

MODERN FUEL AND OLD BIKE ENGINES

Following on from Andrew Duncan's talk at Bulli about using modern fuels in old, low compression, slow revving carbureted motors, I have done more research on some common assumptions and found the following key points to help our old machines run well on modern petrol.

Assumption 1 - That higher octane fuels need/like a higher compression ratio as they are slow burning. *Findings:* Higher octane prevents fuel igniting before the spark plug fires as the piston is compressing the air / fuel mix. Therefore, a high octane fuel in a low compression engine should make no difference. However, high octane fuels are denser and this can affect how rich the air fuel mix is which can have impacts on how some engines run and carbon deposits on spark plugs.


Assumption 2 – That modern fuels are made for fuel injection and don't atomize as well with the venturi effect of a carburettor. *Findings:* The atomisation and evaporation of fuels in carbureted engines is controlled by the distillation and vapour pressure characteristics of the fuel. There is no problem with carbureted motors running on modern fuels.

Assumption 3 – That you can blend Shellite and normal ULP together to achieve a lower octane fuel. *Finding:* The composition of Shellite may vary and the octane outcome of this is unpredictable potentially causing pinking / pre-ignition and subsequent engine damage. Unlike Shellite and petrol of the past, modern fuels are tightly controlled for consistency from batch to batch. Also, given the info above, there is no need to do this anyway.

What fuel should I use in my veteran / vintage / girder fork bike? My research suggests 91 octane ULP (yellow handle), not E10, should be fine provided it is fresh and your carby is not contaminated with 'stale' petrol. You may well need higher octane fuel if your engine has been modified for higher compression than standard 'factory' road bike use.

Getting the best from modern fuels.

1. **Have good spark.** Check the ignition timing is correct, the magneto's performance is optimal, the spark plug is clean with the correct gap, See Peter Scott's advice in the Feb-March and April-May 2019 Drip Feeds.

 <p>Enthusiast MOTOR INSURANCE</p>	<p>LOW MILEAGE = LOW PREMIUM BUY ONLINE</p> <p>Quote: quote.enthusiast.com.au Web: www.enthusiast.com.au Phone: 1800 10 10 44 Email: motor@enthusiast.com.au</p>
--	--



And of course, your fuel should not be contaminated with water.

2. Make sure the fuel you are using is fresh.

This is important. Modern fuel is designed to be used straight away and storage in a vehicle tank *always* sees evaporative losses and consequent changes in performance. Fuel left in part-full petrol tanks and carbs 'ages' by losing the volatile 'light' components (the vapour you see coming out of the petrol tank when you fill it). This makes for more difficult starting. Keep the tank topped-up full or, if you are not using the bike regularly and refilling with fresh fuel, then completely empty the tank, the fuel lines and carb bowl before garaging for periods more than a few weeks at most. In other words, store the bike 'dry' of fuel.

Also understand that modern fuels have additives which leave residues if the fuel evaporates. This could build up in the carb jets blocking them and resulting in big droplets instead of a

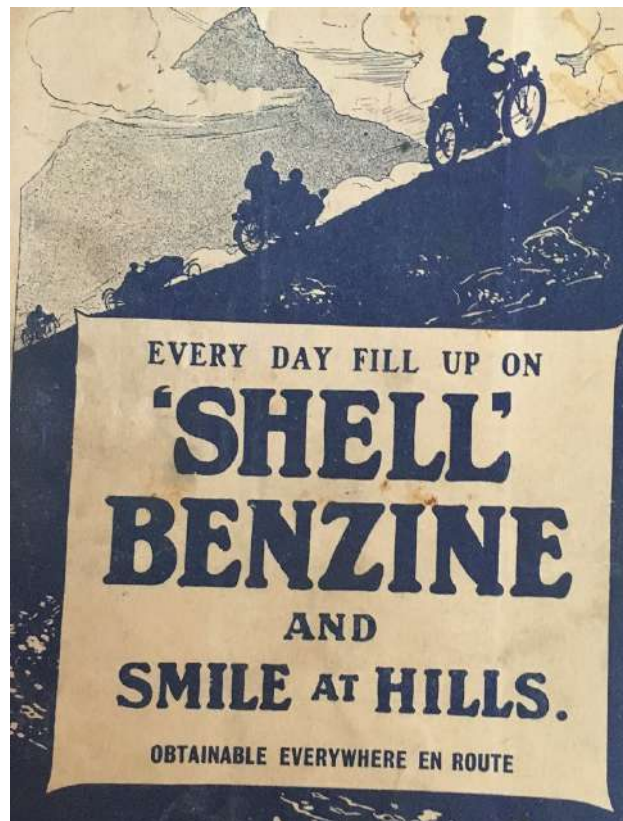
fine atomized spray, causing difficulty starting and rough running. These residues react with air and become insoluble in fuel so are difficult to remove if they develop. Bill Brice's Tech Talk at Bulli confirms this. Bill works at Old Gold Motorcycles and virtually every old bike they import (mostly Japanese) or return to service that has been in storage/unused for a long time requires the tank, petcock, fuel lines and carbs to be removed to clean out old fuel muck/gum and hard residues that encrust tanks, jam slides solid, block carb jets and passages. Bill recommends carb cleaner sold by Subaru dealers.

