

Mack T12 Engine Test Update

January 13th 2005



Mack Powertrain Division

- Mack T-12
- Based on Mack T10 & Mack T11
 - With ULSD Fuel
 - Length - ~ 300 Hours
 - Two Phase Test
 - Phase 1 100 hr (4.0 % Soot)
 - Phase 2 200 hr (EOT of 6 % Soot)
 - Phase 2 260 F Oil Temp
 - Increased EGR Flow (Heavy EGR)
(35% Phase 1 – 15-% Phase 2)
 - Precision Matrix Required



•Hardware (External)

Same as T10 Except – VGT Turbo replaces

small T10 Turbo

2 Production EGR Coolers (Breadboard) Replaces Tube Cooler-Test with 3 ?

•80 C EGR Coolant Inlet Temp
EGR on/off Valve

•Hardware (Internal)

T11 Power Cylinder (**T10 Top Ring**) & T11 Heads
New Nozzles & Spray Angle

– T12 Conversion Kits Sent to Labs

•T12 TASK FORCE – Numerous Teleconferences, Oct 20 Mtg in San Antonio –
Meeting Nov 22nd @ ExxonMobil- Next **Mtg Jan 12th** in San Antonio

•Next Meeting – Feb 22nd Chicago

•Test Procedure Available, T12 Parts List Completed

•Completed Test on 820-2 (T10 Ref Oil) , 2nd Test to Complete Mid November

•Engines in 4 Labs Running week of Jan 10th

•Task Force Recommends the use of dyed PC 10 ULSD

•Task Force Recommends 820-2 Should be Part of Precision Matrix



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Lubrizol- 2 Coolers – 80 hrs with NO sign of fouling

**Perkin-Elmer – 2 Coolers 100 hrs live test (820-2) – Cleaned Coolers @ 77 hrs (Ni 1ppm)
2nd Stand with 3 Coolers – wk of Jan 24th**

Afton – Start 3 Coolers wk of Jan 10th 100 hrs

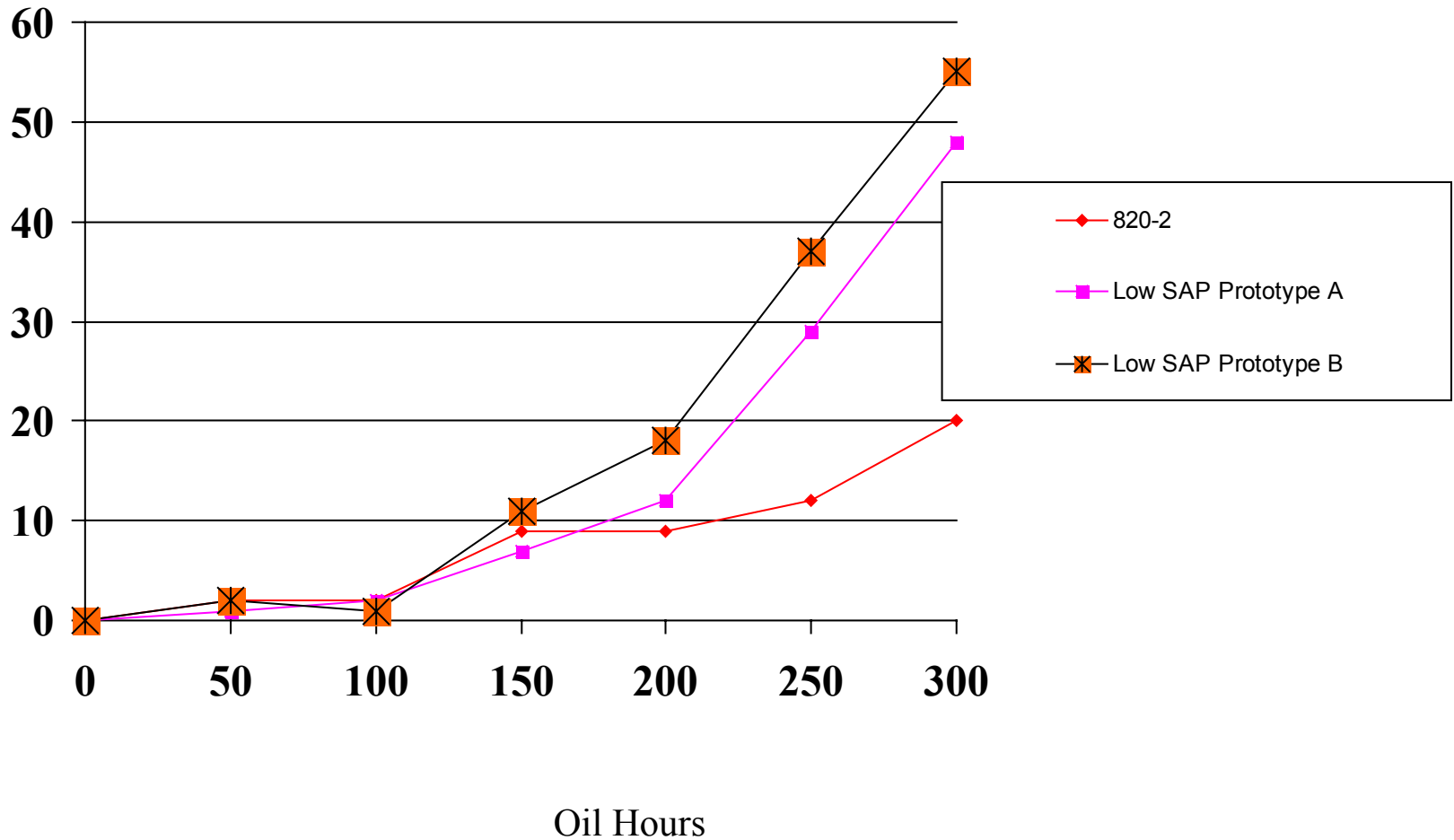
ExxonMobil – Start 3 Coolers wk of Jan 17th – Live Test

