

NWCG Equipment Technology Committee

Equipment Bulletin: 22-01

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To: Wildland Fire Community

From: Bill Yohn, Vice Chair, NWCG Equipment Technology Committee (ETC)

Subject: 50:1 Fuel/Oil Mix Ratio Recommendation for 2-Stroke Wildland Fire Portable Pumps



Issue: Change in fuel/oil mix ratio for Mark-3 and WICK 375 high pressure portable pumps.

Background: Prior to 2015, high pressure portable fire pump manufacturers recommended a fuel/oil mix of 24:1. In practice, fuel mixtures were more varied; 20:1 fuel mixtures were often used in the Lower 48 for simplicity in mixing and a 40:1 fuel mix was used in Alaska.

In 2015, the National Technology and Development Program (NTDP) qualified a pump to Forest Service Specification 5100-274e at the manufacturer-recommended fuel mixture of 50:1. Future wildland fire portable pumps will be qualified at the 50:1 mix ratio. The 50:1 fuel/oil mix ratio has other advantages over a richer fuel/oil mixture:

- Less carbon buildup on engine components.
- Longer service life on spark plugs.
- Ease of mixing fuel in the right ratios. A 5-gallon jerry or safety can only needs a 12.8 oz. bottle of high quality 2-cycle oil to achieve the 50:1 fuel/oil mix ratio.
- A single fuel mix for field operations can be used for pumps and chainsaws.
- Lower oil consumption.
- Cleaner emissions.

Actions:

- Use high quality 2-cycle air-cooled engine oil. Must meet one the following standards: API-TC (US), JASO-FD (Japan), or ISO-L-EGD (Europe).

Additional Information/Best Practices:

- Label fuel containers with contents.
- Use spill containment berms, stage fuel in shaded area.
- Use caution when opening fuel containers for potential geysering.
 - See National Fuel Geysers Awareness: <https://www.nwcg.gov/committees/equipment-technology-committee/national-fuel-geyser-awareness>

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