

MECHANICAL PRESERVATION OF HISTORIC MOTORIZED VEHICLES

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Based upon and expanded from
The Care and Preservation of Historic Motorized Vehicles
by
Malcolm Collum

Cooling System

▣ Display and storage

- Flush system completely until clear
- Fill with water and water pump lube/anti-corrosion product
 - Emulsified oil type (Solder Seal GUNK is preferred by the author)
- Drain system completely and leave drain petcocks open and upper hose disconnected

▣ Operational

- Use water and water pump lube/anti-corrosion product
 - Emulsified oil type
 - Should be fresh for each event, if infrequent
 - Fully drain after operation, if infrequent

Power Steering (if equipped)

▣ Display and Storage

- Leave in – if system is still full and fluid is good
 - ▣ Helps keep seals from drying out and needing to be replaced
- If system has been drained
 - ▣ More challenging, seals may be bad, decision on future use

▣ Operational

- If current fluid seems good, top off and test
- If current fluid is bad, system flush and refill
 - ▣ Check for problems with refilling system
 - Some systems are difficult to refill after being drained

Lubrication System

- ▣ Display and Storage
 - Lubrication system should be drained and flushed
 - ▣ A mineral spirits flush of the oil pan and any drip lubrication systems will suffice
 - Problems of used oil in a lubrication system
 - ▣ Attraction of water from blow-by fuel hydrocarbons
 - ▣ Oil degradation

- ▣ Operational
 - Use of synthetic oil is highly recommended
 - ▣ Synthetic oil carries its viscosity better over heat range
 - ▣ Good additive package
 - Choose proper viscosity
 - ▣ Splash system – 5w-30 or 10w-30
 - ▣ Full pressure system – 20w-50

Engine Cylinder(s)

- ▣ Display and Storage
 - Remove spark plugs and add 1 tbsp. of synthetic gear oil, 75w-90 or 140, to each cylinder
 - Turn engine over for 30 seconds to coat cylinder walls

- ▣ Operational
 - Test compression and leak down
 - If display and storage treatment has been done oil will burn off on the first test run of the engine
 - ▣ Don't be alarmed by exhaust smoke on first run

Transmission

- ▣ Display and Storage
 - Manual
 - Drain fluid and flush transmission case with Mineral Spirits
 - Refill with fresh synthetic gear oil and turn through gears to coat
 - Drain fresh fluid from transmission case
 - Automatic
 - Leave fluid in – if fresh
 - Drain and refill system – if fluid is degraded or burnt

- ▣ Operational
 - Manual
 - Fill with appropriate type of gear oil
 - Early vehicles often require thicker gear oil
 - Example, Lubriplate 8
 - Synthetic gear oil is recommended
 - Automatic
 - Drain fluid of unknown condition and refill system with proper transmission fluid

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Rear Differential

- ▣ Display and Storage
 - Drain old gear oil and flush with Mineral Spirits
 - Refill with synthetic gear oil, rotate, then drain

- ▣ Operational
 - Fill with appropriate gear oil
 - ▣ Synthetic recommended
 - ▣ Early vehicles may require thicker gear oil

Fuel System

- ▣ Display and Storage
 - Fuel system should be completely drained
 - ▣ Tank, fuel lines, and carburetor completely dried out
 - Some tanks have drain plugs, others may need to be pumped out
 - Fuel lines can be blown dry with compressed air or sucked dry by vacuum
 - Carburetors should be blown dry with compressed air and a water displacing oil, such as WD-40, can be sprayed through

- ▣ Operational
 - Fuel tank should be flushed to check for any debris in tank
 - ▣ Use an inline fuel filter on first runs to ensure any debris is stopped from entering the carburetor
 - ▣ Carburetors, if condition is unknown, should be rebuilt to ensure no fuel leaks will occur
 - ▣ Fuel lines should be inspected and replaced if necessary and deemed to be expendable, especially any fuel resistant rubber lines.

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Brakes

- ▣ Display and Storage
 - Mechanical
 - Lubricate all mechanical joints with a synthetic gear oil, 75w-140 or similar, to ensure good lubrication while sitting
 - Work brakes after full lubrication
 - Hydraulic
 - Should be filled with DOT-5 synthetic
 - Fully drain system, flush with Ethanol, refill with DOT-5
 - Seals may need to be replaced, if possible
 - Budd XR-400, experimental, no replacement seals

- ▣ Operational
 - Mechanical
 - Proper adjustment essential
 - Lubricate all mechanical joints and lubrication points
 - Hydraulic
 - DOT-5 should be used
 - Ensure proper bleeding of system
 - Adjust brakes properly

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Chassis

- ▣ Display, Storage, and Operation
 - Full chassis lubrication performed
 - ▣ Ensures proper lubrication to prevent seizing of components while sitting and prevent wear during use
 - ▣ Synthetic grease preferred
 - AliSyn grease used by author

Products

- Solder Seal Gunk can be found at select auto parts stores
 - www.gunk.ca
- Lubriplate
 - www.lubriplate.com
- AliSyn Grease by Aerospace Lubricants, Inc.
 - www.aerospacelubricants.com