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***How to Improve Your Vehicle  
and Equipment Maintenance  
Program***

# Importance of a Preventive Maintenance Program

- Reduce unscheduled repairs
- Reduce breakdowns and road calls
- Increase utilization by reducing downtime
- Reduce vehicle operating cost
- Reduce Fleet division personnel cost due to overtime
- Increase customer satisfaction
- Ensure your fleet is ready to meet the needs of your customers
- Document PMs to reduce liability claims and cost of operation
- Increase the value of the asset at end of service life
- Detect an unreported accident or possible driver abuse

# Shop Equipment

- Adequate square footage and repair bay availability
- Vehicle lifts – (inspected daily, monthly, yearly)
- Jack stands – (inspected daily, monthly, yearly)
- Creepers, trouble lights, drain pans, etc.
- Diagnostic equipment
- Lubrication equipment
- Floor dry or absorbent pads
- Specialty tools
- Repair and parts manuals/CDs
- Seat, steering wheel, floor and fender covers
- Technician protective clothing

# Setting Up the PM Schedule

- Follow equipment manufacturers' operating manual requirements
- Determine severity of use and environmental conditions
- Involve your trained PM technicians when setting up this schedule
- Use factors such as meter/hrs, fuel consumption, and time intervals
- Types of PMs (A, B, & C)
- Quality filter and oil
- Successful PM program- you must have accurate meter readings
- Communicate with your customers – email, by phone, etc.
- PM vehicles/equipment during idle time when possible

# Service Intervals

- **PM - A Service** - includes but not limited to chassis lube, oil and filter (if needed), brake inspection, suspension, tire wear and pressure, and bumper to bumper inspection. Depending on the degree of usage, service is at 250-500 hrs or 4,000-5,000 miles, or within a three-six month range, as recommended by the equipment manufacturer.
- **PM - B Service** - includes, in addition to the PM - A, vehicle diagnostic check, changing the transmission, rear axle, hydraulic oils, and replacing the fuel filter(s) as recommended by the equipment manufacturer.
- **PM - C Service** - includes a complete vehicle diagnostic check, testing all electrical systems, brakes, wheel bearings, etc. The degree of usage is a major consideration for this PM cycle, as recommended by the equipment manufacturer.

## Schedule A: Preventative Maintenance Schedule

Change Engine Oil  
 Change Engine Oil Filter  
 Check Air Filter Condition  
 Check & Adjust Drive Belts  
 Check Battery  
 Check Brake Fluid Level  
 Check Brake Pads, Shoes & Hoses  
 Check Drive Tran Fluid Levels  
 Check Engine Compartment Fluid Levels  
 Check Engine Cooling System  
 Check Exhaust System  
 Check Front & Rear Shocks  
 Check Exterior/Interior Lights  
 Check Power Steering Fluid Levels  
 Check Tire Pressure & Condition  
 Check Windshield Wipers  
 Lubricate Steering Linkage  
 Check Front Brake Pads, Rear Brake Shoes  
 Rotate Tires  
 Replace Air Filter  
 Check Headlight Alignment  
 Check Parking Brake Operations  
 Lubricate Door Latches, Replace Fuel Filter  
 Transmission – Change Fluid, Filter  
 Annual Vehicle Inspection

Service A	Service B	Service C	Service D	Service E
4,000 miles 4/months	8,000 miles 8/months	12,000 miles 12/months	30,000 miles 24/months	60,000 miles 48/months
x	x	x	x	x
x	x	x	x	X
x	x	x	x	x
x	x	x	x	x
x	x	x	x	x
x	x	x	x	x
x	x	x	x	x
x	x	x	x	x
x	x	x	x	x
x	x	x	x	x
x	x	x	x	x
x	x	x	x	x
x	x	x	x	x
x	x	x	x	x
x	x	x	x	x
x	x	x	x	x
x	x	x	x	x
x	x	x	x	x
x	x	x	x	x
x	x	x	x	x
x	x	x	x	x
		x	x	x
		x	x	x
				x

# Selecting The Correct Lubricants

- Refer to the owner's manual
- Oil Analysis
  - Send a sample of new oils to be analyzed
  - During PM draw a sample of oils (engine, transmission, etc.)
  - Review oil analysis results to determine drive train condition
  - Adjust drain intervals accordingly
  - Use the correct grade of oil – refer to owner's manual
- Lubricant charts – when possible attached to vehicle file
- Follow the PM Checklist
  - File/import all PM documents
  - OSHA, warranty, litigation, and resale

# Procurement and Training

When purchasing new equipment:

- Include training in the purchase price
- Video (GoPro) the training – require all operators and technicians review before working on equipment
- Review with operators both pre-trip and post-trip inspections
- Require all owner, operator, repair, and parts manuals/CDs
- Require a complete set of filters to PM the equipment
- Document filter numbers and set stocking quantities
- Require all special tools to complete the PM
- **Goal – 95-100% PM compliance**



# Operator Responsibilities

- Increased safety with pre and post trip inspections
- In addition, pre and post trip inspections help avoid costly repairs with early detection of items such as chips in the glass, worn, tires burned out bulbs, and broken wheels

# Daily Inspections and Training for New Operators

- Train New Employees on Equipment Inspection
- New Equipment Includes an Operator Video
- Operating Practices in Operations Manual
- Daily Inspection Logbook Guides Operator Pre-trip and Post-trip
- Commercial Drivers License (CDL) Requires Daily Inspections and Inspection Books (Motor Safety Carrier Handbook)

# Notifications

- Users/Departments Notified in Advance
- Notification Given When PM is Complete
- Mirror Hanger Operator Questionnaire

# PM Performance Measures

- Average Availability of the Fleet = 95%
- Road Calls by Repair Shop and Vehicle Class
- Road Calls = < 2% of Total Work Orders
- PM Compliance = 95%
- PMs Performed within 10% of Due Date

# PM Performance Measures

- Annual Preventive Maintenance = 5,300 Services
- Aerial/Specialized Equipment Inspections = 100%
- Annual Vehicle Emissions Testing = 100%
- PM Training Hours Completed = 100%
- Customer Satisfaction Survey > 95%

# PM Performance Measures

- Work Order Delays
- Work Crew Downtime
- Expense Reports
- Repairs Noted in PM
- Repairs & PM Work Orders

# PM Performance Measures

- PM Training Hours Completed = 100%
- PM Turnaround = Within 24 hrs
- Staffing Requirements
- Facility Size
- Resources
- PM Time by Class

# PM Performance Measures

- Early Service Due Reports = Customer & Shop Planning
- Price Guarantee = or - 10% of Promised Price
- Ratio Between PM and Repair Labor
- Percent of Overdue PMs



# Fleet Operation Performance Measures

- Quarterly Safety Inspections
- Active Safety Committee
- Lock/Out Tag/Out Program
- Expedite Shop Equipment Repairs
- Shop Safety Incident Tracking
- Vehicle Accident Reports
- OSHA Consult/Compliance Inspections

# Fleet Operation Performance Measures

- Fuel Economy
- Designated Fleet Coordinator
- Designated Fleet PM Parking
- Supervisor Evaluations
- Operator Maintenance Training

# Fleet Operation Performance Measures

- Annual Vehicle Inventory
- Timely Service Intervals
- Quality Assurance Program
- Release Vehicle Only When Finished!
- Continuously Monitor PM Due List!
- Litigation (Keep Good Records)



# Resources for Presentation

**APWA - Top Ten Performance Measures for Fleet Managers**  
(revised edition)



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***Thank You!***