

RMMMA NOTES DECEMBER 2010

Business meeting

- Next meeting May 5th and 6th at the Lodge in Deadwood SD
- December meeting the 8th and 9th Holiday Inn, Rapid City SD
- \$13,256.60 in checking
- \$5,492.60 in savings
- \$38,071.62 in CD
- Seven \$1000.00 scholarships awarded in 2010
 - Cy Gleason; Gillette, WY
 - Timothy Quenzer; Gillette, WY
 - Michael Landenberger; Underwood, ND
 - Ethan Barthel; Wright, WY
 - John Heidt; Dickinson, ND
 - Josh Martwick; Drake, ND
 - Nathan Dale; Gillette, WY

Open Discussion

- Undercarriage
 - High abrasion, more money, gain in life not worth the cost
 - Early pivot pin failures, no solution
 - Unusual wear, inside of rail faster than outside, no solution
 - Some locations using swing roller frames
 - Southern operations using synthetic oil to prevent expanding oil from blowing out seals in rollers and idlers during periods of high ambient temperatures
 - What are locations using to pull tracks on machines? slings, cables, chains
 - Will try and make arrangements to have individual from Caterpillar at next meeting to discuss these and other undercarriage issues.
 - Anyone using aftermarket undercarriage? No answer
- C-18/C-32 Camshaft failures
 - Seeing wear first on backside of lobe appears like follower is skipping
 - Higher fuel pressures could be one of the causes
 - Some have seen rocker arm wear
- 24M Issues
 - Lower end engine issues
 - Camshaft failures, is an updated camshaft available? yes
 - Camshaft lobe edge loading

- Under hood heat problems, some have cut louvers in hood
- Many locations have reduced oil change intervals
- Radiator cores with fewer fins per inch are being used to improve air flow and reduce plugging problems
- Advised to install driveline guards, MSHA requirement
- Variety of cutting edges being used, carbide, straight and curved
- 16M's
 - General agreement that all machines have been sent in for Cat updates
 - General agreement that lots of problems still exist
 - Blade and circle shim wear being one of the problems
- Liebherr Trucks
 - Two way radio usage trips body up switch which then slows down truck, any solutions? No
- Komatsu 830 & 930 front strut issues
 - Wearing into front seal surface causing seal failure
 - One location has a program to monitor strut adjustment which has increased life
 - Another location has tried various oils some with friction modifiers

Interstate Bearing/SKF

Tom McDermott www.skfusa.com

- SKF Platforms
 - Seals
 - Bearings
 - Lubrication systems
 - Mechatronics
 - Services
- Vibration monitoring and analysis
 - Low cost trend systems give warning problem is starting
 - On-line fault detection and condition available
 - Provides 24/7 monitoring of critical equipment
 - Mobile equipment systems becoming more popular
 - System can be integrated to monitor mobile and stationary equipment simultaneously
 - Monitors RPM, vibration, temperature
 - System capable of sending signal to satellite
 - Visit their website for more information

Emission Testing and EPA Requirements

Steve Forbush Arch Coal

- Next phase of requirements enacted as of January 2011
- 0-75 horsepower little noticeable change
- 75-750 electronic or exhaust after treatment or both used to meet requirements
- 750+ also will use electronic or exhaust after treatment or both
- Tier 4 regulations will not be quit as restrictive for 750+ engines
- Worldwide regulations vary
 - North America and Europe most regulated
 - Will require ultra low sulfur fuel to meet Tier 4
- New Components
 - Diesel Oxidation Catalyst
 - Exhaust Gas Recirculation
 - Diesel Particulate Filters
 - Selective Catalyst Reduction
- These and other auxiliary components will become necessary part of future engine packages to meet regulations
 - Will come with increased maintenance requirements
 - Also have possibility of operational problems
- Four of the exhaust substances that are under regulation are
 - Carbon Monoxide
 - Nitric Oxide
 - Carbon Dioxide
 - Particulate Matter

Cummins Tier Engines

Paul Wiczynski www.cummins.com

- 2011 Tier 4 interim begins
- 2015 Tier 4 finalized
- EPA states that diesel engines account for 15% of particulate matter currently being emitted
- Tier 4 standards will be achieved by one or a combination of
 - Cooled Exhaust Gas Recirculation
 - VVT Variable Valve Timing
 - After treatment of exhaust gases

- VVT includes
 - Late intake valve closing
 - Working on controlling valve seating velocity
- After treatment to include
 - DEF Diesel Exhaust Fluid injected into exhaust system
 - SCR Selective Catalytic Consumption