SWRI - Continue Running 2 Coolers until 3 Cooler data avail

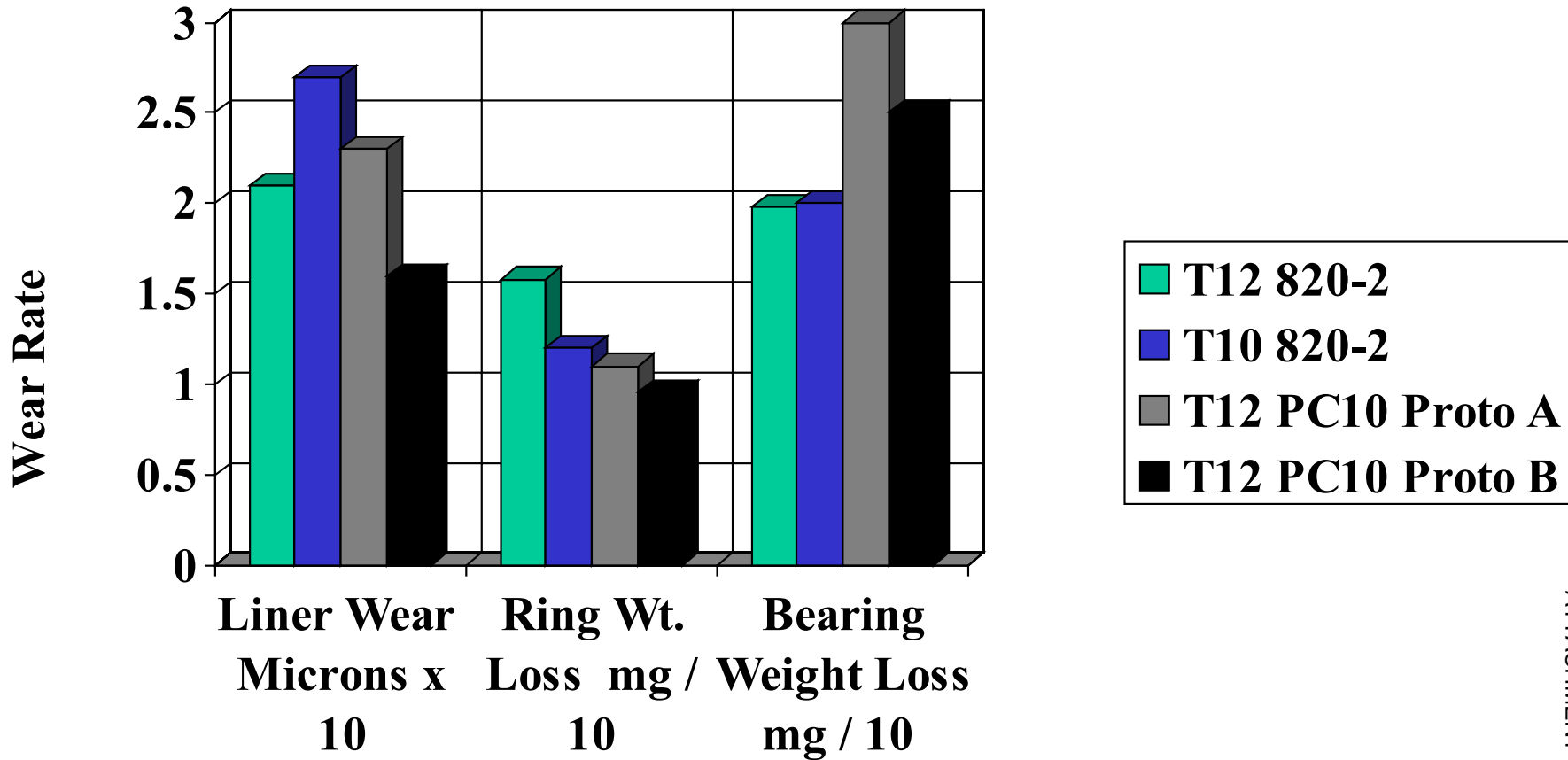


T12 Pb (ppm) Discrimination

P
b



Wear / T12 vs. T10 820-2 T12-820-2 vs. PC10 Prototype



GLS JAN 12TH 2005



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T12 PC10 Engine Oil Test Development Schedule

	July	August	September	October	November	December	January
EGR Mapping	█	█					
Soot Mapping		█	█				
TBN Depletion Mapping			█				
Run Demonstration Test				█	█		
Run Discrimination Test						█	█
Deliver Draft Procedure				█	█		
Deliver Procedure for Matrix Testing						█	█

