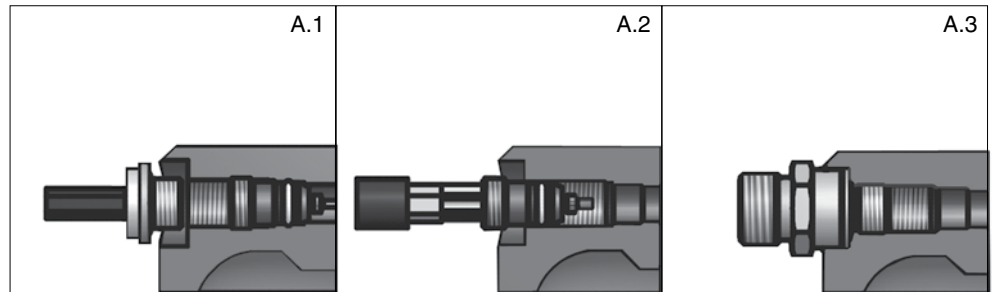
Power Cam™ Mounting

- Choose proper length screws to maximize thread engagement.
- Mounting screws are not capable of supporting the full load of the Power Cam™ (F.10). A Thrust Key installed at the base of the cam must be used in addition to the two mounting screws to secure the cam to the die (F.9).



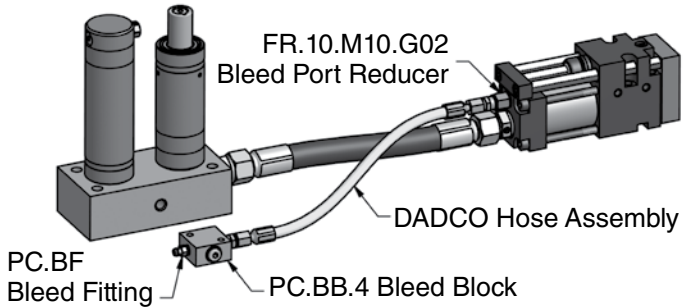
Converting a Self-Contained Power Pump™ to Linked Operation

- Remove port plug, 90.505.110 from the Accumulator on the Power Pump™ (A.1) to access the valve.
- Depress the valve stem using the appropriate tool to discharge the gas in the system. Cover the port with a cloth to absorb discharge.
- Remove the valve using the appropriate tool (A.2).
- Lubricate the threads and o-ring of the port adapter being installed (A.3).
- Install port adapter in open port (A.3). A wide variety of port adapters are available, refer to DADCO's Linked Operations Catalog. The Power Pump™ is now ready to be linked to a Control Panel.



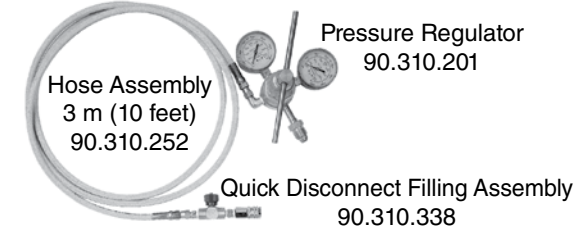
Tools for System Setup

DADCO provides a variety of accessories for the Power Cam™ and Power Pump™ System. The figure below shows the proper use of the Bleed Port Reducer, Bleed Fitting and Bleed Block; used to bleed the air out of the Power Cam™ prior to operation when the cam lacks accessibility.



Nitrogen Charging Assembly 90.310.040

Use the DADCO Quick Disconnect Charging Assembly, 90.310.040, to charge the Accumulator. The 90.310.040 includes the 90.310.201 Pressure Regulator, 90.310.252 Hose Assembly and the 90.310.338 Quick Disconnect Filling Assembly.



Spanner Wrench SW-3 (use with PPB.015) SW-55 (use with PPB.040)

Use the Spanner Wrench to remove the oil fill port plug from the hydraulic cylinder.



Power Pump™ Filler PPF-6

Use the PPF-6 with the DRS.FPA6 Oil Pump to fill and bleed hydraulic oil from the System. Includes 3 m (10 feet) of low pressure vinyl hose.



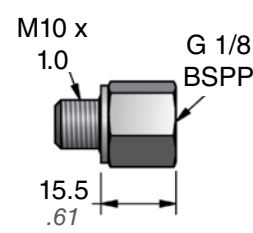
Quick Disconnect Charging Nipple 90.310.111

Use the DADCO Quick Disconnect Charging Nipple to charge the Accumulator with nitrogen gas. For more information, contact DADCO.



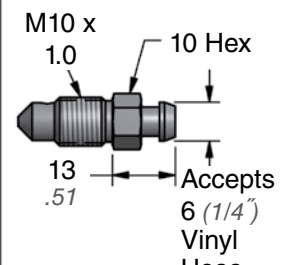
Bleed Port Reducer FR.10.M10.G02

Use the Bleed Port Reducer to connect the Power Cam™ to the Bleed Block.



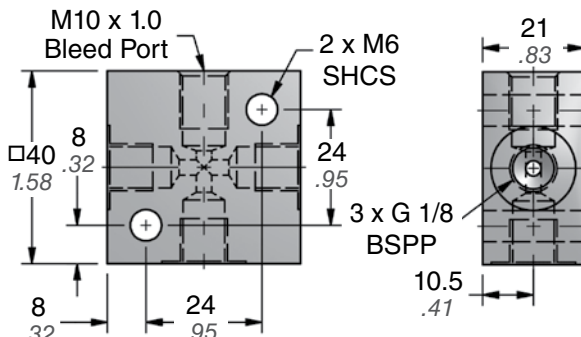
Bleed Fitting PC.BF

Use the Bleed Fitting to connect vinyl hose to the DRS.FPA6 Oil Pump.



Bleed Block PC.BB.4

Use the Bleed Block to bleed air out of the system.



Oil Pump DRS.FPA6

Air powered oil pump with 2 gallon plastic container used for filling and replacing system oil. The assembly comes with hose and coupling and a high pressure filter on the outlet line.

Air Supply: 40-150 psi (3-8 bar)
Reservoir: 2 gallon (7.5 L)
Flow: 75 in³/min (1.2 L/min) at 100 psi (7 bar) inlet pressure