Tier 4 will be biggest single change over 750 horsepower mobile off highway has ever seen

MTU Detroit Diesel Tier Engines

Majd Durad & Ran Archer www.mtu-online.com

- What Tier 4 means to them
 - Performance
 - Ratings
 - Emissions
- The goal is to improve costs and performance along with emissions
- Two ways to reduce emissions
 - Internal controls
 - External controls
- Will try to meet emissions standards by changing engine systems and not by adding external systems

In the future we will have to buy a system instead of just an engine. They will not be able to be mixed. Certification will be for the system not just for the engine. Goal will be to try to meet emissions by changing engine systems not by adding external controls.

L&M Radiator

Dennis Pointer and Steve Smith www.mesabi.com

- Six plant locations worldwide
- Home office in Hibbing, Minnesota
- Available as both OEM and aftermarket installations
- All radiators are flexible cores, no soldered seams

- 48 month warranty against seal leakage
- Also manufacture coolers
 - Tube & shell
 - Charge air coolers
 - Air to air coolers
- Currently working with engine manufacturers on Tier 4 cooling issues
 - Up to 30 % higher engine temperatures

Started Fridays meeting with Safety discussion

- We are all guilty of becoming complacent at times
- We have a tendency to focus on the big stuff when it is the little things that will get us
- Many members work shifts and close calls from fatigue can become an issue
- One property has started a pilot program to fight fatigue
- They have explored using a system that looks at an operators eyeballs and vibrates the seat if eyelids close for longer than a predetermined amount of time
- Safe work habits don't and shouldn't stop at work, take them home with you.
- Suggestion was made to bring a speaker on sleep cycles
 - Kelly will check into this

All State Fire/AFEX Fire Systems

Gary Bate and Ken Damon www.allstatefireequip.com

Rod Cavallaro www.afexsystems.com

- Fire system sales and service on heavy equipment exclusively
 - Large equipment has unique hazards due to its size
- Offering another alternative in our area

- Effects of fires
 - Cost of replacement
 - Cost of repairs
 - Loss of production
 - Loss of profit
 - Safety
- Factors that affect risk
 - Maintenance practices
 - Response time
 - Proper use of equipment
 - Training
- AFEX fire systems
 - 40 years in the business
 - Purpose built for mining equipment
- Built with components common to all systems
 - Auto detection and actuation
 - Monitoring
 - Cab and ground actuation
 - Engine shut down
 - Dry chemical to remove oxygen
 - Wet chemical to cool

- Custom installation
 - Machine considerations
 - Done with customer input
- System Differences
 - Use stainless steel vs. rubber hose for product distribution
 - Nozzles have spring loaded caps
 - Use of thermal detectors that are resettable
- Operator training
 - Provided on-site
 - What they need to know in case of a fire
 - Pre-shift inspections
 - Are manual actuators unobstructed
 - Any component damage
- Summary
 - It is not a product but a program
 - Provide proper installation and maintenance
 - Known provider of good service
 - Help customers develop response plan
 - Provide complete training

Firemaster/Ansul

Kevin Siler www.ansul.com

- LVS systems
 - Is a wetting agent that cools super heated components
 - Freeze protected to -60 degrees

- Can be retro-fitted to existing dry chemical Ansul systems
- Detection takes place within mille-seconds
- Currently upgrading control boards and many other of their components
- Nozzles have caps on lanyards, they are not spring loaded
 - Have proven this design to be more reliable
- Installation
 - Use of correct length hose is critical to proper operation
 - Use only the correct matching components

Combination of dry and wet chemicals not only knocks down fire but continues to cool to prevent re-flash.

Hose Power

Kim Jorgenson and Troy Osborne www.hosepower.com

- Company started in Phoenix, Arizona
 - Currently have 29 technicians
 - 21 vehicle fleet
- Target results with customers
 - MSHA compliance
 - Decreased downtime
 - Decreased oil loss
 - Increased reliability
 - Safety
 - Decrease of on-site inventories resulting in lower inventory costs
- Will assist in setting up hose PM programs
- Variety of service vehicles to meet customer needs

- Hoses are bar coded for tracking
- Provide reports as to hose status
 - Predictive replacement
 - Failure analysis
- Use OEM part numbers
- Have specific machine kits available
- Stock LeTourneau fittings
 - Have had success with stopping leaks
- Will also do auto lube system installation

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