

Mack T12 Engine Test Update

December 7th 2004



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- 3 ?
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

•Test Procedure Available, T12 Parts List Completed

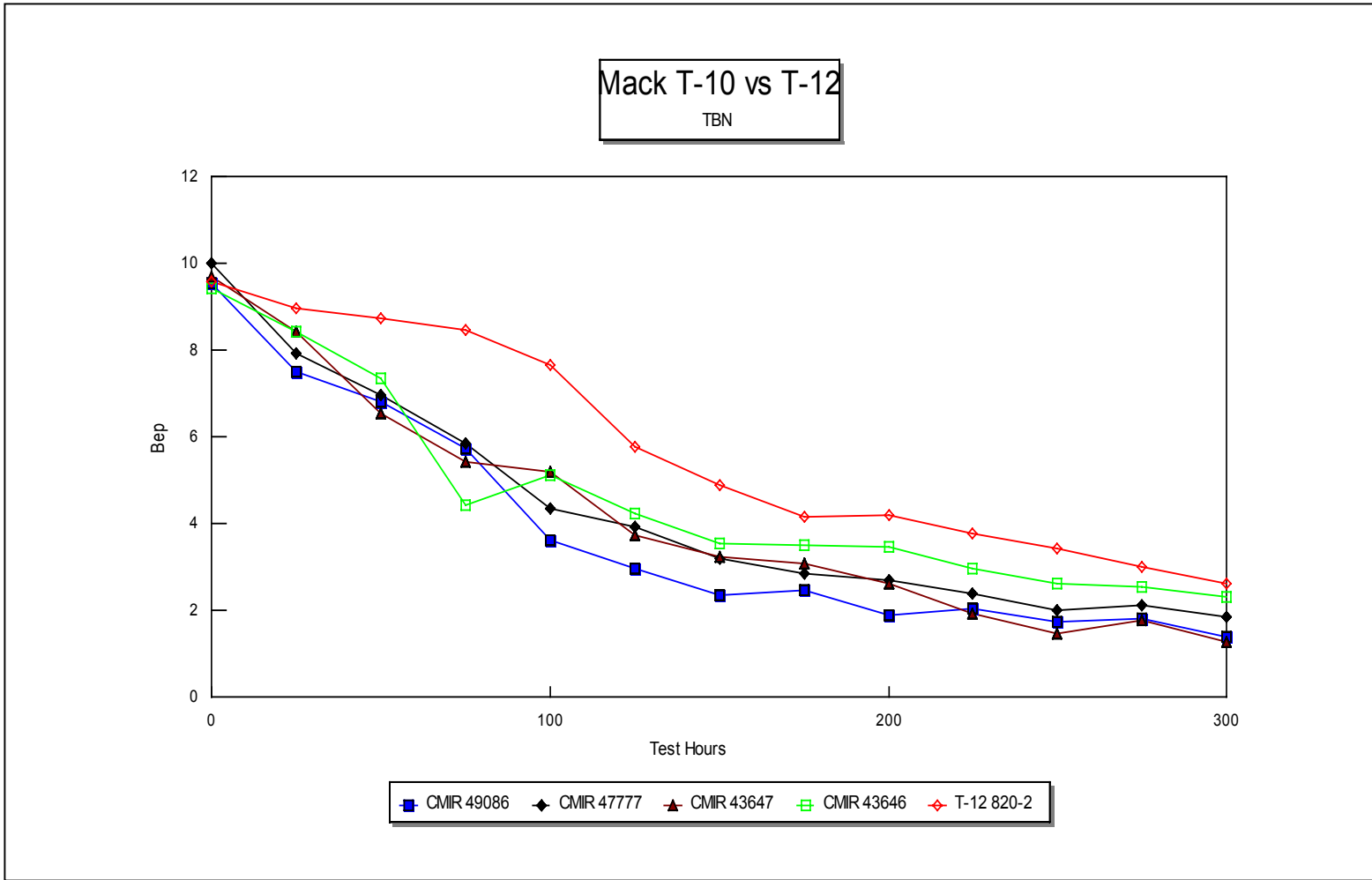
•Completed Test on 820-2 (T10 Ref Oil) , 2nd Test to Complete Mid November

