

MERCEDES TEXTILES LIMITED

FLOWING WITH TECHNOLOGY™

Parallel fire pump setup

The purpose

There are several purposes for using a parallel fire pump setup, for instance;

- ▶ To substantially increase the flow rate, while slightly increasing the pressure at the nozzle. This may be required to
 - overcome friction loss in long hose lays
 - overcome flow rate (pressure) loss due to vertical rise (nearly ½ PSI / 3 kPa pressure loss for every foot / 30 cm in elevation).
- ▶ For diversity reasons .. to ensure water delivery in the event of a pump failure
- ▶ To maintain a water supply, from two limited water sources
- ▶ If the pump setup is using a large diameter (i.e. 2 ½" / 64 mm) hose delivery

Setup procedures (see related drawing)

- ▶ Setup two fire pumps beside each other while maintaining sufficient separation to work
- ▶ Connect the suction hose and foot valve to each pump intake
- ▶ Connect two desired lengths of 1 ½" (38 mm) hose from each pumps' discharge to a reverse wye (plain or gated), as shown. The attack line then connects to the 3rd port of the wye.
- ▶ Since we are using centrifugal fire pumps, starting of each pump requires proper coordination in order not to create an air pocket to either pump, which would effectively create a loss of prime.
Note: Regardless which pump is started first the water must not be allowed to reverse flow through the other pump, otherwise an air pocket would be created.
- ▶ We suggest using a check valve at each pump to prevent an air lock (see drawing). If only one check valve is available, start the pump without the check valve first.

The startup

- ▶ Follow starting procedures for the specific pump (refer to the pump operating manual and / or our website pump instructional videos).
- ▶ Allow for a 2-3 minute warm-up period then gradually increase the throttles to the desired operating speed for each pump.
- ▶ Should you be using a gated wye then the check valve is no longer a requirement at the pump, since the functionality can be obtained by closing the gate to one pump while the other pump is started. Open the gate once the 2nd pump is started.
- ▶ Similarly, the use of a hose strangler will do the job
- ▶ If none of the above are available to restrict flow, then the two pumps must be started at the same time. Note: The longer the two parallel discharge hoses, the more time you have before an air pocket gets to the other pump.

In the event of an air pocket

As long as the pumps are idling, the air pocket can be released from the pump by slightly loosening the filler cap to release all the trapped air. Then re-tighten the filler cap and increase the pumps' throttle.

The shutdown

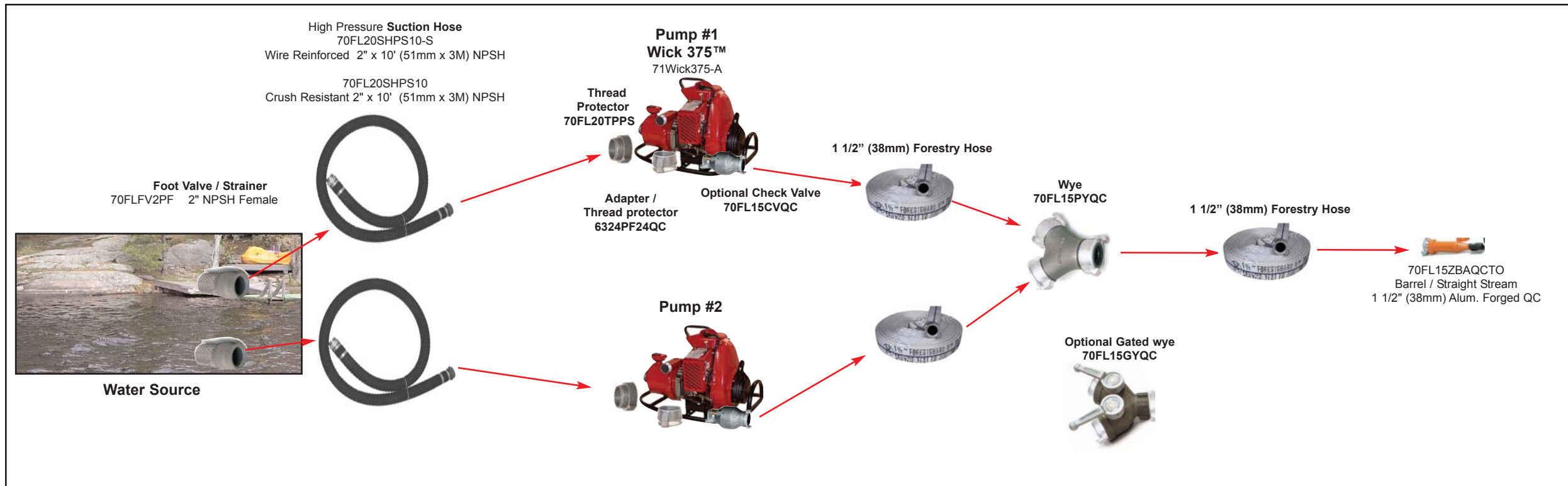
- ▶ To shut down the parallel pump, setup gradually reduce the power at the same rate simultaneously on both pumps, allowing a 2-3 minute cool down period for each pump.
- ▶ Once again refer to the pump operating manual and / or our website pump instructional videos.
- ▶ Hose stranglers are required in steep terrain or long hose lays, to contain the back pressure while disconnecting the hose line.

Other considerations





- ▶ In steep terrain a check valve should be installed at the pump(s) outlet, to contain back pressure in the hose lay in the event of a pump shut down, etc. Otherwise the back pressure may render it impossible to pull the starter cord.
- ▶ Pumps must be equipped with an automatic cut-out switch if left unattended. Otherwise should a pump lose prime, the engine will over rev and may damage both the pump end and engine.
- ▶ The fuel supply must be monitored to ensure continual operation. If pumps are left unattended for long periods, a check valve on each pump then becomes an essential item.
- ▶ The hose diameter along with the hose manufacturer is a significant consideration in regards to friction loss over long hose lays. For instance our Mercedes Textiles Ltd hose friction loss for 100 feet (30M) of 1 ½" (38mm) diameter is only 9 psi at 70 gpm (62 kpa at 265 lpm) flow. Refer to USDA Forest Service Technology & Development Program, 5100 Fire Management report >> www.fs.fed.us/t-d/pubs/pdf/02511205.pdf .. scroll to appendix D.

Parallel Fire Pump typical layout

Demonstrated using our Wick 375™ and related products





Wick 375™ Optional Items

<p>Wick 375 Transportation Back Board with Carrying Straps 71W37-HPACK</p> 	<p>Wick 375 Muffler Heat Shield 71W37-1327</p> 	<p>4 Stage Pump Repair Kit 79T-KIT</p> 
<p>Wick 375 Spark Arrestor 71W37-SPKARR</p> 		



Basic Tools Required

<p>2 x Coupling Wrenches 70FL15CPWR</p> 	<p>Hand Primer 70FLHPPQC</p> 	<p>Hose Strangler 70FLHSCLP-Q</p> 
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Conceptual

