MECHANICAL PRESERVATION OF HISTORIC MOTORIZED VEHICLES

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Based upon and expanded from
The Care and Preservation of Historic Motorized Vehicles
by
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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
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
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.
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
**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
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