•6 Engines in 4 Labs Running week of Dec 6th

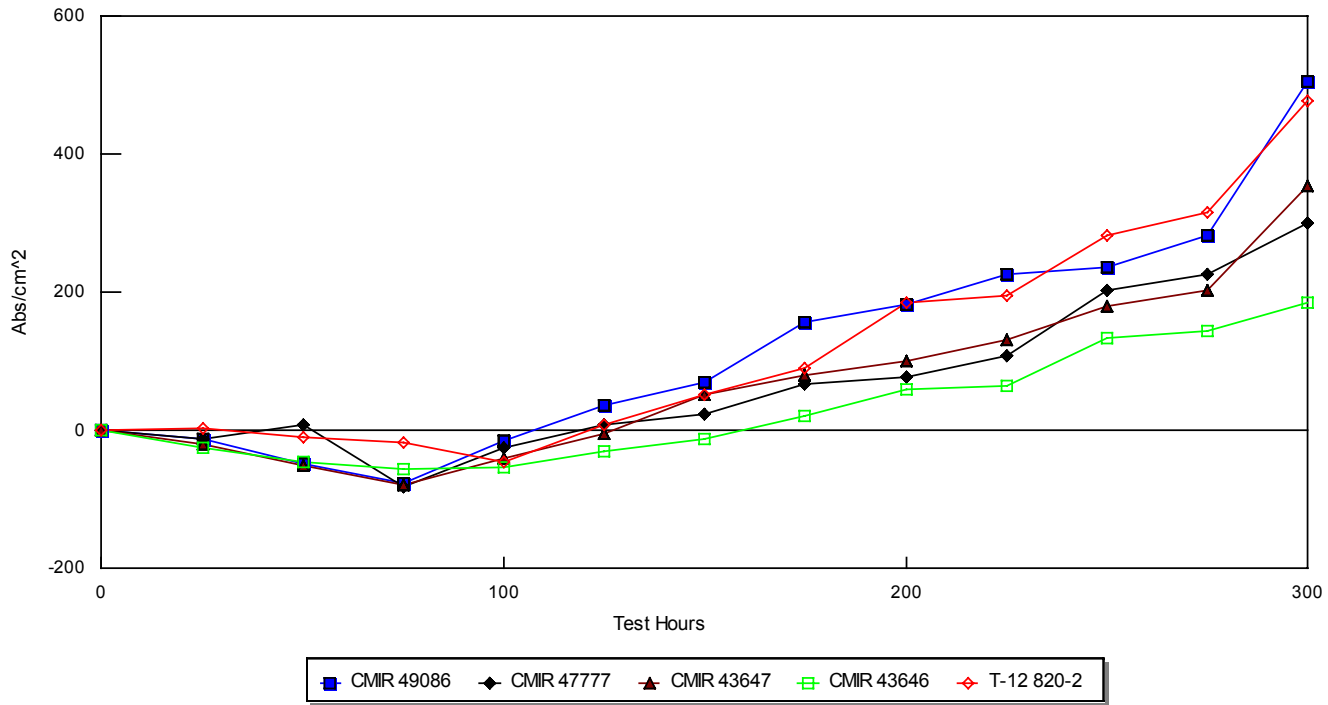
•Task Force Recommends the use of dyed PC 10 ULSD

