

Status & Performance

PENN STATE ARL WATCH STATION FOR THE LAV - Rev 1.0.0

ASSET VISIBILITY | **STATUS & PERFORMANCE** | CONDITION & HEALTH | VMS SYSTEM | TRENDS | VIDEO | Connections | 1 2 3 4 5 6 | 09/15/2002 20:02:35

ADVISORIES

- LOW BRAKE AIR (< 60 PSI)
- ENGINE OIL PRESSURE (< 5 PSI)
- FUEL LEVEL (< 20 Gallons)

STATUS & PERFORMANCE

- FIRE (> 338 F)
- BRAKE FAILURE (Low Fluid / Pressure Loss)
- LOW FUEL (< 13 Gallons)

WARNINGS

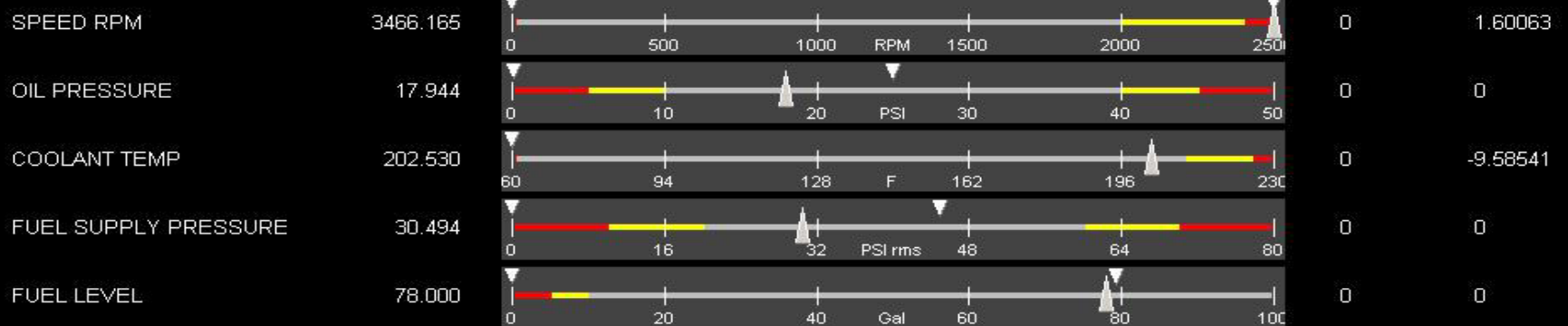
- ALT OUT (0 Volts)
- ENGINE COOLANT TEMP (>215 F)

SENSOR	VALUE	LOW	MIDDLE	HIGH	RATE OF CHANGE ABS RELATIVE
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ELECTRICAL



ENGINE



Condition and Health (Diagnostics/Prognostics)

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ASSET VISIBILITY

STATUS & PERFORMANCE

CONDITION & HEALTH

VMS SYSTEM

TRENDS

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Connections



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CONDITION / HEALTH (DIAGNOSTICS / PROGNOSTICS)

SENSOR	VALUE	LOW	MIDDLE	HIGH	RATE OF CHANGE	
					ABS	RELATIVE
ELECTRICAL						
ALTERNATOR OUTPUT	24.300	12	21.6	36	0	-4.71638
ALTERNATOR EXCITER VOLTATE	24.350	0	1.2	3	0	-4.96816
BATTERIES						
STATE OF CHARGE	123.1342	0	5	10	Label1	Label1
CONFIDENCE	123.1342	0	5	10	Label1	Label1
ENGINE						
ENGINE BLOCK TEMP	162.525	60	116 F	200	0	7.26087
VIBRATION	35.000	0	4 g RMS	10	0	2.80248
TURBO TEMP	94.685	60	116 F	200	0	-1.59948
DRIVE TRAIN						
TRANSFER CASE VIBRATION	34.020	0	4 g RMS	10	0	1.99886
3RD AXLE DIFFERENTIAL VIB	4.794	0	4 g RMS	10	0	7.60844
4TH AXLE DIFFERENTIAL VIB	4.852	0	4 g RMS	10	0	-7.96133

VMS System

PENNSYLVANIA STATE UNIVERSITY ARL WATCH STATION FOR THE LAV - Rev 1.0.0

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VMS SYSTEM

SENSOR	VALUE	LOW	MIDDLE	HIGH	RATE OF CHANGE	
					ABS	RELATIVE

TEMPERATURE

NODE # 1 TEMPERATURE	155.449	60	88	116	F	144	172	200	0	4.43041
NODE # 2 TEMPERATURE	155.449	60	88	116	F	144	172	200	0	4.43041
NODE # 3 TEMPERATURE	145.436	60	88	116	F	144	172	200	0	1.65349

SENSOR HEALTH

ENGINE ACCEL	12.380	0	4.8	9.6	Volts	14.4	19.2	24	0	2.34842
TRANSFER CASE ACCEL	12.457	0	4.8	9.6	Volts	14.4	19.2	24	0	-1.48167
3RD AXLE DIFFERENTIAL ACCEL	11.837	0	4.8	9.6	Volts	14.4	19.2	24	0	-2.60381
4TH AXLE DIFFERENTIAL ACCEL	11.487	0	4.8	9.6	Volts	14.4	19.2	24	0	-1.65780

LAV Asset Health Monitoring: Summary

- Important first step for implementing an Asset Health Monitoring System is to identify the **dominant degraders** of the asset availability and reliability.
 - Alleviating the dominant failure modes provides the greatest benefit of the health monitoring system.
- Implement technology that provides the earliest indication of faults to prevent component damage and catastrophic failure.
 - Sensors that can detect multiple failure modes through specialized feature extraction techniques improves the manageability of the health monitoring system.
- Provide information to the operator, maintainer, battalion commander, logistic support, etc. that is most appropriate for each customer.

Acknowledgement

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