3. Check the fuel/air mixture.

As modern fuels are denser, you may find the mixture to be on the rich side. With the engine running, adjust the air fuel mixture screw for optimal running. If it's running hot, try making the mix slightly richer which may help achieve cooler running for your engine and may help starting. Perhaps then you can fine tune by trying different heat range spark plugs if indicated.

We are trying to arrange for a fuel expert to address a future VMCC meeting to answer your questions. Watch your VMCC email feed.

Submitted by Antony Gullick.



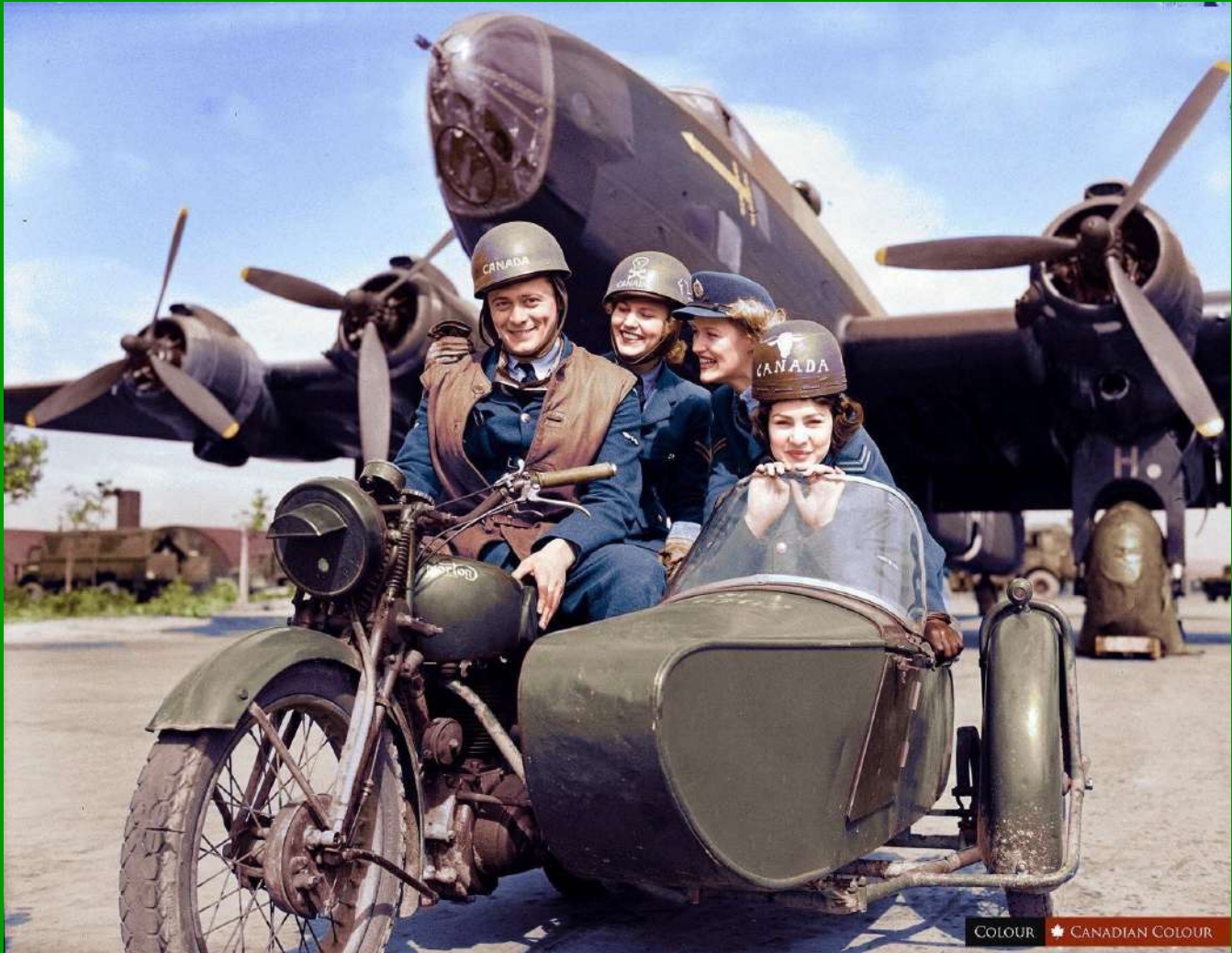
YESTERDAY'S ALBUM



Above: Don South (left) 1914 A.K.D. 6 H.P. and Harold Braund 1913 A.K.D. 3½ H.P. at the VMCC's annual rally held in the Bringelly area in the mid to late 1960's.



*Riders approach a creek crossing during a Kogarah/Hurstville MCC event.
Photo submitted by Jim Carmody.*



Fabulous period colour photo taken in the mid-1940s showing a merry crew, at least two of which have 'Canada' on their helmets, aboard a BSA M20 sidecar outfit.

Submitted by Antony Gullick