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

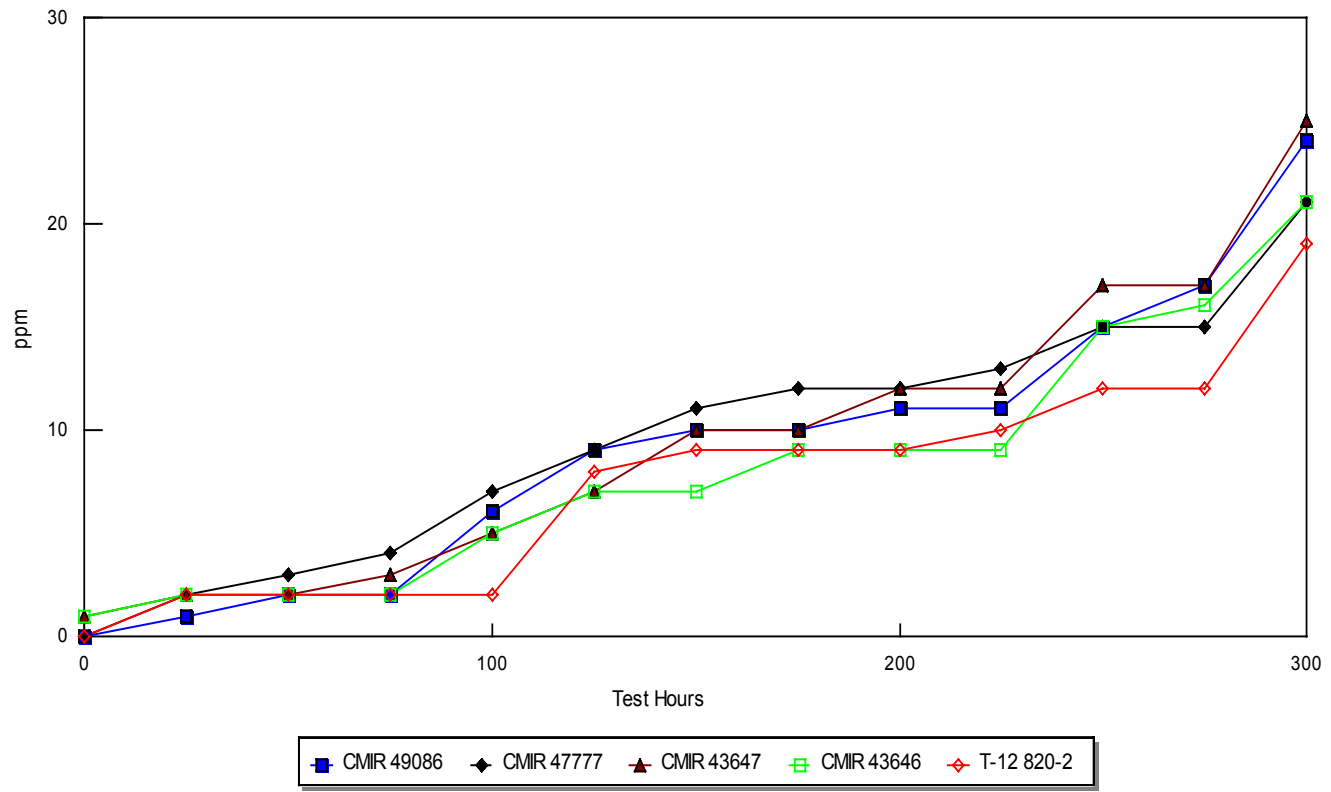




Mack T-10 vs T-12 Oxidation FTIR Area

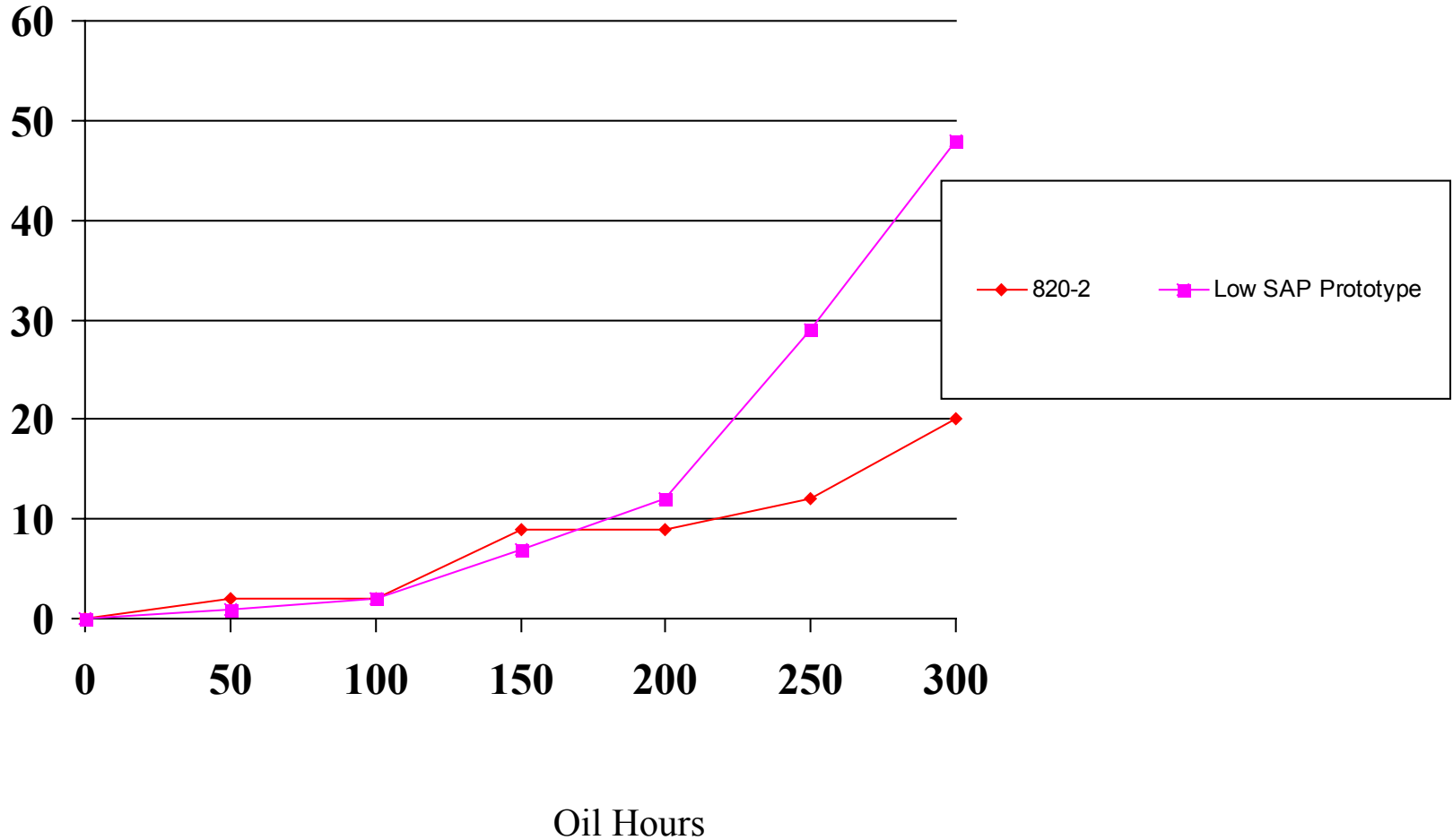


Mack T-10 vs T-12 Used Oil Lead

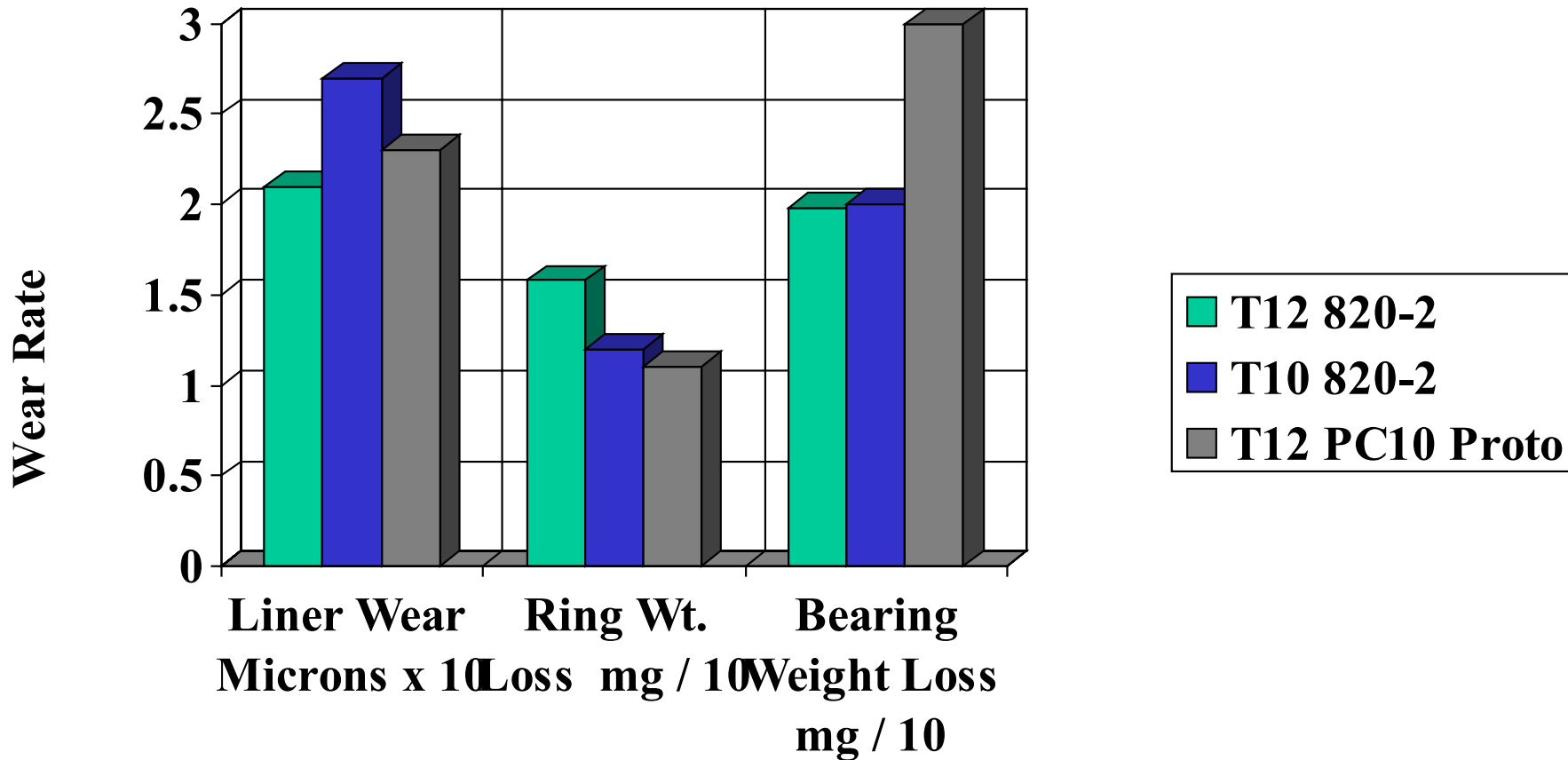


T12 Pb (ppm) Discrimination

P
b



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



GLS 12/06/04



Mack Powertrain Division

Name of Function and Date

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						█	█

